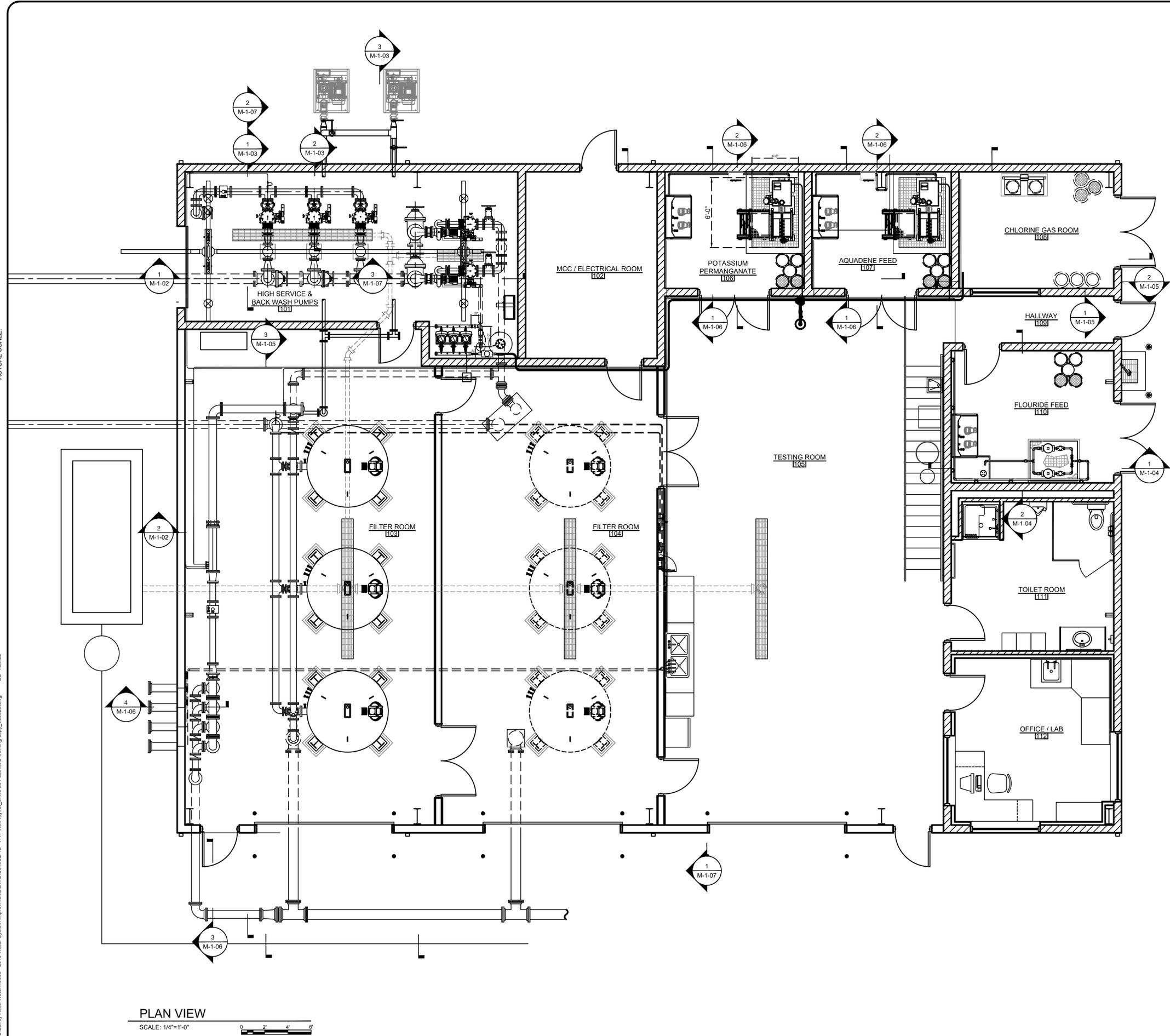


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PLAN VIEW
SCALE: 1/4"=1'-0"

NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT
IMPROVEMENTS
WTP BUILDING OVERALL LAYOUT

SANDY HOOK
WATER DISTRICT
Serving Our Community

BLUEGRASS
ENGINEERING, PLLC
222 East Main Street, Ste. 1 - Georgetown, KY 40324

PROJECT #: 19003
DATE: APRIL 2022
PROJECT MGR: LRS
DRAWN BY: BKL
CHECKED BY: BKL



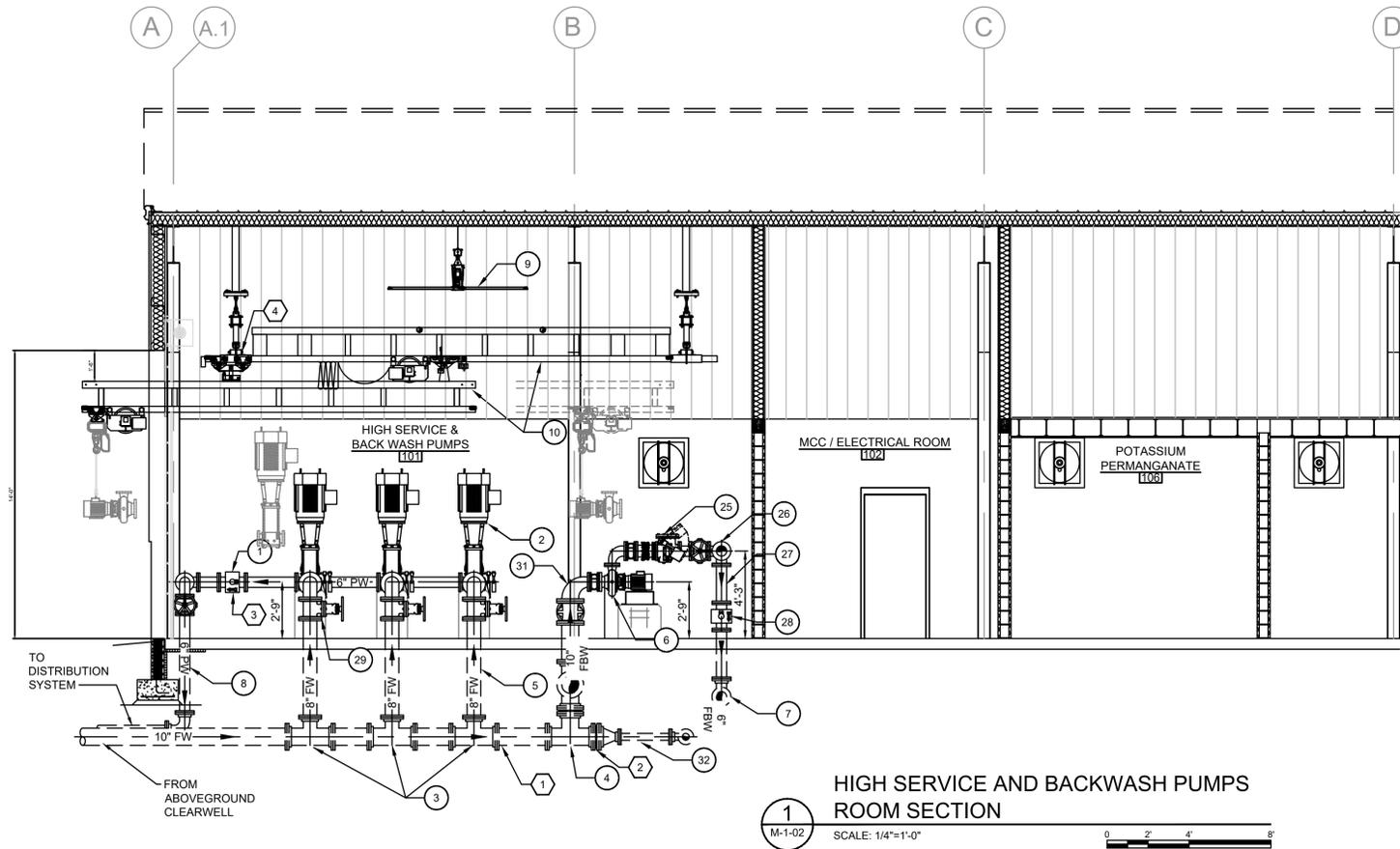
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1
HIGH SERVICE AND BACKWASH PUMPS ROOM SECTION

SCALE: 1/4"=1'-0"

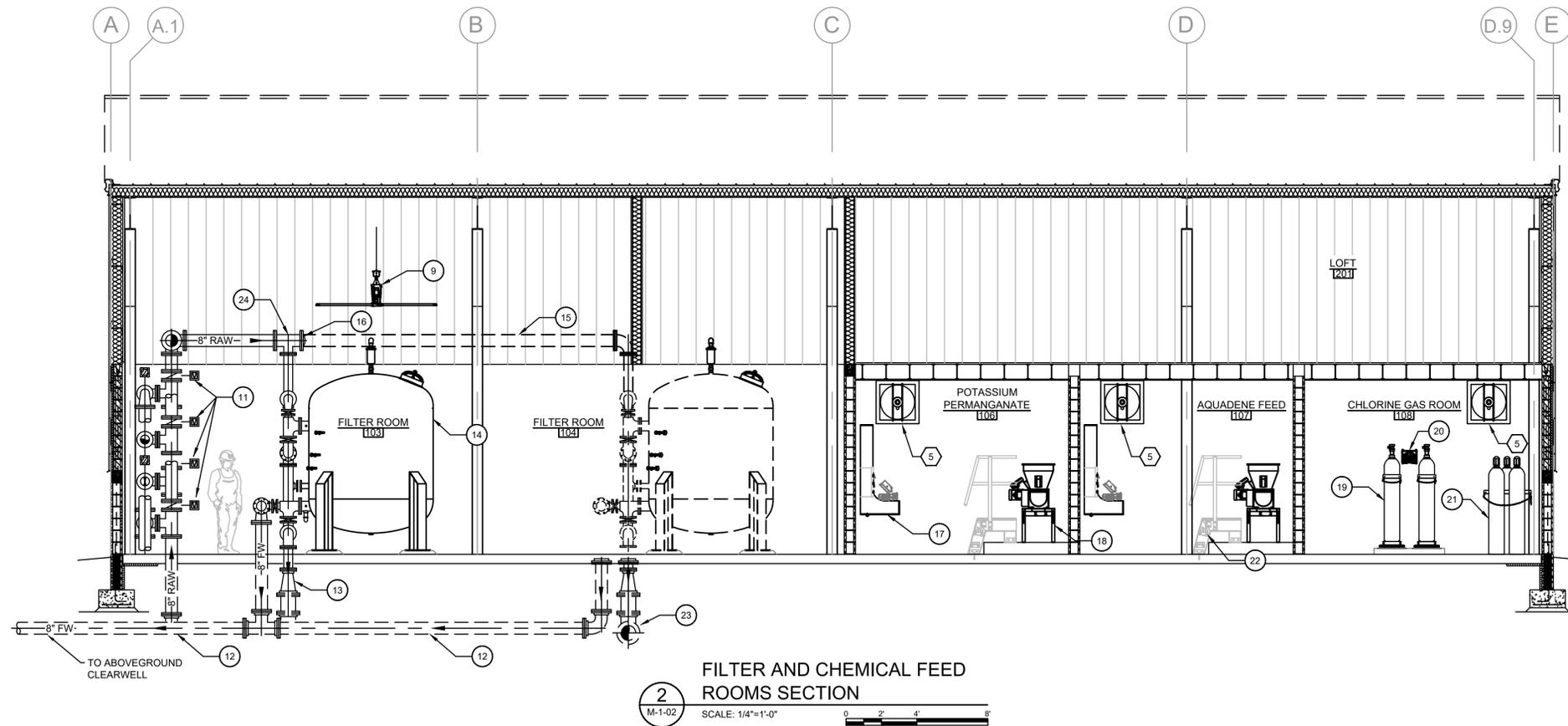


GENERAL NOTES:

1. FLOW METER SEE SPECIFICATIONS FOR DETAILS
2. HIGH SERVICE PUMPS - SEE SPECIFICATIONS FOR DETAILS
3. 10" X 8" D.I.M.J TEE
4. 10" STR. TEE W/ 10" X 4" REDUCER
5. 8" D.I.P. (TYP.)
6. BACKWASH PUMP - SEE SPECIFICATIONS FOR DETAILS
7. 6" D.I.M.J. 90° ELBOW
8. 6" D.I. POTABLE WATER
9. OVERHEAD CEILING FAN (TYP.) - SEE SPECIFICATIONS
10. OVERHEAD CRANE AND HOIST SYSTEM - SEE SPECIFICATIONS
11. MOTOR OPERATED CHECK VALVE
12. 8" D.I. FINISHED WATER LINE
13. 10" X 6" D.I.M.J. REDUCER
14. PRESSURE FILTER VESSEL
15. 8" FUTURE RAW WATER LINE
16. 8" BLIND FLANGE
17. POTASSIUM PERMANGANATE FEED PUMP - SEE SPECIFICATIONS FOR DETAILS
18. POTASSIUM PERMANGANATE DRY FEEDER - SEE SPECIFICATIONS FOR DETAILS
19. CHLORINE GAS TANKS
20. DIGITAL SCALE READER
21. EMPTY CHLORINE GAS TANKS
22. ALUMINUM PLATFORM - SEE SPECIFICATIONS
23. 10" D.I.M.J. 90° ELBOW FOR FUTURE
24. 8" D.I. STR. TEE
25. 6" AIR CUSHIONED CHECK VALVE
26. 6" FLANGED TEE
27. 6" FLANGED SPOOL PIECE (VARYING LENGTHS)
28. 6" FLOW METER
29. 8" GATE VALVE W/ HANDWHEEL
30. D.I.M.J. 10" 90° ELBOW
31. 10" x 6" FLANGED REDUCING ELBOW
32. 4" D.I.P. (TYP.)

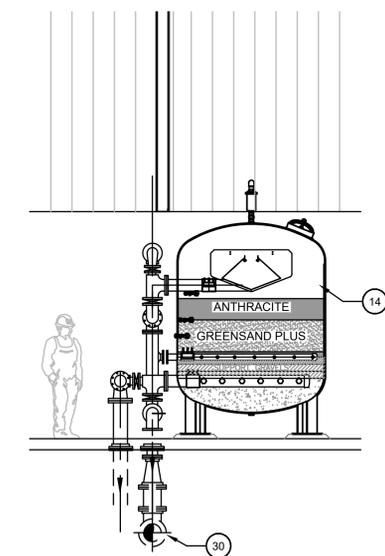
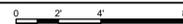
KEYNOTES:

1. ALL D.I. UNDERGROUND PIPING/FITTINGS SHALL BE MECHANICAL JOINT W/ RESTRAINTS.
2. ALL MECHANICAL JOINT FITTING TO FITTING CONNECTIONS SHALL HAVE FOSTER ADAPTORS
3. CONTRACTOR SHALL
4. CONTRACTOR SHALL VERIFY FINAL LOCATION FOR CONDUIT PIPING TO ENSURE THERE ARE NO CONFLICTS
5. SEE HVAC FOR LOCATION



2
FILTER AND CHEMICAL FEED ROOMS SECTION

SCALE: 1/4"=1'-0"



PRESSURE FILTER VESSEL - FILTER MEDIA DETAIL

NOT TO SCALE

NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
WTP BUILDING SECTIONS - HIGH SERVICE, FILTER, AND CHEM FEED ROOM

SANDY HOOK WATER DISTRICT
SERVING OUR COMMUNITY

BLUEGRASS ENGINEERING, PLLC
222 East Main Street, Ste. 1 - Georgetown, KY 40324

PROJECT #: 19003
DATE: APRIL 2022
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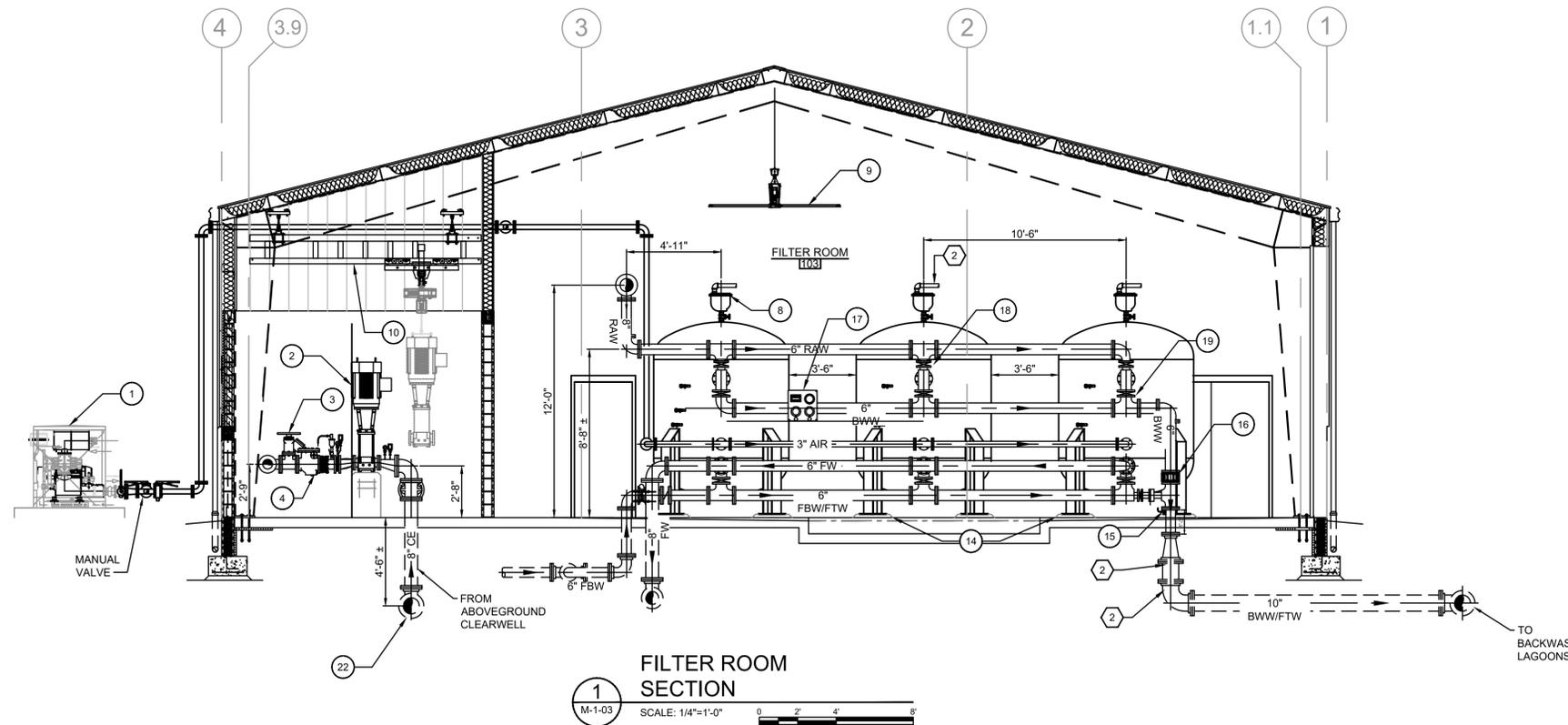
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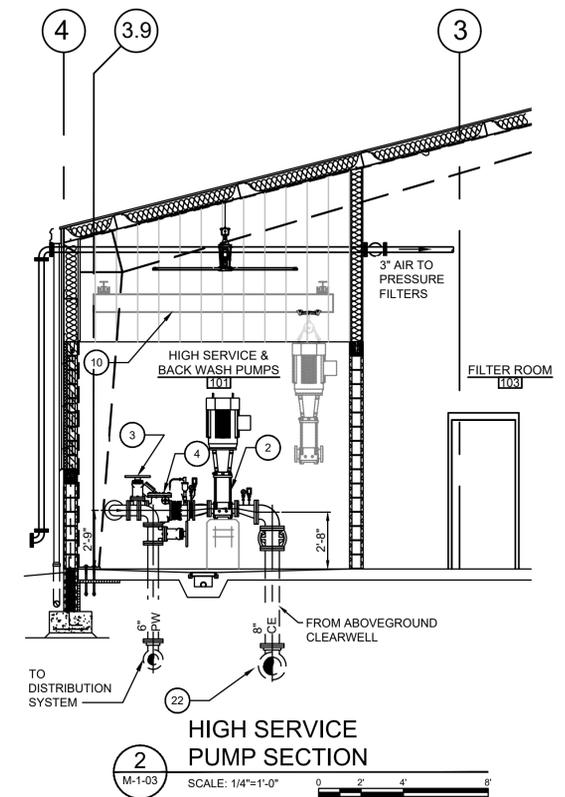
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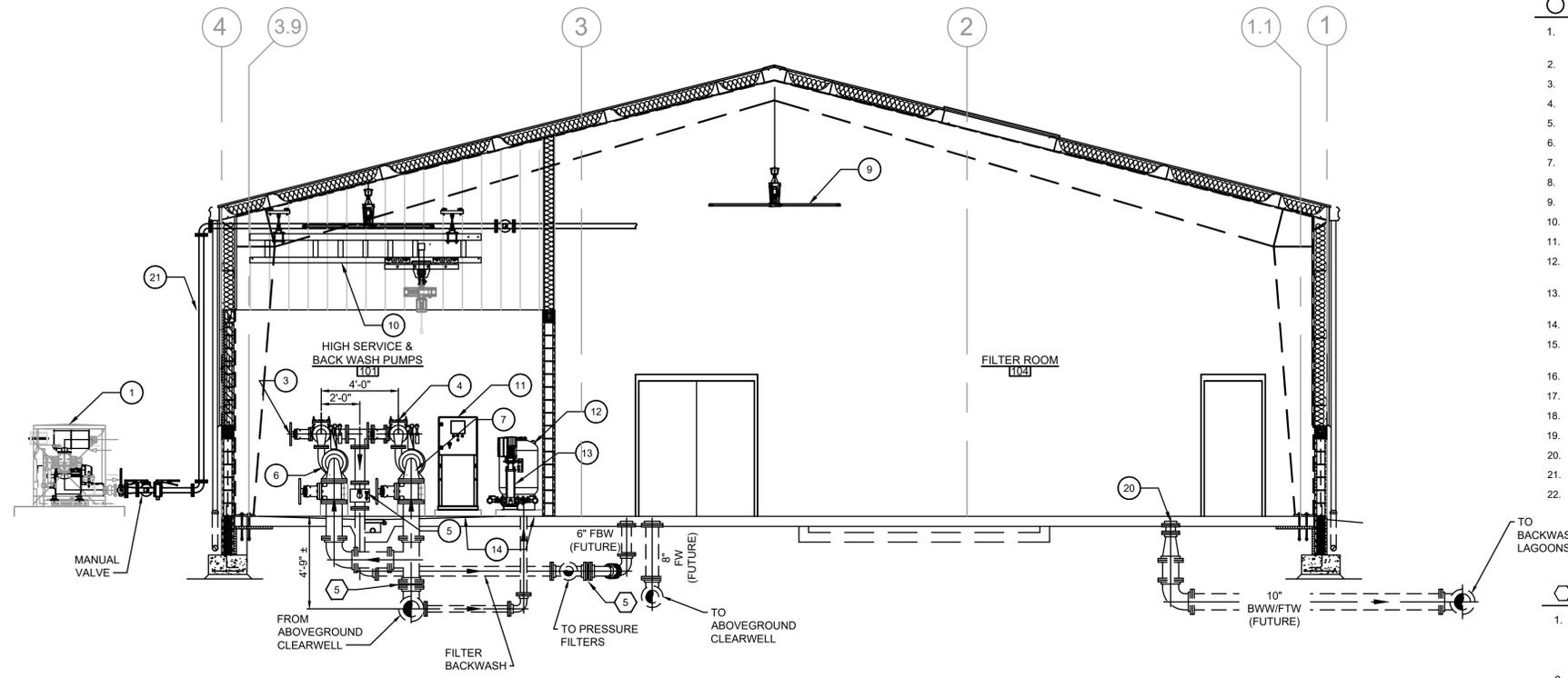
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1
M-1-03
FILTER ROOM SECTION
SCALE: 1/4"=1'-0"
0 2 4 8



2
M-1-03
HIGH SERVICE PUMP SECTION
SCALE: 1/4"=1'-0"
0 2 4 8



3
M-1-03
BACK WASH PUMP SECTION
SCALE: 1/4"=1'-0"
0 2 4 8

- GENERAL NOTES:**
- AIRWASH BLOWER WITH SOUND ENCLOSURE, VALVES, ACTUATORS AND ACCESSORIES (TYP. OF 2). PROVIDE 6 INCH THICK CONCRETE EQUIPMENT PAD PER DETAIL/SPECIFICATIONS.
 - HIGH SERVICE PUMPS (TYP. OF 3) - SEE SPECIFICATIONS FOR DETAILS
 - 6-INCH GATE VALVE WITH HANDWHEEL OPERATOR (TYP.)
 - 6-INCH AIR CUSHIONED CHECK VALVE WITH OUTSIDE WEIGHT AND LEVER (TYP. OF 5)
 - 4-INCH ELECTROMAGNETIC FLOW METER WITH REMOTE READOUT (FOR BACKWASH FLOW)
 - BACKWASH PUMPS (TYP. OF 2) - SEE SPECIFICATIONS FOR DETAILS
 - 10" X 6" REDUCING ELBOW
 - 2" COMBINATION AIR RELEASE VALVE W/ 2" GATE ISOLATION VALVE
 - OVERHEAD CEILING FAN (TYP.) - SEE SPECIFICATIONS
 - OVERHEAD CRANE AND HOIST SYSTEM - SEE SPECIFICATIONS
 - CONTROL PANEL FOR HYDROPNEUMATIC BOOSTER PUMP PACKAGE - SEE SPECIFICATIONS
 - 53 GALLON HYDROPNEUMATIC BLADDER TANK - MODEL FXA-200 BY WESSELS COMPANY OR ENGINEER APPROVED EQUAL - SEE SPECIFICATIONS FOR DETAILS
 - TRIPLEX HYDROPNEUMATIC BOOSTER PUMP PACKAGE WITH VARIABLE FREQUENCY DRIVES - SEE SPECIFICATIONS FOR DETAILS
 - CONCRETE LEVELING PAD
 - ELECTRIC SOLENOID VALVE WITH SAMPLE TUBING TO SAMPLE SINK - ENERGIZED VIA SCADA CONTROL (TYP. - FOR EACH WELL LINE)
 - TUBULAR SIGHT GLASS CLASS ACI INDUSTRIEARMATUREN 150 TYPE 620A OR APPROVED EQUAL
 - 3-GAUGE LOSS OF HEAD PANEL
 - 4" ELECTRIC OPERATED BUTTERFLY VALVE - SEE SPECIFICATIONS
 - 6" ELECTRIC OPERATED BUTTERFLY VALVE - SEE SPECIFICATIONS
 - D.I.M.J. CAP
 - 3" AIR FROM BLOWERS
 - 10" X 8" D.I.M.J. TEE
- KEYNOTES:**
- CHEMICAL FEED LINE (TYP.) SHALL BE 1/8-INCH I.D., 1/4-INCH O.D., HEAVY WALL PVDF KYNAR FLEX 2750 TUBING (OR ENGINEER APPROVED EQUAL) INSTALLED IN 1-INCH SCH 40 PVC PIPE. CONTRACTOR TO INSTALL FEED LINE FROM METERING PUMPS TO INJECTION POINT WITH NO JOINTS IN TUBING. CONTRACTOR TO INSTALL DRIP-LEG WITH TEST VALVE AT ALL TUBING JOINTS, IF TUBING JOINTS ARE INSTALLED.
 - ROUTE 1-1/2 INCH VENT PIPING THROUGH EXTERIOR WALL. SEAL ALL GAPS AND OPENINGS WITH CHEMICAL RESISTANT SEALANT. PROVIDE BIRD/INSECT SCREEN AND RAIN CAP.
 - WELL SAMPLE LINES (TYP.) SHALL BE 3/8-INCH I.D., 1/2-INCH O.D., HEAVY WALL PVDF KYNAR FLEX 2750 TUBING (OR ENGINEER APPROVED EQUAL) INSTALLED IN 3-INCH SCH 40 PVC PIPE WITH SWEEPING BENDS UNDERNEATH THE CONCRETE SLAB. CONTRACTOR TO INSTALL ALL SAMPLE LINES IN SINGLE CONDUIT FROM INFLUENT PIPE TO SAMPLE SINK IN ROOM 105 WITH NO JOINTS IN TUBING.
 - PROVIDE AND INSTALL A RED HAT SERIES 8210, 2-WAY, 120-VOLT, 3/4-INCH SOLENOID VALVE, NORMALLY CLOSED AND ENERGIZED TO OPEN FOR EACH OF THE SAMPLE LINES. CONTROL WIRE SHALL BE FROM THE SOLENOID VALVE TO THE ASSOCIATED WELL VALVE AND CONNECTED FOR VALVE OPERATION.
 - ALL MECHANICAL JOINT FITTING TO FITTING CONNECTIONS SHALL HAVE FOSTER ADAPTORS

NO.	DATE	BY	REVISIONS

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
WTP BUILDING SECTIONS - FILTER, BACKWASH, HIGH SERVICE PUMP ROOM

SANDY HOOK WATER DISTRICT
BLUEGRASS ENGINEERING, PLLC
222 East Main Street, Ste. 1 - Georgetown, KY 40324
Serving Our Community

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DATE: APRIL 2022
PROJECT MGR: LRS
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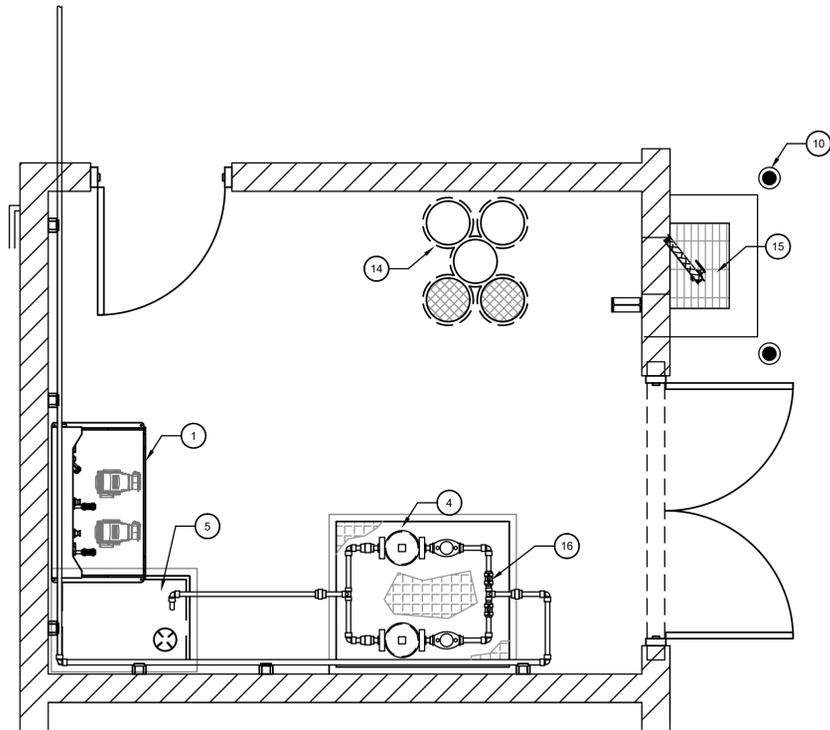
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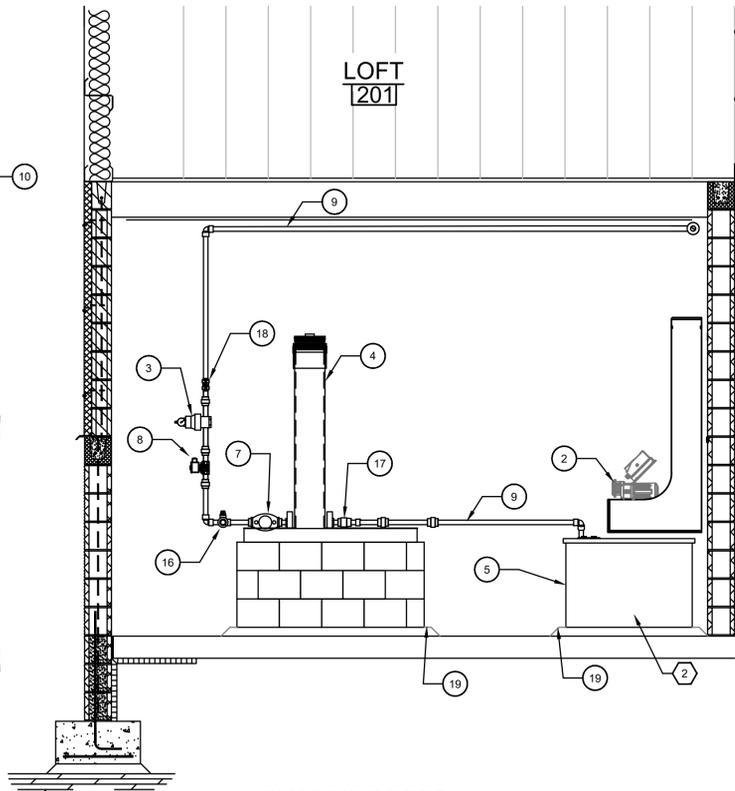
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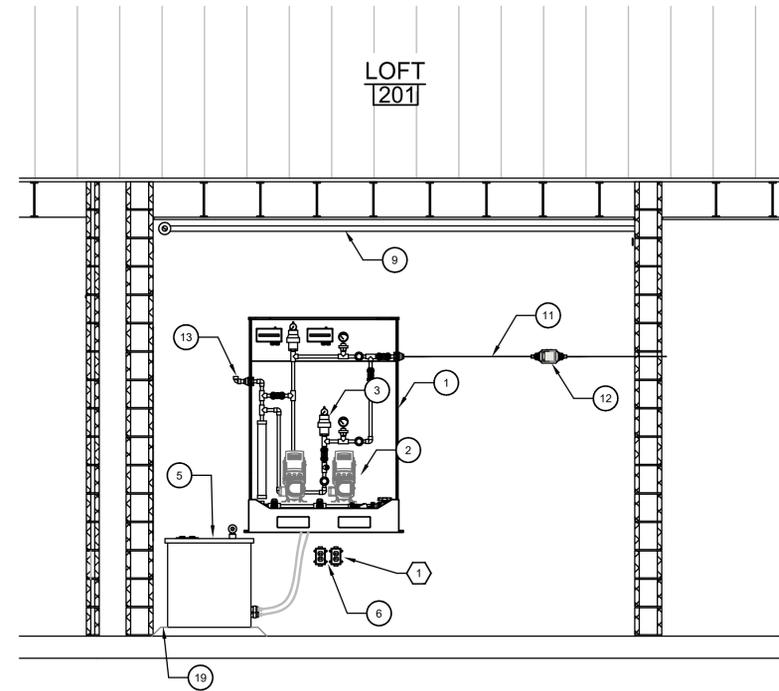
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0 FLUORIDE FEED ROOM 110 - PLAN
M-1-04 SCALE: 1/2"=1'-0"



1 FLUORIDE FEED ROOM 110 - SECTION
M-1-04 SCALE: 1/2"=1'-0"



2 FLUORIDE FEED ROOM 110 - SECTION
M-1-04 SCALE: 1/2"=1'-0"

DESCRIPTION	UNITS	SODIUM FLUOROSILICATE (Na2SiF6)		POTASSIUM PERMANGANATE (KMnO4)	CORROSION INHIBITOR (AQUADENE)	CHLORINE GAS (Cl2)
		TABLETS	DRY POWDER	DRY POWDER	DRY POWDER	GASOUS
ESTIMATED DOSING RATE	mg/l	0.8 TO 1.0	0.2 TO 2	0.2 TO 4	4 TO 10	
CHEMICAL FEED CONCENTRATION	%	0.055	1.35	25	100	
NUMBER OF FEED PUMPS	~	2	2	2	~	
CALIBRATION COLUMN	~	Y	Y	Y	~	
BACKFLOW PREVENTER	~	Y	Y	Y	~	
MAX. DISCHARGE OR BACKPRESSURE	psi	35	35	175	75	
PRESSURE RELIEF VALVE	~	Y	Y	Y	~	
FLOW METER / FLOW INDICATOR	~	Y	Y	Y	Y	
MINIMUM FEED RATE	GAL/HOUR	10.0	0.050	0.050	~	
	GAL/DAY	240	1.20	1.20	~	
	LBS./DAY	2002	10.08	10.06	7.00	
MAXIMUM FEED RATE	GAL/HOUR	36.0	0.50	0.30	~	
	LBS./DAY	864	12.00	7.20	~	
DAY TANK - DIAMETER OR L x W	INCHES	24x36	~	~	~	
-- HEIGHT	INCHES	24	~	~	~	
-- CAPACITY	GALLONS	90	~	~	~	
DAY TANK MATERIAL (INNER/OUTER TANK)	~	LLDPE	~	~	~	
DAY TANK SCALES	MODEL	~	~	~	GR150-2	
BULK CHEMICAL CONTAINER		45# PAIL	55# PAIL	55# PAIL	GAS CYLINDER	
-- MATERIAL		TABLETS	GRANULAR	GRANULAR	GAS	
-- CAPACITY		100 TABLETS	53 POUNDS	53 POUNDS	150# CYLINDER	
BULK TANK SCALES	MODEL	~	~	~	GR150-2	
SCALES INDICATOR	MODEL	~	~	~	SOLO G2-2	
DRY FEED SOLUTION TANK	GALLONS	~	35	35	~	

NOTE: ALL CHEMICAL FEED PIPING SHALL BE A MINIMUM 1/2 INCH OR 3/4 INCH PIPING. PIPE SIZE AND MATERIAL SHALL BE VERIFIED BY CHEMICAL FEED SYSTEM AND METERING PUMP MANUFACTURER FOR THE CHEMICAL BEING DELIVERED AND THE POINT OF APPLICATION. CONTRACTOR TO VERIFY AND CONFIRM FINAL PIPING LAYOUT, ARRANGEMENT AND DIMENSIONS VIA SHOP DRAWING SUBMITTAL.

CHEMICAL FEED SCHEDULE

GENERAL NOTES:

- DUPLEX METERING PUMP SKID
- CHEMICAL FEED METERING PUMP (WATSON MARLO QDOS 60 OR APPROVED EQUAL)
- REGULATOR VALVE
- NEW WAVE FLUORIDATION SYSTEM (OR APPROVED EQUAL) (SEE SPECIFICATIONS)
- HDPE BUFFER TANK W/ FLOAT SWITCH
- ELECTRICAL OUTLETS (TYP.)
- 1" BADGER METER (OR APPROVED EQUAL)
- 1" SOLENOID VALVE
- 1" PVC PIPING
- BOLLARD (TYP.)
- 1/2" KYNAR FLEX TUBING
- CHEMICAL FEED FLOW METER
- 1" VENT LINE
- 45 POUND FLUORIDE TABLET PALES
- CATCH BASIN
- 1" GLOBE ISOLATION/FLOW CONTROL VALVE (TYP.)
- 1" CHECK VALVE (TYP.)
- 1" ISOLATION BALL VALVE
- CONCRETE LEVELING PAD

KEYNOTES:

- CHEMICAL FEED METERING PUMP ON-OFF CONTROL WILL BE ACTIVATED FROM THE FILTER CONTROL PANEL. METERING PUMP CIRCUIT SHALL BE ENERGIZED UPON FLOW INDICATION IN THE RAW WATER FLOW METER. METERING PUMP CIRCUIT SHALL BE DE-ENERGIZED UPON THE INDICATION OF ZERO FLOW IN THE RAW WATER FLOW METER. VARIABLE SPEED CONTROL OF THE METERING PUMP SHALL BE BASED ON A PROPORTIONAL FLOW INDICATION FROM THE SCADA HMI PC FOR THE RAW WATER FLOW.
- INFLUENT FLOW TO THE FEEDER TUBES SHALL BE CONTROLLED VIA THE 1-INCH SOLENOID VALVE AND LIQUID LEVEL IN THE BUFFER TANK. THE SOLENOID VALVE SHALL BE CONTROLLED VIA LEVEL FLOAT SWITCH AND SHALL BE ENERGIZED TO OPEN UPON A LIQUID LEVEL BELOW FOUR (4) INCHES AND DE-ENERGIZED TO CLOSE UPON A LIQUID LEVEL ABOVE TWENTY (20) INCHES.

REFERENCE NOTES:

- ALL PIPING SHALL BE SCH 80 PVC, UNLESS OTHERWISE NOTED. ALL PIPING SHALL BE LABELED AND FLOW DIRECTION INDICATED.
- ROUTE VENT PIPING THROUGH ROOF. SEAL ALL GAPS AND OPENINGS WITH CHEMICAL RESISTANT SEALANT. PROVIDE BIRD/INSECT SCREEN AND RAIN CAP.
- INSTALL TWO-SPEED EXHAUST FAN AND DUCT FOR FLUORIDE FEED ROOM.
- CONTRACTOR TO SEAL ALL OPENINGS, CRACKS, AND GAPS IN WALLS, FLOORS, AND AT WALL/CEILING INTERSECTION WITH CHEMICAL RESISTANT SEALANT.
- PROVIDE BUZZER AND INTERLOCK WITH DAY TANK SCALE CONTROL PANEL AND CHEMICAL TRANSFER PUMP. PUMP CONTROLS SHALL BE LOCATED IN FEED ROOM.
- A 4-INCH THICK CONCRETE PAD SHALL BE CONSTRUCTED PRIOR TO COATING THE FLOOR UNDER EACH CHEMICAL TANK. THE CONCRETE PAD SHALL BE APPROXIMATELY 4" LARGER THAN THE TANK SCALES. CONTRACTOR SHALL PROVIDE 6X6-W1.4XW1.4 WELDED WIRE FABRIC (WWF) IN THE CONCRETE PAD AND USE 4,000 PSI CONCRETE.
- THE BULK TANK SHALL BE FILLED FROM A "FILL STATION" NEAR ON THE SIDE OF THE BUILDING. A HORN AND RED LIGHT SHALL BE INTERLOCKED WITH THE BULK TANK SCALES TO INDICATE WHEN THE BULK TANK IS FULL.
- ELECTRONIC TANK SCALES AND INDICATOR SHALL BE AS MANUFACTURED BY FORCE FLOW, CONCORD, CA OR APPROVED EQUAL AND AS LISTED IN CHEMICAL FEED SCHEDULE.
- CONTRACTOR SHALL PROVIDE THE CHEMICAL TRANSFER PUMP AS MANUFACTURED BY MARCH PUMPS, GLENVIEW, IL. OR APPROVED EQUAL AND AS FOLLOWS:
MAGNETIC DRIVE PUMP - SERIES 5, MODEL TE-5.5C-MD, SINGLE PHASE, 2.562" IMP. W/ TEFLON O-RING OR EQUAL. CHEMICAL TRANSFER PUMP SHALL BE CAPABLE OF HANDLING EACH CHEMICAL BEING USED AT THE CONCENTRATION PURCHASED.
- DOUBLE-WALL TANKS SHALL BE AS MANUFACTURED BY SNYDER INDUSTRIES, LINCOLN, NE OR APPROVED EQUAL
- THE CHEMICAL TRANSFER PUMP CONTROLS SHALL BE USED TO PUMP THE CHEMICAL FROM THE BULK TANK TO THE DAY TANK AND LOCATED IN THE FEED ROOM. THE CHEMICAL TRANSFER PUMP SHALL BE OPERATED WITH A "DEADMAN SWITCH".
- ALL CHEMICAL FEED PIPING LOCATED OUTSIDE OF THE ASSOCIATED CHEMICAL ROOMS SHALL BE PLACE IN CONTAINMENT PIPING. THE FILL STATION AT THE EXTERIOR OF THE BUILDING SHALL HAVE A ISOLATION VALVE WITH LOCKABLE COVER. THE AREA SHALL BE PROTECTED WITH BOLLARDS OR EQUIVALENT AND A SPILL CONTAINMENT AREA DESIGNATED FOR LIQUID THAT MAY ESCAPE FROM THE PIPING OR FILL HOSE DURING FILLING.
- THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR VERIFYING AND CONFIRMING WITH ALL EQUIPMENT MANUFACTURERS AND MATERIAL SUPPLIERS FOR THIS PROJECT OF THE COMPATIBILITY BETWEEN THE EQUIPMENT AND MATERIALS BEING USED AND THE CHEMICALS BEING PUMP, STORED, AND/OR TRANSPORTED TO THE VARIOUS LOCATIONS.

NO.	DATE	BY	REVISIONS

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
WTP BUILDING SECTIONS -
FLUORIDE FEED ROOM

SANDY HOOK WATER DISTRICT
BLUEGRASS ENGINEERING, PLLC
222 East Main Street, Ste. 1 - Georgetown, KY 40324
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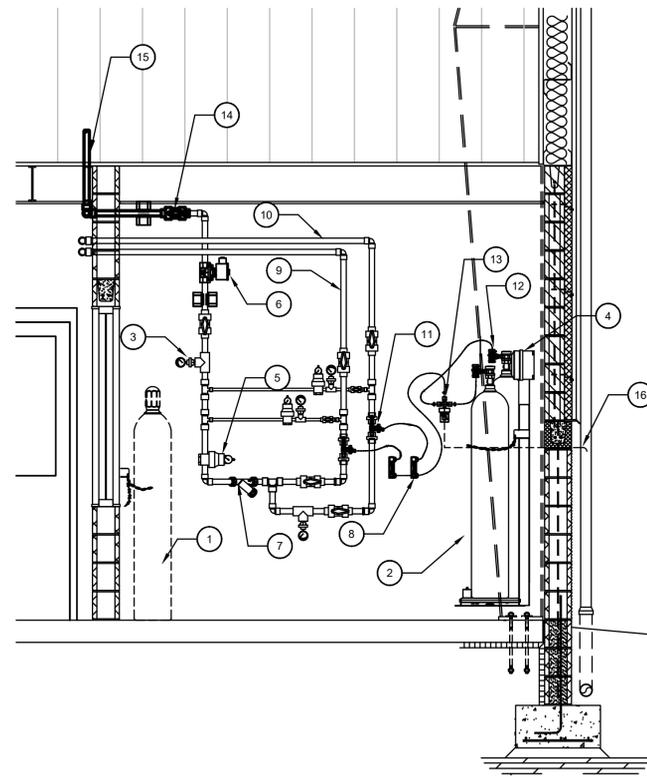
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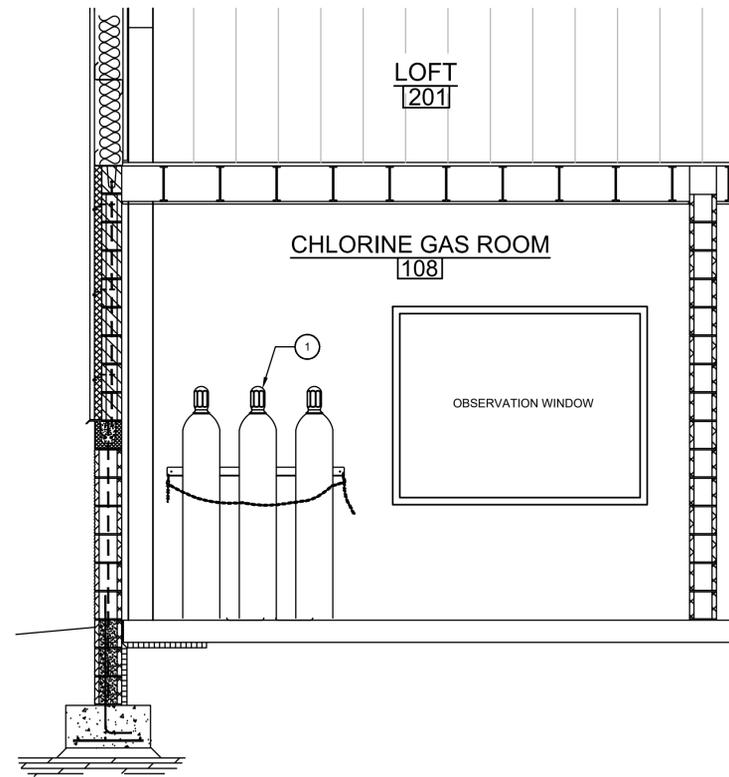
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1
CHLORINE GAS ROOM
ROOM 108 SECTION
M-1-05 SCALE: 1/2"=1'-0" 0 1' 2' 4'



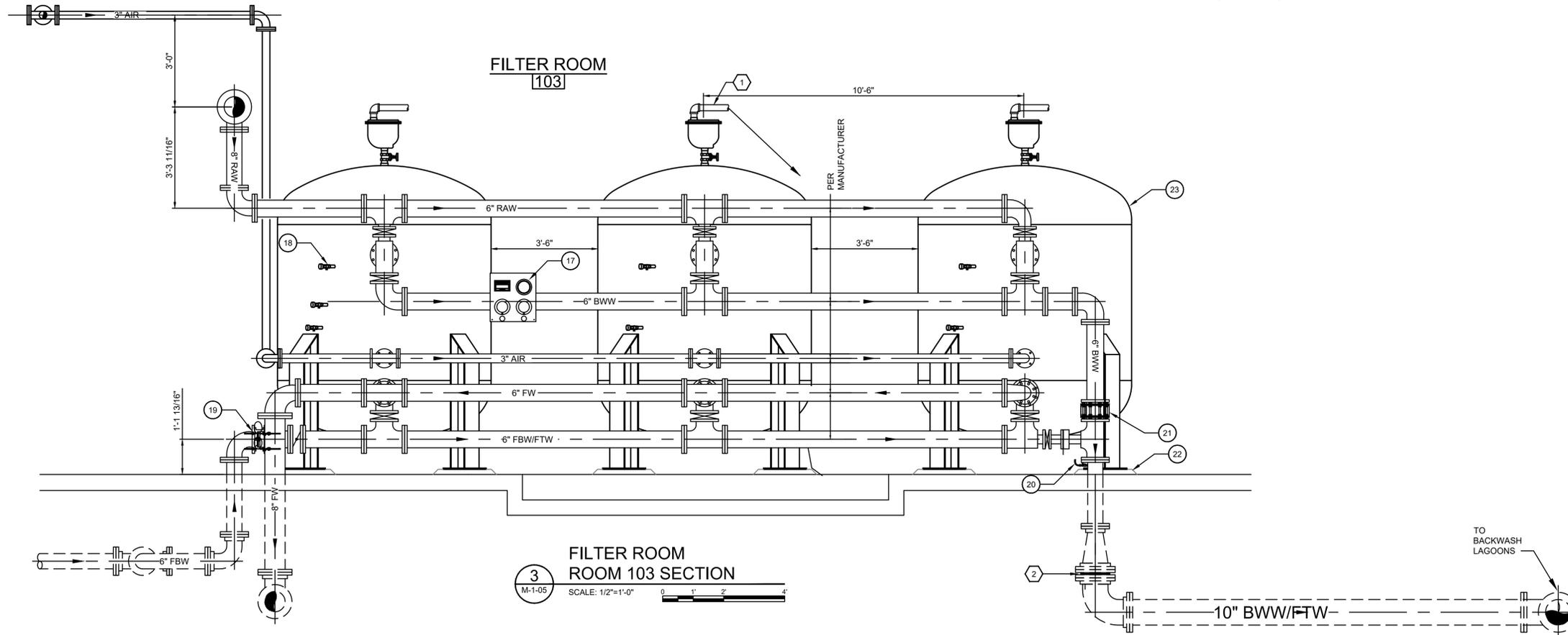
2
CHLORINE GAS ROOM
ROOM 108 SECTION
M-1-05 SCALE: 1/2"=1'-0" 0 1' 2' 4'

GENERAL NOTES:

1. EMPTY CHLORINE GAS TANK
2. CHLORINE GAS TANK
3. PRESSURE GAUGE (TYP.)
4. CHLORINE GAS TANK SCALE
5. REGULATOR VALVE
6. SOLENOID VALVE
7. STRAINER
8. ROTO METER (TYP.)
9. POST CHLORINATION FEED
10. PRE CHLORINATION FEED
11. CHLORINE EJECTOR
12. REGAL CHLORINE GAS REGULATOR (OR APPROVED EQUAL)
13. AUTOMATIC SWITCHOVER VALVE
14. BALL VALVE (TYP.)
15. 1.5" PROCESS WATER LINE
16. VENT TUBE
17. 3 GAUGE LOSS OF HEAD PANEL
18. SAMPLE TAP - 3 PER FILTER VESSEL
19. CHLORINE INJECTOR QUILL
20. ELECTRIC SOLENOID VALVE WITH SAMPLE TUBING TO SAMPLE SINK - ENERGIZED VIA SCADA CONTROL (TYP. - FOR EACH WELL LINE)
21. TUBULAR SIGHT GLASS CLASS 150 TYPE 620A OR APPROVED EQUAL
22. PRESSURE FILTER LEVELING PAD (TYP.)
23. PRESSURE FILTER VESSEL - SEE SPECIFICATIONS

KEYNOTES:

1. 2" COMBINATION AIR RELEASE VALVE TO HAVE 2" PVDF KYNAR FLEX 2750 TUBING ROUTED TO FLOOR DRAIN
2. ALL MECHANICAL JOINT FITTING TO FITTING CONNECTIONS SHALL HAVE FOSTER ADAPTORS



3
FILTER ROOM
ROOM 103 SECTION
M-1-05 SCALE: 1/2"=1'-0" 0 1' 2' 4'

NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT
IMPROVEMENTS
WTP BUILDING SECTIONS - CHLORINE
GAS, FILTER ROOM

SANDY HOOK
WATER DISTRICT
SERVING OUR COMMUNITY

BLUEGRASS
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222 East Main Street, Ste. 1 - Georgetown, KY 40324

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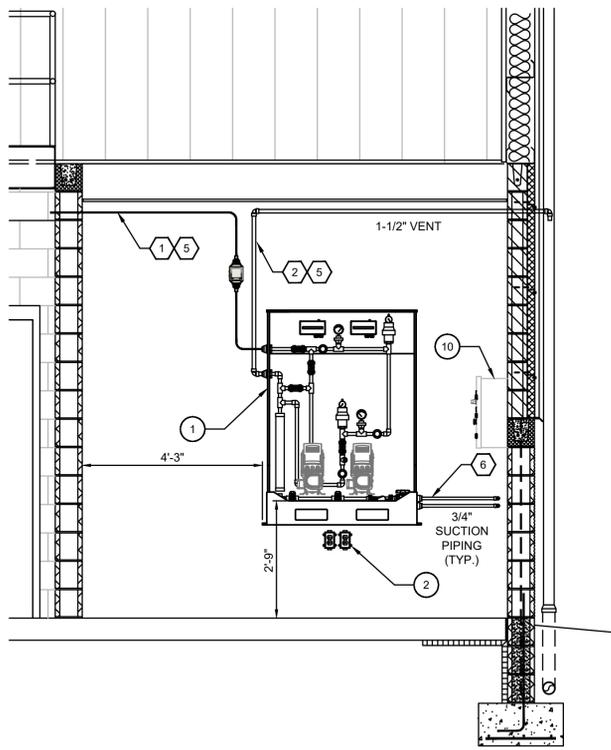


M-1-05

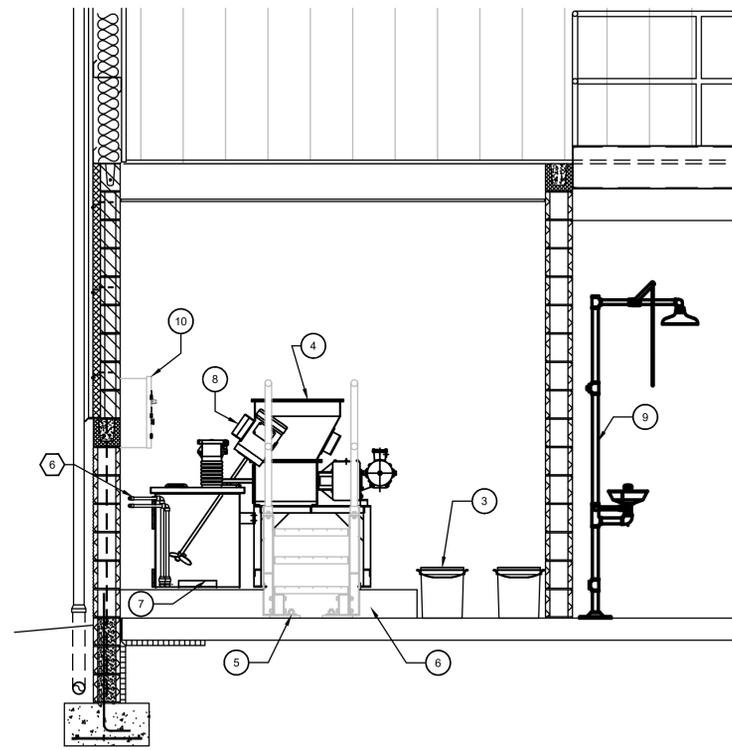
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1
M-1-06 SCALE: 1/2"=1'-0"
POTASSIUM PERMANGANATE & AQUADENE FEED ROOMS
ROOM 106 & 107 - SECTION



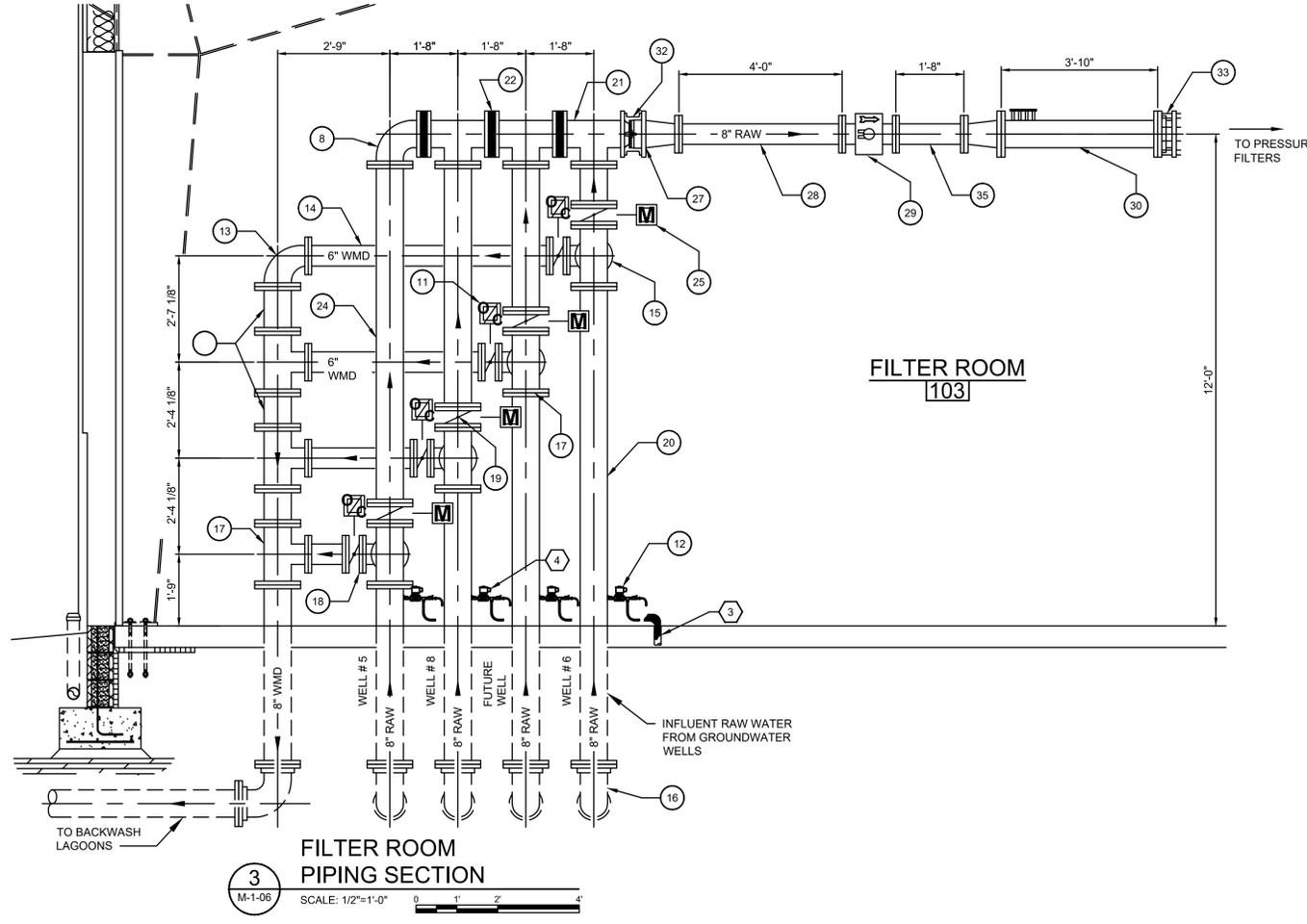
2
M-1-06 SCALE: 1/2"=1'-0"
POTASSIUM PERMANGANATE & AQUADENE FEED ROOMS
ROOM 106 & 107 - SECTION

GENERAL NOTES:

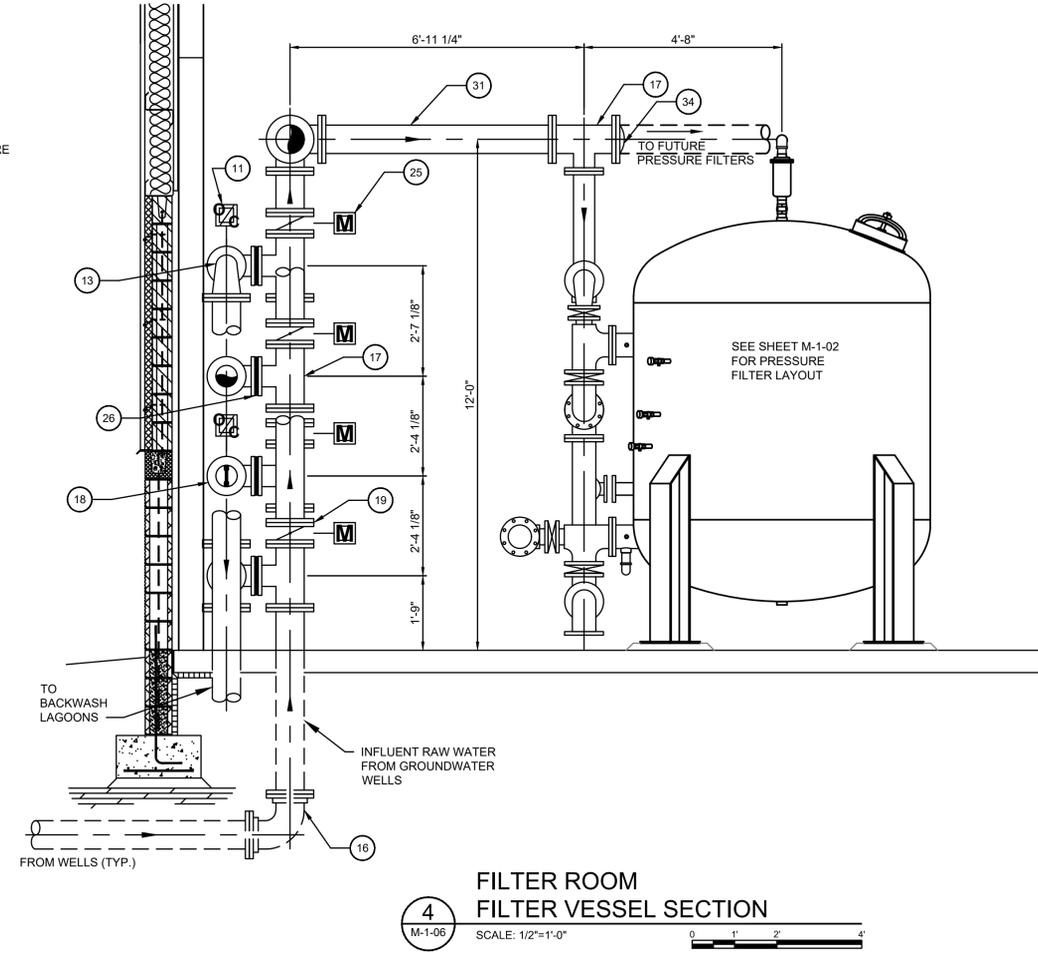
- DUPLEX METERING PUMP SKID WITH ISOLATION VALVES, GAGES, PRESSURE RELIEF, CALIBRATION COLUMN, AND ACCESSORIES PER SPECIFICATIONS - MODEL QDOS 60LH BY WASTON MARLOW OR ENGINEER APPROVED EQUAL
- DUPLEX ELECTRICAL OUTLET FOR EACH METERING PUMP. ENERGIZED VIA SCADA CONTROLS (TYP.)
- 25 KG PAIL WITH HANDLE FOR DRY CHEMICAL (TYP.)
- VOLUMETRIC DRY CHEMICAL FEEDER WITH HOPPER, METERING AUGER, CONDITIONING CHAMBER, 50 GALLON SOLUTION TANK, AND CONTROLS
- ALUMINUM ACCESS STAIRS AND HANDRAIL WITH FRP GRATING TO FEEDER HOPPER
- 8-INCH HIGH X 6-INCH WIDTH CONCRETE CONTAINMENT AREA (4' X 6' I.D.) WITH FRP GRATING. PROVIDE CONCRETE PADS AS NEEDED FOR EQUIPMENT SUPPORT.
- 50-GALLON SOLUTION TANK
- SOLUTION TANK MIXER AND MOTOR
- EMERGENCY EYE WASH/SHOWER STATION - MODEL GUARDIAN G1950 OR ENGINEER APPROVED EQUAL
- VOLUMETRIC DRY CHEMICAL FEEDER CONTROL PANEL
- ELECTRIC BUTTERFLY VALVE ACTUATOR - OPEN/CLOSE TYPE
- ELECTRIC SOLENOID VALVE WITH SAMPLE TUBING TO SAMPLE SINK - ENERGIZED VIA SCADA CONTROL (TYP. - FOR EACH WELL LINE)
- 6X8 REDUCING FLG. ELBOW
- 6-INCH FLG. SPOOL PIECE - VARYING LENGTH (TYP.)
- 6-INCH FLG. ELBOW (TYP.)
- 8-INCH RESTRAINT MJ ELBOW
- 8X6 FLG TEE
- 6-INCH LUG WAFER BUTTERFLY VALVE (TYP.)
- 8-INCH LUG WAFER BUTTERFLY VALVE (TYP.)
- 8-INCH FLG. X PE SPOOL PIECE - VARYING LENGTH (TYP.)
- 8-INCH FLG. TEE (TYP.)
- 8-INCH FLG. FILLER - VARYING THICKNESS (TYP.)
- 6-INCH FLG. SPOOL PIECE (TYP.)
- 8-INCH FLG. SPOOL PIECE (TYP.)
- ELECTRIC BUTTERFLY VALVE ACTUATOR - MODULATION TYPE
- 6-INCH FLG. FILLER - VARYING THICKNESS (TYP.)
- 6X8 FLG. CONCENTRIC REDUCER (TYP.)
- 6-INCH FLG. SPOOL - 48 INCH LENGTH
- 6-INCH ELECTROMAGNETIC FLOW METER W/ REMOTE READOUT
- 8-INCH STATIC MIXER WITH FOUR (4) INJECTOR PORTS
- 8-INCH SPOOL PIECE - VARYING LENGTH
- 8-INCH DOUBLE DISC IN-LINE CHECK VALVE
- 8-INCH FLG. COUPLING ADAPTER
- 8-INCH BLIND FLG.
- 6-INCH FLG. SPOOL - 20 INCH LENGTH

KEYNOTES:

- CHEMICAL FEED LINE (TYP.) SHALL BE 1/8-INCH I.D., 1/4-INCH O.D., HEAVY WALL PVDF KYNAR FLEX 2750 TUBING (OR ENGINEER APPROVED EQUAL) INSTALLED IN 2-INCH SCH 40 PVC PIPE W/ SWEEPING BENDS. CONTRACTOR TO INSTALL FEED LINE FROM METERING PUMPS TO INJECTION POINT WITH NO JOINTS IN TUBING. CONTRACTOR TO INSTALL DRIP-LEG WITH TEST VALVE AT ALL TUBING JOINTS, IF TUBING JOINTS ARE INSTALLED.
- ROUTE 1-1/2 INCH VENT PIPING THROUGH EXTERIOR WALL. SEAL ALL GAPS AND OPENINGS WITH CHEMICAL RESISTANT SEALANT. PROVIDE BIRD/INSECT SCREEN AND RAIN CAP.
- WELL SAMPLE LINES (TYP.) SHALL BE 3/8-INCH I.D., 1/2-INCH O.D., HEAVY WALL PVDF KYNAR FLEX 2750 TUBING (OR ENGINEER APPROVED EQUAL) INSTALLED IN 3-INCH SCH 40 PVC PIPE WITH SWEEPING BENDS UNDERNEATH THE CONCRETE SLAB. CONTRACTOR TO INSTALL ALL SAMPLE LINES IN SINGLE CONDUIT FROM INFLUENT PIPE TO SAMPLE SINK IN ROOM 105 WITH NO JOINTS IN TUBING.
- PROVIDE AND INSTALL A RED HAT SERIES 8210, 2-WAY, 120-VOLT, 3/4-INCH SOLENOID VALVE, NORMALLY CLOSED AND ENERGIZED TO OPEN FOR EACH OF THE SAMPLE LINES. CONTROL WIRE SHALL BE FROM THE SOLENOID VALVE TO THE ASSOCIATED WELL VALVE AND CONNECTED FOR VALVE OPERATION.
- ALL PIPING SHALL BE SCH. 80 PVC, UNLESS OTHERWISE NOTED. ALL PIPING SHALL BE LABELED AND FLOW DIRECTION INDICATED.
- PROVIDE 3/4 INCH SUCTION PIPING TO SOLUTION TANK. SUCTION PIPING SHALL BE LOCATED NEAR BOTTOM OF SOLUTION TANK AND SHALL HAVE A FOOT VALVE INSTALLED ON EACH LINE.



3
M-1-06 SCALE: 1/2"=1'-0"
FILTER ROOM
PIPING SECTION



4
M-1-06 SCALE: 1/2"=1'-0"
FILTER ROOM
FILTER VESSEL SECTION

NO.	DATE	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT
IMPROVEMENTS
WTP BUILDING SECTIONS - CHEMICAL
FEED, FILTER ROOM

SANDY HOOK
WATER DISTRICT
SERVING OUR COMMUNITY

BLUEGRASS
ENGINEERING
PLLC
222 East Main Street, Ste. 1 - Georgetown, KY 40324

PROJECT #: 19003
DATE: APRIL 2022
PROJECT MGR: LRS
DRAWN BY: BKL
CHECKED BY: BKL



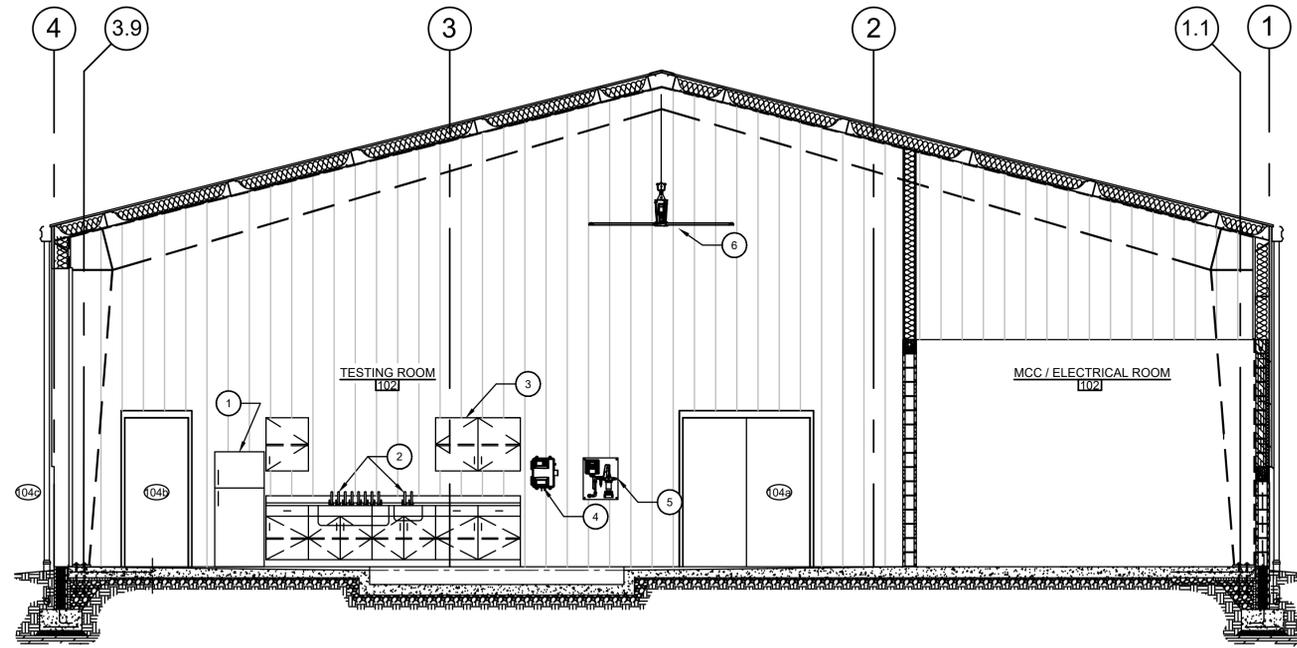
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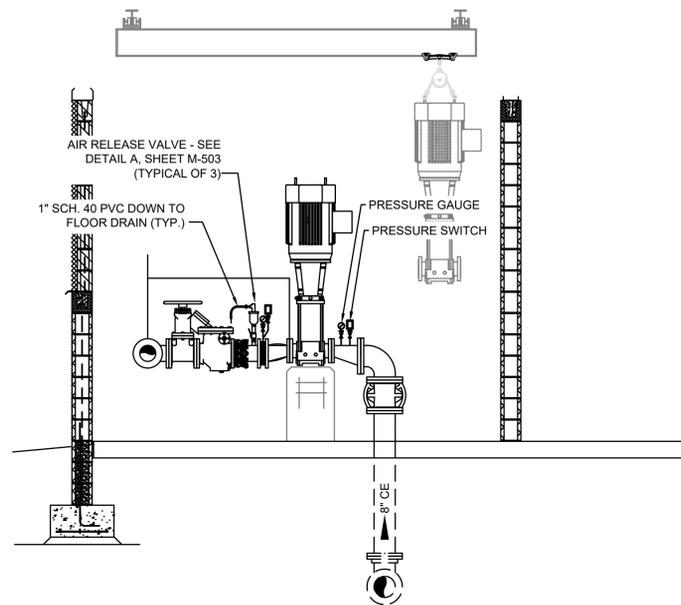
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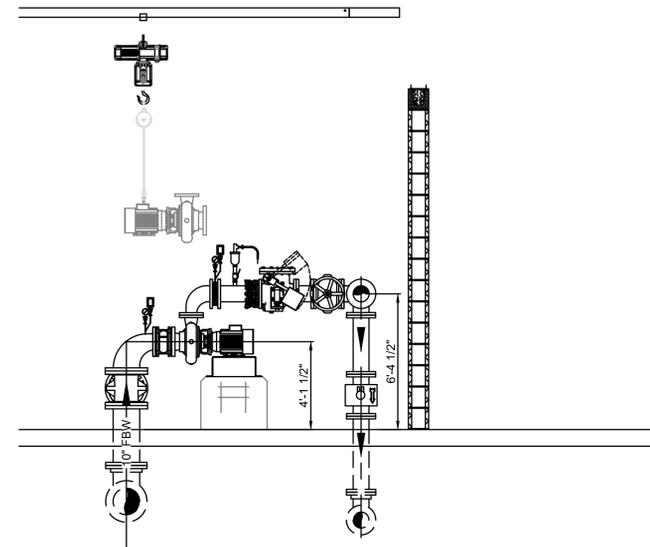
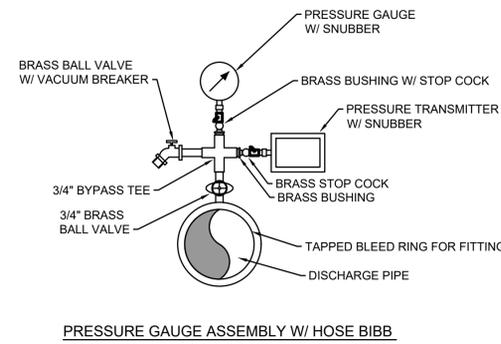


- GENERAL NOTES:
1. STAINLESS STEEL REFRIGERATOR - SEE SPECIFICATIONS
 2. SAMPLING SINKS
 3. STAINLESS STEEL CABINET - SEE SPECIFICATIONS
 4. CHLORINE ANALYZER
 5. FLUORIDE ANALYZER
 6. OVERHEAD CEILING FAN (TYP.) - SEE SPECIFICATIONS

1
M-1-07 SCALE: 1/4"=1'-0"
0 2' 4' 8'



2
M-1-07 SCALE: 1/4"=1'-0"
0 2' 4' 8'



3
M-1-07 SCALE: 1/4"=1'-0"
0 2' 4' 8'

NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
WTP BUILDING SECTIONS - TESTING, HIGH SERVICE, BACKWASH ROOM

SANDY HOOK
WATER DISTRICT
SERVING OUR COMMUNITY

BLUEGRASS
ENGINEERING, PLLC
222 East Main Street, Ste. 1 - Georgetown, KY 40324

PROJECT #:	19003
DATE:	APRIL 2022
PROJECT MGR:	LRS
DRAWN BY:	BKL
CHECKED BY:	BKL



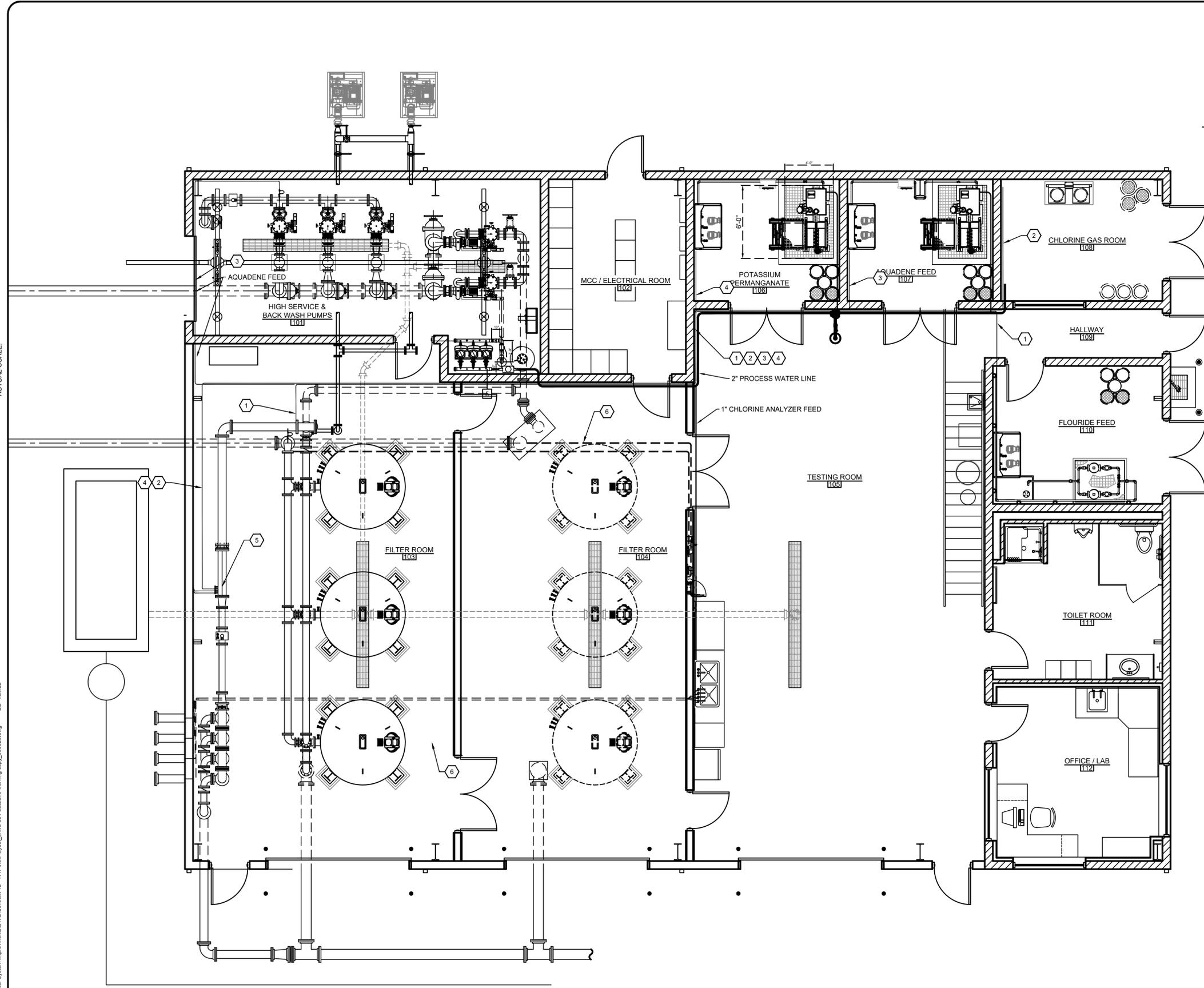
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CHEMICAL FEED PLAN
SCALE: 1/4"=1'-0"

- KEYNOTES:**
1. 1/4" O.D. 1/8" I.D. HEAVY WALL PVDF KYNAR FLEX 2750 TUBING FLUORIDE FEED LINE (OR ENGINEER APPROVED EQUAL) IN 1" SCH. 40 PVC PIPE. CONTRACTOR TO INSTALL FLUORIDE FEED LINE FROM METERING PUMP TO INJECTION POINT WITH NO JOINTS IN TUBING. CONTRACTOR TO INSTALL DRIP-LEG WITH TEST VALVE AT ALL TUBING JOINTS, IF JOINTS ARE INSTALLED.
 2. 1-1/2" I.D. HEAVY WALL PVDF KYNAR FLEX 2750 TUBING CHLORINE GAS FEED LINE (OR ENGINEER APPROVED EQUAL) IN 1" SCH. 40 PVC PIPE. CONTRACTOR TO INSTALL FLUORIDE FEED LINE FROM METERING PUMP TO INJECTION POINT WITH NO JOINTS IN TUBING. CONTRACTOR TO INSTALL DRIP-LEG WITH TEST VALVE AT ALL TUBING JOINTS, IF JOINTS ARE INSTALLED.
 3. 1/4" O.D. 1/8" I.D. HEAVY WALL PVDF KYNAR FLEX 2750 TUBING AQUADENE FEED LINE (OR ENGINEER APPROVED EQUAL) IN 1" SCH. 40 PVC PIPE. CONTRACTOR TO INSTALL FLUORIDE FEED LINE FROM METERING PUMP TO INJECTION POINT WITH NO JOINTS IN TUBING. CONTRACTOR TO INSTALL DRIP-LEG WITH TEST VALVE AT ALL TUBING JOINTS, IF JOINTS ARE INSTALLED.
 4. 1/4" O.D. 1/8" I.D. HEAVY WALL PVDF KYNAR FLEX 2750 TUBING POTASSIUM PERMANGANATE FEED LINE (OR ENGINEER APPROVED EQUAL) IN 1" SCH. 40 PVC PIPE. CONTRACTOR TO INSTALL FLUORIDE FEED LINE FROM METERING PUMP TO INJECTION POINT WITH NO JOINTS IN TUBING. CONTRACTOR TO INSTALL DRIP-LEG WITH TEST VALVE AT ALL TUBING JOINTS, IF JOINTS ARE INSTALLED.
 5. STATIC MIXER SHALL HAVE 3 SAF-T-FLO (OR ENGINEER APPROVED EQUAL) INJECTION QUILL PORTS, 1 FOR CHLORINE GAS FEED, 1 FOR POTASSIUM PERMANGANATE FEED, AND 1 SPARE.
 6. WELL SAMPLE LINES (TYP.) SHALL BE 3/8-INCH I.D., 1/2-INCH O.D., HEAVY WALL PVDF KYNAR FLEX 2750 TUBING (OR ENGINEER APPROVED EQUAL) INSTALLED IN 3-INCH SCH. 40 PVC PIPE WITH SWEEPING BENDS UNDERNEATH CONCRETE SLAB. CONTRACTOR TO INSTALL ALL SAMPLE LINES IN SINGLE CONDUIT FROM INFLUENT PIPE TO SAMPLE SINK IN ROOM 105 WITH NO JOINTS IN TUBING.

NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
WTP BUILDING LAYOUT - CHEMICAL FEED PIPING

SANDY HOOK WATER DISTRICT
Serving Our Community

BLUEGRASS ENGINEERING, PLLC
222 East Main Street, Ste. 1 - Georgetown, KY 40324

PROJECT #: 19003
DATE: APRIL 2022
PROJECT MGR: LRS
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CHECKED BY: BKL



M-1-08

BID SET

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LEGEND

VALVES

OPEN **CLOSED**

BUTTERFLY

BALL

DIAPHRAGM

GATE

NEEDLE

PLUG

GLOBE

CHECK

V-BALL

BALL-3-WAY

DRAIN

SAMPLE

SOLENOID

SOLENOID-3-WAY

FLOAT

FOOT

PRESSURE REGULATING (PRV): SELF REGULATING

PRESSURE REGULATING (PRV): EXTERNAL REGULATING

BACK PRESSURE (BPV): SELF REGULATING

BACK PRESSURE (BPV): EXTERNAL REGULATING

ACTUATORS

MOTORIZED

MODULATING

PISTON: DOUBLE-ACTING

SPRING OPEN

SPRING CLOSE

DIAPHRAGM

MANUAL

CHAINWHEEL

RELIEF

PRESSURE SAFETY

RUPTURE DISK: PRESSURE

RUPTURE DISK: VACUUM

PULSATION DAMPENER

VACUUM BREAKER

FITTINGS

THREADED

THREADED: PLUGGED

FLANGE

BLIND FLANGE

SOCKET

SOCKET: PLUGGED

SANITARY

SANITARY: PLUGGED

CAMLOCK

CAMLOCK: PLUG/CAP

UNION

COMPRESSION

GROOVED: BLOCKER

GROOVED: COUPLING

GROOVED: CAP

INJECTION QUILL

HOSE BARB

HOSE

REDUCER

TANK ACCESSORIES

MANWAY

HANDHOLE

SITEGLASS

VENT

TANK LEVEL GAUGE

FLOW

PADDLEWHEEL

MAGNETIC

ULTRASONIC

VORTEX

ROTAMETER: WITH VALVE

ROTAMETER: WITHOUT VALVE

ORIFICE PLATE

HOUSINGS

ULTRAFILTER/MICROFILTER

RO HOUSING: TOP/BOTTOM ENTRY

RO HOUSING: SIDE ENTRY

RO HOUSING: END ENTRY

TANKS/VESSELS

PRESSURE VESSEL

CONE-BOTTOM

CLOSED TOP-FLAT

OPEN TOP-FLAT

DOMED

FRP

DRUM

PUMPS/BLOWERS

CENTRIFUGAL: HORIZONTAL

CENTRIFUGAL: VERTICAL

CENTRIFUGAL: SUMP

CENTRIFUGAL: SUBMERGED

VERTICAL CANNED

CHEMICAL METERING

AOD

PERISTALTIC

ROTARY LOBE

SCREW

PROGRESSIVE CAVITY

HEAT EXCHANGERS

SHELL & TUBE

SHELL & TUBE

PLATE & FRAME

MISCELLANEOUS

EXPANSION JOINT

STATIC MIXER

FLEX HOSE

EDUCTOR

IN-LINE HEATER

IMMERSION HEATER

WYE STRAINER

CONE STRAINER

FILTER HOUSING #1

FILTER HOUSING #2

ULTRASONIC LEVEL

CALIBRATION COLUMN

GAUGE GUARD

MIXER

CORROSION COUPON HOLDER

MATERIAL TRANSITION

XXX|YYY

LINE TYPES

MAIN PROCESS

MINOR PROCESS

FUTURE

PNEUMATIC

SOFTWARE/DATA

ELECTRICAL

CAPILLARY

HEAT TRACED: STEAM

HEAT TRACED: ELECTRIC

INSULATED

OTHERS

DESIGN CONDITIONS

XXXX = PAGE TO/FROM

Y = CONNECTION TO/FROM

ZZZZ = DESCRIPTION

NOTES

CONTINUATION

REVISION CLOUD

REVISION NOTES

DRAIN

EQUIPMENT ABBREVIATIONS

AB = ABSORBER

AC = AIR COMPRESSOR

ACF = ACTIVATED CARBON FILTER

AER = AERATOR

ARV = AIR RELEASE VALVE

B = BLOWER

BF = BAG FILTER

BPV = BACK PRESSURE VALVE

C = CENTRIFUGE

CC = CALIBRATION COLUMN

CD = CONDENSER

CE = CONTROL ENCLOSURE

CH = CHILLER

CHL = CHLORINATOR

CIP = CLEAN-IN-PLACE

CL = CLARIFIER

CON = CONVEYOR

CR = CRYSTALLIZER

CD = CHEMICAL SYSTEM

CT = COOLING TOWER

CV = CHECK VALVE

DAF = DISSOLVED AIR FLOTATION

DR = AIR DRYER

E = EDUCTOR

ED = ELECTRODIALYSIS

EDI = ELECTRODIIONIZATION

EOR = ELECTRODIALYSIS REVERSAL

EJ = EXPANSION JOINT

EV = EVAPORATOR

F = FILTER

FAN = FAN

F.C. = FAIL CLOSE

FDA = FORCED DRAFT AERATOR

F.O. = FAIL OPEN

FO = ORIFICE PLATE

F.L. = FAIL LAST

FP = FILTER PRESS

GF = GRAVITY FILTER

GG = GAUGE GUARD

HF = HEPA FILTER

HMI = HUMAN-MACHINE INTERFACE

H-O-A = HAND-OFF-AUTO SUPPLY

HTR = HEATER

HX = HEAT EXCHANGER

IAS = INSTRUMENT AIR SUPPLY

IQ = INJECTION QUILL

IX = ION EXCHANGE

LS = LINE SOFTENER

M = MOTOR

MBR = MEMBRANE BIO REACTOR

MCC = MOTOR CONTROL CENTER

MDF = MEMBRANE DECLASSIFIER

MF = MICROFILTRATION

ML = MUFFLER/SILENCER

MMF = MULTIMEDIA FILTER

MX = MIXER

NC = NORMALLY CLOSED

NF = NANOFILTRATION

NO = NORMALLY OPEN

OC = OXYGEN CONCENTRATOR

OZ = OZONATOR

P = PUMP

PD = PULSATION DAMPENER

PSV = PROGRAMMABLE LOGIC CONTROLLER

PRV = PRESSURE REG. VALVE

RPT = RUPTURE DISC

RT = RESIN TRAP

SC = SCRUBBER

SCR = SCRAPER

SKM = SKIMMER

SM = STATIC MIXER

SP = SET POINT

ST = STEAM TRAP

STK = MEMBRANE STACK

STR = STRAINER

SV = SAMPLE VALVE

TK = TANK

TB = TURBINE

UF = ULTRAFILTRATION

UPS = UNINTERRUPTIBLE POWER SUPPLY

UV = ULTRAVIOLET

VUB = VACUUM BREAKER

VD = VACUUM DEGASIFIER

LINE DESIGNATION

11 - X" - YYYY - SS PP WW - A" I

INSULATION/HEAT TRACE

I = INSULATED

E = HEAT TRACE: ELECTRICAL

S = HEAT TRACE: STEAM

N = NONE

X = NOT SPECIFIED

INSULATION THICKNESS (IF APP.)

WELDING/FINISH

A1 = ASME B31.1

A3 = ASME B31.3

A9 = ASME B31.9

S2B = 2B MILL FINISH

S3 = NO. 3 FINISH

S4 = NO. 4 FINISH

BB = BEAD BLAST

EP = ELECTO-POLISH

N = NONE

X = NOT SPECIFIED

PIPE MATERIAL

A1 = ALLOY 20

A2 = ALLOY 625

A3 = ALLOY 2205

A4 = ALX 9% MOLY

A5 = AL-6XN

A6 = HASTELLOY C

C1 = CAST IRON

CP = CARBON STEEL - PVDF LINED

CS = CARBON STEEL - PP LINED

CU = CARBON STEEL - TEFLON LINED

DI = DUCTILE IRON

F1 = FRP

G1 = GALVANIZED

S1 = 304/304L SS

S2 = 316/316L SS

S3 = 904L SS

P1 = PVC

P2 = CPVC

P3 = HDPE

P4 = POLYETHYLENE

P5 = POLYPROPYLENE

P6 = PVDF

P7 = TEFLON

P8 = ABS

X = NOT SPECIFIED

SCHEDULE

S5 = SCH 5

S10 = SCH 10

S20 = SCH 20

S30 = SCH 30

S40 = SCH 40

S80 = SCH 80

C1 = TYPE K COPPER

C2 = TYPE L COPPER

C3 = TYPE M COPPER

T1 = 22 GAUGE

T2 = 20 GAUGE

T3 = 18 GAUGE

T4 = 16 GAUGE

T5 = 14 GAUGE

T6 = 12 GAUGE

T7 = 0.035" TUBE

T8 = 0.049" TUBE

T9 = 0.065" TUBE

X = NOT SPECIFIED

UNIQUE LINE IDENTIFIER

LINE SIZE

UNIT NUMBER

SCOPE

OTHERS

USWEE

SCOPE BOUNDARY

INSTRUMENT SYMBOLS

FIELD/LOCAL MOUNT

PANEL MOUNT

PLC FUNCTION W/ DISPLAY

PLC FUNCTION BLIND

LOCAL INDICATOR LIGHT

PANEL MOUNTED INDICATOR LIGHT

PLC INPUT/OUTPUT

AI = ANALOG IN

AO = ANALOG OUT

DI = DIGITAL IN

DO = DIGITAL OUT

LS = LIMIT SWITCH

INSTRUMENT/VALVE FUNCTIONS

SUCCESSING LETTER	A	B	C	E	G	I	L	Q	R	S	T	Y	V, Z
MEASURED OR INITIATING VARIABLE	AA	AB	AC	AD	AE	AF	AG	AH	AI	AL	AM	AN	AO
ALARM - HIGH	EA	EB	EC	ED	EE	EF	EG	EH	EI	EL	EM	EN	EO
ALARM - HIGH-HIGH	FA	FB	FC	FD	FE	FF	FG	FH	FI	FL	FM	FN	FO
ALARM - LOW	GA	GB	GC	GD	GE	GF	GG	GH	GI	GL	GM	GN	GO
ALARM - LOW-LOW	HA	HB	HC	HD	HE	HF	HG	HH	HI	HL	HM	HN	HO
SENSOR FAULT	IA	IB	IC	ID	IE	IF	IG	IH	II	IL	IM	IN	IO
SENSOR (PRIM. ELEMENT)	JA	JB	JC	JD	JE	JF	JG	JH	JI	JL	JM	JN	JO
INDICATING	KA	KB	KC	KD	KE	KF	KG	KH	KI	KL	KM	KN	KO
PISTON LIGHT	LA	LB	LC	LD	LE	LF	LG	LH	LI	LL	LM	LN	LO
TOTALIZER	MA	MB	MC	MD	ME	MF	MG	MH	MI	ML	MM	MN	MO
RECORD	NA	NB	NC	ND	NE	NF	NG	NH	NI	NL	NM	NN	NO
SWITCH	OA	OB	OC	OD	OE	OF	OG	OH	OI	OL	OM	ON	OO
HIGH-HIGH SWITCH	PA	PB	PC	PD	PE	PF	PG	PH	PI	PL	PM	PN	PO
HIGH SWITCH	QA	QB	QC	QD	QE	QF	QG	QH	QI	QL	QM	QN	QO
LOW SWITCH	RA	RB	RC	RD	RE	RF	RG	RH	RI	RL	RM	RN	RO
LOW-LOW SWITCH	SA	SB	SC	SD	SE	SF	SG	SH	SI	SL	SM	SN	SO
BI-DIR. TRANSMITTER	TA	TB	TC	TD	TE	TF	TG	TH	TI	TL	TM	TN	TO
INDICATING TRANSMITTER	UA	UB	UC	UD	UE	UF	UG	UH	UI	UL	UM	UN	UO
INDICATING TRANSMITTER	VA	VB	VC	VD	VE	VF	VG	VH	VI	VL	VM	VN	VO
CONTROL VALVE	WA	WB	WC	WD	WE	WF	WG	WH	WI	WL	WM	WN	WO
VALVE	XA	XB	XC	XD	XE	XF	XG	XH	XI	XL	XM	XN	XO
FINAL CONTROL ELEMENT	YA	YB	YC	YD	YE	YF	YG	YH	YI	YL	YM	YN	YO

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REV	DESCRIPTION	DATE	DRAWN	CHK'D	APPR'D

C:\Users\mreed\Desktop\Tonka Water a Kurita Brand.PEG

DATE: 05/08/2020

SYSTEM NAME: **P&ID LEGEND**

CUSTOMER: SANDY HOOK, KY

PAGE: 1 OF 2

REV: 0

NAV NUMBER: 21742 1000D

NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS

ABBREVIATIONS, LEGEND, & SYMBOLS

SANDY HOOK

BLUEGRASS ENGINEERING, PLLC

WATER DISTRICT

222 East Main Street, Ste. 1 - Georgetown, KY 40324

Serving Our Community

PROJECT #: 19003

DATE: APRIL 2022

PROJECT MGR: LRS

DRAWN BY: BKL

CHECKED BY: BKL



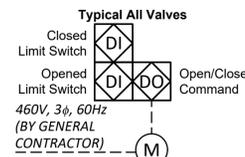
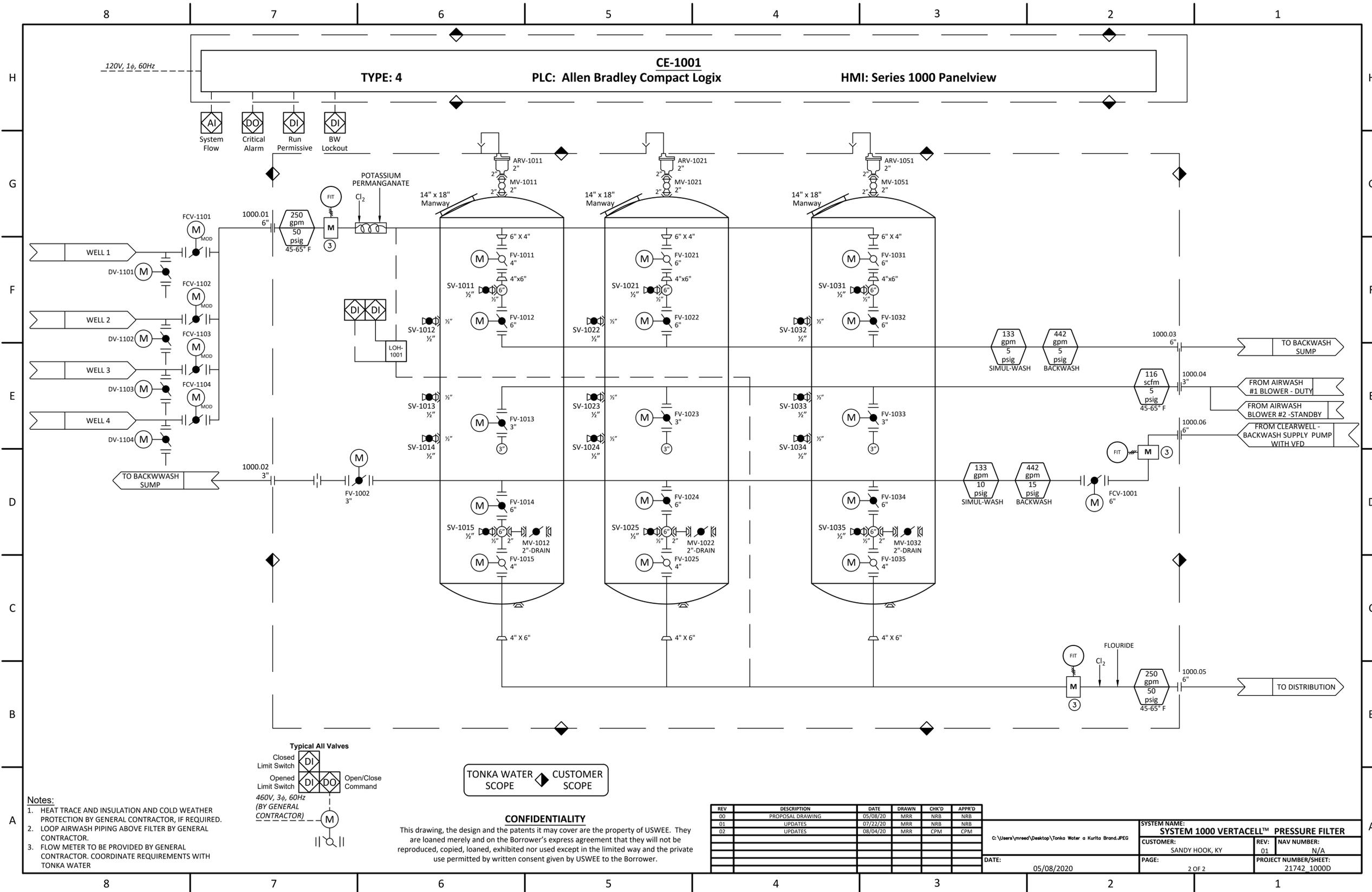
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TONKA WATER SCOPE CUSTOMER SCOPE

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Notes:

- HEAT TRACE AND INSULATION AND COLD WEATHER PROTECTION BY GENERAL CONTRACTOR, IF REQUIRED.
- LOOP AIRWASH PIPING ABOVE FILTER BY GENERAL CONTRACTOR.
- FLOW METER TO BE PROVIDED BY GENERAL CONTRACTOR. COORDINATE REQUIREMENTS WITH TONKA WATER

REV	DESCRIPTION	DATE	DRAWN	CHK'D	APPR'D
00	PROPOSAL DRAWING	05/08/20	MRR	NRB	NRB
01	UPDATES	07/22/20	MRR	NRB	NRB
02	UPDATES	08/04/20	MRR	CPM	CPM

SYSTEM NAME: SYSTEM 1000 VERTACELL™ PRESSURE FILTER	
CUSTOMER: SANDY HOOK, KY	REV: 01 NAV NUMBER: N/A
PAGE: 2 OF 2	PROJECT NUMBER/SHEET: 21742 1000D

DATE: 05/08/2020

NO.	DATE	BY	REVISIONS

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
PRESSURE FILTERS SCHEMATICS



PROJECT #:	19003
DATE:	APRIL 2022
PROJECT MGR:	LRS
DRAWN BY:	BKL
CHECKED BY:	BKL



I-1-02

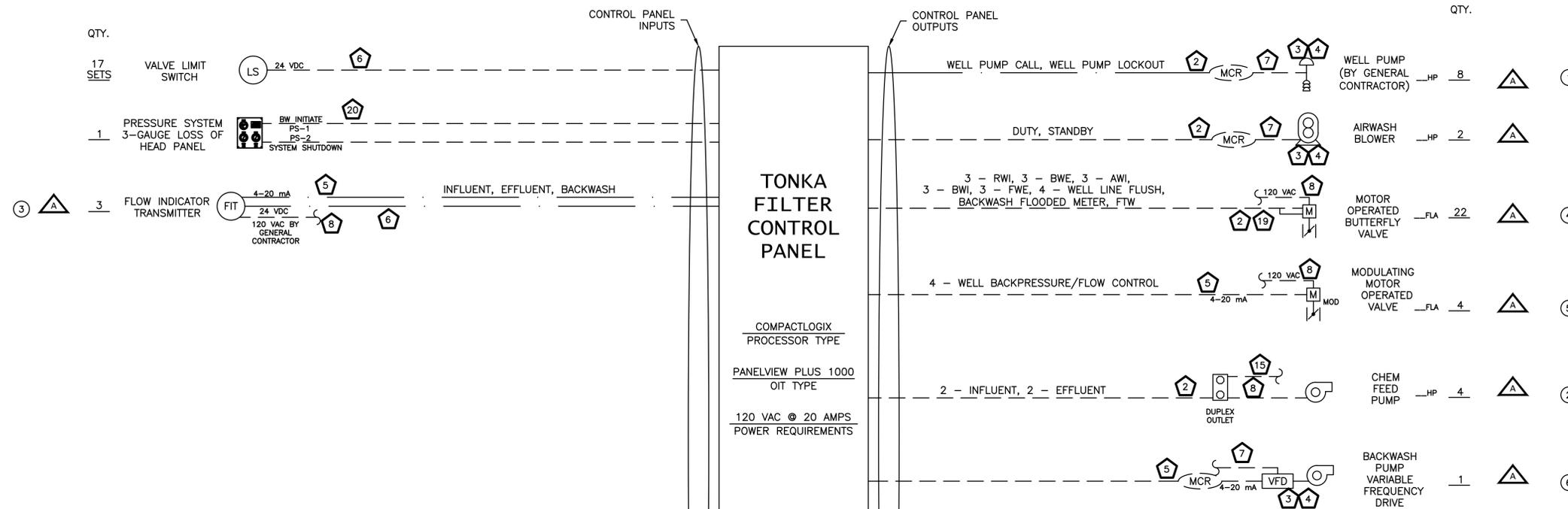
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**IMPORTANT NOTE TO ELECTRICAL CONTRACTOR:
NO PENETRATION IS ALLOWED THROUGH TOP OF ENCLOSURE!!! WARRANTY WILL BE VOID!!!**



ELECTRICAL FIELD WIRING DIAGRAM NOTES

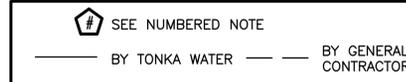
- * SOME NOTES MAY NOT APPLY
- 1) MOTOR STARTER AND CONTACTS ARE NOT BY TONKA WATER.
 - 2) DRY CONTACTS PROVIDED BY TONKA WATER RATED FOR 120 VAC @ 2 AMPS. RELAY LOCATED IN TEC CONTROL PANEL, 120 VAC BY GENERAL CONTRACTOR.
 - 3) MCR= MOTOR CONTROL RELAY, 120 VAC.
 - 4) MCR LOCATED IN MOTOR CONTROL CENTER (MCC).
 - 5) 4-20 mA SIGNALS REQUIRE SHIELDED TWISTED PAIR IN DEDICATED CONDUIT, GROUND SHIELD AT CONTROL PANEL END ONLY.
 - 6) 24 VDC SIGNALS REQUIRE 2 EACH CONTROL/SIGNAL WIRES PER DEVICE.
 - 7) 208/230/460 3 ph 60 hz, BY GENERAL CONTRACTOR.
 - 8) REQUIRES 120 VAC, BY GENERAL CONTRACTOR.
 - 9) REQUIRES 2 EACH 120 VAC CONTROL/SIGNAL WIRES PER DEVICE.
 - 10) REQUIRES 3 EACH 120 VAC CONTROL/SIGNAL WIRES PER DEVICE.
 - 11) REQUIRES 4 EACH 120/240 VAC CONTROL/SIGNAL WIRES PER DEVICE.
 - 12) REQUIRES 5 EACH 120/240 VAC CONTROL/SIGNAL WIRES PER DEVICE.
 - 13) REQUIRES 6 EACH 120/240 VAC CONTROL/SIGNAL WIRES PER DEVICE.
 - 14) REQUIRES 2 EACH 120 VAC CONTROL/SIGNAL WIRES, PLUS GROUND, PER DEVICE.
 - 15) REQUIRES 2 EACH 120 VAC CONTROL/SIGNAL WIRES, PLUS GROUND, PER DEVICE, PER DUPLEX OUTLET.
 - 16) REQUIRES 3 EACH 120 VAC CONTROL/SIGNAL WIRES, PLUS ONE HEATER WIRE, PLUS GROUND WIRE, PER DEVICE.
 - 17) REQUIRES 3 POWER WIRES, PLUS GROUND.
 - 18) REQUIRES ONE NEUTRAL WIRE PER SOLENOID BANK, PLUS ONE CONTROL/SIGNAL WIRE PER SOLENOID, PLUS ONE SPARE WIRE PER SOLENOID BANK, PLUS GROUND WIRE.
 - 19) REQUIRES ONE NEUTRAL WIRE, PLUS TWO CONTROL/SIGNAL WIRES, PLUS ONE HEATER WIRE, PLUS GROUND, PER VALVE ACTUATOR.
 - 20) 24 VDC SIGNALS REQUIRE 2 EACH CONTROL/SIGNAL WIRES PER DEVICE. MULTI-SWITCH DEVICES REQUIRE ONE WIRE FOR +24 VDC PLUS ONE WIRE PER SWITCH.
 - 21) 4-20mA SIGNALS AND 24 VDC PULSE SIGNALS REQUIRE SHIELDED 2 WIRE TWISTED PAIR GROUNDED AT CONTROL PANEL ONLY.
 - 22) 4-20mA SIGNALS REQUIRES SHIELDED TWISTED PAIR IN DEDICATED CONDUIT, GROUND SHIELD AT CONTROL PANEL END ONLY.
 - 23) FLOW METER PULSE OUTPUT REQUIRES SHIELDED 2-WIRE CABLE GROUNDED AT CONTROL PANEL END ONLY.
 - 24) REQUIRES 4 WIRE SHIELDED CABLE.
 - 25) REQUIRES 2 EACH 24 VDC WIRES PER DEVICE.
 - 26) ANTENNA CABLE TO BE ELPRO #CC10/900 WITH TYPE N CONNECTORS, OR EQUAL.

REFERENCE NOTES

1. WELL PUMP CONTROL AND MONITORING FROM MTU PANEL WITH LOCK-OUT FROM TONKA WATER PANEL VIA ETHERNET IP.
2. CHEMICAL FEED START-STOP-STATUS PROVIDED FROM MTU PANEL
3. FLOW INPUT SIGNAL FROM MTU PANEL WRITTEN TO TONKA WATER PANEL VIA ETHERNET IP
4. WELL LINE FLUSH VALVES CONTROL AND MONITORING FROM MTU PANEL
5. WELL BACK PRESSURE / FLOW CONTROL VALVES CONTROL AND MONITORING FROM MTU PANEL
6. BACKWASH PUMP CONTROL PROVIDED VIA MCC CABINETS

SIGNAL VIA ETHERNET IP FROM MTU PANEL

NOTE: 1) SOME ITEMS SHOWN MAY BE BY GENERAL CONTRACTOR - REFER TO TONKA WATER'S LETTER OF QUOTATION FOR ITEMS IN TONKA WATER'S SCOPE OF SUPPLY. SYSTEM SCHEMATIC SHOWN FOR REFERENCE PURPOSES ONLY.
2) ALL NATIONAL, (NEC) STATE, AND LOCAL CODES SHALL APPLY.
3) SUPPLY AND INSTALLATION OF WIRE AND CONDUIT BY GENERAL CONTRACTOR.



REV.	DESCRIPTION	BY	DATE	CPM
A	UPDATES PER ENGINEER COMMENTS.	MRR	08/04/2020	CPM

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START DATE: 07/22/2020		DATE SCALE: NONE		REV: A	
PROJECT MGR: NRB		DATE: 07/22/2020		DRAWING NUMBER: 00096691	
PROJECT MGR: NRB		DATE: 07/22/2020		PROJECT NUMBER: 21742	
ELECTRICAL FIELD WIRING DIAGRAM PROPOSAL DRAWING SANDY HOOK, KY					

NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
ELECTRICAL FIELD WIRING DIAGRAM



PROJECT #:	19003
DATE:	APRIL 2022
PROJECT MGR:	LRS
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CHECKED BY:	BKL



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 BE 4/26/22

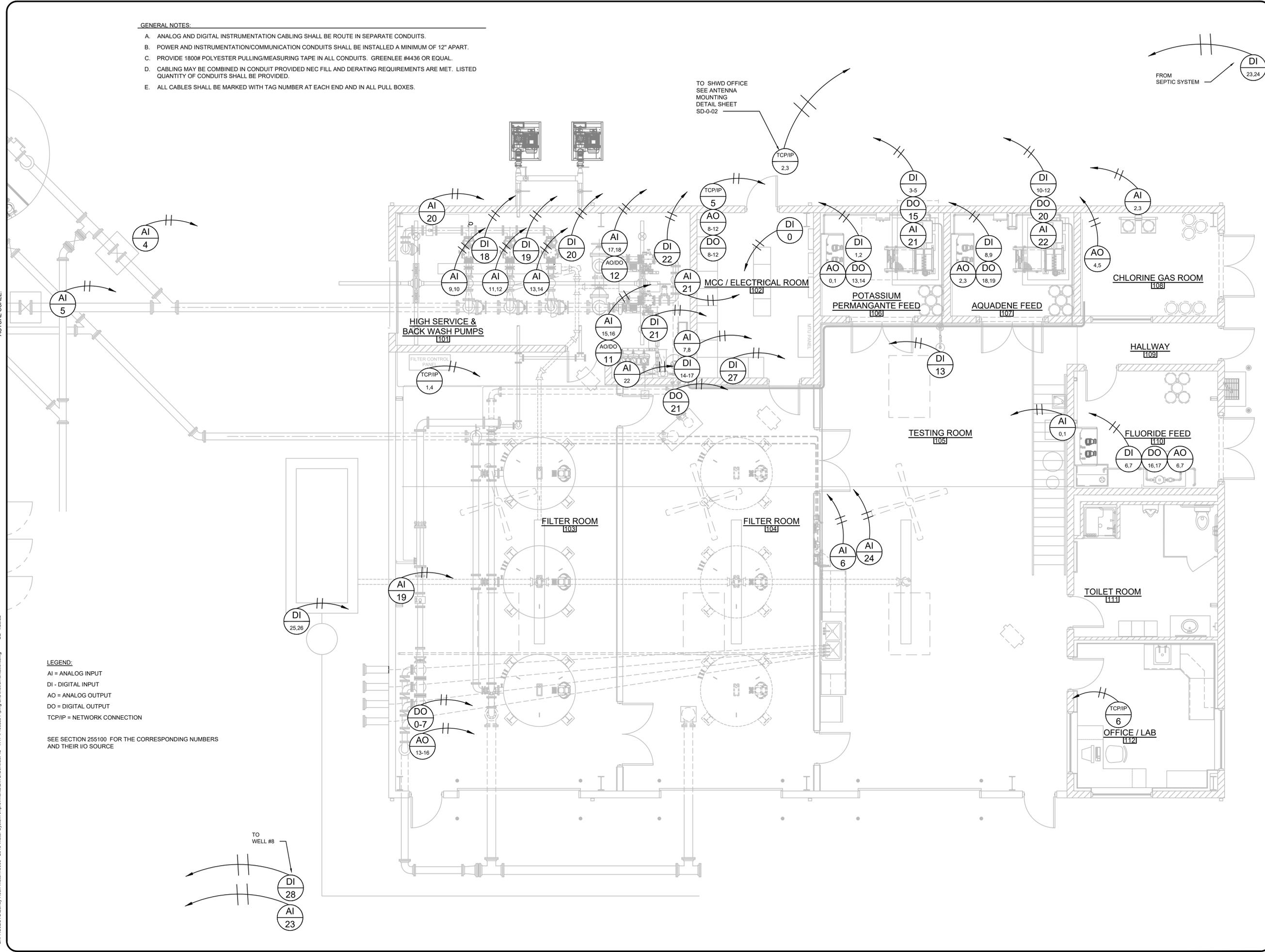
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 BE 428222
 B:\PROJECTS\Sandy Hook\Water\19003 - 2019 Water System Improvements\DWG\Contract 12 - WTP\Process Piping and Instrumentation.dwg

- GENERAL NOTES:**
- ANALOG AND DIGITAL INSTRUMENTATION CABLING SHALL BE ROUTE IN SEPARATE CONDUITS.
 - POWER AND INSTRUMENTATION/COMMUNICATION CONDUITS SHALL BE INSTALLED A MINIMUM OF 12" APART.
 - PROVIDE 1800# POLYESTER PULLING/MEASURING TAPE IN ALL CONDUITS. GREENLEE #4436 OR EQUAL.
 - CABLING MAY BE COMBINED IN CONDUIT PROVIDED NEC FILL AND DERATING REQUIREMENTS ARE MET. LISTED QUANTITY OF CONDUITS SHALL BE PROVIDED.
 - ALL CABLES SHALL BE MARKED WITH TAG NUMBER AT EACH END AND IN ALL PULL BOXES.

- LEGEND:**
- AI = ANALOG INPUT
 - DI = DIGITAL INPUT
 - AO = ANALOG OUTPUT
 - DO = DIGITAL OUTPUT
 - TCP/IP = NETWORK CONNECTION

SEE SECTION 255100 FOR THE CORRESPONDING NUMBERS AND THEIR I/O SOURCE



NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
 CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
 PROCESS INSTRUMENTATION PLAN



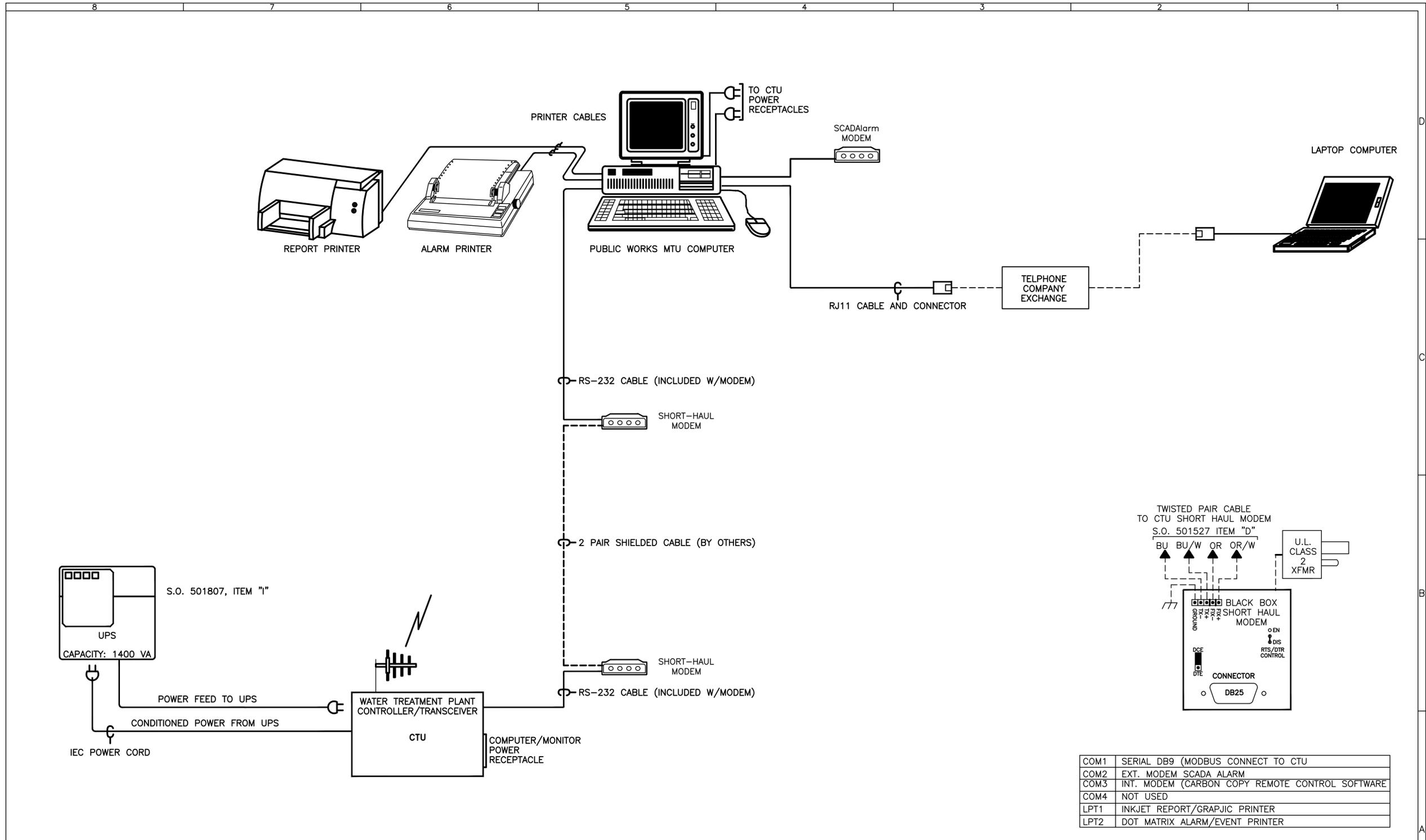
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 Serving Our Community

PROJECT #: 19003
 DATE: APRIL 2022
 PROJECT MGR: LRS
 DRAWN BY: BKL
 CHECKED BY: BKL



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STD: 3-0200-24X36D1

- NOTES:
- REFER TO ELECTRICAL/HYDRAULIC SYMBOL SHEET FOR SYMBOL DEFINITION (DWG. NO. MB00015).
 - FOR FULL LISTING OF JOB DRAWINGS AND PRODUCT CUT SHEETS SEE TABLE OF CONTENTS.
 - FOR FULL LISTING OF JOB PARTS REFER TO BILL OF MATERIAL.
 - DASHED WIRING IS NOT SUPPLIED BY U.S. FILTER CONTROL SYSTEMS.
 - GROUNDING LUG TO BE GROUNDED BY CUSTOMER AS PER N.E.C.
 - UNLESS NOTED, RELAY CONTACTS ARE RATED @ 240VAC. CURRENT AND P.F. RATINGS ARE SHOWN ON THE ACTUAL RELAY.

REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN
B	AS-BUILT	1/3/02				
A	PRE-PRODUCTION	8/01/01				

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DESIGNER	DMM	DATE		TITLE	COMPUTER SYSTEM LAYOUT
CHECKER	BT	DATE		CLIENT	SANDY HOOK, KY
ENGINEER	DMM	DATE			
MANAGER	DMM	DATE			
FILE:					
SCALE:					

USFilter US FILTER CONTROL SYSTEMS
 VADNAIS HEIGHTS, MN
 PH. 651-766-2700

PROJECT	501807	CODE		DRAWING	B501807CSL	SHEET	1 OF 1	REV	B
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NO.	DATE	BY

2019 WATER SYSTEM IMPROVEMENTS
 CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
 SCADA COMPUTER SYSTEM LAYOUT

SANDY HOOK
 WATER DISTRICT
 Serving Our Community

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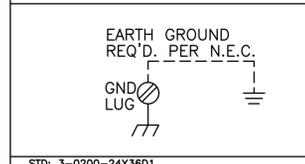
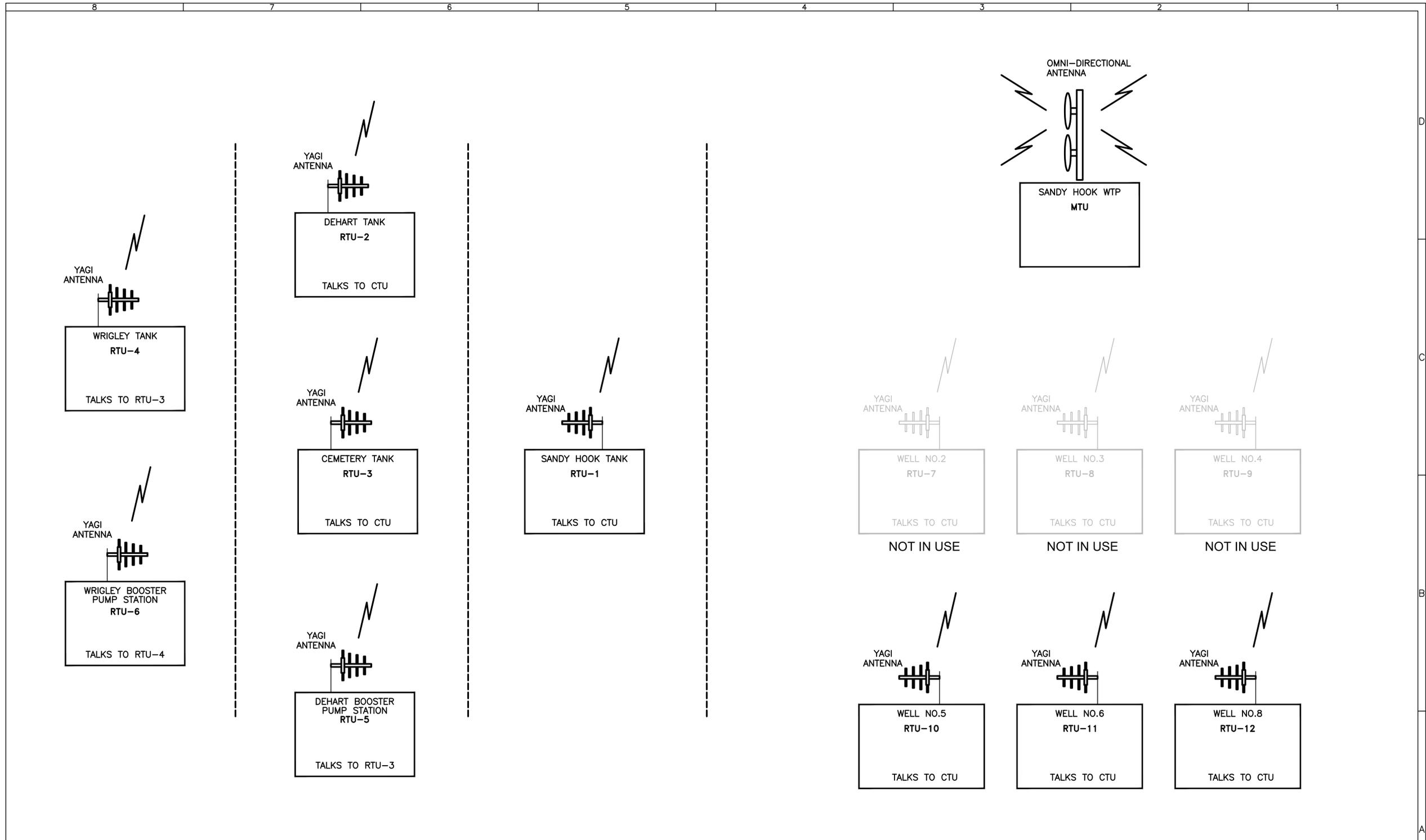
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- NOTES:
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 - FOR FULL LISTING OF JOB DRAWINGS AND PRODUCT CUT SHEETS SEE TABLE OF CONTENTS.
 - FOR FULL LISTING OF JOB PARTS REFER TO BILL OF MATERIAL.
 - DASHED WIRING IS NOT SUPPLIED BY U.S. FILTER CONTROL SYSTEMS.
 - GROUNDING LUG TO BE GROUNDED BY CUSTOMER AS PER N.E.C.
 - UNLESS NOTED, RELAY CONTACTS ARE RATED @ 240VAC. CURRENT AND P.F. RATINGS ARE SHOWN ON THE ACTUAL RELAY.

REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN
E	MISCELLANEOUS UPDATE	11/21/05				504214
D	ADD SIX WELL RTUs	08/05				504214
C	CHANGE IN COM. PATH	6/23/03				
B	AS-BUILT	1/3/02				
A	PRE-PRODUCTION	8/01/01				

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 CHECKER: BJ DATE: _____
 ENGINEER: DMM DATE: _____
 MANAGER: MN DATE: _____
 SCALE: _____

TITLE: D620i/E985
 RADIO SYTEM LAYOUT
 CLIENT: SANDY HOOK, KY

USFilter
 US FILTER CONTROL SYSTEMS
 VADNAIS HEIGHTS, MN
 PH. 651-766-2700

PROJECT: 501807 CODE: B501807RSL DRAWING: 1 SHEET OF 1 REV: E

NO.	DATE	BY

2019 WATER SYSTEM IMPROVEMENTS
 CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
 SCADA RADIO SYSTEM LAYOUT

SANDY HOOK WATER DISTRICT
 BLUEGRASS ENGINEERING, PLLC
 222 East Main Street, Ste. 1 - Georgetown, KY 40324
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PROJECT #: 19003
 DATE: APRIL 2022
 PROJECT MGR: LRS
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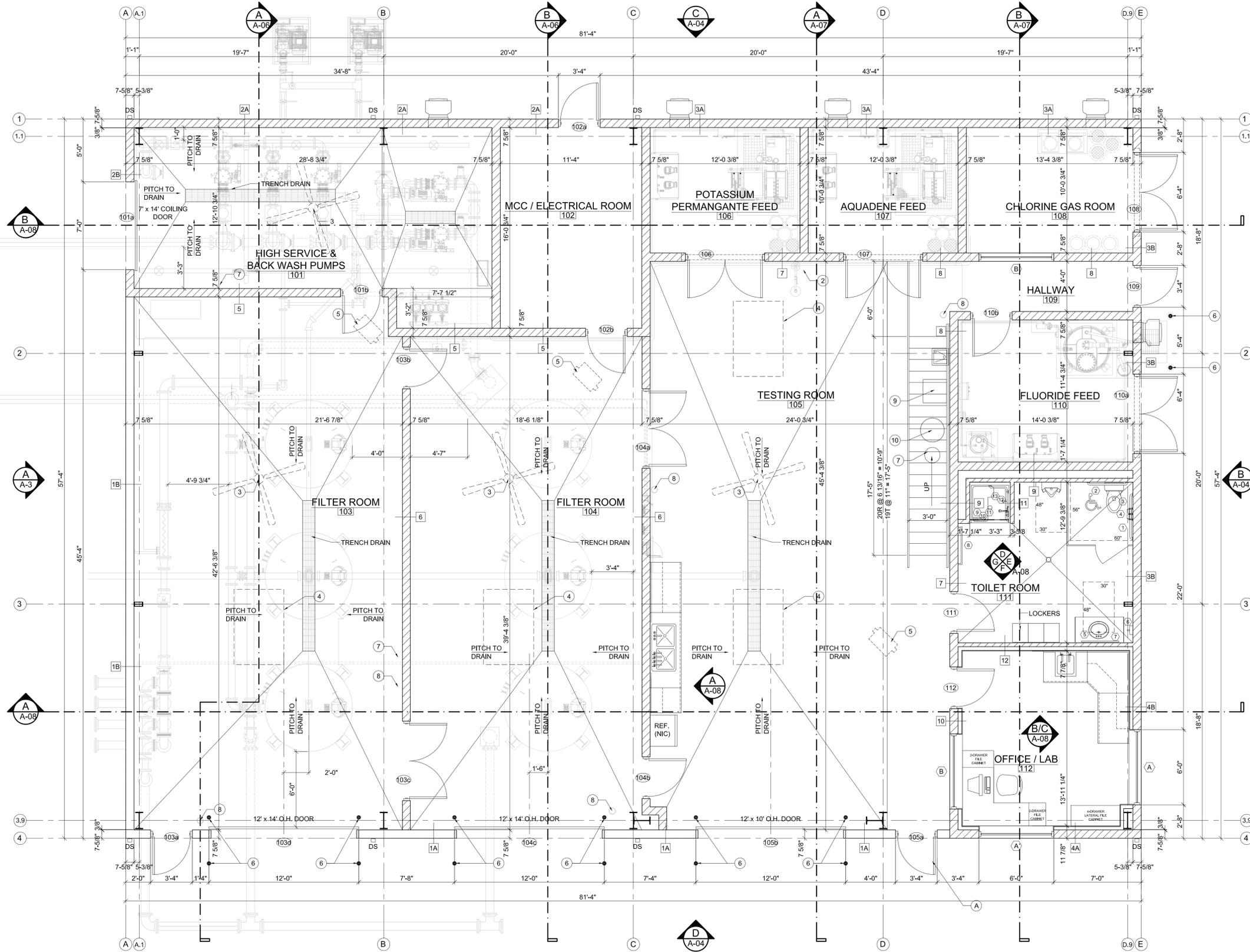


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- SHEET KEY NOTES** ○
(SEE SPECIFICATIONS)
- BRONZE WALL PLAQUE
 - SHOWER / EYE WASH
 - CEILING FAN
 - 4' x 6' SKYLIGHT
 - GAS HEATING UNIT - MOUNTED ABOVE. REFER TO MECHANICAL FOR ACTUAL LOCATIONS.
 - CONCRETE FILLED STEEL BOLLARDS - 6" DIAMETER
 - EXPANSION TANK. REFER TO MECHANICAL FOR ACTUAL LOCATIONS.
 - FE - FIRE EXTINGUISHER
 - MOP SINK
 - HOT WATER HEATER. REFER TO MECHANICAL FOR ACTUAL LOCATIONS.



A-01 FLOOR PLAN
SCALE: 1/4" = 1'-0"

BUILDING STATISTICS
 BUILDING AREA: 4,663 S.F.
 USE GROUP: S-1 (MODERATE HAZARD STORAGE)
 CONSTRUCTION TYPE: 2B
 ALLOWABLE AREA: 17,500 S.F. > 4,663 S.F. - OK
 OCCUPANT LOAD: 4,663sf @ 300sf/PERSON = 15

johnson • early • architects
 131 prosperous place, suite 19b • lexington, kentucky 40509
 phone: 606-253-1515 • fax: 606-251-5000 • e-mail: early@jeaarchitects.net

NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
FLOOR PLAN

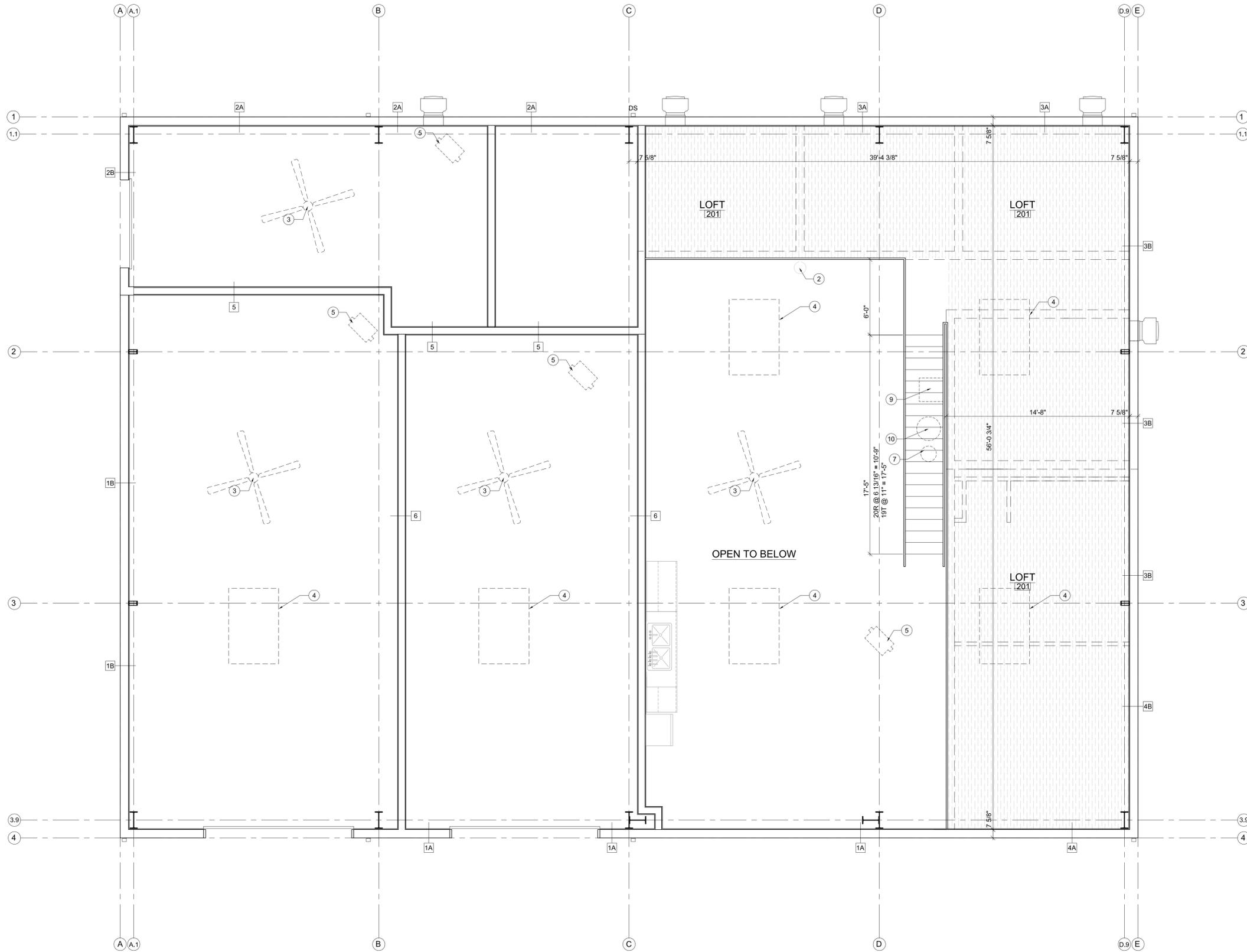
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PROJECT #: 19003
 DATE: AUGUST 2021
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SHEET NO.
A-01

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A LOFT FLOOR PLAN
A-02 SCALE: 1/4" = 1'-0"

- SHEET KEY NOTES** ○
(SEE SPECIFICATIONS)
1. BRONZE WALL PLAQUE
 2. SHOWER / EYE WASH
 3. CEILING FAN
 4. 4' x 6' SKYLIGHT
 5. GAS HEATING UNIT - MOUNTED ABOVE
 6. CONCRETE FILLED STEEL BOLLARDS - 6" DIAMETER
 7. EXPANSION TANK
 8. FE - FIRE EXTINGUISHER
 9. MOP SINK
 10. HOT WATER HEATER

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2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT
IMPROVEMENTS
LOFT FLOOR PLAN

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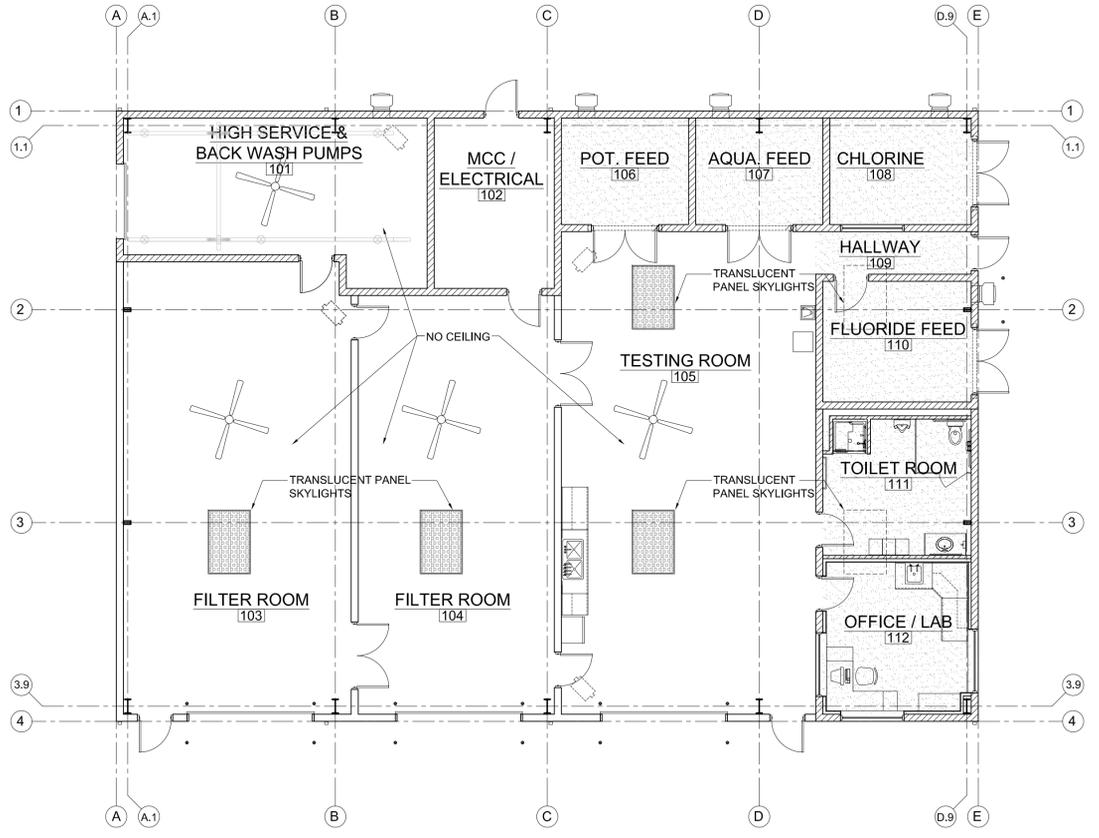
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PROJECT MGR: LRS
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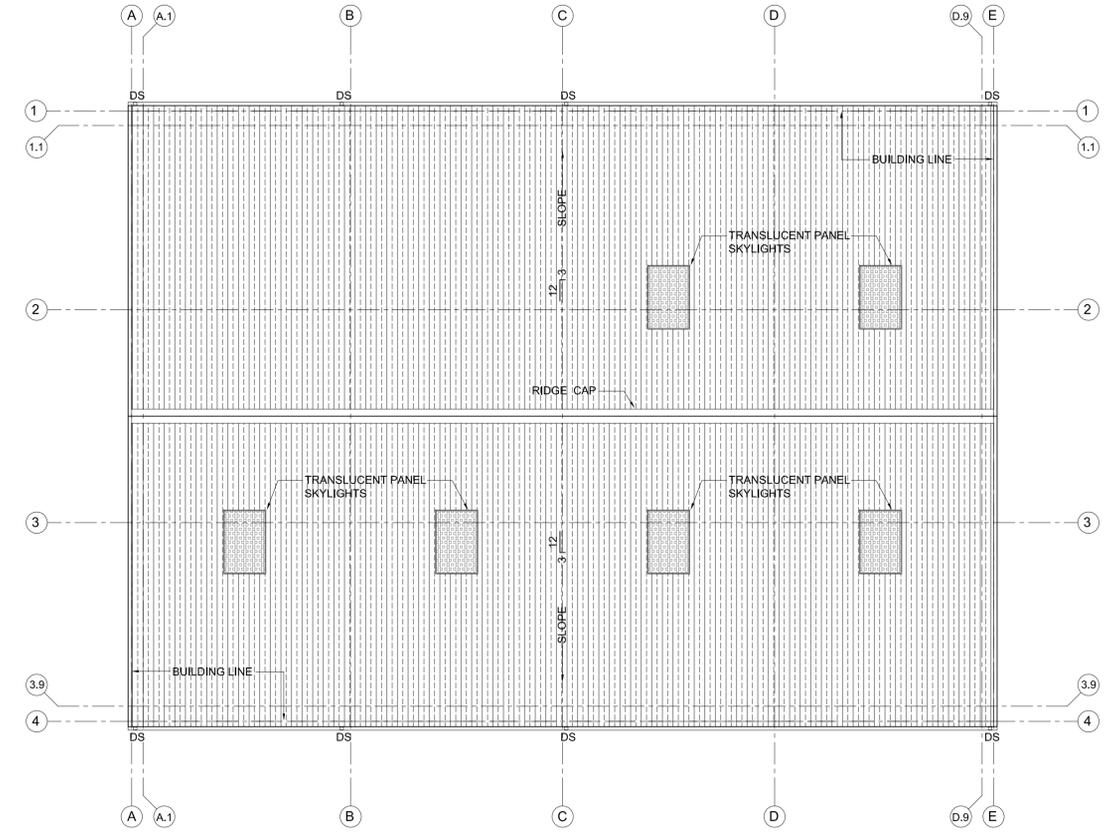
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A-02

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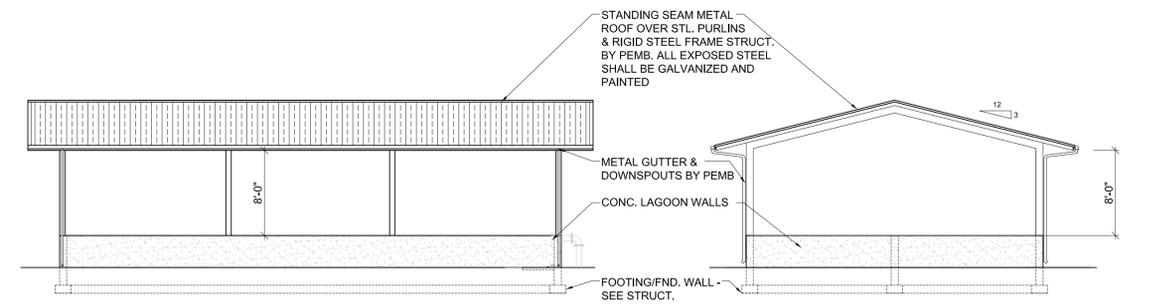
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A REFLECTED CEILING PLAN
A-03 SCALE: 1/8" = 1'-0"

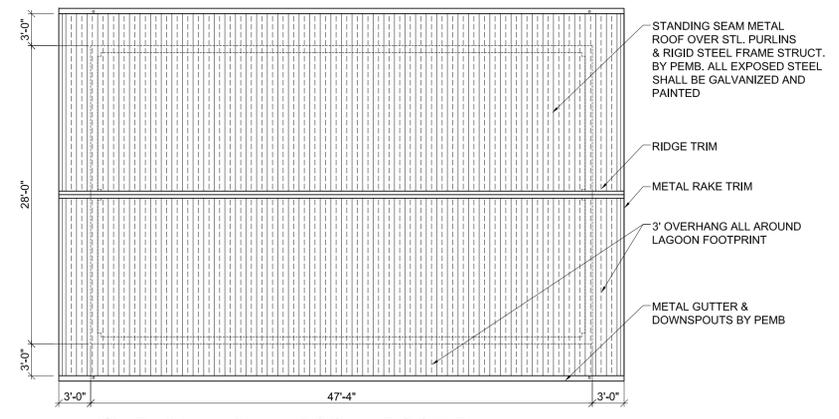


B ROOF PLAN
A-03 SCALE: 1/8" = 1'-0"



C BACKWASH LAGOON - SIDE ELEVATION
A-03 SCALE: 1/8" = 1'-0"

D BACKWASH LAGOON - END ELEVATION
A-03 SCALE: 1/8" = 1'-0"



E BACKWASH LAGOON - ROOF PLAN
A-03 SCALE: 1/8" = 1'-0"

BACKWASH LAGOON STRUCTURE
SCALE: 1/8" = 1'-0"

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Phone: 606-258-1515 • Fax: 606-251-5000 • E-mail: early@johnsonearly.com

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2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
REFLECTED CEILING & ROOF PLANS & BACKWASH LAGOON STRUCTURE

BLUEGRASS ENGINEERING PLLC
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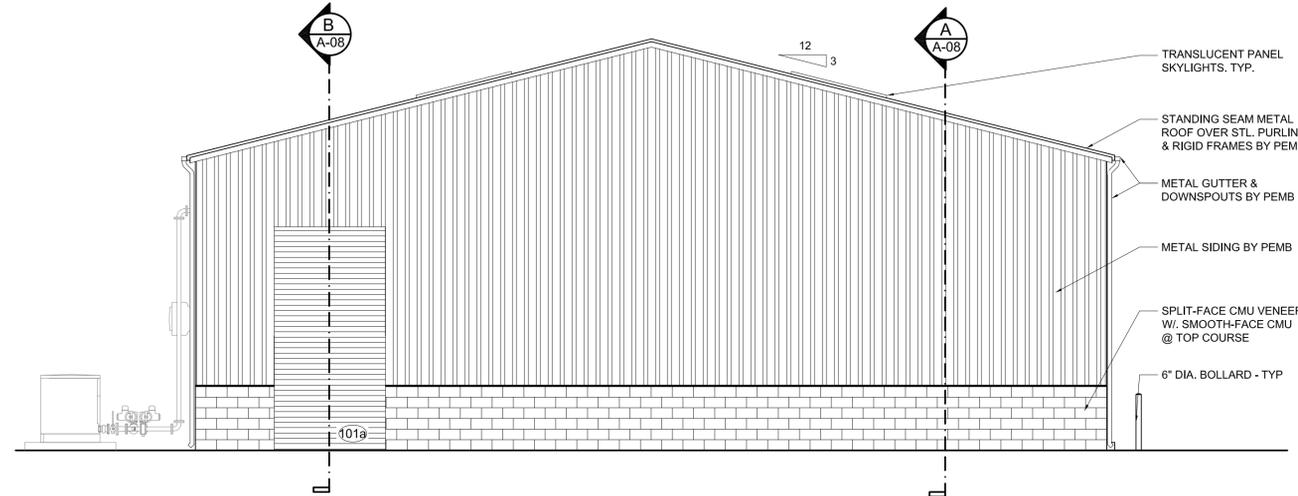
PROJECT #: 19003
DATE: AUGUST 2021
PROJECT MGR: LRS
DRAWN BY: JBE
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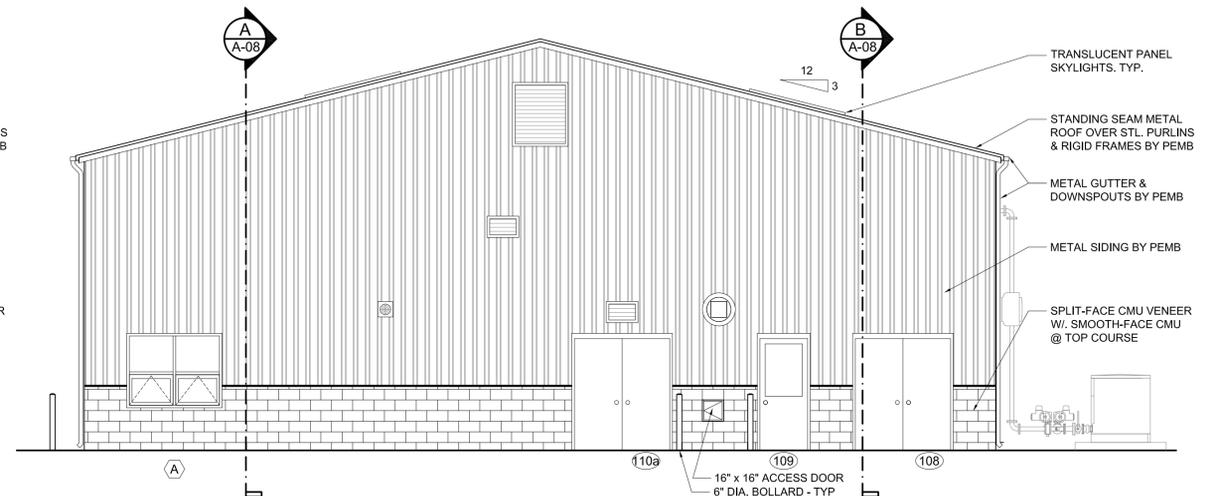
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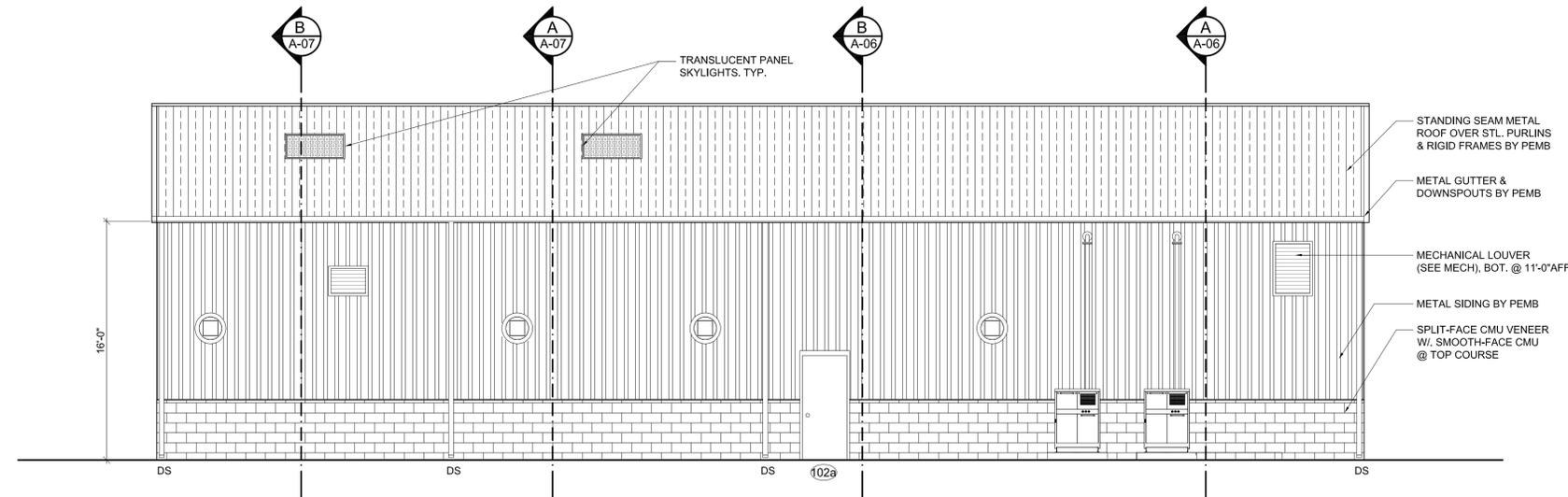
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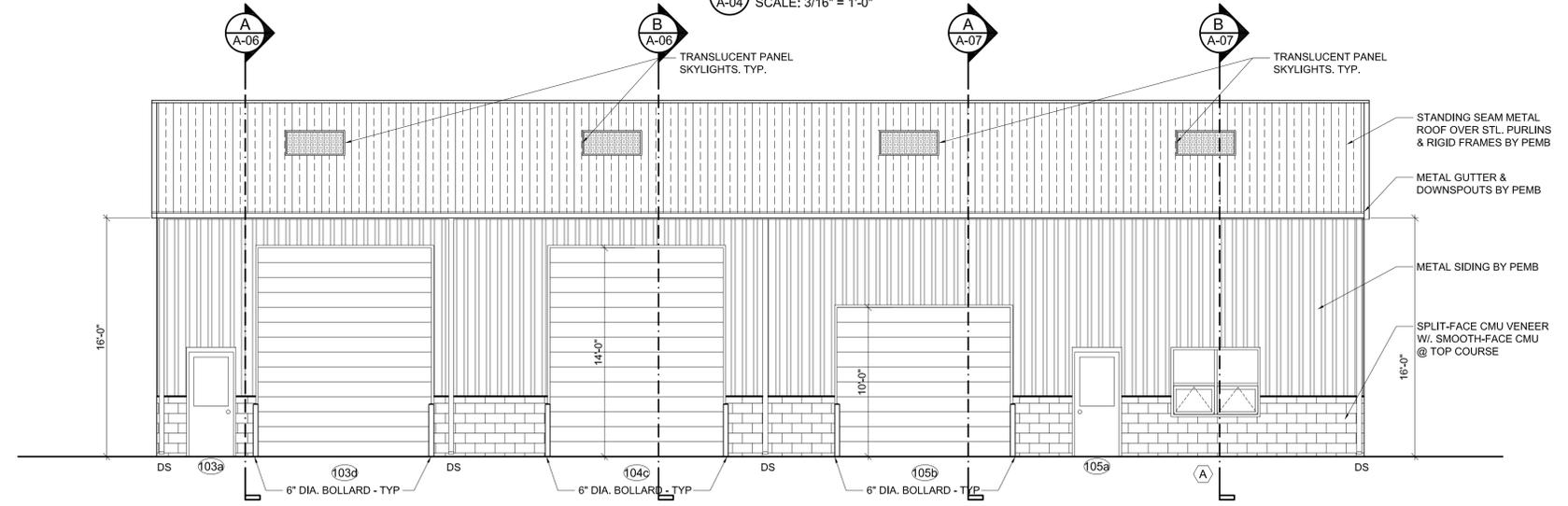
A NORTH ELEVATION
A-04 SCALE: 3/16" = 1'-0"



B SOUTH ELEVATION
A-04 SCALE: 3/16" = 1'-0"



C EAST ELEVATION
A-04 SCALE: 3/16" = 1'-0"



D WEST ELEVATION
A-04 SCALE: 3/16" = 1'-0"

johnson • early • architects
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NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT
IMPROVEMENTS
BUILDING ELEVATIONS

BLUEGRASS ENGINEERING PLLC
222 East Main Street, Ste. 1 • Georgetown, KY 40324

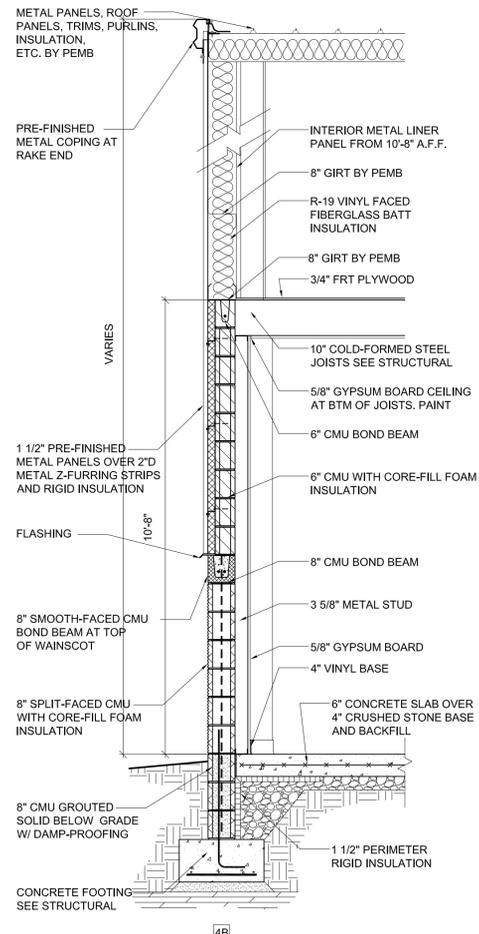
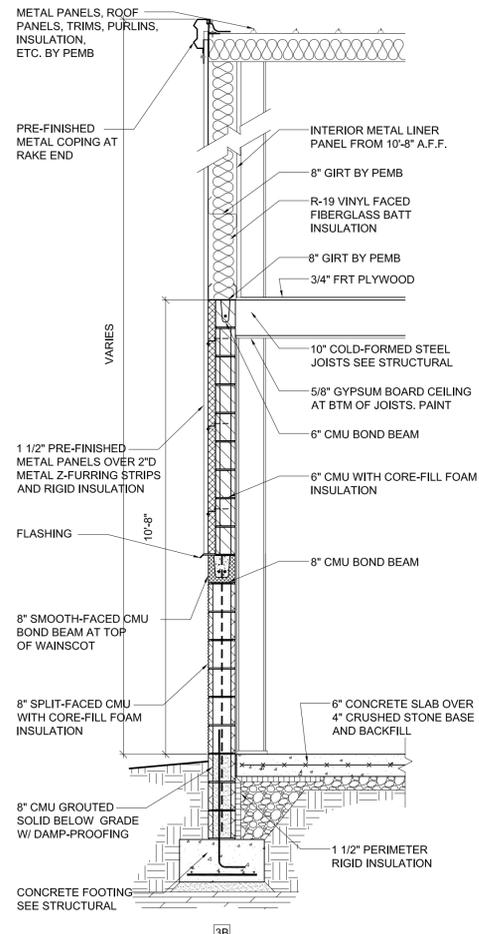
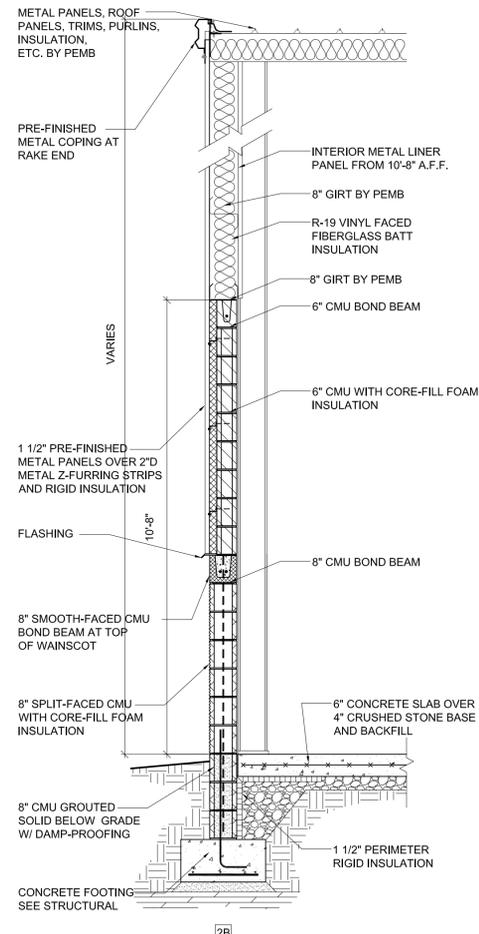
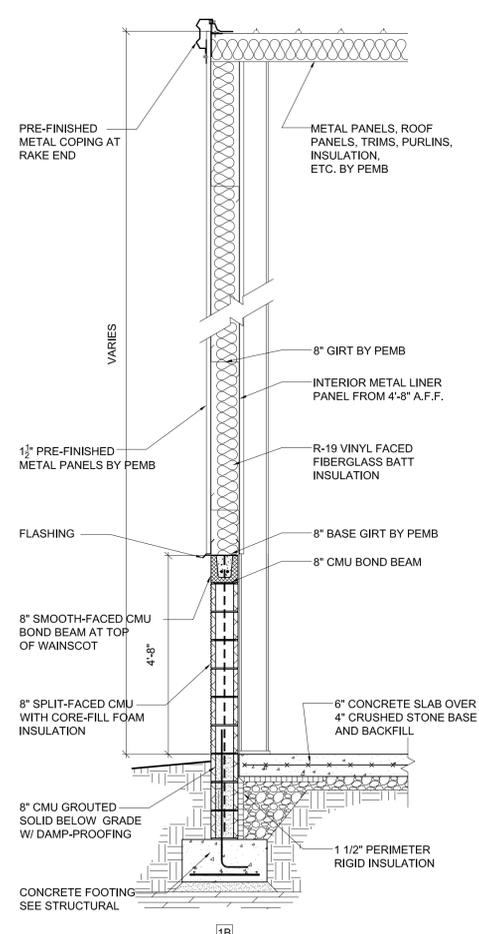
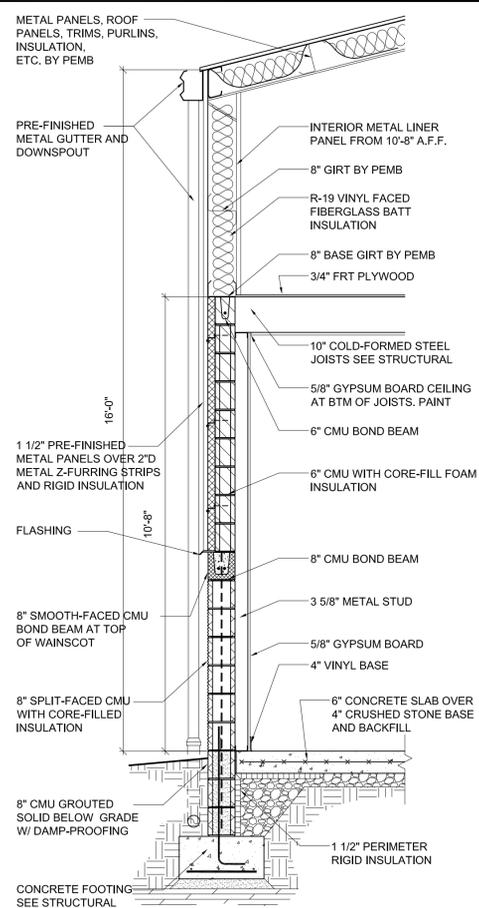
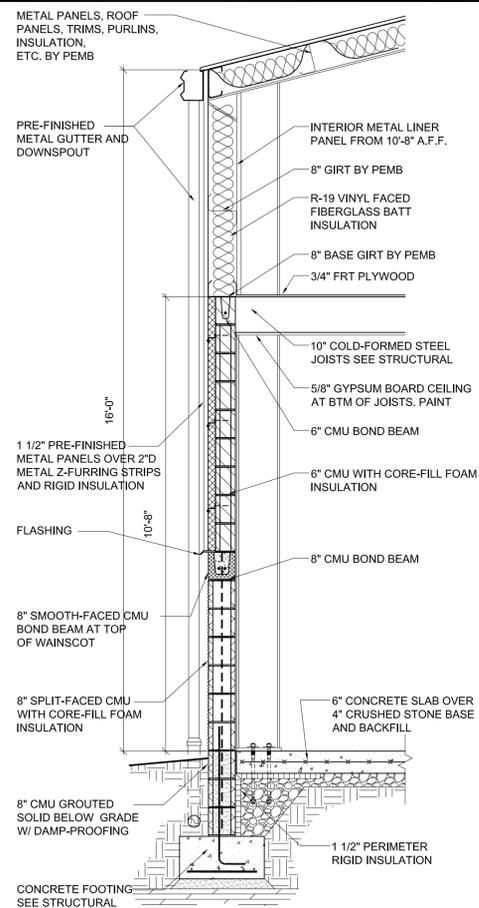
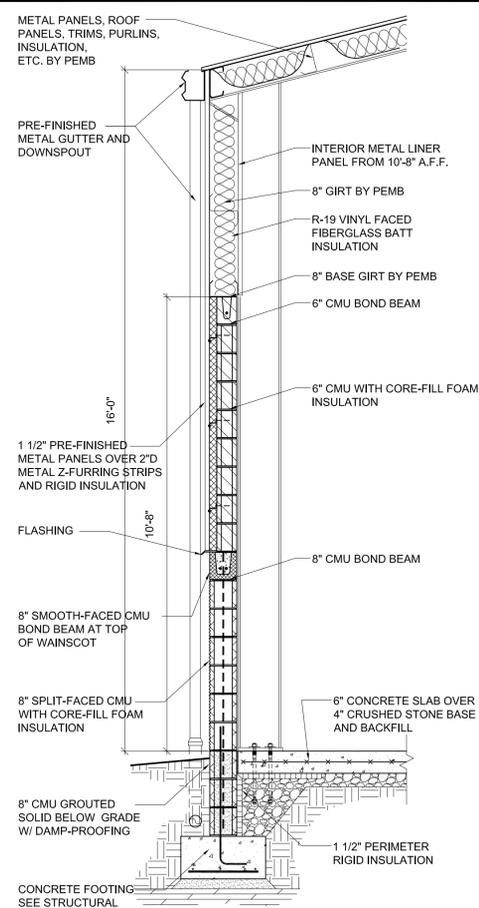
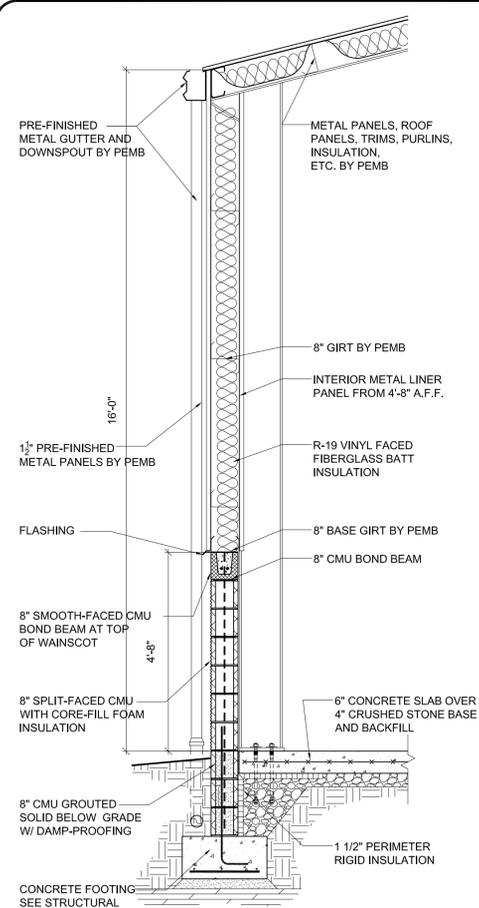
PROJECT #: 19003
DATE: AUGUST 2021
PROJECT MGR: LRS
DRAWN BY: JBE
CHECKED BY: JBE



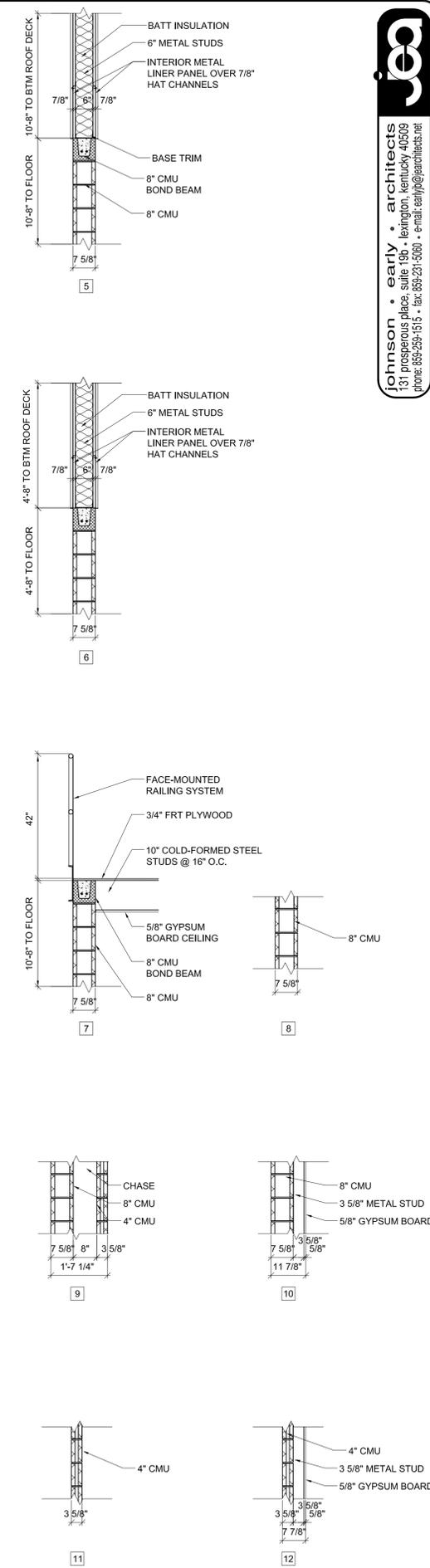
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WALL TYPES
SCALE: 1/2" = 1'-0"



PARTITION TYPES
SCALE: 1/2" = 1'-0"

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NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
WALL AND PARTITION TYPES

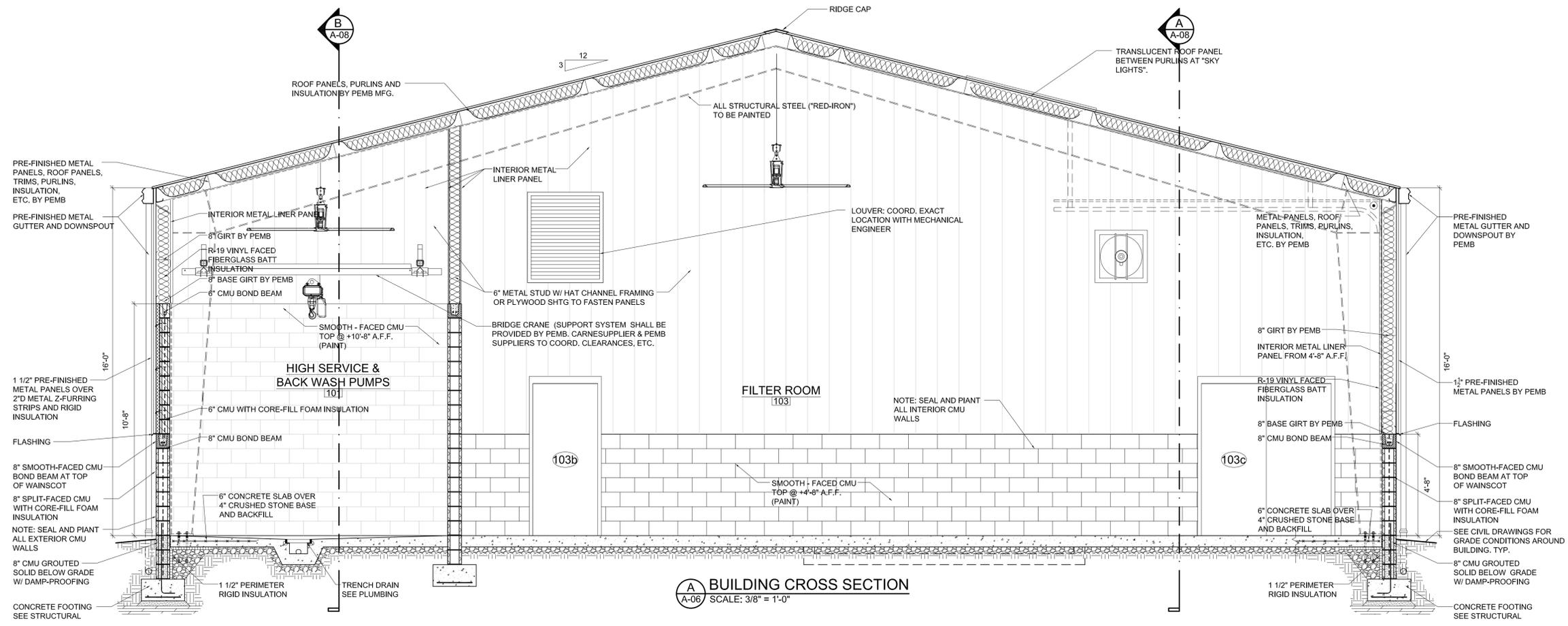
BLUEGRASS ENGINEERING PLLC
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PROJECT #: 19003
DATE: AUGUST 2021
PROJECT MGR: LRS
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CHECKED BY: JBE

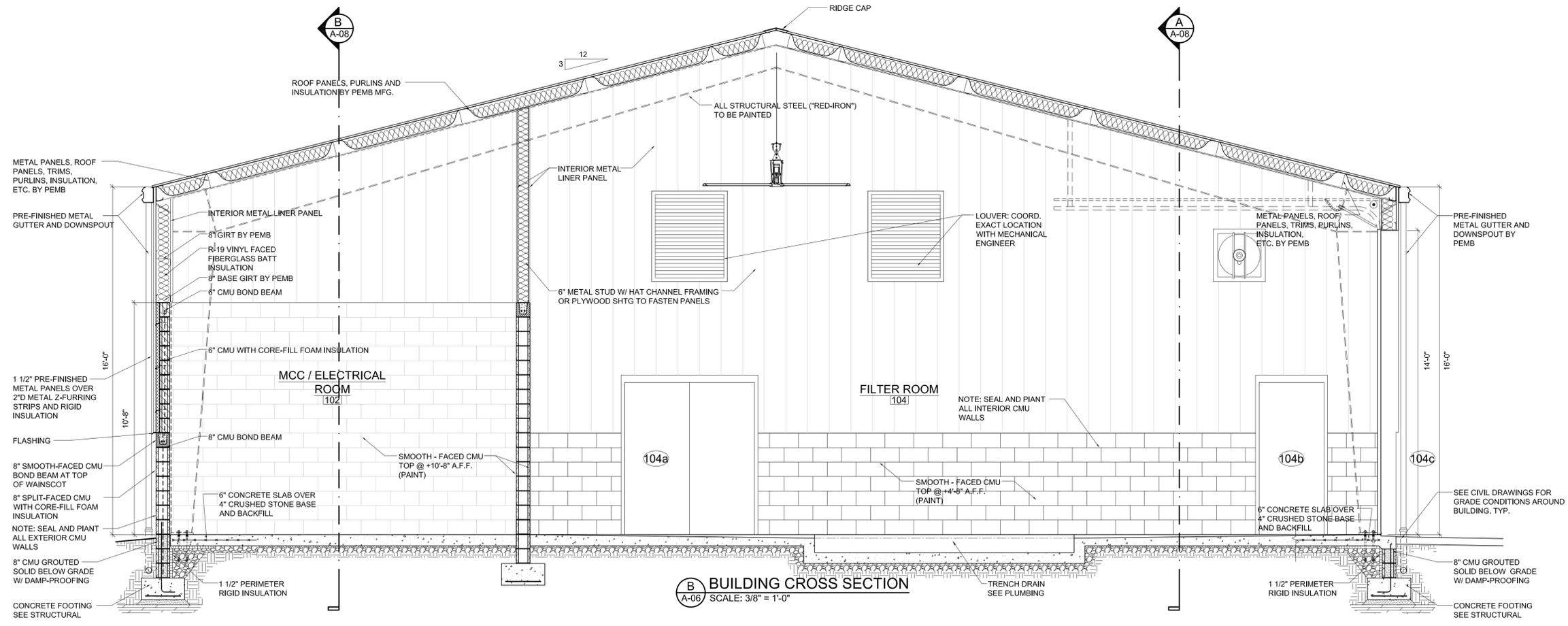
JOSEPH B. EARLY
REGISTERED PROFESSIONAL ARCHITECT
NO. 3896
OF KENTUCKY

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A BUILDING CROSS SECTION
A-06 SCALE: 3/8" = 1'-0"



B BUILDING CROSS SECTION
A-06 SCALE: 3/8" = 1'-0"

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NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
BUILDING SECTIONS

BLUEGRASS ENGINEERING PLLC
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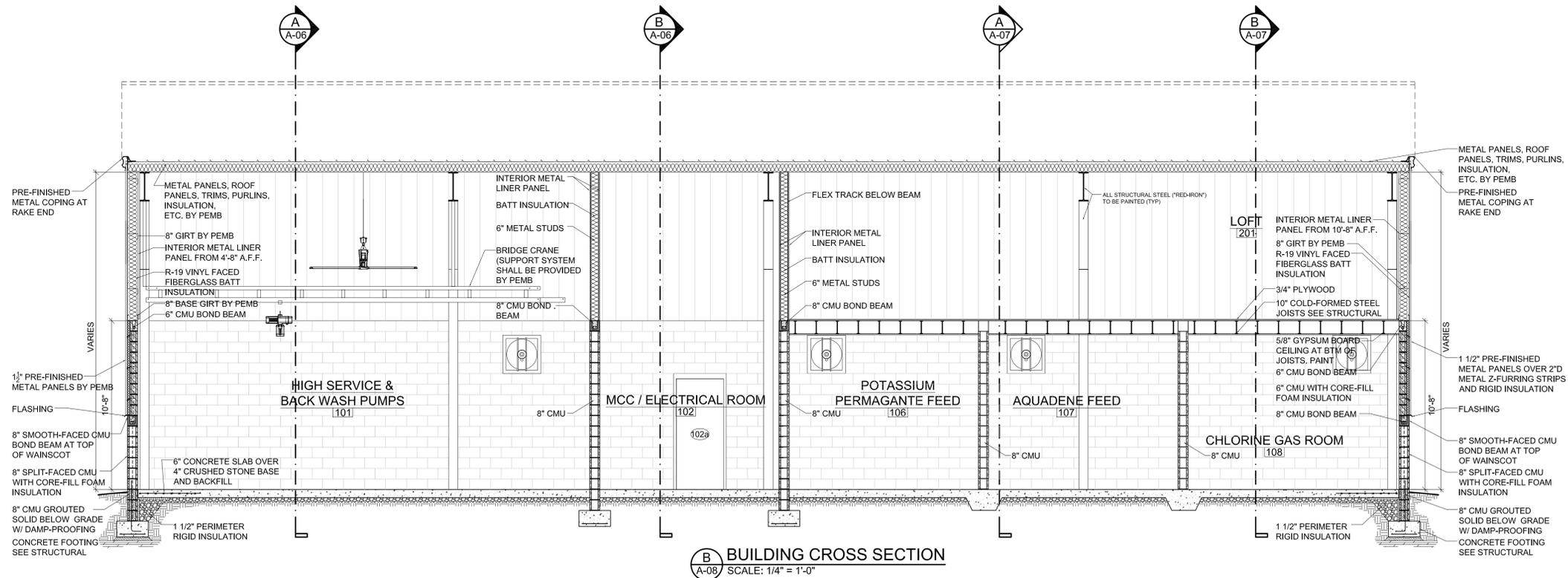
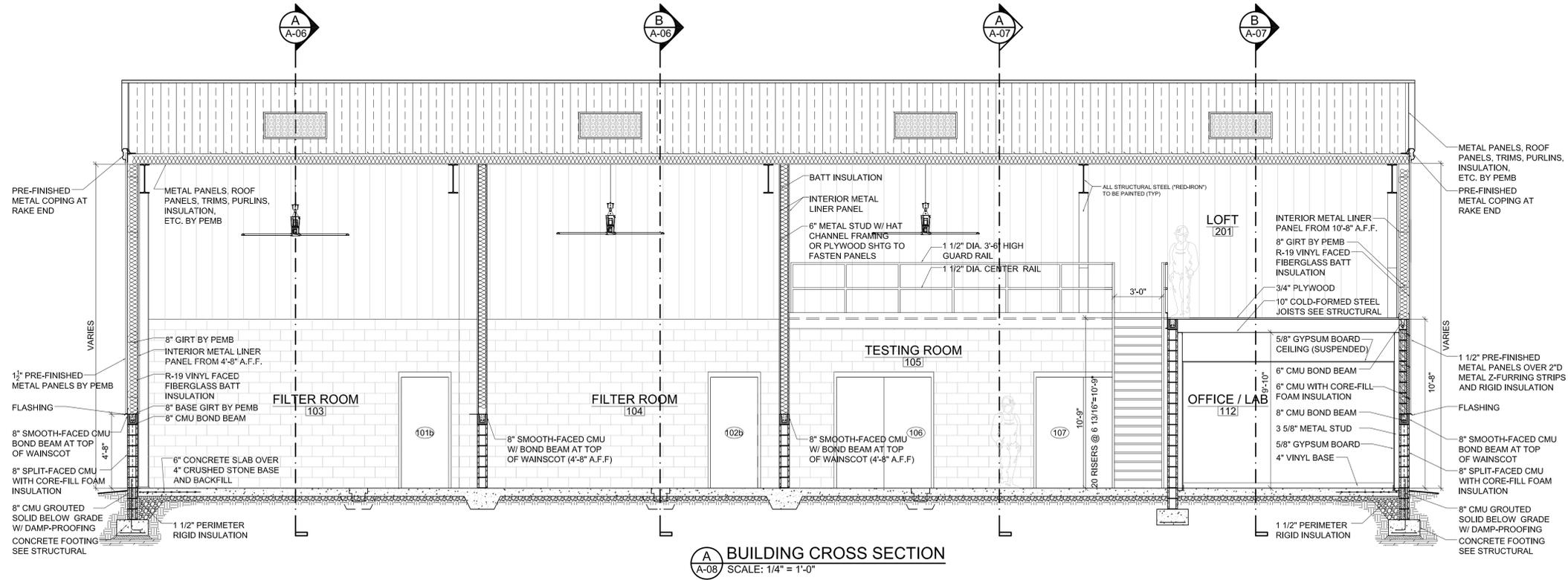
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SHEET NO.
A-06

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2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
BUILDING SECTIONS

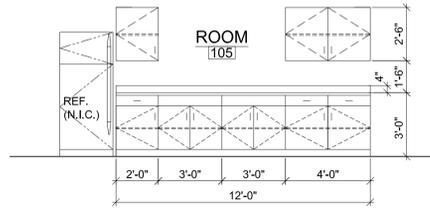
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PROJECT #: 19003
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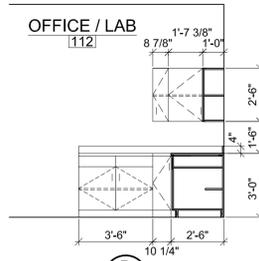


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A-08

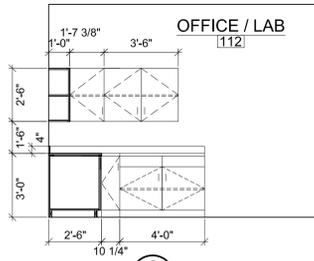
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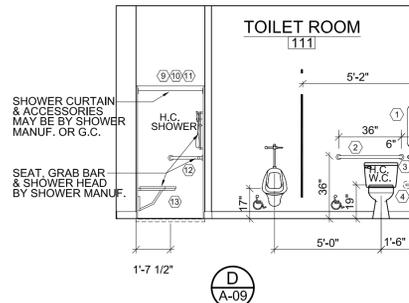
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A-09



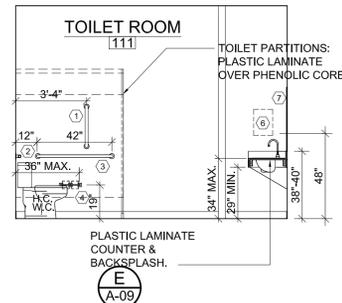
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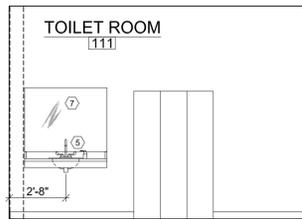
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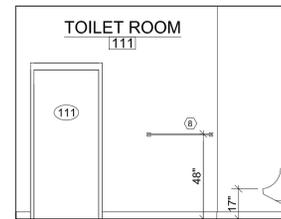
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A-09



E
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F
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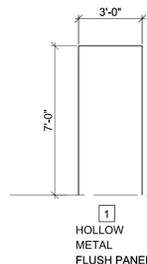


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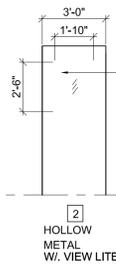
INTERIOR ELEVATIONS
SCALE: 1/4" = 1'-0"

TOILET ACCESSORIES SCHEDULE			
ITEM NO.	MANUF. & MODEL NO.	DESCRIPTION	MOUNTING HEIGHT
1	ASI #1510 TYPE 'A' Q1	36" GRAB BAR, 1-1/4" D., PEENED NON-SLIP SATIN FINISH FLANGE, 1-1/2" WALL CLEARANCE	BOTTOM 40" A.F.F.
2	ASI #1510 TYPE 'A' Q1	36" GRAB BAR, 1-1/4" D., PEENED NON-SLIP SATIN FINISH FLANGE, 1-1/2" WALL CLEARANCE	36" A.F.F.
3	ASI #1510 TYPE 'A' Q1	42" GRAB BAR, 1-1/4" D., PEENED NON-SLIP SATIN FINISH FLANGE, 1-1/2" WALL CLEARANCE	
4	ASI #2564-1	TOILET PAPER HOLDER, TWO ROLL, ALUMINUM, SATIN FINISH	19" A.F.F.
5		LIQUID SOAP DISPENSER / BOTTLE BY OWNER	COUNTER
6	ASI #2209	SURFACE MOUNTED PAPER TOWEL DISPENSER, C-FOLD OR MULTIFOLD W/O ADJUSTMENT, STAINLESS STEEL, SATIN FINISH	48" A.F.F.
7	BY GLASS CONTRACTOR	1/4" FLOAT PLATE GLASS MIRROR, 3'-0" HIGH x FULL WIDTH (LESS 1" EA. SIDE)	40" A.F.F.
8	ASI #7355	TOWEL BAR - ROUND, BRIGHT STAINLESS STEEL, 36" LONG	48" A.F.F.
9	ASI #1200-SHU	SHOWER CURTAIN HOOKS, CHROME FINISH STEEL	
10	ASI #1200	8 OZ. WHITE DUCK SHOWER CURTAIN, 72" x 42"	
11	ASI #1206	SHOWER ROD, 1" DIA. x 37", STAINLESS STEEL, SATIN FINISH, WITH STANDARD FLANGES	74.5" A.F.F.
12	ASI #3100-04	CORNER GRAB BAR, 3/2" x 16" x 1-1/4" D., PEENED NON-SLIP SATIN FINISH FLANGE, 1-1/2" WALL CLEARANCE	
13	ASI #8213	RETRACTABLE SHOWER STALL SEAT, STAINLESS STEEL, FRAME, 1/2" SOLID PHENOLIC SLATS	

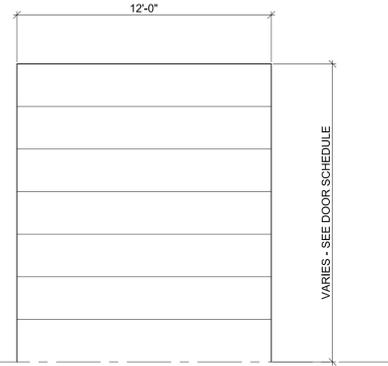
DOOR ELEVATIONS
SCALE: 1/4" = 1'-0"



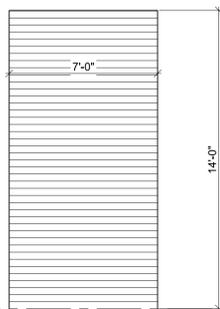
1
HOLLOW METAL FLUSH PANEL



2
HOLLOW METAL W/ VIEW LITE



3
OVERHEAD GARAGE DOOR INSULATED METAL



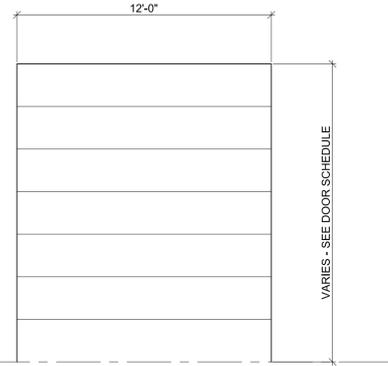
4
COILING OVERHEAD DOOR

GENERAL NOTES

- ALL DIMENSIONS SHOWN THIS SHEET ARE FOR BIDDING PURPOSES ONLY. ALL DIMENSIONS SHALL BE VERIFIED BY THE SUCCESSFUL CONTRACTOR(S) BEFORE SUBMITTING SHOP DRAWINGS TO THE ARCHITECT FOR APPROVAL.
- FLOAT GLASS MAY BE USED INSTEAD OF TEMPERED GLASS, AS ALLOWED BY THE KBC. TEMPERED GLASS SHALL BE REQUIRED AT HAZARDOUS LOCATIONS.

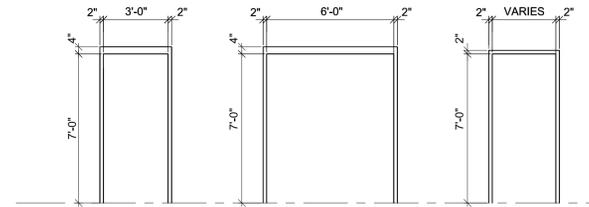
DOOR HARDWARE NOTES

- CONTRACTOR SHALL RETAIN A CERTIFIED HARDWARE CONSULTANT TO PREPARE ALL REQUIRED DOOR HARDWARE SETS. CONSULTANT SHALL CONFER WITH OWNER TO CONFIRM FUNCTION, AND KEYING FOR EACH DOOR. FINISH TO MATCH EXISTING.
- DOOR LOCKS SHALL BE HEAVY DUTY CYLINDRICAL LEVER HANDLE LOCKSETS. FIELD VERIFY REQUIREMENTS.
- ALL HARDWARE AND INSTALLATIONS SHALL COMPLY WITH ALL A.D.A. (HANDICAPPED ACCESSIBILITY REQUIREMENTS), AND APPLICABLE KBC REQUIREMENTS.

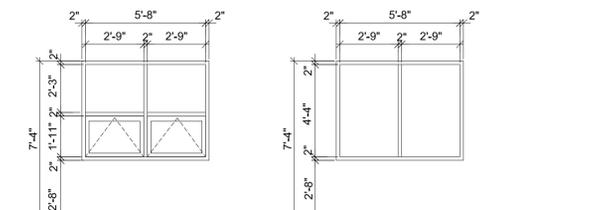


FRAME ELEVATIONS
SCALE: 1/4" = 1'-0"

WINDOW ELEVATIONS
SCALE: 1/4" = 1'-0"



A HOLLOW METAL WELDED TYPE W/ 4" HEAD
B HOLLOW METAL WELDED TYPE W/ 4" HEAD
C HOLLOW METAL WELDED TYPE W/ 2" HEAD



A ALUMINUM INSULATED GLASS (EXTERIOR)
B ALUMINUM (INTERIOR)

RM. NO.		NAME		ROOM FINISH SCHEDULE												RM. NO.	CEILING HEIGHTS	REMARKS			
				FLOORS			BASE			WALLS			CEILINGS								
				SEALED CONCRETE	VINYL COMPOSITION TILE	CERAMIC TILE	4" VINYL BASE CERAMIC	NONE	CONCRETE MASONRY UNITS	8" CPY BR DRUMT. STUDS	PANTRY	CHEMICAL RESISTANT PAINT	LINER PANELS (BY PERM)	EXPOSED CONCRETE WALLS	CPY BOARD OVER METL FRMS	CPY BOARD SUSPENDED	PAINT	EXPOSED STRUCT. (PEMB)	RM. NO.	CEILING HEIGHTS	REMARKS
101	HIGH SERVICE & BACK WASH PUMP	1					10		13	15	17				25	26		101			
102	MCC / ELECTRICAL ROOM	1					10		13	15	17				25	26		102			
103	FILTER ROOM	1					10		13	15	17				25	26		103			
104	FILTER ROOM	1					10		13	15	17				25	26		104			
105	TESTING ROOM	1					10		13	15	17				25	26		105			
106	POTASSIUM PERMANGANATE FEED	1					10		13	16				23	25			106	10'-0"		
107	AQUADENE FEED	1					10		13	16				23	25			107	10'-0"		
108	CHLORINE GAS ROOM	1					10		13	16				23	25			108	10'-0"		
109	HALLWAY	1					10		13	15				23	25			109	10'-0"		
110	FLUORIDE FEED	1					10		13	16				23	25			110	10'-0"		
111	TOILET ROOM	2					8		24	25				24	25			111	9'-0"		
112	OFFICE / LAB	2					8		14	15				24	25			112	9'-0"		

NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
 CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
 DOOR SCHEDULE & ELEVATIONS AND FINISHES SCHEDULE

BLUEGRASS ENGINEERING PLLC
 222 East Main Street, Ste. 1 • Georgetown, KY 40324

PROJECT #: 19003
 DATE: AUGUST 2021
 PROJECT MGR: LRS
 DRAWN BY: JBE
 CHECKED BY: JBE

JOSEPH B. EARLY
 REGISTERED ARCHITECT
 NO. 3898
 COMMONWEALTH OF KENTUCKY

SHEET NO.
A-09

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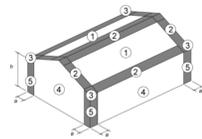
GENERAL NOTES

DESIGN LOADS

Table with columns for STRUCTURE RISK CATEGORY, FLOOR LIVE LOAD, ROOF LIVE LOAD, ROOF SNOW LOAD, WIND LOAD, and WIND EXPOSURE. Includes values for various load types and wind speeds.

Table titled 'COMPONENTS & CLADDING EXTERNAL PRESSURE ULTIMATE (LRF) LOADS (PSF)'. Columns include WIND AREA (SQ FT) and LOCATION PER ASCE 7-10 (1-5). Rows show pressure values for different wind areas and locations.

- NOTES: 1. WIND LOADING PROVIDED ARE ULTIMATE (LRF) LOADING. FOR ALLOWABLE STRESS DESIGN MULTIPLY LOADS PROVIDED BY 0.6. 2. LOADING PROVIDED IS FOR WORST CASE ROOF HEIGHT. DELEGATED DESIGNERS MAY RECALCULATE LOADS FOR SPECIFIC COMPONENT HEIGHTS USING PARAMETERS SPECIFIED. 3. PRESSURES SHOWN ARE APPLIED NORMAL TO THE SURFACE. 4. PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM THE SURFACES, RESPECTIVELY. 5. EACH COMPONENT MUST BE DESIGNED FOR MAXIMUM POSITIVE AND NEGATIVE FORCES. 6. FOR COMPONENTS HAVING EFFECTIVE AREAS IN BETWEEN TABULATED VALUES, DESIGN LOADS MAY BE INTERPOLATED. OTHERWISE DESIGN LOAD MUST BE TAKEN FROM THE NEXT LOWEST EFFECTIVE AREA. 7. INTERNAL PRESSURE FOR ENCLOSED BUILDING IS INCLUDED IN ABOVE VALUES. 8. THE NET C&C PRESSURE (INCLUDING INTERNAL PRESSURE) FOR ANY COMPONENT SHALL NOT BE TAKEN LESS THAN 16 PSF ACTING IN EITHER DIRECTION NORMAL TO THE SURFACE. 9. NOTATION: a. 10 PERCENT OF LEAST HORIZONTAL DIMENSION OR 0.4h, WHICHEVER IS SMALLER, BUT NOT LESS THAN EITHER 4% OF LEAST HORIZONTAL DIMENSION OR 3 FT. b. MEAN ROOF HEIGHT, IN FEET, EXCEPT THAT EAVE HEIGHT SHALL BE USED FOR ROOF ANGLES 0°-10°. c. ANGLE OF PLANE OF ROOF FROM HORIZONTAL, IN DEGREES.



EARTHQUAKE DESIGN DATA table with columns for COUNTY / STATE, IMPORTANCE FACTOR, MAPPED SHORT PERIOD RESPONSE ACCELERATION, MAPPED 1 SECOND PERIOD RESPONSE ACCELERATION, SITE CLASS, DESIGN SHORT PERIOD SPECTRAL RESPONSE COEFFICIENT, DESIGN 1 SECOND PERIOD SPECTRAL RESPONSE COEFFICIENT, SEISMIC DESIGN CATEGORY, and CATEGORY B. Includes values for ELLIOTT / KENTUCKY.

DESIGN STRESSES

Table listing design stresses for CONCRETE (STRENGTH DESIGN) MINIMUM COMPRESSIVE STRENGTH IN 28 DAYS, FOOTINGS, INTERIOR SLABS ON GRADE, CONCRETE EXPOSED TO FREEZE/THAW, REINFORCING BARS (ASTM A615 GRADE 60), WELDED WIRE FABRIC (ASTM A1064), CHANNELS, ANGLES, PLATES AND BARS (ASTM A572), HOLLOW STRUCTURAL SECTIONS - RECTANGULAR STEEL TUBES (ASTM A500 GRADE C), STRUCTURAL STEEL PIPE (ASTM A53 GRADE B), MASONRY ASSEMBLY COMPRESSIVE STRENGTH, CONCRETE MASONRY UNIT STRENGTH, TYPE S MORTAR STRENGTH, MASONRY GROUT (ASTM C476) MINIMUM COMPRESSIVE STRENGTH IN 28 DAYS, and SOIL BEARING PRESSURE FOR FOUNDATIONS (FROM GEOTECH).

DESIGN CRITERIA

- 1. STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE 2018 KENTUCKY BUILDING CODE, 2ND EDITION (2015 IBC). 2. NO PROVISION HAS BEEN MADE FOR FUTURE HORIZONTAL OR VERTICAL EXPANSION.

GENERAL

- 1. THE REQUIREMENTS OF THESE GENERAL NOTES APPLY UNLESS OTHERWISE NOTED ON PLANS OR IN SPECIFICATIONS. 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL CONTRACT DOCUMENTS, ADDENDA, AND SUPPLEMENTARY INFORMATION AND DISTRIBUTING SUCH TO ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO THE PREPARATION AND SUBMITTAL OF SHOP DRAWINGS, FABRICATION, AND INSTALLATION OF ANY STRUCTURAL MEMBERS. 3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO COMMENCING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES THAT MAY EXIST. 4. ANY DISCREPANCIES BETWEEN STRUCTURAL AND ARCHITECTURAL DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND STRUCTURAL ENGINEER. DO NOT SCALE DRAWINGS. 5. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY BRACING REQUIRED TO PROPERLY CONSTRUCT THE BUILDING UNTIL COMPLETE. 6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MEANS AND METHODS TO CONSTRUCT THE STRUCTURE, INCLUDING VERIFICATION OF LOAD CAPACITY OF THE STRUCTURE TO SUPPORT CONSTRUCTION ACTIVITIES, EQUIPMENT, ETC. AND FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED ON THE STRUCTURE. FRAMING CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED. DAMAGE TO THE STRUCTURE CAUSED BY CONSTRUCTION ACTIVITIES SHALL BE CORRECTED BY THE RESPONSIBLE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. 7. SHOP DRAWINGS MUST BE CHECKED AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMISSION. 8. NON-STRUCTURAL ELEMENTS OF THE BUILDING (ARCHITECTURAL FINISHES, MASONRY VENEER AND ASSOCIATED TIES, INSULATION, SHEATHING, DUCTWORK, PIPING, FOUNDATION/FLOORFLOOR DRAINS, ETC.) ARE TYPICALLY NOT SHOWN ON THE STRUCTURAL DRAWINGS. WHERE NON-STRUCTURAL ELEMENTS ARE SHOWN ON THE STRUCTURAL DRAWINGS, THEY ARE SHOWN FOR REFERENCE AND DESIGN INTENT ONLY. NON-STRUCTURAL ELEMENTS SHALL BE CONSTRUCTED AS SHOWN ON THE ARCHITECTURAL, ELECTRICAL, MECHANICAL AND PLUMBING DRAWINGS. 9. WALL OPENINGS AND TERMINATIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE DIAGNOSTIC ONLY. WALL TERMINATIONS AND OPENING JAMBS, HEADS, AND SILLS SHALL BE CONSTRUCTED AS SHOWN ON THE ARCHITECTURAL DRAWINGS. WHERE VENEERS WRAP JAMBS, DETAIL AND FABRICATE LINTELS TO BEAR ON SOLID STRUCTURE. DO NOT BEAR LINTELS OR BEAMS ON VENEERS (BRICKS, SIDING, ETC.), IF THE ARCHITECTURAL DRAWINGS DO NOT INCLUDE DETAILS FOR ANY OF THESE CONDITIONS, CONSULT WITH ARCHITECT FOR DIRECTION. 10. DETAILS LABELED TYPICAL ON THESE DRAWINGS SHALL APPLY TO ALL SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR AND SHALL APPLY REGARDLESS OF WHETHER THEY ARE KEYS ON THE PLANS. CONSTRUCTION NOT SPECIFICALLY INDICATED BY DETAIL OR SECTION SHALL BE SIMILAR TO DETAILS SHOWN FOR SIMILAR CONDITIONS.

FOUNDATION CONSTRUCTION

- 1. FOUNDATIONS ON THIS PROJECT ARE DESIGNED IN ACCORDANCE WITH RECOMMENDATIONS MADE BY GREENBAUM ASSOCIATES, INC., GEOTECHNICAL ENGINEERS, IN THEIR REPORT DATED MAY 18, 2020. THE GEOTECHNICAL REPORT IS PROVIDED AS REFERENCE INFORMATION AVAILABLE TO BIDDERS, BUT IS NOT PART OF THE CONTRACT DOCUMENTS. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE OR LIABLE FOR THE ACCURACY OF THE INFORMATION PRESENTED IN THE GEOTECHNICAL REPORT. 2. ELEVATIONS GIVEN ARE TO THE TOP OF FOOTINGS. 3. ALL FOOTINGS MUST BE SUPPORTED ON UNDISTURBED SOIL CAPABLE OF SUPPORTING DESIGN LOADS WITHOUT APPRECIABLE SETTLEMENT. CONTRACTOR SHALL PROBE BEARING STRATA WITH DRIVEN RODS, REMOVE SHALLOW BEDROCK (AND OVERLYING SOIL) WITHIN TWO FEET BELOW BOTTOM OF FOOTING, AND REPLACE WITH ENGINEERED SOIL BACKFILL. 4. IN GRANULAR SOILS (SANDS AND GRAVEL) THE SOIL SHALL BE MECHANICALLY TAMPED TO A HARD SURFACE IMMEDIATELY PRIOR TO PLACING FOOTING. 5. LOCATE EXISTING UNDERGROUND UTILITIES IN AREAS OF CONSTRUCTION. COORDINATE WITH UTILITY COMPANIES FOR ANY SHUT-OFF REQUIREMENTS OF STILL-ACTIVE LINES. 6. WHEN EXCAVATIONS APPROACH THE GROUND WATER LEVEL, THE WATER LEVEL SHALL BE LOWERED BY AN ACCEPTABLE RATE OF DRAINAGE SYSTEM SO THAT THE WATER LEVEL IS MAINTAINED CONTINUOUSLY A MINIMUM OF 2'-0" BELOW THE EXCAVATION. 7. PROVIDE MINIMUM (2) #5 CONTINUOUS IN ALL FOOTINGS DIRECTLY UNDER MASONRY WALLS. 8. FOR PLACEMENT AND COMPACTION OF FILL UNDER SLABS ON GRADE, SEE SPECIFICATIONS. IF NOT OTHERWISE NOTED, COMPACT ALL FILL TO 98% OF OPTIMUM LABORATORY DENSITY IN ACCORDANCE WITH ASTM D998 STANDARD PROCTOR METHOD. PLACE FILL IN 6" TO 8" LAYERS AND COMPACT WITH VIBRATORY TAMPING EQUIPMENT. 9. WHERE ELECTRICAL CONDUIT CONGREGATES BELOW ELECTRICAL ROOMS AND PANELS, CONTRACTOR SHALL HOLD DOWN SUBGRADE APPROPRIATELY FOR CONDUIT TO BE BELOW SLAB. COVER CONDUIT WITH FLOWABLE FILL (LEAN CONCRETE) TO BOTTOM OF SLAB ELEVATION. 10. SEE ARCHITECTURAL AND SITE DRAWINGS FOR CONTOUR AND LAYOUT OF SITE WALKS AND BREEZEWAYS. SLOPE EXTERIOR CONCRETE 1/8" FT AWAY FROM BUILDING, UNLESS NOTED OTHERWISE. 11. SURFACE RUNOFF SHALL BE DIRECTED AWAY FROM FOUNDATION EXCAVATIONS AND NOT BE PERMITTED TO POND WITHIN THE BUILDING FOOTPRINT. PROVIDE DRAINAGE TRENCHES FROM FOUNDATION EXCAVATIONS TO DIRECT RAINWATER OUT OF EXCAVATIONS.

CONCRETE CONSTRUCTION

- 1. ALL CONCRETE CONSTRUCTION TO BE IN ACCORDANCE WITH THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE ACI 301-10, ACI 318-14 AND ACI DETAILING MANUAL. 2. FURNISH BAR SUPPORTS WHERE NECESSARY DURING CONSTRUCTION. 3. PROVIDE PLASTIC, PLASTIC-COATED ANOT PLASTIC-TYPED OR STAINLESS STEEL CHAIRS IN ALL CONCRETE EXPOSED TO VIEW IN COMPLETED STRUCTURE. 4. PROVIDE PIPE SLEEVES AND INSERTS IN CONCRETE WORK WHERE REQUIRED. SEE ARCHITECTURAL AND MECHANICAL DRAWINGS. 5. OBTAIN APPROVAL OF STRUCTURAL ENGINEER BEFORE LOCATING SLEEVES, HOLES, OR INSERTS IN SLABS WITHIN 2'-0" OF FACE OF PIERS OR ANYWHERE IN PIERS. 6. CONSTRUCTION JOINTS SHALL BE POSITIONED SO AS NOT TO CHANGE THE STRUCTURAL DESIGN REQUIREMENTS. RATIO OF LENGTH TO WIDTH OF POUR SHALL NOT EXCEED 2. LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE APPROVED BY THE ENGINEER. 7. WELDING OF REINFORCING BARS (INCLUDING TACK WELDING) IS NOT PERMITTED. 8. PROVIDE HORIZONTAL KEYWAYS IN CONSTRUCTION JOINTS IN WALL FOOTINGS; MINIMUM 1 1/2" DEPTH WITH HEIGHT EQUAL TO ONE-THIRD OF MEMBER DEPTH, UNLESS OTHERWISE SHOWN OR NOTED. 9. REINFORCING FOR SLABS ON GROUND (IN FLAT SHEETS) SHALL BE IN THE MIDDLE OF THE SLAB EXCEPT AS OTHERWISE NOTED AND SHALL BE POSITIVELY SUPPORTED AND MAINTAINED IN THIS POSITION DURING PLACEMENT OF CONCRETE. 10. BEND ALL HORIZONTAL FOOTING BARS 1'-0" AROUND CORNERS OR PROVIDE CORNER BARS WITH 2'-0" LAP. 11. PROVIDE FOUNDATION DOWELS FOR ALL PIERS SAME SIZE AND SPACING AS VERTICAL STEEL. 12. PROVIDE FOUNDATION DOWELS FOR MASONRY WALLS SAME SIZE AND SPACING AS VERTICAL STEEL. ALL DOWELS SHALL BE WITHIN 8" LATEROALLY OF WALL REINFORCING. ABOVE AND IN LINE WITH THE WALL REINFORCING. PROVIDE DOWELS FOR ALL ADDITIONAL WALL REINFORCING AT CORNERS, ENDS, JAMBS, INTERSECTIONS AND BOTH SIDES OF CONTROL JOINTS. ONLY DOWELS AT THESE ADDITIONAL LOCATIONS MAY BE POST INSTALLED / DRILLED AND ADHESIVE FASTENED WITH EMBEDMENT AS REQUIRED TO DEVELOP FULL YIELD STRENGTH OF REINFORCING. 13. REINFORCING SPLICES SHALL BE AS TENSION LAP U.N.O. A. LAP ALL TENSION SPLICES IN ACCORDANCE WITH THE FOLLOWING TABLE. MODIFY LENGTHS AS NOTED.

Table with columns for BAR SIZE, CONCRETE COMPRESSIVE STRENGTH (3,000 PSI, 4,000 PSI), and splice length requirements. Includes rows for #4, #5, #6 bars and horizontal top bars with greater than 12' of concrete below.

- 14. CONCRETE PROTECTION FOR REINFORCEMENT: COVER A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH..... 3" B. CONCRETE EXPOSED TO EARTH OR WEATHER NO. 5 THROUGH NO. 18 BARS..... 2" NO. 5 BAR, W31 OR D31 WIRE AND SMALLER..... 1 1/2" C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND SLABS NO. 11 BAR AND SMALLER..... 1/2"

LOOSE LINTEL SCHEDULE

- 1. THIS SCHEDULE IS FOR LINTELS OVER MASONRY OPENINGS NOT OTHERWISE SHOWN OR NOTED ON DRAWINGS, INCLUDING NON-BEARING PARTITION WALLS AND VENEERS. A. ANGLES AND SUPPORT PLATES EXPOSED TO WEATHER SHALL BE HOT-DIP GALVANIZED. B. MINIMUM BEARING LENGTH FOR ANGLES AND WTS SHALL BE 6" EACH END. MINIMUM BEARING LENGTH FOR TUBES SHALL BE 8" EACH END. SEE TYPICAL DETAILS FOR BOND BEAM CONSTRUCTION. C. PROVIDE STEEL ANGLE LINTELS ABOVE ALL DUCT PENETRATIONS 16" AND WIDER THROUGH MASONRY WALLS. 2. FOR 6" MASONRY WALLS PROVIDE: LINTEL SIZE SPAN LIMITS WTS x 8.0 0" TO 4'-0" WTS x 8.5 4'-1" TO 6'-4" 3. FOR 8" MASONRY WALLS PROVIDE: LINTEL SIZE SPAN LIMITS WTS x 8.0 0" TO 6'-0" 8" BOND BEAM TYPE ML-8 SEE DET FIS-06 6'-1" TO 12'-6" 16" BOND BEAM TYPE ML-16 SEE DET FIS-06

MASONRY WALL CONSTRUCTION

- 1. MASONRY WALLS SHOWN ON STRUCTURAL DRAWINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530-13/ASCE 5-13/TMS 402-13). 2. MASONRY WALLS SHOWN ON STRUCTURAL DRAWINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530-13/ASCE 5-13/TMS 402-13) AND THE PROJECT SPECIFICATIONS. IF THERE ARE ANY CONFLICTS BETWEEN THE TWO, THE MORE RESTRICTIVE REQUIREMENT SHALL BE APPLICABLE. 3. DETERMINE COMPRESSIVE STRENGTH OF MASONRY (fm) BY THE UNIT STRENGTH METHOD (SECTION 1148.2 OF ACI 530-13/ASCE 5-13/TMS 402-13). THE STRENGTH OF GROUT SHALL BE DETERMINED BY TESTS IN ACCORDANCE WITH ASTM C1019. 4. MATERIALS: C.M.U. - ASTM C55 OR C90 GROUT - ASTM C476 MORTAR - TYPE S 5. USE TYPE S MORTAR FOR C.M.U. IN ALL STRUCTURAL BEARING AND CURTAIN WALLS. 6. INTERSECTING BEARING WALLS SHALL BE ANCHORED BY ONE OF THE FOLLOWING METHODS: A. FIFTY PERCENT OF THE UNITS AT THE INTERSECTION SHALL BE LAID IN AN OVERLAPPING MASONRY BONDING PATTERN, WITH ALTERNATE UNITS HAVING A BEARING OF NOT LESS THAN 3" ON THE UNIT BELOW. B. WALLS SHALL BE TIED BY GALVANIZED STEEL STRAPS 1 1/2" x 1/4" x 24" WITH 2" BEND AT 90° EACH END. GROUT STRAPS SOLID INTO CORES OF BLOCK AT 24" MAXIMUM VERTICAL SPACING. C. THE ABOVE DO NOT APPLY AT CONTROL JOINTS OR WHERE NON-LOAD-BEARING PARTITIONS ABUT BEARING WALLS. 7. CORNERS OF BEARING AND EXTERIOR WALLS SHALL BE BUILT IN RUNNING BOND. 8. ALL STRUCTURAL WALLS SHALL BE LAID IN RUNNING BOND. STACK BOND IS NOT ALLOWED. 9. PROVIDE A MINIMUM OF 16" DEPTH OF SOLID MASONRY UNDER THE BEARING ENDS OF ALL BEAMS. GROUT CELLS (2 MINIMUM) BELOW LINTEL BEARING AT JAMBS DOWN TO FOUNDATION OR BOND BEAM, WHICHEVER OCCURS FIRST. 10. PROVIDE SOLID MASONRY MORTARED INTO PLACE AROUND BEARING ENDS OF ALL BEAMS. COMPLETELY FILL BEARING POCKETS. CUT MASONRY NEATLY AT EXPOSED CONDITIONS. 11. NO CHASES, RISERS, CONDUITS, OR TOOTHING OF MASONRY SHALL OCCUR IN MASONRY WALLS WITHIN 18 INCHES OF BEAM BEARING CENTERLINE. 12. PROVIDE HORIZONTAL JOINT REINFORCEMENT PER ASTM A851, GALVANIZED, AT 16" CENTERS VERTICALLY. SEE SPECIFICATIONS. IF NOT OTHERWISE NOTED, PROVIDE A GALVANIZED LADDER TYPE JOINT REINFORCEMENT. 13. WELDING OF REINFORCING BARS (INCLUDING TACK WELDING) IS NOT PERMITTED. 14. LAP SPLICES FOR REINFORCING CENTERED IN CORES TO BE IN ACCORDANCE WITH THE FOLLOWING TABLE:

Table with columns for BAR SIZE, WALL THICKNESS, and CMU size. Rows show requirements for #4, #5 bars in 8", 32", and 40" CMU.

- 15. SEE DETAILS AND SCHEDULES FOR LOCATIONS AND SIZES OF HORIZONTAL AND VERTICAL REINFORCEMENT. 16. REINFORCE BOND BEAMS WITH (2) #4 CONTINUOUS, UNLESS OTHERWISE NOTED. PROVIDE CORNER BARS FOR ALL BOND BEAM REINFORCEMENT. 17. IN ADDITION TO SPACING INDICATED IN SCHEDULE, PROVIDE VERTICAL BARS AT ALL CORNERS, ENDS, JAMBS, INTERSECTIONS AND BOTH SIDES OF CONTROL JOINTS. 18. EXTEND ALL VERTICAL REINFORCEMENT THRU MID-HEIGHT BOND BEAMS. EXTEND VERTICAL REINFORCING INTO BOND BEAMS AT TOP OF WALL AND TERMINATE AT 2" DOWN FROM TOP OF WALL. 19. PROVIDE DOWELS FROM SUPPORTING MEMBER (FOOTING, BEAM, OR SLAB) FOR ALL REINFORCED WALLS, SAME SIZE, LOCATION, AND SPACING AS WALL REINFORCING. VERTICAL REINFORCEMENT SHALL BE CENTERED IN CELLS OF MASONRY UNIT, UNLESS OTHERWISE NOTED. 20. WHERE REQUIRED BY CONSTRUCTION GEOMETRY/DETAILING, BAR POSITIONERS SHALL BE USED TO HOLD BOND BEAM REINFORCEMENT IN PROPER ALIGNMENT. 21. BAR POSITIONERS SHALL BE USED TO HOLD VERTICAL REINFORCEMENT IN PROPER ALIGNMENT WHERE C.M.U. BLOCK IS CONSTRUCTED SUCH THAT THE GROUT POUR HEIGHT EXCEEDS 5 FEET 4 INCHES. 22. BAR POSITIONERS ARE NOT REQUIRED WHERE GROUT POURS ARE 5 FEET 4 INCHES OR LESS WITH VERTICAL BARS CENTERED IN THE C.M.U. CELL. THE ENGINEER OF RECORD MAY REQUIRE THE USE OF BAR POSITIONERS REGARDLESS OF GROUT POUR HEIGHT IF SPECIAL INSPECTIONS AND/OR SITE OBSERVATIONS INDICATE THAT BARS ARE NOT BEING CORRECTLY POSITIONED. 23. WHERE BAR POSITIONERS ARE REQUIRED, VERTICAL BARS SHALL BE HELD IN POSITION AT TOP AND BOTTOM AND AT INTERVALS NOT EXCEEDING 4 FEET. 24. GROUTING OF MASONRY LINTELS OVER OPENINGS SHALL BE ACCOMPLISHED IN ONE CONTINUOUS OPERATION. 25. WHERE LOW CUT WEB, OPEN CELLED C.M.U. ARE USED FOR BOND BEAMS, PROVIDE A CONTINUOUS METAL LATH GROUT RETAINER IN THE BED JOINT TO RETAIN GROUT IN CELLS. 26. VERTICAL REINFORCING BARS SHALL HAVE A MINIMUM CLEARANCE OF 3/4" FROM THE MASONRY SURFACE AND NOT LESS THAN ONE BAR DIAMETER BETWEEN BARS. 27. GROUTING SHALL BE STOPPED 1 1/2" BELOW THE TOP OF A COURSE TO FORM A KEY AT THE POUR JOINT. 28. MAINTAIN CLEAR DISTANCE OF 1/4" MINIMUM FOR FINE GROUT OR 1/2" MINIMUM FOR COARSE GROUT BETWEEN REINFORCING BARS AND ANY FACE OF MASONRY UNIT. 29. MASONRY PROTECTION FOR REINFORCEMENT: COVER A. MASONRY EXPOSED TO EARTH OR WEATHER NO. 5 BAR AND SMALLER..... 1 1/2" B. MASONRY NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND ALL BARS..... 1 1/2" 30. REMOVE MORTAR PROTRUSIONS GREATER THAN 1/2" FROM CELLS BEFORE GROUTING. 31. GROUTING SHALL BE STOPPED 1 1/2" BELOW THE TOP OF A COURSE TO FORM A KEY AT THE POUR JOINT. 32. GROUT ALL CELLS OF CONCRETE MASONRY UNITS BELOW GRADE. 33. DO NOT EXCEED THE MAXIMUM GROUT POUR HEIGHT FOR EACH GROUT TYPE AND SPACE GIVEN IN THE FOLLOWING TABLE:

Table with columns for GROUT TYPE, MAXIMUM GROUT POUR HEIGHT, MINIMUM WIDTH OF GROUT SPACE, and MINIMUM GROUT SPACE DIMENSIONS FOR GROUTING CELLS OF HOLLOW UNITS. Includes rows for FINE and COARSE grout.



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2019 WATER SYSTEM IMPROVEMENTS CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS

GENERAL NOTES



PROJECT #: 20177 DATE: AUGUST 2021 PROJECT MGR: BM DRAWN BY: ABJ CHECKED BY: DK



SHEET NO. S-01

KNOW SUBMITTAL - NOT APPROVED FOR CONSTRUCTION

THIS DRAWING HAS BEEN PREPARED AT THE SCALE INDICATED. REPRODUCTION OF THIS DRAWING MAY INTRODUCE INACCURACIES OF THE LISTED SCALE. THE GRAPHIC SCALE BAR SHALL BE USED TO DETERMINE THE ACTUAL SCALE.

IT IS A VIOLATION OF LAW FOR ANY PERSON TO ALTER THIS DRAWING WITHOUT WRITTEN PERMISSION FROM BLUEGRASS ENGINEERING, PLLC AND ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER.

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34. PLACE GROUT IN LIFTS NOT EXCEEDING 12'-6" WHERE MASONRY HAS CURED AT LEAST 4 HOURS. THE GROUT SLUMP IS MAINTAINED BETWEEN 10 AND 11 INCHES, AND THERE ARE NO INTERMEDIATE REINFORCED BOND BEAMS BETWEEN THE TOP AND THE BOTTOM OF THE POUR HEIGHT. AT ALL LOCATIONS ELSEWHERE PLACE GROUT IN LIFTS NOT EXCEEDING 5'-4"
35. CONSOLIDATE GROUT POURS 12 INCH OR LESS IN HEIGHT BY MECHANICAL VIBRATION OR PUDDLING. CONSOLIDATE POURS EXCEEDING 12 INCH IN HEIGHT BY MECHANICAL VIBRATION AND RECONSOLIDATE BY MECHANICAL VIBRATION AFTER INITIAL WATER LOSS AND SETTLEMENT HAS OCCURRED.
36. PROVIDE CLEANOUT HOLES AT LEAST 3 INCHES IN LEAST DIMENSION FOR GROUT POURS OVER 5 FEET IN HEIGHT.
 - A. AT STRUCTURALLY REINFORCED WALLS PROVIDE CLEANOUT HOLES AT EACH STRUCTURAL VERTICAL REINFORCING BAR.
 - B. AT SOLID GROUTED MASONRY, PROVIDE CLEANOUT HOLES AT NOT MORE THAN 32" ON CENTER.
 - C. CLEANOUT CLOSURES SHALL BE BRACED TO RESIST GROUT PRESSURES.
 - D. GROUT POURS SHALL BE PLANNED SO THAT CLEANOUT HOLES ARE CONCEALED BELOW SLAB OR BEHIND TRIM, CEILING, OR OTHER FINISHES. WHERE CLEANOUTS CANNOT BE CONCEALED, GROUT SHALL BE APPLIED IN POURS LESS THAN 5 FEET TALL TO FORGO CLEANOUTS.
37. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF VERTICAL CONTROL JOINTS AND BEARING WALLS.
38. PROVIDE GALVANIZED STEEL SLEEVE / 8 GA WIRE STABILIZING ANCHORS AT 24" O.C. VERTICAL AT ALL JOINTS BETWEEN MASONRY PARTITIONS AND IN-PLACE MASONRY CONSTRUCTION (BEARING OR EXISTING WALL CONSTRUCTION). FASTEN ANCHOR TO IN-PLACE WALL W/ (2) 3/16" x 1 1/4" MASONRY SCREWS.
40. UNLESS OTHERWISE SHOWN OR NOTED, SPACING OF CONTROL JOINTS SHALL NOT EXCEED 25 FEET.
41. AT VERTICAL CONTROL JOINTS, BOND BEAM REINFORCEMENT AND JOINT REINFORCEMENT SHALL BE DISCONTINUOUS. PROVIDE TWO 3/4" DIAMETER SMOOTH DOWELS BY 1'-4" ACROSS EACH CONTROL JOINT AT EACH BOND BEAM. GREASE ONE END. PROVIDE 3/8" THICK FOAM POUR STOP IN HEAD JOINT OF ALL BOND BEAMS AT CONTROL JOINT TO PREVENT BINDING.
42. LAP SPLICES FOR HORIZONTAL REINFORCING SHALL BE A MINIMUM OF 40 BAR DIAMETERS.
43. DO NOT CONSTRUCT NON-LOADBEARING MASONRY TIGHT TO UNDERSIDE OF STRUCTURE. PROVIDE MINIMUM 3/4" GAP AROUND STRUCTURE AND INFILL WITH COMPRESSIBLE INSULATION/SEALANT AS REQUIRED TO MEET ARCHITECTURAL REQUIREMENTS.

STEEL CONSTRUCTION

1. STEEL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THE AISC SPECIFICATIONS AND CODE OF STANDARD PRACTICE, AND THE AWS STRUCTURAL WELDING CODE.
2. CONNECTIONS - WELDED OR HIGH-STRENGTH BOLTED.
 - A. A325-N WITH HARDENED WASHERS - USE FOR ALL CONNECTIONS.
 - B. UNLESS SHOWN TIGHT CONNECTIONS ARE NOTED ON THE DRAWINGS AS BEING PERMITTED, ALL BOLTS SHALL BE TIGHTENED TO FULL PRETENSIONING LOAD.
 - C. UNLESS SPECIFICALLY NOTED ON THE DRAWINGS OR WITHOUT WRITTEN PERMISSION FROM THE ENGINEER, ALL BOLTS FOR THE PROJECT SHALL BE OF ONE ASTM TYPE AND ONE DIAMETER.
 - D. USE STANDARD HOLES WITH THE FOLLOWING EXCEPTIONS: OVERSIZE HOLES ARE PERMITTED WHEN BOLTS ARE LOADED IN TENSION; SHORT-SLOTTED HOLES ARE PERMITTED FOR SHEAR LOADING PERPENDICULAR TO THE SLOT IN ANY ONE PLY AT EACH FAYING SURFACE.
 - E. HARDENED WASHERS SHALL BE USED OVER ALL OVERSIZED OR SHORT-SLOTTED HOLES IN AN OUTER PLY. WHERE LONG-SLOTTED HOLES ARE USED IN AN OUTER PLY, 5/16" THICK A36 PLATE WASHERS OR CONTINUOUS BAR WITH STANDARD HOLES SHALL BE PROVIDED.
3. WELDING ELECTRODES SHALL BE E70XX EXCEPT WHERE OTHER ELECTRODES ARE REQUIRED FOR COMPATIBILITY WITH MATERIAL BEING WELDED.
4. SHOP DRAWINGS ARE REQUIRED AND SHALL NOTE TYPE OF ELECTRODES, SIZE OF ALL WELDS, AND TYPE AND SIZE OF ALL BOLTS.
5. SEE SPECIFICATIONS FOR ALL PRIMING REQUIREMENTS.
6. ALL SHOP AND FIELD WELDING SHALL BE DONE BY A CERTIFIED WELDER.
7. MISCELLANEOUS STEEL MEMBERS (CHANNELS) THAT SUPPORT RAIL AROUND THE PERIMETER OF A FLOOR AREA SHALL BE CONTINUOUS, EXCEPT AT WALL CONTROL JOINTS. WHERE SPLICES IN THESE MEMBERS MUST OCCUR TO FACILITATE ERECTION, PROVIDE PARTIAL PENETRATION SQUARE GROOVE WELD (BUTT JOINT) WITH 3/16" EFFECTIVE THROAT ON ONE SIDE EACH LEG.
8. MISCELLANEOUS HANGING LOADS SUCH AS STAIR STRINGERS, PIPES, MECHANICAL UNITS, ETC., SUPPORTED BY STEEL MEMBERS SHALL HAVE THESE LOADS APPLIED IN SUCH A MANNER THAT NO TORSIONAL FORCES ARE INDUCED IN THESE MEMBERS, I.E., LOADS SHALL PASS THROUGH THE CENTERLINE OF WIDE FLANGE SECTIONS AND THROUGH THE SHEAR CENTER OF CHANNELS.

WOOD CONSTRUCTION

1. CONSTRUCTION SHALL CONFORM TO THE NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION.
2. FRAMING PLANS ARE SCHEMATIC; SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS.

COLD-FORMED STEEL FRAMING

1. THE FOLLOWING NOTES APPLY ONLY TO LOAD BEARING FRAMING. SEE ARCHITECTURAL DRAWINGS FOR NON-LOAD BEARING INTERIOR PARTITIONS, SOFFITS, AND OTHER MISCELLANEOUS FRAMING.
2. ALL COLD-FORMED STEEL FRAMING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICAN IRON AND STEEL INSTITUTE "COLD-FORMED STEEL DESIGN MANUAL" (AISI, LATEST EDITION).
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL TEMPORARY SHORING AND BRACING REQUIRED DURING CONSTRUCTION FOR ERECTION STABILITY AND SAFETY.
4. THE FORMAT FOR MEMBER DESIGNATION IS AS FOLLOWS:

WEB DEPTH; SECTION TYPE; FLANGE WIDTH - BASE METAL THICKNESS (IN MILS) SECTION TYPE DESIGNATIONS ARE AS FOLLOWS:

S STUD AND JOIST SECTION WITH FLANGE STIFFENERS (RETURN LIPS)

T TRACK SECTIONS (NO FLANGE STIFFENERS)

EXAMPLE: 600S162-54 DESIGNATES A 16" STUD WITH A FLANGE WIDTH OF 1 5/8" AND 54 MILS BASE STEEL THICKNESS.

EXAMPLE: 400T125-43 DESIGNATES A 4" TRACK WITH A FLANGE WIDTH OF 1 1/4" AND 43 MILS BASE STEEL THICKNESS.
5. THE MINIMUM BASE METAL THICKNESS FOR COLD-FORMED STEEL FRAMING MATERIAL SHALL BE AS FOLLOWS:

MIL THICKNESS (0.001 INCHES)	GAGE DESIGNATION (FOR REFERENCE ONLY)	MINIMUM BASE METAL THICKNESS PRIOR TO GALVANIZING (INCH)
54	16	0.0538
68	14	0.0677
97	12	0.0966

6. ALL MATERIAL SHALL BE COLOR-CODED TO INDICATE DIFFERENT STEEL MATERIAL THICKNESSES.
7. ALL MATERIAL EQUAL TO OR GREATER THAN 54 MILS IN THICKNESS SHALL CONFORM TO ASTM A653 WITH G90 GALVANIZED COATING AND HAVE A MINIMUM YIELD STRENGTH OF 50 KSI.
8. ALL SCREWS SHALL BE SELF-DRILLING, SELF-THREADING, ZINC-COATED STEEL DRILL SCREWS, WITH LOW PROFILE HEADS WHEN USED BENEATH SHEATHING. MAINTAIN MINIMUM CLEARANCES AS SPECIFIED BELOW:

SCREW NUMBER DESIGNATION	NOMINAL SCREW DIAMETER (IN)	MINIMUM CENTER-TO-CENTER SPACING	MINIMUM EDGE DISTANCE	TOTAL PANEL THICKNESS STEEL TO STEEL
10	0.190	9/16"	9/16"	0.11 MAXIMUM #2 POINT 0.175 MAXIMUM #3 POINT

9. POWDER ACTUATED FASTENERS USED FOR FASTENING COLD-FORMED METAL FRAMING (RUNNER TRACKS, CLIP ANGLES, ETC.) TO CMU SHALL BE 1 1/4" LONG, 0.157" SHANK DIAMETER, WITH PRE-MOUNTED PLASTIC WASHER. OTHER FASTENERS OF EQUIVALENT OR LARGER DIMENSION AND WITH EQUIVALENT OR GREATER LOAD CAPACITY MAY BE SUBSTITUTED UPON REVIEW AND APPROVAL FROM THE STRUCTURAL ENGINEER. FASTENERS SHALL BE ZINC PLATED WITH A MINIMUM ZINC THICKNESS OF 5 MICRONS.
10. POWDER ACTUATED FASTENERS USED FOR FASTENING COLD-FORMED METAL FRAMING (RUNNER TRACKS, CLIP ANGLES, ETC.) TO STEEL SHALL BE 3/4" LONG, 0.145" SHANK

DIAMETER, WITH PRE-MOUNTED PLASTIC WASHER. OTHER FASTENERS OF EQUIVALENT OR LARGER DIMENSION AND WITH EQUIVALENT OR GREATER LOAD CAPACITY MAY BE SUBSTITUTED UPON REVIEW AND APPROVAL FROM THE STRUCTURAL ENGINEER. FASTENERS SHALL BE ZINC PLATED WITH A MINIMUM ZINC THICKNESS OF 5 MICRONS.

11. BOTTOM FLANGE BRIDGINGS AND TOP FLANGE SHEATHING SHALL BE IN PLACE PRIOR TO PLACEMENT OF SUPERIMPOSED LOADS ON JOIST ASSEMBLIES. STRAP BRIDGING SHALL BE TAUT BY PRE-TENSIONING. PRE-TENSIONING LOAD SHALL NOT EXCEED VALUES LISTED IN TABLE BELOW. INTERPOLATION MAY BE UTILIZED.

ONE-INCH WIDE STRAP BASE STEEL THICKNESS (MILS)	MAXIMUM ALLOWABLE PRETENSION LOAD PER INCH WIDTH (LBS)
33	75
43	100
54	180
68	230

12. JOIST ENDS SHALL BE SAWN TO FIT SQUARELY AND EVENLY AGAINST THE CONNECTING MEMBER. STUDS SHALL NOT BE THERMALLY CUT.
13. THE OWNER MAY EMPLOY AN INDEPENDENT TESTING AGENCY TO PERFORM FIELD TESTS AND INSPECTION OF COLD-FORMED CONSTRUCTION FOR CONFORMANCE WITH CONTRACT DOCUMENTS. THE CONTRACTOR SHALL FACILITATE AND ALLOW ACCESS TO THE WORK FOR TESTS AND INSPECTIONS TO BE PERFORMED.
14. SUBMIT REPORTS DETAILING RESULTS OF ALL INSPECTIONS AND TESTING TO THE ARCHITECT/ENGINEER FOR APPROVAL WITHIN FIVE DAYS OF COMPLETION OF THE TESTS.
15. FIELD MODIFICATIONS OF COLD-FORMED STEEL SYSTEMS SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL BY ENGINEER OF RECORD.

PRE-ENGINEERED STEEL BUILDING CONSTRUCTION

1. PRE-ENGINEERED BUILDING CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF THE BUILDING STRUCTURE.
2. CONTRACTOR SHALL SUBMIT DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF KENTUCKY FOR REVIEW BY THE ARCHITECT AND ENGINEER.
3. STRUCTURE SHALL BE DESIGNED FOR:
 - A. STRUCTURE SELFWEIGHT (INCLUDING ROOF SYSTEM).
 - B. COLLATERAL DEAD LOAD OF 5 PSF.
 - C. SNOW, WIND, EARTHQUAKE AND ROOF LIVE LOAD AS SHOWN IN "DESIGN LIVE LOADS" SECTION.
 - D. ROOF SUPPORTED MECHANICAL UNITS (COORDINATE WITH MECHANICAL CONTRACTOR).
4. LIMIT BUILDING DRIFT TO H/180 UNDER LOAD COMBINATIONS THAT INCLUDE WIND. DRIFT LIMITATIONS FOR SEISMIC LOADING ARE DEFINED IN THE KENTUCKY BUILDING CODE.
5. IN ADDITION TO THE BUILDING FRAME, THE PRE-ENGINEERED BUILDING CONTRACTOR SHALL DESIGN, PROVIDE, AND INSTALL:
 - A. ANCHOR BOLTS (DIAMETER SELECTION FOR SHEAR AND TENSION)
 - B. FRAMING FOR WALL OPENINGS
 - C. FRAMING FOR ROOF OPENINGS
6. COLUMN PIERS AND FOOTINGS ARE DESIGNED ASSUMING PINNED COLUMN BASES. FIXED COLUMN BASES ARE NOT PERMITTED.
7. THE COMPLETE FOUNDATION SYSTEM MUST BE INSTALLED PRIOR TO ERECTING THE STEEL STRUCTURE.
8. METAL ROOFING SHALL BE ASSUMED TO HAVE ZERO CAPACITY FOR DIAPHRAGM ACTION.
9. DEFLECTION OF FRAME BEAM SHALL NOT EXCEED L/120, WHERE L IS THE DISTANCE FROM EAVE TO EAVE.

SPECIAL INSPECTION

1. SPECIAL INSPECTIONS AS DEFINED IN SECTIONS 1704 AND 1705 OF THE KENTUCKY BUILDING CODE ARE REQUIRED.
2. SPECIAL INSPECTIONS SHALL BE PERFORMED BY A QUALIFIED TESTING AGENCY APPROVED BY THE ARCHITECT AND THE STRUCTURAL ENGINEER AND PAID FOR BY THE OWNER.
3. THE INSPECTOR SHALL OBSERVE WORK FOR CONFORMANCE WITH THE APPROVED STRUCTURAL DRAWINGS AND SPECIFICATIONS AND PREPARE INSPECTION REPORTS STATING HIS/HER OBSERVATIONS. COPIES OF THE INSPECTION REPORTS SHALL BE SUBMITTED TO THE CONTRACTOR, THE ARCHITECT AND THE STRUCTURAL ENGINEER.
4. ALL DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE WORK BEING PERFORMED SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THE DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF ARCHITECT AND THE STRUCTURAL ENGINEER PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK.
5. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL REPORT OF INSPECTIONS DOCUMENTING COMPLETION OF ALL REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS.
6. SPECIAL INSPECTIONS ARE REQUIRED FOR THE FOLLOWING WORK:

INSPECTION OF FABRICATORS

PERFORM SPECIAL INSPECTIONS PER SECTION 1704.2.5 OF THE KENTUCKY BUILDING CODE.

STEEL CONSTRUCTION

PERFORM SPECIAL INSPECTIONS PER SECTION 1705.2 OF THE KENTUCKY BUILDING CODE.

CONCRETE CONSTRUCTION

PERFORM SPECIAL INSPECTIONS PER SECTION 1705.3 OF THE KENTUCKY BUILDING CODE.

MASONRY CONSTRUCTION

PERFORM SPECIAL INSPECTIONS PER SECTION 1705.4 OF THE KENTUCKY BUILDING CODE.

SOILS

PERFORM SPECIAL INSPECTIONS PER SECTION 1705.6 OF THE KENTUCKY BUILDING CODE.

ROOF, FLOOR, OR WALL OPENINGS

1. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE NUMBER, SIZE, AND LOCATION OF ALL SLEEVES AND OPENINGS REQUIRED FOR MECHANICAL OR ELECTRICAL ITEMS.
2. SLEEVES AND OPENINGS SHALL BE LOCATED IN A MANNER THAT WILL MAINTAIN THE STRUCTURAL INTEGRITY OF THE ROOF, FLOOR, OR WALL SYSTEM.
3. NO STRUCTURAL ELEMENTS ARE TO BE CUT UNLESS SPECIFICALLY APPROVED BY THE ENGINEER.

OPENINGS / PENETRATIONS / ATTACHMENTS TO STRUCTURE BY OTHER TRADES

1. THE CONTRACTOR SHALL COORDINATE AND VERIFY THE NUMBER, SIZE, AND LOCATION OF ALL SLEEVES AND OPENINGS REQUIRED FOR OTHER TRADES IN STRUCTURAL ELEMENTS.

TO STRUCTURAL STEEL

1. FIELD CUTTING/DRILLING OF HOLES LARGER THAN 3/8" INTO BEAM FLANGES OR COLUMNS IS PROHIBITED EXCEPT WHERE REQUIRED FOR STRUCTURAL STEEL CONNECTIONS.
2. PENETRATIONS / HOLES THROUGH BEAM WEBS MAY BE POSSIBLE. TRADE CONTRACTOR SHALL BE RESPONSIBLE FOR ENGINEERING COST TO VERIFY ADEQUACY AND DESIGN AND FOR INSTALLATION COST OF OPENING AND ANY REINFORCEMENT.

TO COLD-FORMED METAL JOISTS:

1. DO NOT USE DRILLED ANCHORS (WHICH CAUSE SECTION LOSS AND TENSION PUNCHING) THROUGH THE HORIZONTAL CHORDS OR FLANGES OF COLD-FORMED STEEL FRAMING. DO NOT USE DRILLED ANCHORS OR ECCENTRIC CLAMP CONNECTIONS (WHICH CAUSE SECTION LOSS / TENSION PUNCHING OR FLANGE TWISTING) THROUGH THE FLANGES OF COLD-FORMED STEEL FRAMING.
2. ALL CONNECTIONS TO COLD-FORMED STEEL STRUCTURAL FRAMING SHALL HAVE SHEAR PLATES THAT USE SELF-DRILLING SCREWS (IN SHEAR) TO THE VERTICAL FACE OF THE MEMBER WEB.

MAINTENANCE STATEMENT AND STRUCTURE LIFESPAN

1. THE ENGINEER MAKES NO CLAIM OR AGREEMENT AS TO THE LIFESPAN OF THE BUILDING STRUCTURE. THE CLIENT AND OWNER SHALL UNDERSTAND THAT STRUCTURAL TYPES DO HAVE LIFESPAN RELATIVE TO INITIAL COST AND MAINTENANCE AND THAT BY REQUESTING OR ACCEPTING A STRUCTURAL SYSTEM OF LOWER INITIAL COST THAT THE USABLE LIFESPAN WILL DECREASE AND MAINTENANCE INCREASE.
2. ALL STRUCTURES REQUIRE PERIODIC MAINTENANCE TO EXTEND LIFESPAN AND TO ENSURE STRUCTURAL INTEGRITY FROM EXPOSURE TO THE ENVIRONMENT. THE ENGINEER SHALL NOT BE HELD LIABLE FOR MAINTENANCE REQUIREMENTS OR DETERIORATION RESULTING FROM LACK OF BUILDING MAINTENANCE.
3. A PLANNED PROGRAM OF MAINTENANCE SHALL INCLUDE ITEMS SUCH AS, BUT NOT LIMITED TO: PROTECTIVE COATING FOR CONCRETE, SEALANTS, CAULKED JOINTS, EXPANSION JOINTS, CONTROL JOINTS, TIMELY REPAIR OF SPALLS AND CRACKS IN CONCRETE, AND PRESSURE WASHING OF STRUCTURAL ELEMENTS EXPOSED TO A SALT ENVIRONMENT OR OTHER HARSH CHEMICALS.

STRUCTURAL ABBREVIATIONS

APA	AMERICAN PLYWOOD ASSOCIATION	GALV	GALVANIZED
ARCH	ARCHITECTURAL	GA	GAUGE
BTWN	BOTTOM	HORIZ	HORIZONTAL
CLR	CLEAR	HSS	HOLLOW STRUCTURAL SECTION
C.F.S.	COLD-FORMED STEEL	L.D.H.	LONG DIMENSION HORIZONTAL
C.I.P.	CAST-IN-PLACE	L.V.	LONG DIMENSION VERTICAL
C.M.U.	CONCRETE MASONRY UNIT	MAX	MAXIMUM
COL	COLUMN	MECH	MECHANICAL
CONC	CONCRETE	M.E.P.	MECHANICAL/ELECTRICAL/PLUMBING
CONT	CONTINUOUS	MIN	MINIMUM
D	DEEP	N.S.	NEAR SIDE
D.G.A.	DENSE GRADE AGGREGATE	N.T.S.	NOT TO SCALE
DET	DETAIL	O.C.	ON CENTER
DWGS	DRAWINGS	O.P.H.	OPPOSITE HAND
EA	EACH	P.A.F.	POWDER ACTUATED FASTENER
E.F.	EACH FACE	P.E.M.B.	PRE-ENGINEERED METAL BUILDING
ELEV	ELEVATION	PL	PLATE
EMBED	MINIMUM EMBEDMENT DEPTH INTO SUBSTRATE	R	RADIUS
E.O.S.	EDGE OF SLAB	REINF	REINFORCEMENT
E.W.	EACH WAY	SIM	SIMILAR
EX	EXISTING	S.O.G.	SLAB ON GRADE
EXP	EXPANSION	S.S.	STAINLESS STEEL
F.F.	FINISHED FLOOR ELEVATION	TYP	TYPICAL
F.S.	FAR SIDE	U.N.O.	UNLESS NOTED OTHERWISE
FTG	FOOTING	VERT	VERTICAL
F.V.	FIELD VERIFY	W	WIDE
		W.W.F.	WELDED WIRE FABRIC

MATERIAL LEGEND

	DENSE GRADED AGGREGATE (DGA)		C.M.U. "IN SECTION"
	NATIVE EARTH / ENGINEERED FILL		GROUT
	CONCRETE		GRATING 1/8" SCALE

**2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT
IMPROVEMENTS**

GENERAL NOTES



PROJECT #:	20177
DATE:	AUGUST 2021
PROJECT MGR:	BM
DRAWN BY:	ABJ
CHECKED BY:	DK



SHEET NO.	S-02
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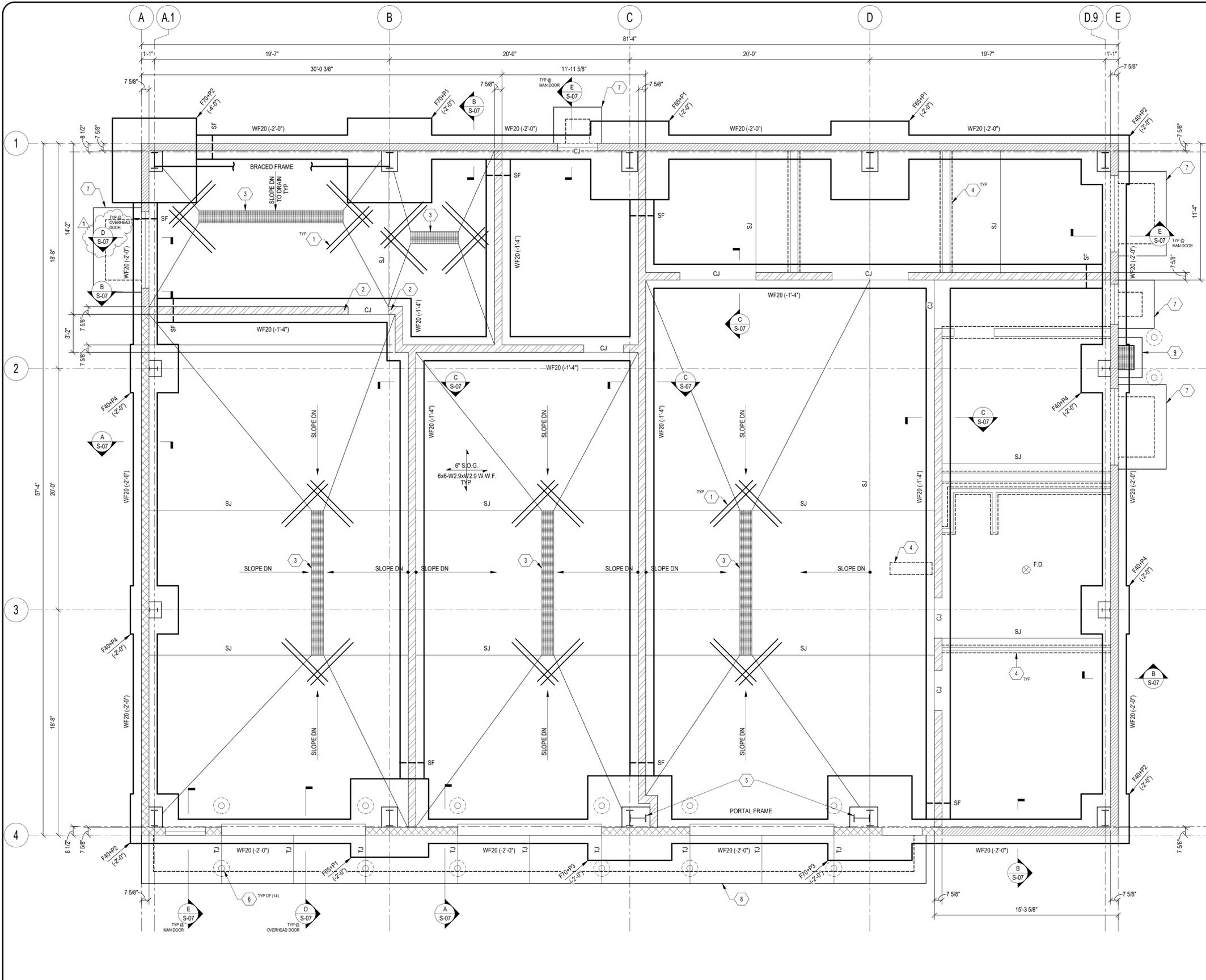
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STRUCTURAL ENGINEERS P.S.C.

NO.	DATE	REVISIONS
1	7/29/21	COILING DOOR REVISION

BY	ABJ

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FOUNDATION PLAN
1/4" = 1'-0"

2,000 PSF

SPREAD FOOTING SCHEDULE				
MARK	LENGTH	WIDTH	THICKNESS	REINFORCING E.W. BOTTOM
F40	4'-0"	4'-0"	1'-0"	(8) #4
F65	6'-6"	6'-6"	1'-4"	(8) #5
F70	7'-0"	7'-0"	1'-4"	(8) #5

2,000 PSF

WALL FOOTING SCHEDULE				
MARK	WIDTH	THICKNESS	REINFORCING CONT BOTTOM	TRANSVERSE REINFORCING BOTTOM
WF15	1'-6"	1'-0"	(2) #4	#4@96" O.C.
WF20	2'-0"	1'-0"	(3) #4	#4@96" O.C.

FOUNDATION PLAN NOTES

- ELEVATIONS SHOWN ARE TO THE TOP OF THE FOUNDATION AND ARE REFERENCED FROM FINISHED FIRST FLOOR REFERENCE ELEVATION (0'-0").
- CENTER ALL WALL FOOTINGS ON WALL CENTERLINE U.N.O.
- CENTER ALL SPREAD FOOTINGS ON PEMB COLUMN U.N.O.
- SEE DWGS S-01 & S-02 FOR GENERAL NOTES.
- SEE DWGS S-05 & S-06 FOR TYPICAL FOUNDATION DETAILS.
- SLAB ON GRADE SHALL BE PLACED ON VAPOR RETARDER (SEE SPECIFICATIONS) OVER 4" MINIMUM COMPACTED DENSE GRADED AGGREGATE.
- REINFORCE SLABS ON GRADE AT RE-ENTRANT CORNERS PER DETAIL B/S-06. REINFORCING BARS MAY NOT BE SHOWN GRAPHICALLY ON PLAN IN ALL LOCATIONS.
- ALL FOOTINGS MUST BE SUPPORTED ON UNDISTURBED SOIL CAPABLE OF SUPPORTING DESIGN LOADS WITHOUT APPRECIABLE SETTLEMENT. CONTRACTOR SHALL PROBE BEARING STRATA WITH DRIVEN RODS, REMOVE SHALLOW BEDROCK (AND OVERLYING SOIL) WITHIN TWO FEET BELOW BOTTOM OF FOOTING, AND REPLACE WITH ENGINEERED SOIL BACKFILL.
- THE ANCHOR BOLTS SHALL NOT BE ORDERED OR INSTALLED UNTIL RECEIPT AND APPROVAL BY THE ENGINEER OF STAMPED ANCHOR BOLT SETTING PLANS FROM THE PEMB MANUFACTURER.
- JOINTS TO BE FILLED W/ SEMI-RIGID JOINT FILLER AND SLAB TO RECEIVE PENETRATING SEALER. SEE SPECIFICATIONS.

FOUNDATION LEGEND

- F40 = SPREAD FOOTING. SEE SCHEDULE.
- WF20 = WALL FOOTING. SEE SCHEDULE.
- P1 = COLUMN PIER. SEE DETAIL E/S-05.
- TJ = TOOLED CONTRACTION JOINT.
- (-2'-0") = TOP OF FOOTING ELEVATION.
- SF = STEP FOOTING. SEE DETAIL F/S-05.
- SJ = SAWN CONTRACTION JOINT. SEE DETAIL D/S-06.
- CJ = CONSTRUCTION JOINT. SEE DETAIL D/S-06.
- ⊗ F.D. = FLOOR DRAIN. SLOPE SLAB TO DRAIN. SEE ARCH DWGS FOR LOCATIONS AND DETAIL C/S-06 FOR REINFORCEMENT.
- / — = DIAGONAL BRACING.
- / — = 8" C.M.U. WALL REINFORCED W/ #4@48" O.C. VERT CENTERED IN CORE.
- / — = 8" C.M.U. WALL REINFORCED W/ #4@32" O.C. VERT CENTERED IN CORE.
- / — = 6" C.M.U. OVER 8" C.M.U. WALL REINFORCED W/ #4@32" O.C. VERT CENTERED IN WALL.
- / — = NON-BEARING MASONRY PARTITION WALL. SEE ARCH DWGS FOR WALL THICKNESS, TYPE AND LAYOUT.

TAG NOTES

- RE-ENTRANT BARS. SEE DETAIL B/S-06.
- REINFORCE (3) CELLS AT EACH SIDE OF DOOR WITH (1) #4 VERT PER CELL. ADHESIVE EMBED EACH BAR 8" INTO THICKENED SLAB BELOW.
- TRENCH DRAIN. SEE ARCH DWGS AND DETAIL C/S-05.
- THICKENED SLAB. SEE DETAIL A/S-06. AT CONTRACTOR'S OPTION, WF15 (0'-4") MAY BE SUBSTITUTED FOR THICKENED SLAB. C.M.U. WOULD EXTEND DOWN TO FOOTING.
- PEMB PORTAL FRAMES TO BE NESTED TO ALLOW FOR INSTALLATION OF PIPE BOLLARDS AND PROVIDE MAXIMUM OPENING CLEARANCE.
- PIPE BOLLARD. SEE ARCH DWGS AND DETAIL J/S-07.
- 5" S.O.G. W/ 6x6-W2.1xW2.1 W.W.F. TURN DOWN EDGES 12"Wx16"D W/ (1) #4 BOTTOM.
- 8" S.O.G. W/ #4@12" O.C. E.W. TURN DOWN EDGES 12"Wx16"D W/ (1) #4 BOTTOM.
- CONCRETE PIT REINFORCED W/ 4x4-W1.4xW1.4 W.W.F. SEE SITE/CIVIL.

- IMPORTANT PEMB NOTES:**
- UNLESS SPECIFICALLY NOTED OTHERWISE, ALL STRUCTURAL STEEL ELEMENTS REQUIRED FOR A COMPLETE BUILDING STRUCTURE SHALL BE DESIGNED, SUPPLIED, AND INSTALLED BY THE PEMB CONTRACTOR.
 - COLUMN FOOTINGS SHALL BE CENTERED ON STEEL COLUMN CENTERLINES. STEEL COLUMN CENTERLINES SHALL BE DETERMINED BY PEMB CONTRACTOR UNLESS OTHERWISE NOTED. FOUNDATION CONTRACTOR SHALL COORDINATE.
 - DO NOT INSTALL FOOTINGS OR FABRICATE REBAR UNTIL PEMB SHOP DRAWINGS HAVE BEEN SUBMITTED, REVIEWED, AND APPROVED. FOOTINGS SHOWN SHALL BE USED FOR BASE BID. HOWEVER, THEY ARE DESIGNED BASED ON ESTIMATED PEMB REACTIONS. PEMB SUPPLIER SHALL PROVIDE SHOP DRAWINGS WITH BUILDING REACTIONS FOR ENGINEER'S REVIEW. ADJUSTMENTS TO FOOTINGS SHOWN MAY OCCUR AFTER ENGINEER'S REVIEW OF PEMB REACTIONS. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - CONCRETE FOUNDATION CONTRACTOR SHALL PROVIDE AND INSTALL ANCHOR BOLTS FOR PEMB ATTACHMENT TO THE FOUNDATION. ANCHOR BOLT DIAMETER AND LAYOUT SHALL BE DESIGNED BY THE PEMB MANUFACTURER AND COORDINATED BY THE GENERAL CONTRACTOR. SEE DETAIL K/S-06 FOR TYPICAL ANCHOR BOLT DETAIL.
 - SEE ARCH DWGS FOR PEMB ELEMENT ELEVATIONS AND LOCATIONS THAT ARE NOT SHOWN ON STRUCTURAL DWGS.
 - SEE ARCH DWGS AND SPECIFICATIONS FOR INFORMATION ABOUT ROOF DECK AND METAL WALL PANELS.
 - PURLINS AND WIND GIRT SPACING AND QUANTITY ARE NOT SHOWN ON STRUCTURAL DWGS AND SHALL BE PER PEMB DESIGN.
 - ROOFING SHALL BE DESIGNED AND SUPPLIED BY PEMB MANUFACTURER. ROOFING SHALL BE INSTALLED BY PEMB INSTALLER.
 - ROOF DIAPHRAGM BRACING IS REQUIRED AS DESIGNED BY PEMB SUPPLIER.



REFERENCE ELEVATION (0'-0") = 717'-0" SEA LEVEL

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NO.	DATE	REVISIONS
1	7/29/21	COILING DOOR REVISION

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
FOUNDATION PLAN

BLUEGRASS ENGINEERING PLLC
222 East Main Street, Ste. 1 • Georgetown, KY 40324

PROJECT #:	20177
DATE:	AUGUST 2021
PROJECT MGR:	BM
DRAWN BY:	ABJ
CHECKED BY:	DK

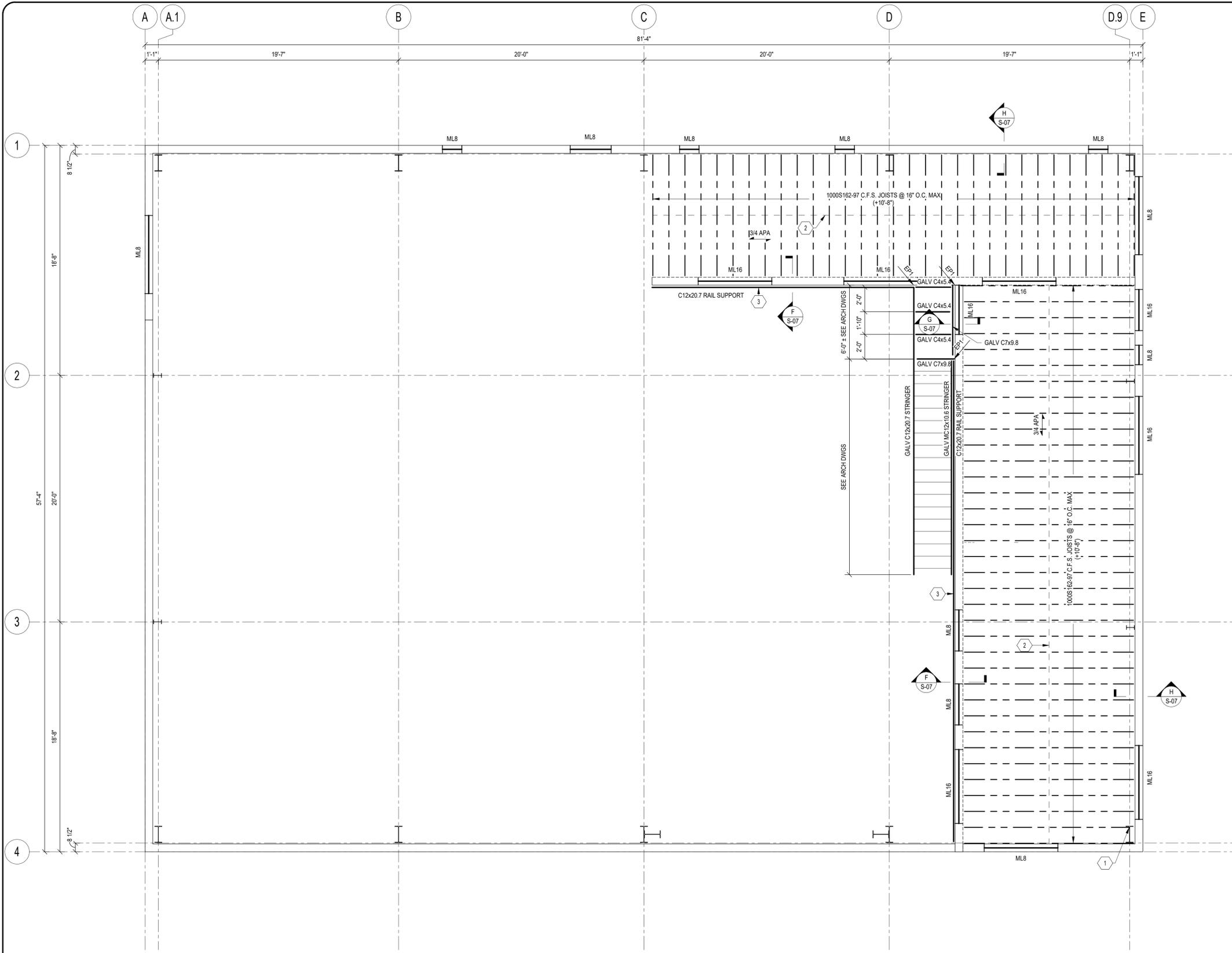


SHEET NO.
S-03

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LOFT FRAMING PLAN
1/4" = 1'-0"

FRAMING PLAN NOTES

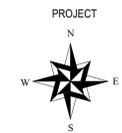
- ELEVATIONS SHOWN ARE TO THE TOP OF STEEL AND ARE REFERENCED FROM FINISHED FIRST FLOOR REFERENCE ELEVATION (0'-0").
- FINISHED LOFT ELEVATION (+10'-8 3/4").
- SEE DWGS S-01 & S-02 FOR GENERAL NOTES.
- SEE DWGS S-05 & S-06 FOR TYPICAL DETAILS.
- SPACE C.F.S. JOISTS EVENLY THROUGHOUT BAY U.N.O.
- ALL C.F.S. FRAMING TO BE 60 KSI YIELD STRENGTH WITH G90 PROTECTIVE COATING.
- PEMB FRAME, GIRTS, ETC SHALL BE GALVANIZED.

FRAMING LEGEND

- 3/4 APA = 23/32" T&G APA RATED STURD-I-FLOOR, EXTERIOR RATED PLYWOOD.
- (±0'-0") = TOP OF STEEL ELEVATION REFERENCED FROM FINISHED FIRST FLOOR REFERENCE ELEVATION (0'-0").
- 8" C.M.U. WALL REINFORCED W/ #4@48" O.C. VERT CENTERED IN CORE.
- 6" C.M.U. OVER 8" C.M.U. WALL REINFORCED W/ #4@48" O.C. VERT CENTERED IN CORE.
- EP1 = EMBED PLATE. SEE DETAIL G/S-06.
- ML8 = MASONRY LINTEL. SEE DETAIL F/S-06. SEE ARCH DWGS FOR EXACT LOCATIONS.

TAG NOTES

- ATTACH C.F.S. JOIST TO PEMB COLUMN W/ SF06-25-54 CLIP BY SIMPSON STRONG-TIE OR EQUAL W/ (4) #10 SCREWS TO JOIST AND (6) P.A.F. TO COLUMN.
- CONTINUOUS C.F.S. 1 1/4" x 16GA FLAT STRAP BRIDGING AT MID-SPAN AND ENDS (AS SHOWN) ALONG BOTTOM SIDE OF JOIST FRAMING. FASTEN TO EACH JOIST BOTTOM FLANGE WITH (1) #10 SCREW. 1000S162-97 BLOCKING AT 12'-0" O.C. ALONG BRIDGING LINES.
- STOP AND RESTART CHANNEL AT MASONRY CONTROL JOINTS.



REFERENCE ELEVATION (0'-0") = 717'-0" SEA LEVEL

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NO.	DATE	REVISIONS	BY
1	7/29/21	COILING DOOR REVISION	ABJ

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
LOFT FRAMING PLAN

BLUEGRASS
ENGINEERING PLLC
222 East Main Street, Ste. 1 • Georgetown, KY 40324

PROJECT #:	20177
DATE:	AUGUST 2021
PROJECT MGR:	BM
DRAWN BY:	ABJ
CHECKED BY:	DK

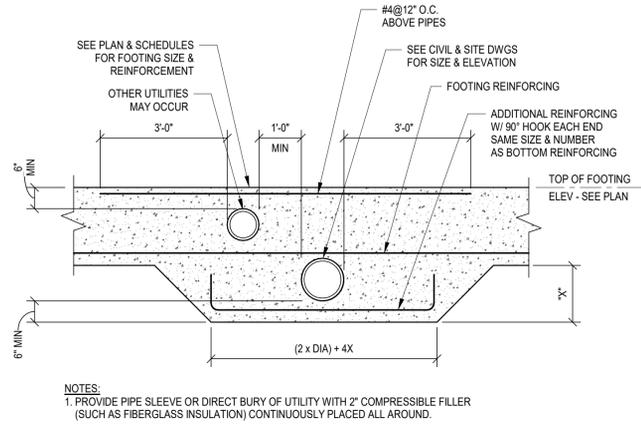


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S-04

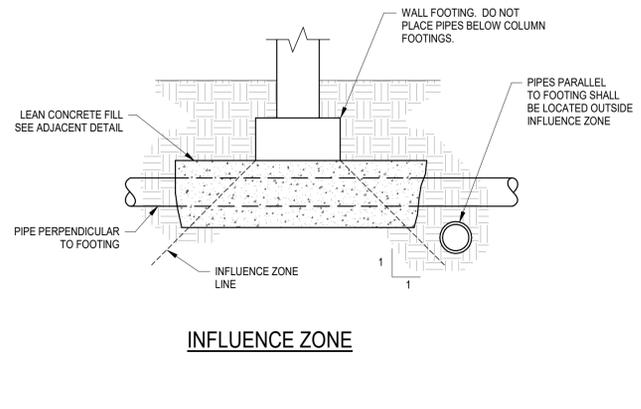
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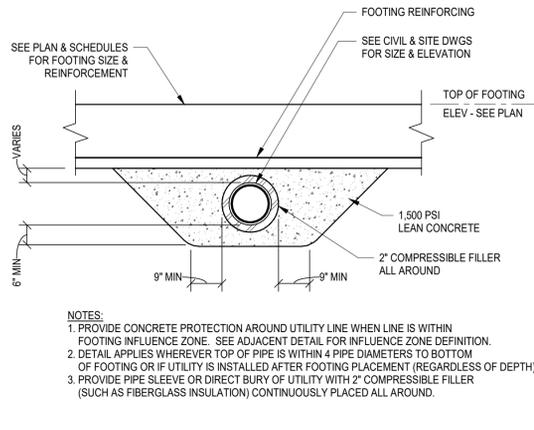
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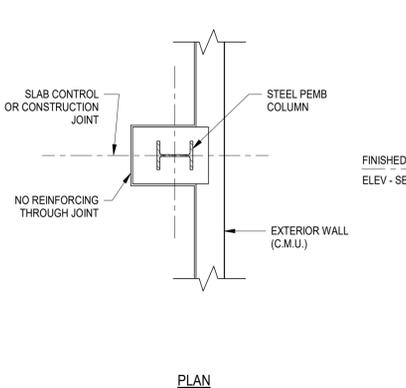
A S-05 TYPICAL FOOTING PENETRATION/SLEEVE DETAIL
NOT TO SCALE



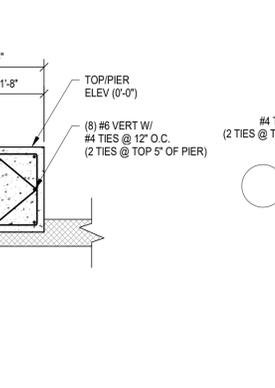
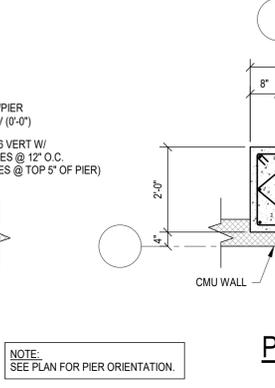
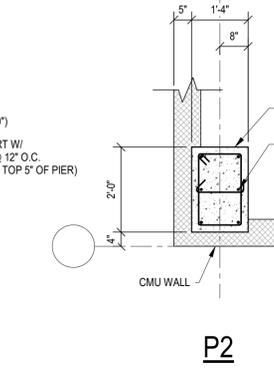
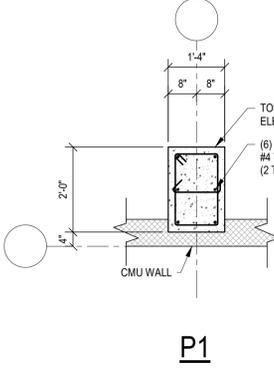
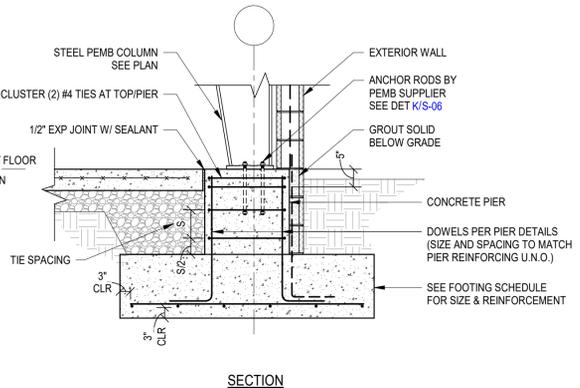
B S-05 TYPICAL UTILITY LINE BELOW FOOTING DETAIL
NOT TO SCALE



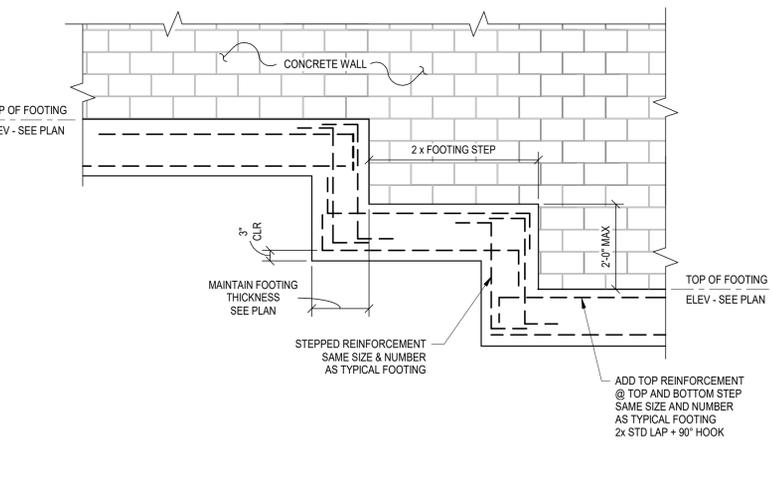
C S-05 SECTION AT TRENCH DRAIN
NOT TO SCALE



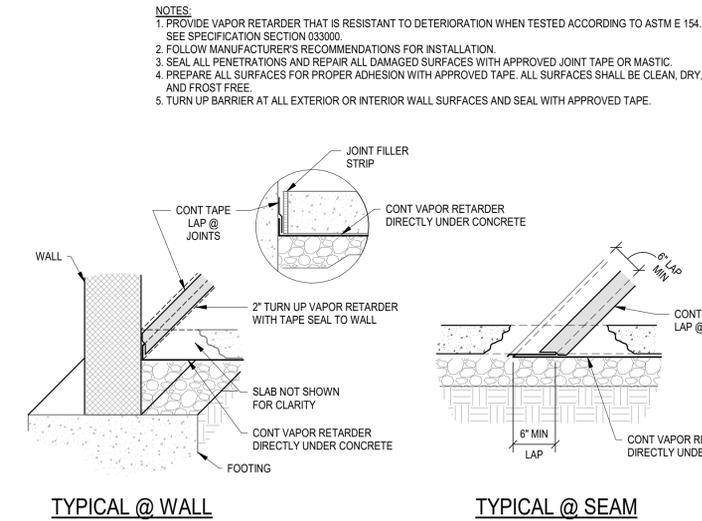
D S-05 TYPICAL PEBM COLUMN AND FOOTING DETAIL
NOT TO SCALE



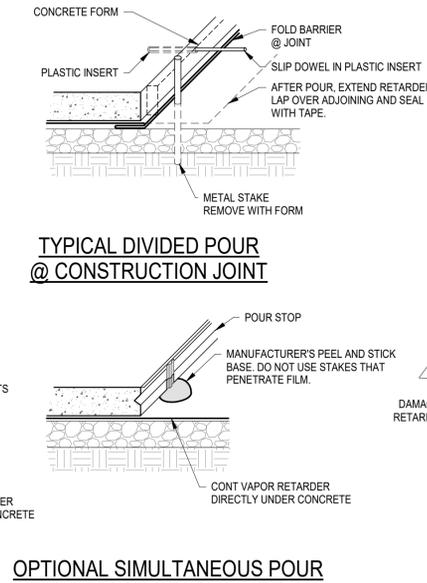
E S-05 PIER DETAILS
NOT TO SCALE



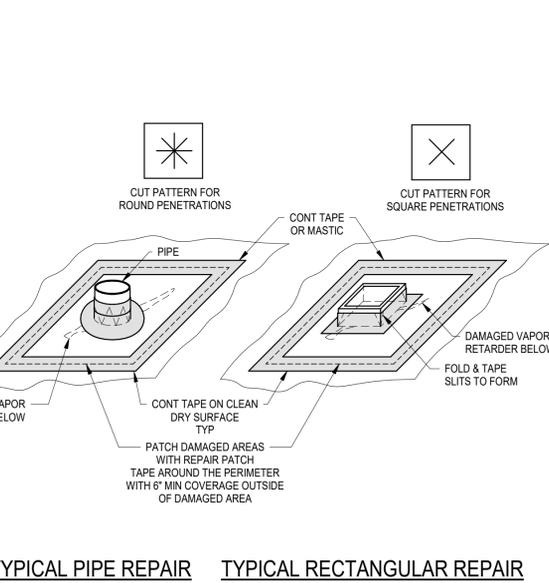
F S-05 TYPICAL STEP FOOTING DETAIL
NOT TO SCALE



G S-05 TYPICAL VAPOR RETARDER DETAILS
NOT TO SCALE



H S-05 TYPICAL DIVIDED POUR @ CONSTRUCTION JOINT



I S-05 TYPICAL PIPE REPAIR TYPICAL RECTANGULAR REPAIR

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1	7/29/21	COILING DOOR REVISION

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
TYPICAL DETAILS

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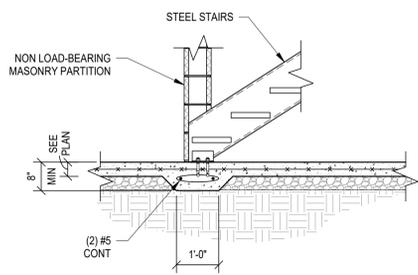
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S-05

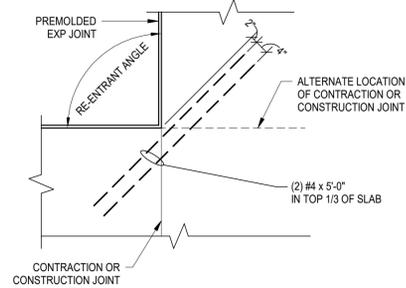
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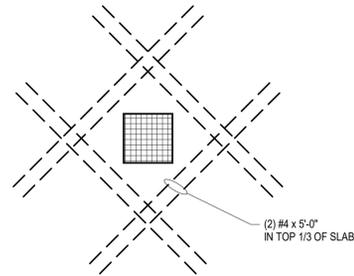
TYPICAL THICKENED SLAB BELOW MASONRY PARTITIONS AND STEEL STAIRS DETAIL

A
S-06
NOT TO SCALE



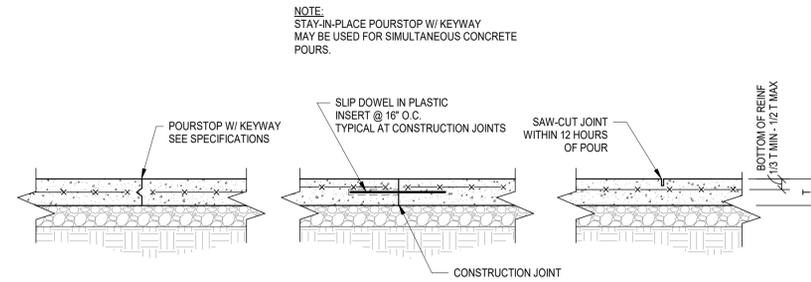
TYPICAL SLAB ON GRADE JOINT AT RE-ENTRANT CORNER

B
S-06
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TYPICAL SLAB REINFORCEMENT AT FLOOR BOXES, TRENCH DRAINS, ETC DETAIL

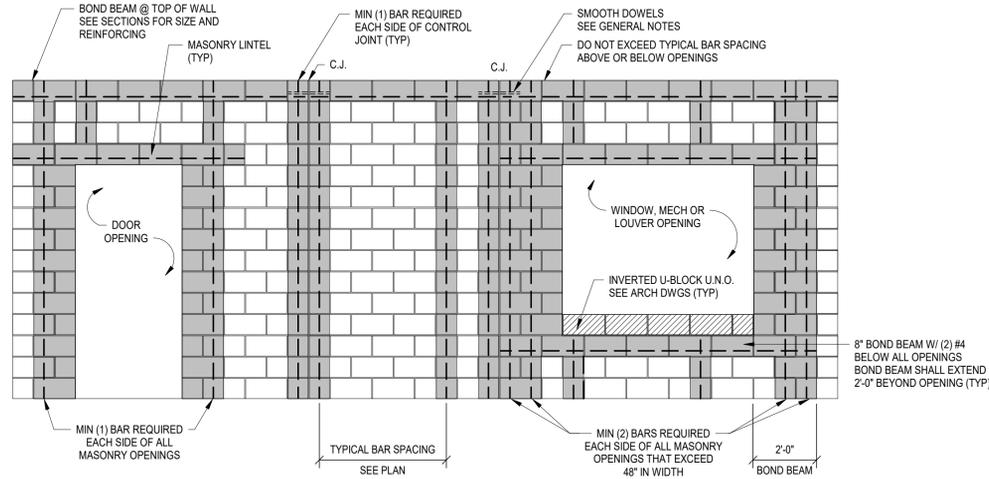
C
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NOT TO SCALE



NOTES:
1. JOINTS SHALL BE INSTALLED IN SLABS ON GROUND AT A MAXIMUM SPACING IN FEET OF 3 TIMES THE SLAB THICKNESS IN INCHES IN EACH DIRECTION BY EITHER OF THE ABOVE METHODS. RATIO OF LENGTH TO WIDTH SHALL NOT EXCEED 2. THIS SPACING OF JOINTS SHALL APPLY UNLESS SPECIFICALLY SHOWN OTHERWISE.
2. WELDED WIRE FABRIC SHALL BE DISCONTINUOUS THROUGH CONSTRUCTION JOINTS.

SLAB ON GROUND JOINT DETAIL

D
S-06
NOT TO SCALE



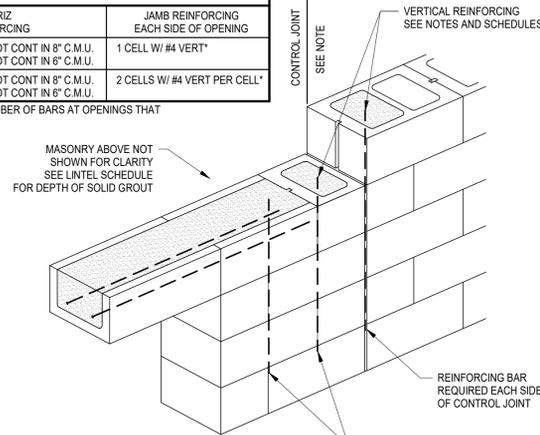
NOTES:
1. SEE MASONRY GENERAL NOTES FOR REINFORCING NOT SHOWN AND GROUTING PROCEDURES.
2. CONTROL JOINTS SHALL EXTEND FULL HEIGHT OF WALL AND ALIGN FROM FLOOR TO FLOOR.
3. CONTROL JOINTS SHALL BE LOCATED OUTSIDE MASONRY OPENING JAMB REINFORCING.
4. WHERE 2'-0" OF WALL DOES NOT OCCUR BEYOND OPENING, TERMINATE LINTEL REINFORCEMENT IN JAMB W/ STANDARD 90° HOOK.

TYPICAL MASONRY WALL REINFORCING DETAIL

E
S-06
NOT TO SCALE

LINTEL SCHEDULE			
MARK	DEPTH	HORIZ REINFORCING	JAMB REINFORCING EACH SIDE OF OPENING
ML8	8"	(2) #4 BOT CONT IN 8" C.M.U. (1) #4 BOT CONT IN 8" C.M.U.	1 CELL W/ #4 VERT*
ML16	16"	(2) #4 BOT CONT IN 8" C.M.U. (1) #4 BOT CONT IN 8" C.M.U.	2 CELLS W/ #4 VERT PER CELL*

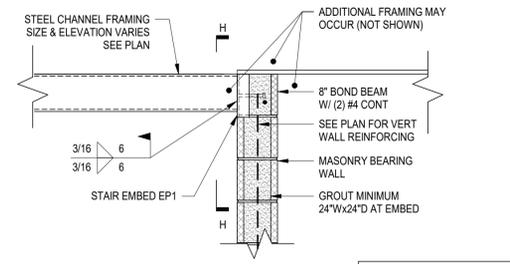
*SEE DETAIL FOR MINIMUM NUMBER OF BARS AT OPENINGS THAT EXCEED 4'-0" IN WIDTH.



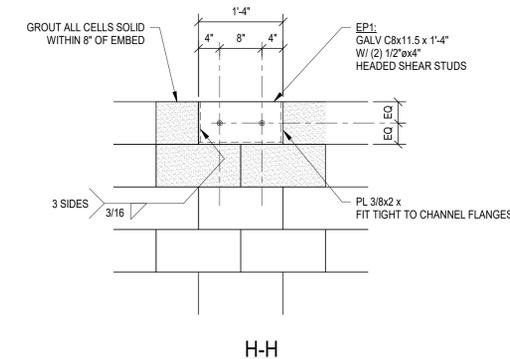
NOTES:
1. PROVIDE CONTROL JOINTS OFFSET 24" FROM OPENING ON BOTH SIDES OF OPENINGS WIDER THAN 6'-8" AND ON ONE SIDE OF OPENINGS 6'-8" WIDE AND LESS.
2. REINFORCING SHALL HAVE 1/2" MINIMUM GROUT COVER TO SURFACE OF BOND BEAM.
3. REINFORCING SHALL BE LOCATED 3" MAXIMUM FROM BOTTOM OF LINTEL BLOCK.
4. WHERE 2'-0" OF WALL DOES NOT OCCUR BEYOND OPENING, TERMINATE LINTEL REINFORCEMENT IN JAMB W/ STANDARD 90° HOOK.

TYPICAL MASONRY LINTEL BEARING DETAIL

F
S-06
NOT TO SCALE

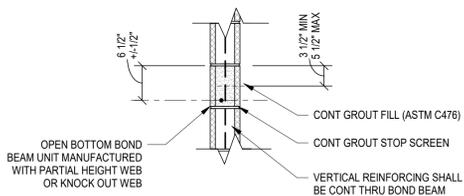


NOTES:
1. STAIR FABRICATOR SHALL COORDINATE WITH EMBEDS AND PROVIDE ELEVATIONS AND CONNECTION DETAILS ON ERECTION DRAWINGS.
2. ALL STAIR STEEL SHALL BE GALVANIZED.



TYPICAL STAIR EMBED DETAIL

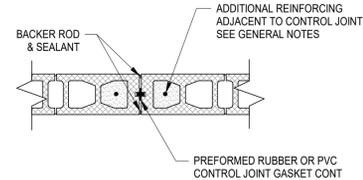
G
S-06
NOT TO SCALE



NOTES:
1. MORTAR WEBS OF BLOCK AT VERTICAL REINFORCING TO PREVENT GROUT FROM FLOWING INTO THE ADJACENT CELL.
2. UNLESS OTHERWISE SHOWN OR NOTED, REINFORCING SHALL BE PLACED IN THE BOTTOM OF THE BOND BEAM AS SHOWN IN THIS DETAIL. WHERE REINFORCING IS SHOWN OR NOTED TO BE IN THE TOP OF THE BOND BEAM, BAR LOCATION SHALL BE 8 1/2" ± 1/2" FROM THE BOTTOM OF THE BOND BEAM AND THE BOND BEAM UNIT SHALL BE INVERTED SUCH THAT THE REMAINING WEB IS IN THE BOTTOM.
3. REINFORCING SHALL HAVE 1/2" MINIMUM GROUT COVER TO ALL C.M.U. SURFACES.
4. GROUT STOP SCREEN SHALL BE DUR-O-STOP AS MANUFACTURED BY DUR-O-WAL OR OTHER APPROVED EQUIVALENT.
5. USE LINTEL BLOCK WHERE BOND BEAM OCCURS DIRECTLY ABOVE WINDOW, DOOR OR LOUVER OPENING.

TYPICAL C.M.U. BOND BEAM DETAIL

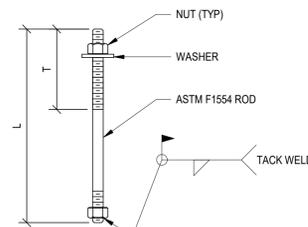
H
S-06
NOT TO SCALE



NOTES:
1. HORIZONTAL JOINT REINFORCING IN BLOCK SHALL BE DISCONTINUOUS AT CONTROL JOINTS.
2. SEE ARCHITECTURAL DRAWINGS FOR CONTROL JOINT LOCATIONS.
3. UNLESS OTHERWISE SHOWN OR NOTED, SPACING OF CONTROL JOINTS SHALL NOT EXCEED 25 FEET AT EXTERIOR WALLS AND 32 FEET AT INTERIOR WALLS.

TYPICAL C.M.U. CONTROL JOINT DETAIL (C.J.)

J
S-06
NOT TO SCALE

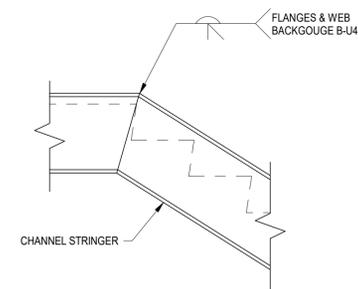


DIAMETER	L	T	PROJECTION	GRADE	MIN WASHER DIM
1/2" **	6 1/2"	3"	2"	36	STD ROUND
5/8"	10"	3"	2"	36	3/16" x 1 3/4" x 1 3/4"
3/4"	1'-7"	5"	3"	36	1/4" x 2" x 2"
1"	2'-0"	6"	4"	36	3/8" x 3" x 3"

NOTES:
** 1/2" BOLT MAY BE ASTM A307 MACHINE BOLT WITH NUT AND WASHER.
1. ANCHOR RODS AND ACCESSORIES SHALL BE GALVANIZED.

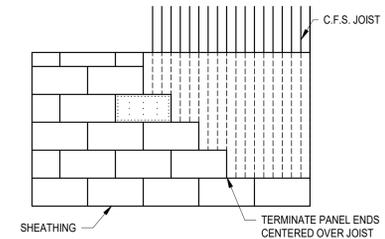
TYPICAL ANCHOR ROD DETAIL

K
S-06
NOT TO SCALE



TYPICAL STAIR STRINGER BEND DETAIL

L
S-06
NOT TO SCALE



NOTES:
1. LAYOUT PANELS IN RUNNING BOND W/ LONG DIMENSIONS OF PANELS PERPENDICULAR TO C.F.S. JOISTS. END JOINTS IN PANELS MUST BE OVER C.F.S. JOISTS SO THAT ADJACENT PANEL EDGES MAY BE FASTENED TO SAME JOIST.
2. FASTEN PANEL TO C.F.S. JOISTS AND TOPS OF MASONRY WALLS W/ SCREWS PER SPECIFICATION. PANEL FASTENER SPACING TO BE 6" O.C. AT PANEL PERIMETER AND 12" O.C. AT INTERMEDIATE SUPPORTS.
3. EMBED ADJACENT TONGUE AND GROOVE PANEL EDGES.

ROOF SHEATHING LAYOUT

M
S-06
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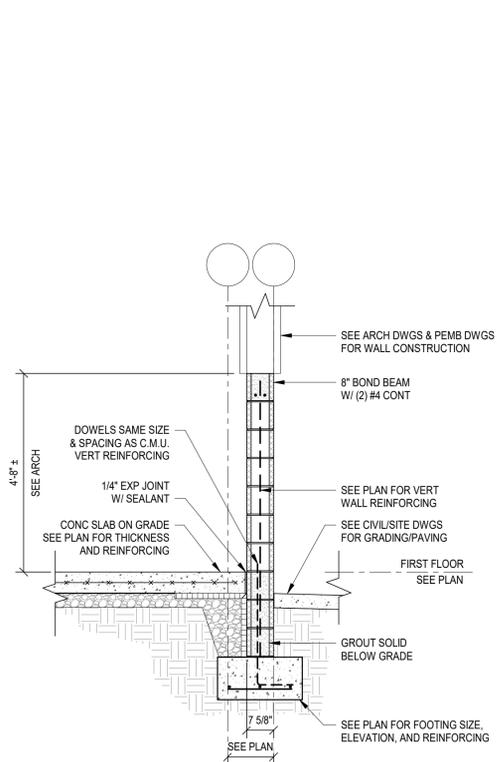
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S-06

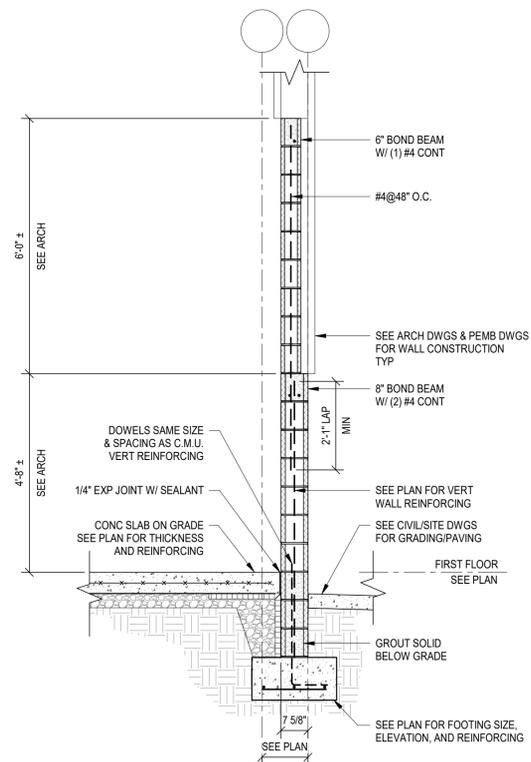
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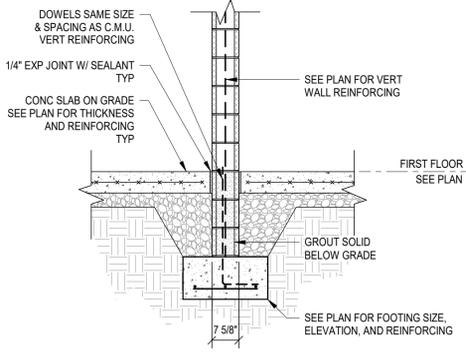
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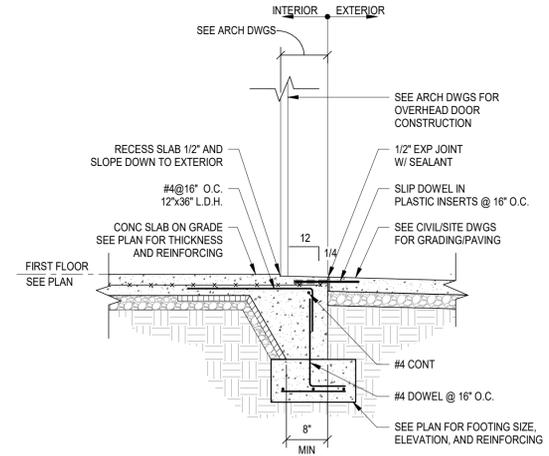
A
SECTION
S-07 1/2" = 1'-0"



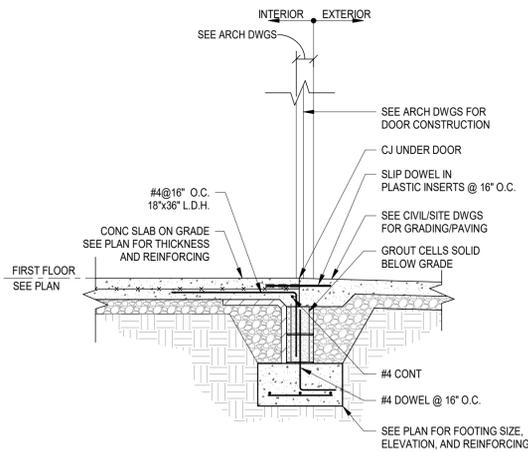
B
SECTION
S-07 1/2" = 1'-0"



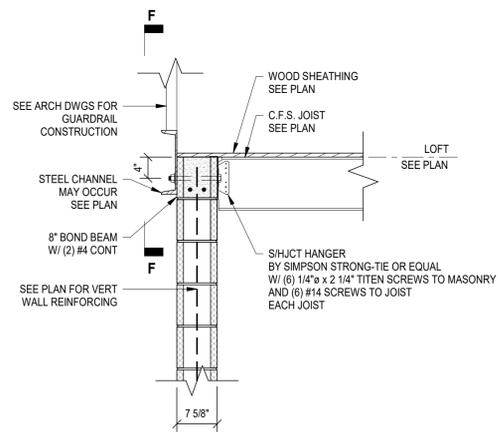
C
SECTION
S-07 1/2" = 1'-0"



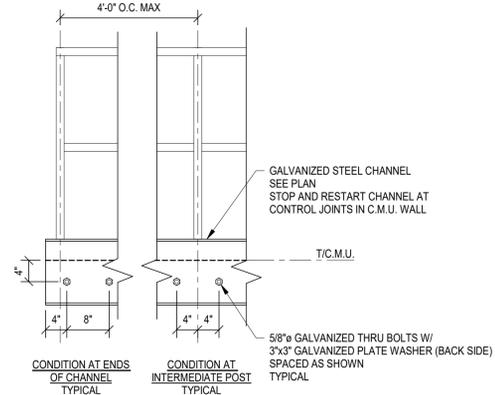
D
SECTION AT OVERHEAD DOOR
S-07 1/2" = 1'-0"



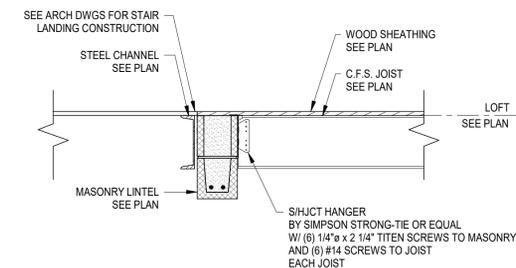
E
SECTION AT MAN DOOR
S-07 1/2" = 1'-0"



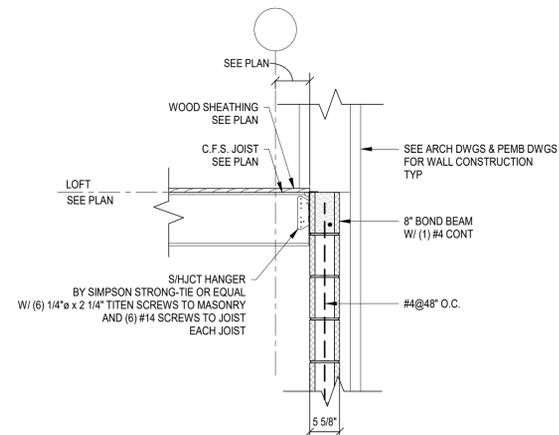
F
SECTION
S-07 3/4" = 1'-0"



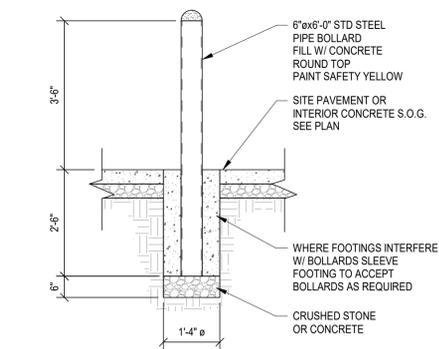
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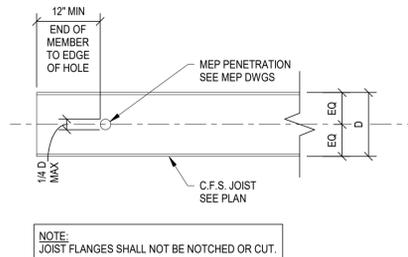
G
SECTION
S-07 3/4" = 1'-0"



H
SECTION
S-07 3/4" = 1'-0"



J
PIPE BOLLARD DETAIL
S-07 NOT TO SCALE



K
TYPICAL C.F.S. JOIST PENETRATION DETAIL
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SECTIONS

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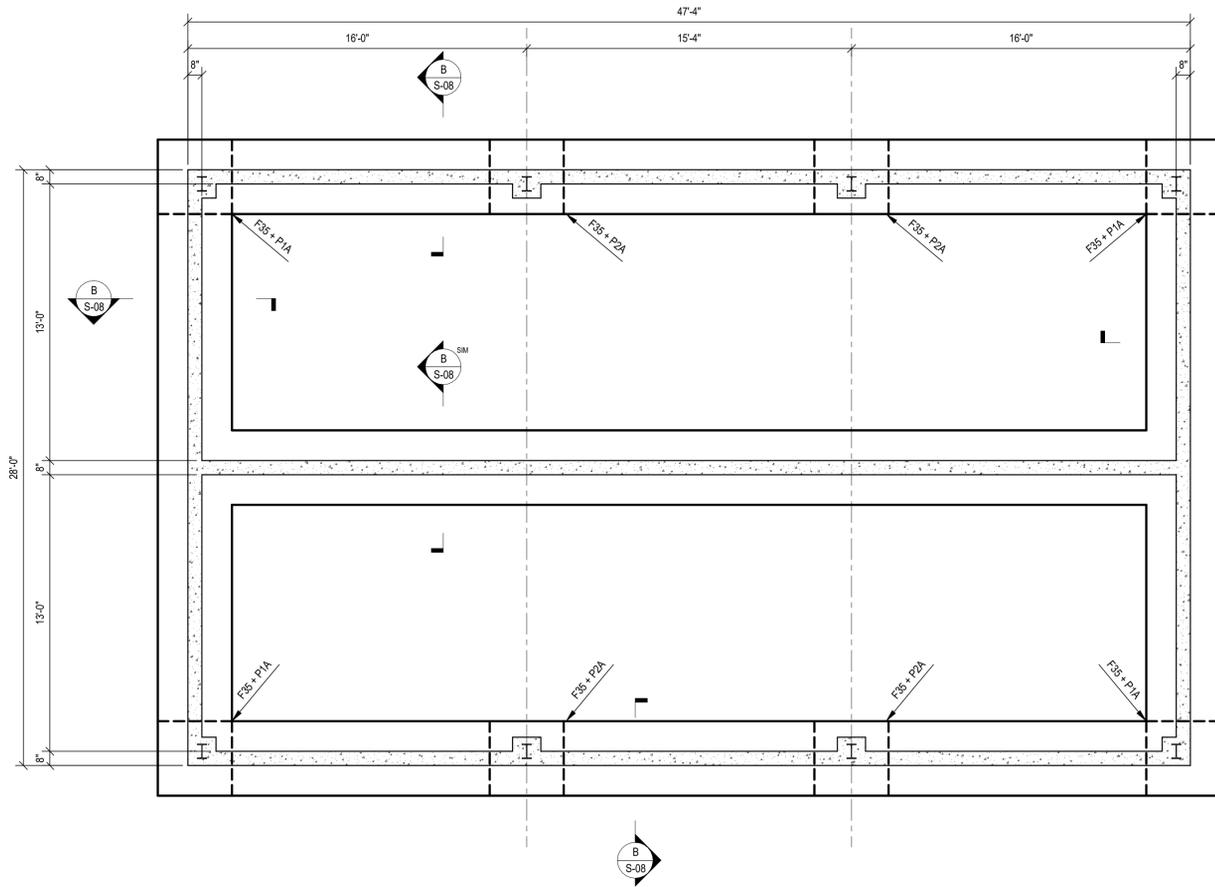
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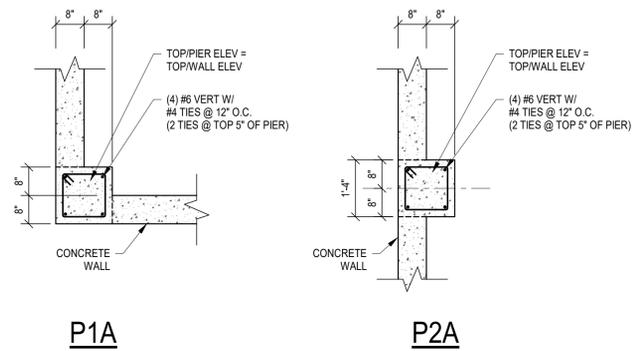
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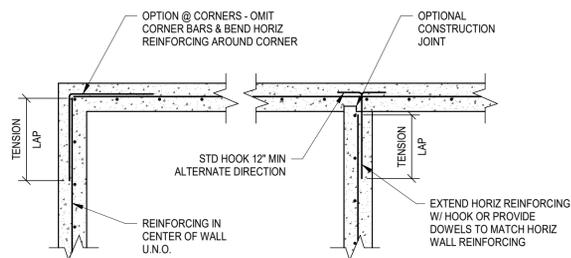
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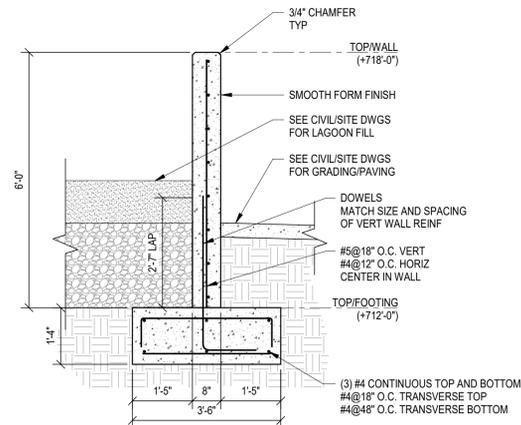
A
S-08
LAGOON FOUNDATION PLAN
1/4" = 1'-0"



C
S-08
LAGOON PIER DETAILS
NOT TO SCALE



D
S-08
TYPICAL CONCRETE WALL REINFORCING DETAIL
NOT TO SCALE



B
S-08
SECTION
1/2" = 1'-0"

NOTES:
1. WATERSTOPS ARE NOT REQUIRED.
2. TOP OF FOOTING SHALL BE 2'-0" MINIMUM BELOW FINISHED GRADE.

LAGOON FOUNDATION PLAN NOTES

- CENTER ALL WALL FOOTINGS ON WALL CENTERLINE U.N.O.
- SEE DWGS S-01 & S-02 FOR GENERAL NOTES.
- ALL FOOTINGS MUST BE SUPPORTED ON UNDISTURBED SOIL CAPABLE OF SUPPORTING DESIGN LOADS WITHOUT APPRECIABLE SETTLEMENT. CONTRACTOR SHALL PROBE BEARING STRATA WITH DRIVEN RODS, REMOVE SHALLOW BEDROCK (AND OVERLYING SOIL) WITHIN TWO FEET BELOW BOTTOM OF FOOTING, AND REPLACE WITH ENGINEERED SOIL BACKFILL.
- THE ANCHOR BOLTS SHALL NOT BE ORDERED OR INSTALLED UNTIL RECEIPT AND APPROVAL BY THE ENGINEER OF STAMPED ANCHOR BOLT SETTING PLANS FROM THE PEMB MANUFACTURER.

LAGOON FOUNDATION LEGEND

- P1 = COLUMN PIER. SEE DETAIL C1S-08.
F35 = ADD #4@12' O.C. E.W. BOTTOM FOR 3'-6" x 3'-6" COLUMN FOOTING.

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LAGOON PLAN AND DETAILS

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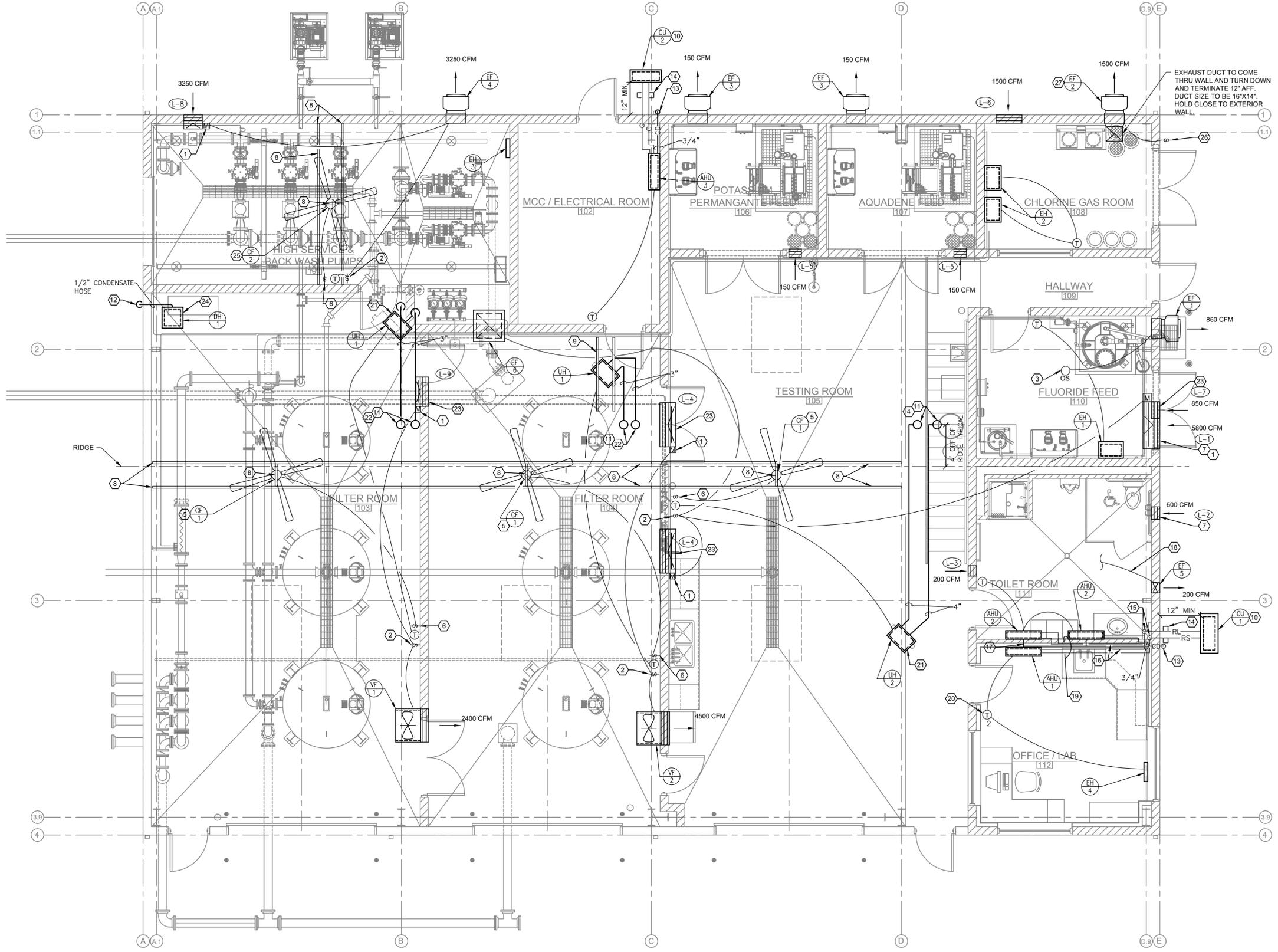
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BE 7/20/21
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TAGGED NOTES

1. LOUVER WITH MOTORIZED DAMPER.
2. WIRED MANUAL SWITCH.
3. 2 SPEED FAN WITH OCCUPANCY SENSOR. LOW SPEED IS FOR NORMAL OPERATIONS. HIGH SPEED TO BE USED WHEN ROOM IS OCCUPIED.
4. 4" FLUE AND COMBUSTION AIR VENTED THROUGH ROOF.
5. 56" DIAMETER CEILING FAN, VARIABLE SPEED AND REVERSIBLE, 3 BLADED, 277 VOLT SINGLE PHASE, 0.36 AMPS, 28,000 CFM CAPABILITY, VES MANUFACTURING MODEL NUMBER: INDB562774L. FAN TO BE STEM MOUNTED, PROVIDED WITH SAFETY CABLE AND WALL MOUNT FAN CONTROLS.
6. PROVIDE FAN WITH SPEED CONTROLLER.
7. LOUVER IS PLACED HIGH ON EXTERIOR WALL. BOTTOM OF LOUVER TO NO LESS THAN 11' AFG.
8. (2) SUPPORTING UNISTRUT MEMBERS FOR FAN. SUPPORT FROM MAIN STRUCTURE.
9. UNIT HEATER TO BE MOUNTED FROM UNISTRUT.
10. CONDENSING UNITS TO BE MOUNTED ON PRECAST CONCRETE PAD.
11. FLUE FOR UNIT HEATER TO BE PLACED 4' BEHIND THE RIDGE OF BUILDING.
12. DEHUMIDIFIER CONDENSATE HOSE SPILL TO GRADE AT 8" AFG. PROVIDE INSECT SCREEN.
13. CONDENSATE DRAIN SPILL TO GRADE AT 8" AFG. PROVIDE INSECT SCREEN.
14. REFRIGERANT PIPING OUTSIDE TO BE SUPPORTED.
15. REFRIGERANT PIPING TO TURN UP INSIDE THE BUILDING, AND GO UP ABOVE CEILING.
16. REFRIGERANT PIPING ABOVE CEILING, CONNECT TO AHU'S FROM ABOVE.
17. CONDENSATE PIPING TO BE ABOVE CEILING.
18. WIRE INTO LIGHTING CONTROL.
19. REFRIGERANT PIPING AND 3/4" CD CONCEALED ABOVE CEILING.
20. 2-STAGE HEATING, 1-STAGE COOLING THERMOSTAT WITH 2ND STAGE TO ENGAGE WALL HEATER.
21. HANG UNIT HEATER FROM STRUCTURE.
22. 3" FLUE AND COMBUSTION AIR VENTED THROUGH ROOF.
23. LOUVER TO BE PLACED ABOVE HEIGHT OF DOOR. BOTTOM OF LOUVER TO BE PLACED NO LESS THAN 8" AFG.
24. QUEST HI-E DRY 195 DEHUMIDIFIER. 115V SINGLE PHASE, 13.1 AMPS, 610 CFM BLOWER, 1500 WATT NUMBER: 4036710.
25. 56" DIAMETER CEILING FAN, VARIABLE SPEED AND REVERSIBLE, 3 BLADED, 277 VOLT SINGLE PHASE, 0.36 AMPS, 28,000 CFM CAPABILITY, VES MANUFACTURING MODEL NUMBER: INDB562774L. FAN TO BE STUB MOUNTED, PROVIDED WITH SAFETY CABLE AND WALL MOUNT FAN CONTROLS.
26. WEATHERPROOF HOUSING FOR SWITCH. SWITCH ENGAGES HIGH FAN SPEED.
27. EF-2, EXHAUST FAN, TO RUN 24/7. FAN TO RUN ALWAYS IN LOW SPEED. WALL SWITCH BOOSTS FAN TO HIGH SPEED IF ENGAGED.

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NO	DATE	REVISIONS	BY

**2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT
IMPROVEMENTS**

FLOOR PLAN - NEW WORK



PROJECT #: 19003
DATE: AUGUST 2021
PROJECT MGR: LRS
DRAWN BY: JSD
CHECKED BY: CME



SHEET NO.
M100

M FLOOR PLAN - NEW WORK
SCALE: 1/4" = 1'-0"

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BE 7/28/21

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ELECTRIC HEATERS										
MARK	MARKET SERIES	HEATER TYPE	MOUNTING	TYPICAL LOCATION	CFM	KW	ELECTRICAL		REMARKS	
							FLA	VOLTS/Ø		
EH-1	HLA 20-480360-20.0-24	UNIT HEATER	WALL	FLUORIDE RM	2450	20	25.1	480/3	1,2,3,4,5	
EH-2	HLA 20-480360-15.0-24	UNIT HEATER	WALL	CHLORINE RM	2450	15	19	480/3	1,2,3,4,5	
EH-3	G3423T	WALL HEATER	WALL	HIGH SERVICE BACK WASH	245	3	10.8	277/1	1,2,3,4,5	
EH-4	F3422T	WALL HEATER	WALL	OFFICE/LAB	245	2	7.2	277/1	1,2,3,4,5	

REMARKS:

1. PROVIDE INTEGRAL THERMOSTAT.
2. MANUAL RESET THERMAL LIMIT.
3. WHITE POWDER COATED 18 GA. STEEL GRILL.
4. FURNISH UL LISTED AND NEC COMPLIANT DISCONNECT MEANS.
5. PROVIDE WITH ACCESSORY SURFACE MOUNT FRAME.

UNIT HEATER SCHEDULE									
MARK	MANUFACTURER	MODEL	INPUT	OUTPUT	CFM	ELECTRICAL		REMARKS	
						FLA	MOC		
UH-1	REZNOR	UDAS60	60,000	49,800	769	2.4	15	1,2,3,4,5,6	
UH-2	REZNOR	UDAS100	100,000	87,150	1345	3.9	15	1,2,3,4,5,6	

REMARKS:

1. TOTALLY ENCLOSED FAN MOTOR.
2. MOUNTING BRACKETS.
3. DUST SHIELD.
4. FAN GUARD.
5. TWO-STAGE PROPANE GAS VALVE.
6. PROVIDE WITH THERMOSTAT.

LOUVER SCHEDULE										
MARK	MANUFACTURER	MODEL	MATERIAL	DIMENSIONS	PERCENT FREE AREA	MAXIMUM AIR VELOCITY	DEPTH	CFM	P.D. IN.WG.	REMARKS
L-2	RUSKIN	L811	GALVANIZED	24"x16"	32%	589 FPM	4"	500	0.07	1,2,3
L-3	RUSKIN	L811	GALVANIZED	16"x16"	30%	370 FPM	4"	200	0.03	1,3
L-4	RUSKIN	L375D	GALVANIZED	42"x48"	51%	720 FPM	4"	5150	0.06	3,4
L-5	RUSKIN	L811	GALVANIZED	16"x16"	30%	278 FPM	4"	150	0.02	3
L-6	RUSKIN	L375D	GALVANIZED	32"x24"	44%	646 FPM	4"	1500	0.05	1,2,3
L-7	RUSKIN	L375D	GALVANIZED	16"x24"	40%	792 FPM	4"	850	0.07	1,2,3
L-8	RUSKIN	L375D	GALVANIZED	32"x40"	49%	753 FPM	4"	3250	0.06	1,2,3,4
L-9	RUSKIN	L375D	GALVANIZED	28"x33"	46%	808 FPM	4"	2400	0.07	3,4

REMARKS:

1. BIRDSCREEN
2. FIXED BLADES, DRAINABLE
3. LOUVER PRIMED FOR PAINT. COLOR BY ARCHITECT.
4. PROVIDE WITH MOTORIZED DAMPER.

SPLIT SYSTEM AIR HANDLERS													
MARK	CARRIER MODEL #	SUPPLY FAN					OA CFM	TOTAL COOLING (MBH)	TOTAL HEATING (MBH)	AUXILIARY HEATER (KW)	ELECTRICAL		REMARKS
		CFM	TYPE	DRIVE	HP	E.S.P.					FLA	VOLTS/Ø	
AHU-1	40GXM009-3	283	CABINET	-	1/5	-	-	6.5	7.5	-	.26	208/1	1,3,5
AHU-2	40GXM012-3	341	CABINET	-	1/5	-	-	8.9	10.4	-	.26	208/1	3,4,5
AHU-3	40MVQ12-3	425	CABINET	-	1/20	-	-	12	11.5	-	1.18	208/1	2,3,4,5

* EXTERNAL STATIC PRESSURE OVER AND ABOVE THE LOSSES OF A WET DX COIL AND CLEAN FILTER.

REMARKS:

1. FACTORY 2-STAGE HEATING/COOING THERMOSTAT.
2. PROVIDE SINGLE POINT ELECTRICAL CONNECTION FOR INDOOR BLOWER MOTOR
3. PROVIDE WITH INTERNAL CONDENSATE PUMP ACCESSORY.
4. SINGLE STAGE HEATING/COOING THERMOSTAT.
5. AH UNIT FED BY POWER FROM CONDENSING HEAT PUMP UNIT.

SPLIT SYSTEM HEAT PUMPS												
MARK	CARRIER MODEL #	SERVICE	NOMINAL TONNAGE	SEER RATING	TOTAL COOLING (MBH)	HEATING CAPACITY (MBH)/(F)	ELECTRICAL			REMARKS		
							MCA	MOP	VOLTS/Ø			
CU-1	38GXM430-3	OFFICE/TOILET ROOM	2.5	14.5	26	28/14	24	40	208/1	1,2,3,4,5		
CU-2	38MVQ12-3	MCC/ELECTRICAL ROOM	1	13	12	12/5	9	15	208/1	1,2,3,4,5		

REMARKS:

1. COOLING CAPACITY IS BASED ON 95°F AMBIENT AIR TEMP & RATED IN ACCORDANCE WITH D.O.E. TESTS & A.R.I. STANDARDS.
2. PROVIDE UNIT WITH SUCTION AND DISCHARGE SERVICE VALVES.
3. PROVIDE UNIT WITH THERMAL EXPANSION VALVES AND HARD START KITS
4. PROVIDE CRANKCASE HEATER, FILTER-DRIER, AND LOW PRESSURE SWITCH.
5. 5 YEAR COMPRESSOR WARRANTY.

EXHAUST FANS										
MARK	MANUFACTURER	MODEL NO.	MOUNTING	FAN DATA				ELECTRIC DATA		REMARKS
				CFM	DRIVE	E.S.P.	SONES	HP	VOLTS/Ø	
EF-1	GREENHECK	CUBE-099	WALL	850	BELT	0.1	8.4	1/4	115/1	1,3,4,5
EF-2	GREENHECK	CUBE-101	WALL	1500	BELT	0.1	13.7	1/3	115/1	1,3,4,5
EF-3	GREENHECK	CUE-060-VG	WALL	150	DIRECT	0.1	3.2	1/15	115/1	1,2,3,4
EF-4	GREENHECK	CUBE-161	WALL	3250	BELT	0.1	15.8	3/4	460/3	1,2,3,4
EF-5	BROAN	509	WALL	200	DIRECT	0.1	8.5	-	120/1	1,2
EF-6	GREENHECK	GB-180	ROOF	5800	BELT	0.1	24	1.5	460/3	1,2,3,6

REMARKS:

1. PROVIDE BIRDSCREEN.
2. PROVIDE GRAVITY DAMPER.
3. PROVIDE NON-FUSED DISCONNECT SWITCH.
4. PROVIDE WITH SLEEVE MATCHING THE RECOMMENDED DUCT SIZE FOR FAN.
5. PROVIDE WITH 2-SPEED FAN MOTOR.
6. SLOPED ROOF CURB.

VENTILATING FANS										
MARK	GREENHECK MODEL NO.	MOUNTING	FAN DATA				ELECTRIC DATA		REMARKS	
			CFM	DRIVE	E.S.P.	SONES	HP	VOLTS/Ø		
VF-1	SBE-1L20	WALL	2400	BELT	0.125	11.5	1/4	115/1	1,2,3,4	
VF-2	SBE-1L20	WALL	4500	BELT	0.125	16.4	1/2	115/1	1,2,3,4	

REMARKS:

1. PROVIDE BIRDSCREEN.
2. PROVIDE NON-FUSED DISCONNECT SWITCH.
3. PROVIDE DISCHARGE GRAVITY DAMPER.
4. OSHA MOTORIZED FAN CAGE.



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NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
SCHEDULES & DETAILS



PROJECT #: 19003
DATE: AUGUST 2021
PROJECT MGR: LRS
DRAWN BY: JSD
CHECKED BY: CME

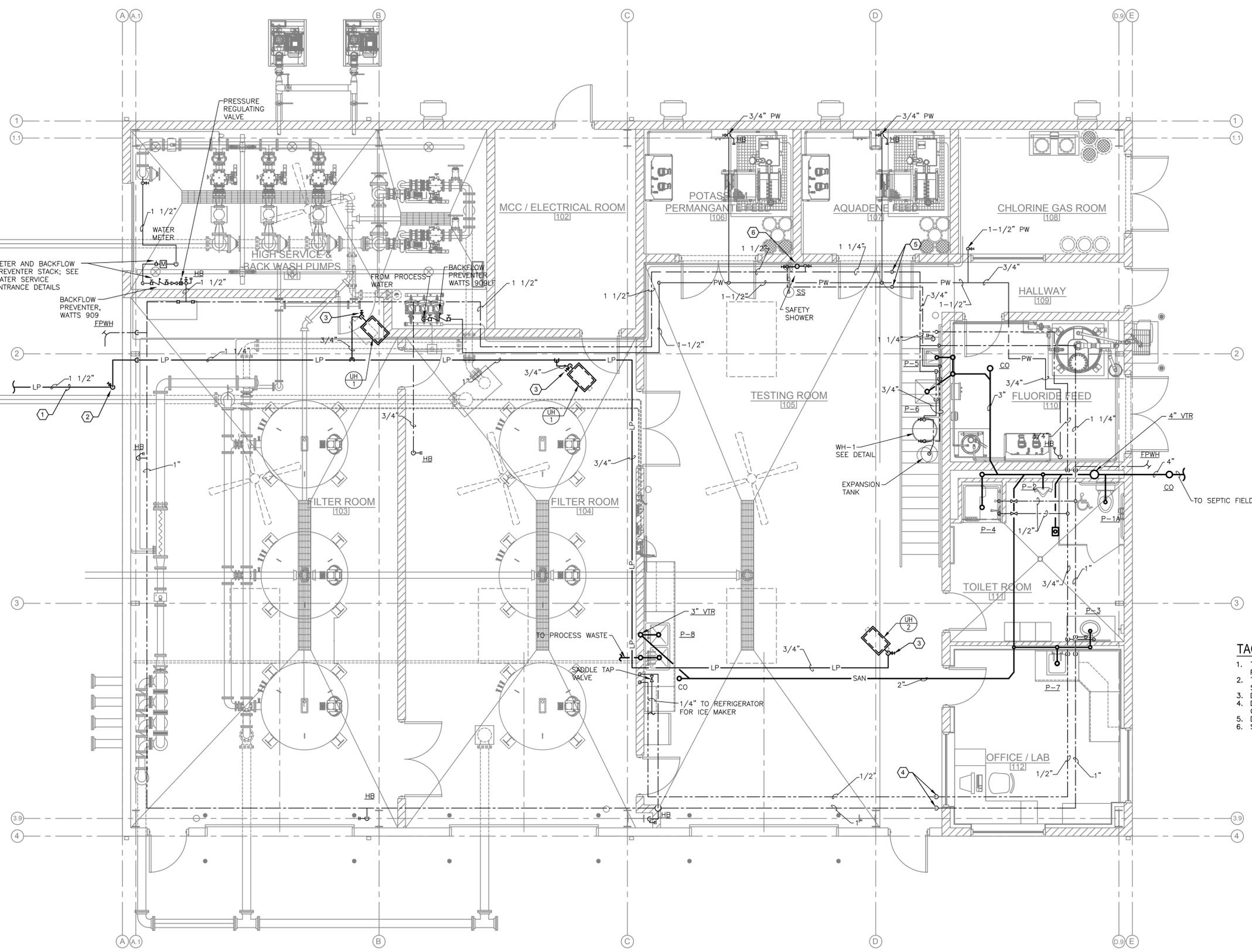


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- TAGGED NOTES** ⬡
1. THERMOPLASTIC GAS LINE UNDER GRADE FROM PROPANE TANK.
 2. TRANSITION FROM THERMOPLASTIC PIPING TO SCHEDULE 40 BLACK STEEL WITH ANODELESS RISER. DIRT LEG, TYPICAL SEE DETAIL.
 3. DROP PIPING DOWN TO RUN ABOVE LAY-IN CEILING OF OFFICE.
 4. DROP PIPING DOWN BELOW MEZZANINE LEVEL.
 5. SEE SAFETY SHOWER DETAIL.

P PLUMBING PLAN - NEW WORK
P100 SCALE: 1/4" = 1'-0"

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NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
PLUMBING PLAN - NEW WORK

BLUEGRASS ENGINEERING PLLC
222 East Main Street, Ste. 1 • Georgetown, KY 40324

PROJECT #:	19003
DATE:	AUGUST 2021
PROJECT MGR:	LRS
DRAWN BY:	JSD
CHECKED BY:	CME



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PLUMBING GENERAL NOTES

- THE FIXTURE ROUGH-INS AND THEIR LOCATIONS FOR ALL CONNECTIONS ARE ACCURATE TO THE BEST OF OUR KNOWLEDGE. IN SOME INSTANCES THE OWNER OR SUPPLIER MAY MAKE SUBSTITUTIONS OR THE FIXTURE MAY VARY FROM WHAT IS SHOWN. THEREFORE, THESE ITEMS SHALL BE VERIFIED WITH THE SUPPLIER. THE ARCHITECT/ENGINEER SHALL BE IMMEDIATELY NOTIFIED, PRIOR TO CONSTRUCTION, OF ANY DEVIATIONS FROM WHAT IS SHOWN OR IMPLIED ON THESE DRAWINGS. FAILURE OF THE APPROPRIATE CONTRACTOR TO VERIFY ROUGH-INS OR THEIR LOCATIONS SHALL PLACE THE RESPONSIBILITY FOR ANY SUBSEQUENT RELOCATION AND/OR ADDITIONAL ROUGH-INS DIRECTLY UPON THE CONTRACTOR.
- CONTRACTOR SHALL SUPPLY TO THE ARCHITECT EIGHT COPIES OF SHOP DRAWINGS FOR APPROVAL, SO THE QUALITY OF INTENDED MATERIALS OR EQUIPMENT CAN BE REVIEWED BEFORE INSTALLATION.
- DO NOT SCALE THESE DRAWINGS. REFER TO ARCHITECTURAL FLOOR PLAN FOR BUILDING DIMENSIONS.
- THE SUBMISSION OF A PROPOSAL WILL BE CONSIDERED AS EVIDENCE THAT THE CONTRACTOR HAS FAMILIARIZED HIMSELF WITH THE PLANS AND BUILDING SITE. CLAIMS MADE SUBSEQUENT TO THE PROPOSAL FOR MATERIALS AND LABOR BECAUSE OF DIFFICULTIES ENCOUNTERED WILL NOT BE RECOGNIZED, IF THEY COULD HAVE BEEN FORESEEN HAD PROPER EXAMINATION BEEN MADE.
- PLUMBING CONTRACTOR SHALL INSTALL ALL SOIL AND WASTE PIPING WITH A MINIMUM SLOPE OF 1/8" PER FOOT UNLESS OTHERWISE REQUIRED BY THE STATE OR LOCAL ADMINISTRATIVE AUTHORITY.
- FURNISH & INSTALL 1/2" (MIN.) FIBERGLASS INSULATION WITH ALL SERVICE JACKET ON ALL HOT & COLD WATER LINES ABOVE SLAB.
- MATERIALS, EQUIPMENT, ASSEMBLIES AND SYSTEMS SHALL MEET ALL PERTINENT REQUIREMENTS OF NATIONALLY RECOGNIZED TESTING ORGANIZATION SUCH AS THE UL, ASME, ASSE, AWWA AND NFPA.
- ALL VENT PIPE TO BE COMPATIBLE WITH STRUCTURE, MECHANICAL EQUIPMENT AND DUCTWORK, ELECTRICAL EQUIPMENT AND LIGHTING.
- THE CONTRACTOR SHALL COOPERATE FULLY AMONG THE TRADES.
- ALL EQUIPMENT, FIXTURES AND MATERIALS SHALL BE OF NEW AND UNUSED CONDITION. EQUIPMENT SHALL BE INSTALLED IN STRICT CONFORMANCE TO MANUFACTURER'S RECOMMENDATIONS (U.O.N.). PROVIDE COMPLETE WITH ALL TRIM, STOPS, HANGERS, CARRIERS, SUPPORTS, ETC. INCLUDING PROVISION FOR THE HANDICAPPED, IF REQUIRED. WHERE FIXTURES ARE ACCESSIBLE TO THE HANDICAPPED, FIXTURES MUST COMPLY WITH ALL FEDERAL A.D.A. REGULATIONS.
- THE POTABLE WATER SUPPLY SHALL BE PROTECTED AGAINST BACKFLOW AND SIPHONAGE BOTH NATURAL AND INDUCED. ALL EQUIPMENT CONNECTED TO THE POTABLE WATER SYSTEM BEING CAPABLE OF POLLUTING OR CONTAMINATING THE POTABLE WATER DISTRIBUTION SYSTEM OR ANY PART THEREOF BY MEANS OF A REVERSAL OF FLOW, PRESSURE DROP, PRESSURE LOSS, INDUCED VACUUM OR BY INJECTION BECAUSE OF ANY PRIMARY OR AUXILIARY PUMPING SYSTEM CONNECTED THERETO MUST BE ISOLATED AND CONTAINED BY MEANS OF APPROVED BACKFLOW DEVICES, CHECK VALVES, AIR GAPS OR VACUUM BREAKERS. PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL THESE DEVICES PER LOCAL CODE REQUIREMENTS.
- ALL ROOF PENETRATIONS SHALL BE MADE IN ACCORDANCE WITH ROOF SYSTEM MANUFACTURER'S GUIDELINES. COORDINATE WITH ARCHITECTURAL DETAILS FOR ROOF SYSTEM USED.
- FURNISH AND INSTALL SHUTOFF OR BALL VALVE AND DIELECTRIC UNION ON ALL HOT AND COLD WATER LINES. PLUMBING CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS TO PLUMBING FIXTURES. ALL SHUT-OFFS TO BE IN ACCESSIBLE LOCATIONS.
- PROVIDE CHROME PLATED ESCUTCHEONS AT ALL VISIBLE WALL, CEILING AND FLOOR PENETRATIONS.
- ALL V.T.R.'S SHALL BE EXTENDED TO A MINIMUM OF 1' ABOVE ROOF AND MAINTAINED 10"-0" MINIMUM FROM ALL OUTSIDE AIR INTAKES.
- VERIFY MOUNTING HEIGHTS OF ALL HANDICAP FIXTURES WITH ARCHITECTURAL PLANS.
- HANDICAPPED LAVATORY P-TRAP AND ANGLE STOP ASSEMBLIES SHALL BE INSULATED WITH TRAP WRAP PROTECTIVE KIT SOOR BY BROOK (1-800-827-1207) OR EQUAL. ABRASION RESISTANT EXTERIOR COVER SHALL BE SMOOTH AND HAVE 1/8" MIN. WALL OVER CUSHIONED FOAM INSERT. FASTENERS SHALL REMAIN SUBSTANTIALLY OUT OF SIGHT.
- BIDDERS SHALL BE LICENSED CONTRACTORS IN ACCORDANCE WITH LOCAL AND STATE LAWS.
- ALL INSTALLED SYSTEMS, DEVICES AND RELATED ITEMS SHALL BE TESTED IN PLACE ON SITE. REPLACE ANY AND ALL CONTRACTOR SUPPLIED DEFECTIVE DEVICES, ITEMS OR SYSTEMS AT CONTRACTOR'S OWN EXPENSE BEFORE COMPLETION OF PROJECT.
- ALL PERMITS AND FEES REQUIRED FOR THE WORK SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR AND INCLUDED IN THE BID PRICE.
- THE WATER PIPING SYSTEM SHALL BE FLUSHED AND STERILIZED IN ACCORDANCE WITH LOCAL REGULATIONS.

PLUMBING FIXTURE SCHEDULE					
MARK	ITEM	HW	CW	WASTE	DESCRIPTION
P-1A	WATER CLOSET (ADA ACCESSIBLE)	--	1-1/2"	3" or 4"	AMERICAN STANDARD ONE PIECE, FLOOR MOUNTED, FLUSH VALVE TYPE WATER CLOSET, VITREOUS CHINA ELONGATED BOWL WITH 17" HIGH RIM, OPEN FRONT SEAT LESS COVER, 1.6 GAL./FLUSH, INSTALL WITH BOLT CAPS, WAX RING AND TOILET FLANGE.
P-2	URINAL	--	3/4"	2"	AMERICAN STANDARD ALLBROOK, #6541.132 1.0 GAL. FLUSH, WALL HUNG, SIPHON JET, SLOAN ROYAL FLUSH VALVE #186-1, MOUNT TOP OF LIP AT 17" ABOVE FINISHED FLOOR.
P-3	LAVATORY (DROP-IN BARRIER FREE)	1/2"	1/2"	1-1/4"	AMERICAN STANDARD #OVALYN DROP-IN VITREOUS CHINA, 4" CENTERS, FAUCET #2385.004 WITH SINGLE LEVER HANDLE, GRID DRAIN & 0.5 GPM AERATOR. PROVIDE CHROME PLATED P-TRAP AND SUPPLIES. WRAP FITTINGS AND TRAP FOR BARRIER FREE PROTECTION.
P-4	SHOWER	1/2"	1/2"	2"	ONE PIECE ACRYLIC SHOWER WITH LEFT HAND SEAT, CENTER DRAIN, 36X36X80. PROVIDE WITH SHOWER ROD AND CURTAIN. INSTALL GRID DRAIN, TEMPERATURE AND PRESSURE CONTROL VALVE, DIVERTER VALVE, SHOWER HEAD AND HAND HELD HEAD ON SLIDE ROD. PROVIDE ADA HAND RAIL BAR.
P-5	WATER COOLER	--	1/2"	1-1/2"	ELKAY EBFSA-4 MODEL, FLEX GUARD SAFETY BUBBLER, FRONT AND SIDE PUSH BAR OPERATOR, MOUNTING HANGER, GPH CAP. 7.5, 4.8 AMPS, 3.9KW, COMP. 1/5 HP., MOUNT CENTER LINE OF BUBBLER AT 36" ABOVE FINISHED FLOOR. ENTIRE CHASSIS, SKIRT AND APRON TO BE STAINLESS STEEL. PROVIDE A CUP DISPENSER WALL MOUNT NEXT TO WATER FOUNTAIN.
P-6	MOP SINK	3/4"	3/4"	3"	FAT MSB 3624, FAUCET #830AA WITH VACUUM BREAKER & INTEGRAL STOPS. MOP HANGER, HOSE & HOSE BRACKET #832 AA, STAINLESS STEEL BUMPER GUARDS ON TWO SIDES.
P-7	1 COMPARTMENT BAR SINK	1/2"	1/2"	1-1/2"	JUST SLX-1921A-4-GR COUNTER TOP LAY-IN TYPE 308 STAINLESS STEEL 18 GAUGE SELF RIMMING SINK, THREE HOLE PUNCH INSTALL A DECK MOUNTED SWING FAUCET WITH 4" WRIST BLENDED HANDLES, AERATOR, P TRAP, TAIL PIECE W/ CRUMB CUP DRAIN. PROVIDE STOPS, SUPPLIES.
P-8	DOUBLE COMPARTMENT CUSTOM SINK	1/2"	1/2"	1-1/2"	JUST CUSTOM SINK 24"x61" WITH (2) 12" BASINS. THE FIRST BASIN TO BE 38"x19" WITH 8-HOLE PUNCH AT BACK FOR EIGHT (8) CHICAGO FAUCET 928-3680C LAB FAUCETS WITH INTEGRAL VACUUM BREAKER, GOOSENECK SPOUT AND SERRATED HOSE NOZZLE. THE SECOND BASIN TO BE 16"x19" WITH 2-HOLE PUNCHED REAR. PROVIDE SMALL BASIN WITH P TRAP, AND TAIL PIECE. THE REAR LEDGE FOR THE SMALL SINK TO HAVE TWO (2) CHICAGO FAUCET LAB FAUCETS WITH INTEGRAL VACUUM BREAKERS. PROVIDE HOT WATER TO THE LEFT FAUCET AND COLD WATER TO THE RIGHT FAUCET. DRAIN TO BE PLUMBED TO SMALL BASIN. THE WATER AND DRAIN CONNECTIONS FOR THE LARGE BASIN TO BE DESIGNED BY CIVIL ENGINEER FROM PROCESS TEST PIPING. ALSO PROVIDE SINK WITH GRID DRAIN FOR THE LARGE BASIN, AND CRUMB CUP STRAINER FOR SMALL BASIN.
FD-1	FLOOR DRAIN	--	--	LINE SIZE	EPOXY-COATEDCAST IRON CAST IRON BODY, 6" ROUND POLISHED BRONZE TOP. PROVIDE WITH TRAP PRIMER CONNECTION.
CO	CLEANOUT	--	--	LINE SIZE	JAY R. SMITH, 4040 SERIES DUOCO CAST IRON BODY WITH SQUARE, POLISHED BRONZE TOP.
HB	HOSE BIBB	--	1/2"	--	WOODFORD MODEL 24P-1/2 WITH REMOVABLE KEY HANDLE, VACUUM BREAKER AND POLISHED CHROME FINISH.
FPWH	WALL HYDRANT	--	3/4"	--	WOODFORD MODEL 68, AUTOMATIC DRAINING, FREEZELESS, WITH VACUUM BREAKER, LOOSE KEY WITH COVER PLATE.
ESEW	EMERGENCY SHOWER AND EYEWASH	1-1/4"	3/4"	--	GRANGER/GUARDIAN G1950P FREE STANDING DRENCH SHOWER WITH EYE AND FACE WASH, 10" DIAMETER SHOWER HEAD. INSTALLED 84" ABOVE FINISHED FLOOR. EQUIPPED WITH 1" IPS STAY OPEN BALL VALVE. PROVIDE VALVE OPERATION WITH 24" STAINLESS STEEL PULL-ROD WITH TRIANGLE HANDLE PULL DOWN OPENS VALVE, PUSH UP TO CLOSE. STAINLESS STEEL BOWL WITH 2 G.S. PLUS SPRAY HEADS 1/2" IPS STAY OPEN BALL VALVE, OPERATED BY FLAG HANDLE. PROVIDE ANSI COMPLIANT SINGAGE. INSTALL A POWERS MIXING VALVE ETV 400, 1" INLETS, 1 1/2" OUTLET, 20 GPM AT 30 PSI. FLOW CAPACITY AT 85 F.

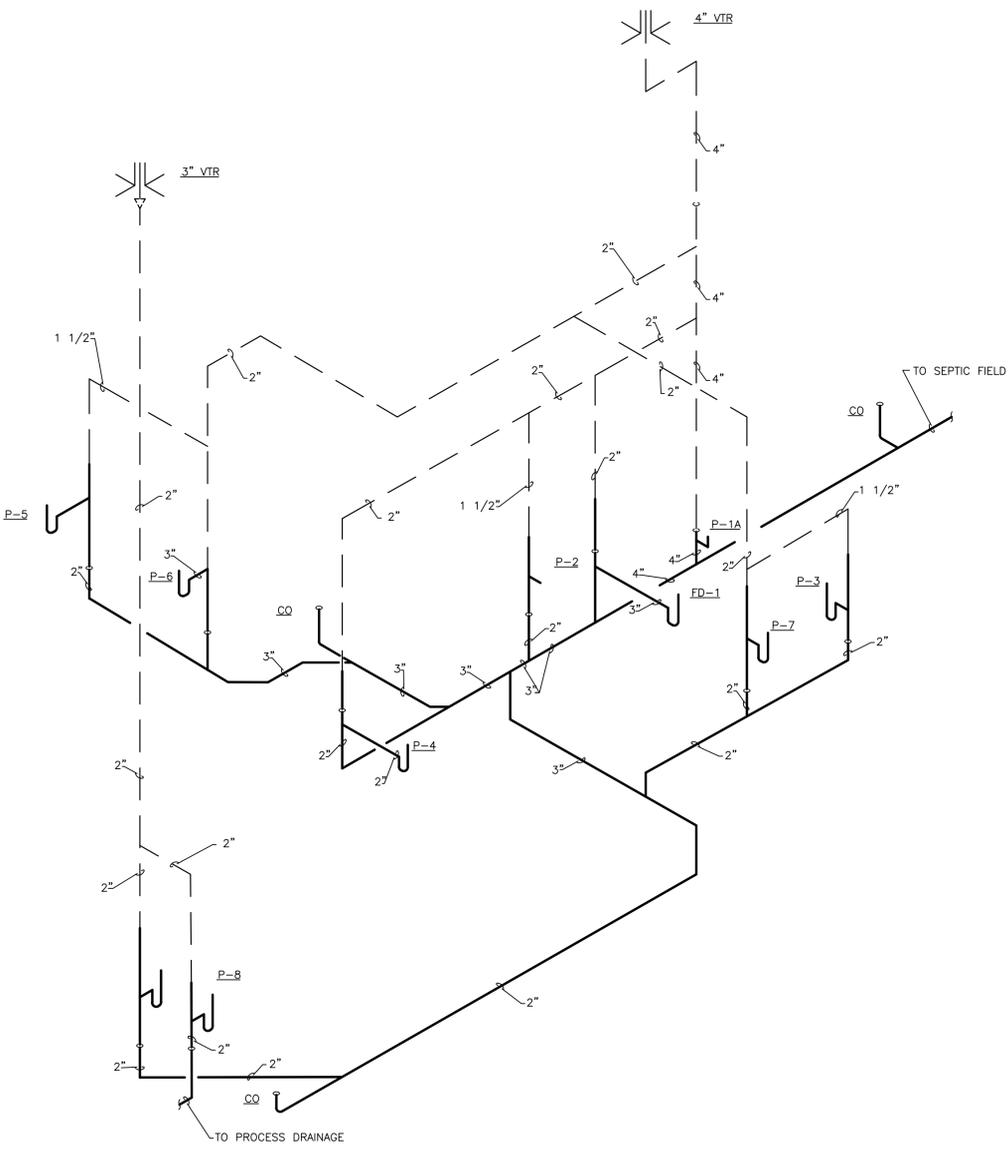
PLUMBING FIXTURE SCHEDULE NOTES:

- CONTRACTOR SHALL FURNISH AND INSTALL CARRIER FOR EACH FIXTURE WHICH IS WALL HUNG, UNLESS OTHERWISE NOTED. PROVIDE APPROPRIATE CARRIER PER FIXTURE TYPE AND REQUIREMENTS.
- ACCEPTABLE ALTERNATE MANUFACTURERS FOR ITEMS INCLUDING BUT NOT LIMITED TO:
 - A. WATER CLOSETS: KOHLER, ELJER, CRANE, MANSFIELD
 - B. LAVATORIES: SAME AS WATER CLOSETS.
 - C. SINK: JUST, ELKAY, KRAUS
- ENCLOSE ALL EXPOSED SUPPLIES AND P-TRAPS OF BARRIER FREE LAVATORIES WITH A PROTECTIVE INSULATING MATERIAL AND A SMOOTH JACKET (TRAP-WRAP OR EQUAL).
- SHOCK ARRESTORS FOR BRANCH PIPING TO FIXTURES WITH QUICK CLOSING VALVES SHALL BE BY P.P.P. INC., ZURN (OR EQUAL), SIZED PER PDI REQUIREMENTS.

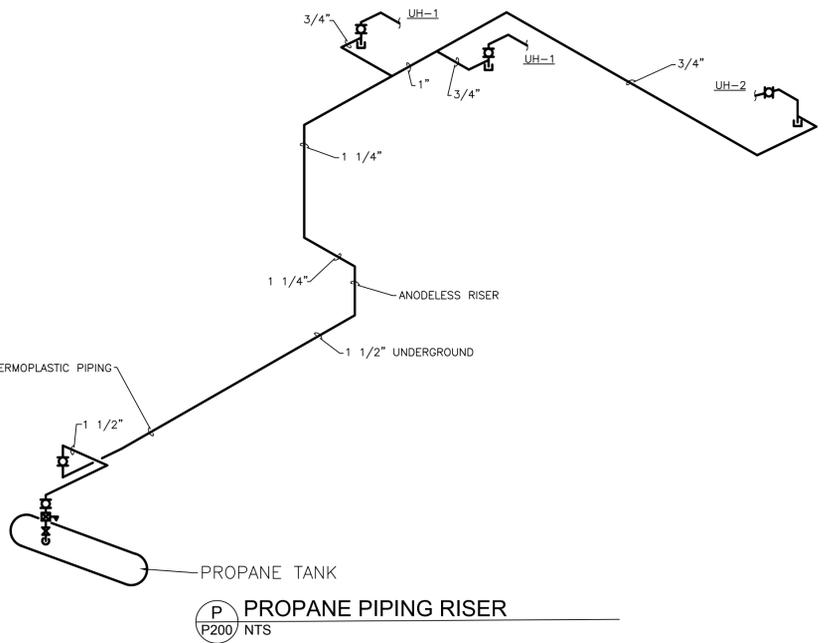
ELECTRIC TANK WATER HEATER SCHEDULE

MARK	MANUFACTURER	MARK	TANK SIZE	GPH RECOVERY AT 80° F RISE	KW INPUT	HT.	DIA.	ELECTRICAL FLA	VOLTS/Ø	REMARKS
WH-1	A. O. SMITH	DEN-40	40 GAL.	23 GPH	4.5 KW	46"	20.5"	--	277/1	1, 2, 3, 4

- REMARKS:
- FURNISH WITH ASME TEMPERATURE AND PRESSURE GAUGES.
 - TEMPERATURE CONTROL W/HIGH TEMP CUT OFF.
 - GPH BASED ON NON SIMULTANEOUS OPERATION.
 - SEE DETAIL.



SOIL, WASTE, AND VENT DIAGRAM



PROPANE PIPING RISER

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2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
PLUMBING RISER DIAGRAM

BLUEGRASS ENGINEERING, PLLC
222 East Main Street, Ste. 1 • Georgetown, KY 40324

PROJECT #:	19003
DATE:	AUGUST 2021
PROJECT MGR:	LRS
DRAWN BY:	JSD
CHECKED BY:	CME

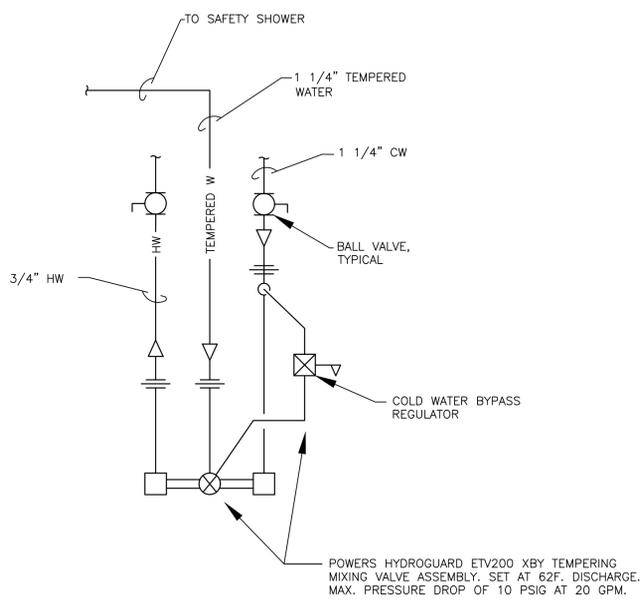


SHEET NO.
P200

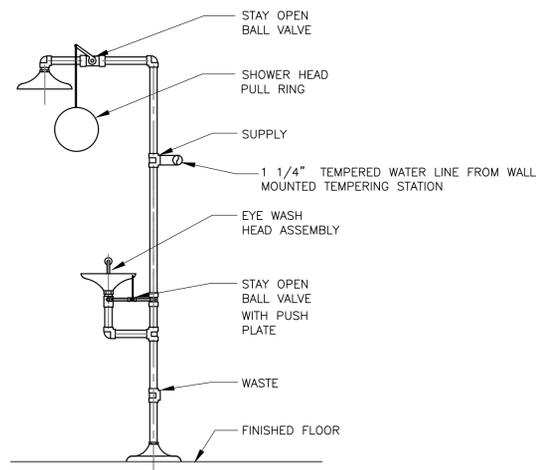
THIS DRAWING HAS BEEN PREPARED AT THE SCALE INDICATED. REPRODUCTION OF THIS DRAWING MAY INTRODUCE INACCURACIES OF THE LISTED SCALE. THE GRAPHIC SCALE BAR SHALL BE USED TO DETERMINE THE ACTUAL SCALE.

IT IS A VIOLATION OF LAW FOR ANY PERSON TO ALTER THIS DRAWING WITHOUT WRITTEN PERMISSION FROM BLUEGRASS ENGINEERING, PLLC AND ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER.

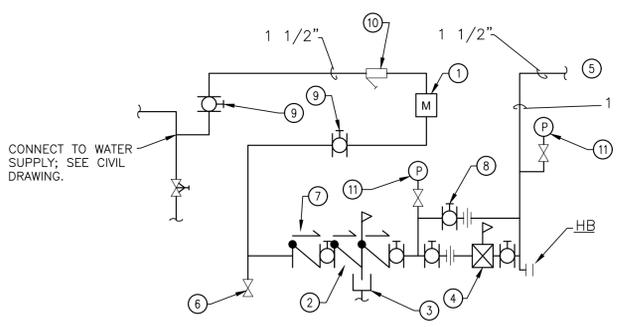
BE 7/26/21
Y:_jobs-2020\Sandy Hook - SHW\DR\WINGS\F200.dwg



TEMPERING STATION
NO SCALE



EMERGENCY SHOWER WITH EYE WASH-ESEW
N.T.S.

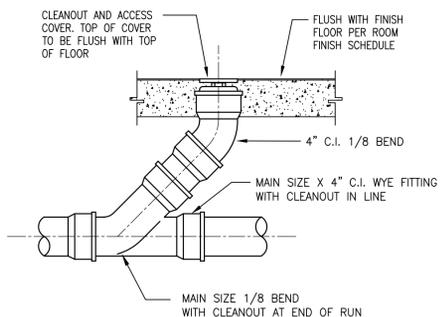


DOMESTIC WATER ENTRANCE DETAIL
NO SCALE

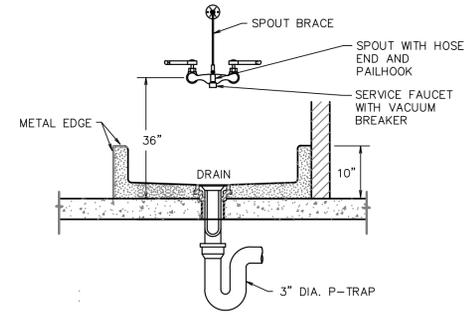
- DOMESTIC WATER ENTRANCE NOTES
1. DOMESTIC WATER METER. PROVIDE BY CUSTOMER; INSTALLED BY CONTRACTOR.
 2. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER WITH STRAINER AND BALL VALVES. INSTALL WITH CENTERLINE OF PIPING AT 36" ABOVE FINISHED FLOOR. VERIFY MINIMUM AND MAXIMUM CLEARANCES WITH VALVE MANUFACTURER.
 3. AIR GAP FITTING. PIPE DRAIN LINE FULL SIZE TO FLOOR OR TRENCH DRAIN.
 4. ADJUSTABLE PRESSURE REGULATING VALVE. SET AT 65 PSIG LEAVING PRESSURE.
 5. TO BUILDING SYSTEM. SEE FLOOR PLAN FOR CONTINUATION.
 6. CHECK VALVE.
 7. CHECK VALVE.
 8. BYPASS VALVE.
 9. BALL VALVE, TYPICAL.
 10. STRAINER.
 11. PRESSURE GAUGE WITH COCK.

PLUMBING LEGEND

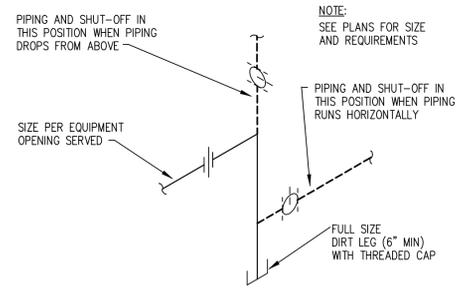
- DOMESTIC COLD WATER (POTABLE)
- DOMESTIC HOT WATER (POTABLE)
- DOMESTIC HOT WATER CIRCULATING (POTABLE)
- SANITARY SEWER
- VENT PIPING
- GREASE WASTE
- VALVE IN HORIZONTAL PIPE
- VALVE IN VERTICAL PIPE
- CHECK VALVE
- DIRECTION OF FLOW
- STRAINER
- UNION
- PRESSURE GAUGE
- THERMOMETER
- BACKFLOW PREVENTION DEVICE (REDUCED ZONE)
- HOSE BIBB
- FLOOR DRAIN
- CLEAN-OUT (FLOOR)
- CLEAN-OUT (WALL)
- VENT THRU ROOF
- PIPE RISING UP
- PIPE DROPPING DOWN
- PIPE CONNECTION DOWN
- CLEANOUT
- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- P=# FIXTURE DESIGNATION



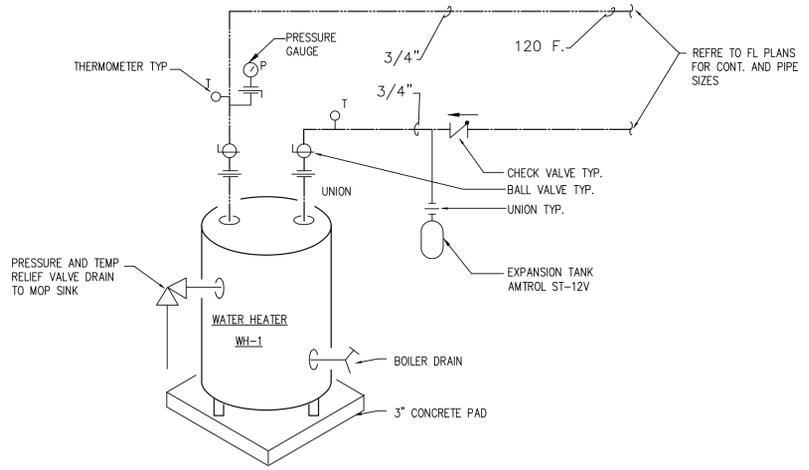
FLOOR CLEANOUT DETAIL
NO SCALE



MOP SINK DETAIL
N.T.S.



FUEL GAS DIRT LEG DETAIL
NO SCALE



ELECTRIC WATER HEATER PIPING DETAIL
NO SCALE

johnson • early • architects
131 Prosperous Place, Suite 190 • Lexington, Kentucky 40503
Phone: 606-253-1515 • Fax: 606-251-5060 • Email: early@jeaarchitects.net

TECHNICAL HORIZONS
Industrial • Commercial • Institutional
501 Darby Creek, Ste. #31 Lexington, KY
606.265.5985

NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12 - WATER TREATMENT PLANT IMPROVEMENTS
PLUMBING DETAILS

BLUEGRASS ENGINEERING, PLLC
222 East Main Street, Ste. 1 • Georgetown, KY 40324

PROJECT #:	19003
DATE:	AUGUST 2021
PROJECT MGR:	LRS
DRAWN BY:	JSD
CHECKED BY:	CME



SHEET NO.
P201



INTERPHASE ELECTRICAL SPECIALTIES, INC.
 150 EAST MAIN STREET, STE. 100
 GEORGETOWN, KY 40324
 502.262.3901

INTERPHASE ELECTRICAL SPECIALTIES, INC.

NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
 CONTRACT 12-WATER TREATMENT PLANT

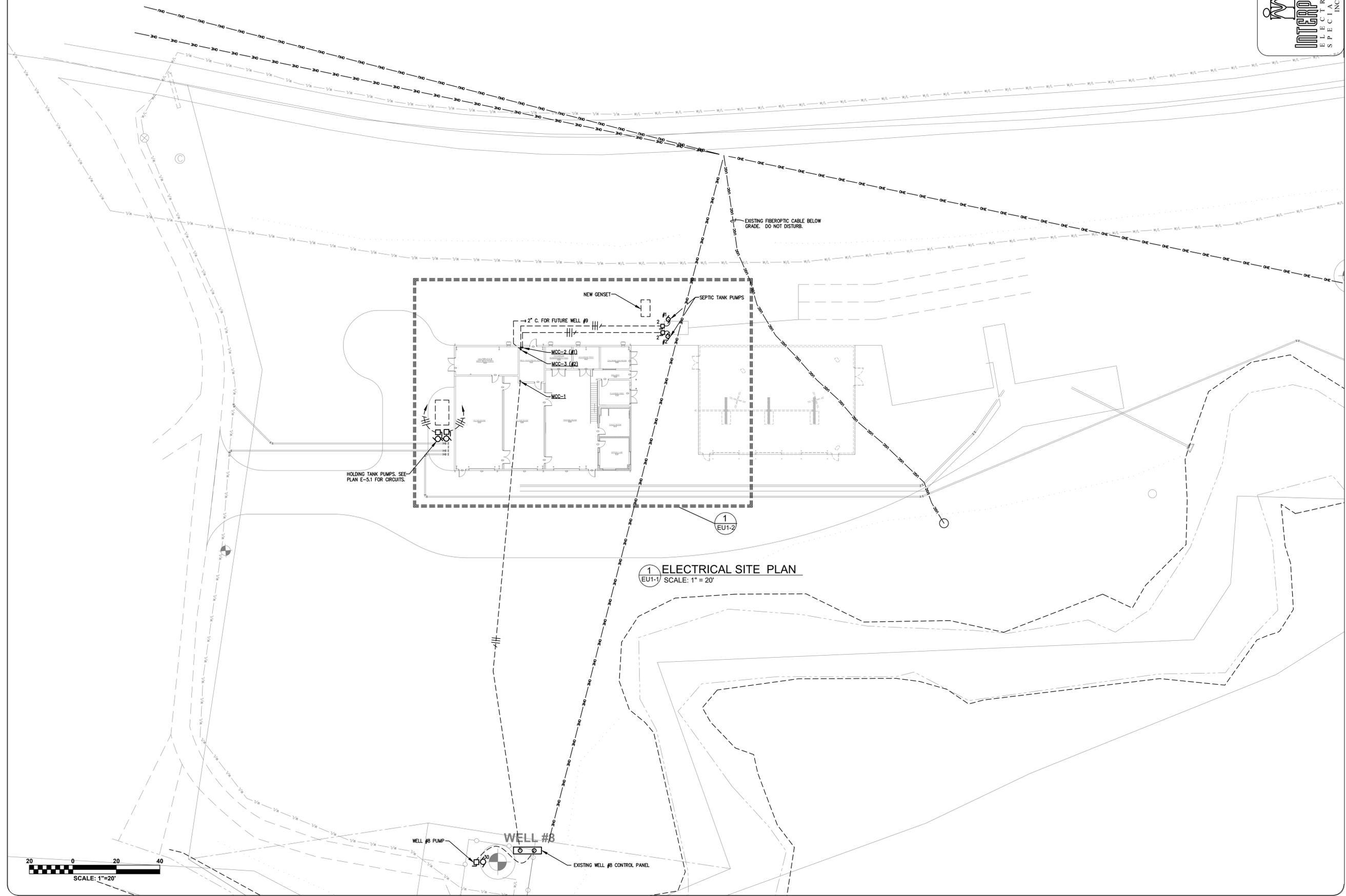
ELECTRICAL SITE PLAN

BLUEGRASS ENGINEERING PLLC
 222 East Main Street, Ste. 1 • Georgetown, KY 40324

PROJECT #: 19003
 DATE: AUGUST 2020
 PROJECT MGR: KG
 DRAWN BY: MC
 CHECKED BY: KG



SHEET NO.
EU-1.1



1 ELECTRICAL SITE PLAN
 EU1-1 SCALE: 1" = 20'

SCALE: 1" = 20'

NO.	DATE	REVISIONS	BY

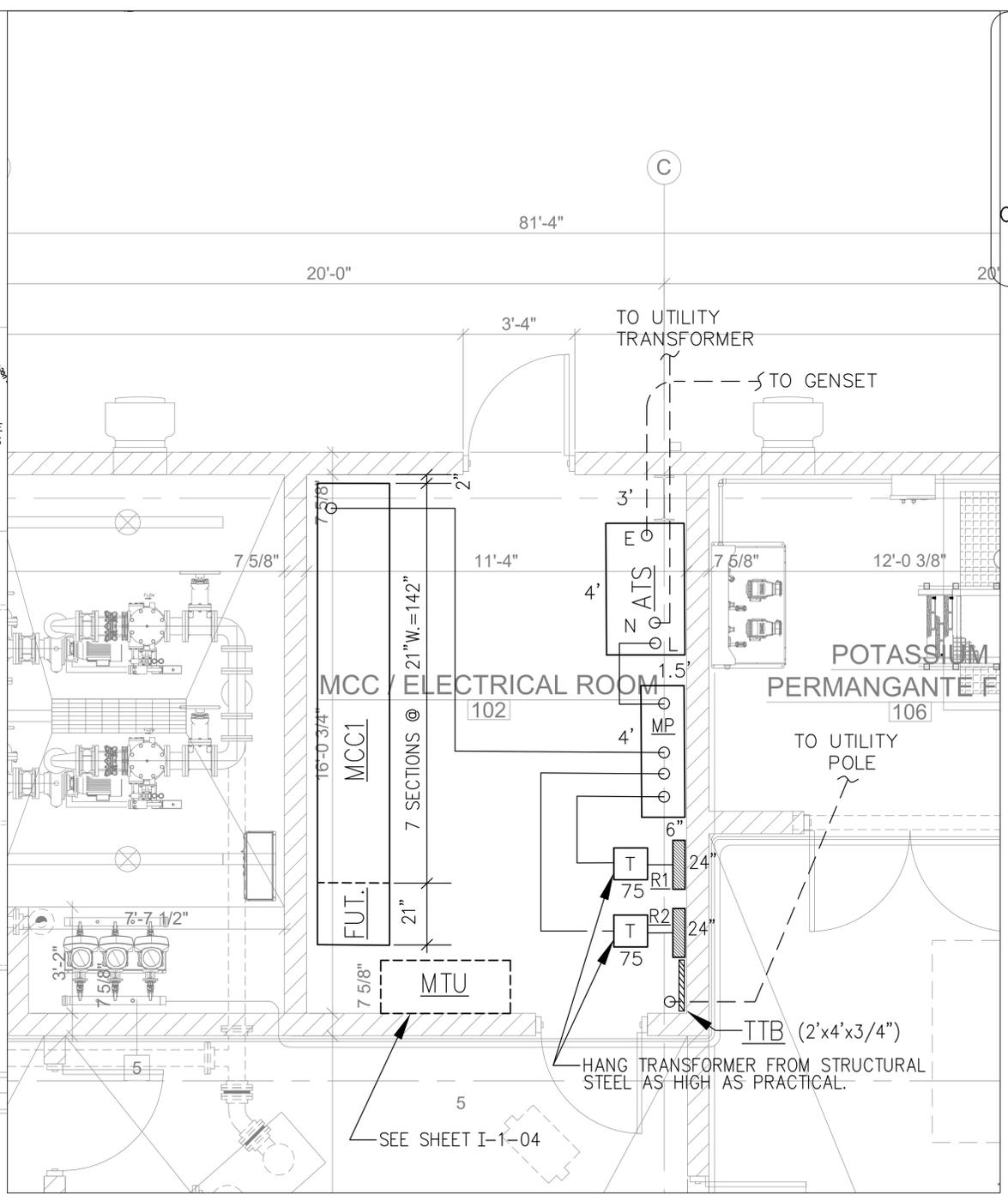
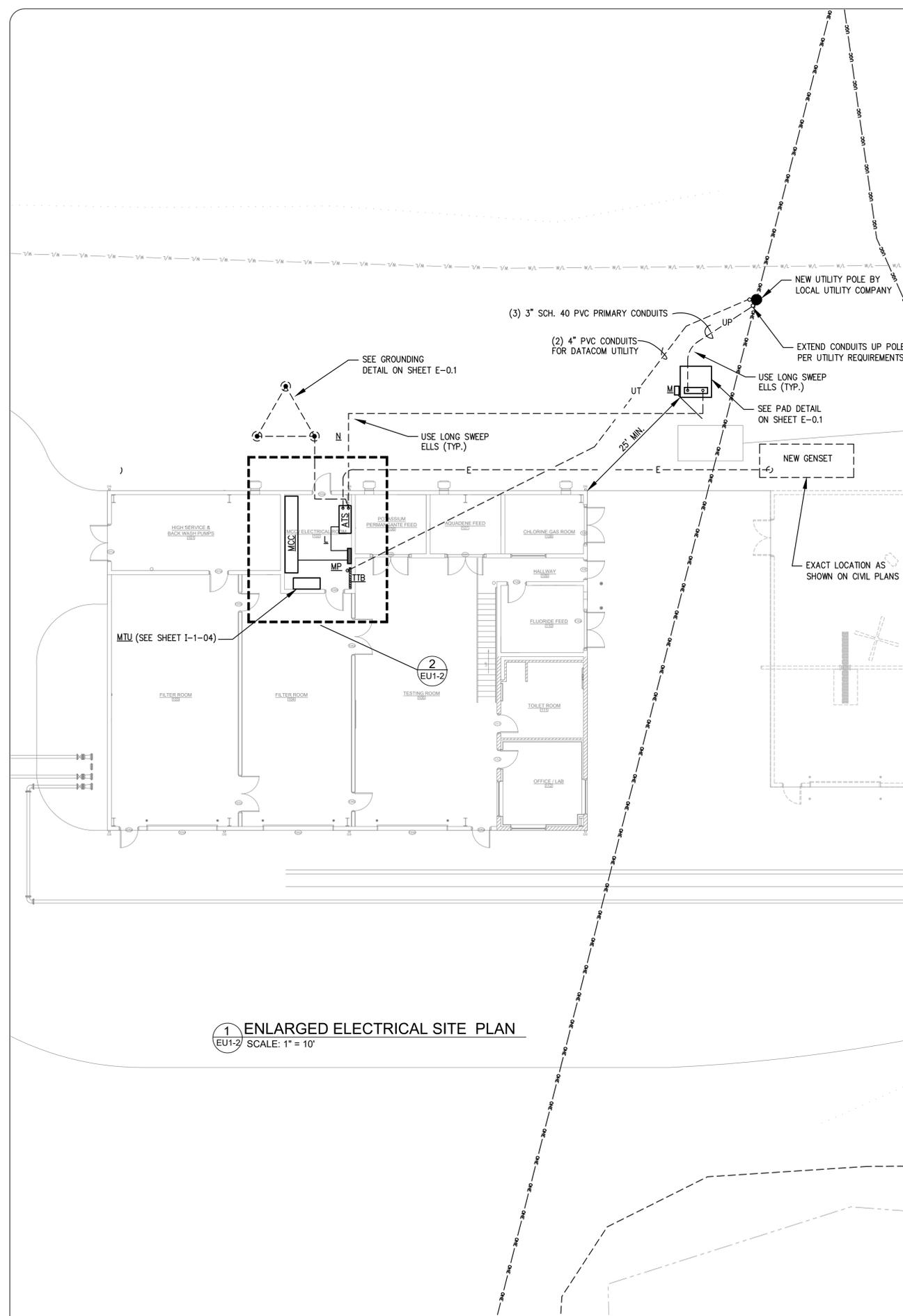
2019 WATER SYSTEM IMPROVEMENTS
 CONTRACT 12-WATER TREATMENT PLANT
ELECTRICAL SITE PLAN

BLUEGRASS ENGINEERING PLLC
 222 East Main Street, Ste. 1 • Georgetown, KY 40324

PROJECT #: 19003
 DATE: AUGUST 2021
 PROJECT MGR: KG
 DRAWN BY: MC
 CHECKED BY: KG



SHEET NO.
EU-1.2



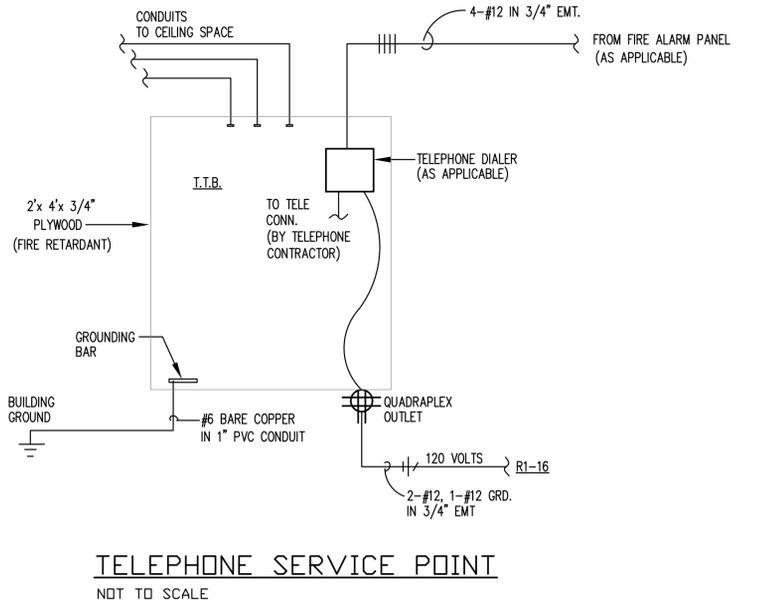
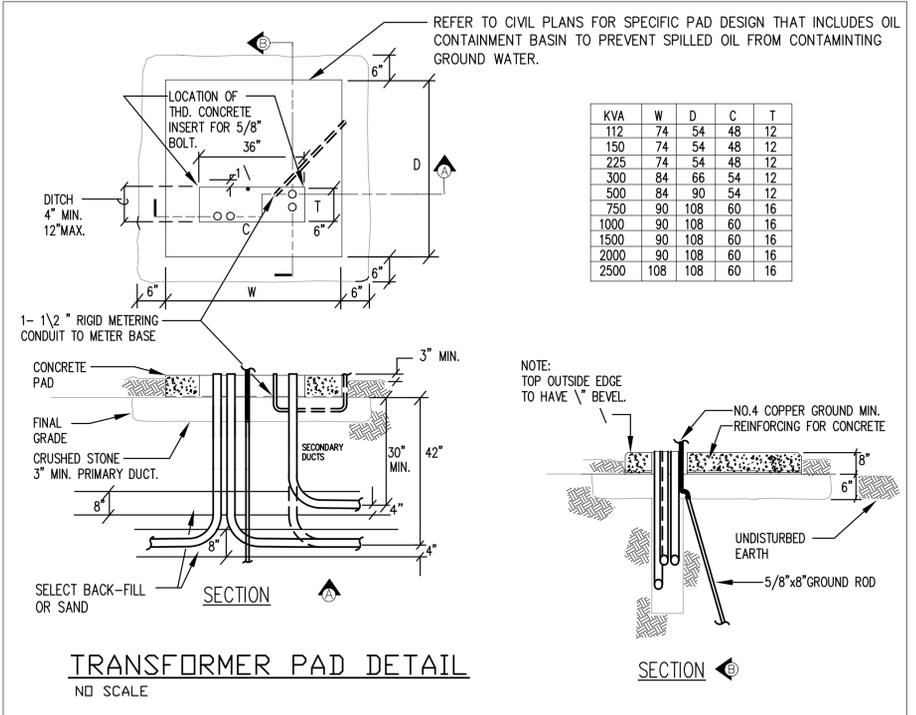
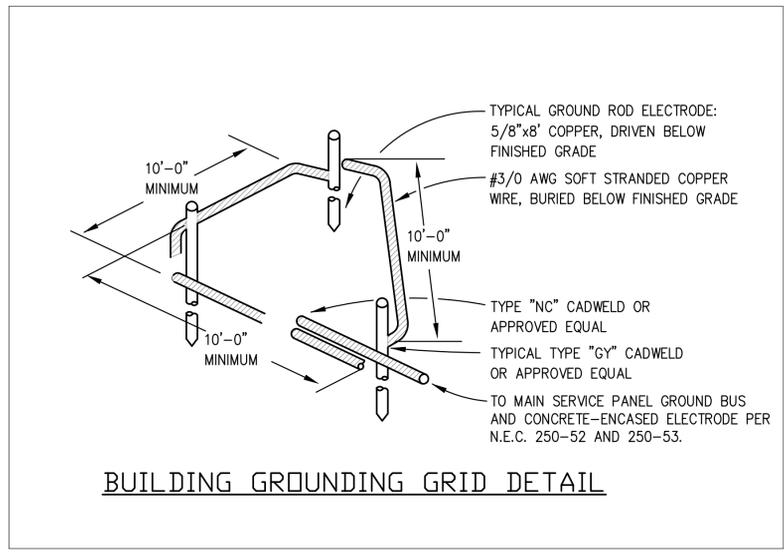
LEGEND OF ELECTRICAL SYMBOLS

- 2'x4' RECESSED FLUORESCENT LIGHTING FIXTURE WITH JUNCTION BOX AND FIXTURE WHIP (LENGTH AS REQUIRED)
- METAL HALIDE, HIGH INTENSITY DISCHARGE LIGHTING FIXTURE
- METAL HALIDE, HIGH INTENSITY DISCHARGE LIGHTING FIXTURE WITH QUARTZ RESTRIKE
- RECESSED DOWNLIGHT - FLUORESCENT (INTERIOR)
- EXTERIOR SURFACE MOUNTED, H.L.D., BUILDING SECURITY LIGHT
- 4', SURFACE MOUNTED, FLUORESCENT LIGHTING FIXTURE
- 4', SURFACE MOUNTED, FLUORESCENT LIGHTING FIXTURE
- WALL MOUNTED FLUORESCENT LIGHTING FIXTURE
- EXPLOSION PROOF (CLASS 1, DIVISION 2), METAL HALIDE, LIGHTING FIXTURE
- METAL HALIDE, FLOODLIGHT
- SURFACE MOUNTED, COMPACT FLUORESCENT, LIGHTING FIXTURE
- EXIT SIGN WITH BATTERY BACKUP & 2 INTEGRAL EGRESS LAMP HEADS
- EXIT SIGN WITH BATTERY BACKUP; ARROWS DENOTE DIRECTION OF EXIT CHEVRONS
- REMOTE EMERGENCY LAMP HEADS RATED FOR HAZARDOUS AREA (CLASS 1, DIVISION 2)
- REMOTE MOUNTED BATTERY PACK FOR EXPLOSION PROOF EMERGENCY LAMP HEADS
- STANDARD EMERGENCY EGRESS UNIT WITH BATTERY BACKUP & 2 LAMP HEADS
- EXTERIOR PERSONNEL DOOR WITH D.C. SOCKET FOR EMERGENCY EGRESS LIGHTING
- 120 VOLT DUPLEX CONVENIENCE RECEPTACLE AT 16' A.F.F. U.O.N.
- 120 VOLT DUPLEX CONVENIENCE RECEPTACLE RATED FOR HAZARDOUS LOCATIONS (CLASS 1, DIVISION 2); MOUNT AT 16' A.F.F. U.O.N.
- 120 VOLT GROUND FAULT INTERRUPTING RECEPTACLE AT 16' A.F.F. U.O.N.
- 120 VOLT 4-PLEX CONVENIENCE RECEPTACLE AT 16' A.F.F. U.O.N.
- SIMPLEX RECEPTACLE OUTLET; SUBSCRIPT DENOTES STANDARD NEMA #
- ELECTRIC WATER COOLER OUTLET
- WEATHER PROOF 120 VOLT DUPLEX RECEPTACLE MOUNTED OUTSIDE AND AT ROOFTOP HVAC UNITS
- IN-SLAB, FLOOR BOX; NUMBER OF COMPARTMENTS AND PROVISIONS FOR POWER, TELEPHONE, AND DATA AS NOTED ON THE PLANS
- 120V DUPLEX CONVENIENCE RECEPTACLE MOUNTED ABOVE COUNTER
- TELEPHONE/DATA OUTLET MOUNTED AT 16' A.F.F. - PROVIDE DEVICES AND WIRING, IN 3/4" CONDUIT, BACK TO TELEPHONE BACKBOARD.
- WALL MOUNTED, PAYPHONE, TELEPHONE OUTLET BOX AT 5'-0" A.F.F.
- JUNCTION BOX, SIZED PER N.E.C. (CURRENT EDITION)
- SURFACE MOUNTED PANELBOARD
- SINGLE POLE, SINGLE THROW (SPST) SWITCH; MOUNT AT 48" A.F.F. UNLESS OTHERWISE NOTED
- 3-WAY SWITCH; MOUNT AT 48" A.F.F. UNLESS OTHERWISE NOTED
- 4-WAY SWITCH AT 48" A.F.F. U.O.N.
- KEY OPERATED, SPST SWITCH; MOUNT AT 48" A.F.F. UNLESS OTHERWISE NOTED
- DRY-TYPE, LOW VOLTAGE, TRANSFORMER
- MOTOR CONNECTION
- EXHAUST FAN CONNECTION
- FRACTIONAL HORSEPOWER MANUAL MOTOR STARTER WITH OVERLOAD PROTECTION
- MANUAL MOTOR SWITCH - RATED 240V, 30A
- NON-FUSED DISCONNECT SWITCH - "30/3" INDICATES 30 AMP, 3 POLE NONFUSED DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH - "30/3/15" INDICATES 30 AMP, 3 POLE FUSED DISCONNECT SWITCH WITH 15 AMP FUSES
- MAGNETIC STARTER - SUBSCRIPT INDICATES MOTOR HP
- COMBINATION MAGNETIC STARTER/DISCONNECT - SUBSCRIPT INDICATES HORSEPOWER RATING
- REMOTE UP/DOWN CONTROLLER FOR OVERHEAD DOORS
- TELEPHONE EQUIPMENT BOARD
- CONTINUATION SYMBOL
- A.F.F. ABOVE FINISHED FLOOR
- U.O.N. UNLESS OTHERWISE NOTED
- CONDUIT IN/UNDER SLAB OR BELOW GRADE
- FLEXIBLE CONDUIT FIXTURE WHIP
- CONDUIT IN CEILING SPACE ABOVE OR EXPOSED AT STRUCTURE (IF NO CEILING)
- HOME RUN TO CIRCUIT PANEL
- CONDUIT WITH # 12 AWG CONDUCTORS. LONG TICKS INDICATE PHASE CONDUCTORS, SHORT TICK INDICATES NEUTRAL, ANGLED TICK INDICATES GREEN EQUIPMENT GROUNDING CONDUCTOR

FIXTURE SCHEDULE - SANDY HOOK MUNICIPAL WATER & SEWER SERVICE, SANDY HOOK, KY.

QUANTITY	TYPE	MANUFACTURER	CATALOG #	LAMP			DESCRIPTION
				NO	TYPE	VOLT	
	A	AZZ LIGHTING	MHL09-L-D-4-U-RIG	1	LED	120	4' ENCLOSED/GASKETED LED STRIP, NEMA 4x RATED, DIFFUSE LENS, MOUNTING BRACKET, 2 SAFETY CABLES, 9,750 LUMENS
	B	AZZ LIGHTING	MHL11-L-D-4-U-RIG	1	LED	120	4' ENCLOSED/GASKETED LED STRIP, NEMA 4x RATED, DIFFUSE LENS, MOUNTING BRACKET, 2 SAFETY CABLES, 11,250 LUMENS
	C	AZZ LIGHTING	MHL07-L-D-4-U-RIG	1	LED	120	4' ENCLOSED/GASKETED LED STRIP, NEMA 4x RATED, DIFFUSE LENS, MOUNTING BRACKET, 2 SAFETY CABLES, 7,260 LUMENS
	D	NOT USED	NOT USED	1	LED	120	NOT USED
	E	NOT USED	NOT USED	1	LED	120	NOT USED
	F	LITHONIA	WPX1-LED-P1-40K-MVOLT-PE-DBXD	1	LED	120	EXTERIOR FULL CUT OFF WALL PACK, INTEGRAL PHOTOCELL, 1,550 LUMEN OUTPUT
	G	LITHONIA	WPX2-LED-40K-MVOLT-PE-DBXD	1	LED	120	EXTERIOR FULL CUT OFF WALL PACK, INTEGRAL PHOTOCELL, 6,000 LUMEN OUTPUT
	XH	ISOLITE	MAX-C-6V42W-R-BK-MB	-	INCLUDED	120	EXIT SIGN, DUAL INTEGRAL HEADS & BATTERY BACKUP (COLOR BY ARCHITECT), NEMA 4x RATED
	EM1	ISOLITE	HZN-NC-6V42W-MBC	-	INCLUDED	120	EGRESS UNIT, DUAL INTEGRAL HEADS & BATTERY BACKUP (COLOR BY ARCHITECT), NEMA 4x RATED
	EM2	ISOLITE	BUG-6W-WH-MB	-	INCLUDED	120	EGRESS UNIT, DUAL INTEGRAL HEADS & BATTERY BACKUP (COLOR BY ARCHITECT), NEMA 4x RATED
	ER	ISOLITE	OWL-EM-BZ-MB-HX	-	N/A	120	EXTERIOR EGRESS UNIT, INTEGRAL HEATER (COLOR BY ARCHITECT)
	SOC	LITHONIA LIGHTING	WSX PDT XX	-	N/A	120	WALL OOC. SENSOR (DUAL TECHNOLOGY)
	COC	LITHONIA LIGHTING	NCM PDT 9 RJB	-	N/A	120	CEILING OOC. SENSOR (DUAL TECHNOLOGY)
	PP	LITHONIA LIGHTING	NPP16 D EFP	-	N/A	120	POWER PACK FOR CEILING OCCUPANCY SENSORS

NOTES: 1) COLOR RENDERING INDEX (CRI) FOR ALL LAMPING SHALL BE 4000 DEGREES KELVIN TEMPERATURE.
 2) VERIFY NECESSARY MOUNTING TRIMS WITH ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT CEILING TYPES.
 3) INTERIOR/EXTERIOR FIXTURE FINISHES SUBJECT TO APPROVAL/CHANGE BY ARCHITECT. VERIFY PRIOR TO RELEASE OF ORDER AND SHOP DRAWING SUBMITTAL.
 4) ALL EMERGENCY AND EXIT FIXTURES ARE TO MEET N.F.P.A. 101 LIFE SAFETY REQUIREMENTS.
 5) THE LISTED MANUFACTURERS AND CAT. NOS. ARE THE BASIS OF DESIGN.



1 E0.1 ELECTRICAL LEGEND, SCHEDULES & DETAILS PLAN
 SCALE: NOT TO SCALE

INTERPHASE ELECTRICAL SPECIALTIES, INC.
 150 EAST MAIN STREET
 LEANOR, KENTUCKY 40359
 889.252.3801

INTERPHASE ELECTRICAL SPECIALTIES, INC.

NO.	DATE	REVISIONS	BY

**2019 WATER SYSTEM IMPROVEMENTS
 CONTRACT 12-WATER TREATMENT PLANT IMPROVEMENTS**

LIGHTING PLAN

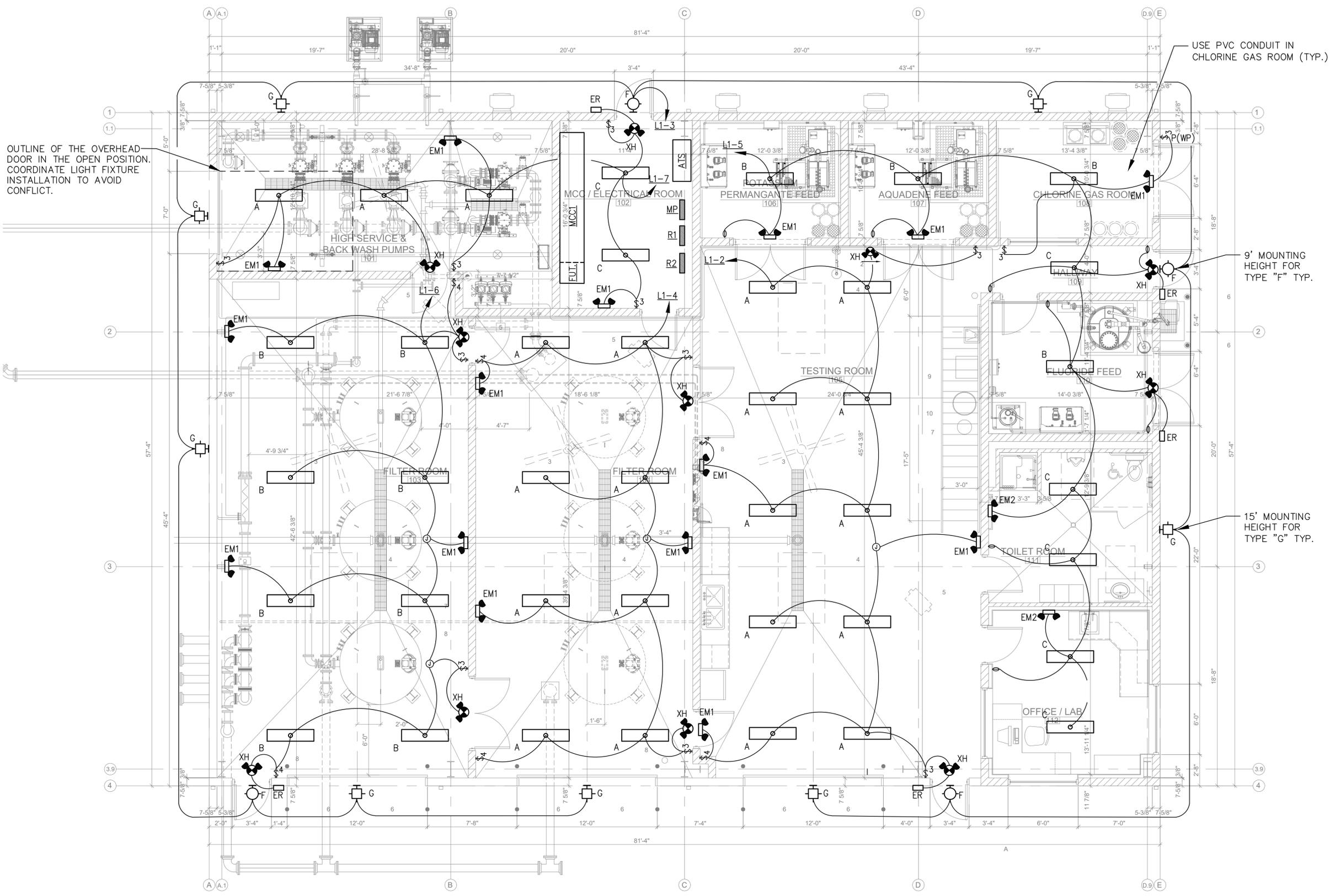
BLUEGRASS ENGINEERING PLLC
 222 East Main Street, Ste. 1 • Georgetown, KY 40324

PROJECT #:	19003
DATE:	AUGUST 2021
PROJECT MGR:	KG
DRAWN BY:	MC
CHECKED BY:	KG

STATE OF KENTUCKY
 JAMES T. GRAVES
 17369
 PROFESSIONAL ENGINEER

09/03/20

SHEET NO.
E-0.1



INTERPHASE
ELECTRICAL
SPECIALTIES, INC.
100 EAST MAIN STREET, STE. 1
GEORGETOWN, KENTUCKY 40324
859.252.3801

INTERPHASE
ELECTRICAL
SPECIALTIES
INC.

NO.	DATE	REVISIONS	BY

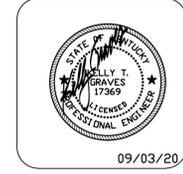
2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12-WATER TREATMENT PLANT
IMPROVEMENTS

LIGHTING PLAN

BLUEGRASS
ENGINEERING PLLC

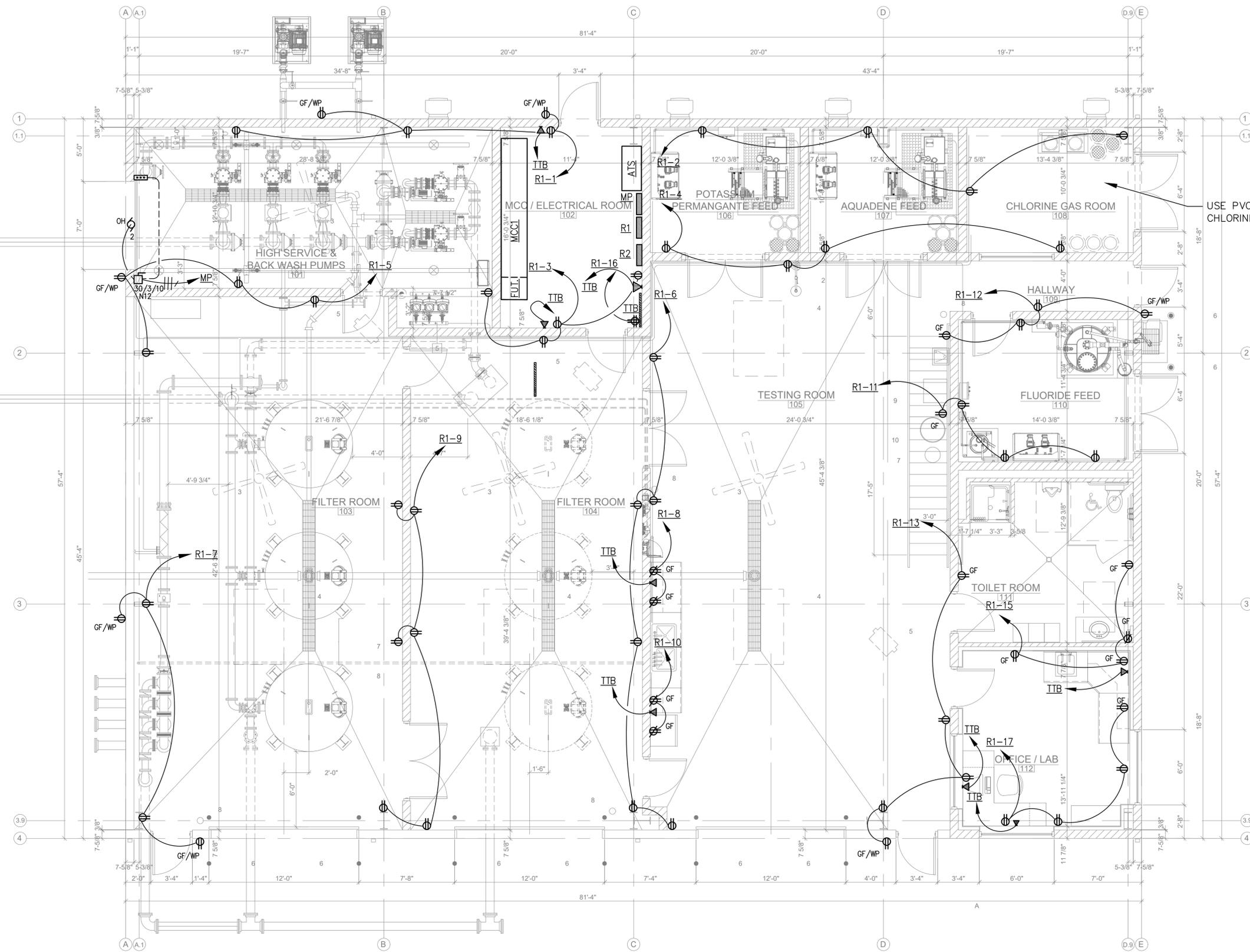
222 East Main Street, Ste. 1 • Georgetown, KY 40324

PROJECT #: 19003
DATE: AUGUST 2021
PROJECT MGR: KG
DRAWN BY: MC
CHECKED BY: KG



SHEET NO.
E-1.1

1 LIGHTING PLAN
E1.1 SCALE: 1/4" = 1'-0"



USE PVC CONDUIT IN CHLORINE GAS ROOM (TYP.)

1 GENERAL POWER PLAN
E2.1 SCALE: 1/4" = 1'-0"

NO.	DATE	REVISIONS	BY

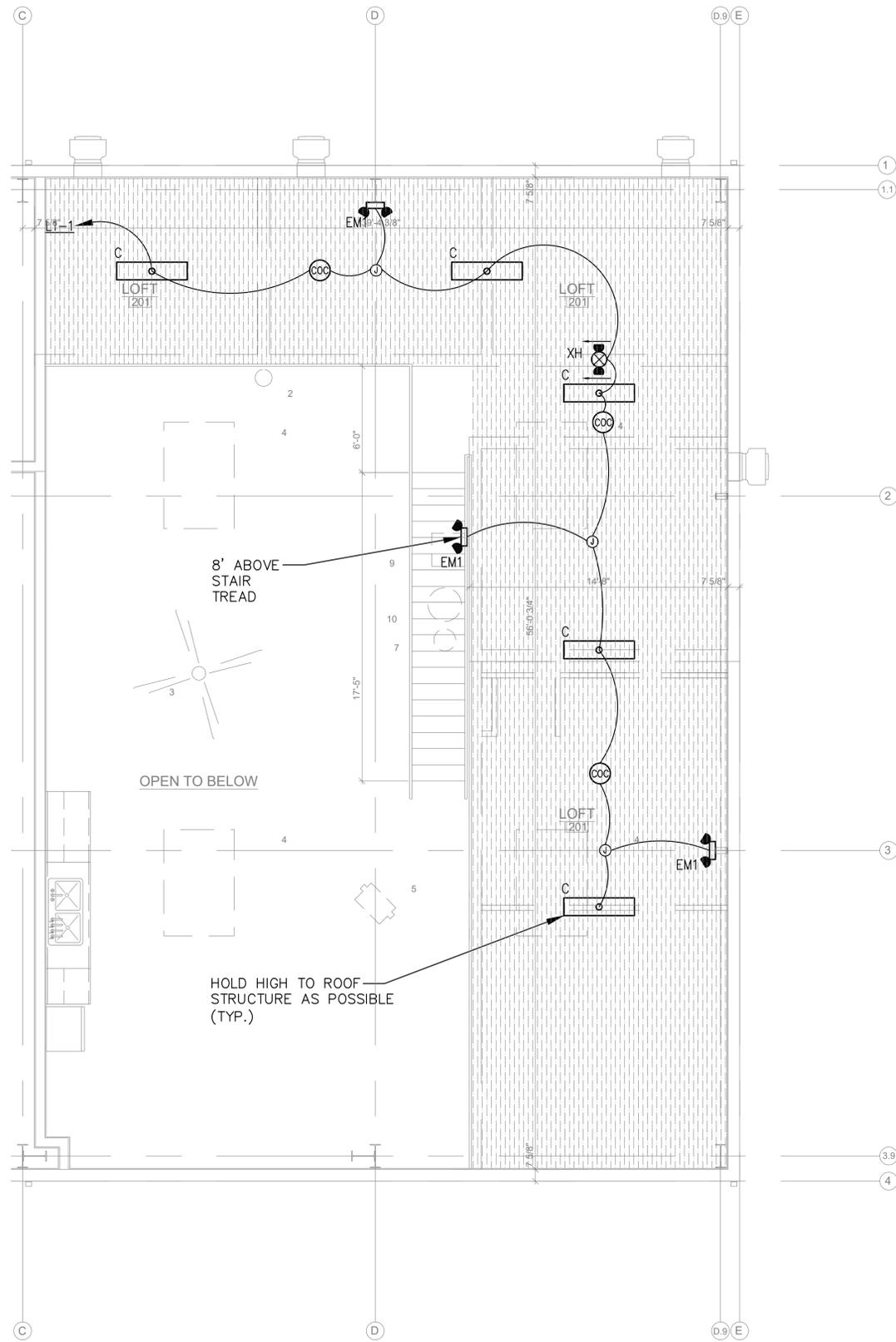
2019 WATER SYSTEM IMPROVEMENTS
CONTRACT 12-WATER TREATMENT PLANT
IMPROVEMENTS
GENERAL POWER PLAN



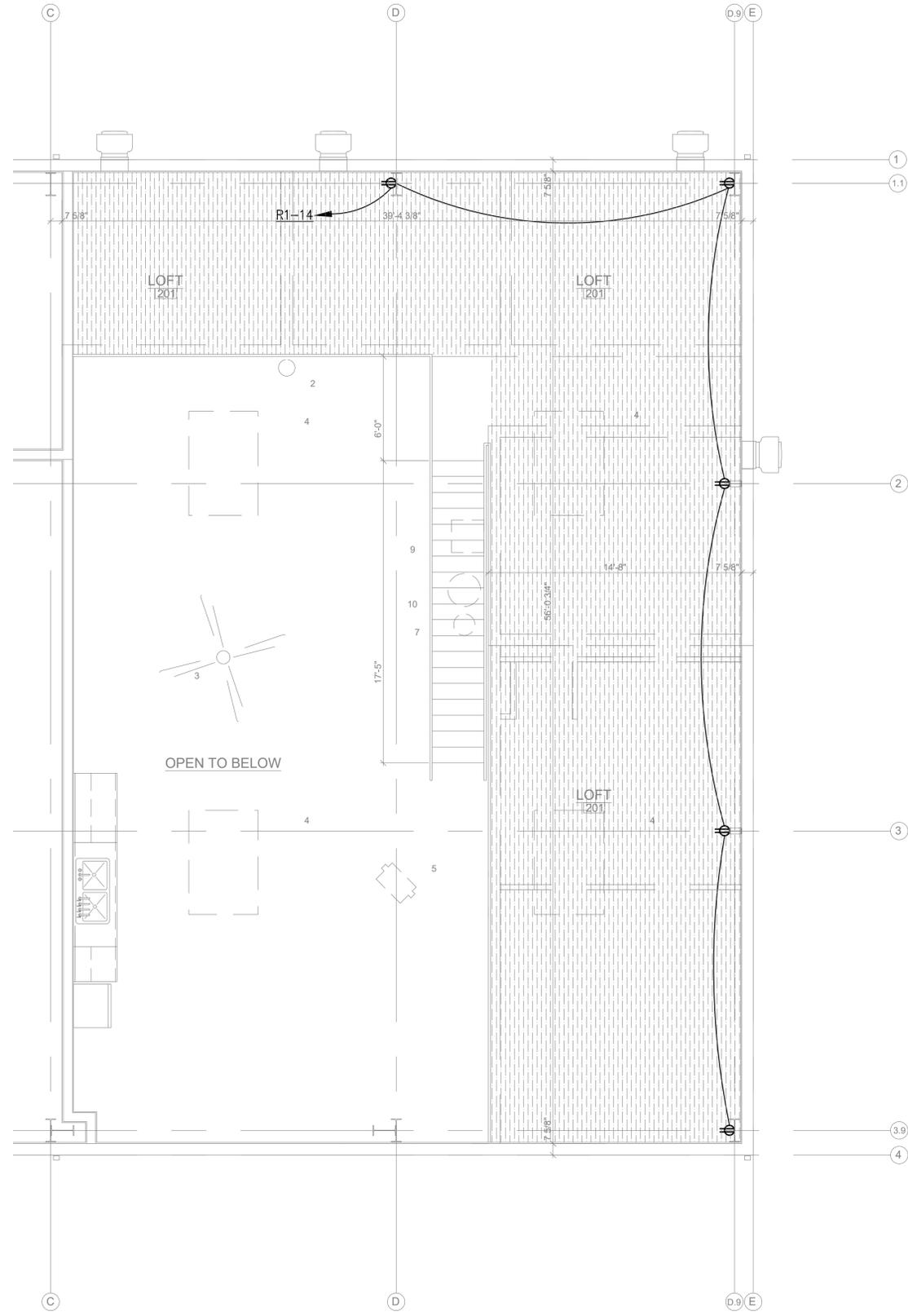
PROJECT #:	19003
DATE:	AUGUST 2021
PROJECT MGR:	KG
DRAWN BY:	MC
CHECKED BY:	KG



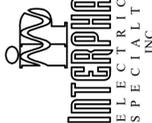
SHEET NO.
E-2.1



1 LOFT FLOOR PLAN-LIGHTING
E3.1 SCALE: 1/4" = 1'-0"



2 LOFT FLOOR PLAN-POWER
E3.1 SCALE: 1/4" = 1'-0"

INTERPHASE ELECTRICAL SPECIALTIES, INC.

 402509
 889.252.3801

NO.	DATE	REVISIONS	BY

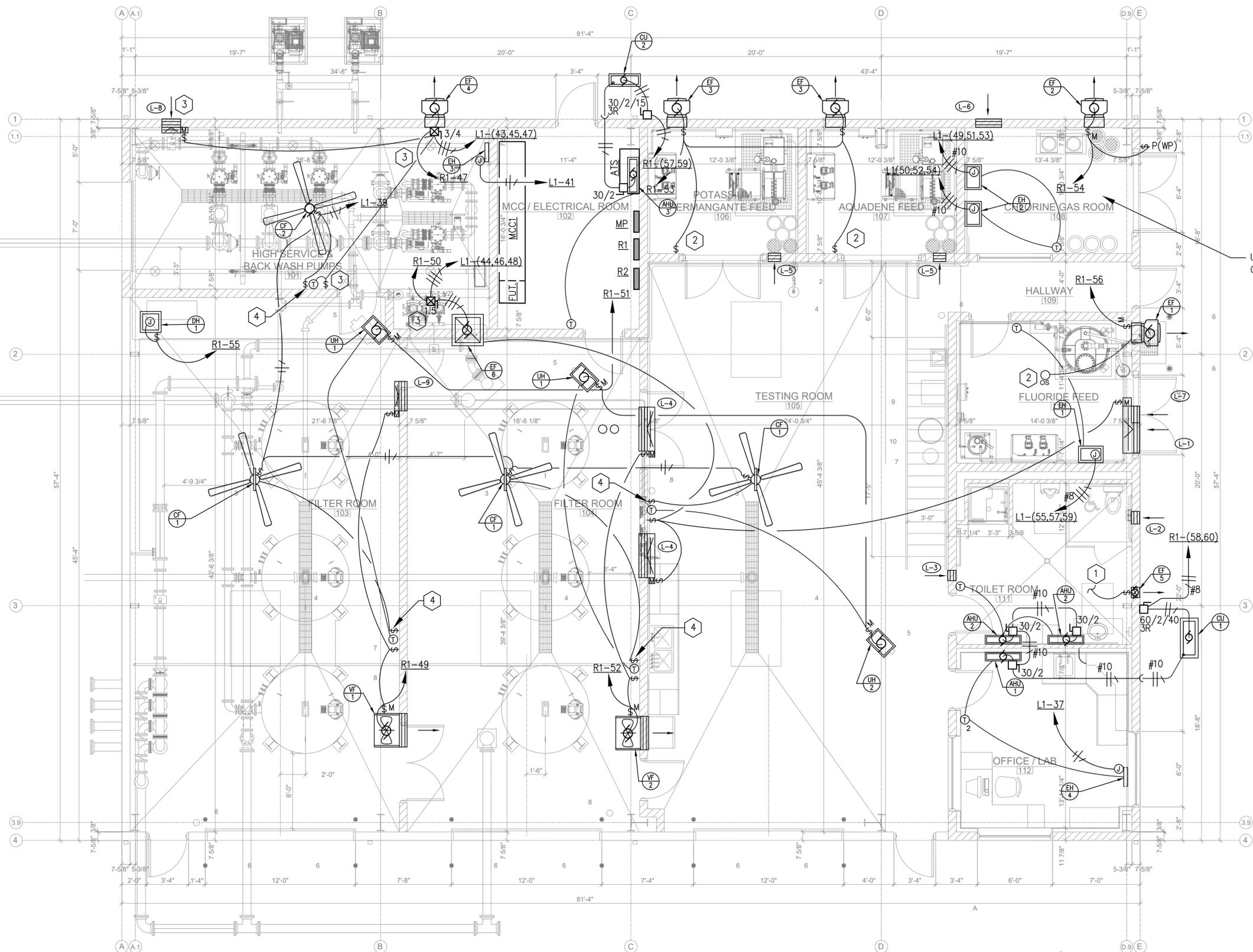
2019 WATER SYSTEM IMPROVEMENTS
 CONTRACT 12-WATER TREATMENT PLANT IMPROVEMENTS
 LOFT FLOOR PLAN LIGHTING/POWER


BLUEGRASS
 ENGINEERING PLLC
 222 East Main Street, Ste. 1 • Georgetown, KY 40324

PROJECT #:	19003
DATE:	AUGUST 2021
PROJECT MGR:	KG
DRAWN BY:	MC
CHECKED BY:	KG



SHEET NO.
E-3.1



USE PVC CONDUIT IN CHLORINE GAS ROOM (TYP.)

1 MECHANICAL EQUIPMENT POWER PLAN
 E4.1 SCALE: 1/4" = 1'-0"

ELECTRICAL TAGGED NOTES:

1. PROVIDE 2 POLE FUNCTION OCCUPANCY SWITCH FOR 277v ROOM LIGHTING CONTROL AND 120v FAN CONTROL FOR SIMULTANEOUS OPERATION.
2. TWO SPEED FAN CONTROLLER BY MECHANICAL CONTRACTOR, WIRED/INSTALLED BY ELECTRICAL CONTRACTOR.
3. COMBINATION MAGNETIC STARTER/FUSED DISCONNECT FOR ROOM EXHAUST FAN POWER AND CONTROL. PROVIDE 120v CONTROL POWER TRANSFORMER, RED RUN PILOT LIGHT, HAND-OFF-AUTO SWITCH (HOA) AND AUXILIARY CONTACTS AS FOLLOWS: (2) SETS OF N.O. AND (1) N.C. SET. CONTROL IN AUTOMATIC MODE IS BY ROOM THERMOSTAT AND HAND MODE IS BY MANUAL WALL SWITCH AS SHOWN ON MECHANICAL DRAWING M100. IN EITHER SCENARIO, ASSOCIATED MOTORIZED LOUVER SHALL BE INTERLOCKED TO OPEN WITH FAN OPERATION.
4. OVERHEAD FAN SPEED CONTROLLER BY MECHANICAL CONTRACTOR/WIRED BY ELECTRICAL CONTRACTOR.

NO.	DATE	REVISIONS	BY

2019 WATER SYSTEM IMPROVEMENTS
 CONTRACT 12-WATER TREATMENT PLANT
 IMPROVEMENTS
 MECHANICAL EQUIPMENT POWER



PROJECT #:	19003
DATE:	AUGUST 2021
PROJECT MGR:	KG
DRAWN BY:	MC
CHECKED BY:	KG



SHEET NO.
E-4.1

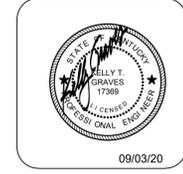


NO.	DATE	REVISIONS	BY

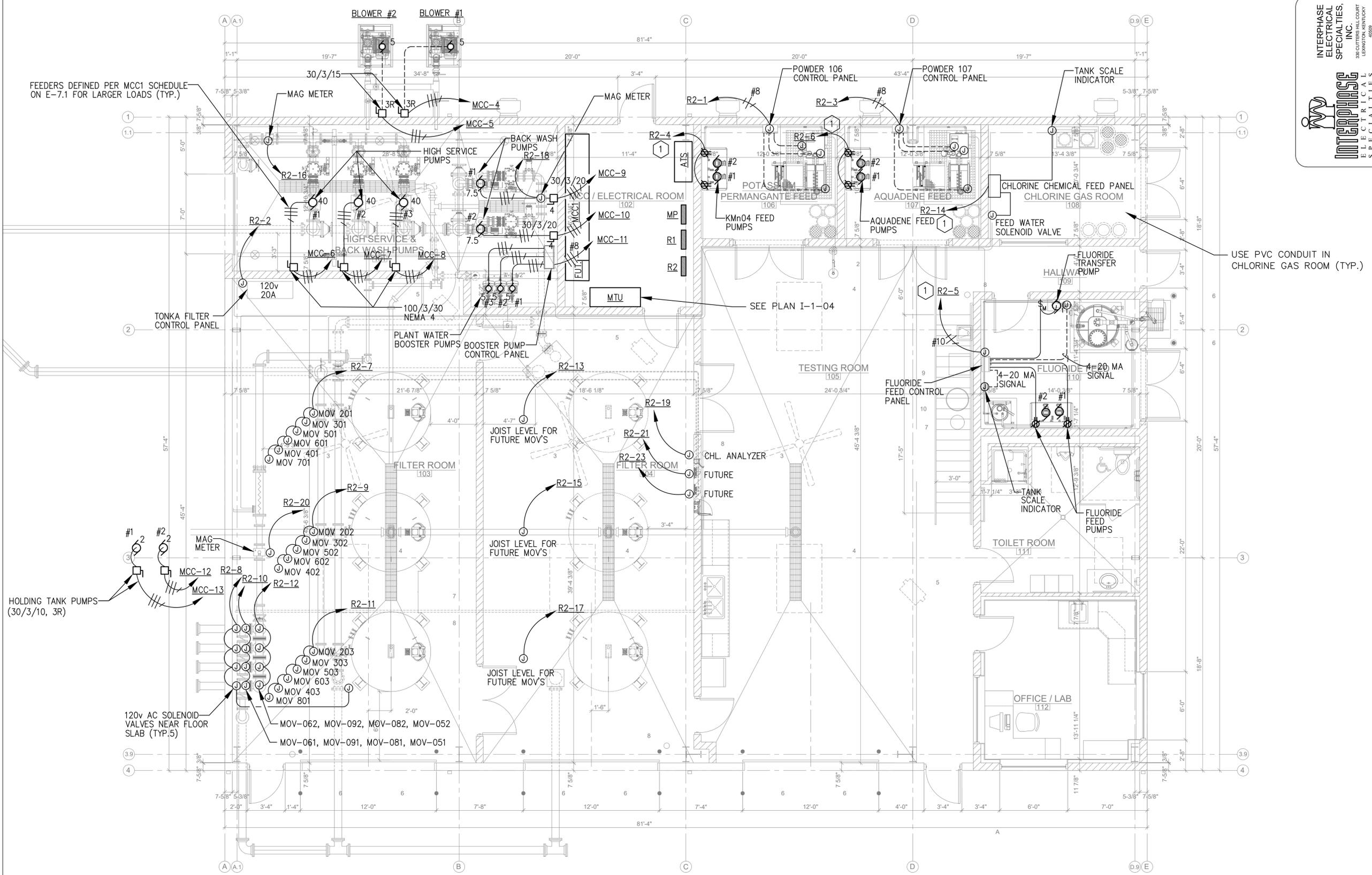
2019 WATER SYSTEM IMPROVEMENTS
 CONTRACT 12-WATER TREATMENT PLANT
 IMPROVEMENTS
 WASTE WATER EQUIPMENT POWER



PROJECT #:	19003
DATE:	AUGUST 2021
PROJECT MGR:	KG
DRAWN BY:	MC
CHECKED BY:	KG



SHEET NO.
E-5.1



1 WASTE WATER EQUIPMENT POWER PLAN
 E5.1 SCALE: 1/4" = 1'-0"

ELECTRICAL TAGGED NOTES:

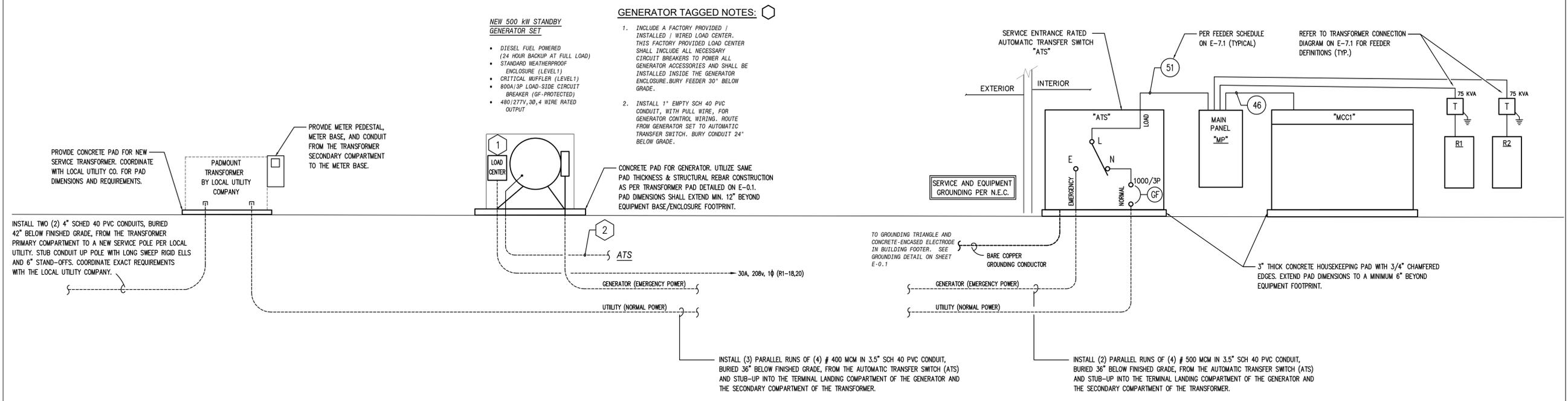
- ROUTE THIS CIRCUIT THROUGH "S.C.A.D.A." PANEL AUTOMATIC SHUTOFF.



ELECTRICAL NOTES:

1. LUGS/TERMINALS FOR PANELBOARDS AND PANELBOARD BREAKERS ARE TO BE RATED AND U.L. APPROVED FOR OPERATION AT 75° CELSIUS.
2. VARIOUS FEEDERS MAY BE UPSIZED TO ACCOUNT FOR VOLTAGE DROP.
3. PROVIDE "HACR" RATED BREAKERS FOR HVAC EQUIPMENT.
4. GROUND MAIN DISTRIBUTION PANEL "MP" TO BOTH THE BUILDING GROUND TRIANGLE AND AN UNDERGROUND WATER PIPE WITH A #3/0 BARE COPPER GROUND WIRE.
5. PROVIDE A CIRCUIT BREAKER FOR THE MAIN SERVICE DISCONNECT. THIS MAIN DEVICE FRAME SIZE SHALL BE 1000A . MANUFACTURER TO BE SQUARE D, SEIMEN'S, G.E. OR APPROVED MANUFACTURER.
6. INCLUDE ARC FLASH STUDY (SHORT CIRCUIT) AND LABELS FOR DISTRIBUTION EQUIPMENT THAT SHALL INCLUDE MAIN PANEL "MP", AUTOMATIC TRANSFER SWITCH, GENERATOR MAIN BREAKER, "MCC1", TRANSFORMERS, PANELBOARDS AND BRANCH LEVEL DISCONNECT SWITCHES.

NO.	DATE	REVISIONS	BY



2019 WATER SYSTEM IMPROVEMENTS
 CONTRACT 12-WATER TREATMENT PLANT IMPROVEMENTS
 WASTE WATER EQUIPMENT POWER



PROJECT #: 19003
 DATE: AUGUST 2021
 PROJECT MGR: KG
 DRAWN BY: MC
 CHECKED BY: KG



SHEET NO.
E-6.1

1 ELECTRICAL RISER DIAGRAM
 E6.1 SCALE: NOT TO SCALE



NO.	DATE	REVISIONS	BY

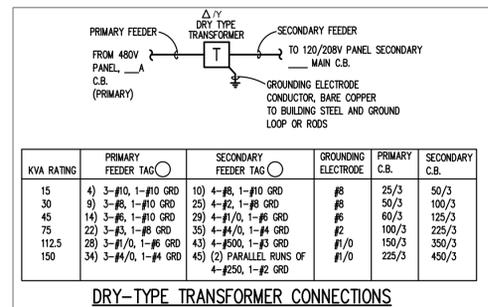
2019 WATER SYSTEM IMPROVEMENTS
 CONTRACT 12-WATER TREATMENT PLANT IMPROVEMENTS
 WASTE WATER EQUIPMENT POWER



PROJECT #: 19003
 DATE: AUGUST 2021
 PROJECT MGR: KG
 DRAWN BY: MC
 CHECKED BY: KG



SHEET NO.
E-7.1



TAG	OCPPD SETTINGS NO. SCALE	FEEDER DESCRIPTION (THWN/THHN COPPER)	EQPT. GRD.	CONDUIT SIZE
1	30/1	(2) #10	(1) #10	1/2"
2	30/2 (2W = NO NEUTRAL)	(2) #10	(1) #10	1/2"
3	30/2 (3W = NEUTRAL)	(3) #10	(1) #10	1/2"
4	30/3 (3W)	(3) #10	(1) #10	1/2"
5	30/3 (4W)	(4) #10	(1) #10	3/4"
6	40/1 OR 50/1	(2) #8	(1) #10	3/4"
7	40/2 OR 50/2 (2W)	(2) #8	(1) #10	3/4"
8	40/2 OR 50/2 (3W)	(3) #8	(1) #10	3/4"
9	40/3 OR 50/3 (3W)	(3) #8	(1) #10	3/4"
10	40/3 OR 50/3 (4W)	(4) #8	(1) #10	1"
11	60/1	(2) #6	(1) #10	3/4"
12	60/2 (2W)	(2) #6	(1) #10	3/4"
13	60/2 (3W)	(3) #6	(1) #10	1"
14	60/3 (3W)	(3) #6	(1) #10	1"
15	60/3 (4W)	(4) #6	(1) #10	1"
16	70/2 OR 80/2 (2W)	(2) #4	(1) #8	1"
17	70/2 OR 80/2 (3W)	(3) #4	(1) #8	1-1/4"
18	70/3 OR 80/3 (3W)	(3) #4	(1) #8	1-1/4"
19	70/3 OR 80/3 (4W)	(4) #4	(1) #8	1-1/4"
20	90/2 OR 100/2 (2W)	(2) #3	(1) #6	1"
21	90/2 OR 100/2 (3W)	(3) #3	(1) #6	1-1/4"
22	90/3 OR 100/3 (3W)	(3) #3	(1) #6	1-1/4"
23	90/3 OR 100/3 (4W)	(4) #3	(1) #6	1-1/4"
24	110/3 (3W)	(3) #2	(1) #6	1-1/4"
25	110/3 (4W)	(4) #2	(1) #6	1-1/2"
26	125/3 (3W)	(3) #1	(1) #6	1-1/2"
27	125/3 (4W)	(4) #1	(1) #6	1-1/2"
28	150/3 (3W)	(3) #1/0	(1) #6	1-1/2"
29	150/3 (4W)	(4) #1/0	(1) #6	2"
30	175/3 (3W)	(3) #2/0	(1) #6	2"
31	175/3 (4W)	(4) #2/0	(1) #6	2"
32	200/3 (3W)	(3) #3/0	(1) #6	2"
33	200/3 (4W)	(4) #3/0	(1) #6	2"
34	225/3 (3W)	(3) #4/0	(1) #4	2-1/2"
35	225/3 (4W)	(4) #4/0	(1) #4	2-1/2"
36	250/3 (3W)	(3) #50 KCMIL	(1) #4	2-1/2"
37	250/3 (4W)	(4) #50 KCMIL	(1) #4	3"
38	300/3 (3W)	(3) #50 KCMIL	(1) #4	3"
39	300/3 (4W)	(4) #50 KCMIL	(1) #4	3"
40	350/3 (3W)	(3) #50 KCMIL	(1) #3	3-1/2"
41	350/3 (4W)	(4) #50 KCMIL	(1) #3	3-1/2"
42	400/3 (3W)	(3) #50 KCMIL	(1) #3	3-1/2"
43	400/3 (4W)	(4) #50 KCMIL	(1) #3	3-1/2"
44	500/3 (3W)	2 RUNS OF (3) - #250 KCMIL/PHASE	(1) #2	3"
45	500/3 (4W)	2 RUNS OF (4) - #250 KCMIL/PHASE	(1) #2	3"
46	600/3 (3W)	2 RUNS OF (3) - #350 KCMIL/PHASE	(1) #1	3"
47	600/3 (4W)	2 RUNS OF (4) - #350 KCMIL/PHASE	(1) #1	3"
48	700/3 (3W)	2 RUNS OF (3) - #500 KCMIL/PHASE	(1) #1/0	3-1/2"
49	700/3 (4W)	2 RUNS OF (4) - #500 KCMIL/PHASE	(1) #1/0	3-1/2"
50	800/3 (3W)	2 RUNS OF (3) - #500 KCMIL/PHASE	(1) #1/0	3-1/2"
51	800/3 (4W)	2 RUNS OF (4) - #500 KCMIL/PHASE	(1) #1/0	3-1/2"
52	1000/3 (3W)	3 RUNS OF (3) - #500 KCMIL/PHASE	(1) #2/0	3-1/2"
53	1000/3 (4W)	3 RUNS OF (4) - #500 KCMIL/PHASE	(1) #2/0	3-1/2"
54	1200/3 (3W)	4 RUNS OF (3) - #350 KCMIL/PHASE	(1) #3/0	3-1/2"
55	1200/3 (4W)	4 RUNS OF (4) - #350 KCMIL/PHASE	(1) #3/0	3-1/2"
56	1600/3 (3W)	5 RUNS OF (3) - #500 KCMIL/PHASE	(1) #4/0	3-1/2"
57	1600/3 (4W)	5 RUNS OF (4) - #500 KCMIL/PHASE	(1) #4/0	3-1/2"
58	2000/3 (3W)	6 RUNS OF (3) - #500 KCMIL/PHASE	(1) #250 KCMIL	3-1/2"
59	2000/3 (4W)	6 RUNS OF (4) - #500 KCMIL/PHASE	(1) #250 KCMIL	3-1/2"
60	3000/3 (3W)	8 RUNS OF (3) - #500 KCMIL/PHASE	(1) #400 KCMIL	3-1/2"
61	3000/3 (4W)	8 RUNS OF (4) - #500 KCMIL/PHASE	(1) #400 KCMIL	3-1/2"
62	4000/3 (3W)	11 RUNS OF (3) - #500 KCMIL/PHASE	(1) #500 KCMIL	3-1/2"
63	4000/3 (4W)	11 RUNS OF (4) - #500 KCMIL/PHASE	(1) #500 KCMIL	3-1/2"

NOTES:
 1. FEEDER SIZES ABOVE DO NOT ACCOUNT FOR VOLTAGE DROP.
 2. WHERE PARALLEL RUNS ARE INDICATED, INSTALL THE EQUIPMENT GROUND LISTED IN EACH RUN.

L O A D	DESCRIPTION	AMP	L O A D	DESCRIPTION	AMP
0.8	RQPS: 101,102	1	2	RQPS: 106,107,108	0.8
0.8	RQPS: 101,102,104	3	4	RQPS: 105,106,107,108	0.8
0.8	RQPS: 101,103	5	6	RQPS: 104,105	1.2
0.8	RQPS: 103	7	8	RQPS: 105 COUNTER	1.5
1.2	RQPS: 103,104	9	10	RQPS: 105 COUNTER	1.5
0.8	RQPS: 105,110	11	12	RQPS: 109,110	0.4
1.0	RQPS: 105,111	13	14	RQPS: LOFT	1.0
0.8	RQPS: 111,112	15	16	TB GENSET	10
0.8	RQPS: 112	17	18	30/2	21
	SPARE	19	20		
		21	22	SPARE	
		23	24		
		25	26		
		27	28		
		29	30		
		31	32		
		33	34		
		35	36		
		37	38		
		39	40		
		41	42		
		43	44		
		45	46		
0.8	EF-4 CTRL. CKT.	47	48	EF6 CTRL. CKT.	0.5
	VF1	49	50		
1.5	UH1 x 3	51	52	VF2	1.2
1.2	EF3 x 2	53	54	EF2	0.9
1.0	DH1	55	56	EF1	0.8
1.0	CU2	57	58	CU1	2.5
4.4		59	60		7.3

L O A D	DESCRIPTION	AMP	L O A D	DESCRIPTION	AMP	
3.8	POWDER 106	40/1	1	2	TONKA FILTER	10
3.4	POWDER 107	40/1	3	4	KM-D4 PUMPS	12
2.4	FLUORIDE FEED	30/1	5	6	AQUADENE PUMPS	12
1.2	MOV's (103)	7	8	MOV's (103)	12	
1.2	MOV's (103)	9	10	MOV's (103)	12	
1.2	MOV's (103)	11	12	MOV's (103)	12	
1.2	FUTURE MOV's (104)	13	14	CHLORINE PANEL	10	
1.2	FUTURE MOV's (104)	15	16	MAG METER	10	
1.2	FUTURE MOV's (104)	17	18	MAG METER	10	
1.0	QHL ANALYZER	19	20	MAG METER	10	
	FUTURE	21	22	SPARE		
	FUTURE	23	24			
	SPARE	25	26			
		27	28			
		29	30			
		31	32			
		33	34			
		35	36			
		37	38			
		39	40			
		41	42			
		43	44			
		45	46			
		47	48			
		49	50			
		51	52			
		53	54			
		55	56			
		57	58			
		59	60			

L O A D	DESCRIPTION	AMP	L O A D	DESCRIPTION	AMP	
1.0	LTC: LOFT	1	2	LTC: 105	3.0	
2.4	LTC: WALL PACKS	3	4	LTC: 104	2.4	
1.8	LTC: 106-112	5	6	LTC: 103	2.4	
	LTC: 101,102	7	8	SPARE		
	SPARE	9	10			
		11	12			
		13	14			
		15	16			
		17	18			
		19	20			
		21	22			
		23	24			
		25	26			
		27	28			
		29	30			
25	XFMR "TR2"	100/3	31	32		
25		33	34			
		35	36			
3.1	DH4	37	38	800/3 MCC1	100	
2.3	CF1 x 3, CF2	39	40		100	
0.8	EH3	41	42		100	
0.8	EF4	20/3	43	20/3 EF6	0.9	
		45	46		0.9	
		47	48			
5.3	EH2	30/3	49	50	30/3 EH2	5.3
		51	52			
		53	54			
7.0	EH1	40/3	55	56	100/3 XFMR "TR1"	25
		57	58		25	
		59	60		25	

COMPARTMENT NUMBER	LOAD SERVED	HP RATING	SWITCH FRAME	C.B. SIZE	NEMA SIZE STARTER / FEEDER SIZE	REMARKS:	ITEM KVA	CUMULATIVE KVA	ADDITIONAL REQUIREMENTS
1	WELL #8 PUMP	30	60	60	3 / #14	WYE / DELTA SOFT START	34	34	PROVIDE ELAPSED TIME METER
2	SEPTIC PUMP #1	2	30	20	1 / #4	FVNR (ASSUMED)	3	37	---
3	SEPTIC PUMP #2	2	30	20	1 / #4	FVNR (ASSUMED)	3	40	---
4	BLOWER #1	5	30	30	1 / #4	FVNR	7	47	PROVIDE ELAPSED TIME METER
5	BLOWER #2	5	30	30	1 / #4	FVNR	7	54	PROVIDE ELAPSED TIME METER
6	HIGH SERVICE PUMP #1	40	100	80	3 / #18	VFD	44	98	PROVIDE ELAPSED TIME METER
7	HIGH SERVICE PUMP #2	40	100	80	3 / #18	VFD	44	142	PROVIDE ELAPSED TIME METER
8	HIGH SERVICE PUMP #3	40	100	80	3 / #18	VFD	44	186	PROVIDE ELAPSED TIME METER
9	BACK WASH PUMP #1	7.5	30	30	1 / #4	VFD	10	196	PROVIDE ELAPSED TIME METER
10	BACK WASH PUMP #2	7.5	30	30	1 / #4	VFD	10	206	PROVIDE ELAPSED TIME METER
11	BOOSTER PUMP PANEL	---	60	50	---	INVERSE TIME C.B. TO POWER BOOSTER PUMP CONTROL PANEL	19	225	---
12	HOLDING TANK PUMP #2	2	30	20	1 / #4	FVNR	3	228	---
13	HOLDING TANK PUMP #1	2	30	20	1 / #4	FVNR	3	231	---
14	WELL #9 PUMP	30	60	---	---	PREPARED SPACE ONLY (PUMP IS FUTURE) FOR VFD STARTER	34	265	PROVIDE ELAPSED TIME METER
15	SPARE	10	30	---	---	FUTURE (FVNR)	12	277	---
16	SPARE	10	30	---	---	FUTURE (FVNR)	12	289	---
17	SPARE	10	30	---	---	FUTURE (FVNR)	12	301	---

1 PANEL / MCC SCHEDULES
 E6.1 SCALE: NOT TO SCALE