

Contract No. 7

WATER TREATMENT PLANT IMPROVEMENTS

for the

GRAYSON COUNTY WATER DISTRICT

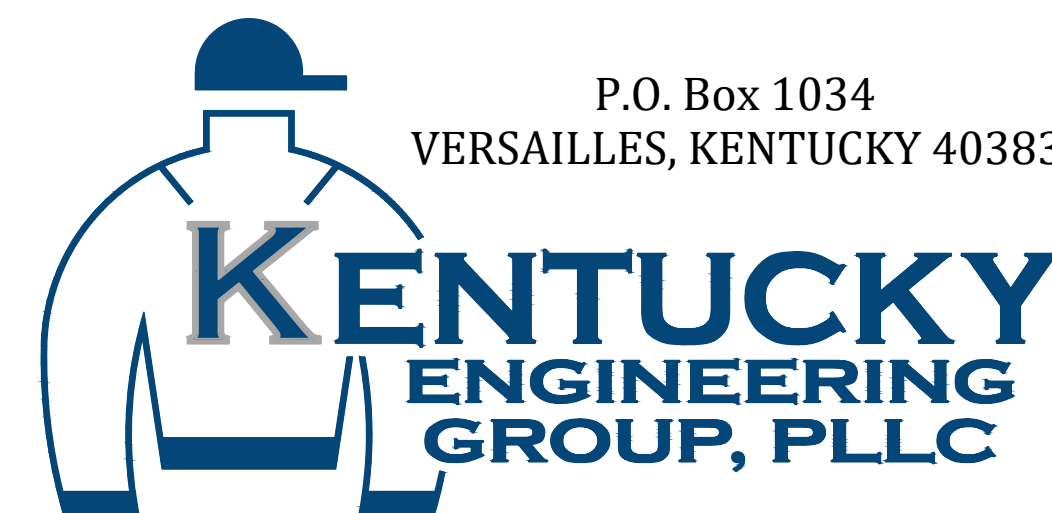
Leitchfield, Kentucky

FEBRUARY, 2023

BOARD MEMBERS:

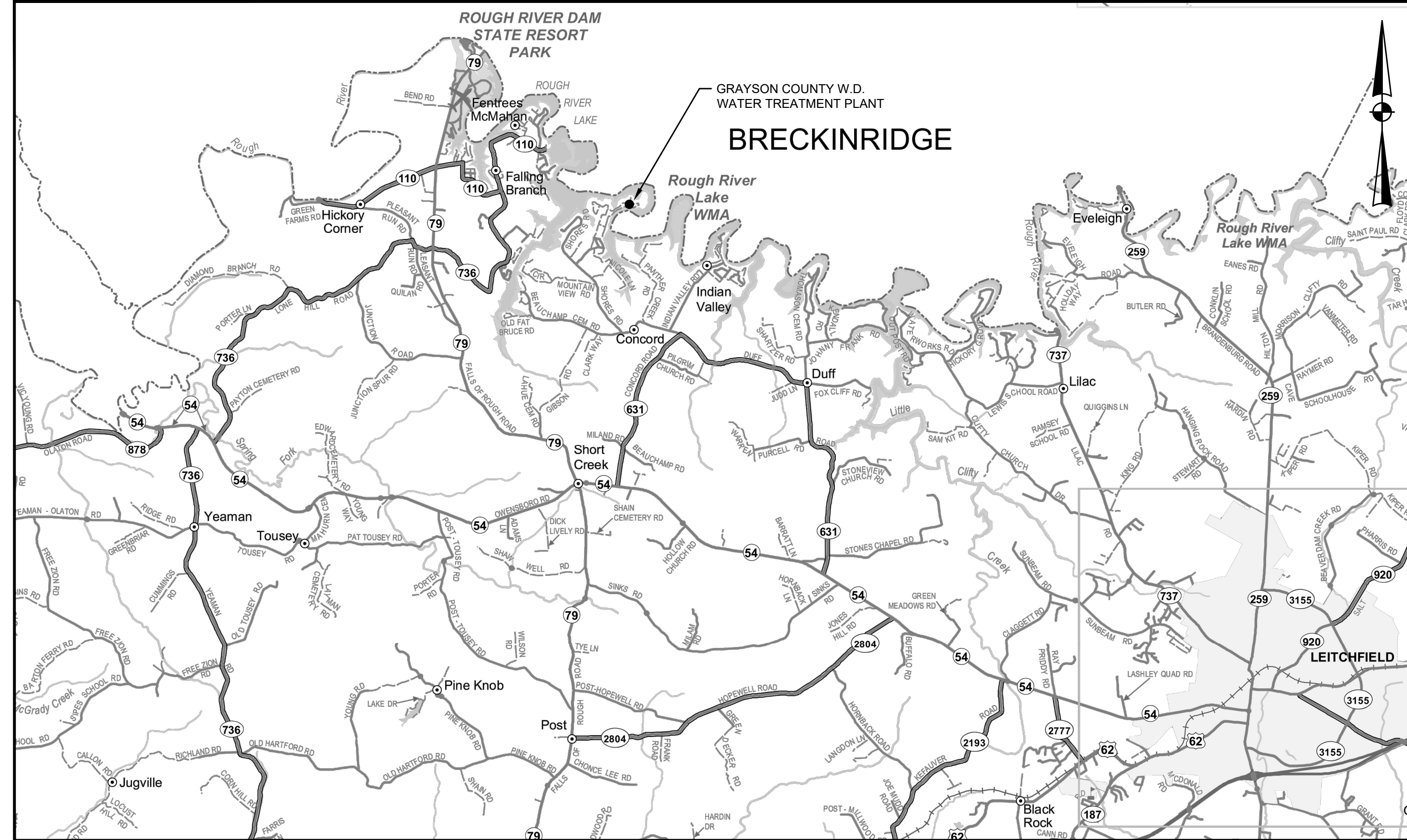
NANCY CAIN - CHAIRPERSON
KENNY SHARP - VICE-CHAIRMAN
MICHAEL KIPPER - SECRETARY
CRAIG CONSTANT - TREASURER
KEITH BROOKS - COMMISSIONER
JEREMY WOOSLEY - DISTRICT MANAGER

PROJECT NO. 20016



CONTRACT DOCUMENTS

PROJECT LOCATION MAP



CITY OF LEITCHFIELD

NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
PVC	PVC	POLYVINYL CHLORIDE
DIP	DIP	DUCTILE IRON PIPE
WM	WM	WATER MAIN
⊕	⬆	HYDRANT ASSEMBLY
⊕	⬆	FLUSHING/BLOWOFF ASSEMBLY
△	▲	AIR RELEASE VALVE (ARV)
⊗	⊗	GATE VALVE (GV)
---	---	WATER MAIN (WM)
---	---	SPECIAL CROSSING OR CASING PIPE
---	---	WATER MAIN TO BE ABANDONED
R/W	R/W	RIGHT-OF-WAY LINE
---	---	CENTERLINE
---	---	PROPERTY LINE
⊙	---	CUSTOMER SERVICE METER
---	---	EDGE OF PAVEMENT (WHITE LINE)

UTILITIES

BUD - Before You Dig
1-800-752-6007
or DIAL 811

NOTE:
 IN ACCORDANCE WITH KENTUCKY STATE LAW, ANY ACTIVITY THAT RESULTS IN MOVEMENT, PLACEMENT, BORING, PROBING OR DIGGING IN OR ON THE GROUND SHALL CONTACT THE ONE CALL CENTER FOR UNDERGROUND UTILITY LOCATIONS.

GRAYSON COUNTY WATER DISTRICT
 KEVIN SHAW, MANAGER

(270) 259-2917

INDEX OF DRAWINGS

SHT. NO.	DESCRIPTION:
--	COVER
G-1	LOCATION MAP, LEGEND, UTILITY OWNERS and INDEX OF DRAWINGS
C-0-01	SITE IDENTIFICATION PLAN
C-1-01	HIGH SERVICE PUMPS DEMOLITION/MODIFICATIONS - PLANS & SECTIONS
C-2-01	GAC BUILDING FLOOR PLAN
C-2-02	GAC BUILDING SECTION
C-2-03	GAC BUILDING SECTION
SD-0-01	STANDARD DETAILS
S-01	GAC BUILDING FLOOR PLAN - STRUCTURAL
E-1	ELECTRICAL SYMBOLS, ABBREVIATIONS, AND SCHEDULES
E-2	ELECTRICAL DETAILS
E-3	ONE-LINE DIAGRAMS AND MCC ELEVATION
E-4	ELECTRICAL CONTROL CIRCUITS AND BLOCK DIAGRAMS
E-5	ELECTRICAL SITE PLAN
E-6	HIGH SERVICE PUMPS ELECTRICAL PLANS
E-7	GAC BUILDING ELECTRICAL FLOOR PLAN

REC 6/07/23

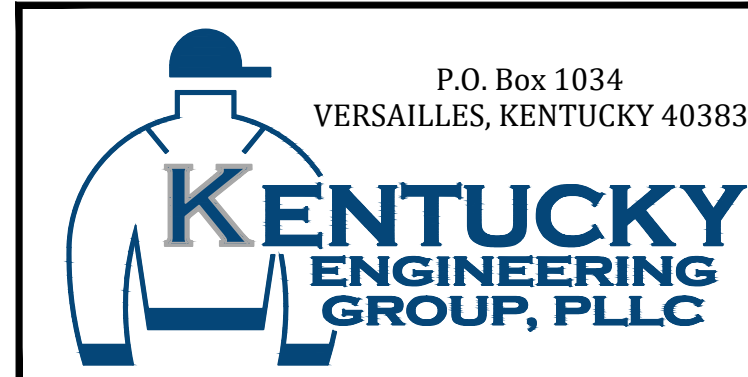
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IT IS A VIOLATION OF LAW FOR ANY PERSON TO ALTER THIS DRAWING WITHOUT WRITTEN PERMISSION FROM KENTUCKY ENGINEERING GROUP, PLLC AND ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER.

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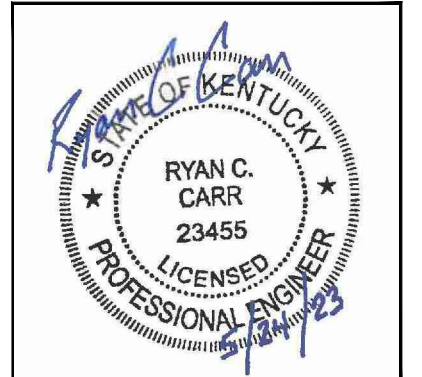
NO.	DATE	REVISIONS	BY

DATE:	FEBRUARY, 2023
PROJECT MGR:	RCC
DRAWN BY:	JAB
CHECKED BY:	RCC
SCALE:	AS NOTED
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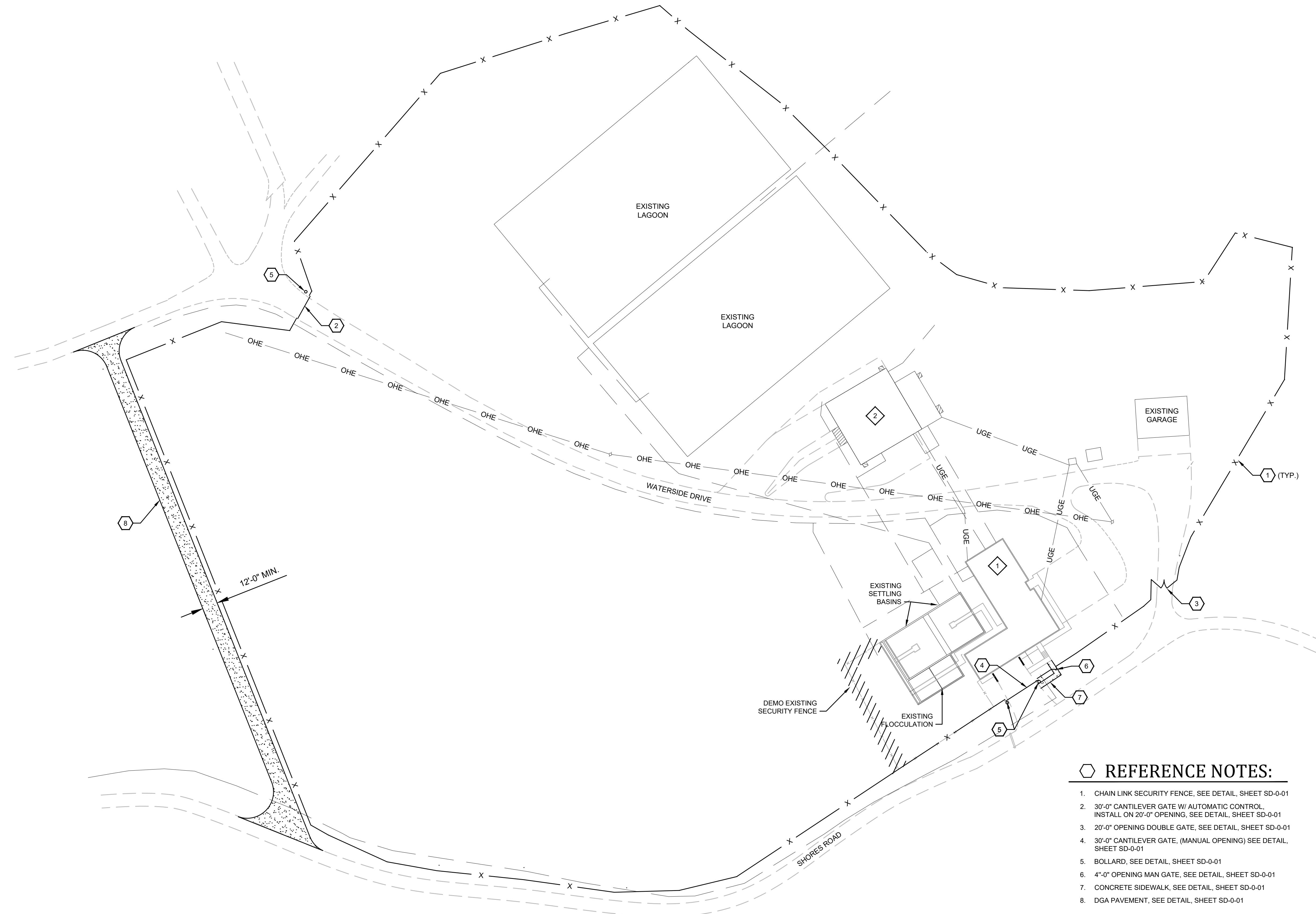
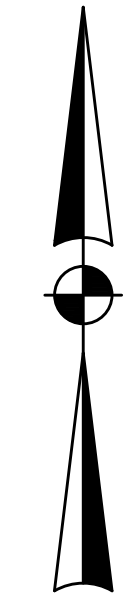
CONTRACT No. 7
 WATER TREATMENT PLANT
 IMPROVEMENTS
 FOR THE
 GRAYSON COUNTY WATER DISTRICT

PROJECT LOCATION MAP,
 UTILITIES,
 LEGEND and INDEX OF
 DRAWINGS



PROJECT NO.	20016-07
SHEET NO.	G-1

CONTRACT DOCUMENTS



REFERENCE NOTES:

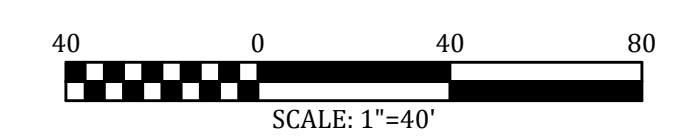
1. CHAIN LINK SECURITY FENCE, SEE DETAIL, SHEET SD-0-01
2. 30'-0" CANTILEVER GATE W/ AUTOMATIC CONTROL, INSTALL ON 20'-0" OPENING, SEE DETAIL, SHEET SD-0-01
3. 20'-0" OPENING DOUBLE GATE, SEE DETAIL, SHEET SD-0-01
4. 30'-0" CANTILEVER GATE, (MANUAL OPENING) SEE DETAIL, SHEET SD-0-01
5. BOLLARD, SEE DETAIL, SHEET SD-0-01
6. 4'-0" OPENING MAN GATE, SEE DETAIL, SHEET SD-0-01
7. CONCRETE SIDEWALK, SEE DETAIL, SHEET SD-0-01
8. DGA PAVEMENT, SEE DETAIL, SHEET SD-0-01

BUILDING NUMBER

1. HIGH SERVICE PUMPS
2. GAC BUILDING

GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE THE FINAL LOCATION OF ALL SECURITY FENCE AND GATES WITH THE OWNER / ENGINEER.
2. NOTES, DIMENSIONS, ETC. TAKEN FROM AS-BUILT PLANS. CONTRACTOR SHALL FIELD VERIFY.



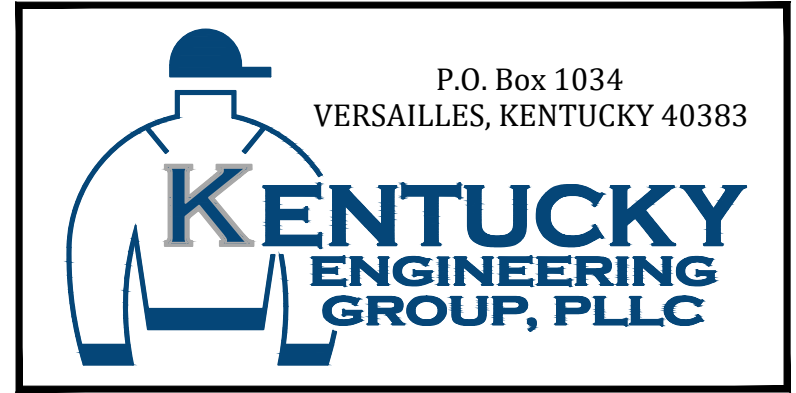
P:\PROJECTS\Grayson County Water District\20016-East-West Interconnect PH 2-Contracts 6, 7\DWG\Contract 7 - WTP\20016 C-0-01.dwg REG 6/07/23

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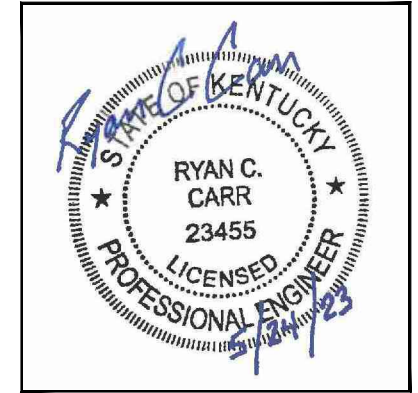
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**CONTRACT No. 7
WATER TREATMENT PLANT
IMPROVEMENTS
FOR THE
GRAYSON COUNTY WATER DISTRICT**

**SITE IDENTIFICATION
PLAN**



PROJECT NO. 20016-07
SHEET NO. C-0-01

CONTRACT DOCUMENTS

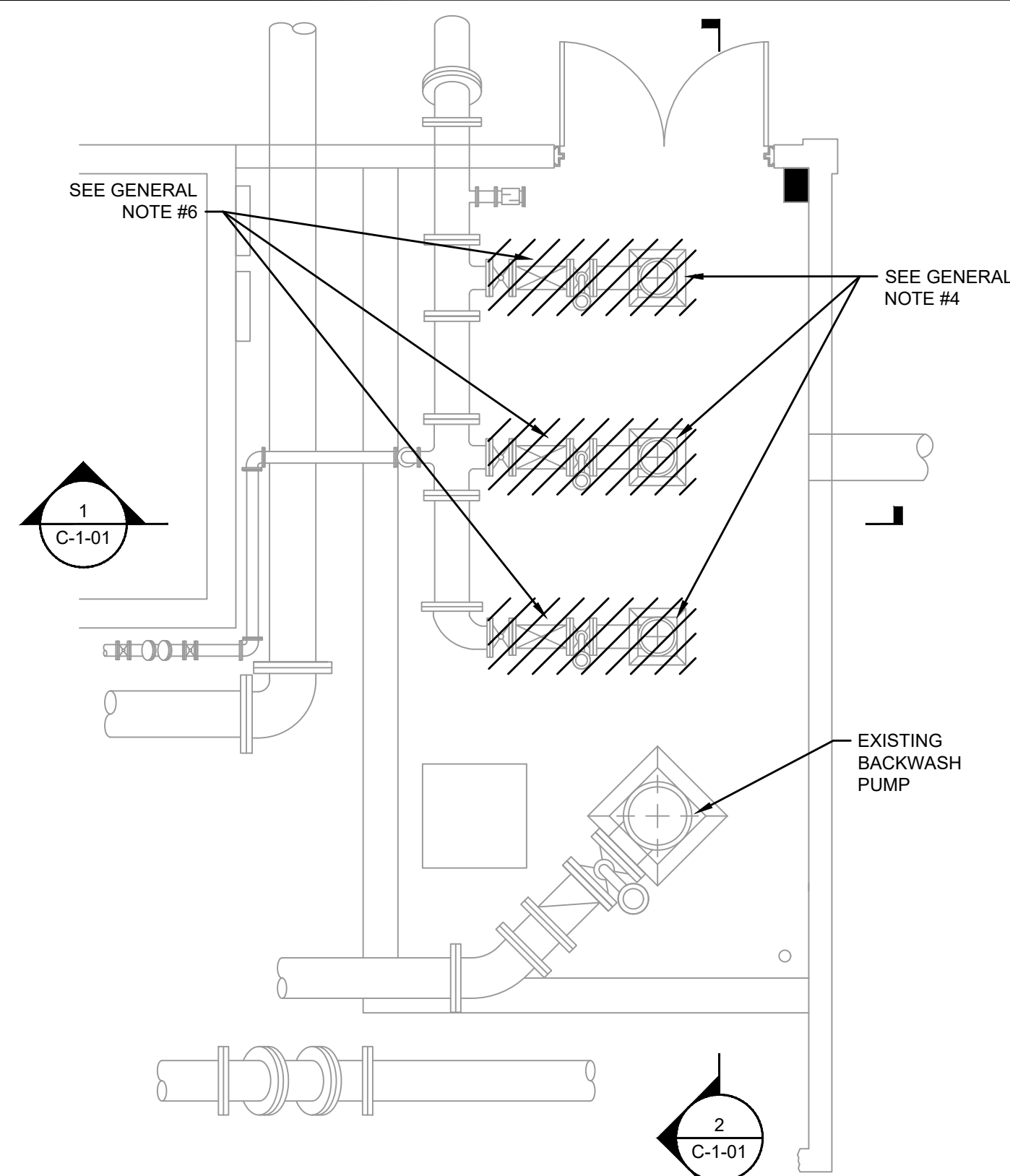
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GENERAL DEMOLITION NOTES:

1. ALL REMOVAL AND DEMOLITION SHALL BE COORDINATED WITH THE CONSTRUCTION SEQUENCING SCHEDULE.
2. NOTES, DIMENSIONS, ETC. TAKEN FROM EXISTING AS-BUILT PLANS. CONTRACTOR SHALL FIELD VERIFY.
3. CONTRACTOR SHALL COORDINATE DEMOLITION / PUMP REPLACEMENT WITH WTP OPERATORS. SERVICE SHALL NOT BE INTERRUPTED. IF REQUIRED, CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND PROVIDING ALL NECESSARY MATERIAL AND EQUIPMENT FOR BYPASSING DURING CONSTRUCTION.
4. REMOVE THREE (3) EXISTING HIGH SERVICE PUMPS AND ASSOCIATED WIRING.
5. EXISTING HOIST SYSTEM IS AVAILABLE TO CONTRACTOR FOR REMOVAL AND REPLACEMENT OF PUMPS.
6. REMOVE THREE (3) EXISTING CONTROL VALVES, GATE VALVES, & AIR RELEASE VALVES.
7. NEW HIGH SERVICE PUMPS, PIPING, VALVES, FITTINGS, ETC. AND THE EXISTING HIGH SERVICE HEADER PIPING SHALL BE BLAST CLEANED (SSPC-SP6) & COATED PER SECTION 09960.

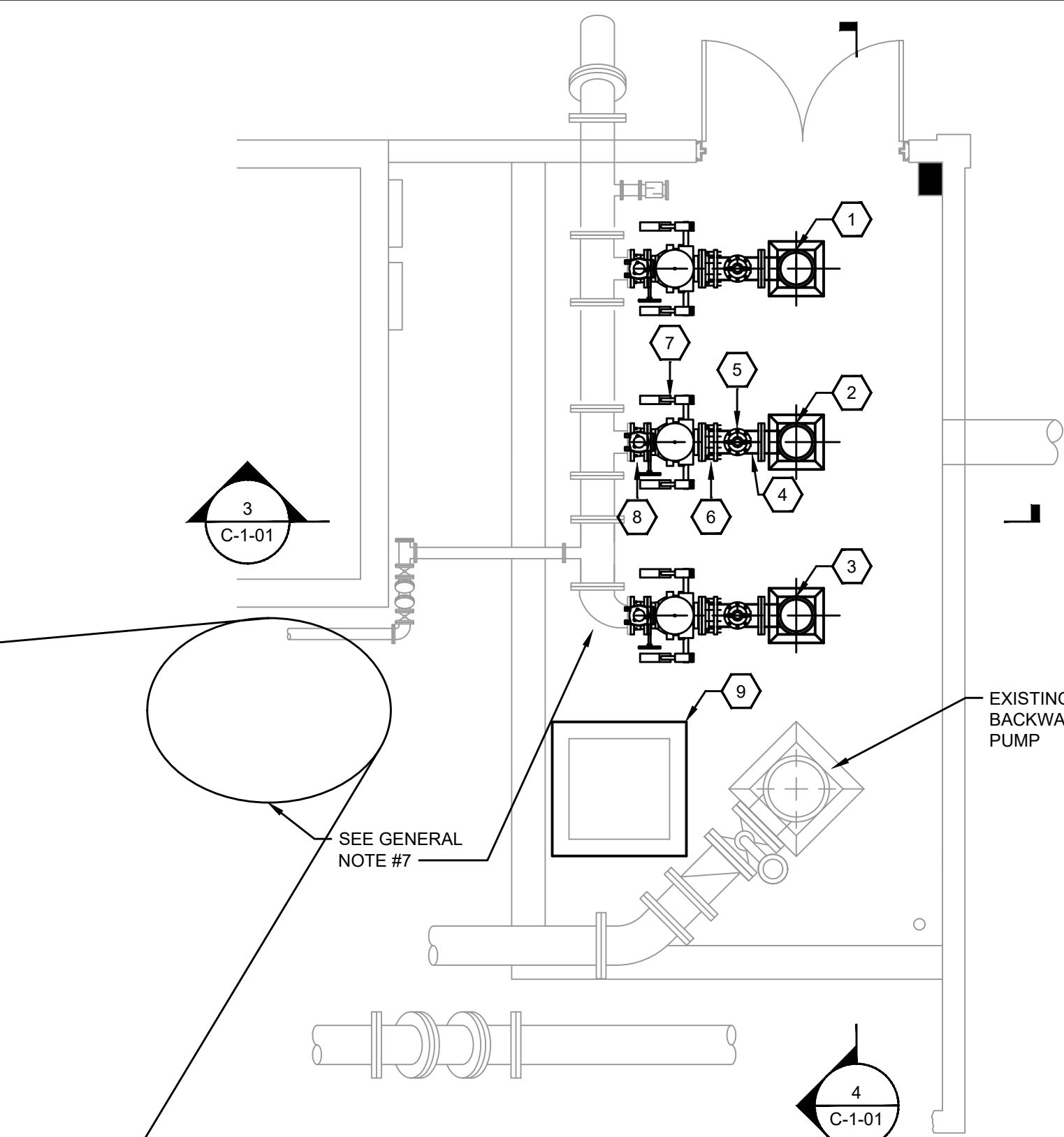
REFERENCE NOTES:

1. HIGH SERVICE PUMP No. 1
2. HIGH SERVICE PUMP No. 2
3. HIGH SERVICE PUMP No. 3
4. 8" DI PIPE
5. 2" AIR RELEASE VALVE, REPLUMB AS REQUIRED TO EXISTING DRAIN (TYP. OF 3)
6. 8" FLANGE COUPLING ADAPTER (TYP. OF 3)
7. 8" SWING CHECK VALVE W/ DUAL LEVER (TYP. OF 3)
8. 8" BUTTERFLY VALVE (TYP. OF 3)
9. INSTALL CONCRETE CURB AROUND EXISTING HATCH



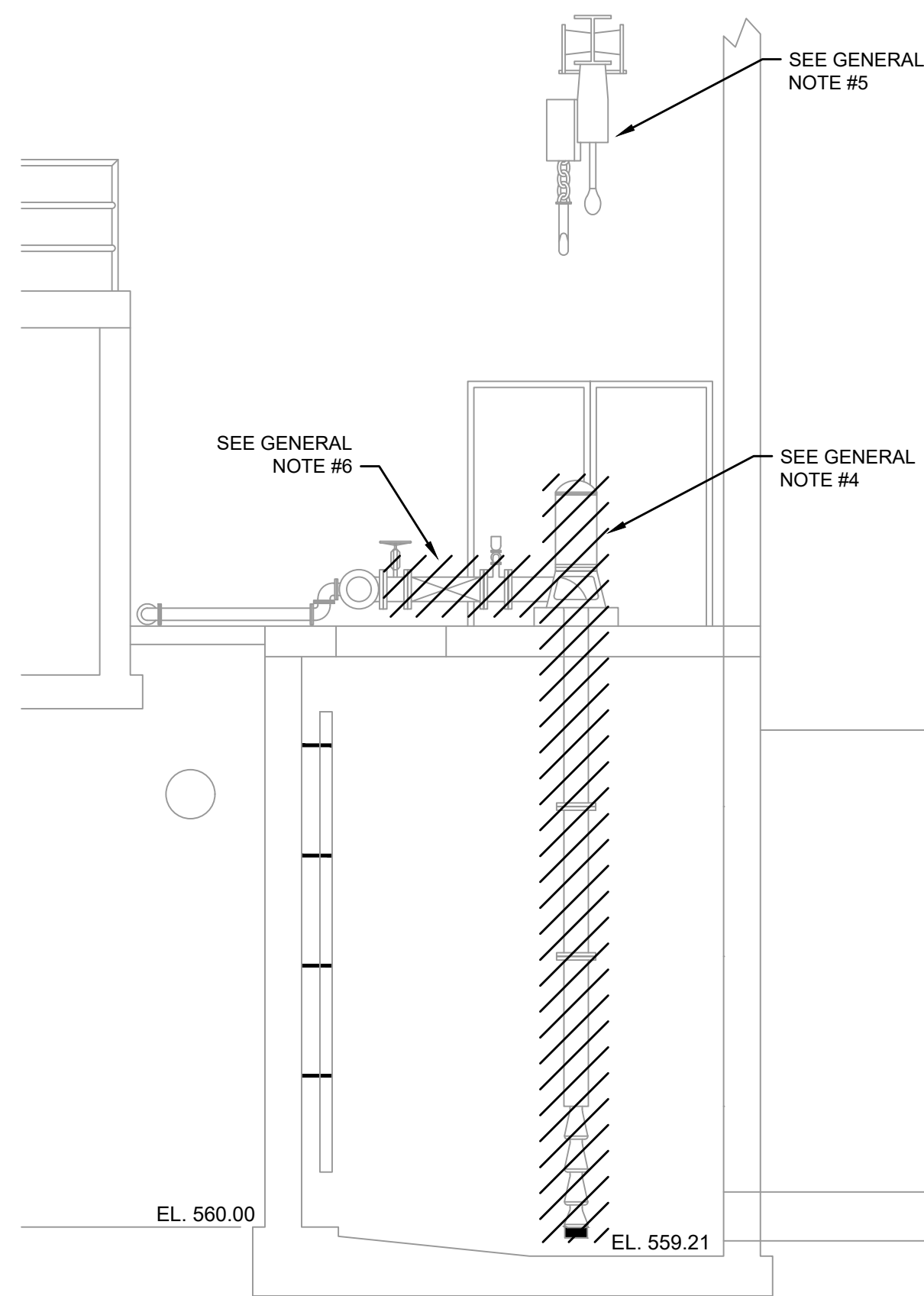
HIGH SERVICE PUMPS DEMOLITION PLAN

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



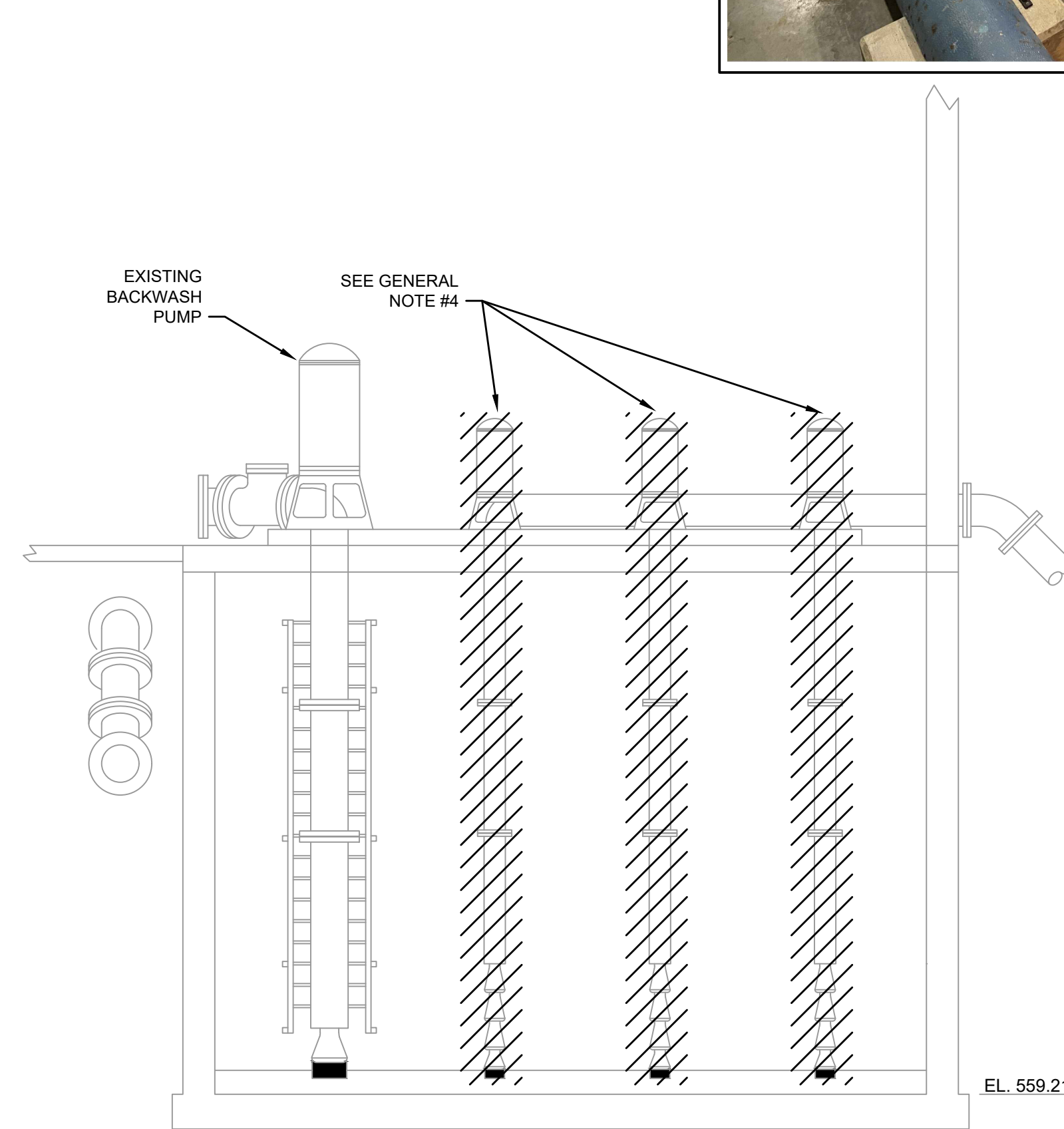
HIGH SERVICE PUMPS MODIFICATION PLAN

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



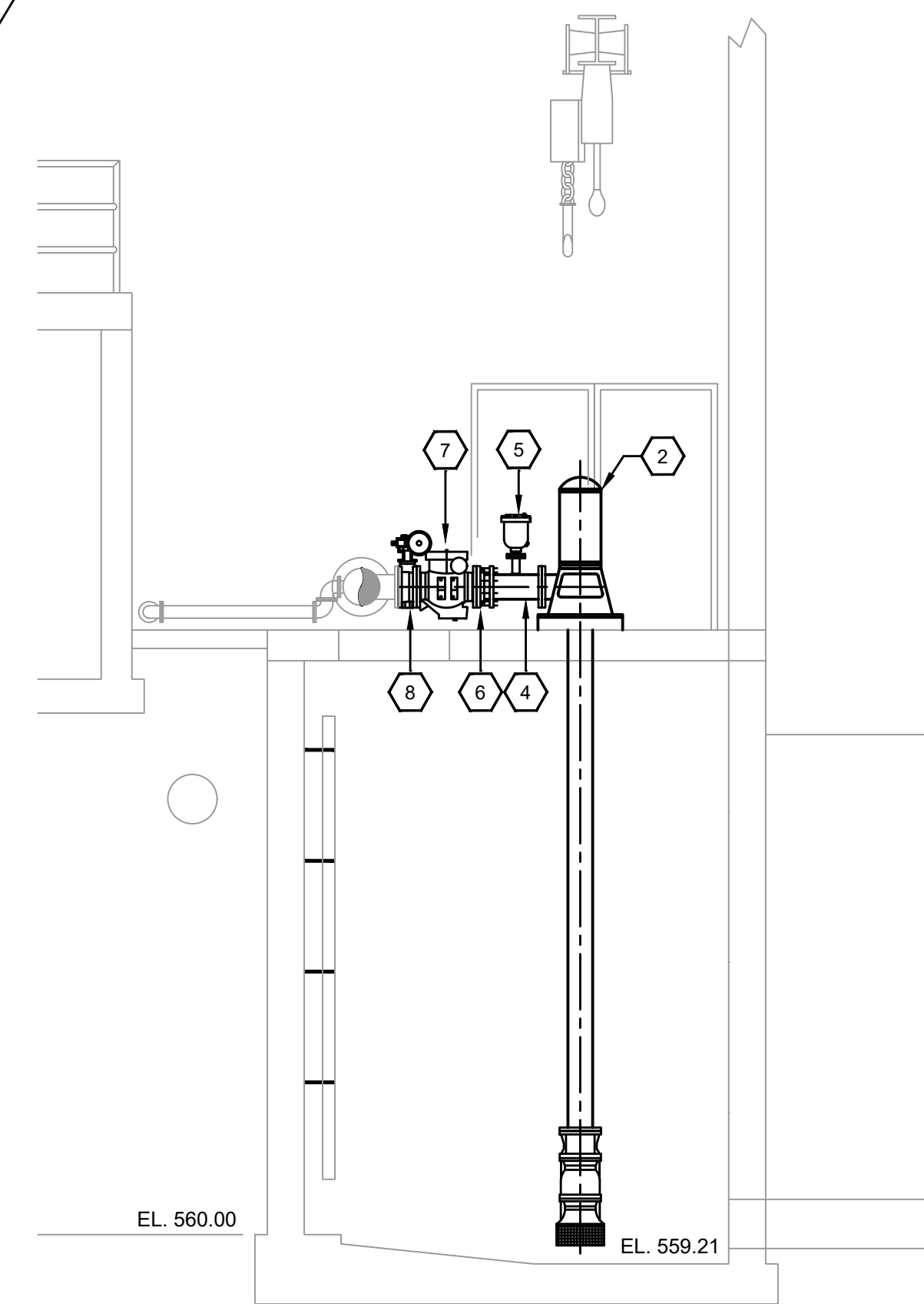
HIGH SERVICE PUMPS SECTION 1

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



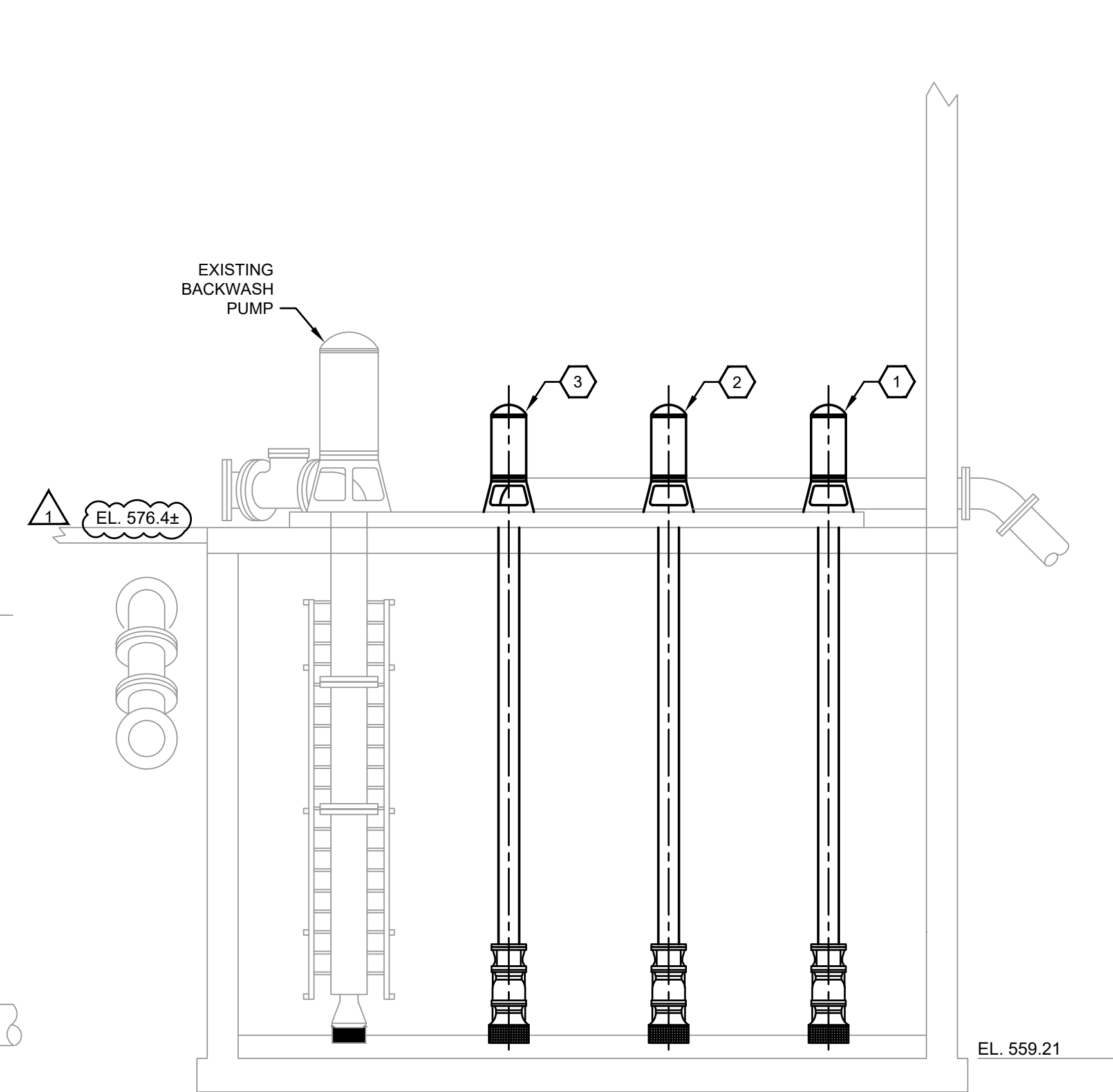
HIGH SERVICE PUMPS SECTION 2

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



HIGH SERVICE PUMPS SECTION 3

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



HIGH SERVICE PUMPS SECTION 4

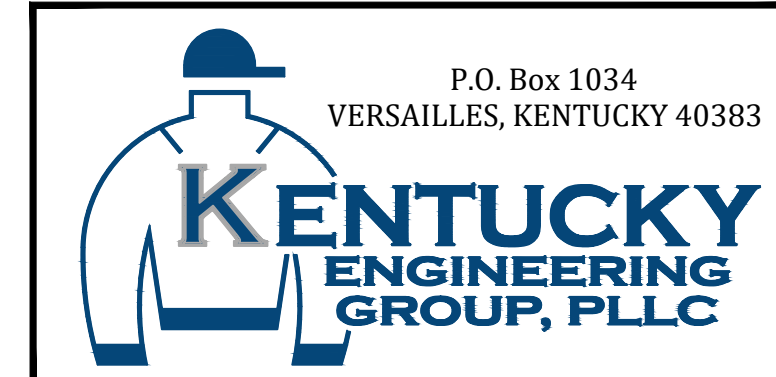
SCALE: 1/4"=1'-0"

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 DRAWN BY: JAB
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CONTRACT No. 7
 WATER TREATMENT PLANT IMPROVEMENTS
 FOR THE
 GRAYSON COUNTY WATER DISTRICT

HIGH SERVICE PUMPS
 DEMOLITION / MODIFICATIONS
 PLANS & SECTIONS

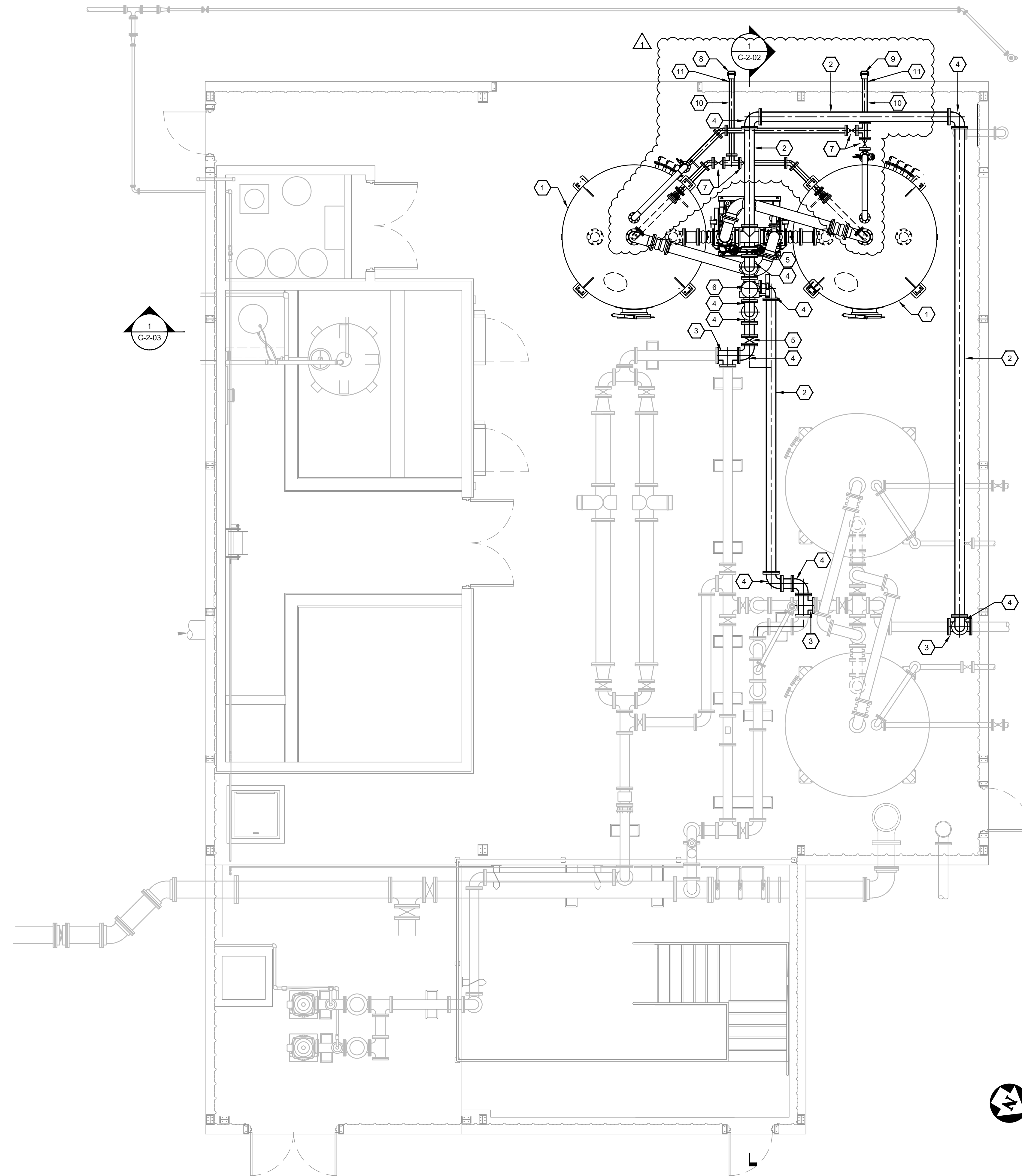


PROJECT NO.
 20016-07

SHEET NO.
 C-1-01

CONTRACT DOCUMENTS

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GENERAL NOTES:

1. ALL PIPING SHALL BE ADEQUATELY SUPPORTED (CONCRETE SUPPORTS AND MANUFACTURER'S PIPE SUPPORTS / HANGERS) TO PREVENT ANY UNDUE STRESSES ON FLANGED CONNECTIONS AND PREVENT PIPE SEPARATION.
2. NOTE, DIMENSIONS, ETC. TAKEN FROM EXISTING AS-BUILT PLANS. CONTRACTOR SHALL FIELD VERIFY.
3. CONTRACTOR SHALL COORDINATE WORK WITH WTP OPERATORS. SERVICE TO THE WATER PLANT SHALL NOT BE INTERRUPTED.
4. FINAL ORIENTATION OF NEW GAC VESSELS SHALL BE COORDINATED WITH THE OWNER / ENGINEER.

REFERENCE NOTES:

1. 10'-0" DIA. MODULAR GAC ADSORBER SYSTEM INCLUDING VALVE TREE
2. 8" DI PIPE
3. 8" DI TEE
4. 8" DI 90° ELBOW
5. 8" BUTTERFLY VALVE
6. 8" SWING CHECK VALVE
7. 4" S.S. BALL VALVE (PROVIDED BY GAC MANUFACTURER)
8. QUICK CONNECT DRAIN (PROVIDED BY GAC MANUFACTURER)
9. QUICK CONNECT FILL (PROVIDED BY GAC MANUFACTURER)
10. 4" DRAIN / FILL PIPING (PROVIDED BY GAC MANUFACTURER)
11. CORE & SEAL WALL AT PENETRATION

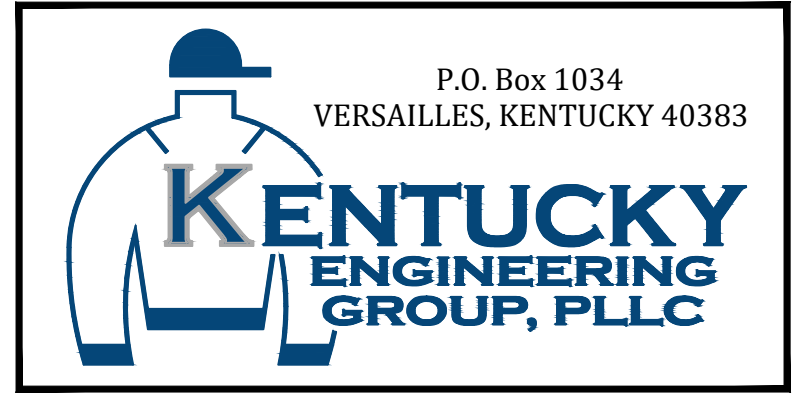
GAC BUILDING FLOOR PLAN
SCALE: 1/4"=1'-0"

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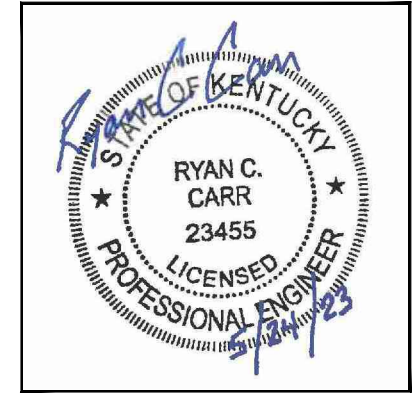
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FOR THE
GRAYSON COUNTY WATER DISTRICT

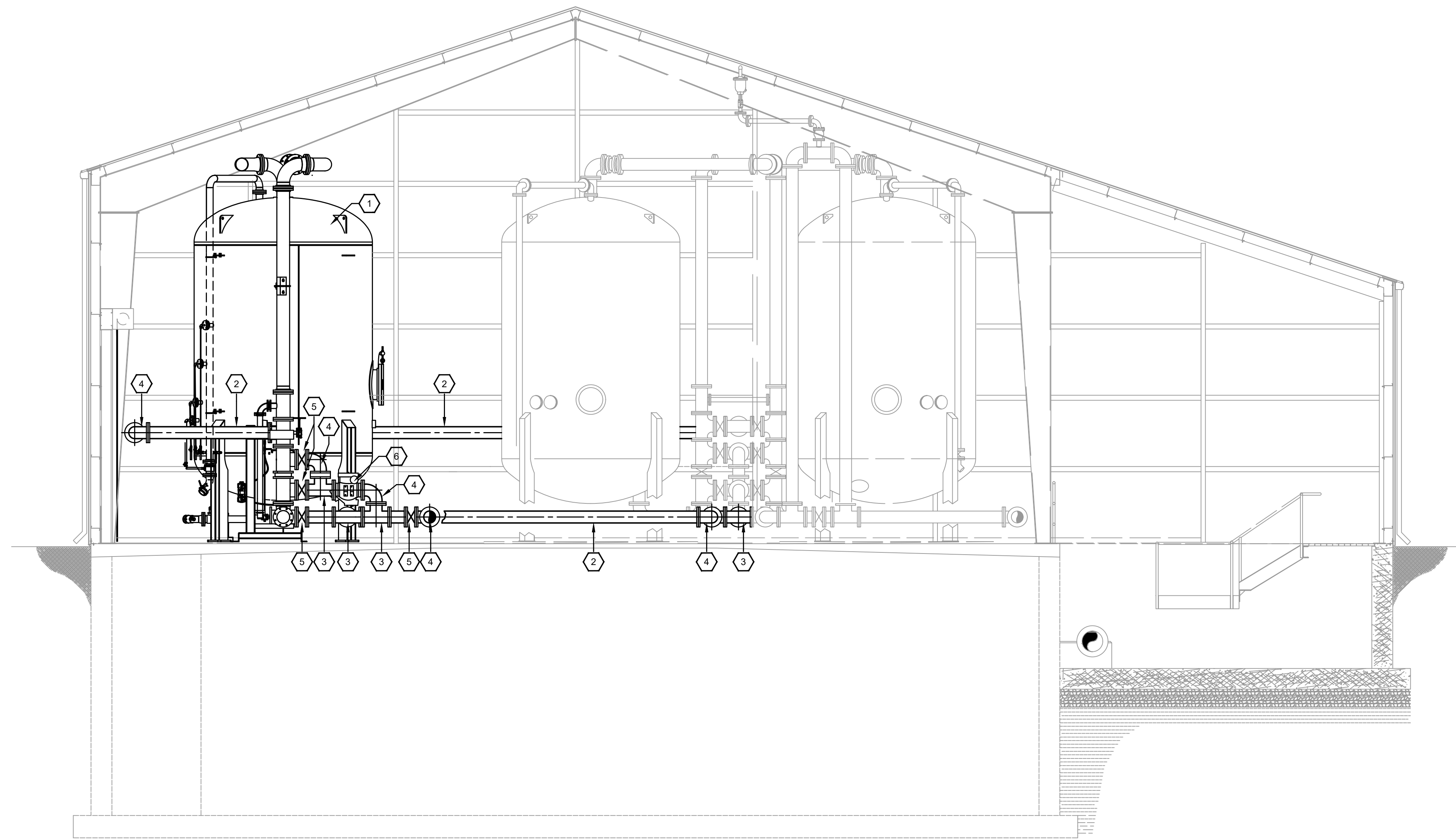
GAC BUILDING FLOOR PLAN



PROJECT NO.	20016-07
SHEET NO.	C-2-01

CONTRACT DOCUMENTS

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GENERAL NOTES:

1. ALL PIPING SHALL BE ADEQUATELY SUPPORTED (CONCRETE SUPPORTS AND MANUFACTURER'S PIPE SUPPORTS / HANGERS) TO PREVENT ANY UNDUE STRESSES ON FLANGED CONNECTIONS AND PREVENT PIPE SEPARATION.
2. NOTE, DIMENSIONS, ETC. TAKEN FROM EXISTING AS-BUILT PLANS. CONTRACTOR SHALL FIELD VERIFY.
3. CONTRACTOR SHALL COORDINATE WORK WITH WTP OPERATORS. SERVICE TO THE WATER PLANT SHALL NOT BE INTERRUPTED.
4. FINAL ORIENTATION OF NEW GAC VESSELS SHALL BE COORDINATED WITH THE OWNER / ENGINEER.

REFERENCE NOTES:

1. 10'-0" DIA. MODULAR GAC ADSORBER SYSTEM INCLUDING VALVE TREE (TYP. OF 2)
2. 8" DI PIPE
3. 8" DI TEE
4. 8" DI 90° ELBOW
5. 8" BUTTERFLY VALVE
6. 8" SWING CHECK VALVE

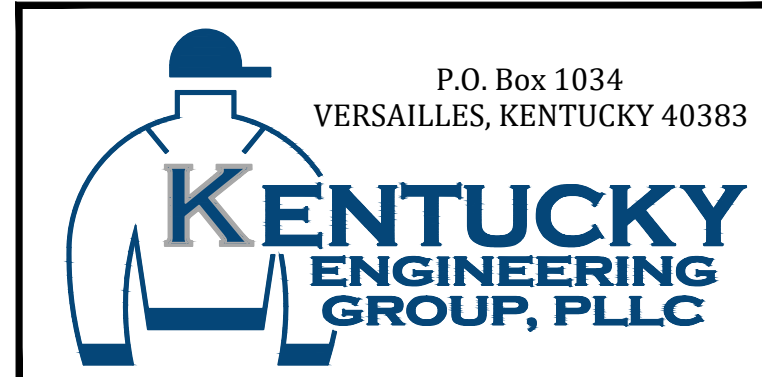
GAC BUILDING SECTION
 1
 C-2-02
 SCALE: 1/4"=1'-0"
 0 2 4 8

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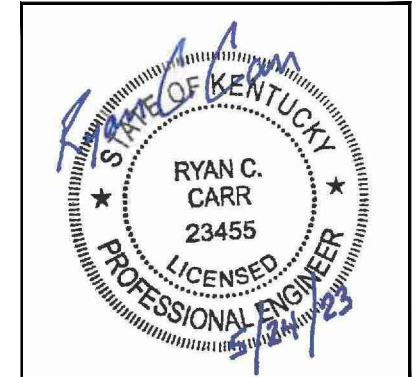
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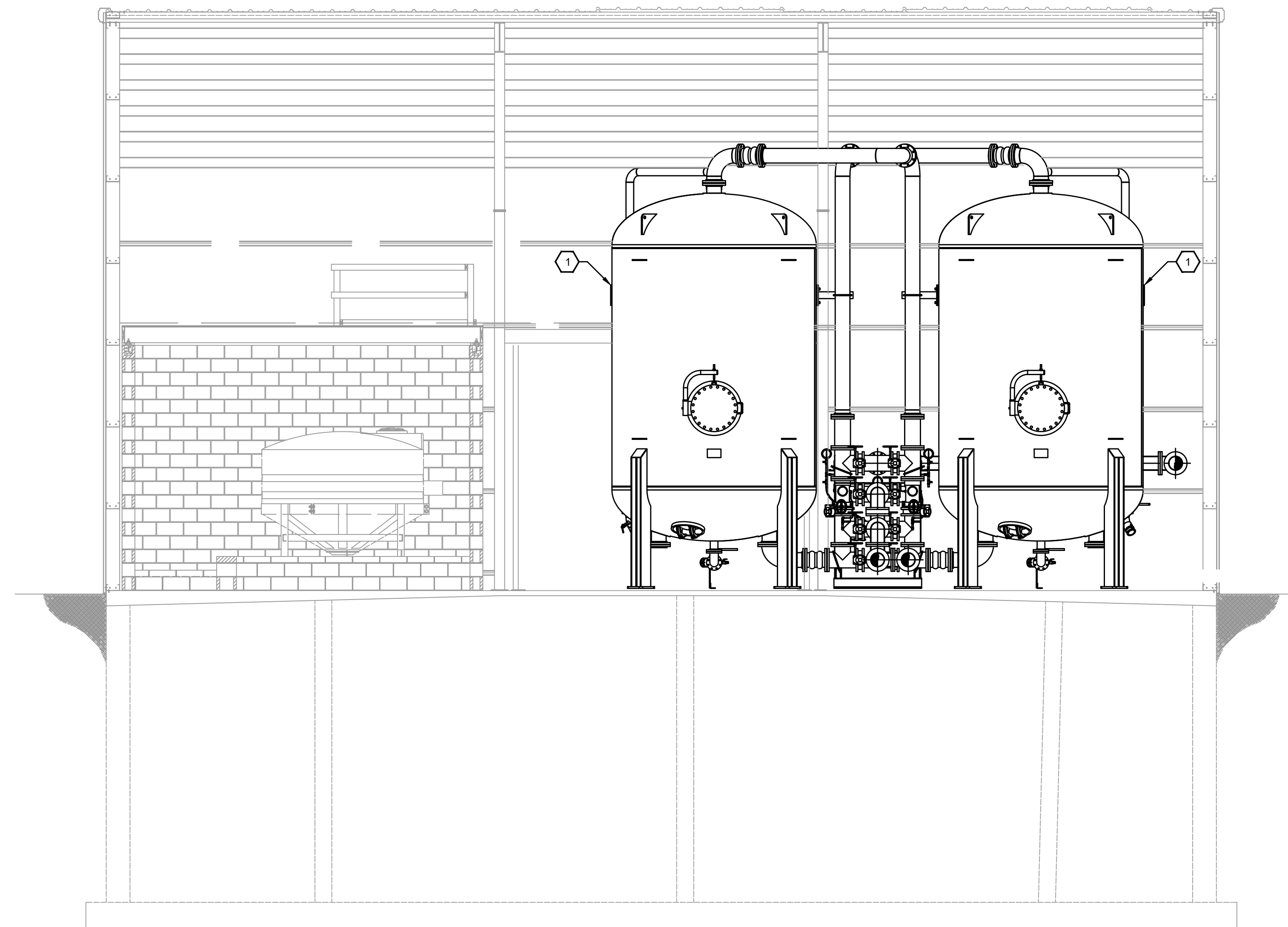
GAC BUILDING SECTION



PROJECT NO.	20016-07
SHEET NO.	C-2-02

CONTRACT DOCUMENTS

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GAC BUILDING SECTION
 1
 C-2-03
 SCALE: 1/4"=1'-0" 0 2 4 6'

GENERAL NOTES:

1. ALL PIPING SHALL BE ADEQUATELY SUPPORTED (CONCRETE SUPPORTS AND MANUFACTURER'S PIPE SUPPORTS / HANGERS) TO PREVENT ANY UNDUE STRESSES ON FLANGED CONNECTIONS AND PREVENT PIPE SEPARATION.
2. NOTE, DIMENSIONS, ETC. TAKEN FROM EXISTING AS-BUILT PLANS. CONTRACTOR SHALL FIELD VERIFY.
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REFERENCE NOTES:

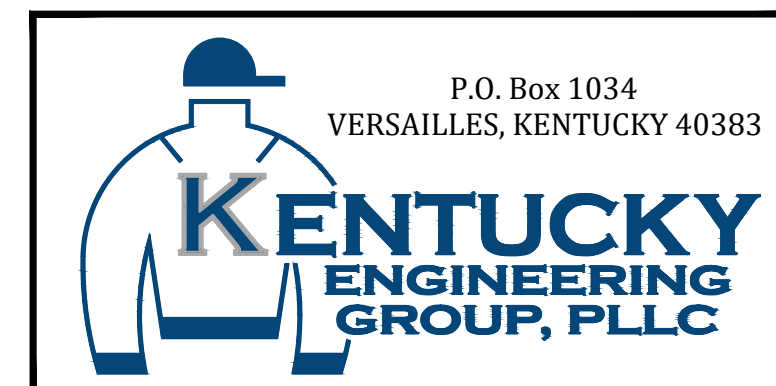
1. 10'-0" DIA. MODULAR GAC ADSORBER SYSTEM INCLUDING VALVE TREE

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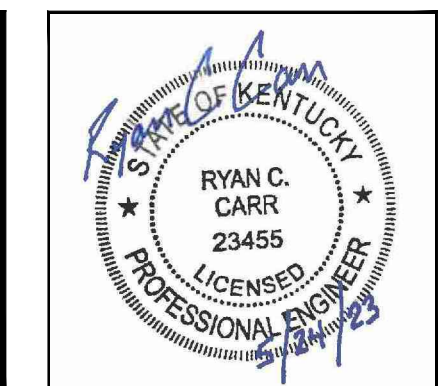
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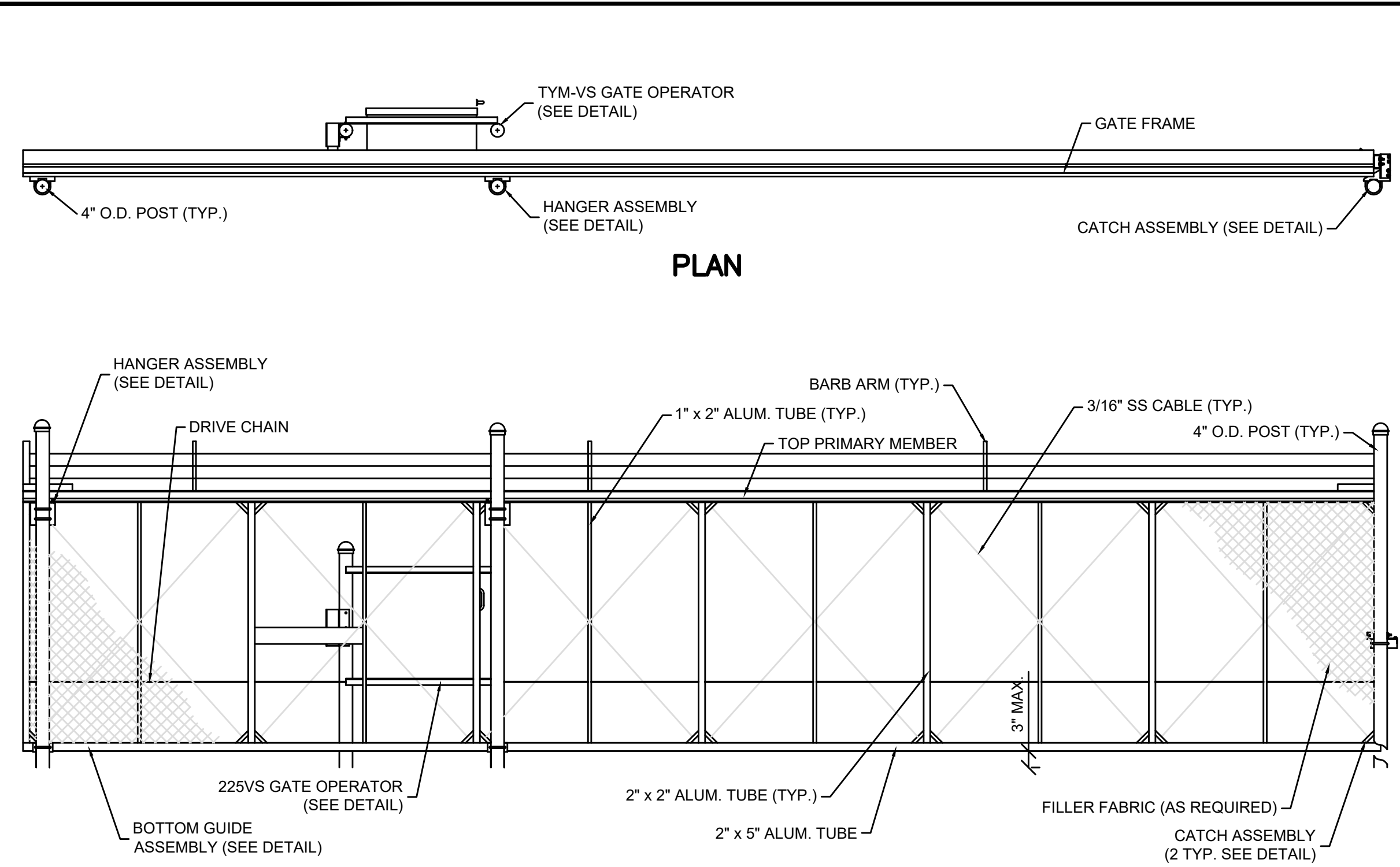
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 WATER TREATMENT PLANT
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GAC BUILDING
 SECTION

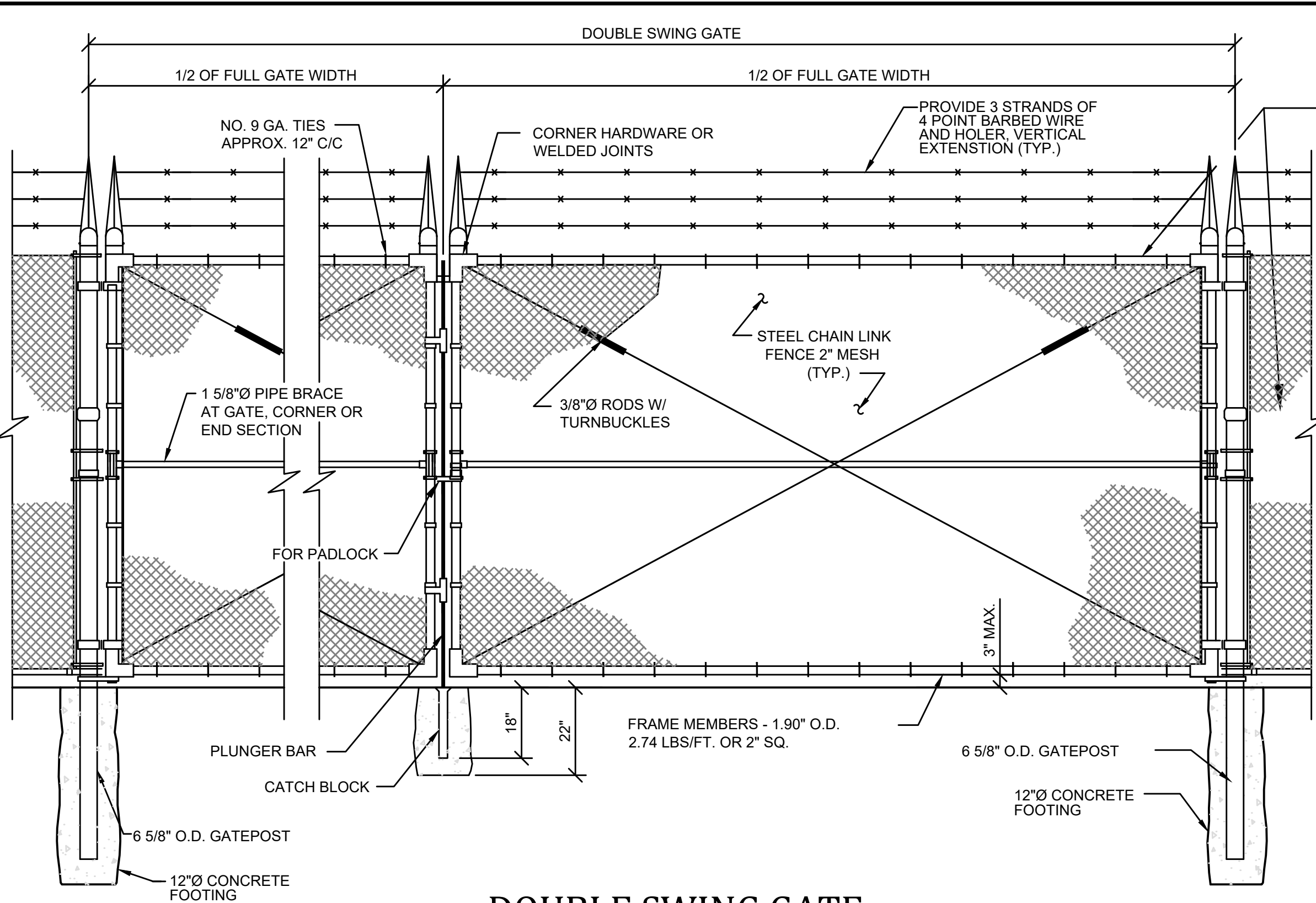


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SHEET NO.	C-2-03

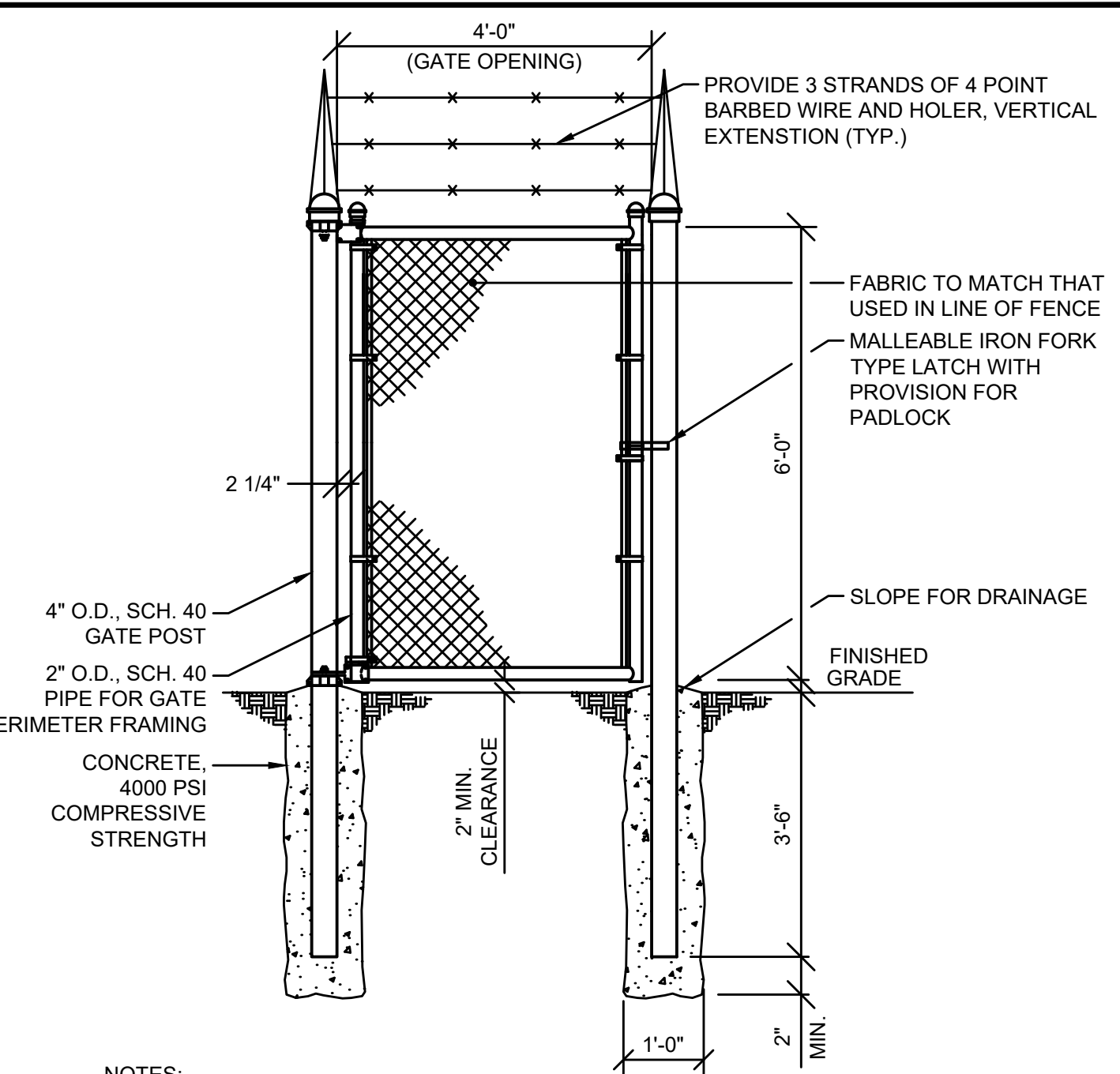
CONTRACT DOCUMENTS



CANTILEVER GATE
NOT TO SCALE

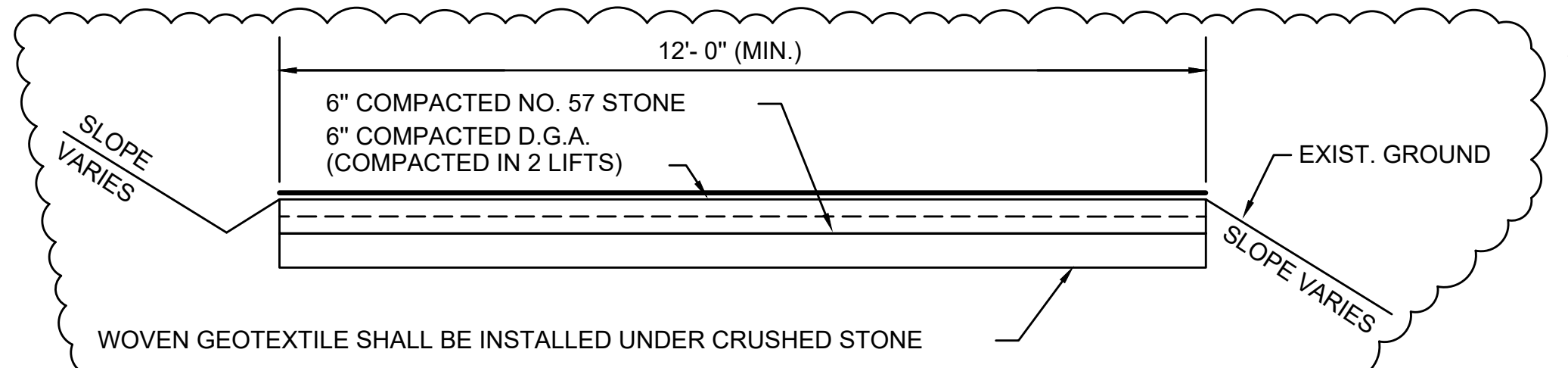


DOUBLE SWING GATE
NOT TO SCALE



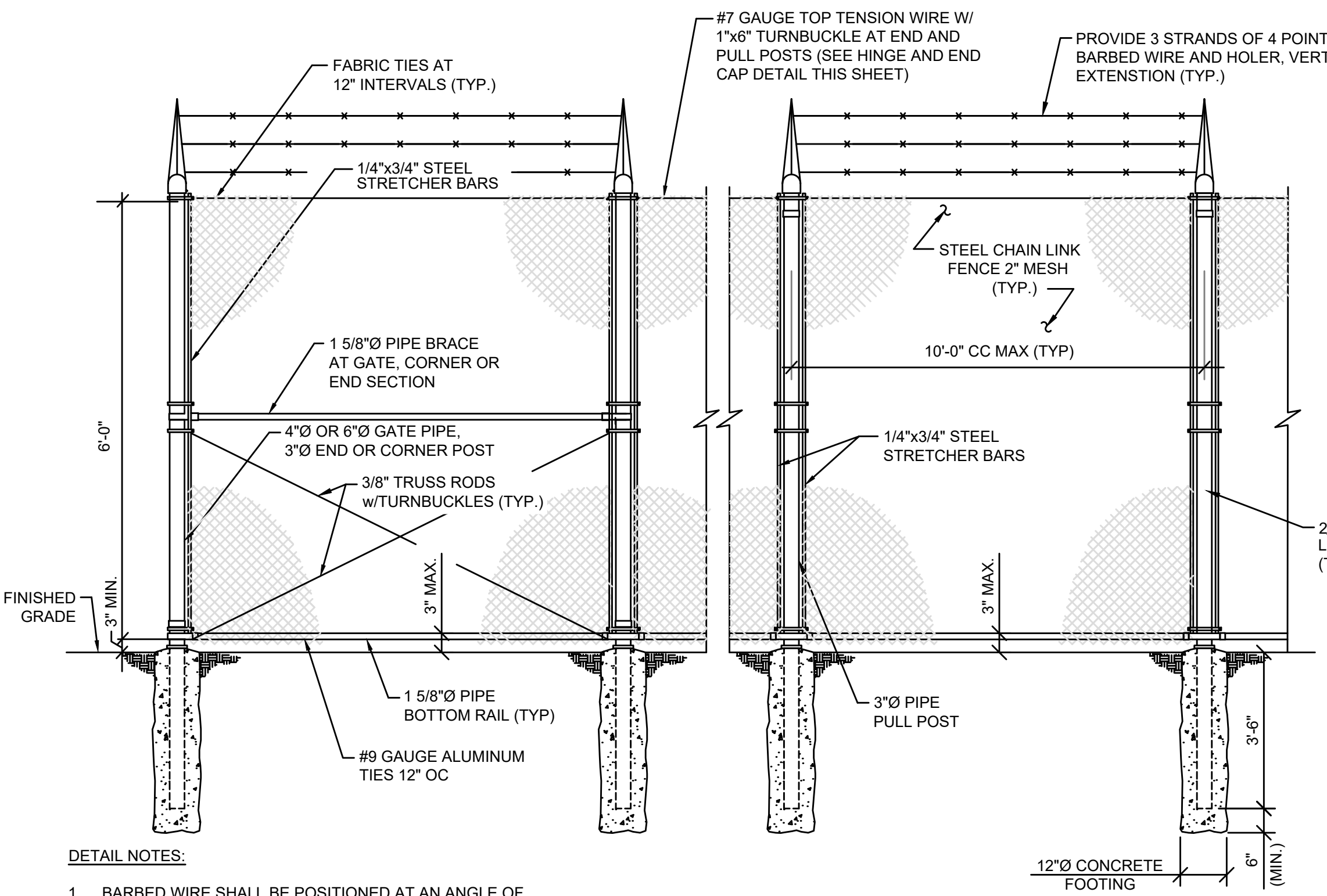
MAN GATE
NOT TO SCALE

- NOTES:
- MISCELLANEOUS HARDWARE SIMILAR TO THAT USED IN LINE FENCE.
 - SUBMIT SHOP DRAWINGS FOR APPROVAL.



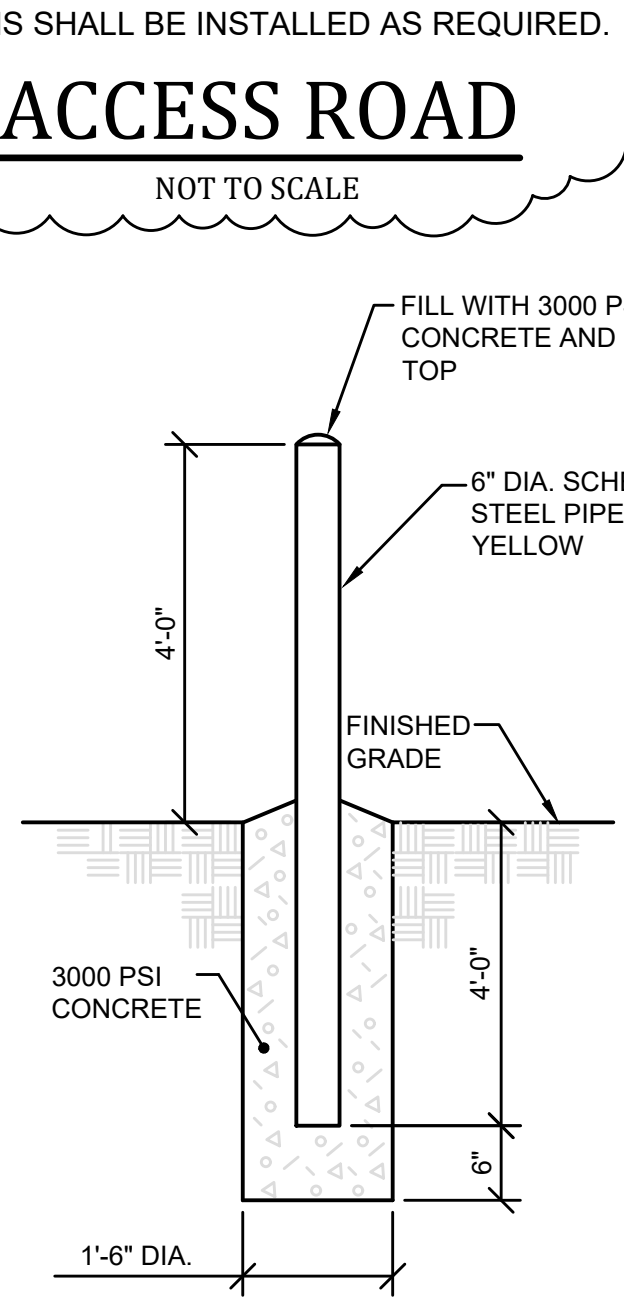
- NOTES:
- ACCESS ROAD TO BE SLOPED TO DRAIN.
 - REMOVE TOPSOIL TO A MINIMUM DEPTH OF 10".
 - COMPACT EXISTING SUBGRADE TO 95% STD. PROCTOR.
 - CROSS DRAINS SHALL BE INSTALLED AS REQUIRED.

ACCESS ROAD
NOT TO SCALE

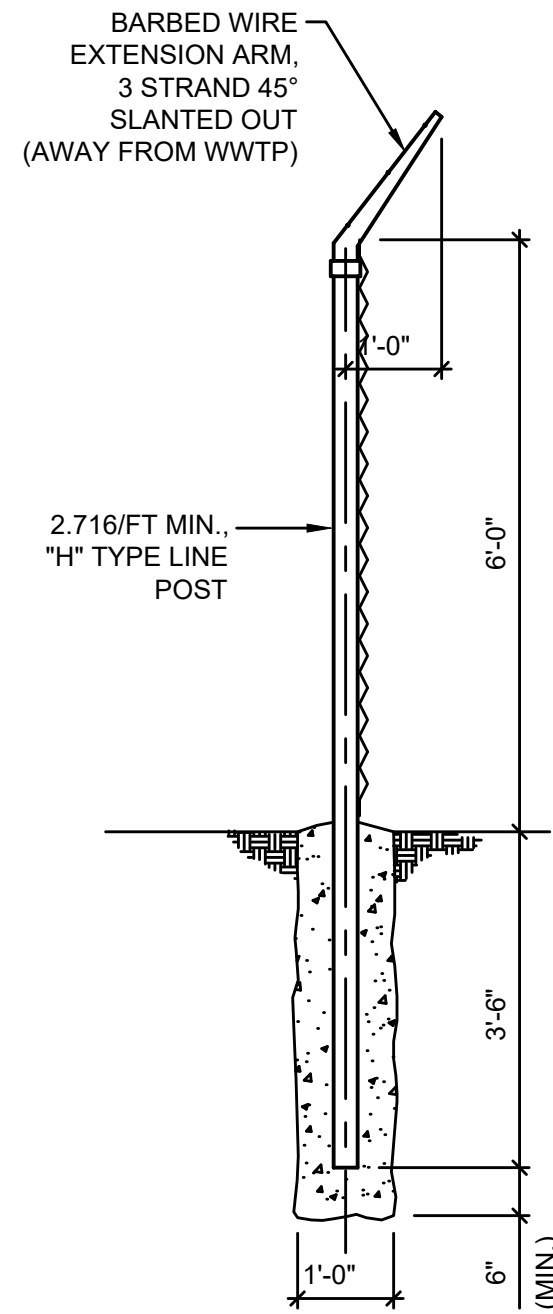


- DETAIL NOTES:
- BARBED WIRE SHALL BE POSITIONED AT AN ANGLE OF 45 DEGREES AWAY FROM THE WTP.
 - CHAINLINK FENCE SHALL MATCH EXISTING FENCE.

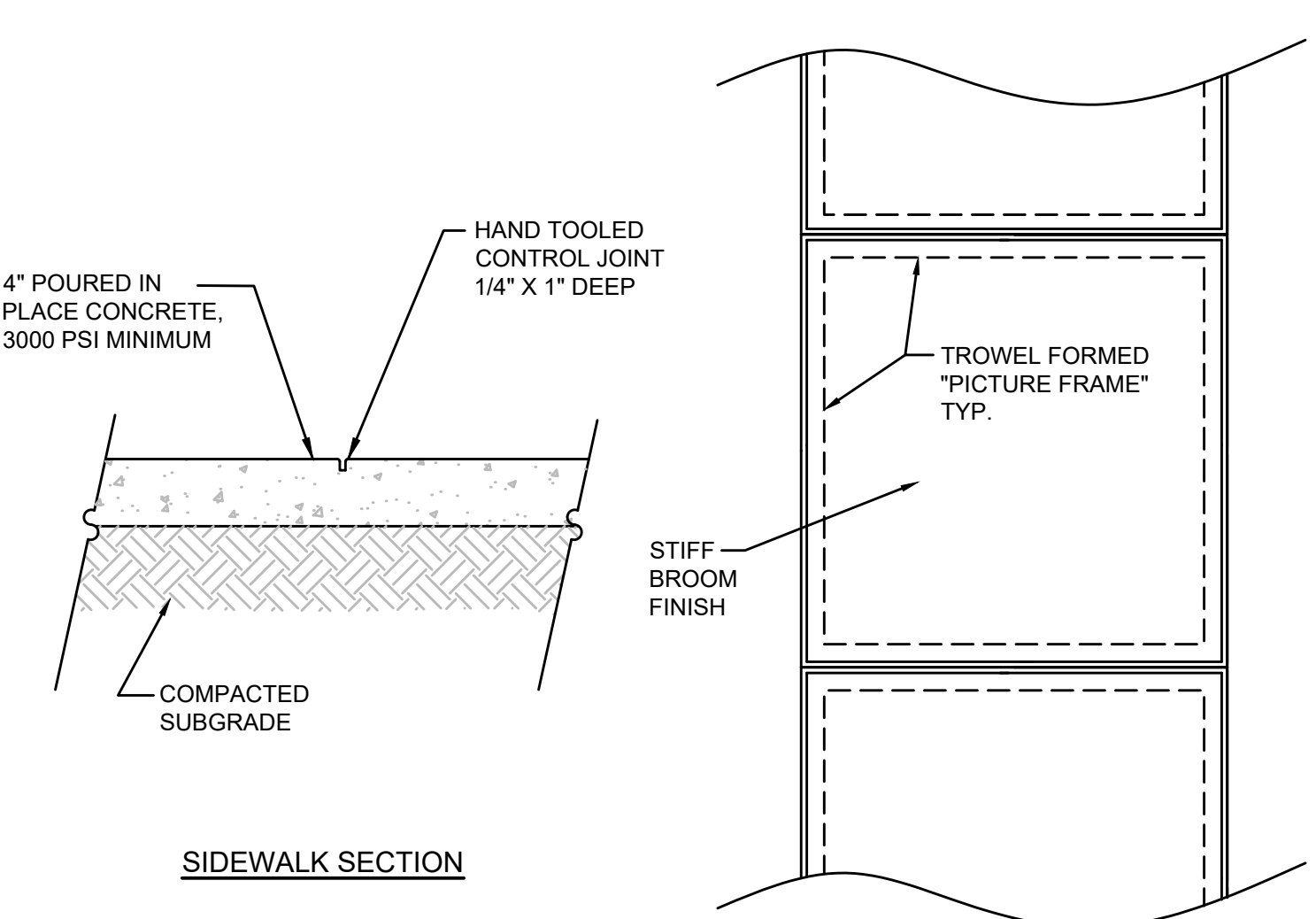
SECURITY FENCE
NOT TO SCALE



BOLLARD
NOT TO SCALE

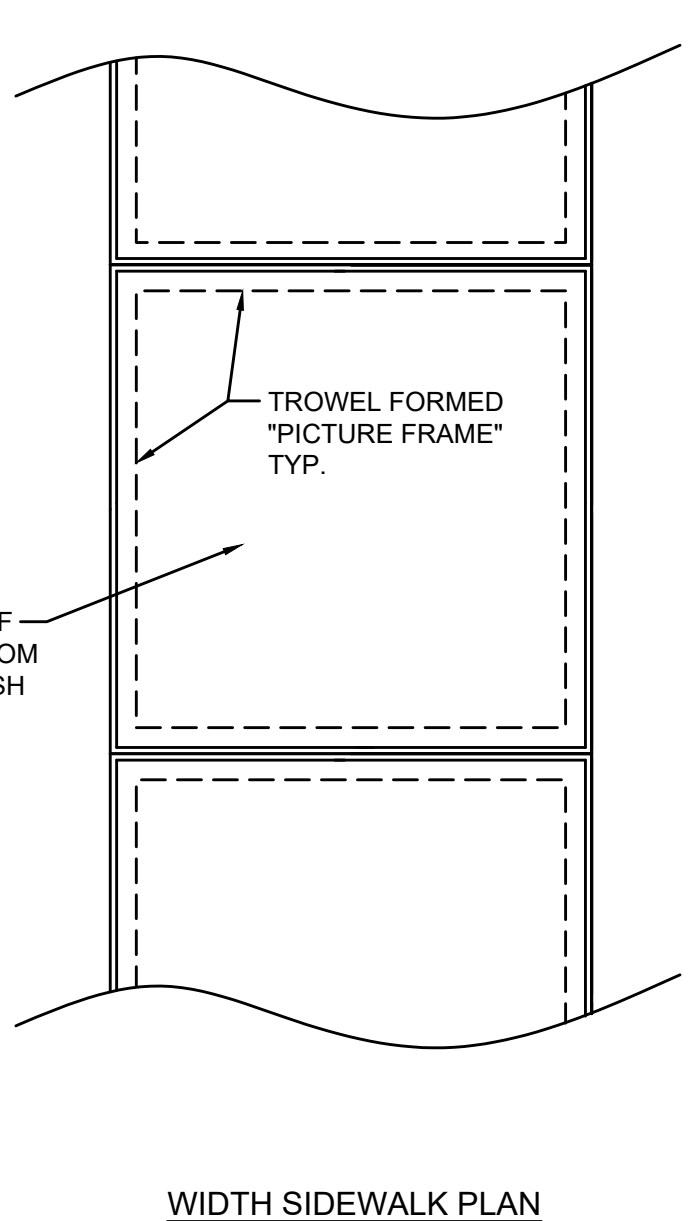


FENCE LINE POST
NOT TO SCALE



- NOTE:
- SIDEWALK WIDTH AS SHOWN ON PLAN.

CONCRETE SIDEWALK
NOT TO SCALE



WIDTH SIDEWALK PLAN

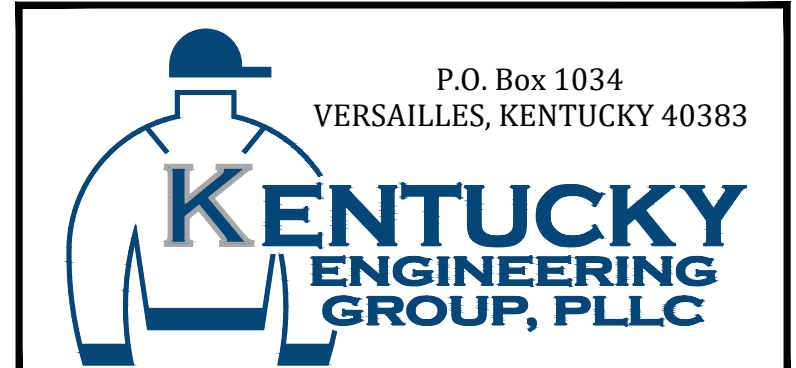
P:\PROJECTS\Grayson County Water District\20016-East-West Interconnect PH 2-Contracts 6, 7\DWG\Contract 7 - WTP\20016 SD-01.dwg KEG 6/07/23

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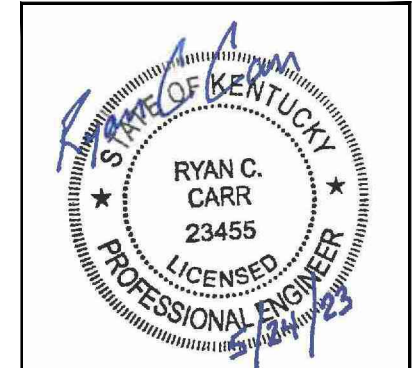
NO.	DATE	REVISIONS	BY
1	1/27/2023	ADDENDUM No. 1	RCC

DATE:	FEBRUARY, 2023
PROJECT MGR:	RCC
DRAWN BY:	JAB
CHECKED BY:	RCC
SCALE:	AS NOTED
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CONTRACT No. 7
WATER TREATMENT PLANT IMPROVEMENTS
FOR THE
GRAYSON COUNTY WATER DISTRICT

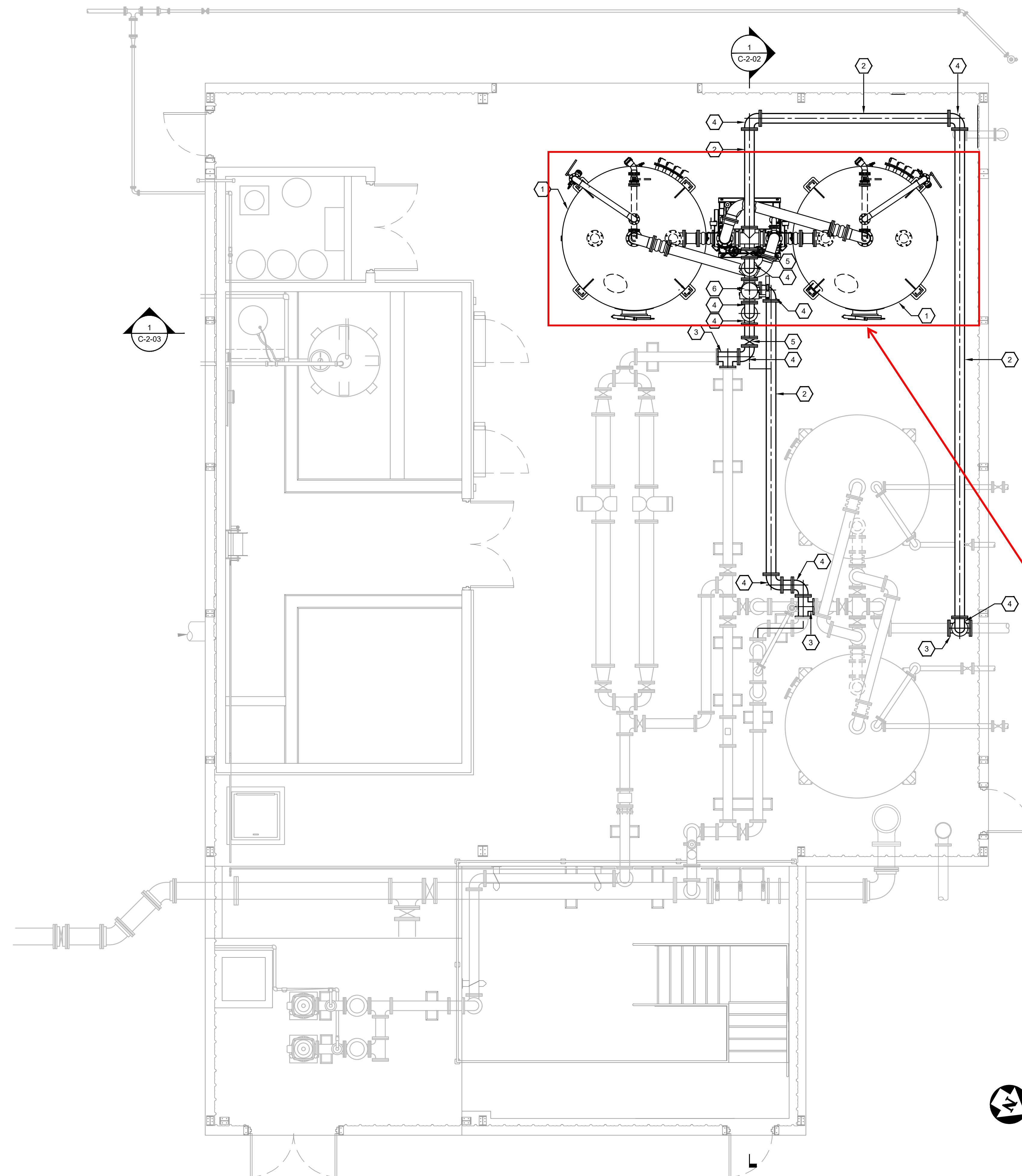
STANDARD DETAILS



PROJECT NO.	20016-07
SHEET NO.	SD-0-01

CONTRACT DOCUMENTS

P:\PROJECTS\Grayson County Water District\20016-East-West Interconnect PH 2 - Contracts 6, 7\DWG\Contract 7 - WTP\20016 C-2-01.dwg REG 1/12/23



GENERAL NOTES:

1. ALL PIPING SHALL BE ADEQUATELY SUPPORTED (CONCRETE SUPPORTS AND MANUFACTURER'S PIPE SUPPORTS / HANGERS) TO PREVENT ANY UNDUE STRESSES ON FLANGED CONNECTIONS AND PREVENT PIPE SEPARATION.
2. NOTE, DIMENSIONS, ETC. TAKEN FROM EXISTING AS-BUILT PLANS. CONTRACTOR SHALL FIELD VERIFY.
3. CONTRACTOR SHALL COORDINATE WORK WITH WTP OPERATORS. SERVICE TO THE WATER PLANT SHALL NOT BE INTERRUPTED.
4. FINAL ORIENTATION OF NEW GAC VESSELS SHALL BE COORDINATED WITH THE OWNER / ENGINEER.

REFERENCE NOTES:

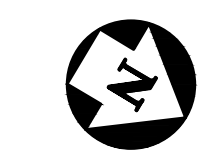
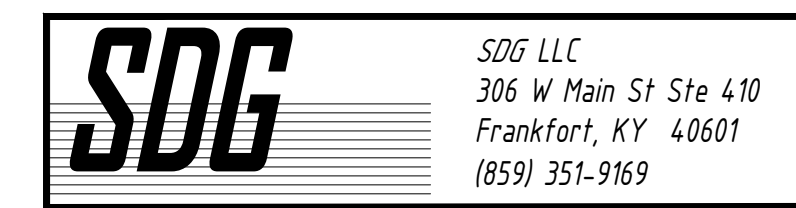
1. 10'-0" DIA. MODULAR GAC ADSORBER SYSTEM INCLUDING VALVE TREE
2. 8" DI PIPE
3. 8" DI TEE
4. 8" DI 90° ELBOW
5. 8" BUTTERFLY VALVE
6. 8" SWING CHECK VALVE

4" STRUCTURAL HOUSEKEEPING PAD w/ #6 at 6" O.C. LONG WAY CNTRD

- 180 DEG HOOKS EA END OF LONG BARS
- ROUGHEN EXISTING CONCRETE TO 1/4" AVERAGE AMPLITUDE
- APPLY EPOXY BONDING AGENT BEFORE PLACING NEW CONCRETE
- PAD IS 10'-0" WIDE CENTERED UNDER TANKS
- EXTEND PAD ALL THE WAY TO THE WALL ON THE RIGHT
- EXTEND PAD 21" PAST TANK FEET ON THE LEFT



SEAL ONLY FOR
STRUCTURAL PAD
DENOTED WITH
RED TEXT IN BOX



**GAC BUILDING
FLOOR PLAN**

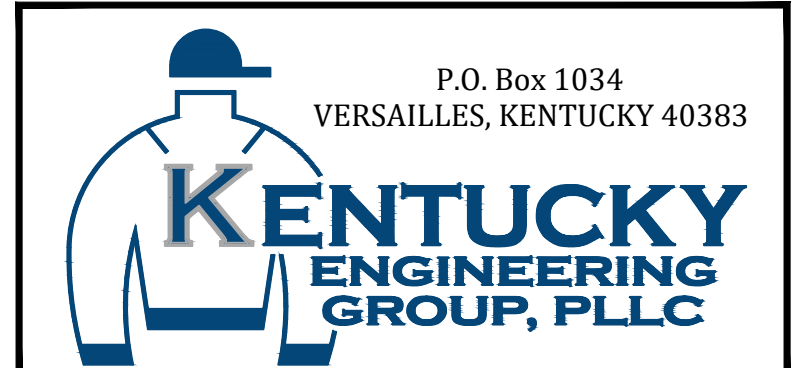
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CHECKED BY:	RCC
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**CONTRACT No. 7
WATER TREATMENT PLANT
IMPROVEMENTS
FOR THE
GRAYSON COUNTY WATER DISTRICT**

**GAC BUILDING
FLOOR PLAN -
STRUCTURAL**

PROJECT NO.
20016-07

SHEET NO.
S-01

CONFORMANCE SET

ELECTRICAL ABBREVIATIONS

A	AMPERE
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFD	ADJUSTABLE FREQUENCY DRIVE
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BC	BARE COPPER
C	CONDUIT (RACEWAY)
⊙	AT
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
C/L	CENTERLINE
CLG	CEILING
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER OR CONSTANT TORQUE CONTROL
CU	COPPER OR CONDENSING UNIT
Δ/Y	DELTA/WYE
DB	DIRECT BURIAL
DN	DOWN
DPST	DOUBLE POLE-SINGLE THROW
EC	EMPTY CONDUIT
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EGC	EQUIPMENT GROUND CONDUCTOR
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC
EOL	END-OF-LINE
EMERG	EMERGENCY
EUH	ELECTRIC UNIT HEATER
EW	ELECTRIC WALL HEATER/WATER HEATER
EX	EXISTING
FO	FIBER OPTIC
FNVR	FULL VOLTAGE, NON-REVERSING
GEC	GROUNDING ELECTRODE CONDUCTOR
GFCI OR GFI	GROUND FAULT CURRENT INTERRUPTING
GND	GROUND
HOA	HAND-OFF-AUTO SELECTOR SWITCH
HP	HORSEPOWER
J OR JB	JUNCTION BOX
KVA	KILOVOLT-AMPERES
KWH	KILOWATT-HOUR
KCMIL	THOUSAND CIRCULAR MILS
LF	LIGHTING FIXTURE (LUMINAIRE)
LM	LUMEN
LTC	LIGHTING
LTS	LIGHTS
LS	LIMIT SWITCH
LV	LOW VOLTAGE
MCB	MAIN CIRCUIT BREAKER
MCP	MOTOR CIRCUIT PROTECTOR
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MV	MEDIUM VOLTAGE
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NL	NON LINEAR
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OH	OVERHEAD
OL	OVERLOAD
P	POLE
OT	OVER TEMPERATURE
PH OR ∅	PHASE
PNL	PANEL
PVC	POLY-VINYL CHLORIDE
PWR	POWER
RECEPT	RECEPTACLE
SHT	SHEET
SP	SINGLE POLE
SPD	SURGE PROTECTION DEVICE
SS	STAINLESS STEEL
STD	STANDARD
STC	SHIELDED TWISTED INSTRUMENT CABLE
SW	SWITCH
TB	TERMINAL BOX
TM	THERMAL MAGNETIC
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
UG	UNDERGROUND
UH	UNIT HEATER
V	VOLTAGE OR VOLTS
W	WIRE
WP	WEATHERPROOF
W/	WITH
XFMR	TRANSFORMER

ELECTRICAL PLAN SYMBOLS

	ELECTRICAL CIRCUIT: SHORT=PHASE CONDUCTOR; LONG = NEUTRAL, DASHED = EQUIPMENT GROUND
	EMERGENCY CIRCUIT
	SWITCH: 3=3 WAY; 4=4 WAY; K=KEY; WP=WEATHERPROOF; M=MOTOR STARTER; PL=PILOT LT
	DUPLEX RECEPTACLE: WP = WEATHERPROOF; GFI = GROUND FAULT; NUMBER = MOUNTING HEIGHT
	SINGLE RECEPTACLE
	208 or 240 VOLT RECEPTACLE
	DUPLEX RECEPTACLE, FLUSH FLOORBOX MOUNTED
	SPECIAL PURPOSE RECEPTACLE OUTLET
	THERMOSTAT
	MOTOR
	JUNCTION BOX - SMALL
	JUNCTION BOX - FLUSH-MOUNTED
	SAFETY SWITCH - NONFUSED UNLESS NOTED OTHERWISE
	MAGNETIC COMBINATION STARTER - THREE PHASE
	MAGNETIC COMBINATION STARTER - SINGLE PHASE
	TELECOM OUTLET: D = DATA; T = TELEPHONE; C = CABLE; NUMBER = QTY OF CABLES & JACKS
	CONDUIT TURNED UP
	CONDUIT TURNED DOWN
	WALL MOUNTED SPEAKER OR ALARM HORN
	PANELBOARD (SURFACE MOUNTED)
	PANELBOARD (FLUSH MOUNTED IN WALL)
	HEATER-WALL MOUNTED
	EXHAUST FAN/VENTILATOR
	SPEAKER GENERAL
	CLOCK
	EXISTING POWER POLE
	NEW POWER POLE
	LIGHTING POLE
	PHOTO CELL
	MANHOLE
	PULLBOX
	MUSHROOM HEAD EMERGENCY SWITCH
	DUCT SMOKE DETECTOR
	HEAT DETECTOR
	SMOKE DETECTOR
	FIRE ALARM MANUAL PULL STATION
	FIRE ALARM HORN/STROBE
	FIRE ALARM STROBE
	FIRE ALARM ZONE ADDRESSABLE MODULE
	SPRINKLER SYSTEM FLOW SWITCH
	TAMPER SWITCH
	MAGNETIC DOOR HOLDER
	KEYNOTE
	ALL WORK IN THE ROOM/AREA SHALL CONFORM TO THE NEMA RATING INDICATED
	ELECTRICAL LINE UNDERGROUND
	INSTRUMENTATION LINE UNDERGROUND
	TELEPHONE LINE UNDERGROUND
	GROUND ROD

ELECTRICAL DIAGRAM SYMBOLS

	TRANSFORMER
	CAPACITOR
	GROUND
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	CIRCUIT BREAKER (GENERAL)
	CIRCUIT BREAKER, THERMAL-MAGNETIC
	CIRCUIT BREAKER, MAGNETIC-ONLY
	CIRCUIT BREAKER (DRAWOUT)
	GROUND FAULT PROTECTED CIRCUIT BREAKER
	RELAY CONTACTS (NORMALLY OPENED)
	RELAY CONTACTS (NORMALLY CLOSED)
	THERMAL OVERLOAD PROTECTION
	FUSE
	DOT INDICATES A CONNECTION OF TWO WIRES
	TERMINALS FOR CONNECTION OF REMOTE WIRING
	RELAY/CONTACTOR COIL: C = CONTRACTOR; CR = CONTROL RELAY; TR = TIMING RELAY; M = MOTOR
	HAND-OFF-AUTOMATIC SWITCH
	FULL VOLTAGE NON-REVERSING MOTOR STARTER; X = NEMA SIZE
	PILOT LIGHT: R = RED; G = GREEN; A = AMBER; W = WHITE
	PILOT LIGHT - PUSH-TO-TEST
	MOTOR
	FUSED DISCONNECT SWITCH
	FLOAT SWITCH
	TEMPERATURE SWITCH (THERMOSTAT)
	PRESSURE SWITCH
	LIMIT SWITCH
	FLOW SWITCH
	SOLENOID VALVE COIL
	ELAPSED TIME METER
	KEY INTERLOCK
	BATTERY
	PUSHBUTTONS, N.C. & N.O. RESPECTIVELY
	SELECTOR SWITCH - TWO POSITION
	FUSED CUTOUT
	SECTIONALIZING SWITCH (3 PHASE)
	TIMER RELAY CONTACT: NORMALLY OPEN - TIMED OPEN UPON DEENERGIZATION
	TIMER RELAY CONTACT: NORMALLY CLOSED - TIMED CLOSE UPON DEENERGIZATION
	TIMER RELAY CONTACT: NORMALLY OPEN - TIMED CLOSE UPON ENERGIZATION
	TIMER RELAY CONTACT: NORMALLY CLOSED - TIMED OPEN UPON ENERGIZATION
	TRANSFER SWITCH
	GENERATOR
	EXTERNAL WIRING
	EMERGENCY STOP BUTTON

ELECTRICAL DEVICE MOUNTING HEIGHT SCHEDULE

DEVICE	HEIGHT AFF	REMARKS
RECEPTACLE - LOW	1'-4"	TO BOTTOM OF DEVICE BOX
RECEPTACLE - ABOVE COUNTER/MEDIUM	4'-0"	TO TOP OF DEVICE BOX
RECEPTACLE OR FIXTURE - HIGH	7'-4"	TO TOP OF DEVICE BOX
LIGHT SWITCH	4'-0"	TO BOTTOM OF DEVICE BOX
TELEPHONE OUTLET - WALL MOUNTED	4'-8"	TO BOTTOM OF DEVICE BOX
CONTROL STATIONS & PUSH-BUTTONS	4'-0"	TO BOTTOM OF DEVICE BOX
PANELBOARDS & CONTROL PANELS	6'-6"	TO TOP OF BOX
SAFETY SWITCH	4'-0"	TO TOP OF BOX
THERMOSTAT	4'-8"	TO BOTTOM OF DEVICE BOX
CLOCKS	7'-4"	TO BOTTOM OF DEVICE BOX
FIRE ALARM MANUAL PULL STATION	4'-0"	TO BOTTOM OF DEVICE BOX
FIRE ALARM NOTIFICATION APPLIANCES	6'-8"	TO BOTTOM OF DEVICE BOX
EMERGENCY LIGHT FIXTURES	7'-4"	TO BOTTOM OF DEVICE BOX
EXIT SIGNS - WALL MOUNTED	8'-0"	TO TOP; MAINTAIN 2" CLEARANCE BELOW CEILING

ELECTRIC HEATER SCHEDULE

UNIT NO.	CAPACITY KW	CFM	VOLT / PHASE	MFR / MODEL NO.	REMARKS
EUH-2	10.0	700	208/3φ	MARKEL 5100	1, 2, 3
EUH-3	5.0	400	208/3φ	MARKEL 5100	1, 2, 3
EUH-4	5.0	400	208/3φ	MARKEL 5100	1, 2, 3

REMARKS:
 1. BUILT IN ELECTRICAL DISCONNECT SWITCH.
 2. INTEGRAL THERMOSTAT.
 3. FURNISH WITH SWIVEL WALL BRACKET.

LOCATION	CONDUCTORS	I/O TAG	TYPE	UNIT	CONTROL	MONITOR	TREND	HISTORIZE	TOTALIZE	AVERAGE	ALARM	REPORT	NOTES
HTI ROCKWELL	2#18 STIC	CLEARWELL LEVEL	AI	FT		X	X	X			X		
SCADA PANEL	ETHERNET	HIGH SERVICE PUMP #1 CALL-TO-RUN	DO		X								
	ETHERNET	HIGH SERVICE PUMP #1 RUN STATUS	DI			X					X	X	ALARM FAIL-TO-START, REPORT # STARTS & RUNTIMES
	ETHERNET	HIGH SERVICE PUMP #1 IN-AUTO	DI			X							
	ETHERNET	HIGH SERVICE PUMP #1 DRIVE FAULT	DI								X		
	ETHERNET	HIGH SERVICE PUMP #1 OVERTEMP	DI								X		
	ETHERNET	HIGH SERVICE PUMP #1 SPEED COMMAND	AO	HZ	X								
	ETHERNET	HIGH SERVICE PUMP #1 SPEED FEEDBACK	AI	HZ		X	X	X			X		ALARM SPEED DEVIATION
	ETHERNET	HIGH SERVICE PUMP #1 AMPS	AI	A		X	X	X					
	ETHERNET	HIGH SERVICE PUMP #2 CALL-TO-RUN	DO		X								
	ETHERNET	HIGH SERVICE PUMP #2 RUN STATUS	DI			X					X	X	ALARM FAIL-TO-START, REPORT # STARTS & RUNTIMES
	ETHERNET	HIGH SERVICE PUMP #2 IN-AUTO	DI			X							
	ETHERNET	HIGH SERVICE PUMP #2 DRIVE FAULT	DI								X		
	ETHERNET	HIGH SERVICE PUMP #2 OVERTEMP	DI								X		
	ETHERNET	HIGH SERVICE PUMP #2 SPEED COMMAND	AO	HZ	X								
	ETHERNET	HIGH SERVICE PUMP #2 SPEED FEEDBACK	AI	HZ		X	X	X			X		ALARM SPEED DEVIATION
	ETHERNET	HIGH SERVICE PUMP #2 AMPS	AI	A		X	X	X					
	ETHERNET	HIGH SERVICE PUMP #3 CALL-TO-RUN	DO		X								
	ETHERNET	HIGH SERVICE PUMP #3 RUN STATUS	DI			X					X	X	ALARM FAIL-TO-START, REPORT # STARTS & RUNTIMES
	ETHERNET	HIGH SERVICE PUMP #3 IN-AUTO	DI			X							
	ETHERNET	HIGH SERVICE PUMP #3 DRIVE FAULT	DI								X		
	ETHERNET	HIGH SERVICE PUMP #3 OVERTEMP	DI								X		
	ETHERNET	HIGH SERVICE PUMP #3 SPEED COMMAND	AO	HZ	X								
	ETHERNET	HIGH SERVICE PUMP #3 SPEED FEEDBACK	AI	HZ		X	X	X			X		ALARM SPEED DEVIATION
	ETHERNET	HIGH SERVICE PUMP #3 AMPS	AI	A		X	X	X					
MODICON CONTROL CONSOLE	2#18 STIC	GAC UNIT #3 HIGH PRESSURE ALARM	DI								X		NOTE: OWNER TO PROVIDE PLC & SCADA INTEGRATION
	2#18 STIC	GAC UNIT #4 HIGH PRESSURE ALARM	DI								X		NOTE: OWNER TO PROVIDE PLC & SCADA INTEGRATION

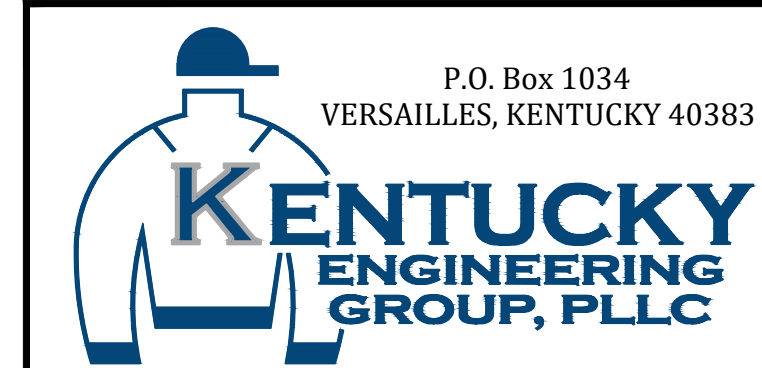
SCADA I-O TABLE

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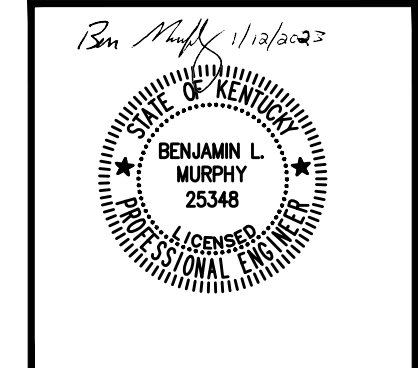
NO.	DATE	REVISIONS	BY

DATE:	OCTOBER, 2021
PROJECT MGR:	RCC
DRAWN BY:	JM
CHECKED BY:	BLM
SCALE:	1/4" = 1'-0"
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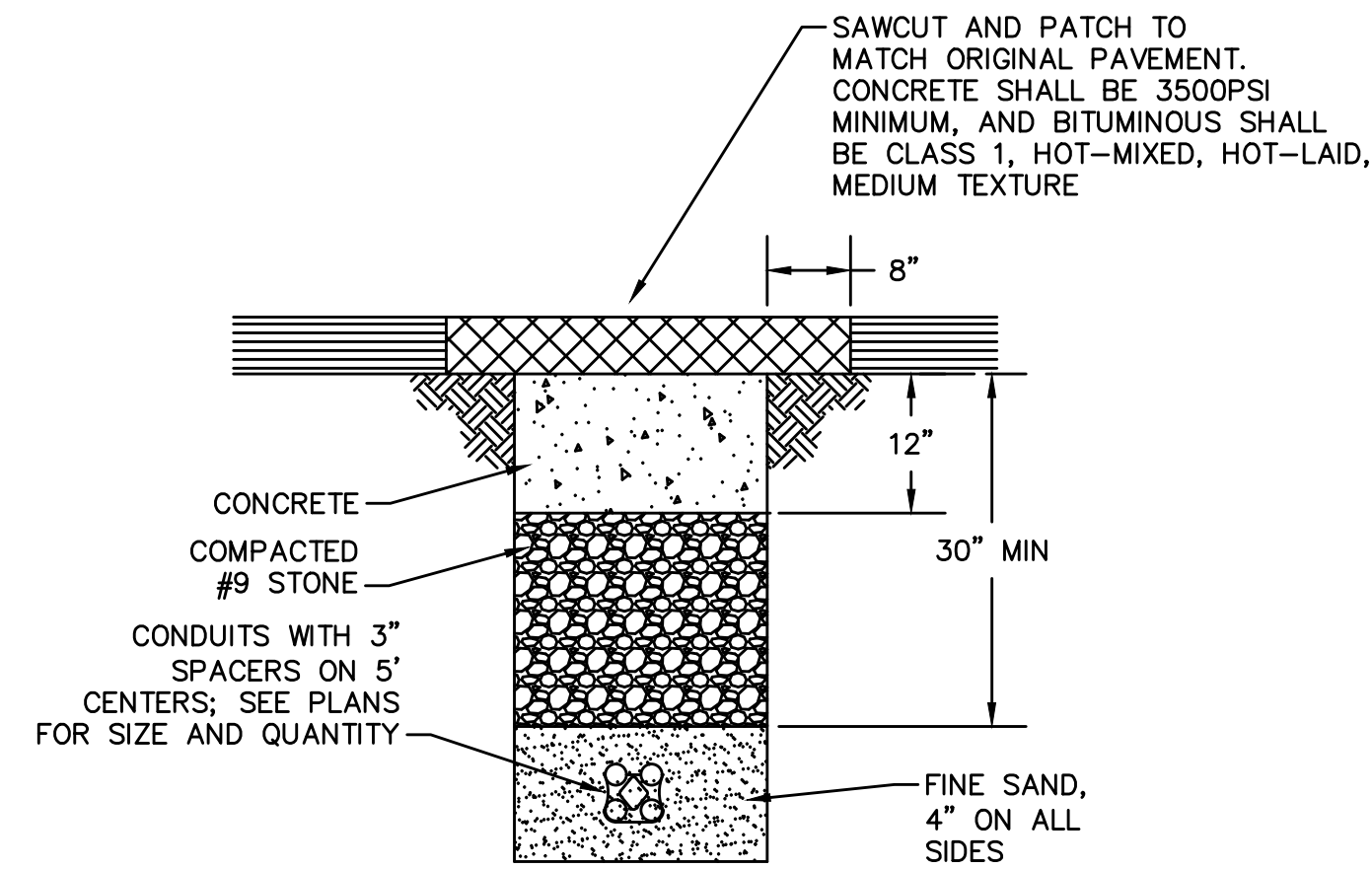
CONTRACT No. 7
 WATER TREATMENT PLANT
 IMPROVEMENTS
 FOR THE
 GRAYSON COUNTY WATER DISTRICT

ELECTRICAL SYMBOLS,
 ABBREVIATIONS, AND
 SCHEDULES

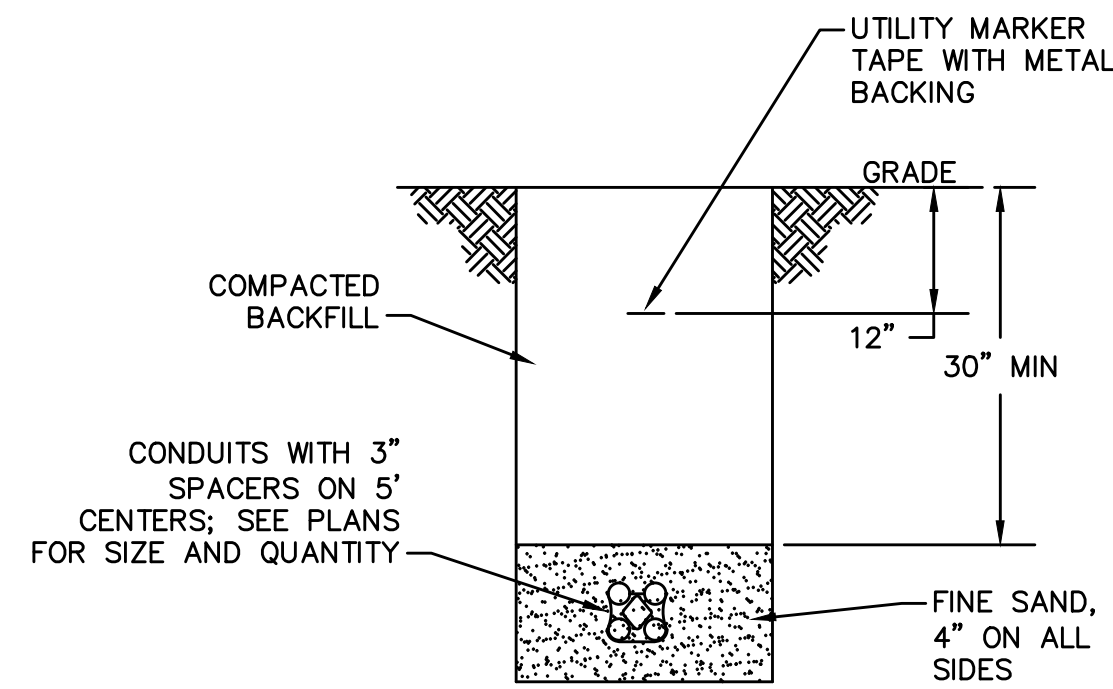


PROJECT NO.
 20016-07

SHEET NO.
 E-1



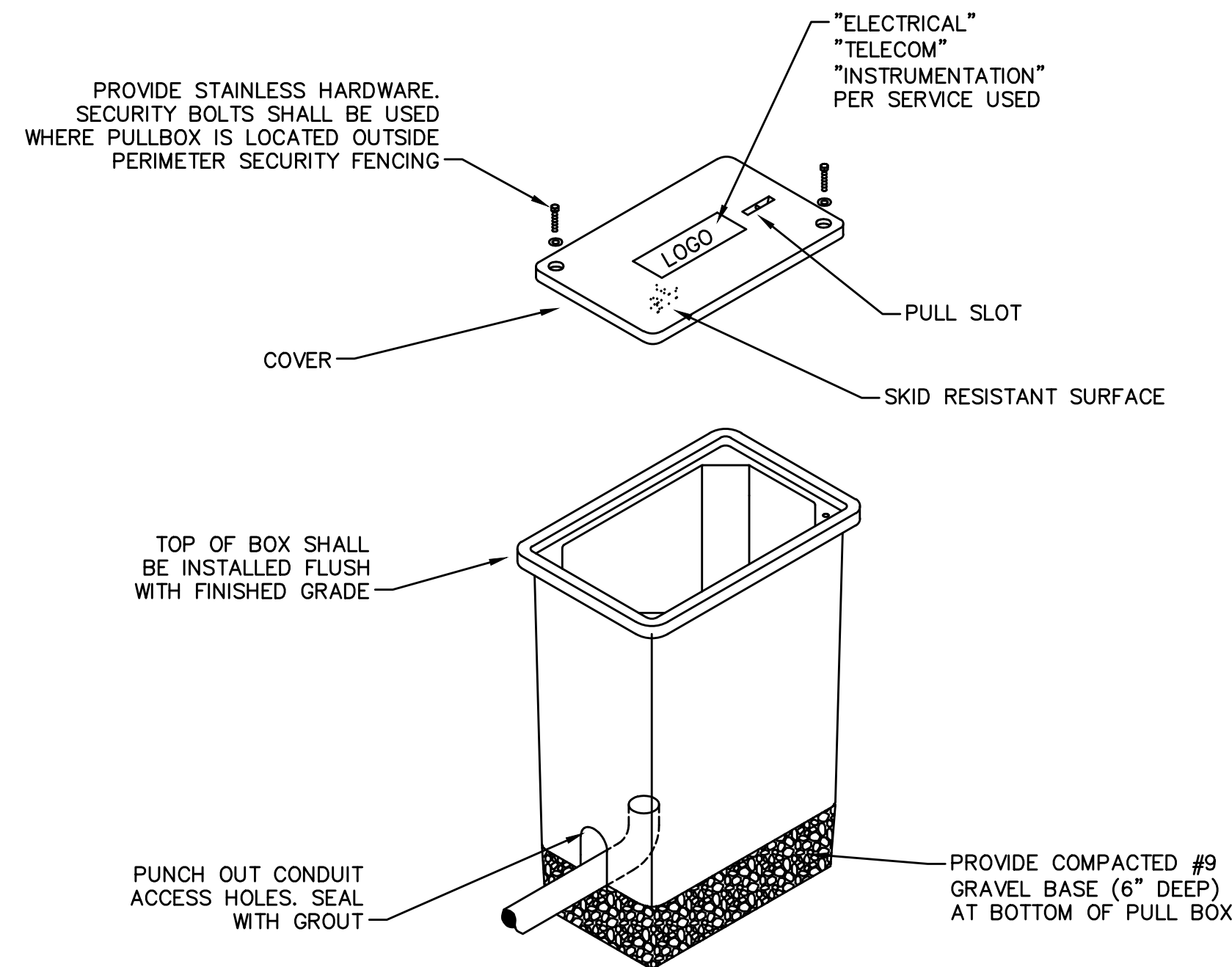
TYPICAL PAVEMENT TRENCH DETAIL
NOT TO SCALE



TYPICAL TRENCH DETAIL
NOT TO SCALE

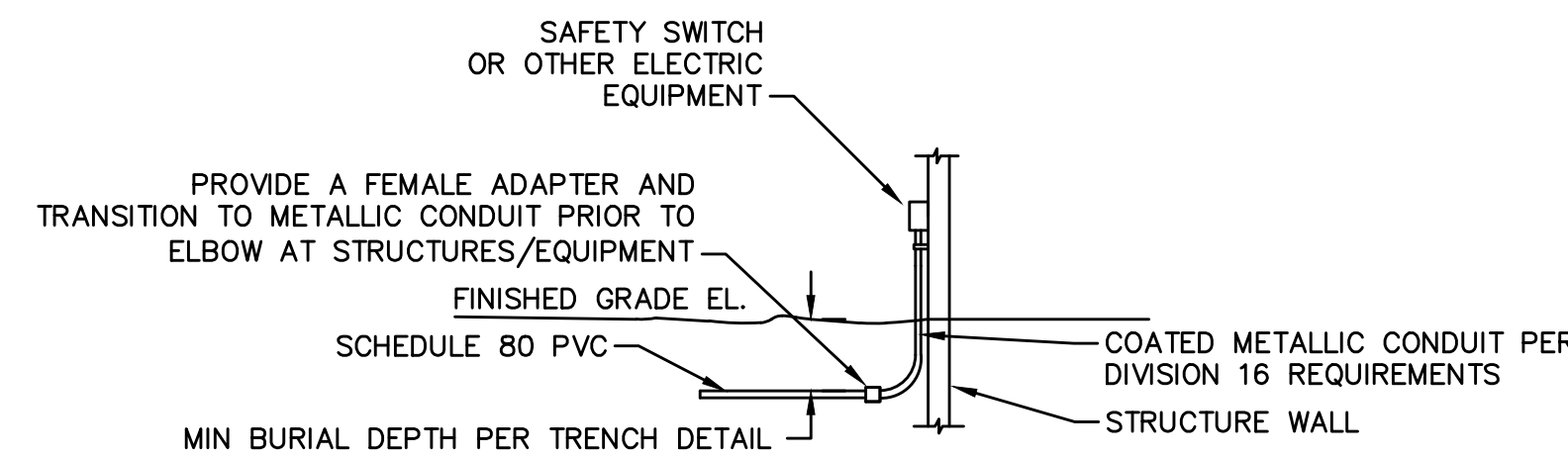
TRENCHING NOTES:

- UTILITY MARKER TAPE SHALL RUN THE ENTIRE LENGTH OF DUCT BANK.
- MAINTAIN MINIMUM 12" SPACING BETWEEN INSTRUMENTATION AND POWER, UNLESS FIBER OPTIC CABLES ARE USED.
- MAINTAIN MINIMUM 36" SPACING BETWEEN OTHER SITE PIPING, INCLUDING WATER, AND GAS.



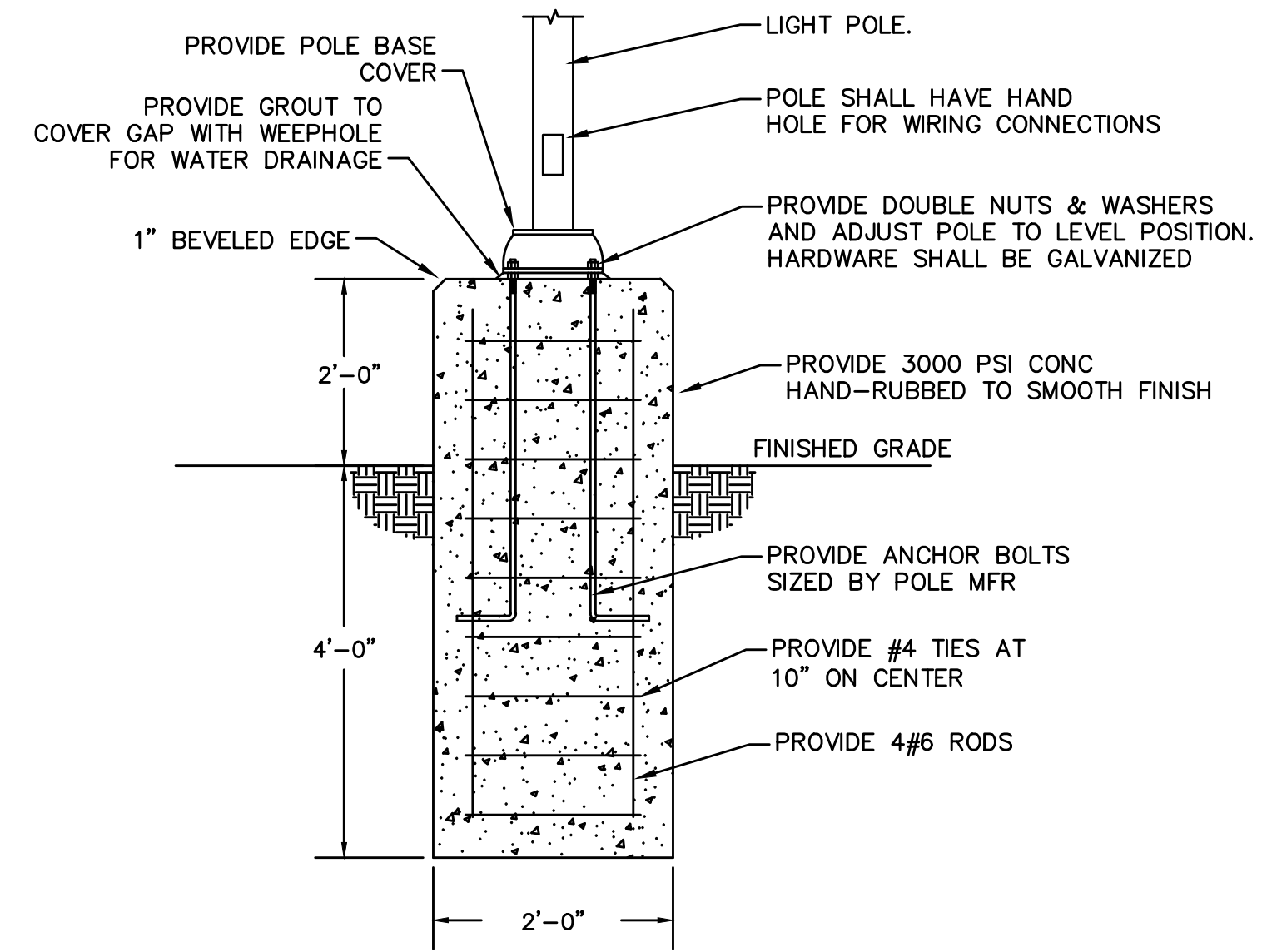
ELECTRICAL PULL BOX DETAIL
NOT TO SCALE

- NOTES:
- PROVIDE PULL BOXES AS REQUIRED BY NEC REQUIREMENTS. MINIMUM SIZE OF 20"L X 10"W X 18"D IS REQUIRED, BUT SHALL BE INCREASED WHERE LARGER CONDUCTORS REQUIRE ADDITIONAL BENDING SPACE.
 - UTILIZE STACKABLE BOXES IF NECESSARY TO EXTEND PULLBOX TO DEPTH OF 30" MIN.
 - MINIMUM TIER 22 LOAD RATING IS REQUIRED.

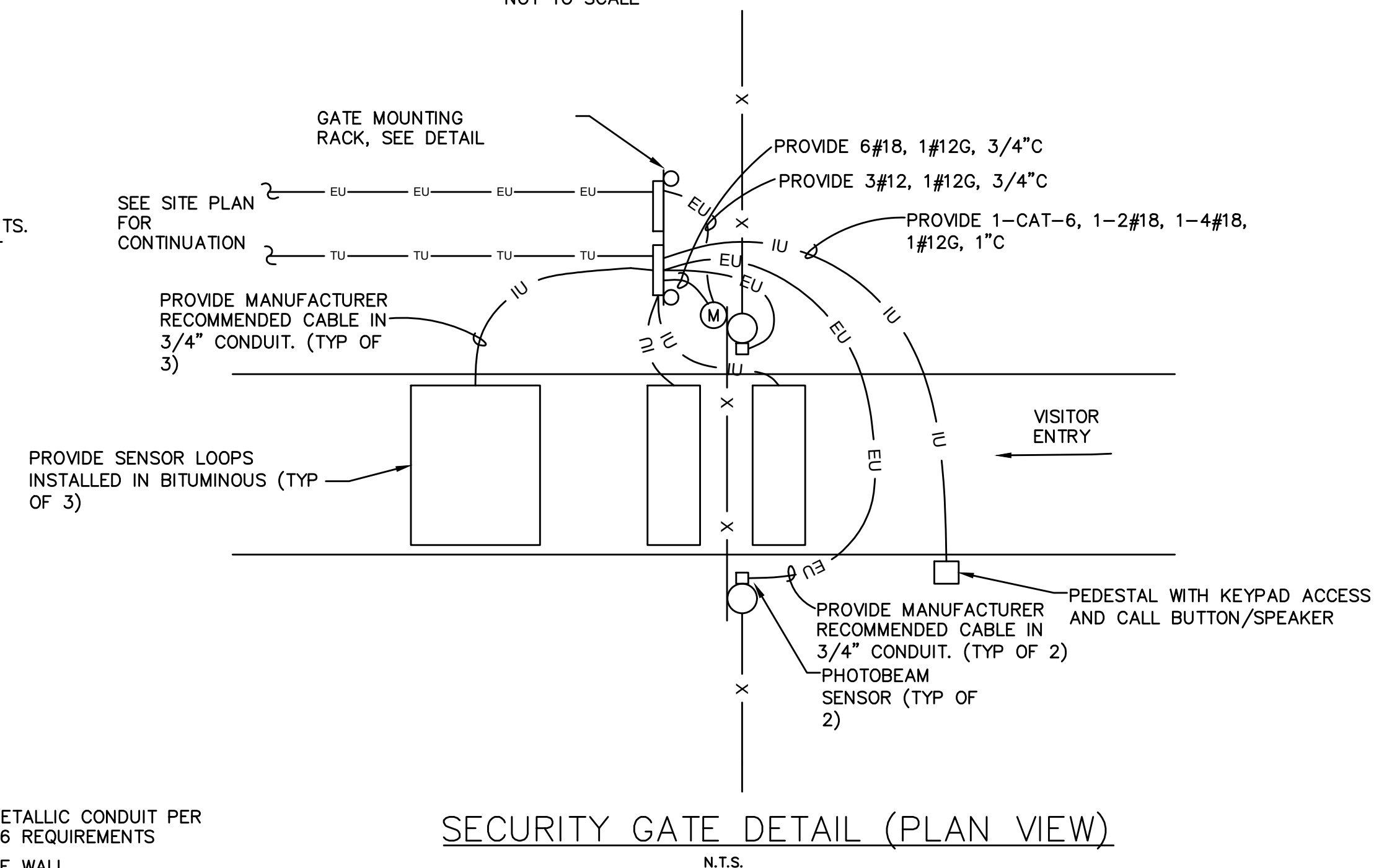


TYPICAL UNDERGROUND PVC CONDUIT TRANSITION TO METALLIC CONDUIT
NOT TO SCALE

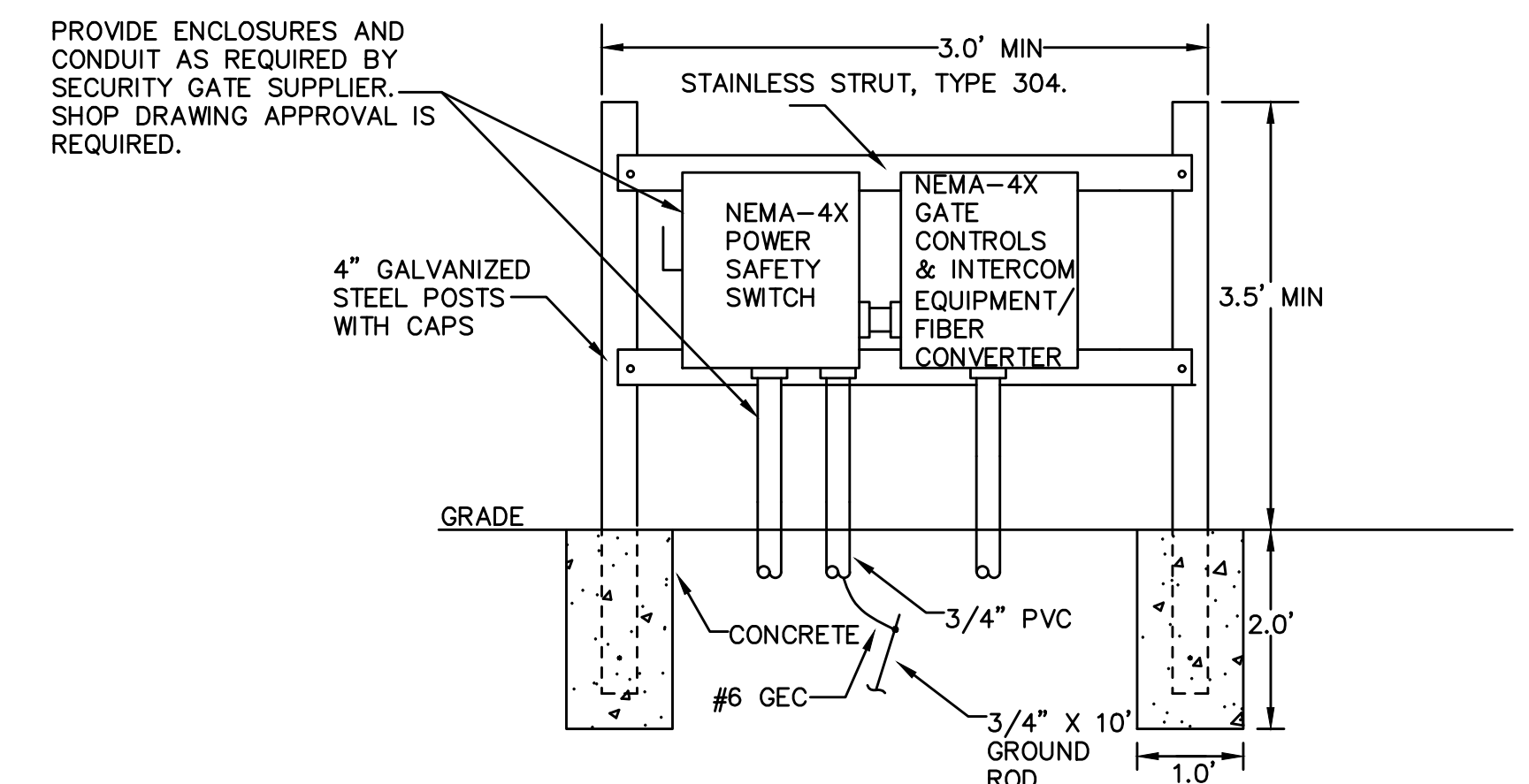
- NOTE:
- ALL UNDERGROUND PVC CONDUITS SHALL TRANSITION TO METALLIC PRIOR TO EMERGING FROM GRADE OR SLAB. SEE SECTION 16020 FOR ACCEPTABLE CONDUIT TYPES.



LIGHT. POLE BASE DETAIL
NOT TO SCALE



SECURITY GATE DETAIL (PLAN VIEW)
N.T.S.



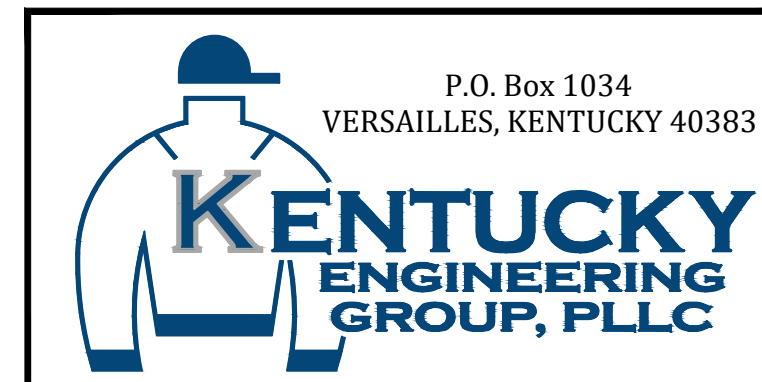
GATE MOUNTING RACK DETAIL
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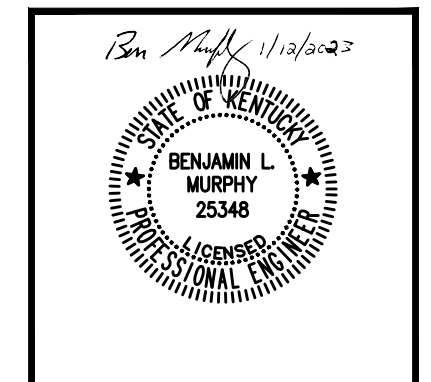
NO.	DATE	REVISIONS	BY

DATE:	OCTOBER, 2021
PROJECT MGR:	RCC
DRAWN BY:	JM
CHECKED BY:	BLM
SCALE:	1/4" = 1'-0"
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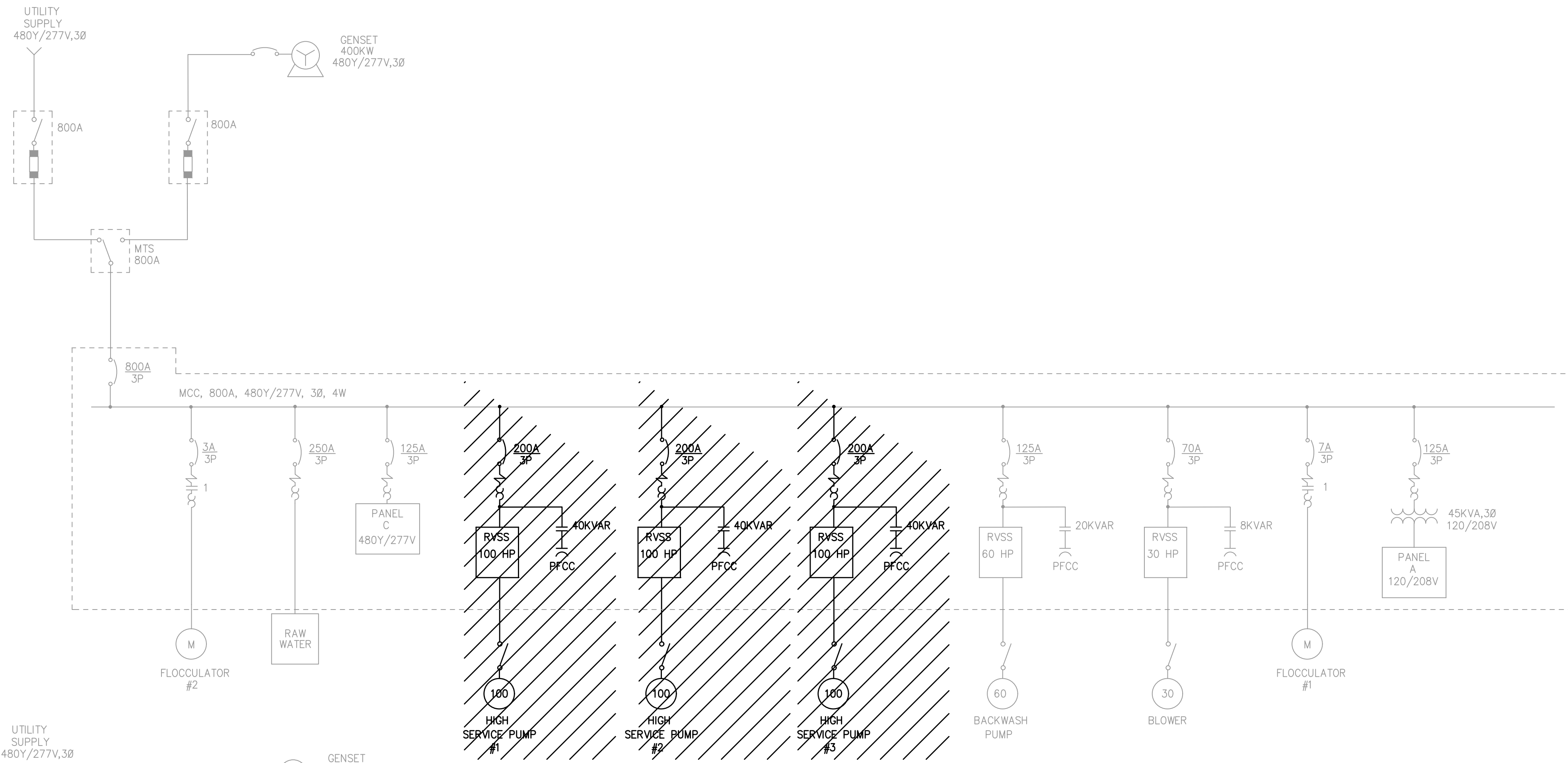
CONTRACT No. 7
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GRAYSON COUNTY WATER DISTRICT

ELECTRICAL DETAILS

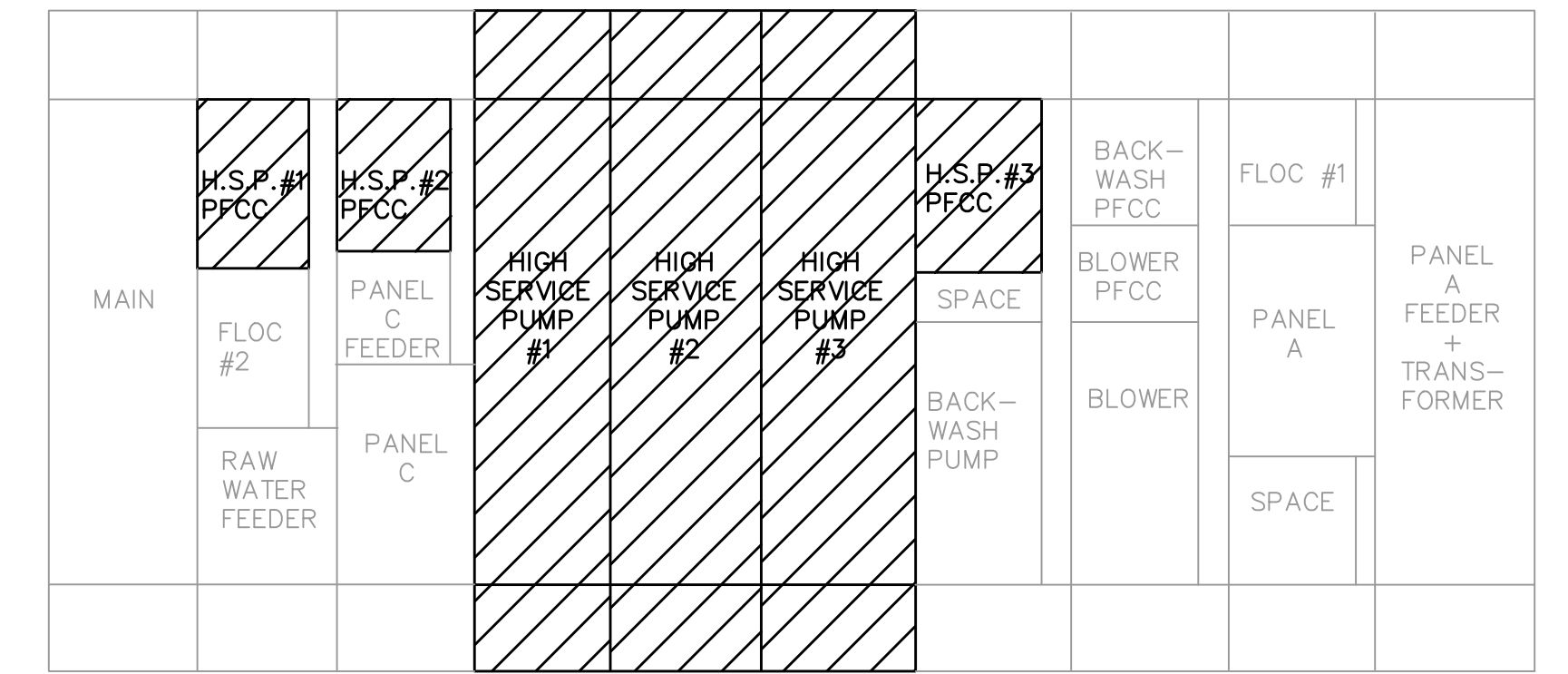


PROJECT NO.
20016-07

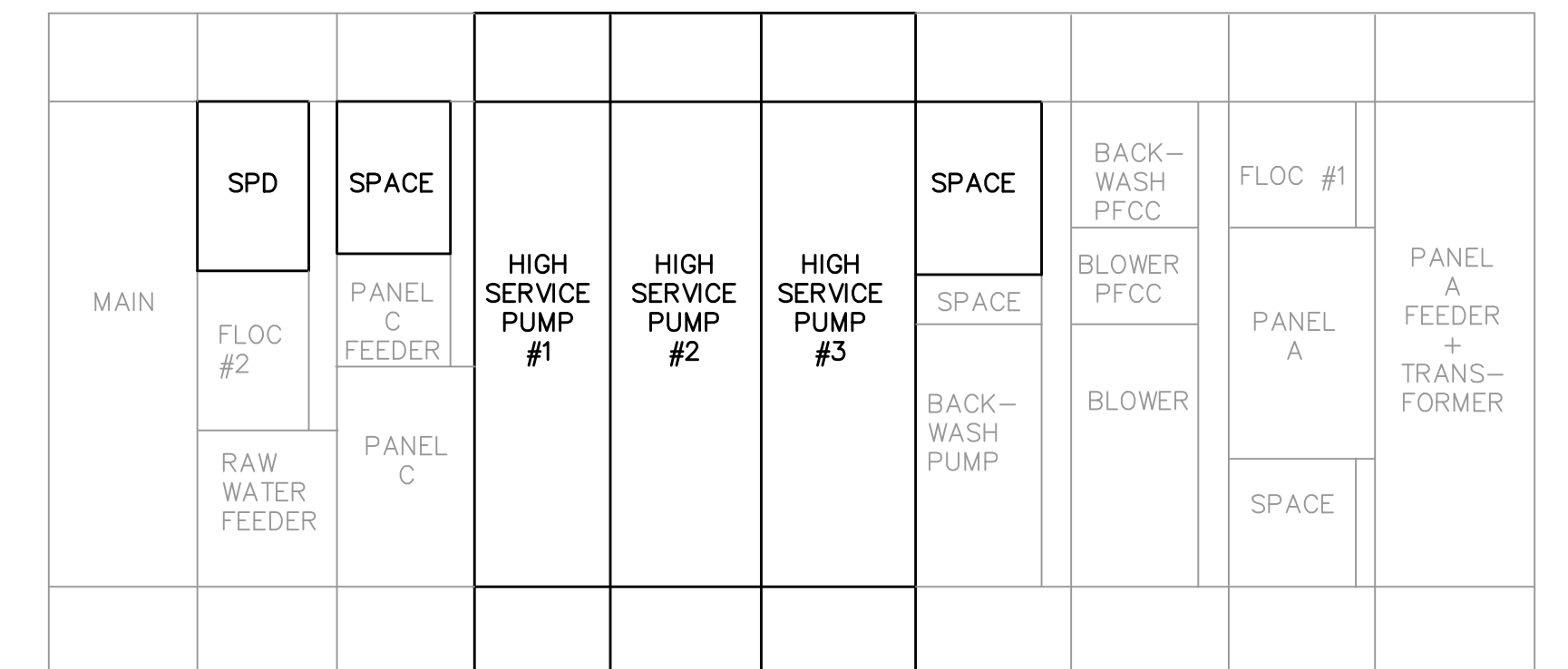
SHEET NO.
E-2



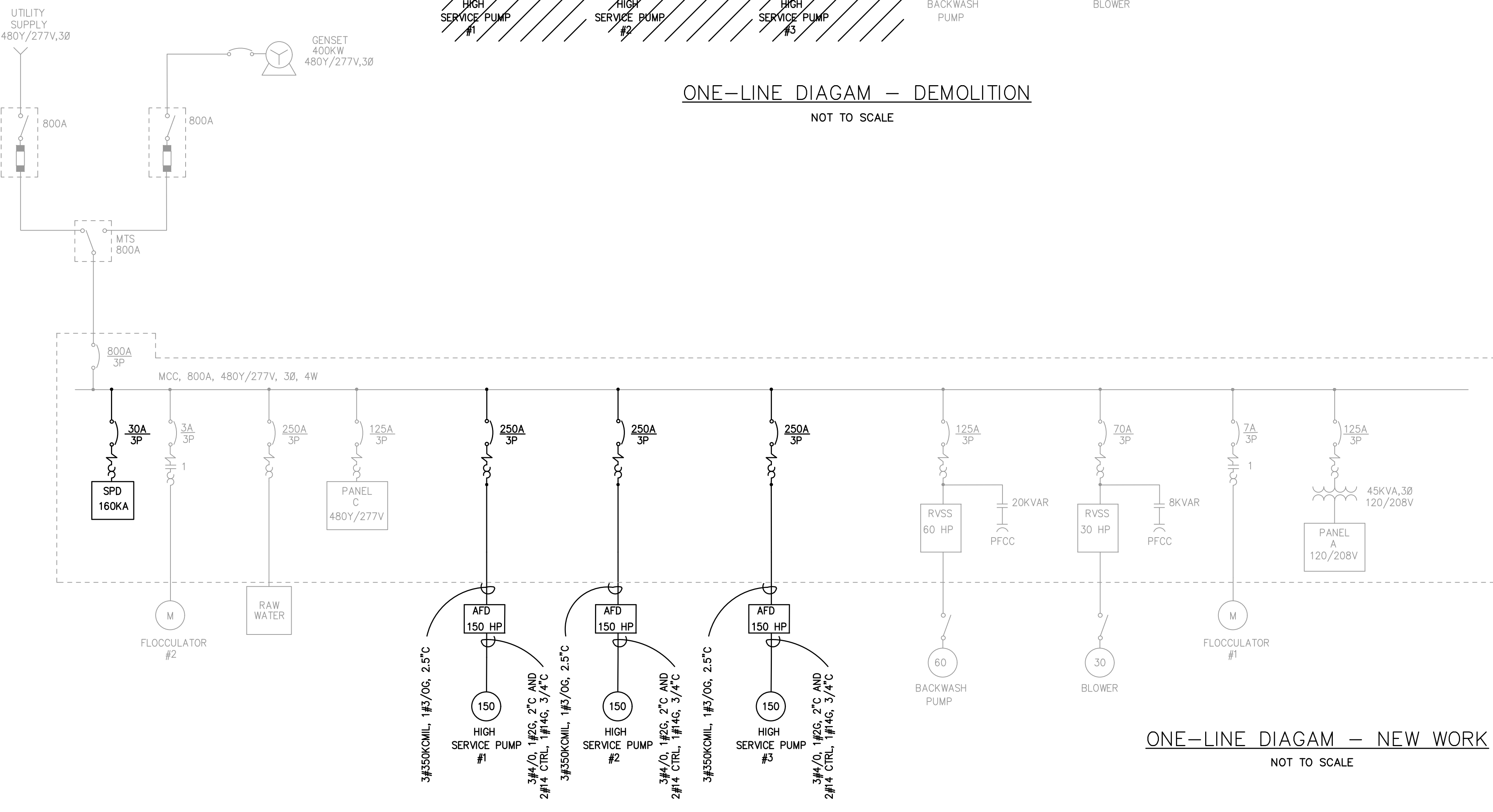
ONE-LINE DIAGRAM - DEMOLITION
NOT TO SCALE



MCC ELEVATION - DEMOLITION
SCALE: 1/2" = 1'-0"



MCC ELEVATION - NEW WORK
SCALE: 1/2" = 1'-0"



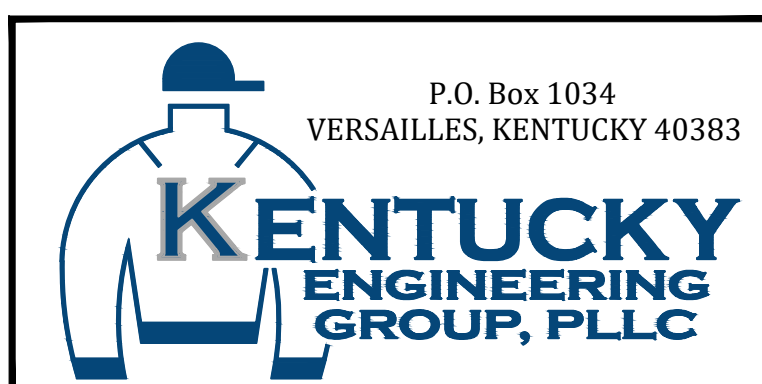
ONE-LINE DIAGRAM - NEW WORK
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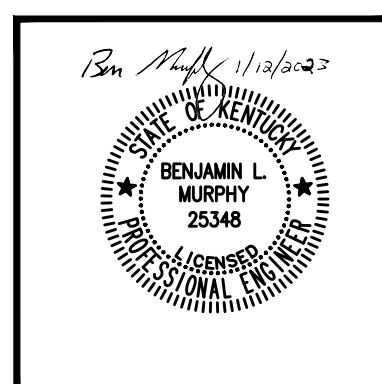
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SCALE:	1/4" = 1'-0"
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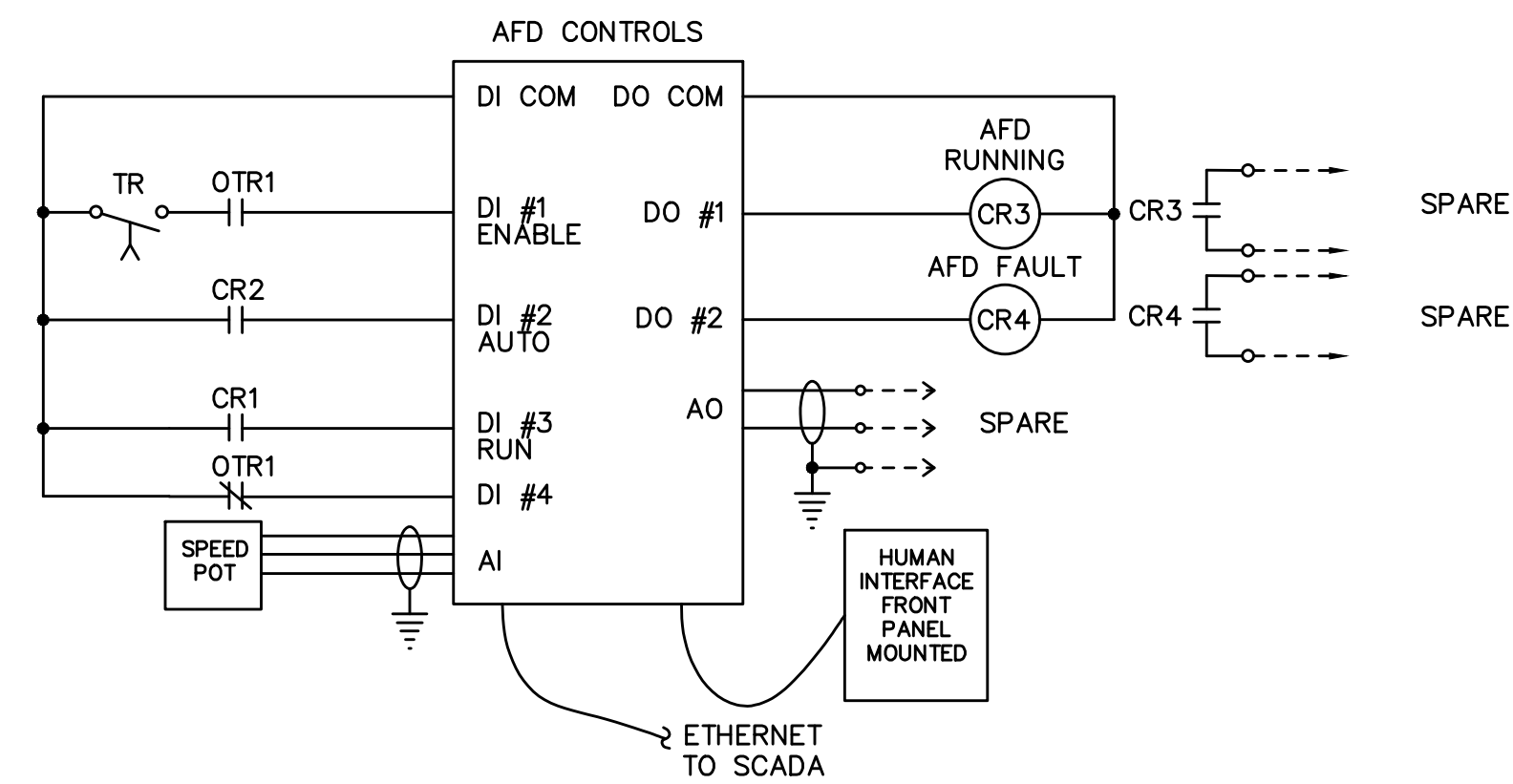
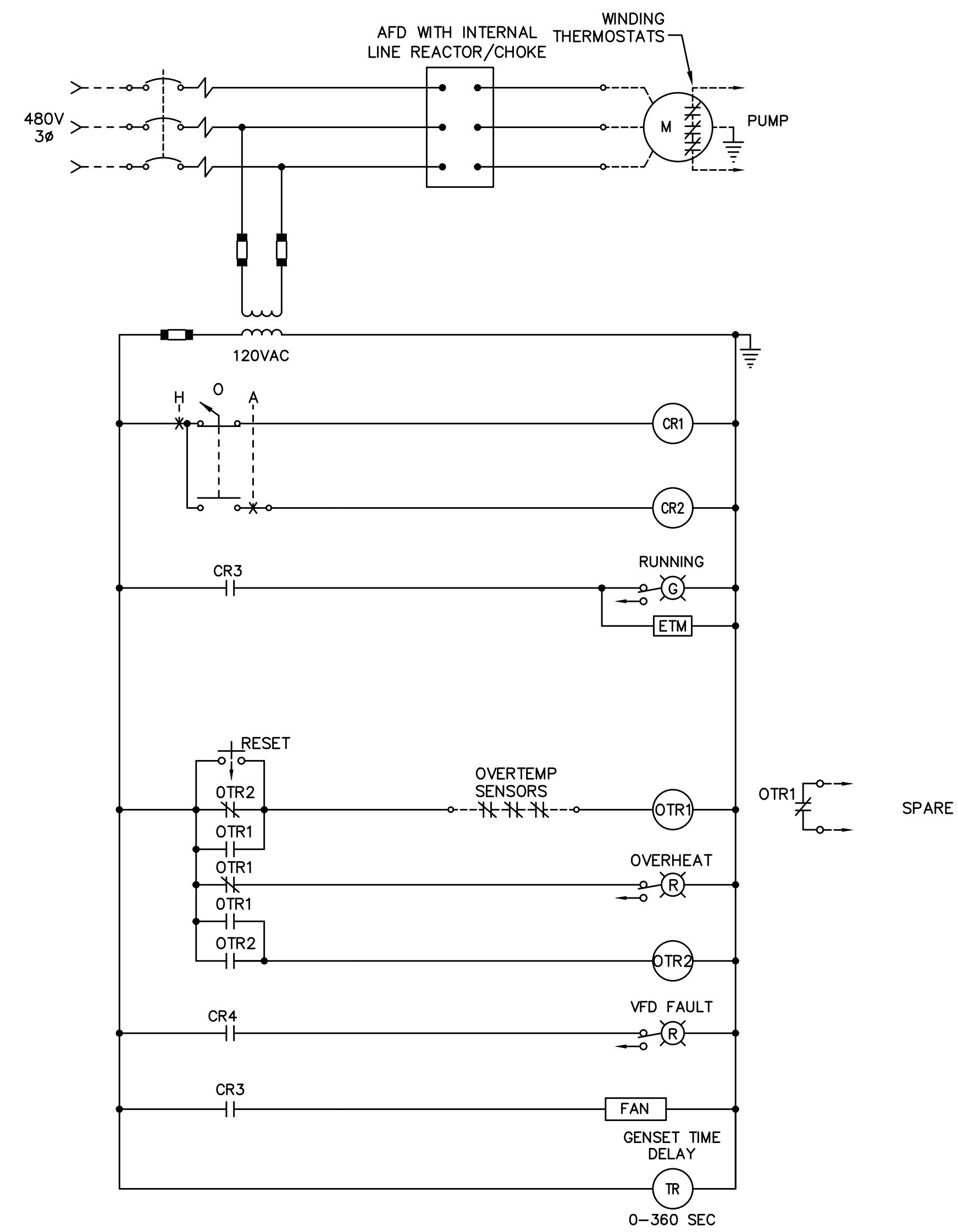


CONTRACT No. 7
WATER TREATMENT PLANT
IMPROVEMENTS
FOR THE
GRAYSON COUNTY WATER DISTRICT

ONE-LINE DIAGRAMS AND
MCC ELEVATION

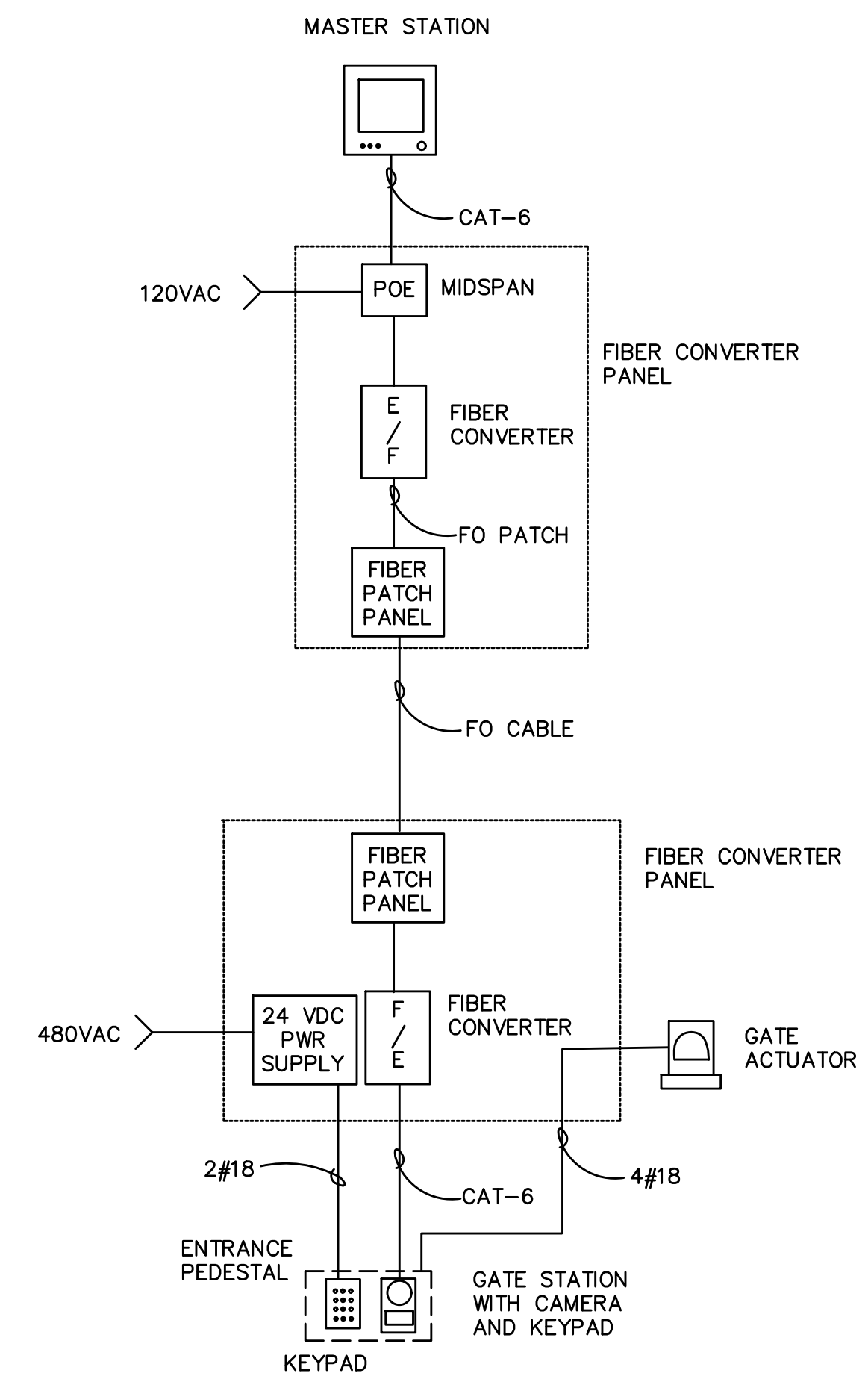


PROJECT NO.	20016-07
SHEET NO.	E-3



HIGH SERVICE PUMP WITH AFD CONTROL CIRCUIT, TYP.

- SOME WIRING IS NOT SHOWN. SEE PLANS, SPECIFICATIONS AND SCADA I/O TABLE FOR FURTHER REQUIREMENTS.
- SEE ONE-LINE DIAGRAM FOR PUMP HORSEPOWER.
- IN HAND MODE, DRIVE SPEED SHALL BE ADJUSTABLE FROM LOCAL INTERFACE. IN AUTO MODE, DRIVE START/STOP AND SPEED REFERENCE SHALL BE CONTROLLED FROM SCADA VIA ETHERNET/IP



SECURITY GATE VIDEO INTERCOM BLOCK DIAGRAM

NOTES:

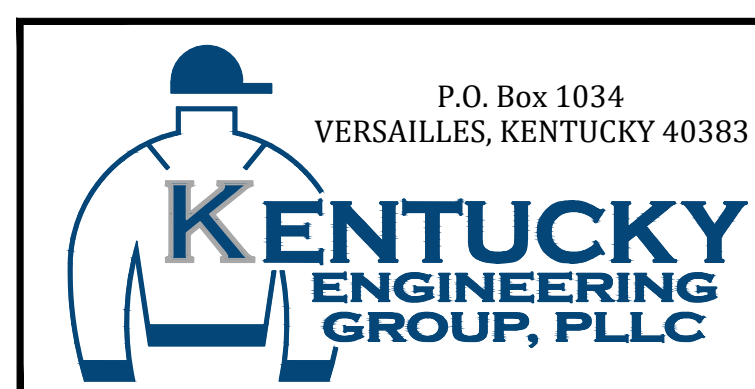
- A #12EGC SHALL BE INSTALLED IN EACH CONDUIT EXCEPT FOR FO CONDUIT
- PROVIDE 480-120 TRANSFORMER IF NECESSARY TO FEED DC POWER SUPPLY

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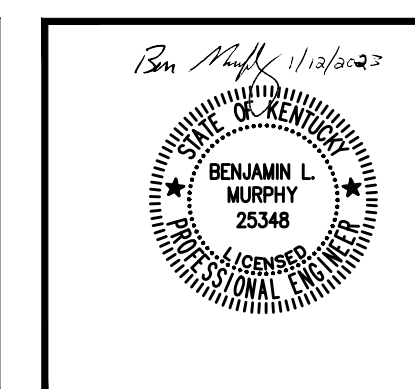
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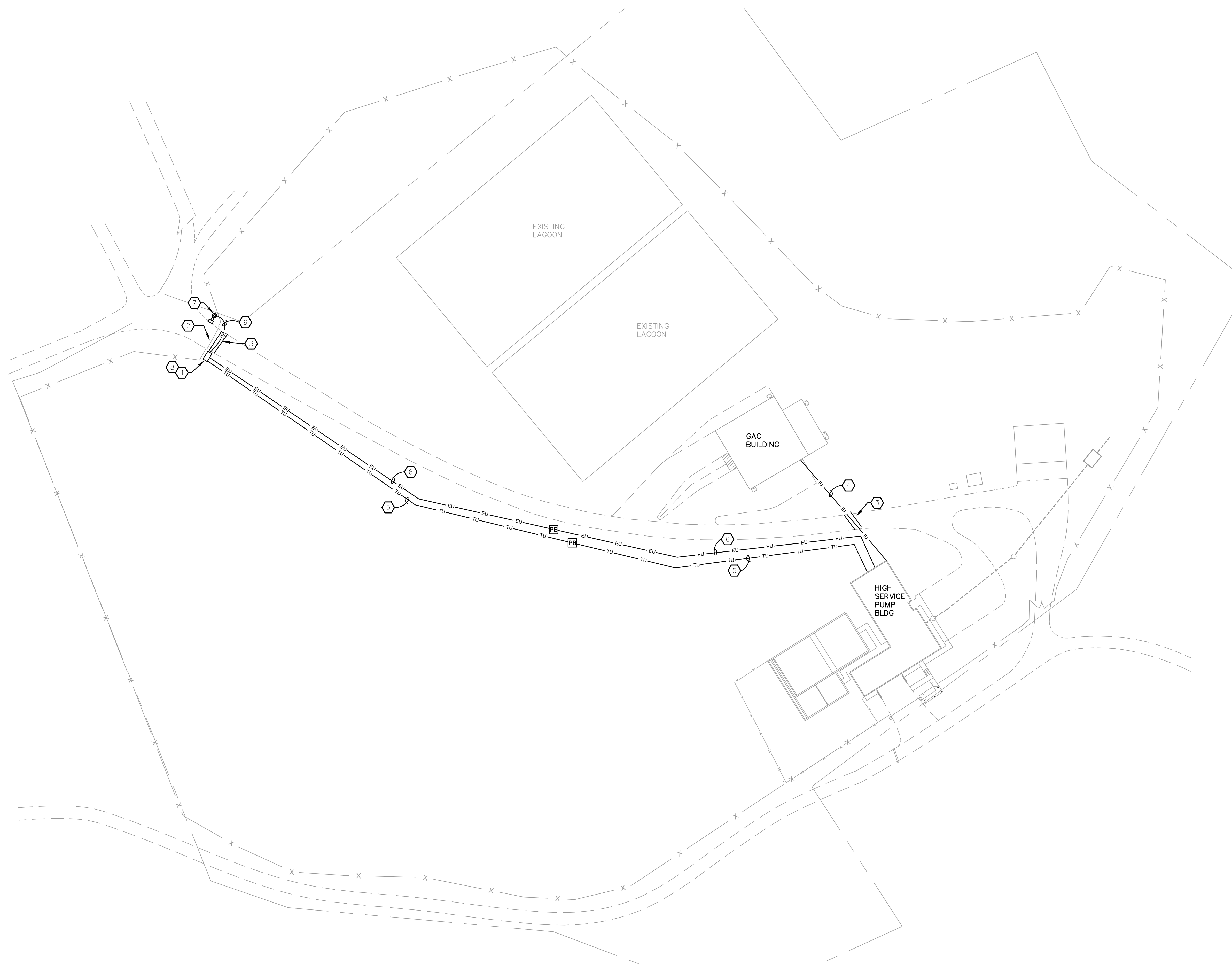
CONTRACT No. 7
WATER TREATMENT PLANT IMPROVEMENTS
 FOR THE
GRAYSON COUNTY WATER DISTRICT

ELECTRICAL CONTROL CIRCUITS AND BLOCK DIAGRAMS



PROJECT NO.
20016-07

SHEET NO.
E-4



SHEET NOTES:

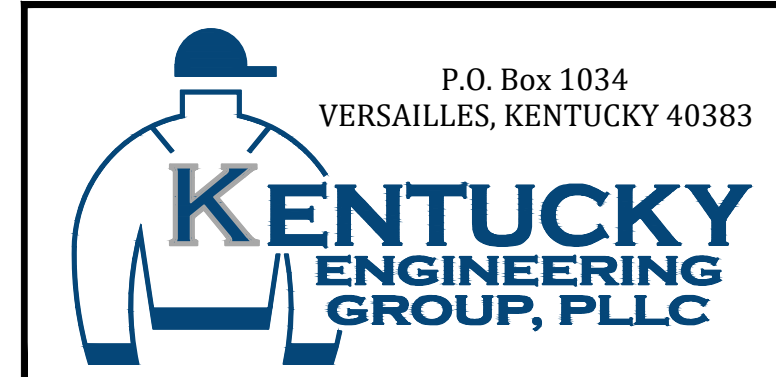
- ① PROVIDE SECURITY GATE SAFETY SWITCH AND MOUNTING RACK. SEE GATE MOUNTING RACK DETAIL. SAFETY SWITCH SHALL BE 30A, 3P, 480V, N4X.
- ② PROVIDE SECURITY GATE ELECTRICAL AND AUDIO/VIDEO. SEE SECURITY GATE DETAIL.
- ③ PROVIDE PAVEMENT SAWCUT/REPAIR PER DETAIL OR BORE UNDER ROADWAY.
- ④ PROVIDE 2-2#18 STIC, 1#14G, 1"Ø
- ⑤ PROVIDE FO CABLE, 1"Ø
- ⑥ PROVIDE 3#12, 1#12G, 1"Ø
- ⑦ PROVIDE A HOLOPHANE OR EQUAL AREA FIXTURE, TYPE MGLD, 15400 LUMEN, 4000K COLOR, 480V, MEDIUM OPTICS WITH REFRACTOR, FIELD-ADJUSTABLE OUTPUT, INTEGRAL PHOTOCELL, SIDE SHIELD FOR FULL-CUTOFF, SURGE PROTECTED, TILTABLE, WITH 5-YEAR WARRANTY AND MATCHING 12 FOOT POLE. SEE LIGHT POLE BASE DETAIL.
- ⑧ POLE LIGHT SHALL BE POWERED FROM LOAD SIDE OF GATE SAFETY SWITCH.
- ⑨ PROVIDE 2#12, 1#12G, 3/4"Ø

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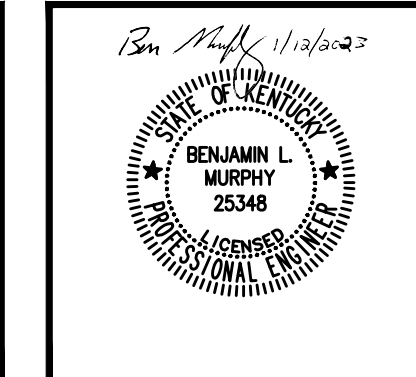
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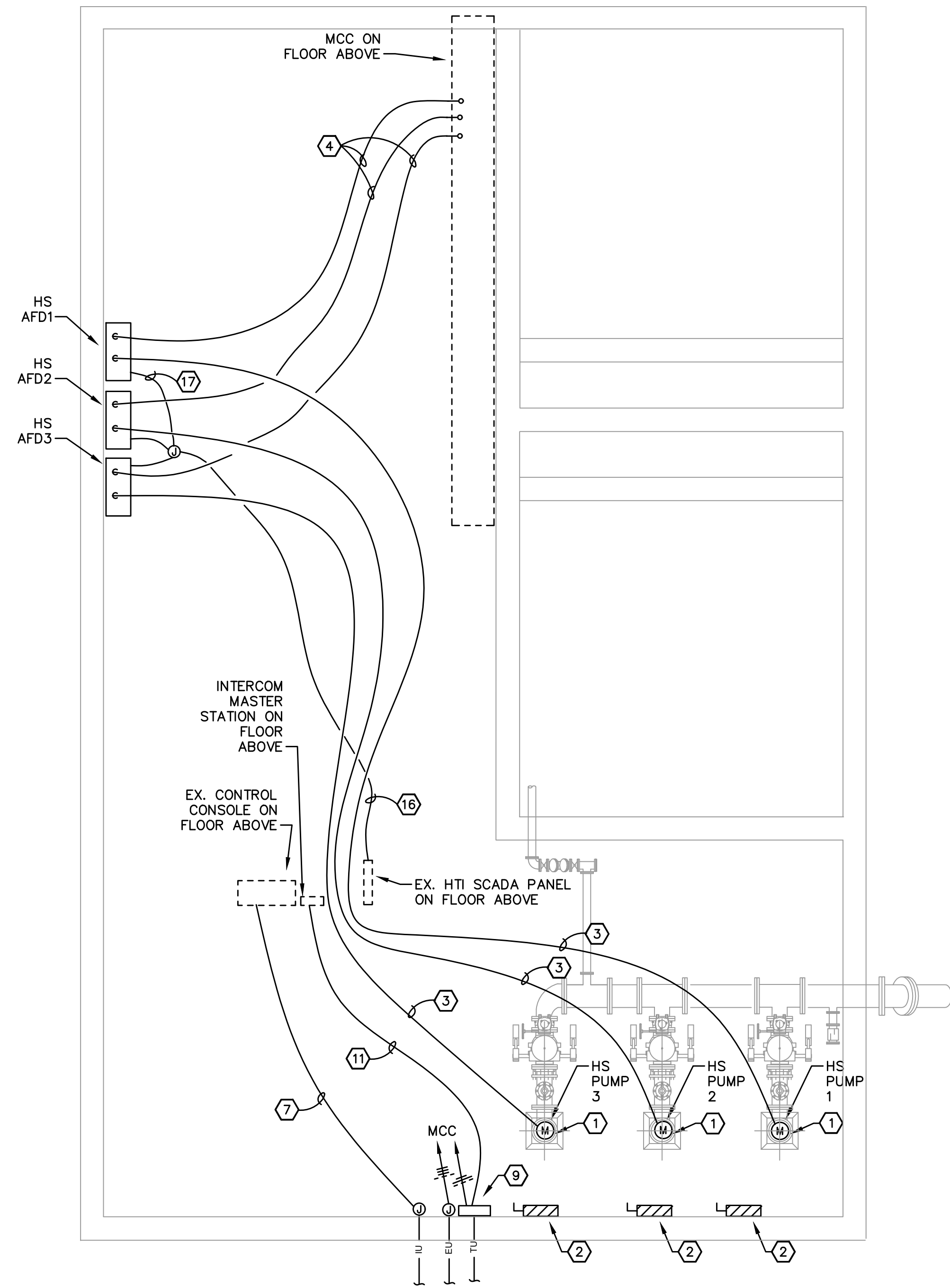


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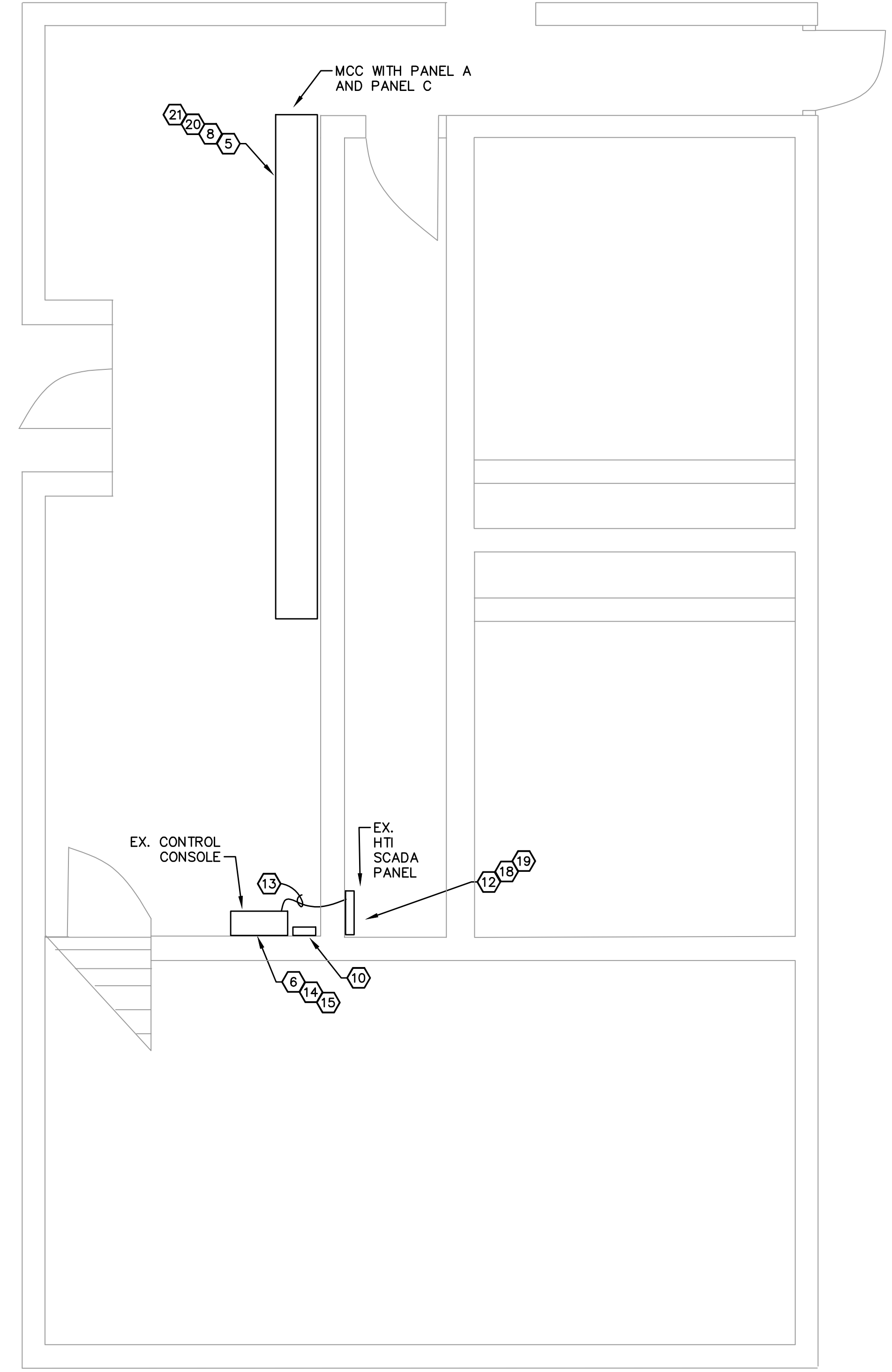
ELECTRICAL
SITE PLAN



PROJECT NO.	20016-07
SHEET NO.	E-5



ELECTRICAL PLAN – LOWER LEVEL
SCALE: 1/4" = 1'-0"



ELECTRICAL PLAN – UPPER LEVEL
SCALE: 1/4" = 1'-0"

SHEET NOTES:

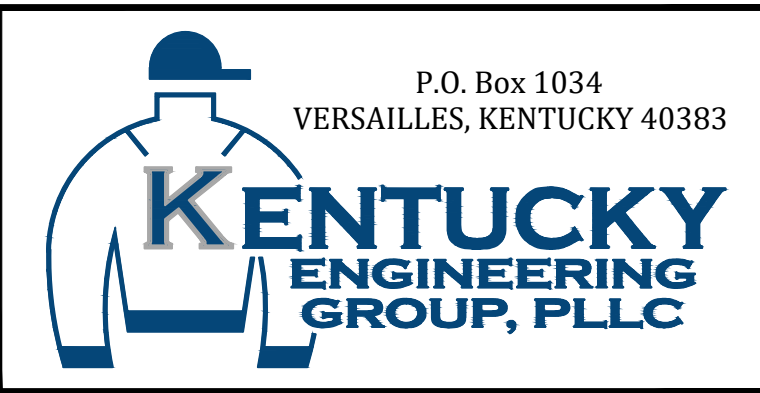
- 1) DISCONNECT AND DEMOLISH EX. 100HP PUMP CONDUCTORS AND CONDUIT. RECONNECT NEW 150HP PUMP
- 2) DEMOLISH EX. SAFETY SWITCH, CONDUIT, AND CONDUCTORS ASSOCIATED WITH EX. HIGH SERVICE PUMP
- 3) PROVIDE HIGH SERVICE PUMP POWER AND CONTROL BRANCH CIRCUITS PER ONE-LINE DIAGRAM. CONTROL CONDUCTORS MAY BE COMBINED INTO SINGLE CONDUIT
- 4) PROVIDE HIGH SERVICE PUMP AFD BRANCH CIRCUIT PER ONE-LINE DIAGRAM
- 5) DEMOLISH EX. H.S. PUMP SOFT-STARTERS AND PFCC AND PROVIDE NEW H.S. PUMP FEEDER BREAKER UNITS. SEE ONE-LINE DIAGRAM AND MCC ELEVATION FOR REQUIREMENTS
- 6) EXISTING MODICON CONTROL CONSOLE SHALL REMAIN. UTILIZE TWO SPARE DIGITAL INPUTS AND TERMINATE NEW GAC ADSORBER PRESSURE ALARM SIGNALS
- 7) PROVIDE 2-2#18 STIC, 1#14G, 3/4"C
- 8) UTILIZE EX. 20A/3P BREAKER IN MCC PANEL C TO FEED NEW SECURITY GATE. PROVIDE UPDATED TYPED CIRCUIT DIRECTORY FOR PANEL C
- 9) PROVIDE FIBER CONVERTER PANEL. SEE SECURITY GATE VIDEO INTERCOM BLOCK DIAGRAM AND SPECIFICATIONS FOR REQUIREMENTS
- 10) PROVIDE SECURITY GATE VIDEO INTERCOM MASTER STATION
- 11) PROVIDE CAT 6, 1#14G, 3/4"C
- 12) PROVIDE A 5069-IY4 ANALOG INPUT MODULE AND INTEGRATE CLEARWELL LEVEL SIGNAL
- 13) PROVIDE 2#18 STIC, 1#14G, 3/4"C
- 14) PROVIDE A 4-20MA SIGNAL MULTIPLIER. PHOENIX CONTRACT 2814854OR EQUAL, AND INSTALL SUCH THAT CLEARWELL LEVEL SIGNAL IS TRANSMITTED TO BOTH THE EXISTING MODICON AND HTI ALLEN-BRADLEY PROGRAMMABLE CONTROLLERS
- 15) DEMOLISH (3) HOA SWITCHES AND (6) PILOT LIGHTS ASSOCIATED WITH HIGH SERVICE PUMPS. PROVIDE HOLE SEALS TO COVER EXISTING HOLES
- 16) PROVIDE 3-CAT-6, 1"C
- 17) PROVIDE CAT-6, 3/4"C TO DRIVE, TYPICAL FOR EACH DRIVE
- 18) PROVIDE NEW 12-PORT MINIMUM ETHERNET SWITCH AND REPLACE EX. 8-PORT SWITCH
- 19) PROVIDE HIGH SERVICE PUMP SOFTWARE INTEGRATION PER SCADA I-O TABLE AND SPECIFICATIONS
- 20) UTILIZE EX. 20A/1P SPARE BREAKER IN PANEL C TO FEED FIBER CONVERTER CABINET. PROVIDE UPDATED TYPED CIRCUIT DIRECTORY FOR PANEL C
- 21) PROVIDE NEW SPD PER ONE-LINE DIAGRAM

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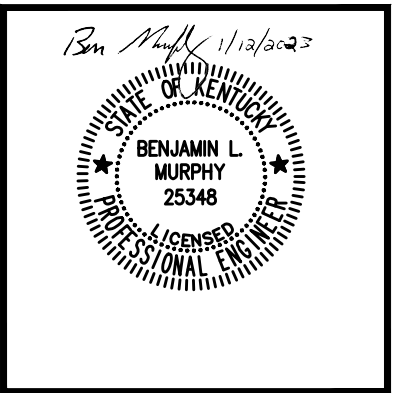
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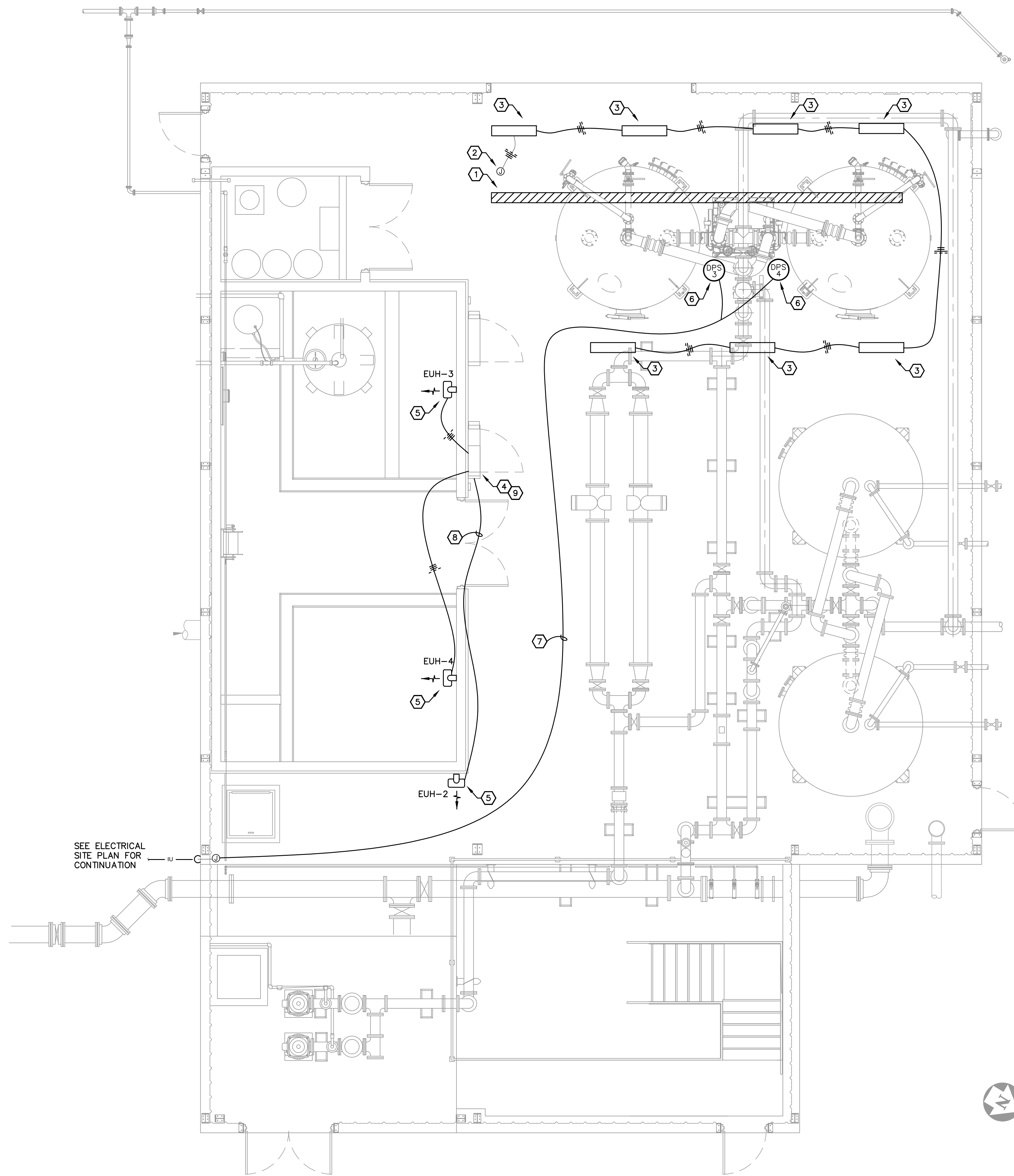


CONTRACT No. 7
WATER TREATMENT PLANT
IMPROVEMENTS
FOR THE
GRAYSON COUNTY WATER DISTRICT

HIGH SERVICE PUMPS
ELECTRICAL PLANS



PROJECT NO.	20016-07
SHEET NO.	E-6



SHEET NOTES:

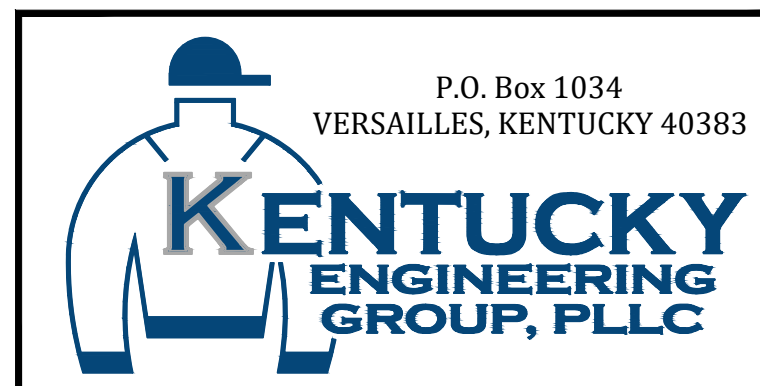
- ① REMOVE (7) EX. FLUORESCENT FIXTURES FOR RELOCATION
- ② PROVIDE J-BOX AND INTERCEPT EXISTING LIGHTING BRANCH CIRCUIT
- ③ INSTALL RELOCATED LIGHT FIXTURE, CHAIN-HUNG TO MATCH HEIGHT OF EXISTING FIXTURES
- ④ EXISTING EATON PRL1A PANELBOARD. PROVIDE TWO (2) NEW 20A/3P BREAKERS AND ONE (1) NEW 40A/3P BREAKER FOR UNIT HEATERS AND PROVIDE NEW TYPED CIRCUIT DIRECTORY
- ⑤ PROVIDE NEW UNIT HEATER INSTALLED AT 7' AFF
- ⑥ DIFFERENTIAL PRESSURE SWITCH FURNISHED BY GAC MFR
- ⑦ PROVIDE 2-2#18 STIC, 1#14G, 3/4"C
- ⑧ PROVIDE 3#8, 1#10G, 3/4"C
- ⑨ PROVIDE TWO (2) NEW 20A TANDEM BREAKERS TO FREE UP SPACE FOR NEW UNIT HEATER 3P BREAKERS

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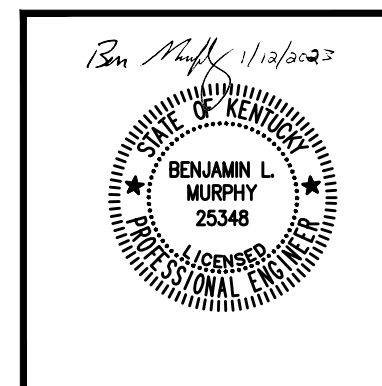
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CONTRACT No. 7
 WATER TREATMENT PLANT
 IMPROVEMENTS
 FOR THE
 GRAYSON COUNTY WATER DISTRICT

GAC BUILDING
 ELECTRICAL FLOOR PLAN



PROJECT NO.
 20016-07

SHEET NO.
 E-7