

# ANDERSON WATER TREATMENT PLANT GRANGER-HUNTER IMPROVEMENT DISTRICT SALT LAKE COUNTY, UTAH 1629 WEST 2320 SOUTH BID SET NOVEMBER 2024 PROJECT NO. 93-23-004



**OWNER - GHID**

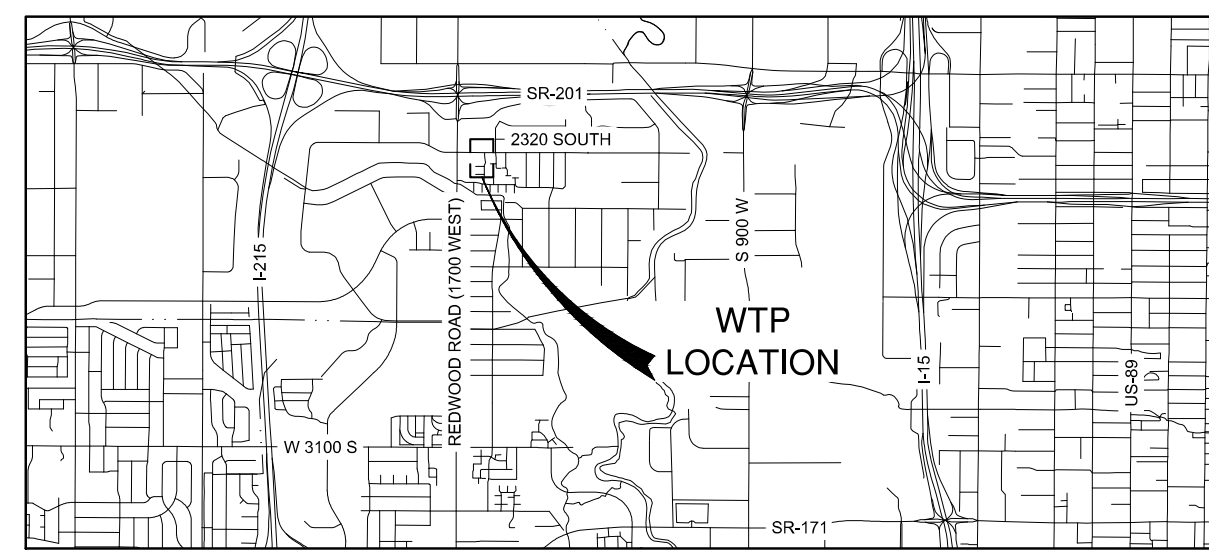
**MANAGEMENT**  
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 TODD MARTI - ASST. GENERAL MANAGER / DISTRICT ENGINEER

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VICINITY MAP  
NOT TO SCALE

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- 1) UTAH DIVISION OF DRINKING WATER STATE REVOLVING FUND LOAN.
- 2) BUREAU OF RECLAMATION, WATER SMART PROGRAM.

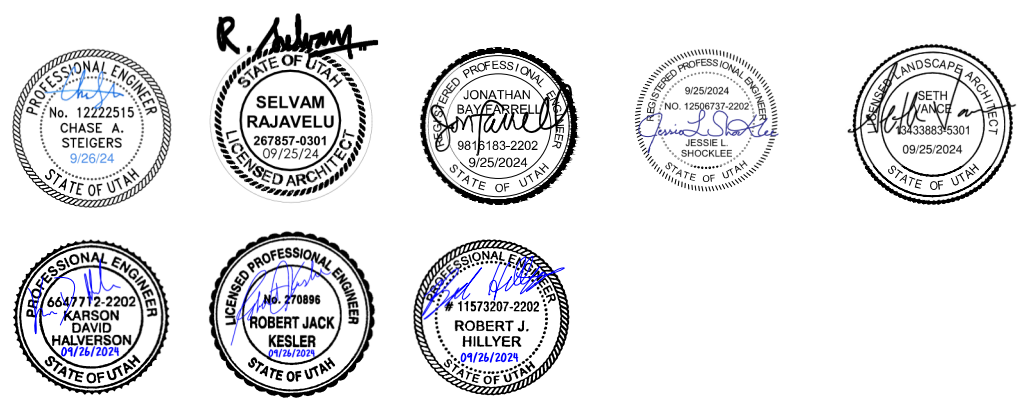
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Plot Date: 9/19/2024 \\UBCENTRAL\CLIENTS\UT\GRANGERHUNTER\PROJECTS\93-23-004\_ANDERSONWTP\05-DESIGN\CAD\SHEET\GENERAL\93-23-004\_G-001\_COVER.DWG



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Plot Date: 9/19/2024 9:02 AM, Plotted By: Jon Farrell  
 Date Created: 9/12/2024 10:00:00 AM, Project: U:\CENTRAL CLIENTS\UTGRANGER\HUNTER\PROJECT\93-23-004\_ANDERSON\CONTR\08-DESIGN\CA\DWG\SHEET\GENERAL\93-23-004\_G-002\_S\_INDEX.DWG

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DRAWING	TITLE
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DZ-902	STANDARD DETAILS
DZ-903	STANDARD DETAILS
DZ-904	STANDARD DETAILS
DZ-905	STANDARD DETAILS
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DZ-907	STANDARD DETAILS
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NO.	REVISION	DESCRIPTION	BY	DATE

ANDERSON WATER TREATMENT PLANT  
 GRANGER-HUNTER IMPROVEMENT DISTRICT

GENERAL (G)  
 SHEET INDEX  
 1629 WEST 2320 SOUTH

FILE: 93-23-004\_G-002\_S\_INDEX  
 JUB PROJ. # 93-23-004  
 DRAWN BY: JTB  
 DESIGN BY: CAS / JPB  
 CHECKED BY: CLO  
 ONE INCH  
 AT FULL SIZE, IF NOT ONE  
 INCH, SCALE ACCORDINGLY  
 LAST UPDATED: 9/9/2024

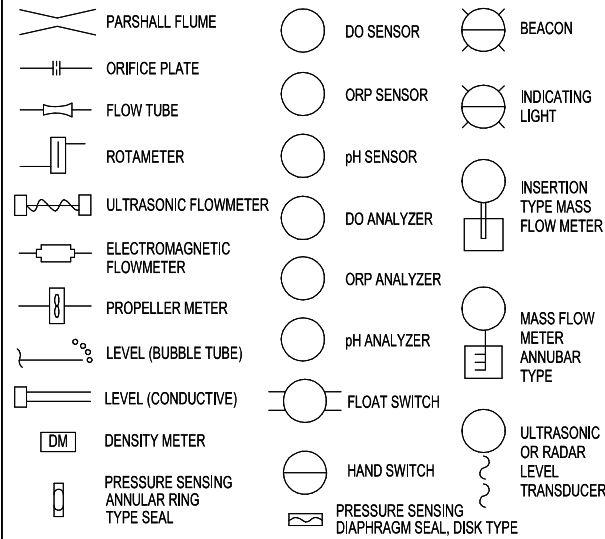
DRAWING:

**G-002**

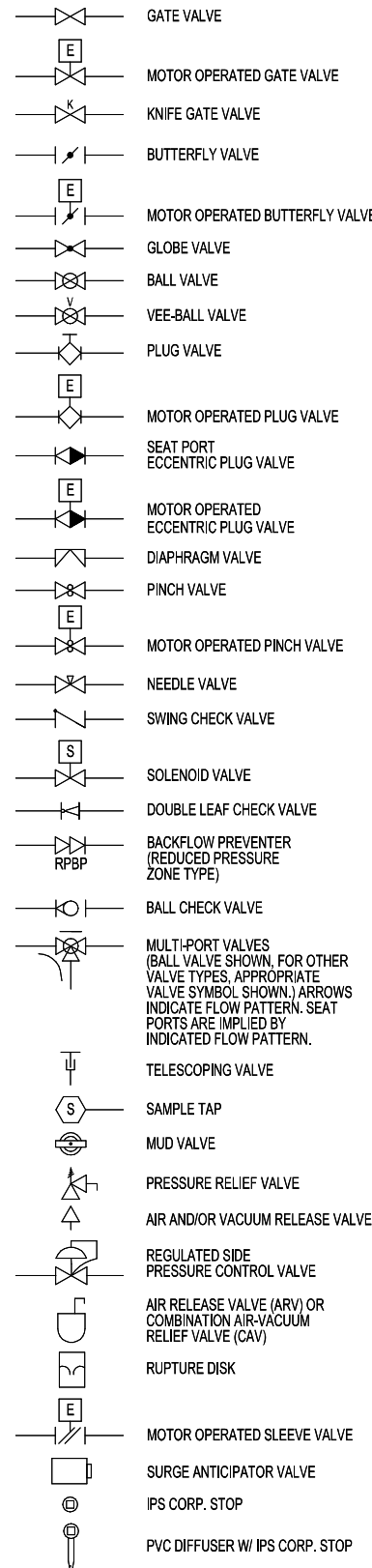
**MISCELLANEOUS ELECTRICAL SYMBOLS**



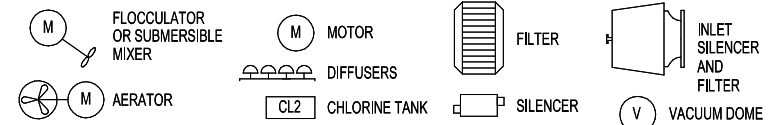
**PRIMARY ELEMENT SYMBOLS**



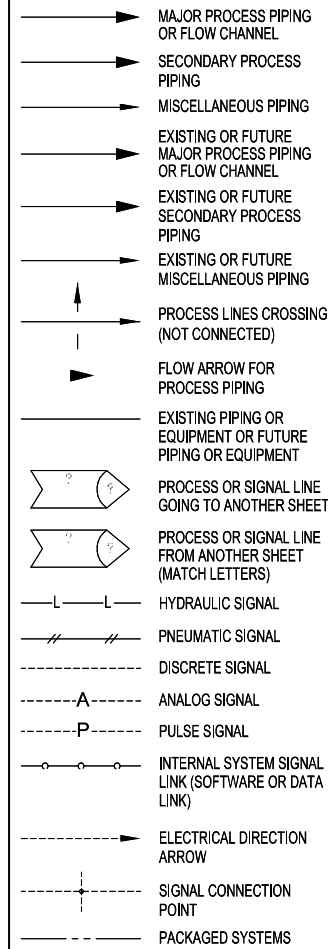
**VALVE SYMBOLS**



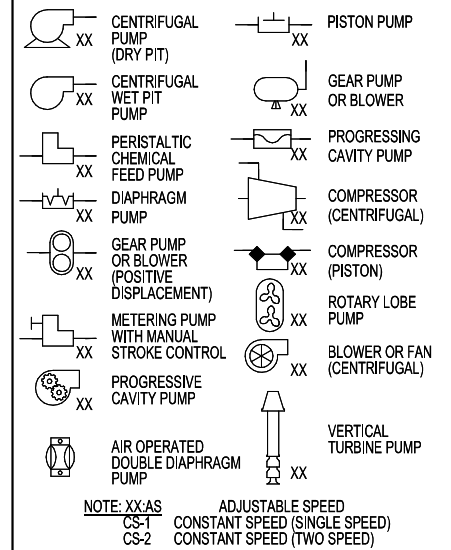
**MISCELLANEOUS MECHANICAL SYMBOLS**



**P&ID LINE TYPES**

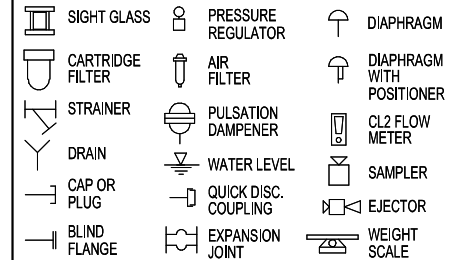


**PUMP AND COMPRESSOR SYMBOLS**

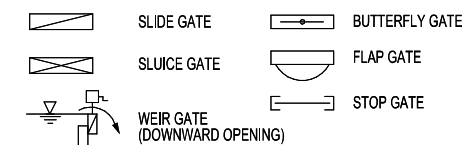


NOTE: XX-AS ADJUSTABLE SPEED  
CS-1 CONSTANT SPEED (SINGLE SPEED)  
CS-2 CONSTANT SPEED (TWO SPEED)

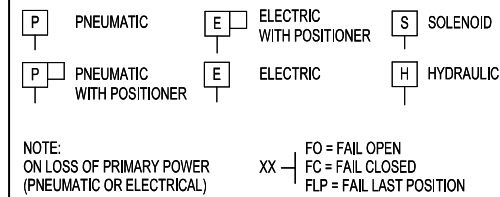
**PROCESS DEVICE SYMBOLS**



**GATE SYMBOLS**



**ACTUATOR SYMBOLS**



NOTE: ON LOSS OF PRIMARY POWER (PNEUMATIC OR ELECTRICAL) XX FO = FAIL OPEN FC = FAIL CLOSED FLP = FAIL LAST POSITION



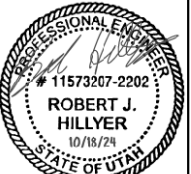
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REVISION

NO.	DESCRIPTION	DATE

ANDERSON WATER TREATMENT PLANT  
GRANGER-HUNTER IMPROVEMENT DISTRICT

INSTRUMENTATION (I)  
INSTRUMENTATION P&ID SYMBOL LEGEND  
1629 WEST 2320 SOUTH

FILE:  
JUB PROJ. #93-23-004  
DRAWN BY: Author  
DESIGN BY: Designer  
CHECKED BY: Checker  
ONE INCH  
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY  
LAST UPDATED: 9/4/2024

DRAWING:

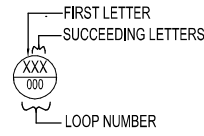
I-001

## P&ID INTERFACE SYMBOLS

NOTE:  
REFER TO ISA INSTRUMENT IDENTIFICATION TABLE FOR DEFINITION OF LETTERS BBB INSIDE THE BUBBLES. CCC REPRESENTS LOOP ID (IF USED). SEE ABBREVIATIONS LIST FOR SUPERScript AAA.

	PILOT LIGHT X= LENS COLOR R= RED, G= GREEN, A= AMBER, B= BLUE W= WHITE		DISCRETE IN
	FIELD DEVICE OR INSTRUMENT		DISCRETE OUT
	PANEL DEVICE		ANALOG IN
	DEVICE MOUNTED IN SUBPANEL		ANALOG OUT
	PLC OR REMOTE I/O TERMINAL		PULSE INPUT
	HMI OR OIT FUNCTION		INTERLOCK DEVICE OR RELAY, X= NOTE REF.
			DUAL CHANNEL CURRENT ISOLATOR

## TAG NUMBERS AND ADDITIONAL DESIGNATIONS



## ISA INSTRUMENT IDENTIFICATION TABLE

	FIRST LETTERS		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYZER		ALARM		AUTO
B	BURNER, COMBUSTION				
C	CONDUCTIVITY			CONTROL	CLOSED
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		ELEMENT		
F	FLOW	RATIO			
G	GAUGE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOTION OR MOISTURE				MIDDLE
N	INTRUSION				NORMAL
O	TORQUE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE		POINT CONNECTION		STOP
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD OR PRINT	RESET	RUN OR REMOTE
S	SPEED OR FREQUENCY	SAFETY		SWITCH	START
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VALVE, LOUVER	
W	WEIGHT OR FORCE		WELL		
X	MOTOR	X-AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, OR PRESENCE	Y-AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION	Z-AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

## ABBREVIATIONS

A	AMPERE OR AIR	I	CURRENT	RIO	REMOTE INPUT/OUTPUT
AC	ALTERNATING CURRENT	ICR	INTERMITTENT CYCLE	RS	RAW SEWAGE, RUNNING STATUS
AFD	ADJUSTABLE FREQUENCY DRIVE	IO	REACTOR INPUT/OUTPUT	RSP	RAW SEWAGE PUMP
AI	ANALOG INPUT	IOE	INTERNAL - OFF - EXTERNAL	RST	RESET
AIC	AMPS INTERRUPTING CAPACITY	IS	INTERCHANGE SLUDGE	RTU	REMOTE TELEMETRY UNIT
AM	AUTO-MANUAL	JB	JUNCTION BOX	RUNF	RUN (FAST SPEED)
ARV	AIR RELIEF VALVE			RUNS	RUN (SLOW SPEED)
AO	ANALOG OUTPUT	L, LO	LOW	SB	SLUDGE BLANKET
AS	AIR SUPPLY	LAN	LOCAL AREA NETWORK	SCC	SCUM SECONDARY CLARIFIER
ATS	AUTOMATIC TRANSFER SWITCH	LC	LOOP CONTROLLER	SE	SECONDARY EFFLUENT
AUTO	AUTOMATIC	LCP	LOCAL CONTROL PANEL	SEQ	SERVICE ENTRANCE EQUIPMENT
		LEL	LOWER EXPLOSIVE LIMIT	SES	SERVICE ENTRANCE SECTION
BFP	BELT FILTER PRESS	M	MOTOR	SHC	SODIUM HYPOCHLORITE
BR	BRINE SOLUTION	MA	MANUAL/AUTO, MILLIAMPS	SLC	SINGLE LOOP CONTROLLER
BW	BACKWASH	MC	MANUFACTURER CABLE	SLG	SLUICE GATE
BWL	BOTTOM WATER LEVEL	MCC	MOTOR CONTROL CENTER	SO2	SULFUR DIOXIDE
CB	CIRCUIT BREAKER	MCP	MOTOR CONTROL PROTECTOR	SOV	SOLENOID OPERATED VALVE
CD	CYCLONE DRAIN	MFR(S)	MANUFACTURER(S)	SP	SET POINT
CL2	CHLORINE (TYPICAL: USE STANDARD CHEMICAL ELEMENT ABBREVIATION)	MGD	MILLION GALLONS PER DAY	SPC	SET POINT CONTROLLER
CNDT	CONDUCTIVITY	MGL	MILLIGRAMS PER LITER	SPD	SPEED
CP-X	CONTROL PANEL NO. X	MH	MANHOLE	SPR	SPARE
CPM	CUSTOMER POWER MONITORING UNIT	ML	MIXED LIQUOR	SSS	SOLID STATE STARTER (SOFT START)
CON	CONTACTOR	MLR	MIXED LIQUOR RECYCLE	TM	TEMPERATURE AND/OR MOISTURE
CSI	CYCLONE SEPARATOR INFLUENT	MLSS	MIXED LIQUOR SUSPENDED SOLIDS	TEMP	TEMPERATURE
CU	COPPER, BARE	MO	MOISTURE	TSS	TOTAL SUSPENDED SOLIDS
CV	CONTROL VALVE	MOD	MODULATED	TWL	TOP WATER LEVEL
CW	CYCLONE WASTE	MOG	MOTOR OPERATED GATE	Tu	TURBIDITY
DC	DIRECT CURRENT	MS	MOISTURE SWITCH	UG	UNDERGROUND
DCS	DISTRIBUTED CONTROL SYSTEM	MTU	MASTER TELEMETRY UNIT	UW	UTILITY WATER
DI	DISCRETE INPUT	NADH	NICOTINAMIDE ADENINE DINUCLEOTIDE	V	VOLT
DO	DISCRETE OUTPUT OR DISSOLVED OXYGEN	NIA	NOT IN AUTO	V*	VENDOR EQUIPMENT
DP	DIFFERENTIAL PRESSURE	NPW	NON-POTABLE WATER	VCP	VENDOR CONTROL PANEL
DSW	DRUM SCREEN WASTE	NS	NITROGEN SUPPLY	VFD	VARIABLE FREQUENCY DRIVE
DWG	DRAWING	NTU	TURBIDITY	VTP	VERTICAL TURBINE PUMP
E	VOLTAGE	OC	OPEN/CLOSE	VIB	VIBRATION
ETM	ELAPSED TIME METER	OIT	OPERATOR INTERFACE TERMINAL	W	WATT, WIRE
ETMf	ELAPSED TIME METER (FAST SPEED)	OL	OVERLOAD	WAS	WASTE ACTIVATED SLUDGE
ETMs	ELAPSED TIME METER (SLOW SPEED)	ORP	OXYGEN REDUCTION POTENTIAL	WS	WASTE SLUDGE
EOL	ELECTRONIC OVERLOAD	OTA	OVER TORQUE ALARM		
ES	EMERGENCY STOP	OTW	OVER TORQUE WARNING		
EXIST, (E)	EXISTING	P	PRESSURE		
FA	FOUL AIR	PD	PLANT DRAIN		
FC	FAIL CLOSED	PER	PERMISSIVE	ES	EMERGENCY STOP
FE	FINAL EFFLUENT	PLC	PROGRAMMABLE LOGIC CONTROLLER	HOA	HAND - OFF - AUTO
FLT	FILTER	PNL	PANEL	HOR	HAND - OFF - REMOTE
FMR	FEEDER MANAGEMENT RELAY	PO	PULSE OUTPUT	HORA	HAND - OFF - REMOTE - AUTO
FR	FORWARD-REVERSE	POS	POSITION	JOA	JOG - OFF - AUTO
FVNR	FULL VOLTAGE NON-REVERSING	POT	POTENTIOMETER	JR	JOG REVERSE
FW	FINISHED WATER	PPH	POUNDS PER HOUR	JOAR	LOWER - OFF - AUTO - RAISE
GAL	GALLONS	PPM	PARTS PER MILLION	LOR	LOCAL - OFF - REMOTE
GCP	GENERATOR CONTROL PANEL	PR	PAIR	LOS	LOCKOUT STOP
GND	GROUND	PRES	PRESSURE	LR	LOCAL - REMOTE
GPD	GALLONS PER DAY	PRV	PRESSURE REDUCING VALVE	OC	OPEN - CLOSE
GPH	GALLONS PER HOUR	PSI	POUNDS PER SQUARE INCH	OCA	OPEN - CLOSE - AUTO
GPM	GALLONS PER MINUTE	PV	PROCESS VARIABLE	OO	ON - OFF
H, HI	HIGH	PWR	POWER	OAA	ON - OFF - AUTO
H2S	HYDROGEN SULFIDE	RAS	RETURN ACTIVATED SLUDGE	OSC	OPEN - STOP - CLOSE
HMI	HUMAN MACHINE INTERFACE	RAW	RAW WATER	SS	START/STOP (MAINTAINED)
		REM	REMOTE	USD	UP/STOP/DOWN
		RF	RADIO FREQUENCY		

## HAND SWITCH DESIGNATIONS



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**BID**

**SET**

REVISION TABLE

NO.	DESCRIPTION	DATE

ANDERSON WATER TREATMENT PLANT  
 GRANGER-HUNTER IMPROVEMENT DISTRICT  
 INSTRUMENTATION (I)  
 INSTRUMENTATION P&ID SYMBOL LEGEND  
 1629 WEST 2320 SOUTH

FILE:  
JUB PROJ. #93-23-004  
DRAWN BY: Author  
DESIGN BY: Designer  
CHECKED BY: Checker  
SCALE: ONE INCH = 10 FEET  
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY  
LAST UPDATED: 9/4/2024  
DRAWING:

I-002

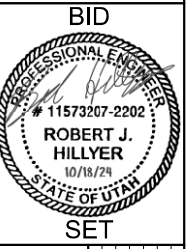
SCADA

PLC

TERMINATION  
BY APCO

WIRING BY  
ELECTRICAL  
CONTRACTOR

GENERAL NOTE:  
A. ADDITIONAL WIRING OF INSTRUMENTS  
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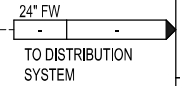
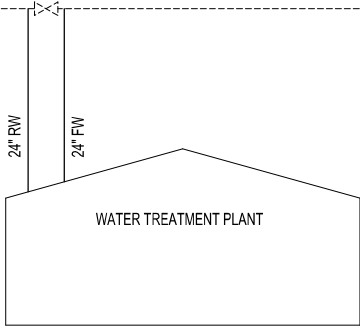
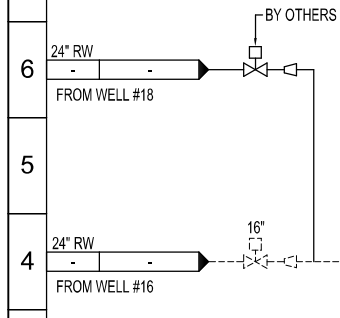
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NOTES:  
1. SEE PLANS FOR ACTUAL LIMITS OF CONSTRUCTION, ORIENTATION, MATERIALS, ETC.  
2. LINETYPES THIS SHEET:  
-----EXISTING  
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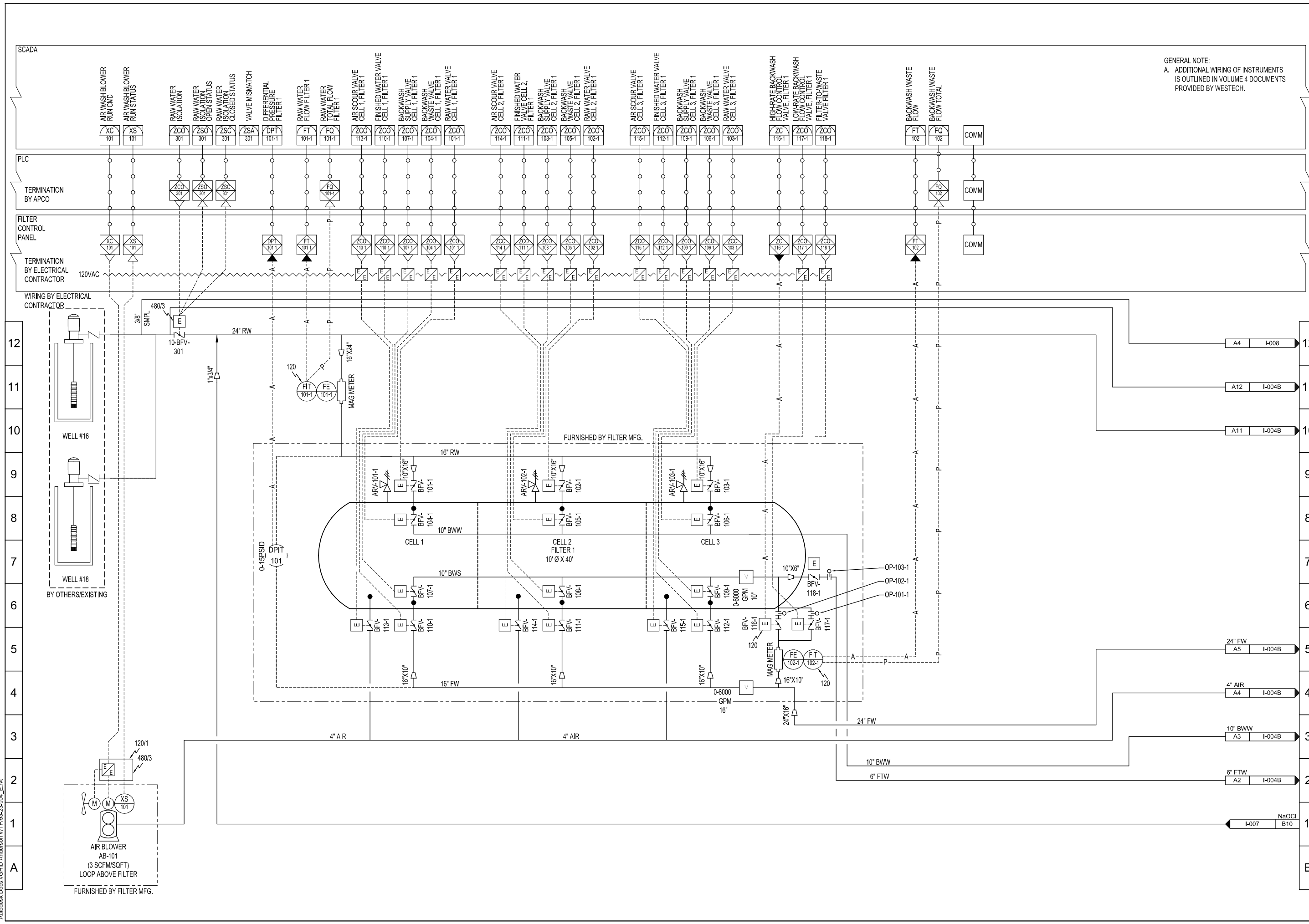
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GRANGER-HUNTER IMPROVEMENT DISTRICT  
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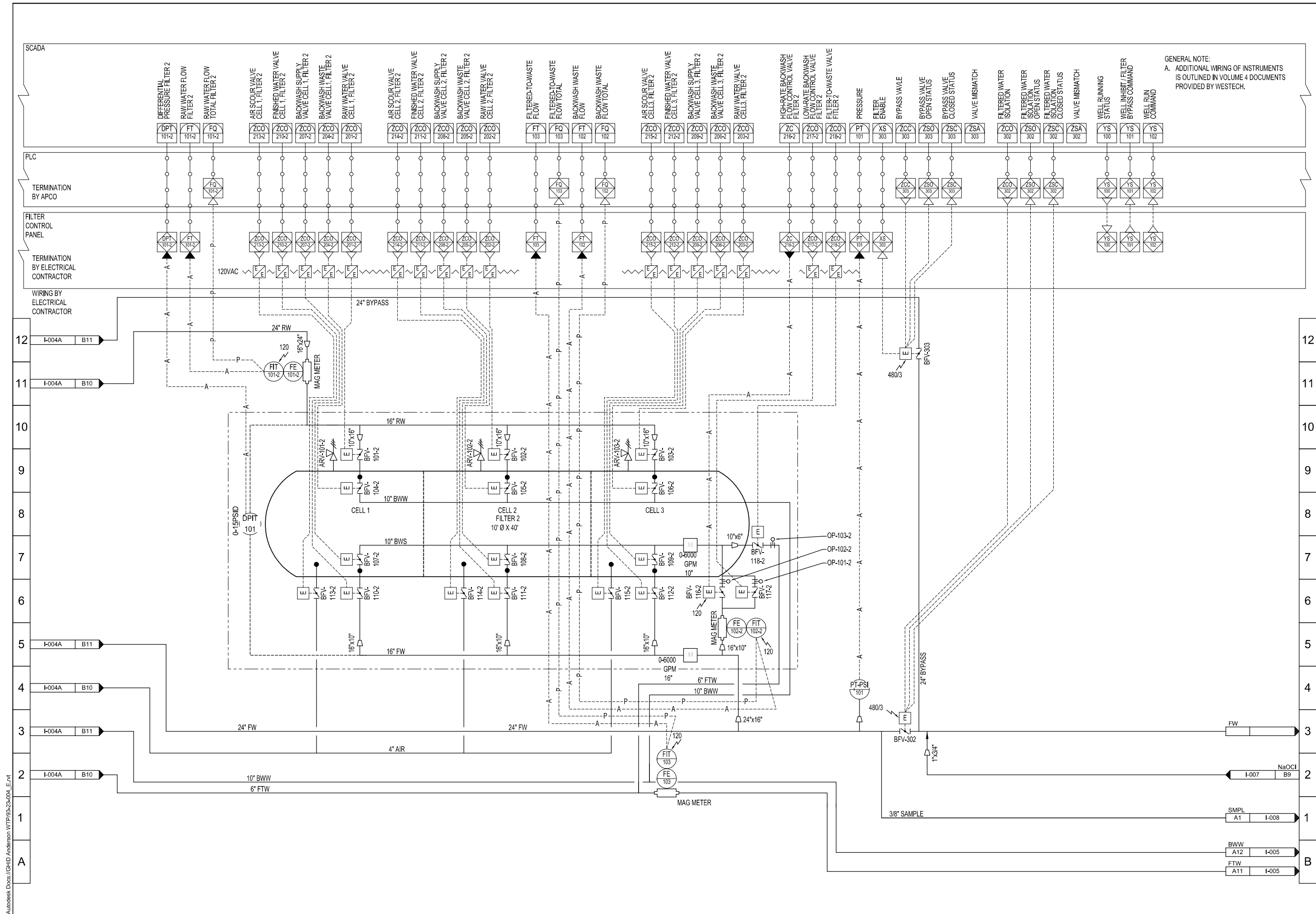
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 FILTER SYSTEM INSTRUMENTATION P&ID  
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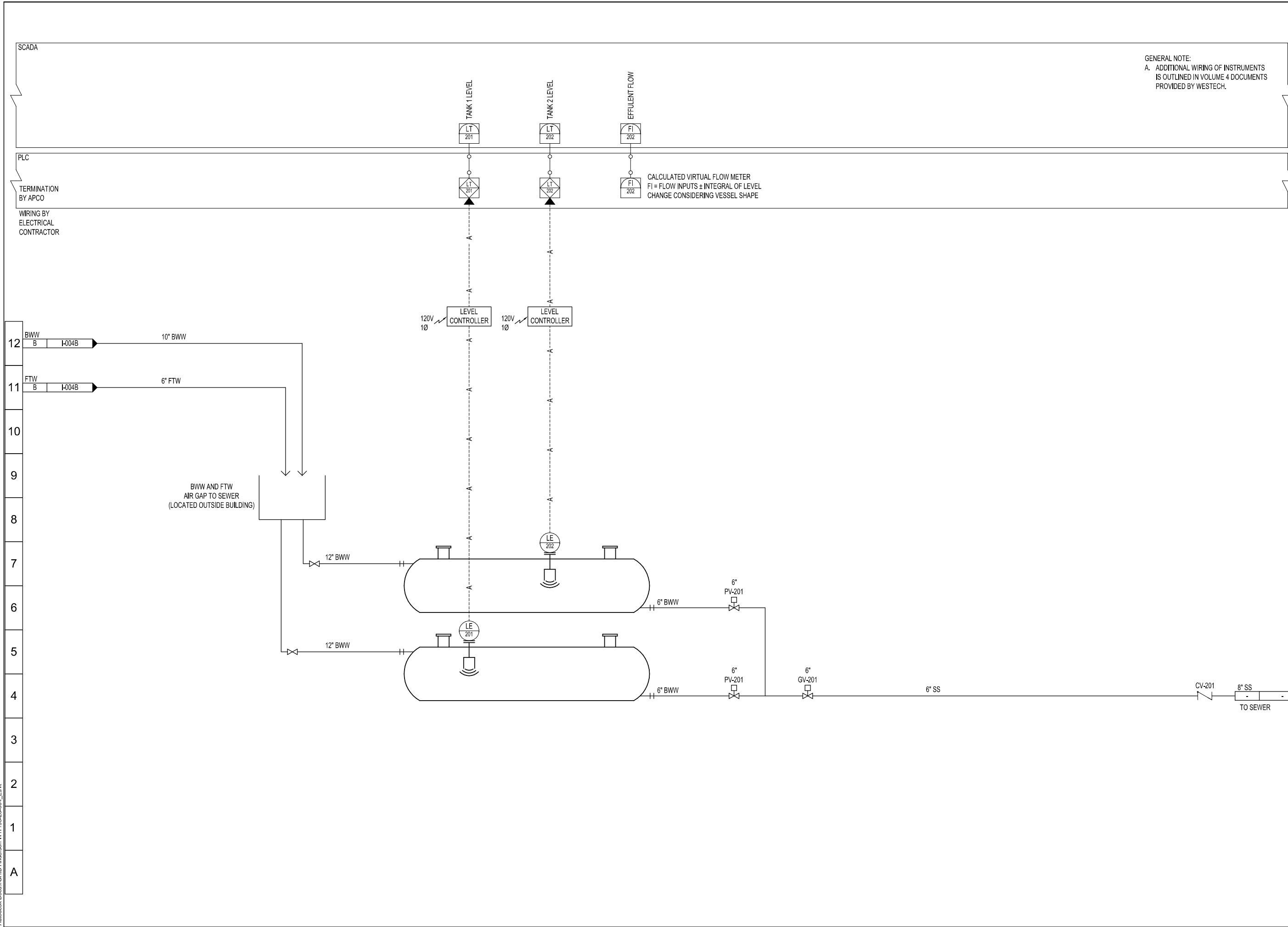
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 FILTER BUILDING INSTRUMENTATION P&ID  
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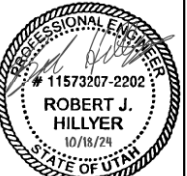
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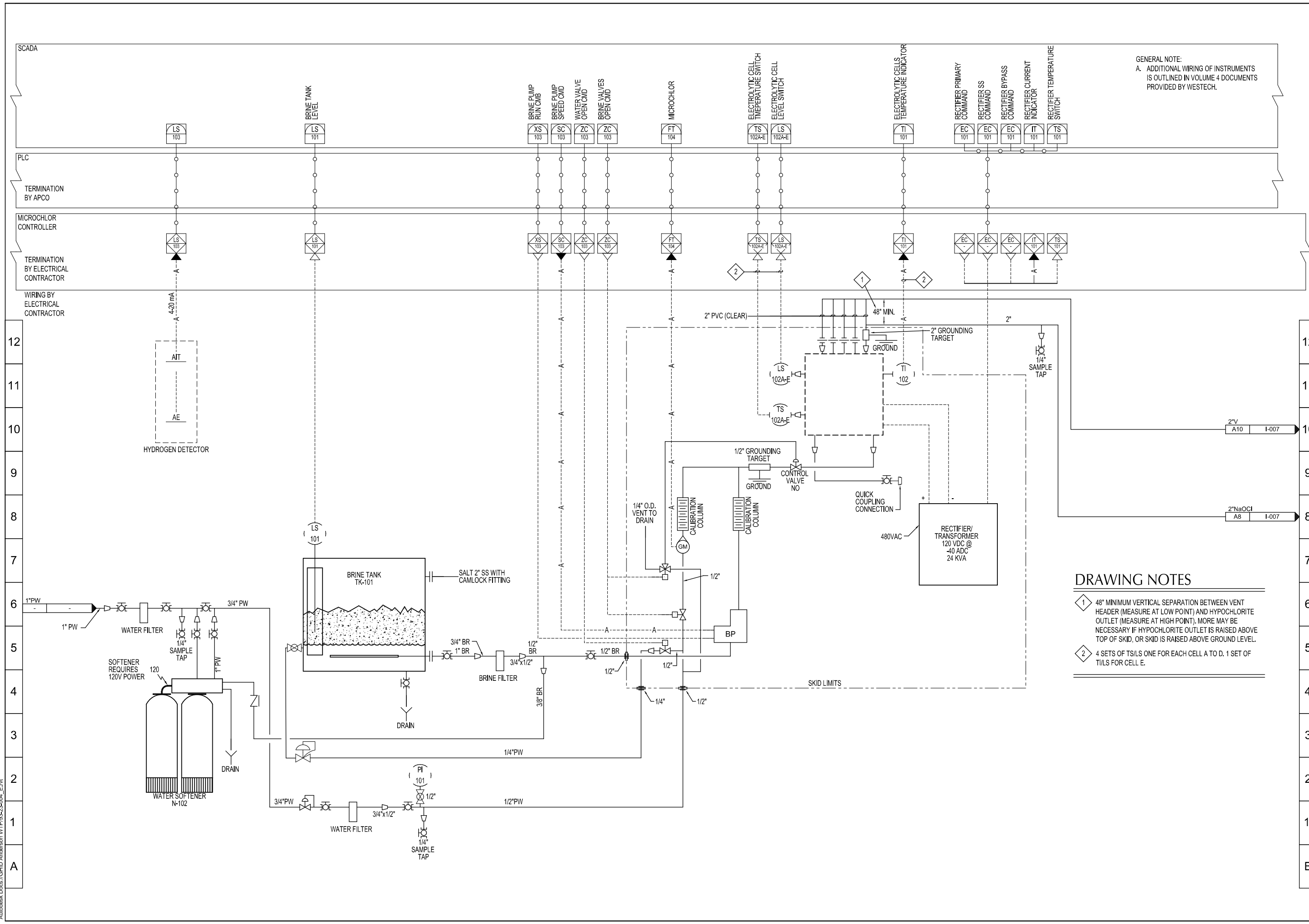
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 FILTER BUILDING HYPOCHLORITE SYSTEM INSTRUMENTATION  
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**DRAWING NOTES**

- 1 48" MINIMUM VERTICAL SEPARATION BETWEEN VENT HEADER (MEASURE AT LOW POINT) AND HYPOCHLORITE OUTLET (MEASURE AT HIGH POINT). MORE MAY BE NECESSARY IF HYPOCHLORITE OUTLET IS RAISED ABOVE TOP OF SKID, OR SKID IS RAISED ABOVE GROUND LEVEL.
- 2 4 SETS OF TS/LS ONE FOR EACH CELL A TO D. 1 SET OF T/LS FOR CELL E.

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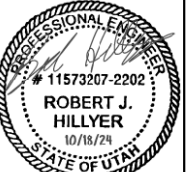
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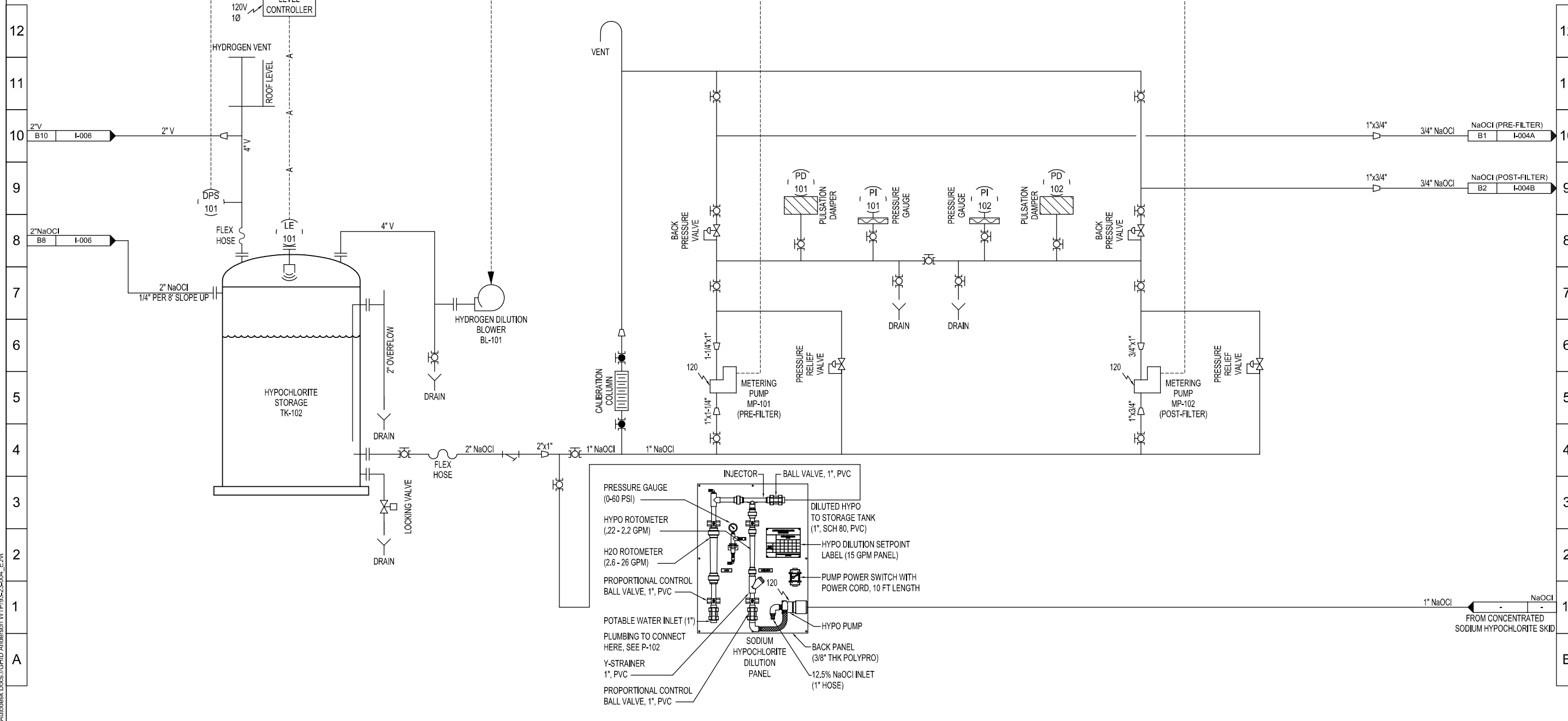
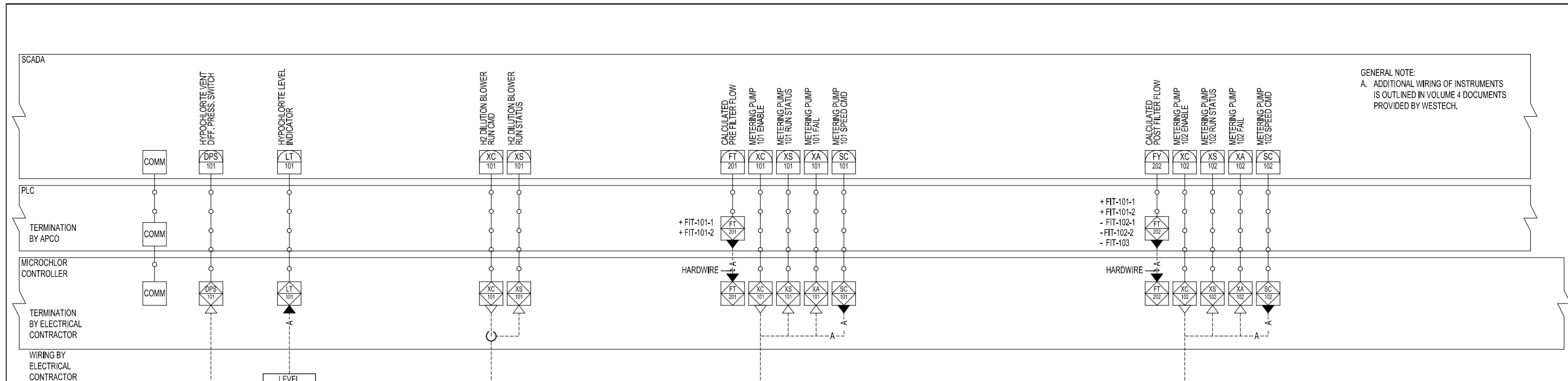
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FILTER BUILDING HYPOCHLORITE SYSTEM INSTRUMENTATION  
P&ID  
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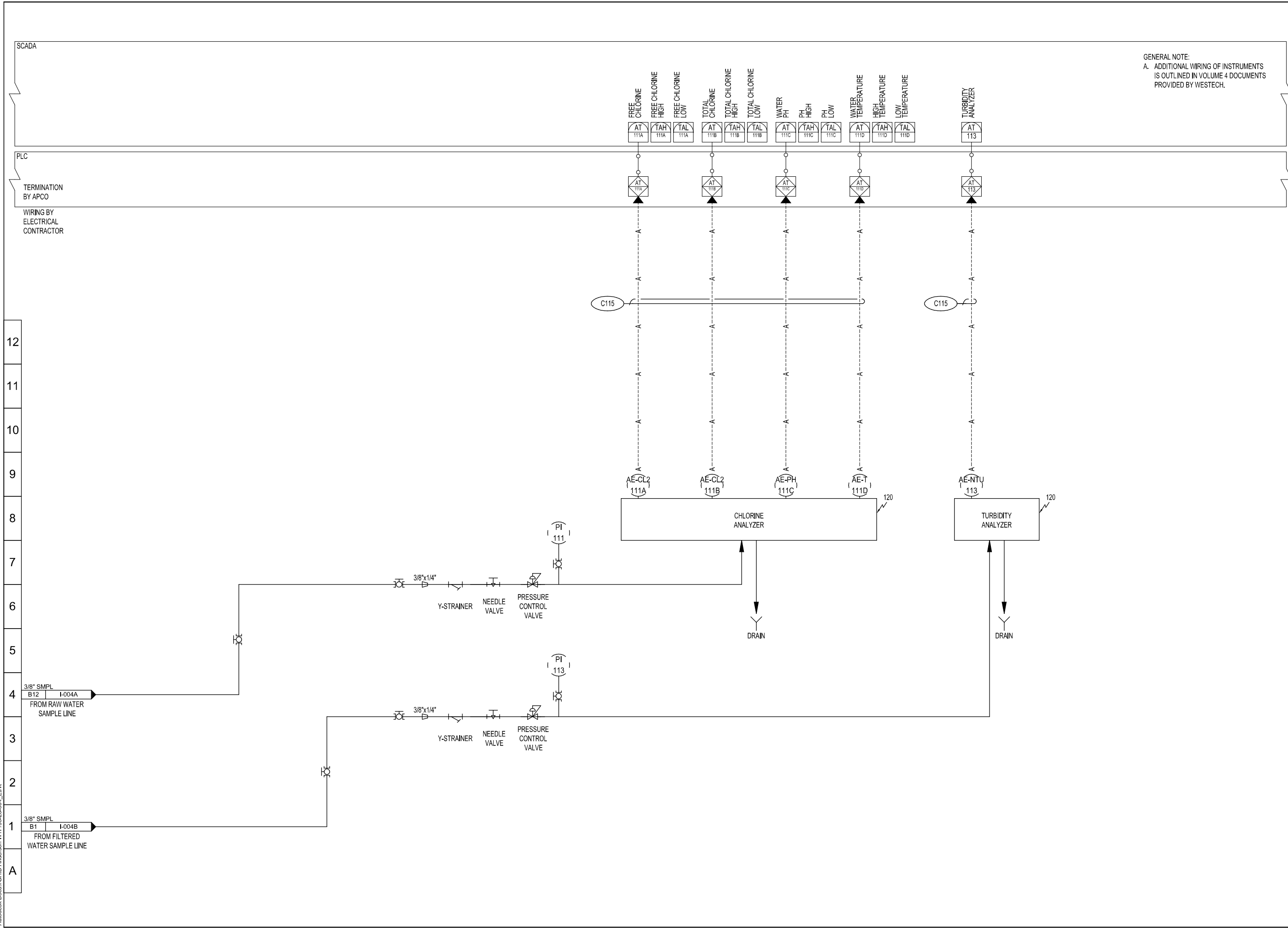
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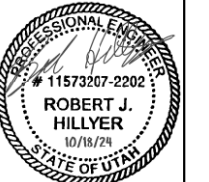
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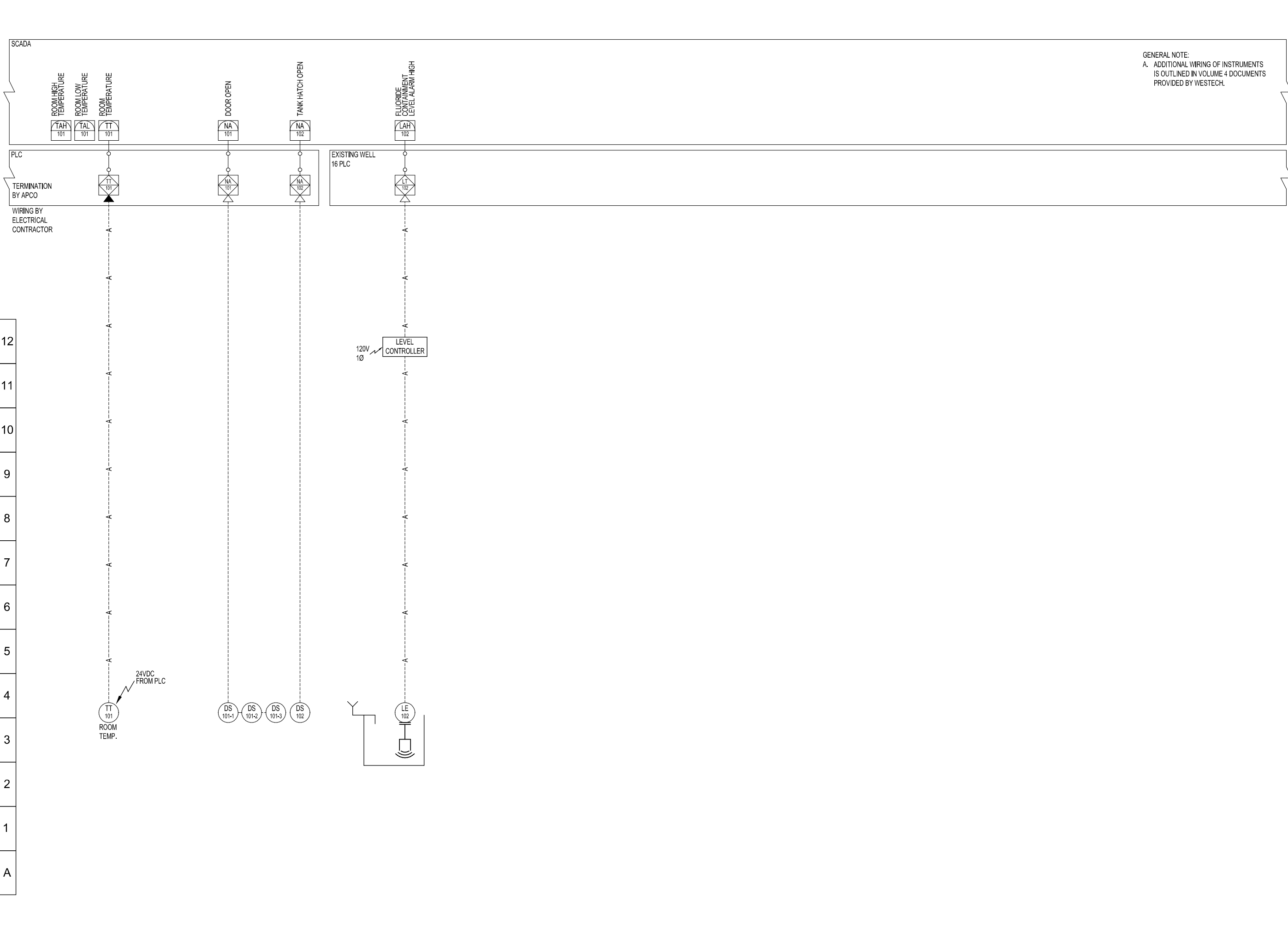
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