

EQUIPMENT SYMBOLS

MOTORIZED EQUIPMENT			PUMPS	
SYMBOL	TYPE	ABBREVIATION	SYMBOL	TYPE - ABBREVIATION
	AIR DRYER BLOWER EXHAUST FAN	AD BLR EF		CENTRIFUGAL PMP
	MIXER	MIX		METERING PMP
	SCREEN, BAR	SCR		SUBMERSIBLE PMP
	STRAINER, BASKET	STR		VERTICAL PMP
	BRIDGE CRAINE	LD		DIAPHRAGM PMP
	ROTARY COMPRESSOR	CM		

NON-MOTORIZED EQUIPMENT

SYMBOL	TYPE	ABBREVIATION	SYMBOL	TYPE	ABBREVIATION
	HEAT EXCHANGER, SPIRAL	HEX		RETRACTABLE INJECTION QUILL ASSEMBLY	IQA
	TANK HEATER	HTR		TRIM HEATER	HTR
	SAMPLER, AUTOMATIC	SMP		REFRIGERATED AIR DRYER	RAD
	MOTOR	MTR		VAPORIZER	VAP
	INJECTOR	INJ		DEMISTER	DEM
	EDUCTOR	EDT		FLASH REACTOR	FLR
	MIXER, STATIC	MIX			
	EMERGENCY EYEWASH / SHOWER	EEW			

VALVE SYMBOLS

SYMBOL	TYPE	ABBREVIATION	SYMBOL	TYPE	ABBREVIATION
	BALL VALVE (N.O.)	VLV		PRESSURE REGULATOR, EXTERNAL PRESSURE TAP	PRV
	BALL VALVE (N.C.)	VLV		PRESSURE REGULATOR, SELF-CONTAINED	PRV
	CHECK VALVE	VLV		BACK-PRESSURE REGULATOR, EXTERNAL PRESSURE TAP	BPV
	BUTTERFLY VALVE	VLV		BACK-PRESSURE REGULATOR, SELF-CONTAINED	BPV
	PLUG VALVE (N.O.)	VLV		PRESSURE RELIEF VALVE	ARV
	PLUG VALVE (N.C.)	VLV		PRESSURE RELIEF VALVE, DIAPHRAGM, SPRING	PRV
	GATE VALVE (N.O.)	VLV		VACUUM RELIEF VALVE	ARV
	GATE VALVE (N.C.)	VLV		PRESSURE & VACUUM RELIEF VALVE	ARV
	BALL CHECK VALVE	VLV		PRESSURE RELIEF (RUPTURE DISC)	RD
	KNIFE GATE VALVE (N.O.)	VLV		VACUUM RELIEF (RUPTURE DISC)	RD
	KNIFE GATE VALVE (N.C.)	VLV		THREE-WAY VALVE	3W
	NEEDLE VALVE	VLV		FOUR-WAY VALVE	4W
	GLOBE VALVE	VLV		ANGLE VALVE	AV
	BACKFLOW PREVENTER	BFP		CHEMICAL FEED PRESSURE RELIEF VALVE	PRV
	DAMPER	DM			
	DUCKBILL CHECK	VLV			
	PINCH VALVE	VLV			
	MUD VALVE	VLV			
	FLOAT VALVE	VLV			
	FOOT VALVE	VLV			

GATE SYMBOLS

SYMBOL	TYPE	ABBREVIATION	SYMBOL	TYPE	ABBREVIATION
	FLAP GATE	FG		STOP LOG (N.O.) / STOP PLATE (N.O.)	SL SP
	SLIDE GATE (N.O.)	SDG		WEIR GATE	WRG
	SLIDE GATE (N.C.)	SDG		FIXED WEIR	W
	RADIAL GATE	RDG			

ACTUATOR SYMBOLS

	DIAPHRAGM, PRESSURE		PNEUMATIC
	DIAPHRAGM, SPRING		SOLENOID
	DIGITAL		MANUAL ²
	MOTORIZED		

NOTES:
1. VALVE BODY IS FOR ILLUSTRATIVE PURPOSES ONLY. SEE VALVE & GATE LEGENDS FOR BODY TYPES.
2. MANUAL ACTUATOR NOT ALWAYS SHOWN.

PIPE LINE FITTING & DEVICE SYMBOLS

	AIR GAP		CALIBRATION COLUMN
	DRAIN		FILTER
	AIR INTAKE		FLAME ARRESTOR
	BLIND FLANGE		PULSATION DAMPENER
	CAP OR PLUG		AIR SEPARATOR
	QUICK CONNECTOR		LIQUID SEPARATOR COALESCING FILTER
	MANUAL SAMPLE POINT		SIGHT GLASS
	FLANGE CONNECTION		SILENCER
	CONNECTION TO VENDOR SUPPLIED EQUIPMENT		TRAP
	CONNECTION TO SKID-MOUNTED EQUIPMENT		VENT
	UNION		HOSE REEL
	REDUCER, CONCENTRIC		
	REDUCER, ECCENTRIC		
	EXPANSION JOINT		
	FLEXIBLE CONNECTION		
	STRAINER		
	SPRAY NOZZLE OR DIFFUSER		

LINE TYPES

	PRIMARY FLOW STREAM
	SECONDARY FLOW STREAM
	OTHER FLOW STREAM
	EXISTING ELEMENTS
	FUTURE ELEMENTS
	VENDOR PACKAGE BOUNDARY
	SKID EQUIPMENT BOUNDARY
	STRUCTURE
	CHANNELS
	INSULATED LINE WITH HEAT TRACE
	DOUBLE-WALL PIPE
	EXISTING ITEMS TO BE REMOVED

LIMITS

	NEW WORK TO EXISTING WORK TIE-IN LOCATION		GENERAL LIMITS (MATERIAL, FURNISHED BY, ETC)		INTERIOR / EXTERIOR TRANSITION
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ANNOTATION SYMBOLS

LINE IDENTIFICATION	
	NOMINAL DIAMETER COMMODITY PIPE MATERIAL INSULATION CATEGORY AND SIZE PP - 1"

CHANNEL IDENTIFICATION	
	DEPTH WIDTH COMMODITY SCREEN CHANNEL 1 DESCRIPTION

EQUIPMENT & VALVE IDENTIFICATION	
EQUIPMENT	
	EQUIPMENT CODE SITE ID PROCESS CODE PROCESS FUNCTION NUMBER UNIT NUMBER DIFFERENTIATOR LETTER UNIT NAME EXISTING TAG (WHERE APPLICABLE)
VALVES / GATES / DEVICES	
	EQUIPMENT CODE SITE ID PROCESS CODE PROCESS FUNCTION NUMBER UNIT NUMBER DIFFERENTIATOR LETTER UNIT NAME EXISTING TAG (WHERE APPLICABLE)

GENERAL	
	KEY NOTE
	SAME PAGE / CALLOUT CONNECTOR
	OVER / UNDER FLOW ARROWS
	WATER LEVEL

OFF-PAGE CONNECTORS

SINGLE DIRECTION FLOW CONTINUES ON INDICATED DRAWING	
	REFERENCE NUMBER REFERENCE DRAWING COMMODITY / DESCRIPTION SOURCE OR DESTINATION
BIDIRECTIONAL FLOW CONTINUES ON INDICATED DRAWING	
	REFERENCE NUMBER REFERENCE DRAWING COMMODITY / DESCRIPTION SOURCE OR DESTINATION
SINGLE DIRECTION FLOW NO CONTINUATION	
	COMMODITY / DESCRIPTION SOURCE OR DESTINATION

PROJECT

PROVO RIVER
WATER TREATMENT
PLANT

CLIENT

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PROJECT NUMBER

AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

GENERAL
INSTRUMENT & CONTROLS
PROCESS LEGEND

DRAWING NUMBER

00-X601

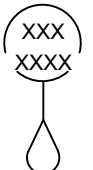
LINE TYPES		
PROPOSED - EXISTING - DESCRIPTION		
		INSTRUMENT OR CONNECTION TO PROCESS
		ELECTRIC SIGNAL
		ELECTRIC MOTOR CONNECTION
		INTERNAL SYSTEM LINK (SOFTWARE OR DATA LINK)
		PNEUMATIC SIGNAL
		ETHERNET SIGNAL
		FIBER OPTIC ETHERNET SIGNAL
		HYDRAULIC SIGNAL
		CAPILLARY TUBE
		ELECTROMAGNETIC (GUIDED)
		ELECTROMAGNETIC (UNGUIDED)

MOTOR CONTROL SYMBOLS	
	TWO SPEED
	FULL-VOLTAGE NON-REVERSING STARTER
	FULL-VOLTAGE REVERSING STARTER
	REDUCED VOLTAGE SOFT STARTER
	VARIABLE FREQUENCY DRIVE

MISCELLANEOUS SYMBOLS	
	PLC ANALOG INPUT/ANALOG OUTPUT
	PLC DISCRETE INPUT/DISCRETE OUTPUT
	HARD-WIRE INTERLOCK - REFER TO CONTROL DESCRIPTION STRATEGY
	ANNUNCIATOR HORN
	POWER SUPPLY 120VAC 120 VAC, 1 PHASE 480VAC 480 VAC, 3 PHASE 24VDC 24 VDC
	INSTRUMENT, DEVICE, OR APPURTENANCE IS VENDOR-FURNISHED AND CONTRACTOR-INSTALLED.

ABBREVIATIONS					
INSTRUMENT TYPE IDENTIFICATION LETTERS					
	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED / INDICATING VARIABLE	VARIABLE MODIFIER	READOUT / PASSIVE FUNCTION	OUTPUT / ACTIVE FUNCTION	FUNCTION MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION			CLOSE, STOP, DECREASE	
C	USER'S CHOICE			CONTROL	
D	USER'S CHOICE	DIFFERENTIAL		OPEN, START, INCREASE	
E	VOLTAGE		SENSOR, PRIMARY ELEMENT		
F	FLOW, FLOW RATE	RATIO (FRACTION)			FAIL
G	USER'S CHOICE		GLASS, GAUGE, VIEWING DEVICE		
H	HAND				HIGH (OPENED)
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, SCHEDULE	RATE OF CHANGE		CONTROL STATION	
L	LEVEL				LOW (CLOSED)
M	MOTOR, MOTION	MOMENTARY		MOTOR	MIDDLE (INTERMEDIATE)
N	USER'S CHOICE				ON OR OPERATE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OVERLOAD
P	PRESSURE, VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL, PROBE		
X	UNCLASSIFIED		ACCESSORY DEVICES, UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, PRESENCE			RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION			DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

PRIMARY ELEMENT SYMBOLS	
	ANALYZER, SINGLE ELEMENT
	ANALYZER, DUAL ELEMENT
	ANALYZER, FIBEROPTIC
	AVERAGING PITOT TUBE
	PITOT TUBE
	MAGNETIC FLOW METER
	ORIFICE PLATE
	POSITIVE DISPLACEMENT FLOW METER
	SONIC FLOW METER
	THERMAL MASS FLOW METER
	TURBINE FLOW METER
	DENSITY METER
	ANNULAR PRESSURE ISOLATOR
	DIAPHRAGM SEAL

	ROTAMETER
	LEVEL ELEMENT, FLOAT
	LEVEL ELEMENT, NON-CONTACT, RADAR
	LEVEL ELEMENT, NON-CONTACT, ULTRASONIC

INSTRUMENT & FUNCTION SYMBOLS	
	DISCRETE INSTRUMENTS FIELD OR LOCALLY MOUNTED NOT PANEL OR CABINET MOUNTED NORMALLY ACCESSIBLE TO AN OPERATOR
	DISCRETE INSTRUMENTS SHARING COMMON HOUSING
	DISCRETE INSTRUMENTS SECONDARY OR LOCAL CONTROL ROOM FIELD OR LOCAL CONTROL PANEL MOUNTED NORMALLY ACCESSIBLE TO AN OPERATOR
	DISCRETE INSTRUMENTS CENTRAL OR MAIN CONTROL ROOM FRONT OF MAIN PANEL MOUNTED NORMALLY ACCESSIBLE TO AN OPERATOR
	ANNUNCIATOR POINT FIELD OR LOCALLY MOUNTED NOT PANEL OR CABINET MOUNTED NORMALLY ACCESSIBLE TO AN OPERATOR
	ANNUNCIATOR POINT FIELD OR LOCAL CONTROL PANEL PANEL MOUNTED NORMALLY ACCESSIBLE TO AN OPERATOR
	ANNUNCIATOR POINT CENTRAL OR MAIN CONTROL ROOM MAIN PANEL MOUNTED NORMALLY ACCESSIBLE TO AN OPERATOR
	SHARED DISPLAY OR CONTROL DEDICATED SINGLE FUNCTION DEVICE FIELD OR LOCALLY MOUNTED NORMALLY ACCESSIBLE TO THE OPERATOR AT DEVICE
	SHARED DISPLAY OR CONTROL SECONDARY OR LOCAL CONSOLE FIELD OR LOCAL CONTROL PANEL VISIBLE ON VIDEO DISPLAY NORMALLY ACCESSIBLE TO AN OPERATOR AT CONSOLE
	SHARED DISPLAY OR CONTROL CENTRAL OR MAIN CONSOLE VISIBLE ON VIDEO DISPLAY NORMALLY ACCESSIBLE TO AN OPERATOR AT CONSOLE
	PROGRAMMABLE LOGIC CONTROL FIELD OR LOCALLY MOUNTED NOT PANEL OR CABINET MOUNTED NORMALLY ACCESSIBLE TO AN OPERATOR AT DEVICE
	PROGRAMMABLE LOGIC CONTROL SECONDARY OR LOCAL CONSOLE FIELD OR LOCAL CONTROL PANEL VISIBLE ON VIDEO DISPLAY ACCESSIBLE TO AN OPERATOR AT CONSOLE
	PROGRAMMABLE LOGIC CONTROL CENTRAL OR MAIN CONSOLE VISIBLE ON VIDEO DISPLAY NORMALLY ACCESSIBLE TO AN OPERATOR AT CONSOLE
	COMPUTER FUNCTIONS FIELD OR LOCALLY MOUNTED
	COMPUTER FUNCTIONS SECONDARY OR LOCAL COMPUTER VISIBLE ON VIDEO DISPLAY NORMALLY ACCESSIBLE TO AN OPERATOR AT TERMINAL
	COMPUTER FUNCTIONS CENTRAL OR MAIN COMPUTER VISIBLE ON VIDEO DISPLAY NORMALLY ACCESSIBLE TO AN OPERATOR AT TERMINAL
NOTE: INSTRUMENTS & DEVICES NOT NORMALLY ACCESSIBLE TO THE OPERATOR OR BEHIND-THE-PANEL DEVICES OR FUNCTIONS MAY BE DEPICTED BY USING THE SAME SYMBOLS BUT WITH DASHED HORIZONTAL BARS, I.E. :	

INSTRUMENT FIELD DEVICE IDENTIFICATION	
FIELD DEVICE NAMING CONVENTION DDFFFF - EEE - G000 - N# DIVISION CODE ———— FACILITY CODE ———— EQUIPMENT CODE — UP TO FOUR CHARACTERS DIFFERENTIATING LETTER (OPTIONAL) UNIT NUMBER - UP TO 2 DIGITS PROCESS FUNCTION OR LOOP NUMBER PROCESS CODE - 1 DIGIT CODE NOTE: HYPHENS ARE OPTIONAL	
FIELD DEVICE IDENTIFICATION PROCESS CODE ———— PROCESS FUNCTION NUMBER ———— EQUIPMENT CODE OPERATING FUNCTION (OPTIONAL) DIFFERENTIATOR LETTER UNIT NUMBER	
POINT TAG NAMING CONVENTION	
POINT NAMING CONVENTION DDFFFF - EEE - G000 - N# - II ASSOCIATED FIELD DEVICE (SEE ABOVE) ———— SIGNAL IDENTIFIER - REFER TO TABLE 2	
GENERAL NOTES	
1. THE DIVISION CODE AND FACILITY CODE FOR ALL EQUIPMENT AND DEVICES ON THESE P&IDS SHALL BE "P25". ALL FIELD DEVICE TAGS SHALL INCLUDE THESE DIVISION AND FACILITY CODES. 2. IN THE EVENT OF A DISCREPANCY IN MOTOR HORSEPOWER BETWEEN WHAT IS SHOWN ON THE P&IDS AND A SPECIFICATION, THE SPECIFICATION SHALL GOVERN.	



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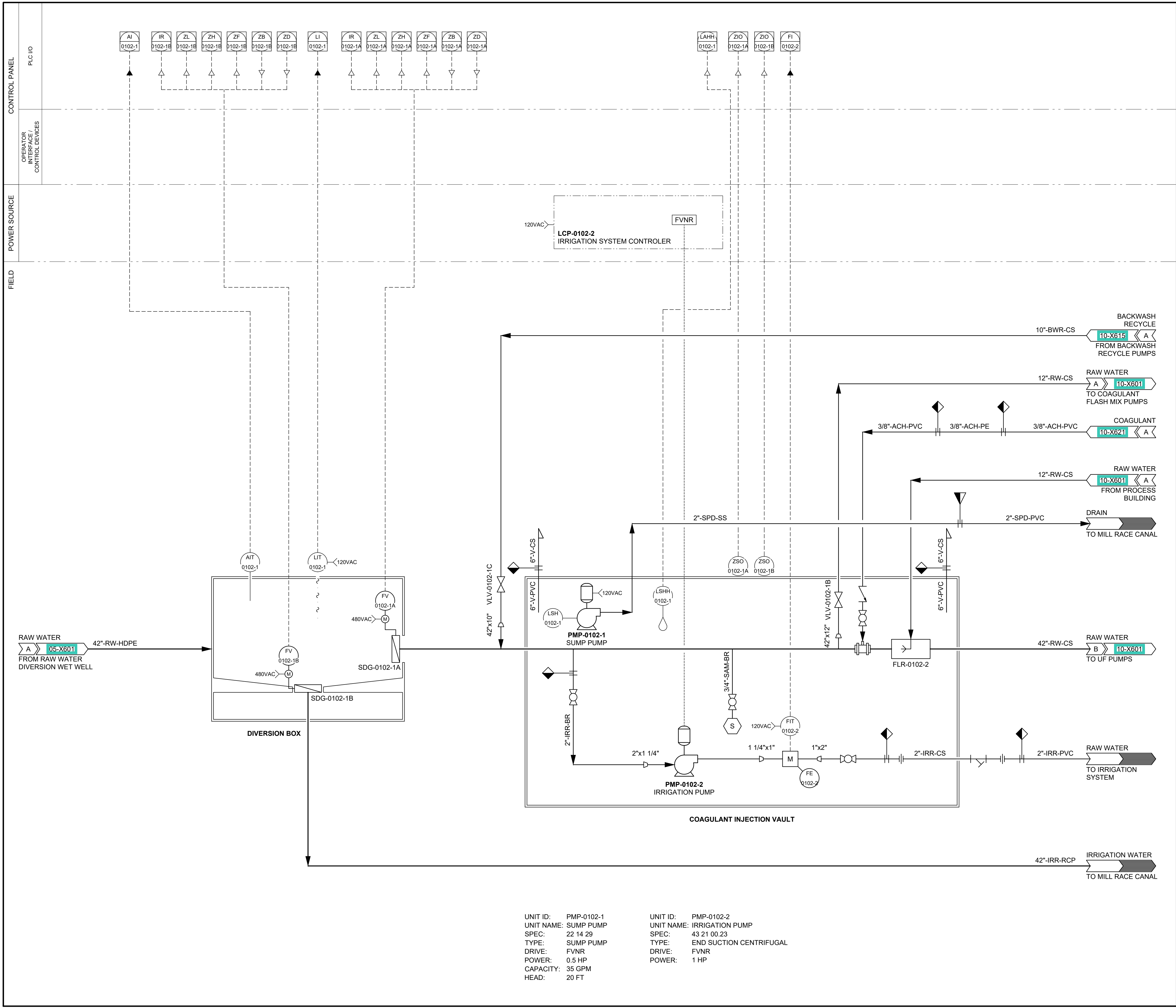
AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

GENERAL
INSTRUMENT & CONTROLS
INSTRUMENTATION LEGEND

DRAWING NUMBER

00-X602



PROJECT

PROVO RIVER
WATER TREATMENT
PLANT

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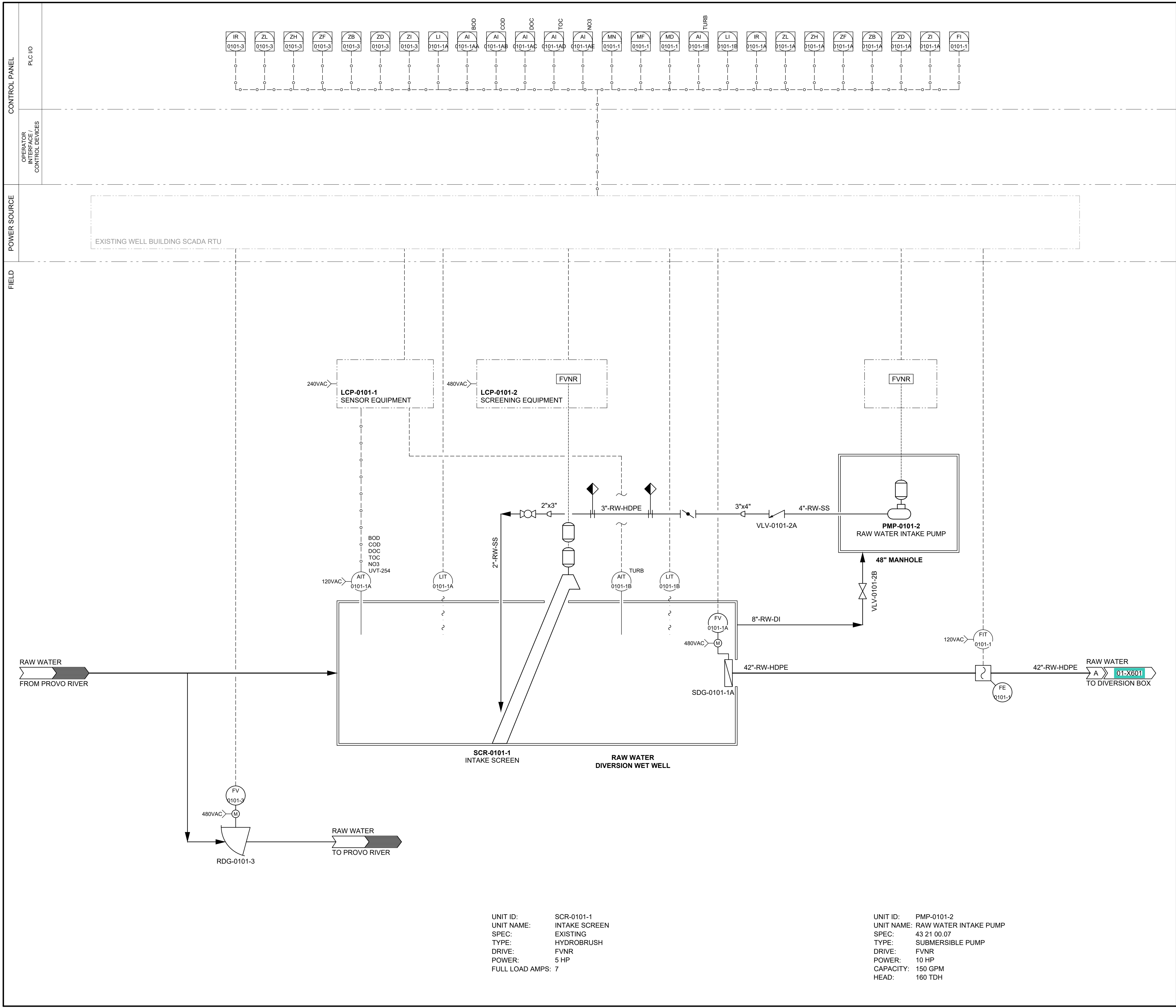
PLANT SITE
P&ID
PLANT INTAKE

DRAWING NUMBER

01-X601

ANSI D 22" x 34" Approved: B. HODGSON Checked: J. CROUCH Designer: R. KELHER Drafter: M. MOURA Project Manager: J. KRINKS

Last Plotted: 03/04/2023, 10:51 AM
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AutoCAD Drawing Structure: 05-X601.dwg



GENERAL NOTES

- ALL ITEMS AT THIS FACILITY ARE ALREADY INSTALLED EXCEPT FOR WATER QUALITY SENSORS AIT-0101-1A AND AIT-0101-1B. CONTRACTOR SHALL FURNISH AND INSTALL YSI CARBOVIS 705 AND VISOTURB 700 IQ WATER QUALITY PROBES WITH YSI MIQ/JB JUNCTION BOX, OR ENGINEER APPROVED EQUAL. CONTRACTOR SHALL FURNISH AND INSTALL YSI 282 CONTROLLER, OR ENGINEER APPROVED EQUAL, INSIDE THE ADJACENT WELL HOUSE BUILDING AND ALL REQUIRED CONDUCTORS, CABLES, AND CONNECTORS TO CONNECT THE WATER QUALITY SENSORS TO THE WELL HOUSE RTU.



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SHEET TITLE

DIVERSION STRUCTURE
P&ID
RIVER INTAKE

DRAWING NUMBER

05-X601

ANSI D 22" x 34"

Approved: B. HODGSON

Checked: J. CROUCH

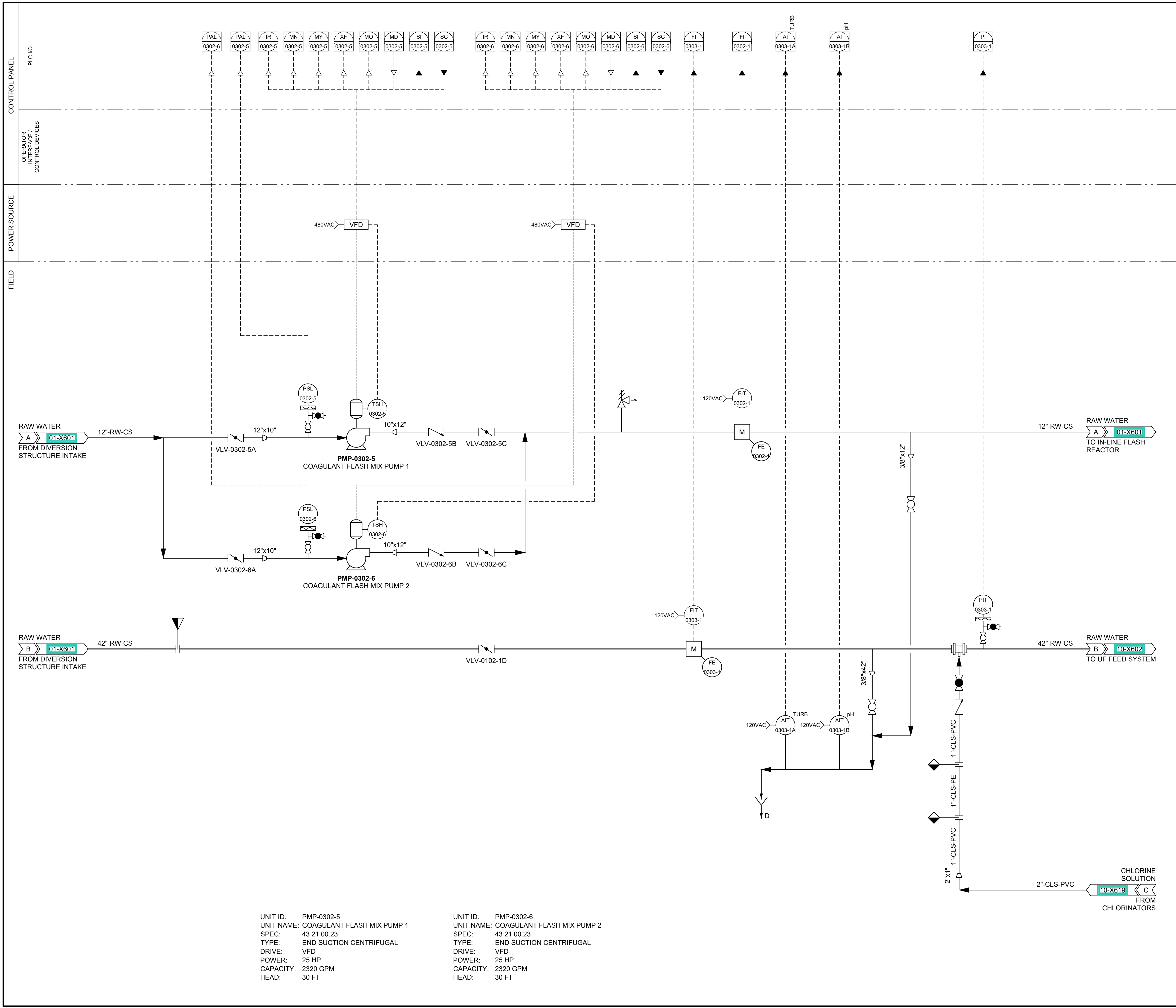
Designer: J. MIX

Drafter: M. MOURA

Project Manager: J. KRINKS

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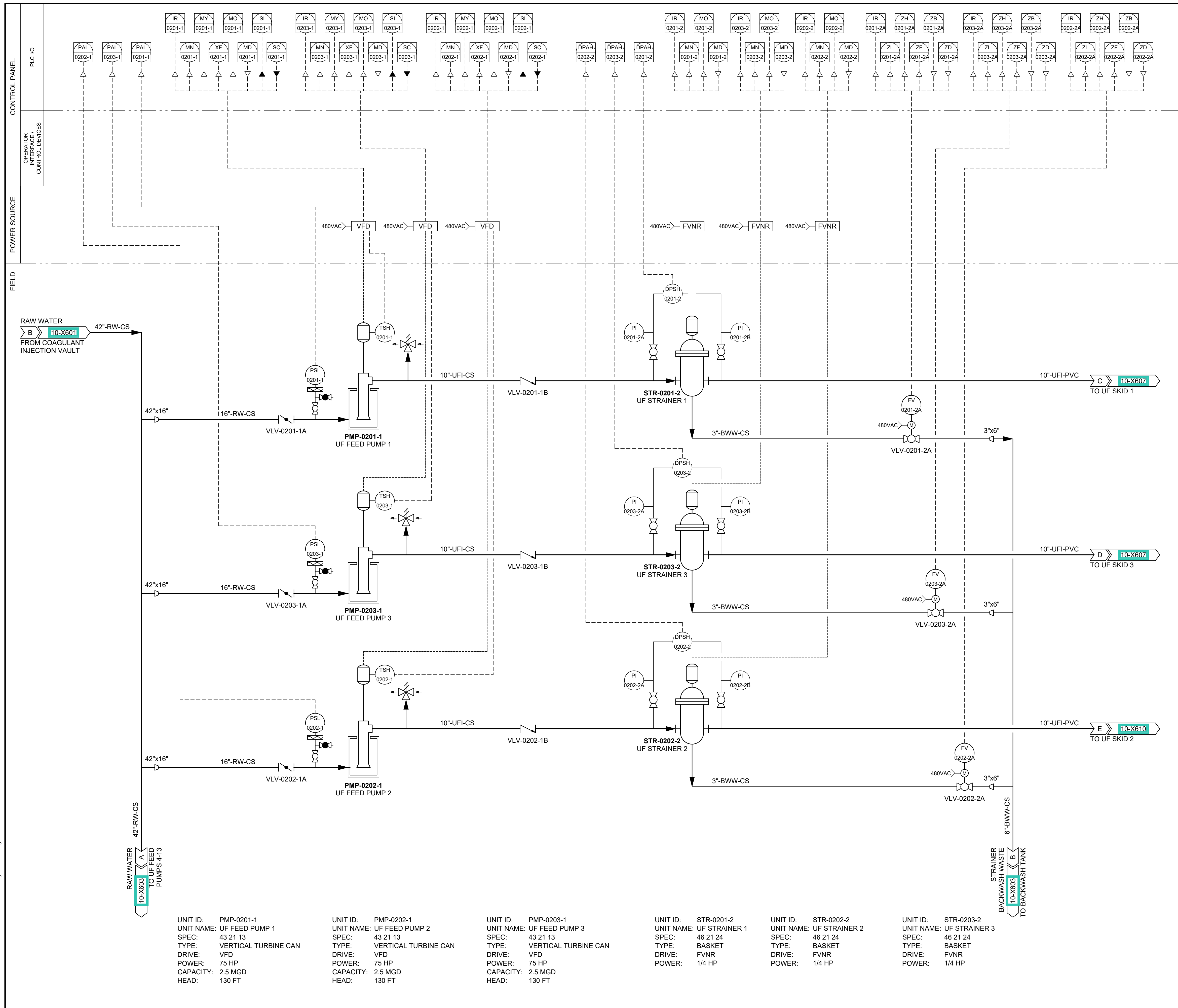
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SHEET TITLE

WATER TREATMENT
P&ID
RAW WATER

DRAWING NUMBER

10-X601

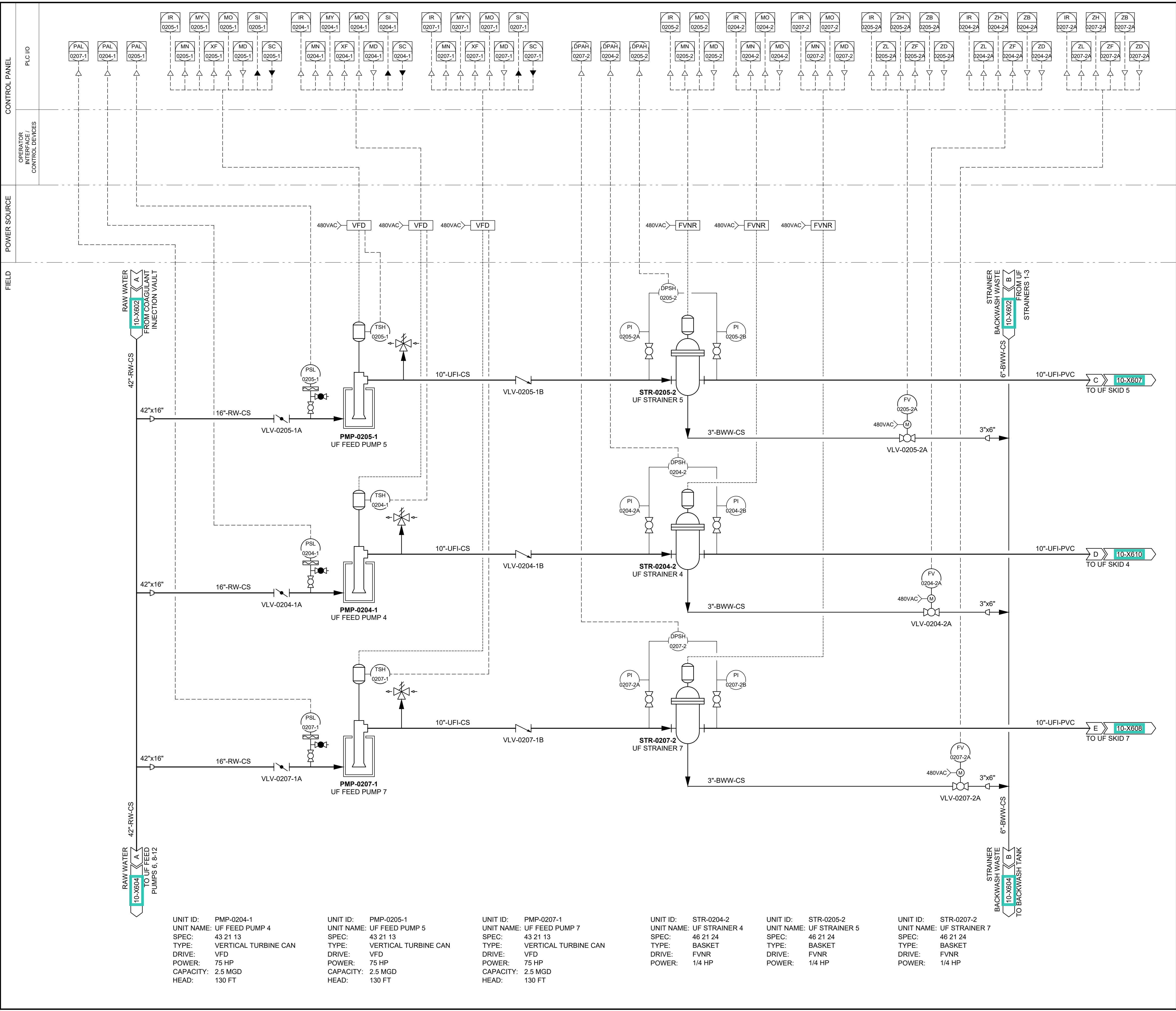


PROFESSIONAL ENGINEER
No. 11971007
BROCK HODGSON
4-7-23
STATE OF UTAH

D	2023-04-07	ISSUED FOR BID
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10-X602

ANSI D 22" x 34" Approved: B.HODGSON Checked: J.CROUCH Designer: J.MIX Drafter: M.MOURA Project Manager: J.KRINKS



UNIT ID: PMP-0204-1
UNIT NAME: UF FEED PUMP 4
SPEC: 43 21 13
TYPE: VERTICAL TURBINE CAN
DRIVE: VFD
POWER: 75 HP
CAPACITY: 2.5 MGD
HEAD: 130 FT

UNIT ID: PMP-0205-1
UNIT NAME: UF FEED PUMP 5
SPEC: 43 21 13
TYPE: VERTICAL TURBINE CAN
DRIVE: VFD
POWER: 75 HP
CAPACITY: 2.5 MGD
HEAD: 130 FT

UNIT ID: PMP-0207-1
UNIT NAME: UF FEED PUMP 7
SPEC: 43 21 13
TYPE: VERTICAL TURBINE CAN
DRIVE: VFD
POWER: 75 HP
CAPACITY: 2.5 MGD
HEAD: 130 FT

UNIT ID: STR-0204-2
UNIT NAME: UF STRAINER 4
SPEC: 46 21 24
TYPE: BASKET
DRIVE: FVNR
POWER: 1/4 HP

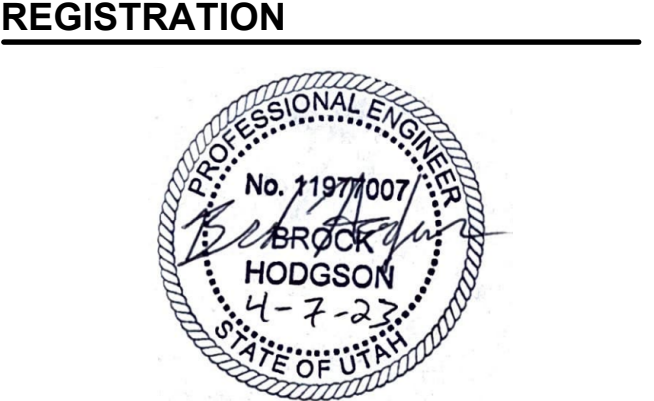
UNIT ID: STR-0205-2
UNIT NAME: UF STRAINER 5
SPEC: 46 21 24
TYPE: BASKET
DRIVE: FVNR
POWER: 1/4 HP

UNIT ID: STR-0207-2
UNIT NAME: UF STRAINER 7
SPEC: 46 21 24
TYPE: BASKET
DRIVE: FVNR
POWER: 1/4 HP



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SHEET TITLE
**WATER TREATMENT
P&ID
UF FEED PUMPS 4, 5 & 7**

DRAWING NUMBER
10-X603

ANSI D 22" x 34"

Approved: B. HODGSON

Checked: J. CROUCH

Designer: J. MIX

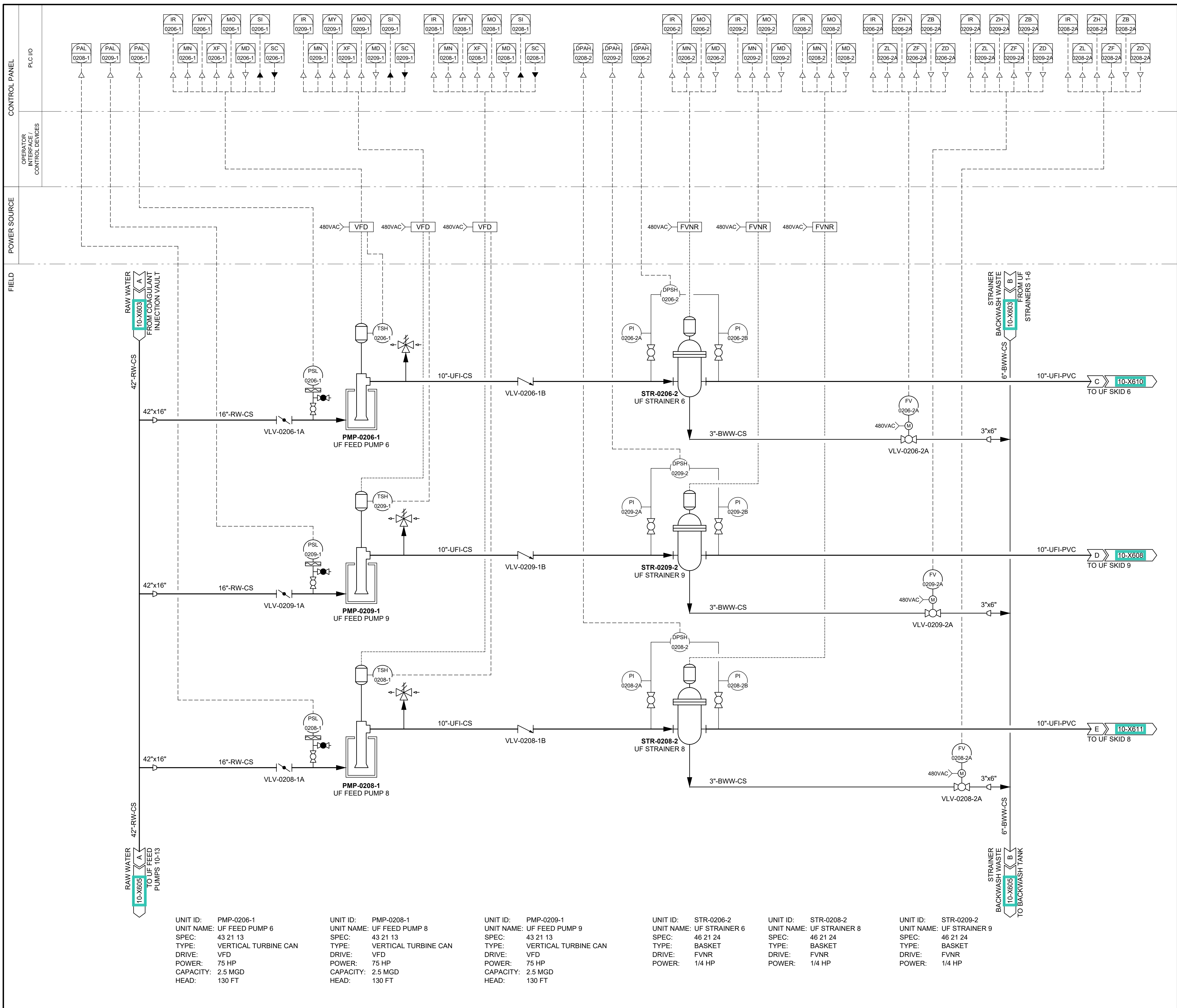
Drafter: M. MOURA

Project Manager: J. KRINKS

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PROJECT

**PROVO RIVER
WATER TREATMENT
PLANT**

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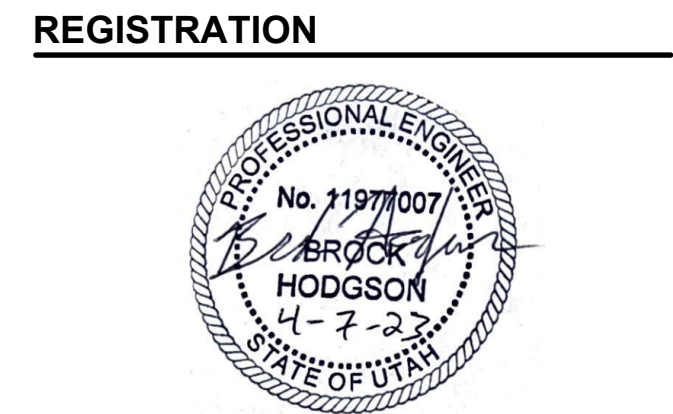
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A	2022-07-01	ISSUED FOR 30%
I/R	DATE	DESCRIPTION

PROJECT NUMBER

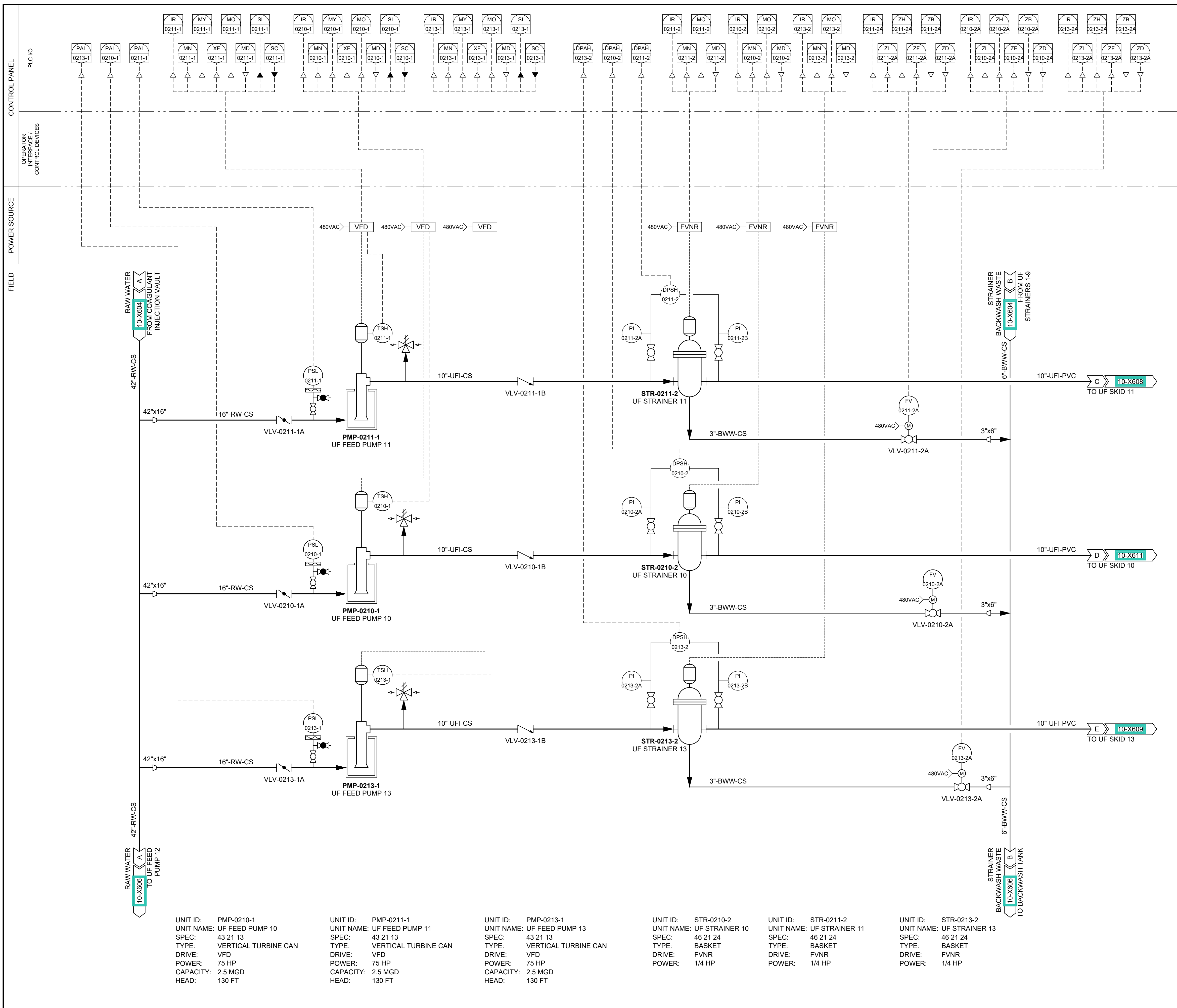
AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

**WATER TREATMENT
P&ID
UF FEED PUMPS 6, 8 & 9**

DRAWING NUMBER

10-X604



- UNIT ID: PMP-0210-1
UNIT NAME: UF FEED PUMP 10
SPEC: 43 21 13
TYPE: VERTICAL TURBINE CAN
DRIVE: VFD
POWER: 75 HP
CAPACITY: 2.5 MGD
HEAD: 130 FT

UNIT ID: PMP-0211-1
UNIT NAME: UF FEED PUMP 11
SPEC: 43 21 13
TYPE: VERTICAL TURBINE CAN
DRIVE: VFD
POWER: 75 HP
CAPACITY: 2.5 MGD
HEAD: 130 FT

UNIT ID: PMP-0213-1
UNIT NAME: UF FEED PUMP 13
SPEC: 43 21 13
TYPE: VERTICAL TURBINE CAN
DRIVE: VFD
POWER: 75 HP
CAPACITY: 2.5 MGD
HEAD: 130 FT

UNIT ID: STR-0210-2
UNIT NAME: UF STRAINER 10
SPEC: 46 21 24
TYPE: BASKET
DRIVE: FVNR
POWER: 1/4 HP

UNIT ID: STR-0211-2
UNIT NAME: UF STRAINER 11
SPEC: 46 21 24
TYPE: BASKET
DRIVE: FVNR
POWER: 1/4 HP

UNIT ID: STR-0213-2
UNIT NAME: UF STRAINER 13
SPEC: 46 21 24
TYPE: BASKET
DRIVE: FVNR
POWER: 1/4 HP



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PROJECT NUMBER

AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

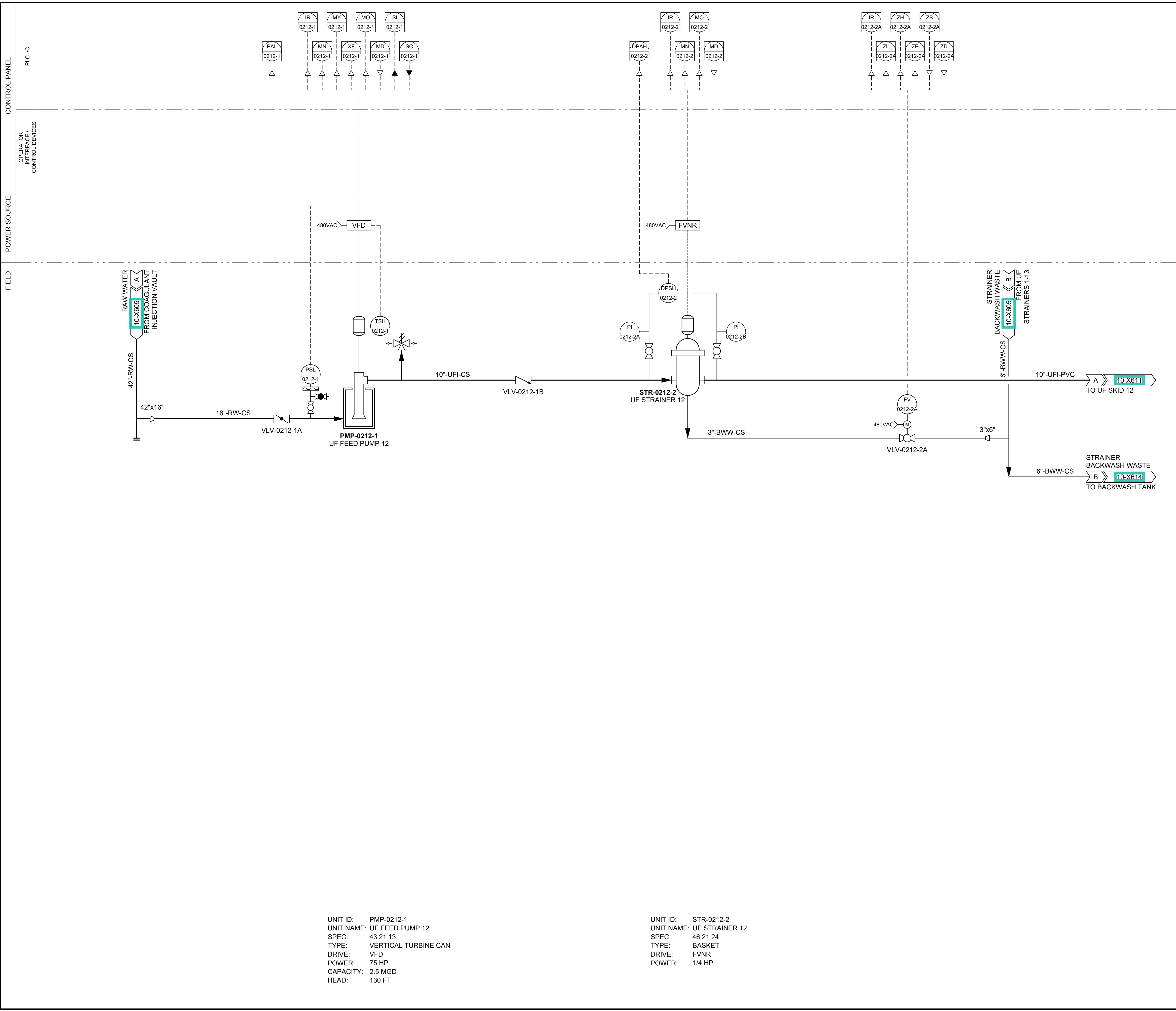
WATER TREATMENT
P&ID
UF FEED PUMPS 10, 11 & 13

DRAWING NUMBER

10-X605

Last Plotted: 03/04/2023, 10:51 AM
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 AWP-DWG-10 Water Treatment Facility 10-X606.dwg

Project Manager: J.KRINKS
 Drafter: M.MOURA
 Designer: J.MIX
 Checked: J.CROUCH
 Approved: B.HODGSON
 ANSI D 22" x 34"



PROJECT

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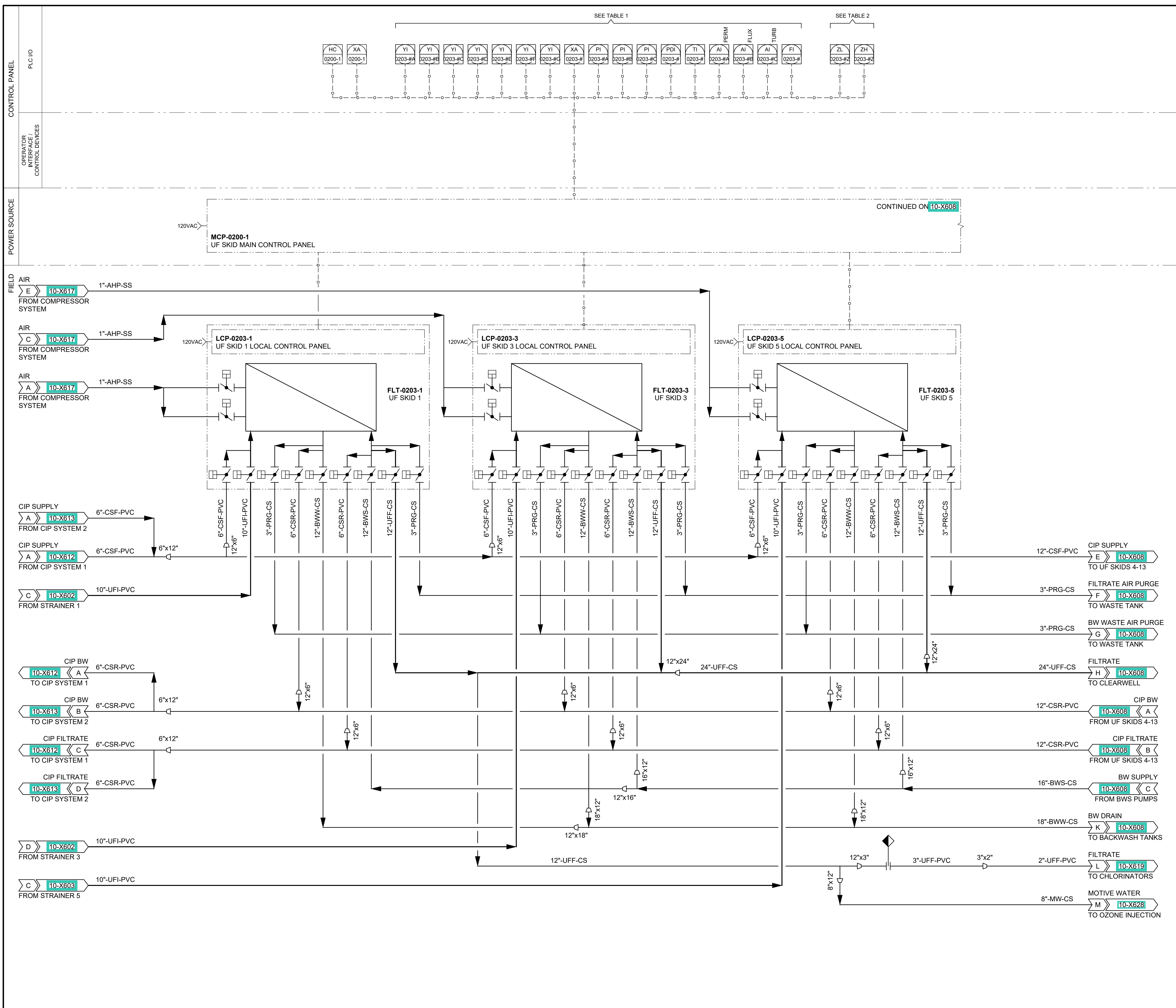
AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT
P&ID
UF FEED PUMP 12

DRAWING NUMBER

10-X606



GENERAL NOTES

1. SEE VENDOR PACKAGE FOR UF MEMBRANE P&ID.

TABLE 1

UF SKID	I/O PLACEHOLDER VALUE
FLT-0203-1	# = 1
FLT-0203-3	# = 3
FLT-0203-5	# = 5

TABLE 2

UF SKID	I/O PLACEHOLDER VALUE
FLT-0203-1	# = 1; Z = A THRU Y
FLT-0203-3	# = 3; Z = A THRU Y
FLT-0203-5	# = 5; Z = A THRU Y

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I/R	DATE	DESCRIPTION

PROJECT NUMBER

AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

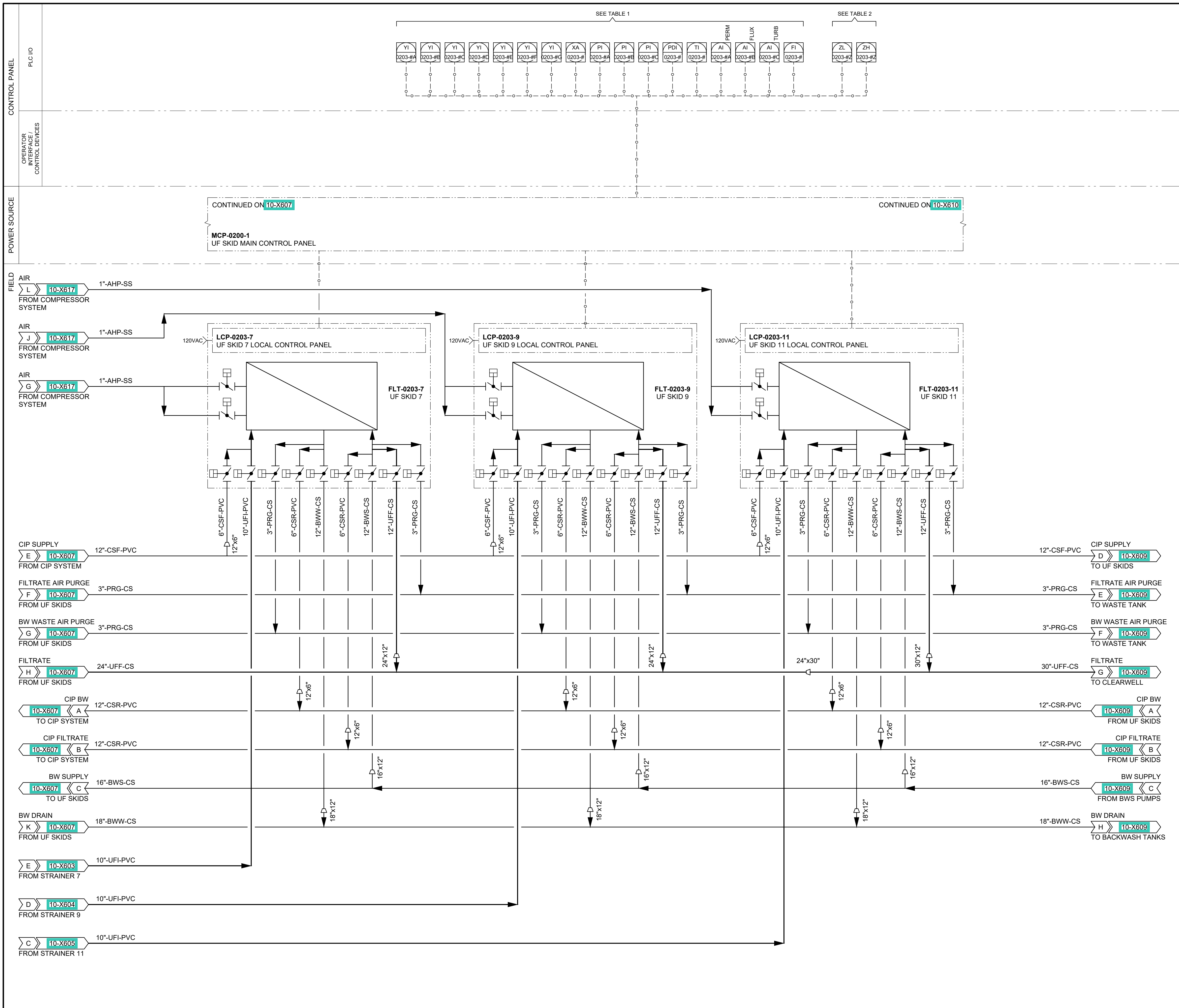
WATER TREATMENT

P&ID

UF SKIDS 1,3 & 5

DRAWING NUMBER

10-X607



GENERAL NOTES

1. SEE VENDOR PACKAGE FOR UF MEMBRANE P&ID.

TABLE 1

UF SKID	I/O PLACEHOLDER VALUE
FLT-0203-7	# = 7
FLT-0203-9	# = 9
FLT-0203-11	# = 11

TABLE 2

UF SKID	I/O PLACEHOLDER VALUE
FLT-0203-7	# = 7; Z = A THRU Y
FLT-0203-9	# = 9; Z = A THRU Y
FLT-0203-11	# = 11; Z = A THRU Y

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PROJECT NUMBER

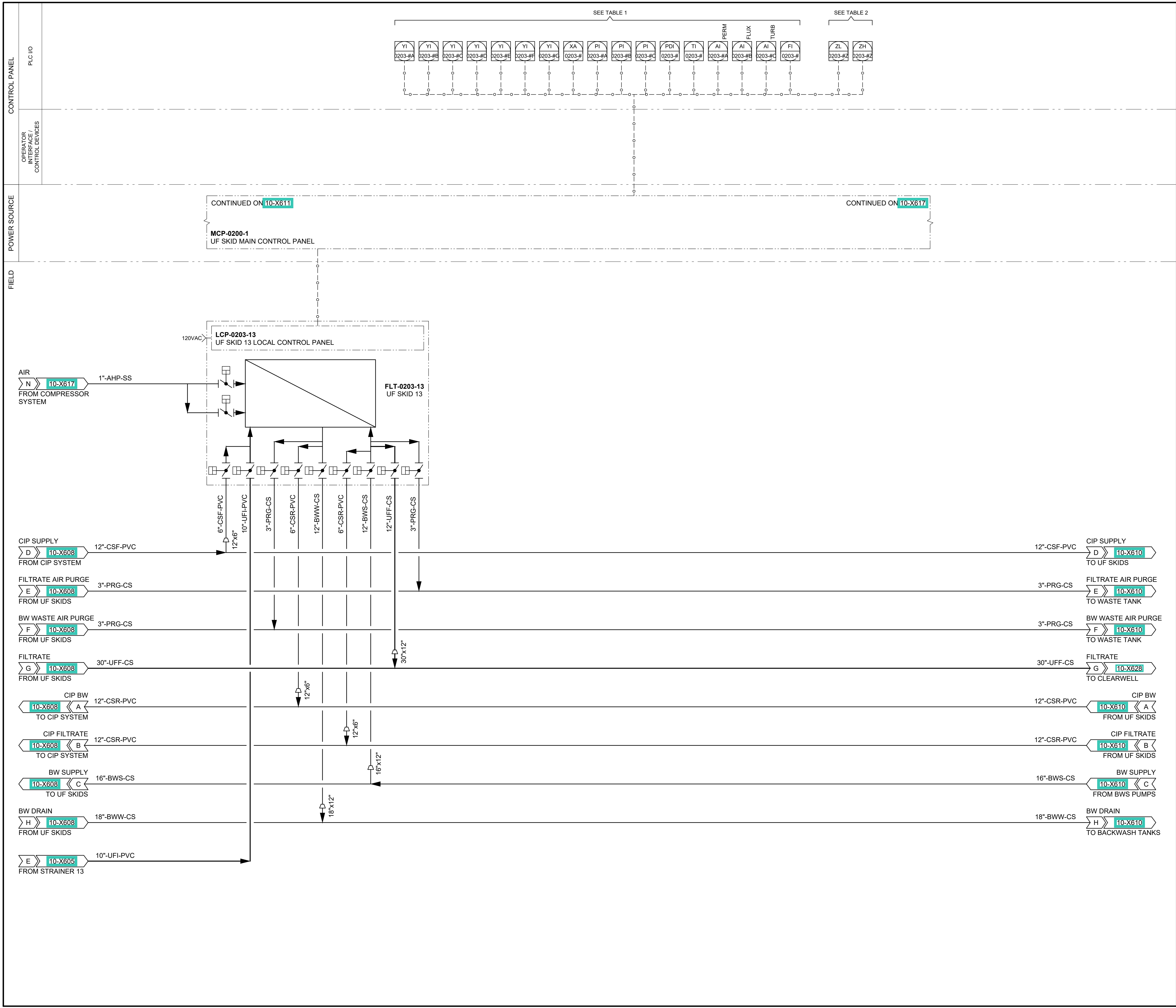
AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT P&ID UF SKIDS 7, 9 & 11

DRAWING NUMBER

10-X608



GENERAL NOTES

1. SEE VENDOR PACKAGE FOR UF MEMBRANE P&ID.

TABLE 1

UF SKID	I/O PLACEHOLDER VALUE
FLT-0203-13	# = 13

TABLE 2

UF SKID	I/O PLACEHOLDER VALUE
FLT-0203-13	# = 13; Z = A THRU Y

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PROJECT NUMBER

AECOM Project No. - 60670884

HAL Project No. - 035.15.420

SHEET TITLE

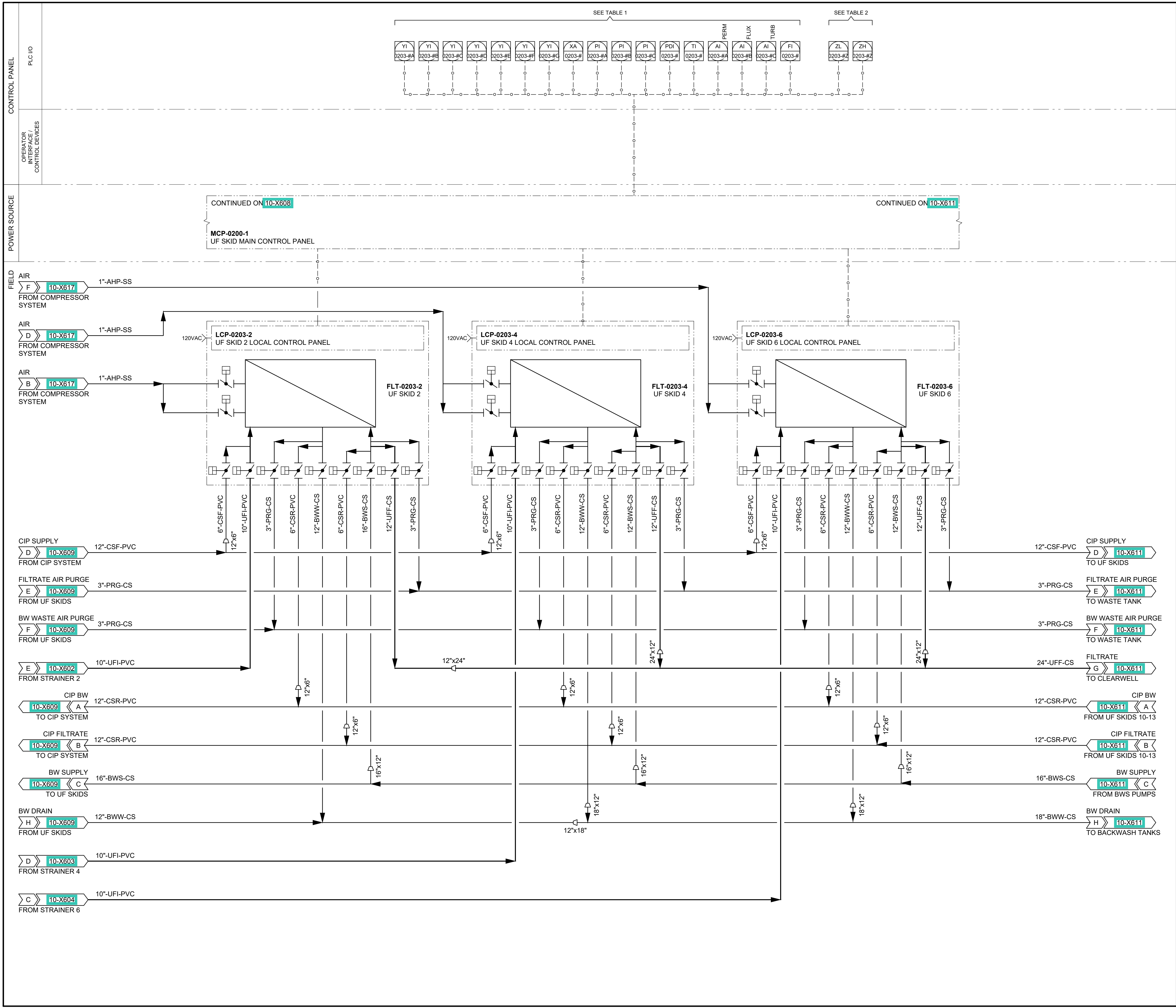
WATER TREATMENT

P&ID

UF SKID 13

DRAWING NUMBER

10-X609



GENERAL NOTES

1. SEE VENDOR PACKAGE FOR UF MEMBRANE P&ID.

TABLE 1	
UF SKID	I/O PLACEHOLDER VALUE
FLT-0203-2	# = 2
FLT-0203-4	# = 4
FLT-0203-6	# = 6

TABLE 2	
UF SKID	I/O PLACEHOLDER VALUE
FLT-0203-2	# = 2; Z = A THRU Y
FLT-0203-4	# = 4; Z = A THRU Y
FLT-0203-6	# = 6; Z = A THRU Y



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PROJECT NUMBER

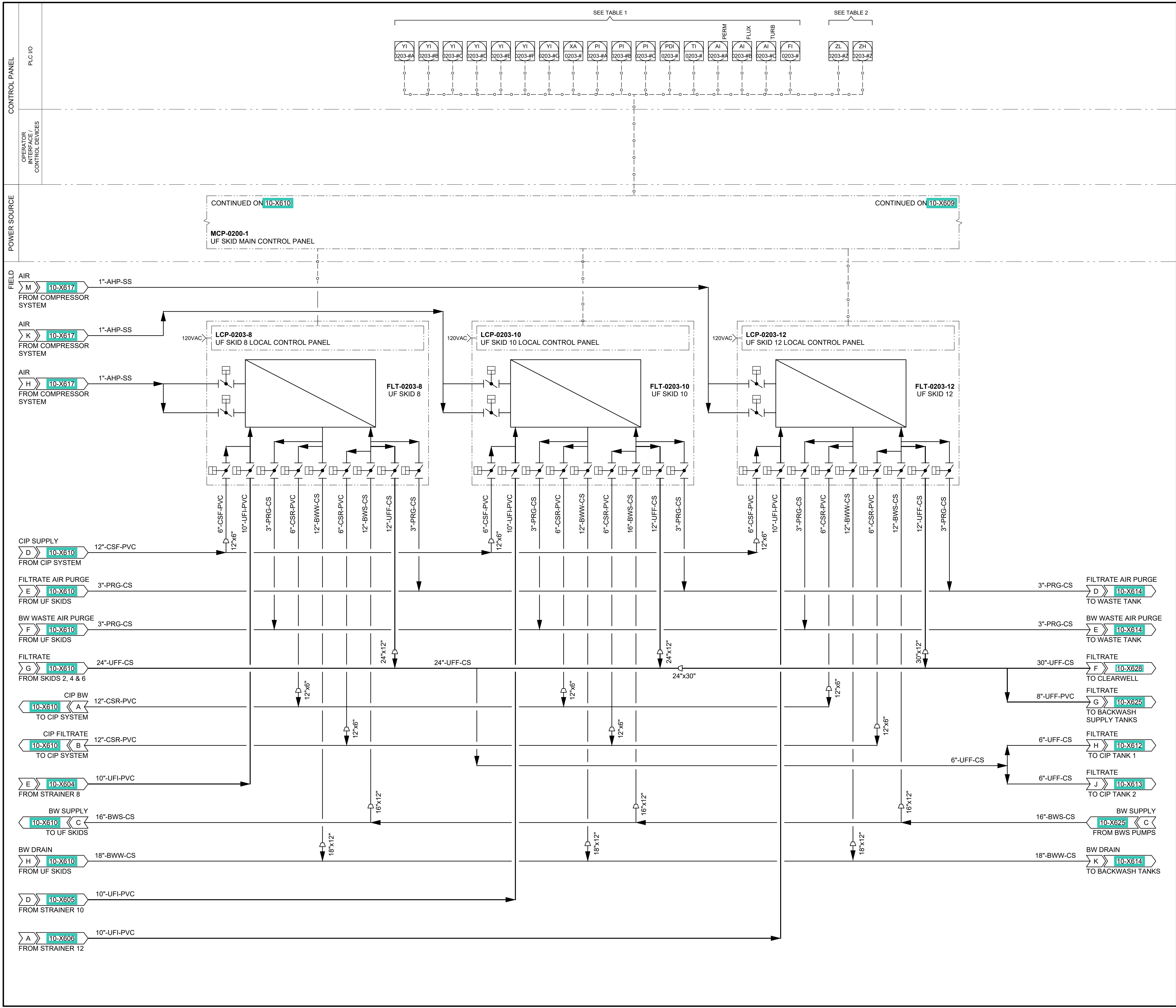
AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT
P&ID
UF SKIDS 2, 4 & 6

DRAWING NUMBER

10-X610



GENERAL NOTES

1. SEE VENDOR PACKAGE FOR UF MEMBRANE P&ID.

TABLE 1	
UF SKID	I/O PLACEHOLDER VALUE
FLT-0203-8	# = 8
FLT-0203-10	# = 10
FLT-0203-12	# = 12

TABLE 2	
UF SKID	I/O PLACEHOLDER VALUE
FLT-0203-8	# = 8; Z = A THRU Y
FLT-0203-10	# = 10; Z = A THRU Y
FLT-0203-12	# = 12; Z = A THRU Y



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AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

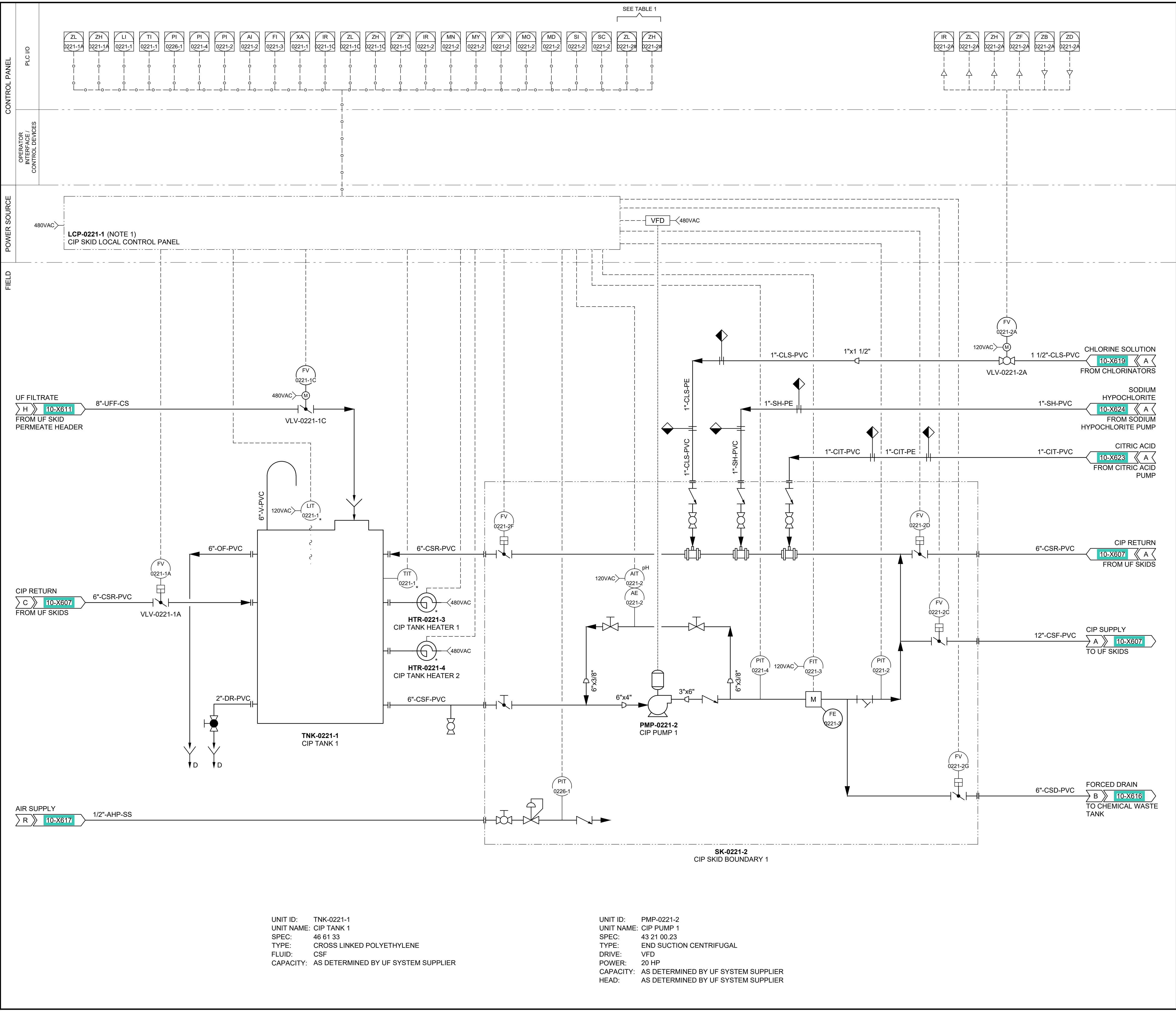
WATER TREATMENT
P&ID
UF SKIDS 8, 10 & 12

DRAWING NUMBER

10-X611

ANSI D 22" x 34" Approved: B.HODGSON Checked: J.CROUCH Designer: J.MIX Drafter: M.MOURA Project Manager: J.KRINKS

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AutoCAD DWTG10 Water Treatment Facility\10-X612.dwg



GENERAL NOTES

1. LOCAL CONTROL PANEL LCP-0221-1 IS PHYSICALLY MOUNTED ON SKID SK-0221-2.

CIP SKID	I/O PLACEHOLDER VALUE
SK-0221-2	# = C, D, F, G

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PROJECT NUMBER

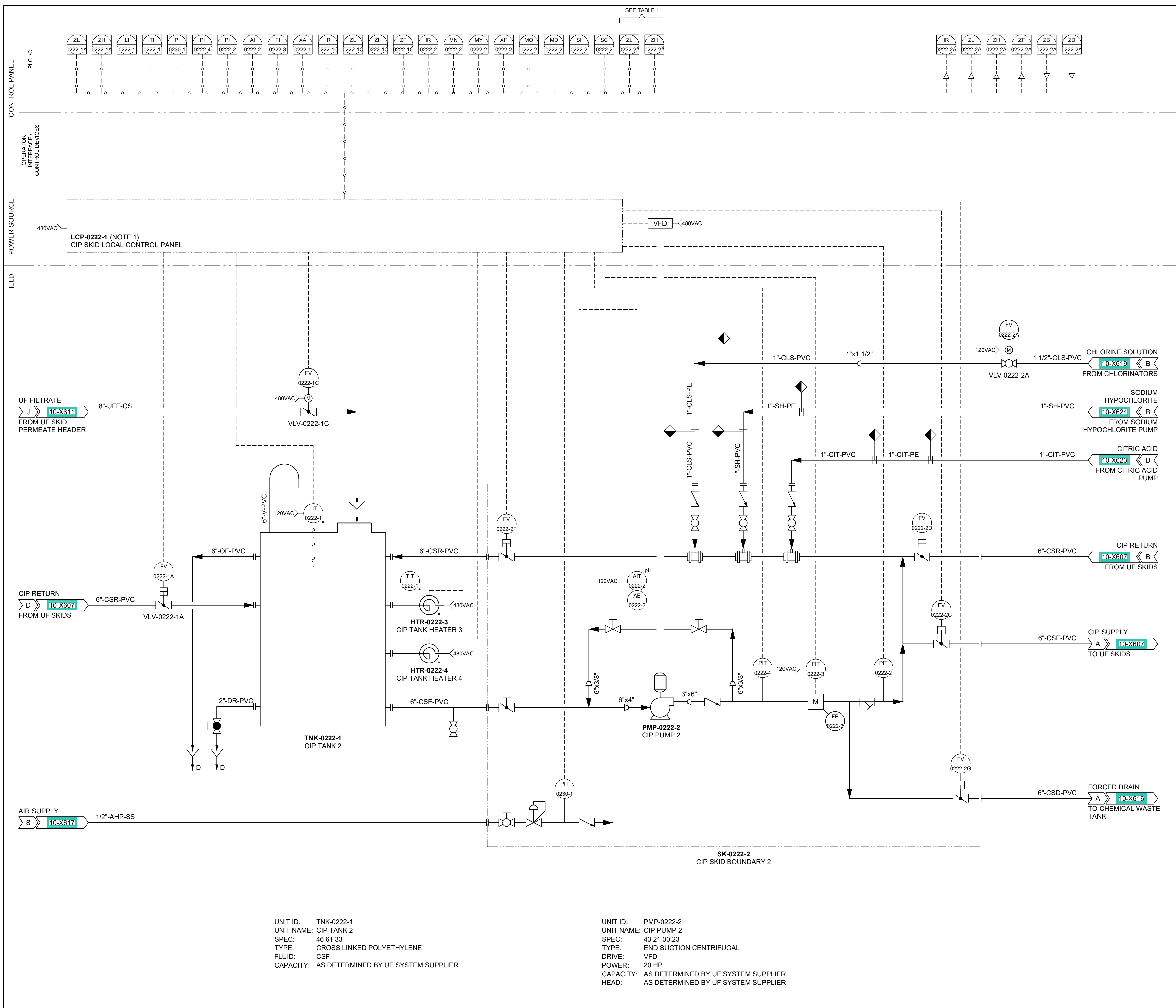
AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

**WATER TREATMENT
P&ID
UF CIP SKID 1**

DRAWING NUMBER

10-X612



GENERAL NOTES

1. LOCAL CONTROL PANEL LCP-0222-1 IS PHYSICALLY MOUNTED ON SKID SK-0222-2.

TABLE 1

CIP SKID	I/O PLACEHOLDER VALUE
SK-0222-2	# = C, D, F, G

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PROJECT NUMBER

AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT P&ID UF CIP SKID 2

DRAWING NUMBER

10-X613

ANSI D 22" x 34" Approved: B.HODGSON Checked: J.CROUCH Designer: J.MIX Drafter: M.MOURA Project Manager: J.KRINKS

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AutoCAD DWGWRITE Water Treatment Facility 10-614.dwg

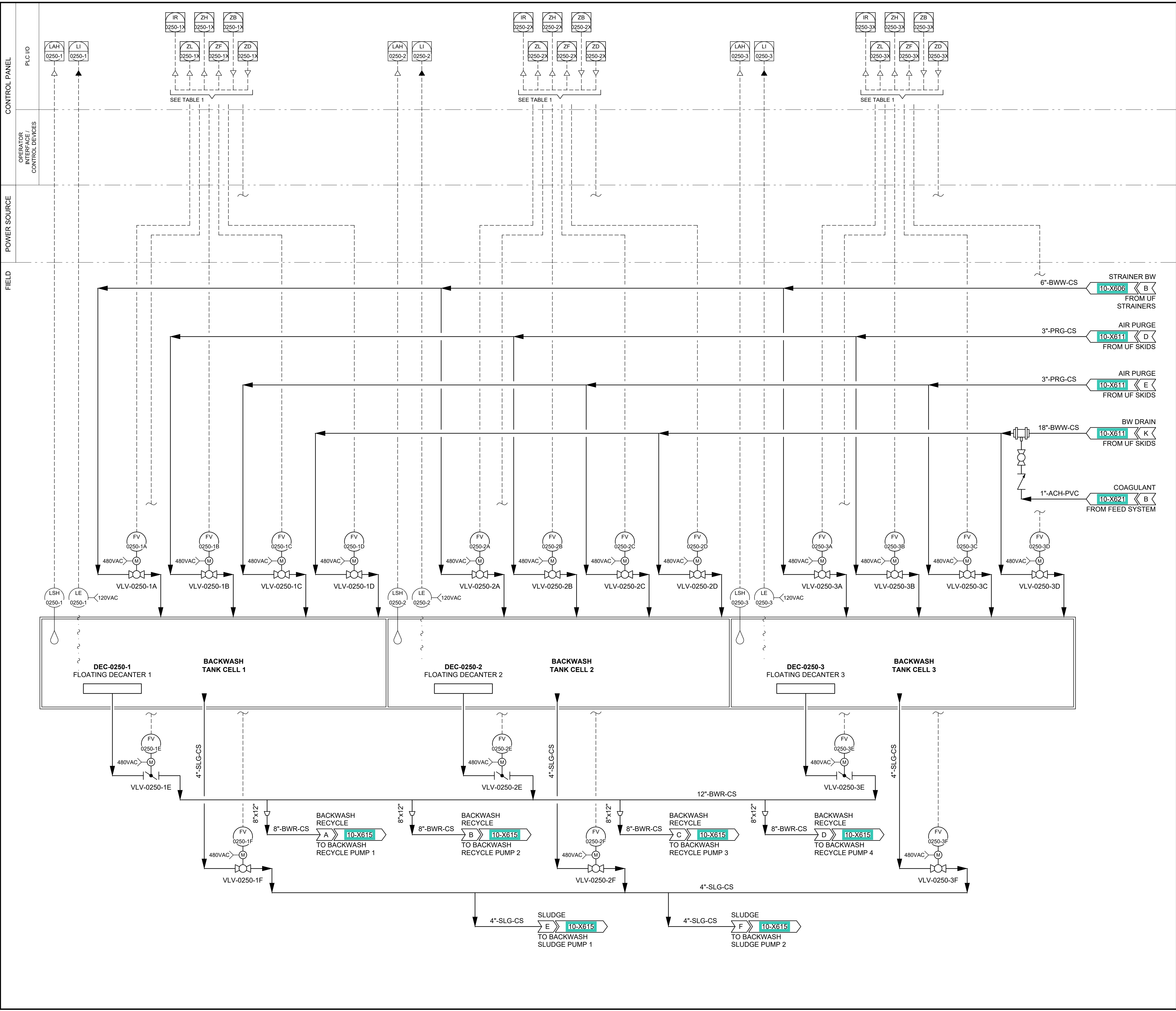


TABLE 1	
VALVE TAG	I/O PLACEHOLDER VALUE
FV-2050-1A	X=A
FV-2050-1B	X=B
FV-2050-1C	X=C
FV-2050-1D	X=D
FV-2050-1E	X=E
FV-2050-1F	X=F
FV-2050-2A	X=A
FV-2050-2B	X=B
FV-2050-2C	X=C
FV-2050-2D	X=D
FV-2050-2E	X=E
FV-2050-2F	X=F
FV-2050-3A	X=A
FV-2050-3B	X=B
FV-2050-3C	X=C
FV-2050-3D	X=D
FV-2050-3E	X=E
FV-2050-3F	X=F



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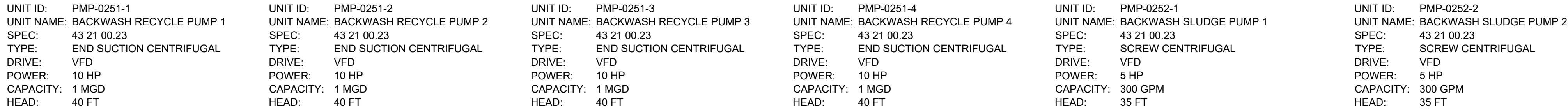
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HAL Project No. - 035.15.420

SHEET TITLE

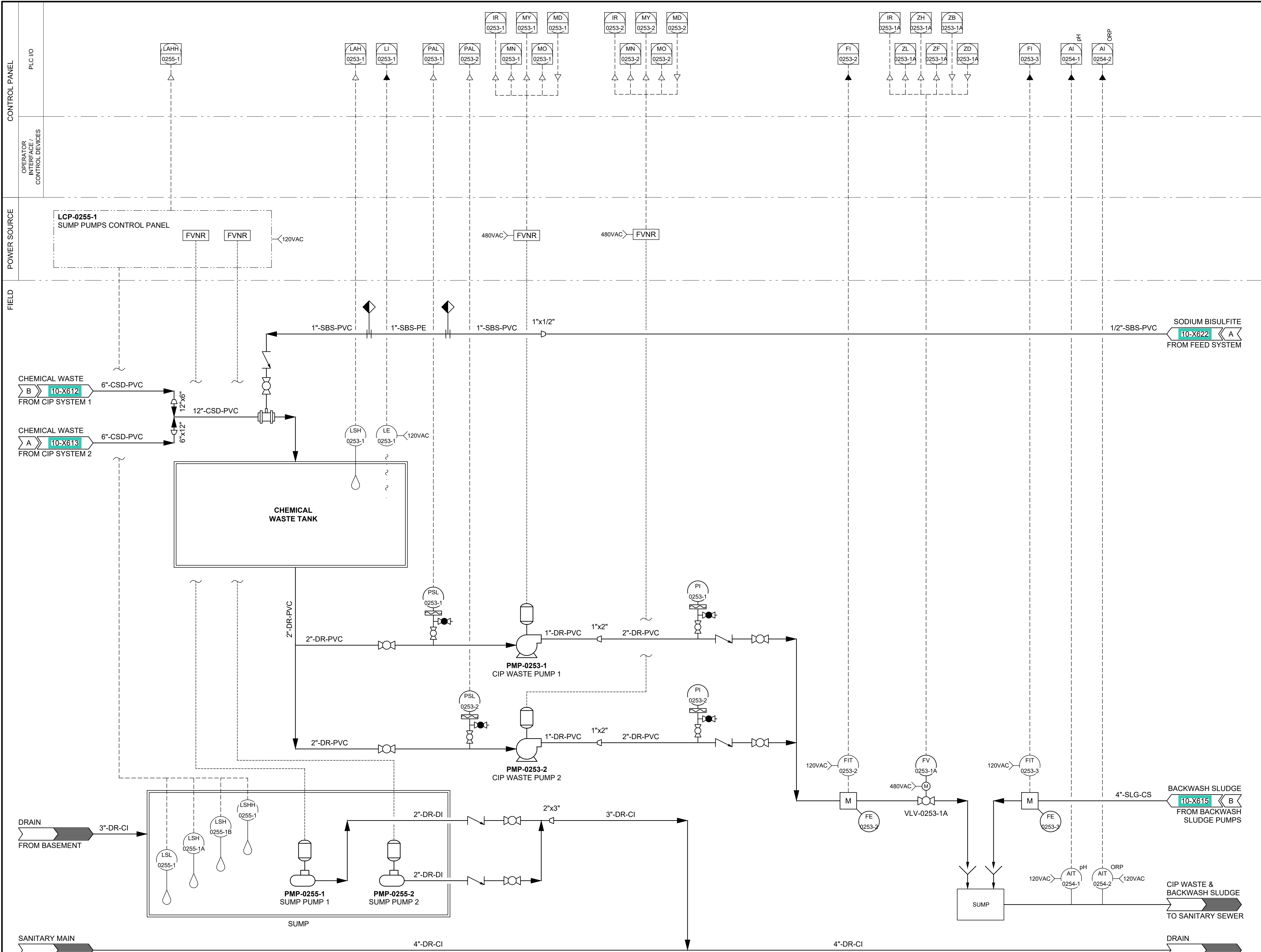
WATER TREATMENT
P&ID
BACKWASH WASTE

DRAWING NUMBER

10-X614



ANSI D 22" x 34" Approved: B.HODGSON Checked: J.CROUCH Designer: J.MIX Drafter: M.MOURA Project Manager: J.KRINKS



UNIT ID: PMP-0255-1
UNIT NAME: SUMP PUMP 1
SPEC: 22 00 00
TYPE: SUBMERSIBLE
DRIVE: FVNR
POWER: 1/3 HP
CAPACITY: 42 GPM
HEAD: 20 FT

UNIT ID: PMP-0255-2
UNIT NAME: SUMP PUMP 2
SPEC: 22 00 00
TYPE: SUBMERSIBLE
DRIVE: FVNR
POWER: 1/3 HP
CAPACITY: 42 GPM
HEAD: 20 FT

UNIT ID: PMP-0253-1
UNIT NAME: CIP WASTE PUMP 1
SPEC: 43 21 00.23
TYPE: MAGNETIC DRIVE
DRIVE: FVNR
POWER: 60 GPM
HEAD: 50 FT

UNIT ID: PMP-0253-2
UNIT NAME: CIP WASTE PUMP 2
SPEC: 43 21 00.23
TYPE: MAGNETIC DRIVE
DRIVE: FVNR
POWER: 2 HP
CAPACITY: 60 GPM
HEAD: 50 FT



PROJECT

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PROJECT NUMBER

AECOM Project No. - 60670884
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SHEET TITLE

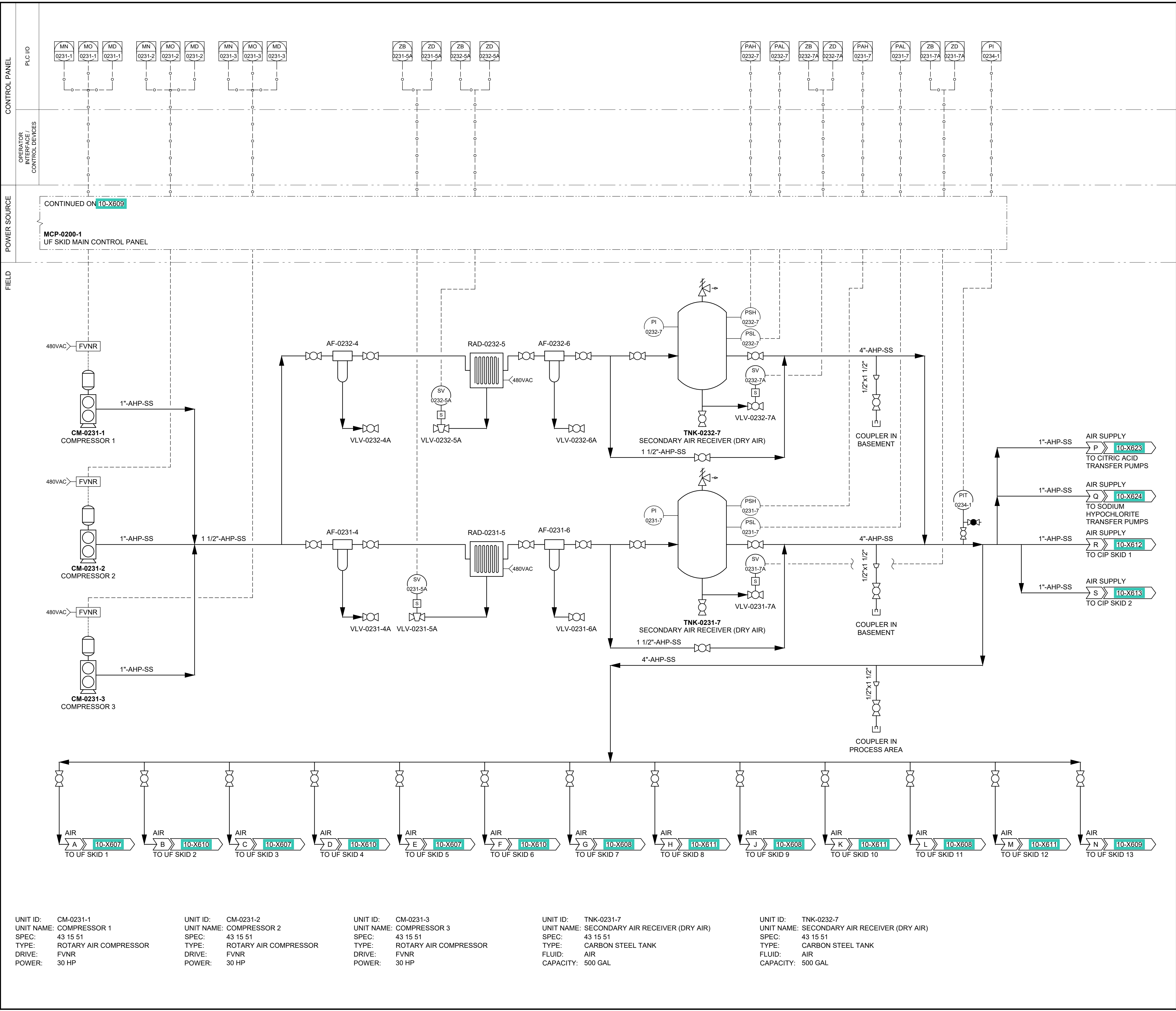
WATER TREATMENT
P&ID
CHEMICAL WASTE

DRAWING NUMBER

10-X616

ANSI D 22" x 34" Approved: B.HODGSON Checked: J.CROUCH Designer: J.MIX Drafter: M.MOURA Project Manager: J.KRINKS

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PROJECT NUMBER
AECOM Project No. - 60670884
HAL Project No. - 035.15.420
SHEET TITLE
WATER TREATMENT
P&ID
HIGH PRESSURE
AIR SYSTEM
DRAWING NUMBER
10-X617

ANSI D 22" x 34"

Approved: B.HODGSON

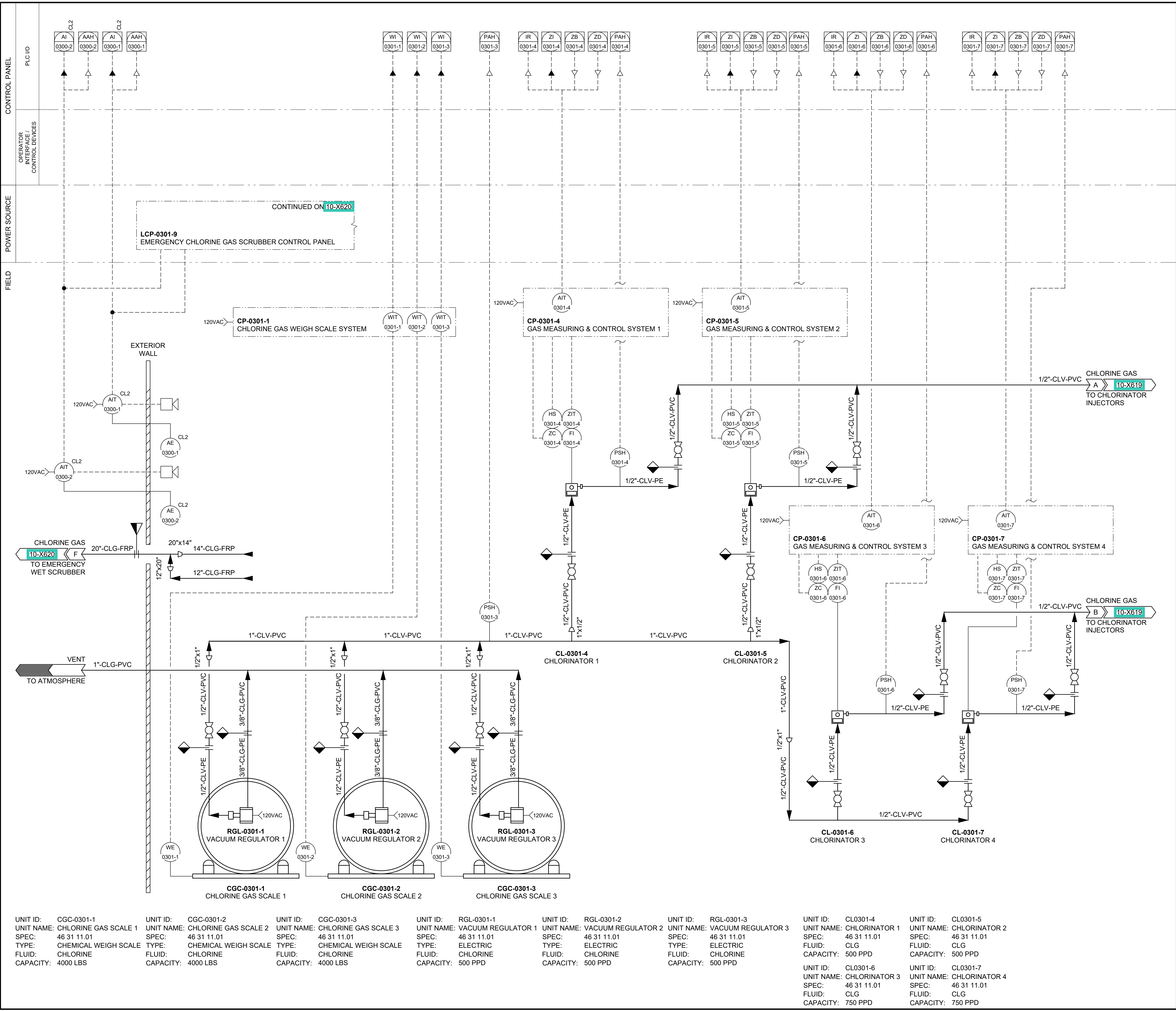
Checked: J.CROUCH

Designer: J.MIX

Drafter: M.MOURA

Project Manager: J.KRINKS

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AutoCAD Drawing Title: Water Treatment Facility 10-X618.dwg



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A	2022-07-01	ISSUED FOR 30%
I/R	DATE	DESCRIPTION

PROJECT NUMBER

AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

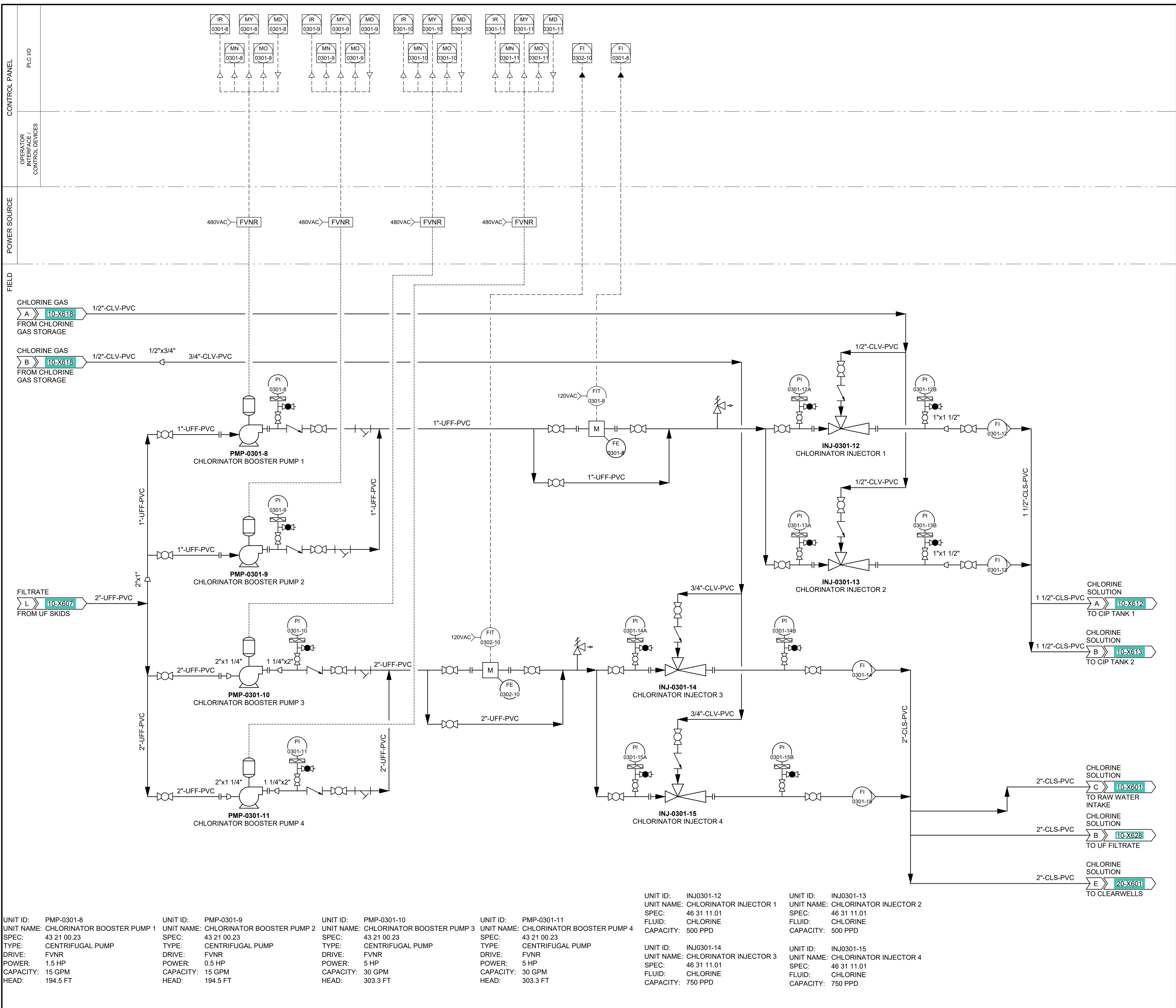
WATER TREATMENT
P&ID
CHLORINE GAS

DRAWING NUMBER

10-X618

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ANSI D 22" x 34" Approved: B.HODGSON Checked: J.CROUCH Designer: J.MIX Drafter: M.MOURA Project Manager: J.KRINKS



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PROJECT NUMBER

AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

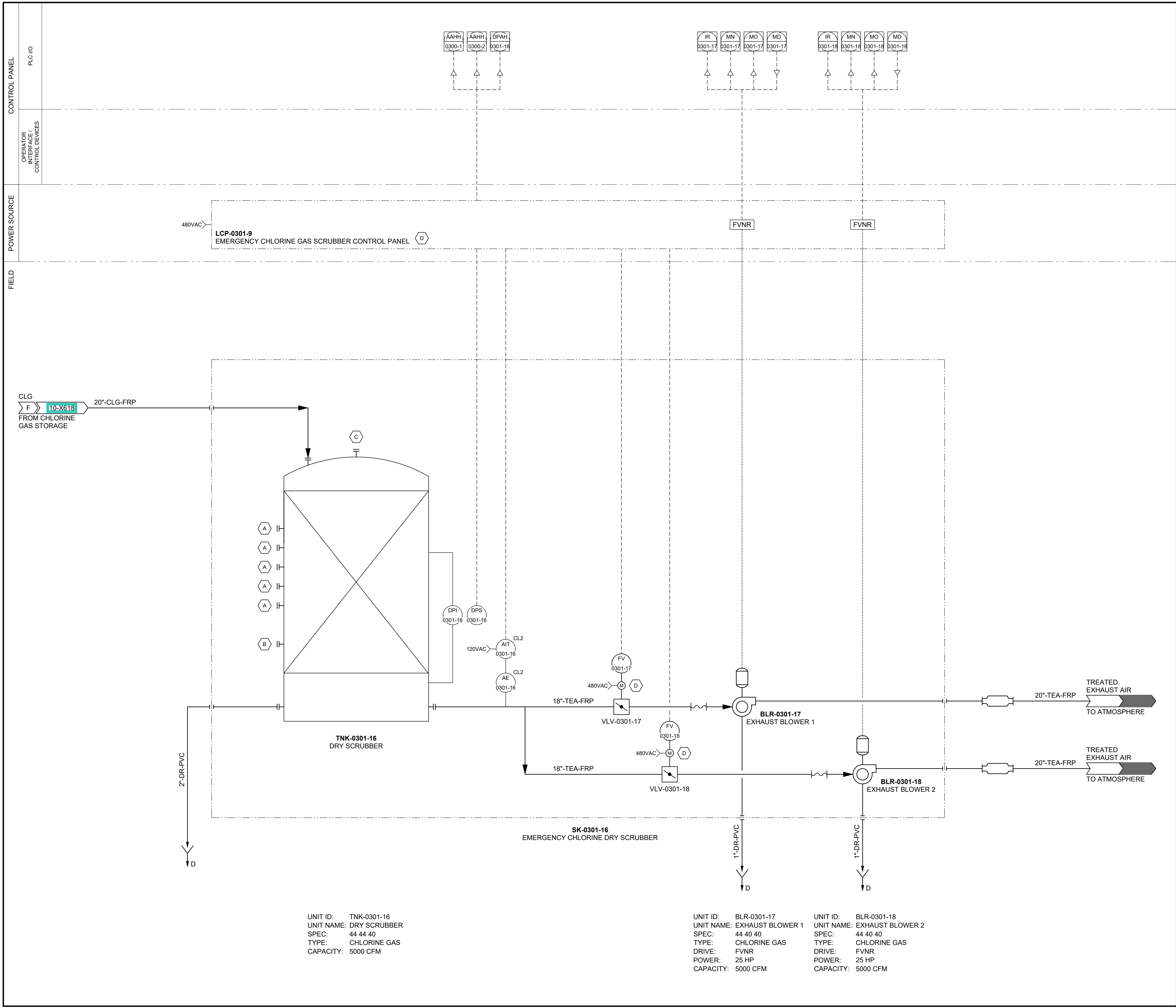
WATER TREATMENT
P&ID
CHLORINE GAS

DRAWING NUMBER

10-X619

ANSI D 22" x 34" Approved: B. HODGSON Checked: J. CROUCH Designer: J. MIX Drafter: M. MOURA Project Manager: J. KRINKS

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AutoCAD DWGPlotter Water Treatment Facility ID-X620.dwg



UNIT ID: TNK-0301-16
UNIT NAME: DRY SCRUBBER
SPEC: 44 44 40
TYPE: CHLORINE GAS
CAPACITY: 5000 CFM

UNIT ID: BLR-0301-17
UNIT NAME: EXHAUST BLOWER 1
SPEC: 44 40 40
TYPE: CHLORINE GAS
DRIVE: FVNR
POWER: 25 HP
CAPACITY: 5000 CFM

UNIT ID: BLR-0301-18
UNIT NAME: EXHAUST BLOWER 2
SPEC: 44 40 40
TYPE: CHLORINE GAS
DRIVE: FVNR
POWER: 25 HP
CAPACITY: 5000 CFM

KEY NOTES

- A. 1 1/2" - CPVC PLUG CONNECTION FOR MEDIA SAMPLE PORTS.
- B. 24" - FRP FLANGED CONNECTION FOR MEDIA ACCESS / REMOVAL.
- C. 24" - FRP FLANGED CONNECTION FOR MEDIA INLET.
- D. EMERGENCY CHLORINE GAS SCRUBBER CONTROL PANEL SHALL BE SUPPLIED WITH PROVISIONS FOR PROVIDING POWER TO THE EXHAUST BLOWER SUCTION DAMPERS.



PROJECT

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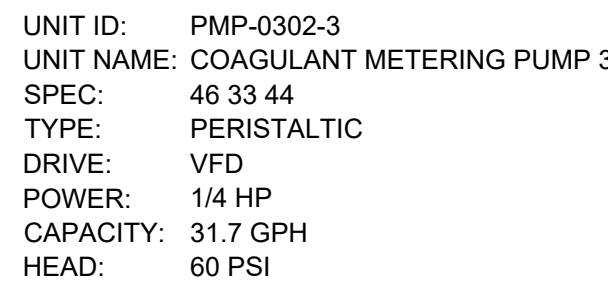
AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT
P&ID
EMERGENCY CHLORINE
GAS SCRUBBER SYSTEM

DRAWING NUMBER

10-X620



ANSI D 22" x 34"

Approved: B.HODGSON

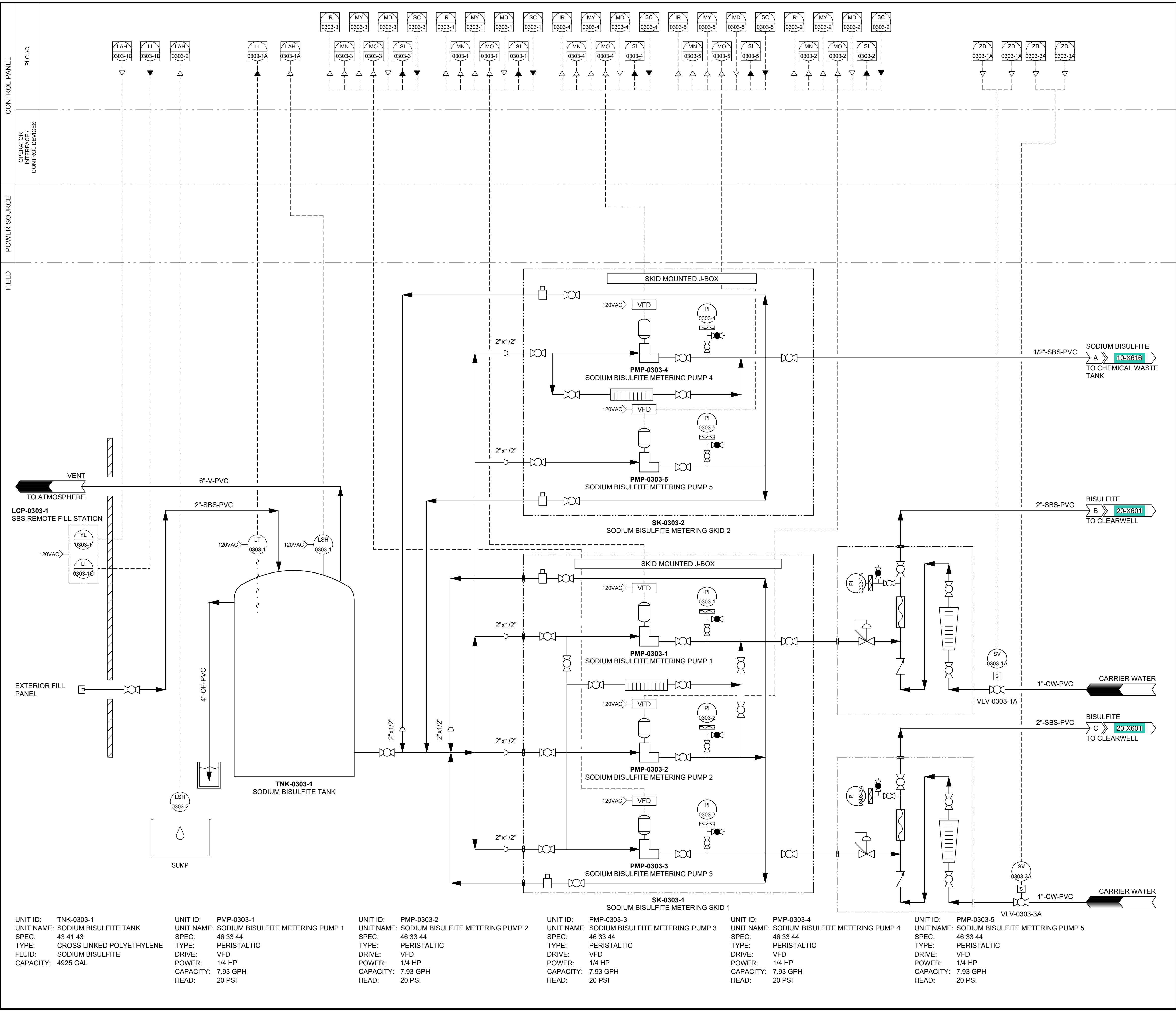
Checked: J.CROUCH

Designer: J.MIX

Drafter: M.MOURA

Project Manager: J.KRINKS

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SHEET TITLE

WATER TREATMENT
P&ID
SODIUM BISULFITE

DRAWING NUMBER

10-X622

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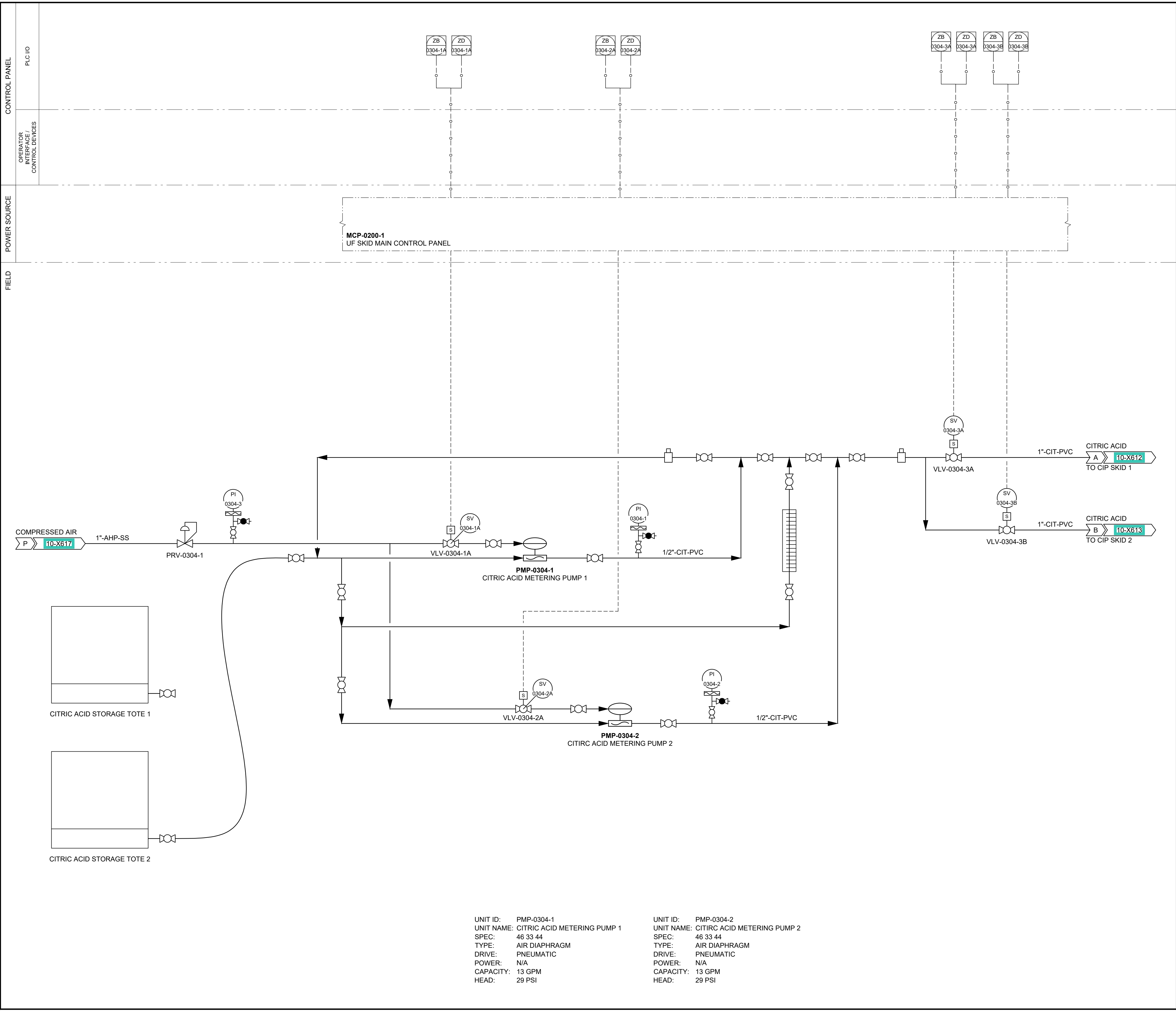
Checked: J. CROUCH

Designer: J. MIX

Drafter: M. MOURA

Project Manager: J. KRINKS

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Filename: C:\Users\jmcroch\OneDrive - AECOM Desktop\2023\SPID_Provo_v004_3_13_2023_11_15_09
AutoCAD DWTG10 Water Treatment Facility ID-X623.dwg



UNIT ID:	PMP-0304-1	UNIT ID:	PMP-0304-2
UNIT NAME:	CITRIC ACID METERING PUMP 1	UNIT NAME:	CITRIC ACID METERING PUMP 2
SPEC:	46 33 44	SPEC:	46 33 44
TYPE:	AIR DIAPHRAGM	TYPE:	AIR DIAPHRAGM
DRIVE:	PNEUMATIC	DRIVE:	PNEUMATIC
POWER:	N/A	POWER:	N/A
CAPACITY:	13 GPM	CAPACITY:	13 GPM
HEAD:	29 PSI	HEAD:	29 PSI



PROJECT

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HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT
P&ID
CITRIC ACID
STORAGE & DELIVERY

DRAWING NUMBER

10-X623

ANSI D 22" x 34"

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Designer: J. MIX

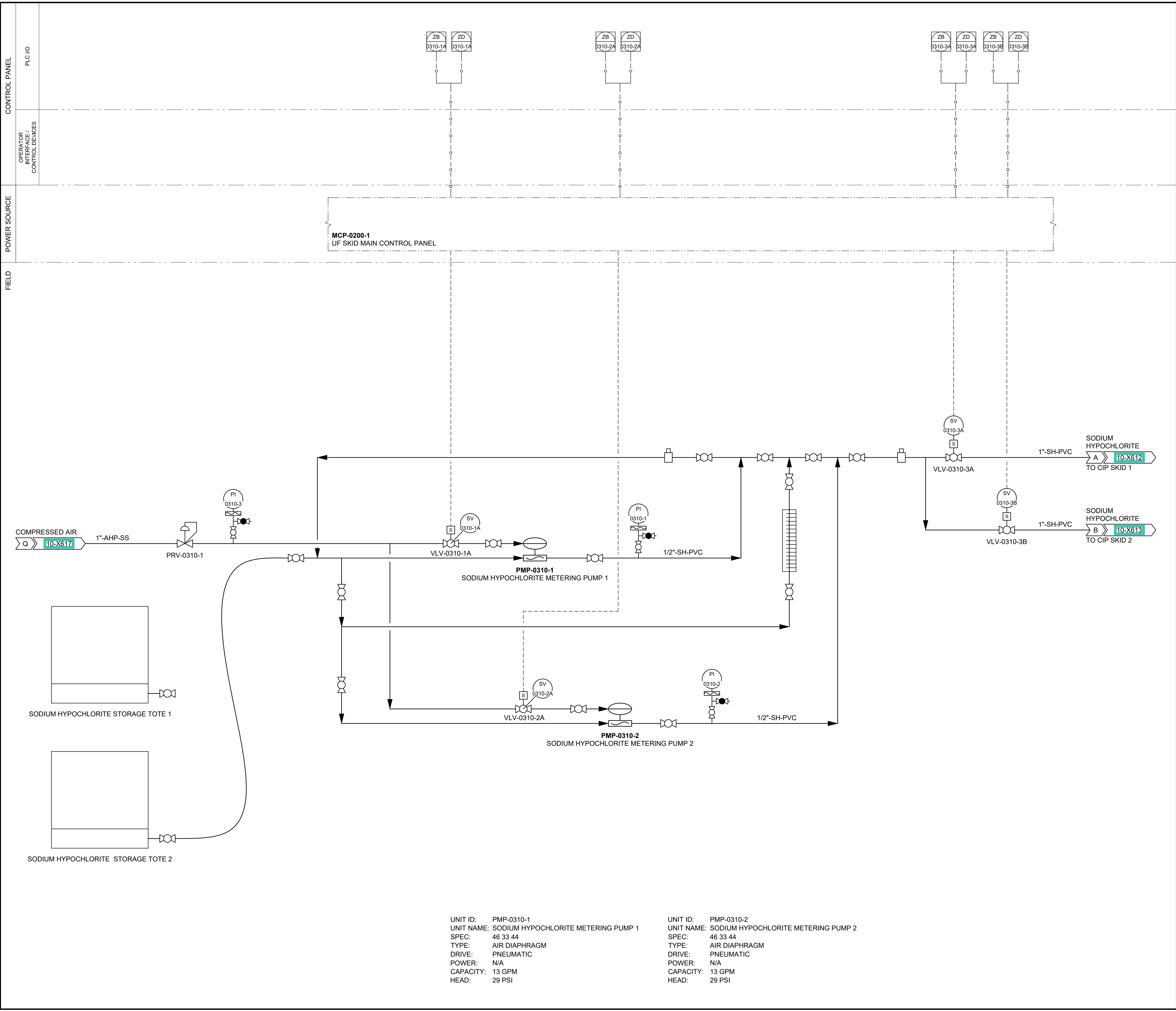
Drafter: M. MOURA

Project Manager: J. KRINKS

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Filename: C:\Users\jmcroch\OneDrive - AECOM\Documents\SPID_Provo_v004_3_13_2023_11_15_09

Alt: P&ID Dwg 10 Water Treatment Facility 10-X624.dwg



UNIT ID: PMP-0310-1

UNIT NAME: SODIUM HYPOCHLORITE METERING PUMP 1

SPEC: 46 33 44

TYPE: AIR DIAPHRAGM

DRIVE: PNEUMATIC

POWER: N/A

CAPACITY: 13 GPM

HEAD: 29 PSI

UNIT ID: PMP-0310-2

UNIT NAME: SODIUM HYPOCHLORITE METERING PUMP 2

SPEC: 46 33 44

TYPE: AIR DIAPHRAGM

DRIVE: PNEUMATIC

POWER: N/A

CAPACITY: 13 GPM

HEAD: 29 PSI



PROJECT

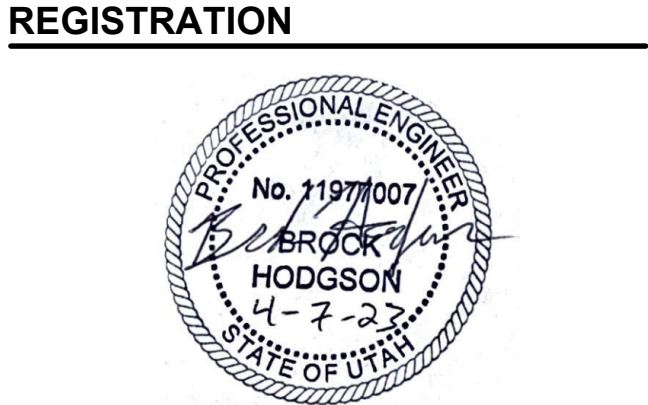
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PROJECT NUMBER

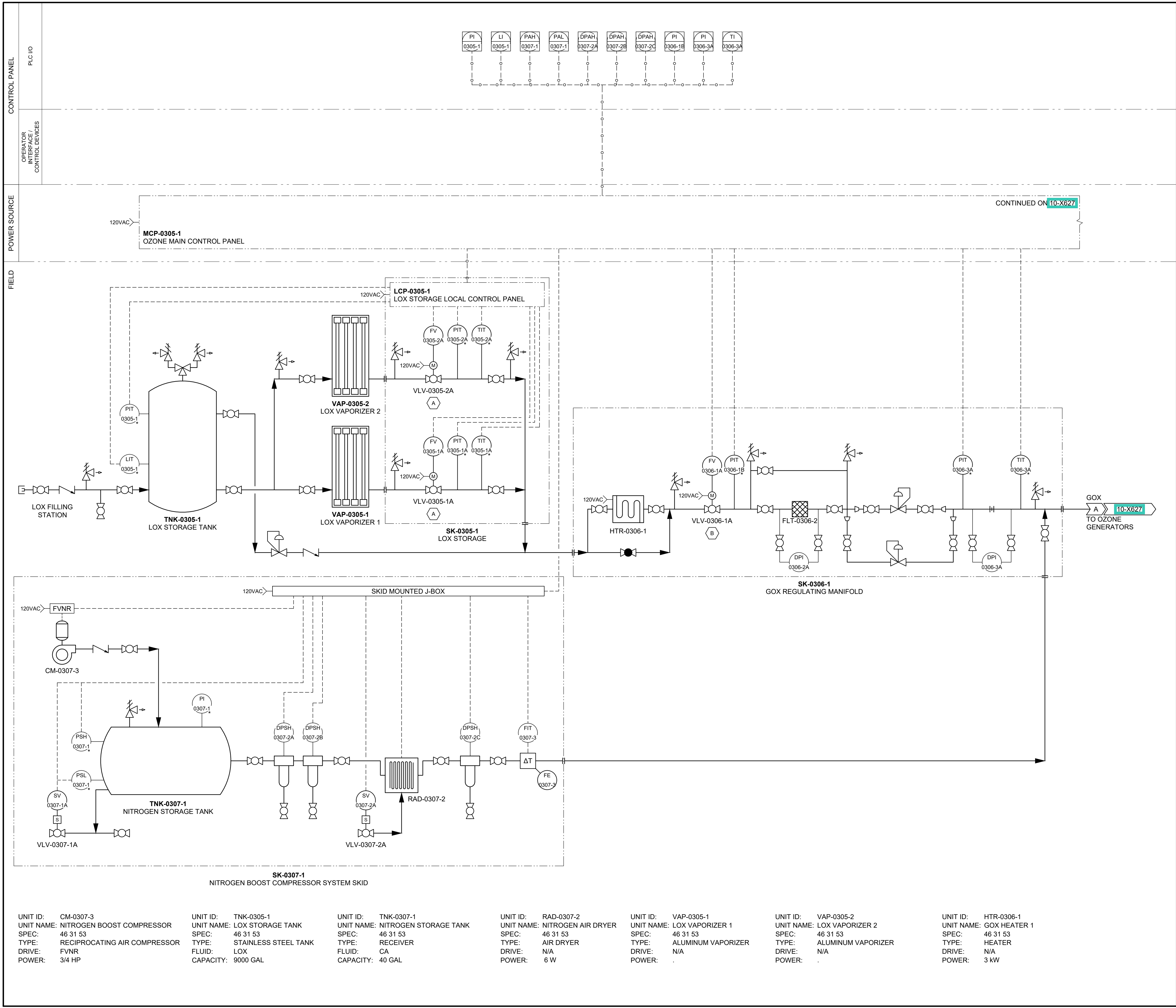
AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT
P&ID
SODIUM HYPOCHLORITE
STORAGE & DELIVERY

DRAWING NUMBER

10-X624



GENERAL NOTES

1. SEE VENDOR PACKAGE P&ID.

KEY NOTES

A. PROVISIONS FOR POWER PROVIDED BY LCP-0305-1.

B. PROVISIONS FOR POWER PROVIDED BY MCP-0305-1.

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PROFESSIONAL ENGINEER

No. 11977/007

B. BROCK

HODGSON

4-7-23

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PROJECT NUMBER

AECOM Project No. - 60670884

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SHEET TITLE

WATER TREATMENT

P&ID

OXYGEN SYSTEM

DRAWING NUMBER

10-X626

UNIT ID:

CM-0307-3

UNIT NAME:

NITROGEN BOOST COMPRESSOR

SPEC:

46 31 53

TYPE:

RECIPROCATING AIR COMPRESSOR

DRIVE:

FVNR

POWER:

3/4 HP

UNIT ID:

TNK-0305-1

UNIT NAME:

LOX STORAGE TANK

SPEC:

46 31 53

TYPE:

STAINLESS STEEL TANK

FLUID:

LOX

CAPACITY:

9000 GAL

UNIT ID:

TNK-0307-1

UNIT NAME:

NITROGEN STORAGE TANK

SPEC:

46 31 53

TYPE:

RECEIVER

FLUID:

CA

CAPACITY:

40 GAL

UNIT ID:

RAD-0307-2

UNIT NAME:

NITROGEN AIR DRYER

SPEC:

46 31 53

TYPE:

AIR DRYER

DRIVE:

N/A

POWER:

6 W

UNIT ID:

VAP-0305-1

UNIT NAME:

LOX VAPORIZER 1

SPEC:

46 31 53

TYPE:

ALUMINUM VAPORIZER

DRIVE:

N/A

POWER:

.

UNIT ID:

VAP-0305-2

UNIT NAME:

LOX VAPORIZER 2

SPEC:

46 31 53

TYPE:

ALUMINUM VAPORIZER

DRIVE:

N/A

POWER:

.

UNIT ID:

HTR-0306-1

UNIT NAME:

GOX HEATER 1

SPEC:

46 31 53

TYPE:

HEATER

DRIVE:

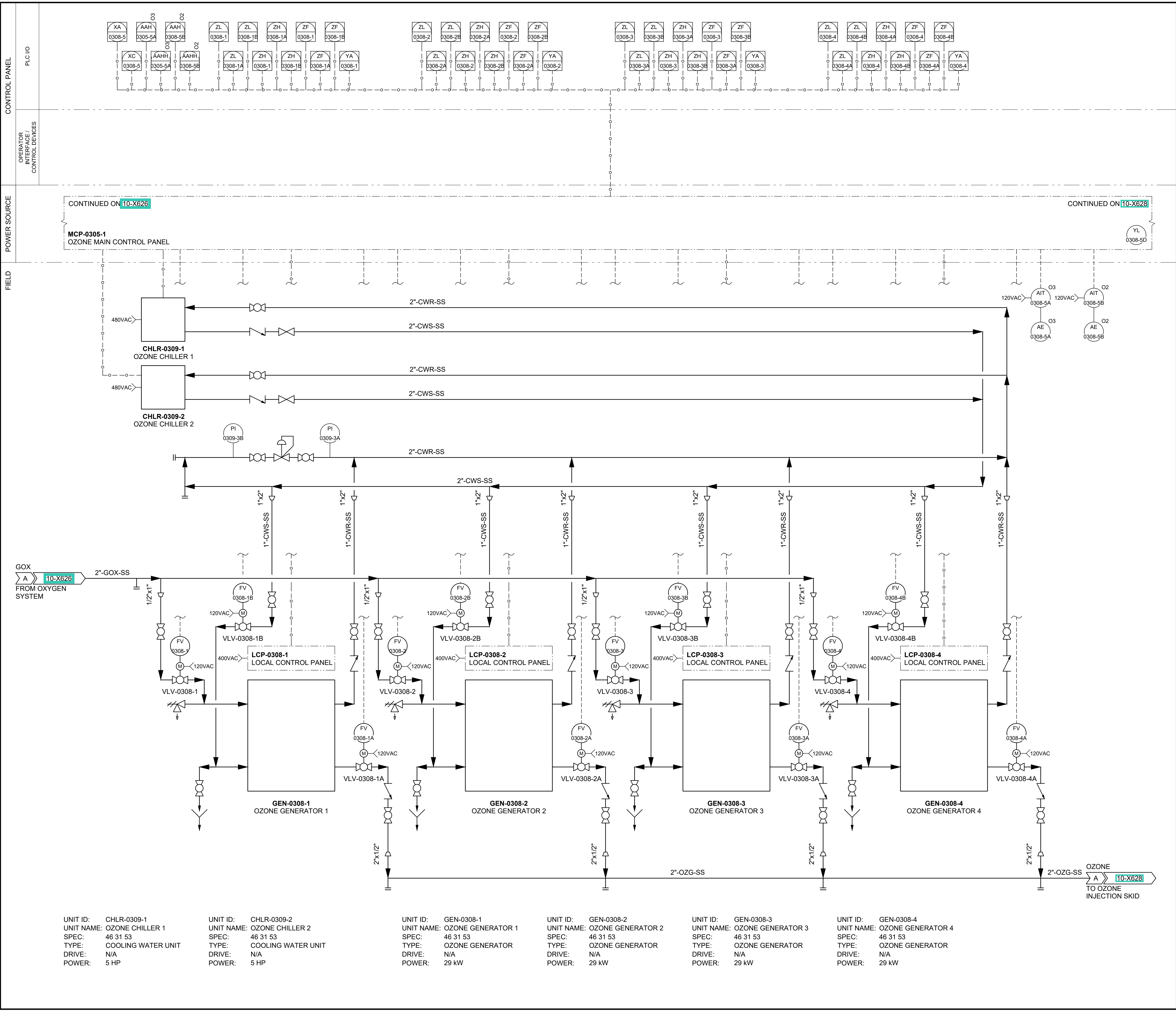
N/A

POWER:

3 kW

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 AWP Dwg\10 Water Treatment Facility\10-X627.dwg
 Project Manager: J.KRINKS
 Drafter: M.MOURA
 Designer: J.MIX
 Checked: J.CROUCH
 Approved: B.HODGSON
 ANS I 22" x 34"



GENERAL NOTES

1. SEE VENDOR PACKAGE P&ID.



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HAL Project No. - 035.15.420

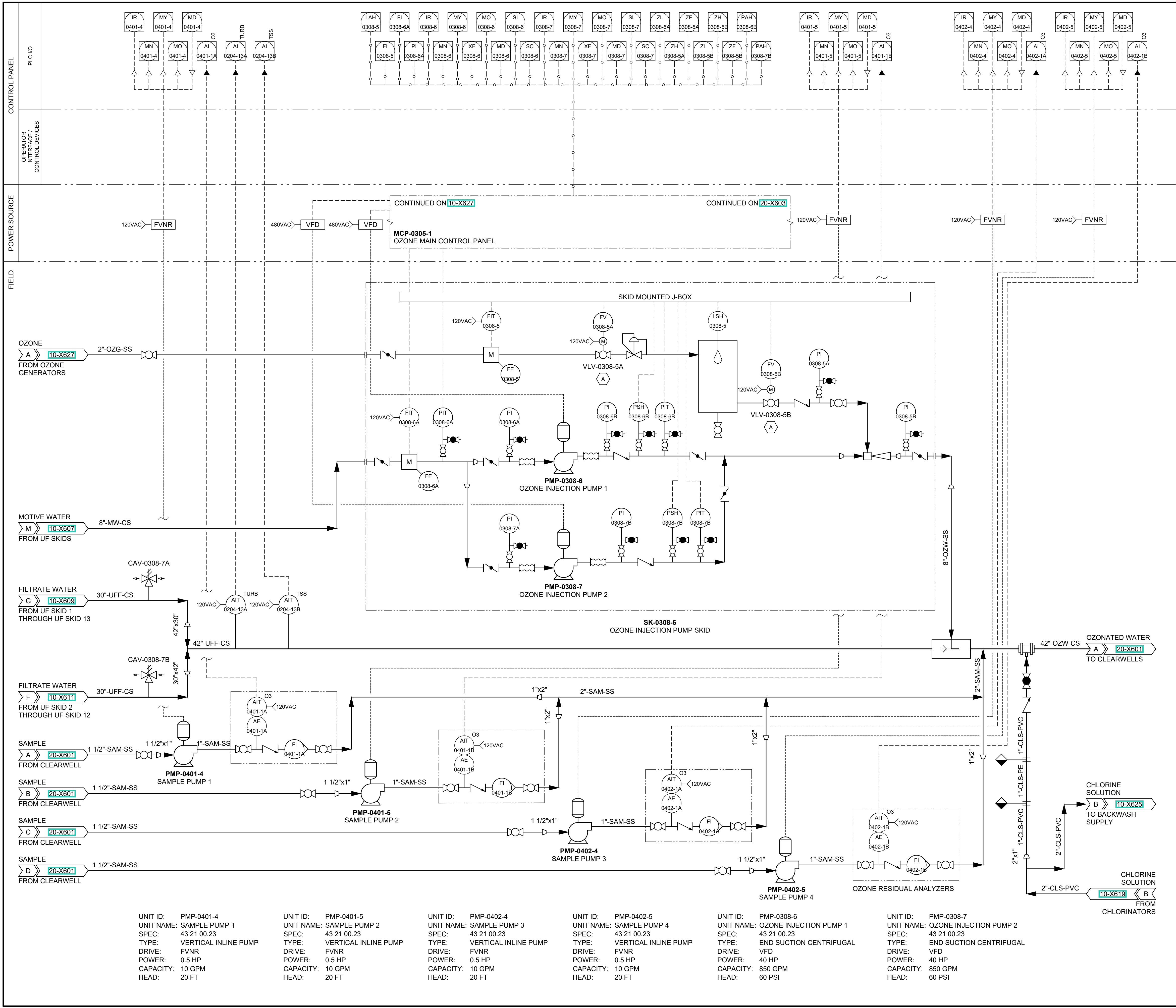
SHEET TITLE

WATER TREATMENT
P&ID
OZONE GENERATION &
FEED SYSTEM

DRAWING NUMBER

10-X627

ANSI D 22" x 34" Approved: B.HODGSON Checked: J.CROUCH Designer: J.MIX Drafter: M.MOURA Project Manager: J.KRINKS



VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

GENERAL NOTES

1. REFER TO SPECIFICATIONS FOR INJECTION SKID REQUIREMENTS WITHIN THE BOUNDARY SHOWN. PIPE SIZES, VALVE LOCATIONS, AND FINAL ARRANGEMENT OF THE OZONE INJECTION SKID SHALL BE DETERMINED BY THE MANUFACTURER. P&ID IS INTENDED TO SHOW INTENT OF FUNCTIONALITY AND NOT FINAL ARRANGEMENT.

KEY NOTES

A. PROVISIONS FOR POWER PROVIDED BY MCP-0305-1.

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PROFESSIONAL ENGINEER

No. 11977007

BROCK

HODGSON

4-7-23

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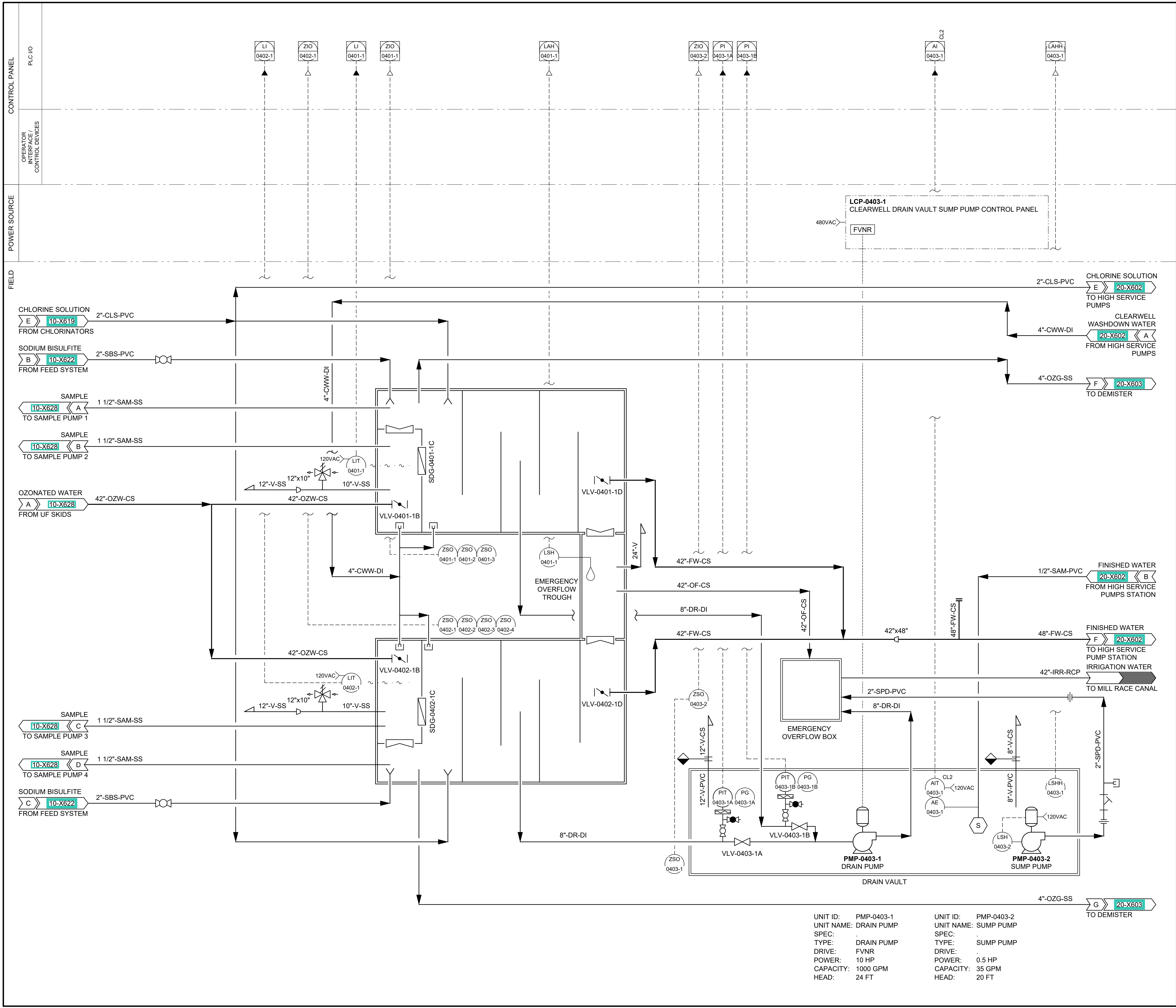
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HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT
P&ID
OZONE INJECTION
PUMP SKID

DRAWING NUMBER

10-X628



UNIT ID: PMP-0403-1
UNIT NAME: DRAIN PUMP
SPEC: .
TYPE: DRAIN PUMP
DRIVE: FVNR
POWER: 10 HP
CAPACITY: 1000 GPM
HEAD: 24 FT

UNIT ID: PMP-0403-2
UNIT NAME: SUMP PUMP
SPEC: .
TYPE: SUMP PUMP
DRIVE: .
POWER: 0.5 HP
CAPACITY: 35 GPM
HEAD: 20 FT



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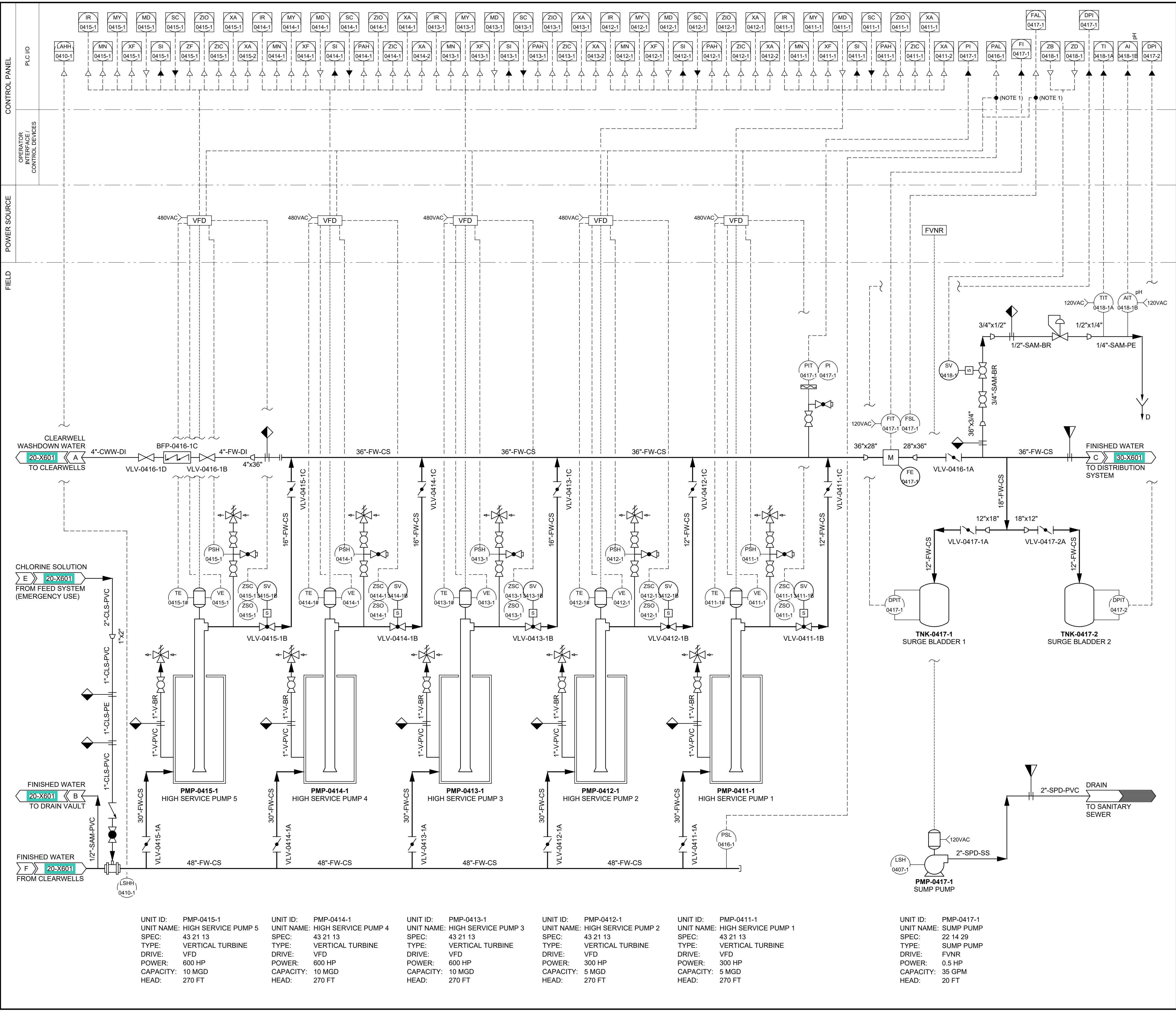
CLEARWELL &
PUMP STATION
P&ID
CLEARWELLS

DRAWING NUMBER

20-X601

ANSI D 22" x 34" Approved: B.HODGSON Checked: J.CROUCH Designer: R.KELIHER Drafter: M.MOURA Project Manager: J.KRINKS

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GENERAL NOTES

1. PROVIDE INTERPOSING RELAYS IN PLC-0000-2 AS REQUIRED TO PROVIDE HARD-WIRED SUCTION PRESSURE SWITCH AND DISCHARGE FLOW SWITCH SIGNALS TO EACH OF THE FIVE HIGH SERVICE PUMP VARIABLE FREQUENCY DRIVES.

TABLE 1	
PUMP	TEMPERATURE PLACEHOLDER VALUE
PMP-0411-1	# = A THRU H
PMP-0412-1	# = A THRU H
PMP-0413-1	# = A THRU H
PMP-0414-1	# = A THRU H
PMP-0415-1	# = A THRU H



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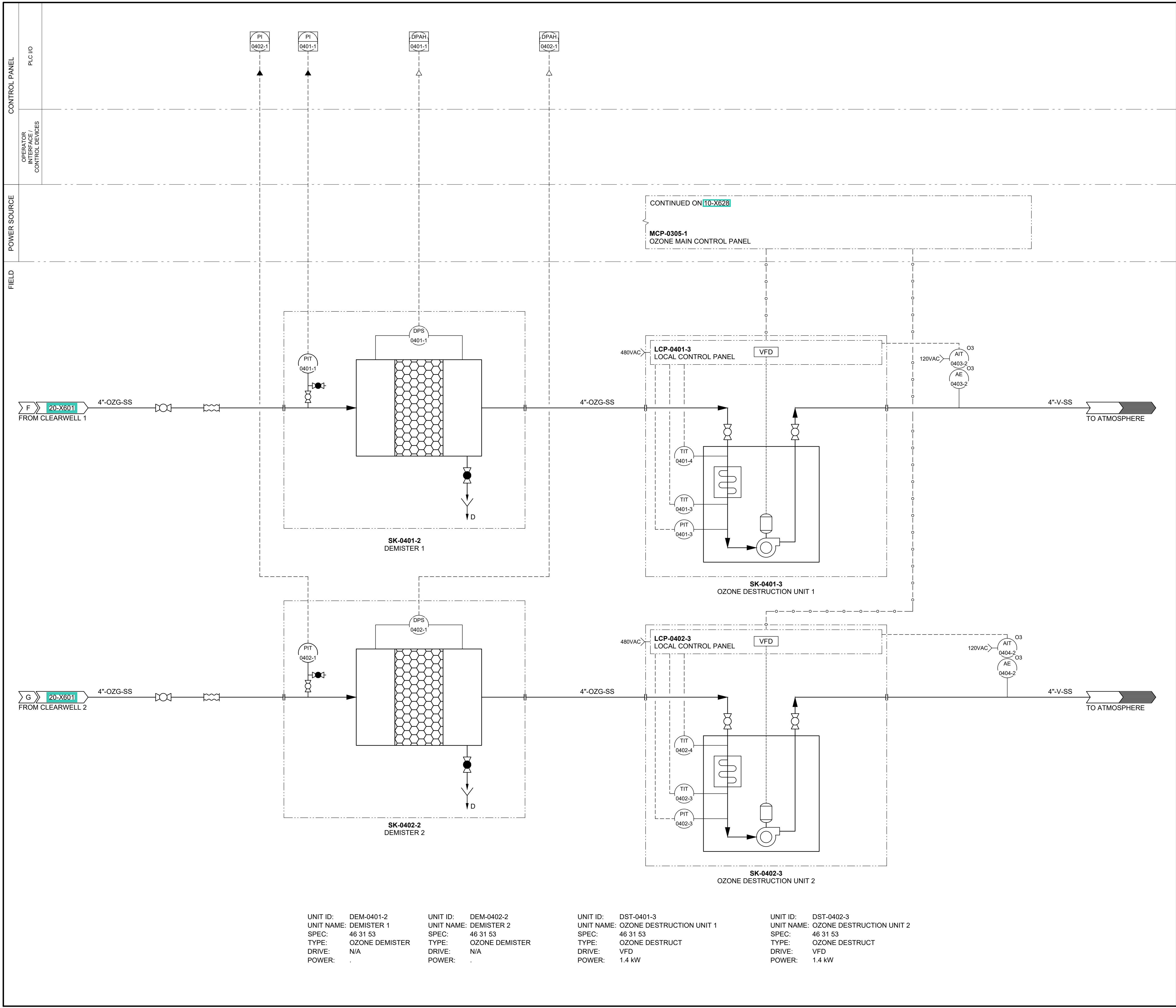
AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

CLEARWELL &
PUMP STATION
P&ID
HIGH SERVICE PUMP
STATION

DRAWING NUMBER

20-X602



20-X601

FROM CLEARWELL 1

4"-OZG-SS

4"-OZG-SS

4"-V-SS

TO ATMOSPHERE

20-X601

FROM CLEARWELL 2

4"-OZG-SS

4"-OZG-SS

4"-V-SS

TO ATMOSPHERE



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REGISTRATION



ISSUE/REVISION

I/R	DATE	DESCRIPTION
D	2023-04-07	ISSUED FOR BID
C	2023-01-20	ISSUED FOR 90%
B	2022-10-24	ISSUED FOR 60%
A	2022-07-01	ISSUED FOR 30%

PROJECT NUMBER

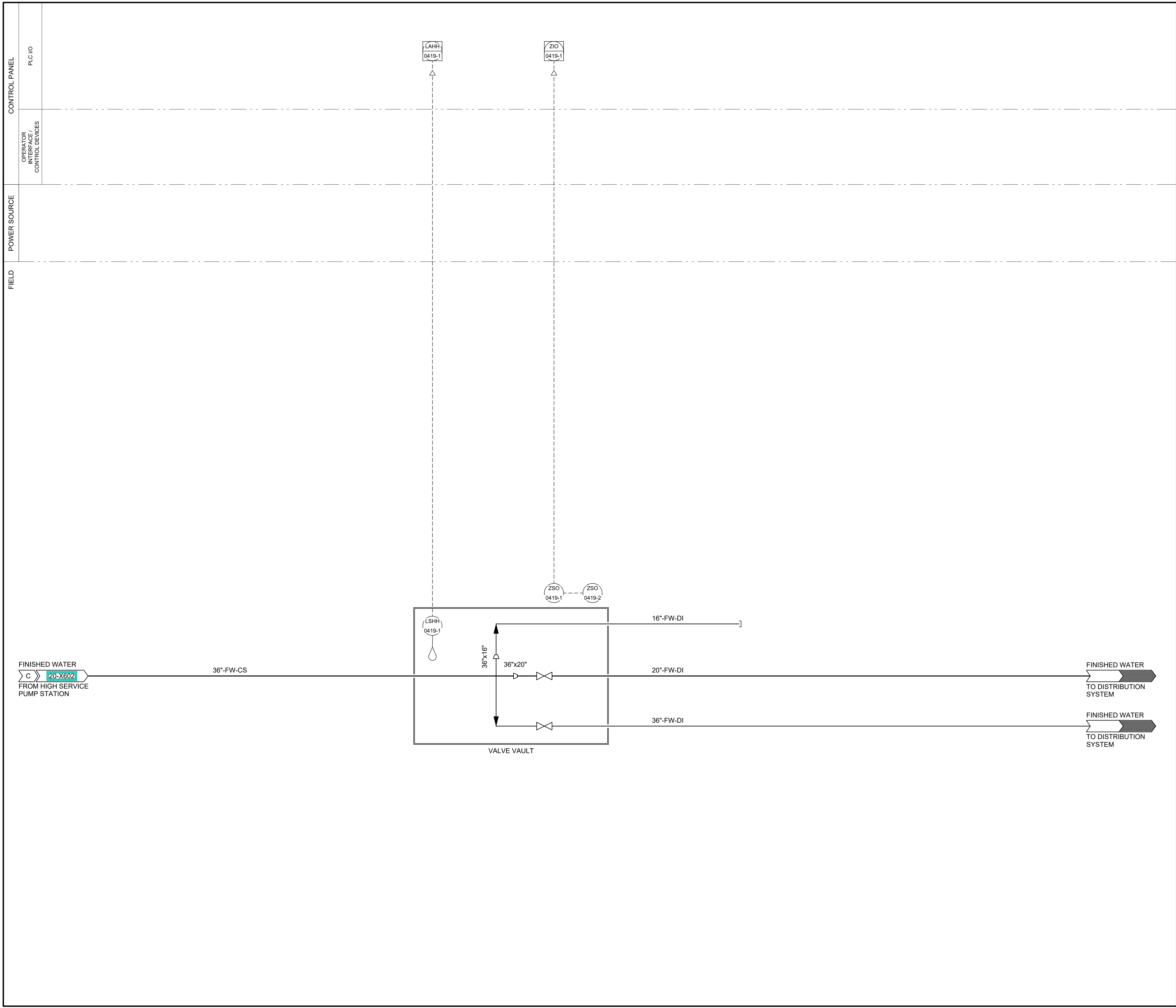
AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

CLEARWELL &
PUMP STATION
P&ID
OZONE SYSTEM

DRAWING NUMBER

20-X603



GENERAL NOTES

1. SEE 30-D101 FOR VALVE VAULT PLAN.

PROJECT

PROVO RIVER
WATER TREATMENT
PLANT

CLIENT

PROVO CITY
PUBLIC WORKS
1377 South 350 East
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WELCOME HOME

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REGISTRATION



ISSUE/REVISION

I/R	DATE	DESCRIPTION
A	2023-04-07	ISSUED FOR BID

PROJECT NUMBER

AECOM Project No. - 60670884
HAL Project No. - 035.15.420

SHEET TITLE

TRANSMISSION
PIPELINE
P&ID
VALVE VAULT

DRAWING NUMBER

30-X601