

PVF SCHEDULE																
SYSTEM	AREA	SIZE (INCHES)		PIPE				FITTINGS			FLANGES		BRANCH CONNECTIONS	INDIVIDUAL PIPE HANGERS / SUPPORTS		
				MATERIAL	GRADE	WALL	MANUFACTURER	MATERIAL	CONNECTION	MANUFACTURER	TYPE	GASKET		HORIZONTAL	VERTICAL	
DOMESTIC WATER	UNDERGROUND	-	<=	-	COPPER	HARD / SOFT ASTM B88	TYPE K	-	COPPER	5% Ag BRAZE	NIBCO	-	-	-	-	-
	ABOVEGROUND	1/2	<=	4	COPPER	HARD ASTM B88	TYPE L	-	COPPER	PRESS	VIEGA / APOLLO	COPPER PRESS	GARLOCK 3760-U	T-DRILL	PLATED CLEVIS, EXCEPT COPPER COATED FOR HANGERS IN CONTACT WITH COPPER PIPING	COPPER PLATED RISER
SANITARY VENT SANITARY WASTE STORM DRAIN OVERFLOW STORM DRAIN	UNDERGROUND	-	<=	-	PVC	SOLID CORE ASTM D1784, D1785, D2665	SCH. 40	CHARLOTTE	DWV PVC	PRIMER: ASTM F656 CEMENT: ASTM D2564	CHARLOTTE	-	-	-	-	-
	ABOVEGROUND	-	<=	-	PVC	SPEARS LOW EXTRACTABLE	SCH. 40	CHARLOTTE	DWV PVC	PRIMER: ASTM F656 CEMENT: ASTM D2564	CHARLOTTE	-	-	-	PLATED CLEVIS	PLATED RISER CLAMP
REVERSE OSMOSIS AND SOFT WATER	ABOVEGROUND (GROOVE)	2-1/2	<=	6	STAINLESS STEEL	GRADE 304 WELDED, ASTM A312	SCH. 10	-	SCH. 10 304 STAINLESS STEEL	VICTAULIC 807 / 877 PAINTED	VICTAULIC	VICTAULIC 445	GARLOCK 3760-U	TEE	PLATED CLEVIS	PLATED RISER CLAMP
	ABOVEGROUND (WELD)	2-1/2	<=	6	STAINLESS STEEL	GRADE 304 WELDED, ASTM A312	STD	-	150W CAST 304 SS	THREAD OR SOCKET WELD	-	-	-	-	-	-
NATURAL GAS (30-PSIG & UNDER)	ABOVEGROUND	1/2	<=	4	CARBON STEEL	BLACK ERW, ASTM A53	STD	-	CARBON STEEL	PRESS - HNBR GASKET	VIEGA / APOLLO	PRESS - HNBR GASKET	NON-ASBESTOS	FORGED STEEL OUTLET	PLATED CLEVIS	PLATED RISER CLAMP
		1/2	<=	2					3000W FORGED STEEL	SOCKET WELD	-	THREAD / SOCKET WELD				
NATURAL GAS (30-PSIG TO 125-PSIG)	ABOVEGROUND	1/2	<=	2	CARBON STEEL	BLACK ERW, ASTM A53 OR SEAMLESS, ASTM A53	STD (REFER TO NFA 54 / ANSI 2223.1)	-	3000W FORGED STEEL	SOCKET WELD	-	WELD-NECK	NON-ASBESTOS	FORGED STEEL OUTLET	PLATED CLEVIS	PLATED RISER CLAMP
		2-1/2	<=	10					REFER TO NFA 54 / ANSI Z223.1	BUTT WELD	-	-	BUTT WELD	-	-	-
NATURAL GAS (ABOVE 125-PSIG) REFER TO ASME B31.8	ABOVEGROUND	1/2	<=	2	CARBON STEEL	SEAMLESS, ASTM A53	SCH. 40 (REFER TO ASME B31.1)	-	3000W FORGED STEEL	SOCKET WELD	-	WELD-NECK ANSI CLASS 300	NON-ASBESTOS	FORGED STEEL OUTLET	PLATED CLEVIS	PLATED RISER CLAMP
		2-1/2	<=	10					REFER TO ASME B16.9 / 16.25	BUTT WELD	-	-	BUTT WELD	-	-	-
CHILLED WATER HEATING WATER TOWER WATER MAKEUP WATER	UNDERGROUND (WELD)	2-1/2	<=	24	CARBON STEEL (6.7)	BLACK ERW, ASTM A53	STD	-	STD CARBON STEEL (1)	BUTT WELD	-	B16.47 WELD NECK, SERIES A	NON-ASBESTOS	FORGED STEEL OUTLET	-	-
		30	<=	-		API 5L - PSL 2, GRADE B / X42			-	-	-	-	-	-	-	-
CHILLED WATER	UNDERGROUND	4	<=	72	POLYETHYLENE	HDPE, IPS	SDR 11	-	HDPE	BUTT FUSION	-	FUSION STUB END	NON-ASBESTOS	-	-	-
	ABOVEGROUND (PRESS)	1/2	<=	2	COPPER	HARD ASTM B88	TYPE L	-	COPPER	PRESS	VIEGA / APOLLO	COPPER PRESS	NON-ASBESTOS	T-DRILL	PLATED CLEVIS, EXCEPT COPPER COATED FOR HANGERS IN CONTACT WITH COPPER PIPING	COPPER PLATED RISER
CHILLED WATER HEATING WATER TOWER WATER MAKEUP WATER	ABOVEGROUND (GROOVE)	2-1/2	<=	12	CARBON STEEL	BLACK ERW, ASTM A53	STD	-	PAINTED DUCTILE IRON (1)	VICTAULIC 107, PAINTED VICTAULIC 177, PAINTED	VICTAULIC	VICTAULIC 45, PLAIN	NON-ASBESTOS	FORGED STEEL OUTLET	PLATED CLEVIS	PLATED RISER CLAMP
		14	<=	24		VICTAULIC W07, PAINTED VICTAULIC W77, PAINTED			VICTAULIC W45, PLAIN							
	30	<=	-	API 5L - PSL 2, GRADE B / X42	-	-	-	-	-	-	-	-	-	-	-	
	2-1/2	<=	24	BLACK ERW, ASTM A53	STD	-	STD CARBON STEEL (1)	BUTT WELD	-	-	-	SLIP-ON (2)	NON-ASBESTOS	FORGED STEEL OUTLET	PLATED CLEVIS	PLATED RISER CLAMP
30	<=	-	API 5L - PSL 2, GRADE B / X42	-			-	-	-	-	B16.47 WELD NECK, SERIES A					
CONDENSATE	ABOVEGROUND	3/4	<=	1	COPPER	HARD ASTM B88	TYPE L	-	COPPER	LF STERLING SOLDER	NIBCO	-	-	-	PLATED CLEVIS	COPPER PLATED RISER
		1-1/4	<=	-		HARD ASTM B306	DWV		-	-	-	-	-	-	-	-
REFRIGERANT RELIEF	ABOVEGROUND	1/2	<=	2	CARBON STEEL	BLACK ERW, ASTM A53	STD	-	3000W FORGED STEEL	THREAD OR SOCKET WELD	-	SOCKET WELD	SPIRAL WOUND (3)	FORGED STEEL OUTLET	PLATED CLEVIS	PLATED RISER CLAMP
		2-1/2	<=	-		STD CARBON STEEL	BUTT WELD		-	SLIP-ON						
COOLING TOWER DRAIN	ABOVEGROUND	-	<=	-	PVC	SOLID CORE ASTM D1784, D1785, D2665	SCH. 40	CHARLOTTE	DWV PVC	PRIMER: ASTM F656 CEMENT: ASTM D2564	CHARLOTTE	-	-	-	PLATED CLEVIS	PLATED RISER CLAMP
BOILER FEEDWATER	ABOVEGROUND	1/2	<=	2	CARBON STEEL	BLACK SEAMLESS, ASTM A106	XS	-	3000W FORGED STEEL	THREAD OR SOCKET WELD	-	-	FORGED STEEL OUTLET	PLATED CLEVIS	PLATED RISER CLAMP	
MEDIUM / HIGH PRESSURE STEAM SUPPLY	ABOVEGROUND	1/2	<=	2	CARBON STEEL	BLACK SEAMLESS, ASTM A106	XS	-	3000W FORGED STEEL	THREAD OR SOCKET WELD	-	SOCKET WELD	SPIRAL WOUND (3)	FORGED STEEL OUTLET	PLATED CLEVIS	PLATED RISER CLAMP
		2-1/2	<=	-		STD CARBON STEEL (4)	BUTT WELD		-	SLIP-ON						
MEDIUM / HIGH PRESSURE CONDENSATE RETURN	ABOVEGROUND	1/2	<=	2	CARBON STEEL	BLACK SEAMLESS, ASTM A106	XS	-	3000W FORGED STEEL	THREAD OR SOCKET WELD	-	SOCKET WELD	SPIRAL WOUND (3)	FORGED STEEL OUTLET	PLATED CLEVIS	PLATED RISER CLAMP
		2-1/2	<=	-		STD CARBON STEEL (4)	BUTT WELD		-	SLIP-ON						
FUEL OIL	ABOVEGROUND	1/2	<=	2	CARBON STEEL	BLACK ERW, ASTM A53	SCH. 40	-	MALLEABLE-IRON WROUGHT-STEEL	THREAD BUTT OR SOCKET WELD	-	THREAD / SOCKET WELD	NON-ASBESTOS (FUEL OIL COMPATIBLE)	FORGED STEEL OUTLET	PLATED CLEVIS	PLATED RISER CLAMP

NOTES:
1. REDUCE PIPE SIZES USING ECCENTRIC REDUCER FITTING INSTALLED WITH LEVEL SIDE UP
2. SOCKET WELD OR WELD NECK FOR CONNECTION TO LUG BUTTERFLY
3. FLEXITALLIC STYLE CGI, 304 SS WINDING, FLEXICAB FILLER, CARBON STEEL RINGS
4. REDUCE PIPE SIZES USING ECCENTRIC REDUCER FITTING INSTALLED WITH LEVEL SIDE DOWN
5. ALL EXTERIOR ABOVE GROUND PIPING PVC PIPING TO BE FINISHED WITH UV RESISTANT PAINT
6. PIPE TO BE COATED WITH SHERWIN WILLIAMS PIPECLAD 2000 EQUIVALENT FUSION-BONDED EPOXY,
A POLYKEN #1027 EQUIVALENT LIQUID ADHESIVE, AND A COVALENCE WPCCT EQUIVALENT WRAP.
7. ALL UNDERGROUND WELDS TO BE INSPECTED, EXAMINED, AND TESTED PER ASME B31.3
CHAPTER VI STANDARDS FOR RADIOGRAPHY/RAY. EXTENT OF RADIOGRAPHY TO BE 100% RADIOGRAPHY.

HDPE PIPING NOTES:
1. USE 3/16 STAINLESS BOLTS, 304 STAINLESS NUTS, DUCTILE IRON
2. TORQUEING PROCEDURE SHOULD INCLUDE A MIN. OF THREE (3) TORQUEING SESSION.
a. A SESSION INCLUDES BOTH PERFORMING ADEQUATE TORQUE ON THE PIPE,
AND LETTING THE PIPE REST FOR NATURAL STRETCH/SETTLING.

PVF SCHEDULE CONTINUED																	
SYSTEM	AREA / CONNECTION	SIZE (INCHES)		VALVES				SPECIALTIES							MISC. ACCESSORIES	ANCHORS DROP-IN	
				SHUT-OFF	CHECK	BALANCING	STRAINER	DIELECTRIC	PRESSURE GAUGE	GAUGE COCK	THERMOMETER	THERMOWELL	P&T PLUG				
DOMESTIC WATER	-	1/2	<=	2	NIBCO PC585-80-LF (1)	NIBCO PC413-Y-LF	B&G CIRCUIT SETTER	WATTS LF777SI	NIPPLE	-	TRERICE 600CB	NIBCO T-585-80-LF	-	-	-	-	
	FLANGE CONNECTION	2-1/2	<=	6	NIBCO LD2000-3	NIBCO W-920-W-LF	-	WATTS 77F-DI-125	-	-	-	-	-	-	-	-	
REVERSE OSMOSIS AND SOFT WATER	ABOVEGROUND (PVC PIPE)	1/2	<=	6	SPEARS TRUE UNION LX	SPEARS BALL CHECK LX	-	CONTRACTOR TO SUBMIT CORROSIVE RESISTANT STRAINER TO EOR FOR APPROVAL	-	-	-	-	-	CONTRACTOR TO SUBMIT CORROSIVE RESISTANT P&T PLUG TO EOR FOR APPROVAL	CONTRACTOR TO SUBMIT CORROSIVE RESISTANT FLOW LIMITING DEVICE TO EOR FOR APPROVAL. EQUIVALENT TO GRISWOLD K-VALVE WITH REPLACEABLE CARTRIDGE. STATIC MIXER: KOFLO MODEL 1-904-12-2, 1" PIPE DIAMETER, 12 ELEMENTS	-	
	ABOVEGROUND (STAINLESS STEEL PIPE)	2-1/2	<=	6	SUBMIT CORROSIVE RESISTANT VALVE TO EOR FOR APPROVAL	SUBMIT CORROSIVE RESISTANT VALVE TO EOE FOR APPROVAL	-	-	-	-	-	-	-	-	THREAD SEALANT: OATEY MEGALOC	-	
NATURAL GAS (30-PSIG & UNDER)	ABOVEGROUND	1/2	<=	3/4	HOMESTEAD 601	-	-	-	-	-	-	-	-	-	-	-	
		1	<=	10	HOMESTEAD 612	-	-	-	-	-	-	-	-	-	-	-	
NATURAL GAS (30-PSIG TO 125-PSIG)	ABOVEGROUND	1/2	<=	2	KECKLEY BVSCSWFCRGSLS	-	-	-	-	-	-	-	-	-	THREAD SEALANT: OATEY MEGALOC	-	
		2-1/2	<=	10	KECKLEY BVF2RF4FCRGSLS	-	-	-	-	-	-	-	-	-	-	-	
NATURAL GAS (ABOVE 125-PSIG) REFER TO ASME B31.8	ABOVEGROUND	1/2	<=	2	BROEN BALLOMAX XBMW740PLRPCB14S	-	-	-	-	-	-	-	-	-	THREAD SEALANT: OATEY MEGALOC	-	
		2-1/2	<=	10	-	-	-	-	-	-	-	-	-	-	-	-	
CHILLED WATER HEATING WATER TOWER WATER MAKEUP WATER	PRESS	1/2	<=	2	NIBCO PC-585-70	NIBCO PF-413Y	-	WATTS LF777SI	NIPPLE	-	-	-	-	-	THREAD SEALANT: OATEY MEGALOC	-	
		2-1/2	<=	6	VICTAULIC V-XXX-761SE-2	VICTAULIC 716	-	-	-	-	-	-	-	-	-	-	
	GROOVE CONNECTION	8	<=	12	VICTAULIC V-XXX-761SE-3	-	-	-	-	-	-	-	-	-	-	-	
		14	<=	24	VICTAULIC V-XXX-1582-20	VICTAULIC W715	-	-	-	-	-	-	-	-	-	-	
		30	<=	-	VICTAULIC W709	-	-	-	-	-	-	-	-	-	-	-	
		2-1/2	<=	6	NIBCO LD2000-3 OR BRAY 31H	-	-	-	-	-	-	-	-	-	-	-	
FLANGE CONNECTION	8	<=	20	NIBCO LD2000-5 OR BRAY 31H	NIBCO W-920-W-LF	-	-	-	-	-	-	-	-	-	-		
	24	=	24	NIBCO LD2000-5 OR BRAY 36H		-	-	-	-	-	-	-	-	-	-		
	30	<=	-	NIBCO LD1000-5 OR BRAY 36H		-	-	-	-	-	-	-	-	-	-	-	
UNDERGROUND	4	<=	72	PRATT GROUNDHOOG W/ OPERATOR & STEM EXTENSION	-	-	-	-	-	-	-	-	-	-	-		
REFRIGERANT RELIEF	-	-	<=	-	-	-	-	-	-	-	-	-	-	-	-	-	
BOILER FEEDWATER	-	1/2	<=	2	POWELL GA08 THREADED A105 BODY, API TRIM 8	-	-	-	-	-	-	-	-	-	FLEX CONNECTOR: METRAFLEX SSTT OR SSTC	-	
MEDIUM PRESSURE STEAM & CONDENSATE	-	1/2	<=	2	POWELL GA08 SOCKET WELD OR THREADED, A105 BODY, API TRIM 8	POWELL SW08 SOCKET WELD OR THREADED, A105 BODY, API TRIM 8	POWELL GL08 SOCKET WELD OR THREADED, A105 BODY, API TRIM 8	KECKLEY B-7 (2)	-	-	TRERICE 600CB WITH WEKSLER CP54 SIPHON	POWELL GA08 THREADED A105 BODY, API TRIM 8	TRERICE BX9 1 XXX YY	TRERICE BRASS	-	THREAD SEALANT: OATEY MEGALOC	-
		2-1/2	<=	-	POWELL 1503 WCB BODY, API TRIM 8	POWELL 1561 WCB BODY, API TRIM 8	-	KECKLEY A-7 125# (2)	-	-	-	-	-	-	-	-	
HIGH PRESSURE STEAM & CONDENSATE	-	1/2	<=	2	POWELL GA08 SOCKET WELD OR THREADED, A105 BODY, API TRIM 8	POWELL SW08 SOCKET WELD OR THREADED, A105 BODY, API TRIM 8	POWELL GL08 SOCKET WELD OR THREADED, A105 BODY, API TRIM 8	KECKLEY B-7 (2)	-	-	TRERICE 600CB WITH WEKSLER CP54 SIPHON	POWELL GA08 THREADED A105 BODY, API TRIM 8	TRERICE BX9 1 XXX YY	TRERICE BRASS	-	THREAD SEALANT: OATEY MEGALOC	-
		2-1/2	<=	-	POWELL 3003 WCB BODY, API TRIM 8	POWELL 3061 WCB BODY, API TRIM 8	-	KECKLEY A-7 250# (2)	-	-	-	-	-	-	-	-	
FUEL OIL	-	1/2	<=	2	MAXON SERIES 800	-	-	-	-	-	-	-	-	-	UNIONS: ASME B16.39, CLASS 150 MALLEABLE IRON WITH BRASS-TO-IRON SEAT, GROUND JOIN, AND THREADED ENDS	-	

NOTES:
1. FOR INSULATED LINES, ORDER WITH NIBSEAL HANDLES
2. ORDER WITH SCREEN FOR STEAM SERVICE
3. PROVIDE CHAINWHEEL OPERATOR FOR VALVES NPS 4 AND LARGER 96" ABOVE FLOOR.

NOT FOR CONSTRUCTION

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

CORPORATE SEAL

MARK DATE DESCRIPTION

ISSUE DATE: 08/22/25

PROJECT NUMBER: 561470540

SHEET TITLE:
SCHEDULES - PIPE VALVE
FITTINGS - MECHANICAL

SHEET NUMBER:
M001

HEAT PUMP CHILLER HEATER SCHEDULE (OWNER FURNISHED; SKID MOUNTED BY 3RD PARTY; CONTRACTOR INSTALLED)

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	OPERATING WEIGHT (LBS)	REFRIGERANT TYPE	REFRIGERANT QUANTITY (LBS)	EVAPORATOR										CONDENSER										ELECTRICAL										REMARKS
							CAPACITY (TONS)	DESIGN WATER FLOW RATE (GPM)	MIN. WATER FLOW RATE (GPM)	MAX. WATER FLOW RATE (GPM)	WATER EVT / LWT (DEG F)	DESIGN PRESSURE DROP (FT. WATER)	MIN PRESSURE DROP (FT. WATER)	MAX PRESSURE DROP (FT. WATER)	NO. OF PASSES	FOLGING FACTOR	HEAT OF REJECTION (MBH)	DESIGN WATER FLOW RATE (GPM)	MIN. WATER FLOW RATE (GPM)	MAX. WATER FLOW RATE (GPM)	WATER EVT / LWT (DEG F)	DESIGN PRESSURE DROP (FT. WATER)	MIN PRESSURE DROP (FT. WATER)	MAX PRESSURE DROP (FT. WATER)	NO. OF PASSES	FOLGING FACTOR	TOTAL DEMAND (KW)	MOTOR LOCKED ROTOR AMPS (LRA)	MAXIMUM MOTOR CURRENT (MCA)	MAXIMUM OVERCURRENT PROTECTION (MOPP)	VOLTS / PHASE						
HPCH-1-CPC	WATER FURNACE TRUCLIMATE 700	CPC CEP	CHW & HW SYSTEMS	5,600	R-513A	170	100.5	242	140	630	5242	5.20	1.74	35.20	1	0.00	1,885.6	340	140	630	130/140	14.2	2.40	48.60	1	0.00	17	20	240	300	500	480/3	VARIABLE SPEED COMPRESSORS; 316 STAINLESS STEEL BRAZED PLATE HEAT EXCHANGERS; SOUND MITIGATION KIT; TOUCHSCREEN INTERFACE; BAGNET CONNECTIVITY; ELECTRONIC EXPANSION VALVE				

PUMP SCHEDULE (OWNER FURNISHED; SKID MOUNTED BY 3RD PARTY; CONTRACTOR INSTALLED)

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	TYPE	WATER FLOW RATE (GPM)	TOTAL HEAD (FT. WATER)	ROTATION (RPM)	MINIMUM EFFICIENCY (%)	MOTOR SIZE		ELECTRICAL		REMARKS
									BHP	MHP	VOLTS	PHASE	
CHWP-HPCH-1-CPC	ARMSTRONG 4300 4x4x6	CEP	CHILLED WATER	VERTICAL INLINE - SPLIT COUPLED	300	25	1,800	77.0	2.46	5	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12, 12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STATION
HWP-HPCH-1-CPC	ARMSTRONG 4300 4x4x6	CEP	HEATING WATER	VERTICAL INLINE - SPLIT COUPLED	340	30	1,800	76.5	3.37	5	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12, 12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STATION
PMP-BCHW-1-CPC	ARMSTRONG 4300 6x6x13	CEP	CHILLED WATER	VERTICAL INLINE - SPLIT COUPLED	1,200	90	1,800	75.8	36.0	40	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12, 12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STATION
PMP-BCHW-2-CPC	ARMSTRONG 4300 6x6x13	CEP	CHILLED WATER	VERTICAL INLINE - SPLIT COUPLED	1,200	90	1,800	75.8	36.0	40	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12, 12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STATION
PMP-BHW-1-CPC	ARMSTRONG 4300 4x4x11.5	CEP	HEATING WATER	VERTICAL INLINE - SPLIT COUPLED	420	90	1,800	70.5	13.5	20	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12, 12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STATION
PMP-BHW-2-CPC	ARMSTRONG 4300 4x4x11.5	CEP	HEATING WATER	VERTICAL INLINE - SPLIT COUPLED	420	90	1,800	70.5	13.5	20	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12, 12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STATION
PMP-BCHW-1-HIH	ARMSTRONG 4300 4x4x10	CEP	CHILLED WATER	VERTICAL INLINE - SPLIT COUPLED	360	75	1,800	70.72	9.6	15	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12, 12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STATION
PMP-BCHW-2-HIH	ARMSTRONG 4300 4x4x10	CEP	CHILLED WATER	VERTICAL INLINE - SPLIT COUPLED	360	75	1,800	70.72	9.6	15	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12, 12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STATION
PMP-BHW-1-HIH	ARMSTRONG 4300 4x4x10	CEP	HEATING WATER	VERTICAL INLINE - SPLIT COUPLED	300	75	1,800	71.79	7.9	15	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12, 12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STATION
PMP-BHW-2-HIH	ARMSTRONG 4300 4x4x10	CEP	HEATING WATER	VERTICAL INLINE - SPLIT COUPLED	300	75	1,800	71.79	7.9	15	480	3	AISI 316 SS PUMP SHAFT; BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION; WEAR RING; OSHA GUARD; NON-OVERLOADING / PREMIUM EFF. (NEMA 12, 12) INVERTER READY MOTOR WITH CLASS F INSULATION; SHAFT GROUNDING RING; OUTSIDE BALANCED SEAL; SEAL FLUSH LINES WITH FILTER; SUCTION DIFFUSER. PROVIDE WITH PUMP SUPPORT STATION

VARIABLE FREQUENCY DRIVE SCHEDULE (OWNER FURNISHED; SKID MOUNTED BY 3RD PARTY; CONTRACTOR INSTALLED)

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	TYPE	HARMONIC MITIGATION	ENCLOSURE	VFD BYPASS	MOTOR RATED HORSEPOWER	VFD RATED HORSEPOWER	EFFICIENCY (%)	VOLTS	PHASE	MAX. OUTPUT CURRENT (AMPS)	REMARKS
VFD-CHWP-HPCH-1-CPC	ABB ACH580	CPC PLANT	HPCH-1 CHILLED WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION; PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75% FROM MOTOR.	NEMA 1	YES	5	5	98	480	3	7.6	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BAGNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-HWP-HPCH-1-CPC	ABB ACH580	CPC PLANT	HPCH-1 HEATING WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION; PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75% FROM MOTOR.	NEMA 1	YES	5	5	98	480	3	7.6	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BAGNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BCHW-1-CPC	ABB ACH580	CPC PLANT	CPC CHILLED WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION; PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75% FROM MOTOR.	NEMA 1	NO	40	40	98	480	3	52	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BAGNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BCHW-2-CPC	ABB ACH580	CPC PLANT	CPC CHILLED WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION; PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75% FROM MOTOR.	NEMA 1	NO	40	40	98	480	3	52	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BAGNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BHW-1-CPC	ABB ACH580	CPC PLANT	CPC HEATING WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION; PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75% FROM MOTOR.	NEMA 1	NO	20	20	98	480	3	27	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BAGNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BHW-2-CPC	ABB ACH580	CPC PLANT	CPC HEATING WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION; PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75% FROM MOTOR.	NEMA 1	NO	20	20	98	480	3	3.5	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BAGNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BCHW-1-HIH	ABB ACH580	HEIFER INTERNATIONAL PLANT	HI CHILLED WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION; PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75% FROM MOTOR.	NEMA 1	NO	15	15	98	480	3	23	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BAGNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BCHW-2-HIH	ABB ACH580	HEIFER INTERNATIONAL PLANT	HI CHILLED WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION; PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75% FROM MOTOR.	NEMA 1	NO	15	15	98	480	3	23	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BAGNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BHW-1-HIH	ABB ACH580	HEIFER INTERNATIONAL PLANT	HI HEATING WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION; PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75% FROM MOTOR.	NEMA 1	NO	15	15	98	480	3	23	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BAGNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.
VFD-PMP-BHW-2-HIH	ABB ACH580	HEIFER INTERNATIONAL PLANT	HI HEATING WATER	PWM-6-PULSE	INTEGRAL 5% IMPEDENCE DC CHOKE; PROVIDE INPUT (LINE SIDE) OVERVOLTAGE PROTECTION; PROVIDE OUTPUT LINE REACTOR IF DRIVE IS MORE THAN 75% FROM MOTOR.	NEMA 1	NO	15	15	98	480	3	23	UL LISTED; INPUT DRIVE DISCONNECT; FULL TEXT KEYPAD; RFI/EMI NOISE FILTER; EMS BAGNET COMMUNICATION INTERFACE; DC BUS OVERVOLTAGE RELIEF; SYNCHRONOUS SPEED MATCHING.

* DENOTES VARIABLE FREQUENCY DRIVE IS OF DIFFERENT HORSEPOWER THAN MOTOR HORSEPOWER.

PLANT CONTROL VALVE SCHEDULE

DESIGNATION	SHIPPED WITH PUMP SKID	REFERENCE PRODUCT	SERVES	VALVE TYPE	VALVE BODY	VALVE TRIM	ANSI PRESSURE CLASS	ANSI LEAKAGE CLASS	FLOW CHARACTERISTIC	RANGEABILITY	FLOW RATE (GPM)	ACTUAL (100% OPEN)	ACTION (NO, NC)	FAIL POSITION (OPEN, CLOSED, LAST)	CLOSE-OFF PRESSURE (PSIG)	MAXIMUM DIFFERENTIAL PRESSURE FOR MODULATING CONTROL (PSIG)	DESIGN DIFFERENTIAL PRESSURE (PSIG)	VALVE SIZE (IN)	LINE SIZE (IN)	OPERATOR	REMARKS
CV-CHW-BYP-CPC		VSI SERIES 2100	CPC CHW BUILDING BYPASS	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	VI	EQUAL PERCENTAGE	300:1	1,200	1,579	NO	LAST	200	-	-	6"	6"	ELECTRIC (120V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA); PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BCHP-1-CPC		VSI SERIES 2100	CPC BCHP-1 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	VI	EQUAL PERCENTAGE	300:1	1,200	3,136	NO	LAST	200	-	-	6"	6"	ELECTRIC (120V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA); PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BCHP-2-CPC		VSI SERIES 2100	CPC BCHP-2 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	VI	EQUAL PERCENTAGE	300:1	1,200	3,136	NO	LAST	200	-	-	6"	6"	ELECTRIC (120V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA); PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-HW-BYP-CPC		VSI SERIES V	CPC HW BUILDING BYPASS	SEGMENTED BALL	CARBON STEEL	STAINLESS STEEL	-	VI	MODIFIED EQUAL PERCENTAGE	300:1	420	850	NO	LAST	250	-	-	6"	6"	ELECTRIC (120V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA); PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BHWP-1-CPC		VSI SERIES 2100	CPC BHWP-1 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	VI	EQUAL PERCENTAGE	300:1	420	1,579	NO	LAST	200	-	-	6"	6"	ELECTRIC (120V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA); PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BHWP-2-CPC		VSI SERIES 2100	CPC BHWP-2 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	VI	EQUAL PERCENTAGE	300:1	420	1,579	NO	LAST	200	-	-	6"	6"	ELECTRIC (120V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA); PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-CHW-BYP-HH		VSI SERIES V	HEIFER INTL CHW BUILDING BYPASS	SEGMENTED BALL	CARBON STEEL	STAINLESS STEEL	-	VI	MODIFIED EQUAL PERCENTAGE	300:1	360	850	NO	LAST	250	-	-	6"	6"	ELECTRIC (120V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA); PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BCHP-1-HH		VSI SERIES 2100	HEIFER INTL BCHP-1 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	VI	EQUAL PERCENTAGE	300:1	360	1,579	NO	LAST	200	-	-	6"	6"	ELECTRIC (120V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA); PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BCHP-2-HH		VSI SERIES 2100	HEIFER INTL BCHP-2 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	VI	EQUAL PERCENTAGE	300:1	360	1,579	NO	LAST	200	-	-	6"	6"	ELECTRIC (120V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA); PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-HW-BYP-HH		VSI SERIES V	HEIFER INTL HW BUILDING BYPASS	SEGMENTED BALL	CARBON STEEL	STAINLESS STEEL	-	VI	MODIFIED EQUAL PERCENTAGE	300:1	300	520	NO	LAST	250	-	-	4"	4"	ELECTRIC (120V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA); PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BHWP-1-HH		VSI SERIES 2100	HEIFER INTL BHWP-1 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	VI	EQUAL PERCENTAGE	300:1	300	600	NO	LAST	200	-	-	4"	4"	ELECTRIC (120V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA); PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-
CV-BHWP-2-HH		VSI SERIES 2100	HEIFER INTL BHWP-2 ISOLATION	RESILIENT SEATED BUTTERFLY	DUCTILE IRON	STAINLESS STEEL	150	VI	EQUAL PERCENTAGE	300:1	300	600	NO	LAST	200	-	-	4"	4"	ELECTRIC (120V); POSITION INDICATOR; PROPORTIONAL CONTROL SIGNAL (4-20mA); POSITION FEEDBACK (4-20mA); PROVIDE MANUAL OVERRIDE; NEMA 4X ACUTATOR ENCLOSURE	-



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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK DATE DESCRIPTION

ISSUE DATE: 08/22/25

PROJECT NUMBER: 561470540

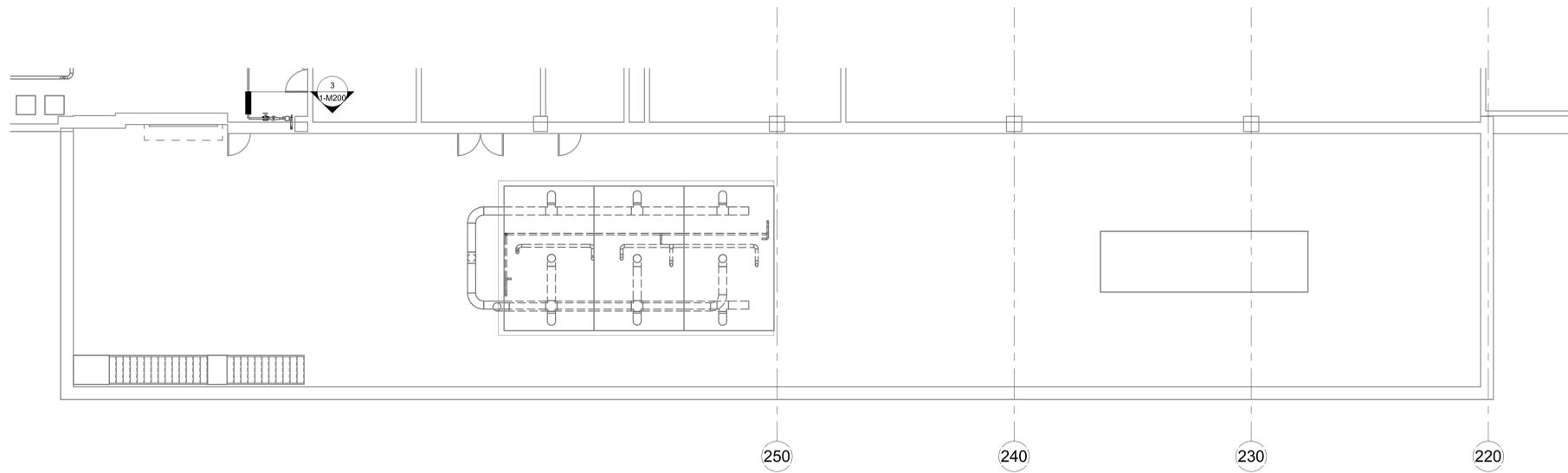
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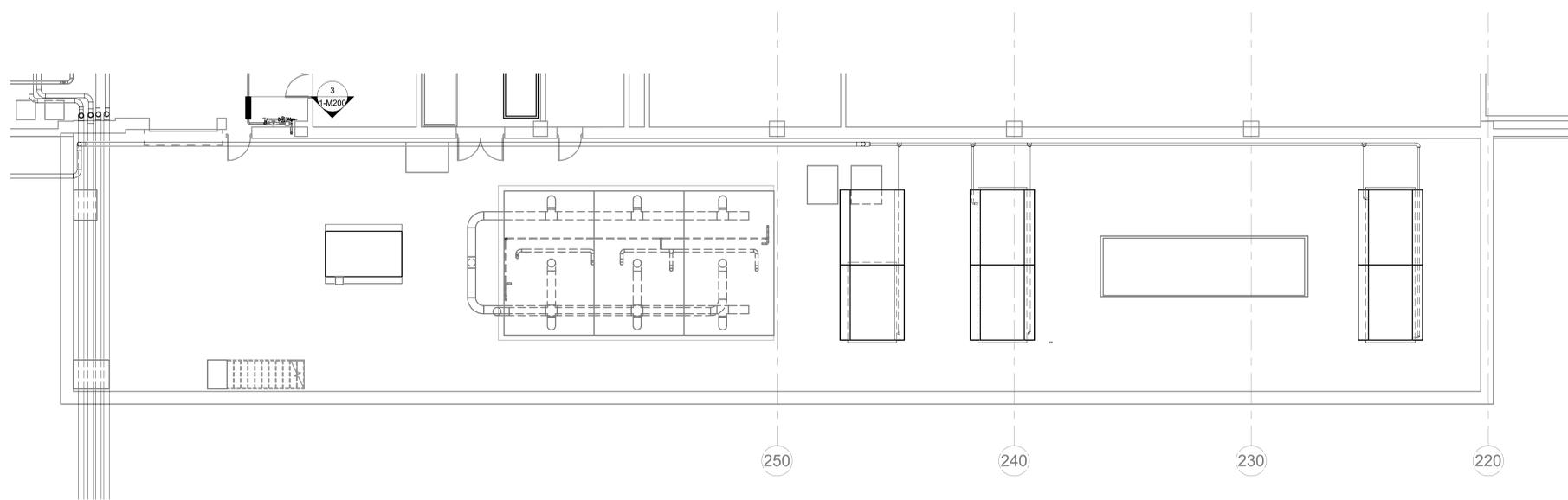
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CORPORATE SEAL

ENGINEER SEAL



① WILLIAM J. CLINTON CENTRAL UTILITY PLANT - TOWER YARD PLAN - MECHANICAL DEMOLITION ⊕
1/8" = 1'-0"



② WILLIAM J. CLINTON CENTRAL UTILITY PLANT - TOWER YARD PLAN - MECHANICAL ⊕
1/8" = 1'-0"

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE:	08-22-25
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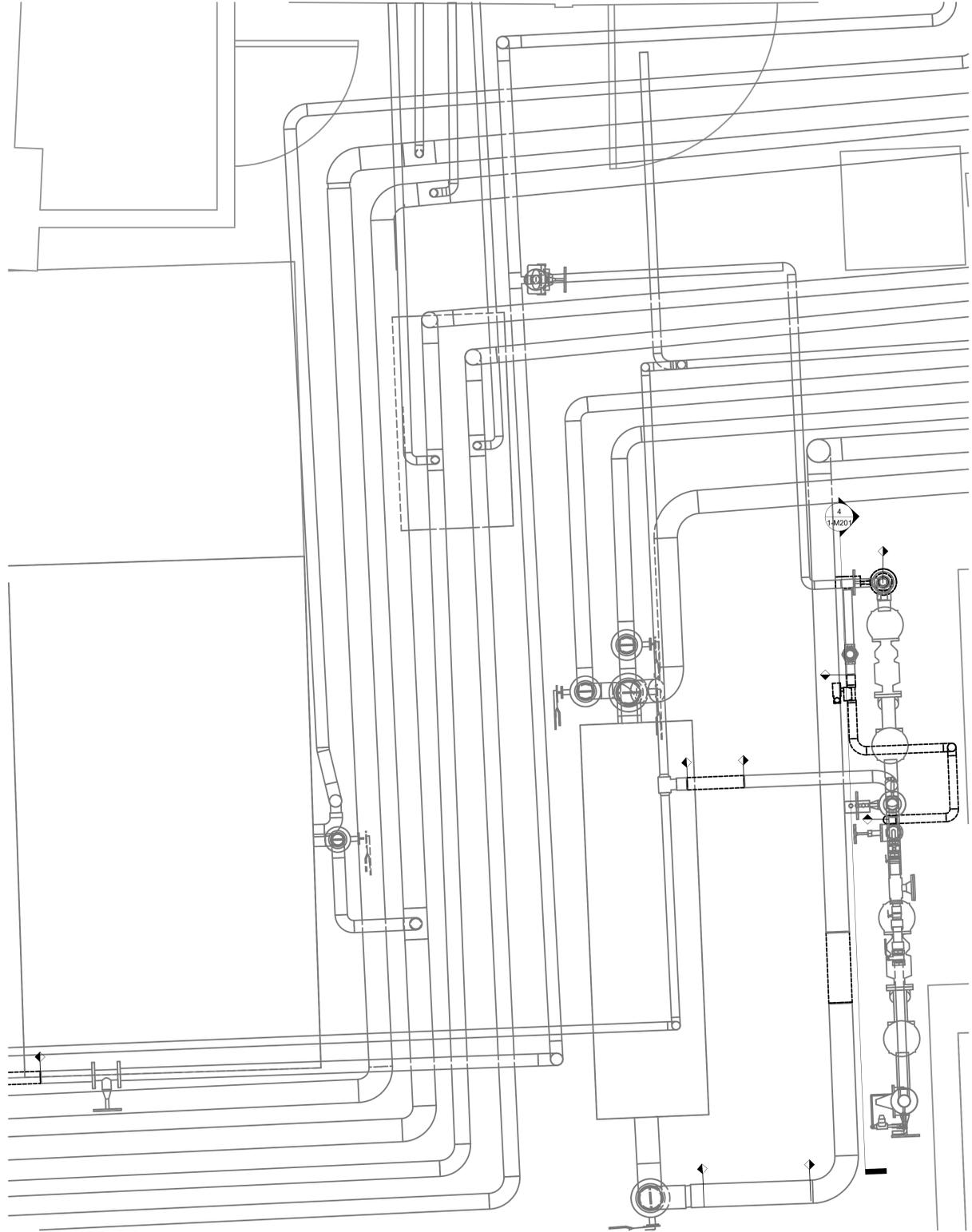
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WILLIAM J. CLINTON, CENTRAL
UTILITY PLANT - TOWER YARD
PLAN - MECHANICAL

SHEET NUMBER:
M202

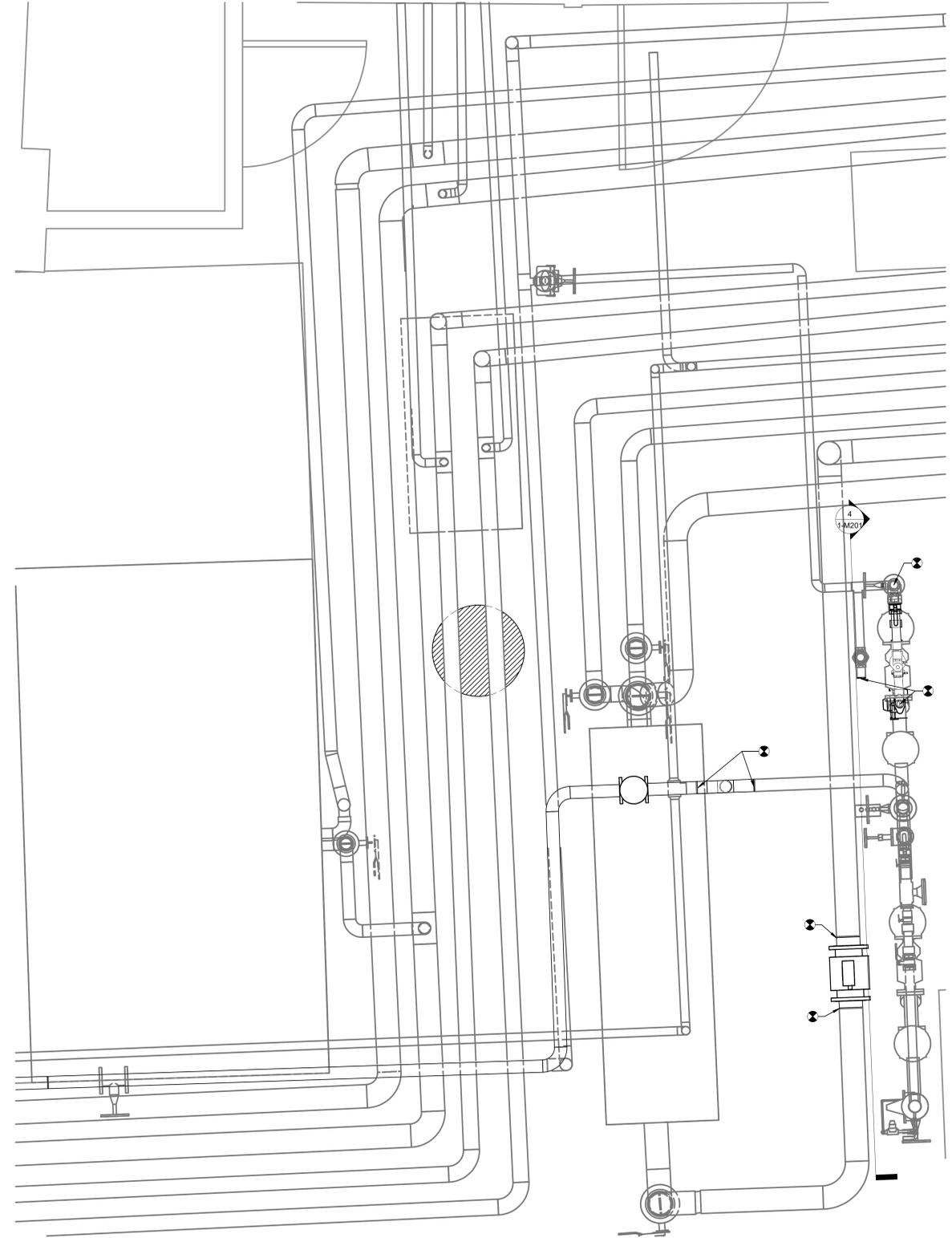
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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION
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① HEIFER INT. CENTRAL UTILITY PLANT - ENLARGED VIEW - FILTER SKID - MECHANICAL DEMOLITION 3/4" = 1'-0"



② HEIFER INT. CENTRAL UTILITY PLANT - ENLARGED VIEW - FILTER SKID - MECHANICAL 3/4" = 1'-0"

MARK	DATE	DESCRIPTION

ISSUE DATE: 08-22-25

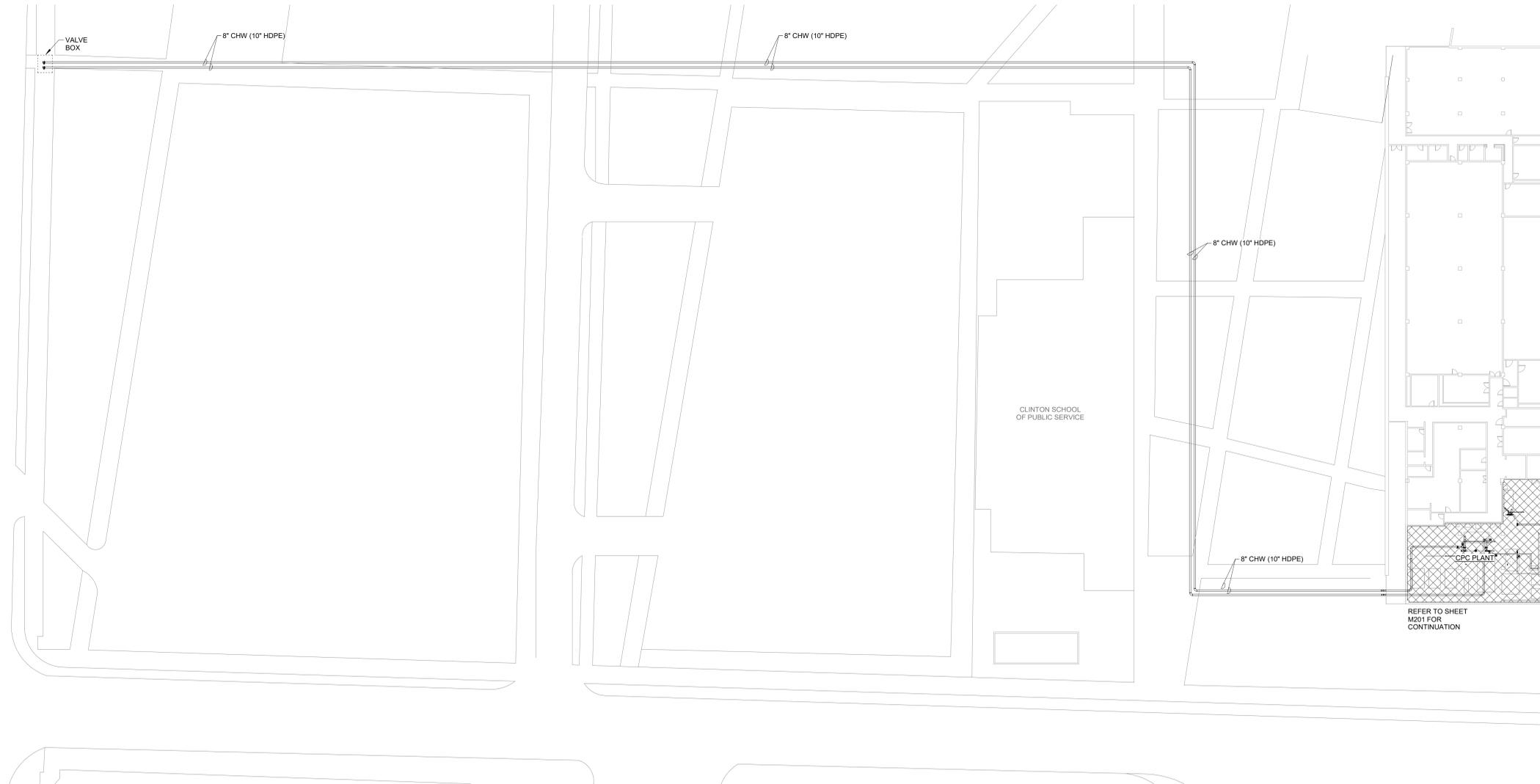
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SHEET TITLE:
HEIFER INT. CENTRAL UTILITY PLANT - ENLARGED VIEW - FILTER SKID - MECHANICAL

SHEET NUMBER:

M221

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1 CLINTON SUSTAINABLE ENERGY DISTRICT - FUTURE DISTRICT CONNECTION 
NOT TO SCALE

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
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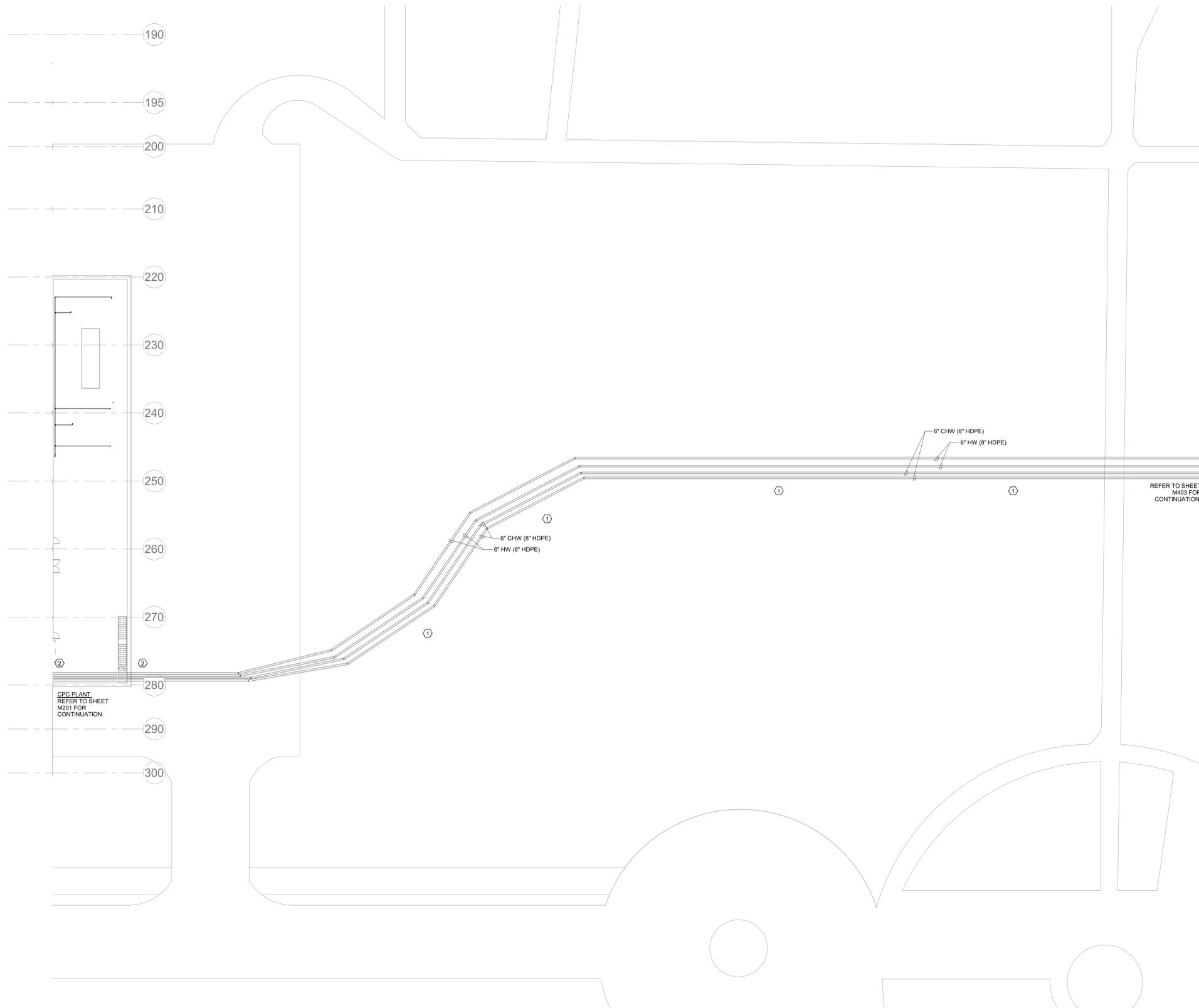
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PROJECT NUMBER:	561470540
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SHEET TITLE:
CLINTON SUSTAINABLE ENERGY DISTRICT - FUTURE DISTRICT CONNECTION

SHEET NUMBER:

M401



- KEYED NOTES:**
- ① ROUTE INTERCONNECTION AROUND EXISTING WATER BASIN.
 - ② X-RAY EXTERIOR CONCRETE WALL BEFORE CORE DRILLING FOR PIPE ROUTING.



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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
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① **CLINTON SUSTAINABLE ENERGY DISTRICT - WILLIAM J. CLINTON CONNECTION** ⊕
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MARK	DATE	DESCRIPTION

ISSUE DATE: 08-22-25

PROJECT NUMBER: 561470540

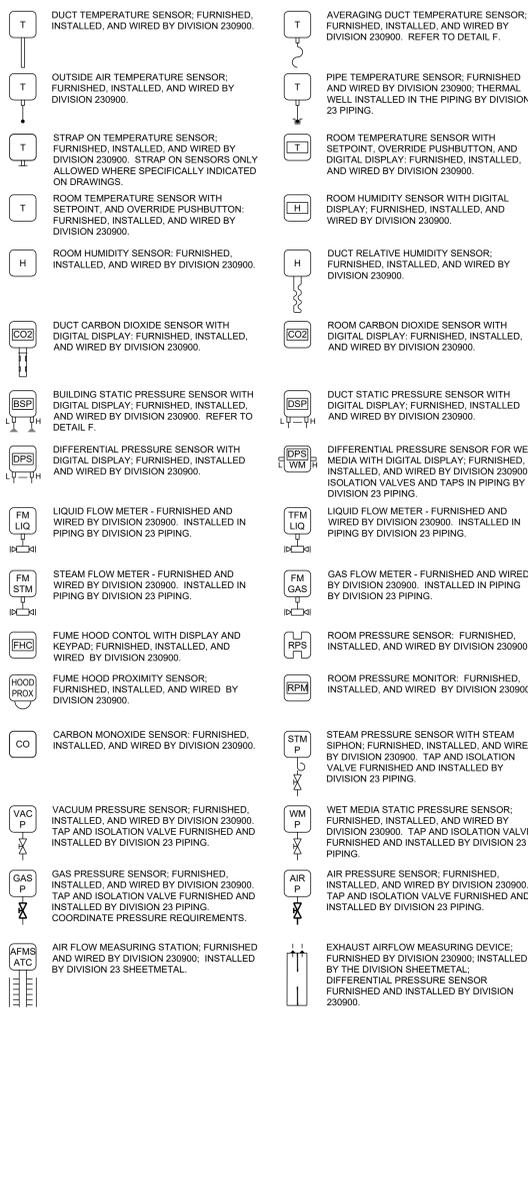
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CLINTON SUSTAINABLE ENERGY DISTRICT - WILLIAM J. CLINTON CONNECTION

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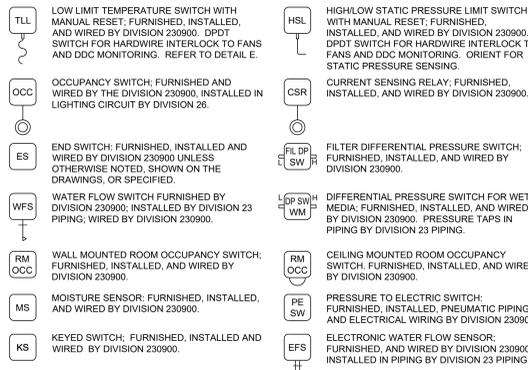
GENERAL NOTES APPLICABLE TO ALL CONTROL DIAGRAMS:

- ALL CONTROL DEVICES SHOWN ON THE CONTROL DIAGRAMS ARE FURNISHED BY DIVISION 230900 UNLESS OTHERWISE NOTED OR SPECIFIED.
- ALL COMPONENTS REQUIRED FOR THE SEQUENCES OF OPERATION, SHOWN ON THE CONTROL DIAGRAMS, DESCRIBED IN THE SPECIFICATION, OR AS REQUIRED FOR A PROPERLY OPERATING SYSTEM SHALL BE FURNISHED AND INSTALLED BY DIVISION 230900 UNLESS OTHERWISE NOTED, SHOWN, OR SPECIFIED.
- DIVISION 230900 IS RESPONSIBLE TO FURNISH, INSTALL, AND WIRE ALL COMPONENTS REQUIRED FOR INTEGRATION OF INFORMATION SHOWN TO BE ACCESSED BY THE EMS FROM OTHER SYSTEMS AND EQUIPMENT UNLESS OTHERWISE NOTED OR SPECIFIED.
- ALL POWER WIRING AND TRANSFORMERS FOR SENSORS, ACTUATORS, AND OTHER CONTROL COMPONENTS AS REQUIRED FOR THE EMS AND/OR DDC SYSTEMS TO FUNCTION PROPERLY, SHALL BE FURNISHED AND INSTALLED BY DIVISION 230900 UNLESS OTHERWISE NOTED, NOTED, OR SPECIFIED.
- ALL POWER WIRING FOR SENSORS, ACTUATORS, AND OTHER DEVICES SHALL BE FROM THE EQUIPMENT CONTROLLERS DDC PANELS OR THE FEP PANELS OF THE ASSOCIATED SYSTEM.
- ALL CONTROL, INTERLOCK, AND POWER WIRINGS SHALL BE INSTALLED PER THE DIVISION 26, LOCAL, STATE, AND NATIONAL CODES. RACEWAY SHALL BE INSTALLED PER THE ELECTRICAL SPECIFICATIONS.
- ALL CONTROL POINTS SHOWN ON THE CONTROL DIAGRAMS SHALL BE PROVIDED AND INTEGRATED INTO AN EMS SYSTEM GRAPHIC REPRESENTATIVE OF THE CONTROL DIAGRAMS.
- ALL CONTROL BANDS, SETPOINTS, SETPOINT LIMITS, SETPOINT INCREMENT VALUES, SETPOINT DECREMENT VALUES, ALARM LIMITS, AND OTHER PARAMETERS SHALL BE ADJUSTABLE FROM THE EMS.
- ALL CONTROL BANDS, SETPOINTS, TIME DELAYS, CONTROL LOOPS, AND OTHER PARAMETERS SHALL BE COMMISSIONED BY DIVISION 230900 TO PROVIDE STABLE CONTROL OF ALL SYSTEMS.
- ALL SETPOINTS SHALL BE ADJUSTABLE FROM THE EMS SYSTEM GRAPHIC(S).
- SPACE SETPOINTS SHALL BE ADJUSTABLE FROM THE ROOM SENSOR UNLESS OTHERWISE SHOWN ON DRAWINGS OR SPECIFIED.
- THE EMS SYSTEM GRAPHICS SHALL BE LINKED WITH ASSOCIATED BUILDING FLOOR PLANS FROM THE SPACE SENSOR OR AREA SERVED.
- WHERE ONE SYSTEM IS ASSOCIATED WITH ANOTHER SYSTEM, THE SYSTEM GRAPHIC SHALL BE LINKED TO THE ASSOCIATED GRAPHIC AS WELL AS THE BUILDING FLOOR PLAN GRAPHIC. EXAMPLE - AN AIR HANDLING UNIT SYSTEM GRAPHIC SHALL BE LINKED TO THE CHILLED WATER SYSTEM GRAPHIC IN ADDITION TO BOTH BEING LINKED TO THE BUILDING FLOOR PLAN.
- THE BUILDING FLOOR PLAN SHALL DISPLAY THE SPACE TEMPERATURE AND THE ACTIVE SET POINT AT EACH SPACE SENSOR LOCATION WITH AREA SERVED DISPLAYED IN SEPARATE COLORS BASED ON THE CONDITION OF THE ZONE. AREAS WITH HUMIDITY AND PRESSURE CONTROL WILL ALSO HAVE THOSE VALUES DISPLAYED. EXAMPLE - ALARM, NORMAL, HIGH OR LOW TEMPERATURE, HIGH OR LOW HUMIDITY, ETC.
- ALL GRAPHICS (SCHEDULES, PLANS, AND DIAGRAMS) WILL INDICATED EQUIPMENT, POINTS, AND AREAS IN ALARM VIA A RED ALARM INDICATOR, RED TEXT, AND/OR A RED HIGHLIGHT. OVERRIDDEN POINTS WILL BE INDICATED WITH PURPLE.
- THE BUILDING FLOOR PLAN SHALL DISPLAY THE DUCTWORK AND THE PIPING LAYOUT. THE DUCTWORK AND PIPING SHALL BE ABLE TO TOGGLE ON AND OFF INDEPENDENTLY.
- ALL BUILDING FLOOR PLANS AND SYSTEM GRAPHICS SHALL DISPLAY OUTSIDE AIR TEMPERATURE AND HUMIDITY.
- THE FLOOR PLAN GRAPHICS SHALL BE LINKED TO A BUILDING GRAPHIC WITH A DIGITAL PHOTOGRAPH BACKGROUND OF THE ACTUAL BUILDING. DURING CONSTRUCTION A TEMPORARY GRAPHIC MAY BE USED THAT IS REPRESENTATIVE OF THE BUILDING.
- ALL GRAPHICS SHALL BE SUBMITTED IN COLOR WITH THE ATC SUBMITTAL. FAILURE TO INCLUDE ALL GRAPHICS IN SUBMITTAL SHALL BE CAUSE FOR REJECTION OF COMPLETE SUBMITTAL.
- VARIABLE FREQUENCY DRIVES ARE FURNISHED BY DIVISION 230900, INSTALLED AND WIRED BY DIVISION 26. REFER TO VARIABLE FREQUENCY DRIVE SCHEDULE. VERIFY ALL EXISTING MOTOR HORSEPOWER AND ELECTRICAL RATINGS PRIOR TO SUBMITTAL AND ORDERING VARIABLE FREQUENCY DRIVES.
- POWER WIRING (PWR) FROM POWER SOURCE TO VARIABLE FREQUENCY DRIVES AND FROM VARIABLE FREQUENCY DRIVES TO MOTORS SHALL BE FURNISHED AND INSTALLED BY DIVISION 26.
- POWER WIRING (PWR) FROM POWER SOURCE TO MOTOR STARTERS AND FROM MOTOR STARTERS TO MOTORS SHALL BE FURNISHED AND INSTALLED BY DIVISION 26.
- POWER WIRING (PWR) FROM POWER SOURCE TO DDC, AND FEP PANELS SHALL BE FURNISHED AND INSTALLED BY DIVISION 26 UNLESS OTHERWISE NOTED ON DRAWINGS.
- GLOBAL DDC SYSTEM POINTS ARE DEFINED AS A SINGLE POINT USED IN ALL SYSTEMS IN A BUILDING OR CAMPUS TO MAINTAIN CONSISTENCY OF CONTROL ACTIONS THROUGHOUT THE CAMPUS. EXAMPLE: OUTSIDE AIR TEMPERATURE. POINT SAMPLED ON THE NORTH SIDE OF A BUILDING USED TO ENABLE/DISABLE AIRSIDE ECONOMIZER OPERATION THROUGHOUT THE BUILDING OR CAMPUS.
- THE PROJECT SEQUENCES ARE WRITTEN IN A GENERAL FORM INTENDED FOR IMPLEMENTATION BY ANY CONTROL SYSTEM AND CONTRACTOR. DIVISION 230900 SHALL REVIEW ALL SPECIFICATIONS AND CONTROL SEQUENCES FOR CONSTRUCTABILITY, COMPATIBILITY, AND FEASIBILITY WITH ACTUAL CONDITIONS, BUILDING EQUIPMENT, AND THEIR OWN HARDWARE AND SOFTWARE LIMITATIONS AND CAPABILITIES. CONTROL SEQUENCES ARE INTENDED TO BE THE GENERAL STRUCTURE OF THE CONTRACTORS PROGRAMMING, BUT DO NOT NECESSARILY CONTAIN ALL THE REQUIRED DETAILS (LOOP AND TABLE STATEMENT TUNING, RAMP, LIMITS, ETC) AND BEST PRACTICES FOR THE FINAL PRODUCT. DIVISION 23 SHALL PROVIDE A COMPLETE, OPERABLE, AND TUNED CONTROL SYSTEM THAT MEETS THE INTENDED SEQUENCES AND THE SPECIFIC EQUIPMENT REQUIREMENTS. IF UPON IMPLEMENTATION IT IS DISCOVERED THAT ADDITIONAL PROGRAMMING IS REQUIRED TO MEET THE INTENDED DESIGN OF THE CONTROL SYSTEM, DIVISION 23 SHALL PROVIDE THE ADDITIONAL PROGRAMMING AT NO ADDITIONAL COST. ALL PROGRAMMING (GRAPHICAL AND/OR TEXT BASED) SHALL BE REVIEWED WITH DIVISION 230900 AS PART OF THE SUBMITTAL AND COMMISSIONING PROCESSES. DIVISION 23 WILL PROVIDE A SUBMITTAL OF THE GRAPHICAL AND/OR TEXT BASED PROGRAMMING FOR A SIDE TO SIDE COMPARISON WITH THE CONTRACT DOCUMENTS. THIS REVIEW WILL PART OF A SCHEDULED MEETING INVOLVING THE BAS CONTROLS DESIGN TEAM, DIVISION 230900, AND THE COMMISSIONING AGENT. LIBERTIES TAKEN BY DIVISION 230900 ARE ALLOWED AFTER REVIEW AND APPROVAL FROM THE BAS DESIGN TEAM AND COMMISSIONING AGENT. ALL MODIFICATIONS SHALL BE RECORDED IN THE AS-BUILT DOCUMENTS. DIVISION 230900 SHALL BE REQUIRED SET UP TRENDS AS INDICATED BY THE CONSTRUCTION DOCUMENTS, AND AS REQUESTED BY THE BAS DESIGN AND COMMISSIONING TEAM(S).
- ALL EQUIPMENT SHALL HAVE THE OPTION OF BEING EXCLUDED FROM INDIVIDUAL RESET STRATEGIES BY EQUIPMENT SUMMARY SCHEDULES AND BY EQUIPMENT GRAPHICS.
- ALL EQUIPMENT CONTROLLERS IN THIS PROJECT SHALL BE HARD WIRED. NO WIRELESS SENSORS SHALL BE ALLOWED UNLESS WRITTEN APPROVAL IS GIVEN BY THE OWNER AND EOR AND THE WIRELESS FREQUENCY BANDS ARE COORDINATED WITH THE OWNER.
- DIVISION 230900 SHALL COORDINATE ALARM REPORTING WITH THE FACILITY. IN GENERAL, ALARMS ARE TO BE CATEGORIZED FOR PLANT PERSONNEL, HVAC SHOP PERSONNEL, ADMINISTRATION, AND ANY OTHER HOSPITAL OPERATIONS AS REQUIRED (CALL CENTER LABS, REFRIGERATORS, SPECIFIC INDIVIDUALS, ETC). FURTHER DEMARCATION BETWEEN BUILDINGS ON A CAMPUS SHALL ALSO BE COORDINATED.
- AN ALARM SUMMARY SHALL BE CREATED FOR REVIEW OF HOSPITAL PERSONNEL DAILY. ALARM SUMMARY TO BE CAPABLE OF BEING SORTED BY ALARM LEVEL, SYSTEMS, OPERATOR, AND TIME OF ALARMS.
- DIVISION 230900 SHALL COORDINATE USER ACCESS WITH THE FACILITY. IN GENERAL, ACCESS IS TO BE CATEGORIZED FOR PLANT PERSONNEL, HVAC SHOP PERSONNEL, ADMINISTRATION, AND ANY OTHER HOSPITAL OPERATIONS AS REQUIRED (SPECIFIC INDIVIDUALS, SUB CONTRACTORS ETC). FURTHER DEMARCATION BETWEEN BUILDINGS ON A CAMPUS SHALL ALSO BE COORDINATED. AN OVERRIDE SUMMARY SHALL BE PROVIDED FOR ALL OVERRIDES AND SHALL BE CAPABLE OF BEING SORTED BY BUILDING, DATE, DURATION, AND OPERATOR.
- CONTROL LOGIC AND COMPONENTS SHALL BE ADJUSTED TO OBTAIN AT A MINIMUM THE FOLLOWING RESULTS.
 - TEMP CONTROL SHALL DEVIATE FROM SET POINT NO MORE THAN 0.2" WITH PERIODS OF LESS THAN 1 MINUTE.
 - AIRFLOW CONTROL SHALL DEVIATE FROM SET POINT NO MORE THAN 2% OF THE SYSTEM SET POINT, OR SET POINT FOR THAT BRANCH OF SYSTEM, WITHIN A PERIOD OF LESS THAN 5 MINUTES.
 - HYDRONIC FLOW CONTROL SHALL DEVIATE FROM SET POINT NO MORE THAN 2% OF THE SYSTEM SET POINT, OR SET POINT FOR THAT BRANCH OF SYSTEM, WITHIN A PERIOD OF LESS THAN 5 MINUTES.
 - ACTUATORS SHALL NOT OSCILLATE MORE THAN 1% WITHIN A 5 MINUTE PERIOD.
 - VARIABLE FREQUENCY DRIVE COMMANDS SHALL NOT OSCILLATE MORE THAN 1% IN A 5 MINUTE PERIOD.
- ALL NEW PROGRAMMING AND GRAPHICS SHALL INDICATE 0% VALVE COMMAND AS BEING CLOSED AND 100% AS BEING FULLY OPEN UNLESS INDICATED OTHERWISE. WHERE THIS STANDARD IS DEVIATED FROM, THE GRAPHIC SHALL IDENTIFY 0% AS OPEN AND 100% AS CLOSED.

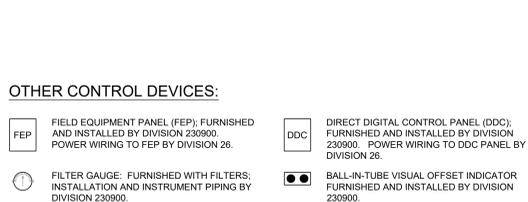
ANALOG INPUT SENSORS:



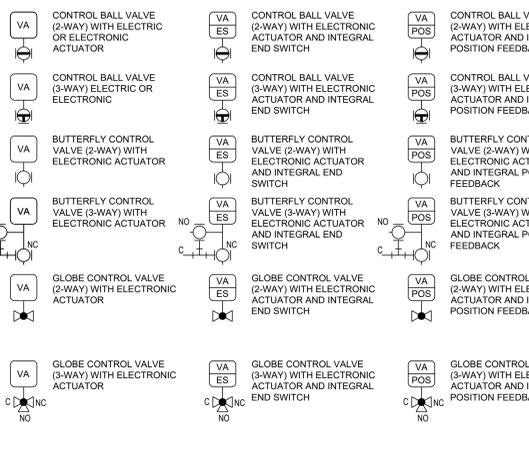
DIGITAL INPUT SENSORS:



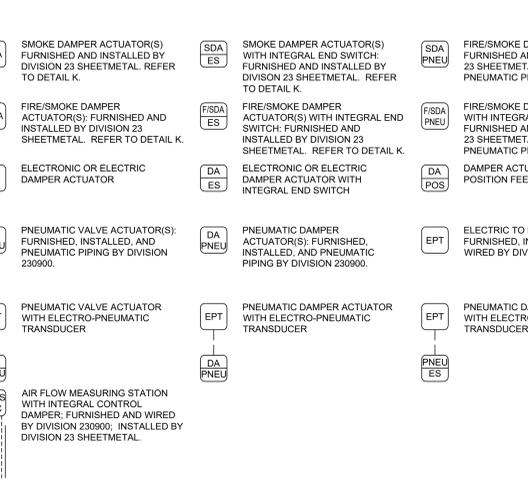
OTHER CONTROL DEVICES:



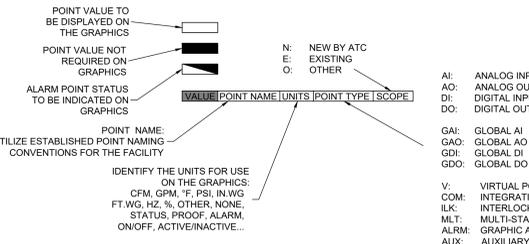
OUTPUT DEVICES:



- OUTPUT DEVICE NOTES:**
- ACTUATORS AND CONTROL WIRING PROVIDED BY DIVISION 230900.
 - CONTROL VALVES ARE PROVIDED BY DIVISION 230900 AND INSTALLED IN PIPING BY DIVISION 23 PIPING.
 - CONTROL DAMPERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED IN DUCT WORK BY DIVISION 23 SHEETMETAL.
 - 120V POWER WIRING FOR ACTUATORS IS PROVIDED BY DIVISION 26 UNLESS OTHERWISE NOTED ON DRAWINGS OR IN SPECIFICATIONS.
 - PNEUMATIC COMPONENTS PROVIDED BY DIVISION 230900.

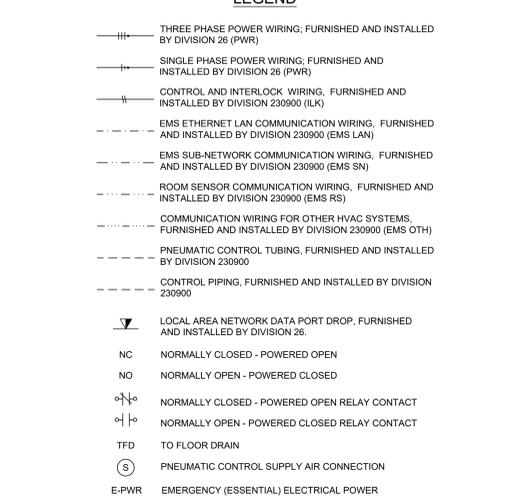


DIRECT DIGITAL CONTROL POINT TYPES

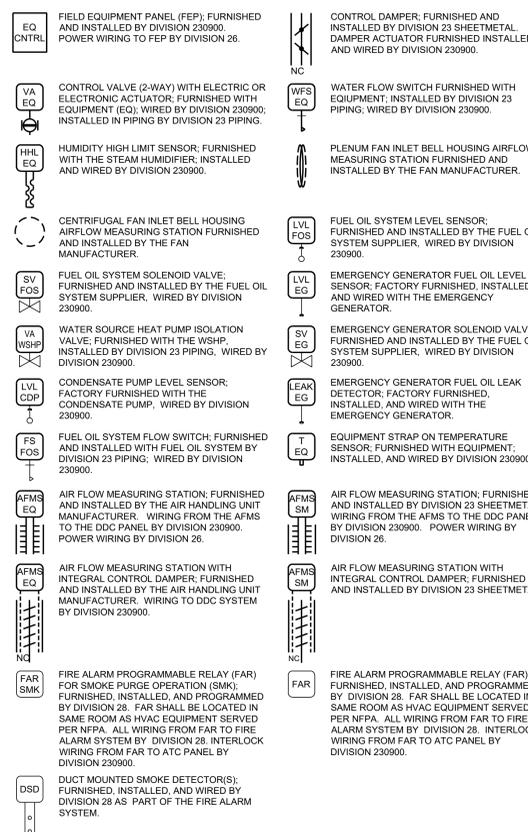


- DDC POINT TYPE NOTES:**
- ALL ANALOG, DIGITAL, AND INTERLOCKED POINTS ARE HARDWIRED POINTS
 - GLOBAL POINTS ARE HARDWIRED POINTS BUT THEIR VALUE IS DISTRIBUTED ACROSS THE NETWORK TO VARIOUS CONTROLLERS.
 - VIRTUAL POINTS ARE USED IN THE PROGRAMMING, BUT ONLY RESIDE IN A PROGRAM.
 - COM POINTS ARE INTEGRATED POINTS FROM OR TO CONTROLLERS OVER NETWORK OR SUB-NETWORK UTILIZING COMMUNICATION PROTOCOLS.
 - INTERLOCKED POINTS ARE HARD WIRED POINTS FOR SAFETY OPERATION. SOFTWARE INTERLOCKS ARE NOT ALLOWED AS A SUBSTITUTION FOR HARD WIRED INTERLOCKS.
 - SCOPE DEFINES IF THE SENSOR OR VALUE THAT IS INDICATED IS NEW, IF AN EXISTING SENSOR WILL BE RE-USED, OR IF SOME EXISTING NEW WIRING. EXISTING WIRING CAN BE RE-USED IF ITS FUNCTION IS VERIFIED. EXISTING SENSORS THAT ARE RE-USED SHALL BE VERIFIED FOR OPERATION AND REQUIRES FUNCTIONAL VERIFICATION JUST LIKE ANY NEW SENSOR.
 - MULTI STATE VARIABLES FROM INTEGRATIONS ARE TO BE LABELED WITH ACCURATE DESCRIPTIONS IF THEY ARE NOT WHEN INITIALLY INTEGRATED. THE OPERATOR SHALL NOT HAVE TO REFER TO A MANUAL OR A LOOK UP TABLE TO INTERPRET A NUMBER OR AN NON-DESCRIPTIVE POINT NAME.
 - AUXILIARY POINTS ARE HARD WIRED POINTS USED TO ACTIVATE OTHER COMPONENTS (FOR EXAMPLE, A DAMPER INTERLOCKED WITH A FAN).
 - REFER TO ALARM SCHEDULE IN GENERAL NOTES FOR CRITERIA OF ALARMS.

LEGEND



CONTROL DEVICES FURNISHED BY OTHER TRADES:



NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:	08/22/25	
PROJECT NUMBER:	561470540	

SHEET TITLE:
LEGENDS AND GENERAL NOTES - CONTROLS

SHEET NUMBER:
ATC000

NOT FOR CONSTRUCTION

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

RENOVATION GENERAL NOTES:

- REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- REFER TO ALL PROJECT DRAWINGS FOR DETAILS OF CONSTRUCTION AND INSTALLATION REQUIREMENTS.
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR FULL COORDINATION OF PROJECT INCLUDING THE EQUIPMENT AND INSTALLATION OF THE MECHANICAL WORK.
- CONTRACTOR SHALL BECOME THOROUGHLY FAMILIAR WITH THE REQUIREMENTS OF THESE NOTES AS WELL AS OTHER NOTES SHOWN ON THE CONTRACT DOCUMENTS.
- THESE DRAWINGS REFLECT A SYSTEM DESIGNED AROUND SPECIFIC REFERENCE PRODUCTS (SEE SCHEDULES), THE SELECTION OF WHICH HAS INFLUENCED THE DESIGNS OF OTHER TRADES (ELECTRICAL, STRUCTURAL, ETC.). IF SUBSTITUTE MANUFACTURERS, SIZES, OR MODEL NUMBERS SUBMITTED, IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR AND ALL HIS SUBCONTRACTORS TO COORDINATE ALL DIFFERENCES. ALL COSTS OF ALL TRADES ASSOCIATED WITH THE SUBSTITUTION SHALL BE INCLUDED.
- COORDINATION OF ALL MODIFICATIONS TO EACH DISCIPLINE WHICH RESULT FROM SUBSTITUTION OF EQUIPMENT OR MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SUBSTITUTIONS WHICH ARE INSTALLED AND SUBSEQUENTLY ARE PROVEN UNSATISFACTORY BY OWNER AND/OR ENGINEER, WITHIN THE WARRANTY PERIOD, SHALL BE REMOVED COMPLETELY BY THE CONTRACTOR AND REPLACED WITH THE ORIGINAL DESIGN OR CORRECTED AS DIRECTED BY THE ENGINEER WITHOUT ADDITIONAL COST TO THE OWNER.
- ALL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENTS OR GEOMETRICAL RELATIONSHIPS OF EQUIPMENT AND SERVICES. THEY ARE NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, SEQUENCE, DEVICE, OPTION, FITTING, OR COMPONENT.
- INFORMATION AND COMPONENTS SHOWN ON RISER DIAGRAMS OR DETAILS, BUT NOT SHOWN ON PLANS, AND VICE VERSA, SHALL BE PROVIDED AS IF EXPRESSLY REQUIRED BY BOTH.
- CONTRACTOR SHALL NOT SCALE DRAWINGS. DRAWINGS SPECIFIC TO THIS DISCIPLINE DO NOT LIMIT THE RESPONSIBILITY OF WORK REQUIRED BY THE CONTRACT DOCUMENTS.
- UNLESS NOTED OTHERWISE, THE INDICATION AND/OR DESCRIPTION OF ANY ITEM, IN THE DRAWINGS OR SPECIFICATIONS CARRIES WITH IT THE INSTRUCTION TO FURNISH AND INSTALL THE ITEM.
- EXACT LOCATIONS OF ALL EQUIPMENT, DUCTS, DIFFUSERS, ETC. SHALL BE COORDINATED WITH OTHER TRADES. SLOPED PIPING (PLUMBING), LIGHTING, AND ELECTRICAL REQUIREMENTS TAKE PRECEDENCE OVER CEILING MOUNTED MECHANICAL REQUIREMENTS. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING GRID AND LIGHTING LAYOUT FOR COORDINATION OF FINAL DIFFUSER LOCATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK WITH THAT OF OTHERS. REFER TO ARCHITECTURAL, ELECTRICAL, AND OTHER DRAWINGS FOR COMPLETE INFORMATION PRIOR TO BID.
- NO OTHER TRADES, I.E., ELECTRICAL, CEILING, PLUMBING, ETC., SHALL BE SUSPENDED, HUNG, OR SUPPORTED FROM DUCTWORK OR PIPING.
- REPLACE ALL ARCHITECTURAL FEATURES REMOVED OR DAMAGED DURING THE COURSE OF THE WORK.

HVAC GENERAL NOTES:

- REFER TO GENERAL NOTES ON DRAWING FOR ADDITIONAL REQUIREMENTS.
- ALL HVAC WORK TO BE PER SMACNA AND ALL APPLICABLE CODES.
- BALANCE AIR SYSTEM TO PROVIDE INDICATED AIR FLOWS. SEE SPECIFICATIONS FOR OTHER TEST AND BALANCE REQUIREMENTS. SUBMIT FINAL BALANCE OF AIR AND WATER SYSTEMS (FLOW AND TEMPERATURE) FOR REVIEW.
- MECHANICAL CONTRACTOR (MC) SHALL COORDINATE AND VERIFY THE FOLLOWING WITH THE ELECTRICAL CONTRACTOR (EC) PRIOR TO BID:
 - COORDINATE FINAL PLACEMENT OF ALL THERMOSTATS WITH OWNER AND ENGINEER. ANY THERMOSTAT THAT IS REQUIRED TO BE MOUNTED ON AN EXTERIOR WALL SHALL BE MOUNTED ON AN INSULATED PAD.

ONE LINE PIPE SYMBOLS

—TWS—	SUPPLY FROM TOWER
—TWR—	RETURN TO TOWER
—HWS—	HEATING WATER SUPPLY
—HWR—	HEATING WATER RETURN
—DHWS—	DISTRICT HEATING WATER SUPPLY
—DHW—	DISTRICT HEATING WATER RETURN
—CHS—	CHILLED WATER SUPPLY
—CHR—	CHILLED WATER RETURN
—DCHS—	DISTRICT CHILLED WATER SUPPLY
—DCHR—	DISTRICT CHILLED WATER RETURN
—SCHS—	SECONDARY CHILLED WATER SUPPLY
—SCHR—	SECONDARY CHILLED WATER RETURN
—D—	CONDENSATE DRAIN
—S12—	STEAM SUPPLY (PRESSURE NOTED)
—SR12—	STEAM RETURN (PRESSURE NOTED)
—PSR—	PUMPED STEAM RETURN
—BFW—	BOILER FEEDWATER
	BALL VALVE OR SEGMENTED BALL VALVE
	BUTTERFLY VALVE (LEVER HANDLE)
	BUTTERFLY VALVE (GEAR OPERATOR)
	BUTTERFLY VALVE (PNEUMATIC OPERATOR)
	BUTTERFLY VALVE (ELECTRONIC OPERATOR)
	GATE VALVE
	OS & Y GATE VALVE
	GLOBE VALVE
	CHECK VALVE (SWING CHECK)
	CHECK VALVE (BUTTERFLY CHECK)
	PRESSURE REDUCING VALVE
	FLOW LIMITING VALVE (AUTOMATIC CIRCUIT SETTER)
	CALIBRATED BALANCING VALVE (MANUAL CIRCUIT SETTER)
	VALVE AT RISER
FM	GPM FLUID FLOW METER

ONE LINE PIPE SYMBOLS

	EMERGENCY SHUT-OFF VALVE WITH FUSIBLE LINK
	FLEXIBLE PIPE CONNECTOR
	METAL BELLOW PUMP CONNECTOR
	AIR VENT (A - AUTO, H - HAND)
	PRESSURE AND TEMPERATURE TAP
	PRESSURE GAUGE
	PRESSURE GAUGE W/ SIPHON
	THERMOMETER W/ INSERTION WELL
	FLANGE
	ELBOW, TURNED UP
	ELBOW, TURNED DOWN
	RISE OR DROP IN PIPE
	ELBOW
	TEE, SIDE CONNECTION
	TEE, OUTLET UP
	TEE, OUTLET DOWN
	CAPPED OUTLET
	CAPPED PIPE
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	STEAM TRAP (DRIP LEG)
	STEAM TRAP
	DIRECTION OF PITCH
TFD	PIPE TO FLOOR DRAIN
	THERMOWELL
	STRAINER W/ DRAIN VALVE
	UNION
	PRESSURE RELIEF VALVE
	TRIPLE DUTY VALVE

DUCTWORK SYMBOLS

	THERMOSTAT
	THERMOSTAT WIRING
	HUMIDISTAT
	TEMPERATURE SENSOR
SA	SUPPLY AIR DUCT
RA	RETURN AIR DUCT
EA	EXHAUST AIR DUCT
CFM	CUBIC FEET PER MINUTE
EMS	ENERGY MANAGEMENT SYSTEM
ATC	AUTOMATIC TEMP CONTROLS
CO2	CARBON DIOXIDE
PPM	PARTS PER MILLION
ϕ	ROUND DIAMETER
	FLAT OVAL (MAJOR/MINOR)

DEMOLITION AND RENOVATION SYMBOLS

	EQUIPMENT TO BE REMOVED
	EXISTING EQUIPMENT TO REMAIN
	NEW EQUIPMENT
	POINT OF CONNECTION TO EXISTING
	TERMINATION OF DEMOLITION
	DUCT TO BE REMOVED
	EXISTING DUCT TO REMAIN
	NEW DUCT
	PIPING TO BE REMOVED
	EXISTING PIPING TO REMAIN
	NEW PIPING

ABBREVIATIONS

HWS	HEATING WATER SUPPLY	OAF	OUTSIDE AIRFLOW	DB	DRY BULB	SFST	SERIES FAN SUPPLY TERMINAL
HWR	HEATING WATER RETURN	OAT	OUTSIDE AIR TEMPERATURE (DRY BULB)	WB	WET BULB	UH	UNIT HEATER
CHS	CHILLED WATER SUPPLY	OAH	OUTSIDE AIR HUMIDITY	RH	RELATIVE HUMIDITY	VVET	VARIABLE VOLUME EXHAUST TERMINAL
CHR	CHILLED WATER RETURN	RA	RETURN AIR	ILK	INTERLOCK	VVRT	VARIABLE VOLUME RETURN TERMINAL
DTS	DUAL TEMPERATURE SUPPLY	RAF	RETURN AIRFLOW	AHU	AIR HANDLING UNIT	VVST	VARIABLE VOLUME SUPPLY TERMINAL
DTR	DUAL TEMPERATURE RETURN	RAT	RETURN AIR TEMPERATURE	BCCO	BLOWER COIL UNIT COOLING ONLY		
TWS	TOWER WATER SUPPLY	RAH	RETURN AIR HUMIDITY	BCU	BLOWER COIL UNIT		
TWR	TOWER WATER RETURN	SA	SUPPLY AIR	CVET	CONSTANT VOLUME EXHAUST TERMINAL		
CHP	CHILLED WATER PUMP	SAF	SUPPLY AIRFLOW	CVRT	CONSTANT VOLUME RETURN TERMINAL		
HWP	HEATING WATER PUMP	SAT	SUPPLY AIR TEMPERATURE	CVST	CONSTANT VOLUME SUPPLY TERMINAL		
TWP	TOWER WATER PUMP	MA	MIXED AIR	FCCO	FAN COIL UNIT COOLING ONLY		
SETP	SETPPOINT	MAT	MIXED AIR TEMPERATURE	FCHO	FAN COIL UNIT HEATING ONLY		
SP	STATIC PRESSURE	MAH	MIXED AIR HUMIDITY	FCU	FAN COIL UNIT		
DP	DIFFERENTIAL PRESSURE	DAT	DISCHARGE AIR TEMPERATURE	IUH	INDUCTION UNIT HEATER		
OA	OUTSIDE AIR	DAH	DISCHARGE AIR HUMIDITY	PFST	PARALLEL FAN SUPPLY TERMINAL		

MARK DATE DESCRIPTION

ISSUE DATE:	08/22/25
PROJECT NUMBER:	561470540

SHEET TITLE:
PIPE AND DUCTWORK SYMBOLS
AND GENERAL NOTES -
CONTROLS

SHEET NUMBER:

ATC001

NOT FOR CONSTRUCTION

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

DIFFERENTIAL PRESSURE SENSORS

DESIGNATION	REFERENCE PRODUCT	SERVES	APPLICATION RANGE (PSID)	SENSOR MEASURING SPAN	STATIC PRESSURE RATING (PSIG)	TYPE	DIRECTION	FLUID TYPE	SENSOR TURN-DOWN	ACCURACY (% F.S.)	ELECTRICAL REQUIREMENTS	REMARKS
DPS-CHW-HPCH-1-CPC	ROSEMOUNT 3051S 3051S2CD	HPCH-1-CPC EVAPORATOR	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-HW-HPCH-1-CPC	ROSEMOUNT 3051S 3051S2CD	HPCH-1-CPC CONDENSER	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-CH-HEADER-CPC	ROSEMOUNT 3051S 3051S2CD	CPC CHW CHILLER HEADER	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-TW-CH-HEADER-CPC	ROSEMOUNT 3051S 3051S2CD	CPC TW CHILLER HEADER	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-BLDG-CPC	ROSEMOUNT 3051S 3051S2CD	CPC CHW BUILDING	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-DIST-CPC	ROSEMOUNT 3051S 3051S2CD	CPC CHW DISTRICT	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	BI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-HW-BLDG-CPC	ROSEMOUNT 3051S 3051S2CD	CPC HW BUILDING	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-HW-DIST-CPC	ROSEMOUNT 3051S 3051S2CD	CPC HW DISTRICT	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	BI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-CH-1-HIH	ROSEMOUNT 3051S 3051S2CD	CH-1-HIH EVAPORATOR	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-CH-2-HIH	ROSEMOUNT 3051S 3051S2CD	CH-2-HIH EVAPORATOR	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-CH-HEADER-HIH	ROSEMOUNT 3051S 3051S2CD	HIH CHW CHILLER HEADER	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-TW-CH-HEADER-HIH	ROSEMOUNT 3051S 3051S2CD	HIH TW CHILLER HEADER	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-BLDG-HIH	ROSEMOUNT 3051S 3051S2CD	HIH CHW BUILDING	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-CHW-DIST-HIH	ROSEMOUNT 3051S 3051S2CD	HIH CHW DISTRICT	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	BI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-HW-BLDG-HIH	ROSEMOUNT 3051S 3051S2CD	HIH HW BUILDING	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	UNI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.
DPS-HW-DIST-HIH	ROSEMOUNT 3051S 3051S2CD	HIH HW DISTRICT	0 - X	± 300 PSID	3,626	SINGLE DIAPHRAGM	BI-DIRECTIONAL	WATER	150:1	± 0.035%	24 VDC	WET MEDIA DIFFERENTIAL PRESSURE SENSOR WITH 5-VALVE MANIFOLD AND LCD DISPLAY; NEMA 4/IP65 ENCLOSURE; 4-20mA SIGNAL OUTPUT WITH 5-SECOND SIGNAL AVERAGING.

MARK DATE DESCRIPTION

ISSUE DATE: 08/22/25

PROJECT NUMBER: 561470540

SHEET TITLE:

SCHEDULES - CONTROLS

SHEET NUMBER:

ATC002

NOT FOR CONSTRUCTION

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

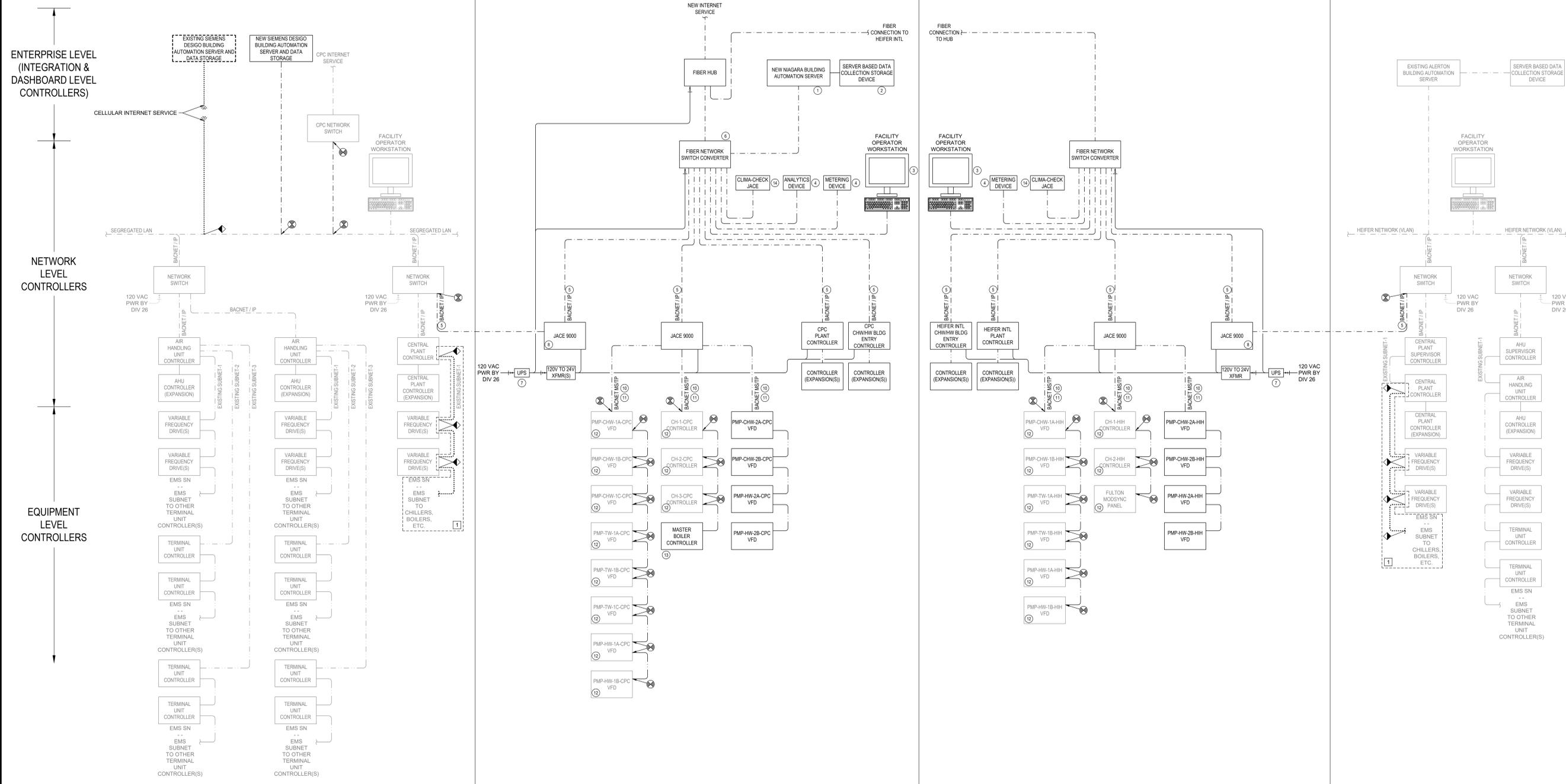
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

CPC SIEMENS NETWORK RISER

CPC PLANT NETWORK RISER

HEIFER INTERNATIONAL PLANT NETWORK RISER

HEIFER INTERNATIONAL ALERTON NETWORK RISER



EMS GENERAL NOTES:

- THE PURPOSE OF THIS PROJECT IS TO CREATE A NEW NIAGARA N4 SYSTEM FOR THE DISTRICT CHILLED WATER AND HEATING WATER SYSTEMS. EXISTING DDC EQUIPMENT IS TO BE INTEGRATED INTO THIS NEW SYSTEM. ALL FUNCTIONS OF THE EXISTING SYSTEMS ARE TO BE MAINTAINED. IF OTHER INTEGRATIONS, PROGRAMS, CONTROLLERS, OR FUNCTION OF THE SYSTEM IS DISCOVERED, DIVISION 230900 IS TO MAINTAIN THAT FUNCTION WITH THIS NEW SYSTEM.
- THE BAS ARCHITECTURE SHOWN IS A DIAGRAMMATIC REPRESENTATION AND MAY NOT MATCH THE COMPLETED ARCHITECTURE FOR THIS PROJECT. DIVISION 230900 SHALL DETERMINE EXACT ARCHITECTURE FOR THE SYSTEM BEING PROVIDED AND SHALL BE INCLUDED IN THE SUBMITTALS. NOT ALL OF THE EXISTING EQUIPMENT IS SHOWN HERE AND NOT ALL OF THE EXISTING PROTOCOLS ARE INDICATED. DIVISION 230900 TO PROVIDE NECESSARY ROUTERS AND GATEWAYS REQUIRED TO BRING THE EXISTING EQUIPMENT TO THE NEW SYSTEM.
- CRITICAL BAS NETWORK AND ENTERPRISE LEVEL CONTROLLERS, ALONG WITH ANY OTHER CRITICAL CONTROLLERS OR COMPONENTS SHALL BE ON EMERGENCY POWER AND SHALL BE PROVIDED BY DIVISION 230900. INSTALLED BY DIVISION 26, WITH UNINTERRUPTIBLE POWER SUPPLIES (UPS) AS REQUIRED TO MAINTAIN AN OPERABLE SYSTEM. UPS SHALL BE EQUAL TO KELE PSH SERIES UPS'S WITH STATUS CONTACTS, OR OTHER ENGINEER APPROVED EQUAL.
- REFER TO CONTROL DIAGRAMS FOR HARD WIRED POINTS AND INTERLOCKS. THIS SYSTEM RISER DIAGRAM IS FOR COMMUNICATION WIRING ONLY AND DOES NOT COVER POINT TO POINT WIRING DETAILS. COMMUNICATION CONTROL OF IDENTIFIED HARD WIRED CONTROLLED POINTS IS NOT ALLOWED UNLESS EXPLICITLY EXPRESSED IN THE CONTRACT DOCUMENTS OR UNLESS WRITTEN APPROVAL IS PROVIDED BY THE ENGINEER OF RECORD.
- PROVIDE AN UNLIMITED NUMBER OF OPERATOR LICENSES FOR THE PROJECT. OWNER SHALL BE PROVIDED WITH ALL TOOLS AND LICENSING REQUIRED TO EDIT GRAPHICS, ALTER PROGRAMMING, AND MANAGE THE SYSTEM.
- ALL NEW CONTROLS SHALL BE OPEN BACNET PROTOCOL AND LICENSED ACCORDINGLY.
- STRATEGICALLY LOCATE PROGRAMMING IN CONTROLLERS TO ALLOW STAND ALONE FUNCTION IF THE FACILITY NETWORK IS DOWN. PROVIDE COMMUNICATION CHECKS THAT ALLOW REMOTELY LOCATED CONTROLLERS TO FUNCTION TO LAST COMMANDS AND SET POINTS IF THE NETWORK IS DOWN. PROVIDE ALARMS FOR LOSS OF COMMUNICATION INDICATED ON MAIN PLANT GRAPHICS.

NEW WORK KEYED NOTES:

- DIVISION 230900 TO PROVIDE NEW NIAGARA N4 SYSTEM. DIVISION 27 WILL PROVIDE ALL SWITCHES, PATCH PANELS, AND DATA DROPS, ALONG WITH ALL EXISTING COMPONENT MODIFICATIONS REQUIRED TO ACHIEVE AND OPERATE THE IDENTIFIED BAS SYSTEM. THE SERVER SHALL BE CAPABLE OF INTEGRATING OTHER BACNET SYSTEMS AND SYSTEMS OF OTHER PROTOCOLS (REFER TO SPEC FOR DETAILS). DIVISION 230900 SHALL PROVIDE ALL REQUIRED SOFTWARE AND WEB BASED ACCESS FOR THE BAS.
- NEW SERVER BASED DATA COLLECTION STORAGE PROVIDED BY DIVISION 230900. ALL DATA SHALL BE MADE AVAILABLE TO THIRD PARTY VENDOR SOFTWARE.
- ANY OPERATOR WITH PROPER ACCESS AND PASSWORD SHALL BE CAPABLE OF LOGGING ON TO THE BAS VIA WEB ACCESS FROM ANY COMPUTER.
- ANALYTICS TO BE PROVIDED BY A THIRD PARTY VENDOR. DIVISION 230900 SHALL PROVIDE ACCESS TO THE REQUIRED DATA OVER THE I.P. NETWORK. CONSISTENT NAMING CONVENTIONS AND DESCRIPTIONS SHALL BE UTILIZED FOR ALL POINTS. COORDINATE THE INDICATED TRENDDING, FAULT DETECTION, AND ALARMS WITH THE REQUIREMENTS OF THIS PROJECT.
- DATA DROPS ARE NEW AND PROVIDED BY DIVISION 27. DIVISION 230900 SHALL COORDINATE DATA DROP LOCATION AND QUANTITIES REQUIRED FOR THE BUILDING AUTOMATION SYSTEM ALONG WITH I.P. ADDRESSES. DIVISION 230900 SHALL UTILIZE THE STANDARD NAMING CONVENTION OUTLINED IN THIS PROJECT FOR SITE POINTS AND DESCRIPTIONS AND SHALL COORDINATE WITH EXISTING CONTROLLERS TO AVOID DUPLICATE NAMING.
- NETWORK SWITCH IS NEW AND PROVIDED BY DIVISION 27 PER FACILITY I.T. STANDARDS. AN ENTIRE PLANT SHALL ONLY REPORT TO A SINGLE SWITCH. COORDINATE THE ALLOWABLE QUANTITY OF SWITCHES IN SERIES WITH THE FACILITY I.T. DEPARTMENT (LIMIT 3).
- UNINTERRUPTIBLE POWER SUPPLY (UPS) FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 26. UPS SHALL BE EQUAL TO KELE PSH SERIES UPS'S WITH STATUS CONTACTS, OR AN APPROVED EQUAL. BAS SHALL MONITOR STATUS OF THE UPS(S).
- NEW JACE 9000 TO BE PROVIDED BY DIVISION 230900.
- NEW BACNET/IP TO MS/TP TO BE PROVIDED BY DIVISION 230900.
- NO MORE THAN 30 DEVICES SHALL BE ON A SINGLE BACNET MS/TP SUBNET.
- CONTROLLER SUB-NETWORKS SHALL BE STRUCTURED TO PROVIDE SYSTEM RESILIENCY. EQUIPMENT ON SUB NETWORKS ARE TO BE GROUPED BY EQUIPMENT WITH SIMILAR BAUD RATES AND NETWORK REQUIREMENTS (FOR EXAMPLE, GROUP CHILLERS ON ONE SUB NETWORK, METERS ON ANOTHER, VFD'S ON ANOTHER, AND SO ON). THE CHILLED WATER, CONDENSER WATER, AND HEATING WATER SYSTEM CONTROLLERS SHALL BE CAPABLE OF OPERATING EVEN WHEN THE CONNECTION TO THE FACILITY SERVER IS DOWN. ALL CRITICAL FUNCTION SHALL REPORT TO THE SAME CONTROLLER, AND BE ON EMERGENCY POWER WITH A UPS SO THAT THE PLANT CAN CONTINUE TO OPERATE IF POSSIBLE AND SHALL RECOVER AS FAST AS POSSIBLE FROM AN INTERRUPTION OF THE FACILITY NETWORK.
- EXISTING EQUIPMENT CONTROLLER TO BE MOVED FROM AN EXISTING SIEMENS OR ALERTON MS/TP SUBNET TO A NEW MS/TP SUBNET UNDER THE NIAGARA SYSTEM.
- NEW MASTER BOILER CONTROLLER TO BE PROVIDED BY OTHERS. DIVISION 230900 TO CONNECT TO AND INTEGRATE MASTER BOILER CONTROLLER INTO THE BAS.
- PLACEHOLDER FOR CLIMA-CHECK JACE SCOPE.

DEMO WORK KEYED NOTES:

- DISCONNECT EXISTING EQUIPMENT CONTROLLERS (CHILLERS, BOILERS, VARIABLE FREQUENCY DRIVES) FROM SIEMENS MS/TP SUBNET. SUBNET TO REMAIN INTACT FOR ANY CONTROLLERS THAT ARE NOT BEING MOVED TO THE NEW NIAGARA SYSTEM.

① PROPOSED NEW NIAGARA ONLY SYSTEM

MARK	DATE	DESCRIPTION
ISSUE DATE:	08/22/25	
PROJECT NUMBER:	561470540	
SHEET TITLE: NETWORK ARCHITECTURE DIAGRAM		
SHEET NUMBER: ATC003		

NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

GENERAL NOTES:

- THE SCHEDULES ON THIS PAGE ARE TO PROVIDE AN EXAMPLE OF WHAT AN EQUIPMENT RESET DASHBOARD SHOULD CONVEY ON THE BAS GRAPHICS. THIS IS NOT AN EQUIPMENT SCHEDULE FOR THE SELECTION AND PURCHASE OF EQUIPMENT.
- BAS GRAPHICS SHALL INCLUDE DASHBOARDS FOR THE ENTIRE BUILDING / CAMPUS.
- DASHBOARDS SHALL INDICATE THE SYSTEM SERVED BY THE EQUIPMENT.
- OPERATORS WITH APPROPRIATE CLEARANCE SHALL BE CAPABLE OF CHANGING THE AIRFLOWS AND SETPOINTS FROM THE DASHBOARD.
- ENFRA TO CALCULATE AIRFLOWS VIA ROOM VENTILATION SCHEDULE FOR SUPPLY TERMINALS. DIVISION 230900 TO ASSIGN AIRFLOWS ON NEW OR RETROFITTED SUPPLY TERMINALS. ENFRA TO ASSIGN AIRFLOWS ON EXISTING DDC SUPPLY TERMINALS.
- OVERRIDDEN VALUES SHALL BE HIGHLIGHTED PURPLE OR THE TEXT COLOR SHALL CHANGE TO INDICATE VALUES HAVE BEEN OVERRIDDEN.
- EQUIPMENT IN ALARM SHALL BE HIGHLIGHTED RED OR THE TEXT SHALL TURN RED TO INDICATE AN ALARM.
- IDENTIFY ALL ALARMS ASSOCIATED WITH EACH PIECE OF EQUIPMENT. A GENERAL ALARM STATUS CAN BE DISPLAYED AND SPECIFIC ALARMS CAN BE VIEWED BY CLICKING ON THE ALARM STATUS FOR THAT EQUIPMENT.
- REPORTS ARE NOT AN ACCEPTABLE FORM OF SYSTEM SUMMARIES. REPORTS SHALL CONTAIN LIVE DATA.
- SCHEDULE COLUMNS SHALL BE CAPABLE OF BEING TOGGLED ON AND OFF.
- GRAPHICS SHALL INCLUDE A DASHBOARD SIMILAR TO THAT SHOWN. THIS PROJECT MAY REQUIRE ADDITIONAL ROWS, COLUMNS, GRAPHICS, AND CALCULATIONS TO BE INCORPORATED (CONTROL LOOP OUTPUTS, BUILDINGS, ETC).
- PROVIDE LINKS TO AND FROM BUILDING FLOOR GRAPHICS AND SYSTEM GRAPHICS.
- TABLES INDICATED HERE ARE PROVIDED TO CONVEY THE MINIMUM LEVEL OF DETAIL EXPECTED.
- TERMINAL SUMMARY SCHEDULES TO BE PROVIDED FOR BUILDINGS WITH EXISTING SUPPLY TERMINALS ONLY.
- DESIGNATIONS SHALL SERVE AS A LINK TO A GRAPHIC FOR THAT PIECE OF EQUIPMENT.

DESIGNATION	ZONE TEMP	ACTIVE ZONE TEMP SETPOINT	REHEAT VALVE COMMAND	CLG LOOPOUT	AHU SAT RESET RESPONSE	AHU SAT RESET WEIGHT	AIRFLOW	ACTIVE AIRFLOW SETP	TERMINAL DAMPER COMMAND	AHU STATIC PRESS. RESET RESPONSE	AHU SA SP RESET WEIGHT	ZONE RELATIVE HUMIDITY	OCCUPIED / UNOCCUPIED	ALARMS
VVST-###	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VVST-###	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VVST-###	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VVST-###	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUMMARY			MIN / MAX	MIN / MAX	TOTAL				MIN / MAX	TOTAL				
			-/-	-/-	-				-/-	-				
AHU MODE	NORMAL/ECON/DISABLED													
AHU SCHEDULE	OCCUPIED/UNOCCUPIED													
AHU SUPPLY AIR TEMPERATURE RESET SUMMARY														
AHU SUPPLY TEMP SETPOINT (°F)	AHU MIN SUPPLY TEMP SETPOINT (°F)	SAT CZR CLG LOOPOUT SETP												
AHU SUPPLY TEMP (°F)	AHU MAX SUPPLY TEMP SETPOINT (°F)	SAT COUNT												
AHU STATIC PRESSURE RESET SUMMARY														
AHU SA SP SETPOINT (IN W.C.)	AHU MIN SA SP SETPOINT (PSI)	AHU SUPPLY FAN SETPOINT (%)	SA SP CZR DAMPER SETP											
AHU SA SP (IN W.C.)	AHU MAX SA SP SETPOINT (PSI)	AHU SUPPLY FAN FEEDBACK (%)	SA SP COUNT											

1 AIR HANDLING UNIT RESET DASHBOARDS

DESIGNATION	MODE	OUTSIDE AIRFLOW / DP / SETP	MIN OA DAMPER CMND/POS	ECON OA DAMPER CMND/POS	RA DAMPER CMND/POS	RELIEF DAMPER CMND/POS	MIXED AIR TEMP	PREHEAT VALVE CMND/POS	PREHEAT AIR TEMP	CHW VALVE CMND/POS	CHW COIL DISCHARGE TEMP	AHU SUPPLY TEMP/SETP	RETURN AIR TEMP	RETURN AIR HUMIDITY	HUMID VALVE CMND/POS	SUPPLY STATIC PRESS/SETP	SUPPLY FAN SPD CMND/FDBK	SUPPLY AIRFLOW	RETURN FAN SPD CMND/FDBK	RETURN AIRFLOW/SETP	ALARMS
AHU-1	-	-/-	-/-	-/-	-/-	-/-	-	-/-	-	-/-	-	-/-	-	-	-/-	-/-	-	-	-/-	-/-	-
AHU-2	-	-/-	-/-	-/-	-/-	-/-	-	-/-	-	-/-	-	-/-	-	-	-/-	-/-	-	-	-/-	-/-	-
AHU-3	-	-/-	-/-	-/-	-/-	-/-	-	-/-	-	-/-	-	-/-	-	-	-/-	-/-	-	-	-/-	-/-	-
•																					
•																					
AHU-X	-	-/-	-/-	-/-	-/-	-/-	-	-/-	-	-/-	-	-/-	-	-	-/-	-/-	-	-	-/-	-/-	-

2 AIR HANDLING UNIT SUMMARY DASHBOARD

CHW TRENDING GROUPS:

- KW (CHILLER, PUMPS, CT FANS)
- KW/TON
- CHILLER LEAVING TEMPS
- LOAD
- PLANT INFO

HW TRENDING GROUPS:

- HW SUPPLY TEMPS
- PLANT INFO

DESIGNATION	ACTIVE DAT SETPOINT (°F)	DAT (°F)	CHW VALVE COMMAND (%)	BLDG PRESS RESET RESPONSE	CHW VALVE WEIGHT	UNIT ON/OFF STATUS	ALARMS
AHU-###	-	-	-	-	-	-	-
FCO-###	-	-	-	-	-	-	-
FCU-###	-	-	-	-	-	-	-
CRAC-###	-	-	-	-	-	-	-
			MIN / MAX	TOTAL			
			-/-	-			
BLDG CHW TEMP DIFF SETP (°F)	BLDG CHW TEMP DIFF (°F)	BLDG CHW SUPPLY TEMP (°F)	BLDG CHW RETURN TEMP (°F)				
BLDG CHW DP SETP (PSI)	BLDG CHW DP (PSI)	MIN BLDG CHW DP (PSI)	MAX BLDG CHW DP (PSI)				
CHW DP CZR VALVE SETP	DP COUNT SETP						
CHW PUMP SPD CMND/FDBK	# OF ENABLED PUMPS						

DESIGNATION	COMMAND / STATUS	ALARMS	CHW FLOW (GPM)	CHWRT (°F)	CHWST (°F)	CHWST SETP (°F)	CHW VALVE COMMAND (%)	CHW VALVE FEEDBACK (%)	TW FLOW SETPOINT (GPM)	TW FLOW (GPM)	TWRT (°F)	TWST (°F)	TW PUMP SPEED COMMAND (%)	TW PUMP SPEED (%)	QUEUE	KW/TON	KW	LOAD (TONS)	% LOAD	DP (PSI)	CHW APPROACH (°F)	TW APPROACH (°F)
CH-1 / TWP-1	-/-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-/-	-	-	-
CH-2 / TWP-2	-/-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-/-	-	-	-
CH-3 / TWP-3	-/-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-/-	-	-	-
PRIMARY CHILLED WATER PUMPS																						
DESIGNATION	COMMAND / STATUS	ALARMS	SPEED CMND / FDBK (%)	KW																		
CHWP-1-CEP	-	-	-/-	-																		
CHWP-2-CEP	-	-	-/-	-																		
CHWP-3-CEP	-	-	-/-	-																		
TOTAL SYSTEM FLOW																						
PLANT CHWRT CHWST																						
TOTAL SYSTEM LOAD (TONS)																						
TOTAL PLANT KW																						
TOTAL KW/TON																						
SYSTEM STATIC PRESSURE (PSI)																						
CHW MAKE UP FLOW (GPM)																						

3 CHILLED WATER AND TOWER WATER DASHBOARDS

DESIGNATION	COMMAND / STATUS	ALARMS	SUPPLY VALVE CMND/FDBK	RETURN VALVE CMND/FDBK	FAN SPEED COMMAND (%)	FAN SPEED FDBK (%)	KW	TWRT (°F)	TWST (°F)	TWST SETP (°F)	LEVEL STATUS (LOW/NORM/HIGH)
CT-1	-	-	-/-	-/-	-	-	-	-	-	-	-
CT-2	-	-	-/-	-/-	-	-	-	-	-	-	-
CT-3	-	-	-/-	-/-	-	-	-	-	-	-	-
TOWER WATER PUMPS											
DESIGNATION	COMMAND / STATUS	ALARMS	SPEED CMND / FDBK (%)	KW							
TWP-1	-	-	-/-	-							
TWP-2	-	-	-/-	-							
TWP-3	-	-	-/-	-							
TOTAL TW FLOW (GPM)											
MAKE UP FLOW (GPM)											
TOTAL MAKE UP (GAL)											
BLOW DOWN FLOW (GPM)											
TOTAL BLOW DOWN (GAL)											

DESIGNATION	ACTIVE DAT SETPOINT (°F)	DAT (°F)	HW VALVE COMMAND (%)	BLDG PRESS RESET RESPONSE	HW VALVE WEIGHT	UNIT ON/OFF STATUS	ALARMS
AHU-###	-	-	-	-	-	-	-
UH-###	-	-	-	-	-	-	-
FCU-###	-	-	-	-	-	-	-
VVST-###	-	-	-	-	-	-	-
			MIN / MAX	TOTAL			
			-/-	-			
HX HW TEMP DIFF SETP (°F)	HX HW TEMP DIFF (°F)	HX HW SUPPLY TEMP (°F)	HX HW RETURN TEMP (°F)				
HX HW DP SETP (PSI)	HX HW DP (PSI)	MIN HX HW DP (PSI)	MAX HX HW DP (PSI)				
HW DP CZR VALVE SETP	DP COUNT SETP						
HW PUMP SPD CMND/FDBK	# OF ENABLED PUMPS						

DESIGNATION	COMMAND / STATUS	ALARMS	HWRT (°F)	HWST (°F)	HWST SETP (°F)	STEAM VALVE CMND/FDBK (%)	HWDP (PSID)	HWDP SETP (PSID)	HW PUMP CMD/FDBK (%)	SYS STATIC PRESS/SETP (PSI)	HW MAKE-UP FLOW (GPM)
HX-1	-/-	-	-	-	-	-/-	-	-	-/-	-/-	-
HX-2	-/-	-	-	-	-	-/-	-	-	-/-	-/-	-
HX-3	-/-	-	-	-	-	-/-	-	-	-/-	-/-	-

4 STEAM TO HOT WATER HEAT EXCHANGER DASHBOARDS

MARK	DATE	DESCRIPTION
ISSUE DATE:	08/22/25	
PROJECT NUMBER:	561470540	

SHEET TITLE:
DASHBOARD GRAPHICS

SHEET NUMBER:
ATC004

NOT FOR CONSTRUCTION

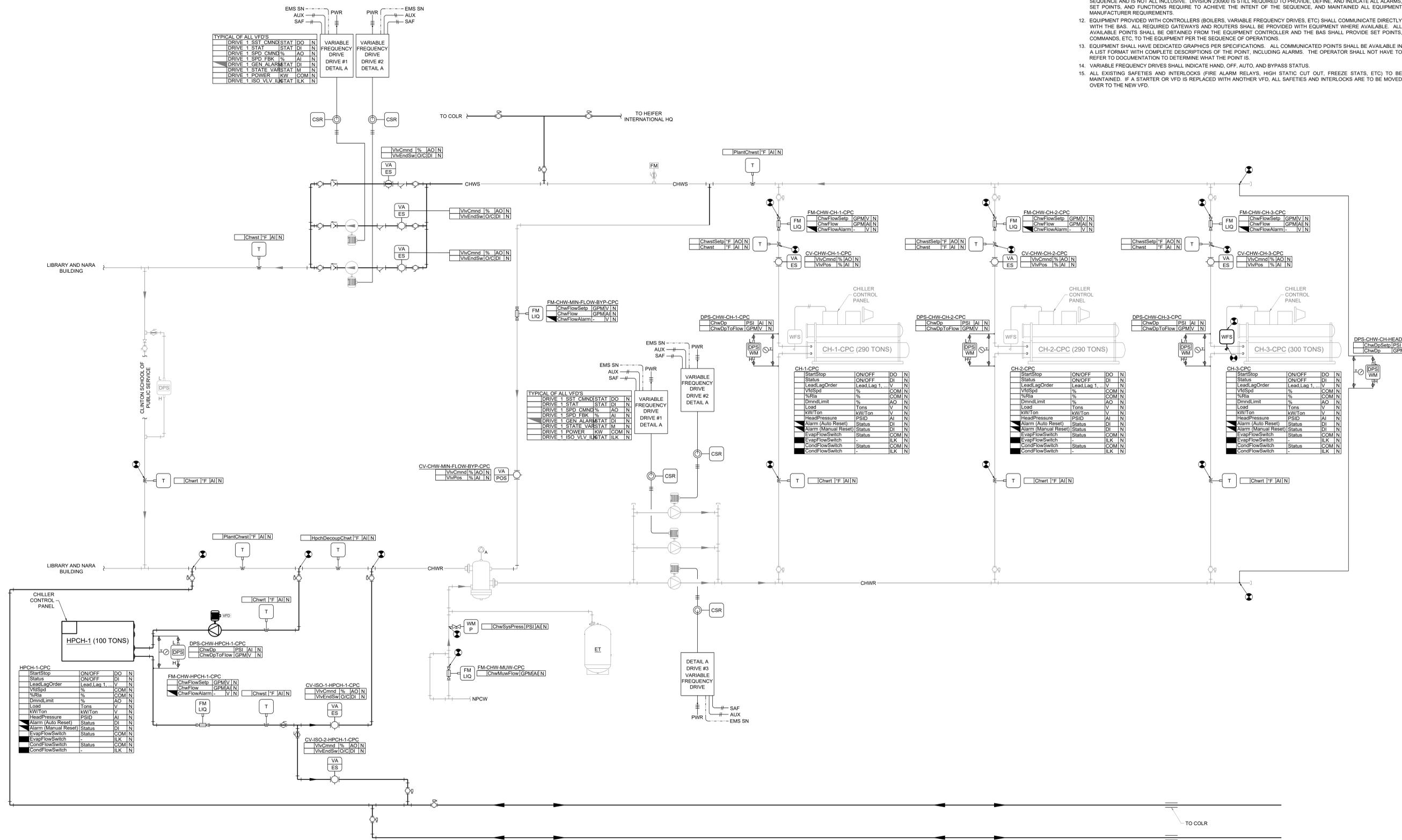
CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

GENERAL NOTES:

- CONTROL VALVES, THERMOWELLS, AND TAPS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED. TRANSFORMERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 26IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
- ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE PROVIDED BY DIVISION 230900, UNLESS NOTED OTHERWISE.
- DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOLISHED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
- EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
- IF EQUIPMENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, EQUIPMENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
- IF EQUIPMENT, SENSOR, OR A VALUE ARE OVERRIDDEN, IT SHALL BE HIGHLIGHTED PURPLE, OUTLINED, FLASH, OR CHANGE COLORS.
- THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDS GROUPS.
- THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
- ALL POINTS ARE TO BE TRENDED AT A MINIMUM OF 15 MINUTE INTERVALS AND BACKED UP FOR A PERIOD OF THREE YEARS.
- TRENDS GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. DIVISION 230900 SHALL SET UP A TRENDS GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TRENDS GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TRENDS GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
- DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. DIVISION 230900 IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
- EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC. TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
- EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
- VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
- ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OUT, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.



TYPICAL OF ALL VFD'S

DRIVE 1 SST CMND	STAT	DI	N
DRIVE 1 STAT	STAT	DI	N
DRIVE 1 SPD CMND	%	AO	N
DRIVE 1 SPD FBK	%	AI	N
DRIVE 1 GEN ALARM	STAT	DI	N
DRIVE 1 STATE VAR	STAT	DI	N
DRIVE 1 POWER	KW	COM	N
DRIVE 1 ISO VLV	ILK	STAT	ILK

TYPICAL OF ALL VFD'S

DRIVE 1 SST CMND	STAT	DI	N
DRIVE 1 STAT	STAT	DI	N
DRIVE 1 SPD CMND	%	AO	N
DRIVE 1 SPD FBK	%	AI	N
DRIVE 1 GEN ALARM	STAT	DI	N
DRIVE 1 STATE VAR	STAT	DI	N
DRIVE 1 POWER	KW	COM	N
DRIVE 1 ISO VLV	ILK	STAT	ILK

CH-1-CPC

Start/Stop	ON/OFF	DO	N
Status	ON/OFF	DI	N
LeadLagOrder	Lead/Lag 1...	V	N
VfSpd	%	COM	N
%Ria	%	COM	N
DmndLimit	%	AO	N
Load	Tons	V	N
kW/Ton	kW/Ton	V	N
HeadPressure	PSID	AI	N
Alarm (Auto Reset)	Status	DI	N
Alarm (Manual Reset)	Status	DI	N
EvapFlowSwitch	Status	COM	N
EvapFlowSwitch	Status	ILK	N
CondFlowSwitch	Status	COM	N
CondFlowSwitch	Status	ILK	N

CH-2-CPC

Start/Stop	ON/OFF	DO	N
Status	ON/OFF	DI	N
LeadLagOrder	Lead/Lag 1...	V	N
VfSpd	%	COM	N
%Ria	%	COM	N
DmndLimit	%	AO	N
Load	Tons	V	N
kW/Ton	kW/Ton	V	N
HeadPressure	PSID	AI	N
Alarm (Auto Reset)	Status	DI	N
Alarm (Manual Reset)	Status	DI	N
EvapFlowSwitch	Status	COM	N
EvapFlowSwitch	Status	ILK	N
CondFlowSwitch	Status	COM	N
CondFlowSwitch	Status	ILK	N

CH-3-CPC

Start/Stop	ON/OFF	DO	N
Status	ON/OFF	DI	N
LeadLagOrder	Lead/Lag 1...	V	N
VfSpd	%	COM	N
%Ria	%	COM	N
DmndLimit	%	AO	N
Load	Tons	V	N
kW/Ton	kW/Ton	V	N
HeadPressure	PSID	AI	N
Alarm (Auto Reset)	Status	DI	N
Alarm (Manual Reset)	Status	DI	N
EvapFlowSwitch	Status	COM	N
EvapFlowSwitch	Status	ILK	N
CondFlowSwitch	Status	COM	N
CondFlowSwitch	Status	ILK	N

HPCH-1-CPC

Start/Stop	ON/OFF	DO	N
Status	ON/OFF	DI	N
LeadLagOrder	Lead/Lag 1...	V	N
VfSpd	%	COM	N
%Ria	%	COM	N
DmndLimit	%	AO	N
Load	Tons	V	N
kW/Ton	kW/Ton	V	N
HeadPressure	PSID	AI	N
Alarm (Auto Reset)	Status	DI	N
Alarm (Manual Reset)	Status	DI	N
EvapFlowSwitch	Status	COM	N
EvapFlowSwitch	Status	ILK	N
CondFlowSwitch	Status	COM	N
CondFlowSwitch	Status	ILK	N

FM-CHW-HPCH-1-CPC

ChwFlowSetp	GPM	AI	N
ChwFlow	GPM	AI	N
ChwFlowAlarm	ILK	AI	N

CV-ISO-1-HPCH-1-CPC

VlvCmnd	%	AO	N
VlvEndSw	O/C	DI	N

CV-ISO-2-HPCH-1-CPC

VlvCmnd	%	AO	N
VlvEndSw	O/C	DI	N

1 CLINTON PRESIDENTIAL CENTER CHILLED WATER PLANT CONTROL DIAGRAM
NOT TO SCALE

MARK	DATE	DESCRIPTION
ISSUE DATE:	08/22/25	
PROJECT NUMBER:	561470540	
SHEET TITLE: CLINTON PRESIDENTIAL CENTER CHILLED WATER PLANT CONTROL DIAGRAM		
SHEET NUMBER: ATC100		

NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

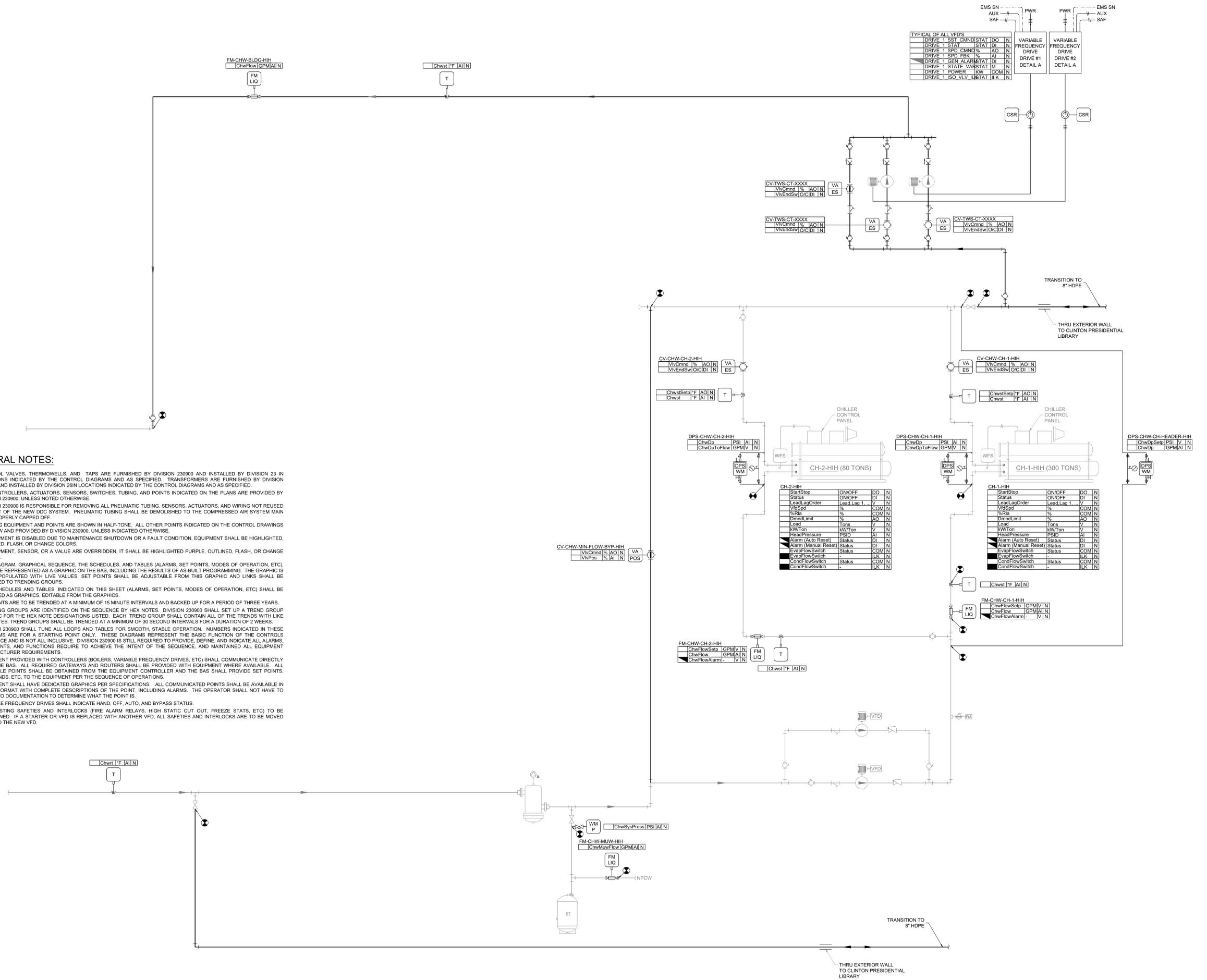
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

GENERAL NOTES:

- CONTROL VALVES, THERMOWELLS, AND TAPS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED. TRANSFORMERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 2090 LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
- ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE PROVIDED BY DIVISION 230900, UNLESS NOTED OTHERWISE.
- DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOLISHED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
- EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
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- TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. DIVISION 230900 SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
- DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. DIVISION 230900 IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
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TYPICAL OF ALL VFD'S

DRIVE 1 SST CMND/STAT	DO	N
DRIVE 1 STAT	STAT	DI
DRIVE 1 SPD CMND	%	COM
DRIVE 1 SPD FBK	%	AI
DRIVE 1 GEN ALARM/STAT	DI	N
DRIVE 1 STATE VAR/STAT	IM	N
DRIVE 1 POWER	KW	COM
DRIVE 1 ISO V.V. ILL/STAT	ILK	N



Point Name	Unit	Signal Type	Notes
CH-2-HIH Start/Stop	ON/OFF	DO	N
CH-2-HIH Status	ON/OFF	DI	N
CH-2-HIH Lead/Lag Order	Lead/Lag 1...	V	N
CH-2-HIH V/Spd	%	COM	N
CH-2-HIH %Ria	%	COM	N
CH-2-HIH Dmnd/Limit	%	AO	N
CH-2-HIH Load	Tons	V	N
CH-2-HIH kW/Ton	kW/Ton	V	N
CH-2-HIH Head/Pressure	PSID	AI	N
CH-2-HIH Alarm (Auto Reset)	Status	DI	N
CH-2-HIH Alarm (Manual Reset)	Status	DI	N
CH-2-HIH Evap/Flow/Switch	Status	COM	N
CH-2-HIH Cond/Flow/Switch	Status	COM	N
CH-2-HIH Cond/Flow/Switch	Status	ILK	N

Point Name	Unit	Signal Type	Notes
CH-1-HIH Start/Stop	ON/OFF	DO	N
CH-1-HIH Status	ON/OFF	DI	N
CH-1-HIH Lead/Lag Order	Lead/Lag 1...	V	N
CH-1-HIH V/Spd	%	COM	N
CH-1-HIH %Ria	%	COM	N
CH-1-HIH Dmnd/Limit	%	AO	N
CH-1-HIH Load	Tons	V	N
CH-1-HIH kW/Ton	kW/Ton	V	N
CH-1-HIH Head/Pressure	PSID	AI	N
CH-1-HIH Alarm (Auto Reset)	Status	DI	N
CH-1-HIH Alarm (Manual Reset)	Status	DI	N
CH-1-HIH Evap/Flow/Switch	Status	COM	N
CH-1-HIH Cond/Flow/Switch	Status	COM	N
CH-1-HIH Cond/Flow/Switch	Status	ILK	N

MARK	DATE	DESCRIPTION
ISSUE DATE:	08/22/25	
PROJECT NUMBER:	561470540	

SHEET TITLE:
HEIFER INTERNATIONAL HEADQUARTERS CHILLED WATER PLANT CONTROL DIAGRAM

SHEET NUMBER:
ATC101

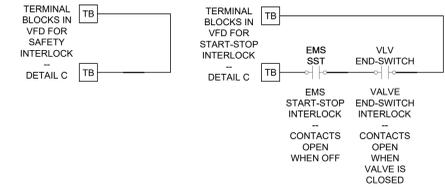
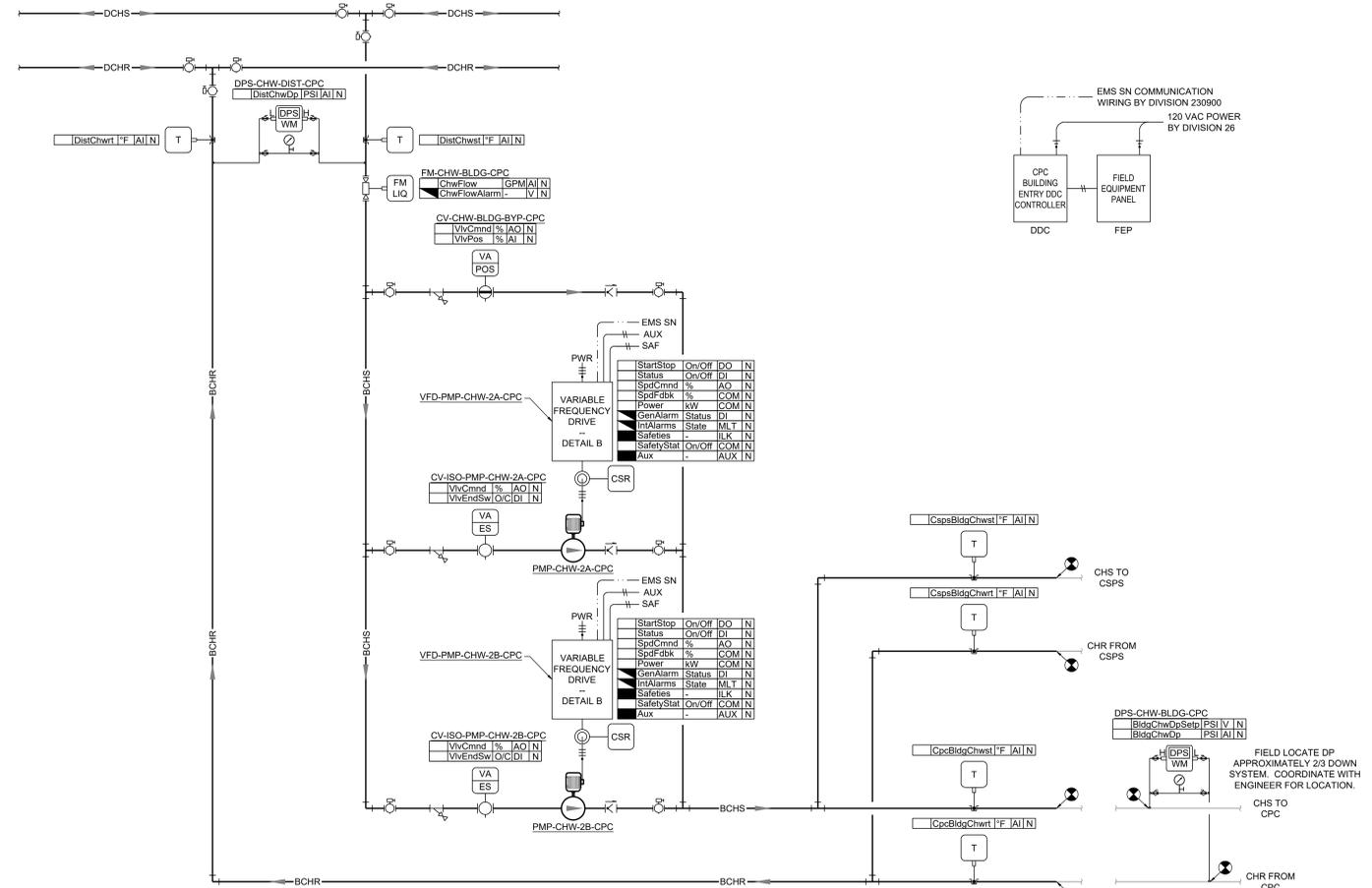
NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL

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2 CHILLED WATER PUMP(S) VFD INTERLOCKS

SEQUENCE OF OPERATION:

BUILDING CHILLED WATER MODES OF OPERATION

SETPOINT	BUILDING PROFILE VALVE	BUILDING CHW PUMP	BUILDING CHW PUMP ISO VALVE
NORMAL ENABLED	NrmChwBypVlvCmnd	LeadBchwSpdCmnd	LeadBchwplsoVlvCmnd
MAINTENANCE / OUT OF SERVICE	MainChwBypVlvCmnd	DISABLED, 0%	CLOSED

NOTES:
 1. MAINTENANCE / OUT OF SERVICE MODE SHALL HAVE A HIGHER PRECEDENCE THAN OTHER MODES.
 2. WHILE IN MAINTENANCE / OUT OF SERVICE MODE, THE BUILDING PROFILE BYPASS VALVE SHALL CONTINUE TO OPERATE TO A BUILDING DIFFERENTIAL PRESSURE. THIS IS TO KEEP THE BUILDING FROM BEING OVER-PRESSURIZED DURING MAINTENANCE.

TRENDS GROUPS:

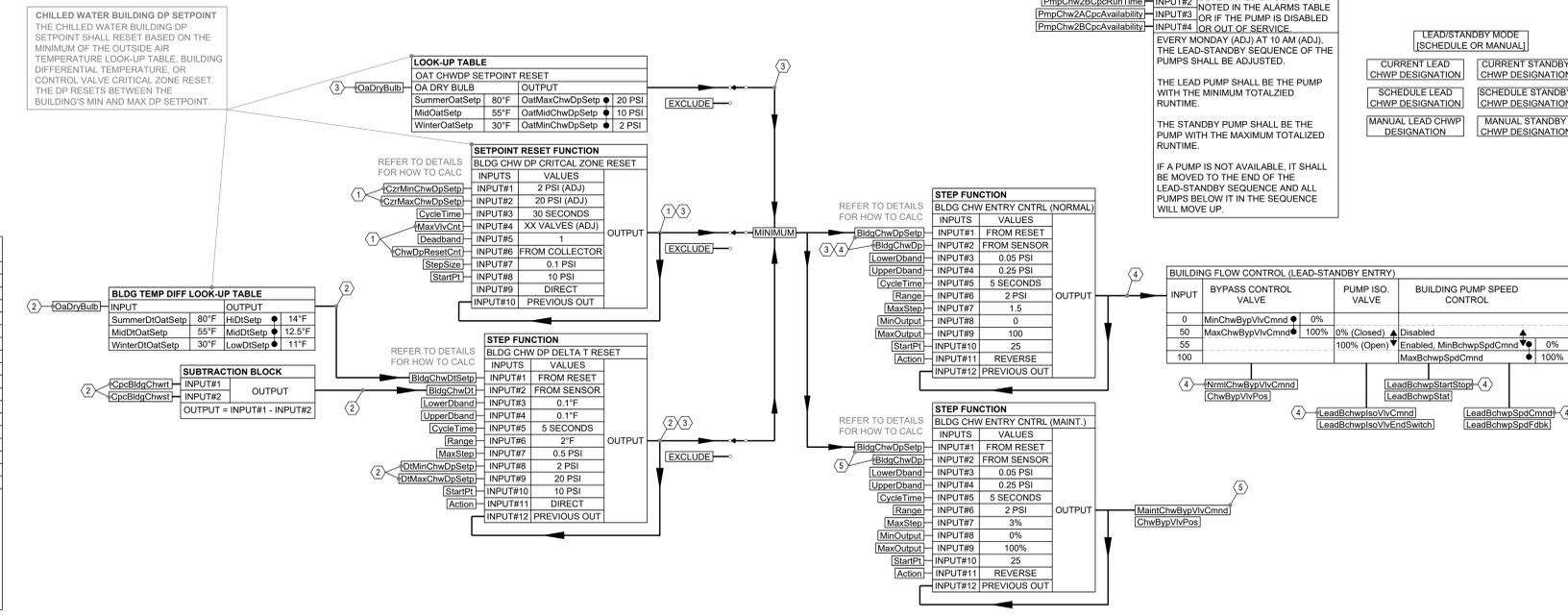
- BUILDING CRITICAL ZONE DP RESET
- BUILDING DELTA T DP RESET
- BUILDING CHW DP SETP RESET
- NORMAL MODE BUILDING CHW DP CONTROL
- MAINT. MODE BUILDING CHW DP CONTROL

ALARMS

REPORTING: L = LOGS, G = ASSOCIATED GRAPHIC, P = POP UP GRAPHIC, T = TEXT/EMAIL

ALARM TYPE	REPORTING TYPE	CRITERIA
GENERAL PLANT ALARMS AND WARNINGS		
FAILED MODULATING ACTUATOR	L, G	FEEDBACK IS ± 10% (ADJ.) OF COMMAND FOR MORE THAN 15 MINUTES (ADJ.)
UNRELIABLE SENSOR / CURRENT SWITCH	TO BE COORD.	END SWITCH NOT MET WITHIN 5 MINUTES (ADJ.) OF COMMAND.
UNRELIABLE METER	TO BE COORD.	SENSOR OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T	VALUE OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
CRITICAL HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T, P	BldgChwst > DistChwstStp + 2°F (ADJ.) FOR MORE THAN 10 MIN (ADJ.)
LOW BUILDING CHILLED WATER DP	L, G, T	BldgChwDp < BldgChwDpSetp - 3 PSI (ADJ.) FOR MORE THAN 10 MIN (ADJ.)
HIGH BUILDING CHILLED WATER DP	L, G, T	BldgChwDp > BldgChwDpSetp + 3 PSI (ADJ.) FOR MORE THAN 10 MIN (ADJ.)
OWNER REQUESTED ALARMS	TO BE COORD.	DIVISION 230900 TO ADD ALARMS AS REQUESTED BY OWNER
FAULT STATUS	(AVAIL)	L, G
COMM (AUTO-RESET)	L, G	HARD WIRED FAULT STATUS FROM THE VFD FAULT RELAY
COMM (MANUAL RESET)	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT AUTOMATICALLY RESET
STATUS	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT REQUIRE RESET COMMAND FROM BAS
VFD IN HAND	(AVAIL)	VFD STATUS DOES NOT MATCH COMMAND
VFD IN HAND OFF	(AVAIL)	L, G
VFD IN BYPASS	(AVAIL)	L, G
SAFETY INTERLOCK	(AVAIL)	L, G
		VFD DISABLED BY SAFETY INTERLOCK

NOTES:
 1. ALARM SETPOINTS, REPORTING, AND PRIORITY LEVELS SHALL BE ADJUSTABLE FROM USER INTERFACE ON A UNIT BY UNIT BASIS, OR AS BLANKET COMMANDS.
 2. ALL THRESHOLDS, DEAD BANDS, DELAYS, AND TIMERS SHALL BE ADJUSTABLE AND TUNED TO PREVENT NUISANCE ALARMS.
 3. WHERE THERE ARE MULTIPLES OF COMPONENTS, ALARMS SHALL BE PROVIDED AND DISTINGUISHED PER COMPONENT.
 4. ALARM CRITERIA AND REPORTING TO BE COORDINATED WITH THE FACILITY. ALARM REPORTING AS FOLLOWS:
 A. ALARMS ARE TO REPORT TO PRIORITIZED ALARM LOGS.
 B. GRAPHIC ALARMS ARE TO INDICATE RED ON THE ASSOCIATED COMPONENT, HIGHLIGHT AND/OR FLASH.
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1 CLINTON PRESIDENTIAL CENTER CHILLED WATER BUILDING ENTRY CONTROL DIAGRAM AND SEQUENCE

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
	08/22/25	ISSUE DATE:
	561470540	PROJECT NUMBER:

SHEET TITLE:
CLINTON PRESIDENTIAL CENTER
BUILDING CHILLED WATER ENTRY
CONTROL DIAGRAM AND
SEQUENCES

SHEET NUMBER:
ATC104

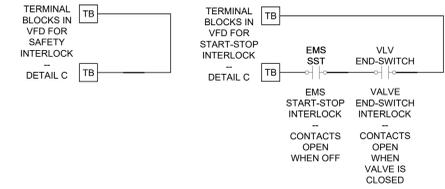
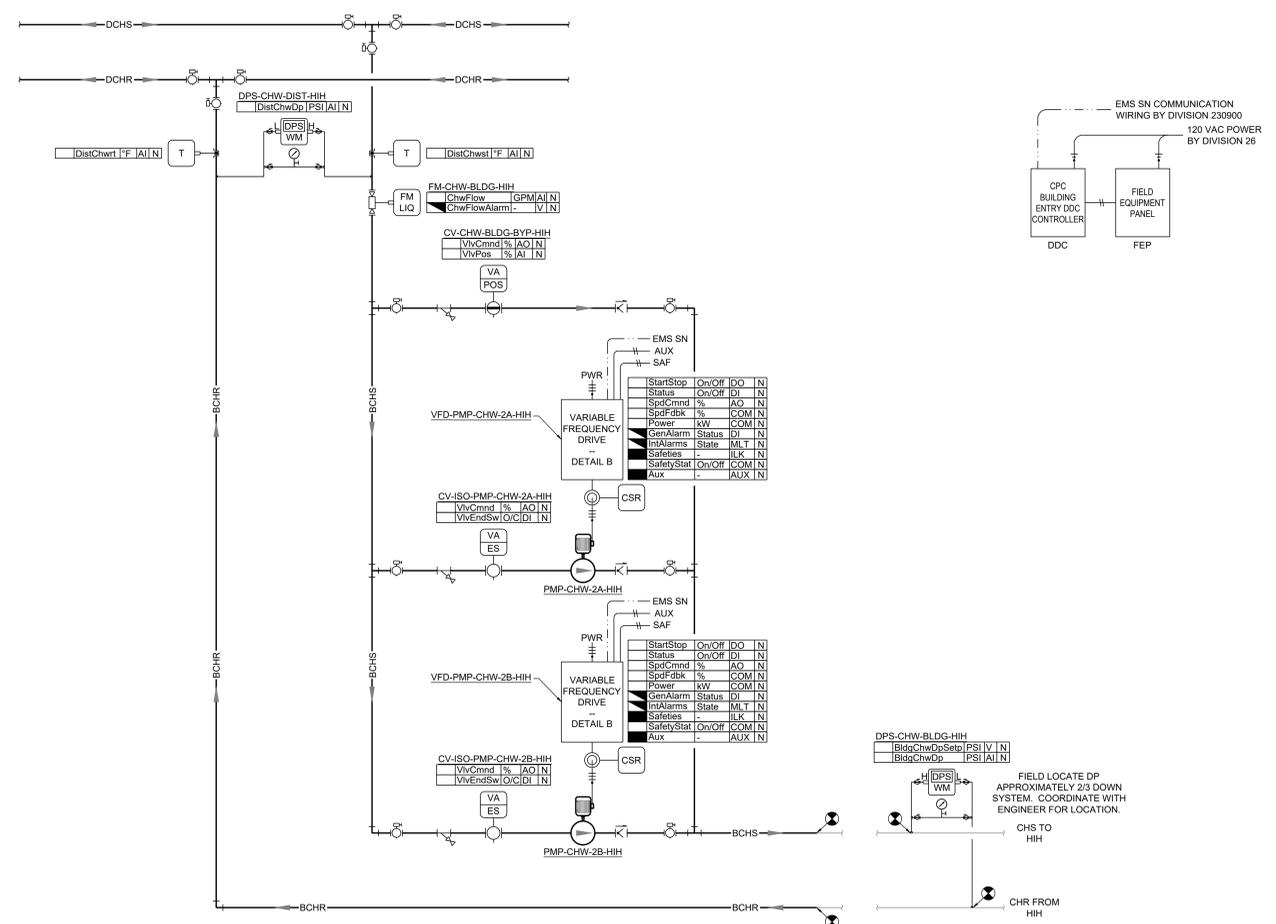
NOT FOR CONSTRUCTION

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ENGINEER SEAL

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2 CHILLED WATER PUMP(S) VFD INTERLOCKS

SEQUENCE OF OPERATION:

BUILDING CHILLED WATER MODES OF OPERATION

SETPOINT	BUILDING PROFILE VALVE	BUILDING CHW PUMP	BUILDING CHW PUMP ISO VALVE
NORMAL ENABLED	NrmChwBypVlvCmnd	LeadBchwSpdCmnd	LeadBchwIsoVlvCmnd
MAINTENANCE / OUT OF SERVICE	MainChwBypVlvCmnd	DISABLED, 0%	CLOSED

NOTES:
1. MAINTENANCE / OUT OF SERVICE MODE SHALL HAVE A HIGHER PRECEDENCE THAN OTHER MODES.
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ALARMS

ALARM TYPE	REPORTING TYPE	CRITERIA
GENERAL PLANT ALARMS AND WARNINGS		
FAILED MODULATING ACTUATOR	L, G	FEEDBACK IS ± 10% (ADJ.) OF COMMAND FOR MORE THAN 15 MINUTES (ADJ.)
UNRELIABLE SENSOR / CURRENT SWITCH	TO BE COORD.	SENSOR OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
UNRELIABLE METER	TO BE COORD.	VALUE OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T	BldgChwst > DistChwstStp + 5°F (ADJ.) FOR MORE THAN 10 MIN (ADJ.)
CRITICAL HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T, P	BldgChwst > DistChwstStp + 5°F (ADJ.) FOR MORE THAN 10 MIN (ADJ.)
LOW BUILDING CHILLED WATER DP	L, G, T	BldgChwDp < BldgChwDpStp - 3 PSI (ADJ.) FOR MORE THAN 10 MIN (ADJ.)
HIGH BUILDING CHILLED WATER DP	L, G, T	BldgChwDp > BldgChwDpStp + 3 PSI (ADJ.) FOR MORE THAN 10 MIN (ADJ.)
OWNER REQUESTED ALARMS	TO BE COORD.	DIVISION 230900 TO ADD ALARMS AS REQUESTED BY OWNER
FAULT STATUS	(AVAIL)	L, G
COMM (AUTO-RESET)	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT AUTOMATICALLY RESET
COMM (MANUAL RESET)	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT REQUIRE RESET COMMAND FROM BAS
VFD STATUS	L, G	VFD STATUS DOES NOT MATCH COMMAND
VFD IN HAND	(AVAIL)	L, G
VFD IN HAND OFF	(AVAIL)	L, G
VFD IN BYPASS	L, G	VFD IN BYPASS
SAFETY INTERLOCK	(AVAIL)	L, G
		VFD DISABLED BY SAFETY INTERLOCK

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TRENDS GROUPS:

- BUILDING CRITICAL ZONE DP RESET
- BUILDING DELTA T DP RESET
- BUILDING CHW DP SETPT RESET
- NORMAL MODE BUILDING CHW DP CONTROL
- MAINT. MODE BUILDING CHW DP CONTROL

CHILLED WATER BUILDING DP SETPOINT
THE CHILLED WATER BUILDING DP SETPOINT SHALL RESET BASED ON THE MINIMUM OF THE OUTSIDE AIR TEMPERATURE LOOK-UP TABLE, BUILDING DIFFERENTIAL TEMPERATURE, OR CONTROL VALVE CRITICAL ZONE RESET. THE DP RESETS BETWEEN THE BUILDING'S MIN AND MAX DP SETPOINT.

LOOK-UP TABLE

INPUT	VALUES	OUTPUT
OA Dry Bulb	80°F	OatMaxChwDpSetp: 20 PSI
Summer OatSetp	55°F	OatMidChwDpSetp: 10 PSI
Mid OatSetp	30°F	OatMinChwDpSetp: 2 PSI
Winter OatSetp		

SETPOINT RESET FUNCTION

INPUTS	VALUES	OUTPUT
IN1	2 PSI (ADJ.)	
IN2	20 PSI (ADJ.)	
IN3	30 SECONDS	
IN4	XX VALVES (ADJ.)	
IN5	1	
IN6	FROM COLLECTOR	
IN7	0.1 PSI	
IN8	10 PSI	
IN9	DIRECT	
IN10	PREVIOUS OUT	

BLDG TEMP DIFF LOOK-UP TABLE

INPUT	VALUES	OUTPUT
Summer DI OatSetp	80°F	HIDiSetp: 14°F
Mid DI OatSetp	55°F	MidDiSetp: 12.5°F
Winter DI OatSetp	30°F	LowDiSetp: 11°F

SUBTRACTION BLOCK

INPUT#1	OUTPUT
CocBldgChwst	OUTPUT = INPUT#1 - INPUT#2
CocBldgChwst	

SETPOINT RESET FUNCTION

INPUTS	VALUES	OUTPUT
IN1	FROM RESET	
IN2	FROM SENSOR	
IN3	0.1°F	
IN4	0.1°F	
IN5	5 SECONDS	
IN6	2°F	
IN7	0.5 PSI	
IN8	2 PSI	
IN9	20 PSI	
IN10	10 PSI	
IN11	DIRECT	
IN12	PREVIOUS OUT	

BLDG CHW PUMP LEAD-STANDBY LOGIC

INPUT#1: PUMP AVAILABILITY IS DETERMINED BY CONDITIONS NOTED IN THE ALARMS TABLE OR IF THE PUMP IS DISABLED OR OUT OF SERVICE.

EVERY MONDAY (ADJ) AT 10 AM (ADJ.), THE LEAD-STANDBY SEQUENCE OF THE PUMPS SHALL BE ADJUSTED.

THE LEAD PUMP SHALL BE THE PUMP WITH THE MINIMUM TOTALIZED RUNTIME.

THE STANDBY PUMP SHALL BE THE PUMP WITH THE MAXIMUM TOTALIZED RUNTIME.

IF A PUMP IS NOT AVAILABLE, IT SHALL BE MOVED TO THE END OF THE LEAD-STANDBY SEQUENCE AND ALL PUMPS BELOW IT IN THE SEQUENCE WILL MOVE UP.

LEAD-STANDBY MODE

CURRENT LEAD CHWP DESIGNATION	CURRENT STANDBY CHWP DESIGNATION
MANUAL LEAD CHWP DESIGNATION	MANUAL STANDBY CHWP DESIGNATION

STEP FUNCTION

BLDG CHW ENTRY CNTRL (NORMAL)

INPUTS	VALUES	OUTPUT
IN1	FROM RESET	
IN2	FROM SENSOR	
IN3	0.05 PSI	
IN4	0.25 PSI	
IN5	5 SECONDS	
IN6	2 PSI	
IN7	1.5	
IN8	0	
IN9	100	
IN10	25	
IN11	REVERSE	
IN12	PREVIOUS OUT	

STEP FUNCTION

BLDG CHW ENTRY CNTRL (MAINT.)

INPUTS	VALUES	OUTPUT
IN1	FROM RESET	
IN2	FROM SENSOR	
IN3	0.05 PSI	
IN4	0.25 PSI	
IN5	5 SECONDS	
IN6	2 PSI	
IN7	3%	
IN8	0%	
IN9	100%	
IN10	25	
IN11	REVERSE	
IN12	PREVIOUS OUT	

BUILDING FLOW CONTROL (LEAD-STANDBY ENTRY)

INPUT	BYPASS CONTROL VALVE	PUMP ISO. VALVE	BUILDING PUMP SPEED CONTROL
0	MinChwBypVlvCmnd: 0%	0% (Closed)	Disabled
55	MaxChwBypVlvCmnd: 100%	100% (Open)	Enabled, MinBchwSpdCmnd: 0%
100			MaxBchwSpdCmnd: 100%

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
	08/22/25	ISSUE DATE:
	561470540	PROJECT NUMBER:

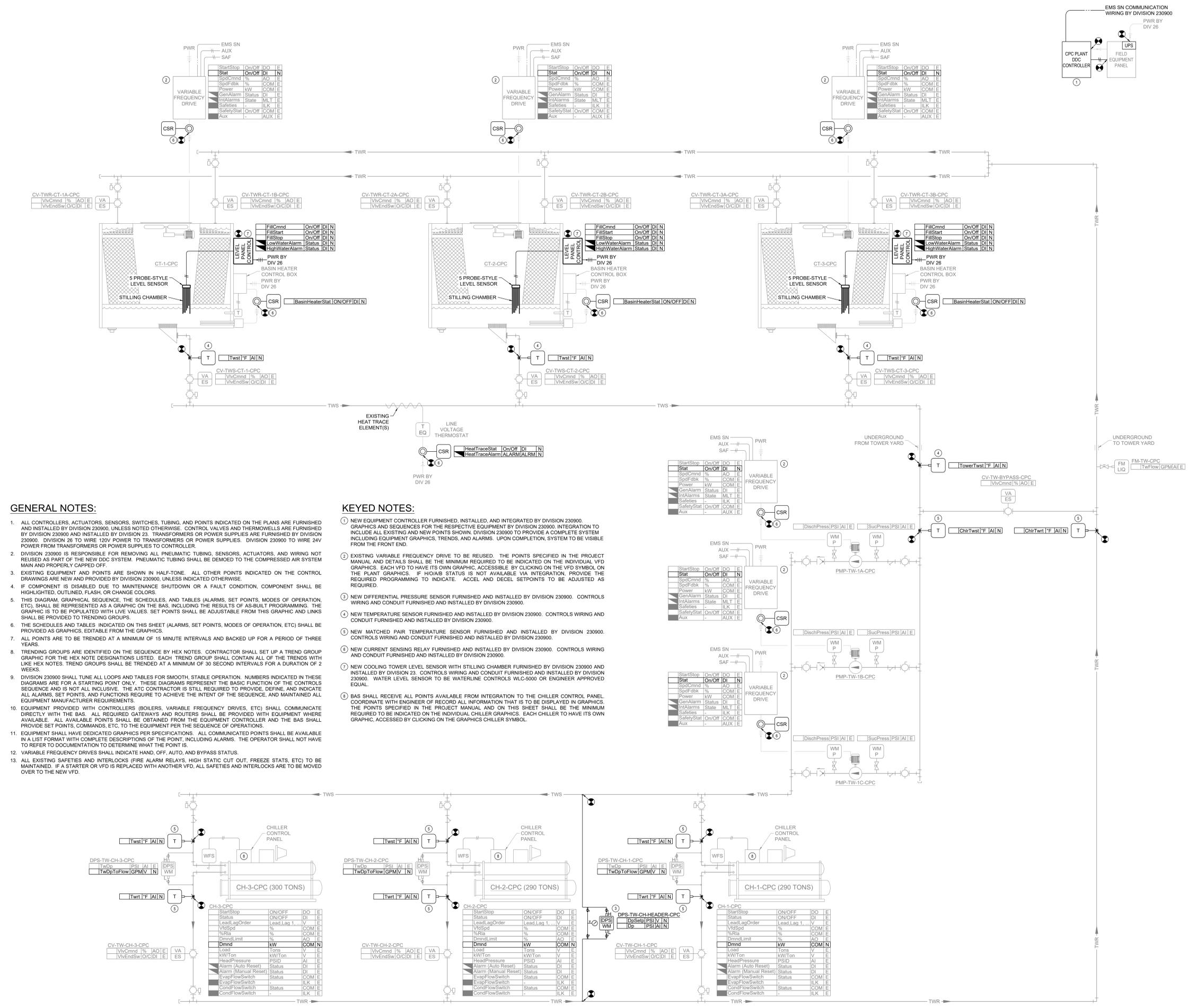
SHEET TITLE:
HEIFER INTERNATIONAL HEADQUARTERS BUILDING CHILLED WATER ENTRY CONTROL DIAGRAM AND SEQUENCES

SHEET NUMBER:
ATC105

NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL



GENERAL NOTES:

1. ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING AND POINTS INDICATED ON THE PLANS ARE FURNISHED AND INSTALLED BY DIVISION 230900, UNLESS NOTED OTHERWISE. CONTROL VALVES AND THERMOWELLS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23. TRANSFORMERS OR POWER SUPPLIES ARE FURNISHED BY DIVISION 230900. DIVISION 23 TO WIRE 120V POWER TO TRANSFORMERS OR POWER SUPPLIES. DIVISION 230900 TO WIRE 24V POWER FROM TRANSFORMERS OR POWER SUPPLIES TO CONTROLLER.
2. DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
3. EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
4. IF COMPONENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, COMPONENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
5. THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDED GROUPS.
6. THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
7. ALL POINTS ARE TO BE TRENDED AT A MINIMUM OF 15 MINUTE INTERVALS AND BACKED UP FOR A PERIOD OF THREE YEARS.
8. TRENDED GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. CONTRACTOR SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
9. DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. THE ATC CONTRACTOR IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRED TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
10. EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC. TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
11. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
12. VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
13. ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OFF, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.

KEYED NOTES:

1. NEW EQUIPMENT CONTROLLER FURNISHED, INSTALLED, AND INTEGRATED BY DIVISION 230900. GRAPHICS AND SEQUENCES FOR THE RESPECTIVE EQUIPMENT BY DIVISION 230900. INTEGRATION TO INCLUDE ALL EXISTING AND NEW POINTS SHOWN. DIVISION 230900 TO PROVIDE A COMPLETE SYSTEM INCLUDING EQUIPMENT GRAPHICS, TRENDS, AND ALARMS. UPON COMPLETION, SYSTEM TO BE VISIBLE FROM THE FRONT END.
2. EXISTING VARIABLE FREQUENCY DRIVE TO BE REUSED. THE POINTS SPECIFIED IN THE PROJECT MANUAL AND DETAILS SHALL BE THE MINIMUM REQUIRED TO BE INDICATED ON THE INDIVIDUAL VFD GRAPHICS. EACH VFD TO HAVE ITS OWN GRAPHIC, ACCESSIBLE BY CLICKING ON THE VFD SYMBOL ON THE PLANT GRAPHICS. IF HOURS STATUS IS NOT AVAILABLE VIA INTEGRATION, PROVIDE THE REQUIRED PROGRAMMING TO INDICATE. ACCEL AND DECEL SETPOINTS TO BE ADJUSTED AS REQUIRED.
3. NEW DIFFERENTIAL PRESSURE SENSOR FURNISHED AND INSTALLED BY DIVISION 230900. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.
4. NEW TEMPERATURE SENSOR FURNISHED AND INSTALLED BY DIVISION 230900. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.
5. NEW MATCHED PAIR TEMPERATURE SENSOR FURNISHED AND INSTALLED BY DIVISION 230900. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.
6. NEW CURRENT SENSING RELAY FURNISHED AND INSTALLED BY DIVISION 230900. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.
7. NEW COOLING TOWER LEVEL SENSOR WITH STILLING CHAMBER FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900. WATER LEVEL SENSOR TO BE WATERLINE CONTROLS WLC-5000 OR ENGINEER APPROVED EQUAL.
8. BAS SHALL RECEIVE ALL POINTS AVAILABLE FROM INTEGRATION TO THE CHILLER CONTROL PANEL. COORDINATE WITH ENGINEER OF RECORD ALL INFORMATION THAT IS TO BE DISPLAYED IN GRAPHICS. THE POINTS SPECIFIED IN THE PROJECT MANUAL AND ON THIS SHEET SHALL BE THE MINIMUM REQUIRED TO BE INDICATED ON THE INDIVIDUAL CHILLER GRAPHICS. EACH CHILLER TO HAVE ITS OWN GRAPHIC, ACCESSIBLE BY CLICKING ON THE GRAPHICS CHILLER SYMBOL.

1 CLINTON PRESIDENTIAL CENTER TOWER WATER CONTROL DIAGRAM
NOT TO SCALE

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:	08/22/25	
PROJECT NUMBER:	561470540	

SHEET TITLE:
CLINTON PRESIDENTIAL CENTER
TOWER WATER SYSTEM
CONTROL DIAGRAM

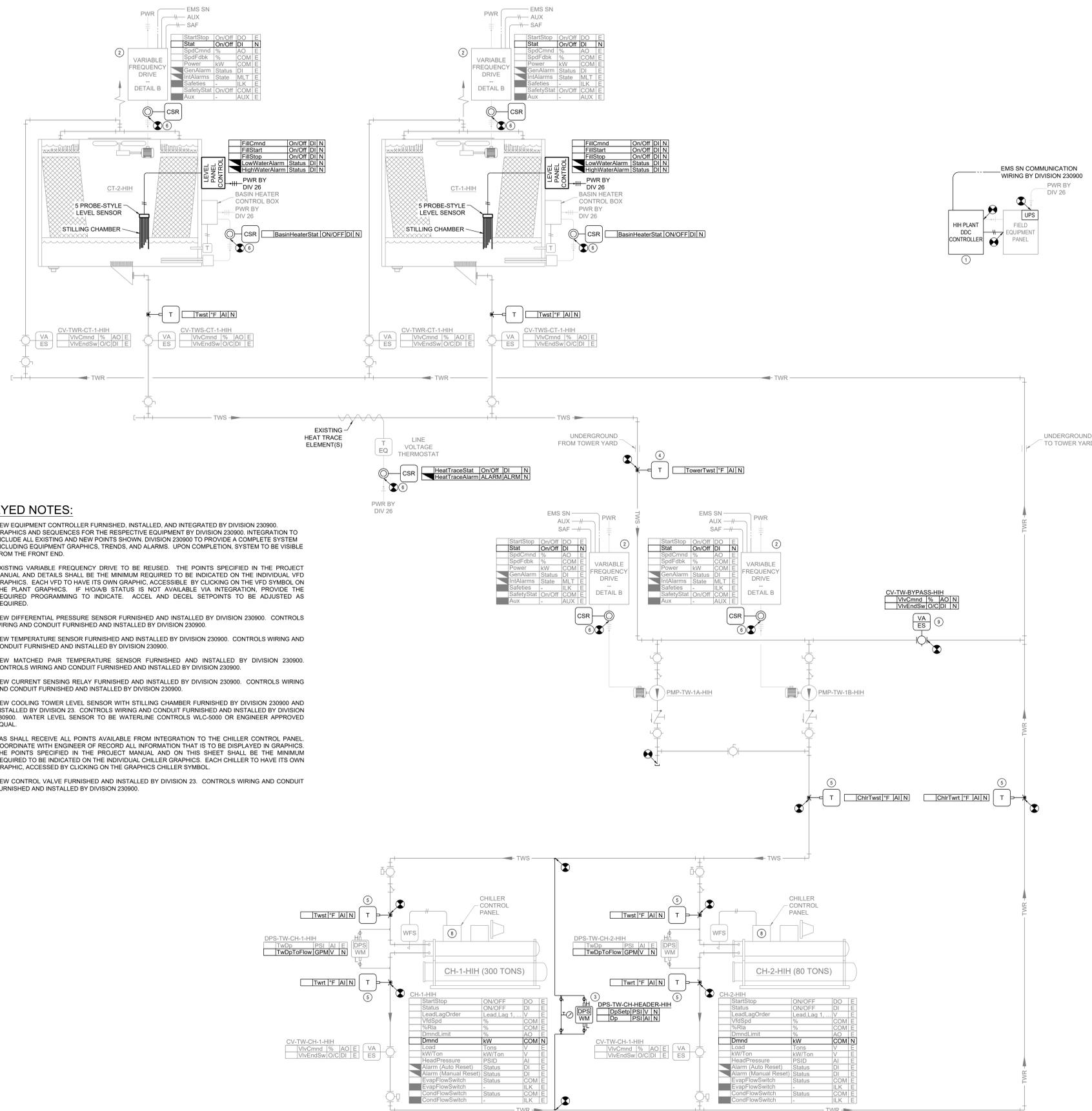
SHEET NUMBER:
ATC110

NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS



GENERAL NOTES:

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- DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
- EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
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- THIS DIAGRAM GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC.) SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
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- DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. THE ATC CONTRACTOR IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
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KEYED NOTES:

- NEW EQUIPMENT CONTROLLER FURNISHED, INSTALLED, AND INTEGRATED BY DIVISION 230900. GRAPHICS AND SEQUENCES FOR THE RESPECTIVE EQUIPMENT BY DIVISION 230900. INTEGRATION TO INCLUDE ALL EXISTING AND NEW POINTS SHOWN. DIVISION 230900 TO PROVIDE A COMPLETE SYSTEM INCLUDING EQUIPMENT GRAPHICS, TRENDS, AND ALARMS. UPON COMPLETION, SYSTEM TO BE VISIBLE FROM THE FRONT END.
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- NEW TEMPERATURE SENSOR FURNISHED AND INSTALLED BY DIVISION 230900. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.
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- NEW CURRENT SENSING RELAY FURNISHED AND INSTALLED BY DIVISION 230900. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.
- NEW COOLING TOWER LEVEL SENSOR WITH STILLING CHAMBER FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900. WATER LEVEL SENSOR TO BE WATERLINE CONTROLS WLC-5000 OR ENGINEER APPROVED EQUAL.
- BAS SHALL RECEIVE ALL POINTS AVAILABLE FROM INTEGRATION TO THE CHILLER CONTROL PANEL COORDINATE WITH ENGINEER OF RECORD ALL INFORMATION THAT IS TO BE DISPLAYED IN GRAPHICS. THE POINTS SPECIFIED IN THE PROJECT MANUAL AND ON THIS SHEET SHALL BE THE MINIMUM REQUIRED TO BE INDICATED ON THE INDIVIDUAL CHILLER GRAPHICS. EACH CHILLER TO HAVE ITS OWN GRAPHIC, ACCESSIBLE BY CLICKING ON THE GRAPHICS CHILLER SYMBOL.
- NEW CONTROL VALVE FURNISHED AND INSTALLED BY DIVISION 23. CONTROLS WIRING AND CONDUIT FURNISHED AND INSTALLED BY DIVISION 230900.

MARK	DATE	DESCRIPTION
ISSUE DATE:	08/22/25	
PROJECT NUMBER:	561470540	

SHEET TITLE:
HEIFER INTERNATIONAL HEADQUARTERS TOWER WATER SYSTEM CONTROL DIAGRAM

SHEET NUMBER:
ATC112

HEIFER INTERNATIONAL HEADQUARTERS TOWER WATER CONTROL DIAGRAM

NOT TO SCALE

NOT FOR CONSTRUCTION

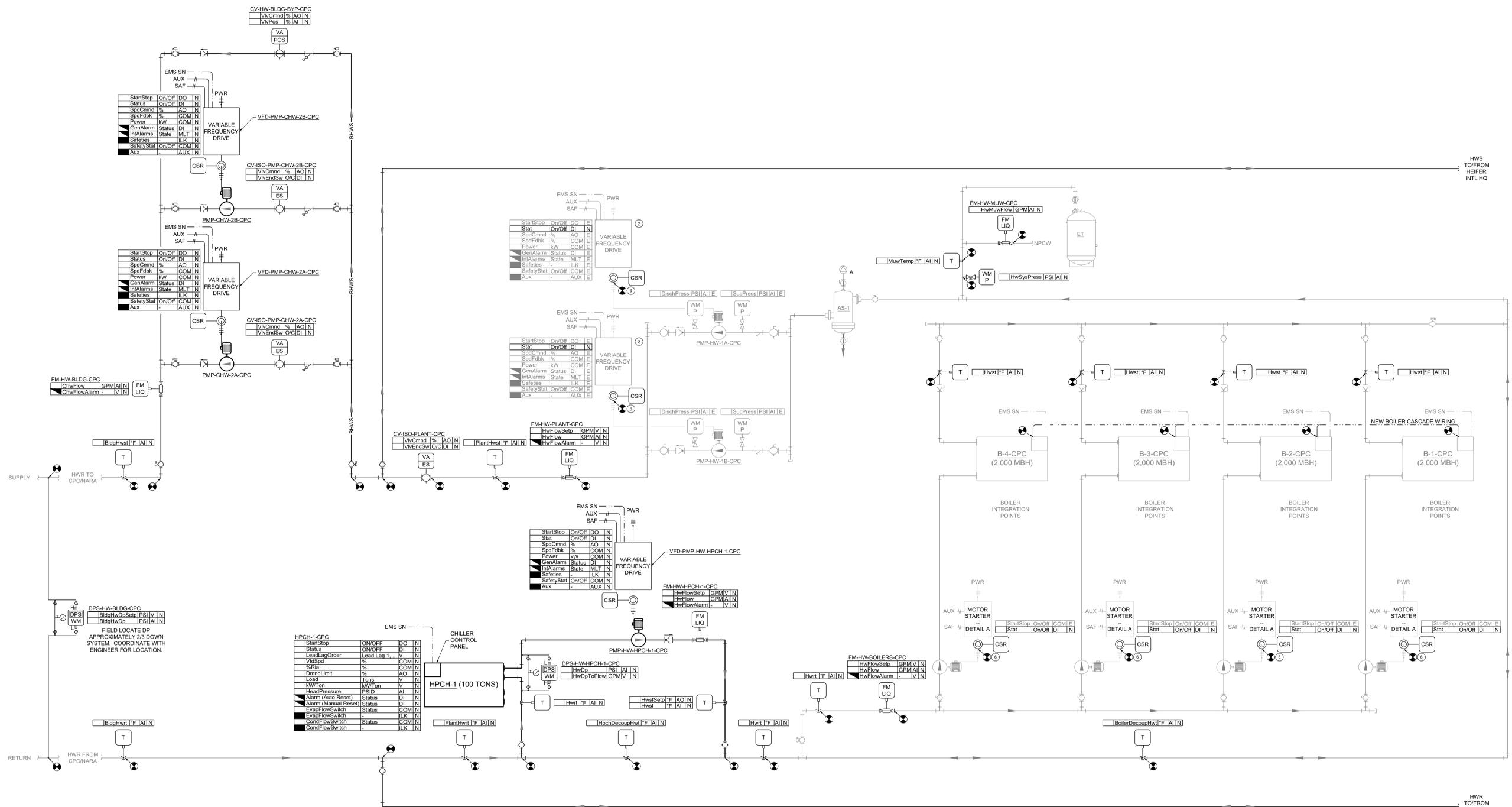
CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

GENERAL NOTES:

- CONTROL VALVES, THERMOWELLS, AND TAPS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED. TRANSFORMERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 28IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
- ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE PROVIDED BY DIVISION 230900, UNLESS NOTED OTHERWISE.
- DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOLISHED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY CAPPED OFF.
- EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
- IF EQUIPMENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, EQUIPMENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
- IF EQUIPMENT, SENSOR, OR A VALUE ARE OVERRIDDEN, IT SHALL BE HIGHLIGHTED PURPLE, OUTLINED, FLASH, OR CHANGE COLORS.
- THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDED GROUPS.
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- ALL POINTS ARE TO BE TRENDED AT A MINIMUM OF 15 MINUTE INTERVALS AND BACKED UP FOR A PERIOD OF THREE YEARS.
- TRENDED GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. DIVISION 230900 SHALL SET UP A TRENDED GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TRENDED GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TRENDED GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
- DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. DIVISION 230900 IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
- EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
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- VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
- ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OUT, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.



Point	Start/Stop	On/Off	DO	DI	AI	AO	VI	VO
HPCH-1-CPC	Start/Stop	On/Off	DO	DI	AI	AO	VI	VO
HPCH-1-CPC	Status	On/Off	DI	DI	AI	AO	VI	VO
HPCH-1-CPC	LeadLagOrder	On/Off	DI	DI	AI	AO	VI	VO
HPCH-1-CPC	%Rta	On/Off	DI	DI	AI	AO	VI	VO
HPCH-1-CPC	DrmdLimit	On/Off	DI	DI	AI	AO	VI	VO
HPCH-1-CPC	Load	On/Off	DI	DI	AI	AO	VI	VO
HPCH-1-CPC	kW/Ton	On/Off	DI	DI	AI	AO	VI	VO
HPCH-1-CPC	HeadPressure	On/Off	DI	DI	AI	AO	VI	VO
HPCH-1-CPC	Alarm (Auto Reset)	On/Off	DI	DI	AI	AO	VI	VO
HPCH-1-CPC	Alarm (Manual Reset)	On/Off	DI	DI	AI	AO	VI	VO
HPCH-1-CPC	Evap/lowSwitch	On/Off	DI	DI	AI	AO	VI	VO
HPCH-1-CPC	Cond/lowSwitch	On/Off	DI	DI	AI	AO	VI	VO
HPCH-1-CPC	CondFlowSwitch	On/Off	DI	DI	AI	AO	VI	VO

1 CLINTON PRESIDENTIAL CENTER HEATING WATER PLANT CONTROL DIAGRAM
NOT TO SCALE

MARK	DATE	DESCRIPTION
ISSUE DATE:	08/22/25	
PROJECT NUMBER:	561470540	
SHEET TITLE:		
CLINTON PRESIDENTIAL CENTER HEATING WATER PLANT CONTROL DIAGRAM		

SHEET NUMBER:
ATC200

NOT FOR CONSTRUCTION

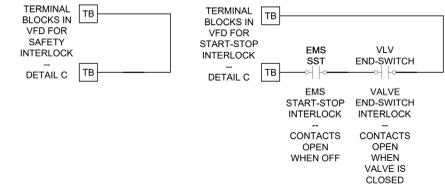
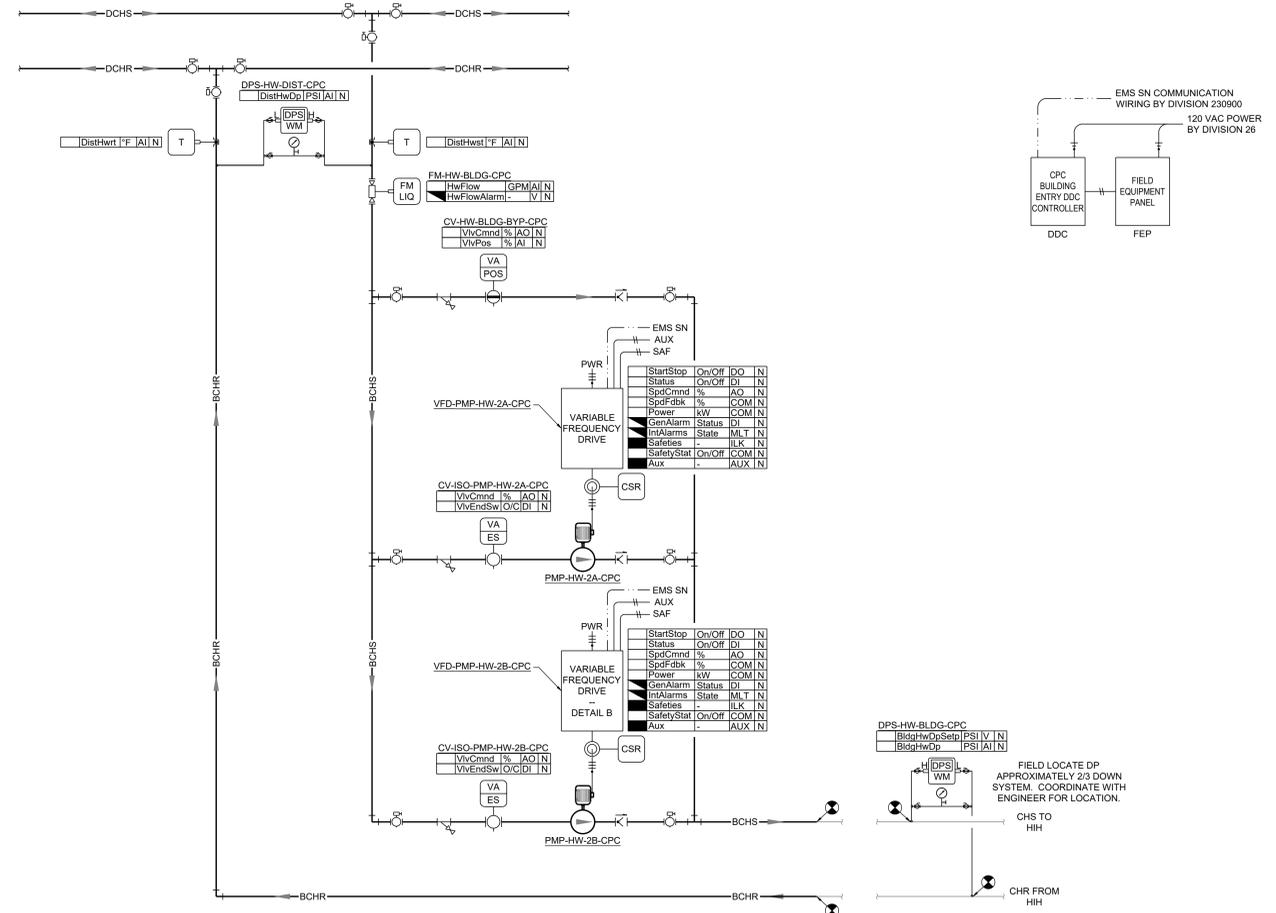
CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

GENERAL NOTES:

- CONTROL VALVES, THERMOWELLS, AND TAPS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED. TRANSFORMERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 28 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
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- EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
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- TRENDS GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. DIVISION 230900 SHALL SET UP A TRENDS GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TRENDS GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TRENDS GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
- DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. DIVISION 230900 IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
- EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
- EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
- VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
- ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OUT, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.



HEATING WATER PUMP(S) VFD INTERLOCKS

SEQUENCE OF OPERATION:

BUILDING CHILLED WATER MODES OF OPERATION

SETPOINT	BUILDING PROFILE VALVE	BUILDING CHW PUMP	BUILDING CHW PUMP ISO VALVE
NORMAL ENABLED	NrmChwBypVlvCmnd	LeadBchwSpdCmnd	LeadBchwPlsVlvCmnd
MAINTENANCE / OUT OF SERVICE	MainChwBypVlvCmnd	DISABLED, 0%	CLOSED

NOTES:
 1. MAINTENANCE / OUT OF SERVICE MODE SHALL HAVE A HIGHER PRECEDENCE THAN OTHER MODES.
 2. WHILE IN MAINTENANCE / OUT OF SERVICE MODE, THE BUILDING PROFILE BYPASS VALVE SHALL CONTINUE TO OPERATE TO A BUILDING DIFFERENTIAL PRESSURE. THIS IS TO KEEP THE BUILDING FROM BEING OVER-PRESSURIZED DURING MAINTENANCE.

TRENDS GROUPS:

- BUILDING CRITICAL ZONE DP RESET
- BUILDING DELTA T DP RESET
- BUILDING CHW DP SETPT RESET
- NORMAL MODE BUILDING CHW DP CONTROL
- MAINT. MODE BUILDING CHW DP CONTROL

ALARMS

REPORTING: L = LOGS, G = ASSOCIATED GRAPHIC, P = POP UP GRAPHIC, T = TEXT/EMAIL

ALARM TYPE	REPORTING TYPE	CRITERIA
GENERAL PLANT ALARMS AND WARNINGS		
FAILED MODULATING ACTUATOR	L, G	FEEDBACK IS ± 10% (ADJ.) OF COMMAND FOR MORE THAN 15 MINUTES (ADJ.)
UNRELIABLE SENSOR / CURRENT SWITCH	TO BE COORD.	END SWITCH NOT MET WITHIN 5 MINUTES (ADJ.) OF COMMAND.
UNRELIABLE METER	TO BE COORD.	SENSOR OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T	Value OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
CRITICAL HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T, P	BldgChwSt > DistChwSt + 5°F (ADJ.) FOR MORE THAN 10 MIN (ADJ.)
LOW BUILDING CHILLED WATER DP	L, G, T	BldgChwDp < BldgChwDpSetp - 3 PSI (ADJ.) FOR MORE THAN 10 MIN (ADJ.)
HIGH BUILDING CHILLED WATER DP	L, G, T	BldgChwDp > BldgChwDpSetp + 3 PSI (ADJ.) FOR MORE THAN 10 MIN (ADJ.)
OWNER REQUESTED ALARMS	TO BE COORD.	DIVISION 230900 TO ADD ALARMS AS REQUESTED BY OWNER
FAULT STATUS	(AVAIL)	L, G
COMM (AUTO-RESET)	L, G	HARD WIRED FAULT STATUS FROM THE VFD FAULT RELAY
COMM (MANUAL RESET)	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT AUTOMATICALLY RESET
STATUS	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT REQUIRE RESET COMMAND FROM BAS
VFD IN HAND	(AVAIL)	VFD STATUS DOES NOT MATCH COMMAND
VFD IN HAND OFF	(AVAIL)	L, G
VFD IN BYPASS	(AVAIL)	L, G
SAFETY INTERLOCK	(AVAIL)	L, G
VFD DISABLED BY SAFETY INTERLOCK	(AVAIL)	L, G

NOTES:
 1. ALARM SETPOINTS, REPORTING, AND PRIORITY LEVELS SHALL BE ADJUSTABLE FROM USER INTERFACE ON A UNIT BY UNIT BASIS, OR AS BLANKET COMMANDS.
 2. ALL THRESHOLDS, DEAD BANDS, DELAYS, AND TIMERS SHALL BE ADJUSTABLE AND TUNED TO PREVENT NUISANCE ALARMS.
 3. WHERE THERE ARE MULTIPLES OF COMPONENTS, ALARMS SHALL BE PROVIDED AND DISTINGUISHED PER COMPONENT.
 4. ALARM CRITERIA AND REPORTING TO BE COORDINATED WITH THE FACILITY. ALARM REPORTING AS FOLLOWS:
 A. ALARMS ARE TO REPORT TO PRIORITIZED ALARM LOGS.
 B. GRAPHIC ALARMS ARE TO INDICATE RED ON THE ASSOCIATED COMPONENT, HIGHLIGHT AND/OR FLASH.
 C. POP UP ALARMS ARE CRITICAL ALARMS THAT SHALL OCCUR NO MATTER WHAT SCREEN IS UP ON THE BAS, OR SHALL BE DISPLAYED AT A CERTAIN LOCATION ON THE GRAPHICS.
 D. TEXT AND/OR EMAILS SHALL BE ISSUED AS COORDINATED WITH THE OWNER.
 5. ALARMS MARKED WITH "AVAIL" SHALL BE CONSIDERED IN THE ASSOCIATED EQUIPMENT'S AVAILABILITY DETERMINATION. IF THE ALARM IS ACTIVE, THEN THE EQUIPMENT SHALL BE MADE UNAVAILABLE.

CHILLED WATER BUILDING DP SETPOINT
 THE CHILLED WATER BUILDING DP SETPOINT SHALL RESET BASED ON THE MINIMUM OF THE OUTSIDE AIR TEMPERATURE LOOK-UP TABLE, BUILDING DIFFERENTIAL TEMPERATURE, OR CONTROL VALVE CRITICAL ZONE RESET. THE DP RESETS BETWEEN THE BUILDING'S MIN AND MAX DP SETPOINT.

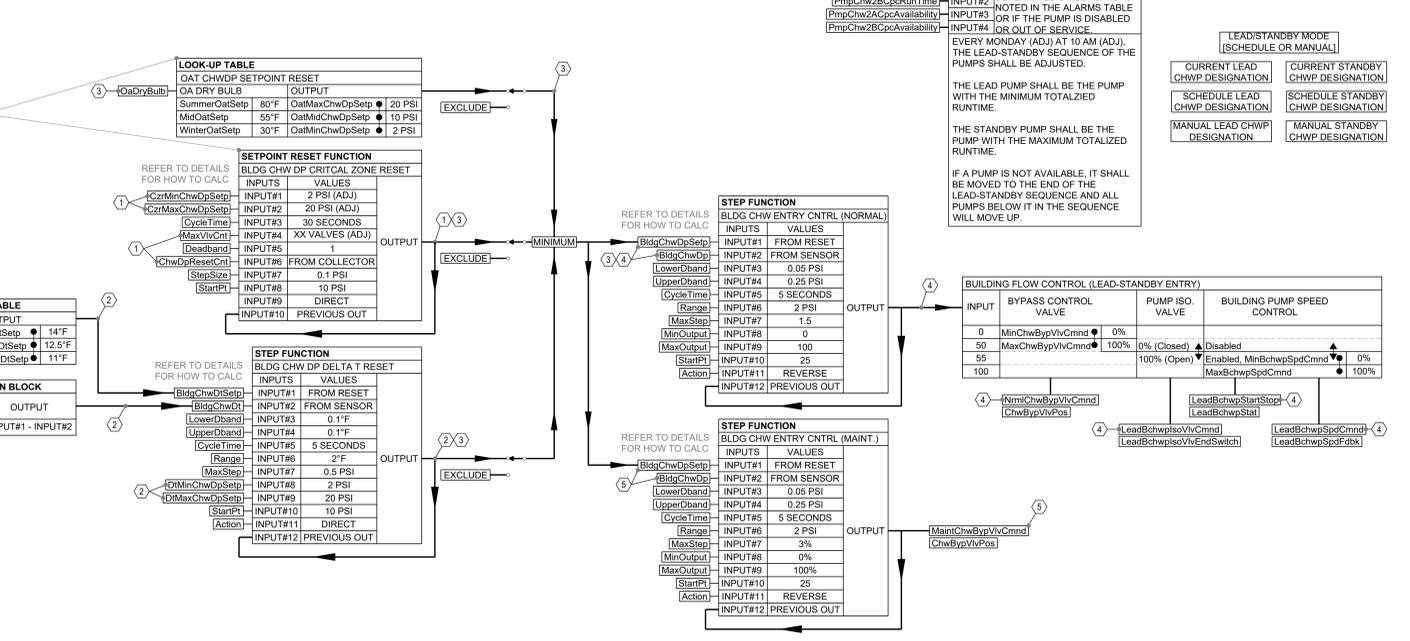
LOOK-UP TABLE	OUTPUT
OAT CHWDP SETPOINT	
OA DRY BULB	
SummerOatSetp 80°F	OatMaxChwDpSetp 20 PSI
MidOatSetp 55°F	OatMidChwDpSetp 10 PSI
WinterOatSetp 30°F	OatMinChwDpSetp 2 PSI

BLDG TEMP DIFF LOOK-UP TABLE

INPUT	OUTPUT
SummerDiOatSetp 80°F	HdISetp 14°F
MidDiOatSetp 55°F	MidDiSetp 12.5°F
WinterDiOatSetp 30°F	LowDiSetp 11°F

SUBTRACTION BLOCK

INPUT#1	INPUT#2	OUTPUT
CpcBldgChwT1	CpcBldgChwT2	OUTPUT = INPUT#1 - INPUT#2



CLINTON PRESIDENTIAL CENTER HEATING WATER BUILDING ENTRY CONTROL DIAGRAM AND SEQUENCE

MARK	DATE	DESCRIPTION
	08/22/25	ISSUE DATE:
	561470540	PROJECT NUMBER:

SHEET TITLE:
CLINTON PRESIDENTIAL CENTER
BUILDING HEATING WATER
ENTRY CONTROL DIAGRAM AND
SEQUENCES

SHEET NUMBER:
ATC204

NOT FOR CONSTRUCTION

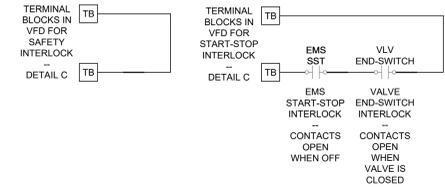
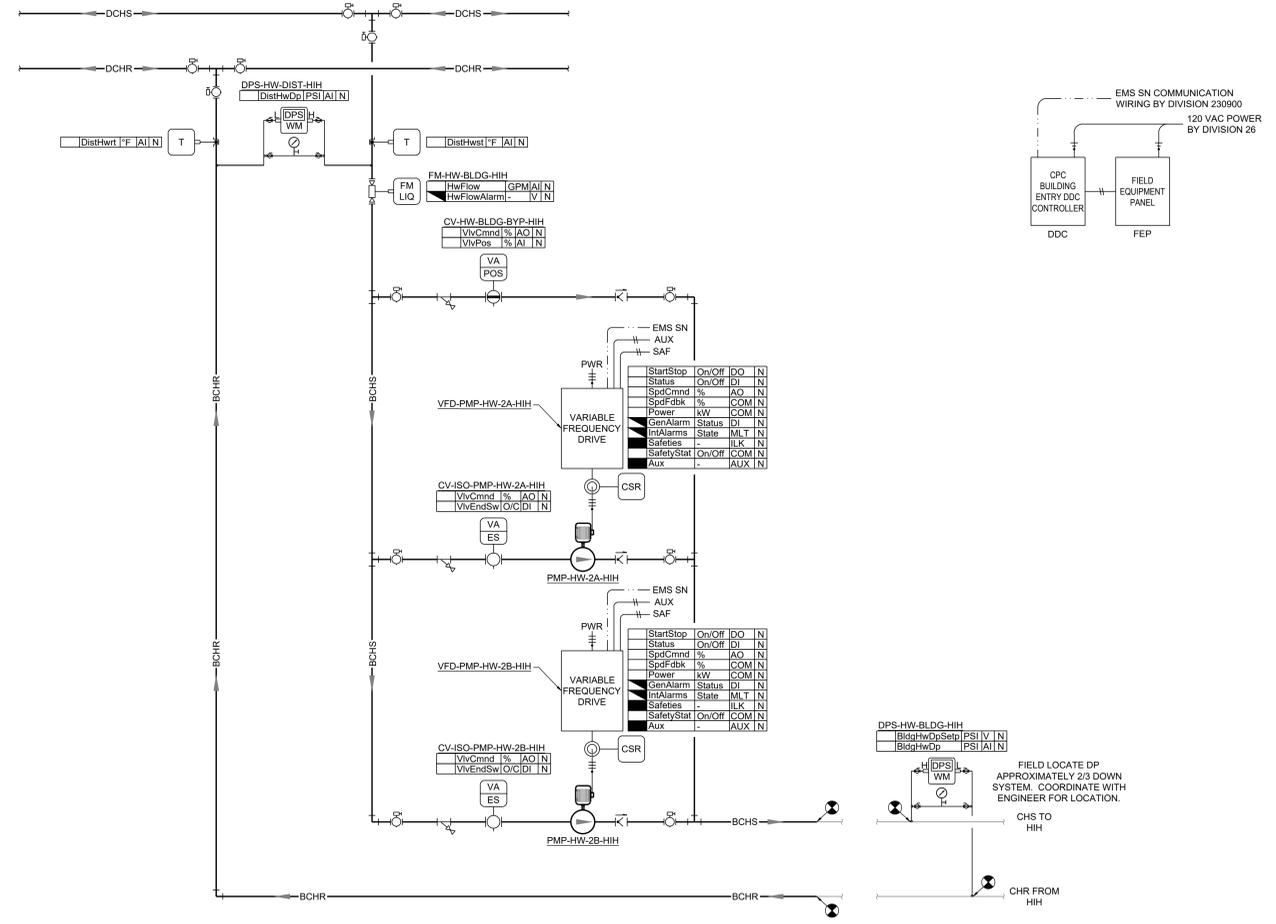
CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

GENERAL NOTES:

- CONTROL VALVES, THERMOWELLS, AND TAPS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED. TRANSFORMERS ARE FURNISHED BY DIVISION 230900 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
- ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE PROVIDED BY DIVISION 230900, UNLESS NOTED OTHERWISE.
- DIVISION 230900 IS RESPONSIBLE FOR REMOVING ALL PNEUMATIC TUBING, SENSORS, ACTUATORS, AND WIRING NOT REUSED AS PART OF THE NEW DDC SYSTEM. PNEUMATIC TUBING SHALL BE DEMOLISHED TO THE COMPRESSED AIR SYSTEM MAIN AND PROPERLY GAPPED OFF.
- EXISTING EQUIPMENT AND POINTS ARE SHOWN IN HALF-TONE. ALL OTHER POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 230900, UNLESS INDICATED OTHERWISE.
- IF EQUIPMENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, EQUIPMENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
- IF EQUIPMENT, SENSOR, OR A VALVE ARE OVERRIDDEN, IT SHALL BE HIGHLIGHTED PURPLE, OUTLINED, FLASH, OR CHANGE COLORS.
- THIS DIAGRAM, GRAPHICAL SEQUENCE, THE SCHEDULES, AND TABLES (ALARMS, SET POINTS, MODES OF OPERATION, ETC), SHALL BE REPRESENTED AS A GRAPHIC ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT PROGRAMMING. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
- THE SCHEDULES AND TABLES INDICATED ON THIS SHEET (ALARMS, SET POINTS, MODES OF OPERATION, ETC) SHALL BE PROVIDED AS GRAPHICS, EDITABLE FROM THE GRAPHICS.
- ALL POINTS ARE TO BE TRENDED AT A MINIMUM OF 15 MINUTE INTERVALS AND BACKED UP FOR A PERIOD OF THREE YEARS.
- TRENDING GROUPS ARE IDENTIFIED ON THE SEQUENCE BY HEX NOTES. DIVISION 230900 SHALL SET UP A TREND GROUP GRAPHIC FOR THE HEX NOTE DESIGNATIONS LISTED. EACH TREND GROUP SHALL CONTAIN ALL OF THE TRENDS WITH LIKE HEX NOTES. TREND GROUPS SHALL BE TRENDED AT A MINIMUM OF 30 SECOND INTERVALS FOR A DURATION OF 2 WEEKS.
- DIVISION 230900 SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND IS NOT ALL INCLUSIVE. DIVISION 230900 IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRE TO ACHIEVE THE INTENT OF THE SEQUENCE, AND MAINTAINED ALL EQUIPMENT MANUFACTURER REQUIREMENTS.
- EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC, TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
- EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
- VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
- ALL EXISTING SAFETIES AND INTERLOCKS (FIRE ALARM RELAYS, HIGH STATIC CUT OUT, FREEZE STATS, ETC) TO BE MAINTAINED. IF A STARTER OR VFD IS REPLACED WITH ANOTHER VFD, ALL SAFETIES AND INTERLOCKS ARE TO BE MOVED OVER TO THE NEW VFD.



HEATING WATER PUMP(S) VFD INTERLOCKS

SEQUENCE OF OPERATION:

BUILDING CHILLED WATER MODES OF OPERATION

SETPOINT	BUILDING PROFILE VALVE	BUILDING CHW PUMP	BUILDING CHW PUMP ISO VALVE
NORMAL ENABLED	NrmChwBypVlvCmnd	LeadBchwSpdCmnd	LeadBchwIsoVlvCmnd
MAINTENANCE / OUT OF SERVICE	MainChwBypVlvCmnd	DISABLED, 0%	CLOSED

NOTES:
1. MAINTENANCE / OUT OF SERVICE MODE SHALL HAVE A HIGHER PRECEDENCE THAN OTHER MODES.
2. WHILE IN MAINTENANCE / OUT OF SERVICE MODE, THE BUILDING PROFILE BYPASS VALVE SHALL CONTINUE TO OPERATE TO A BUILDING DIFFERENTIAL PRESSURE. THIS IS TO KEEP THE BUILDING FROM BEING OVER-PRESSURIZED DURING MAINTENANCE.

TRENDING GROUPS:

- BUILDING CRITICAL ZONE DP RESET
- BUILDING DELTA T DP RESET
- BUILDING CHW DP SETP RESET
- NORMAL MODE BUILDING CHW DP CONTROL
- MAINT. MODE BUILDING CHW DP CONTROL

ALARMS REPORTING: L = LOGS, G = ASSOCIATED GRAPHIC, P = POP UP GRAPHIC, T = TEXT/EMAIL

ALARM TYPE	REPORTING TYPE	CRITERIA
GENERAL PLANT ALARMS AND WARNINGS		
FAILED MODULATING ACTUATOR	L, G	FEEDBACK IS ± 10% (ADJ.) OF COMMAND FOR MORE THAN 15 MINUTES (ADJ.)
UNRELIABLE SENSOR / CURRENT SWITCH	TO BE COORD.	END SWITCH NOT MET WITHIN 5 MINUTES (ADJ.) OF COMMAND.
UNRELIABLE METER	TO BE COORD.	SENSOR OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T	VALUE OUT OF RANGE, DOESN'T CHANGE STATUS, ETC.
CRITICAL HIGH BUILDING CHILLED WATER SUPPLY TEMP	L, G, T, P	BldgChwst > DistChwstStp + 5°F (ADJ.) FOR MORE THAN 10 MIN (ADJ.)
LOW BUILDING CHILLED WATER DP	L, G, T	BldgChwDp < BldgChwDpSetp - 3 PSI (ADJ.) FOR MORE THAN 10 MIN (ADJ.)
HIGH BUILDING CHILLED WATER DP	L, G, T	BldgChwDp > BldgChwDpSetp + 3 PSI (ADJ.) FOR MORE THAN 10 MIN (ADJ.)
OWNER REQUESTED ALARMS	TO BE COORD.	DIVISION 230900 TO ADD ALARMS AS REQUESTED BY OWNER
FAULT STATUS	(AVAIL)	L, G HARD WIRED FAULT STATUS FROM THE VFD FAULT RELAY
COMM (AUTO-RESET)	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT AUTOMATICALLY RESET
COMM (MANUAL RESET)	L, G	ALARMS AND WARNINGS COMMUNICATED FROM THE VFD THAT REQUIRE RESET COMMAND FROM BAS
STATUS	L, G	VFD STATUS DOES NOT MATCH COMMAND
VFD IN HAND	(AVAIL)	L, G VFD IN HAND
VFD IN HAND OFF	(AVAIL)	L, G VFD IN HAND OFF
VFD IN BYPASS	L, G	VFD IN BYPASS
SAFETY INTERLOCK	(AVAIL)	L, G VFD DISABLED BY SAFETY INTERLOCK

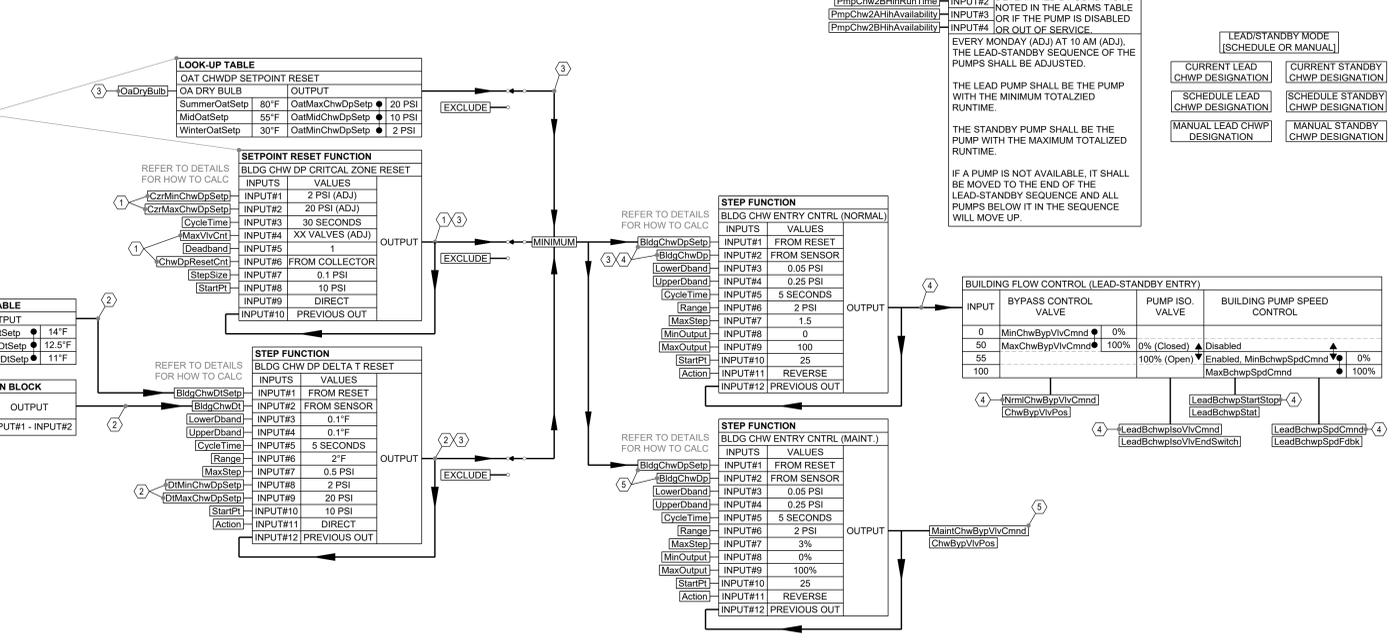
NOTES:
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2. ALL THRESHOLDS, DEAD BANDS, DELAYS, AND TIMERS SHALL BE ADJUSTABLE AND TUNED TO PREVENT NUISANCE ALARMS.
3. WHERE THERE ARE MULTIPLES OF COMPONENTS, ALARMS SHALL BE PROVIDED AND DISTINGUISHED PER COMPONENT.
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C. POP UP ALARMS ARE CRITICAL ALARMS THAT SHALL OCCUR NO MATTER WHAT SCREEN IS UP ON THE BAS, OR SHALL BE DISPLAYED AT A CERTAIN LOCATION ON THE GRAPHICS.
D. TEXT AND/OR EMAILS SHALL BE ISSUED AS COORDINATED WITH THE OWNER.
5. ALARMS MARKED WITH 'AVAIL' SHALL BE CONSIDERED IN THE ASSOCIATED EQUIPMENT'S AVAILABILITY DETERMINATION. IF THE ALARM IS ACTIVE, THEN THE EQUIPMENT SHALL BE MADE UNAVAILABLE.

LOOK-UP TABLE

INPUT	VALUES	OUTPUT
OatDryBulb	80°F	OatChwDpSetp
SummerOatSetp	80°F	OatMaxChwDpSetp
MidOatSetp	55°F	OatMidChwDpSetp
WinterOatSetp	30°F	OatMinChwDpSetp

BLDG TEMP DIFF LOOK-UP TABLE

INPUT	VALUES	OUTPUT
SummerDiOatSetp	80°F	HdISetp
MidDiOatSetp	55°F	MidDiSetp
WinterDiOatSetp	30°F	LowDiSetp



MARK	DATE	DESCRIPTION
ISSUE DATE:	08/22/25	
PROJECT NUMBER:	561470540	

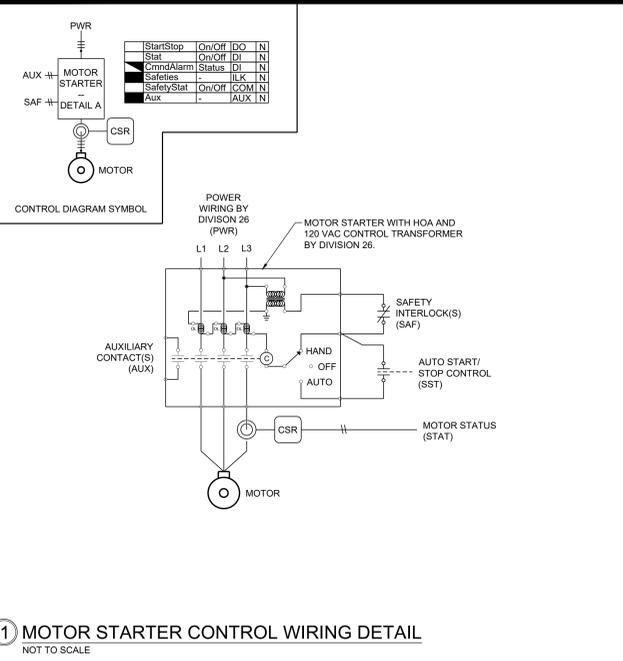
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HEIFER INTERNATIONAL HQ
BUILDING HEATING WATER
ENTRY CONTROL DIAGRAM AND
SEQUENCES

SHEET NUMBER:
ATC205

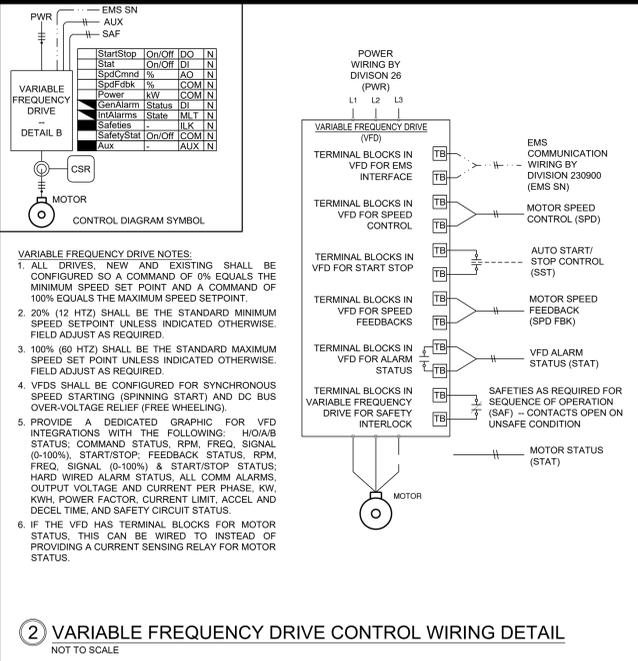
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ENGINEER SEAL

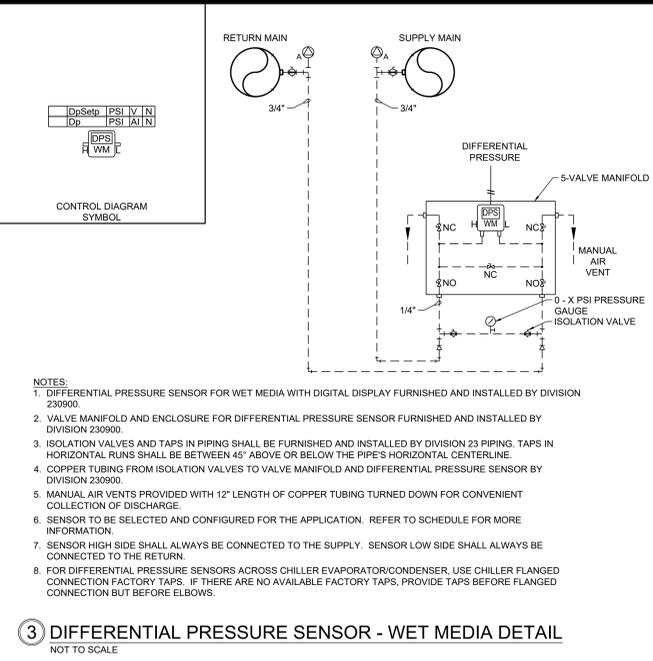
CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS



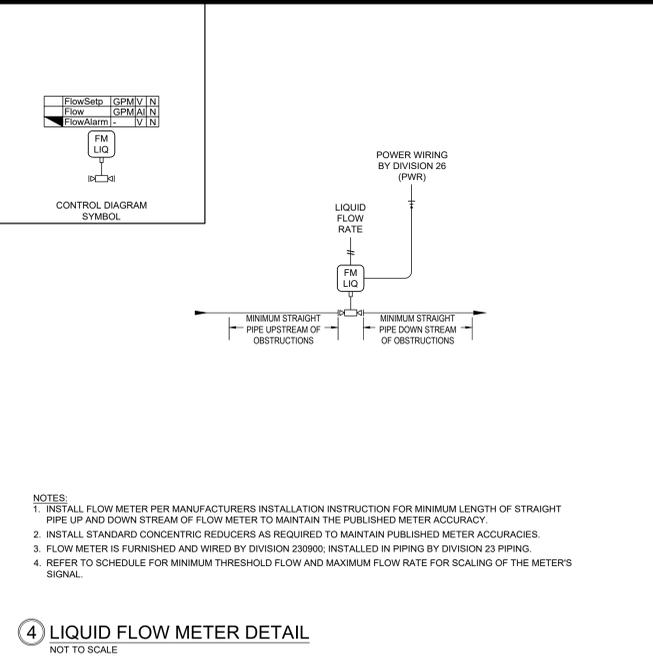
① MOTOR STARTER CONTROL WIRING DETAIL
NOT TO SCALE



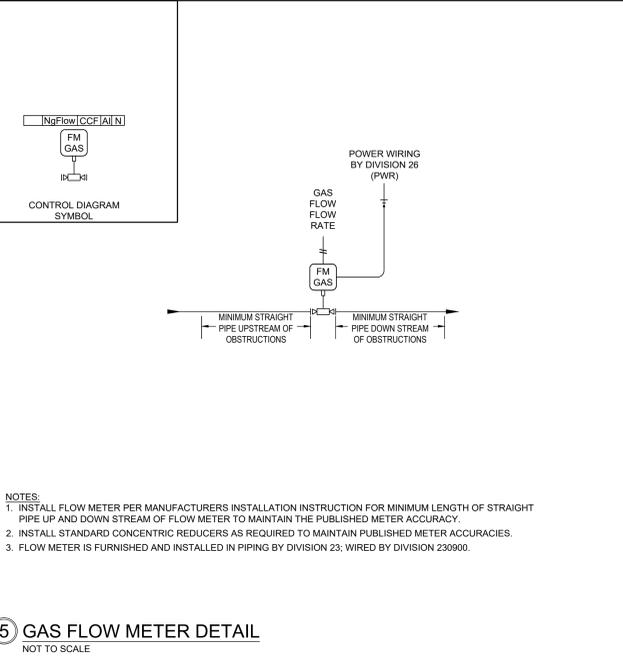
② VARIABLE FREQUENCY DRIVE CONTROL WIRING DETAIL
NOT TO SCALE



③ DIFFERENTIAL PRESSURE SENSOR - WET MEDIA DETAIL
NOT TO SCALE



④ LIQUID FLOW METER DETAIL
NOT TO SCALE



⑤ GAS FLOW METER DETAIL
NOT TO SCALE



① MODES TABLE DETAIL



② PID CONTROL LOOP (PROPORTIONAL INTEGRAL DERIVATIVE CONTROL) DETAIL

A MODE IDENTIFIES A SPECIFIC WAY THE SYSTEM IS INTENDED TO OPERATE UNDER SPECIFIC CONDITIONS. CRITERIA FOR THE MODE MAY BE IDENTIFIED IN THE SEQUENCE OR MAY BE THE RESULT OF THE CONDITION OF A COMPONENT (FREEZE STAT STATUS FOR EXAMPLE).

COMPONENTS, SETTINGS, AND COMMANDS ARE INDICATED ALONG THE TOP ROW AND THE DESIRED OPERATION OF THOSE COMPONENTS, SETTINGS, AND COMMANDS FOR THAT MODE ARE INDICATED IN THE BODY.

THE INTENDED CONTROL IS IDENTIFIED IN THE BODY. IT MAY REFERENCE THE NORMAL SEQUENCE, A FIXED POSITION, OR A SEPARATE SEQUENCE.

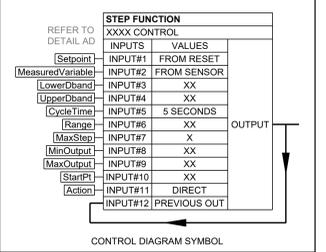
MARK	DATE	DESCRIPTION
ISSUE DATE:	08/22/25	
PROJECT NUMBER:	561470540	
SHEET TITLE:		
DETAILS - CONTROLS		
SHEET NUMBER:		
ATC400		

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CORPORATE SEAL

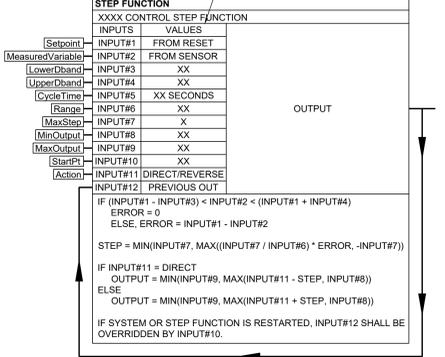
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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
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STEP FUNCTION INPUT DESCRIPTIONS

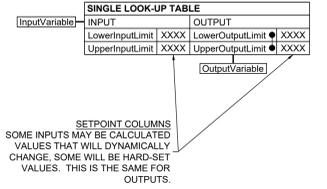
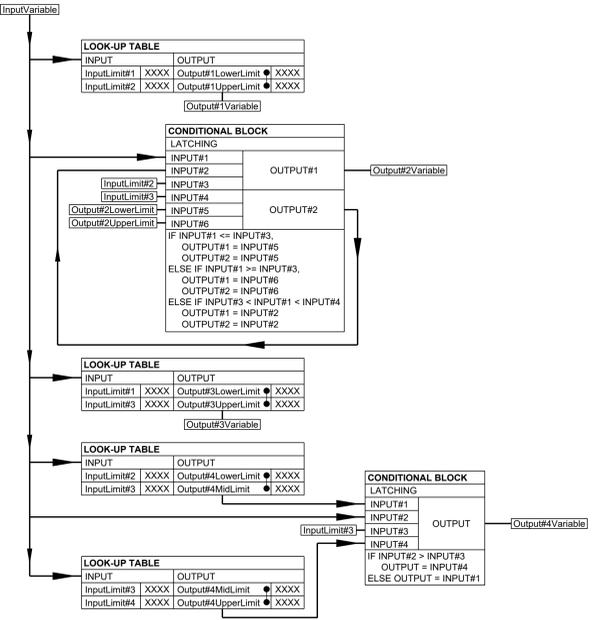
- Setpoint - THE VALUE THAT IS BEING CONTROLLED TO. THIS VALUE NORMALLY COMES FROM A RESET OR A HARD SET VALUE.
- MeasuredVariable - MEASURED FEEDBACK FROM A SENSOR (TEMPERATURE, PRESSURE, FLOW, ETC.)
- LowerDband - LOWER DEADBAND VALUE FOR WHEN THE ERROR CALCULATION IS EQUAL TO 0.
- UpperDband - UPPER DEADBAND VALUE FOR WHEN THE ERROR CALCULATION IS EQUAL TO 0.
- CycleTime - HOW OFTEN THE STEP FUNCTION IS TO EXECUTE.
- Range - THE POINT AT WHICH THE STEP RESPONSES START TO BECOME PROPORTIONAL TO THE ERROR. THIS HAPPENS WHEN ERROR IS LESS THAN OR EQUAL TO THE RANGE.
- MaxStep - THE LARGEST INCREMENTAL OUTPUT ADJUSTMENT THE STEP FUNCTION CAN MAKE EACH TIME IT EXECUTES.
- MinOutput - THE MINIMUM VALUE THE OUTPUT CAN BE.
- MaxOutput - THE MAXIMUM VALUE THE OUTPUT CAN BE.
- StartPt - THE STARTING OUTPUT FOR WHEN THE STEP FUNCTION IS RESTARTED MANUALLY OR BECAUSE OF CONTROLLER LOSS OF POWER.
- Action - THIS CAN BE EITHER DIRECT ACTING OR REVERSE ACTING. THIS IS BEHAVES THE SAME WAY AS ACTION WOULD FOR A PID LOOP.



EXTENDED LOOK-UP TABLE

INPUT	OUTPUT#1	OUTPUT#2	OUTPUT#3	OUTPUT#4
InputLimit#1	Output#1LowerLimit	Output#2LowerLimit	Output#3LowerLimit	Output#4LowerLimit
InputLimit#2	Output#1UpperLimit	Output#2UpperLimit	Output#3UpperLimit	Output#4UpperLimit
InputLimit#3	Output#1MidLimit	Output#2MidLimit	Output#3MidLimit	Output#4MidLimit
InputLimit#4	Output#1UpperLimit	Output#2UpperLimit	Output#3UpperLimit	Output#4UpperLimit

Output#1Variable Output#2Variable Output#3Variable Output#4Variable



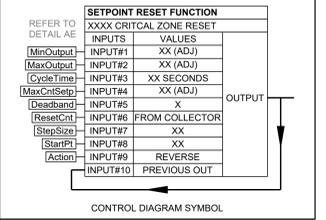
SETPOINT COLUMNS
SOME INPUTS MAY BE CALCULATED
VALUES THAT WILL DYNAMICALLY
CHANGE, SOME WILL BE HARD-SET
VALUES. THIS IS THE SAME FOR
OUTPUTS.

- NOTES:**
- COMMON SYNTAX FOR LOOK UP TABLES INCLUDE RESET TABLE, LINEAR RESET, AND TABLE STATEMENT.
 - WHEN INPUT IS EQUAL TO OR BELOW THE LOWER INPUT LIMIT, THE OUTPUT SHALL REMAIN THE LOWER OUTPUT LIMIT.
 - WHEN THE INPUT IS EQUAL TO OR ABOVE THE UPPER INPUT LIMIT, THE OUTPUT SHALL REMAIN THE UPPER OUTPUT LIMIT.
 - WHEN THE INPUT IS BETWEEN THE LOWER INPUT LIMIT AND UPPER INPUT LIMIT, THE OUTPUT SHALL BE LINEARLY SCALED BETWEEN THE LOWER OUTPUT LIMIT AND THE UPPER OUTPUT LIMIT.
 - SINGLE LOOK-UP TABLES CAN BE COMBINED INTO LARGER, MORE COMPLEX TABLES.

- NOTES:**
- SINGLE LOOK UP TABLES CAN BE COMBINED TO FORM MORE COMPLICATED LOOK UP TABLES. THIS CAN BE USED FOR STAGING AND SETTING TRIGGER POINTS FOR SYSTEM EVENTS. THESE COMBINED FOR THE PURPOSES OF THESE CONTROL SHEETS IN ORDER TO BETTER CONVEY INFORMATION AND ALLOW FOR MORE USER FRIENDLY LIVE SEQUENCE GRAPHICS.
 - THE SYMBOL \blacktriangle REPRESENTS A LINEAR RESET.
 - THE SYMBOL \blacklozenge REPRESENTS A THRESHOLD OR A LATCH THAT PROVIDES A HYSTERESIS EFFECT.
 - THE EXTENDED LOOK UP TABLE AT THE TOP OF THIS DETAIL HAS BEEN EXPLODED BELOW TO PROVIDE AN EXAMPLE OF THE INFORMATION IT IS CONVEYING. THE CONTRACTOR IS ALLOWED TO USE THEIR PRE DEFINED BLOCKS, SYNTAX, OR OTHER APPLICABLE TOOLS TO ACHIEVE THE SAME SAME RESULTS. THE DESIGN INTENT SHALL STILL BE MET.

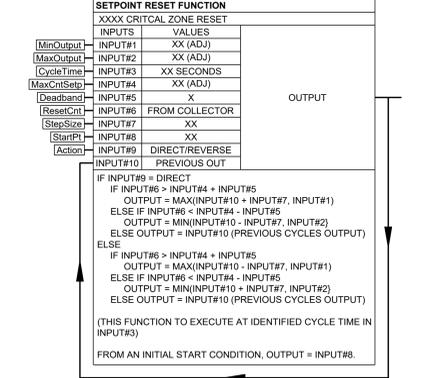
① SINGLE AND EXTENDED LOOK-UP TABLES DETAIL

② STEP FUNCTION CALCULATION BLOCK DETAIL

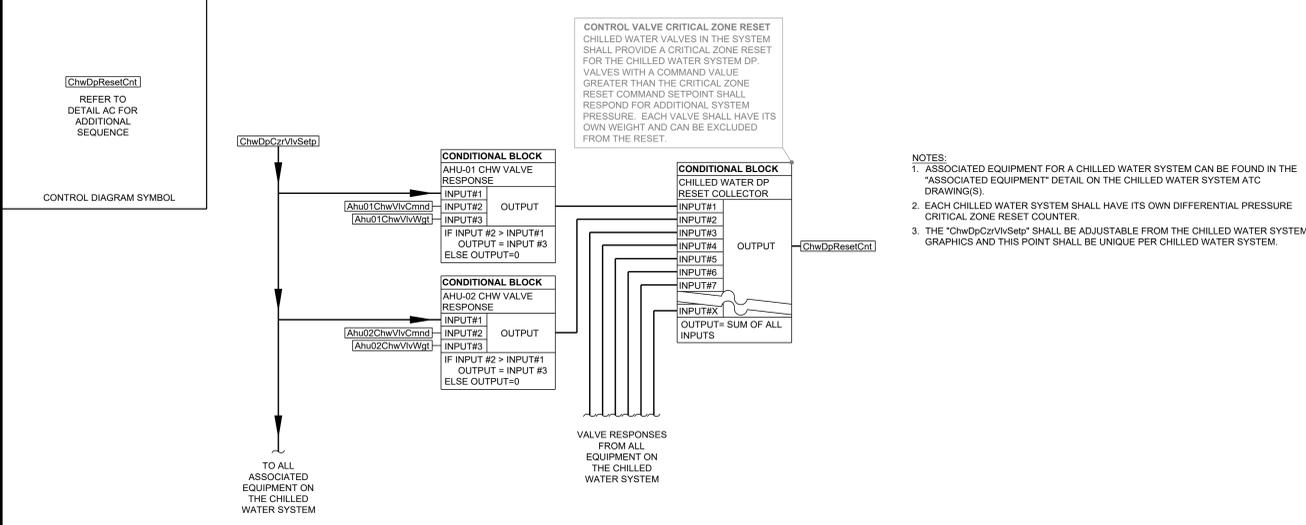


STEP FUNCTION INPUT DESCRIPTIONS

- MinOutput - THE MINIMUM VALUE THE OUTPUT CAN BE.
- MaxOutput - THE MAXIMUM VALUE THE OUTPUT CAN BE.
- CycleTime - HOW OFTEN THE RESET FUNCTION IS TO EXECUTE.
- MaxCntrlSetp - THE SETPOINT VALUE THE RESET FUNCTION IS OPERATING TO.
- Deadband - A DEADBAND VALUE TO PREVENT FREQUENT OUTPUT CHANGES THAT WOULD CAUSE SYSTEM INSTABILITY.
- ResetCnt - THE COUNT OF DEVICES CALLING FOR A SETPOINT RESET. THIS COMES FROM A COLLECTOR FUNCTION.
- Action - THIS CAN BE EITHER DIRECT ACTING OR REVERSE ACTING. IF THE COUNT IS GREATER THAN THE COUNT SETPOINT AND THE OUTPUT NEEDS TO INCREASE, THIS WOULD BE DIRECT ACTING. IF THE COUNT IS GREATER THAN THE COUNT SETPOINT AND THE OUTPUT NEEDS TO DECREASE, THIS WOULD BE REVERSE ACTING.
- StartPt - THE STARTING OUTPUT FOR WHEN THE FUNCTION IS RESTARTED MANUALLY OR BECAUSE OF CONTROLLER LOSS OF POWER.

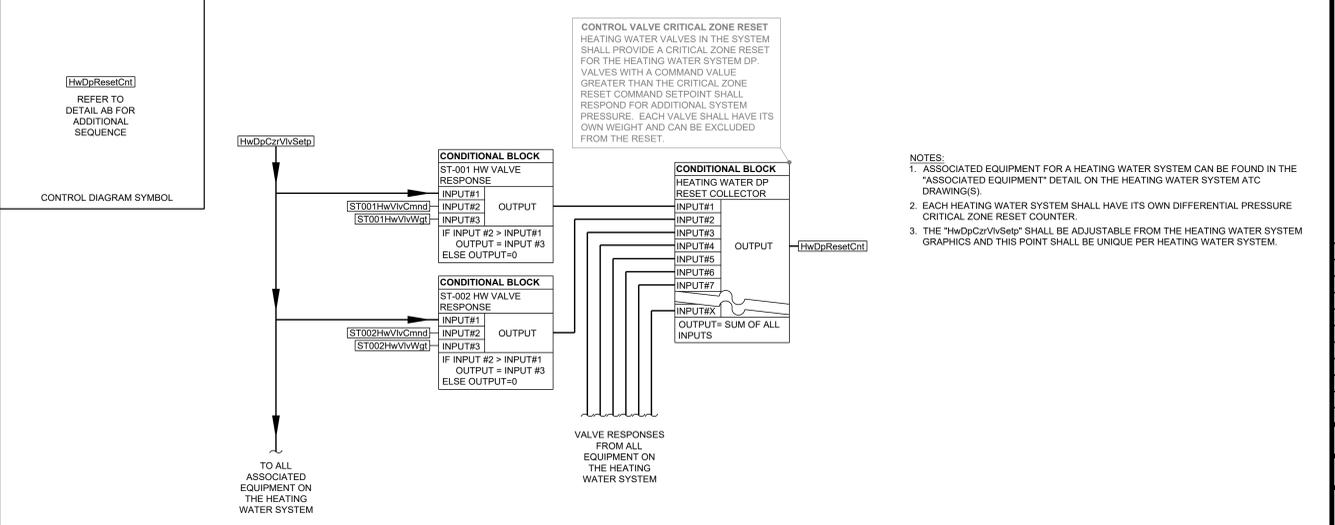


③ SETPOINT RESET CALCULATION BLOCK DETAIL



- NOTES:**
- ASSOCIATED EQUIPMENT FOR A CHILLED WATER SYSTEM CAN BE FOUND IN THE "ASSOCIATED EQUIPMENT" DETAIL ON THE CHILLED WATER SYSTEM ATC DRAWING(S).
 - EACH CHILLED WATER SYSTEM SHALL HAVE ITS OWN DIFFERENTIAL PRESSURE CRITICAL ZONE RESET COUNTER.
 - THE "ChwDpCzVvSetp" SHALL BE ADJUSTABLE FROM THE CHILLED WATER SYSTEM GRAPHICS AND THIS POINT SHALL BE UNIQUE PER CHILLED WATER SYSTEM.

④ CHILLED WATER SYSTEM DIFFERENTIAL PRESSURE CRITICAL ZONE RESET COUNTER DETAIL



- NOTES:**
- ASSOCIATED EQUIPMENT FOR A HEATING WATER SYSTEM CAN BE FOUND IN THE "ASSOCIATED EQUIPMENT" DETAIL ON THE HEATING WATER SYSTEM ATC DRAWING(S).
 - EACH HEATING WATER SYSTEM SHALL HAVE ITS OWN DIFFERENTIAL PRESSURE CRITICAL ZONE RESET COUNTER.
 - THE "HwDpCzVvSetp" SHALL BE ADJUSTABLE FROM THE HEATING WATER SYSTEM GRAPHICS AND THIS POINT SHALL BE UNIQUE PER HEATING WATER SYSTEM.

⑤ HEATING WATER SYSTEM DIFFERENTIAL PRESSURE CRITICAL ZONE RESET COUNTER DETAIL

MARK	DATE	DESCRIPTION
ISSUE DATE:	08/22/25	
PROJECT NUMBER:	561470540	

SHEET TITLE:
DETAILS - CONTROLS

SHEET NUMBER:
ATC401

NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	LINEAR LIGHT FIXTURE - CEILING MOUNTED		DUPLEX RECEPTACLE		PANELBOARD
	EMERGENCY LINEAR LIGHT FIXTURE - CEILING MOUNTED		EMERGENCY DUPLEX RECEPTACLE		DISTRIBUTION PANELBOARD
	EMERGENCY LINEAR LIGHT FIXTURE - CEILING MOUNTED		DUPLEX RECEPTACLE - MOUNT RECEPTACLE ABOVE COUNTERTOP, REFER TO ARCHITECTURAL ELEVATIONS		PAD MOUNTED TRANSFORMER
	EMERGENCY LINEAR LIGHT FIXTURE - INTEGRAL BATTERY BACKUP, CEILING MOUNTED		EMERGENCY DUPLEX - MOUNT RECEPTACLE ABOVE COUNTERTOP, REFER TO ARCHITECTURAL ELEVATIONS		PAD MOUNTED ELECTRICAL EQUIPMENT
	EXAM / AMBIENT / READING LIGHT FIXTURE - CEILING MOUNTED		QUADRAPLEX RECEPTACLE		MOTOR
	EXAM / AMBIENT / READING / NIGHT LIGHT FIXTURE - CEILING MOUNTED		EMERGENCY QUADRAPLEX RECEPTACLE		NON-FUSED DISCONNECT SWITCH
	NARROW LINEAR LIGHT FIXTURE		QUADRAPLEX RECEPTACLE - MOUNT RECEPTACLE ABOVE COUNTERTOP, REFER TO ARCHITECTURAL ELEVATIONS		FUSED DISCONNECT SWITCH
	EMERGENCY NARROW LINEAR LIGHT FIXTURE		EMERGENCY QUADRAPLEX - MOUNT RECEPTACLE ABOVE COUNTERTOP, REFER TO ARCHITECTURAL ELEVATIONS		COMBINATION MOTOR STARTER AND DISCONNECT SWITCH
	EMERGENCY NARROW LINEAR LIGHT FIXTURE - INTEGRAL BATTERY BACKUP		SIMPLEX RECEPTACLE		DISCONNECT SWITCH - PROVIDED WITH EQUIPMENT
	WALL MOUNTED NARROW LINEAR LIGHT FIXTURE		SIMPLEX RECEPTACLE - MOUNT RECEPTACLE ABOVE COUNTERTOP, REFER TO ARCHITECTURAL ELEVATIONS		ENCLOSED CIRCUIT BREAKER
	EMERGENCY WALL MOUNTED NARROW LINEAR LIGHT FIXTURE		DUPLEX GFI RECEPTACLE - GROUND FAULT INTERRUPTING		VARIABLE FREQUENCY DRIVE (VFD) - PROVIDED BY MECHANICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE
	EMERGENCY WALL MOUNTED NARROW LINEAR LIGHT FIXTURE - INTEGRAL BATTERY BACKUP		WEATHER-PROTECTED DUPLEX GFI RECEPTACLE - GROUND FAULT INTERRUPTING AND WEATHER PROOF WHILE IN USE		JUNCTION BOX
	SLENDER LINEAR LIGHT FIXTURE		SPECIAL PURPOSE OUTLET - NEMA CONFIGURATION AS NOTED		AUDIO / VISUAL BOX - REFER TO ARCH ELEVATIONS, SHOWN ON POWER PLANS AND SYSTEMS PLANS, REFER TO "WIRING DEVICES SCHEDULE"
	EMERGENCY SLENDER LINEAR LIGHT FIXTURE		SPECIAL PURPOSE OUTLET - MOUNT RECEPTACLE ABOVE COUNTERTOP, REFER TO ARCHITECTURAL ELEVATIONS, NEMA CONFIGURATION AS NOTED		RECESSED BOX, COMBO LV OUTLETS/DUPLEX RCP - REFER TO ARCH ELEVATIONS, SHOWN ON POWER PLANS AND SYSTEMS PLANS, REFER TO "WIRING DEVICES SCHEDULE"
	EMERGENCY SLENDER LINEAR LIGHT FIXTURE - INTEGRAL BATTERY BACKUP		CEILING MOUNTED PROJECTOR - DUPLEX RECEPTACLE AND 4-11/16" SQUARE, 3-1/4" DEEP BOX FOR AUDIO/VISUAL CONNECTORS WITH FACEPLATE		PLUMBING SENSOR TRANSFORMER - PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR, LOW VOLTAGE WIRING FROM XFMR TO SENSOR BY PLUMBING CONTRACTOR
	STRIP LINEAR LIGHT FIXTURE		POWER FLOOR BOX - DUPLEX RECEPTACLES, REFER TO "WIRING DEVICES SCHEDULE"		MECHANICAL SMOKE DAMPER DEVICES - REFER TO "SMOKE DAMPER SYMBOLS" DETAIL FOR MORE INFO
	EMERGENCY STRIP LINEAR LIGHT FIXTURE, SHADE PATTERN		COMBINATION FLOOR BOX - DUPLEX RECEPTACLE & TELE/DATA OUTLETS, SHOWN ON POWER PLANS AND SYSTEMS PLANS, REFER TO "WIRING DEVICES SCHEDULE"		POWER-OPERATED DOOR
	EMERGENCY STRIP LINEAR LIGHT FIXTURE, SHADE PATTERN - INTEGRAL BATTERY BACKUP		COMBINATION POKE-THRU FLOOR BOX - DUPLEX RECEPTACLE & TELE/DATA OUTLETS, SHOWN ON POWER PLANS AND SYSTEMS PLANS, REFER TO "WIRING DEVICES SCHEDULE"		GENERATOR ANNUNCIATOR PANEL
	COMPACT LIGHT FIXTURE		POWER POLE - SHOWN ON POWER PLANS AND SYSTEMS PLANS, REFER TO "WIRING DEVICES SCHEDULE" FOR SPECIFICATIONS AND DESCRIPTION		FIRE STOP THRU-WALL FITTING - NUMBERS BELOW SYMBOL INDICATE QUANTITY AND WIDTH OF SLEEVE FITTINGS, EZ PATH IF SHOWN WITH "EZ"
	COMPACT LIGHT FIXTURE, ARROW INDICATES DIRECTION OF ILLUMINATION		SURFACE RACEWAY - SHOWN ON POWER PLANS AND SYSTEMS PLANS WHERE INSTALLED AS A MULTI-CHANNEL RACEWAY, REFER TO "WIRING DEVICES SCHEDULE" FOR SPECIFICATIONS AND DESCRIPTION		ELECTRICAL EQUIPMENT CIRCUIT LABEL - REFER TO "EQUIPMENT SCHEDULE" FOR MORE INFORMATION.
	EMERGENCY COMPACT LIGHT FIXTURE		POWER CORD REEL - SHOWN ON POWER PLANS, REFER TO "WIRING DEVICES SCHEDULE" FOR SPECIFICATIONS AND DESCRIPTION		BRANCH CIRCUIT HOMERUN - PANEL & CIRCUIT NUMBER INDICATED
	EMERGENCY COMPACT LIGHT FIXTURE - INTEGRAL BATTERY BACKUP		DATA CORD REEL - SHOWN ON POWER PLANS AND SYSTEMS PLANS, REFER TO "WIRING DEVICES SCHEDULE" FOR SPECIFICATIONS AND DESCRIPTION		CONDUIT CONCEALED IN OR BELOW FLOOR SLAB
	COMPACT WALL MOUNTED LIGHT FIXTURE		CEILING MOUNTED DAYLIGHT SENSOR - REFER TO "LIGHTING CONTROLS SCHEDULE" FOR MORE INFORMATION		EMERGENCY CIRCUIT IN CONDUIT
	EMERGENCY WALL MOUNTED COMPACT LIGHT FIXTURE		CEILING MOUNTED OCCUPANCY SENSOR - REFER TO "LIGHTING CONTROLS SCHEDULE" FOR MORE INFORMATION		LOW VOLTAGE WIRING - TYPE INDICATED ON PLANS
	EMERGENCY WALL MOUNTED COMPACT LIGHT FIXTURE - INTEGRAL BATTERY BACKUP		LIGHTING POWER PACK - REFER TO "LIGHTING CONTROLS SCHEDULE" FOR MORE INFORMATION		MOTOR-RATED TOGGLE SWITCH
	LIGHT FIXTURE TRACK		LIGHTING TRANSFER SWITCH OR EMERGENCY LOAD CONTROL RELAY - REFER TO "LIGHTING CONTROLS SCHEDULE" FOR MORE INFORMATION		MANUAL MOTOR STARTER, WITH TOGGLE OVERLOADS AND RED PILOT LIGHT
	TRACK MOUNTED LIGHT FIXTURE		LIGHTING CONTROL PANEL - REFER TO "LIGHTING CONTROLS SCHEDULE" FOR MORE INFORMATION		MULTI-ZONE SWITCHES: Sa - A ZONE SWITCH, Sb - B ZONE SWITCH
	POLE MOUNTED AREA LIGHT FIXTURE		TIME CLOCK - REFER TO "LIGHTING CONTROLS SCHEDULE" FOR MORE INFORMATION		SINGLE POLE SWITCH
	FLOOD LIGHT FIXTURE, ARROW INDICATES DIRECTION OF ILLUMINATION		LIGHTING CONTACTOR - REFER TO "LIGHTING CONTROLS SCHEDULE" FOR MORE INFORMATION		THREE WAY SWITCH
	UNDERCABINET LIGHT FIXTURE		INVERTER - REFER TO "LIGHTING CONTROLS SCHEDULE" FOR MORE INFORMATION		FOUR WAY SWITCH
	EMERGENCY DUAL HEAD LIGHT FIXTURE - INTEGRAL BATTERY BACKUP		LIGHTING CONTROLLER - REFER TO "LIGHTING CONTROLS SCHEDULE" FOR MORE INFORMATION		LIGHTING CONTROL SWITCH - REFER TO "LIGHTING CONTROLS SCHEDULE" FOR MORE INFORMATION
	EXIT SIGN - SHADING INDICATES SIDES WITH FACES, ARROWS INDICATES SIDES WITH CHEVRON ARROWS		TRACK CURRENT LIMITER - REFER TO "LIGHTING CONTROLS SCHEDULE" FOR MORE INFORMATION		ABOVE COUNTER NON-SWITCHED MOUNTING HEIGHT OF DEVICE / WEATHER PROOF

AC/DC SCHEMATICS LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	NORMALLY OPEN (N.O.) CONTACTS		EMERGENCY POWER-OFF PUSHBUTTON
	NORMALLY CLOSED (N.C.) CONTACTS		TERMINAL BLOCK - NAME INDICATED ABOVE
	DIGITAL INPUT		TRIP/CLOSE COIL MONITOR
	SENSING COIL - TYPICALLY SHOWN FOR MULTI-FUNCTION RELAYS AND BREAKERS		DIODE
	CONTROL COIL - TYPICALLY SHOWN FOR AUXILIARY RELAY COILS		RJ45 ETHERNET JACK
	FUSE AND FUSEHOLDER COPPER SLUG AND FUSEHOLDER		RESISTOR
	WYE GROUNDED / WYE GROUNDED OPEN DELTA / OPEN DELTA GROUNDED		OVERLOAD ELEMENTS
	SHORTING TEST SWITCH - TEST JACK AND SHORTING SWITCH		PUSHBUTTON - NORMALLY OPEN PUSHBUTTON - NORMALLY CLOSED
	TEST SWITCH OR DISCONNECT		HEATER ELEMENT THERMOSTAT OR HYGROSTAT
	GENERAL INDICATOR LIGHT LED INDICATOR LIGHT		BATTERY CELL(S) - POLARITY INDICATED
	SINGLE-RATIO CURRENT TRANSFORMER (CT) - POLARITY SHOWN		CONNECTION CONTINUATION ARROW
	MULTI-RATIO CURRENT TRANSFORMER (MRCT) - POLARITY SHOWN		ANSI FUNCTION NUMBER - EX. 86 LOCKOUT
	VOLTAGE TRANSFORMER (VT)		MOTOR
	DRAWOUT		LINE RE-ARRANGEMENT CONTINUATION - LINES RE-ARRANGE ON EITHER SIDE OF BREAK
	GROUND SURGE ARRESTOR		TERMINATION DESIGNATION - INDICATES WHERE CONNECTION TERMINATES
	KEYED NOTE - REFER TO KEYED NOTES FOR MORE INFORMATION		NAME, DEVICE, AND LOCATION INDICATED - EX. RELAY R-11 LOCATED IN CUBICLE 1A
	CABLING SCHEDULE OVAL NOTE - REFER TO CABLING SCHEDULE FOR MORE INFORMATION		TERMINAL BLOCK AND DESIGNATION NUMBER DISTRIBUTION BLOCK (BUSSED THRU) AND DESIG. #
	COMPONENTS SHOWN LOCATED EXTERNAL TO CONTROL CABINET		MECHANISM-OPERATED CONTACTS TRUCK-OPERATED CONTACTS

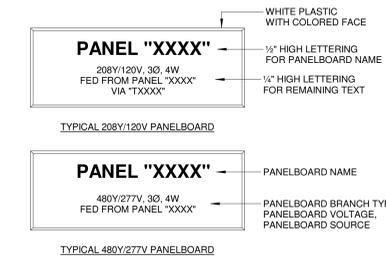
TELE/DATA LEGEND

SYMBOL	DESCRIPTION
	TELECOMMUNICATIONS GROUNDING BUSBAR
	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
	DATA OUTLET - WALL MOUNTED, 1 DATA DROP
	DATA OUTLET - WALL MOUNTED, 2 DATA DROPS
	DATA OUTLET - WALL MOUNTED, 3 DATA DROPS
	DATA OUTLET - FLOOR MOUNTED, 4 DATA DROPS
	DATA OUTLET - CEILING MOUNTED, 1 DATA DROP
	WIRELESS ACCESS POINT - CEILING MOUNTED, 1 DATA DROP
	TELEPHONE TERMINAL BOARD

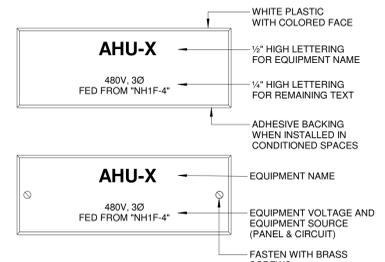
ICEA TABLE E2 COLOR CODING

CONDUCTOR NUMBER	INSULATION COLOR	STRIPE COLOR
1	BLACK	-
2	RED	-
3	BLUE	-
4	ORANGE	-
5	YELLOW	-
6	BROWN	-
7	RED	BLACK
8	BLUE	BLACK
9	ORANGE	BLACK
10	YELLOW	BLACK
11	BROWN	BLACK
12	BLACK	RED
13	BLUE	RED
14	ORANGE	RED
15	YELLOW	RED
16	BROWN	RED
17	BLACK	BLUE
18	RED	BLUE
19	ORANGE	BLUE
20	YELLOW	BLUE
21	BROWN	BLUE
22	BLACK	ORANGE
23	RED	ORANGE
24	BLUE	ORANGE
25	YELLOW	ORANGE
26	BROWN	ORANGE
27	BLACK	YELLOW
28	RED	YELLOW
29	BLUE	YELLOW
30	ORANGE	YELLOW
31	BROWN	YELLOW
32	BLACK	BROWN
33	RED	BROWN
34	BLUE	BROWN
35	ORANGE	BROWN
36	YELLOW	BROWN

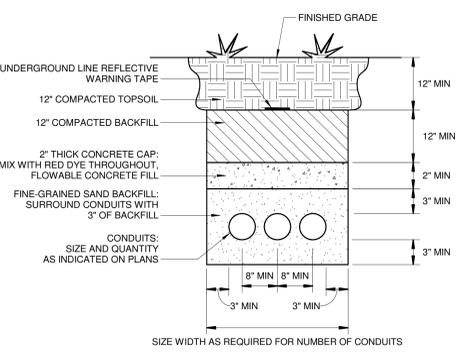
ICEA TABLE E2 COLOR CODING NOTES:
 1. COLORS REPEAT AFTER 36 CONDUCTORS.
 2. PAIR CABLES ARE BLACK & RED.
 3. TRIAD CABLES ARE BLACK, RED & BLUE.
 4. NEUTRAL CONDUCTORS ARE WHITE.
 5. GROUND CONDUCTORS ARE GREEN.



PANELBOARD LABEL NOTES:
 1. PROVIDE AND INSTALL PANEL & SWITCHBOARD LABELS WITH INFORMATION IN THE FORMAT SHOWN ABOVE.



EQUIPMENT LABEL NOTES:
 1. PROVIDE AND INSTALL EQUIPMENT LABELS ON EQUIPMENT WITH INFORMATION IN THE FORMAT SHOWN ABOVE.



CONCRETE CAP GENERAL NOTES:
 1. FURNISH AND INSTALL CONCRETE CAP WHERE INDICATED ON PLANS.
 2. VERIFY OBSTRUCTIONS BELOW GRADE WITH CIVIL PLANS & ELEVATIONS AND GEOTECHNICAL REPORT (WHERE AVAILABLE).

1 PANELBOARD LABEL DETAIL
NOT TO SCALE

2 EQUIPMENT LABEL DETAIL
NOT TO SCALE

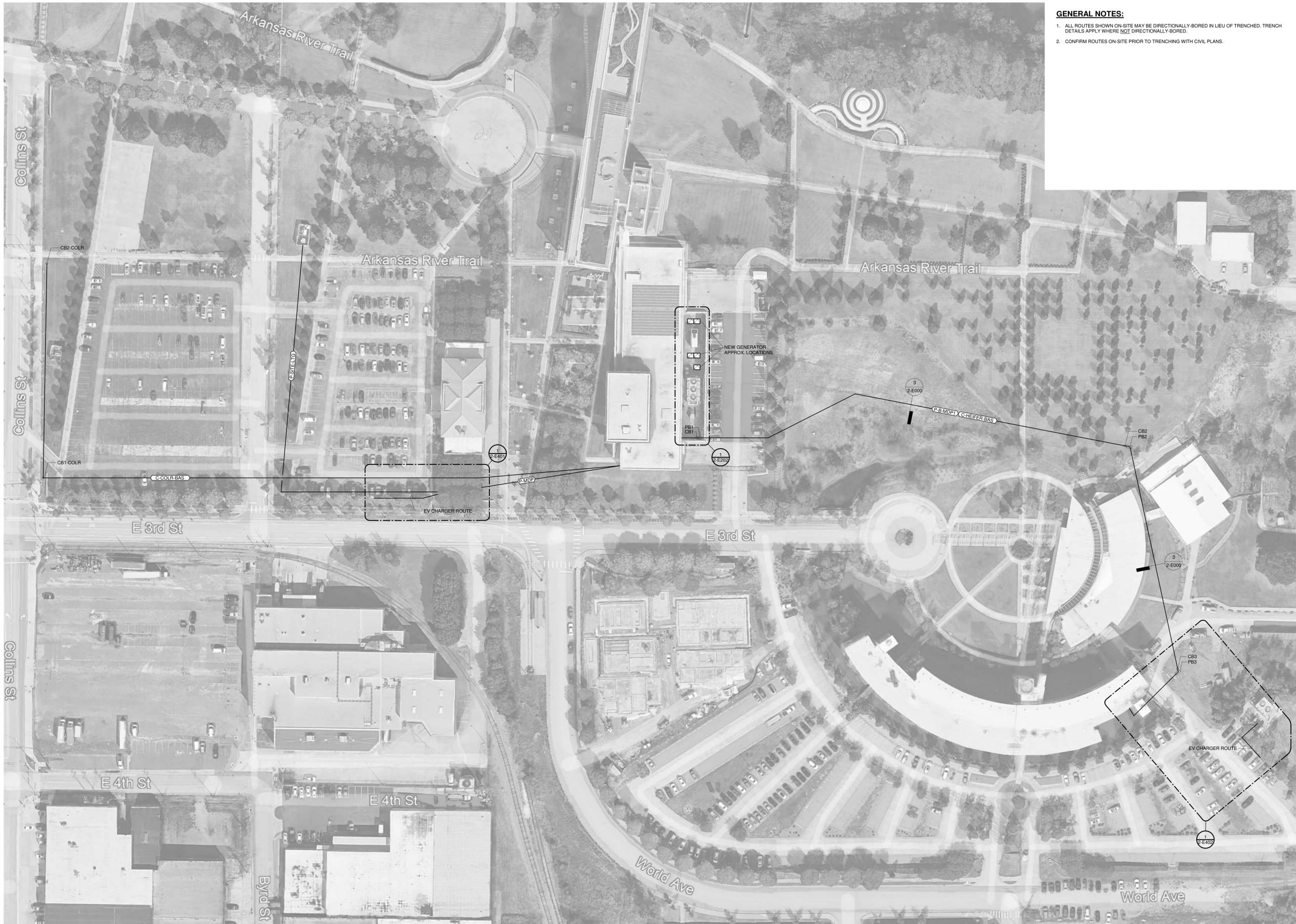
3 CONCRETE CAP DETAIL
NOT TO SCALE

GENERAL NOTES

- EACH CIRCUIT SHALL HAVE AN EQUIPMENT GROUNDING CONDUCTOR. EQUIPMENT GROUND CONDUCTOR SIZE SHALL NOT BE LESS THAN #12 AWG OR AS INDICATED ON THE DRAWINGS.
- ALL CONDUCTORS #10 AND SMALLER SHALL BE SOLID COPPER, AND ALL CONDUCTORS #8 AND LARGER SHALL BE STRANDED COPPER UNLESS BOLTED LUGS AT TERMINALS.
- MINIMUM CONDUIT SIZE SHALL BE 3/4" UNLESS OTHERWISE NOTED. LOW-VOLTAGE SYSTEMS BACKBOX CONDUIT STUB-UPS SHALL BE 1" MINIMUM UNLESS OTHERWISE NOTED.
- ALL WIRING DEVICES SHALL BE INSTALLED PLUMB, SQUARE, AND TRUE; AND ALL DEVICES INSTALLED AT A SINGLE LOCATION SHALL BE ALIGNED.
- MINIMUM WIRE SIZE SHALL BE #12 AWG UNLESS OTHERWISE SPECIFIED.
- ALL WORK SHALL COMPLY WITH THE 2020 EDITION OF THE NATIONAL ELECTRICAL CODE.
- CONTRACTOR SHALL REFER TO THE ARCHITECTURAL ELEVATIONS AND MILLWORK DETAILS FOR EXACT LOCATIONS OF ALL WIRING DEVICES.
- CONTRACTOR SHALL REFER TO THE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL LAY-IN LIGHT FIXTURES.
- CONTRACTOR SHALL REFER TO ARCHITECTURAL, STRUCTURAL, MECHANICAL, VENDOR SITE SPECIFIC, AND OTHER DISCIPLINE DRAWINGS FOR COMPLETE INFORMATION.
- ALL EXISTING BRANCH CIRCUITS NOT USED SHALL BE REMOVED BACK TO PANEL. THE CIRCUIT BREAKERS SHALL BE LABELED AS SPARE, AND EXISTING CONDUIT SHALL REMAIN FROM PANEL TO ABOVE ACCESSIBLE CEILING SPACE.
- THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION IN AREAS OF RENOVATION. ALL WIRING DEVICES, LIGHT FIXTURES, WIRE, AND CONDUIT THAT IS TO BE REMOVED SHALL BE STORED, AS DIRECTED BY THE OWNER, OR RELOCATED, AS SHOWN ON THE NEW FLOOR PLANS. APPROPRIATE MEASURES SHALL BE TAKEN TO ASSURE CONTINUITY OF EXISTING CIRCUITS WHERE REQUIRED. ALL OUTAGES WHICH MAY RESULT SHALL BE COORDINATED WITH THE OWNER PRIOR TO THE WORK. REFER TO ARCHITECTURAL PLANS FOR DEMOLITION ITEMS SUCH AS CEILINGS AND WALLS.
- THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR UPDATING SCHEDULES IN ALL ELECTRICAL PANELS THAT ARE AFFECTED BY THIS WORK. UPDATED SCHEDULES ARE TO BE TYPEWRITTEN.
- THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING ALL SWITCHES, RECEPTACLES, AND FIXED EQUIPMENT WITH THE BRANCH CIRCUIT PANEL NAME AND NUMBER SERVING EACH DEVICE.
- ALL CONDUIT SHALL BE INSTALLED AS HIGH AS POSSIBLE (MOUNT TO BOTTOM OF STRUCTURE) TO AVOID CONFLICTS WITH DUCTWORK AND PIPING. THE ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION WITH THE MECHANICAL CONTRACTOR.
- DO NOT USE MULTI-WIRE BRANCH CIRCUITS (CIRCUITS CONNECTED WITH A COMMON NEUTRAL), MORE THAN THREE CIRCUITS IN ANY ONE CONDUIT IS NOT ALLOWED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
- COORDINATE WITH MECHANICAL CONTRACTOR ON ANY NECESSARY ROUGH-IN LOCATIONS FOR MECHANICAL CONTROL DEVICES AND WIRING.
- LOW-VOLTAGE WIRING INSTALLED ABOVE INACCESSIBLE CEILINGS SHALL BE IN CONDUIT. LOW-VOLTAGE SYSTEMS CONDUITS (1" TRADE SIZE MINIMUM) SHALL BE STUBBED-UP ABOVE AN ACCESSIBLE CEILING SPACE TO WITHIN 1' OF A J-HOOK OR CABLE TRAY PATH. LOW-VOLTAGE WIRING INSTALLED EXPOSED TO STRUCTURE SHALL BE INSTALLED IN CONDUIT.
- JUNCTION BOXES AND ELECTRICAL DEVICES INSTALLED ABOVE CEILINGS SHALL BE INSTALLED ABOVE AN ACCESSIBLE CEILING SPACE. JUNCTION BOXES INSTALLED FOR LIGHTING FIXTURES LOCATED IN HARD CEILINGS SHALL BE ACCESSIBLE FROM THE LIGHT FIXTURE CEILING PENETRATION.

MARK	DATE	DESCRIPTION
ISSUE DATE:	08-22-25	
PROJECT NUMBER:	561470540	
SHEET TITLE: LEGENDS AND GENERAL NOTES - ELECTRICAL		

SHEET NUMBER:
E000



- GENERAL NOTES:**
1. ALL ROUTES SHOWN ON-SITE MAY BE DIRECTIONALLY-BORED IN LIEU OF TRENCHED. TRENCH DETAILS APPLY WHERE NOT DIRECTIONALLY-BORED.
 2. CONFIRM ROUTES ON-SITE PRIOR TO TRENCHING WITH CIVIL PLANS.



1 GALLERIA BLVD.
SUITE 325
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CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
 CLINTON FOUNDATION
 1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

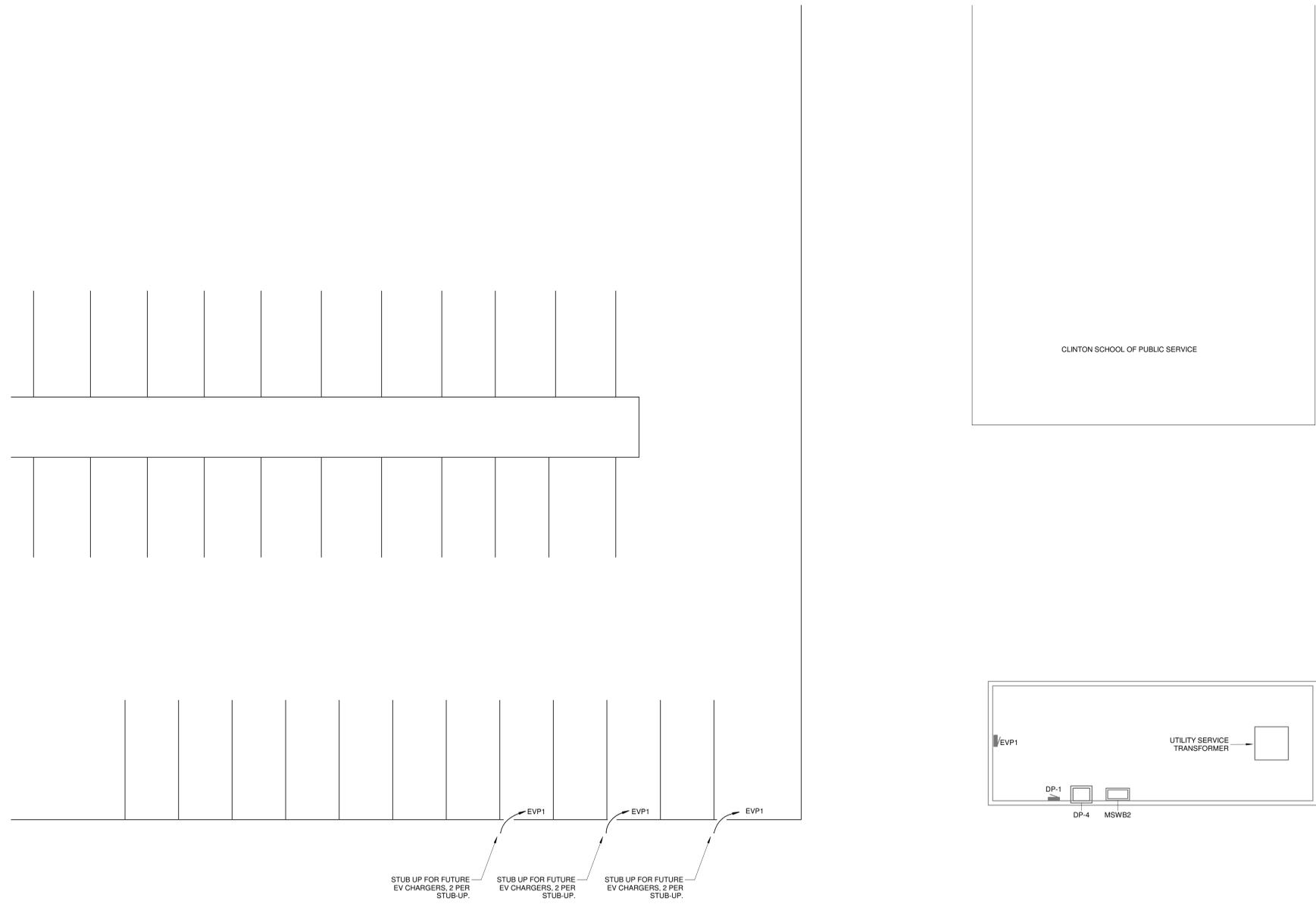
ISSUE DATE: 08-22-25
PROJECT NUMBER: 561470540
SHEET TITLE:
SITE PLAN - ELECTRICAL

SHEET NUMBER:
E400

① **OVERALL SITE PLAN - ELECTRICAL**
1" = 50'-0"

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CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2
CLINTON FOUNDATION
1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS



1 CLINTON SCHOOL OF PUBLIC SERVICE - PARTIAL SITE PLAN - ELECTRICAL RENOVATION
1/8" = 1'-0"

MARK	DATE	DESCRIPTION

ISSUE DATE: 08-22-25

PROJECT NUMBER: 561470540

SHEET TITLE:
CLINTON SCHOOL OF PUBLIC SERVICE - PARTIAL SITE PLAN - ELECTRICAL RENOVATION

SHEET NUMBER:

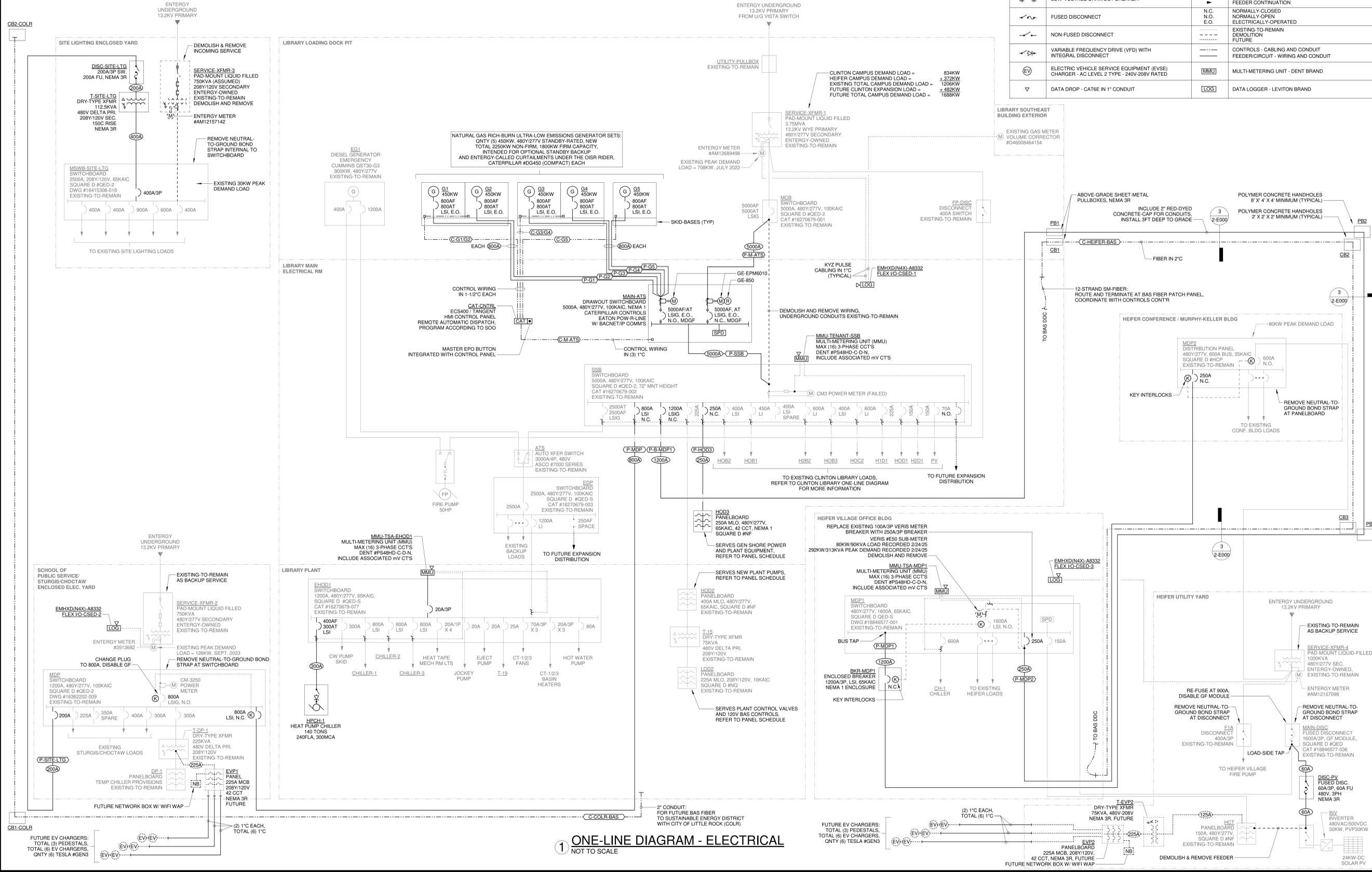
E401

GENERAL NOTES:

- ELECTRICAL CONTRACTOR SHALL PERFORM BREAKER COORDINATION AND ARC FLASH STUDY FOR THE SCOPE SHOWN.
- ELECTRICAL SUB-METERING AND DATA LOGGER DEVICES DETERMINED BY ENFRA M&V PLAN. ADDITIONAL SETUP, TESTING, AND VERIFICATION DATA ACCORDING TO ENFRA M&V PLAN.
- REFER TO SITE PLAN AND FLOOR PLANS FOR LOCATIONS OF EQUIPMENT AND ADDITIONAL INFORMATION.
- PENETRATIONS THRU WALLS BELOW-GRADE SHALL BE VIA LINK-SEAL.
- REFER TO SEQUENCE-OF-OPERATIONS DOCUMENT FOR SYSTEM OPERATION INFORMATION.
- REFER TO DETAILS SHEETS FOR METERING WIRING DIAGRAMS.
- REFER TO CLINTON LIBRARY ONE-LINES FOR LOCATIONS OF ADDITIONAL MULTI-METERING UNITS FOR SUB-METERING NARA LOADS.
- REFER TO ENFRA M&V METERING PLAN FOR SPECIFICATION OF DATA LOGGER DEVICES.
- INCLUDE PRICING FOR AN ADDITIONAL QNTY (7) DENT #PS48HD-C-D-N MULTI-METERING UNITS FOR TENANT SUB-METERING OF NARA LOADS (TO BE DETAILED FOR 100% CD SET). INCLUDE 24 mV CTS WITH EACH MULTI-METERING UNIT.

OVALL NOTE	FEEDER SIZE	OCF SIZE
5000A	(12 SETS) 4-600 KCMIL, 600 KCMIL G, 4" C	5000A/3P
1200A	(4 SETS) (AL) 4-500 KCMIL, 250 KCMIL G, 4" C	1200A/3P
800A	(2 SETS) 4-500 KCMIL, #10G, 4" C	800A/3P
400A	4-500 KCMIL, #3G, 3" C	400A/3P
300A	3-350 KCMIL, #4G, 3" C	300A/3P
250A	4-250 KCMIL, #4G, 2 1/2" C	250A/3P
225A	4-#40, #4G, 2 1/2" C	225A/3P
200A	3-#30, #6G, 2" C	200A/3P
125A	3-#1, #6G, 1 1/2" C	125A/3P
60A	3-#6, #10G, 1" C	60A/3P

ONE-LINE DIAGRAM LEGEND		ONE-LINE DIAGRAM LEGEND	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
(G)	GENERATOR	(M)	ELECTRIC METER
(W)	TRANSFORMER - WINDING CONFIGURATION SHOWN	(K)	KEY INTERLOCKS - PAIRS SHOWN
(ATS)	AUTOMATIC TRANSFER SWITCH	(SPD)	SURGE-PROTECTIVE DEVICE
(ATS-B)	AUTOMATIC TRANSFER SWITCH - BYPASS ISOLATION	(XX)	FEEDER OVAL NOTE - REFER TO FEEDER SCHEDULE
(PB)	PANELBOARD	(P-XX)	POWER FLAG NOTE - INDICATES FEEDER/CIRCUIT NAME
(LVB)	LOW-VOLTAGE BREAKER	(C-XX)	CONTROLS FLAG NOTE - INDICATES CONTROLS CIRCUIT NAME, REFER TO CONTROLS SCHEDULE
(LVD)	LOW-VOLTAGE DRAWOUT BREAKER	(U)	UTILITY SOURCE FEEDER CONTINUATION
(FD)	FUSED DISCONNECT	(N.C.)	NORMALLY CLOSED
(NF)	NON-FUSED DISCONNECT	(N.O.)	NORMALLY OPEN
(VFD)	VARIABLE FREQUENCY DRIVE (VFD) WITH INTEGRAL DISCONNECT	(---)	EXISTING-TO-REMAIN
(EV)	ELECTRIC VEHICLE SERVICE EQUIPMENT (EVSE) CHARGER - AC LEVEL 2 TYPE - 240V/208V RATED	(---)	DEMOLITION FUTURE
(D)	DATA DROP - CAT6 IN 1" CONDUIT	(---)	CONTROLS - CABLING AND CONDUIT FEEDER/CIRCUIT - WIRING AND CONDUIT
		(MMU)	MULTI-METERING UNIT - DENT BRAND
		(LOG)	DATA LOGGER - LEVITON BRAND



ONE-LINE DIAGRAM - ELECTRICAL
NOT TO SCALE

ENFRA
M&V | MECHANICAL

1 GALLERIA BLVD.
SUITE 325
METAIRIE, LA 70001
Phone: (504) 883-8291

NOT FOR CONSTRUCTION

CORPORATE SEAL

ENGINEER SEAL

CLINTON SUSTAINABLE ENERGY DISTRICT - PACKAGE 2

CLINTON FOUNDATION

1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION
	08-22-25	ISSUE DATE:
	561470540	PROJECT NUMBER:
		SHEET TITLE:
		OVERALL ONE-LINE DIAGRAM - ELECTRICAL
		SHEET NUMBER:
		E501

BRANCH PANEL: HOD3 **NEW**

LOCATION: Space 5
 SUPPLY FROM: SSB
 MOUNTING: SURFACE
 ENCLOSURE: NEMA 1

VOLTAGE: 480Y/277V
 PHASES: 3
 WIRES: 4

AIC RATING: 65KAIC
 BUS RATING: 250 A
 MCB RATING: MLO

NOTES:
 SQUARE D #NF

CCT	CIRCUIT DESCRIPTION	TRIP	POLES	A (VA)	B (VA)	C (VA)	POLES	TRIP	CIRCUIT DESCRIPTION	CCT
1										2
3										4
5										6
7										8
9										10
11										12
13										14
15										16
17										18
19										20
21										22
23										24
25										26
27										28
29										30
31										32
33										34
35										36
37										38
39										40
41										42

TOTAL LOAD: 0 VA 0 VA 0 VA
 TOTAL AMPS: 0 A 0 A 0 A

LOAD CLASSIFICATIONS	CONNECTED LOADS	DEMAND / DESIGN FACTORS	ESTIMATED DEMANDS	PANEL TOTALS
				CONNECTED LOAD: 0 VA
				ESTIMATED DEMAND: 0 VA
				CONNECTED CURRENT: 0 A
				EST. DEMAND CURRENT: 0 A

BRANCH PANEL: HOD2 **EXISTING**

LOCATION: Space 5
 SUPPLY FROM: EHOD1
 MOUNTING: SURFACE
 ENCLOSURE: NEMA 1

VOLTAGE: 480Y/277V
 PHASES: 3
 WIRES: 4

AIC RATING: 65KAIC
 BUS RATING: 400 A
 MCB RATING: MLO

NOTES:
 SQUARE D #NF

CCT	CIRCUIT DESCRIPTION	TRIP	POLES	A (VA)	B (VA)	C (VA)	POLES	TRIP	CIRCUIT DESCRIPTION	CCT	
1	POWER, OTHER	20	3	0	0			3	20	POWER, OTHER	2
3		--	--		0	0		--	--		4
5		--	--					--	--		6
7	POWER, OTHER	20	3	0	0			3	20	POWER, OTHER	8
9		--	--		0	0		--	--		10
11		--	--			0	0	--	--		12
13	T-15	20	3	0				--	--		14
15		--	--		0			--	--		16
17		--	--			0		--	--		18
19											20
21											22
23											24
25											26
27											28
29											30
31											32
33											34
35											36
37											38
39											40
41											42

TOTAL LOAD: 0 VA 0 VA 0 VA
 TOTAL AMPS: 0 A 0 A 0 A

LOAD CLASSIFICATIONS	CONNECTED LOADS	DEMAND / DESIGN FACTORS	ESTIMATED DEMANDS	PANEL TOTALS
MOTOR EQUIPMENT	0 VA	0.00%	0 VA	CONNECTED LOAD: 0 VA
Other	0 VA	0.00%	0 VA	ESTIMATED DEMAND: 0 VA
				CONNECTED CURRENT: 0 A
				EST. DEMAND CURRENT: 0 A

BRANCH PANEL: LOD2 **EXISTING**

LOCATION: Space 5
 SUPPLY FROM: T-15
 MOUNTING: SURFACE
 ENCLOSURE: NEMA 1

VOLTAGE: 208Y/120V
 PHASES: 3
 WIRES: 4

AIC RATING: 10KAIC
 BUS RATING: 225 A
 MCB RATING: MLO

NOTES:
 SQUARE D #NQ

CCT	CIRCUIT DESCRIPTION	TRIP	POLES	A (VA)	B (VA)	C (VA)	POLES	TRIP	CIRCUIT DESCRIPTION	CCT
1										2
3										4
5										6
7										8
9										10
11										12
13										14
15										16
17										18
19										20
21										22
23										24
25										26
27										28
29										30
31										32
33										34
35										36
37										38
39										40
41										42

TOTAL LOAD: 0 VA 0 VA 0 VA
 TOTAL AMPS: 0 A 0 A 0 A

LOAD CLASSIFICATIONS	CONNECTED LOADS	DEMAND / DESIGN FACTORS	ESTIMATED DEMANDS	PANEL TOTALS
				CONNECTED LOAD: 0 VA
				ESTIMATED DEMAND: 0 VA
				CONNECTED CURRENT: 0 A
				EST. DEMAND CURRENT: 0 A

BRANCH PANEL: EL0D1 **EXISTING**

LOCATION: Space 5
 SUPPLY FROM: T-19
 MOUNTING: SURFACE
 ENCLOSURE: NEMA 1

VOLTAGE: 208Y/120V
 PHASES: 3
 WIRES: 4

AIC RATING: 10KAIC
 BUS RATING: 100 A
 MCB RATING: MLO

NOTES:
 SQUARE D #NQ

CCT	CIRCUIT DESCRIPTION	TRIP	POLES	A (VA)	B (VA)	C (VA)	POLES	TRIP	CIRCUIT DESCRIPTION	CCT
1										2
3										4
5										6
7										8
9										10
11										12
13										14
15										16
17										18
19										20
21										22
23										24
25										26
27										28
29										30
31										32
33										34
35										36
37										38
39										40
41										42

TOTAL LOAD: 0 VA 0 VA 0 VA
 TOTAL AMPS: 0 A 0 A 0 A

LOAD CLASSIFICATIONS	CONNECTED LOADS	DEMAND / DESIGN FACTORS	ESTIMATED DEMANDS	PANEL TOTALS
				CONNECTED LOAD: 0 VA
				ESTIMATED DEMAND: 0 VA
				CONNECTED CURRENT: 0 A
				EST. DEMAND CURRENT: 0 A



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 ENGINEER SEAL

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 CLINTON FOUNDATION
 1200 PRESIDENT CLINTON AVE LITTLE ROCK, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 08-22-25
 PROJECT NUMBER: 561470540
 SHEET TITLE:
 PANEL SCHEDULES - ELECTRICAL

SHEET NUMBER:
E600