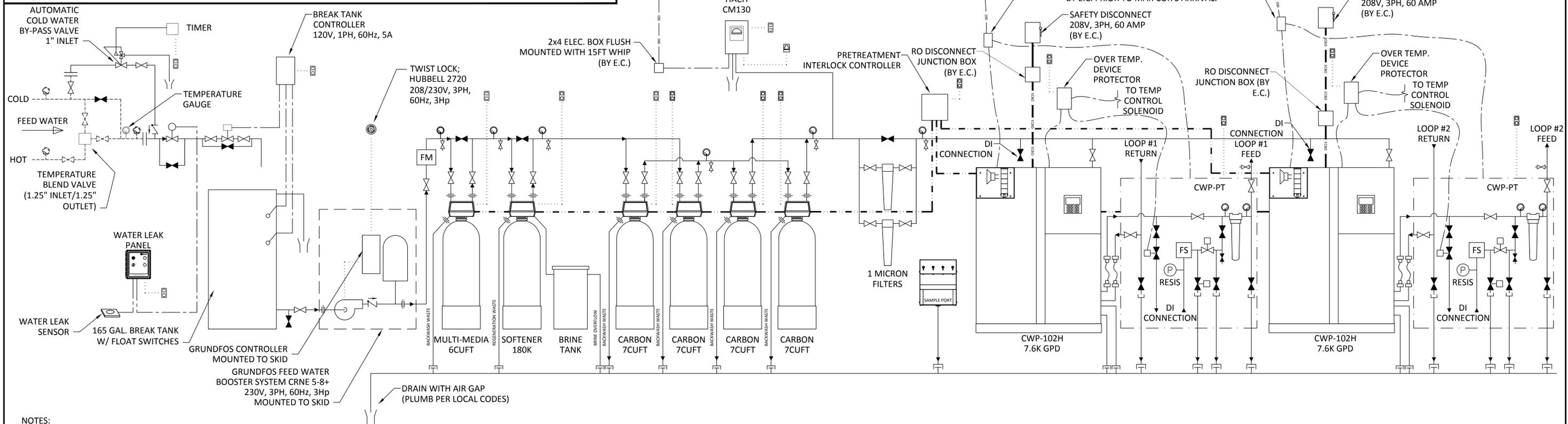


LEGEND

	DRAIN		FLOW METER	A.F.F.	ABOVE FINISHED FLOOR
	RELIEF VALVE		FLOW VELOCITY METER	O.F.I.C.	OWNER FURNISHED INSTALLED BY CONTRACTOR
	BALL VALVE-NORMALLY CLOSED		FLOW SWITCH	O.F.I.	OWNER FURNISHED AND INSTALLED
	BALL VALVE-NORMALLY OPEN		PRESSURE REDUCING VALVE	E.C.	ELECTRICAL CONTRACTOR
	SAMPLE PORT		PRESSURE SWITCH	P.C.	PLUMBING CONTRACTOR
	CHECK VALVE		FLOAT SWITCH	G.C.	GENERAL CONTRACTOR
	PRESSURE GAUGE (UNLESS NOTED OTHERWISE)		SWITCHED OUTLET 120V, 1PH, 60Hz, 1.5Hp		
	QUICK DISCONNECT		THREE WAY BALL VALVE		
	ELECTRICAL OUTLET - DUPLEX 120V, 1PH, 60Hz, 20AMP		ELECTRICALLY OPERATED BALL VALVE		
	UNION		ELECTRICALLY OPERATED THREE WAY BALL VALVE		
	VACUUM BREAKER		SOLENOID VALVE		
	DI LIGHT		DRAIN VALVE-NORMALLY CLOSED		
	ELECTRICAL OUTLET - 4 PLEX 120V, 1PH, 60Hz, 20AMP		POWERED RJ45 JACK		
	SENSOR				

REVISION HISTORY						
REV	DESCRIPTION	DCO #	DWN BY	DWN DATE	APVD BY	APVD DATE
0	ENGINEERING RELEASE	N/A	EM	05DEC17		
1	NEW QUOTE	N/A	EM	04JAN18		



NOTES:

- 1) WATER SUPPLY CAPACITY, MINIMUM 35 GPM AT 30PSI.
- 2) DRAIN CAPACITY, MINIMUM 35 GPM.
- 3) RO BLENDED FEED WATER, MINIMUM 20 GPM.
- 4) TEMPERATURE BLEND VALVE SUPPLIED BY MAR COR AND INSTALLED BY P.C. THE TEMPERATURE BLEND VALVE IS TO BE INSTALLED WITH A COLD WATER BY-PASS THAT CAN MEET THE TOTAL SYSTEM FLOW REQUIREMENTS.
- 5) BACKFLOW PREVENTER, IF REQUIRED BY LOCAL CODES, SUPPLIED AND INSTALLED BY P.C. BACKFLOW PREVENTER NOT SHOWN.
- 6) TERMINATE THE FEED WATER SUPPLY AFTER THE TEMPERATURE BLEND VALVE OR BACKFLOW PREVENTER (IF USED ON THE SYSTEM) WITH A 1-1/2" THREADED FEMALE FITTING. (BY P.C.)
- 7) FEED WATER BOOSTER SYSTEM; BOOSTER PUMP, EXPANSION TANK, AND PRESSURE SWITCH.
- 8) ALL ELECTRICAL OUTLET(S), SAFETY DISCONNECT(S), MOTOR STARTER(S), SWITCHED OUTLET(S), AND POWER SUPPLIED TO THIS EQUIPMENT, SUPPLIED AND INSTALLED (BY E.C.)
- 9) TERMINATE THE RO DISTRIBUTION LOOP SUPPLY AND RETURN PIPING WITH A FEMALE FITTING. PIPING TO TERMINATE IN THE WATER TREATMENT ROOM BELOW THE CEILING. LABEL THE TERMINATION POINTS AS LOOP SUPPLY AND LOOP RETURN.
- 10) ALL CHANGES IN PIPE SIZE NECESSARY TO MATCH EQUIPMENT SHALL BE MADE AS CLOSE TO EQUIPMENT AS POSSIBLE.

- 11) REMOTE MONITOR(S) TO BE LOCATED AND INSTALLED AT OR AROUND THE NURSE'S STATION (BY E.C.)
- 12) FINAL CONNECTIONS BETWEEN: THE SAFETY DISCONNECT AND ELECTRICAL RECEPTACLE, THE SAFETY DISCONNECT AND RO MACHINE, TO BE MADE (BY E.C.)
- 13) ALL PIPING SHOWN AS ----- TO BE PROVIDED AND INSTALLED (BY P.C.)
- 14) ----- REPRESENTS INSTRUMENTATION CONNECTIONS BY MAR COR.
- 15) ----- REPRESENTS INSTRUMENTATION CONNECTIONS (BY E.C.)
- 16) ----- REPRESENTS ELECTRICAL CONNECTIONS BY MAR COR.
- 17) ----- REPRESENTS ELECTRICAL CONNECTIONS (BY E.C.)
- 18) ----- REPRESENTS RO INTERLOCK CONNECTIONS BY MAR COR.
- 19) DI LOOP CONNECTION CAN BE MADE ON THE CWP-PT RACK.
- 20) THE FEED WATER SUPPLY CONNECTION POINT FOR THE BACK-UP DI TANKS IS POST PRETREATMENT.
- 21) NOT USED.
- 22) RECOMMEND A 3/4" PFA DISTRIBUTION LOOP SIZE.

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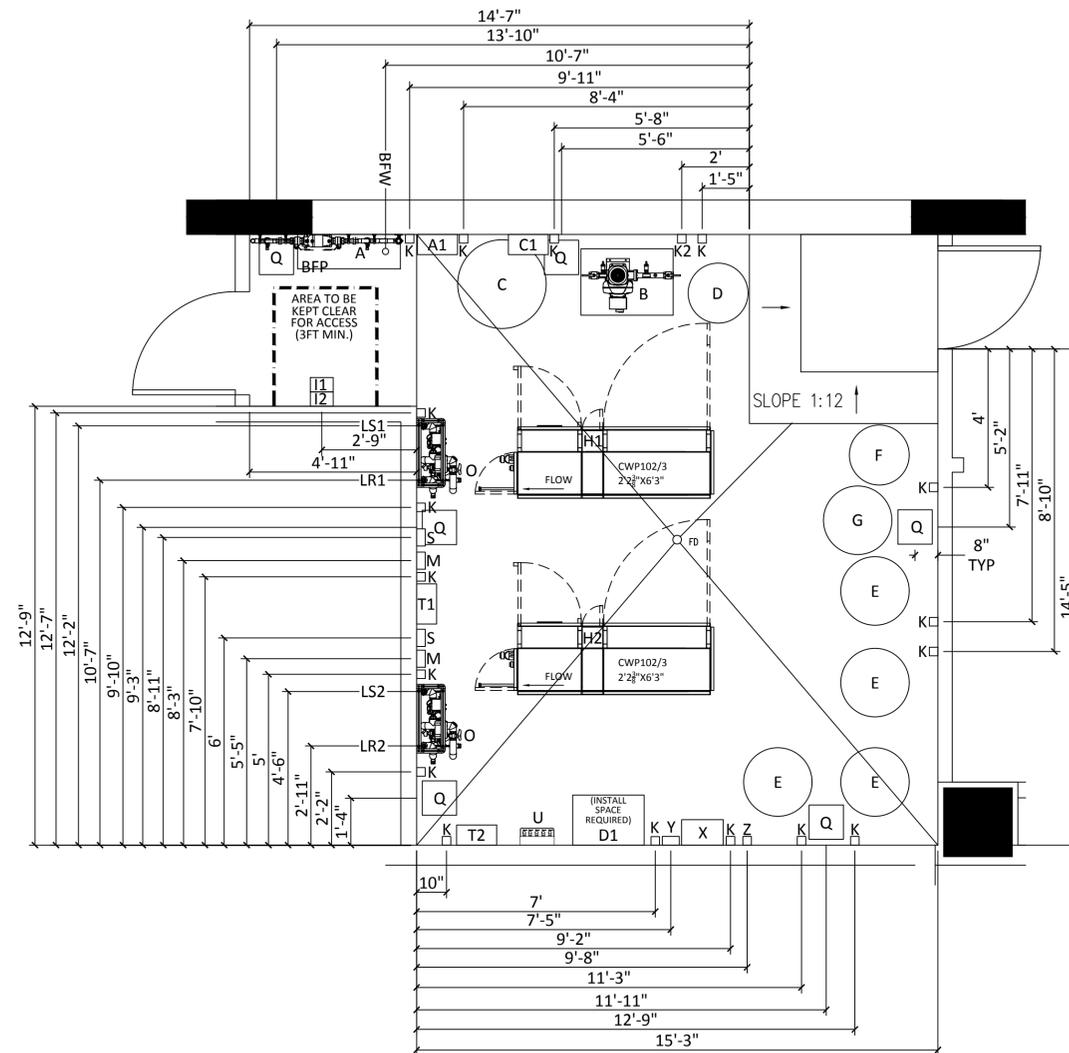
DESIGNED BY	E.MADISON	DATE	05DEC17	TOLERANCES UNLESS NOTED	DECIMALS	ANGLES: ± 1°
ENGINEERING APP		DATE		BASIC MM TOL ±	(0.5)-6 0.1 (100)-300 0.5	FRACTION: ± 1/16
				(6)-30 0.2 (300)-1000 0.8	XX ± 1	
				(30)-100 0.3 (1000)-2000 1.2	.XX ± .03	
				UNLESS OTHERWISE NOTED	.XXX ± .010	

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SYSTEM DRAWING, VAMC HINES
D 1610048 1 OF 4
NONE (REF ONLY) 1 OF 4

LEGEND:

- A: TEMPERATURE BLEND VALVE
(SEE PLUMBING NOTE 2,3,4, & 5)
- A1: WATER LEAK PANEL
120V, 1PH, 60Hz
- B: FEED WATER BOOSTER PUMP
208/230V, 3PH, 60Hz, 3Hp
41" W x 41" D x 60" HT, 220 LBS.
- C: BREAK TANK; 165 GAL.
31"Ø x 57" HT, 1445 LBS.
- C1: BREAK TANK CONTROL PANEL
120V, 1PH, 60Hz
- D: MULTI-MEDIA FILTER; 6 CUFT
21"Ø x 72" HT, 1200 LBS.
- D1: CARTRIDGE FILTERS; 1 MICRON
- E: CARBON FILTER; 7 CUFT
24"Ø x 74" HT, 1325 LBS.
- F: WATER SOFTENER; 180K
21"Ø x 71" HT, 875 LBS.
- G: BRINE TANK
24"Ø x 40" HT, 750 LBS.
- H1: CWP-102H; 5.3 GPM
75" W x 27" D x 79" HT, 1995 LBS.
208V, 3PH (5 WIRES), 60Hz, 60 AMP
- H2: CWP-102H; 5.3 GPM
75" W x 27" D x 79" HT, 1995 LBS.
208V, 3PH (5 WIRES), 60Hz, 60 AMP
- I1: SAFETY DISCONNECT
208V, 3PH (5 WIRES), 60Hz, 60 AMP
- I2: SAFETY DISCONNECT
208V, 3PH (5 WIRES), 60Hz, 60 AMP
(SEE ELECTRICAL NOTE 4)
- K: ELECTRICAL OUTLET; DUPLEX
120V, 1PH, 60Hz, 20AMP
- K2: TWIST LOCK; HUBBELL 2720
208/230V, 3PH, 60Hz, 3Hp
(SEE ELECTRICAL NOTE 5)
- M: RO REMOTE JUNCTION BOX
(SEE ELECTRICAL NOTE 3)
- O: CWP-PT
120V, 1PH, 60Hz
24"W x 15" D x 73" H, 85 LBS.
- Q: FLOOR SINK
MINIMUM DRAIN CAPACITY: 35 GPM
- S: RO DISCONNECT JUNCTION BOX
(SEE ELECTRICAL NOTE 6)
- T1: OVER TEMPERATURE ALARM
120V, 1PH, 60Hz, 5AMP
- T2: OVER TEMPERATURE ALARM
120V, 1PH, 60Hz, 5AMP
- U: SAMPLE BOX
- X: CHLORINE MONITOR
120V, 1PH, 60Hz
- Y: CHLORINE REMOTE JUNCTION BOX
(SEE ELECTRICAL NOTE 7)
- Z: POWERED RJ45 JACK
- BFW: BLENDED FEED WATER
(77° F)
- LS1: LOOP #1 SUPPLY
- LR1: LOOP #1 RETURN
- LS2: LOOP #2 SUPPLY
- LR2: LOOP #2 RETURN
- BFP: BACKFLOW PREVENTER
(SEE PLUMBING NOTE 1 & 4)



GENERAL NOTES:

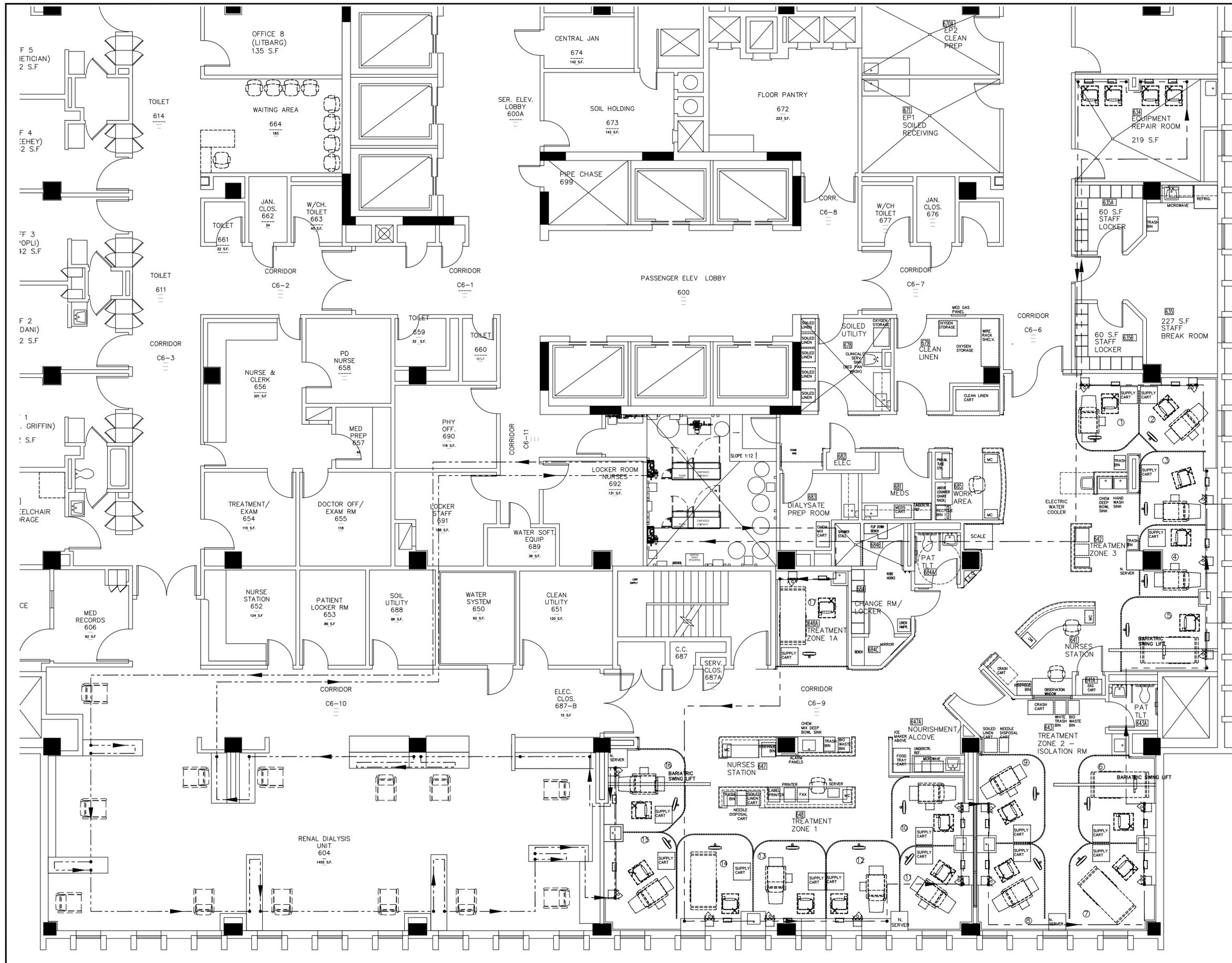
1. THE ROOM DIMENSIONS ARE BASED ON AN AUTOCAD FILE OF THE FLOOR PLAN PROVIDED BY THE SALES DEPARTMENT. THE ROOM DIMENSIONS MUST BE CONFIRMED BEFORE THE INSTALLATION OF THE WATER TREATMENT SYSTEM.
2. 3/4" PLYWOOD IS REQUIRED FOR SECURING PIPING & PANELS TO THE WALL. PLYWOOD SUPPLIED AND INSTALLED BY G.C. PRIOR TO MAR COR'S ARRIVAL. PLYWOOD TO BE 8'-0" IN HEIGHT.
3. ANY WINDOWS NEED TO BE COVERED TO PROVIDE MOUNTING LOCATIONS FOR PIPING AND TO HELP PREVENT BACTERIAL AND BIOLOGICAL GROWTH.
4. NOT USED.

ELECTRICAL NOTES:

1. ALL ELECTRICAL OUTLETS, SWITCHED OUTLETS, SAFETY DISCONNECTS, JUNCTION BOXES, AND POWER SUPPLIED TO THIS EQUIPMENT IS SUPPLIED AND INSTALLED BY E.C. UNLESS NOTED. INSTALL ALL AFOREMENTIONED ITEMS 6'-6" A.F.F.
2. ELECTRICAL OUTLETS SHOWN ARE REQUIRED FOR THE WATER TREATMENT SYSTEM ONLY. ADDITIONAL OUTLETS MAY BE REQUIRED FOR OTHER USES. THE QUANTITY AND LOCATION OF THESE ADDITIONAL OUTLETS IS AT THE DISCRETION OF THE CUSTOMER.
3. TERMINATE THE CONDUIT AND WIRES FOR THE RO REMOTE MONITOR IN THE JUNCTION BOX (ITEM M). THE JUNCTION BOX SHOULD BE LOCATED 2'-0" BELOW THE CEILING AND WITHIN 5'-0" OF THE RO UNIT (BY E.C.)
4. NOT USED.
5. THE TWIST LOCK (ITEM K2) REQUIRES 208/230V, 3PH, 60Hz POWER. POWER SUPPLIED AND CONNECTED TO THE OUTLET (BY E.C.). THE TWIST LOCK IS TO BE LOCATED 6'-0" A.F.F.
6. WIRES FROM THE RO DISCONNECT SWITCHES TO THE JUNCTION BOXES IS PULLED BY E.C. THE JUNCTION BOXES ARE TO BE MOUNTED 6'-0" A.F.F.
7. TERMINATE THE CONDUIT AND WIRES FOR THE CHLORINE REMOTE MONITOR IN THE JUNCTION BOX (ITEM Y). THE JUNCTION BOX SHOULD BE LOCATED 2'-0" BELOW THE CEILING AND WITHIN 5'-0" OF THE CHLORINE UNIT (BY E.C.)

PLUMBING NOTES:

- MINIMUM FEED WATER SUPPLY CAPACITY: 35 GPM
MINIMUM DRAIN CAPACITY: 35 GPM
MINIMUM RO BLENDED FEED WATER: 20 GPM
1. APPROPRIATE BACK FLOW PREVENTION DEVICE (IF REQUIRED BY LOCAL CODES) SUPPLIED AND INSTALLED (BY P.C.).
 2. TEMPERATURE BLEND VALVE SUPPLIED BY MAR COR AND INSTALLED (BY P.C.) PRIOR TO MAR COR'S ARRIVAL.
 3. TEMPERATURE BLEND VALVE TO BE INSTALLED WITH A COLD WATER BY-PASS ABLE TO SUPPLY THE ENTIRE DEMAND OF THE WATER TREATMENT SYSTEM (BY P.C.).
 4. TEMPERATURE BLEND VALVE AND BACK FLOW PREVENTION DEVICE TO BE LOCATED (BY P.C.) CONSIDERING LOCAL PLUMBING CODES. AREA SHOWN IN DRAWING IS ONLY A POSSIBLE LOCATION THAT WOULD HAVE TO HAVE APPROVAL FROM RESPONSIBLE PARTY.
 5. TERMINATE THE FEED WATER SUPPLY PIPING AT THE LOCATION BFW ON THE DRAWING 5'-6" A.F.F. WITH A 1-1/2" FNPT FITTING. FEED WATER SUPPLY PIPING TO BE LOCATED AFTER THE TEMPERATURE BLEND VALVE AND BACK FLOW PREVENTION DEVICE (BY P.C.).
 6. TERMINATE THE RO WATER LOOP SUPPLIES (LS1 & LS2) AND LOOP RETURN (LR) RETURNS (LR1 & LR2) PIPING 12" BELOW THE CEILING AND WITHIN 7'-0" TO 10'-0" OF THE FINISHED FLOOR WITH A FEMALE FITTING. LABEL THE LOOP SUPPLY AND RETURN PIPING AT THE TERMINATION POINTS (BY P.C.).
 7. NOT USED.



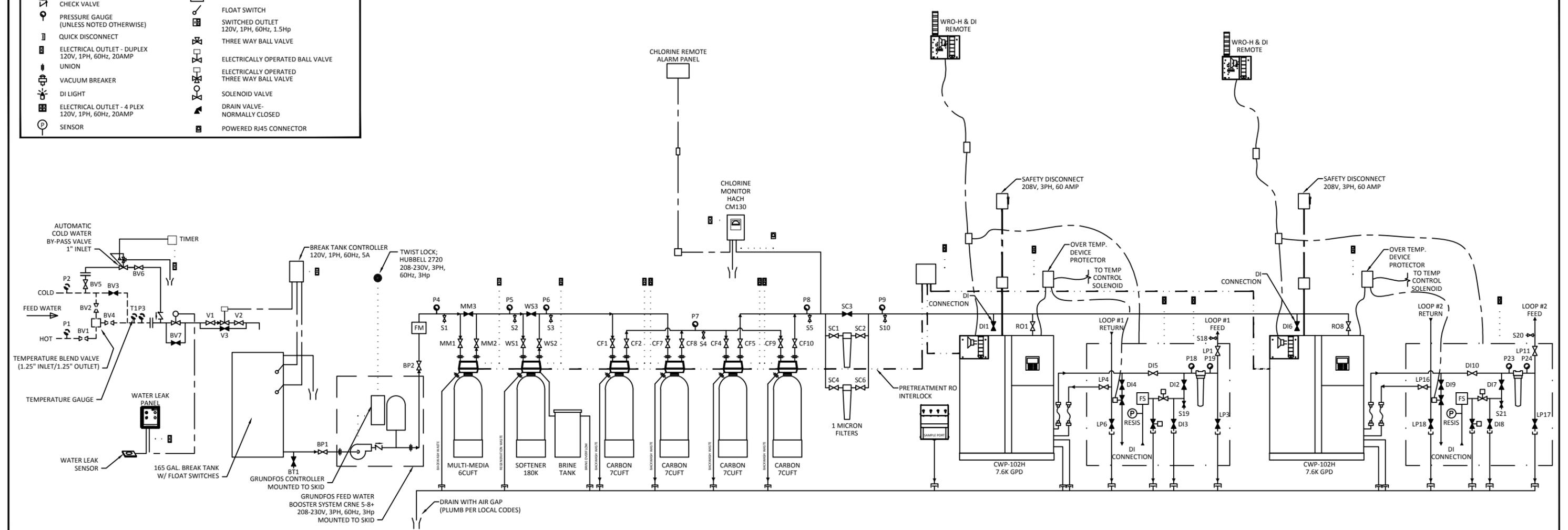
RO #1 LOOP (-----) ESTIMATE
 HORIZONTAL LENGTH ESTIMATE - 497FT
 VERTICAL LENGTH ESTIMATE (AT 10FT/ELEVATION CHANGE) - 200FT
 TOTAL ESTIMATED LENGTH - 697FT

RO #2 LOOP (-----) ESTIMATE
 HORIZONTAL LENGTH ESTIMATE - 486FT
 VERTICAL LENGTH ESTIMATE (AT 10FT/ELEVATION CHANGE) - 180FT
 TOTAL ESTIMATED LENGTH - 666FT

NOTE:
 LOOP TUBING/PIPING REQUIRES SLEEVING/HANGERS IN ALL OVERHEAD, INTERSTITIAL, AND UNDER SLAB SECTIONS. SLEEVING IS ALSO REQUIRED FOR ALL VERTICAL PIPING SECTIONS. SLEEVING/HANGERS WILL BE SUPPLIED AND INSTALLED BY P.C. ACCORDING TO MAR COR'S DISTRIBUTION PIPE SLEEVING GUIDELINES.

LEGEND	
	DRAIN
	RELIEF VALVE
	BALL VALVE-NORMALLY CLOSED
	BALL VALVE-NORMALLY OPEN
	SAMPLE PORT
	CHECK VALVE
	PRESSURE GAUGE (UNLESS NOTED OTHERWISE)
	QUICK DISCONNECT
	ELECTRICAL OUTLET - DUPLEX 120V, 1PH, 60Hz, 20AMP UNION
	VACUUM BREAKER
	DI LIGHT
	ELECTRICAL OUTLET - 4 PLEX 120V, 1PH, 60Hz, 20AMP
	SENSOR
	FLOW METER
	FLOW VELOCITY METER
	FLOW SWITCH
	PRESSURE REDUCING VALVE
	PRESSURE SWITCH
	FLOAT SWITCH
	SWITCHED OUTLET 120V, 1PH, 60Hz, 1.5Hp
	THREE WAY BALL VALVE
	ELECTRICALLY OPERATED BALL VALVE
	ELECTRICALLY OPERATED THREE WAY BALL VALVE
	SOLENOID VALVE
	DRAIN VALVE-NORMALLY CLOSED
	POWERED RJ45 CONNECTOR

REVISION HISTORY						
REV	DESCRIPTION	DCO #	DWN BY	DWN DATE	APVD BY	APVD DATE
0	ENGINEERING RELEASE	N/A	EM	05DEC17		
1	NEW QUOTE	N/A	EM	04JAN18		



VALVE #	DESCRIPTION	POSITION	VALVE #	DESCRIPTION	POSITION	SAMPLE PORT	DESCRIPTION	POSITION
BV1	BLENDING VALVE, HW INLET	NO	SC1	SEDIMENT CARTRIDGE FILTER INLET	NO			
BV2	BLENDING VALVE, CW INLET	NO	SC2	SEDIMENT CARTRIDGE FILTER OUTLET	NO	S1	CITY WATER	NC
BV3	BLENDING VALVE, CW BY-PASS	NC	SC3	SEDIMENT CARTRIDGE FILTERS BY-PASS	NC	S2	MULTI-MEDIA FILTER OUTLET	NC
BV4	BLENDING VALVE, TEMPERED WATER OUTLET	NO	SC4	SEDIMENT CARTRIDGE FILTER INLET	NO	S3	WATER SOFTENER OUTLET	NC
BV5	BLENDING VALVE, AUTO CW INLET	NO	SC6	SEDIMENT CARTRIDGE FILTER OUTLET	NO	S4	WORKER CARBON FILTERS OUTLET	NC
BV6	BLENDING VALVE, AUTO CW OUTLET	NO	RO1	RO #1 FEED WATER INLET	NO	S5	POLISHER CARBON FILTERS OUTLET	NC
BV7	BLENDING VALVE, LEAK DETECTOR BY-PASS	NC	RO8	RO #2 FEED WATER INLET	NO	S10	RO PREFILTER SEDIMENT CARTRIDGE FILTERS OUTLET	NC
V1	BREAK TANK FEED SOLENOID INLET	NO	DI1	RO SYSTEM #1 BY-PASS	NC	S18	ENDOTOXIN FILTER LOOP #1 OUTLET	NC
V2	BREAK TANK FEED SOLENOID OUTLET	NO	DI2	DI SYSTEM #1 OUTLET	NC	S19	DI SYSTEM #1 OUTLET	NC
V3	BREAK TANK FEED SOLENOID BY-PASS	NC	DI3	DI SYSTEM #1 TO DRAIN	NC	S20	ENDOTOXIN FILTER LOOP #2 OUTLET	NC
BT1	BREAK TANK DRAIN	NC	DI4	DI SYSTEM #1 INLET	NC	S21	DI SYSTEM #2 OUTLET	NC
BP1	BOOSTER PUMP, FEED WATER INLET	NO	DI5	DI SYSTEM #1 BY-PASS	NO			
BP2	BOOSTER PUMP, FEED WATER OUTLET	NO	DI6	RO SYSTEM #2 BY-PASS	NC			
MM1	MULTI-MEDIA FILTER INLET	NO	DI7	DI SYSTEM #2, OUTLET	NC			
MM2	MULTI-MEDIA FILTER OUTLET	NO	DI8	DI SYSTEM #2 TO DRAIN	NC	P1	HW INLET PRESSURE	
MM3	MULTI-MEDIA FILTER BY-PASS	NC	DI9	DI SYSTEM #2 INLET	NC	P2	CW INLET PRESSURE	
WS1	WATER SOFTENER INLET	NO	DI10	DI SYSTEM #2 BY-PASS	NO	P3	TEMPERED WATER OUTLET PRESSURE	
WS2	WATER SOFTENER OUTLET	NO	LP1	LOOP, DISTRIBUTION #1, FEED	NO	P4	FEED WATER BOOSTER PUMP DISCHARGE PRESSURE	
WS3	WATER SOFTENER BY-PASS	NC	LP3	LOOP, DISTRIBUTION #1, FEED TO DRAIN	NC	P5	MULTI-MEDIA FILTER OUTLET PRESSURE	
CF1	CARBON FILTER WORKER #1, INLET	NO	LP4	LOOP, DISTRIBUTION #1, RETURN TO RO #1	NO	P6	WATER SOFTENER OUTLET PRESSURE	
CF2	CARBON FILTER WORKER #1, OUTLET	NO	LP6	LOOP, DISTRIBUTION #1, RETURN TO DRAIN	NC	P7	WORKER CARBON FILTERS OUTLET PRESSURE	
CF4	CARBON FILTER POLISHER #1, INLET	NO	LP11	LOOP, DISTRIBUTION #2, FEED	NO	P8	POLISHER CARBON FILTERS OUTLET PRESSURE	
CF5	CARBON FILTER POLISHER #1, OUTLET	NO	LP16	LOOP, DISTRIBUTION #2, RETURN TO RO #2	NO	P9	RO PREFILTERS OUTLET PRESSURE	
CF7	CARBON FILTER WORKER #2, INLET	NO	LP17	LOOP, DISTRIBUTION #2, FEED TO DRAIN	NC	P18	ENDOTOXIN FILTER INLET PRESSURE-LOOP #1	
CF8	CARBON FILTER WORKER #2, OUTLET	NO	LP18	LOOP, DISTRIBUTION #2, RETURN TO DRAIN	NC	P19	ENDOTOXIN FILTER OUTLET PRESSURE-LOOP #1	
CF9	CARBON FILTER POLISHER #2, INLET	NO	D1	FEED WATER BOOSTER PUMP DRAIN	NC	P23	ENDOTOXIN FILTER INLET PRESSURE-LOOP #2	
CF10	CARBON FILTER POLISHER #2, OUTLET	NO				P24	ENDOTOXIN FILTER OUTLET PRESSURE-LOOP #2	

DUAL CWP DIRECT FEED RO SYSTEM

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DATE: 05DEC17
 CHECKED BY: E. MADISON
 DRAWING NO: 1610048
 REV: 1
 SHEET: 4 OF 4