



## Supplemental Information

### Facility Integrators - Water/Wastewater Controls Shortlist RFQ

**Subject:** City of Lacey Facility Integrators Shortlist  
Equipment Discussion and Example Specifications

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#### **Equipment Discussion**

The City of Lacey has standardized equipment manufacturers for projects. This decision is based on a need to facilitate maintenance and user interface by standardizing products. The burden to learn various user interfaces, programming, set up, and service requirements for multiple manufacturers is a significant factor in this decision. Consistency of local product support is also a significant aspect. Based on this, the shortlist companies must be able to obtain and deliver product support for the city's standardized equipment.

A list of the standardized equipment used on wastewater is provided below. As new wastewater facilities are constructed, or aging facilities are rehabilitated, this standardized equipment list is used to provide consistency between facilities. Water facilities, however, are unique to themselves due to the lack of facility repetition within the system. To attempt to standardize between the water facilities, specifications are developed to ensure that major components are similar to other major components found elsewhere in the system. An example of specifications used on a recently constructed wastewater project is provided below.

For the reasons listed above, the City is not pursuing a change in equipment or software through this RFQ. Ideal companies for the shortlist will be able to meet the City's desire to maintain standardized materials. In addition, shortlist companies will be proficient in producing well organized submittal packages, detailed drawings, and as-built/record drawings. Proficient production of these items, combined with the City's desire to maintain standardized materials, will help to ensure an efficient and effective relationship between the City and shortlisted facility integrators.

# Standard Equipment List for Wastewater Projects

**APPROVED MATERIALS (BOM) For Rev 16**

ITEM	CITY OF LACEY DESCRIPTION	MANUFACTURER	PART #	SPECIAL CONSTRUCTION NOTES
				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.
1	<b>CELLULAR EQUIPMENT</b>			
	(A) CELL MODEM	<b>SUPPLIED BY THE CITY OF LACEY</b>	CRADLEPOINT	MA5-0900600M-NNA
	(B) 1" CABLE SEAL GLAND	ICOTEC	KEL-DPZ32/4-2 BLK	Install below the Antenna. SEE DETAIL SHEET 7-50-E
	(C) ANTENNA	PANORAMA	WMMG-727-5SP	Weld studs when Installing Antenna. Weld wire tie down studs and coil extra cable inside. SEE DETAIL SHEET 7-50-E
	(D) CELL BRACKET	"CUSTOM"		Allow minimum 1" clearance above and below the modem and flush with the front of the Pump Control Panel.
2	<b>ETHERNET PORT</b>	EATON	M22-RJ45-SA	
3	<b>CABINET LIGHT</b>	COOPER	HU1124D9SP	
	24" DAISY CHAIN CONNECTOR	COOPER	HU103P	
	120" DAISY CHAIN CONNECTOR	COOPER	HU104P	Cut connector off of one end and land under CR2.
4	<b>TVSS</b>	TOTAL PROTECT SOLUTIONS	PK050R-3Y480-L	Mount TVSS to the back plate.
5	<b>INTRUSION SWITCH ASSEMBLY</b>			Mount intrusion switch to Main Control Cabinet ceiling track with a bracket. Intrusion switch is configured normally closed held open. When the control cabinet door is closed, the lever switch arm is pushed back and the contacts within the switch are held open. When the control cabinet door is opened, the lever arm is released and contacts within the switch close. At this point CR2 is energized. CR2 has two C-form contacts (two poles). One pole switches the cabinet light via the normally open contacts the other pole switches the intrusion input via normally closed contacts. The PLC program creates an intrusion alarm when there is no input to I:0/2. WHEN THE MAIN CONTROL CABINET IS CLOSED, THERE IS AN INPUT TO I:0/2.
	RECEPTACLE	EATON	E50RA	
	SWITCH BODY	EATON	E50SA	
	5° HEAD	EATON	E50DR1	
	LEVER ARM	EATON	E50KL538	
6	<b>CABINET VENTILATION</b>			Mount fan on lower right. Mount intake and exhaust hoods forward in the Main Control Cabinet toward the door, allowing clearance for the Service Entrance Disconnect. Filters must be installed.
	FAN	RITTAL	3239.110	
	VENT	RITTAL	3239.200	
	SS HOOD	RITTAL	3239.080	
7	<b>PHASE MONITOR</b>	EATON	D65VMLP480	Land wires for under voltage. Terminals 21 & 24.
	Use with Base	EATON	D3PA6 ( 600v base )	
8	<b>PHASE MONITOR FUSE HOLDER</b>	BUSSMAN	CHCC3DIU	
	PHASE MONITOR FUSES	BUSSMAN	KTK-R-1/10	

\*Engineer to determine part number based on voltage/amperage and fill in the missing part number represented by \*the asterisk.

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				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.
9	CB5 - TVSS	EATON	FAZC30-3	
10	POWER DISTRIBUTION BLOCK	BUSSMAN	16323-3 Include cover	Load Side - one connection per point i.e. CB1 and CB2 would require 6 points. Wire connected to any breaker must exceed the breakers ampacity.
11	DUAL THERMOSTAT	STEGO	ZR 01172.0-01	
12	PUMP CONTROL PANEL			
	FOR 2 PUMP STATION	HOFFMAN	CSD363012 with steel back plate	
	FOR 3 PUMP STATION	HOFFMAN	CSD423612 with steel back plate	
13	TRANSFORMER			Ground center tap to Main Ground Bar. Compression or ring tongue type lugs.
	10K	EATON	S48G11S10N	
14	AUTOMATIC TRANSFER SWITCH	ASCO	D3ATSA3****GXC - 11BE	
15	METER HEAD			
	ONE THAT MEETS PSE'S CURRENT SPECIFICATIONS			Torque to spec.
16	SERVICE ENTRANCE DISCONNECT			Needs to be drilled so that it can be locked in the on position. Shipped with the Main Control Cabinet (to be mounted by the field electrician). Torque to spec.
	ENCLOSURE	EATON	WFDN***	
	NEUTRAL KIT	EATON	DG***N*	
	BREAKER	EATON	EHD3***	Control systems manufacturer to install breaker.
16A	VOLTAGE TEST STATION	GRACE PESDS	R-3MT-VI-KIT	Install in the front panel of the Service Entrance Disconnect, wire to the load side and apply provided labeling.
17	TRANSFORMER PRIMARY BREAKER	EATON	FD2030L	
18	MAIN GROUND BAR	PANDUIT	UGB2/0-414-6	Ground TVSS, transformer, and breaker panel ground bar to main ground bar.

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19	LEVEL CONTROL			
	LUT 420	SIEMENS	7ML50500AA111DA0	
20	UPS	APC	SMT1500C	
20	UPS	EATON	5SC 1500	
21	BREAKER PANEL	EATON	CHP12L125R	All wires shall be tinned stranded MTW/AWM/TEW. <b>NO VINYL COVERING.</b> Wires connected to breakers will be black #12 . All 120 VAC control wires are to be red #14. All 120 VAC neutrals will be white. One neutral and ground for each branch circuit.
22	INTRINSICALLY SAFE RELAY PANEL ENCLOSURE	HOFFMAN	A12N106 with white steel back plate	Barrier to be outlined with red tape on the bottom of the Main Control Cabinet prior to shipping. Knock out a 1" penetration centered in the bottom of the ISR panel. <b>Red tape barrier inside encloure. SEE DETAIL SHEET 7-50-E</b>
23	FLOW METER			
	MAG 5100 ELEMENT and MAG 6000 TRANSMITTER	SIEMENS	7ME6520***13 -2JA2	Verify sensorprom memory unit serial numbers with element and install in transmitter.
	COIL CABLE	SIEMENS	FDK: 001STCAB	
	EMPTY PIPE CABLE	SIEMENS	FDK: 001SPCAB	Grounding rings are required for all installations.
	FLOW TRANSMITTER REMOTE MOUNT BRACKETS	SIEMENS	FDK: 085U1053	
	GROUNDING RINGS	SIEMENS	TGX:001F0***	
	POTTING KIT	SIEMENS	FDK: 085U0220	
24	UPS RECEPTACLE	PHOENIX	0804155	
25	GFCI	HUBBELL	DRUBGFI15 DGK	
26	OUTSIDE AREA LIGHT SWITCH	BRYANT	CSB120BW	
	BELL BOX	COOPER	TP7010	
	COVER	BRYANT	SS1	

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27	CABINET HEATER	HOFFMAN	DHA2001A	
28	HMI	CMT	CMT2108X2	
29	AMMETER			Scaled to read the pumps running amps in the center of the scale .i.e. If the pump is designed to run at 10 amps, the meter should be scaled 1–20 amps.
	2 1/2 "	PC&S	ST70	
30	MOTOR CIRCUIT BREAKER THRU - DOOR OPERATOR	EATON	EHMVD - 12R	Clocked straight up and down for the "ON" position. Mount Breaker and Operator independently, so the Operator can be removed and the Breaker remains mounted on the back plate. Operator Rod needs to be cut to the proper length. Install Cotter Pins.
31	H-O-A SWITCH			
	22 MM HW SERIES CONTACT BLOCKS	IDEC	HW - F**	
32	CONTROL POWER INDICATOR			
	22 MM HW SERIES LED LAMP	IDEC	LST - H2*	
	FULL VOLTAGE ADAPTER	IDEC	HW-DA1F	
	BLUE LENS	IDEC	HW1A - L1 – S	
	CONTACT BLOCKS	IDEC	HW - F**	
	OPERATOR	IDEC	HW1B - ****	
33	HIGH WET WELL OVERRIDE SELECTOR SWITCH			
	22 MM HW SERIES CONTACT BLOCKS	IDEC	HW - F**	
	OPERATOR	IDEC	HW1S - *T	
34	HIGH WET WELL LEVEL INDICATOR/RESET SWITCH			
	22 MM HW SERIES LED LAMP	IDEC	LST - H2*	
	FULL VOLTAGE ADAPTER	IDEC	HW-DA1F	
	RED LENS	IDEC	HW1A - L1 – R	
	CONTACT BLOCKS	IDEC	HW - F**	
	OPERATOR	IDEC	HW1B - ****	

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				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.
35	UPS SHELF	AC INFINITY	AI-RTA3 10.5"	For earthquake readiness, the UPS must also be strapped to the Main Control Cabinet back plate.
36	MOTOR CIRCUIT BREAKER	EATON	HMCPE***	Wire connected to any breaker must exceed the breakers ampacity.
37	CURRENT TRANSFORMER	CROMPTON	2RL-***	Paired with the Ammeter, may need to wrap CT to achieve an accurate current reading.
38	SOFT START	EATON	S8-11 *****	Mount directly to the backplate. Set to limiting current start mode. Set fault reset to auto. Wire connected to the soft start must exceed the breakers ampacity.
39	MOTOR STARTER			
	WITH OVERLOAD RELAY	EATON	AN19BN0A5E020	Mount directly to the backplate.
40	RESET MODULE	EATON	ZEB-XRR-120	
41	CB7 - LINE POWER CONDITIONER	EATON	FAZ-C5/1-NA	
42	AC FUSE HOLDERS			
	NEON FUSE BLOWN INDICATOR	SPRECHER SCHUH	V7-H4	
	AC FUSES	BUSSMANN	GDL - **/KLM - **/ABC - **	
43	DC FUSE HOLDERS			
	LED FUSE BLOWN INDICATOR	SPRECHER SCHUH	V7-H5	
	DC FUSES	BUSSMANN	ABC - **/KLM - **	
44	NOT USED			
45	24 VDC POWER SUPPLY	SOLA	SDP4 - 24 - 100LT	Allow 1" clearance per manufacturer requirements. All wires shall be tinned stranded MTW/AWM/TEW. NO VINYL COVERING. 24 VDC Positive - Dark blue #16 24 VDC Negative - White with blue stripe #16

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				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.
46	24 VDC SOFT START POWER SUPPLY	EATON	PSG240E	Allow 50 mm clearance top and bottom, 20 mm on the sides, per manufacturer requirements. All wires shall be tinned stranded MTW/AWM/TEW. NO VINYL COVERING. 24 VDC Positive - Dark blue #16 24 VDC Negative - White with blue stripe #16
47	PROGRAMMABLE LOGIC CONTROLLER AND I/O			Allow 2" clearance per manufacturer requirements.
	COMPACTLOGIX ETHERNET CONTROLLER	ALLEN BRADLEY	1769-L33ER	
	ANALOG INPUT MODULE	ALLEN BRADLEY	1769-IF4	
	DIGITAL INPUT MODULES	ALLEN BRADLEY	1769-IQ16	
	RELAY OUTPUT MODULE	ALLEN BRADLEY	1769-OW8	
	24VDC PLC POWER SUPPLY	ALLEN BRADLEY	1769-PB2	
	END CAP TERMINATOR	ALLEN BRADLEY	1769-ECR	
48	ETHERNET SWITCH	N-TRON	105TX-SL	
49	CONTROL RELAYS	IDEC	RH*B-UL	
	RELAY BASE	IDEC	SH*B-05	
50	PULSE RELAY CR5	ALLEN BRADLEY	700-HLS1Z24	Pulse wires shall be tinned stranded MTW/AWM/TEW. NO VINYL COVERING. Positive - Dark blue #16 Negative - White with blue stripe #16
51	LINE POWER CONDITIONER	ALLEN BRADLEY	4983-DC120-05	Allow 1" clearance per manufacturer requirements.
52	TIME DELAY RELAY	CROUZET	OU1R10MV1	Set on "C" off delay. (3 MIN.)
	RELAY BASE	IDEC	SR2P - 06	
53	SEAL FAIL / OVER TEMP RELAY			Set on manual reset.
	FOR FLYGT PUMPS	MINICAS II		
	FOR NON FLYGT PUMPS	MTS	#MOS-1P	
54	TERMINAL BLOCKS	SPRECHER SCHUH	V7-W4 SERIES	Steel Din Rail (NO Aluminum). Stops installed. Do NOT glue terminal block markers onto terminals.

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				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.
55	MAIN CONTROL CABINET ENCLOSURE	HOFFMAN	A727224USSLP-MOD with white steel back plate	Factory installed drip shield and drain holes in the enclosure bottom per (UL 3R). No penetrations in the top. Padlocking handle. Accessories to be spot welded: Door stop kit - Bottom, both doors (see modification services guide). Folding 12" x 12" Shelf - ACSHLF1212SS. Default location: Inside left door.
56	ISOLATION PEDESTAL ENCLOSURE			
	FOR 2 PUMP STATION	HOFFMAN	A30H2412SS6LP3PT with white steel back plate	SEE DETAIL SHEET 7-51-E AND 7-54-E
	FOR 3 PUMP STATION	HOFFMAN	A36H3612SS6LP3PT with white steel back plate	SEE DETAIL SHEET 7-51-E AND 7-54-E
57	CABLE SEAL			Do <b>NOT</b> remove sheathing of cable and separate out wires on the level transducer cable when applying resin.
	LIQUID POUR RESIN BARRIER	APPLETON	PXSS2K SERIES	
58	PUMP POWER RECEPTACLE			Pumps with separate cords for seal fail/over temp also use PN7C 63-034043 receptacle. <b>Receptacles with aux wires for pump sensors, use heat shrink butt connectors.</b> SEE DETAIL SHEET 7-54-E
	DE-CONTACTOR TYPE	MELTRIC	D****	
59	PUMP CORD CONNECTOR			Pumps with separate cords for seal fail/over temp also use PN7C 01-NA013-12 connector. Use with 1/2" NPT poly handle 63-38043. <b>Leave enough conductor in handle to be able to pull connector apart to access screws easily.</b> SEE DETAIL SHEET 7-54-E
	DE-CONTACTOR TYPE	MELTRIC	D**** with NPT HANDLE	
60	ISOLATION PEDESTAL BARRIER	"CUSTOM"		Constructed of aluminum and needs to run the full height of the panel and extend out to the door from the back plate.
61	ISOLATION PEDESTAL HEATER	PFANNENBERG	17015005007	
62	ISOLATION PEDESTAL HYGROSTAT	STEGO	01220.0-00	
63	INTRINSICALLY SAFE RELAY	TURCK	IM1-22EX-R	
64	BREAKER PANEL BREAKER – 15A	EATON	CHF115	
64A	BREAKER PANEL BREAKER – 15A	EATON	CHFN115GF	
65	BREAKER PANEL BREAKER – 20A	EATON	CHF120	

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				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.
66	<b>PUMP JOG PENDANT</b>			50 foot cord needs to be supplied with pendant attached and then cut to length in the field. Cord needs to be long enough to reach the wet well from the main control
	FOR 2 PUMP STATION	WOODHEAD	4022	
	FOR 3 PUMP STATION	WOODHEAD	4023	
66A	<b>PENDANT CORD HANGER</b>	WORKPRO	1087594 (2 Pack)	Weld studs when Installing hooks. SEE DETAIL SHEET 7-50-E
67	<b>ISOLATION PEDESTAL POST BASE</b>	EATON B-LINE	B281SQ SS4	SEE DETAIL SHEET 7-54-E
		CALBRITE	S65810ST58	SEE DETAIL SHEET 7-54-E
68	NOT USED			
69	NOT USED			
70	NOT USED			
71	<b>16' LIGHT POLE</b>	HAPCO	<b>RTA16D6B4-BA</b>	Ground inside the hand hole. Grout under bottom of pole.
72	NOT USED			
73	<b>LED LUMINAIRE</b>	<b>RDA LIGHTING</b>	<b>FL5S-LED150A50-B-4K-T3-BLK-DIM W/FL5S MOUNTING ARM BLACK</b>	<b>Set for 150W.</b>
74	<b>PRESSURE TRANSMITTER ASSEMBLY</b>			
	SITRANS P 320 PRESSURE TRANSMITTER	SIEMENS	7MF0300-1QF01-5BM2-ZE21	Instrument to be calibrated for Full scale output (20 mA) at 100 PSIG. SEE DETAIL SHEET 7-56-E
	DIAPHRAM SEAL	WIKA	L990.10.N4FXN8F.SS.SS-2.SS.BN1500PLG	The diaphragm seal is to be filled with glycol and mounted to the pressure transmitter as an assembly at the instrumentation shop.

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				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.
75	<b>CHECK VALVE SWITCH ASSEMBLY</b>			No splices in the J-box. All wires to be home run to the Main Control Cabinet field terminals.
	RECEPTACLE	EATON	E50RA	SEE DETAIL SHEET 7-57-E
	SWITCH BODY	EATON	E50SA	SEE DETAIL SHEET 7-57-E
	5° HEAD	EATON	E50DR1	SEE DETAIL SHEET 7-57-E
	LEVER ARM	EATON	E50KL537	SEE DETAIL SHEET 7-57-E
76	<b>LIMIT SWITCH MOUNTING BRACKET</b>	"CUSTOM"		Needs to be constructed out of 1/4" x 1 1/2" x 8" stainless steel flat bar. Drill and tap holes to mount the limit switch to the flat bar and secure to strut with strut nuts. SEE DETAIL SHEET 7-57-E
77	<b>LIMIT SWITCH POST BASE</b>	EATON B-LINE	B280SQ SS4	SEE DETAIL SHEET 7-57-E
		CALBRITE	S65810ST58	SEE DETAIL SHEET 7-57-E
78	<b>1" X 1/2" SS REDUCER BUSHING</b> (Crouse-Hind is an example, does not have to be brand specific.)	CROUSE – HIND	RBSS31	SEE DETAIL SHEET 7-56-E
79	<b>SS CORD GRIP</b> (Woodhead part preferred, does not have to be brand specific, but must be SS)	WOODHEAD	MAX - LOC 1300980070	SEE DETAIL SHEET 7-56-E
80	<b>SS CORD GRIP WITH STRAIN RELIEF</b> (Woodhead part preferred, does not have to be brand specific, but must be SS)	WOODHEAD	MAX – LOC 130097 – 034	SEE DETAIL SHEET 7-56-E
81	<b>HIGH LEVEL FLOAT (HIGH BALL) MOUNTING BRACKET</b>	ANCHOR SCIENTIFIC	W-MS	SEE DETAIL SHEET 7-56-E
82	<b>HIGH LEVEL FLOAT (HIGH BALL)</b>	ANCHOR SCIENTIFIC	ROTO-FLOAT N.O. type "S" ** foot	SEE DETAIL SHEET 7-56-E
83	<b>PVC COATED CAPPED ELL</b> OCAL is an example, any PVC coated, CAPPED ell matching the description is acceptable.)	OCAL	LBY35-G	Apply copper coat to cap threads. SEE DETAIL SHEET 7-56-E
84	<b>LEVEL TRANSDUCER</b>	SIEMENS	XPS–15 7ML11180EA30	Cable will loop through the Isolation Pedestal and home run to Level Control. Do not remove the sheathing. Seal cable gland directly to sheathing with resin. SEE DETAIL SHEET 7-56-E

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