

CLIENT City of Key West **TREND NUMBER** 1
PROJECT RAS WAS Pump Replacement **REVISION NUMBER**

TREND NAME	DATE INITIATED	INITIATED BY	DATE NOTIFIED	STATUS (A, D, P, or W)	TOTAL TREND COST			
					Trend Eval.	Engineering Cost	Construction Cost	Total Cost
Additional pipe replacement	8/18/2021	Key West	12/21/21	P	\$ -	\$ 55,358		\$ 55,358

TREND DATA

DESCRIPTION OF TREND During the 60% workshop on 11/10/21 the City confirmed that all the pipe and valves would need to be replaced in the pipe gallery up to the elbow flange. The City requested to develop a analysis to determine which pipe material would be the most suitable. BV estimated the additional effort for designing the new pipe support and creating the additional valves specifications (ball and knife valves are now needed), as the scope of work only included the pipe replacement from the pump up to the common header. This additional effort will also include the creation of an evaluation report as well as the Client's review before starting with the new design. The design will include a new internal 100% QC review including the new design. This specific effort will include: - Pipe material evaluation report to the existing Ductile Iron pipe - specifically, consider HDPE and/or FRP. - Revise current demolition sheets to include limits of piping demolition for replacement. - Revise current mechanical drawings to include limits of new/replacement piping. - Miscellaneous ball valve spec - Knife Gate valves spec - Pipe support details (noting that new/additional details will likely be required to accommodate alternative pipe materials) - Connection details (noting the new/additional details will likely be required to accommodate	Overall Construction Cost: <u>Cost</u> Total Construction Cost \$ -																																							
	Design Engineering Cost: <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Hours</th> <th>Rate</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>Senior Project Manager</td> <td>5</td> <td>\$ 240.00</td> <td>\$ 1,200.00</td> </tr> <tr> <td>Engineering Manager</td> <td>25</td> <td>\$ 197.00</td> <td>\$ 4,925.00</td> </tr> <tr> <td>Technical Specialist - Mech. Process</td> <td>68</td> <td>\$ 238.00</td> <td>\$ 16,184.00</td> </tr> <tr> <td>Project Engineer -- Civil/Mech. Process</td> <td>86</td> <td>\$ 165.00</td> <td>\$ 14,190.00</td> </tr> <tr> <td>Project Engineer - Structural</td> <td>54</td> <td>\$ 165.00</td> <td>\$ 8,910.00</td> </tr> <tr> <td>Staff Engineer - Mechanical Process</td> <td>48</td> <td>\$ 133.00</td> <td>\$ 6,384.00</td> </tr> <tr> <td>Engineering Technician</td> <td>31</td> <td>\$ 115.00</td> <td>\$ 3,565.00</td> </tr> <tr> <td></td> <td></td> <td>\$ -</td> <td>\$ -</td> </tr> <tr> <td>Total Engineering Cost</td> <td></td> <td></td> <td>\$ 55,358.00</td> </tr> </tbody> </table>		Hours	Rate	Cost	Senior Project Manager	5	\$ 240.00	\$ 1,200.00	Engineering Manager	25	\$ 197.00	\$ 4,925.00	Technical Specialist - Mech. Process	68	\$ 238.00	\$ 16,184.00	Project Engineer -- Civil/Mech. Process	86	\$ 165.00	\$ 14,190.00	Project Engineer - Structural	54	\$ 165.00	\$ 8,910.00	Staff Engineer - Mechanical Process	48	\$ 133.00	\$ 6,384.00	Engineering Technician	31	\$ 115.00	\$ 3,565.00			\$ -	\$ -	Total Engineering Cost		
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EFFECT ON SCHEDULE:	EFFECT ON PROJECT COST:	TAKE ACTION INDICATED:
NONE ()	NO CHANGE ()	CANCEL ()
ADD TO (X)	ADD TO (X)	INCL. IN PROJECT ()
DELETE FROM ()	DELETE FROM ()	OTHER ()
		DISCUSS w/ CLIENT ()

TYPE OF COST OPINION PREPARED (X) NONE () PRELIMINARY () DETAILED

IMPACT TO FOLLOWING TYPES OF WORK

AN "X" OR NOTE BESIDE ANY OF THE FOLLOWING DESIGN GROUPS INDICATES THAT WORK SCOPE WILL BE EFFECTED BY THIS CHANGE NOTICE.

CIVIL _____	ELECTRICAL _____
SITWORK _____	CONTROL SYS _____
ESTIMATING _____	STRUCTURAL X _____
SPECS. X _____	ARCHITECTURAL _____
MECH-HVAC _____	PROCESS _____
MECH-PROC X _____	SCHEDULING _____

ROUTING AND DISTRIBUTION:

TITLE /DISCIPL	NAME	ROUTING	TITLE /DISCIPL	NAME	ROUTING	TITLE /DISCIPL	NAME	ROUTING
PROJ. MGR	Isabel Botero	X	STRUCTURAL			PUMPS		
ENG. MGR	Pablo Gala	X	ELECTRICAL			PROCESS		
			INSTRUMENTATION			GEOTECHNICAL		
			MECHANICAL (Process)			ESTIMATING		

ATTACHMENTS: **REFERENCES:**

LEGEND FOR STATUS
 A - APPROVED ; D - DISAPPROVED ; P - PENDING ; W - WITHDRAWN