Key Largo Wastewater Treatment District
Board of Commissioners Meeting
Agenda Item Summary

Meeting Date: May 3, 2022

Agenda Item Number: M-1

Action Required:

Yes

Department:

Capital Projects

Sponsor:

Ed Castle

Subject:

Collection System Monitoring Project

Summary of Discussion:

The District wishes to install a system to monitor its vacuum, grinder pump, and force main collection systems. Flovac has been selected as the vendor for this system. WEC has been working with Flovac to define the scope of work and to determine unit pricing for the contract. WEC has also put together the Contract Documents, which include a summary of the scope of work, the Agreement, various forms and the general and supplementary conditions (which can be found at the links provided). The Base bid for the project is $6,845,677.36 and the total with add alternates is $7,575,677.36

Reviewed / Approved

Operations: _____

Administration: _____

Finance: _____

District Counsel: _____

District Clerk: _____

Engineering: _____

Financial Impact

$ 7,575,677.36

Expense

Funding Source:

Grant(s)

Budgeted:

Partially

Attachments

1. Memo from WEC
2. Schedule of Values
3. FloVac Proposal
4. Contract Documents

Approved By: _____ **Date:** _____

General Manager

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MEMORANDUM

To: KLWTD Board

From: Ed Castle, PE

Date: April 27, 2022

Re: Collection System Monitoring Project

WEC has been working with Flovac to finalize the proposal for the Collection System Monitoring Project. The project will include the following components.

- FMS Monitoring Gateways. These are base radio antennas located throughout the District to collect and transmit signals from the individual vacuum and pressure monitors.
- Standard vacuum pit monitoring packages that provide valve position monitoring, valve firing counts and a high-level float in the lower sump. These are the type that was deployed for the Flovac demonstration project in Key Largo.
- Buffer tank monitoring packages with valve position monitoring, valve firing counts and a high-level float in the sump.
- Vacuum pit monitoring packages that include the standard package plus a vacuum sensor. These units will be deployed at selected locations to provide information on the performance of the vacuum mains.
- Automatic air injection controllers. These will be installed in certain vacuum pits to allow either automatic or manual injections of air into the vacuum mains. This will allow staff to remotely purge the vacuum mains when problems occur. Currently, this must be done manually in the field.
- Vacuum station monitoring packages.
- Grinder pump monitoring packages.
- Force main pressure monitoring at selected locations.
- Standard duplex pump station monitoring packages.
- Additive Alternate item to move in-sump controllers into the air intake pedestals for easier maintenance and access.
- Additive Alternate item for annual O&M services by Flovac, one year with two one-year renewals at the District's discretion.

The general schedule of work includes the initial installation of the Gateway radio transmitters. These will form the communications backbone of the monitoring system. After installation of the Gateways, Flovac will begin installing the remaining monitoring system components. The schedule for installation of monitoring equipment is set up in a basin by basin format. Mike Dempsey will prioritize areas for order of installation.

Flovac is to provide training on the operation and maintenance of the system, with the training to consist of both classroom training and field training. The initial training is set up to coincide with the completion of the first basin. Additional training will take place every 6 months thereafter until completion of the project. Both the classroom training and the field training will be recorded for future reference by District staff.

The project duration is expected to be approximately two years from Notice to Proceed to Substantial Completion of the entire project. Phased Substantial Completion will be certified basin by basin or task by task. The warranty period will start for each phase or task on the date of the Certificate of Substantial Completion of that phase or task.

The O&M proposal is for a period of one year. Two annual renewals are allowed by the proposal at the District's discretion. The scope for the O&M proposal is to operate and maintain the monitoring system and assist the District staff in optimizing performance and trouble-shooting of issues revealed by the monitoring system. District staff will perform any needed repairs that are not covered under warranty.

The Schedule of Values is attached to this memo. It lists each general item of work, set up in either basin by basin format or as general pay items. The unit costs and the quantities are shown on the Schedule of Values with the subtotals calculated by the spreadsheet. The Schedule of Values will be used as the basis for Flovac's pay applications. Mike Dempsey will prioritize basins and tasks for installation of the monitoring system.

PROJECT: KLWTD Vacuum Monitoring System

OWNER: KLWTD

PAGE 2 of 3
PAYMENT ESTIMATE NO. 1
FOR PERIOD BEGINNING -
AND ENDING -

ITEM NO.	DESCRIPTION OF ITEM	CONTRACT				PREVIOUS ESTIMATES		THIS ESTIMATE		TOTAL TO DATE	
		QUAN.	UNIT	UNIT COST	TOTAL AMT.	QUAN.	AMOUNT	QUAN.	AMOUNT	QUAN.	AMOUNT
General Conditions											
1.01	Mobilization (not to Exceed 5%)	1	LS	$150,000.00	$150,000.00	0%	$0.00	0%		0%	$0.00
1.01	Bonds and Insurance (Estimated at 3%)	1	LS	$195,000.00	$195,000.00	0%	$0.00	0%		0%	$0.00
Gateway System											
2.01	Installtion of Gateway System	10	EA	$21,500.00	$215,000.00	0%	$0.00	0%	$0.00	0%	$0.00
Basin A											
3.01	Supply & Installtion of monitoring system in Standard Pit	297	EA	$1,728.13	$513,254.61	0%	$0.00	0%	$0.00	0%	$0.00
3.02	Vacuum Station Monitoring	1	EA	$10,000.00	$10,000.00	0%	$0.00	0%	$0.00	0%	$0.00
Basin B											
4.01	Supply & Installtion of monitoring system in Standard Pit	380	EA	$1,728.13	$656,689.40	0%	$0.00	0%	$0.00	0%	$0.00
4.02	Supply & Installtion of monitoring system in Buffer Tank	5	EA	$1,220.60	$6,103.00	0%	$0.00	0%	$0.00	0%	$0.00
Basin C											
5.01	Supply & Installtion of monitoring system in Standard Pit	411	EA	$1,728.13	$710,261.43	0%	$0.00	0%	$0.00	0%	$0.00
5.02	Supply & Installtion of monitoring system in Buffer Tank	5	EA	$1,220.60	$6,103.00	0%	$0.00	0%	$0.00	0%	$0.00
Basin D											
6.01	Supply & Installtion of monitoring system in Standard Pit	232	EA	$1,728.13	$400,926.16	0%	$0.00	0%	$0.00	0%	$0.00
6.02	Supply & Installtion of monitoring system in Buffer Tank	8	EA	$1,220.60	$9,764.80	0%	$0.00	0%	$0.00	0%	$0.00
6.03	Vacuum Station Monitoring	1	EA	$10,000.00	$10,000.00	0%	$0.00	0%	$0.00	0%	$0.00
Basin E											
7.01	Supply & Installtion of monitoring system in Standard Pit	287	EA	$1,728.13	$495,973.31	0%	$0.00	0%	$0.00	0%	$0.00
7.02	Vacuum Station Monitoring	1	EA	$10,000.00	$10,000.00	0%	$0.00	0%	$0.00	0%	$0.00
7.03	Install District Supplied Air Intake Pedestal In phase 0 locations	225	EA	$225.00	$50,625.00	0%	$0.00	0%	$0.00	0%	$0.00
Basin F											
8.01	Supply & Installtion of monitoring system in Standard Pit	340	EA	$1,728.13	$587,564.20	0%	$0.00	0%	$0.00	0%	$0.00
8.02	Supply & Installtion of monitoring system in Buffer Tank	10	EA	$1,220.60	$12,206.00	0%	$0.00	0%	$0.00	0%	$0.00
8.03	Vacuum Station Monitoring	1	EA	$10,000.00	$10,000.00	0%	$0.00	0%	$0.00	0%	$0.00
Basin G											
9.01	Supply & Installtion of monitoring system in Standard Pit	222	EA	$1,728.13	$383,644.86	0%	$0.00	0%	$0.00	0%	$0.00
9.02	Supply & Installtion of monitoring system in Buffer Tank	13	EA	$1,220.60	$15,867.80	0%	$0.00	0%	$0.00	0%	$0.00
9.03	Vacuum Station Monitoring	1	EA	$10,000.00	$10,000.00	0%	$0.00	0%	$0.00	0%	$0.00
Basin H											
10.01	Supply & Installtion of monitoring system in Standard Pit	47	EA	$1,728.13	$81,222.11	0%	$0.00	0%	$0.00	0%	$0.00
10.02	Supply & Installtion of monitoring system in Buffer Tank	9	EA	$1,220.60	$10,985.40	0%	$0.00	0%	$0.00	0%	$0.00
Basin I											
11.01	Supply & Installtion of monitoring system in Standard Pit	240	EA	$1,728.13	$414,751.20	0%	$0.00	0%	$0.00	0%	$0.00
11.02	Supply & Installtion of monitoring system in Buffer Tank	3	EA	$1,220.60	$3,661.80	0%	$0.00	0%	$0.00	0%	$0.00
11.03	Vacuum Station Monitoring	1	EA	$10,000.00	$10,000.00	0%	$0.00	0%	$0.00	0%	$0.00
Basin JK											
12.01	Supply & Installtion of monitoring system in Standard Pit	444	EA	$1,728.13	$767,289.72	0%	$0.00	0%	$0.00	0%	$0.00
12.02	Supply & Installtion of monitoring system in Buffer Tank	16	EA	$1,220.60	$19,529.60	0%	$0.00	0%	$0.00	0%	$0.00
12.03	Vacuum Station Monitoring	1	EA	$10,000.00	$10,000.00	0%	$0.00	0%	$0.00	0%	$0.00
Additional Sensors Throughout System (Placment Pending Design Layout)											
13.01	Pit Vacuum Sensor (additional sensor for pit)	311	EA	$462.94	$143,974.34	0%	$0.00	0%	$0.00	0%	$0.00
13.02	Air Injection Controller	40	EA	$950.00	$38,000.00	0%	$0.00	0%	$0.00	0%	$0.00
Grinder Pump. Pump Station & Forciemain Monitoring											
14.01	Grinder Pump/ Pumpstation Monitoring	146	EA	$1,718.32	$250,874.72	0%	$0.00	0%	$0.00	0%	$0.00
14.02	Forcemain Pressure Sensor	30	EA	$1,718.32	$51,549.60	0%	$0.00	0%	$0.00	0%	$0.00
Site Restoration											
15.01	Asphalt Restoration around pit where required	44165	SF	$7.06	$311,804.90	0%	$0.00	0%	$0.00	0%	$0.00
15.02	Sod Restoration around pit as required	6240	SF	$3.78	$23,587.20	0%	$0.00	0%	$0.00	0%	$0.00
15.03	Gravel Restoration around pit as required	52080	SF	$4.79	$249,463.20	0%	$0.00	0%	$0.00	0%	$0.00
Additive Alternate-Optional Items											
16.01	Relocate controllers into air pedestals, provide all necessary connections	2900	EA	$200.00	$580,000.00	0%	$0.00	0%	$0.00	0%	$0.00
16.02	Annual Service Agreement for System Maintence & Support	2	YR	$75,000.00	$150,000.00	0%	$0.00	0%	$0.00	0%	$0.00
Totals											
1.00	General Conditions Sub-total	1	LS	$345,000.00	$345,000.00	0%	$0.00	0%	$0.00	0%	$0.00
2.00	Gateway System Sub-Total	1	LS	$215,000.00	$215,000.00	0%	$0.00	0%	$0.00	0%	$0.00
3.00	Basin A Sub-Total	1	LS	$523,254.61	$523,254.61	0%	$0.00	0%	$0.00	0%	$0.00
4.00	Basin B Sub-Total	1	LS	$662,792.40	$662,792.40	0%	$0.00	0%	$0.00	0%	$0.00
5.00	Basin C Sub-Total	1	LS	$716,364.43	$716,364.43	0%	$0.00	0%	$0.00	0%	$0.00
6.00	Basin D Sub-Total	1	LS	$420,690.96	$420,690.96	0%	$0.00	0%	$0.00	0%	$0.00
7.00	Basin E Sub-Total	1	LS	$556,598.31	$556,598.31	0%	$0.00	0%	$0.00	0%	$0.00
8.00	Basin F Sub-Total	1	LS	$609,770.20	$609,770.20	0%	$0.00	0%	$0.00	0%	$0.00
9.00	Basin G Sub-Total	1	LS	$409,512.66	$409,512.66	0%	$0.00	0%	$0.00	0%	$0.00
10.00	Basin H Sub-Total	1	LS	$92,207.51	$92,207.51	0%	$0.00	0%	$0.00	0%	$0.00
11.00	Basin I Sub-Total	1	LS	$428,413.00	$428,413.00	0%	$0.00	0%	$0.00	0%	$0.00
12.00	Basin JK Sub-Total	1	LS	$796,819.32	$796,819.32	0%	$0.00	0%	$0.00	0%	$0.00
13.00	Additional Sensors Sub-Total	1	LS	$181,974.34	$181,974.34	0%	$0.00	0%	$0.00	0%	$0.00
14.00	Grinder Pump, Pump Station & FM Monitoring Sub-Total	1	LS	$302,424.32	$302,424.32	0%	$0.00	0%	$0.00	0%	$0.00
15.00	Site Restoration Sub-Total	1	LS	$584,855.30	$584,855.30	0%	$0.00	0%	$0.00	0%	$0.00
				Base Bid Total	**$6,845,677.36**						
16.00	Addivtive Alternates Sub-Total	1	LS	$730,000.00	$730,000.00	0%	$0.00	0%	$0.00	0%	$0.00
		Project Total Including Add Alternates			**$7,575,677.36**						

Wireless Monitoring System

Monitoring Proposal

Key Largo

Florida

Clients: Key Largo Wastewater Treatment District

Date: April 2022

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1) Executive Summary

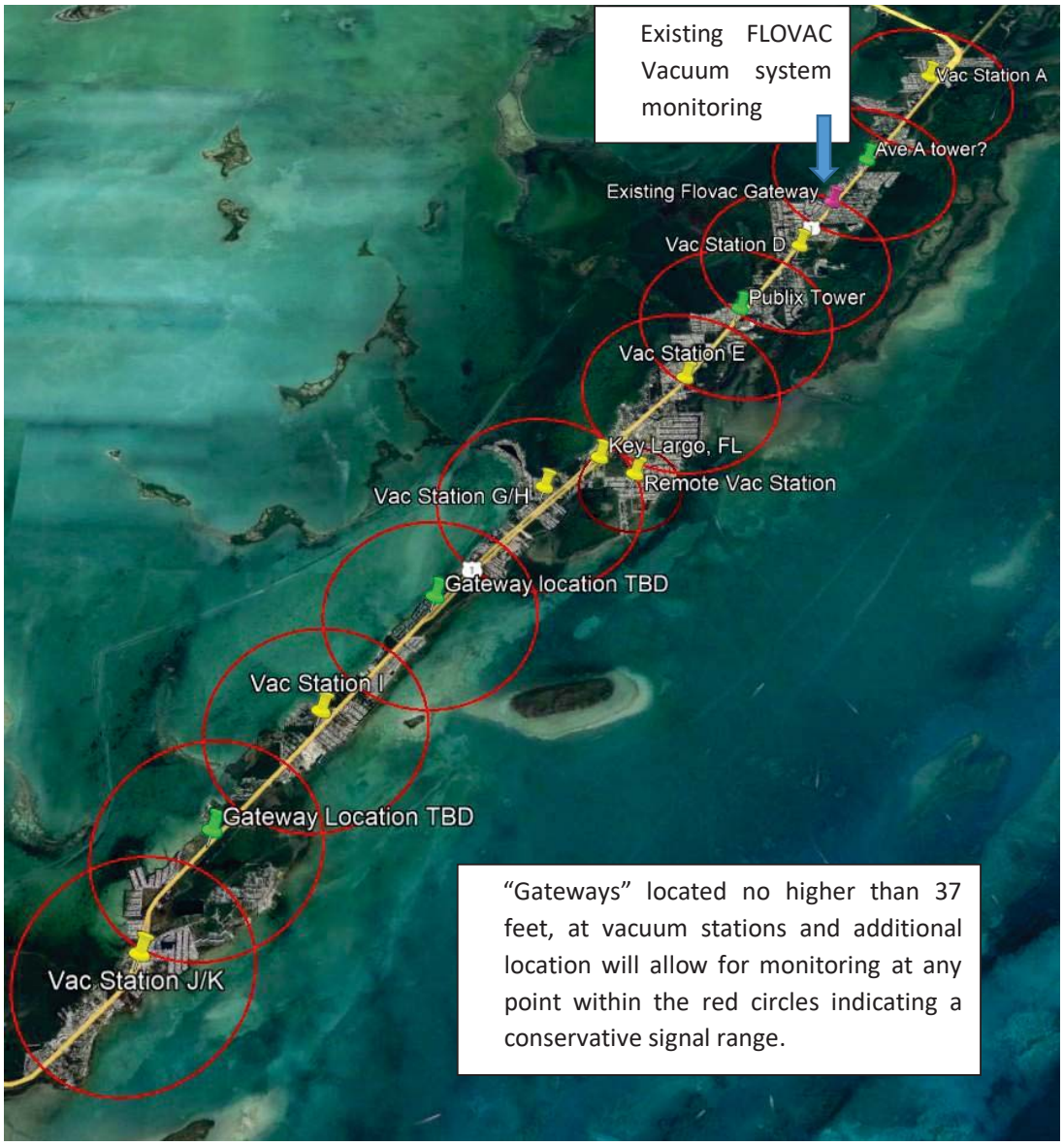
The Key Largo Wastewater Treatment District serves more than 14,000 people in Key Largo and Tavernier. KLWTD service areas are established by its permits from state regulatory authorities. The district's service area includes the territory consisting of the island of Key Largo, including all lands east of Tavernier Creek, including Tavernier, Key Largo, and Cross Key, with the exception of Ocean Reef, all in Monroe County, Florida.

FLOVAC has been operating a successful monitoring system operating with KLWTD since April 2019 showcasing the benefits of a wireless monitoring system for its vacuum sewer network. Such system allows for a 24/7 status report of the vacuum valves and collection pits, including: (i) detection of abnormal conditions in the vacuum valves; (ii) record of valves open/close cycles; (iii) alarm for valves stuck open; (iv) alarm for wastewater high-level in the tanks; and (v) reading of vacuum level at valves, allowing operators to respond quickly to any callouts and have a proactive approach to system maintenance. The system also offers an automatic air inlet system, which automatically reads the pressure differential between the end of vacuum mains and the vacuum tank and injects air at key locations of the vacuum network to clear the lines.

FLOVAC's Smart Monitoring System uses a LoRa WAN communication protocol, which allows for much greater range of its wireless signal, virtually eliminating the need for repeaters. FLOVAC also uses a cloud-based software, which allows for visualization and control of the system anywhere with an internet connection on desktops, laptops, tablets, and smartphones.

In a recent presentation of its Smart Monitoring System, FLOVAC and the KLWTD team have discussed the adaptation of the existing FLOVAC monitoring system to begin monitoring the entire KLWTD service area. This, to allow for the monitoring and collection of vacuum and pressure data at any point within the Key Largo Service Area. To that effect, FLOVAC has visited the area intended for the installation of its Smart Monitoring System and based on information provided by KLWTD and obtained onsite has prepared the following proposal.

2) Proposed Monitoring Gateway Layout



Overview of the FLOVAC vacuum monitoring pilot area completed in April 2019

Success story: The valve sensor at "End of line Island Drive" identified a broken lateral within 48hours of pilot install. Excess valve activations were identified and corelated with high tide data. This was contributing to salinity issues within the system.

Wireless Monitoring System Overview

FLOVAC's Wireless Monitoring System provides a 24/7 status report of the vacuum sewer system, detecting abnormal conditions in the vacuum valves, sewer collection network and vacuum stations, allowing the operators to respond quickly to any call-outs and have a proactive approach to system maintenance.

One of the most important features of FLOVAC's System is its two-way or bi-directional radio network, allowing for seamless communication interaction between all devices in the system.

FLOVAC's System is capable of monitoring the following items:

- Valve stuck open
- Valve open/close cycles (allowing detection of unwanted storm or ground water infiltration)
- Last opening time log for potential valve not opening signal
- Vacuum pressure in vacuum lines
- Automatic air injection with remote valve control (open/closed)
- Alarms
- Alerts via SMS / e-mail (optional)
- Battery or solar operated
- Integration with existing SCADA systems
- Pressure in force mains lines and differential between points

FLOVAC's System also features the following benefits:

- No need for external power supply (batteries included)
- Battery life up to 5 years
- Wireless operating range up to 4 miles (6 km)
- LoRaWan protocol allows for many different modules to operate within the same system
- Universal module for many different sensors
- Dedicated network with unlimited number of devices in a single network

FLOVAC's Wireless Monitoring System is compatible with most vacuum sewer systems provided by other major suppliers, allowing it to be integrated into existing and new systems. Since the system is battery powered and communication between all devices is made through a wireless protocol, there is no need for expensive infrastructure. The system is developed in different layers, making it easily customizable according to the client's preferences.

3) Network Layout

4.1) Network LoRaWan

LoRaWan is a new, private and spread-spectrum modulation technique which allows data transmission at extremely low data-rates to very long ranges. LoRaWan is a Low Power Wide Area Network (LPWAN) specification intended for wireless battery-operated Things in a regional, national or global network. LoRaWan targets key requirements of Internet of Things such as secure bi-directional communication, mobility and localization services. The LoRaWan specification provides seamless interoperability among smart Things without the need of complex local installations and gives back the freedom to the user, developer, businesses enabling the roll out of Internet of Things.

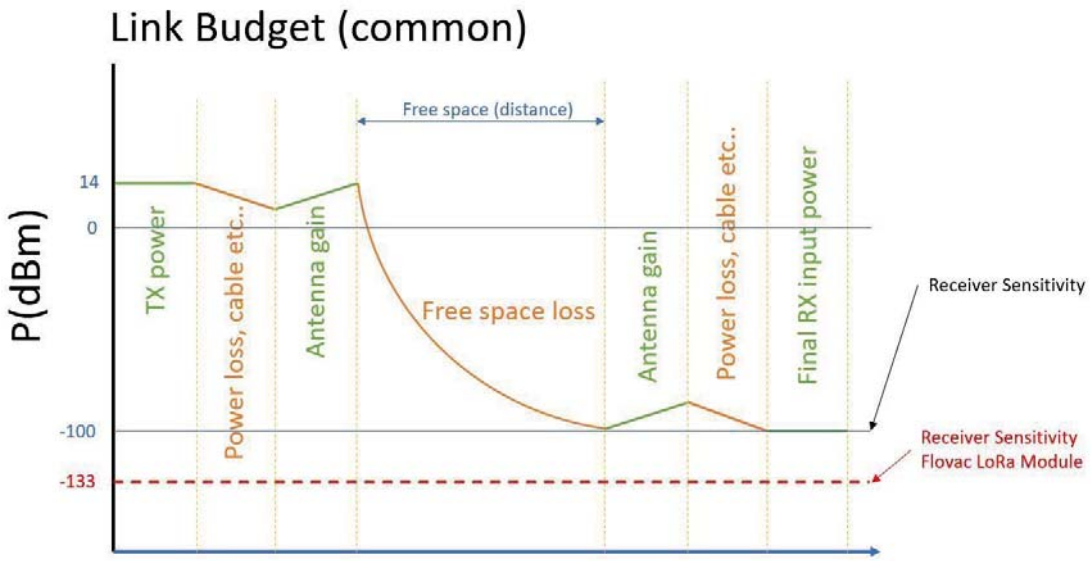


Figure 1 Sensitivity of the Flovac LoRaWan Module

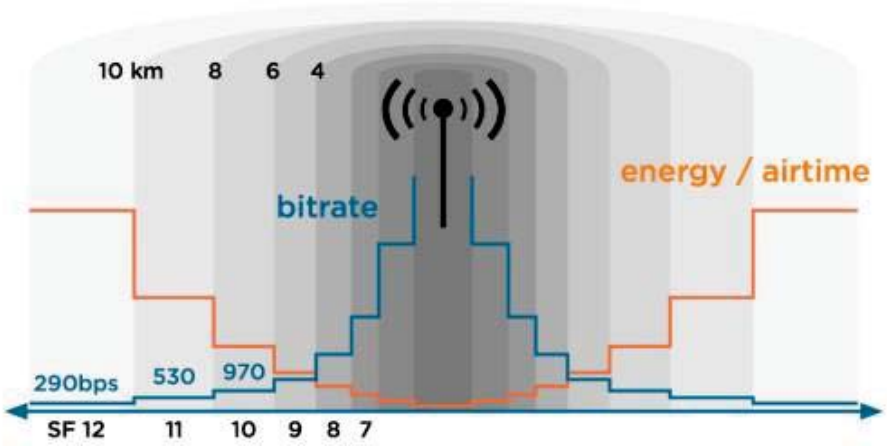


Figure 2 Distance vs Energy vs Bitrate

FLOVAC's LoRaWan supports different frequencies for each country where the system is to be installed. Modules automatically connect to the closest gateway, which can cover an area of up to 4 miles (6 km). In larger areas, multiple gateways could be installed to increase the coverage area. The gateway is connected to the WAN by default, through a GPRS/GSM connection or a local ethernet connection. The gateway only communicates through a secure server, which collects and sorts all data collected from the modules into databases.

4.2) WAN / LAN Network Connections

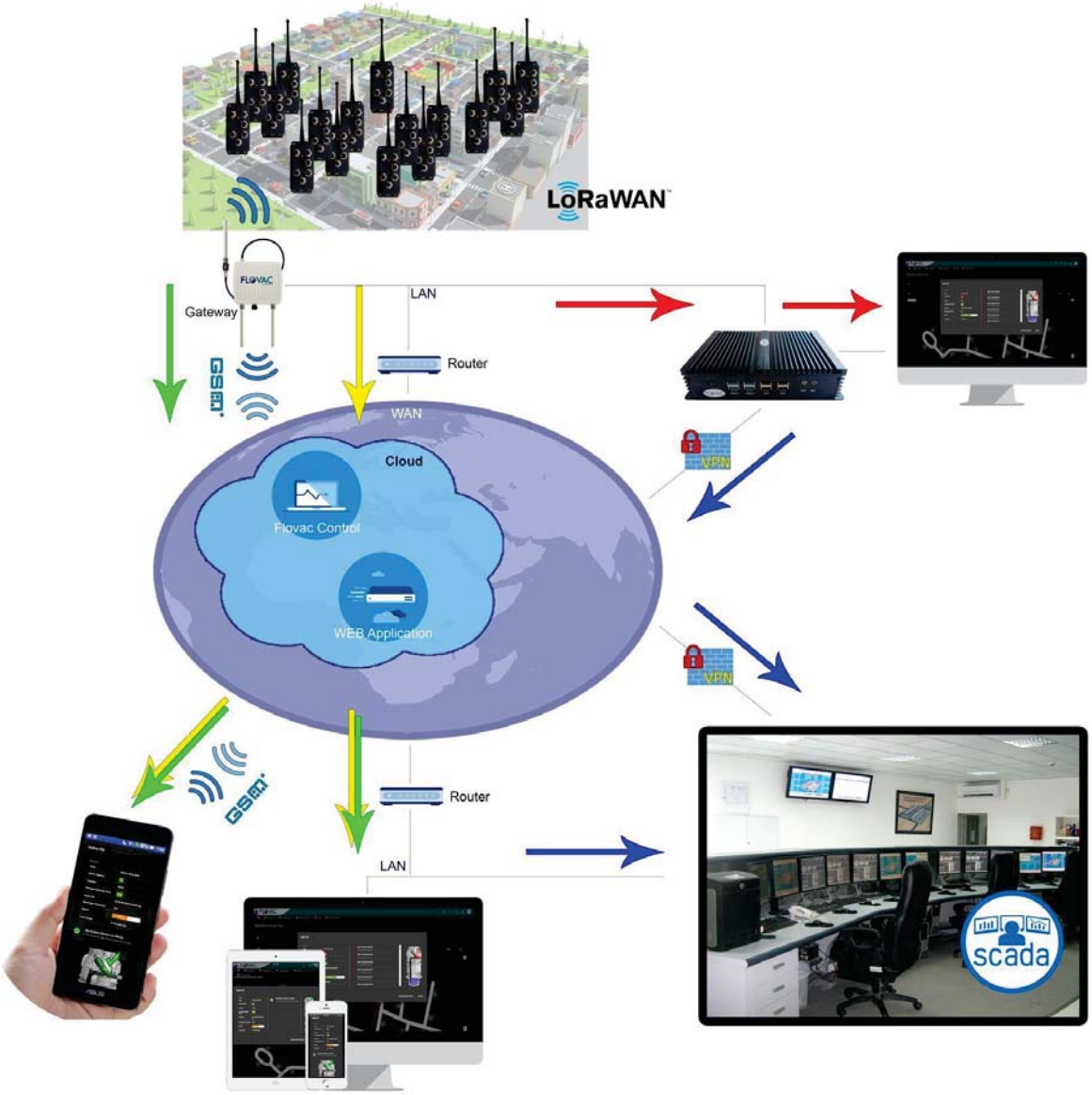


Figure 3 Network Examples

Green Routing: Most flexible. Gateway only needs power and can be placed anywhere in the area, with the best LoRaWan network performance.

Yellow Routing: Less flexibility. Gateway needs power and wired ethernet connection to internet for cloud hosting. Placement of the gateway at the best spot could be impacted by power and wired internet connection requirements, sometimes requiring the installation of a second gateway to cover the entire monitoring area.

Red Routing: Less flexibility. Gateway requirements are the same as the Yellow Routing. Cloud hosting will not be used, requiring an IPC computer and screen to be installed at the same location as the gateway to host the monitoring software and data on a local network.

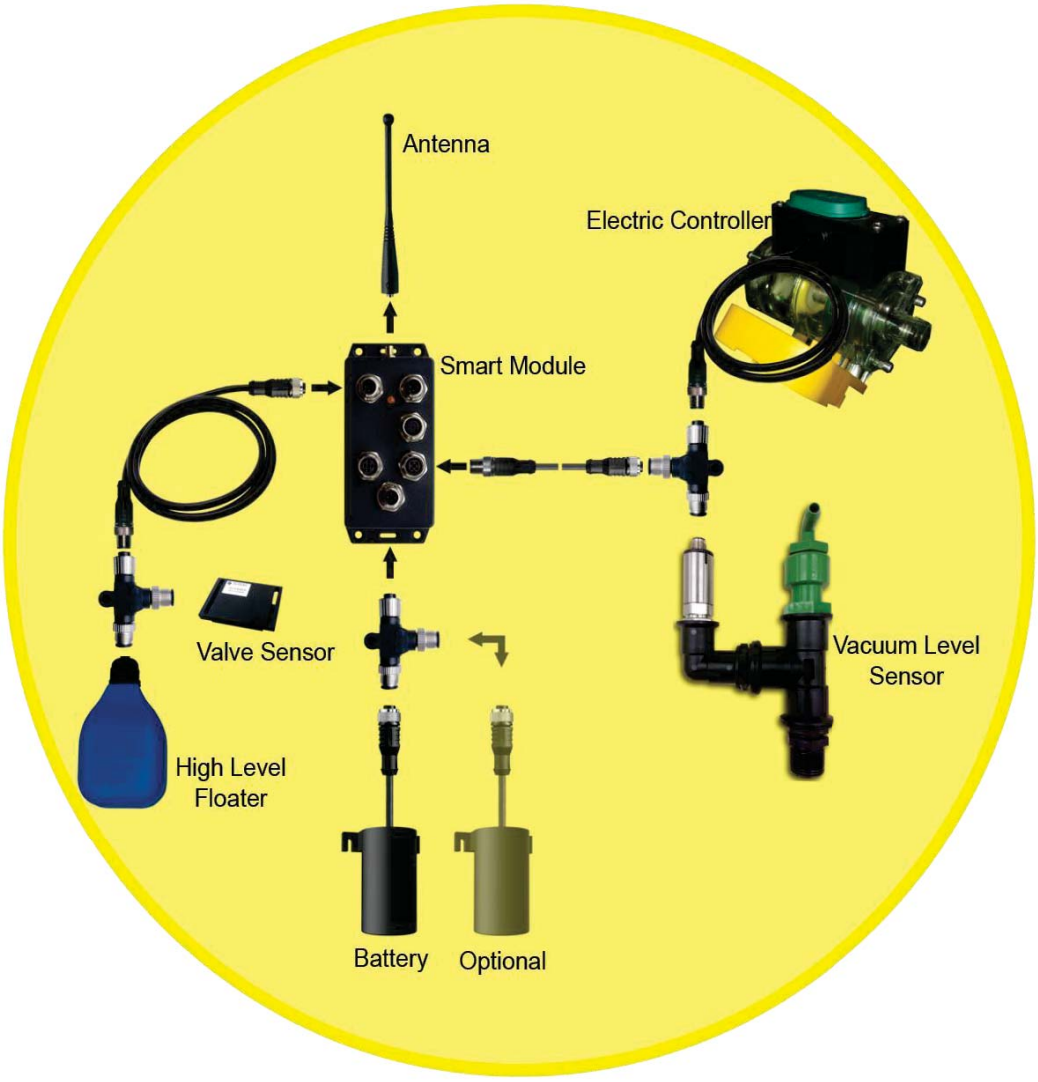
Blue Routing: Optional. Custom made depending on the local network condition.

4.3) Gateway

The FLOVAC gateway communicates wirelessly with the monitoring modules in the field. All information received from the modules is transferred to the FLOVAC control server through GPRS/GSM or by wired LAN (figure 3). The best spot to install a gateway is in the center of the coverage area. The gateway needs power 100-240VAC-1A and ethernet connection when the GSM function is not utilized. Large coverage areas may require multiple gateways.

4.4) Smart Modules

FLOVAC has developed a smart LoRaWan module specifically for vacuum sewage monitoring. Our module is powered by 3.6 volt batteries and can be custom programmed to handle many different I/O's. The module is IP68 weatherproof rated and can be installed outside or inside the valve pit (installation inside the valve pit may require a shorter distance between the module and the gateway).



Flovac Valve Module Configuration Table

Configuration Parameter	Default value	Description
Heartbeat Time	3600 seconds	Time the module will send a message with current openings, average opening time.
Vacuum Time	900 seconds	Time the module will measure the vacuum.
Vacuum Setpoint	30	If vacuum is below setpoint, module will enable low vacuum alarm.
Vacuum Delay	180 seconds	Delay before module will enable low vacuum alarm.
Floater Delay	10 seconds	Delay before module will enable high level alarm
Valve Alarm Delay	60 seconds	Delay before module will enable valve error alarm.
Maximum Open Time	15 seconds	If the valve opens longer then this value, the module will send an alert.
Minimum Open Time	3 seconds	If the valve opens less then this value, the module will send an alert.
Transfer Retries	5 times	Times the module will retry a transfer when no acknowledge was received from gateway.
Join Retries	5 times	Times the module will retry to join a gateway.

Valve Module Message Table

Message Name	Format
Heartbeat	0,(Current Counter),(Average Open Time)
Vacuum Level	1,(Vacuum Level)
Alarm	2,(Alarm Type), (Enabled/Disabled)
Alert	3,(Alert Type),(Value 1)

Valve Module Alarm Types

Alarm Name	Alarm Description
Low Vacuum Alarm	When vacuum is below setpoint for x time.
High Level Alarm	When floater is high for x time.
Valve not closing Alarm	Valve is not closing for x time.

Valve Module Alert Types

Alert Name	Alert Description
Openings time to long	Opening time exceeded the configurated maximum open time.
Openings time to short	Opening time exceeded the configurated minimum open time.
Failed Transfers	Times the module failed to transfer a message when first message was successful.

FLOVAC Smart Module

4) Components/Sensors

5.1) Battery

Every module is powered by battery by default. Where possible modules will also incorporate a solar panel to increase battery life. The battery life depends on the transmit rate, and in a default configuration the battery can power the module for up to 5 years. When additional sensors are installed such as vacuum sensors or electrical controllers requiring greater power consumption, the use of additional battery packages is recommended.

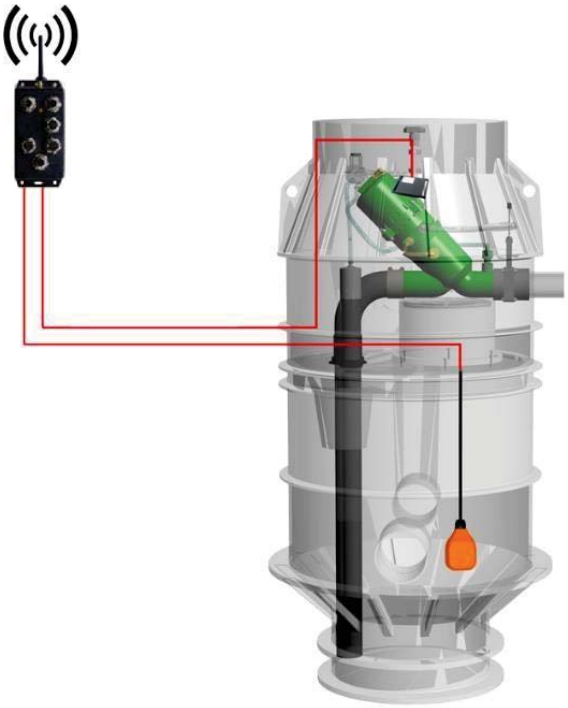
Battery is completely sealed and IP68 weatherproof rated.

5.2) Valve Sensor

The valve sensor is mounted on the vacuum valve inside the collection pit. Every change of state of the valve (open/close) will awake the module to start monitoring the status of the valve.

5.3) High Level Sensor

The high-level sensor floating switch generates an early warning alarm every time that the sewer level in the collection pit exceeds a preset condition, so the operators can take the appropriate action.

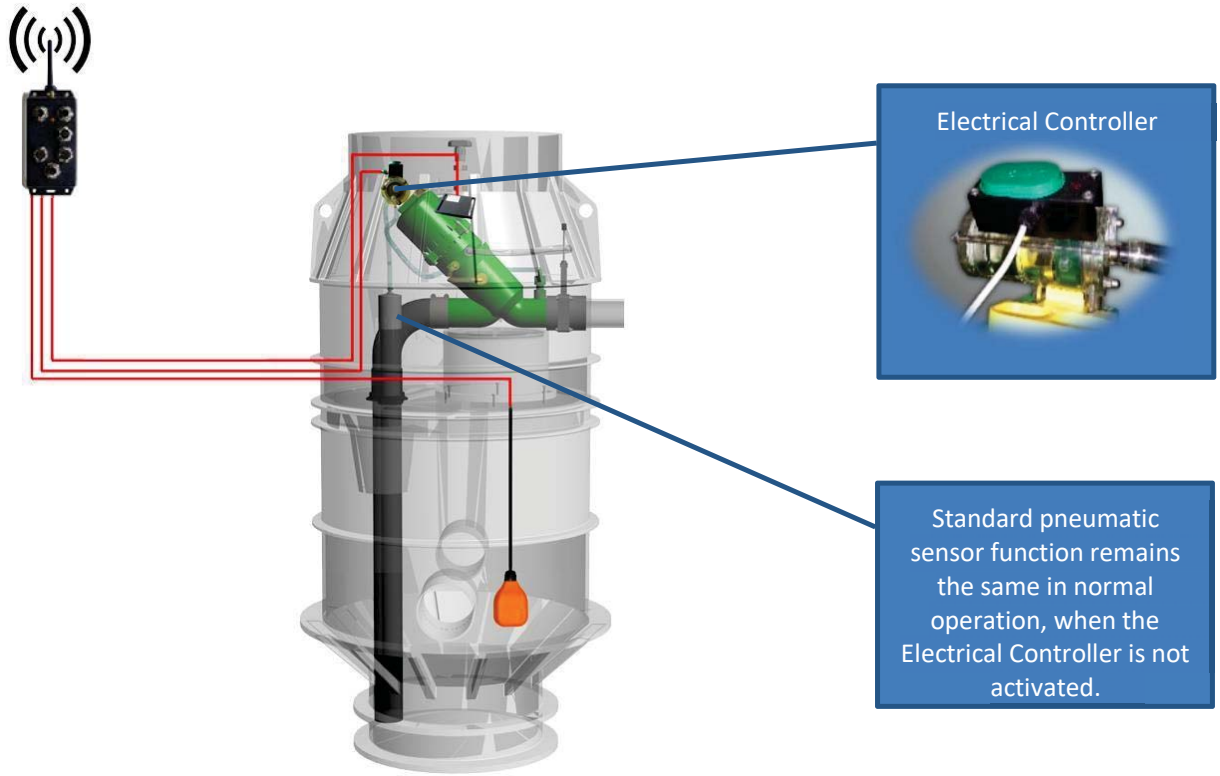


5.4) Pressure Sensor

The pressure sensor measures the pressure at the collection pit or force main at predetermined intervals (intervals could be configured according to client's requirements). In addition to showing the pressure level on the visualization screen, the system could also be configured to generate an alarm when the pressure level deviates from a user defined set point.
The pressure level sensor is required for the Vacuum Automatic Air Injection System (AAIS).

5.5) Electrical Controller

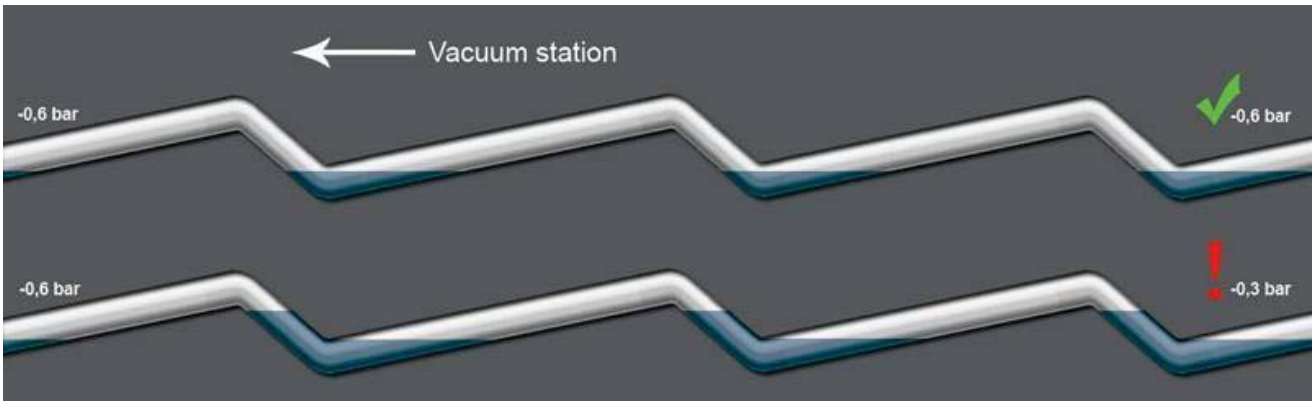
The electrical controller allows the vacuum valve to be opened by a remote command. The valve open command can be send manually or automatically by the FLOVAC control system. The electrical controller is required for the Automatic Air Injection System (AAIS), which generates an automatic valve open command through the AAIS algorithm.



5) Automatic Air Injection System (AAIS)

In some areas of the vacuum sewer network, vacuum levels can drop below their optimal operation condition, adversely affecting the proper function of the valves.

Low vacuum levels can be caused by a variety of factors, including wrong valve time settings, excessive external infiltration into the system, extensive line stretches without any connections, design and construction flaws, etc.



Vacuum valves need a minimum of -5 inHg to open, however this minimum pressure might not be enough to allow sufficient air to enter the system to avoid water logging.

To solve this problem FLOVAC has developed an Automatic Air Injection System (AAIS). The AAIS can prevent vacuum levels dropping below the minimum -5 inHg, as it will let in air automatically when vacuum level drops below -8 inHg or any other pressure level setup by operations.

In a conventional standalone system, the vacuum level is checked only at a specific point in the sewer collection network and does not consider the vacuum level at the vacuum station. The disadvantage of ignoring the vacuum level at the vacuum station is the possibility to inject air into the system even when there is not enough vacuum level at the vacuum station, which will further deplete the vacuum level in the system.

FLOVAC's AAIS was developed to, in addition to the vacuum level at a specific point in the sewer collection network, consider the vacuum level at the vacuum station, taking advantage of its two-way or bi-directional communication capability to evaluate all available parameters and fine tune the amount of air required for optimal operation of the system. Furthermore, the AAIS is installed by simply replacing the valve controller with FLOVAC's electrical controller, thus not requiring any additional valves and/or valve pits.

6) Wireless Monitoring System Proposal

7.1) Proposed System Description and Features

This proposal includes the supply and installation of the following Equipment in areas:

See schedule of values

7.2) Price

FLOVAC's price for the implementation of the Wireless Monitoring System is: See schedule of values which includes the supply and installation of all wireless monitoring equipment described in appendix 1, testing, training, and commissioning of the monitoring system.

The gateways installed during work outlined in this proposal are intended to provide signals for all future connections of monitoring modules within the "gateways Radius" illustrated above. Thus, making future monitoring "plug and play".

FLOVAC's monthly fee for the Cloud Hosting is $ 500.00 (Five hundred dollars), which includes the features described above.

7.3) Payment Terms

Per KLWTD Standard Contract Documents

7.4) Special Conditions

KLWTD preparatory scope of work:

This is a turnkey project, as such Flovac Inc, will coordinate all work to be completed to install and commission the monitoring system.

However, the Valve pits (vacuum valves, controllers, and in-sump breathers) need to be in good working and serviceable condition.

Additionally, all vacuum buffer tanks or pits have existing dedicated air terminals to run communication cables.

Any issues with the existing components mentioned during the project will be recorded and information will be passed along to KLWTD.

FLOVAC installation scope of work:

- Provide detailed information for KLWTD's use of the monitoring system.
- Supply valve sensors, high level sensors (floating switches), modules and antennas for standard PE pit monitoring.
- Install the monitoring devices (including supplying and installing the required cables).
- Install the gateway on the pole (including supplying and installing the ethernet power cable).
- Start-up and test the system.
- Provide ongoing training to KLWTD's operators.

8) Summary

We at FLOVAC are very pleased to have the opportunity to assist the KLWTD in the pursuit of continuously improving the operation and reliability of its sewerage collection system. We are confident that the proposed Smart Monitoring System will allow KLWTD's managers, supervisors and operators to have real time information from each Collection Pit/ and Vacuum Valves being monitored, allowing for immediate identification of any faults, abnormalities and alarms, indicating the precise location where preventive and/or corrective measures must be taken.

C.C. John Ranonoff

Michael Pringle

Director of Operations

www.flovac.com

CONTRACT DOCUMENTS

FOR

KLWTD COLLECTION SYSTEM MONITORING PROJECT

OWNER:

KEY LARGO WASTEWATER TREATMENT DISTRICT

103355 OVERSEAS HWY
KEY LARGO, FL 33037

WEC Job No: 03105.034

Prepared by

WEILER ENGINEERING CORPORATION
WEC xcellence in engineering

6805 OVERSEAS HIGHWAY
MARATHON, FLORIDA

April 2022

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Summary of Work

The general scope of the Work for the KLWTD Collection System Monitoring Project consists of the following. All Work must comply with the requirements of these Contract Documents and with the requirements of all agencies regulating any aspects of the Work.

The Key Largo Wastewater Treatment District (hereafter referred to as Owner) is hiring Flovac Americas to provide, install and start up a radio-telemetry monitoring system to monitor specific performance parameters in its vacuum collection systems, its grinder pump collection systems, its gravity collection systems, and its force main systems.

Gateways

The backbone of the monitoring system will be the radio communications antennas, called Gateways, that will be installed to provide radio coverage throughout the KLWTD service area. 10 Gateways are needed for full coverage. 7 of these will be installed at the KLWTD vacuum stations. The remaining 3 will be installed either on other property owned by KWLTD or in Monroe County rights of way. Gateways located where the Owner does not have existing electrical services will be provided with a solar panel and battery to provide continuous powe4r. Testing of signal strengths will dictate exactly where the gateways will be installed.

Vacuum Collection System

The Owner's vacuum collection system consists of approximately 2,900 vacuum pits, 60 buffer tanks and 7 vacuum pump stations. Each of the 2,900 vacuum pits and the 60 buffer tanks will be fitted with a Valve Position Sensor and will have a High-Level Float installed in the sump. This package is known as the "standard" pit package. 311 of the vacuum pits, located throughout the vacuum collection system, will also have Vacuum Sensors installed in the vacuum pits or buffer tanks. Approximately 40 vacuum pits will also have an Air Injection Controllers installed. The Radio Transmitters for each installation shall be housed in the existing Air Intake Pedestals. For Key Largo Trailer Village, Key Largo Park and Sunset Waterways, Air Intake Pedestals will be installed for each vacuum pit and buffer tank.

Electrical conduit will be run from the existing vacuum pits and buffer tanks to the existing or newly-installed Air Intake Pedestals. The conduit will be sized to accommodate all needed wiring plus tubing needed to relocate the Vacuum Pit Controllers into the Air Intake Pedestals. At the Owner's direction, Flovac may be required to relocate the controllers from inside the vacuum pits and buffer tanks to the Air Intake Pedestals under the Additive Alternate item in the Schedule of Values.

Each of the Owner's 7 vacuum pump stations will have a Gateway installed and connected to utility power. At Vacuum Stations A, D, E, G, I and J/K, the Gateways will also be connected to the standby generator power. Vacuum Station F does not have a generator. The Gateway for Vacuum Station F will be connected to utility power and will be provided with a standby battery and charger system that will be capable of powering the Gateway for at least 72 hours.

Grinder Pump Collection System

The Owner's collection system includes two areas where grinder pumps were installed for each house rather than installation of vacuum pits. These areas include the C-905 area and Coral Drive in the Coral Coast subdivision. The Owner also installed grinder pumps at the buildings on the properties included in the Unique Properties Program. The Owner owns and operates a total of approximately 142 grinder pumps. Each grinder pump station currently has a High-Level float and controls monitored by the Grinder Pump Guardian system. Flovac will replace the existing control panels for all of the existing grinder pump stations and will install the radio transmitters in the new control panels. This monitoring system will be connected to the existing utility power disconnects and will have a battery backup for a minimum of 72 hours. The grinder pump monitoring systems will have signals for High Level, Power Outage and Pump Fail and will be integrated into the Flovac monitoring system.

Gravity Collection System

There are 4 KLWTD-owned conventional submersible pump stations that serve areas with gravity collection systems. These include The Harborage, Winken Blinken & Nod, Tweety Pie and Keys Holdings LLC. These submersible pump stations are all duplex pump stations with standard float controls. Flovac will install monitoring for High Level, Power Outage and Pump Failure into the existing control panels and will add battery backup capable of running the monitoring system for 72 hours during power outages. The signals from these pump stations will be integrated into the Flovac monitoring system.

Force Main System

The Owner owns and operates a system of force mains including grinder pump force mains and the North and South Transmission Mains. The grinder pump force mains are located in the C-905 area and the Coral Coast area. Select grinder pump control panels will include a pressure sensor that will reflect the operating pressure whenever the grinder pump is operating. These grinder pumps with pressure sensors will be used to monitor the pressure in the grinder pump systems trunk mains to detect clogging.

The North and South Transmission Mains will have pressure sensors with transmitters generally installed at approximately 2,000 feet intervals. Two additional sensors and transmitters will be installed on the North Transmission Main upstream and downstream of the 6" X 4" reducer where the C-905 grinder pump force main connects to the North Transmission Main.

All pressure sensors for the grinder pump force mains and for the Transmission Mains will be integrated into the Flovac monitoring system.

Flovac has included pricing for relocation of the in-sump controllers in all vacuum pits and buffer tanks to the Air Intake Pedestals as an Additive Alternate proposal. The Key Largo Wastewater Treatment District Board of Commissioners may authorize this Additive Alternate scope of work and expenditure at their sole discretion.

Flovac has included start-up of the monitoring system and integration of the radio-telemetry signals from all monitoring devices into the Flovac Collection System Monitoring Project system. Start-up may occur in stages as the scope of work is completed in the defined areas of the Collection System. Flovac will prepare and provide detailed training for the KLWTD staff. The training will be performed in two parts. One part will be field trainings using the installed monitoring system components. The second part will be classroom trainings with handouts and support materials. The classroom trainings will include review of the Operation and Maintenance Manual. Each training session will be video and audio recorded. A minimum of one set of training sessions will be performed at the first startup of a portion of the monitoring system and subsequently each 6 months until Final Acceptance of the Work by the Owner. Flovac will provide technical assistance to the KLWTD operators throughout the Project until Final Acceptance. The training and technical assistance will be performed at no additional cost to the Owner.

Flovac will prepare a proposal to operate the Collection System Monitoring Project starting at the date of Final Acceptance. The Operations Agreement will be set up for one year, with two one-year renewals at the Owner's discretion. Flovac will monitor the system and will coordinate with KLWTD staff to trouble-shoot the collection systems and to fine-tune performance of the collection systems. The Operations Agreement fees will be paid annually in advance.

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SECTION 00520
AGREEMENT FORM

PART 1 GENERAL

1.01 THIS AGREEMENT, made this ____ day of _____, _____ _____, by and between 1) Key Largo Wastewater Treatment District, hereinafter called the Owner, and 2) Flovac Americas, doing business as a 3) Corporation, and hereinafter called the Contractor.

1) Name of Owner
2) Name of Contractor
3) Corporation, Partnership, Sole Proprietor

1.02 The Owner and Contractor agree as follows:

A. Contract Documents

The Contract Documents include the Agreement, Addenda (which pertain to the Contract Documents), Instructions to Respondents, Contractor's Proposal, Notice to Proceed, the Bonds, the General Conditions, the Supplementary Conditions, the Specifications listed in the Index to the Project Manual, any technical specifications as incorporated by the Project Manual; the Drawings as listed in the Project Manual, all Written Amendments, Change Orders, Work Change Directives, Field Orders, and Engineer's written interpretations and clarifications issued on or after the Effective Date of this Agreement. These form the Contract and all are as fully a part of the Contract as if attached to this Agreement or repeated herein.

B. Scope of Work

The Contractor shall perform all work required by the Contract Documents for the construction of the KLWTD Collection System Monitoring Project

C. Contract Time

The Contractor shall begin work within **30** days after the issuance of a written Notice to Proceed and shall achieve substantial completion of the work within **730** calendar days from the date of the Notice to Proceed. The work shall be finally complete, ready for Final Payment in accordance with the General Conditions, within **90** calendar days from the actual date of substantial completion. See also Supplementary Condition, Appendix 2 & 3, SC-12.02.C-E.

D. Liquidated Damages

OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not substantially complete within the time specified in Paragraph C above, plus any extensions thereof allowed in accordance with the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal arbitration

proceeding the actual loss suffered by OWNER if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER $1000 for each calendar day that expires after the time specified in Paragraph C for substantial completion until the work is substantially complete. It is agreed that if this Work is not Finally completed in accordance with the Contract Documents, the CONTRACTOR shall pay the OWNER as liquidated damages for delay, and not as penalty, one-fourth (¼) of the rate set forth above.

E. Contract Price

Lump Sum Price Contract

The Owner will pay the Contractor in current funds for the performance of the work, subject to additions and deductions by Change Order and subject to the Measurement and Payment Provisions, and subject to actual constructed quantities; the Total Contract Price of Seven million five hundred seventy-five thousand six hundred seventy-seven dollars and thirty-six cents. Dollars ($7,575,677.36). Payments will be made to the Contractor on the basis of the Schedule of Unit Prices included as a part of his Proposal, which shall be as fully a part of the Contract as if attached or repeated herein.

F. Payments

The Owner will make payments as provided in the General Conditions and Supplementary Conditions (Appendices 1, 2, and 3).

G. Retainage

The value of each application for payment shall be equal to the total value of the Work performed to date, less an amount retained, and less payments previously made and amounts withheld in accordance with the General Conditions and Supplementary Conditions. Retainage for this project is 5%, to be held by Owner as collateral security for the duration of the Work. Retainage will be released upon Final Acceptance of the Work by the Owner.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

CONTRACTOR:

Flovac Americas
Name of Firm

By (Signature)

Printed Name and Title

ATTEST:

By (Signature)

Printed Name and Title

OWNER:

Key Largo Wastewater Treatment District
Name of Owner

By (Signature)

Peter Rosasco, General Manager
Printed Name and Title

ATTEST:

By (Signature)

Printed Name and Title

END OF FORM

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SECTION 00530
NOTICE TO PROCEED FORM

TO: Flovac Americas
15 Utility Drive, Suite A
Melbourne, Florida 32137

DATE: _____

PROJECT: KLWTD Collection System Monitoring Project

You are hereby notified to commence WORK in accordance with the Agreement dated _____ _____. This Notice authorizes the CONTRACTOR to commence construction, and, in accordance with the Agreement, all work shall be substantially complete within 730 calendar days of the date of this Notice to Proceed. Therefore, the date of substantial completion is _____. The date of Final completion is (subst. date + 90 days).

ISSUED BY: Key Largo Wastewater Treatment District
(Name of OWNER)

_____
By (Signature)

Peter Rosasco, General Manager
(Printed Name and Title)

ACCEPTANCE OF NOTICE

Receipt and acceptance of the above NOTICE TO PROCEED is hereby acknowledged by _____ _____ this _____ day of _____, _____.

_____
By

_____
Printed Name and Title

END OF FORM

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SECTION 00605

PUBLIC CONSTRUCTION BOND FORM

BOND NUMBER:

KEY LARGO WASTEWATER TREATMENT DISTRICT
COLLECTION SYSTEM MONITORING PROJECT
KEY LARGO, FLORIDA

KNOW ALL MEN BY THESE PRESENTS: that

Flovac Americas
(Name of CONTRACTOR)

(Address of CONTRACTOR)

(Phone Number of CONTRACTOR)

a _____, hereinafter called
(Corporation, Partnership or Individual)

Principal, and _____
(Name of Surety)

(Address of Surety)

(Phone number of Surety)

hereinafter called Surety, shall be firmly bound unto the Key Largo Wastewater Treatment District upon execution of the contract, whose address is 98880 Overseas Highway, Key Largo, Florida, 33037, and whose telephone number is 305-**451-4019**, hereinafter called OWNER, in the full and just Sum of _____ DOLLARS ($ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we shall bind ourselves, successors, and assigns, jointly and severally, firmly by these presents. The sum shall not be less than one hundred percent (100%) of the Contract Price.

THE CONDITION OF THIS OBLIGATION is such that if the Principal:

1. Performs the contract between Principal and Owner upon award, for construction of the Collection System Monitoring Project, the contract being made a part of this bond by reference, at the times and in the manner prescribed in the contract; and

2. Promptly makes payments to all claimants, as defined in Section 255.05(1), Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the work provided for in the contract; and
3. Pays Owner all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that Owner sustains because of a default by Principal under the contract; and
4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract

Then this bond is void; otherwise, it remains in full force.

Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes.

Any changes in or under the contract documents and compliance or noncompliance with an formalities connected with the contract for the changes does not affect Surety's obligation under this bond.

IN WITNESS WHEREOF, this instrument is executed this the _____ day of _____ _____, _____.

ATTEST:	_____ Principal (Contractor)
_____ Secretary (Principal)	_____ By (Signature)
_____ Typed Name	_____ Typed Name and Title
(CORPORATE SEAL)	_____ Address
	_____ City, State, Zip
_____ (Witness to Principal)	_____ Telephone No. Facsimile No.
_____ Typed Name	
ATTEST:	
_____ (Surety) Secretary	_____ Surety

Typed Name	Telephone No. Facsimile No.
(CORPORATE SEAL)	
Witness as to Surety	By: Attorney-in-Fact
Typed Name	Typed Name
Witness as to Surety	Address
Typed Name	City, State, Zip
	Telephone No. Facsimile No.

NOTE: Date of the Bond must not be prior to date of Agreement. Bond shall be issued after award of contract. If CONTRACTOR is a joint venture, all ventures shall execute the Bond. If CONTRACTOR is partnership, all partners shall execute the Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Florida, unless otherwise specifically approved in writing by OWNER.

ATTACH a certified Power-of-Attorney appointing individual Attorney-in-Fact for execution of Performance Bond on behalf of Surety.

END OF FORM

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SECTION 00617
CONSENT OF SURETY TO FINAL PAYMENT

WE, the _____, having heretofore executed Performance and Payment Bonds for the Project known as KLWTD Collection System Monitoring Project, in the amount of $_____* hereby agree that the OWNER may make full payment of the final estimate, including the retained percentage, to said CONTRACTOR. The Surety concurs that full payment to the CONTRACTOR is appropriate and the Surety expressly releases the OWNER from all liability to Surety resulting from full payment to CONTRACTOR. It is fully understood that the granting of the right to the OWNER to make payment of the final estimate to said CONTRACTOR and/or his assigns, shall in no way relieve this surety company of its obligations under its bond, as set forth in the specifications, contract and bond pertaining to the above project.

** = Dollar Value of Issued Performance and Payment Bonds*

IN WITNESS WHEREOF, the _____ has caused this instrument to be executed on its behalf by its _____ _____ and its duly authorized attorney in fact, and its corporate seal to be hereunto affixed, all on this _____ day of _____, _____.

_____ _____
Surety Attorney-in-Fact

(Power of Attorney must be attached if executed by Attorney in Fact)

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____ ____, _____ by _____ of _____ _____ (corporation), on behalf of the corporation, who is personally known to me or has produced _____ (Type of Identification) as identification and who did (did not) take an oath.

Sworn to and subscribed to before me this _____ day of _____, _____

_____
(Signature)

_____
(Print name) Notary Public in and for the County and State Aforementioned

My Commission Expires: _____

END OF FORM

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SECTION 00620

INSURANCE CERTIFICATION FORM

Name of Project: KLWTD Collection System Monitoring Project

Additional Insureds:

Owner: Key Largo Wastewater Treatment District
103355 Overseas Highway
Key Largo, Florida 33037

Engineer(s): Weiler Engineering
6805 Overseas Hwy
Marathon, Florida 33050

THIS IS TO CERTIFY that the numbered policies identified by the attached Certificates of Insurance have been issued by the below stated company in conformance with the limits and requirements as set forth in the General Conditions and Supplementary Conditions.

The insurance company hereby waives its rights of subrogation against the additional insured.

The insurance company hereby agrees to provide to the additional insured, promptly upon request, a true, full, and correct copy of the insurance policies identified in the attached Certificates of Insurance.

_____
Named Insured

_____
Insurance Company

_____
Address City State Zip

By: _____
Signature of Authorized Representative

_____
Printed or Typed Name of Authorized Representative (Attach Acknowledgment)

(Make additional copies of this form if more than one insurance company provides contract required insurance).

END OF FORM

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SECTION 00626

CERTIFICATE OF SUBSTANTIAL COMPLETION

Project Title KLWTD Collection System Monitoring Project

Proposal No. N/A

Owner: Key Largo Wastewater Treatment District

Contractor: Flovac Americas

Agreement Date: _____

This Certificate of Substantial Completion applies to all work under the Contract Documents or the following specified parts thereof if construction is phased by contract: _____

_____

_____

ISSUED TO:

Contractor:

Flovac Americas

The work to which this Certificate applies has been inspected by authorized representatives of Contractor, Engineer, and Owner and that Work is hereby declared to be substantially completed in accordance with the Contract Documents on:

_____
Date of Substantial Completion

A list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of Contractor to complete and warrant all the Work in accordance with the Contact Documents. All items on the list shall be completed or corrected by Contractor within 30 days of the above date of Substantial Completion.

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligations to complete the Work in accordance with the Contract Documents.

Executed by Engineer on _____
Date

Engineer: Weiler Engineering Corporation

By: _____
(Signature)

_____
(Printed Name and Title)

Executed by Owner on _____
Date

Owner: Key Largo Wastewater Treatment District

By: _____
(Signature)

Peter Rosasco, General Manager
(Printed Name and Title)

Contractor accepts this Certificate of Substantial Completion on _____
Date

Contractor: Flovac Americas

By: _____
(Signature)

_____
(Printed Name and Title)

END OF FORM

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CERTIFICATE OF FINAL COMPLETION

Project Title KLWTD Collection System Monitoring Project

Proposal No. N/A

Owner: Key Largo Wastewater Treatment District

Contractor: Flovac Americas

Agreement Date: _____

This Certificate of Final Completion applies to all work under the Contract Documents or the following specified parts thereof if construction is phased by contract: _____

_____

ISSUED TO:

Contractor:

Flovac Americas

The work to which this Certificate applies has been inspected by authorized representatives of Contractor, Engineer, and Owner and that Work is hereby declared to be finally complete in accordance with the Contract Documents on:

_____
Date of Final Completion

This Certificate constitutes an acceptance of Work except any and all latent defects, warranty work, maintenance, and other post Final Completion obligations of the Contractor under the Contract Documents.

Executed by Engineer on _____
Date

Engineer : Weiler Engineering Corporation

By: _____
(Signature)

_____
(Printed Name and Title)

Contractor accepts this Certificate of Final Completion on _____
Date

Contractor: _____

By: _____
(Signature)

_____
(Printed Name and Title)

Accepted by Owner on _____
Date

Owner: Key Largo Wastewater Treatment District

By: _____
(Signature)

Peter Rosasco, General Manager
(Printed Name and Title)

END OF FORM

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SECTION 00640
CONTRACTOR'S PARTIAL RELEASE OF LIEN FORM
AND WAIVER OF RIGHT TO CLAIM AGAINST THE PAYMENT BOND
(PROGRESS PAYMENT)

KNOW ALL MEN BY THESE PRESENTS**,** that the undersigned, 1) Flovac Americas _____, in consideration of the sum of 2) _____, and other valuable considerations and benefits to the undersigned accruing, do hereby waive, release and quit claim all liens, lien rights, claims or demands of every kind whatsoever which the undersigned now has, or may hereafter have, against that certain real estate and the improvements thereof, situated in Monroe County, State of Florida, and described as 3) KLWTD Collection System Monitoring Project on account of work and labor performed, and/or materials furnished in, to, or about the construction of any building or buildings situated thereon, or in improving said property above described, or any part thereof.

1) *CONTRACTOR*
2) *Amount of Work Completed through Previous Application for Payment*
3) *Name of Project*

It being the understanding of the undersigned that this is a Partial Waiver and Release of Lien which the undersigned has against the premises described herein, only to the extent of the payments specified and only for labor, services, or materials furnished or work done up until 4) _____, (but not releasing or waiving charges for changes, additions, or extras), the undersigned warrants that no assignment of said liens or claims, nor the right to perfect a lien against said real estate, by virtue of the accrual of said payment, has or will be made, and that the undersigned has the right to execute this Partial Waiver and Release, and that all laborers employed by the undersigned, and all bills for materials and supplies furnished by others to the undersigned in connection with the construction of improvements upon the aforesaid premises, to the extent of the payment herein referred to, have been fully paid.

4) *Date of Previous Application for Payment*

The undersigned, in consideration of the amount first mentioned above, hereby waives it right to claim against the payment bond for labor, services, or materials furnished through the date first mentioned above, to 5) _____, for improvements to the project described above. This waiver does not cover any retention or any labor, services, or materials furnished after the date specified.

5) *Name of customer of the undersigned*

[INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, I/we have executed this instrument under seal this _____ day of _____, _____.

_____
Authorized Representative (Signature)

_____ (SEAL)
Printed Name and Title

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____ _____, _____ by _____ _____ of _____ (corporation), on behalf of the corporation, who is personally known to me or has produced _____ _____ (Type of Identification) as identification and who did (did not) take an oath.

Sworn to and subscribed to before me this _____ day of _____, _____ _____

_____
(Signature)

_____
(Print name) Notary Public in and for the County and State Aforementioned

My Commission Expires: _____

END OF FORM

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SECTION 00645
CONTRACTOR'S RELEASE OF LIEN (FINAL AND COMPLETE)
AND WAIVER OF RIGHT TO CLAIM AGAINST THE PAYMENT BOND
(FINAL PAYMENT)

Before me, the undersigned authority in said County and State, appeared _____ _____, who, being first duly sworn, deposes and says that he is _____ of _____ _____, a company and/or corporation authorized to do business under the laws of the State of _____, and is the CONTRACTOR on the Project known as KLWTD Collection System Monitoring Project, located in Monroe County, State of Florida, under an Agreement with the OWNER, Key Largo Wastewater Treatment District, the date of said Agreement which is _____.

Let it be known that the said deponent is duly authorized to make this affidavit by resolution of the Board of Directors of said company and/or corporation; that deponent knows of his own knowledge that said contract has been complied with in every particular by said contractor and that all parts of the work have been approved by the Owner's Engineers; that there are no bills remaining unpaid for labor, material, or otherwise, in connection with said contract and work, and that there are no suits pending against the undersigned as contractor or anyone in connection with the work done and materials furnished or otherwise under said contract. Deponent further says that the final estimate which has been submitted to the Owner simultaneously with the making of this affidavit constitutes all claims and demands against the Owner on account of said contract or otherwise, and the acceptance of the sum specified in said final estimate will operate as a full and final release and discharge of the Owner from any further claims, demands or compensation by contractor under the above contract. Deponent further agrees that all guarantees under this contract shall and be in full force from the date of this release as spelled out in the Contract Documents.

The undersigned, in consideration of the final payment in the amount first mentioned above, hereby waives it right to claim against the payment bond for labor, services, or materials furnished through the date first mentioned above, to 4) _____, for improvements to the project described above. This waiver does not cover any retention or any labor, services, or materials furnished after the date specified.

6) Name of customer of the undersigned

IN WITNESS WHEREOF, I/we have executed this instrument under seal this _____ day of _____, _____.

_____
Authorized Representative (Signature)

_____ (SEAL)
Printed Name and Title

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____ _____, _____ by _____ _____ of _____ (corporation), on behalf of the corporation, who is personally known to me or has produced _____ _____ (Type of Identification) as identification and who did (did not) take an oath.

Sworn to and subscribed to before me this _____ day of _____, _____ _____

_____
(Signature)

_____
(Print name) Notary Public in and for the County and State Aforementioned

My Commission Expires: _____

END OF FORM

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SECTION 00950
CHANGE ORDER FORM

CONTRACTOR ("Contractor"):	CHANGE ORDER No. PROJECT TITLE: KLWTD Collection System Monitoring PROJECT No.
OWNER: Key Largo Wastewater Treatment District ("Owner" or "District")	ENGINEER`: Weiler Engineering 6805 Overseas Hwy Marathon, Florida 33050
DATE OF ISSUE:	EFFECTIVE DATE: _____, 2022, contingent upon approval by the District's Board of Commissioners. Contractor shall commence work only after receipt of notification to proceed by the District's Contract Manager.

Description of Work to be Performed: The Contractor is hereby authorized and directed to perform the following Work,
generally described as:

Reason for Change:

Work to be Performed is more specifically described as (add additional sheets if necessary):

Attachments: (*List documents supporting change and justifying cost and time)*

Total Proposed Increase (decrease) in Contract Price and Contract Time for this Change Order

Increase (decrease) in Contract Price:	Increase (decrease) in Contract Time (Calendar days):

Acknowledgments:

The aforementioned change, and work affected thereby, is subject to and governed by all provisions of the original Agreement and RFP. It is expressly understood and agreed that the approval of this Change Order shall have no effect on the original Agreement, including all GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, and STANDARD SPECIFICATIONS, other than matters expressly provided herein.

This Change Order constitutes full and mutual accord and satisfaction for the adjustment of the Contract Price and Contract Time as a result of increases or decreases in cost and time of performance caused directly and indirectly from the change. Acceptance of this Change Order constitutes an agreement between OWNER and CONTRACTOR that the Change Order represents an equitable adjustment to the Agreement and that CONTRACTOR shall waive all rights to file a Contract Claim or claim of any nature on this Change Order. Execution of this Change Order shall constitute CONTRACTOR's complete acceptance and satisfaction that it is entitled to no more costs or time (direct, indirect, impact, etc.) pursuant to this Change Order. Owner may require consent of the Contractor's surety, if any, to the terms of this Change Order.

Original Contract Price:	Original Contract Time: (calendar days or dates)

SUMMARY OF PRIOR CHANGE ORDERS

C-O No.	Description of Change	Change in Contract Price	Change in Contract Time
1		$	Days
2		$	Days
3		$	Days
4		$	Days
5		$	Days
6		$	Days
TOTAL OF ALL PRIOR CHANGES		$	Days
CURRENT CONTRACT PRICE AND TIME (Adjusted by Prior Change Orders BUT before adjusting for this Change Order)		$	Days
NEW CONTRACT PRICE AND TIME (Adjusted by Prior Change Orders AND this Change Order)		$	Days

Original Contract Substantial Completion Date:	New Contract Substantial Completion Date:

APPROVAL AND CHANGE ORDER AUTHORIZATION

Contractor:_____ _____ By (Signature) _____ (Printed Name and Title of Officer)	Owner: Key Largo Wastewater Treatment District _____ By (Signature) Peter Rosasco, General Manager (Printed Name and Title of Officer)

(Date)_____ ATTEST: _____ (Secretary) (Corporate Seal)	(Date)_____ ATTEST: _____ District Clerk (Seal)

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1 STANDARD GENERAL CONDITIONS – (APPENDIX – 1)

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2 KLWTD SUPPLMENTARY CONDITIONS (APPENDIX 2)

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3 FDEP SRF SUPPLEMENTARY CONDITIONS (APPENDIX 3)

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4 PROJECT PLANS– (APPENDIX – 4)

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5 PROJECT TECHNICAL SPECIFICATIONS – (APPENDIX – 5)

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