

SECTION 40 90 10

SYSTEM INTEGRATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide system integration for the water facilities as shown on the Drawings, as specified herein and as needed for a complete and proper installation.
- B. Related work:
 - 1. Documents affecting work under this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Division 01 – General Requirements of these Specifications.
- C. Work under this Section includes:
 - 1. Providing and programming the following:
 - a. Lincoln Well House SCADA Control/PLC
 - b. Instrumentation
 - 2. Providing instrumentation and controls as shown on Drawings and described herein.
 - 6. Providing on-site training to the Owner.

1.2 SUBMITTALS

- A. Submit completed test protocol document after installation testing has been completed certifying system functions as specified.

1.3 QUALITY ASSURANCE

- A. Provide the services of System Integrator who has the expertise to integrate the approved hardware and software with components from various manufacturers to present the Owner with a total system solution for the control and monitoring of the water system facilities.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Comply with pertinent provisions of Section 01 66 11.

PART 2 - PRODUCTS

2.1 INSTRUMENTATION AND CONTROL

In the Lake County Public Works Department Fox Lake Hills Lincoln Well House, install the following and integrate the control into the existing SCADA/PLC.

- A. One (1) new 8-inch magnetic flow meter, Krohne ENVIROMAG 2000 with Krohne IFC 100 electromagnetic flow converter, all in accordance with the manufacturer's instructions. Installation shall include grounding of the flow meter

SYSTEM INTEGRATION

40 90 10-1 (LCPW-LINCOLN WELL HOUSE IMPROVEMENTS)

and flow converter. All electrical connections at the flow meter shall be made by the electrical contractor, complete and ready to use in accordance with the contract drawings.

- B. Two (2) Pratt (or equal) butterfly valves (1 @ 6" and 1 @ 8") with 120V "Rotork" valve operators (two position). Connect in accordance with the manufacturer's instructions complete and ready to use. All electrical connections at the valve operators shall be made by the electrical contractor, complete and ready to use in accordance with the contract drawings.
- C. One (1) pressure transmitter, Rosemount Model 2088, 2088 gauge pressure transducer. Installation shall include transducer and 2 valve manifold. All electrical connections at the flow meter shall be made by the electrical contractor, complete and ready to use in accordance with the contract drawings.
- D. One (1) Cla-Val 92-07 control valve, overriding solenoid open/close control based on operator selected set points. Valve to remain open (de-energized).
- E. One (1) Swan Instrument Model AMI CODES-II CC Chlorine residual analyzer for free and total chlorine residual, all in accordance with the manufacturer's instructions. Installation shall include all sample and drain piping and appurtenances for the analyzer from a corporation cock in the JAWA supply line as shown on the contract drawings. All electrical connections at the analyzer shall be made by the electrical contractor, complete and ready to use in accordance with the contract drawings.

2.2 SYSTEM INTEGRATOR & PROGRAMMING

- A. Retain the services of a system integrator acceptable to LCPW to supply equipment, provide the required calibration services, and integrate the equipment into the existing control panel.
- B. Program a weekly pump exercise mode in which the motor operated valves will open and close to allow the pumps to run for an operator selected time interval. Return the valve positions to normal operating mode after exercise mode is complete.
- B. The amount of I/Os available during Phase 1 is limited. Discuss with LCPW on which signals are most important to integrate at Phase 1. After the iron filtration removal in Phase 2, the rest of the I/Os shall be integrated as I/O slots are opened up from the existing equipment removal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install each control panel and instrument in location suitable for the application or as directed by Owner or Engineer. Provide mounting brackets and supports as required.

3.2 START-UP AND TESTING

- A. Start-up and testing is responsibility of system integrator.
- B. Provide calibration of equipment and signals prior to start-up and testing.
- C. Notify Owner and Engineer two (2) days prior to on-site start-up.
- D. In the presence of the Owner, perform commissioning of the system after the contractor has tested the equipment and its appurtenances for proper operating condition, start-up has been performed, and Contractor feels system is ready to be placed into operation. Commissioning includes the following:
 - 1. Testing of operational control of entire system, which includes:
 - a. System interlocks and controls.
 - b. Equipment status.
 - c. Alarm functions.
 - d. Password and security functions.
 - 2. Emergency shutdown and restarting of the system.
 - 3. Provide report after testing has been completed certifying system functions as specified.

END OF SECTION