Village of Orland Park, Illinois

Main Pumping Station Evaluation Report

Scope of Engineering Services

Project Background

The Village of Orland Park Main Pumping Station provides potable water for village's water distribution system. The Main Pumping Station was originally constructed in 1985 and the majority of the equipment is nearing 30 years old.

Over the past few years, the electrical system has become harder to maintain and obtain spare parts while the main pumps have been rebuilt once already. In order to plan for future improvements, this report will evaluate replacement alternatives for electrical equipment and the main pumps in order to maximize current equipment, improve system efficiency, and mitigate risk of difficulties with aged equipment.

Project Tasks

The Pump Station Evaluation would include the following tasks:

Task 1- Electrical System Evaluation

1. An evaluation of replacing the Switchboard and MCC, including full replacement versus interior rehabilitation with new components while keeping the station operational. The following will be included in the evaluation:
   a) Comparison of equipment safety features which would bring the most benefit to Village Staff
   b) Assessment of implementing a power monitoring system and tying to the existing SCADA system
2. An evaluation of the necessity and benefits of adding the following components:
   a) A second utility transformer for added system redundancy
   b) Auxiliary contacts in the utility automatic transfer switch to monitor which utility feed is being utilized and which utility feeds are available
3. Evaluation and recommendation of historization software for the pump station SCADA system.

Task 2 - Pumping System Evaluation

1. A flow analysis of the pump station and optimization recommendations to pumping operations
2. Based on the results of the flow and pump analysis, evaluate the benefits of installing VFDs on the pumps
3. Evaluate pump replacement versus rebuilding alternatives, including impacts to pump efficiency and life-cycle costs

Task 3 – Develop Summary Documentation

1. Provide a summary of the evaluations performed. Provide opinion of probable construction cost evaluation comparison tables for the various alternatives and recommendations for improvements to the Main Pumping Station.

Task 4 - Progress Meetings

1. Meet with Village Staff twice during the project to review the evaluation.
   a) Meeting No. 1 will review the results of the evaluation and receive Village input and feedback prior to finalizing the report.
   b) Meeting No. 2 will review the report and discuss recommendations to upgrade the pumping station.

Village of Orland Park, IL
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Fee Summary
Greeley and Hansen
December 2015

	Project Manager (RMC)	Civil Engineer	Electrical Engineer (JTB)	I&C Engineer (TP)	Electrical QA/QC (SS)	Word Processing (RR)	Total Hours
Task 1 - Electrical System Evaluation							
Task 1.1 - Evaluate MCC	2	0	40	0	8	0	50
Task 1.2 - 2nd Transformer and additional communication	0	0	16	4	8	0	28
Task 1.3 - Recommended SCADA Upgrades	0	0	4	16	2	0	22
Task 1.4 Site Visit	0	0	4	4	0	0	8
Task 2 - Pumping System Evaluation							
Task 2.1 - Flow Analysis and Optimization Recommendations	4	40	0	0	0	0	44
Task 2.2 - VFD Evaluation	4	30	8	0	4	0	46
Task 2.3 - Pump Replacement Evaluation	4	24	4	0	0	0	32
Task 3 - Develop Summary of Evaluation							
Task 3.1 - Develop Summary Report	4	24	16	8	4	4	60
Task 4 - Progress Meetings							0
Task 4.1 - Prepare and Attend Progress Meeting No. 1	4	2	8	4	4	0	22
Task 4.2 - Prepare and Attend Progress Meeting No. 2	4	2	8	4	4	0	22
Total Hours	**26**	**122**	**108**	**40**	**34**	**4**	**334**
Hourly Rate	$ 164	$ 114	$ 133	$ 227	$ 212	$ 104	
Subtotal	$ 4,264	$ 13,908	$ 14,364	$ 9,080	$ 7,208	$ 416	
					Other Direct Costs (Travel)		50
					Total	**$**	**49,290**