

PROJECT UPDATE MEMO LIFT STATION #6 UPGRADE PROJECT

To: Village of Kronenwetter

From: Robert J. Roth, PE

Re: Lift Station 6 Upgrade

Date: June 25, 2024

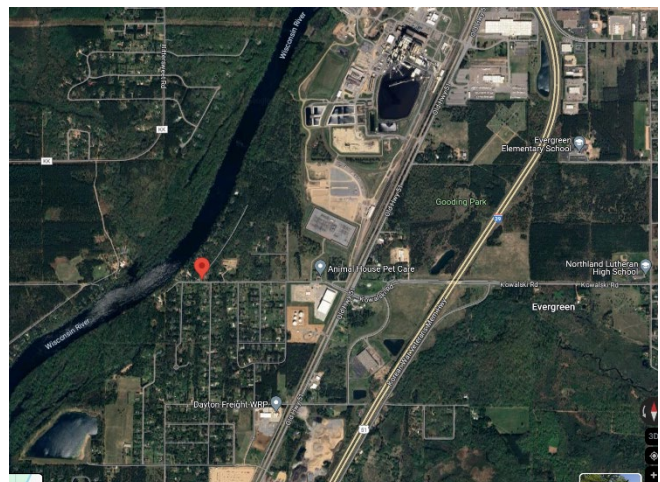
BACKGROUND. The Village of Kronenwetter has commissioned the upgrade of LS6. The station was built in 1997, and to my knowledge has not been upgraded other than recent pump/motor replacement and electrical work on the add-a-phase component. LS6 serves a mainly residential area and discharges directly to LS7 via an interceptor sewer on Old Highway “51”. All lift stations have high importance, however, this station is not a collector station in that it only serves one area and does not receive flow from other stations.

The upgrade will center around key items discovered in the Lift Station Assessment and Sewer Capacity Study as follows:

- ❖ Electrical. Lift station has a phase converter system for 3-phase power to pumps, but this type of system produces additional motor wear if the phase converter system is slightly out of phase, which has recently occurred with one of the pumps
- ❖ Valves. Original check and plug valves (1997)
- ❖ Plumbing. Valve vault drain clogged

LOCATION. LS6 is located at 2100 River Forest Lane at the intersection of Gardner Park Lane. It is part of the westside sewer service area in the Village.

BUDGET. Project costs for the LS6 project will come from the 2024 “Lift Station Updates” item at \$100,000.



SCOPE. The following key design elements are included in this lift station project:

1. Main objective to remove “add-a-phase system”, which requires full electrical and control upgrade
2. Replace with VFD converter to continue 3-phase power delivery (see below)
3. New floats, level control transducers, panel & VFD included in electrical upgrade
4. Valves are original and will be replaced
5. Valve vault plumbing drain and general maintenance (painting, sealing, etc.)
6. Discharge piping is 4” DI
7. One single pump replacement is necessary due to recent replacement of original 1999 pump
8. Keep existing generator receptacle, re-mount on new panel.
9. No new generator is planned for this station due to lack of overall station importance
10. Power isolation is available at the station, so no temporary power outages are anticipated
11. Dedicated phone line for comm’s/alarm notifications will remain for now
12. SCADA slot(s) and panel space will be allocated (see below)
13. Panel configuration to remain, with main panel opening to drive side

OPTIONS. There are two options as the station upgrade is considered, however, both options are not recommended at this time:

- A. 3-Phase Power Extension. 3-phase power is approximately 1,860 LF from LS6. The estimated cost of this extension is \$223,200 in 2023 dollars based on the estimate from WPS. It has been determined that a VFD phase converter is of higher quality technology and will be fully sufficient to continue a 3-phase power delivery to this station. And, the VFD phase converter (approximately \$15,000) is substantially less in cost comparison.
- B. SCADA Interoperability. SCADA allows more efficient system communications, data recovery and future supported technology. It would effectively replace the existing dialer system and utilize wireless components. The long-term plan is to include SCADA, but due to the planning required to implement a full SCADA system across all lift stations, and the slightly less importance of this station, it is deemed not essential at this time. A SCADA upgrade would be likely linked to other lift stations and would involve radio improvements in a centralized location. Thus, this option would be a likely budgeted item on its own.

COSTS. The Village received a preliminary cost quote on only the electrical portion of the project (complete with floats, panels, labor, pump, etc.) totaling just over \$60,000. Engineering is \$17,100. The cost of valve and ancillary scope items as described above are not expected to be more than \$23,000. At this preliminary stage the total of all scope items including engineering would fit below the budgeted amounts.



CURRENT STATUS. Utility locates and site surveying have both been completed. We recently met onsite with Mark Mackey and B&M Technical Services to review the scope in full and this memo reflects the summary of project details.

NEXT STEPS. We will provide 50% bid documents for review with the Village as the next major step. We will accurately portray the scope that is outlined above including specifications for the purpose of obtaining bids and a construction contract. The next step following the 50% plan review will be to go to 90% bid documents and pursue finalization of the construction bid package.

Please contact me with any questions or if additional information is needed.

Sincerely,

ROTH PROFESSIONAL SOLUTIONS



Robert J. Roth, PE
Project Engineer

