

SUPPLEMENTARY PROJECT MEMO LS8 & LS4 UPGRADE PROJECT

To: Village of Kronenwetter
Leonard Ludi, DPW & Interim Administrator

From: Robert J. Roth, PE

Re: Review of LS8 & FM Direct Discharge to LS7

Date: April 23, 2024

The Village of Kronenwetter's LS8 and LS4 project has commenced to a 90%+ design level and summary documents are provided under a separate cover. The development of those plans also included a more detailed estimate of construction cost for the upgrade of both lift stations.

The updated 90% estimate for the LS8 project including soft costs and contingencies is \$1.7 million, with a 100% potential allocation to TID#2. This includes LS8 forcemain upsizing and Nelson Road interceptor upsizing (which includes road restoration costs).

The estimate for the LS4 project including its forcemain upgrade is \$1.0 million, with a 58% allocation to TID#2. This includes LS4 forcemain upgrade to LS5 on Old Hwy 51 Road. An LS5 upgrade is not recommended at this time, as it is deemed unnecessary due to timing of development and available flow capacity in the existing downstream system.

During finalization of the upgrade project plans, an option to direct-discharge to LS7 from LS8 originated and required further evaluation. The overall cost of the two-lift-station project, upon completion of the 90% plans, revealed additional cost in the area of sewer interceptor upsizing and forcemain upgrade (LS4). The option to discharge to LS7 potentially becomes capital cost favorable when considering the entire project and the impact to the westside series lift station configuration. This memo provides an executive summary evaluation of this alternative and discusses advantages, disadvantages and costs.

The main idea of the alternative allows for LS8 to run a longer forcemain along Kronenwetter Drive to the north (16,810 LF), cross I39 near Kowalski Drive Interchange, with a discharge on Old Hwy 51 gravity interceptor to LS7. LS8 would not continue to discharge towards LS4, and LS4 would continue in its current condition (although with lesser flow). Therefore, this option

would not require the upgrade of the Nelson Road Interceptor, would not require the upgrade of LS4 and would not require future downstream collection system upgrades. Any upgrades in these areas would be based on other growth in the area and be handled in the long-term future.

Summary Advantages:

- Nelson Road interceptor does not require upgrade, saving pipe cost and road restoration costs
- LS4 does not require upgrade at this time, future expansion would occur within each basin
- Respective downstream forcemains & interceptors can remain in their current configuration from LS4 to LS5 to LS7
- Potential elimination of capital cost to the utility for (42% allocation LS4)
- LS8 can remain in service through construction
- Decreased dependency on LS4, LS5 in series
- Restoration costs can be potentially shared with Kronenwetter Drive project
- LS7 Interceptor capacity is adequate for both current and interim design conditions

Summary Disadvantages:

- Requires additional depth for pump serviceability
- Larger forcemain diameter required to reduce friction losses/pumping requirements
- More air relief manholes required, possible maintenance
- Question whether a long wastewater run in forcemain may contribute to hydrogen sulfide issue, or benefit the issue
- Additional horizontal boring and casing on I39
- Wetland & additional survey/plan information required to confirm unknowns

The following is a summary and comparison of costs:

LS8 Upgrade with FM & Interceptor Project	LS4 Upgrade with FM Project	Combined LS8 Upgrade & LS4 Upgrade Project	LS8 Upgrade with FM to LS7 Project
\$1,700,000	\$1,000,000	\$2,700,000	\$1,900,000

Therefore, having evaluated the advantages and disadvantages, we recommend proceeding with the alternative to upgrade LS8 with a forcemain discharge to MH 7-35 which is the interceptor near LS7. Please contact me with any questions or if additional information is needed.

Sincerely,

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Robert J. Roth, PE
Project Engineer

Attachments:

- Map - LS8 to LS7 Alternative
- LS8 90% Project Cost Estimate
- LS4 90% Project Cost Estimate
- LS8 to LS7 Conceptual Cost Estimate