



July 24, 2025

Niki Ensor
Water Services Division City of Kingsport
1113 Konnarock Rd.
Kingsport, TN 37664

Subject: Cooks Valley Pump Station (PS) Surge Analysis – South Fork Holston Sewershed Capacity Study

Dear Niki:

CDM Smith is pleased to present our proposal to support the City of Kingsport for Cooks Valley PS Surge Analysis as an extension of the South Fork Holston Sewershed Capacity Study.

Scope of Services

The detailed scope of work for the basic services included under this proposal are described below.

Cooks Valley Pump Station

Task 1 – Surge Analysis

A surge analysis will be performed for the existing 2013 Cooks Valley pump station (PS 212A) and existing 8-inch force main to evaluate the effects of transients caused from power failure at the pump station and start-up and shut down of the pump station.

The existing force main and pump station record drawings, material type, internal diameter, and air valve manufacturer and model, as previously provided, and the hydraulic model as previously developed will be utilized for development of the surge analysis. CDM Smith (Engineer) will work with the City (Owner) to develop surge mitigation criteria, such as maximum and minimum pressure (working plus surge pressure). The surge model will include node locations at significant high and low points along the existing force main with their respective elevations. Wave speeds used will be suitable for the pipeline materials based on manufacturer's literature and/or published data. The pipeline system components will be represented in the surge model with their applicable resistance, minor losses, and opening/closing speeds. Pumps and motor inertia will be included in the analysis.

Surge control devices include air handling valves and surge relief valves and will be evaluated to control maximum pressure and to prevent the formation of vacuum conditions and water column separation. Engineer assumes a hydropneumatic surge tank is not required as one of the surge control devices. If during surge modeling, a hydropneumatic surge tank is found to be the recommended solution to mitigate surge, additional surge modeling will be necessary to optimize and fine tune the recommended size and set points of the surge tank(s) for design. This analysis is not included but can be added via amendment.

Engineer will summarize the findings and recommendations of the surge analysis in a draft technical memorandum. A draft technical review meeting will be held via Teams online. Upon receipt of



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comments and after the draft technical memorandum review meeting, Engineer will provide a final technical memorandum to the Owner.

Hydropneumatic surge tank sizing, detailed design of surge control devices, or surge analysis for future conditions is not included in this Amendment.

Responsibilities of the Owner

No changes from the original Agreement dated November 17, 2023.

Schedule and Budget

CDM Smith proposes to complete the work under the current South Fork Holston Sewershed Capacity study budget. No additional fees will be required outside of the existing budget.

CDM Smith proposes to complete this task and the overall South Fork Holston Capacity Study Agreement by December 31, 2025.

On behalf of the entire CDM Smith organization, I want to express our appreciation for the opportunity to continue to work with the City. If you have any questions about this proposal, or any matter, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "Daniel Unger".

Daniel Unger, PE, PMP
Client Service Leader
CDM Smith