



CITY OF DURHAM | NORTH CAROLINA

**Date:** November 3, 2015

**To:** Thomas J. Bonfield, City Manager

**Through:** W. Bowman Ferguson, Deputy City Manager

**From:** Donald F. Greeley, Director, Water Management

**Subject:** Professional Engineering Services for the Turnage Heights Lift Station Abandonment Project – Amendment #1

### **Executive Summary**

On May 19, 2014, City Council awarded a contract to McKim and Creed, LLC for professional engineering consulting services related to the Turnage Heights Lift Station Abandonment Project. Phase I, approved for an amount of \$151,000, consisted of preparing a Preliminary Engineering Report (PER). The PER is now complete, and the Department of Water Management (DWM) wishes to proceed to Phase II of the project that consists of design, permitting, and bidding services.

Amendment #1 is for the detailed design, permitting, and preparation of bid-ready documents for abandoning the lift station (LS) and constructing a 7,000-linear foot gravity outfall along Mud Creek, near Erwin Road and NC Highway 751. The project area is shown in Attachment 1.

Another amendment for Phase III will be prepared at a later date that addresses construction related services (construction administration and construction observation).

The engineering fees for Amendment #1, Phase II, are in the amount of \$468,200.00. These funds are available in the current Capital Improvement Program (CIP).

### **Recommendation**

The Department of Water Management recommends that the City Council:

1. Authorize the City Manager to execute a contract amendment with McKim and Creed, LLC for engineering services for detailed design, permitting and bid document for the Turnage Heights Lift Station Abandonment Project, for a total amount not to exceed \$468,200.00; and
2. Authorize increasing the contingency fund for the contract by \$46,800.00; and
3. Authorize the City Manager to negotiate and execute change orders for the contract provided that the cost of all change orders together with the original contract cost does not exceed the total project cost of \$515,000.00.

### **Background**

The DWM are abandoning a 1970's sewer lift station, which has reached the end of its useful life and has become problematic to operate and maintain. In late 2013, the City received proposals from five firms to study abandonment alternatives, make recommendations, and then perform design/bid/construction services. Abandonment alternatives included replacing the lift station with a

new lift station or constructing a 7,000-linear foot (LF) gravity sewer main that runs alongside Mud Creek, near Erwin Road and NC Highway 751. The four alternatives are summarily described in Issue/Analysis. The project area is shown in Attachment 1. City staff selected the firm of McKim and Creed, LLC.

On May 19, 2014, City Council awarded a contract to McKim and Creed, LLC for an amount of \$151,000 (including Contingency). The professional engineering/consulting services related to the first phase of the project, a PER, which provided a detailed analysis of four alternatives. This PER also provided a recommended alternative, Alternative 1, which replaces the lift station with a gravity main alongside Mud Creek. The approximate route is shown in Attachment 1.

Design of necessary downstream improvements is also included in this phase. For this alternative, improvements to the Garrett Road lift station are needed because the Garrett Road lift station will ultimately pump flow from the new gravity main. Originally/currently, the Turnage Heights lift station pumps sewage to another location in the City's collection system.

Amendment #1 is for detailed design, permitting, preparing bid documents, and bidding services. A second amendment will be forthcoming after Phase II is complete that provides for construction related services (construction administration and construction observation) for the project.

**Issues/Analysis**

The consultant evaluated four alternatives with DWM for replacing the abandoned lift station. These included:

Alternative 1 – Replace with gravity main flowing southwest (alongside Mud Creek).

Alternative 2 - Replace with gravity main flowing east (across Hwy 15/501).

Alternative 3 – Replace with new lift station discharging to the east (across Hwy 15/501).

Alternative 4 – Replace with new lift station discharging to the south.

Three of the four alternatives had different discharge points, and each discharge point required a downstream analysis that identified capital improvements needed for the collection system to receive build-out flows. Each alternative was also evaluated for a 15-year Present Worth of O&M costs.

A summary of costs associated with each alternative is as follows:

**Estimated Costs of Alternative (\$ Million)**

<b>Cost Item\Alternative</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Construction Cost	3.3	5.3	2.8	3.7
Downstream Imp'ts & 15-Yr O&M	0.9	3.6	3.7	3.8
<b>Total</b>	<b>4.2</b>	<b>8.9</b>	<b>6.5</b>	<b>7.5</b>

Alternative 1 was selected, which overall, is the most cost effective and least disruptive option. This Amendment is for the detailed design, permitting, and preparation of bid-ready documents.

**Alternatives**

An alternative would be to not proceed with the chosen alternative. This would result in the City continuing to operate this outdated, problematic lift station.

**Financial Impacts**

Funding for Amendment #1 is available in the Collection System Rehabilitation fund, which is part of the City’s Capital Improvement Program. The funds are currently available in the project accounts:

Design/Permitting	\$468,200.00	4100P002-731004-P280M
Design/Permitting Contingency	<u>\$46,800.00</u>	4100P002-731900-P280M
Total	\$515,000.00	

**SDBE Summary**

EOEA Department reviewed and approved the selection of McKim and Creed for this project as part of the initial phase.