



CITY OF DURHAM | NORTH CAROLINA

Date: August 20, 2012

To: Thomas J. Bonfield, City Manager
Through: Keith Chadwell, Deputy City Manager
From: Donald F. Greeley, Director, Water Management
Jerry F. Morrone, Utility Engineering Supervisor

Subject: Amendment #1 - Engineering Services Contract for the Water Reclamation Facility Master Plan with Hazen and Sawyer, P.C.

Executive Summary

On August 16, 2010 the City Council awarded a professional engineering consulting services contract to Hazen and Sawyer, P.C. for the Water Reclamation Facilities Master Plan Projects at the North Durham Water Reclamation Facility (NDWRF) and the South Durham Water Reclamation Facility (SDWRF). The scope of services included development of a master plan for each of the facilities through build out; integral components of the plans incorporate integrated energy management strategies and major facility management mapping, i.e. thorough and detailed layout of future buildings and processes. The scope of services also included design, construction administration, and inspection of various plant improvements identified in the 2009 Optimization Study and the Master Plans.

The proposed amendment includes several key improvements needed for the long term compliance with the Falls and Jordan Lake Rules as identified in the Master Plans. These improvements include the addition of processes/structures for sidestream treatment, replacement and rehabilitation of chemical feed systems, modification of controls to improve efficiency and demolition of several structures. The department recommends amending the existing contract for this work in order to meet the 2016 deadline (Falls Lake Rules) for compliance.

Recommendation

The Department of Water Management recommends that the City Council:

1. Authorize the City Manager to execute a contract Amendment with Hazen and Sawyer, P.C. for engineering services for the Water Reclamation Facilities Master Plans Project in the total amount not to exceed \$367,901.00; and
2. Authorize the City Manager to negotiate change orders for the contract provided that the total project cost does not exceed \$2,825,901.00.

Background

The City's existing water reclamation facilities, North Durham WRF (original construction 1932) and South Durham WRF (original construction 1986), were built and have been modified over the years to treat wastewater according to regulatory requirements. The most significant improvements occurred in 1994 when both plants were expanded to 20 million gallon per day capacity, while adding some nutrient removal capabilities. On August 16, 2010 the City Council awarded a professional engineering consulting services contract to Hazen and Sawyer, P.C. for the Water Reclamation

Facilities Master Plan Projects at the North Durham Water Reclamation Facility (NDWRF) and the South Durham Water Reclamation Facility (SDWRF). The scope of services included development of a master plan for each of the facilities through build out; integral components of the plans incorporate integrated energy management strategies and major facility management mapping, i.e. thorough and detailed layout of future buildings and processes. The scope of services also included design, construction administration, and inspection of various plant improvements identified in the 2009 Optimization Study and the Master Plans.

The Master Plans have been completed, with final copies submitted to the City on xxxxx. This extensive planning process demonstrates that the City will be able to meet both the short and long term nutrient requirements set out by State requirements by implementing a variety of different projects which include:

- 1) Innovative side stream treatment
- 2) Enhanced nutrient removal through traditional plant processes
- 3) Improved operational capabilities at the plants

Additionally, there are a number of key opportunities for improved energy performance at both plants that were discovered as part of this work. The plant staff anticipates being able to reduce chemical costs and energy costs while improving operational performance in a number of areas by implementing these proposed strategies.

Issues/Analysis

The Master Plans identified a number improvements needed for both the short term and long term compliance with the Falls Lake and Jordan Lake Rules. Additionally, the plans recommended phasing of the various projects. The initial recommended improvements are currently under construction. In order to ensure the City will meet the 2016 deadline, the following several improvements are needed:

- 1) Addition of side stream treatment processes at each facility to reduce the need for carbon feed, resulting in improved permit compliance while reducing operating costs.
- 2) Replacement and rehabilitation of various failing chemical storage, aeration equipment and piping systems.
- 3) Modification of aeration and pumping controls to improve plant energy performance and chemical utilization efficiency.
- 4) Demolition of various unused structures at the North Durham Water Reclamation Facility; the space will be needed for the next phase of improvements.

The department recommends amending the existing contract for this work in order to meet the 2016 deadline for compliance. Additionally, due to Hazen and Sawyer's intimate knowledge of these projects, amending the contract will be the most cost effective means of providing engineering services.

The Amendment provides for design, permitting, bidding and construction administration. The potential cost of construction inspection/construction observation is not included in this Amendment because there are still too many unknowns as to the impact these designs will have on final construction. A future amendment will be needed once the scope of construction is determined.

Alternatives

Not moving ahead with the amendment. This would negatively impact the City’s ability to meet the nutrient reduction requirements of the Jordan Lake and Falls Lake rules.

Financial Impacts

Funding for this amendment is available in the Wastewater Process Rehabilitation Project and the Enhanced Nitrogen Removal Project which are part of the City’s Capital Improvement Program. The funds are currently available in the project accounts:

Capital Project	Account Code	Amount
Wastewater Process Rehabilitation	4100P007-731003-P251C	\$200,000.00
Enhanced Nitrogen Removal	4100P765-731003-P2131	\$167,901.00

SDBE Summary

This is a contract amendment and was not reviewed for compliance with the Ordinance to Promote Equal Opportunities in City Contracting