



Agenda Action Form Overview

The Board is requested to authorize the County Manager to enter into a contract amendment to increase the existing design consultant contract with Black & Veatch International Company (FR# 17-832) for Aeration System Enhancements for the Triangle Wastewater Treatment Plant in the amount of \$34,500, bringing the total contract amount from \$213,000 to \$247,500.

Background/Justification

The Triangle Wastewater Treatment Plant (TWWTP) utilizes a biological nutrient removal process which is comprised of three treatment trains, each utilizing 4 brush aerators. A brush aerator in train number two suffered a critical failure in March 2016, leaving the entire treatment train unable to treat its design capacity of 4 MGD. Currently, the plant is only operating with two trains in service, reducing the effective treatment capacity of the TWWTP by a third. The TWWTP is rated to treat 12 MGD and currently operates at an average of 5.2 MGD, but in the event of high rain flows and as the service area of the plant is becoming increasingly developed, it is crucial for train two to be operational.

Durham County sent out a Request for Qualifications (RFQ 17-012) for Triangle Wastewater Treatment Plant Efficiency and Resiliency Improvements in October 2016. Four engineering firms submitted Statements of Qualifications. B&V was selected for the initial contract to complete an engineering study to determine the best path forward for returning train two to service based on their previous experience with similar projects.

In May 2017, Black & Veatch completed the study comparing several options for returning train two back into service: replacing the brush aerator or installing different combinations of membrane diffuser grids and blowers. The 20-year lifecycle of the installing two blowers and two diffuser grids was the lowest cost of all options considered due to reduced O&M and electrical costs. As a result, it was concluded the preferred alternative was to install two aeration grids providing enough dissolved oxygen to replace all 4 brush aerators. However, the three existing brush aerators in train two will be left in place for additional redundancy. This project will restore the treatment capacity of the plant back to the intended design of 12 MGD. The cost of this study was \$38,000 and was the first phase of this project (FR# 17-832). The Black and Veatch Triangle WWTP Aeration System Improvement study is provided as Attachment A.

Black & Veatch International Company is providing engineering services for the TWWTP Aeration System Enhancements. The upgrade includes the installation of a diffused aeration system or oxidation ditch number 2 consisting of two 125 horsepower blowers with a variable frequency drive and two membrane disc diffuser grids. Services provided by Black and Veatch International Company include preparation of the plans and specifications, construction inspection, approvals/permitting, construction administration, and record drawing preparation.

The amendment will cover two changes in scope: (1) Attachment B reflects changes in the electrical and control design such that the existing dissolved oxygen probe will be able to control the new positive displacement blowers; and (2) Attachment C reflects additional changes in the electrical and control design for the installation of an additional dissolved oxygen probe and relocation of the existing dissolved oxygen probe to provide greater operator control over the new



displacement blowers. These changes will allow greater operational control by TWWTP staff resulting in potential energy savings and optimized nutrient removal.

Engineering design costs for the TWWTP Aeration System Enhancements Amendment are estimated to be \$34,500. The construction project will be funded from the Enterprise Fund.

Policy Impact

This action is in accordance with Durham County Strategic Plan Goal 4: “Environmental Stewardship and Community Prosperity,” as this project will ensure a clean environment by restoring oxidation ditch number two to its original treatment capacity. Additionally, the transition from mechanical surface aeration to diffused aeration with dissolved oxygen control should result in reduced energy usage at the TWWTP. No additional policy impacts are expected as a result of this project.

Procurement Background

Type of purchase

- Goods
- Services
- Architect, Engineer or Surveyor Services
- Construction and Repair

Did this request for purchase go through a bid process? Yes No

Goods: Bids required if \geq \$30,000, BOCC approval if \geq \$90,000

Services: Bids required if \geq \$30,000, BOCC approval if $>$ \$40,000

Construction/Repair work: Bids required if \geq \$30,000, BOCC approval if \geq \$500,000

If yes, attach a copy of bid tab and the minority and women business enterprise (MWBE) compliance review form provided by the Purchasing Division.

If no, why?

- Sole source exemption
- Cooperative purchasing program exemption
- State and federal contract exemption
- Contract is an amendment to an existing contract
- Other (please explain)

If exempted from bidding, has this request been reviewed and approved by the Purchasing Division in the agenda Legistar system? Yes No

If no, why?



Fiscal Impact

Engineering services costs including preparation of the plans and specifications, construction inspection, approvals/permitting, construction administration, and record drawing preparation for the TWWTP Aeration System Enhancements are estimated not to exceed \$175,000. The engineering costs will be funded from the Enterprise Fund.

Recommendation

The County Manager recommends the Board to authorize the County Manager to enter into a contract amendment to increase the existing design consultant contract with Black & Veatch International Company (FR# 17-832) for Aeration System Enhancements for the Triangle Wastewater Treatment Plant in the amount of \$34,500, bringing the total contract amount from \$213,000 to \$247,500.