

ATTACHMENT A
SCOPE OF SERVICES
FOR BRYAN PARK WATER MAIN CONDITION ASSESSMENT PROJECT
AMENDMENT NO. 1

City of Greensboro Contract 2014-5457
City Project Manager: Melinda King, P.E.
Brown and Caldwell Project Manager: James Perotti, P.E.

I. PROJECT DESCRIPTION

The project tasks for Amendment No. 1 include testing and evaluation of the following water main:

- Bryan Park Water Main – Approximately 19,500 linear feet of 36-inch Prestressed Concrete Cylinder Pipe (PCCP)

The findings and recommendations of Amendment No. 1 will be documented in the form of a technical memorandum. Civil contractor services to prepare for and support the inspections will be provided by the City. The scope and budget herein are based on inspecting the Bryan Park Water Main using Pure Technology's *Remote Field Eddy Current/Transformer Coupled* tool (PipeDiver) and acoustic tool (SmartBall).

II. SCOPE OF SERVICES

Brown and Caldwell (Consultant) will provide the following Scope of Work for Amendment No. 1 of the Pipe Condition Assessment Support System Project:

Task 3 – Field Inspection

The scope and budget of Task 3.4 are for a free-swimming, in-line inspection using PURE's PipeDiver and SmartBall tools. Excavation, traffic control, permitting, backfill, and restoration work to accommodate the inspection will be performed by the City. The City will construct the necessary insertion and retrieval points and fittings prior to mobilization of the inspection subcontractor.

Task 3.1 - Joint Inspection

No change

Task 3.2 – Testing Field Oversight

No change

Task 3.3 – Coordination Meetings

No change

Task 3.4 - In-line Inspection

The Consultant's inspection subcontractor (PURE Technologies) will perform an in-line inspection of the water main to identify wire breaks in the PCCP water main using the PipeDiver tool. The in-

line inspection will include insertion of the free-swimming acoustic tool (SmartBall) to detect leaks or air pockets prior to insertion of the PipeDiver tool and pressure transient monitoring for a period of 60 days. The SmartBall insertion is also used as a proving run for the larger PipeDiver tool. For costing purposes it was assumed that the pipeline will be temporarily isolated, shut down and depressurized by the City for both the insertion and extraction.

The proposed cost is based on performing a free-swimming inspection of up to 19,500 LF in one insertion. The cost assumes one mobilization. Multiple inspection insertions, mobilizations, delays, additional inspection length, or inspection by another method may result in additional cost. The City will operate the system valves and pumping as required in the inspection plan and provide support to accommodate the inspection. See Section V City Responsibilities for details.

Consultant will manage Pure Technologies subcontract including project accounting, invoicing and subcontract management.

III. COMPENSATION

Compensation for services described in this Agreement for Amendment No. 1 of this contract shall be on a lump sum basis, by task, for the total compensation amount shown in Table 1. The Total Fee is not limited by task and can be moved between tasks as project needs dictate. The Total Fee shown in Table 1 represents the upper limit value of the contract, and the upper limit cannot be exceeded by the Consultant without prior written approval of the City. A breakdown of the fee for Amendment No. 1 Scope of Services is as follows:

Table 1. Fee Allocation	
Amendment No. 1 Tasks	Fee Allocation
Task 3.4 – In-line Inspection	
Pure Technologies *	\$256,350
BC Labor	\$1,250
Total Amendment No. 1 Compensation	\$257,600
* PURE Technologies cost includes 3% BC markup	

IV. PROJECT SCHEDULE

Following receipt of written Notice to Proceed (NTP), Amendment No. 1 shall be completed as shown in Table 2. The field inspection is anticipated to be conducted in April, 2016 however the exact inspection dates will be scheduled based upon availability of City crews and Pure. The durations shown in Table 2 incorporate the typical reporting times for PURE Technologies. The schedule may be adjusted as necessary to accommodate the City's operation requirements.

Table 2. Project Schedule	
Task Description	Estimated Completion Date*
In-line Inspection Services	To be determined ¹
Condition Evaluation TM	14 weeks following field inspection ²

* Schedule assumes 2 weeks for the City review of Condition Evaluation TM
¹ Timing of field inspection is dependent on City and PURE's availability.
² Includes 10 weeks for PURE's typical reporting time.

V. CITY'S RESPONSIBILITIES

To complete the scope of services outlined in this Amendment No. 1, City shall:

- Coordinate with public, obtain legal right-of-entry, permits and pay permit fees, as necessary, for the proposed work.
- Provide a secure storage facility where the inspection equipment can be shipped prior to inspection.
- Perform all work related to operation of and access to the water main system to accommodate the inspection including:
 - Construction of insertion/retrieval points including preparing and/or modifying existing pipeline fittings and structures as required and directed by the testing subcontractor to accommodate insertion of the equipment.
 - Provide and maintain reasonable access to all insertion sites throughout the inspection and obtain public works and/or police permits, as required
 - Flush water line prior to inspection
 - Operation of pumps and valves (including exercising and confirming the function of valves prior to the testing date) in a manner that will achieve the minimum flow velocity indicated in the project plan throughout the inspection and isolate and depressurize pipeline during insertion and extraction.
 - Coordination of testing schedule with water treatment plant (WTP) and other system operations staff
 - Excavate, de-water, install shoring, and/or provide scaffolding of job area and other civil activity as necessary, per OSHA standards. Install backfill and surface restoration.
 - Excavations/pothole excavations for tracking sensor installation, where required.
 - Provide support personnel during the inspection to provide and maintain safe and reasonable access to all insertion sites including traffic control, and other support as necessary. Provide support and safe access for pressure monitor installation and tracking sensor installation.
 - Provide a lifting device capable of lifting at least 4,000 lbs to lower the PipeDiver equipment into and raise the equipment out of the pipeline.

- Provide all supplies and equipment for disinfecting the pipeline as required by local codes and ordinances.
- Render confined space areas safe for the services, including locking and tagging pumps, valves and motors; de-watering areas to permit movement of persons and equipment; and vector and rodent control as necessary.
- If necessary, perform the civil and system operation tasks defined in the risk management plan in the event that the tool stops or becomes stuck in the water main.