

SCOPE OF SERVICES
CITY OF GREENSBORO
WATER RESOURCES DEPARTMENT

Old Battleground Road 24" Water Line Extension Project

August 29, 2016

The City of Greensboro (City) desires to extend a 24" water line along Old Battleground Road to improve redundancy and reliability of the water system. The project will include approximately 2,760 linear feet of new 24-inch ductile iron water, terminating at an existing 20-inch ductile iron water line. The City discussed this project with HDR Engineering Inc. of the Carolinas (HDR) and Critek Engineering Group (Critek). HDR intends to serve as the Prime consultant thru the current Master On-Call Agreement and sub-contract the majority of the technical services to Critek, including tasks associated with the Surveying, Geotechnical Investigation, Design, Easement Mapping and Construction Administration Phases.

The Scope of Services for the Project is defined as follows:

Task 100 – Project Management and General Administration Services

Project management and general administration services include the efforts necessary for overall administration of the project, interfacing with Critek and City staff, and invoicing. Critek will be responsible for Surveying, Geotechnical Investigation, Design, Easement Mapping and Construction Administration Phases.

Assumptions:

All technical QC/QC on the project shall be handled by Critek.

All technical review comments provided by the City shall be addressed by Critek.

Meetings and schedule updates shall be coordinated by Critek.

PAYMENTS TO ENGINEER

Compensation for the services outlined above shall be on a time and materials basis, not to exceed amount of One Hundred Nine Thousand and Two Hundred Dollars (\$109,200).

The fee includes \$93,684 for Critek (MBE subcontractor). The remaining fee will be utilized by HDR for Project Management, as required. Critek scope letter is attached.

**City of Greensboro
Old Battleground Waterline - Crittek**

Task	Task Description							Total	Expenses			Total	Total
		PM	PE	EIT	ACT	ADM	Total	Labor	Travel	Co/Ma	Subs	Expenses	Fee
100	Project Management and General Services	12	34		24	2	72	\$9,800	\$500	\$200	\$93,684	\$99,315	\$109,200
	Total	12	34	-	24	2	72	\$9,800	\$500	\$200	\$93,684	\$99,315	\$109,200

August 18, 2016

Ms. Mary Knosby, PE
Vice President
HDR
440 S. Church Street, Suite 1000
Charlotte, NC 28202

**Subject: Proposal for Professional Engineering Services for
Old Battleground Road 24" Water Line Extension Project**

Dear Ms. Knosby:

CriTek Engineering Group, P.C. (CriTek), is pleased to submit this proposal for professional engineering services for the Old Battleground Road Water Line Extension Project. CriTek has put together a team of professionals, of which have significant experience working on similar projects, to complete the work on the project.

The attachment provides more detail on the engineering scope, and the fee for our services. CriTek appreciates the opportunity to work with HDR and the City of Greensboro towards the successful completion of this project. If you have any questions, or need additional assistance, please do not hesitate to call.

Very truly yours,

CriTek Engineering Group



J. Dawayne Crite, PE
President

Attachments
GSO.2016.01

Understanding of the Project

Based on discussions with the City of Greensboro (City) staff, the project will include expansion of the water distribution system to include approximately 2,760 linear feet of new 24-inch ductile iron water line along Old Battleground Road in Greensboro, NC. The new water line will begin at an existing 24-inch water line approximately 500 feet north of the intersection of Battleground Road and Old Battleground Road, extending north along Old Battleground Road, terminating at an existing 20-inch ductile iron water line approximately 550 feet north of the intersection of Old Battleground Road and British Lake Drive. The purpose of the water line is to improve redundancy and reliability of the water system. The water line expansion scope consists of:

- New 24-inch ductile iron piping, fittings and valves
- One trenchless crossing of Old Battleground Road
- Two water system connections

Scope of Work

The Scope of Work (SOW) to be performed by CRITEK ENGINEERING GROUP will include the following tasks associated with the Surveying, Geotechnical Investigation, Design, Easement Mapping and Construction Administration Phases:

Surveying

1. CRITEK ENGINEERING GROUP will subcontract surveying services for the project. JC WALLER AND ASSOCIATES, PC. will perform survey services as a sub-consultant to CRITEK ENGINEERING GROUP.
2. Perform property research for properties within the project corridor, and send notification letters to potentially affected property owners at least 30 days prior to accessing their property.
3. Establish and utilize horizontal survey control along the project route to Class AA boundary survey specifications as defined in the Standards of Practice for Land Surveying in North Carolina, NCAC Title 21, Chapter 56.1603 and based on the North American Datum of 1983 (NAD 83).
4. Establish and utilize vertical control along the project route to Class A vertical control survey specifications as defined in the Standards of Practice for Land Surveying in North Carolina, NCAC Title 21, Chapter 56.1605 and based on the National Geodetic Vertical Datum of 1988 (NAVD88).
5. Coordinate with the City's Engineering and Inspections Department staff on the horizontal and vertical control for the project, to facilitate the City's work regarding property acquisition and eventual construction staking.
6. JC WALLER AND ASSOCIATES, PC will provide a topographic map of the survey area with contours at one (1) foot intervals.
7. Perform boundary surveying and mapping of existing property lines and rights-of-way within the project corridor. Property owner information will be provided and house/building numbers will be added where applicable.
8. Survey any existing sanitary sewer and storm drainage systems that is apparent without using Ground Penetrating Radar (GPR) within the project corridor, and incorporate these systems into the overall base mapping for the project.

9. Contact NC 811 to have existing underground utilities marked within the project corridor, such as water, gas, power, and telecommunication lines. The utility markings will be surveyed, and this information will be incorporated into the overall base mapping for the project.

Geotechnical Investigation

1. CRITEK ENGINEERING GROUP will subcontract geotechnical services for the project. S&ME, Inc. will perform subsurface investigation services as a sub-consultant to CRITEK ENGINEERING GROUP.
2. Perform eight (8) borings along the water line alignment. The borings are adjacent to the existing road and will require traffic control. The borings will advance 12 feet below grade or auger refusal.
3. Standard Penetration Tests (SPT) will be performed in the borings at 2.5-foot intervals in the top 10 feet, then at 5-foot intervals thereafter, in general accordance with ASTM D 1586.
4. Water level measurements will be performed at the termination of borings.
5. Following completion, borings will be backfilled with cuttings and a commercial hole closure device installed near the ground surface.
6. Perform limited laboratory testing including natural moisture contents (2 tests), Atterberg limits test (1 test), and grain size analysis (2 tests) on selected soil samples.
7. Preparation of an engineering report summarizing understanding of the proposed construction, exploration, regional geology, subsurface conditions, and recommendations.

Preliminary Design

1. CRITEK ENGINEERING GROUP will request site plans and design plans of the existing City maintained water lines, sewer, storm drains and other utility infrastructure along the proposed alignment. It is estimated that two (2) CRITEK ENGINEERING GROUP representatives will be required in the field for 0.5 days to conduct onsite investigation of the proposed site to review and inspect existing conditions.
2. Prepare preliminary plans for the proposed water lines, and meet with City staff at 30%, 60%, and 90% stages to review progress plans.
3. Prepare a preliminary table of contents for specification sections that are anticipated for the project.
4. Develop a traffic control plan and review with City staff.

Final Design

1. Prepare final drawings for the proposed water lines. The following list of drawings is expected for the project:
 - a. Cover Sheet (1 sheet)
 - b. General Notes, Sheet Index, Site Plan (1 sheet)
 - c. Water Main Plan and Profile Drawings at 1" = 40' scale (3 sheets)
 - d. Miscellaneous Details (1 sheet)
 - e. Erosion and Sedimentation Control Devices (2 sheets)
2. Prepare final specifications based on the City of Greensboro Master Specifications.

3. Prepare an itemized opinion of probable construction cost for the proposed water lines based on the final drawings and specifications.
4. Provide three (3) sets of final drawings and specifications. Plans and specifications will also be available in electronic format (PDF, DWG, etc.) as required by the City.

Regulatory Permitting

1. Prepare applications, technical criteria and design data for use in obtaining regulatory agency approvals. Submittals will be required for:
 - a. City of Greensboro Water System Extension Permit
 - b. NCDEQ - Division of Environment, Mining and Land Resources (erosion control permit)
 - c. City of Greensboro Department of Transportation (encroachment agreement).
2. Coordinate the payment of application fees to regulatory agencies by the City.
3. Furnish copies of the drawings and specifications for agency review purposes.
4. Respond to any comments received from review agencies.

Easements

1. Strip drawings (G-drawings), Deed Forms and property exhibits will be prepared for each property where easements need to be acquired per 21 NCAC 56.1604 and 21 NCAC 56.1103.

The easement map exhibits shall adequately describe the boundaries of any required permanent and temporary easements. The individual easement map exhibits shall be prepared on letter or legal size pages whenever possible so they can be recorded with the Deed of Easement documents. We understand that the Engineering & Inspections Department will provide a template for the individual easement map exhibits.

Construction Administration

1. Attend the Pre-Bid Meeting and the Bid Opening. CRITEK ENGINEERING GROUP will also assist City staff with answering questions from prospective bidders during the bid process, and with preparation of any necessary addendums.
2. After the project is awarded to Contractor, CRITEK ENGINEERING GROUP representatives will:
 - Conduct the Pre-Construction Meeting and prepare meeting minutes.
 - Review shop drawings and submittals from the contractor.
 - Review and respond to Requests for Information (RFI's) from the contractor.
 - Review change order requests.
 - Perform periodic site visits during construction (up to ten 2-hour site visits included).
 - Attend the final field inspection with the contractor and City staff.
 - CRITEK ENGINEERING GROUP will prepare record drawings identify locations of valves, hydrants, etc. Record drawings will be prepared from information by the contractor and City inspector.

Summary of Deliverables

The following deliverables will be provided:

1. Complete survey base mapping for the project corridor, including:
 - a. Horizontal/vertical control file(s) which can be shared with the City's Engineering & Inspections Department for their use in staking easements and construction staking.
 - b. Topographic mapping produced from ground survey.
 - c. Mapping of existing property lines and rights-of-way, including property owner information and house/building numbers where applicable.
 - d. Mapping of existing sanitary sewer and storm drainage systems within the project corridor.
 - e. Mapping of identified existing underground utilities within the project corridor.
2. One (1) full-size set of progress plans for the proposed water lines at 30%, 60%, and 90% design stages.
3. Final Sealed Construction Plans and Specifications in PDF format. We understand that the City will distribute bid documents to prospective bidders through Duncan-Parnell.
4. Engineer's Estimate of Probable Construction Cost.
5. Easement strip maps (G-Drawings) and individual easement map exhibits for each easement parcel. Preparation of G-Drawings and up to twelve (12) easement map exhibits are included in the SOW.
6. One (1) set of mylar record drawings will be provided to the City. Record drawings can also be provided in digital format, including scanned images (PDF/TIF), GIS, or DWG files upon request.

Responsibilities of the City

It is our understanding that the City will be responsible for the following:

1. Furnish available information pertinent to the project to allow CRITEK ENGINEERING GROUP to provide the scope of services described herein.
2. Provide record drawings and utility mapping in either AutoCAD (.dwg), GIS (shapefile), or TIFF/PDF format for existing water, sewer, storm drain and other City maintained lines within the project corridor.
3. Advise CRITEK ENGINEERING GROUP of project issues as they arise, such as changes in scope or schedule.
4. The City will distribute bid documents to prospective bidders.

Assumptions Developed Within the Scope

CRITEK ENGINEERING GROUP has made the following assumptions while developing the scope and fee:

1. The diameter of the proposed water line has been established by others and does not need to be evaluated by CRITEK ENGINEERING GROUP.
2. The proposed water line will be a pressure main of ductile iron material.
3. The proposed water line will be installed using open-cut construction methods with the exception of one trenchless crossing of Old Battleground Road.
4. The total length of the survey will not exceed 2,800 linear feet based on the GIS map and lengths provided by the City.
5. Old Battleground Road is a City maintained road and does not require a NCDOT encroachment permit.
6. Only those permits specifically mentioned in this Scope of Work are anticipated and included in the scope of services.
7. The City will pay all permit application fees.
8. Following the initial permit application, CRITEK ENGINEERING GROUP will address and resubmit permits once.

Project Schedule

This scope of work assumes up to 70 weeks for design, permitting and bidding. A detailed project schedule will be developed and agreed to between the City and CRITEK ENGINEERING GROUP prior to initiating design. The proposed time periods for the performance of CRITEK ENGINEERING GROUP'S services are as follows:

Notice to Proceed issued to CRITEK ENGINEERING GROUP by September 1, 2016

30% Design submitted to the City within 92 days from Notice to Proceed

60% Design submitted to the City within 182 days from Notice to Proceed

90% Design submitted to the City within 256 days from Notice to Proceed

100% Design submitted to the City within 361 days from Notice to Proceed

Notice to Proceed issued to Contractor within 490 days from Notice to Proceed

Compensation

CRITEK ENGINEERING GROUP proposes to perform engineering and surveying services, based on the Scope of Work described herein, on a time and materials basis, for the maximum estimated fee of **Ninety Three Thousand Six Hundred Eight Four Dollars (\$ 93,684.00)**. Estimated fee limits for major tasks are listed below.

- Surveying, Geotechnical Services and Design: \$65,727.00
- Permitting: \$5,318.00
- Easement Mapping: \$ 3,600.00
- Construction Administration: \$19,039.00

The attached Standard Rate Schedule shall apply to this project.

Reimbursable expenses are described as follows:

1. Mileage and associated travel costs for employees working on the project.
2. Postage and shipping charges associated with the project.
3. Sub-consultant expenses at a multiplier of 1.0.

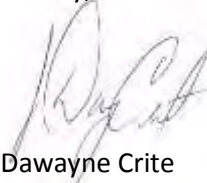
Additional Services

CRITEK ENGINEERING GROUP is available to provide additional services in conjunction with this project, which are unforeseen at this time. Any additional services would be performed in accordance with our standard rates, and costs would not be incurred without prior authorization.

Closing

CRITEK ENGINEERING GROUP appreciates the opportunity to submit this proposal for engineering surveying and geotechnical services. If acceptable, please forward the appropriate contract documents to our office for execution. If you have any questions or if you would like to discuss this proposal in more detail, please let me know.

Sincerely,



J. Dawayne Crite
President
CRITEK ENGINEERING GROUP