

Mr. Jay Guffey, PE
Water Resources Department
City of Greensboro
2602 S. Elm-Eugene Street
Greensboro, NC 27406

Arcadis G&M of North Carolina,
Inc.
7029 Albert Pick Road
Suite 101
Greensboro
North Carolina 27409
Tel 336 292 2271

Subject:
Proposal for Engineering Services
Brush Creek Outfall Replacement Design and Bidding Phases

WATER

Date:
March 26, 2020

Dear Mr. Guffey:

Contact:
David Hamilton, PE

Arcadis G&M of North Carolina, Inc. (Arcadis) is pleased to submit this proposal to provide engineering services for the Design and Bidding Phases of the Brush Creek Outfall Replacement improvements project.

Phone:
336 443 2472

Arcadis will work with sub-consultants Stewart Engineering, Inc, and second tier subconsultant SR&R Environmental, Inc. to perform these services. M/WBE participation from Stewart Engineering is expected to be approximately 14%.

Email:
david.hamilton
@arcadis.com

A separate proposal for Construction Phase services will be submitted following completion of the 90% submittal of Final Design Phase, or when requested.

ARCADIS G&M of North Carolina, Inc.

Project Considerations

NC Engineering License # C-1869
NC Surveying License # C-1869

The City of Greensboro is experiencing growth and increased sewer flows in the north west part of the City near PTI Airport. Future planning year flows have been modeled and the capacity of the existing outfall sewer leading to the Cardinal Sewer Lift Station will be exceeded soon. The existing sewer is recorded to be 15-inch PVC Truss pipe (although recent field observations indicate it is ductile iron pipe). Preliminary proposed replacement pipe sizes were identified in the 2017 Sewer Master Plan, however, the City would like a higher factor of safety on the level of service expectations for these particular sewers when they are replaced. The proposed limits of the project are from the Cardinal Sewer Lift Station upstream to Muirfield Drive, traversing The Cardinal Country Club Golf Course property. A total of approximately 9,000 LF of 15-inch sewer is expected

to be replaced with 8,200 LF of 18-inch gravity sewer by pipe bursting and approximately 800 LF of 21-inch gravity sewer by constructing parallel sewer and abandoning the existing sewer.

Design Phase

During the design phase of this project, detailed drawings and specifications, contract documents, and an estimate of the overall construction cost will be prepared and provided to the City. The design steps will include verifying expected future sewer flows and pipe sizes, determining horizontal and vertical pipe alignment for the new pipeline, anticipated utility conflicts, soils investigations, sewer main condition assessment by video, determining the proposed construction method, location and topographic survey requirements, and property and regulatory concerns, etc. The design phase also includes a detailed quality assurance review by an experienced senior engineer with Arcadis. The design phase will conclude by addressing any comments received from the quality assurance review, the review with the City, and the review by regulatory agencies required for Authorization to Construct.

Specific tasks anticipated for the design phase include the following:

Task A. Communications

1. Meet initially with the City to review, and adjust as needed, the design scope and mutually agreeable schedule.
2. Meet with City staff and officials and others throughout the design phase (particularly at approximately 30%, 60% and 90% completion as a minimum) and develop and distribute meeting minutes.
3. Communicate as needed with various project stakeholders (property owners, utility companies, regulatory agencies, etc.).
4. Hold virtual meetings as needed to facilitate progress when in-person meetings are not possible.

Task B. Survey

1. Surveying services will be provided in coordination with Stewart Engineering, Inc.
2. 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 56.1600 and based on NAD 83. The horizontal control survey will be coordinated with the City's Engineering and Inspections Department staff to facilitate their work in regard to additional horizontal control for property acquisition, and eventual construction staking by the City.
3. 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 56.1600 and based on NAVD 88.
4. Notify potentially affected property owners 30 days prior to accessing their property. Note that some investigative fieldwork contained within the City's existing utility easements can begin prior to the expiration of the 30-day notice period.

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5. Perform location surveys of planimetric features by aerial photogrammetry (likely by drone) followed by ground survey to confirm location of existing objects in the 35 foot wide corridor on either side of the existing pipeline utility construction corridor.
6. Develop topographic information to 1' contours within the proposed utility construction corridor.
7. Locate buried utilities and their designation markings within the project corridor and indicate those crossings as required (SUE Level B). Locate conflicting utilities vertically using vacuum excavation potholes to expose the utilities (SUE Level A). For purposes of this scope and budget, we have assumed 3 vacuum excavation potholes up to 10 feet deep.
8. Locate and horizontally and vertically survey nearby sanitary and storm sewer structures to evaluate potential conflicts with sewers that cross the proposed utilities.
9. Locate but do not perform metes and bound survey of surrounding property lines affected by proposed utility construction corridor or access to the corridor.

Task C. Design Construction Contract Documents Development

1. Verify the proposed pipe sizes by using the City's Sewer System Model (InfoWorks ICM) and adjusting the level of service of surcharging in manholes during a Y2050 10-year storm from 2 feet below rim to a more conservative 4 feet below rim.
2. Video the existing sewer pipe interior via a sub-consultant to verify material, condition, vertical alignment, and presence of service connections. Video will be performed by SR&R Environmental as a sub to Stewart Engineering.
3. Provide geotechnical services via a sub-consultant (includes up to 10 soil bores) and provide final geotechnical report.
4. Identify regulatory requirements/restrictions for the gravity sewer improvements related to streams/buffers and wetlands, sewer extension/replacement, road right-of-way encroachments, floodplain development, etc.
5. Develop preliminary table of contents for the basic technical specification sections anticipated.
6. Furnish a preliminary opinion of probable construction cost for the project based on the 60% drawings.
7. Prepare final drawings and specifications to define the scope, extent, and character of the work to be performed by contractors. Except where sewer pipe is being paralleled by new pipe, rather than pipe bursting, the Drawings will not include pipe profiles as they are not necessary for pipe bursting and same trench replacement. For same trench replacement, we will match existing inverts rather than the tradition matching of crowns.
8. Reference the City's standard construction drawing details where available and develop additional project-specific drawing details as needed.
9. Develop material and equipment specifications, bidding documents, general and supplemental conditions, contract agreement forms, etc. in concert with the City Master specifications and the City staff input. Develop project-specific specifications as needed (e.g. Pipe Bursting, Bypass Pumping, etc.).

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10. Identify and show property owner information on the drawings. House/building numbers will be added where applicable. Lateral connections will be shown based on CCTV tap linear referencing and on assumed path to property line.
11. Indicate required permanent and temporary utility easement widths associated with the improvements.
12. Complete in-house quality and constructability reviews. Revise documents and submit them to City staff for review and approval.
13. Furnish an itemized opinion of probable construction cost for the project based on the final drawings and specifications in the City's bid form (bidder proposal) format.
14. Provide digital (.pdf) copies of final drawings and specifications for City's use.

Task D. 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 Resources Dept. and Engineering Dept. (sanitary sewer extension permit)
 - b. COG-Engineering (Construction Drawing review)
 - c. COG-Stormwater Services (Floodplain Development permit); we expect a no-rise certification will be issued
 - d. NCDEQ-Division of Water Resources and USACE (PCN for 401/404 permit)
 - e. NCDEQ-Division of Energy, Mineral and Land Resources (erosion control permit)
 - f. NC Department of Transportation (encroachment agreements), if needed.
2. Prepare applications, technical criteria and design data for use in obtaining property right-of-way encroachment approvals from affected utility companies (e.g. Duke Energy encroachment).
3. Coordinate the payment of all other regulatory agencies application fees to be paid by the City.
4. Furnish copies of the drawings and specifications for agency review purposes.
5. Respond to any comments received from review agencies.

Easement Mapping and Legal Descriptions

1. Prepare easement documents to include individual easement maps as required by City of Greensboro for up to four (4) affected private properties, including metes and bounds descriptions of easement on each property in conformance with the City standards. These documents will be prepared by Stewart Engineering, Inc. (sub-consultant to Arcadis) and will be suitable for recordation.
2. The scope of services will include conversations and meetings with the City or property owners throughout the property/easement acquisition phase. Design drawing changes, revisions to regulatory permits or applications, or significant easement adjustments resulting from property/easement negotiations with the property owner will be considered additional services and eligible for additional fee. Advance notice will be given to the City as these occurrences are foreseen.

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Bidding Phase Services

Arcadis will perform the following as needed:

1. Provide information, including a digital (.pdf) drawing set and Project Manual, to City for advertising as requested.
2. Attend and participate in Pre-Bid conference.
3. Assist City in issuing Addenda as appropriate to clarify, correct, or change the Bidding Documents.
4. Conduct "or equal" reviews of materials or equipment requested during the bid phase in accordance with the construction contract documents. Assumes 1 "or equal" item review.
5. Attend Bid Opening (up to 2 meetings) and assist City in evaluating Bids, and negotiating when needed, for the construction work as requested, including a recommendation on bid acceptance based on whether bidder is responsive and responsible and whether bidders' historical performance is acceptable.
6. Consult with City as to the acceptability of subcontractors, suppliers, and other individuals and entities proposed by Contractor for those portions of the Work for which such acceptability is required by the Bidding Documents.
7. If a re-bid is required, those services will be considered eligible for negotiation with the City as additional services.

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 Arcadis to provide the scope of services contained herein.
2. Provide information pertaining to construction method preferences and major material and equipment selection preferences for the project.
3. Assist in locating and clearing existing City utility easements as requested and at times convenient to the City, but prior to scheduled fieldwork.
4. Provide existing record drawings and existing utility mapping in either AutoCAD (.dwg) or GIS (shape file) format. Information will include digital orthophotography, property lines, contours, existing sanitary sewer, storm sewer, and water line locations, stream locations, and other data that may be available.
5. Provide recent relevant flow monitoring data.
6. Pay for all fees associated with various regulatory review submittals.
7. Provide, as required for the project, accounting, financial, insurance, or legal advisory services to address issues that the City requires or Arcadis reasonably requests.
8. Advise Arcadis of associated project issues as they arise, such as changes in scope or schedule.
9. Attend project meetings as necessary for timely information exchange and decision-making.
10. Give prompt notice to Arcadis when City becomes aware of any environmental condition (hazardous or otherwise), or other developments that affect scope or schedule of services provided by Arcadis.
11. Provide private property-owner public outreach as necessary. Arcadis' private-property-owner public outreach involvement will be provided as additional services if requested.

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Fee Proposal

Arcadis proposes to provide the above engineering services according to the terms of the existing On-Call Services agreement on a time and materials fee basis with a 3.2 multiplier on direct labor, plus expenses including subcontractors at a 1.1 multiplier, for the maximum estimated fee of \$488,000. The contract maximum fee will not be exceeded without prior authorization by the City. The fee estimate is itemized below.

Phase/Task	Estimated Fee
Design Phase	
Design (Arcadis)	\$330,221
Survey (Stewart) – MBE*	\$55,675
Geotech (Stewart) – MBE*	\$6,500
Sewer Cleaning (Stewart/SR&R)*	\$51,454
Video Inspection (Stewart/SR&R)*	\$27,630
Design Subtotal	\$471,480
Easement Phase (Stewart) – MBE*	\$7,020
Bidding Phase (Arcadis)	\$9,500
Total	\$488,000

Asterisks indicate that fees shown for subconsultant do not include Arcadis's fee for coordination and mark-up. Arcadis's fees are included in the Arcadis Design task.

Reimbursable expenses are described as follows:

1. Mileage and associated travel costs for employees working on the project at current IRS-approved rate per mile. Rental car costs associated with staff traveling to the project site from other offices.
2. Hotel and meal costs associated with overnight stays for staff from other offices being in Greensboro to work directly on the project.
3. Reproduction of project-related materials by outside vendors.
4. Postage and shipping charges associated with the project.

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Brush Creek Outfall
March 26, 2020

Fees for Construction Administration Phase engineering services for the improvements are considered additional services and associated scopes and fees will be negotiated after the City's review and acceptance of the Final Design or when requested.

We look forward to assisting the City of Greensboro in providing these services. If this proposal meets your approval, please provide a Supplemental Agreement to our existing Agreement for Professional Services for execution. We and our sub-consultant team thank you very much for this opportunity.

Sincerely,

Arcadis G&M of North Carolina, Inc.



David Hamilton, PE
Project Manager, Associate Vice President

Copies:

Ms. Virginia Spillman (COG)

This proposal and its contents shall not be duplicated, used or disclosed — in whole or in part — for any purpose other than to evaluate the proposal. This proposal is not intended to be binding or form the terms of a contract. The scope and price of this proposal will be superseded by the contract. If this proposal is accepted and a contract is awarded to Arcadis as a result of — or in connection with — the submission of this proposal, Arcadis and/or the client shall have the right to make appropriate revisions of its terms, including scope and price, for purposes of the contract. Further, client shall have the right to duplicate, use or disclose the data contained in this proposal only to the extent provided in the resulting contract.