

CITY OF HIGH POINT

AGENDA ITEM



Title: Richland Creek Sewer Outfall- Aerial Sewer Pipe Replacement
CDM-Smith

From: Terry Houk – Public Services Director
Derrick Boone – Public Services Asst. Director

Meeting Date: May 4, 2020

Public Hearing: N/A

Advertising Date: N/A
Advertised By: On-Call

Attachments: Attachment A- Map
Attachment B- Proposal

PURPOSE:

To contract with CDM-Smith for the engineering and design work for the aerial sewer pipe replacement of the Richland Creek Outfall.

BACKGROUND:

The Richland Creek sewer outfall is one of the two primary sewer lines that discharge into the Eastside Wastewater Treatment Plant. The 48-inch sewer outfall was constructed in the late 1970s. It is comprised of both buried sections of reinforced concrete pipe (RCP) and aerial sections of spiral-weld steel pipe (WSP) elevated on concrete piers. The aerial sections of the outfall are in very poor condition and numerous temporary repairs have been performed by the Water and Sewer Mains Division. The scope of the project will be to replace the 16 aerial crossings (totaling approximately 5,600 feet) with new spiral-weld steel pipe (WSP).

BUDGET IMPACT:

Funds for this project are available in the 2019-2020 Budget.

RECOMMENDATION / ACTION REQUESTED:

The Public Services Department recommends approval and requests Council to approve the professional engineering services contract to CDM-Smith in the amount of \$681,690.



Example of aerial section of the Richland Creek Outfall



Wastewater spill due to pipe deterioration and large rain event



Example of a temporary repair



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April 2020

Mr. Derrick Boone
Assistant Public Services Director
City of High Point
211 S. Hamilton Street, Room 206
High Point, North Carolina 27260

Subject: City of High Point
Richland Creek Sewer Outfall – Aerial Sewer Pipe Replacement
Proposal for Engineering Services for Design, Permitting and Bidding - Revision 1

Dear Mr. Boone:

CDM Smith (ENGINEER) is pleased to submit this Amendment for Engineering Services to the City of High Point (OWNER) for the design, permitting, and bidding services for the Richland Creek Sewer Outfall project. Our proposed scope of services, schedule for completing the work, and fee estimate are summarized further below.

PROJECT DESCRIPTION

ENGINEER completed a study/condition assessment of the existing 48-inch Richland Creek sanitary sewer outfall pipe and determined that the aerial portions of the sanitary sewer are in need of replacement or rehabilitation. This is per our *Richland Creek Sewer Outfall – Condition Assessment and Alternatives Evaluation Technical Memorandum – FINAL (March 19, 2020)*. At the OWNER's request, this Scope of Work has been developed to provide data collection, design, permitting, and bidding services for replacement of the 16 aerial crossings (totaling approximately 5,600 feet) with new spiral-weld steel pipe (WSP). The following provides a detailed description of the work to be performed.

BASIC SERVICES

Basic Services to be provided by the ENGINEER under this Agreement shall be limited to the following:

- Task 100 – Project Management and Quality Control
- Task 200 – Data Collection



Mr. Derrick Boone
Richland Creek Sewer Outfall
Engineering Services Proposal – Revision 1
April 2020
Page 2

- Task 300 – Final Design
- Task 400 – Permitting
- Task 500 – Bidding
- Task 600 – Construction Contract Administration (FUTURE TASK)
- Task 700 – Construction Observation (FUTURE TASK)

The detailed scope of services for the basic services included under this Contract (Tasks 100 through 500) follows:

TASK 100 PROJECT MANAGEMENT AND QUALITY CONTROL

This task includes activities involved with the detailed planning and subsequent monitoring and control of the project. In addition to the ENGINEER's normal in-house staff management, invoicing, and job tracking procedures, the following subtasks will be considered project management services:

- 101 Project Schedule Development: A detailed project schedule will be developed for all major activities associated with each project task. The schedule will be reviewed and finalized with the OWNER at the project kickoff meeting.
- 102 Project Initiation and Monthly Project Management Activities: A project kickoff meeting will be held with the OWNER to discuss project schedule, administrative procedures, respective responsibilities, communications, OWNER contacts, OWNER expectations, progress reporting, data collection, and other project matters as appropriate. Key stakeholders of the OWNER and ENGINEER's project team are expected to attend.
- 103 Quality Control: ENGINEER will undertake quality control activities in accordance with ENGINEER's Quality Management System (QMS) that includes monthly project status reporting, communication plans, and independent specialist reviews. Technical reviews of final design deliverables are included in Task 300.

TASK 200 DATA COLLECTION

ENGINEER shall collect data needed to develop design documents suitable for bidding. The following data collection services will be performed:

Mr. Derrick Boone
Richland Creek Sewer Outfall
Engineering Services Proposal – Revision 1
April 2020
Page 3

201 Field Survey

ENGINEER and its survey subcontractor will perform topographic and planimetric surveying services to provide accurate information as to the horizontal and vertical locations of existing structures, land features, and property identification for the project. The project area includes a 75-foot wide corridor, centered on the existing gravity sanitary sewer and extending from the upstream to the downstream manhole for each of the 16 aerial crossing locations only. Level-B Subsurface Utility Exploration (SUE) shall be completed to identify underground utilities within the project area. All surveying shall be in accordance with current North Carolina surveying standards and conducted using conventional, GPS, or other industry-accepted methods.

Features to be surveyed within the project area include topography (1' contours); planimetrics; property corners; stream centerline, toe-of-bank, and top-of-bank; stream and wetland flagging; diameter and type of trees with a diameter-at-breast-height (DBH) of 8" and greater; tree and brush lines; existing public and private utility easements; road rights-of-way and limits of controlled access; and utilities. Prior to actual construction of the final proposed project, the survey subcontractor shall establish up to three (3) temporary benchmarks that may be used by the Contractor for both horizontal and vertical control during the construction phase of the project.

202 Geotechnical Investigation

If geotechnical investigations are required for the project, the OWNER will retain the services of a subcontractor to perform a geotechnical investigation along the proposed alignment to observe subsurface conditions and support the design of any new or replacement concrete piers. The borings would be performed between the 30 and 60 percent design, after the existing concrete pier condition assessment has been completed to determine if any existing concrete piers require replacement or if any new concrete piers are required based on pipe loadings of the replacement WSP, or design code recommendations. It is assumed that the OWNER's geotechnical subcontractor will prepare the summary geotechnical data report and will locate the horizontal location of the borings via GPS. ENGINEER will review the data report and provide comments/questions to clarify the findings by the OWNER's subcontractor.

203 Stream and Wetland Identification and Delineation

ENGINEER will delineate jurisdictional streams and wetland boundaries in the project corridors according to the 1987 US Army Corps of Engineers (USACE) Wetland Delineation Manual and significant nexus (Rapanos) forms as needed, and jurisdictional areas will be flagged in the field for confirmation by USACE and/or the NC Division of Water Resources

Mr. Derrick Boone
Richland Creek Sewer Outfall
Engineering Services Proposal – Revision 1
April 2020
Page 4

(DWR). It is assumed that the stream and wetland boundaries can be delineated in a 2-day site visit. Upon completion of the site visit, ENGINEER will prepare a Preliminary Jurisdictional Determination request and will contact a representative of USACE to schedule a site visit to approve the delineation. This Task includes a 1-day site visit with the USACE (and DWR as applicable) representative to verify and approve ENGINEER's delineation. Upon confirmation by USACE, ENGINEER will engage a licensed surveyor to survey the delineation flagging and will incorporate this information into the overall project survey.

The field visit includes a desktop analysis and habitat assessment for protected species based on the wetland delineation field walk. Surveys for protected species and archaeological resources are not included.

204 Existing Concrete Pier Condition Assessment

ENGINEER will perform a visual condition assessment of each of the existing concrete piers, ring girders, anchor straps, and other ancillary infrastructure used to support and/or secure the pipe to the concrete piers for the 16 aerial crossings. The condition assessment will be limited to what can be observed from the ground (i.e., equipment will not be used to bring staff up to the elevated piers). Up to three (3) days of field work by a two-man structural engineering crew is assumed. Results of the evaluation will be documented in the 30 percent design submittal including recommendations for replacement or supplemental piers (if needed) to be included in the final design documents.

TASK 300 FINAL DESIGN

ENGINEER shall prepare Contract Documents to include drawings and technical specifications showing the scope, extent, and character of the work to be performed and furnished by the Contractor. Drawings will be presented on 22"x34" sheet sizes. OWNER's Division 0 specifications/Contract Documents will be utilized. ENGINEER will provide the additional front end and technical specifications as needed in general conformance with the 50-division format of the Construction Specifications Institute (CSI). The final design will include the following drawings:

- General design drawings including up to 8 general sheets (including one [1] cover, one [1] general notes and abbreviations, one [1] sheet index, one [1] key map, and up to four [4] construction access sheets) and up to 7 civil detail sheets.
- Civil design drawings including up to 15 plan (1"=20') and profile (1"=4') drawings for the replacement of up to 5,600 feet of 48-inch diameter aerial, gravity sanitary sewer. A 24" welded-on saddle and blind flange for access is assumed to be located at the end of each aerial segment (32 ends plus 1 between Aerial Crossing #2 and #2a).

Mr. Derrick Boone
Richland Creek Sewer Outfall
Engineering Services Proposal – Revision 1
April 2020
Page 5

- Structural design drawings including up to 3 sheets for rehabilitation or replacement of concrete piers, ring girders, anchor straps, anchor bolts, and other ancillary infrastructure required to support and/or secure the pipe to the concrete piers. Design of new or replacement concrete piers will be provided in 10-foot height increments up to 40 feet (up to 4 standard designs).

The design documents will be prepared as a single bid package. The design will be carried out in cooperation with the OWNER and will include the following deliverables:

- 30% Design Submittal: Includes list of anticipated specifications, plan view drawings (no profile) depicting the collected survey and extents of aerial sanitary sewer to be replaced, and opinion of probable construction cost (OPCC).

ENGINEER will also provide a technical memorandum (TM) presenting a coatings alternatives analysis, existing concrete pier improvements, construction access evaluation, and recommended WSP wall thickness. The coatings alternatives analysis will include potential interior and exterior coatings and their associated pros/cons, life expectancy, and capital and life cycle cost. The concrete pier improvements will include recommendations for replacement or rehabilitation of the existing concrete piers and/or associated appurtenances based on the condition assessment included in Task 200. The construction access evaluation will present alternatives for Contractor access to each aerial crossing and the associated environmental and public impacts of each alternative.

- 60% Design Submittal: Includes key technical specifications, plan and profile drawings, key technical details, and an updated OPCC. ENGINEER will also include a bypass pumping evaluation that will present options for potential bypass pumping challenges associated with stream and wetland crossings, NCDOT road crossings, high voltage power easement crossings, and odor and noise considerations when working near residential/commercial properties. A detailed bypass pumping plan will not be developed as part of the design, as that is a means and methods to be determined by the Contractor. However, a sequencing plan will be included in the specifications to guide the Contractor on specific requirements and limitations associated with bypass pumping.
- 90% Design Submittal: Includes all front end and technical specifications and all design drawings adequate for permit submittals.
- Bid Set: Includes all specifications and design drawings and an updated OPCC.

Mr. Derrick Boone
Richland Creek Sewer Outfall
Engineering Services Proposal – Revision 1
April 2020
Page 6

At approximately the 30- and 60-percent completion stages of the drawings and specifications, ENGINEER will perform an internal Technical and Constructability Review. At 90-percent completion, ENGINEER will perform a final coordination and biddability review of drawings and specifications.

ENGINEER will meet with OWNER at the 30, 60, and 90 percent design milestones to discuss review comments.

TASK 400 PERMITTING

ENGINEER will prepare the applications for the required permits and approvals for submittal to the respective agencies. ENGINEER will prepare the submittal packages and submit to the applicable regulatory agency on the OWNER's behalf, unless the OWNER elects to submit them. ENGINEER has assumed the following permits and approvals will be required:

- NCDEQ Sediment and Erosion Control/NPDES Stormwater Permit Notice of Intent – More than one (1) acre of disturbance is anticipated.
- USACE 404 Nationwide Permit 12 – Temporary impacts to wetlands and/or streams is anticipated during construction.
- NCDEQ DWR 401 General Water Quality Certification – Temporary impacts to streams and buffers is anticipated during construction.
- NCDOT Encroachment Agreement for Primary and Secondary Highways – Construction activities are anticipated to be required within the right-of-way of NCDOT-owned Kersey Valley Road SR-1154 for Aerial Crossing #7 and Jackson Lake Road SR-1158 for Aerial Crossing #10.
- NCDOT Encroachment Agreement for Controlled Access Right-of-Ways – Construction activities may be required within the controlled access of I-85 for Aerial Crossing #16.
- Coordination/Agreement with the Power Company(ies) – Construction activities are anticipated to be required within the easements for high voltage powerlines.
- City of High Point/Guilford County Floodplain Development Permit – It is assumed that since no regrading and fill material is anticipated, a basic evaluation rather than detailed hydraulic impact analysis will suffice for the Floodplain Development Permit/No-Rise Certification. This will be confirmed with the floodplain managers of the City of High Point and Guilford County.

Mr. Derrick Boone
Richland Creek Sewer Outfall
Engineering Services Proposal – Revision 1
April 2020
Page 7

ENGINEER will coordinate with the regulatory agencies throughout the permit application and review process. As part of this Task, once the permit applications are submitted, ENGINEER shall maintain contact with the regulatory agencies to monitor and, where possible, facilitate the review process.

OWNER shall be responsible for paying all permit fees.

TASK 500 BIDDING

One bidding phase for one construction contract is included as part of this Scope of Work. ENGINEER shall perform the following services related to Bidding and Award:

- 501 Assist OWNER in advertising for construction, materials, equipment, and services; issue Contract Documents and maintain a record of prospective bidders to whom Contract Documents have been issued; and receive and process deposits for Contract Documents.
- 502 ENGINEER will prepare and issue up to two (2) addenda as appropriate to interpret, clarify, or further define the Contract Documents.
- 503 Consult with and advise OWNER to determine the acceptability of substitute materials and equipment proposed by Contractor(s) when substitution prior to award of contract is allowed by the Contract Documents.
- 504 Attend and coordinate with the City of High Point Purchasing Department to conduct the pre-bid meeting, bid opening, and prepare a certified bid tabulation sheet and recommendation of award.

ASSUMPTIONS

The following assumptions were made during development of this Scope of Work. Changes to these assumptions can be included as an Amendment to this Agreement.

- A single bid package will be utilized. Contractor prequalification will not be performed.
- Evaluation of the existing abandoned parallel 36" gravity sewer for use in bypassing is not included; it is assumed this pipe is not in usable condition for conveying wastewater.
- City of High Point and Guilford County building, trade, or other permits are not required.

Mr. Derrick Boone
Richland Creek Sewer Outfall
Engineering Services Proposal – Revision 1
April 2020
Page 8

- No permits from NCDEQ for Authorization to Construct or Sewer Extension permitting will be required. This work will be considered rehabilitation since it is a size for size replacement of the existing sewer.
- Development of permanent and/or temporary construction easement plats/deeds/legal descriptions will not be required.
- Detailed bypass pumping plan will be developed by the Contractor.
- The existing 48" WSP will be replaced in-kind with 48" WSP. A hydraulic capacity evaluation will not be required.
- Contractor shall be responsible for development of traffic control plan(s) and coordination with NCDOT.
- New or replacement concrete piers will be supported by a concrete spread footing or will rest on existing bedrock. A pile foundation design can be provided via an Amendment to the Agreement if required.
- At OWNER's direction, survey will be limited to the aerial sanitary sewer portions of the project (i.e. survey will not extend to access locations). ENGINEER will utilize OWNER-provided GIS data for developing construction access drawings.
- Modeling in support of a detailed flood hazard area no-rise analysis will not be required for temporary stream crossings or other work during construction.
- Archaeological and threatened species surveys (other than habitat assessment during wetland delineation) are not included.
- Development of a mitigation plan for wetland impacts is not included.
- The new WSP will connect to the existing WSP at the existing mechanical joint coupling, located at the end of each aerial crossing. Modifications to the existing pipe support or concrete pipe will not be required.
- No soil or groundwater contamination will be encountered.

Mr. Derrick Boone
Richland Creek Sewer Outfall
Engineering Services Proposal – Revision 1
April 2020
Page 9

OWNER'S RESPONSIBILITIES

Furnish to ENGINEER, as requested by ENGINEER for performance of Services as required by the Contract Documents, the following:

- Pay for necessary permit application fees.
- Provide access to the project site, including any necessary accompanying safety personnel should any private property owners object to granting access.
- Provide documents depicting recorded easements for the entire sanitary sewer alignment.
- Provide review comments on deliverables within 2 weeks from submittal by the ENGINEER.
- Review comments on design submittals will be compiled into a single document.
- Provide responses to questions and requests for information within 1 week.
- Provide public notification as required prior to data collection.
- Coordinate and pay for geotechnical investigations, if required. ENGINEER will assist in providing the scope of the investigations.

OWNER shall be responsible for, and ENGINEER may rely upon, the accuracy and completeness of all reports, data and other information furnished pursuant to this paragraph. ENGINEER may use such reports, data and information in performing or furnishing services under this Scope of Work.

TIME PERIOD OF PERFORMANCE

The ENGINEER estimates Tasks 100 through 400 will be completed within 9 months from issuance of a formal Notice to Proceed (NTP). The ENGINEER will commence work within two weeks after receiving a formal notice to proceed (NTP). A more detailed schedule will be presented within 30 calendar days after receipt of the NTP.

PAYMENT AND COMPENSATION

The total cost of all Basic Services shall be on an hourly rate not to exceed basis as described below. Total payments to the ENGINEER shall not exceed \$681,690. In addition to this compensation, the OWNER reserves the right to amend this Contract so that the ENGINEER may furnish additional services as may be needed. The ENGINEER shall submit its invoices under the terms of this



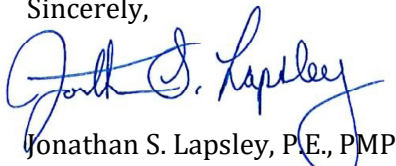
Mr. Derrick Boone
Richland Creek Sewer Outfall
Engineering Services Proposal – Revision 1
April 2020
Page 10

Contract on a monthly basis. For Not-to-Exceed tasks payment shall be on an hourly rate service and in accordance with the rate schedule included as Attachment A of this Scope of Work. The ENGINEER's invoices shall be paid within 30 days of receipt by the OWNER. The ENGINEER shall submit its final invoice applicable under the terms of this Contract within 30 days of the Contract termination date.

<u>Task Description</u>	<u>Fee</u>	<u>Lump Sum or Not-to-Exceed Cost Ceiling</u>
Task 100 – Project Management and Quality	\$86,700	Hourly Not To Exceed
Task 200 – Data Collection	\$115,990	Hourly Not To Exceed
Task 300 – Final Design	\$403,000	Hourly Not To Exceed
Task 400 – Permitting	\$47,000	Hourly Not To Exceed
Task 500 – Bidding	\$29,000	Hourly Not To Exceed
Totals	\$681,690	

Thank you for the opportunity for CDM Smith to serve the City of High Point and your customers. We look forward to working with you on this important project. If you have any questions or need any additional information, please let me know.

Sincerely,



Jonathan S. Lapsley, P.E., PMP
Vice President
CDM Smith Inc.



Mr. Derrick Boone
Richland Creek Sewer Outfall
Engineering Services Proposal – Revision 1
April 2020
Page 11

ATTACHMENT A

2020 Hourly Rate & Compensation Schedule

Classification	2020 Billing Rates
Officer	\$245
Senior Technical Specialist	\$230
Principal/Associate	\$215
Technical Specialist	\$185
Senior Professional	\$180
Professional II	\$145
Professional I	\$115
Senior Designer	\$135
Designer Drafter (1)	\$105
Project Administration (1)	\$90
Resident Project Representative (1)	\$125

Notes:

- 1.) *These labor classifications are paid one and one-half hourly rate shown for overtime.*
- 2.) *The above rates include salary costs, overhead, and profit.*
- 3.) *Hourly rates shall be reviewed in January of each year by ENGINEER, and adjusted, subject to OWNER's approval, to reflect the appropriate rates and charges for the next calendar year. In January of each year, ENGINEER will submit to OWNER for approval proposed hourly rates for the following year.*
- 4.) *Reimbursable project expenses (such as printing, postage/shipping, etc.), incurred under Hourly or Per Diem will be billed to OWNER at cost. All vehicle mileage shall be billed at rates allowed by IRS.*
- 5.) *Sub consultants employed by ENGINEER will be billed to the OWNER at cost plus 10% markup.*
- 6.) *Approval of adjusted Hourly rates by OWNER does not affect cost ceilings for compensation under the Agreement for professional services.*

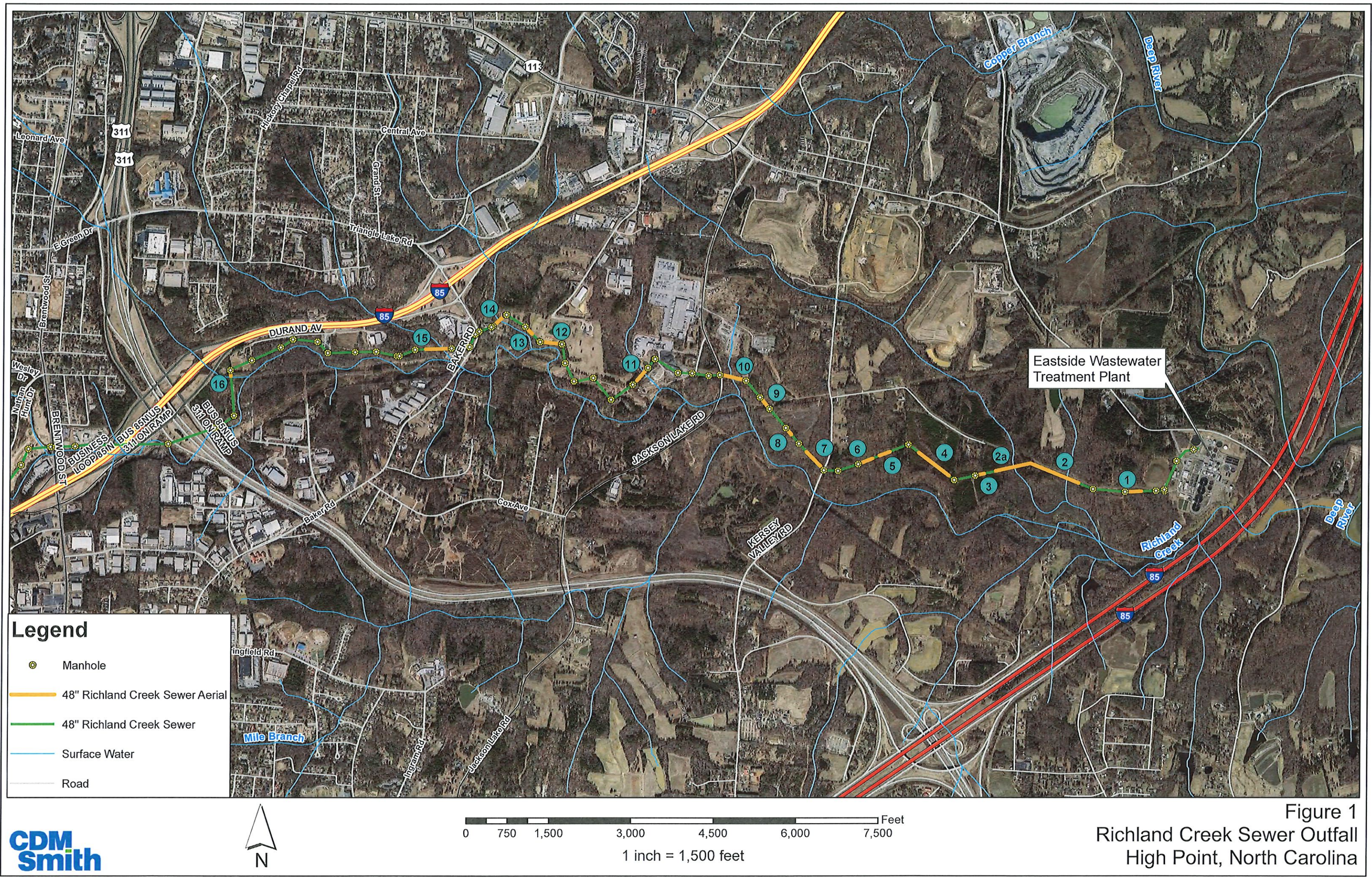


Figure 1
Richland Creek Sewer Outfall
High Point, North Carolina