



ARLINGTON COUNTY, VIRGINIA
OFFICE OF THE PURCHASING AGENT
2100 CLARENDON BOULEVARD, SUITE 500
ARLINGTON, VIRGINIA 22201

CONTRACT AWARD COVERPAGE

TO: INLINER SOLUTIONS, LLC	DATE ISSUED: 12/20/2023
4520 NORTH STATE ROAD 37	CONTRACT NO: 24-DES-R-444b
ORLEANS, INDIANA 47452	CONTRACT TITLE: SEWER REHABILITATION

THIS IS A NOTICE OF AWARD OF CONTRACT AND NOT AN ORDER. NO WORK IS AUTHORIZED UNTIL THE VENDOR RECEIVES A VALID COUNTY PURCHASE ORDER ENCUMBERING CONTRACT FUNDS.

The contract documents consist of the terms and conditions of AGREEMENT No. 24-DES-R-444b, including any attachments or amendments thereto.

EFFECTIVE DATE: 12/20/2023
EXPIRES: MARCH 7, 2024
RENEWALS: TWO (2) ONE-YEAR RENEWALS REMAINING FROM MARCH 8, 2024 TO MARCH 7, 2026
COMMODITY CODE(S): 91063
LIVING WAGE: N

ATTACHMENTS:
AGREEMENT No. 24-DES-R-444b

EMPLOYEES NOT TO BENEFIT:
NO COUNTY EMPLOYEE SHALL RECEIVE ANY SHARE OR BENEFIT OF THIS CONTRACT NOT AVAILABLE TO THE GENERAL PUBLIC.

<u>VENDOR CONTACT:</u> VICTOR HOWARD	<u>VENDOR TEL. NO.:</u> (717) 675-0120
<u>EMAIL ADDRESS:</u> VICTOR.HOWARD@PURISCORP.COM	
<u>COUNTY CONTACT:</u> HISHAM WAHDAN, DES-WSS	<u>COUNTY TEL. NO.:</u> (703) 228-7628
<u>COUNTY CONTACT EMAIL:</u> HWAHDAN@ARLINGTONVA.US	

PURCHASING DIVISION AUTHORIZATION

Kaylin Schreiber Title: Procurement Officer Date: 12/20/2023



**ARLINGTON COUNTY, VIRGINIA
OFFICE OF THE PURCHASING AGENT
2100 CLARENDON BOULEVARD, SUITE 500
ARLINGTON, VA 22201**

RIDER AGREEMENT NO. 24-DES-R-444b

THIS AGREEMENT (hereinafter "Agreement") is made on 12/20/2023 between Inliner Solutions, LLC ("Contractor"), an Indiana limited liability company with a place of business at 4520 North State Rd 37, Orleans, Indiana 47452, authorized to transact business in the Commonwealth of Virginia, and the County Board of Arlington County, Virginia ("County"). The County and the Contractor, for the consideration specified herein or specified in a County Purchase Order referencing this Agreement, agree as follows:

1. CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Exhibit A Fairfax County Acceptance Agreement 4400010426, Exhibit B RFP 2000003120, and Exhibit C Notice of Award dated March 8, 2021, together with any exhibits and amendments issued or applicable thereto (collectively, "Contract Documents" or "Contract"). This Agreement rides a contract awarded to the Contractor by Fairfax County and extended by the Contractor to the County on the same terms and conditions as the Contractor's agreement with Inliner Solutions, LLC. Where the terms of this Agreement vary from the terms and conditions of the other Contract Documents, the terms and conditions of this Agreement shall prevail.

The Contract Documents set forth the entire agreement between the County and the Contractor. The County and the Contractor agree that no representative or agent of either of them has made any representation or promise with respect to the parties' agreement which is not contained in the Contract Documents.

2. CONTRACT TERM

The Contractor's provision of goods and services for the County ("Work") shall commence upon the execution of the Agreement by the County", and shall be completed no later than March 7, 2024 ("Contract Term"), subject to any modifications as provided for in the Contract Documents regarding the Contract Term. No aspect of the Work shall be deemed complete until it is accepted by the County's Project Officer.

Upon satisfactory performance by the Contractor, if Fairfax County renews their agreement identified in Exhibit A, the County may elect to renew this Agreement under the same contract terms for two (2) one-year renewal periods from March 8, 2024 to March 7, 2026 ("Subsequent Contract Term"). However, if Fairfax County does NOT renew their agreement identified in Exhibit A, this Agreement shall automatically expire on the contract expiration date.

3. PAYMENT

Payment will be made by the County to the Contractor within thirty (30) days after receipt by the County Project Officer of an invoice detailing the Work provided by the Contractor and accepted by the County. All payments will be made from the County to the Contractor via ACH. The Project Officer will either approve the invoice or require corrections. The number of the County Purchase Order pursuant to which authority goods or services have been performed or delivered shall appear on all invoices.

The Contractor also must submit to the County's Project Officer its W-9 Form, which will include its Federal Employer Identification Number ("FEIN") or Social Security Number ("SSN"), whichever is applicable, before the County can process payment to the Contractor under the Contract.

4. SCOPE OF WORK

The Contractor agrees to perform the goods and/or services described in the Contract Documents (hereinafter "the Work"). The primary purpose of the Work is to furnish sewer rehabilitation services.

The Contract Documents set forth the minimum Work estimated by the County and the Contractor to be necessary to complete the Work. It shall be the Contractor's responsibility, at the Contractor's sole cost, to provide the specific Work set forth in the Contract Documents sufficient to fulfill the purposes of the Work. Nothing in the Contract Documents shall be construed to limit the Contractor's responsibility to manage the details and execution of the Work.

5. PROJECT OFFICER

The performance of the Contractor is subject to the review and approval of the County Project Officer ("Project Officer") who shall be appointed by the Director of the Arlington County department or agency which seeks to obtain the Work pursuant to this Contract. However, it shall be the responsibility of the Contractor to manage the details of the execution and performance of its Work pursuant to the Contract Documents.

6. COUNTY PURCHASE ORDER REQUIREMENT

County purchases are authorized only if a County Purchase Order is issued in advance of the transaction. A Purchase Order must indicate that the ordering agency has sufficient funds available to pay for the purchase. Such a Purchase Order is to be provided to the Contractor by the ordering agency. The County will not be liable for payment for any purchases made by its employees without appropriate purchase authorization issued by the County Purchasing Agent. If the Contractor provides goods or services without a signed County Purchase Order, it does so at its own risk and expense.

7. NON-APPROPRIATION

All funds for payments by the County to the Contractor pursuant to this Contract are subject to the availability of an annual appropriation for this purpose by the County Board of Arlington County, Virginia. In the event of non-appropriation of funds by the County Board of Arlington County, Virginia for the goods or services provided under this Contract or substitutes for such goods or services which are as advanced or more advanced in their technology, the County will terminate the Contract, without termination charge or other liability to the County, on the last day of the then current fiscal year or when the appropriation made for the then current year for the services covered by this Contract is spent, whichever event occurs first. If funds are not appropriated at any time for the continuation of this Contract, cancellation will be accepted by the Contractor on thirty (30) days prior written notice, but failure to give such notice shall be of no effect and the County shall not be obligated under this Contract beyond the date of termination specified in the County's written notice.

8. APPLICABLE LAW, FORUM, VENUE AND JURISDICTION

This Contract and the work performed hereunder shall be governed in all respects by the laws of the Commonwealth of Virginia, and the jurisdiction, forum, and venue for any litigation with respect thereto shall be in the Circuit Court for Arlington County, Virginia, and in no other court. In performing its Work pursuant to this Contract, the Contractor shall comply with applicable federal, state, and local laws, ordinances and regulations.

9. NOTICES

Unless otherwise provided herein, all notices and other communications required by this Contract shall be deemed to have been given when made in writing and either (a) delivered in person, (b) delivered by an agent, such as an overnight or similar delivery service, or (c) deposited in the United States mail, postage prepaid, certified or registered, addressed as follows:

TO THE CONTRACTOR:

Victor Howard
Inliner Solutions, LLC
10555 Tucker Boulevard
Beltsville, Maryland 20705
Phone: (717) 675-0120
Email: Victor.Howard@puriscorp.com

TO THE COUNTY:

Hisham Wahdan, Project Officer
Arlington County, Virginia
4200 S 28th Street, 1FL
Arlington, Virginia 22201
Phone: (703) 228-7628
Email: hwahdan@arlingtonva.us

AND

Dr. Sharon T. Lewis, LL.M, MPS, VCO, CPPB
Purchasing Agent
Arlington County, Virginia
2100 Clarendon Boulevard, Suite 500
Arlington, Virginia 22201
Phone: (703) 228-3294
Email: slewis1@arlingtonva.us

TO COUNTY MANAGER'S OFFICE (FOR PROJECT CLAIMS):

Mark Schwartz, County Manager
Arlington County, Virginia
2100 Clarendon Boulevard, Suite 318
Arlington, Virginia 22201

10. ARLINGTON COUNTY BUSINESS LICENSES

The Contractor must comply with the provisions of Chapter 11 ("Licenses") of the Arlington County

Code, if applicable. For information on the provisions of that Chapter and its applicability to this Contract, the Contractor must contact the Arlington County Business License Division, Office of the Commissioner of the Revenue, 2100 Clarendon Blvd., Suite 200, Arlington, Virginia, 22201, telephone number (703) 228-3060, or e-mail business@arlingtonva.us.

11. COUNTERPARTS

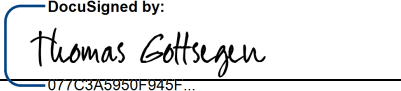
This Agreement may be executed in one or more counterparts and all of such counterparts shall together constitute one and the same instrument. Original signatures transmitted and received via facsimile or other electronic transmission, (e.g., PDF or similar format) are true and valid signatures for all purposes hereunder and shall be effective as delivery of a manually executed original counterpart.

WITNESS these signatures:

THE COUNTY BOARD OF ARLINGTON
COUNTY, VIRGINIA

INLINER SOLUTIONS, LLC

AUTHORIZED SIGNATURE:  2813E8602A3A4DE...

AUTHORIZED SIGNATURE:  077C3A8950F945F...

NAME: Kaylin Schreiber

NAME: Thomas Gottsegen

TITLE: Procurement Officer

TITLE: Thomas Gottsegen, Chief Legal Officer

DATE: 12/20/2023

DATE: 12/20/2023



County of Fairfax, Virginia

To protect and enrich the quality of life for the people, neighborhoods and diverse communities of Fairfax County

Date of Award: 2021 March 8 | 10:11:52 EST

Granite Inliner, LLC
6303 Macaw Ct
Elkridge, MD 21075

Attention: Denise McClanahan, Vice President

Reference: RFP 2000003120: Sewer Rehabilitation

Acceptance Agreement

Contract Number: 4400010426

This Acceptance Agreement signifies a contract award to Granite Inliner, LLC for **Sewer Rehabilitation**. The period of this contract shall be for Two Years from Date of Award, with three (3) one (1) year renewal options.

The contract award shall be in accordance with the following:

- 1) This Acceptance Agreement;
- 2) The Terms and Conditions of RFP 2000003052, and all Addenda;
- 3) Your Technical Proposal dated June 5, 2020; and
- 4) Your Best and Final Offer (BAFO) and Negotiation responses as follows:
 - a. County's Written Negotiations 4 dated February 4, 2021 and Contractor's response dated February 8, 2021.
 - b. County's Written Negotiations 3 dated January 11, 2021 and Contractor's response dated January 20, 2021.
 - c. County's Written Negotiations 2 dated December 9, 2020 and Contractor's response dated December 22, 2020.
 - d. County's Written Negotiations 1 dated October 1, 2020 and Contractor's response dated October 16, 2020.

Please note that this is not an order to proceed. A Purchase Order, which constitutes your notice to proceed, will be issued to your firm as required. Please provide your Insurance Certificate in accordance with paragraph 16 of the contract within ten (10) days of receipt of this letter. Contract award documents may be viewed on the Department of Procurement and Material Management website at www.fairfaxcounty.gov/contracts by searching contract number 4400010426.

All questions in regards to this contract shall be directed to the Contract Specialist, Nicole Cifci, at 703-324-2854 or via e-mail at Nicole.Cifci@fairfaxcounty.gov.

Sincerely,

DocuSigned by:

 0EEA0FDCE6634D3...

Cathy A. Muse, CPPO
Director/County Purchasing Agent

DS
SP

DS
MB

Department of Procurement & Material Management

12000 Government Center Parkway, Suite 427

Fairfax, VA 22035-0013

Website: www.fairfaxcounty.gov/procurement

Phone 703-324-3201, TTY: 711, Fax: 703-324-3228

IMPORTANT NOTICE

THIS IS AN ELECTRONIC PROCUREMENT (eBID)

SUBMISSIONS WILL ONLY BE ACCEPTED ELECTRONICALLY VIA THE BONFIRE PORTAL (<https://fairfaxcounty.bonfirehub.com>)

Fairfax County Government uses a procurement portal powered by Bonfire Interactive for accepting and evaluating proposals. To register, visit <https://fairfaxcounty.bonfirehub.com>. Additional assistance is also available at Support@GoBonfire.com.

Submitting proposals via the Bonfire portal is **mandatory**. Fairfax County will not accept proposals submitted by paper, telephone, facsimile (“FAX”) transmission, or electronic mail (e-mail) in response to this RFP. Reference Special Provisions, Section 12 for additional information.

Fairfax County strongly encourages offerors to submit proposals well in advance of the proposal submission deadline. A proposal submission is not considered successful unless all necessary files have been uploaded and the ‘Submit & Finalize’ step has been completed. Offerors are responsible for the consequences of any failure to plan ahead in the submission of its Proposal.

SPECIAL PROVISIONS**1. PURPOSE AND INTENT:**

- 1.1. Fairfax County is soliciting sealed proposals from qualified Contractors to establish a contract or contracts through competitive negotiation for the provision of Gravity Sewer Rehabilitation Services for the Department of Public Works and Environmental Services (DPWES) – Wastewater Collection Division (WCD).
- 1.2. The County is updating the Sewer Rehabilitation program for pipelines from 8-inch thru 18-inch diameter and 48-inch thru 60-inch sewer manholes connected to these pipelines.
- 1.3. The County anticipates awarding up to two (2) contracts with approximately 50% of the available work being given to each Contractor at the start. During the contract period, the available work for any Awarded Contractor may be increased or decreased to ensure production levels are maintained within the County Sewer Rehabilitation program. The County in its sole discretion will determine if each Contractor is maintaining production levels to meet the program needs and how the work re-distribution will take place to ensure all work is completed in a timely manner.

2. PRE-PROPOSAL CONFERENCE:

- 2.1. An optional pre-proposal conference will be held on **May 5, 2020 at 11:00 A.M. EDT** by Zoom web conferencing. For the pre-proposal web conference, participants are required to register prior to the meeting. Please click on the registration URL (<https://zoom.us/meeting/register/tJEsceutqj4iGtS5rWjjhja4-127mQs82Fr>) to register and to receive the password to enter the Zoom meeting. The participants will be asked to wait in the waiting room until the host allows the participants to join the meeting.
- 2.2. The purpose of the pre-proposal conference is to give potential offerors an opportunity to ask questions and to obtain clarification about any aspect of this Request for Proposal. Offerors may submit any questions pertaining to the RFP, in writing, prior to the pre-proposal conference or no later than **May 13, 2020**.
- 2.3. To request reasonable ADA accommodations, call the Department of Procurement and Material Management ADA representative at (703) 324-3201 or TTY 1-800-828-1140. Please allow seven working days in advance of the event to make the necessary arrangements.
- 2.4. All communications and requests for information and clarifications shall be directed to the following procurement official:

Nicole Cifci, CPPB, VCA, Contract Specialist II
Department of Procurement and Material Management
Telephone: (703) 324-2854
Email: nicole.cifci@fairfaxcounty.gov
- 2.5. No attempt shall be made by any offeror to contact members of the Selection Advisory Committee (SAC) about this procurement (see paragraph 15.3)

3. CONTRACT PERIOD AND RENEWAL:

- 3.1. This contract shall be for a period of two (2) years from the Date of Award with three (3) one-year renewal options available, or any combination thereof, if agreeable to all parties.
- 3.2. Automatic contract renewals are prohibited. Contract renewals must be authorized by and coordinated through the County's Department of Procurement and Material Management (DPMM).
- 3.3. The obligation of the County to pay compensation due the contractor under the contract or any other payment obligations under any contract awarded pursuant to this Request for

SPECIAL PROVISIONS

Proposal is subject to appropriations by the Fairfax County Board of Supervisors to satisfy payment of such obligations. The County's obligations to make payments during subsequent fiscal years are dependent upon the same action. If such an appropriation is not made for any fiscal year, the contract shall terminate effective at the end of the fiscal year for which funds were appropriated and the County will not be obligated to make any payments under the contract beyond the amount appropriated for payment obligations under the contract. The County will provide the contractor with written notice of non-appropriation of funds within thirty (30) calendar days after action is completed by the Board of Supervisors. However, the County's failure to provide such notice shall not extend the contract into a fiscal year in which sufficient funds have not been appropriated.

4. BACKGROUND:

- 4.1. The County (County) is a densely populated 406 square mile suburb of Washington D.C., located in Northern Virginia. The County's Department of Public Works and Environmental Services (DPWES) builds and maintains safe, reliable infrastructure that improves public health and provides a high quality of life for residents.
- 4.2. Fairfax County's Wastewater Management Program consists of Wastewater Collection Division (WCD), Wastewater Treatment Division (WTD) and Wastewater Planning and Monitoring Division (WPMD). The County's wastewater collection system is one of the nation's largest sanitary sewer systems, collecting and conveying approximately 100 million gallons of wastewater per day from county residents, businesses and adjoining jurisdictions. The wastewater generated within the County is treated by five (5) adjacent jurisdictions. Approximately 40% of the average daily flow is treated at the County's Noman M. Cole Pollution Control Plant. The collection system consists of over 3,300 miles of gravity sewer pipes ranging from 8 to 72-inch in diameter, over 100,000 associated structures, 63 pump stations, and 60 flow metering sites, over 150 grinder pumps and various supporting facilities spanning over 375 square mile area.
- 4.3. The department is accredited by the American Public Works Association (APWA). This prestigious national accreditation program recognizes public works agencies that comply with or exceed recommended best practices. The recognition affirms the department's commitment to providing the highest quality services to Fairfax County residents.
- 4.4. The Wastewater Collection Division (WCD) is tasked with the maintenance, asset management, long range capital planning, rehabilitation, and monitoring of the collection system and provides a 24x7 trouble response service. WCD is organized into three branches.

Gravity Sewer Branch: Performs routine inspection, cleaning, and maintenance of manhole and sewer lines.

Pumping Stations Branch: Responsible for the operation, maintenance, repair, and rehabilitation of the pumping stations, metering stations, and force mains.

Projects & Assets Branch: Oversees asset management, long range capital planning, coordinates design and construction, and rehabilitation/replacement projects for the wastewater collection system.

- 4.5. Fairfax County intends to utilize three (3) separate contracts concurrently to meet the needs of the County sewer system inspection, repair, and rehabilitation program. The three (3) anticipated contracts are as follows:
 - Sewer Rehabilitation (this contract)
 - Sewer Inspection and Cleaning (separate contract)
 - Sewer Access and Site Preparation (separate contract)
- 4.6. The annual sewer rehabilitation program budget is approximately \$6M to \$8M per year, with possible growth in future years.

SPECIAL PROVISIONS**5. STATEMENT OF NEEDS:**

Qualified offerors are encouraged to submit a proposal detailing how the offeror will meet the following requirements.

- 5.1. Sewer pipeline rehabilitation will be accomplished using trenchless methods. Manhole rehabilitation will include repairs to all manhole components followed by the installation of various spray on products as needed to provide a structurally sound manhole. Excavation will be utilized to adjust manhole covers to grade as needed during manhole rehabilitation and during vacuum excavations when installing a cleanouts on a sewer lateral for bypass purposes when required to maintain sewer service.
- 5.2. The Sewer Rehabilitation industry is constantly creating and improving products for use in the marketplace. The County has determined the need for an updated contract that would add a variety of rehabilitation methods and allow the use of newer proven sewer rehabilitation systems. Key types of Sewer Rehabilitation and considerations being sought are:
- CIPP- UV Cure, Water Cure, and Ambient Cure.
 - CIPP- Steam Cure will not be allowed.
 - Styrene free resins or products producing the least amount of styrene odors to minimize public complaint.
 - Non CIPP methods to rehabilitate pipelines for customers or situations where customers may have special needs or field conditions require alternative rehabilitation methods.
 - Grouting- Using quality gels that are environmentally friendly or have minimal VOC's. To be used for pipeline and manholes (joints and cracks).
 - Internal pipeline point or spot repairs.
 - Internal pipeline tap repairs to reduce I/I.
 - Structural and non-structural manhole rehabilitation.
 - Equipment and methods to rehabilitate off road pipeline and manholes with least impacts to the environment.
 - Equipment and methods to divert and bypass sewer flows during rehabilitation that are very safe and will impact sewer function the least.
 - Each product to meet or exceed quality and durability of comparable products being offered in the marketplace.
 - The quality control program and invoicing procedures must be easy to understand and manageable for all parties.
 - All types of rehabilitation will have a pre and post video to confirm work being done.
 - All cleaning operations to allow proper installation of the product without damage to the existing sewer utility or surroundings.
- 5.3. The purpose of this contract is to rehabilitate gravity sewer and sanitary sewer manholes located throughout Fairfax County. It is anticipated that in total, approximately 30 – 40 miles of sewer rehabilitation and approximately 2,000 vertical feet of 4' diameter and 5' diameter manholes will be performed each year. The offeror shall provide a general description of key challenges associated with this work and how these challenges will be addressed for the duration of the project period.
- 5.4. The offeror shall describe how your Safety Program ensures compliance to all safety regulations. Include procedures used for confined space, traffic controls, protective personal equipment, handling of hazardous materials, styrene monitoring, controlling styrene order complaints and other safety measures needed to accomplish this work. Provide action plans with key contacts of persons who are assigned to respond to non-compliant safety events with documentation of required training and processes. The offeror is expected to review the Fairfax County Safety resolution and become familiar with the requirements. The offeror shall use this section to describe the company's overall safety program, safety record and general approach to safety on projects of similar size and scope.

SPECIAL PROVISIONS

- 5.5. The offeror shall provide a written description of the procedures that the offeror has in place to complete work of this nature. Describe typical workflows, approximate durations, and communication protocol in place to successfully complete this work.
- 5.6. The offeror shall provide a written description of the procedures for identifying, notifying and remediating sewer spills caused by sewer rehabilitation operations. Provide a history of spill occurrence and how these occurrences have been closed with regulatory agencies.
- 5.7. The offeror shall provide a written description of the procedures for identifying, notifying and remediating sewer backups into homes and businesses caused by sewer rehabilitation operations. Provide a history of such occurrences and how these occurrences have been closed with regulatory agencies and property owners.
- 5.8. The offeror shall describe their company's customer service/public relations program, down to the frontline crews, and including sub-contractors, and include examples of written correspondence to and from citizens, information provided at public meetings, and all training provided to your employees. The offeror must possess the communications skills to disseminate information to the public, whether in the form of written notices mailed or hand delivered, presenting information at public meetings or providing assistance to those households adversely affected by the rehabilitation process. Detail any proposed public relation tools that would be utilized under this contract (i.e. letters, mailing, website, etc.).
- 5.9. The offeror shall provide a general description of the materials, and procedures being proposed for use in the sewer pipeline and manhole rehabilitation processes.
- Type and properties of materials and resins. Include Manufacturers' recommendations.
 - Description of inspection, cleaning, installation, lateral reinstatement, and quality control procedures.
 - Disposal of excess materials and debris resulting from cleaning operations.
 - Public notification procedures
 - Range of pipe and manhole diameters that can be rehabilitated with this process.
 - Maximum length between access points and/or depth limitations.
 - Methods for maintaining flows.
 - Proposed corrective methods for installation problems:
 - incomplete curing
 - non-uniform installation
 - missed service lateral
 - service lateral plugging
 - Terms of rehabilitation system manufacturer's warranty.
 - Styrene/Odor Control:
 - How contractor plans to mitigate styrene / odor emissions
 - Complaint response plan, available 24 hours a day and 7 days a week, including holidays
 - Providing documentation to County explaining resolutions to all complaints
- 5.10. The offeror shall provide a list of equipment proposed for use in the rehabilitation process. Offerors list of equipment being proposed for use in the rehabilitation process shall include, but is not limited to; manufacturer, age, type, serial number(s), and quantity. Fairfax County reserves the right to inspect all equipment submitted in reference to these documents.

6. CONTRACTOR REQUIREMENTS:

- 6.1. The Contractor shall perform all work in accordance with all applicable Federal, State, County, and local ordinances as well as industry standards and the Technical Specifications listed in Attachment B. The Contractor shall possess all the required licenses and permits to do business with the County.

SPECIAL PROVISIONS

- 6.2. Projects will be released throughout the calendar or fiscal year by WCD through this contract. It is anticipated that a total approximate average of 2-3 miles of 8-inch to 18-inch gravity sewer and associated manholes be rehabilitated each month. The Contractor will be responsible for managing all work associated with completing the work, including but not limited to providing all labor, supervision, materials, equipment, tools, transportation and supplies to complete the rehabilitation work, obtaining permits and approvals, conducting public outreach, etc.
- 6.3. In general, the Contractor will:
- a. Conduct a preliminary site inspection for each site where work will take place in advance of the work to determine what materials, labor and equipment will be needed to install each item listed in the cost proposal summary in accordance with the contract documents. The contractor will ensure all work areas are accessible.
 - b. Obtain permits and approvals through appropriate agencies, including but not limited to Virginia Department of Transportation, Fairfax County Park Authority. If wetland permits are required, the County will obtain these permits in advance if possible. All other permits will be the responsibility of the Contractor.
 - c. Establish traffic control or any other work required to properly perform gravity sewer rehabilitation in accordance with local, state, and federal requirements.
 - d. Perform preliminary NASSCO compliant closed circuit television (CCTV) inspection of subject gravity sewer pipeline and NASSCO MACP compliant level I inspection of manholes.
 - e. Thoroughly clean sanitary sewer piping systems and structures to successfully rehabilitate subject gravity sewer and associated manholes.
 - f. Furnish all labor, materials, tools, equipment, supervision, transportation and any incidentals necessary to perform any necessary internal point repairs, establish bypass systems, and perform gravity sewer rehabilitation and manhole rehabilitation.
 - g. Re-establish lateral connections using robotic reinstatement methods.
 - h. Perform NASSCO compliant post rehabilitation CCTV video inspection of pipelines and NASSCO MACP compliant level I inspection of manholes.
 - i. Perform manhole rehabilitation.
 - j. Manage all subcontractors and resources utilized for the project.
- 6.4. The work anticipated under this contract can be identified as two (2) categories; work within roadways and work off roadways. The majority of work completed under this contract will occur within roadways or in areas where access to manholes and sewer lines does not require establishing new access.
- 6.5. Where access to perform rehabilitation work under this contract is not established or where work is being performed in off roadway installations, the Contractor may be required to coordinate sewer site access with the Sewer Access and Site Preparation contractor to perform the work. A description of the coordination to be provided by the Contractor is included in the technical specifications and all costs for coordination will be provided at no additional cost to the County.
- 6.6. No compensation will be given for lack of coordination between contractors or the County. When deemed necessary by the County, consultant engineers will be utilized to assist with obtaining permits in off-road areas. It will be the responsibility of contractor to obtain all other permits for their work and written authorization from property owners when using private lands. The Contractor will provide copies of permits and written authorization from property owners to the County.
- 6.7. Due to the nature of the Sewer Rehabilitation program, the involvement of the Contractor in the planning phase and subsequent phases for off-road work does not guarantee work for the Contractor as a result of that involvement. It is the goal of the County to ensure when sewer rehabilitation is needed, all permits are in place prior to the work and the Contractor will be able to access the sewer system without great difficulty. It is the intent of the County to involve the Contractor in the planning phase of the work to ensure their requirements for access to the work can be met. However, if permits are delayed beyond the contract

SPECIAL PROVISIONS

expiration date or not approved, site access cannot be obtained, sewer inspections do not yield the need for sewer rehabilitation or the work cannot be issued before the contract expires due to other reasons, the County may elect to not issue work and the Contractor will not receive any compensation for his involvement

- 6.8. The majority of work performed via this contract is routine and accessible. However, some work may require establishment of access prior to initiating the work. The following is an example workflow, **where access needs to be established prior to the performance of sewer rehabilitation**. Under this scenario, the Contractors will be expected to participate in multiple coordination meetings related but not limited to: Site preparation meeting, replace/repair meeting, pre-rehabilitation sewer pipelines and manholes meeting:

- **Site Preparation-** This involves a pre-site meeting to be attended by the representatives of the rehabilitation contractor to determine how the site may be accessed, and what access is necessary to perform the sewer rehabilitation. Thereafter, the County will obtain wetland permits and site plan approval. Once permits, permissions and plans are approved, the Site Prep Contractor will prepare the site access for inspection, sewer repair by excavation and/or sewer rehabilitation as needed. All sediment controls, access roads and other installed items will be left on site and the site prep Contractor will demobilize his crew and equipment. Equipment may be left on site if not obstructing or impeding subsequent work by other contractor's, but no additional payment will be made to store equipment on site.
- **Sewer System Inspection Data (if necessary)-** In most instances, the County will have previously acquired inspection data to determine what repairs or rehabilitation are required for the sewer system. However, If the County does not have a current condition assessment inspection of the sewer system, an inspection may be performed by Fairfax County inspection crews or contracted inspection companies under a separate contract. Once sewer inspections have been completed, all inspection crews will be demobilized within two weeks of notice. Results of the inspection will be utilized to determine how the sewer system will be repaired or rehabilitated. The sewer inspection contractor is responsible for any damage to sediment controls or other items installed on site and to effect repairs at no additional cost. Items damaged by Fairfax County will be repaired by County resources.
- **Replace or Repair Sewer Pipelines and Manholes (if necessary) -**The County will require the Site Prep Contractor to re-mobilize to the site within two weeks of notification if repairs are made by excavation. Sewer pipes and manholes that have been inspected and slated for replacement will be repaired by the Site Prep Contractor. The Site Prep contractor is responsible for any damage to sediment controls or other items installed on site and to effect repairs at no additional cost. Roadways must be kept clean. Once repairs are complete the contractor will demobilize within two weeks of notice. Equipment may be left on site if not obstructing the sewer rehabilitation contractor's work, but no additional payment will be made to store equipment on site.
- **Rehabilitate Sewer Pipelines and Manholes-** The County will require the sewer rehabilitation contractor to install CIPP within pipelines and spray on products at manhole which require rehabilitation within the area of the site. Once sewer pipelines and manholes have been rehabilitated the sewer rehabilitation contractor will demobilize within two weeks of notice. The sewer rehabilitation contractor is responsible for any damage to sediment controls or other items installed on site and to perform repairs at no additional cost.
- **Site Restoration-** Site Prep Contractor will re-mobilize to the site within two weeks of notification. All sediment controls and other items installed by the Site Prep Contractor will be removed and the site will be restored to its original condition within 60 days.

SPECIAL PROVISIONS**7. TECHNICAL PROPOSAL INSTRUCTIONS:**

The offeror must submit their response to the Technical Proposal as instructed in Bonfire containing the following information. This information will be considered the minimum content of the proposal. Proposal contents shall be arranged in the same order and identified with headings as presented herein. In addition, the offeror will submit in Bonfire an executed County's Cover Sheet (DPMM32), all the Attachment A documents, Attachment C, and all issued Addenda (as applicable).

7.1. Tab 1 – Introduction:

- a. Name of firm submitting proposal; main office address; when organized; if a corporation, when and where incorporated; appropriate Federal, State, and County registration numbers.
 - At a minimum, the Offeror should include the following:
 - Background information about the organization
 - Identification of Main Point of Contact for the Contract and their experience with the company
 - Offerors local office location (location where work will be performed from)
 - Offerors size, facilities and location
 - Number of years Offeror has been providing these types of services

7.2. Tab 2 – Statement of Qualifications:

- a. Organizational and Staff Experience: Offerors must describe their qualifications and experience to perform the work described in this Request for Proposal. Information about experience should include direct experience with the specific subject matter.
 - i. Provide an organization chart that includes at a minimum:
 - a. Prime contractor and subcontractors required to complete work required under this contract.
 - b. Program Manager/Principal in Charge – Person who will be main point of contact for initiating work. Must have signature authority within the company to commit resources for this contract.
 - ii. CIPP Lining - Superintendent – Responsible for day to day field activity associated with the CIPP lining. Must be located within 100 miles of Fairfax County. Each Superintendent shall have a minimum of five years' experience supervising the installation of CIPP for sanitary sewer pipes in North America and shall have successfully installed a minimum of 50,000 linear feet of CIPP sanitary sewer in North America ranging from 8-inch to 18-inches in diameter using the specific liner material and the specific cured-in-place pipe process being proposed.
 - iii. Manhole Rehabilitation – Superintendent – Responsible for day to day field activity associated with the manhole rehabilitation. Must be located within 100 miles of Fairfax County and have experience installing a minimum of 5,000 vertical feet of manhole rehabilitation (calcium aluminate and epoxy) products
- b. The offeror must show that they have been in the business for a minimum of three years in North America, and must have successfully rehabilitated, within North America, a minimum of 50,000 linear feet of 8 to 18 inch diameter sanitary sewer within the last three (3) years, using the specific liner material and the specific cured-in-place pipe process proposed in their response to this solicitation. In addition, the contractor must also have at least 2 years, minimum of 1,000 vertical feet of manhole rehabilitation or 100 manholes successfully rehabilitated within North America.
- c. The offeror must provide that they have completed sewer bypass projects/jobs within the last three (3) years where work performed included furnishing all materials, labor, equipment, power, installation of a temporary sewer bypass pumping systems of similar size and scope as needed to divert existing sewer flows.

SPECIAL PROVISIONS

- d. Contractor shall have installed a minimum of 100,000 linear feet of CIPP for gravity sewers ranging in size from 8 to 18 inches in diameter within the last three (3) years. Contractor shall provide the required attachments with their proposal demonstrating work experience for the past three (3) years. The following information shall be included with the formwork:
- Customer Name and Location of Contract
 - Size and Lengths of Sanitary Sewer Rehabilitated by CIPP
 - Start and Completion Date
 - Total Cost of Project
 - Name and Phone Numbers of Major (>25% of work) Subcontractors (if applicable)
 - Customer Information: Name, Phone Number, Address, Email and Title of the Primary Point of Contact
- e. The offeror must provide work history that includes cleaning of sewers; pre-television inspection; diversion pumping; lining by CIPP method; reinstatement of lateral connections; re-televising and video recording after rehabilitation; inspection and testing; clean-up; rehabilitation of manholes, pipeline grouting, manhole grouting, internal point repairs and all miscellaneous work as specified in the Technical Specifications.
- Description of experience with projects of similar size and scope. Demonstrate ability of the following:
 - Quality lining and service
 - Meeting deadlines
 - Operating with minimum disruption
 - Adhering to budget
 - Providing timely invoicing
- f. References: Special notation must be made of similar or related programs performed and must include organization names, addresses, names of contact persons, and telephone numbers for such reference within the last 3 years.
- g. Personnel/Team: Outline Full-time and part-time staff, proposed consultants, joint ventures, other forms of partnership, and subcontractors who may be assigned direct work on this project should be identified. Information is required which will show the composition of the task or work group, its specific qualifications, and recent relevant experience. Special mention shall be made of direct technical supervisors and key technical personnel, and approximate percentage of the total time each will be available for this project. The technical areas, character and extent of participation by any subcontractor or consultant activity must be indicated and the anticipated sources will be identified.
- Overview of project team including any major subcontractors that may be used on this project:
 - History of prior performance between prime and subcontractors
 - Indicate services to be provided by prime and services to be provided by subcontractors

Owner reserves the right to approve personnel used and can request new personnel due to performance issues.

Resumes of staff and proposed consultants are required indicating education, background, recent relevant experience with the subject matter of the project. For Key Personnel, resumes are to include the following:

- Years' experience
- Years with current company
- Percent available for this County contract/project
- Certifications

SPECIAL PROVISIONS

- Office location
- Current contact information (address, email, telephone)
- Experience on projects of similar size and scope

The personnel named in the technical proposal will remain assigned to the project throughout the period of this contract. No diversion or replacement may be made without submission of a resume of the proposed replacement with final approval being granted by the County Purchasing Agent.

- h. A staffing plan is required which describes the Offeror's proposed staff distribution to accomplish this work. The staffing plan should indicate a chart that partitions the time commitment of each professional staff member across the proposed tasks and a timeline for the project. It is mandatory that this section identify the key personnel who are to work on the project, their relationship to be contracting organization, and amount of time to be devoted to the project. This includes Consultants as well as regular employees of the offeror, if relevant.
- i. Bonding Capacity: Provide your firm's maximum bonding capability. Offerors must be capable of securing a bond of \$5 million. Provide evidence of your firm's ability to meet this criterion.
- j. Financial Statements: The offeror shall provide an income statement and balance sheet from the most recent reporting period.

7.3. Tab 3 – Understanding the Statement of Needs:

The technical narrative should address separately each of the "Statement of Needs" described in Section 5 of the Request for Proposal and responses should be keyed to appropriate paragraph numbers providing the following information below:

This section should also contain a discussion of any changes proposed by the offeror that substantially differs from the project scope described in these Special Provisions.

- a. Statement and discussion of the requirements as they are analyzed by the offeror.
- b. Offeror's proposed definitive Scope of Work with explanation of technical approaches and a detailed outline of the proposed program for executing the requirements of the Statement of Needs and achieving project objectives.
- c. Offeror's shall provide a written description of the procedures that the Offeror has in place to complete work of this nature. Describe typical workflows, approximate durations, and communication protocol in place to successfully complete this work.
- d. Preliminary layouts, sketches, diagrams, other graphic representations, calculations, and other data as may be necessary for presentation, substantiation, justification or understanding of the Statement of Needs.
- e. Offeror should demonstrate an awareness of difficulties in the completion of this undertaking, and a plan for surmounting them. Special attention should be given to methodological issues that will be encountered in such a project. Provide a general description of key challenges associated with this work and how these challenges will be addressed for the duration of the project period.
- f. Offeror may also comment if deemed appropriate, on any aspect of the Request for Proposal, including suggestions on possible alternative approaches to the coverage, definition, development, and organization of the issues presented in the "Statement of Needs" section, and may propose alternative approaches.

SPECIAL PROVISIONS**8. COST PROPOSAL INSTRUCTIONS:**

- 8.1. The offeror must submit their response to the Cost Proposal as instructed in Bonfire fully supported by cost and pricing data adequate to establish the reasonableness of the proposed fee (see Attachment C).
- 8.2. The unit prices shall include all costs to completely furnish and install each item. Costs may include but are not limited to delivery, taxes, equipment, labor, fees, disposal of materials, incidentals and any other expenditures required to provide each item listed in the Cost Proposal. Upon acceptance of each item payment will be made in accordance with Section 01025, Measurement and Payment.
- 8.3. Offeror shall include any other pricing that may be relevant to services being offered.

9. PRICING:

- 9.1. The subsequent contract will be a firm-fixed price agreement. The fee(s) will remain firm and will include all charges that may be incurred in fulfilling the requirements of the contract during the first 365 days. Changes in cost for any subsequent contract years may be based on the Consumer Price Index (CPI-U), or other relevant indices, not to exceed 3%.
- 9.2. The request for a change in the unit price shall include as a minimum, (1) the cause for the adjustment; (2) proposed effective date; and, (3) the amount of the change requested with documentation to support the requested adjustment (i.e., appropriate Bureau of Labor Statistics, Consumer Price Index (CPI-U), change in manufacturer's price, etc.).
- 9.3. Price decreases shall be made in accordance with paragraph 40 of the General Conditions & Instructions to Offerors. (Appendix A)

10. TRADE SECRETS/PROPRIETARY INFORMATION:

- 10.1. Trade secrets or proprietary information submitted by an offeror in connection with a procurement transaction shall not be subject to public disclosure under the Virginia Freedom of Information Act; however, offerors must invoke the protections of this section prior to or upon submission of the data or other materials.
- 10.2. **The offeror must identify the data or other materials to be protected and state the reasons why protection is necessary.** Disposition of material after award(s) should be stated by the offeror.
- 10.3. Request for Protection of Trade Secrets or Proprietary Information (Attachment A4) is provided as a courtesy to assist offerors desiring to protect trade secrets or proprietary information from disclosure under the Virginia Freedom of Information Act.
- 10.4. The classification of an entire proposal document, line item prices, and/or total proposal prices as proprietary or trade secrets is not acceptable and may result in rejection of the proposal.

11. REQUIRED SUBMITTALS:

- 11.1. Each Offeror responding to this Request for Proposal must supply all the documentation required in the RFP. Failure to provide documentation with the Offeror's response to the RFP may result in the disqualification of the Offeror's proposal.

SPECIAL PROVISIONS**12. SUBMISSION OF PROPOSAL:**

- 12.1. Proposals must be received electronically through Fairfax County's online Procurement Portal at: <https://fairfaxcounty.bonfirehub.com>, on or before the Submittal Deadline. Submissions will only be accepted through the portal. Fairfax County will not accept proposals submitted by paper, telephone, facsimile ("FAX") transmission, or electronic mail (i.e., e-mail) in response to this RFP. Proposal submissions and registration are free of charge. Offerors can register for a free account at: <https://fairfaxcounty.bonfirehub.com>, which will be required when preparing a submission. Documents may be uploaded at any time during the open period. The official time used for receipt of proposals/modifications is the time stamp within the Bonfire portal. No other clocks, calendars or timepieces are recognized. For technical questions related to a submission contact Bonfire at Support@GoBonfire.com or click on the link "Contact Bonfire Support here" under Need Help?. (Note: it takes an average of 16 minutes to an hour for a response). Therefore, offerors shall take the necessary steps to submit their proposals in advance.
- 12.2. Offerors can view all the user guide which provides step by step instructions regarding use of Bonfire: <https://support.gobonfire.com/hc/en-us/categories/360000773733-User-Guides>.
- Listed below are some helpful guides that will assist offerors regarding Registration and Submission:
- Vendor Registration
<https://support.gobonfire.com/hc/en-us/articles/360011135513-Vendor-Registration>
 - Creating and uploading a submission
<https://support.gobonfire.com/hc/en-us/articles/360011034814-Creating-and-Uploading-a-Submission-for-Vendors->
- 12.3. If, at the time of the scheduled proposal closing Fairfax County Government is closed due to inclement weather or another unforeseeable event, the proposal closing will still proceed electronically through the Bonfire system.
- 12.4. Technical Information: Uploading large documents may take time, depending on the size of the file(s) and your Internet connection speed. You will receive an email confirmation receipt with a unique confirmation number once you finalize your submission. Minimum system requirements for the Bonfire portal - Internet Explorer 11, Microsoft Edge, Good Chrome, or Mozilla Firefox. Javascript must be enabled. Browser cookies must be enabled.
- 12.5. It is the Offeror's responsibility to clearly identify and to describe the services being offered in response to the Request for Proposal. Offerors are cautioned that organization of their response, as well as thoroughness is critical to the County's evaluation process. The RFP forms must be completed legibly and in their entirety; and all required supplemental information must be furnished and presented in an organized, comprehensive, and easy to follow manner.
- 12.6. Unnecessarily elaborate brochures of other presentations beyond what is considered sufficient to present a complete and effective proposal is not desired.
- 12.7. By executing the cover sheet (DPMM32), Offeror acknowledges that they have read this Request for Proposal, understand it, and agree to be bound by its terms and conditions.

13. ADDENDA:

- 13.1. Offerors are reminded that changes to the bid, in the form of addenda, are often issued between the issue date and within five (5) days before the due date. All addenda shall be signed and submitted before the due date/time or must accompany the bid.
- 13.2. Notice of addenda will be posted on eVA, DPMM current solicitation webpage, and Bonfire. It is the Offeror's responsibility to monitor the web page for the most current addenda at www.fairfaxcounty.gov/solicitation or <https://fairfaxcounty.bonfirehub.com>.

SPECIAL PROVISIONS

- 13.3. The last day to submit question to be addressed in the addendum will be addressed in Bonfire under "Questions Due Date." All questions pertaining to this RFP shall be submitted to nicole.cifci@fairfaxcounty.gov.

14. PROPOSAL ACCEPTANCE PERIOD:

- 14.1. Any proposal submitted in response to this solicitation shall be valid for one hundred eighty (180) days. At the end of the days the proposal may be withdrawn at the written request of the offeror. If the proposal is not withdrawn at that time it remains in effect until an award is made or the solicitation is canceled.

15. BASIS FOR AWARD:

- 15.1. This Request for Proposal is being utilized for competitive negotiation. Under the competitive negotiation process, a contract may be awarded to the responsible offeror whose proposal is determined to be the most advantageous to the County, taking into consideration price and the evaluation factors set forth in the Request for Proposal. The County reserves the right to make multiple awards as a result of this solicitation.
- 15.2. A Selection Advisory Committee has been established to review and evaluate all proposals submitted in response to this Request for Proposal. The Committee shall conduct a preliminary evaluation of all proposals on the basis of the information provided with the proposal, and the evaluation criteria listed below. Based upon this review, the cost proposals of the highest rated offeror(s) will then be reviewed.
- 15.3. No Offeror, including any of their representatives, subcontractors, affiliates and interested parties, shall contact any member of the Selection Advisory Committee or any person involved in the evaluation of the proposals. Selection Advisory Committee members will refer any and all calls related to this procurement to the procurement official named in 2.4 above. Failure to comply with this directive may, at the sole discretion of the County, result in the disqualification of an offeror from the procurement process.
- 15.4. Based on the results of the preliminary evaluation, the highest rated offeror(s) may be invited by the County Purchasing Agent to make oral presentations to the Selection Advisory Committee. This committee will then conduct a final evaluation of the proposals. Selection shall be made of two or more offerors deemed to be fully qualified and best suited among those submitting proposals, on the basis of the factors involved in the Request for Proposal, including price if so stated in the Request for Proposal. Negotiations shall then be conducted with each of the offerors so selected. After negotiations have been conducted with each offeror so selected, the County shall select the offeror which, in its opinion, has made the best proposal, and shall award the contract to that offeror.
- 15.5. Should the County determine in writing and in its sole discretion that only one offeror is fully qualified, or that one offeror is clearly more highly qualified than the others under consideration, a contract may be negotiated and awarded to that offeror. The Committee will make appropriate recommendations to the County Executive and Board of Supervisors, if appropriate, prior to actual award of contract.
- 15.6. Proposal Evaluation Criteria
- The following factors will be considered in the award of this contract:
- a. Qualifications of firm with appropriately qualified and experienced personnel (ref. Special Provisions, Section 7.2.) **(points 35)**
 - b. Detail response to the Special Provisions, section 5, STATEMENT OF NEED (ref. Special Provisions, Section 7.3.) **(points 45)**
 - c. Reasonableness of cost proposal **(points 20)**

SPECIAL PROVISIONS

- 15.7. Fairfax County reserves the right to make on-site visitations to assess the capabilities of individual offerors and to contact references provided with the proposal.
- 15.8. The County Purchasing Agent may arrange for discussions with firms submitting proposals, if required, for the purpose of obtaining additional information or clarification.
- 15.9. Offerors are advised that, in the event of receipt of an adequate number of proposals, which, in the opinion of the County Purchasing Agent, require no clarifications and/or supplementary information, such proposals may be evaluated without further discussion. Consequently, offerors should provide complete, thorough proposals with the offerors most favorable terms. Should proposals require additional clarification and/or supplementary information, offerors should submit such additional material in a timely manner.
- 15.10. Proposals which, after discussion and submission of additional clarification and/or supplementary information, are determined to meet the specifications of this Request for Proposal will be classified as "acceptable". Proposals found not to be acceptable will be classified as "unacceptable" and no further discussion concerning same will be conducted.
- 15.11. The County may cancel this Request for Proposal or reject proposals at any time prior to an award and is not required to furnish a statement of the reasons why a particular proposal was not deemed to be the most advantageous.

16. INSURANCE:

- 16.1. The Contractor shall be responsible for its work and every part thereof, and for all materials, tools, equipment, appliances, and property of any and all description used in connection therewith. The Contractor assumes all risks of direct and indirect damage or injury to the property or persons used or employed on or in connection with the work contracted for, and of all damages or injury to any person or property wherever located, resulting from any action, omission, commission or operation under the contract.
- 16.2. The Contractor shall, during the continuance of all work under the contract provide the following:
 - a. Maintain statutory Worker's Compensation and Employer's Liability insurance in limits of not less than \$100,000 to protect the Contractor from any liability or damages for any injuries (including death and disability) to any and all of its employees, including any and all liability or damage which may arise by virtue of any statute or law in force within the Commonwealth of Virginia.
 - b. The Contractor agrees to maintain Commercial General Liability insurance in the amount of \$1,000,000 per occurrence/aggregate, to protect the Contractor, its subcontractors, and the interest of the County, its officers and employees against any and all injuries to third parties, including bodily injury and personal injury, wherever located, resulting from any action or operation under the contract or in connection with the contracted work.
 - c. The Contractor agrees to maintain owned, non-owned, and hired Commercial Automobile Liability insurance, in the amount of \$1,000,000 per occurrence/aggregate, including property damage, covering all owned, non-owned, borrowed, leased, or rented vehicles operated by the Contractor. In addition, all mobile equipment used by the Contractor in connection with the contracted work will be insured under either a standard Commercial Automobile Liability policy, or a Comprehensive General Liability policy.
 - d. The Contractor agrees to maintain Professional Liability insurance in the amount of \$1,000,000 per claim to cover each individual professional staff.
 - e. Liability insurance may be arranged by General Liability and Automobile Liability policies for the full limits required, or by a combination of underlying Liability policies for lesser limits with the remaining limits provided by an Excess or Umbrella Liability policy.

SPECIAL PROVISIONS

- f. Rating Requirements:
- (1) Contractor agrees to provide insurance issued by companies admitted within the Commonwealth of Virginia, with the Best's Key Rating of at least A: VI.
- (2) European markets including those based in London, and the domestic surplus lines markets that operate on a non-admitted basis are exempt from this requirement provided that the contractor's broker can provide financial data to establish that a market is equal to or exceeds the financial strengths associated with the A.M. Best's rating of A:VI or better.
- Indemnification: Article 58 of the General Conditions and Instructions to Bidders (Appendix A) shall apply.
- g. The Contractor will provide an original, signed Certificate of Insurance citing the contract number and such endorsements as prescribed herein, and shall have it filed with the County Purchasing Agent before any work is started.
- h. The Contractor will secure and maintain all insurance certificates of its subcontractors, if any, which shall be made available to the County on demand.
- i. If the Contractor delivers services from a County-leased facility, the Contractor is required to carry property insurance on all equipment, to include County-owned installed and maintained equipment used by the Contractor while in their care, custody and control for the use of this contract. The Contractor will provide on demand certified copies of all insurance policies related to the contract within ten (10) business days of demand by the County. These certified copies will be sent to the County from the contractor's insurance agent or representative.
- 16.3. No change, cancellation, or non-renewal shall be made in any insurance coverage without a thirty (30) day written notice to the County. The Contractor shall furnish a new certificate prior to any change or cancellation date. The failure of the Contractor to deliver a new and valid certificate will result in suspension of all payments until the new certificate is furnished.
- 16.4. Precaution shall be exercised at all times for the protection of persons (including employees) and property.
- 16.5. The County, its officers and employees shall be named as an "additional insured" in the General Liability policies and it shall be stated on the Insurance Certificate that this coverage "is primary to all other coverage the County may possess."

17. METHOD OF ORDERING:

- 17.1. The County may use two (2) different methods of placing orders from the final contract: Purchase Orders (PO's) and approved County procurement cards.
- 17.2. A Purchase Order (PO) may be issued to the contractor on behalf of the County agency ordering the items/services covered under this contract. The purchase order indicates that sufficient funds have been obligated as required by Title 15.2-1238 of the Code of the Commonwealth of Virginia.
- 17.3. Procurement Card orders and payments may also be made by the use of a Fairfax County or Fairfax County Public Schools "Procurement" Card. The Procurement Card is currently a Master Card. Contractors are encouraged to accept this method of receiving orders.
- 17.4. Regardless of the method of ordering used, solely the contract and any modification determine performance time and dates.
- 17.5. Performance under this contract is not to begin until receipt of the purchase order, Procurement Card order, or other notification to proceed by the County Purchasing Agent and/or County agency to proceed. Purchase requisitions shall not be used for placing orders.

SPECIAL PROVISIONS**18. REPORTS AND INVOICING:**

- 18.1. The Contractor must maintain all records in compliance with federal and state regulations. The Contractor(s) must submit to each program administrator, monthly statistical reports and an annual tabulated report.
- 18.2. The Contractor shall provide draft and final invoices for all completed work and must include the following information:
- a. Contractor Name and Address
 - b. Invoice Number and Purchase Order Number
 - c. The name of the County department
 - d. Invoice Date and Date of Job
 - e. Year and Phase of Work
 - f. Grid and Manhole Numbers
 - g. Street name
 - h. Unit Rates
 - i. Quantity of Materials Used
 - j. Total Cost of Invoice
 - k. Final Invoice to include signature by company official who has authority to approve payments
 - l. Submit all invoices complete with all the required items. Partial and incomplete invoices will not be accepted and will be rejected. When resubmitting Rejected submittals, the new Invoice number will be the same with the addition of an alpha code. Example: Invoice 607 becomes 607A, then 607B then 607C and so forth until accepted.
 - m. Submit invoices and documentation using County supplied Citrix web-site.
- 18.3. Additional documentation shall be provided for the draft and final invoices for each of the following projects:
1. Installed CIPP:
 - a. Provide Pre and Post CCTV reports with each Invoice and with video inspection NASSCO compliant and compatible with WinCan.
 - b. Provide wet out and cure reports with each Invoice. May use ZIA systems, VeriCure, or similar web-based curing log documentation.
 - c. Clearly label and date each, wet out, cure report, pre and post CCTV to identify the correct sewer line segment it represents.
 - d. Invoices for sewer line segments slated for sampling may not be paid until test results for samples have been submitted and accepted by the County. The County will require 20% of installed CIPP footage to be sampled at random locations selected by the County.
 2. Installed Manhole Rehabilitation:
 - a. Provide Pre and Post NASSCO MACP Level 1 Inspection. This includes photographs as outlined in the NASSCO PACP/MACP/LACP manual.
 - b. Provide quality assurance reports per recommendations of Manufacture or supplier of manhole products.
 - c. Clearly label and date each, report, pre and post photograph(s) to identify the correct manhole it represents.
 3. Sewer Cleaning, Installed Mechanical Liners, Sewer Pipeline Repairs, and Grout and Internal Point Repairs:
 - a. Provide Pre and Post CCTV reports with each Invoice and with video inspection NASSCO compliant and compatible with WinCan.
 - b. Provide quality assurance reports per recommendations of Manufacture or supplier of manhole products.
 - c. Clearly label and date each, report, pre and post CCTV to identify the correct cleaning location it represents.

SPECIAL PROVISIONS

4. Bypass, Fencing, and Specialized Mobilization:
 - a. Supporting documentation

18.4. County departments must receive monthly invoices by the 10th of each month following the month the Contractor provided the service. In addition, the Contractor will provide each County department a monthly and year-to-date utilization report which lists all information shown above in paragraph 18.2. The Contractor will mail the invoices and the utilization reports to the individuals identified in the final contract.

19. CHANGES:

19.1. Fairfax County may, at any time, by written order, require changes in the services to be performed by the Contractor. If such changes cause an increase or decrease in the Contractor's cost of, or time required for, performance of any services under this contract, an equitable adjustment shall be made and the contract shall be modified in writing accordingly. The County Purchasing Agent must approve all work that is beyond the scope of this Request for Proposal.

19.2. No services for which an additional cost or fee will be charged by the Contractor shall be furnished without the prior written authorization of the Fairfax County Purchasing Agent.

20. DELAYS AND SUSPENSIONS:

20.1. The County may direct the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time deemed appropriate for the convenience of the County. The County will extend the Contractor's time of completion by a period of time that in the discretion of the Purchasing Agent is reasonably suited for completion of work. The County may further amend the contract by mutual agreement for any increase in the cost of performance of the contract (excluding profit) resulting solely from the delay or suspension of the contract. No adjustment shall be made under this clause for any delay or interruption resulting from any other cause, including the fault or negligence of the Contractor.

20.2. If the County does not direct the Contractor, in writing, to suspend, delay, or interrupt the contract, the Contractor must give the County Purchasing Agent written notice if Fairfax County fails to provide data or services that are required for contract completion by the Contractor. The County may extend the Contractor's time of completion by a period of time that in the discretion of the Purchasing Agent is reasonably suited for completion of work. The County may further amend the contract by mutual agreement for any increase in the cost of performance of the contract (excluding profit) resulting solely from the delay or suspension of the contract. No adjustment shall be made under this clause for any delay or interruption resulting from any other cause, including the fault or negligence of the Contractor.

20.3. The Contractor shall continue its work on other phases of the project or contract, if in the sole discretion of the Purchasing Agent such work is not impacted by the County's delay, suspension, or interruption. All changes to the work plan or project milestones shall be reflected in writing as a contract amendment.

21. ACCESS TO AND INSPECTION OF WORK:

21.1. The Fairfax County Purchasing Agent and using agencies will, at all times, have access to the work being performed under this contract wherever it may be in progress or preparation.

22. DATA SOURCES:

22.1. The County will provide the Contractor all available data possessed by the County that relates to this contract. However, the Contractor is responsible for all costs for acquiring other data or processing, analyzing or evaluating County data.

SPECIAL PROVISIONS**23. SAFEGUARDS OF INFORMATION:**

- 23.1. Unless approved in writing by the County Purchasing Agent, the Contractor may not sell or give to any individual or organization any information, reports, or other materials given to, prepared or assembled by the Contractor under the final contract.

24. ORDER OF PRECEDENCE:

- 24.1. In the event of conflict, the Acceptance Agreement (provided at contract award) and the Special Provisions of this contract shall take precedence over the General Conditions and Instructions to Bidders, (Appendix A).

25. SUBCONTRACTING:

- 25.1. If one or more subcontractors are required, the contractor is encouraged to utilize small, minority-owned, and women-owned business enterprises. For assistance in finding subcontractors, contact the Virginia Department of Small Business and Supplier Diversity <https://www.sbsd.virginia.gov>; local chambers of commerce and other business organizations.

26. USE OF CONTRACT BY OTHER PUBLIC BODIES:

- 26.1. Reference Paragraph 71, General Conditions and Instructions to Bidders, Cooperative Purchasing. Offerors are advised that the *resultant* contract(s) may be extended, with the authorization of the Offeror, to other public bodies, or public agencies or institutions of the United States to permit their use of the contract at the same prices and/or discounts and terms of the resulting contract. If any other public body decides to use the final contract, the Contractor(s) must deal directly with that public body concerning the placement of orders, issuance of purchase orders, contractual disputes, invoicing and payment. The County of Fairfax acts only as the "Contracting Agent" for these public bodies. Failure to extend a contract to any public body will have no effect on consideration of your offer.
- 26.2. It is the Contractors responsibility to notify the public body(s) of the availability of the contract(s).
- 26.3. Other public bodies desiring to use this contract will need to make their own legal determinations as to whether the use of this contract is consistent with their laws, regulations, and other policies.
- 26.4. Each public body has the option of executing a separate contract with the Contractor(s). Public bodies may add terms and conditions required by statute, ordinances, and regulations, to the extent that they do not conflict with the contracts terms and conditions. If, when preparing such a contract, the general terms and conditions of a public body are unacceptable to the Contractor, the Contractor may withdraw its extension of the award to that public body.
- 26.5. Fairfax County **shall not** be held liable for any costs or damages incurred by another public body as a result of any award extended to that public body by the Contractor.

27. NEWS RELEASE BY VENDORS:

- 27.1. As a matter of policy, the County does not endorse the products or services of a contractor. News releases concerning any resultant contract from this solicitation will not be made by a contractor without the prior written approval of the County. All proposed news releases will be routed to the Purchasing Agent for review and approval.

SPECIAL PROVISIONS**28. AMERICANS WITH DISABILITIES ACT REQUIREMENTS:**

- 28.1. Fairfax County Government is fully committed to the Americans with Disabilities Act (ADA) which guarantees non-discrimination and equal access for persons with disabilities in employment, public accommodations, transportation, and all County programs, activities and services. Fairfax County government contractors, subcontractors, vendors, and/or suppliers are subject to this ADA policy. All individuals having any County contractual agreement must make the same commitment. Your acceptance of this contract acknowledges your commitment and compliance with ADA.
- 28.2. Fairfax County is committed to a policy of nondiscrimination in all County programs, services, and activities and will provide reasonable accommodations upon request. Bidders requesting special accommodations should call the Department ADA representative at (703) 324-3201 or TTY 1-800-828-1140. Please allow seven (7) working days in advance of the event to make the necessary arrangements.

29. STATE CORPORATION COMMISSION IDENTIFICATION NUMBER:

- 29.1. Pursuant to *Code of Virginia*, §2.2-4311.2 subsection B, a bidder or offeror organized or authorized to transact business in the Commonwealth pursuant to Title 13.1 or Title 50 is required to include in its bid or proposal the identification number issued to it by the State Corporation Commission (SCC). Any bidder or offeror that is not required to be authorized to transact business in the Commonwealth as a foreign business entity under Title 13.1 or Title 50 or as otherwise required by law is required to include in its bid or proposal a statement describing why the bidder or offeror is not required to be so authorized. Any bidder or offeror that fails to provide the required information may not receive an award.

30. FAIRFAX COUNTY CONSTRUCTION SAFETY RESOLUTION:

The Offeror shall comply with the resolution adopted by the Fairfax County Board of Supervisors on December 8, 2003, as amended:

- 30.1. It shall be required that each bid submitted to the County for a contract for construction, alteration, and/or repairs, including painting or decorating of a building, highway, street, bridge, sidewalk, culvert, sewer, excavation, grading, or any other construction, include a list of all the following actions which have become final in the three years prior to the bid submission:
- a. Willful violations, violations for failure to abate, or repeated violations, for which the bidder was cited by (a) the United States Occupational Safety and Health Administration; (b) the Virginia Occupational Safety and Health Administration; or (c) the occupational safety and health plan for any other public jurisdiction; or
 - b. Three (3) or more serious construction safety violations for which the bidder was cited by the (a) United States Occupational Safety and Health Administration; or (b) the Virginia Occupational Safety and Health Administration; or (c) the occupational safety and health plan from any other public jurisdiction.
 - c. Termination of a contract between the contractor and any public entity by their purchasing agent or his designee for safety violations.
- 30.2. If the bidder has not received or been the subject of any such violations referenced in paragraph 30.1 in the three (3) years prior to the bid submission, then the bidder shall so indicate by certification on the bid form entitled Certification of Safety Violations. The bidder will also indicate on this form each state in which work was performed in the three (3) years prior to the bid submission.

SPECIAL PROVISIONS

- 30.3. No bidder or contractor may bid on a County construction contract who has been the subject of any citations for the type and number of violations listed in aforementioned paragraph 30.1, which have become final within the three (3) years prior to the bid submission.
- a. Notwithstanding the language of paragraph 30.3, above, any bidder or contractor who has been the subject of a violation, as described in paragraph 30.1 A, which has become final in the three (3) years prior to the bid submission, may bid, if the bidder or contractor meets the eligibility criteria set forth in paragraph 30.4, below.
 - b. Notwithstanding the language of paragraph 30.3, above, any bidder or contractor who has been the subject of the type and number of violations as described in paragraph 30.2, which have become final within three (3) years prior to bid submission, may bid, if the bidder or contractor meets the eligibility criteria in paragraph 30.5, below.
 - c. Notwithstanding the language of paragraph 30.1.C, above, any bidder or contractor who has previously been terminated from a public contract, as described in paragraph 30.1.C, within three (3) years prior to the bid submission, may bid, if the bidder or contractor meets the eligibility criteria in paragraph 30.5, below.
- 30.4. Prior to bidding on a project, under the provisions of paragraph 30.3 above, a contractor may request that a determination be made by the County's Purchasing Agent or designee, regarding their eligibility to submit a bid on a contract under the terms of this resolution. However, this request for determination and any subsequent adjudication process must be completed prior to submitting a bid on any project and the request for determination must be received by the County's Purchasing Agent or designee no later than twenty-one (21) days before bids are due unless otherwise stated in the Solicitation. A notice of the bidder's request for determination of eligibility will be posted publicly for comments by any interested party. The bidder's request for determination of eligibility and all supporting documentation provided by the bidder to the County in support of its request shall be open to the inspection of any interested person, firm or corporation in accordance to the requirements of Fairfax County Purchasing Resolution and Virginia Freedom of Information Act.
- 30.5. At the request of the Purchasing Agent or designee, the County Risk Manager shall evaluate a contractor's eligibility. Contractors may be subject to a special audit of their safety records as required. The criteria used by the Risk Manager in evaluating contractor's eligibility shall include but not be limited to the following:
- a. Corrective action taken by a bidder or contractor to prevent the recurrence of safety violations.
 - b. Days Away From Work Incident Rate for the past three (3) years.
 - c. Summary of Work-Related Injuries and Illnesses/Incident Rate for the past three (3) years.
 - Worker's Compensation Experience Modification Rating for the past three (3) years.
 - Fatality record for the past five (5) years.
 - Detailed information regarding the firm's safety program including but not limited to a Safety and Health plan and qualifications of the safety personnel.
 - Verification that management staff directly in charge of projects that experienced safety violations listed in aforementioned paragraph A will not be involved in the County project.
 - Incorporation of safety and health related issues into their new employee orientation programs.
 - Incorporation of work safety as a part of an employee's performance evaluation.
 - Support of safety related matters by senior/corporate management. Does the firm have a safety policy statement signed by a member of senior/corporate management?
 - Designation of a full time Safety Manager. Does this person report to a high level, authoritative position within the Company?

SPECIAL PROVISIONS

- Frequency and type of safety inspections conducted at work sites.
 - The number and type of safety training programs conducted for employees.
 - Frequency of safety "tailgate meetings" conducted by the firm.
 - Designation of an active safety committee, frequency of their meetings and list of members of the committee.
 - Active membership in a recognized construction safety organization in the Washington Metropolitan area, or in the state of contractor's domicile.
- 30.6. The determination of eligibility rendered by the Purchasing Agent or his designee shall be final unless it is appealed in accordance with the provisions of the solicitation or the Fairfax County Purchasing Resolution.
- 30.7. It shall be a condition of each County construction contract, as discussed above, that no contractor or subcontractor contracting for any part of the contract work shall require any laborer, mechanic, or other person employed in the performance of the contract to work in surroundings or under working conditions which are hazardous or dangerous to his safety, as determined under construction safety standards promulgated by the U.S. Department of Labor or the Virginia Department of Labor and Industry.
- 30.8. The contractor awarded a County construction contract shall certify in writing that they will not knowingly, willfully, or recklessly employ or contract with any person, company, corporation, or any other entity for services pursuant to that contract if such person, company, corporation, or other entity could not have been awarded such contract due to the restrictions in paragraph 30.3, above.
- 30.9. The contractor shall also certify in writing that all safety related information provided in accordance with the Safety Resolution and contract requirements are complete, accurate and truthful.
- 30.10. The failure to provide information requested pursuant to this Resolution or the failure to conform to the certification requirements of this Resolution shall be grounds for disqualifying a prospective bidder.
- 30.11. The County may impose the following sanctions upon a contractor who willfully submits any false or misleading certification or information regarding material facts in connection with submissions pursuant to this Resolution, or willfully omits any certification or information regarding material facts in connection with submissions pursuant to this Resolution. The term willful shall include intentional or reckless acts or omissions.
- a. Disqualify the prospective bidder from bidding a contract.
 - b. Debar the contractor from bidding future contracts for a period not to exceed three years.
 - c. Terminate the contract awarded to the bidder after providing notice and opportunity to be heard.

31. STATE REGISTRATION OF OFFEROR:

- 31.1. If a contract is for one hundred and twenty thousand dollars (\$120,000) or more, or if the total value of all construction, removal, repair or improvements undertaken by the bidder within any twelve-month period is seven hundred-fifty thousand dollars (\$750,000) or more, the bidder is required under Title 54.1, Chapter 11, Code of Virginia (1950), as amended, to show evidence of being licensed as a "Class A Offeror." (Non Virginia licenses are not acceptable). If a contract is seventy-five hundred (\$7,500) dollars or more but less than one hundred and twenty thousand dollars (\$120,000), the bidder is required to show evidence of being licensed as a "Class B Offeror". If a contract is one thousand dollars (\$1,000) or more but less than seventy-five hundred dollars (\$7,500), the bidder is required to show evidence of being licensed as a "Class C Offeror."
- 31.2. **The Code of Virginia does not allow an unlicensed Offeror to submit a bid where the resultant contract will require a license. The bidder shall provide a copy of the license with their bid.**

SPECIAL PROVISIONS**32. IDENTIFICATION, SECURITY, AND BACKGROUND CHECK:**

- 32.1. Due to enhanced security measures, Contractor employees, representatives and sub-contractors are required to display company photo identification badges above the waist at all times while on the job site, supplied by the contractor. Contractor employees, representatives and sub-contractors who arrive at the job site without appropriate identification badges will immediately be dismissed from the job site.
- 32.2. The selected Contractor, and its sub-contractors, will be required to submit written documentation of an acceptable "Criminal History" background check, that is not older than 6 months, for all employees, representatives, and sub-contractor's prior to receiving any "Notice to Proceed" under this contract, and at any time deemed necessary by the Fairfax County Police Department or Sheriff's Office. If any employee leaves and is rehired by the Contractor a new "Criminal History" must be obtained prior to the employee starting work in Fairfax County. Criminal History must be renewed yearly from the date of first clearance.

NOTE: For security reasons, Criminal History information must be sent via hardcopy or CD/Disc by certified mail to: Director, Wastewater Collection Division, 6000 Freds Oak Rd, Burke, VA 22015.

33. BONDS:

- 33.1. Bonds are required for any project with a cost of \$500,000 or more per the Fairfax County Purchasing Resolution.
- 33.2. The contractor shall furnish, within twenty-five (25) calendar days after notice to proceed or purchase order, the following bonds, issued by a surety company licensed and authorized to conduct business in the State of Virginia, made payable to the County of Fairfax. All bonds must clearly make reference to the applicable project, contract number, and title.
- a. Performance Bond in the amount equal to one hundred percent (100%) of the contract price on AIA Document A312-2010, Edition or equivalent.
 - b. Labor and Materials Payment Bond in an amount equal to one hundred percent (100%) of the contract price on AIA A312-2010, Edition or equivalent.
- 33.3. Failure to provide the required bonds, within twenty-five (25) calendar days, will constitute a material breach of the contract, for which the County may terminate the contract for cause.
- 33.4. The County reserves the right to require additional bonds for any individual project. Also reserves the right to increase or decrease the amount of the bonds based on the work requirement.

34. ADDITIONAL OR SUBSTITUTE BOND:

- 34.1. If the Owner becomes dissatisfied with any surety or sureties then upon the Performance Bond, or if for any other reason, each Bond shall cease to be adequate security to the Owner, the Contractor shall substitute an acceptable bond in such form and sum and signed by such other sureties as may be satisfactory to the Owner within five (5) days after notice. The premiums on such bond shall be paid by the Contractor. No further payment shall be deemed due nor shall be made until the new sureties shall have qualified.

35. OWNER'S RIGHT TO STOP WORK OR TERMINATE CONTRACT:

- 35.1. If:
- A. the Contractor shall be adjudged bankrupt or make an assignment for the benefit of creditors; or

SPECIAL PROVISIONS

- B. a receiver or liquidator shall be appointed for the Contractor or for any of his/her property and shall not be dismissed within 20 days, or after such an appointment, or the proceedings in connection therewith shall not be stayed on appeal within the said 20 days; or
- C. the Contractor shall refuse or fail, after Notice of Warning from the County Project Manager, to supply enough properly skilled workmen or proper materials; or
- D. the Contractor shall refuse or fail to prosecute the work with such diligence as will insure its completion within the period specified (or any duly authorized extension) or shall fail to complete the work within said period; or
- E. the Contractor shall fail to make prompt payment to persons supplying labor or materials for the work; or
- F. the Contractor shall fail or refuse to regard laws, ordinances, or the instructions of the County Project Manager, or otherwise be guilty of a substantial violation of any provision of this contract, then and in any such event, the Owner, without prejudice to any other rights or remedy it may have, may by seven (7) days' notice to the Contractor, terminate the employment of the Contractor and his/her right to proceed either as to the entire work or (at the option of the Owner) to any portion thereof as to which delay shall have occurred, and may take possession of the work and complete the work by contract or otherwise as the Owner may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the compensation to be paid the Contractor shall exceed the expense of completing the work (including compensation for additional managerial, administrative and inspection services and any damages for delay) such excess shall be paid to the Contractor. If such expenses shall exceed such unpaid balance, the Contractor and his/her sureties shall be liable to the Owner for such excess. If the right of the Contractor to proceed with the work is terminated, the Owner may take possession of and use such materials, appliances, supplies, plans and equipment as may be on the site of the work, and necessary therefore, for completing the work. If the Owner does not so terminate the right of the Contractor to proceed, the Contractor shall continue the work.

OFFEROR DATA SHEET

NAME OF OFFEROR: _____

ADDRESS: _____

E-MAIL ADDRESS: _____

Name and e-mail addresses of both service and fiscal representatives (Key Personnel) who would handle this account.

Service Representative: _____

Telephone Number: () _____

E-Mail Address: _____

Fiscal Representative: _____

Telephone Number: () _____

E-Mail Address: _____

Payment Address, if different from above:

BUSINESS CLASSIFICATION SCHEDULE

PLEASE CLASSIFY YOUR BUSINESS/ORGANIZATION BY MARKING IN STEP 1. STEP 2 IS OPTIONAL. This designation is requested of all business/organizations including publicly traded corporations, non-profits, sheltered workshops, government organizations, partnerships, sole proprietorships, etc. Fairfax County does not certify business classifications nor does it establish preferences or set-asides for specific classifications.

Examples:

- A small, Asian women-owned business would mark "Small" in Step 1, then "Women-Owned" and "Minority-Owned" in Step 2
- A small, service-disabled veteran and women-owned business would mark "Small" in Step 1, then "Women-Owned" and "Service-Disabled Veteran-Owned" in Step 2
- A government agency/public body would ONLY mark "Government Agency/Public Body" in Step 1

NAME OF BUSINESS: _____

LAST 4 DIGITS OF TIN/EIN: _____ **SIGNATURE:** _____

Step 1: Please indicate the classification of your business/organization. Select ONLY one (1) option.

Small Large Non-Profit Government Agency/Public Body Shelter Workshop

Step 2 (OPTIONAL): Please indicate what type of ownership your business/organization consists of. You may choose MORE than one (1) option.

Women-Owned Minority-Owned Service-Disabled Veteran-Owned

DEFINITIONS

Small Business/Organization - "Small business" means a business that is at least 51% independently owned and controlled by one or more individuals who are U.S. citizens or legal resident aliens, and together with affiliates, has 250 or fewer employees, or average annual gross receipts of \$10 million or less averaged over the previous three years. One or more of these individual owners shall control both the management and daily business operations of the small business.

Minority Business - is a business concern that is at least 51% owned by one or more minority individuals or in the case of a corporation, partnership or limited liability company, or other entity, at least 51% of the equity ownership interest in the corporation, partnership or limited company or other entity is owned by one or more minority individuals and both the management and daily business operations are controlled by one or more minority individuals. Such individuals shall include Asian American, African American, Hispanic American, Native American, Eskimo, or Aleut.

Women-Owned Business - a business concern that is at least 51% owned by one or more women who are U.S. citizens or legal resident aliens, or in the case of a corporation, partnership or limited company or other entity, at least 51% of the equity ownership interest is owned by one or more women who are U.S. citizens or legal resident aliens, and both the management and daily business operations are controlled by one or more women who are U.S. citizens or legal resident aliens.

Service-Disabled Veteran - means a veteran who (i) served on active duty in the United States military ground, naval, or air service, (ii) was discharged or released under conditions other than dishonorable, and (iii) has a service - connected disability rating fixed by the United States Department of Veterans Affairs.

Service-Disabled Veteran-Owned Business - is a business that is at least 51 percent owned by one or more service -disabled veterans or, in the case of a corporation, partnership, or limited liability company or other entity, at least 51 percent of the equity ownership interest in the corporation, partnership, or limited liability company or other entity is owned by one or more individuals who are service-disabled veterans and both the management and daily business operations are controlled by one or more individuals who are service-disabled veterans.

Shelter Workshop - a private non-profit, state, or local government institution that provides employment opportunities for individuals who are developmentally, physically, or mentally impaired, to prepare for gainful work in the general economy. These services may include physical rehabilitation, training in basic work and life skills (e.g., how to apply for a job, attendance, personal grooming, and handling money), training on specific job skills, and providing work experience in the workshop.

VIRGINIA STATE CORPORATION COMMISSION (SCC)
REGISTRATION INFORMATION

The offeror:

is a corporation or other business entity with the following SCC identification number:
_____ **-OR-**

is not a corporation, limited liability company, limited partnership, registered limited liability partnership, or business trust **-OR-**

is an out-of-state business entity that does not regularly and continuously maintain as part of its ordinary and customary business any employees, agents, offices, facilities, or inventories in Virginia (not counting any employees or agents in Virginia who merely solicit orders that require acceptance outside Virginia before they become contracts, and not counting any incidental presence of the offeror in Virginia that is needed in order to assemble, maintain, and repair goods in accordance with the contracts by which such goods were sold and shipped into Virginia from offeror's out-of-state location) **-OR-**

is an out-of-state business entity that is including with this proposal an opinion of legal counsel which accurately and completely discloses the undersigned offeror's current contacts with Virginia and describes why those contacts do not constitute the transaction of business in Virginia within the meaning of § 13.1-757 or other similar provisions in Titles 13.1 or 50 of the Code of Virginia.

Please check the following box if you have not checked any of the foregoing options but currently have pending before the SCC an application for authority to transact business in the Commonwealth of Virginia and wish to be considered for a waiver to allow you to submit the SCC identification number after the due date for proposals.

BUSINESS, PROFESSIONAL AND OCCUPATIONAL LICENSE

All firms located or operating in Fairfax County must obtain a Business, Professional and Occupational License (BPOL) as required by Chapter 4, Article 7, of the Code of the County of Fairfax, Virginia. In order for the Department of Tax Administration to determine your BPOL requirement prior to contract award, it is necessary for you to provide the following information:

- If you currently have a Fairfax County business license, please submit a copy with your proposal.
- Do you have an office in:

Virginia	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Fairfax County	<input type="checkbox"/> Yes	<input type="checkbox"/> No
- Date business began/will begin work in Fairfax County

A detailed description of the business activity that will take place in Fairfax County. If business is located outside of Fairfax County, give the percentage of work actually to be done in the County

Signature

Date

Complete and return this form or a copy of your current Fairfax County Business License with your proposal.

CERTIFICATION REGARDING DEBARMENT OR SUSPENSION

In compliance with contracts and grants agreements applicable under the U.S. Federal Awards Program, the following certification is required by all offerors submitting a proposal in response to this Request for Proposal:

1. The Offeror certifies, to the best of its knowledge and belief, that neither the Offeror nor its Principals are suspended, debarred, proposed for debarment, or declared ineligible for the award of contracts from the United States federal government procurement or nonprocurement programs, or are listed in the *List of Parties Excluded from Federal Procurement and Nonprocurement Programs* issued by the General Services Administration.
2. "Principals," for the purposes of this certification, means officers, directors, owners, partners, and persons having primary management or supervisory responsibilities within a business entity (e.g., general manager, plant manager, head of a subsidiary, division, or business segment, and similar positions).
3. The Offeror shall provide immediate written notice to the Fairfax County Purchasing Agent if, at any time prior to award, the Offeror learns that this certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. This certification is a material representation of fact upon which reliance will be placed when making the award. If it is later determined that the Offeror rendered an erroneous certification, in addition to other remedies available to Fairfax County government, the Fairfax County Purchasing Agent may terminate the contract resulting from this solicitation for default.

Printed Name of Representative: _____

Signature/Date: _____/_____

Company Name: _____

Address: _____

City/State/Zip: _____

SSN or TIN No: _____

Certification Regarding Ethics in Public Contracting

In submitting this proposal, and signing below, Bidder/Offeror certifies the following in connection with a bid, proposal, or contract:

Check one:

1. I have not given any payment, loan, subscription, advance, deposit of money, services or anything of more than nominal or minimal value to any public employee or official have official responsibility for a procurement transaction.

2. I have given a payment, loan, subscription, advance, deposit of money, services or anything of more than nominal or minimal value to a public employee or official have official responsibility for a procurement transaction, but I received consideration in substantially equal or greater value in exchange.

If 2 is selected, please complete the following:

Recipient: _____

Date of Gift: _____

Description of the gift and its value:

Description of the consideration received in exchange and its value:

Printed Name of Offeror Representative: _____

Signature/Date: _____ / _____

Company Name: _____

Company Address: _____

City/State/Zip: _____

This certification supplements but does not replace the requirements set forth in paragraph 59 (OFFICIALS NOT TO BENEFIT) of the General Conditions and Instructions to Bidders included in this solicitation.

AFFIRMATION OF LEGALLY REQUIRED CONTRACT TERMS

BY SIGNING THIS AFFIRMATION, THE OFFEROR REPRESENTS THAT IT UNDERSTANDS THAT THE FOLLOWING CONTRACT TERMS ARE REQUIRED BY LAW AND CANNOT BE VARIED, REVISED, AMENDED, CHANGED, OR OTHERWISE NEGOTIATED:

1. **Funding:** The obligation of the County to pay compensation due the Contractor under the contract or any other payment obligations under any contract awarded pursuant to this contract is subject to appropriations by the Fairfax County Board of Supervisors to satisfy payment of such obligations. The County's obligations to make payments during subsequent fiscal years are dependent upon the same action. If such an appropriation is not made for any fiscal year, the contract shall terminate effective at the end of the fiscal year for which funds were appropriated and the County will not be obligated to make any payments under the contract beyond the amount appropriated for payment obligations under the contract. The County will provide the Contractor with written notice of non-appropriation of funds within thirty (30) calendar days after action is completed by the Board of Supervisors. However, the County's failure to provide such notice will not extend the contract into a fiscal year in which sufficient funds have not been appropriated.
2. **Non-discrimination-**During the performance of this contract, the Contractor agrees as follows:
 - a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this non-discrimination clause.
 - b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.
 - c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.
 - d. The Contractor will include the provisions of the foregoing paragraphs a, b, and c above in every subcontract or purchase order of over \$10,000 so that the provisions will be binding upon each subcontractor or vendor.
 - e. Contractor shall, throughout the term of this contract, comply with the Human Rights Ordinance, Chapter 11 of the Code of the County of Fairfax, Virginia, as reenacted or amended. Contractor shall further require that all of its subcontractors will comply with the Human Rights Ordinance, Chapter 11 of the Code of the County of Fairfax, Virginia, as reenacted or amended.
3. **Authorization to Conduct Business in the Commonwealth:** A contractor organized as a stock or nonstock corporation, limited liability company, business trust, or limited partnership or registered as a registered limited liability partnership shall be authorized to transact business in the Commonwealth as a domestic or foreign business entity if so

AFFIRMATION OF LEGALLY REQUIRED CONTRACT TERMS

required by Title 13.1 or Title 50 of the Code of Virginia or as otherwise required by law. Any business entity described above that enters into a contract with a Fairfax County pursuant to the Fairfax County Purchasing Resolution shall not allow its existence to lapse or its certificate of authority or registration to transact business in the Commonwealth, if so required under Title 13.1 or Title 50, to be revoked or cancelled at any time during the term of the contract. Fairfax County may void any contract with a business entity if the business entity fails to remain in compliance with the provisions of this section.

4. No Indemnification by the County. The parties agree that under applicable law the County cannot indemnify or defend the Contractor. To the extent any promise or term contained in this Contract, including any exhibits, attachments, or other documents incorporated by reference therein, includes an indemnification or obligation to defend by the County, that promise or term is stricken from this Contract and of no effect.
5. Contractual Disputes:
 - a. Any dispute concerning a question of fact as a result of a contract with the County which is not disposed of by agreement shall be decided by the Purchasing Agent, who shall reduce her decision to writing and mail or otherwise forward a copy to the Contractor within ninety (90) days. The decision of the Purchasing Agent shall be final and conclusive unless the Contractor appeals within six (6) months of the date of the final written decision by instituting legal action as provided in the Code of Virginia. A Contractor may not institute legal action, prior to receipt of the Purchasing Agent's decision on the claim, unless the Purchasing Agent fails to render such decision within the time specified.
 - b. Contractual claims, whether for money or other relief, shall be submitted in writing no later than sixty days after final payment; however, written notice of the Contractor's intention to file such claim shall have been given at the time of the occurrence or beginning of the work upon which the claim is based. Nothing herein shall preclude a contract from requiring submission of an invoice for final payment within a certain time after completion and acceptance of the work or acceptance of the goods. Pendency of claims shall not delay payment of amounts agreed due in the final payment.
6. Drug Free Workplace: During the performance of a contract, the Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor. For the purposes of this section, "drug-free workplace" means a site for the performance of work done in conjunction with a specific contract awarded to a Contractor in accordance with this section, the employees of whom are prohibited from engaging in the unlawful

AFFIRMATION OF LEGALLY REQUIRED CONTRACT TERMS

manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

- 7. Immigration Reform and Control Act: Contractor agrees that it does not, and shall not during the performance of the contract for goods and services in the Commonwealth, knowingly employ an unauthorized alien as defined in the Federal Immigration Reform and Control Act of 1986.
- 8. Audit of Records: The parties agree that County or its agent must have access to and the right to examine any books, documents, papers, and records of the Contractor involving transactions related to the Contract or compliance with any clauses thereunder, for a period of three (3) years after final payment. The contractor must include this requirement in all subcontracts related to this Contract.
- 9. Nonvisual Access: All information technology, which is purchased or upgraded by the County under this contract, must comply with the following access standards from the date of purchase or upgrade until the expiration of the Contract:
 - a. Effective, interactive control and use of the technology (including the operating system), applications programs, and format of the data presented, shall be readily achievable by nonvisual means;
 - b. The technology equipped for nonvisual access shall be compatible with information technology used by other individuals with whom the blind or visually impaired individual interacts;
 - c. Nonvisual access technology shall be integrated into networks used to share communications among employees, program participants, and the public; and
 - d. The technology for nonvisual access shall have the capability of providing equivalent access by nonvisual means to telecommunications or other interconnected network services used by persons who are not blind or visually impaired. A covered entity may stipulate additional specifications in any procurement.
 - e. Compliance with the nonvisual access standards set out this Section is not required if the Board of Supervisors determines that (i) the information technology is not available with nonvisual access because the essential elements of the information technology are visual and (ii) nonvisual equivalence is not available.

Signature/Date: _____ / _____

Printed Name/Title: _____ / _____

Company Name: _____

CERTIFICATION OF SAFETY VIOLATIONS:

NAME(S) OF INSTALLER(S) AND/OR SUBCONTRACTOR: (Re: Paragraph 30)

NAME: _____

ADDRESS: _____

TELEPHONE NUMBER(S): _____

LIST SAFETY VIOLATIONS (Reference paragraph 30 Special Provisions).

If there were no safety violations list each state in which work was performed in past 3 (three) years (Ref. Paragraph 30.):

I hereby certify that the above information is correct to the best of my knowledge.

Principal
State of _____)

County of _____)

On this _____ day of _____, 20____, after first being duly sworn, appeared before me, the undersigned Notary Public and executed the foregoing instrument and acknowledge to me that he executed the same as and for the act and deed of said firm.

(SEAL) _____
Notary Public

My commission expires: _____

Please provide the following information on your company letter head:

Vendor name: _____

Doing Business As/(Trade Name): _____

Corporate Address (**Address Listed on W9**): _____

_____ Zip code: _____ (please include last four digits)

Remittance Address :

_____ Zip code: _____ (please include last four digits)

Contact name: _____

Email: _____

Phone: _____ FAX: _____

Standard Method of Communication: EMAIL FAX MAIL OTHER

Purchase Order Address

_____ Zip code: _____ (please include last four digits)

Contact name: _____

Email: _____

Phone: _____ FAX: _____

Standard Method of Communication: EMAIL FAX MAIL OTHER

Request for Taxpayer Identification Number and Certification

**Give Form to the
requester. Do not
send to the IRS.**

Print or type See Specific Instructions on page 2.	1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.	
	2 Business name/disregarded entity name, if different from above	
	3 Check appropriate box for federal tax classification; check only one of the following seven boxes: <input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____ Note. For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner. <input type="checkbox"/> Other (see instructions) ▶ _____	
	4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____ <i>(Applies to accounts maintained outside the U.S.)</i>	
	5 Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
	6 City, state, and ZIP code	
	7 List account number(s) here (optional)	

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Social security number									
				-			-		

Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.

or

Employer identification number									
					-				

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

Sign Here	Signature of U.S. person ▶	Date ▶
------------------	----------------------------	--------

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.
Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at www.irs.gov/fw9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)

- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding? on page 2.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting?* on page 2 for further information.



RFP 2000003120

ATTACHMENT B – TECHNICAL SPECIFICATIONS

COUNTY OF FAIRFAX, VIRGINIA

TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
01025	Measurement and Payment	01025-1
01300	Submittals	01300-1
02640	Technical Provisions for Inspection and Rehabilitation	02640-1
02650	Sanitary Sewer Line Cleaning	02650-1
02651	Sanitary Sewer Overflow Response	02651-1
02953	Sewer Main Rehabilitation by Mechanical Liner	02953-1
02954	Sewer Main Rehabilitation by Lining	02954-1
02955	Cured In Place or Alternative Pipe Point Repair	02955-1
02956	Television Inspection	02956-1
02957	Sewer Manhole Rehabilitation	02957-1
02959	Sewer Sealing by Chemical Grout	02959-1
02960	Temporary Bypass Pumping Systems	02960-1
02972	Vacuum Excavation	02972-1

SECTION 01025 – MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 BASIS FOR MEASUREMENT AND PAYMENT

Measurement and Payment will be made for only those items included in the Schedule of Unit Prices and any written modifications issued by the County Purchasing Agent for the Project.

- A. All measurement for payment will be for completed work performed according, ng to Contract Specifications, Construction Details and the Schedule of Unit Prices. The Engineer or Owner shall measure all work according to the methods outlined below.
- B. Payment for any item is full compensation for furnishing all labor, materials and equipment required to provide a complete and operable item of the work. Any work and material paid for under one item, will not be paid for under another item.
- C. Where units differ between the items listed below and the Schedule of Unit Prices, the Schedule of Unit Prices governs.
- D. Work and products not installed in accordance with the requirements of the Contract Documents will be rejected or placed on a punch list for correction. If proper supporting documentation is not submitted during the invoice process, the County will reject or place the invoice on punch list for correction. The County may choose to not issue new work or delay current work until punch list items are corrected. It is expected that all punch list items will be corrected within 30 days or less of notification.

1.2 ANNUAL WORK (IF APPLICABLE TO THIS CONTRACT)

- A. There is no guarantee for the amount of work issued under an annual contract.

PART 2 CONTRACT ITEMS

2.1 SPECIALIZED MOBILIZATION (ITEM 1)

- A. *Measurement:* The Owner may utilize additional funds for this 5-year contract on an as needed basis to cover additional costs of emergency work and large scale planned work mobilization which is generally off road. The Owner in its sole discretion will determine when additional costs will be paid in the form of a lump sum payment or a percentage thereof under this Item. Specialized mobilization and/or emergency work costs are only granted upon authorization from the Owner and does not include standard sewer or manhole rehabilitation work reasonably authorized as part of this contract.
- B. *Payment:* The cost of this item will be determined for each occurrence when unforeseeable costs deemed by the Owner result from specialized mobilization and/or emergency work. When requested by the Owner, the Contractor will be required to submit a schedule of values with supporting documentation to the County for all mobilization and/or emergency costs. Costs for items contained within other contract items, demobilization, final site restoration and cleanup must not be included in the lump sum payment of this item. Upon approval by the Owner

SECTION 01025 – MEASUREMENT AND PAYMENT

payment for mobilization/emergency cost will be paid according to the documented value of materials delivered and work completed in the field. Any items requiring installation and removal at the completion of work will be paid for at a rate of 70 % for installation and 30 % when removed.

This item includes all materials and operations necessary to assemble, set up the project, breakdown the project including, but not limited to, the following:

1. Initial movement of personnel to the site.
2. Construction and removal of storage and parking areas.
3. Field Office facility setup and removal
4. Providing sanitary and other facilities required by the specifications and/or state, Federal, local or safety regulations.
5. Moving on and off site all tools and other items required to complete the work.
6. All other work initial expenses, payment of bonds, insurance premiums, and operations which must be performed before the beginning of work.
7. All temporary utilities required for the construction activities.
8. All costs related to safety and security.

2.2 CIPP REHABILITATION OF GRAVITY SEWER (HEAT CURED) (ITEMS NO. 2 – 8)

- A. *Measurement:* Shall be based upon the actual linear footage (LF) for each diameter of gravity sewer host pipe, where the CIPP installed is measured from manhole to manhole. The pay length must match the as-built length of the sewer line as shown in the County Geographic Information System. Any discrepancy will be resolved with precise measurements in the field by the contractor with formal confirmation by the County.
- B. *Payment:* Payment shall be made at the contract unit price per linear foot (LF) for each diameter of gravity sewer host pipe. The unit price includes all labor, incidentals, materials, equipment, resident notification/coordination, necessary permits, flow control/bypass pumping flows 2 MGD and less , regular line cleaning, pre-liner, CCTV inspection to identify an obstruction and to verify the need for heavy cleaning, obstruction removal, traffic control for a two lane road 45 MPH and below, liner testing, pre and post CIPP lining CCTV inspection, reports, mobilization/demobilization, **all QA/QC including sample testing and web based curing temperature monitoring**, and all other work not included under other items necessary to complete the work as specified.

2.3 CIPP REHABILITATION OF GRAVITY SEWER (UV CURED) (ITEMS NO. 9 – 15)

- A. *Measurement:* Shall be based upon the actual linear footage (LF) for each diameter of gravity sewer host pipe, where the CIPP installed is measured from manhole to manhole. The pay length must match the as-built length of the sewer line as shown in the County Geographic Information System. Any discrepancy will be resolved with precise measurements in the field by the contractor with formal confirmation by the County.

SECTION 01025 – MEASUREMENT AND PAYMENT

- B. *Payment:* Payment shall be made at the contract unit price per linear foot (LF) for each diameter of gravity sewer host pipe. The unit price includes all labor, incidentals, materials, equipment, resident notification/coordination, necessary permits, flow control/bypass pumping flows 2 MGD and less , regular line cleaning, pre-liner, CCTV inspection to identify an obstruction and to verify the need for heavy cleaning, obstruction removal, traffic control for a two lane road 45 MPH and below, liner testing, Pre and post CIPP lining CCTV inspection, reports, mobilization/demobilization, **all QA/QC including sample testing and web based curing temperature monitoring**, and all other work not included under other items necessary to complete the work as specified.
- 2.4 END SEAL FOR CIPP REHABILITATION OF GRAVITY SEWER (ITEMS NO. 16 – 20)
- A. *Measurement:* Shall be based upon the count for each (EA) seal installed at the liner to manhole interface for the purpose of the elimination of infiltration and inflow.
- B. *Payment:* Payment shall be made for each seal installed in connection with new liner installation. A quantity of two (2) seals will be paid for each sewer line rehabilitated.
- 2.5 HEAVY SEWER CLEANING OF GRAVITY SEWER PIPE (ITEMS NO. 21 – 22)
- A. *Measurement:* Heavy sewer cleaning for pipelines is defined as cleaning performed in sewer pipes in excess of three (3) sewer cleaning passes, and outside of regular cleaning required to perform sewer rehabilitation. This line item shall only be utilized under written authorization from the County. Measurement shall be based upon the linear feet of sewer cleaned for each sewer using equipment and procedures specified for heavy cleaning.
- B. *Payment:* Shall be made at the contract unit price per linear foot for each diameter of gravity sewer cleaned. The unit price includes all labor, traffic control for a two-lane road 45 MPH, and below materials, equipment, mobilization and demobilization, incidentals and debris removal and disposal. Payment shall be made to the Contractor based CCTV inspection reports.
- 2.6 HEAVY SEWER CLEANING OF GRAVITY SEWER MANHOLE (ITEM NO. 23)
- A. *Measurement:* Heavy sewer cleaning for manholes is defined as cleaning performed when debris exceeds 33% of the manhole volume as calculated from invert to manhole rim and outside of regular cleaning required to perform sewer rehabilitation. This line item shall only be utilized under written authorization from the County. Measurement shall be based upon the vertical feet of four and five-foot diameter sewer manhole cleaned.
- B. *Payment:* Shall be made at the contract unit price per vertical foot for each diameter of manhole cleaned. The unit price includes all labor, traffic control for a two-lane road 45 MPH and below, materials, equipment, mobilization and demobilization, incidentals and debris removal and disposal. Payment shall be made to the Contractor based CCTV inspection reports.

SECTION 01025 – MEASUREMENT AND PAYMENT

- 2.7 EXTREME SEWER CLEANING OF GRAVITY SEWER OR WET WELL AT PUMP STATION (ITEM NO. 24)
- A. *Measurement:* Shall be based upon the actual crew hours (HR) spent cleaning extreme sediments and debris from pipelines and wet wells using equipment and procedures specified for heavy cleaning and deemed necessary by the County in its sole discretion to clean extreme amounts of sediment and debris from the sewer system.
- B. *Payment:* Shall be made for each hour the entire crew spends cleaning the sewer utility. Items 21, 22 and 23 above may not be used for any one structure or pipeline in conjunction with this item. Attempt will be made to clean and pay for cleaning under items 21, 22 and 23 prior to requesting approval to clean and make payment under this item. Payment under item 24 will include hours spent attempting heavy cleaning as approved by the County. Pre and Post CCTV inspection will be provided to confirm the work. The unit price includes all labor, incidentals, materials, equipment, mobilization and demobilization, incidentals, debris removal and disposal, notification/coordination, necessary permits, flow control/bypass pumping flows 2 MGD and less , cleaning, CCTV inspection to identify an obstruction and to verify the need for extreme heavy cleaning, obstruction removal, traffic control for a two lane road 45 MPH and below, liner testing, reports, and all other work not included under other items necessary to complete the work as specified.
- 2.8 MECHANICAL LINER REHABILITATION OF GRAVITY SEWER (ITEMS NO. 25 – 31)
- A. *Measurement:* Shall be based upon the actual linear footage (LF) for each diameter of gravity sewer host pipe, where the mechanical liner installed is measured from manhole to manhole. The pay length must match the as-built length of the sewer line as shown in the County Geographic Information System. Any discrepancy will be resolved with precise measurements in the field by the contractor with formal confirmation by the County.
- B. *Payment:* Payment shall be made at the contract unit price per linear foot (LF) for each diameter of gravity sewer host pipe. The unit price includes all labor, incidentals, materials, equipment, resident notification/coordination, necessary permits, flow control/bypass pumping flows 2 MGD and less , regular line cleaning, CCTV inspection to identify an obstruction and to verify the need for heavy cleaning, obstruction removal, traffic control for a two lane road 45 MPH and below, liner testing, pre and post installation CCTV inspection, reports, mobilization/demobilization, QA/QC, and all other work not included under other items necessary to complete the work as specified.
- 2.9 EMERGENCY ROBTIC REINSTATEMENT OF SERVICE CONNECTIONS (ITEM NO 32)
- A. *Measurement:* Measurement shall be based on the actual number of lateral taps on which the work is completed, including inspection and confirmation that tap is 100% open on sewer lines which have been previously rehabilitated by others. The Contractor shall ensure that all taps have been robotically trimmed and reinstated between the upstream and downstream manholes. Emergency response time will be 2 hours to confirm the work has been scheduled and 24 hours to complete it when the property owner is not experiencing a sewer backup. When the property owner is experiencing a sewer back-up, the reinstatement must be completed within three hours of being notified to reinstate the sewer service connection. A confirmation report consisting of

SECTION 01025 – MEASUREMENT AND PAYMENT

pre and post NASSCO compliant CCTV inspection will be transmitted to the County upon completion of the work.

- B. *Payment:* Payment shall be made at the contract unit price for each (EA) lateral tap confirmed to be 100% robotically trimmed/reinstated as shown on the post CCTV video on existing lined sewer mains up to and including 15-inch diameter lines. The unit cost shall include all diameters of lateral taps inspected and confirmed open. This item includes but is not limited to all mobilization and demobilization, labor, equipment, materials, tools, flow control/bypass pumping flows 2 MGD and less , traffic control for a two lane road 45 MPH and below, mobilization and demobilization, pre and post closed circuit television (CCTV) to monitor and confirm cutting operations, debris removal, site restoration, incidentals, resident notification/coordination and all other work not included under other items necessary to complete the work as specified.

2.10 ROBTIC REINSTATEMENT OF SERVICE CONNECTIONS AFTER INSTALLATION OF CIPP OR OTHER REHABILATAION METHOD (ITEM NO 33)

- A. *Measurement:* Measurement shall be based on the actual number of lateral taps on which the work is completed, including inspection and confirmation that tap is 100% open on sewer lines which have been rehabilitated under this contract. The Contractor shall ensure that all taps have been robotically trimmed and reinstated between the upstream and downstream manholes. A confirmation report consisting of pre and post NASSCO compliant CCTV inspection will be transmitted to the County with Draft Invoice for acceptance. Inspection will be included as part of the inspection of the newly installed CIPP or other rehabilitation process used.
- B. *Payment:* Payment shall be made at the contract unit price for each (EA) lateral tap confirmed to be 100% robotically trimmed/reinstated as shown on the post CCTV video on existing lined sewer mains up to and including 15-inch diameter lines. The unit cost shall include all diameters of lateral taps inspected and confirmed open. This item includes but is not limited to all mobilization and demobilization, labor, equipment, materials, tools, flow control/bypass pumping flows 2 MGD and less , traffic control for a two lane road 45 MPH and below, mobilization and demobilization, pre and post closed circuit television (CCTV) to monitor and confirm cutting operations, debris removal, site restoration, incidentals, resident notification/coordination and all other work not included under other items necessary to complete the work as specified.

2.11 4-INCH SEWER MAIN/LATERAL INTERFACE TAP REPAIR AND SEAL (ITEM NO 34)

- A. *Measurement:* Measurement shall be based on the actual number of non-grout lateral taps repaired and sealed to eliminate infiltration and inflow at the tap. Full wrap lateral seals are preferred. The Contractor shall ensure that all taps have been sealed between the upstream and downstream manholes.
- B. *Payment:* Payment shall be made at the contract unit price for each (EA) lateral tap repaired and sealed on existing sewer mains up to and including 15-inch diameter lines. The unit price includes all labor, incidentals, materials, equipment, resident notification/coordination, necessary permits, flow control/bypass pumping flows 2 MGD and less , regular line cleaning, CCTV inspection to identify an obstruction and to verify the need for heavy cleaning, obstruction removal, traffic control for a two lane road 45 MPH and below, leak testing, Pre and post CCTV

SECTION 01025 – MEASUREMENT AND PAYMENT

inspection, reports, mobilization/demobilization, QA/QC, and all other work not included under other items necessary to complete the work as specified.

2.12 6-INCH SEWER MAIN/LATERAL INTERFACE TAP REPAIR AND SEAL (ITEM NO 35)

- A. *Measurement:* Measurement shall be based on the actual number of non-grout lateral taps repaired and sealed to eliminate infiltration and inflow at the tap. Full wrap lateral seals are preferred. The Contractor shall ensure that all taps have been sealed between the upstream and downstream manholes.
- B. *Payment:* Payment shall be made at the contract unit price for each (EA) lateral tap repaired and sealed on existing sewer mains up to and including 15-inch diameter lines. The unit price includes all labor, incidentals, materials, equipment, resident notification/coordination, necessary permits, flow control/bypass pumping flows 2 MGD and less , regular line cleaning, CCTV inspection to identify an obstruction and to verify the need for heavy cleaning, obstruction removal, traffic control for a two lane road 45 MPH and below, leak testing, Pre and post CCTV inspection, reports, mobilization/demobilization, QA/QC, and all other work not included under other items necessary to complete the work as specified.

2.13 8 INCH SEWER MAIN/LATERAL INTERFACE TAP REPAIR AND SEAL (ITEM NO 36)

- A. *Measurement:* Measurement shall be based on the actual number of non-grout lateral taps repaired and sealed to eliminate infiltration and inflow at the tap. Full wrap lateral seals are preferred. The Contractor shall ensure that all taps have been sealed between the upstream and downstream manholes.
- B. *Payment:* Payment shall be made at the contract unit price for each (EA) lateral tap repaired and sealed on existing sewer mains up to and including 15-inch diameter lines. The unit price includes all labor, incidentals, materials, equipment, resident notification/coordination, necessary permits, flow control/bypass pumping flows 2 MGD and less , regular line cleaning, CCTV inspection to identify an obstruction and to verify the need for heavy cleaning, obstruction removal, traffic control for a two lane road 45 MPH and below, leak testing, Pre and post CCTV inspection, reports, mobilization/demobilization, QA/QC, and all other work not included under other items necessary to complete the work as specified.

2.14 TRIM PROTRUDING SERVICE CONNECTIONS > ½ INCH (ITEM NO. 37)

- A. *Measurement:* Measurement shall be based on the actual number of lateral taps **that have protrusions greater than 1/2/inch** robotically trimmed for each range of gravity sewer diameters where deemed necessary to prepare a gravity sewer for CIPP lining.
- B. *Payment:* Payment shall be made at the contract unit price for each (EA) lateral tap trimmed for each range of gravity sewer diameters in Attachment C – Cost Proposal. The unit cost shall include all diameters of lateral taps trimmed. This item includes but is not limited to all mobilization and demobilization, labor, materials, tools, flow control/bypass pumping flows 2 MGD and less , traffic control for a two lane road 45 MPH and below, mobilization and demobilization, closed circuit television (CCTV) to monitor cutting operation, protruding tap

SECTION 01025 – MEASUREMENT AND PAYMENT

removal, debris removal, site restoration, incidentals, resident notification/coordination and all other work not included under other items necessary to complete the work as specified.

- 2.15 4, 6 AND 8-INCH SEWER MAIN/LATERAL INTERFACE TAP GROUT REPAIR AND SEAL (ITEM NO 38)
- A. *Measurement:* Measurement shall be based on the actual number of taps repaired and sealed for the elimination of infiltration and inflow at the tap. Unit of measure is by Each (EA) tap completed. Acrylamide, Urethane and Acrylate gels are preferred. The Contractor shall ensure that all taps have been sealed between the upstream and downstream manholes. The Contractor shall provide field documentation to confirm the number of gallons used to eliminate infiltration and inflow at each tap.
- B. *Payment:* Payment shall be made at the contract unit price per each tap repaired and sealed on existing sewer mains up to and including 15-inch diameter lines. The unit price includes up to two gallons of chemical gel grout, all labor, incidentals, materials, equipment, resident notification/coordination, necessary permits, flow control/bypass pumping flows 2 MGD and less , regular line cleaning, CCTV inspection to identify an obstruction and to verify the need for heavy cleaning, obstruction removal, traffic control for a two lane road 45 MPH and below, leak testing, Pre and post CCTV inspection, reports, mobilization/demobilization, QA/QC, and all other work not included under other items necessary to complete the work as specified.
- 2.16 8, 10, 12, 14, 15, 16, AND 18-INCH PIPE JOINT CHEMICAL GROUT REPAIR AND SEAL (ITEMS NO 39 – 45)
- A. *Measurement:* Measurement shall be based on the actual number of joints repaired and sealed for the elimination of infiltration and inflow at the joints. Unit of measure is by Each (EA) joint completed. Acrylamide, Urethane and Acrylate gels are preferred. The Contractor shall ensure that all joints have been sealed between the upstream and downstream manholes. The Contractor shall provide field documentation to confirm the number of gallons used to eliminate infiltration and inflow at each joint.
- B. *Payment:* Payment shall be made at the contract unit price per each joint repaired and sealed on existing sewer mains for the diameter of pipe being repaired. The unit price includes up to two gallons of chemical gel grout on 8 inch pipe joints, three gallons of grout on 10-12 inch pipe joints, four gallons on 14 to 16 inch pipe joints and five gallons on 18 inch pipe joints, all labor, incidentals, materials, equipment, resident notification/coordination, necessary permits, flow control/bypass pumping flows 2 MGD and less , regular line cleaning, CCTV inspection to identify an obstruction and to verify the need for heavy cleaning, obstruction removal, traffic control for a two lane road 45 MPH and below, leak testing, Pre and post CCTV inspection, reports, mobilization/demobilization, QA/QC, and all other work not included under other items necessary to complete the work as specified.
- 2.17 GALLONS OF GROUT USED FOR REPAIR AND SEAL (ITEM NO 46)
- A. *Measurement:* When approved by the County, measurement shall be based on the actual number of gallons used in excess of the established quantities given in items 36-43 to eliminate infiltration and inflow at joints, sewer service connection taps and defects. This item may also

SECTION 01025 – MEASUREMENT AND PAYMENT

be used for the actual number of gallons used to eliminate infiltration and inflow, repair and seal pipe defects outside items 36-43. Unit of measure is by Each (EA) gallon used. Acrylamide, Urethane and Acrylate gels are preferred. The Contractor shall ensure that all defects and leaks have been sealed between the upstream and downstream manholes. The Contractor shall provide field documentation to confirm the number of gallons used to eliminate infiltration and inflow at each defect.

- B. *Payment:* Payment shall be made at the contract unit price for each gallon used to repair and seal existing sewer mains up to 15-inch diameter. The unit price includes chemical gel grout, all labor, incidentals, materials, equipment, resident notification/coordination, necessary permits, flow control/bypass pumping flows 2 MGD and less , regular line cleaning, CCTV inspection to identify an obstruction and to verify the need for heavy cleaning, obstruction removal, traffic control for a two lane road 45 MPH and below, leak testing, Pre and post CCTV inspection, reports, mobilization/demobilization, QA/QC, public notifications and all other work not included under other items necessary to complete the work as specified.

2.18 CURED IN PLACE OR ALTERNATE INTERNAL POINT REPAIR (ITEMS NO. 47 – 53)

- A. *Measurement:* Shall be made on the basis of completion of the Work in accordance with the Contract Documents and this section.
- B. *Payment:* Shall be made at the contract unit price per linear foot (LF) for rehabilitating sanitary sewer pipelines, using the sectional cured in place pipe or alternate internal point repair method. Measurement of quantities will be made by the Contractor in the presence of the Owner. The unit price includes all labor, by-pass pumping (up to 2 MGD), cost of potable water, debris collection and disposal, dewatering, erosion and sediment control, excavation pits, ingress and egress procedures, materials, permits, regular line cleaning, pre-television and post-television inspection, re-instatement of service connections, removal and replacement of manhole frames and covers as necessary, removal of protruding service connections, resident/business owner notification, root removal, sediment and root removal, sealing liner at service connections, sealing the liner in the manholes, site restoration, site cleanup, testing, traffic control and other work, not included under other items, necessary to complete the rehabilitation per the Contract Documents.

2.19 BYPASS PUMPING (ABOVE 2.0 – 5.0 MGD) (ITEM NO. 54)

- A. *Measurement:* Bypass pumping shall be measured based on the daily rate (DAY) established in the unit price. Bypass pumping shall be an incidental cost for CIPP lining with average daily flows 2 MGD and less and shall not be measured for payment. This item shall be reviewed as part of the bypass plan for each installation.
- B. *Payment:* Payment shall be made at the contract unit price per day (DAY) required for bypass pumping for flows greater than 2 MGD up to 5.0 MGD. The unit price includes all labor, incidentals, materials, equipment, mobilization/demobilization, and all other work not included under other items, necessary to complete the work as specified. Bypass pumping 2 MGD and less is considered incidental to the various work items.

SECTION 01025 – MEASUREMENT AND PAYMENT

- 2.20 BYPASS PUMPING (ABOVE 5.0 MGD – 10 MGD) (ITEM NO. 55)
- A. *Measurement:* Bypass pumping shall be measured based on the daily rate (DAY) established in the unit price for bypass flow greater than 5 MGD. This item shall be reviewed as part of the bypass plan for each installation.
 - B. *Payment:* Payment shall be made at the contract unit price per day (DAY) required for bypass pumping for flows between 5 MGD and 10 MGD. The unit price includes all labor, incidentals, materials, equipment, mobilization/demobilization, and all other work not included under other items, necessary to complete the work as specified.
- 2.21 LATERAL CLEANOUT BY VACUUM EXCAVATION (ITEM NO. 56-58)
- A. *Measurement:* Measurement shall be based on the actual number of service connection cleanouts installed by vacuum excavation and successfully passing leakage tests for 4" 6" and 8" sewer laterals. Cleanouts will be used to provide access points for bypass pumping when the County has deemed it necessary to maintain the sewer service for critical sewer customers who cannot be interrupted during repair or rehabilitation operations. Cleanouts are to be installed when directed by County when isolation of sewer flows must be accomplished at the sewer lateral in order to complete the work.
 - B. *Payment:* Payment shall be made at the contract unit price per each (EA) service connection cleanout installed for each range of gravity sewer diameters in Attachment C – Cost Proposal. The unit cost shall include vacuum excavation, backfill, pipe, fittings, connection to services, testing bypass pumping to isolate sewer service from customer for the duration of the work, plugging the service tap at the mainline sewer pipe and all incidentals required to isolate the sewer service flows from the customer. This item includes but is not limited to all mobilization and demobilization, labor, materials, tools, flow control/bypass pumping flows 2 MGD and less, traffic control for a two lane road 45 MPH and below, mobilization and demobilization, closed circuit television (CCTV) as needed, debris removal, temporary and final site restoration, incidentals and all other work not included under other items necessary to complete the work as specified.
- 2.22 CEMENTITIOUS MANHOLE REHABILITATION, CALCIUM ALUMINATE (ITEMS NO. 59 – 62)
- A. *Measurement:* Measurement of each rehabilitated manhole shall be for the actual number of manholes rehabilitated and by the vertical foot (VF) from the invert to the top of the frame, rounded to the nearest foot, for each diameter of manhole.
 - B. *Payment:* Payment shall be made at the contract unit prices per vertical foot (VF) for actual quantities measured and accepted for each diameter manhole. Cementitious manhole rehabilitation using calcium aluminate based mortar includes invert to rim rehabilitation. The unit price includes all labor, incidentals, materials, equipment, resident notification/coordination, necessary permits, bypass pumping flows 2 MGD and less, manhole regular cleaning, traffic control for a two lane road 45 MPH and below, bench repair, water plugs, wall preparation and surface smoothing, incidentals, post rehab camera inspection, mobilization/demobilization, reports, QA/QC, and all other work not included under other items, necessary to complete the work as specified.

SECTION 01025 – MEASUREMENT AND PAYMENT

2.23 POLYMER MANHOLE REHABILITATION (ITEMS NO. 63-66)

- A. *Measurement:* Measurement of each rehabilitated manhole shall be by the vertical foot (VF) from the invert to the top of the frame, rounded to the nearest foot, for each diameter manhole.
- B. *Payment:* Payment shall be made at the Contract unit prices per vertical foot (VF) for actual quantities measured and accepted for each diameter manhole. Manhole rehabilitation using epoxy or polyurethane liner includes invert to rim rehabilitation. The unit price shall include all acceptable methods of plastic liner installation. The unit price includes all labor, incidentals, materials, equipment, resident notification/coordination, necessary permits, bypass pumping flows 2 MGD and less , manhole regular cleaning, traffic control for a two lane road 45 MPH and below, bench repair, water plugs, wall preparation and surface smoothing, incidentals, post rehab camera inspection, mobilization/demobilization, reports, QA/QC, and all other work not included under other items, necessary to complete the work as specified.

2.24 MANHOLE FRAME AND COVER REPLACEMENT (ITEM NO. 67)

- A. *Measurement:* Measurement shall be by each (EA) manhole frame and cover removed and replaced.
- B. *Payment:* Payment shall made at the contract unit prices for each manhole frame and cover. Payment includes removal of existing frame and cover, replacing frame and cover, and disposal of old frame and cover, backfill and compaction, and restoring pavement markings, reestablish lawns and grasses as required.
- C. *Restoration Requirements:*
 - 1. For manholes located in paved areas and where pavement is removed, pavement replacement and restoration of the site including all pavement markings will be completed in accordance with the Virginia Department of Transportation Land Use Permit, Open-Cut Pavement Restoration Requirements and all other VDOT requirements. Compensation for pavement replacement and repair, including restoration of all pavement markings will be paid at the unit rates listed in Attachment C - Cost Proposal under the associated paving items.
 - 2. For manholes located in non-paved areas the costs for all restoration shall be incidental and included in the unit rate.

2.25 MANHOLE INSERT UNDER FRAME AND COVER, RAIN POT (ITEM NO. 68)

- A. *Measurement:* Measurement shall be by each (EA) manhole insert, rain pot installed new or replaced.
- B. *Payment:* Payment shall be at the unit price in Attachment C – Cost Proposal. Payment includes all work, materials, labor and equipment required to install manhole insert, rain pot complete and disposal of old rain pot as required.

SECTION 01025 – MEASUREMENT AND PAYMENT

2.26 ADJUST MANHOLE TOP TO GRADE USING PRE-CAST GRADE RINGS OR BRICK (ITEMS NO. 69-70)

A. *Measurement:* Shall be made on the basis of completion of the Work in accordance with the Contract Documents and this section.

1. Measurement of quantities will be made by the Contractor in the presence of the Owner. Measurement for payment to complete the manhole transition between top of precast cone section to the bottom of the frame and cover will be measured by the vertical feet (VF) of grade rings constructed to complete the transition (Chimney) of the manhole. If existing manhole is not pre-cast, measurement will be based on the number of vertical feet (VF) of brick courses used to bring manhole frame and cover to final grade, excluding the frame and cover itself in accordance with the Contract Documents. Measurement will be rounded to the closest tenth of a foot.
2. Manhole construction shall be completed in accordance with Fairfax County Public Facilities Manual.

B. *Payment:* Payment shall consist of all costs to furnish and install complete the manhole adjustment to final grade, for each size manhole as identified in Attachment C – Cost Proposal . The unit price includes all labor, incidentals, materials, equipment, resident notification/coordination, necessary permits, backfill, clearing, dewatering, excavation, backfill, grading, grubbing, landscaping, post-installation level 1 NASSCO compliant inspection, traffic control for a two lane road 45 MPH and below, protection of existing utilities, removal and disposal and disposal of existing manhole structure (where required), temporary site restoration, reports, QA/QC, and all other work not included under other items, necessary to complete the work as specified.

Borrow material to replace unsuitable spoils excavated during the work, erosion and sediment control, tree protection, restoration of roadway right-of-way areas including all asphalt paving, sidewalk, curb and gutter, seed, and sod will be paid for separately as described under those items of this specification. Any items not described within Attachment C – Cost Proposal are considered incidental and will not be paid for separately.

2.27 MANHOLE INTERNAL CHIMNEY SEAL FOR MANHOLE REHABILITATION (ITEM NO. 71)

A. *Measurement:* Measurement of quantities will be made by the Contractor in the presence of the Owner. Measurement to be will by the vertical feet (VF) of internal chimney seal installed overtop the manhole transition (Chimney) to eliminate infiltration and inflow. Measurement will be rounded to the closest tenth of a foot.

B. *Payment:* Payment includes all equipment, material and labor for the installation of an internal chimney seal. Payment shall be made for the actual number of vertical feet (VF) installed and left in place in connection with manhole rehabilitation.

2.28 MANHOLE EXTERNAL CHIMNEY SEAL FOR MANHOLE REHABILITATION (ITEM NO. 72)

A. *Measurement:* Measurement of quantities will be made by the Contractor in the presence of the Owner. Measurement to be will by the vertical feet (VF) of external chimney seal installed

SECTION 01025 – MEASUREMENT AND PAYMENT

overtop the manhole transition (Chimney) to eliminate infiltration and inflow. Measurement will be rounded to the closest tenth of a foot.

- B. *Payment:* Payment includes all equipment, material and labor for the installation of an external chimney seal. Payment shall be made for the actual number of vertical feet (VF) installed and left in place in connection with manhole rehabilitation.

2.29 MANHOLE CHEMICAL GROUT LEAK REPAIR FOR MANHOLE REHABILITATION (ITEM NO. 73)

- A. *Measurement:* The Contractor shall provide field documentation to confirm the number of gallons used to eliminate infiltration and inflow at each manhole slated for rehabilitation using a chemical grout. Measurement of quantities will be made by the Contractor in the presence of the Owner. Measurement for each gallon (GAL) will be rounded to the closest gallon.

- B. *Payment:* Payment includes all equipment, material and labor for the installation of each gallon used to eliminate leaks within the manhole in connection with manhole rehabilitation.

2.30 MANHOLE EXPANSION BAND JOINT SEAL FOR MANHOLE REHABILITATION (ITEMS NO. 74-75)

- A. *Measurement:* Measurement of quantities will be made by the Contractor in the presence of the Owner. Measurement will be made for each (EA) compression seal installed in precast manholes overtop leaking riser and cone section joints to eliminate infiltration and inflow.

- B. *Payment:* Payment includes all equipment, material and labor for the installation of each expansion band joint seal. Payment shall be made for the actual number installed and left in place in connection with manhole rehabilitation.

2.31 FOUR- OR FIVE-FOOT DIAMETER MANHOLE BENCH AND CHANNEL REPLACEMENT (ITEMS NO. 76-77)

- A. *Measurement:* Shall be made on the basis of completion of the Work in accordance with the Contract Documents and this section.

1. Measurement of quantities will be made by the Contractor in the presence of the Owner. Measurement will be made for each (EA) channel and bench removed and replaced with a newly constructed channel and bench within the existing manhole.

2. All work shall be completed in accordance with Fairfax County Public Facilities Manual.

- B. *Payment:* Payment shall consist of all costs to remove existing channel and bench, furnish and install complete a new channel and bench in an existing sanitary sewer manhole, for each size manhole as identified in Attachment C – Cost Proposal . The unit price includes all labor, construction as shown in the County typical plates (Standard Details), bypass pumping/flow control (up to 2 MGD), manhole connections or drop connections, post-installation video inspection of manhole, removal and disposal, and traffic control for a two lane roads 45 MPH and below. Traffic control for a four-lane road with posted speed limit greater than 45 miles per hour, item 86 and Bypass pumping greater than 2 MGD, items 53 and 54 will be paid for separately when needed and directed by the County.

SECTION 01025 – MEASUREMENT AND PAYMENT

- 2.32 FOUR- OR FIVE-FOOT DIAMETER MANHOLE BENCH AND CHANNEL REPAIR (ITEMS NO. 78-79)
- A. *Measurement.* Shall be made on the basis of completion of the Work in accordance with the Contract Documents and this section.
1. Measurement of quantities will be made by the Contractor in the presence of the Owner. Measurement will be made for each (EA) channel and bench repaired to produce a structurally sound channel and bench within the existing manhole. Repair assumes no bench demolition or removal. Cleaning and rebuilding benches only.
 2. All work shall be completed in accordance with Fairfax County Public Facilities Manual.
- B. *Payment:* Payment shall consist of all costs to remove clean/power wash corroded brick, mortar, and/or concrete within the channel and bench, furnish and install the required new replacement materials to complete repair within an existing sanitary sewer manhole, for each size manhole as identified in Attachment C – Cost Proposal. The unit price includes all labor, construction as shown in the County typical plates (Standard Details), bypass pumping/flow control (up to 2 MGD), manhole connections or drop connections, post-installation video inspection of manhole, removal and disposal, and traffic control for a two lane roads under 45 MPH and below. Traffic control for a four-lane road with posted speed limit greater than 45 miles per hour, item 86 and Bypass pumping greater than 2 MGD, items 53 and 54 will be paid for separately when needed and directed by the County.
- 2.33 MANHOLE STEPS (ITEM NO. 80)
- A. *Measurement.* Measurement shall be by each (EA) manhole step provided.
- B. *Payment:* Payment shall be at the unit price in Attachment C – Cost Proposal. Payment includes all work, materials, labor and equipment required to remove, and install new manhole steps, within an existing manhole and disposal of old steps as required.
- 2.34 TEMPORARY 6-FOOT HIGH CHAIN LINK FENCING (ITEM NO. 81)
- A. *Measurement.* Shall be based on the measured liner feet (LF) of temporary six-foot chain-link fence approved for use by the County. Chain link fence to be constructed with a minimum height of 6 feet to prevent public entry. The fence must be capable of safely securing all construction equipment and supplies within a designated storage or work area. The contractor will stake or mark in the field the proposed location for the fence in advance of the work for approval by the County. Work shall be completed in accordance with the Contract Documents and this section.
1. Measurement of quantities will be made by the Contractor in the presence of the Owner. Measurement for payment for fence will be based upon the actual length of fence installed in accordance with the Contract Documents.
 2. Measurement of the temporary 6-foot high fence will be made at locations where installed and approved for use by the County.
 3. Installation shall be completed in accordance with [Fairfax County Public Facilities Manual](#).

SECTION 01025 – MEASUREMENT AND PAYMENT

- B. *Payment:* Payment shall consist of all costs to furnish, install, maintain, and remove temporary 6-foot high fencing. Payment will be made at a rate of 70% to install and the balance of 30% will be paid upon removal with completion of site restoration.

2.35 MILL AND OVERLAY PAVEMENT REPAIR (ITEM NO. 82)

- A. *Measurement:* Measurement of quantities will be made by the Contractor in the presence of the Owner. Measurement to be will by the square yard (SY) of 1 ½ inches thick, Mill and Overlay installed in accordance with the Virginia Department of Transportation Land Use Permit, Open-Cut Pavement Restoration Requirements and all other VDOT requirements. Measurement will be rounded to the closest tenth of a foot.
- B. *Payment:* Payment includes all equipment, material and labor for the installation of mill and overlay complete, including site restoration and reestablishment of pavement markings. Payment shall be made for the actual number of square yards (SY) installed and left in place, in connection with manhole rehabilitation.

2.36 ASPHALT CONCRETE BASE PAVEMENT REPAIR – REINSTATEMENT (ITEM NO. 83)

- A. *Measurement:* Measurement of quantities will be made by the Contractor in the presence of the Owner. Measurement to be will by the square yard (SY) of 6-inch minimum asphalt base pavement materials, type BM-25.0A installed in accordance with the Virginia Department of Transportation Land Use Permit, Open-Cut Pavement Restoration Requirements and all other VDOT requirements. Measurement will be rounded to the closest tenth of a foot as follows:

(Length X Width) ÷ 9 = ___ square yards
- B. *Payment:* Payment includes all equipment, material and labor for the installation of asphalt base pavement material complete, including site restoration. Payment shall be made for the actual number of square yards (SY) installed and left in place, in connection with manhole rehabilitation.

2.37 ASPHALT CONCRETE SURFACE MATERIAL REPAIR – REINSTAEMENT (ITEM NO. 84)

- A. *Measurement:* Measurement of quantities will be made by the Contractor in the presence of the Owner. Measurement to be will by the square yard (SY) of asphalt concrete surface material, type SM-9.5A for ADT < 10,000 or SM-9.5D for ADT > 10,000, installed in accordance with the Virginia Department of Transportation Land Use Permit, Open-Cut Pavement Restoration Requirements and all other VDOT requirements. Measurement will be rounded to the closest tenth of a foot as follows:

(Length X Width) ÷ 9 = ___ square yards

Note: ADT = Average Daily Traffic (Vehicles)
- B. *Payment:* Payment includes all equipment, material and labor for the installation of asphalt concrete surface material complete, including site restoration and reestablishment of pavement markings. Payment shall be made for the actual number of square yards (SY) installed and left in place, in connection with manhole rehabilitation.

SECTION 01025 – MEASUREMENT AND PAYMENT

2.38 AGGREGATE BASE MATERIAL TYPE 1 (ITEM NO. 85)

- A. *Measurement:* Measurement of quantities will be made by the Contractor in the presence of the Owner. Measurement to be will by the cubic yard (CY) of base material, type I, size 21A or 21B, installed in accordance with the Virginia Department of Transportation Land Use Permit, Open-Cut Pavement Restoration Requirements and all other VDOT requirements. Measurement will be rounded to the closest tenth of a foot as follows:

(Length X Width X Depth) ÷ 27 = ___ cubic yards

- B. *Payment:* Payment includes all equipment, material and labor for the installation of aggregate base material, type I, size 21A or 21B, complete. Payment shall be made for the actual number of cubic yards (CY) installed and left in place, in connection with manhole rehabilitation.

2.39 SELECT BACKFILL MATERIAL TYPE 1 (ITEM NO. 86)

- A. *Measurement:* Measurement of quantities will be made by the Contractor in the presence of the Owner. Measurement to be will by the cubic yard (CY) of select backfill material, select material type I with Minimum CBR-30, installed in accordance with the Virginia Department of Transportation Land Use Permit, Open-Cut Pavement Restoration Requirements and all other VDOT requirements. Measurement will be rounded to the closest tenth of a foot as follows:

(Length X Trench Width X Depth) ÷ 27 = ___ cubic yards

- B. *Payment:* Payment includes all equipment, material and labor for the installation of select backfill material, type I, Min. CBR-30 material complete. Payment shall be made for the actual number of cubic yards (CY) installed and left in place, in connection with manhole rehabilitation.

2.40 MAINTENANCE OF TRAFFIC ABOVE 45 MPH (ITEM NO. 87)

- A. *Measurement:* Traffic control for a road with posted speed limit greater than 45 miles per hour shall be measured on a daily rate (DAY).

- B. *Payment:* Traffic Control shall be made at the contract unit price in Attachment C – Cost Proposal per day (DAY). The unit price shall include all items required to complete the operation including but not limited to signs, cones, barrels, arrow boards, crash attenuators, flaggers, shadow vehicles, mobilization/demobilization, cleanup, and other items required to complete the operation, which is not included in other contract items. Refer to the latest version of the VDOT Virginia Work Area Protection Manual for traffic control requirements.

END OF SECTION

SECTION 01300 – SUBMITTALS

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals from the CONTRACTOR.

1.2 RELATED DOCUMENTS

- A. Drawings and all provisions of the Contract, including individual Specification Sections contained within.

1.3 SUBMITTAL PROCEDURES

- A. Submit Shop Drawings to OWNER/ ENGINEER for review and approval in accordance with the CONTRACTOR's accepted schedule of Shop Drawings and Sample submittals and as specified herein.
- B. Determine and verify before submitting each Shop Drawing or Sample:
 - 1. Field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto.
 - 2. Materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work.
 - 3. Information relative to CONTRACTOR's sole responsibilities with respect to means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
- C. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples, and with the requirements of Work and Contract Documents.
 - 1. Each submittal will bear a stamp, or specific written indication, that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.
 - 2. At the time of each submission, CONTRACTOR shall give OWNER/ ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to OWNER/ ENGINEER for review and approval of each such variation.
- D. OWNER/ ENGINEER will review and approve Shop Drawings and Samples in accordance with the CONTRACTOR's schedule of Shop Drawings and Sample submittals accepted by OWNER/ ENGINEER.
 - 1. OWNER/ ENGINEER's review and approval will be only to determine if items covered by submittals will, after installation or incorporation in Work, conform to information given in

SECTION 01300 – SUBMITTALS

the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. OWNER/ ENGINEER's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents), or to safety precautions or programs incident thereto.
 3. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. CONTRACTOR shall make corrections required by OWNER/ ENGINEER, and shall return the required number of corrected copies, as specified herein, of Shop Drawings and submit as required new Samples for review and approval.
 5. CONTRACTOR shall direct specific attention in writing to revisions other than corrections called for by OWNER/ ENGINEER on previous submittals.
- E. OWNER/ ENGINEER's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for variation from requirements of the Contract Documents, unless CONTRACTOR has in writing called OWNER/ ENGINEER's attention to each such variation at the time of submission, and OWNER/ ENGINEER has given written approval of each such variation by specific written notation thereof incorporated in, or accompanying, the Shop Drawing or Sample approval; nor will approval by OWNER/ ENGINEER relieve CONTRACTOR from any such responsibility.
- F. Where a Shop Drawing or Sample is required by Contract Documents or schedule of Shop Drawings and Sample submissions accepted by OWNER/ ENGINEER, related Work performed prior to OWNER/ ENGINEER's review and approval of pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.
- G. Hazardous Communication Program: Coordinate the exchange of material safety data sheets or other hazardous communication information required to be made available to, or exchanged between, other employees at the site in accordance with Laws or Regulations.
- H. The OWNER/ ENGINEER will review each submittal a maximum of two times at no cost to CONTRACTOR. Beginning with the second resubmittal, OWNER will back charge the CONTRACTOR for OWNER/ ENGINEER's time and materials to provide resubmittal reviews. Back charge rates will be determined as per the rates between the ENGINEER and the OWNER in effect at the time.

1.4 FORMAT AND QUANTITY OF SUBMITTALS

A. Transmittal Form:

1. Transmit each submittal, except sample installations and sample panels, to the office of the approving authority. Transmit submittals with a transmittal form approved by the OWNER/ ENGINEER and use as a standard for the project. Transmittal form shall identify CONTRACTOR, indicate date of submittal, and include information prescribed by the transmitted form and required in the paragraph entitled "Identification of Submittals."

SECTION 01300 – SUBMITTALS

Process transmittal forms to record actions regarding sample panels and sample installations.

2. In order to indicate that the submittals have been Reviewed and Approved by CONTRACTOR as to conformance to Contract Documents, CONTRACTOR shall have made and shall use labels and/ or a rubber stamp which shall materially conform to the following sample:

Submittal No.:			
Contract No.:		Project No.:	
CONTRACTOR:			
REVIEWED AND APPROVED for Conformance with the Contract Documents By:	(Signature)		(Date)
References:			
Drawing Sheet No's.:			
Specification Section No.:			
Specification Paragraph No.:			

3. Utilize a ten-character submittal identification numbering system in the following manner:
- a. The first character shall be:
 - (1) D (for Shop/ Working Drawing and other Product Data).
 - (2) S (for Samples).
 - (3) M (for Operating/ Maintenance Manual).
 - b. The next five digits shall be the applicable Specification Section Number.
 - c. The next three digits shall be numbers 001-999 to sequentially number each different submittal submitted under each specific Section number.
 - d. The last character shall be letter, A-Z, indicating an initial submission or resubmission of the same drawing, i.e.:
 - (1) A (indicating the initial submission).
 - (2) B (indicating the second submission or first resubmission).
 - (3) C (indicating the third submission or second resubmission).
 - (4) And so on.
 - e. A typical submittal number would be D-02953-008-B which would indicate the following:
 - (1) D - Shop Drawing type submittal.
 - (2) 02953 - Specification Section 02953 for Sewer Main Rehabilitation by Mechanical Liner.
 - (3) 008 - The eighth different submittal under this specification section number.

SECTION 01300 – SUBMITTALS

- (4) B - The second submission (first resubmission) of this particular submittal package.
- f. For equipment submittals, each submittal and corresponding submittal number shall address a single item or type of equipment.
- 4. OWNER/ ENGINEER's review:
 - a. Submittals reviewed by OWNER/ ENGINEER will be returned to CONTRACTOR with OWNER/ ENGINEER's comments, if any.
 - b. The OWNER/ ENGINEER reserves the right to require written confirmation from CONTRACTOR that comments placed on submittals stamped "APPROVED AS NOTED" will actually be followed.
 - c. The OWNER/ ENGINEER will make every reasonable effort to process and return each submittal within 30 calendar days after its receipt in OWNER/ ENGINEER's office. The need for resubmissions or delay in obtaining OWNER/ ENGINEER's review or approval of submittals will not entitle CONTRACTOR to an extension of time for Contract completion.
- B. Identification of Submittals:
 - 1. Assign each submittal a sequential number as described above.
 - 2. Clearly identify products and materials submitted with appropriate equipment name and equipment tag number (if any) and installation location as it appears in the Contract Documents.
 - 3. Accompany each submittal with a letter of transmittal showing information required for identification and checking.
 - 4. On at least the first page of each submittal, and elsewhere as required for positive identification, show the submittal number in which the item was included.
 - 5. Submittal log:
 - a. Maintain an accurate submittal log, showing current status of submittals.
 - b. Make the submittal log available for review upon request.
- C. Submittal Content:
 - 1. Each submittal shall address information from a single specification Section.
 - 2. When a specification Section addresses multiple items of equipment, provide a unique submittal for each distinctly different type of equipment. When this is required or directed by the OWNER/ ENGINEER, provide and identify submittals per paragraph number.
 - 3. Do not combine unrelated equipment or equipment from different specification sections in the same submittal.
- D. Format for Shop Drawings:
 - 1. For shop drawings presented on sheets larger than 8 1/ 2-inches by 11 inches, include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to the information required in the paragraph entitled "Identification of Submittals."

SECTION 01300 – SUBMITTALS

2. For shop drawings presented on sheets 8 1/2-inches by 11 inches or less, conform to the format and quantity requirements for product data, and present as a part of the bound volume for the submittals required by the Section.
 3. Dimension drawings, except diagrams and schematic drawings; prepare dimensioned drawings to scale. Identify materials and products for work shown.
 4. Shop drawings shall be not less than 8 1/2 by 11 inches or more than 30 by 42 inches.
 5. Submit detailed drawings and descriptions of proposed deviations from details or component arrangement indicated on the drawings.
 6. Provide finished drawings for approval indicating proposed installation of Work, and materials and equipment being furnished.
 7. Copies of plans will not be accepted for submission as drawings, nor will catalog numbers alone of materials or equipment.
 8. Data shown on working drawings shall be sufficiently complete with respect to dimensions, design criteria, material of construction, and other details to enable review.
- E. Format and Quantity for Product Data:
1. Description:
 - a. Product Data submittals: Those submittals that contain information regarding a specific product to be provided or furnished by the CONTRACTOR under this contract.
 2. Present product data submittals for each Section as a complete, bound volume. Include a table of contents listing page and catalog item numbers for product data.
 3. Indicate, by prominent notation, each product which is being submitted; indicate the Section and paragraph numbers to which it pertains.
 4. Supplement product data with material prepared for the project to satisfy submittal requirements for which product data does not exist. Note that the material is developed specifically for the project.
 5. Catalog data shall be explicit with regard to details of products being furnished and complete enough to enable OWNER to determine that products submitted conform to requirements of specifications.
 6. For submittals with more than one style, size, capacity, etc. of a product on a sheet, clearly indicate exactly which product type is being submitted for approval. Failure to do this is cause for rejection.
 7. Catalog data shall bear name of manufacturer of product.
- F. Format - Electronic Version
1. CD ROM format.
 2. Windows compatible.
 3. Text in most current version of Microsoft Word (*.doc) or Adobe Acrobat (*.pdf) format, with searchable text.

SECTION 01300 – SUBMITTALS

4. Drawings in Adobe Acrobat (*.pdf) format.
 5. Images or photographs in Adobe Acrobat, image files (*.jpg or *.gif format), or other OWNER-approved format.
 - a. Photographs or images shall be minimum 150 dpi resolution to provide sufficient clarity.
- G. Unless otherwise directed in writing, CONTRACTOR shall submit the following number of copies of each submittal:
1. Product Data, Shop Drawings, and Working Drawings: 5 copies for the following distribution, however if the CONTRACTOR wants more copies to provide to his sub-contractors and vendor the CONTRACTOR may submit additional copies:
 - a. OWNER/ ENGINEER's review:
 - (1) Hard copies: 3 copies. 1 copy for circulation and review, 1 copy for file, and 1 copy for the field representative.
 - (2) Electronic copies: 1 copy.
 - b. OWNER's records:
 - (1) Hard copies: 1 copy.
 - (2) Electronic copies: 2 copies.
 - c. Returned to CONTRACTOR:
 - (1) Hard copies: 5 copies.
 - (a) 1 copy for Record Documents file.
 - (b) 1 copy for CONTRACTOR's records.
 - (c) 3 copies for circulation to sub-CONTRACTORS and suppliers.

1.5 MANUFACTURER'S CERTIFICATIONS

- A. When specified, submit manufacturers' certifications to OWNER/ ENGINEER for review, in quantities specified for shop drawings.
- B. Indicate material and equipment conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
- C. Certifications may be recent or previous test results on material or product but must be acceptable to OWNER/ ENGINEER.
- D. Certification submittals shall be made in accordance with the following:
 1. A certification submitted for a product, or component of a product, indicates test results proving that product, or component, meets the requirements of the standard specified in the Contract Documents.
 2. An affidavit consisting of a sworn statement by an official of the company manufacturing the product indicating that information on certification is true and accurate shall accompany the certification.
 3. A statement originating from CONTRACTOR, or his SUBCONTRACTORS, suppliers, or other agent which merely indicates that a particular item of equipment, product, or

SECTION 01300 – SUBMITTALS

component of a product, meets the requirements of Contract Documents shall not be considered a certification. A submittal made in this manner will not be approved and corresponding equipment, product, or component, shall not be finally accepted.

1.6 PROFESSIONAL OWNER/ ENGINEERING REQUIREMENTS

- A. Submittals where specified shall be signed and sealed by a licensed Professional Engineer.
- B. The Professional Engineer shall be registered in the appropriate design discipline and in the state where the project is being constructed.

END OF SECTION

PAGE INTENTIONALLY LEFT BLANK

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

PART 1 GENERAL

1.1 SUMMARY

- A. This section includes technical provisions for all sewer collection system inspection and rehabilitation work.
- B. Related Work Specified in Other Sections Include, but is not limited to, the following:
1. [Section 01025](#), Measurement and Payment
 2. [Section 01300](#), Submittals
 3. [Section 02650](#), Sanitary Sewer Line Cleaning
 4. [Section 02651](#), Sanitary Sewer Overflow Response
 5. [Section 02954](#), Sewer Main Rehabilitation by Lining
 6. [Section 02955](#), Cured In Place or Alternate Pipe Point Repair
 7. [Section 02956](#), Television Inspection
 8. [Section 02957](#), Sewer Manhole Rehabilitation
 9. [Section 02959](#), Sewer Sealing by Chemical Grout
 10. [Section 02960](#), Temporary Bypass Pumping Systems
 11. [Section 02972](#), Vacuum Excavation

1.2 OWNER

- A. This contract will be administered and performed under the direction and inspection of the Owner. Questions pertaining to this contract, before and after award, should be directed to the Owner.
- B. The Owner intends to issue work periodically in phases. Each phase will be issued in a package that contains a list of sewer segments and/or manholes to be rehabilitated and CCTV inspections from County records for each sewer segment listed.
- C. The Owner will provide the Contractor with the scope and location of the work as follows:
1. A list of manholes and/or sewer segments slated for sewer Rehabilitation for each phase of work. In general, the list may contain but not limited to the following information:
 - a. **Phase:** This identifies the year and phase the work was released to the Contractor to be completed, for example- FY20 Phase 1.
 - b. **Shed/Coordinates:** This is the location by Sewer Shed and Coordinates of County Grid System, for Example: K/A3.
 - c. **Grid and Manholes (Line Segment):** This is the GIS map identification of the asset. It provides location of which County Grid the asset is located on and the manholes numbers, for example, **101-3-010-101-3-009** is Grid 101-3 and manholes 010 to 009.
 - d. **Diameter of pipe:** According to available records.

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

- e. **Length of sewer pipe:** According to available records.
- f. **Number of customers (Taps):** Connected to each line according to available records.
- g. **Depth of manholes:** When manhole is rehabilitated according to available records.
- h. **Street names:** Name of street where work will take place.
- i. **Costs:** Approximate costs for each sewer pipe or manhole rehabilitated.

1.3 PUBLIC AND COUNTY NOTICE

- A. The Contractor shall have a full-time construction superintendent who shall have full authority to act for the Contractor. It is understood that the representative shall be acceptable to the County Project Manager and shall be one who can be continued in that capacity for the particular job involved, unless he/she ceases to be on the Contractor's payroll. Superintendent must be able to communicate in English by both speaking and writing. The Superintendent must have the ability to act on behalf of the contractor for the purposes of signing legal documents and directives from the County on site.
- B. During this contract the Contractor will provide each of the field crews with a copy of a letter that states the County has hired their company to perform maintenance and repair work on the sewer system. The County will provide the wording to be used within this letter. The letter will be distributed as needed by the Contractor on 2-sided copies (1 side English, 1 side Spanish) on an as-needed basis to residents to confirm the County has given them permission to access the sewer system during the performance of their work.
- C. Resident Notification Letters, 2-sided (1 side English, 1 side Spanish), shall be provided by the Contractor and approved by the County. The first notification letter shall be delivered 30 days prior to the start of sewer rehabilitation work. This letter will advise the public of expected sewer rehabilitation work within their neighborhood and explain that additional notices will be provided 2 days before the work is expected to start. In addition, the 30-day letter will provide detailed information on what each resident will see during the performance of the work. The 2-day notification letters shall be delivered by the Contractor, to each residence affected by the installation process, a minimum of two business days prior to commencing work. Three types of 2-day letters will be delivered. One letter will be provided to those customers who will experience a loss of service. One letter will be given to those customers who will have their parking spaces impacted. One letter will be given to customers within a 350-foot radius of the upstream and downstream manholes. This letter is for customers that will not lose service, but they may experience odors if they do not fill their drain traps to prevent vapors from lining work from entering their home. Therefore, this letter will advise them to fill all dry drain traps and provide notice of when the work will take place. The Resident Notification Letters shall be hand delivered or mailed to each affected resident prior to lining. Hand delivered Letters will be placed on the Front, Side and Garage doors of residents, but preferably delivered directly to the resident whenever possible. Residents shall be informed when wastewater and/or water service interruption will take place and the approximate duration as applicable. Each letter will contain contact information for the public as directed by the County. The Contractor will have an established Public Relations Program in place and will provide upon request documentation of the training of employees.

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

- D. During the performance of sewer rehabilitation work the contractor shall display a folding sign at the site behind the face of curb in a location that does not obstruct pedestrian traffic. The sign shall be a minimum of 24 inches wide and 36 inches high in its dimensions. This sign shall allow local residences to see contact information for the contractor performing the work and the Fairfax Trouble Response center. The lettering for the sign will comply to the most current version of the Manual on Uniform Traffic Control Devices for street and highways with reflective letting for visibility at night.
- E. The superintendent, crew chiefs and any other staff who interact with the public verbally or by written document shall exhibit good customer service skills. All communications are expected to be professional and courteous. Profanity, bad language and combative behaviors by the Contractors' staff will not be tolerated. Those persons found to be not in compliance with this requirement, as determined by the County, may be required to attend customer service training at no additional cost to the County or removed from any work site within the County. Any such directive given to the Contractor for training or removal shall be given in writing by the County.
- F. For any work crew accessing or working on the sewer system submit a weekly work schedule via email to the Owner in Excel 1 week in advance of the work. The weekly work schedule shall be provided by the Contractor and approved by the County. Schedule to contain:
- A. Company Name
 - B. Contact information for crew and superintendent
 - C. Dates and name for each day
 - D. Street names where work will take place
 - E. Manhole Numbers, County Grids and coordinates
 - F. Liner size and thickness
 - G. Liner length and number of sewer house connections (Taps) for each sewer segment lined and/or manholes to be rehabilitated
 - H. Comments/Description of work

When submitting the weekly schedule above, the Contractor shall also update and submit the previous week's schedule, to show what work was completed as planned. This information is needed to keep local records and County GIS Maps current.

- G. Failure to comply with this requirement and/or provide public notification in accordance with the contract may result in the issuance of a work stoppage; see Special Provision 35 – **OWNER'S RIGHT TO STOP WORK OR TERMINATE CONTRACT**. With each weekly work schedule, submit design data and specifications data sheets listing all parameters used in the CIPP material design and thickness calculations based on most current version of ASTM F-1216 and/or manhole design data in accordance with the contract documents.

1.4 PERMITS

- A. Complete the permit processes as needed. Permit costs shall be included in the unit prices for inspection and rehabilitation work.

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

1.5 SAFETY

- A. General: The Contractor is responsible for completing work safely and responsible for conditions within the job site, including safety of all persons (including employees) and property within the job site. This requirement shall apply continuously and not be limited to normal working hours. Additionally, maintain suitable, safe access to the premises for staff and visitors.
- B. Safety Protection: The Contractor shall comply with Federal, State, and local safety and fire codes and regulations. The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations, permits, resolutions and lawful orders of any public authority bearing on the safety of persons or their protection from damage, injury or loss. Where requirements conflict, the most stringent requirement shall apply.
- C. Material Safety: Comply with the precautions and product use procedures of the Material Safety Data Sheets (MSDSs) and Installation Specifications provided by the manufacturers of all chemicals, resins, additives, and catalysts used for sewage collection system rehabilitation. Provide all MSDSs and manufacturers' installation specifications to the Owner.
- D. Health and Safety and Confined Space Entry: The Contractor shall submit his health and safety and confined space entry plans to the Owner for approval prior to beginning any field work.

1.6 ACCIDENT REPORTS

- A. The Contractor shall maintain an accurate record of and shall immediately report orally to the Engineer and Owner, any accidents resulting in death, traumatic injury, occupational disease, or damage of property, materials, supplies, and equipment related to work performed under this Contract. Additionally, provide a written preliminary accident report to the Engineer and Owner within 24 hours of occurrence and a complete written report within seven (7) calendar days.

1.7 PERSONAL PROTECTIVE EQUIPMENT (PPE)

- A. The Contractor shall require all of his employees to wear all required PPE, including but not limited to, hard hats, safety shoes, vests, and eye protection.
- B. PPE shall be required at the construction site from start to completion of work. Employees, Contractors, and visitors at the inspection site shall be required to wear the appropriate PPE at all times. Individuals not wearing PPE shall not be permitted to remain onsite. The Contractor shall be responsible for advising all individuals working onsite of this requirement.
- C. All personnel at the construction site shall be required to wear a company identification card at all times.

1.8 STYRENE MONITORING AND SAFETY PROGRAM

- A. Care must be taken to ensure that styrene levels are below USEPA standards for airborne, surface, and water contamination. The EPA has set the maximum contaminant level at 0.1 ppm for drinking water and other water sources that impact drinking water. For sanitary sewer flow to a sewage treatment plant, styrene contamination must be below 2.1 ppm so as to not interfere with the effectiveness of the plant.

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

- B. Effluent from the curing process must be disposed of directly into the County's sanitary sewer system unless otherwise directed. Effluent from the curing process that is discharged into the County or other Publicly Owned Treatment Works (POTW) must comply with all mandated instructions of the utility owner. The Contractor must obtain written permission for any discharge within 1 mile of a County owned sewer treatment plant and when discharging into another sewer system not owned by the County.
- C. The Contractor shall maintain and provide a Styrene Monitoring and Safety program for the duration of this Contract. The Contractor shall submit a Styrene Monitoring and Safety plan to the County for Information Only. The Contractor must certify the plan conforms to all legal requirements and it meets the recommended exposure limit of 50 ppm for Styrene exposure. Any updates to this plan as they occur or whenever a requested by the County. When submitting a written plan, the Contractor shall include, but not limited to the following items:
- a. Methods and equipment used to comply with the Occupational Safety and Health Administration (O.S.H.A.) recommended exposure limit of 50 ppm for Styrene.
 - b. List of personnel on site trained to react if the required exposure limits are exceeded with a written response plan to bring the work site into compliance with OSHA regulations and the recommended exposure limit of 50 ppm. Include documentation on any certifications and training.
 - c. Modifications to equipment and installation safety procedures to dissipate and/or remove Styrene impacts and other chemicals during the installation process. Include venting, exhaust systems, personal protective equipment, special fittings, any chemical additives to control offensive odors.
 - d. Methods and procedures used to Monitor Styrene exposure limits on site and adjacent properties (if needed). Provide sampling methods, details of obtaining samples, chain of custody to protect sample integrity, examples of documentation, report forms, sample maps showing location of samples.
 - e. Recommendations that will be given to the public in advance of the work and when they have been exposed to Styrene vapors. Include examples of all notifications.
 - f. How the photoionization detector (PID) will be calibrated and maintained in good working order.
 - g. Explain the process of submitting a complete report to the County for each Styrene odor complaint received and what information the report will provide. The report as a minimum must contain the address of the complaint, timelines, photoionization detector (PID) readings specific to Styrene, PID readings locations and time taken, follow-up corrective actions to resolve the complaint with confirmation that all issues were resolved.
- D. When a complaint is received by the Contractor for Styrene odor, a written confirmation email will be sent to the County for each occurrence. The confirmation email will be sent to the County within 2 hours of first contact or knowledge of the complaint. The confirmation email will contain basic information to document the response and investigation are underway. Thereafter the Contractor shall submit a more detailed written report with the minimum information following the requirements of the Styrene Complaint Response Plan as within 5 working days.
- E. The Styrene Complaint Response Plan requirements:
- a. Submit a plan for addressing and resolving public complaints caused by Styrene odors, the plan must include:
 - i. The structure of the emergency response plan and how it will be made available 24 hours a day 7 days per week.
 - ii. Emergency contact list of response personnel

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

- iii. Step by Step procedures to investigate, act to remove Styrene odors, document the event and support impacted persons.
- iv. Detailed procedures used to remove Styrene odors from sites, dwellings and business experiencing Styrene complaints.
- v. Details on how the property occupants will be relocated at no cost to the County during removal of styrene vapors and what housing options will be made available.
- vi. The process to determine when the occupants will be allowed to return to their properties and dwellings.
- vii. The process of submitting a complete report to the County for each Styrene odor complaint received and what information the report will provide.

b. Submit a Complain Report that documents as a minimum must the following:

- i. Submit within 5 working days of the event
- ii. The address of the complaint
- iii. Timelines
- iv. Photoionization detector (PID) readings specific to Styrene
- v. Follow-up corrective actions to resolve the complaint
- vi. PID readings locations and time taken
- vii. Confirmation that all issues were resolved

c. For the duration of this Contract the Contractor will maintain the Styrene Complaint Response plan, including all documentation, procedures, personnel and equipment in a fully functional state. Any updates to the plan must be submitted for information only to the County as they occur. At no time shall any change violate Federal, local regulations or established laws nor change the intent to protect the public during the performance of work under this contract.

F. Liability

- a. The County does not assume any liability for the Styrene Monitoring and Safety Program. The Contractor is responsible for maintaining the program at all times, complying with all laws and regulations and providing indemnification in accordance with Article 58 of the General Conditions and Instructions to Bidders (Appendix A).

1.9 TRAFFIC MAINTENANCE AND PROTECTION - GENERAL REQUIREMENTS

- A. Comply with the provisions of the Virginia Work Area Protection Manual located at <http://www.virginiadot.org>
- B. Obtain Virginia Department of Transportation (VDOT) Land Use Permits for single use temporary traffic control, from the VDOT district administrator's designee in the area of the County where the work is to be performed.
 1. Web-site for VDOT Land Use Permit Application:
<http://www.virginiadot.org/business/bu-landUsePermits.asp>
- C. VDOT Temporary Traffic Control Permits may include, but not be limited to:
 1. Shoulder Work - Stationary Operations
 2. Shoulder Work with Minor Encroachment - Stationary Operations
 3. Four Lane Road - Stationary Right Lane Closure

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

4. Two Lane - Stationary Closure
 5. Closure in Center of Intersection
- D. Information on VDOT roads may be found at <http://www.virginiaroads.org>
 - E. Information on Manual on Uniform Traffic Control Devices (MUTCD) may be found at:
https://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf_index.htm
 - F. Contractor shall always have a VDOT Intermediate Work Zone Traffic Control Training and Flagger Certified person on site.
 - G. Contractor assumes responsibility for conducting operations in a manner to ensure the safety and convenience of all travelers and adjoining property owners within the limits of and for the duration of the contract.
 - H. Abide by laws and regulations of governing authorities when using public roads. If the work requires that public roads be temporarily impeded or closed, approvals shall be obtained from governing authorities and permits paid for before starting any work.
 - I. Perform all work within the Fairfax County rights-of-way in strict accordance with Virginia Department of Transportation Maintenance of Traffic Policy and other applicable statutory requirements to protect the public safety.
 - J. Be responsible for providing clear and concise guidance of traffic through work zones. A work zone is defined as the immediate areas of actual work and all abutting areas which are used and interfere with the driving or walking public.
 - K. Remove temporary equipment and facilities when no longer required. Restore area to original or specified conditions. Every precaution shall be taken to ensure that all work does not interfere with the movement of pedestrian traffic.
 - L. The Contractor will submit forms, mapping and VDOT standard documents necessary for obtaining the Land Use Permit. The Contractor shall complete all required forms and obtain the necessary signatures.
 - M. Minimum traffic flow restrictions are as follows:

On local streets in residential areas, the Contractor may work the hours of 7:00 A.M. to 7:00 P.M. On major and minor arterials and collector streets where the work will reduce the traffic lanes during rush hours and on streets where rush hour restrictions apply, the Contractor shall not work between the hours of 7:00 A.M. to 9:30 A.M. and 3:30 P.M. to 6:30 P.M., unless specifically requested and approved in advance.
 - N. The Contractor shall pay all fees and provide all bonds necessary for obtaining the Land Use Permit.
 - O. The Contractor shall be responsible for maintaining "local" traffic at all times and for notifying the proper authorities regarding the closing of the roads. The Contractor will be responsible for obtaining all permits required for maintenance of traffic.
 - P. The Contractor shall not begin work until standard barricades and warning signs are in an acceptable position and the markers and signs conform to the Federal Highway Administration (FHWA) "Manual of Uniform Traffic Control Devices for Streets and Highways" and all applicable state and local requirements. The Contractor assumes all responsibilities and liabilities regarding

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

strict adherence to applicable sections for the maintenance of traffic and public safety as set forth in the FHWA "Manual of Uniform Traffic Control Devices for Streets and Highways", and other applicable regulations. All traffic control devices must be in place prior to starting work.

- Q. The cost of all traffic control devices shall not be paid separately but shall be included in the Items listed in Attachment C - Cost Proposal.
- R. The Contractor shall maintain local traffic at all times during all phases of this project in a manner causing the least amount of inconvenience to the abutting property Owners. Temporary driveways, temporary roadways, or run around as may be necessary to provide vehicular access to and from the abutting properties shall be constructed, maintained, and subsequently removed by the Contractor as directed by the Owner.
- S. The portion of the pavement not affected by the work shall be kept clear of all material and equipment.
- T. The Contractor shall hold harmless the Owner and all its representation from all suits, actions, of claims of any character brought on account of any injuries or damages sustained by any person or persons or property in the performance of this contract.
- U. If at any time traffic has to be blocked (emergencies only), the Contractor shall notify the nearest fire, police departments and necessary utility departments.
- V. The cost of maintenance of traffic within roadways where posted speed is 45.0 MPH or less shall be incidental to the contract and not measured for payment.
- W. The cost of maintenance of traffic within roadways where posted speed is 50.0 MPH or more shall be paid as described under [01025 Measurement and Payment](#), Item 86 and as described herein.
1. When traffic control plans are required the Owner may elect to utilize Consultant Traffic Control Engineering firms to assist in the development of approved traffic control plans which meet all jurisdictional requirements. Under these conditions the Owner will pay for these services. The Contractor will coordinate with the Engineering firm to design traffic control plans at no additional cost to the Owner.
 2. The Owner may direct the Contractor to obtain a Consultant Traffic Control Engineering firm to prepare Traffic Control Plans. The Contractor will obtain a good faith estimate from the Engineering Firm and submit the estimated proposed costs to the Owner. Upon approval of the proposed costs by the Owner, design of the Traffic Control Plans may commence. During design any increase in costs must be approved in advance by the Owner. Under these conditions the Owner will pay for approved services and costs of the Engineering firm preparing the Traffic Control Plans following the payment terms of this contract.
 3. Should additional permit fees result from traffic controls under Item 86, the Contractor shall submit invoice with receipt of payment to the Owner for reimbursement.
 4. Invoices submitted for design of traffic control plans or additional permit fees shall not include any additional markup or handling fees.

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

1.10 WATER USAGE FROM FIRE HYDRANTS

- A. Obtain a Fairfax Water Fire Hydrant Use Permit from the Fairfax Water Customer Service Center. The Contractor is responsible for complying with all permit requirements.
- B. The Contractor will be responsible for making arrangements to turn off water services if necessary, to complete any work on this contract following the requirements of the utility owner.

1.11 SANITARY SEWER OVERFLOW RESPONSE

- A. In the event of a sanitary sewer overflow caused by the Contractors sewage collection system inspection or rehabilitation activities, the Contractor shall follow the procedures of [Section 02651, Sanitary Sewer Overflow Response](#).

1.12 USE OF PREMISES

- A. The Contractor shall not trespass upon or in any way disturb private property without first obtaining written permission from the property Owner and/or Owner or Prime Contractor as appropriate to do so. A copy of such written permission shall be furnished to the Owner prior to accessing the site.
- B. It shall be the Contractor's responsibility to work equipment around poles, trees, or other obstructions and to do so at his own expense.
- C. If the Contractor finds it necessary to obtain additional working area, it shall be the Contractor's responsibility for its acquisition.
- D. The Contractor shall, at no additional expense, restore such property to the original condition in the sole and unfettered opinion of the Owner. The Contractor must take photographs and/or videos of existing properties prior to disturbance of each property and make a copy available to the Owner.
- E. All items within the street right-of-way or sewer easement shall be removed, or removed and replaced, or restored as directed by the Owner.
- F. The Contractor shall ensure all employees have a badge or visible identification during any time that they on the project site or within private property. This identification must be worn so that it is readily recognized and readable to the public.

1.13 PROTECTION OF TREES

- A. The Contractor shall avoid any unnecessary damage to trees. Branches which overhang the project limits, and which interfere with the operation of equipment shall be tied back to avoid damage, if possible. Where injury to branches is unavoidable, the branches shall be sawed off neatly at the trunk or main branch, and the cut area shall be protected with approved pruning spray immediately. The Contractor at no additional expense shall remove any trees damaged beyond saving and make restitution to the Owner (public or private).

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

1.14 FENCING

- A. Any fences, including hedge and shrubs, that need to be removed to facilitate the work shall be replaced, in kind or with repairs satisfactory to the Owner, at the Contractor's expense. Replacement of fences, hedges, and shrubs shall be considered incidental to the contract and not measured for payment.

1.15 EXISTING UTILITIES

- A. The Contractor must take the necessary precautions for the protection of any utility encountered on the project or the restoration of any utility damaged during the work.
- B. If an excavation is required, the Contractor shall notify, at least 48 hours before breaking ground, all public or private service corporations having wire, poles, pipes, conduit, manholes, or other structures that may be affected by this operation, including all structures which are affected and not shown on these plans. Owners of underground utilities, which are members of the state's one call service, can be notified at <https://va811.com/>. Non-member underground utility Owners must be called directly.
- C. All maintenance, repair, and replacement of existing utilities shall be in accordance with the rules and regulations of the various utility companies having jurisdiction.
- D. All existing storm sewers, driveway drains, surface drain pipes and other property, removed or damaged during construction shall be repaired and reconnected by the Contractor as directed by the Owner at no additional cost to the Owner.

1.16 REQUESTS TO LOCATE MISSING MANHOLES

- A. For each release of work the Contractor shall take reasonable steps to locate in advance the sewer manholes which will be utilized in the completion of the work. These manholes will include those needed to maintain sewer flows, manholes slated for rehabilitation and those manholes needed for access points. Any manholes found missing by the Contractor must be reported to the County at least two weeks in advance of the work with a request to locate the manhole. The County will make attempt to locate the buried or missing manhole. The manholes will be raised to grade before the work is performed if possible or after the proposed work is complete in some cases. If the manholes cannot be found the County may delay or remove the work from the current release until such time as the manholes can be located. The County is not responsible for costs incurred for failure to confirm manholes are accessible prior to the start of any work or ordering of materials.
- B. The Contractor may use of the Fairfax County ArcGIS online Map Service for Mobile devices. Upon request the County will provide information to the Contractor to download the mobile app. This app may be utilized to assist in efforts to locate manholes in the field by providing approximate locations on handheld devices in the field. The County assumes no responsibility for allowing the Contractor to use this app. The Contractor assumes all liability and risk for its use. The Contractor will not receive any compensation for any claims in connection with its use.
- C. The Contractor may also use the Fairfax County Digital Map Viewer to view Sanitary Sewer Maps. This map can be found at: <https://www.fairfaxcounty.gov/gisapps/DMV/Default.aspx>

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

The Contractor assumes all liability and risk for its use. The Contractor will not receive any compensation for any claims in connection with its use.

- D. Any costs for County services to locate missing manholes may be deducted from current payments when the missing manhole rim is found to be visible to the eye or less than 2 inches below the existing surface of the ground.
- E. The Contractor may also use the Fairfax County Digital Map Viewer to view Sanitary Sewer Maps. This map can be found at: <https://www.fairfaxcounty.gov/gisapps/DMV/Default.aspx>
- The Contractor assumes all liability and risk for its use. The Contractor will not receive any compensation for any claims in connection with its use.

1.17 NO PARKING SIGNS AND ENFORCEMENT

- A. The Contractor may designate areas within the public right-of-way as no parking areas in accordance with jurisdictional requirements of Fairfax County.

Dual Notification: When no parking areas are utilized by the Contractor, notification must be given to the Fairfax County Police Department, Parking Enforcement Division by phone at 703-280-0636 and email them at FCPDParkingEnforcement@fairfaxcounty.gov , 72 hours or more in advance of the expected start of the work. Weekends and holidays are not included in this 72-hour period.

Phone Notification: Requires the Contractor to leave a voice mail message or talk to a parking enforcement official at the police department. The phone call must provide details such as any known site conditions that could impact traffic functions, the dates, times, locations being impacted by the Contractor's operations and any additional information as requested by the County Police.

Email Notification: Includes a list of the street locations, dates, times, project number for the construction and rehabilitation work, as well as emergency contact information. The 72-hour period starts when the County Parking Enforcement Division has received the proper phone call and email notification from the Contractor.

Signage Inspection: The Fairfax County Police Department, Parking Enforcement Division may require a field inspection of the signage to confirm proper installation and conformance to standards prior to the start of work. After inspection, Fairfax County Police Department, Parking Enforcement will notify the Contractor of the results and authorization to proceed if all conditions are met. The Contractor will confirm and coordinate the field inspection in advance of the work with the County Parking Enforcement.

Signage Requirements: The temporary No Parking signs are required to include the project number, Wastewater Collections 24-hour Trouble Response Center phone number (703-323-1211), and the Police Non-Emergency phone number (703-691-2131). Temporary no parking signs shall be a minimum 11-inch by 14-inch and posted at regular intervals (approximately every 50 to 75 feet). Signs shall conform to the Federal Highway Administration (FHWA) "Manual of Uniform Traffic Control Devices for Streets and Highways" and all applicable state and local requirements. The Contractor assumes all responsibilities and liabilities regarding strict adherence to applicable sections for the maintenance of traffic and public safety as set forth in the FHWA "Manual of Uniform Traffic Control Devices for Streets and Highways", and other

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

applicable regulations. Design of the Temporary no parking signs must be approved by the County prior to first use. Once approved the sign can be used until the County requests a change or update to the design.

No Parking Zone Requirements: Business and Residential property shall have free and clear access to their property. All properties impacted by the No Parking Zone shall be given written notification of no parking prior to erecting signs in accordance with requirements set forth in section 02640, 1.3 Public and County Notice. The Contractor shall maintain the signage and site conditions. The signs must always be legible and properly posted for the duration of the time frame provided to the Fairfax County Police Department, Parking Enforcement Division. Signs must be removed within 24 hours after the completion of work or as directed by the County. The establishment and use of no parking zones by the Contractor will be at no additional cost to the County.

- B. Removal or relocation of vehicles parked in an approved Temporary No Parking area must be requested to Fairfax County Police Department by calling 703-691-2131.

1.18 WORKING HOURS

- A. The Contractor must complete all work such that no homeowner is without sewer service, unless otherwise directed by the Owner. Local noise ordinances or agencies having control over roadway closures may control starting or stopping operations. Prior to starting operations, the Contractor shall advise the Owner of the restrictions imposed by the local agencies.
- B. The Contractor shall be on site with all necessary equipment in good working order no later than 7:30 a.m. Prior to starting the lining process, the Contractor shall be responsible for arrangements of lodging and meals for any resident that cannot be in service by 8:00 p.m. The Contractor may accommodate requests by property owners to complete work during night-time hours as allowed by permits and local jurisdictional requirements. Such requests must be also be approved by County
- C. The Contractor may be required to workdays, nights or weekends to achieve the lowest depth flows in the sewer pipes and not conflict with public events.
- D. No work, unless required by an emergency and authorized by the County, will be performed on weekends and holidays.

1.19 DECREASE/INCREASE IN SERVICE AND STOP WORK DUE TO INCLEMENT WEATHER

- A. The Owner, at its option, may increase or decrease any or all service requirements provided for under this contract. The Owner further reserves the right to suspend or stop the performance of any or all of the work of this contract due to inclement weather conditions.

1.20 PUNCH LIST ITEMS

- A. The Contractor must correct any problems found within 60 business days of discovery. If a problem is not corrected within 60 business days, then the County will charge the Contractor a penalty of \$100.00 per business day. The Contractor shall maintain an updated list of Punch List Items and submit it to the County once a week.

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

- B. The Contractor shall be physically and financially able to keep all “Punch List Items” caught up in the phase they are working. All punch list items will be completed before the next phase of work can be started, with 90% of the current phase work approved for payment

1.21 PROPERTY DAMAGE

- A. Any damage to the County’s infrastructure, private property, or other public property (homeowner/business backups, dead grass, ruts, damaged pavement, concrete, fences, etc.) will be immediately repaired or rehabilitated to the County’s satisfaction at no additional expense to the County or property owner(s) in question. The property owner(s) and/or the County will be notified of the problem and the repair method. The Contractor must expedite the insurance process and take responsibility of all applicable clean up, replacement of materials, and/or repair to residences. All repair work must be completed to the satisfaction of the County and the property owner(s).
- B. Upon award of the contract, the Contractor must have a Landscape contractor and a Plumbing contractor to address any concerns by the property owners caused by the sewer rehabilitation work.
- C. In the event of a backup, the Contractor shall:
1. Immediately investigate any and all reports of sewage backing up into any building or dwelling served by the sewer service area that is being rehabilitated. This includes but is not limited to those sewer sections being cleaned, televised, rehabilitated, bypassed or otherwise being impacted by the work performed.
 2. Notify the Owner immediately of any damage to private or public property caused by activities related to this contract. For each back-up event contact Wastewater Collection Division at the 24-hour Trouble Response Center at 703-323-1211 and email the County’s Project Manager as instructed. Provide the following:
 - a. Street address of property
 - b. Time of incident
 - c. Property Owner name and contact information
 - d. Contractor contact handling the cleanup/repair name, phone and email.
 - e. Actions to be taken
 - f. Estimated duration of repair and cleanup
 3. Have a certified laboratory available for performing bacteria testing for residents when all backups occur, or other fecal matter issues arise at no cost to the County or its residents.
 4. Performed all clean-up work in accordance with the most current guides for Professional Water Damage Restoration (IICRC S500) and Professional Mold Remediation (IICRC S520), unless otherwise stated. The Contractor is to have one-person onsite that is certified in accordance with the guides for Professional Water Damage Restoration (IICRC S500) and Professional Mold Remediation (IICRC S520).
 5. All cost for restoration and repair shall be the responsibility of the Contractor. No costs resulting from the contractor’s operations, cleanup and repair shall be paid by the Property Owner. Complete all repairs and/or clean the property immediately in a

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

timeframe that is acceptable to the Property Owner at no cost to the County or the Property Owner.

- D. The Contractor shall submit a Written Summary of each sewage back up or property damage with details of: what caused it, content of the damage, what was done, contact information for the person addressing the damage with involved parties and a remedy to prevent a reoccurrence to the County's Project Manager within two (2) business days.

1.22 EMERGENCY RESPONSE

- A. The Contractor shall provide direct contact information to the Owner of at least three emergency contacts available 24 hours per day, 365 days per year. The contact information will be used by the Owner staff and Trouble Response Center when contacting the evening/weekend/holiday emergency work crew supervisors to address emergencies resulting from the Contractor's actions or lack thereof during this project.

The Contractor shall be responsible for contacting the Owner within one-half hour after the first verbal and electronic notification. If the Contractor's crew has not responded to the site of the emergency within one hour of the first contact, verbal and electronic, the Owner will make all necessary repairs and bill the Contractor for all work performed. Any costs borne by the County as a result of emergency response may be deducted from current payments for work completed under this contract.

Costs related to the emergency response will be incidental to the contract and not measured for payment. Failure to respond to requests from the County for emergency situations may be considered a breach of contract and cause for termination for failure to perform.

Submit a contact list and update when changes are made or when requested with this information. For each contract provide the name of contact, job title, office address, office number, cell number and email.

1.23 RESTORATION

- A. All roadway berms and drainage ditches disturbed by the work shall be restored, reshaped, and graded to drain.
- B. Pavement restoration, if necessary, shall conform to the Owner's regulations, or the Owner's Specifications depending upon who has jurisdiction for the street. Trench backfill and compaction shall be in conformance with the local street restoration jurisdiction.
- C. The remediation of sunken trenches caused by activities conducted in this contract shall be the Contractor's responsibility. Sunken areas shall be backfilled and compacted to meet adjoining grades; the surface shall be re-seeded or resurfaced with asphalt or concrete matching the existing surfacing.
- D. The Contractor shall restore unpaved areas by seeding and mulching. No direct payment will be made for seeding and mulching.
- E. Driveways shall be restored in accordance with Owner's regulations, or the Owner's Specifications depending upon who has jurisdiction for the driveway.

SECTION 02640 – TECHNICAL PROVISIONS FOR INSPECTION AND REHABILITATION

- F. All disturbed areas shall be restored as nearly as possible to their original condition.
- G. All restoration shall be completed in strict accordance with the appropriate items of the specifications as directed by the Owner.
- H. The cost of all restoration of streets, drives, walks; sod, etc. shall be incidental to the contract and not measured for payment with the exception of adjusting a manhole frame and cover to grade in paved areas. For these adjustments to grade, the Contractor will be paid for paving restoration costs at the rates given in Attachment C - Cost Proposal and all other site restoration costs shall be incidental.
- I. Restoration shall be kept current with the project work. Failure to keep restoration of these items completed reasonably close shall result in a stop work notice and delay of payment until such restoration is completed to the satisfaction of the Owner.

1.24 CLEANUP

- A. The Contractor shall keep the work area in an uncluttered condition by the frequent removal of debris. The Contractor shall remove all debris and unused material and leave the area in a condition similar to the condition of the area before any work was performed.

1.25 PROJECT COORDINATION MEETINGS

- A. As outlined in the RFP, the Contractor shall be responsible for providing project coordination support with the County and their other Contractor's for projects that require construction of access, point repairs or other areas where access may prove difficult.
- B. When requested by the County, the Contractor shall be required to attend coordination meetings for these projects. The Contractor's CIPP lining superintendent and crew lead shall be required to attend these meetings. The Site Prep meeting could last up to 8 hours. The repair/replacement coordination meeting and the pre-rehabilitation meeting may last up to 2 hours. The Contractor and/or the County may request additional meetings to improve coordination or to resolve field issues at no additional cost to either parties, subject to the availability of County staff.

END OF SECTION

SECTION 02650 – SANITARY SEWER LINE CLEANING

PART 1 GENERAL

1.1 SUMMARY

- A. The intent of sanitary sewer cleaning is to remove debris from the pipes, manholes, and on occasion, wet wells to prepare for closed circuit television (CCTV), or to prepare for rehabilitation of the sewer system. The Contractor shall furnish all labor, equipment, material and supplies and perform all operations necessary to properly clean the sanitary sewer lines, manholes and wet wells.
- B. The Contractor shall provide regular cleaning of the sewer system to remove all debris prior to the rehabilitation of sewer pipelines and manholes. The costs for regular cleaning shall be included in the unit rates for each item listed within Attachment C - Cost Proposal categories of CIPP Lining Installation, Mechanical Liner Installation, Sewer Pipeline Repairs, Sewer Pipeline Repairs-Grout, Sewer Pipeline Repairs-Internal Point repair, Manhole Rehabilitation and Repair, see Attachment B.
- C. Related Work Specified in Other Sections Include, but is not limited to, the following:
 - 1. [Section 01025](#), Measurement and Payment
 - 2. [Section 01300](#), Submittals
 - 3. [Section 02640](#), Technical Provisions for Inspection and Rehabilitation
 - 4. [Section 02954](#), Sewer Main Rehabilitation by Lining
 - 5. [Section, 02956](#), Television Inspection
 - 6. [Section 02960](#), Temporary Bypass Pumping Systems

1.2 DEFINITIONS:

- A. Debris: Debris shall consist of dirt, rocks, bricks, gravel, sand, silt, grease, roots, and other materials that may accumulate in a sanitary sewer pipe.
- B. Regular Cleaning:
 - 1. Pipeline Regular Cleaning shall consist of a minimum of three passes using high velocity, hydrojetting, and vacuum cleaning equipment to prepare for CCTV or sewer rehabilitation. One pass using a root saw, for general sawing, with a camera following to the downstream manhole for light root removal.
 - 2. Manhole Regular Cleaning shall consist removal of all construction and cleaning debris from the manhole and proper disposal in a certified waste disposal facility. Debris removed may require confined space entry and shall not exceed 33% of the manhole volume as calculated from invert to manhole rim.
- C. Heavy Sewer Cleaning:
 - 1. Pipeline Heavy Sewer Cleaning is required when attempt at regular cleaning has failed and when a full pipe blockage is encountered, or the pipe has been identified through CCTV inspection as being greater than 50% blocked. Heavy cleaning shall consist of several passes using mechanically powered equipment, vacuum cleaning equipment

SECTION 02650 – SANITARY SEWER LINE CLEANING

and/or other equipment to remove heavy grease, roots and debris that was not successfully removed by regular cleaning.

2. Manhole Heavy Sewer Cleaning is required when debris exceeds 33% of the manhole volume as calculated from invert to manhole rim. Cleaning shall include removal of all construction and cleaning debris from the manhole and proper disposal in a certified waste disposal facility. Heavy Cleaning requires confined space entry to remove debris in excess of 33% of the manhole volume as calculated from invert to manhole rim.
- D. Extreme Sewer Cleaning:
1. The Contractor shall submit their means and methods to perform Extreme Heavy Sewer Cleaning. Submit means and methods for Pipelines, Manholes and Wet Wells that may not be defined in this specification.
 2. Pipeline: Extreme Heavy Cleaning is required when the County has reviewed the Contractors information and decided that heavy cleaning cannot be accomplished.
 3. Manhole: Extreme Heavy Cleaning is required when the County has reviewed the Contractors information and decided that Heavy cleaning cannot be accomplished.
 4. Wet Wells: Extreme Heavy Cleaning, all cleaning is consisted to be Extreme Heavy Cleaning.
 5. All Extreme Heavy Cleaning shall be paid for using the actual crew hours (HR) spent to clean extreme amounts of sediment and debris from the sewer system and wet wells using equipment and procedures specified and deemed necessary by the County.

1.3 REFERENCED DOCUMENTS

- A. All work must also conform to the latest edition of the following specifications
1. NASSCO Sewer Pipe Cleaning Specifications 2014 (2019 update):
https://www.nassco.org/sites/default/files/SPECIFICATION%20GUIDELINE%20-%20SEWER%20CLEANING%2006Nov14_%202019Update.pdf
 2. State Department of Transportation (MUTCD):
https://www.virginia.gov/business/virginia_mutcd_supplement.asp

1.4 PROJECT INFORMATION:

- A. Prior to any Cured-In-Place-Pipe (CIPP) reconstruction or Manhole Rehabilitation process, it shall be the responsibility of the Contractor to clean debris out of the sewer system in accordance with the "Sewer Line Cleaning" section of the most recent publication of NASSCO's Specification Guidelines (for) Wastewater Collection Systems Maintenance & Rehabilitation. In addition, prior to television inspection and video recording, the sewer shall be cleaned to such a condition that the video camera can adequately discern structural defects, misalignments, and points of infiltration. Prior to rehabilitation, all sand, rocks, gravel, mud, grease, and other debris that could interfere with or otherwise adversely impact the success of the rehabilitation shall be removed. Protruding laterals > ½ inch shall be cut prior to rehabilitation.

SECTION 02650 – SANITARY SEWER LINE CLEANING

- B. The Contractor shall seek Owner approval for heavy and extreme sewer cleaning on small diameter pipes (i.e. 8-inch to 18-inch) and Manholes when regular cleaning cannot be accomplished to allow for the installation of the rehabilitation product.
- C. The Contractor shall protect the sanitary sewer lines/manholes from damage as a result of the cleaning operation. This also includes protecting public/private site and access. Sanitary sewer lines/manholes or site damaged as a result of the Contractor's improper operations shall be promptly repaired by the Contractor at no cost to the Owner.
- D. The Contractor shall immediately notify owner if any of the cleaning activities result in deterioration of the host pipe and possibly result in sewer collapse. Owner shall decide if the cleaning operation needs to continue or be stopped.
- E. The Owner will provide the Contractor with the scope and location of the work as follows:
1. A list of manholes and/or sewer segments slated for sewer Rehabilitation for each phase of work. In general, the list may contain but not limited to the following information:
 - a. **Phase:** This identifies the year and phase the work was released to the Contractor to be completed, for example- FY20 Phase 1.
 - b. **Shed/Coordinates:** This is the location by Sewer Shed and Coordinates of County Grid System, for Example: K/A3.
 - c. **Grid and Manholes (Line Segment):** This is the GIS map identification of the asset. It provides location of which County Grid the asset is located on and the manholes numbers, for example, **101-3-010-101-3-009** is Grid 101-3 and manholes 010 to 009.
 - d. **Diameter of pipe:** According to available records.
 - e. **Length of sewer pipe:** According to available records.
 - f. **Number of customers (Taps):** Connected to each line according to available records.
 - g. **Depth of manholes:** When manhole is rehabilitated according to available records.
 - h. **Street names:** Name of street where work will take place.
 - i. **Costs:** Approximate costs for each sewer pipe or manhole rehabilitated.
 2. Asset information such as:
 - a. A PDF copy of the CCTV log generated from the pipeline or manhole inspection on record. CCTV logs may or may not be the most current on record and the data generated from these inspections must be confirmed in the field prior to rehabilitation. This information is being provide for planning purposed only and should not be utilized as a basis of ordering materials or services. Videos will not be provided.
 - b. The Fairfax County Digital Map Viewer to view Sanitary Sewer Maps. This map can be found at: <https://www.fairfaxcounty.gov/gisapps/DMV/Default.aspx>
 - c. The Fairfax County ArcGIS Online Sewer Map Service available for compatible devices, may be used to locate approximate location of manholes using a cell phone in the field.

SECTION 02650 – SANITARY SEWER LINE CLEANING

- d. The Contractor assumes all liability and risk for the use of the Fairfax County Digital Map Viewer, ArcGIS Online sewer map sewer map service and any asset information obtained from the County. The Contractor shall confirm all data, make field measurements and conduct investigations to determine all requirements for completion of the work. The Contractor will not receive any compensation for any claims in connection with asset information obtained from the County.

1.5 SUBMITTALS:

- A. Pay requests shall include a listing of all sanitary sewer pipe and manholes or wet wells cleaned. A PACP standard format report (WinCan VX) shall be included to document the existing conditions and address any field issues identified during the cleaning that may impact the CIPP liner or manhole rehabilitation design and installation.
- B. Submit proposed debris haul routes to the County for approval.
- C. Submit dump tickets for record when dumping debris generated from sewer cleaning operations.
- D. Submit means and methods to perform Regular Sewer Cleaning for Pipelines and Manholes.
- E. Submit means and methods to perform Heavy Sewer Cleaning for Pipelines and Manholes.
- F. Submit means and methods to perform Extreme Heavy Sewer Cleaning for Pipelines, Manholes and Wet Wells.

PART 2 PRODUCTS

2.1 EQUIPMENT

- A. General
 1. The Contractor shall insure backup equipment is available and can be delivered to the site within 24 hours.
- B. Cleaning Equipment
 1. The Contractor shall provide all equipment necessary for the proper hydraulic cleaning, rodding, bucketing, brushing, root cutting, grease cutting, tap cutting and flushing of the sanitary sewer lines for the pipe sizes encountered. All cleaning equipment shall be subject to the review and approval of the Owner.
 2. The Contractor shall protect the sanitary sewer lines from damage due to the improper use of cleaning equipment. Sanitary sewer lines or manholes damaged as a result of the Contractor's operations shall be promptly repaired by the Contractor at no cost to the Owner.
 3. All equipment, devices and tools required for line work shall be owned (or leased) and operated by the Contractor.
 4. High velocity, hydrojetting, sanitary sewer line cleaners shall have the following characteristics:

SECTION 02650 – SANITARY SEWER LINE CLEANING

- a. A minimum usable water capacity of 2000 gallons and a pump capable of delivering at least 60 gallons per minute (gpm) at 1500 pounds per square inch (psi).
 - b. Two or more high velocity nozzles capable of producing a scouring action from 10 to 45 degrees, in all size lines to be cleaned. A relief valve adjustable from 1 to 1500 psi minimum shall regulate pressure to the nozzles.
 - c. A minimum of 600 feet of high-pressure hose certified for the working pressure to be mounted on a hydraulically driven hose reel.
 - d. A high velocity gun for washing and scouring manhole walls and floor that will produce flows from a fine spray to a long-distance solid stream.
5. Vacuum cleaning equipment shall have the ability to vacuum debris from the line/manhole at a minimum airflow of 3,600 cubic feet per minute (cfm) through an 8-inch tube, to depths of at least 25 feet.
 6. Heavy-duty power rodding machine shall be capable of rodding distances of up to 1,000 feet in one setup. The machine shall have the ability to spin the rod either clockwise or counterclockwise or push the rod straight out or pull back without rotating the machine. The machine shall also be capable of pulling pipe- size swabs or brushes back through the pipe.
 7. Heavy-duty bucket machines for use on a dragline shall be capable of using buckets, brushes, scrapers and swabs.
 8. Tap cutting (protruding laterals) devices shall have a cutter capable of cutting protruding laterals without damage to the utility. The cutter will be sharp to make a clean cut.

2.2 MATERIALS

- A. Water required for cleaning operations is the responsibility of the Contractor. Obtain a Fairfax Water Fire Hydrant Use Permit and meter from the Fairfax Water Customer Service Center. The Contractor is responsible for complying with all permit requirements. Use of non-potable water is not allowed on the project unless approved by Owner.

PART 3 EXECUTION

3.1 GENERAL

- A. Sanitary sewer lines shall be cleaned in the downstream direction only, except from the pump station influent to the first manhole upstream of the pump station.
- B. The Contractor shall monitor the effluent from cleaning operations and abandon cleaning if excessive sand and gravel are encountered. Once the source has been located and potential drainage to the pipe mitigated, cleaning may resume.
- C. If an obstruction is encountered preventing the equipment from traversing the entire pipe section, cleaning operations shall be paused, and the Contractor shall perform a television investigation in accordance with [Section 02956, Television Inspection](#).

SECTION 02650 – SANITARY SEWER LINE CLEANING

1. If an obstruction is found which requires immediate repair (e.g. collapsed pipe) the Contractor shall notify the Owner and abandon any further action for the pipe section.
 2. If the obstruction does not require immediate action by the Owner (e.g. a protruding lateral), the Contractor shall perform a television inspection.
 3. If the need to perform heavy cleaning is identified, the Contractor shall perform the heavy cleaning as specified below.
- D. CCTV Inspection shall be in accordance with [Section 02956, Cured In Place or Alternative Pipe Point Repair](#).
- E. Existing flows shall not be interrupted for periods longer than one hour. The Contractor shall take necessary precautions to prevent sewage backup and shall be responsible if damage results there from. Sewage diverted during cleaning operations shall be returned to the sanitary system and not discharged into streams or storm drain system.
- F. Cleaning shall be in accordance with the manufacturer's recommendations of each supplier that provides the rehabilitation and repair products for sewer system being rehabilitated. This includes all products used to rehabilitate sewer pipelines, and manholes.
- G. Following sewer cleaning, all sewer pipelines shall undergo a CCTV inspection. Manholes will be inspected following a level I NASSCO inspection. When submitting an invoice for the completed rehabilitation work on sewer pipelines or manholes include the pre and post inspection as part of the payment request. The pre inspection will take place after cleaning, prior to rehabilitation work and the post inspection will take place upon completion of the work.

3.2 SAFETY, PERMITS AND TRAFFIC CONTROL

- A. The sewer cleaning Contractor shall comply with the safety, permits and traffic control provisions of [Section 02640, Technical Provisions for Inspection and Rehabilitation](#), and all contract requirements as set forth in this contract.

3.3 REGULAR CLEANING

- A. Sanitary sewer lines accessible to cleaning equipment shall be cleaned using high- velocity, hydrojetting, and vacuum cleaning equipment. The equipment shall be capable of removing debris from the sewer lines and manholes. Debris being cleaned, must be prevented from passing downstream into next manhole downstream. Perform one pass with root sawing equipment with the camera following the saw to the downstream manhole to remove light roots and grease.
- B. The Contractor shall provide a minimum of two (2) and maximum of three (3) passes through the entire length of the sanitary sewer line. The Contractor shall monitor the discharge during cleaning operations and continue cleaning until the discharge exhibits little or no debris.
- C. The Contractor shall provide a list of cleaning equipment with detailed instructions on its use during the typical regular cleaning operations. The detailed instructions shall provide step by step instructions on proper use of the equipment, all safety measures, methods to remove lodged equipment if stuck in the sewer system, clean-up and disposal of debris removed from

SECTION 02650 – SANITARY SEWER LINE CLEANING

the sewer system. During the time frame of this contract the Contractor shall submit any changes to regular cleaning operations equipment, means and method instructions to the owner.

3.4 HEAVY CLEANING

- A. Heavy cleaning may be performed after regular cleaning, to remove heavy grease and roots or other blockages in the line and preventing CCTV inspection.
- B. The Contractor shall perform and submit a pre-heavy cleaning television investigation video and/or sonar profile for each pipe or manhole section that is to be heavy cleaned.
- C. The pre-heavy cleaning television investigation and/or sonar shall clearly document the need for heavy cleaning and does not have to be performed in accordance with PACP standards (as required by [Section 02956, Television Inspection](#)). Heavy cleaning recommendations will be reviewed and approved by the Owner prior to payment based on the television investigation video and/or sonar profile.
- D. Sanitary sewer lines shall be heavy cleaned using high velocity, hydrojetting and mechanically powered equipment, and vacuum cleaning equipment and/or other equipment to remove heavy grease, roots and debris that was not successfully removed by regular cleaning. The equipment shall be capable of removing all debris from the sewer lines and manholes. Heavy cleaning operations shall be performed until the line segment is free of debris.
- E. Sanitary Sewer Manholes shall be heavy cleaned by removal of all construction and cleaning debris from the manhole when unable to meet the requirements of regular cleaning. The Contractor will dispose of all removed debris in a certified waste disposal facility. Heavy Cleaning requires confined space entry to remove debris in excess of 33% of the manhole volume as calculated from invert to manhole rim.
- F. A television inspection shall be performed on pipe sections and manholes after heavy cleaning has been performed in accordance with [Section 02956, Television Inspection](#).
- G. The Contractor shall provide a list of cleaning equipment with detailed instructions on its use during the typical heavy cleaning operations. The detailed instructions shall provide step by step instructions on proper use of the equipment, all safety measures, methods to remove lodged equipment if stuck in the sewer system, clean-up and disposal of debris removed from the sewer system. The Contractor shall include a definition of what constitutes the need for heavy cleaning, how it is different from regular cleaning and his process for obtaining approval for heavy cleaning in advance of the work. During the time frame of this contract the Contractor shall submit any changes to heavy cleaning operations equipment, methods and instructions to the owner.

3.5 EXTREME SEWER CLEANING OF GRAVITY SEWERS AND WET WELLS AT PUMP STATIONS

- A. Extreme cleaning may be performed with approval of the County after regular and heavy sewer cleaning has not provided acceptable results to remove heavy grease and roots or other blockages and debris in the sewer system.
- B. The Contractor shall obtain and submit a pre-cleaning television investigation video for section of the sewer system that extreme sewer cleaning is performed in advance of the work.

SECTION 02650 – SANITARY SEWER LINE CLEANING

- C. The pre-cleaning television investigation and/or sonar shall clearly document the need for extreme cleaning, and does not have to be performed in accordance with PACP standards (as required by [Section 02956, Television Inspection](#)). Extreme cleaning recommendations will be reviewed and approved by the Owner prior to work being performed and payment will be based on the television investigation video and/or sonar profile.
- D. The sanitary sewer system shall be cleaned using methods acceptable to the owner. The equipment shall be capable of removing debris from the sewer pipelines, manholes and/or wet wells. Cleaning operations shall be performed until the sewer system is free of debris.
- E. A television inspection shall be performed after cleaning has been performed in accordance with [Section 02956, Television Inspection](#).

The Contractor shall provide a list of cleaning equipment with detailed instructions on its use during three (3) typical extreme cleaning operations. One for cleaning pipelines, one for cleaning manholes and one for cleaning of wet wells. The detailed instructions shall provide step by step instructions on proper use of the equipment, all safety measures, methods to remove lodged equipment if stuck in the sewer system, clean-up and disposal of debris removed from the sewer system. The Contractor shall include a definition of what constitutes the need for extreme cleaning, how it is different from regular and heavy cleaning. He will also include the Contractor's process for obtaining approval to perform extreme cleaning in advance of the work. During the time frame of this contract the Contractor shall submit any changes to extreme cleaning operations equipment, methods and instructions to the owner.

3.6 CLEANING PRECAUTIONS

- A. During all cleaning and preparation operations, the Contractor shall protect the sanitary sewer lines and manholes from damage. During these operations, the Contractor shall also ensure no damage is caused to public or private property adjacent to or served by the sanitary sewer or its branches. The Contractor is responsible for removing his equipment from sewers. The Contractor will be held fully liable for any damages incurred that result from the performance of the work under this contract or negligence. The Contractor shall restore any damage caused to public and/or private property as a result of any work performed under this contract such as cleaning and preparation operations to pre-existing conditions at no additional cost to the Owner. Pipe collapses resulting from cleaning operations shall be reported to the Owner immediately. The Contractor shall repair such damage at no cost to the Owner or the public.
- B. When hydraulically propelled cleaning tools are used, retarding the flow in the sewer line, the Contractor shall ensure the water pressure created does not damage or cause flooding of public or private property being served by the sewer.
- C. It will be the responsibility of the Contractor, throughout the tenure of this contract, to provide and always maintain sufficient flow to pass any flash of storm flow of drainage ditches and prevent any backwater flooding due to obstruction caused by cleaning or CCTV equipment.
- D. It shall be the Contractor's responsibility to remove materials and equipment that has been lodged in the sewer from cleaning, television inspection.
- E. Access to fire hydrants for the purpose of fire protection shall always be maintained.

SECTION 02650 – SANITARY SEWER LINE CLEANING

- F. The Contractor shall use the manufacturer's recommended size tools for the various size pipes. Equipment recommended by the manufacturer to protect the manhole and pipe, such as pull-in slant jack rollers and roller and yoke assembly, roller manhole jacks, etc. shall be utilized.
- G. The Contractor shall monitor material exiting the pipe as it is cleaned and abandon all cleaning operations should evidence of descaling of corroded pipes or structures be encountered. Sanitary sewer lines or structures displaying excessive scaling or corrosion of metal pipe discovered through television inspections or television investigations shall not be mechanically cleaned unless the cleaning will be immediately followed by rehabilitation of the pipelines, manholes or structures.

3.7 DEBRIS REMOVAL AND DISPOSAL

- A. All debris and other solid or semisolid waste material resulting from the cleaning operation shall be removed at the downstream manhole of the section being cleaned. When hydraulic cleaning equipment is used, a suitable dam or weir shall be placed in the downstream manhole to trap all such materials. Passing material from manhole section to manhole section, which could cause line stoppages, accumulations of sand in wet wells, or damage pumping equipment, shall not be permitted.
- B. Under no circumstances shall debris and other solid or semisolid waste removed during these operations be dumped or spilled into streets, ditches, storm drains or other sanitary sewers. All debris and other solids or semisolids resulting from the cleaning operations shall be removed from the site and disposed of in a lawful manner in a certified waste disposal facility.
- C. The Contractor shall keep his haul route and work area(s) neat and clean and reasonably free of odor, and shall bear all responsibility for the cleanup of any spill which occurs during the transport of cleaning/surface preparation by-products and the cleanup of any such material which is authorized by or pursuant to this agreement and in accordance with applicable laws and regulations. The Contractor shall immediately clean up any such spill or debris release.
- D. The haul routes used by the Contractor for the conveyance of this material on a regular basis shall be subject to approval by the governing authority having jurisdiction over such routes.

3.8 ACCEPTANCE OF CLEANING OPERATION

- A. The Contractor shall submit a post-regular cleaning television video in PACP format for all lines cleaned. The Owner shall review the television videos and inspect the work prior to release for payment.
- B. The Contractor shall submit a television investigation video and post-heavy cleaning television inspection for all lines cleaned as heavy cleaning for Owner's review prior to release for payment.
- C. Cleaned line segments shall be reasonably free of debris prior to acceptance by the Owner.
- D. Acceptance of sewer line cleaning where television inspection has occurred shall be made upon the successful completion of the television inspection and shall be to the satisfaction of the Owner. If the television inspection shows the cleaning to be unsatisfactory, the Contractor shall be inquired to re-clean and re-inspect the sewer line. Re-cleaning and re-inspection of the sanitary sewer line shall be at no additional cost to the Owner.

SECTION 02650 – SANITARY SEWER LINE CLEANING

PART 4 PAYMENT

4.1 Requirements as set forth in [Section 01025, Measurement and Payment](#) and stated herein

- A. Regular Cleaning costs shall be included in the unit rates for each item listed within Attachment C - Cost Proposal for all items requiring cleaning as part of the inspection and rehabilitation process. Separate payment for Regular Cleaning will not be made at any time.
- B. Heavy Cleaning payment will be in accordance with the Contract Documents at the unit rate provided in Attachment C - Cost Proposal and any written modifications issued by the County Purchasing Agent.
- C. Extreme Heavy Cleaning payment will be in accordance with the Contract Documents at the unit rate provided in Attachment C - Cost Proposal and any written modifications issued by the County Purchasing Agent.

END OF SECTION

PAGE INTENTIONALLY LEFT BLANK

SECTION 02651 – SANITARY SEWER OVERFLOW RESPONSE

PART 1 GENERAL

1.1 SUMMARY

- A. This section includes provisions for responding to sanitary sewer overflows (SSOs) resulting from the Contractor's inspection and rehabilitation work.
- B. Related Work Specified in Other Sections Include, but is not limited to, the following:
 - 1. [Section 02640](#), Technical Provisions for Inspection and Rehabilitation
 - 2. [Section 02650](#), Sanitary Sewer Line Cleaning
 - 3. [Section 02954](#), Sewer Main Rehabilitation by Lining
 - 4. [Section 02955](#), Cured In Place or Alternate Pipe Point Repair
 - 5. [Section 02956](#), Television Inspection
 - 6. [Section 02957](#), Sewer Manhole Rehabilitation
 - 7. [Section 02959](#), Sewer Sealing by Chemical Grout
 - 8. [Section 02960](#), Temporary Bypass Pumping Systems

1.2 CONTRACTOR RESPONSIBILITIES

- A. The Contractor shall schedule and perform work in manner that does not cause or contribute to incidence of overflows, releases or spills of sewage from sanitary sewer system or bypass operation.
- B. The Contractor shall be responsible for preventing and controlling overflows from the sanitary sewers that result from his activities. Provisions for preventing and controlling overflows shall include but not be limited to the following:
 - 1. Monitoring surcharging in manholes upstream of the work area which could result in an SSO or backup into a structure connected to the main line sewer.
 - 2. Avoiding placement of obstructions in the sewer system that restrict wastewater flow other than plugs associated with bypass pumping.
 - 3. Maintaining equipment on-site or near the work site for containing SSOs, bypass pumping, and recovery of wastewater from an SSO.
 - 4. Monitoring the weather and making provisions for un-obstructed wastewater flow during rain events that may cause wastewater flows to exceed the capacity of bypass pumping equipment.
 - 5. Scheduling the work to avoid extended periods of wastewater flow restrictions.
- C. The Contractor shall not be responsible for SSOs due to existing sewer conditions or maintenance issues such as grease blockages, roots, sewer obstructions, inadequate sewer capacity, or other existing conditions not related to his work that may result in an SSO. This assumes that the Contractor's activities do not exacerbate existing conditions.

SECTION 02651 – SANITARY SEWER OVERFLOW RESPONSE

- D. The Fairfax Department of Public Works and Environmental Services, Wastewater Collection System has a Sanitary Sewer Overflow Response Plan that provides procedures for County personnel to investigate, report on, control, monitor, and clean up SSOs. The Contractor shall coordinate his activities with those of the County and provide access to the work site for all County personnel involved in an SSO response. The Contractor shall be familiar with the County's response plan.
- E. All costs for responding to SSOs not part of the County's response plan, responsibilities and subsequent activities shall be incidental to the work and no separate payment shall be made for the Contractor's response activities. This shall include cleanup of wastewater spills resulting from the Contractor's activities.

1.3 SSO NOTIFICATION

- A. When an SSO occurs, the Contractor shall notify the County Trouble Response Center at (703) 323-1211. The County will make all necessary notifications to County personnel related to the SSO.
- B. The Contractor shall immediately report any spills to the Owner and provide DEQ with a 24 hour sewage spill report, submit 24 hour report to:
<https://www.deq.virginia.gov/Programs/PollutionResponsePreparedness/PollutionReportingForm.aspx>
 - 1. Provide County Project Manager and Asset Management Group with copy of documents sent to DEQ to report spills for 24-hour report and 5-day spill report below.
 - 2. Follow up with additional DEQ 5-day spill report form as required by DEQ with email to the following:
Mark Evans mark.evans@deq.virginia.gov
Lacy, Alan (DEQ) Alan.Lacy@deq.virginia.gov
Miller, Mark (Mark.Miller@deq.virginia.gov)
 - 3. The Contractor shall confirm reporting procedures with DEQ and keep reporting procedures up to date.
 - 4. The Contractor will be responsible for payment for all fines and damages resulting from a sewage spill. The written report shall include, but not be limited to, the following:
 - a. A description of the nature and location of the discharge
 - b. The cause of the discharge,
 - c. The date on which the discharge occurred,
 - d. The length of time the discharge continued,
 - e. The volume of the discharge,
 - f. If the discharge is continuing, how long it is expected to continue.
 - g. If the discharge is continuing, what the expected total volume of the discharge will be, any steps planned or taken to reduce, eliminate and prevent a recurrence of the present discharge or any future discharges not authorized by the permit.
- C. No other notification of the SSO shall be necessary.

SECTION 02651 – SANITARY SEWER OVERFLOW RESPONSE

- D. No surfaces or amounts of spill are exempt from this notification.
- E. The Contractor shall not communicate with the public or news media about the SSO. Any questions from or comments by the public or new media that are related to the SSO shall be referred to the County representative.
- F. If hazardous wastes or toxic wastes are spilled and become part of the SSO, the Contractor shall include information on the type of hazardous or toxic material that was spilled (such as product data, Material Safety Data sheets, etc.) and the estimated spill quantity.

1.4 SANITARY SEWER OVERFLOW RESPONSE

- A. Controlling an SSO
 - 1. The Contractor shall initiate emergency actions as necessary to eliminate the cause of the SSO which results from his activities.
- B. Containment
 - 1. The Contractor shall take necessary actions to prevent wastewater from an SSO from entering a storm sewer or drainage way. This may include but not be limited to using sandbags or other appropriate devices to act as a dam to prohibit wastewater from entering a drop inlet, curb inlet or other inlet to the storm drain or drainage way. Dams shall be placed in the storm drain or drainage way at the farthest point downstream that the SSO has reached, where practical.
- C. Recovery and Cleanup
 - 1. Recovery and cleanup are necessary for all SSOs caused by the Contractors activities. All liquids, solids, and materials shall be recovered and removed from the site. Every effort shall be made to recover as much of the SSO as possible.
 - 2. Depending on the responsibilities and actions of the County's SSO response personnel, it may be necessary for the Contractor to recover and cleanup SSOs from storm drains and drainage ways. All necessary cleanup work shall be incidental to the project and no separate payment will be made.
 - 3. The Contractor shall take the necessary actions to avoid contact by his personnel with spilled hazardous or toxic materials that may be spilled and become part of the SSO, and shall abide by the material handling, safety procedures and precautions of the material supplier.

The Contractor shall disinfect areas, or private or public facilities contaminated by the SSO, unless the County determines that this is their responsibility. The Contractor shall provide information to the County's SSO response personnel on the area and/or facilities affected by the SSO.
- D. COMPLIANCE AND REGULATIONS
 - 1. The Contractor shall immediately report and take actions to cleanup any SSO resulting from his work. It is the responsibility of the Contractor to comply with laws, regulations and instructions from any governmental agency having jurisdiction. Should an SSO occur the Contractor is required to followed instructions of the County if given, as it relates to

SECTION 02651 – SANITARY SEWER OVERFLOW RESPONSE

public notification and interaction with various Government offices until such time as all issues with the SSO have been resolved. This involvement can include posting signage, delivery of letters, contacting state and local agencies as required.

2. Should regulations for SSO reporting and clean-up change as a result of new legislation the Contractor will be required to adhere to all new requirements.

END OF SECTION

PAGE INTENTIONALLY LEFT BLANK

SECTION 02953 – SEWER MAIN REHABILITATION BY MECHANICAL LINER

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Materials and procedures for machine spiral wound polyvinyl chloride (PVC) pipe liner using the SPR™ EX installation method or approved equal.

1.2 SUMMARY

- A. Machine spiral wound PVC liner or approved equal is intended for use in the rehabilitation of sanitary and storm sewers without excavation. The lining process uses a continuous one-piece PVC profile strip, which is machine wound directly into the deteriorated pipeline from an existing access chamber or manhole.
- B. The system consists of a single, one-part PVC profile strip with “T” shaped ribs on one side. The edges of the strip interlock as it is spirally wound to form a liner inside the host pipe.
- C. A range of PVC profiles are available with different profile, rib and thickness configurations to match project design requirements.
- D. The winding process is continuous until the complete length of the existing pipe between access points or manholes has been lined.
- E. The liner is wound at a fixed diameter, leaving an annular space between the liner and host pipe wall. It is then radially expanded by mechanical means, without the applications of heat, until the liner contacts the inside wall of the existing pipe.
- F. Related Work Specified in Other Sections Include, but is not limited to, the following:
 - 1. [Section 01025](#), Measurement and Payment
 - 2. [Section 01300](#), Submittals
 - 3. [Section 02640](#), Technical Provisions for Inspection and Rehabilitation
 - 4. [Section 02650](#), Sanitary Sewer Line Cleaning
 - 5. [Section 02954](#), Sewer Main Rehabilitation by Lining
 - 6. [Section, 02956](#), Television Inspection
 - 7. [Section 02960](#), Temporary Bypass Pumping Systems

1.3 REFERENCES

- A. ASTM D 256: Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics
- B. ASTM D 638: Standard Test Method for Tensile Properties of Plastics
- C. ASTM D 790: Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

SECTION 02953 – SEWER MAIN REHABILITATION BY MECHANICAL LINER

- D. ASTM D 1784: Standard Specification for Rigid Poly Vinyl Chloride (PVC) Compounds and Chlorinated Poly Vinyl Chloride (CPVC) Compounds
- E. ASTM F 1697-18: Standard Specification for Poly Vinyl Chloride (PVC) Profile Strip for Machine Spiral-Wound Liner Pipe Rehabilitation of Existing Sewers and Conduits
- F. ASTM F 1741-18: Standard Practice for Installation of Machine Wound Poly Vinyl Chloride (PVC) Liner Pipe for Rehabilitation of Existing Sewers and Conduits

PART 2 MATERIALS**2.1 MATERIAL COMPOSITION**

- A. The extruded profile strip shall be made from unplasticised PVC compounds meeting the minimum requirements for cell classification 13354 or higher, as defined in ASTM D 1784.
- B. PVC profile strip for machine spiral wound liner pipe rehabilitation of existing sewers shall comply with ASTM F 1697-18, except as modified herein.

2.2 MATERIAL AND EQUIPMENT ACCEPTANCE

- A. At the time of manufacture, each lot of extruded profile strip shall be inspected for defects and tested for physical properties as specified. A “lot” is defined as a continuous extrusion run of a given profile designation on a spool.
- B. PVC profile strip minimum dimensions and initial stiffness factors shall be in accordance with Table 1 below. In accordance with ASTM F 1697- 18, other profile configurations are permitted, provided similar details are provided as in Table 1.

TABLE 1

Profile Type	Minimum Width		Minimum Height		Minimum Waterway Wall		Minimum Initial Stiffness Factor (EI)	
	mm	(in.)	mm	(in.)	mm	(in.)	MPa-mm ³	(in ³ – lbf/in ²)
1	51.0	2.00	5.5	0.216	1.4	0.0551	21.2x10 ³	188.0
2	80.0	3.14	8.0	0.314	1.4	0.0551	63.4x10 ³	561.0
3	121.0	4.76	13.0	0.511	1.6	0.0630	242.7x10 ³	2148.0
7	121.0	4.76	19.0	0.748	2.1	0.0830	450x10 ³	3983.0

Note: Initial Stiffness Factors are derived from testing in accordance with ASTM D 790 as modified by ASTM F1697-18, using flat strips of profile

- C. The following values of modulus of elasticity of PVC shall be used in design:
 Short Term: 400,000psi (2,750 MPa)
 Long Term: 116,000psi (800 MPa)

SECTION 02953 – SEWER MAIN REHABILITATION BY MECHANICAL LINER

- D. Design stiffness values for a specific PVC profile strip are available from the manufacturer.
- E. Sealants and gaskets necessary for effective interlocking of the edges of PVC strip are pre-applied at the time of manufacture. They shall be suitable for use in a sewer environment.

2.3 MATERIAL TESTING

- A. Before installation of the liner has commenced, a sample of profile from each production run shall be tested to confirm that the value of initial stiffness factor detailed in Table 1 exceeds specified minimum values.

2.4 MARKING

- A. Each PVC profile strip shall be distinctly marked on its inside surface at intervals not to exceed 60 inches with a code number identifying the manufacturer, plant, date of manufacture and shift, and profile type. This information shall also appear on each reel.

PART 3 EXECUTION

3.1 INSTALLATION AND FIELD INSPECTION

- A. Installation of machine spiral wound PVC liner pipe for rehabilitation of existing sewers shall comply with ASTM F 1741-18 except as modified herein.
- B. The existing pipeline shall be cleaned of any obstructions, to a standard suitable for installation of the liner, and televised. All existing live service connections shall be precisely located longitudinally and radially and logged for subsequent reinstatement following installation of the liner.
- C. Bypass pumping is not mandatory for installation of the spiral wound liner. The Contractor shall be responsible for deciding the need for flow diversion to allow successful liner installation.
- D. During installation the winding machine shall perform the following operations simultaneously:
 - 1. A continuous ribbed liner profile strip is supplied from a reel and fed down through the existing manhole to the winding machine positioned at the base of the manhole
 - 2. Joint lubricating sealant shall be placed into the primary lock of the self-interlocking edges of the ribbed profile (Note: An elastomeric adhesive, which prevents the liner from expanding prematurely during winding, is applied to the secondary lock during manufacture of the ribbed profile)
 - 3. High tensile wire shall be inserted (Note: The wire remains only temporarily as it is pulled out during the expansion stage)
 - 4. The winding machine winds the PVC strip into a liner pipe by interlocking the edges
 - 5. Winding continues until the full length of the deteriorated pipe between manholes has been lined
 - 6. The liner is then radially expanded by mechanical means, without the application of heat, until the liner contacts the inside wall of the existing pipe

SECTION 02953 – SEWER MAIN REHABILITATION BY MECHANICAL LINER

- E. End seals between the liner pipe and the existing pipe shall be installed with a sealing material that is compatible with the liner pipe material.
- F. The transition between the liner invert and the invert in the manhole base shall be rendered smooth to reinstate the sewer flow line.

3.2 SERVICE CONNECTIONS

- A. The Contractor shall reinstate all live junctions immediately after installation of the liner. Service connections may be reinstated by excavation or internally.
- B. The service connection openings shall conform to the shape and size of the inside diameter of the existing service connection. Service connection openings shall be reinstated to 95 -100% of their diameter and free from rough edges or protrusions.

3.3 PRE-INSTALLATION INSPECTION

- A. A closed-circuit television (CCTV) inspection shall be carried prior to installation to establish the condition of the existing pipe, show pipe has can accept installation as specified and all live junctions have been located.
- B. All CCTV work shall conform to the most current NASSCO PACP standards and the requirements given in [Section 02956, Television Inspection](#).

3.4 POST AND PRE-INSTALLATION INSPECTION

- A. A closed-circuit television (CCTV) inspection shall be carried out before after installation to establish that the lining has been installed as specified and all live junctions have been reinstated.
- B. The finished lining shall be free of defects that would affect long term strength or hydraulic performance.

PART 4 PAYMENT

- 4.1 Requirements as set forth in [Section 01025, Measurement and Payment](#).

END OF SECTION

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

PART 1 GENERAL

1.1 SUMMARY

- A. This section includes the minimum requirements for the rehabilitation of sanitary sewer pipelines by the installation of Cured-In-Place Pipe (CIPP) within the existing, deteriorated pipe under this contract.
- B. Related Work Specified in Other Sections Include, but is not limited to, the following:
1. [Section 01025](#), Measurement and Payment
 2. [Section 02640](#), Technical Provisions for Inspection and Rehabilitation
 3. [Section 02650](#), Sanitary Sewer Line Cleaning
 4. [Section 02651](#), Sanitary Sewer Overflow Response
 5. [Section 02956](#), Television Inspection
 6. [Section 02959](#), Sewer Sealing by Chemical Grout
 7. [Section 02960](#), Temporary Bypass Pumping Systems
- C. The rehabilitation of pipelines shall be done by the installation of a resin-impregnated flexible tube which, when cured, shall be continuous and tight-fitting throughout the entire length of the original pipe. The CIPP shall extend the full length of the original pipe and provide a structurally sound, jointless and water-tight new pipe-within-a-pipe. The Contractor is responsible for proper, accurate and complete installation of the CIPP using the system selected by the Contractor meeting the Owners requirements.
- D. Neither the CIPP product, system, nor its installation, shall cause adverse effects to any of the Owner's processes or facilities. The pressures and temperatures used for the product installation shall not damage the system in any way, and the use of the product shall not result in the formation or production of any detrimental compounds or by-products at the wastewater treatment plant. The Contractor shall notify the Owner and identify any by-products produced as a result of the installation operations, test and monitor the levels, and comply with any and all local laws and waste discharge requirements. The Contractor shall cleanup, restore existing surface conditions and structures, and repair any of the CIPP system determined to be defective. The Contractor shall conduct installation operations and schedule cleanup in a manner to cause the least possible obstruction and inconvenience to traffic, pedestrians, businesses and property owners or tenants.
- E. The prices submitted by the Contractor, shall include all costs of permits, testing, quality control, labor, equipment and materials for the various items necessary for furnishing and installing, complete in place, CIPP in accordance with these specifications. All items of work not specifically mentioned herein which are required, by the Contractor, to make the product perform as intended and deliver the final product as specified herein shall be included in the respective lump sum and unit prices.
- F. The prices submitted by the Contractor shall include the costs of maintaining sewage flows up to and including 2.0 MGD in the unit price for all diameters of CIPP rehabilitation.

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

- G. Additional bypass costs in excess of 2.0 MGD will be paid as follows:
1. Sewer lines 15 inch thru 18 inch – Payment will be made when approved by the Owner in advance of the work. Payment to be made under Items for Bypass Pumping 2.0 – 5.0 MGD or 5.0 MGD – 10 MGD. The Contractor shall provide flow meter data to support his request to use additional bypass.
 2. Sewer lines less than 15 inch- No payment will be made for additional bypass.

1.2 DESCRIPTION OF WORK AND PRODUCT DELIVERY

- A. The Contractor shall provide all materials, labor, equipment, and services necessary for traffic control, bypass pumping and/or diversion of flows, cleaning and television inspection of sewers to be rehabilitated, liner installation, reconnection of service connections, all quality controls, provide and process samples for performance of required material tests, Pre and final television inspection, testing of the rehabilitated pipe system, warranty work and other work, and as specified herein.
- B. Requirements for inspection and cleaning sewer system follow:
1. [Section 02650](#), Sanitary Sewer Line Cleaning
 2. [Section 02956](#), Television Inspection
 3. The Contract Documents
- C. The product furnished shall be a complete CIPP system including specific materials, applicable equipment and installation procedures. All CIPP systems or multi-component products will be required to meet the submittal requirements as contained herein.
- D. The CIPP shall be continuous and jointless from manhole to manhole or access point to access point and shall be free of all defects that will affect the long-term life and operation of the pipe.
- E. Prior to installation the Contractor shall CCTV and clean the sewer segment. Any visible leakage that would prevent proper installation of the CIPP in accordance with the manufacturer's instructions shall be eliminated. Such leaks will typically be characterized as providing a steady stream or flow of water that could cause washout of the resin or uneven heat distribution during the curing process. The type of infiltration to be eliminated, as defined by NASSCO includes Infiltration Runner (IR) and Infiltration Gusher (IG). The CIPP shall fit sufficiently tight within the existing pipe so as to not leak at the manholes, or through the wall of the installed pipe. If leakage occurs at the manholes, the Contractor shall seal these areas to stop all leakage using a material compatible with the CIPP at no additional cost to the Owner. If leakage occurs through the wall of the pipe, the CIPP shall be repaired or removed as recommended by the CIPP manufacturer. Each installation of CIPP to include End Seals on each end of the sewer segment being rehabilitated. Final approval of the CIPP will be based on a leak tight pipe and end seals, excluding leaks at reinstated service connections. Reinstated service connections found leaking during post video inspections will be documented and provided to the Owner for review. The Owner will determine what follow-up repairs will be utilized to elevate leaks at reinstated service connections.
- F. The CIPP shall be designed for a life of 50 years or greater.

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

- G. The installed CIPP shall have a long term (50 year) corrosion resistance to the typical chemicals found in domestic sewage and defined in the referenced and applicable ASTM standards.
- H. All existing and confirmed active service connections and any other service laterals to be reinstated, shall be re-opened robotically, to their original shape, cutting and wire brushing an opening in the liner to 100 percent of the flow capacity of the lateral recovering all coupons and fragments of coupons resulting from cutting the liner removal of resin slugs from inside service connections. The edges of the re-opened service connections shall not impede sewer flows. All over-cut or under-cut service connections will be properly repaired to meet the requirements of these specifications.
- I. All materials furnished, as part of this contract shall be marked with detailed product information, stored in a manner specified by the manufacturer and tested to the requirement of this contract.
- J. Warranty inspections shall be executed by the Owner. Any defects found shall be repaired or replaced by the Contractor at no cost to the Owner within 30 calendar days or sooner if required to maintain reliable sewer service to the public.
- K. The Contractor shall furnish, from the project installation, all samples for product testing. The Contractor shall be responsible for testing and maintaining the chain of custody, delivery of the samples to an Owner approved independent laboratory and paying for all material and product testing performed under this contract. Prior to testing the Contractor shall submit to the Owner for approval, the name and location of the independent testing laboratory with a certified statement from the laboratory indicating they are independent from and not associated with the Contractor in any way.
- L. Random CIPP samples of cured liner will be obtained from 20% of the sewer segments rehabilitated as directed by the Owner.

1.3 REFERENCES

- A. The following documents form a part of this specification to the extent stated herein and shall be the latest editions thereof. Where differences exist between codes and standards, the requirements of these specifications shall apply. All references to codes and standards shall be to the latest revised version.
 - 1. ASTM - F1216 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube
 - 2. ASTM - F1743 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pull in and Inflate and Curing of a Resin-Impregnated Tube
 - 3. ASTM - D543 Standard and Practice for Evaluating the Resistance of Plastics to Chemical Reagents
 - 4. ASTM - D638 Standard Test Method for Tensile Properties of Plastics
 - 5. ASTM - D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
 - 6. ASTM - D792 Standard Test Methods for Density and Specific Gravity of Plastics by Displacement

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

7. ASTM - F2019 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled in Place Installation of Glass Reinforced Plastic (GRP) Cured-in-Place Thermosetting Resin Pipe (CIPP)
8. ASTM - D2122 Standard Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings
9. ASTM F2561 Standard Practice for Rehabilitation of a Sewer Service Lateral and Its Connection to the Main Using a One-Piece Main and Lateral Cured-in-Place Liner
10. ASTM - D2990 Standard Test Methods for Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics
11. ASTM - D3567 Standard Practice for Determining Dimensions of Fiberglass (Glass-Fiber-Reinforced Thermosetting Resin) Pipe and Fittings
12. ASTM - D3681 Standard Test Method for Chemical Resistance of “Fiberglass (Glass Fiber Reinforced Thermosetting Resin) Pipe in a Deflected Condition
13. ASTM - D5813 Standard Specification for Cured-in Place Thermosetting Resin Sewer Pipe

1.4 PERFORMANCE WORK STATEMENT (PWS) SUBMITTAL

- A. The Contractor shall submit, to the Owner a Performance Work Statement (PWS) which clearly defines the CIPP product delivery in conformance with the requirements of these contract documents. Unless otherwise directed by the Owner, the PWS shall at a minimum contain the following:
 1. Clearly indicate that the CIPP will conform to the project requirements as outlined in the Description of Work and as delineated in these specifications.
 2. A detailed written installation plan describing all preparation work, cleaning operations, pre-CCTV inspections, bypass pumping, traffic control, installation procedure, method of curing, service reconnection, quality control, testing to be performed, final CCTV inspection, warranties furnished and all else necessary and appropriate for a complete liner installation. A detailed installation schedule shall be prepared, submitted and conform to the requirements of this contract.
 3. The Owner intends to issue work periodically in phases. Each phase will be issued in a package that contains a list of sewer segments to be rehabilitated and CCTV inspections from County records for each sewer segment listed. The Contractor shall prepare a PWS submittal for the first package of pipes issued by the Owner each year and when changes to the PWS have occurred.
 4. Contractor’s description of the proposed CIPP technology, including a detailed written plan for identifying all active service connections maintaining service, during mainline installation, to each home and business connected to the section of pipe being lined, including temporary service for commercial, industrial and apartment complexes.
 5. A description of the CIPP materials to be furnished for the project. Materials shall be fully detailed in the submittals and conform to these specifications and/or shall conform to the pre-approved product submission.

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

6. Engineering design calculations, in accordance with the Appendix of ASTM F1216, for each length of liner to be installed including the thickness of each proposed CIPP. It will be acceptable for the Contractor to submit a design for the most severe line condition and apply that design to all of the line sections. These calculations shall be performed and certified by a qualified, Professional Engineer licensed in the state of Virginia. All calculations shall include data that conforms to the requirements of these specifications or has been pre-approved by the Owner.
7. Proposed manufacturers technology data shall be submitted for all CIPP products and all associated technologies to be furnished.
8. Submittals shall include information on the cured-in-place pipe intended for installation and all tools and equipment required for a complete installation. The PWS shall identify which tools and equipment will be redundant on the job site in the event of equipment breakdown. All equipment to be furnished for the project, including proposed back-up equipment, shall be clearly described. The Contractor shall outline the mitigation procedure to be implemented in the event of key equipment failure during the installation process.
9. A detailed description of the Contractor's proposed procedures for removal of any existing blockages in the pipeline that may be encountered during the cleaning process.
10. A written detailed public notification plan shall be prepared and submitted including detailed staged notification to residences affected by the CIPP installation. A copy of the public notification letters and procedures shall be submitted to the Owner for review and approval.
11. A written styrene monitoring and safety program shall be submitted by the Contractor which includes an odor control plan that will ensure that project specific odors will be minimized at the project site and surrounding area, keeping the public and Contractor employees safe on site, see [Section 02640, Technical Provisions for Inspection and Rehabilitation](#), paragraph 1.8.
12. A written plan to repair or replace defective CIPP, see [Section 02954, Sewer Main Rehabilitation by Lining](#), paragraph 1.8.
13. Compensation/costs for all work required to provide and maintain the PWS submittal shall be included in the unit prices of the various items contained within Attachment C - Cost Proposal.

1.5 PRODUCT SUBMITTALS

- A. Fabric Tube – including the manufacturer and description of product components such as felts and reinforcing materials.
- B. Flexible membrane (coating) material – including materials specific to the proposed curing method and recommended repair (patching) procedure if applicable.
- C. Raw Resin Data - including the manufacturer and description of product components including the Spectroscopic Wavelength diagram for the resin being furnished
- D. Manufacturers' shipping, storage and handling recommendations for all components of the CIPP system.

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

- E. All Safety Data Sheets (SDSs) for all materials to be furnished for the project.
- F. Tube wet-out & cure method including:
 - 1. A complete description of the proposed wet-out procedure for the proposed technology.
 - 2. The Manufacturer's recommended cure method for each diameter and thickness of liner to be installed. The PWS shall contain a detailed curing procedure outlining the curing medium, the method of application and how the curing temperatures will be monitored.

1.6 SAFETY

- A. The Contractor shall conform to all work safety requirements of pertinent regulatory agencies and shall secure the site for the working conditions in compliance with the same. The Contractor shall erect such signs and other devices as are necessary for the safety of the work site.
- B. The Contractor shall perform all of the Work in accordance with applicable OSHA and VDOT standards. Emphasis shall be placed upon the requirements for traffic safety, entering confined spaces and with the equipment being utilized for pipe renewal.
- C. The Contractor shall submit a written Safety Plan to the Owner, prior to beginning any work, identifying all competent persons. The plan shall include a description of a daily safety program for the job site and all emergency procedures to be implemented in the event of a safety incident. All work shall be conducted in accordance with the Contractor's submitted Safety Plan and include the requirements of the Styrene Monitoring and Safety program per [Section 02640, Technical Provisions for Inspection and Rehabilitation](#), paragraph 1.8.
- D. Compensation/costs for all work required to provide and maintain the Safety Plan shall be included in the unit prices of the various items contained within Attachment C - Cost Proposal.

1.7 QUALITY CONTROL PLAN (QCP)

- A. A detailed quality control plan (QCP) shall be submitted to the Owner at the onset of the Contract that fully represents and conforms to the requirements of these specifications. At a minimum the QCP shall include the following:
 - 1. A detailed written plan and discussion of the proposed quality controls to be performed by the Contractor.
 - 2. Defined responsibilities, of the Contractor's personnel, for assuring that all quality requirements for this contract are met. These shall be assigned, by the Contractor, to specific personnel.
 - 3. Proposed procedures for quality control, product sampling and testing by the Contractor shall be defined and submitted as part of the plan.
 - 4. Proposed methods for product performance controls, including method of and frequency of product sampling and testing both in raw material form and cured product form.
 - 5. Scheduled performance and product test result reviews between the Contractor and the Owner at a regularly scheduled job meeting.

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

6. Inspection forms and guidelines for quality control inspections shall be prepared in accordance with the standards specified in this contract and submitted with the QCP.
7. Proposed third party laboratory address and certification per Section 1.2, paragraph J.

1.8 CIPP REPAIR/REPLACEMENT

- A. Occasionally installations will result in the need to repair or replace a defective CIPP. The Contractor shall outline specific repair or replacement procedures for potential defects that may occur in the installed CIPP. Repair/replacement procedures shall be as recommended by the CIPP system manufacturer and shall be submitted as part of the PWS.
- B. The Contractor shall submit a complete written plan prior to the start of work which explains how failures in CIPP samples, or the work will be resolved including details on additional testing in accordance with all ASTM requirements. The plan shall include all follow-up activities to test, remove, replace, or repair the defective CIPP in accordance with the Manufacturer's requirements. Provide written documentation to confirm and attest the manufactures, installers, and any party involved in the installation of CIPP agree the plan will adequately produce an acceptable final resolution to correct defects in the work. The final plan to resolve CIPP defects must meet all ASTM requirements. Explain or confirm how:
 1. To identify and define defects in the installed CIPP that will not affect the operation and long-term life of the product.
 2. For defects that may occur in the installed CIPP, how the Contractor will determine if the defect is repairable?
 - a. If repairable, what detailed step-by-step repair procedures will be used for various conditions based on manufacturer's recommendations? Include a detailed step-by-step repair procedure, resulting in a finished product meeting the requirements of these contract specifications.
 - b. If unrepairable, what detailed step-by-step repair procedures will be used based on manufacturer's recommendations? Include a detailed step-by-step repair procedure, include a recommended procedure for the removal and replacement of the CIPP.
 3. The Contractor will not be reimbursed for any repair necessary due to their installation of the CIPP liner or failure of materials used.

1.9 PRE & POST-INSPECTION VIDEOS

- A. Pre & post video inspections including CCTV logs, NASSCO compliant and compatible with WinCan shall be submitted to the Owner, by the Contractor, within ten (10) working days of installation of said work or as specified by the Owner.
- B. All video inspections shall provide a clear picture of the pipe and any defects. Video distortions, issues with color, white balance, debris, fluids within the pipe that prevent a complete inspection will be rejected.
- C. Compensation for all work required for the submittal and approval of these inspections shall be included in the various pipelining items contained in the Proposal.

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

1.10 WARRANTY

- A. The materials used for the project shall be certified by the manufacturer for the specified purpose. The Contractor shall warrant the CIPP material and installation for a period of five (5) years. During the Contractor warranty period, any defect which may materially affect the integrity, strength, function and/or operation of the pipe, shall be repaired at the Contractor's expense in accordance with procedures included in CIPP Repair/Replacement defined here within and as recommended by the manufacturer.
- B. On any work completed by the contractor that is defective and/or has been repaired, the Contractor shall warrant this work for (1) year in addition to the warrantee required by the contract.
- C. After a pipe section has been rehabilitated and for a period of time up to five (5) years following completion of the project, the Owner may inspect all or portions of the rehabilitated system. The specific locations will be selected at random by the Owner's inspector and should include all sizes of CIPP from this project. If it is found that any of the CIPP has developed abnormalities since the time of "Post Construction Television Inspection," the abnormalities shall be repaired and/or replaced as defined in Section 1.8 CIPP Repair/Replacement and as recommended by the manufacturer. If, after inspection of a portion of the rehabilitated system under the contract, problems are found, the Owner may televise all the CIPP installed on the contract. All verified defects shall be repaired and/or replaced by the Contractor and shall be performed in accordance with Section 1.8 CIPP Repair/Replacement and per the original specifications, all at no additional cost to the Owner.

PART 2 PRODUCTS

2.1 MATERIALS

- A. The CIPP System must meet the chemical resistance requirements of these contract documents.
- B. All materials shipped to the project site shall be accompanied by test reports certifying that the material conforms to the ASTM standards listed herein. Materials shall be shipped, stored, and handled in a manner consistent with written recommendations of the CIPP system manufacturer to avoid damage. Damage includes, but is not limited to, gouging, abrasion, flattening, cutting, puncturing or ultra-violet (UV) degradation. Onsite storage locations shall be approved by the Owner. All damaged materials shall be promptly removed from the project site at the Contractor's expense and disposed of in accordance with all current applicable government regulations and this contract.

2.2 FABRIC TUBE

- A. The fabric tube shall consist of one or more layers of absorbent non-woven felt fabric, felt/fiberglass, felt/carbon fiber, carbon fiber or fiberglass and meet the requirements of ASTM F 1216, ASTM F 1743, or ASTM F2019 and ASTM D5813. The fabric tube shall be capable of absorbing and carrying resins, constructed to withstand installation pressures and curing temperatures and have sufficient strength to bridge missing pipe segments and stretch to fit

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

irregular pipe sections. The Contractor shall submit certified information from the felt manufacturer on the nominal void volume in the felt fabric that will be filled with resin.

- B. The wet-out fabric tube shall have a uniform thickness and excess resin distribution that when compressed at installation pressures will meet or exceed the design thickness after cure.
- C. The fabric tube shall be manufactured to a size and length that when installed will tightly fit the internal circumference, meeting applicable ASTM standards or better, of the original pipe. Allowance shall be made for circumferential stretching during installation. The tube shall be properly sized to the diameter of the existing pipe and the length to be rehabilitated and be able to stretch to fit irregular pipe sections and negotiate bends. The Contractor shall determine the minimum tube length necessary to effectively span the designated run between manholes. The Contractor shall verify the lengths in the field prior to ordering and prior to impregnation of the tube with resin to ensure that the tube will have sufficient length to extend the entire length of the run. The Contractor shall also measure the inside diameter of the existing pipelines in the field prior to ordering liner so that the liner can be installed in a tight-fitted condition.
- D. The outside and/or inside layer of the fabric tube (before inversion/pull-in, as applicable) shall be coated with an impermeable, flexible membrane that will contain the resin and facilitate, if applicable, vacuum impregnation and monitoring of the resin saturation during the resin impregnation (wet-out) procedure.
- E. No material shall be included in the fabric tube that may cause delamination in the cured CIPP. No dry or unsaturated layers shall be acceptable upon visual inspection as evident by color contrast between the tube fabric and the activated resin containing a colorant.
- F. The wall color of the interior pipe surface of CIPP after installation shall be a light reflective color so that a clear detailed examination with closed circuit television inspection equipment may be made. The hue of the color shall be dark enough to distinguish a contrast between the fully resin saturated felt fabric and dry or resin lean areas.
- G. Seams in the fabric tube, if applicable, shall meet the requirements of ASTM D5813.
- H. The outside of the fabric tube shall be marked a maximum of every 5 feet with the name of the manufacturer or CIPP system, manufacturing lot and production footage.
- I. The minimum length of the fabric tube shall be that deemed necessary by the installer to effectively span the distance from the starting manhole to the terminating manhole or access point, plus that amount required to run-in and run-out for the installation process.
- J. The nominal fabric tube wall thickness shall be constructed, as a minimum, to the nearest 0.5 mm increment, rounded up from the design thickness for that section of installed CIPP. Wall thickness transitions, in 0.5 mm increments or greater as appropriate, may be fabricated into the fabric tube between installation entrance and exit access points. The quantity of resin used in the impregnation shall be sufficient to fill all of the felt voids for the nominal felt thickness.

2.3 RESIN

- A. The resin shall be a corrosion resistant polyester or vinyl ester resin and catalyst system or epoxy and hardener system that, when properly cured within the tube composite, meets the requirements of ASTM F1216, ASTM F1743 or F2019 and ASTM D5813, the physical properties herein, and those which are to be utilized in the design of the CIPP for this project. The resin,

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

specified for the specific application defined in the contract documents, shall produce CIPP which will comply with or exceed the structural and chemical resistance requirements of this specification. Quick-cure or accelerated resin systems that cure in half the specified time or substantially quicker will not be allowed. Quick-cure resin systems include those formulated by substantially increasing the amount of catalysts from that amount is normally specified for standard installations by the Manufacturer. Resins, catalysts and resin/catalysts mixing ratios shall not be changed during this Contract unless specifically approved by the Owner in writing.

- B. Contractor shall identify the wet-out facility where all CIPP will be manufactured. All CIPP shall be manufactured from this designated wet-out facility unless specifically approved otherwise by the Owner in writing.
- C. If the Owner decides to inspect the manufacturing of the CIPP, the Contractor shall provide full access to witness the wet-out process and shall provide any and all information related to the manufacturing as requested including Quality Control measures without delay and without claims of confidentiality or product privacy.
- D. Contractor shall also submit a Certificate of Authenticity from the resin manufacturer prior to manufacturing any CIPP for each shipment of resin sent to the wetout facility.
- E. Copies of the shipment documents from the resin manufacturer shall be submitted to the Owner when requested showing dates of shipment, the originating location and the receiving location.
- F. The cure schedules for the CIPP shall be submitted to the Owner for review. The curing process/schedules shall be approved by the resin manufacturer in writing. The cure schedules shall include specific information on stepping the temperature up to “cooking” temperatures, “cooking” temperatures and durations, and cool-down procedures – all to be approved in writing by the resin manufacturer.
- G. The resin to tube ratio, by volume, shall be furnished as recommended by the manufacturer.
- H. Steam-cure shall not be allowed unless approved by the Owner in writing.

2.4 STRUCTURAL REQUIREMENTS

- A. The physical properties and characteristics of the finished CIPP will vary considerably, depending on the types and mixing proportions of the materials used and the degree of cure executed. It shall be the responsibility of the Contractor to control these variables and to provide a CIPP system which meets or exceeds the minimum properties specified herein.
- B. The cured pipe material (CIPP) shall, at a minimum, meet or exceed the structural properties, as listed below.

MINIMUM PHYSICAL PROPERTIES			
Property	Test Method	Cured Composite Per ASTM F1216	Cured Composite Per Design
Flexural Modulus of Elasticity (Short-Term) Felt Tubes. Felt/Fiberglass, Fiberglass as recommended by the Manufacturer	ASTM D-790	250,000 psi	Contractor Value

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

MINIMUM PHYSICAL PROPERTIES: Continued			
Property	Test Method	Cured Composite Per ASTM F1216	Cured Composite Per Design
Long-term Flexural Modulus of Elasticity	ASTM D-790	50% of Initial	-
Flexural Strength (Short-Term) Felt Tubes. Felt/Fiberglass, Fiberglass as recommended by the Manufacturer	ASTM D-790	4,500 psi	Contractor Value
Long-term Flexural Strength	ASTM D-790	50% of Initial	-
Tensile Strength	ASTM D-638	2,500 PSI	-
Tensile Modulus	ASTM D-638	320,000 PSI	-

C. The required CIPP wall thickness shall be based, as a minimum, on the physical properties of the cured composite. Provide wall thickness calculations that are:

1. Sealed by a licensed professional Engineer in the Commonwealth of Virginia.
2. Designed in accordance with the Design Equations in the appendix of ASTM F1216.
3. Designed in accordance with WRc Sewerage Rehabilitation Manual, Type II Design, Section 5.3.2.iii for non-round pipe or circular pipes with greater than 10% ovality.
4. Designed following these design parameters:

Design Safety Factor	2.0
Creep Retention Factor	50%
Ovality	2% or as measured by field inspection
Constrained Soil Modulus	Per AASHTO LRFD Section 12 and AWWA Manual M45
Groundwater Depth	Use- Elevation over the pipe equivalent to surface grade
Soil Depth (above the crown)	Varies
Live Load	Highway
Soil Load (assumed)	120 lb./cu. ft.
Minimum Service Life	50 years

D. The design Engineer shall:

1. Design liner to withstand internal and/or external pressures in accordance with the applicable provision of ASTM.
2. Liner thickness calculations shall be performed based on a fully deteriorated pipe condition.

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

3. Assume no bonding to the original pipe wall in the CIPP design.
 4. Set the long-term (50 year extrapolated) Creep Retention Factor at 50% of the initial design flexural modulus as determined by ASTM D790 test method. This value shall be used unless the Contractor submits long-term test data (ASTM D2990) to substantiate a higher retention factor.
 5. Use Poisson's ratio of 0.3.
 6. Use Enhancement factor of 7.
 7. Use a design soil modulus of elasticity of 1,000 psi, soil weight of 120 pounds per cubic foot.
 8. Include ASSHTO H-20 Live Load in design for CIPP in roadways.
- E. If the Engineer's calculated minimum liner thickness is less than shown on the Minimum Liner Thickness table below, the liner shall be fabricated using the specified thickness within the table. Any installed CIPP which does not meet the required designed thickness or the minimum liner thickness table, whichever is greater, will not be accepted.

MINIMUM LINER THICKNESS		
Minimum Lining Thickness Following Installation Operations and Curing Felt Liner and Ambient Temperature, Hot Water Cured CIPP		
Host Pipe Diameter	Depth	Minimum Liner Thickness
8" diameter	Up to 17 feet	6 mm
8" diameter	Over 17 to 25 feet	8 mm
10" diameter	Up to 11 feet	6 mm
10" diameter	Over 11 to 18 feet	8 mm
10" diameter	Over 18 to 25 feet	9 mm
12" diameter	Up to 12 feet	8 mm
12" diameter	Over 12 to 18 feet	9 mm
12" diameter	Over 18 to 25 feet	11 mm
15" diameter	Up to 10 feet	8 mm
15" diameter	Over 10 to 14 feet	9 mm
15" diameter	Over 14 to 20 feet	11 mm
18" diameter	Up to 8 feet	Submit to Owner
18" diameter	Over 8 feet	Submit to Owner

- F. The Contractor shall submit, prior to installation of the lining materials, certification of compliance with these specifications and/or the requirements of the pre-approved CIPP system. Certified material test results shall be included that confirm that all materials conform to these specifications and/or the pre-approved system. Materials not complying with these requirements will be rejected.

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

PART 3 EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

- A. Preparation, cleaning, inspection, flow bypassing and public notification. The Contractor shall clean the interior of the existing host pipe prior to installation of the liner. All debris and obstructions that will affect the installation and the final CIPP product delivery to the Owner shall be removed and disposed of. The Contractor shall provide necessary public notification to all affected homeowners and businesses as part of the pre-construction requirements.
- B. The liner shall be constructed of materials and methods that, when installed, shall provide a jointless and continuous structurally sound CIPP able to withstand all imposed static, and dynamic loads on a long-term basis.
- C. The Contractor may, under the direction of the Owner, utilize any of the existing manholes in the project area as installation access points. If a street must be closed to traffic because of the location of the sewer, the Contractor shall furnish a written detailed traffic control plan and all labor and equipment necessary. The plan shall be in conformance with the requirements of the local agency having jurisdiction over traffic control. Costs for traffic controls and plans are incidental to the contract except when work takes place in roadways with posted speed limits of 50.0 MPH or more, see [Section 02640, Technical Provisions for Inspection Rehabilitation](#), paragraph 1.9 and [Section 01025, Measurement and Payment](#), paragraph 2.39.
- D. Bypassing Existing Flows - The Contractor shall provide for the flow of existing mainline and service connection effluent around the section or sections of pipe designated for CIPP installation in accordance with [Section 02960, Temporary Bypass Pumping Systems](#). The Contractor shall include in the unit price of lining, costs for bypassing of sewage flows up to and including 2.0 MGD. Flows above 2.0 MGD will be bypassed in accordance with [Section 02960, Temporary Bypass Pumping Systems](#). The Contractor shall be reimbursed for costs at the unit price agreed upon for bypassing sewage flows above 2.0 MGD, see [Section 01025, Measurement and Payment](#), paragraph 2.18 and 2.19.
- E. Cleaning of Pipe Lines – Before ordering liner materials for the project, the Contractor shall remove all internal debris from the pipe line that will interfere with the installation and the final product delivery of the CIPP, as required in these specifications, and accurately measure and document the exact size of the existing pipeline to be rehabilitated. Cleaning shall conform to [Section 02650, Sanitary Sewer Line Cleaning](#).
- F. Contractor shall perform post-cleaning video inspections of the pipelines. Only PACP certified personnel trained in locating breaks, obstacles and service connections by closed circuit television shall perform the inspection. The Contractor shall provide the Owner with a copy of the post-cleaning video and inspection log in digital format when submitting draft invoices for payment and for later reference by the Owner.
- G. Line Obstructions - It shall be the responsibility of the Contractor to clear the line of obstructions that will interfere with the installation and long-term performance of the CIPP. If pre-installation inspection reveals an obstruction, misalignment, broken or collapsed section or sag that was not identified as part of the original scope of work and will prohibit proper installation of the CIPP, the Contractor will provide video inspections to the Owner for review and recommendation. The Owner may direct the Contractor to not attempt installation. The Contractor will not be

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

compensated for work that is not completed, including making the determination that CIPP cannot be installed due to the existing condition of the pipe or manhole. The Owner may elect to resolve issues preventing the installation of CIPP and reissue the work to Contractor at a later date for completion. The Owner may also elect to replace or otherwise repair the pipe without follow-up installation of CIPP.

- H. The Contractor shall be allowed use water through obtainment of a Fairfax Water Fire Hydrant Use Permit from the Fairfax Water Customer Service Center. Use of an approved double check backflow assembly shall be required. Contractor shall provide his own approved assembly. Contractor shall pay current market price for all water usage with no reimbursement from the Owner.

3.2 INSTALLATION OF LINER

- A. The liner shall be installed using standard water curing or ultraviolet light (UV). Insert liner within one hour of final cleaning pass. The Owner intends to not use steam curing whenever possible. Steam curing will not be allowed without advance written permission from the Owner and only in extreme or emergency circumstances as determined by the Owner. All liners shall be cured in the host pipe per the manufacturer's specifications as described and submitted in the Performance Work Statement (PWS).
- B. CIPP installation shall be in accordance with the applicable ASTM standards as modified in this section 3.2.
- C. A pre-liner tube and end seals will be required for each installation CIPP. If significant groundwater infiltration is present in the existing sewer, such as heavy runners and gushers, defined by NASSCO as Infiltration Runner (IR) and Infiltration Gusher (IG), the Contractor shall perform chemical grouting compatible with the CIPP system on major leaks to control resin loss and contamination, maintain CIPP thickness, prevent physical property reduction and prevent inadequate curing of the liner resulting from water or other contamination of the resin during installation. The pre-liner tube shall be a reinforced plastic tube to fit the existing pipeline and shall be continuous from manhole (access) to manhole (access).
- D. The wet-out tube shall be positioned in the pipeline using the method specified by the manufacturer. Care should be exercised not to damage the tube as a result of installation. The liner should be pulled-in or inverted through an existing manhole or approved access point and fully extend to the next designated manhole or termination point.
- E. Prior to installation and as recommended by the manufacturer, remote temperature gauges or sensors shall be placed inside the host pipe to monitor the temperatures during the cure cycle. This system shall be installed at the pipe invert per the manufacturer's recommended procedures. The temperature sensors shall be placed at intervals as recommended by the sensor manufacturer. Additional sensors shall be placed where significant heat sinks are likely or anticipated. The sensors shall be monitored by a computer using a tamper proof database. Liner and/or host pipe interface temperature shall be monitored and logged during curing of the liner. Use ZIA systems, VeriCure, or similar web-based curing log documentation. Provide access to utilized website to the Owner and training at Owner's business location for the web-based curing documentation system being used, include up to 10 training manuals with two (2) electronic copies. Training shall detail how to interpret data collected and how data should be

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

used to interpret proper curing in accordance with the recommendations of the materials manufactures and the web-based curing data monitoring system instructions.

- F. To monitor the temperature of the liner wall and to verify correct curing, temperature monitors can be placed between the host pipe and the liner in the bottom of the host pipe (invert) at manholes or access points and/or throughout its entire length (continuous) to monitor the temperature on the outside of the liner during the curing process. For continuous temperature monitoring, a fiber optic cable is installed in the pipe invert prior to the liner installation. The fiber optic cable is monitored by a computer that is capable of recording temperatures at the interface of the liner and the host pipe continuously in time and location throughout the entire pipeline being rehabilitated.
- G. Curing shall be accomplished by utilizing the appropriate medium or ultraviolet light in accordance with the manufacturer's recommended cure procedure and/or schedule. The curing source or in and output temperatures shall be monitored and logged during the cure cycles, if applicable. The manufacturer's recommended cure method & schedule shall be used for each line segment installed, and the liner wall thickness and the existing ground conditions with regard to temperature, moisture level, and thermal conductivity of soil, per ASTM as applicable, shall be taken into account by the Contractor.
- H. For water cured liners, if any temperature sensor, or continuous sensor location does not reach the temperature as specified by the manufacturer to achieve proper curing or cooling, the installer can make necessary adjustments to comply with the manufacturer's recommendations. For continuous temperature monitoring, the system computer should have an output report that specifically identifies stations along the length of pipe, indicates the maximum temperature achieved and the sustained temperature time at the stations. At each station along the length of the pipe, the computer should record both the maximum temperature and the minimum cool down temperature and comply with the manufacturer's recommendations.
- I. For UV Cured Liners, all light train sensor readings, recorded by a tamper proof computer system, shall provide output documenting the cure along the entire length of the installed liner. The cure procedure shall be in accordance with the manufacturer's recommendation as included in the PWS submission by the contractor.
- J. For UV Cured liners submit all light train sensor readings. Provide data base access to the Owner and training at Owner's business location for the system being used, include up to 10 training manuals with two (2) electronic copies. Training shall detail how to interpret data collected and how data should be used to interpret proper curing in accordance with the recommendations of the materials manufactures and the curing data system instructions.

3.3 COOL DOWN

- A. The Contractor shall cool the CIPP in accordance with the approved CIPP manufacturer's recommendations as described and outlined in the PWS.
- B. For water cure, CIPP shall be slowly cooled in accordance with the Manufacture's schedule to a temperature below 90 degrees Fahrenheit, or to a temperature recommended by the CIPP manufacturer, whichever temperate is lowest, prior to relieving the head in the inversion pipe.
- C. For water cure, care shall be taken in the release of the static head so that a vacuum will not develop that could damage the newly installed liner.

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

- D. Installations within 1 mile of any sewer treatment plant will require notification to the sewer treatment plant. Cure and cool down water shall be treated to remove styrene as directed by the treatment plant at no additional cost to the Owner.
- E. Cure and cool down water shall be contained and shall not be allowed to leak on the ground surface or be discharged to the storm drain system.
- F. Temperatures and curing data shall be monitored and recorded, by the Contractor, throughout the installation process to ensure that each phase of the process is achieved as approved in accordance with the CIPP System manufacturer's recommendations.

3.4 FINISH

- A. The installed CIPP shall be continuous over the entire length of a sewer line section and be free from visual defects such as foreign inclusions, dry spots, pinholes, major wrinkles and delamination. The CIPP shall be impervious and free of any leakage through the CIPP wall.
- B. Any defect which will or could affect the structural integrity or strength of the CIPP shall be repaired at the Contractor's expense in accordance with the procedures submitted under Section 1.8 CIPP Repair/Replacement.
- C. The beginning and end of the CIPP shall be neatly cut 2 inches from the wall of the manhole after installation. For manholes slated for rehabilitation, cure CIPP to facilitate the application of manhole rehabilitation materials. Pipe ends shall be sealed to the existing host pipe. Any liner installed thru manhole channels may be cut within 2 inches above the top of the manhole bench and left in place when approved by the Owner or removed. The sealing material shall be compatible with the pipe end and shall provide a watertight seal.
- D. If any service connections leak water between the host pipe and the installed CIPP, document leaks during post CCTV and provide to the Owner for review. The Owner will determine what follow-up repairs will be utilized to elevate leaks at service connections reinstatements.
- E. If the wall of the CIPP leaks, it shall be repaired or removed and replaced with a watertight pipe as recommended by the manufacture of the CIPP system.
- F. Compensation shall be at the unit price in Attachment C – Cost Proposal for the actual length of cured-in-place pipe installed within each sewer segment. Camera footage shall not be used to determine length of the sewer pipe being rehabilitated unless pre-approved by Owner. The payment length will be established by County GIS mapping, County as-built drawings and records. The payment length shall be from center of manhole to center of manhole with no deductions or additions for inside diameter of manholes. No payment will be made for CIPP installed within manhole channels. Any discrepancies between CIPP installed and that given in County records may be resolved with field measurements using a surveyor's clough or steel tape in the presence of the Owner. The unit price per linear foot installed shall include all materials, labor, equipment and supplies necessary for the complete CIPP installation.
- G. Grouting to eliminate major leaks such as Infiltration Runner (IR) and/or Infiltration Gusher (IG) prior to lining that could prevent proper installation of the liner shall be paid at the unit prices in Attachment C – Cost Proposal. Compensation for pipe sealing at the manhole/wall interface after liner installation shall not be paid for as end seals are expected to not leak.

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

3.5 MANHOLE CONNECTIONS AND RECONNECTIONS OF EXISTING SERVICES

- A. A hydrophilic seal compatible with the installed CIPP, shall be applied at manhole/wall interface in accordance with the CIPP System manufacturer's recommendations.
- B. Existing services shall be internally or externally reconnected unless indicated otherwise directed by the Owner.
- C. Reconstructions of existing services shall be made after the CIPP has been installed, fully cured, and cooled down. It is the Contractor's responsibility to make sure that all active service connections are reconnected.
- D. External reconstructions are to be made with a tee fitting in accordance with CIPP System manufacturer's recommendations. Saddle connections shall be seated and sealed to the new CIPP using grout or resin compatible with the CIPP.
- E. A CCTV camera and remote cutting tool shall be used for internal reconstructions. The machined opening shall be at least 100 percent of the service connection opening area and the bottom of both openings must match. The opening shall not be more than 100 percent of the service connection opening. The edges of the opening shall not have pipe fragments or CIPP fragments which may obstruct flow or snag debris. In all cases the invert of the sewer connection shall be cut flush with the invert entering the mainline.
- F. In the event that service reinstatements result in openings that are greater than 100 percent of the service connection opening, the Contractor shall install a CIPP type repair, sufficient in size to completely cover the over-cut service connection. No additional compensation will be paid for the repair of over-cut service connections.
- G. Coupons of pipe material resulting from service tap cutting shall be collected at the next manhole downstream of the pipe rehabilitation operation prior to leaving the site. Coupons may not be allowed to pass through the system.
- H. Compensation shall be at the actual number of services reconnected using means as contained in the Proposal. The unit price per service line reconnected shall be include all materials, labor, equipment and supplies necessary to complete the work as required in these specifications.

3.6 TESTING OF INSTALLED CIPP

- A. The Owner will require 20% of the installed CIPP footage to be sampled at random locations selected by the Owner. The physical properties of the installed CIPP shall be verified through field sampling and laboratory testing in accordance with ASTM standards. All materials for testing shall be furnished by the Contractor to the third party testing laboratory for testing. All materials testing shall be performed at the Contractor's expense by the independent third-party laboratory recommended by the CIPP manufacturer and approved by the Owner. All tests shall meet requirements of applicable ASTM test methods to confirm compliance with the requirements specified in these contract documents. Should sample results fail, the Contractor will conduct additional sampling to determine the extent of defective product at the direction of the Owner and at no additional cost to the Owner.
- B. The Contractor shall provide samples for testing to the third-party testing laboratory from the actual installed CIPP. Samples shall be provided from each section of CIPP installed slated for

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

sampling by the Owner. The Owner will randomly select one (1) of every five (5) lines scheduled for installation from the Contractor's weekly schedules. The sample shall be:

1. Cut from a section of cured CIPP that has been inverted or pulled through a like diameter pipe which has been held in place by a suitable heat sink, such as sandbags. Any opening produced from the sample shall be repaired in accordance with manufacturer's recommended procedures.
 2. Identified, labeled in the field and delivered for testing- All curing, cutting and identification of samples will be provided by the Contractor and transmitted by the Contractor's representative as specified, to the testing laboratory.
- C. The Contractor shall maintain the chain of custody for each sample. The laboratory results shall:
1. Be certified and submitted within the time frame stipulated by the Owner.
 2. Identify the test sample location as referenced to the nearest manhole and station.
 3. Be tested in accordance with all ASTM and specified standards.
 4. Clearly mark or conclude pass or fail results.
- D. Final payment for the project/phase of work may be withheld pending receipt and approval of the test results. If properties tested do not meet the minimum physical and thickness requirements, the CIPP shall be repaired or replaced by the Contractor unless the actual physical properties and the thickness of the sample tested meet the design requirements as required in the contract.
- E. Chemical resistance - The CIPP system installed shall meet the chemical resistance requirements of ASTM F1216 and ASTM D5813. CIPP samples tested shall be of the fabric tube and the specific resin proposed for actual construction. It is required that CIPP samples without plastic coating meet these chemical testing requirements.
- F. Hydraulic Capacity - Overall, the hydraulic capacity shall be maintained as large as possible. The installed CIPP shall, at a minimum, be equal to the full flow capacity of the original pipe before rehabilitation. In those cases where full capacity cannot be achieved after CIPP installation, the Contractor shall submit a request to waive this requirement together with the reasons for the waiver request. Calculated capacities may be derived using a commonly accepted roughness coefficient for the existing pipe material taking into consideration its age and condition.
- G. The installed CIPP thickness shall be measured for each line section installed as per the ASTM requirements specified. If the CIPP thickness does not meet that specified in the contract and submitted as the approved design by the Contractor, then the CIPP shall be repaired or removed unless the tested physical properties and the thickness of the sample tested meet the design requirements as required in the contract. The CIPP thickness shall have tolerance of minus 5% - plus 10%. In worker-entry size piping, the Contractor shall remove a minimum of one sample every line section of installed CIPP to be used to check the CIPP thickness. The samples shall be taken by core drilling 2-inch diameter test plugs at random locations selected by the Owner. The openings produced from the samples shall be repaired in accordance with manufacturer's recommended procedures.
- H. All costs to the Contractor associated with providing cured CIPP samples for testing, transport of samples and testing by an approved third-party lab shall be included in the unit price for

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

installation of the CIPP. Payment for all testing by a laboratory will be paid for by the Contractor directly to the laboratory.

- I. The Contractor shall be physically and financially able to keep all testing current, including delivery of test results to the Owner for each phase of work underway. All testing will be completed before the next phase of work can be started, with 90% of the current phase work testing samples approved. The Owner may choose to not issue new work or delay current work until testing results are provided and accepted with all repair work approved. It is expected that all required testing will be submitted within 30 days or less of the installation date.

3.7 FINAL ACCEPTANCE

- A. All CIPP sample testing and repairs to the installed CIPP, as applicable, shall be completed before final acceptance for each phase of work, meeting the requirements of these specifications and documented in written form.
- B. The Contractor shall perform a detailed NASSCO closed-circuit television inspection, in accordance with ASTM standards, for the Owner after installation of the CIPP and reconnection of the side sewers. A radial view (pan and tilt) TV camera shall be used. The finished CIPP shall be continuous over the entire length of the installation and shall be free of significant visual defects, damage, deflection, holes, leaks in the liner wall and other defects. Leaks at reinstated service connections will be documented during post CCTV and provided to the Owner for review to determine the type of follow-up rehabilitation. The unedited NASSCO compliant digital documentation of the inspection shall be provided to the Owner within ten (10) working days of the CIPP installation. The data shall note the inspection date, location of all reconnected side sewers, debris, as well as any defects in the CIPP, including, but not limited to, gouges, cracks, bumps, or bulges. The Contractor shall stop at each reconnected sewer service (lateral) for at least 30 seconds and provide a 360-degree pan & tilt view of each reinstated service. The service CCTV inspection must confirm the service was properly re-opened robotically, to its original shape, with cutting and wire brushing to remove all rough edges, leaving an opening in the liner to 100 percent of its original flow. If post installation inspection documentation is not submitted within ten (10) working days of the CIPP installation, the Owner may at its discretion suspend any further installation of CIPP until the post-installation documentation is submitted. As a result of this suspension, no additional working days will be added to the contract, nor will any adjustment be made for increase in cost. Immediately prior to conducting the closed-circuit television inspection, the Contractor shall thoroughly clean the newly installed CIPP removing all debris and build-up that may have accumulated at no additional cost to the Owner.
- C. Bypass pumping or plugging from the upstream manhole shall be utilized to minimize sewage from entering the line during the inspection. In the case of bellies in the line, the pipe shall be cleared of any standing water to provide continuous visibility during the inspection.
- D. Where leakage is observed through the wall of the pipe, the contractor shall institute localized testing (such as a grout packer) or any other testing that will verify that the leakage rate of the installed CIPP does not exceed acceptable tolerances specified in the contract. As an alternative to leakage testing, the Contractor may choose effect repairs to the observed leaks.

SECTION 02954 – SEWER MAIN REHABILITATION BY LINING

3.8 SANITARY SEWER SPILLS, OVERFLOWS AND BACKUPS

- A. The Contractor shall be responsible for spills, overflows and backups resulting from the work in connection with this contract. See specified requirements in sections:
1. [02640](#), Technical Provisions for Inspection and Rehabilitation
 2. [02650](#), Sanitary Sewer Line Cleaning
 3. [02651](#), Sanitary Sewer Overflow Response.

PART 4

4.1 Requirements as set forth in [Section 01025, Measurement and Payment](#), and stated herein

- A. When submitting a request for draft and final payment submit the following:
1. Information required per Special Provisions, Section 18-Reports and Invoicing
 2. Documentation of materials used and installation mechanisms, such as wet-out, pre and post CCTV logs, cook sheets and other documents as stated herein.
 3. Provide Pre and Post CCTV reports with each Invoice and with video inspection NASSCO compliant and compatible with WinCan.
 4. Provide quality assurance reports per recommendations of Manufacture or supplier of products.
 5. Clearly label and date each, report, pre and post CCTV to identify the correct location it represents.
- B. Payment will be in accordance with the Contract Documents at the unit rate provided in Attachment C - Cost Proposal and any written modifications issued by the County Purchasing Agent.

END OF SECTION

SECTION 02955 – CURED IN PLACE PIPE OR ALTERNATE POINT REPAIR

PART 1 GENERAL

1.1 SUMMARY

- A. The Work specified in this section includes all labor, materials, accessories, equipment and tools necessary to install and test sectional cured-in-place pipe (CIPP) lining or an alternate method of internal point repair. Excavation not to be used for installation of the product. One method will be utilized on this contract for all internal point repairs. The completed point repair shall be watertight and not impede normal flows of the sewer system.
- B. Related Work Specified in Other Sections Include, but is not limited to, the following:
 - 1. [Section 01025](#), Measurement and Payment
 - 2. [Section 01300](#), Submittals
 - 3. [Section 02640](#), Technical Provisions for Inspection and Rehabilitation
 - 4. [Section 02650](#), Sanitary Sewer Line Cleaning
 - 5. [Section 02651](#), Sanitary Sewer Overflow Response
 - 6. [Section 02954](#), Sewer Rehabilitation by Lining
 - 7. [Section 02956](#), Television Inspection
 - 8. [Section 02957](#), Sewer Manhole Rehabilitation
 - 9. [Section 02960](#), Temporary Bypass Pumping Systems

1.2 DESCRIPTION OF WORK AND PRODUCT DELIVERY

- A. Any point repair product and method must be approved by the Owner prior to use.
- B. Pertinent information required prior to a point repair includes the main line size, material and approximate location, depth and length of defect.
- C. The Contractor shall provide all materials, labor, equipment, and services necessary for traffic control, bypass pumping and/or diversion of flows, cleaning and television inspection of sewers to be rehabilitated, liner installation, reconnection of service connections, all quality controls, provide and process samples for performance of required material tests, pre and final television inspection, testing of the rehabilitated pipe system, warranty work and other work, and as specified herein.
- D. All materials furnished, as part of this contract shall be marked with detailed product information, stored in a manner specified by the manufacturer and tested to the requirement of this contract.
- E. Prior to installation the Contractor shall CCTV and clean the sewer segment. Any visible leakage that would prevent proper installation of the CIPP or alternate point repair product in accordance with the manufacturer's instructions, shall be eliminated. Such leaks will typically be characterized as providing a steady stream or flow of water that could cause washout of the resin or uneven heat distribution during the curing or impact the installation process. The type of infiltration to be eliminated, as defined by NASSCO includes Infiltration Runner (IR) and Infiltration Gusher (IG).

SECTION 02955 – CURED IN PLACE PIPE OR ALTERNATE POINT REPAIR

- F. The rehabilitation of pipelines shall be done by the installation of a resin-impregnated flexible tube which, when cured, shall be continuous and tight-fitting throughout the entire length of the original pipe. An alternate method of internal point repair may be used as approved by the Owner. The internal point repair shall extend the full length of repair area and terminate at point where pipe is structurally sound to provide a jointless and water-tight new pipe-within-a-pipe. The Contractor is responsible for proper, accurate and complete installation of the internal point repair using the system selected by the Contractor meeting the Owners requirements.
- G. Neither the internal point repair product, system, nor its installation, shall cause adverse effects to any of the Owner's processes or facilities. The pressures and temperatures used for the product installation shall not damage the system in any way, and the use of the product shall not result in the formation or production of any detrimental compounds or by-products at the wastewater treatment plant. The Contractor shall notify the Owner and identify any by-products produced as a result of the installation operations, test and monitor the levels, and comply with any and all local laws and waste discharge requirements. The Contractor shall cleanup, restore existing surface conditions and structures, and repair any of the internal point repair system determined to be defective. The Contractor shall conduct installation operations and schedule cleanup in a manner to cause the least possible obstruction and inconvenience to traffic, pedestrians, businesses and property owners or tenants.
- H. The Contractor shall perform all required permanent landscape restoration of disturbed areas on private property and within locality and/or VDOT right-of-way upon completion of the point repair to the satisfaction of the Owner.
- I. The prices submitted by the Contractor, shall include all costs of permits, testing, quality control, labor, equipment and materials for the various items necessary for furnishing and installing, complete in place, internal point repair in accordance with these specifications. All items of work not specifically mentioned herein which are required by the Contractor, to make the product perform as intended and deliver the final product as specified herein shall be included in the respective lump sum and unit prices.

1.3 SUBMITTALS

- A. Submittals shall be made by the Contractor in accordance with the procedures set forth in [Section 01300, Submittals](#), and as described below.
- B. The product proposed for the rehabilitation of the sewers must have been in use for at least three years and/or have an established track record acceptable to the Owner.
- C. After notification of a specific project, the Contractor shall submit the following information for review and approval.
 - 1. Shop drawings and product data for the rehabilitation method, including a report outlining the process to be used in the rehabilitation of the sewer line. The report shall also include information specific to the job, such as coordination issues, access, timing, manufacturer's installation instructions and bypass pumping.
 - 2. A report outlining the point repair process. The report shall also include information specific to the job, such as coordination issues, access, timing, and bypass pumping.

SECTION 02955 – CURED IN PLACE PIPE OR ALTERNATE POINT REPAIR

3. All measurements made by the Contractor to verify length and diameter of pipe prior to ordering of material.
4. Provide Pre- and Post-Installation TV Inspection as specified in [Section 02956, Television Inspection](#) and supporting installation documentation for approved product with invoice requesting payment.
5. The Contractor shall provide written warranties for all materials and products.

PART 2 PRODUCTS

2.1 APPROVED PRODUCT

- A. Submit for approval by the Owner the internal point repairs being proposed. Include all required information stated herein to clearly provide manufactures recommendations and instructions, installations procedures, materials properties, testing and acceptance.
- B. Only one method will be selected and approved by the Owner for the duration of this Contract.

PART 3 EXECUTION

3.1 GENERAL

- A. The Contractor shall furnish and install a complete system as shown in the Contract Documents. Pipe Liner or alternate point repair shall be installed in accordance with the manufacturer's recommendations.
- B. The Contractor shall provide for the transfer of flow, through or around section or sections of pipe that are to be repaired. The proposed bypassing system shall be in accordance with [Section 02960, Temporary Bypass Pumping Systems](#), and be acceptable in advance by the Owner. The acceptance of the bypassing system in advance by the Owner shall in no way relieve the Contractor of his responsibility and/or public liability.
- C. Prior to any installation of product, it shall be the responsibility of the Contractor to remove internal deposits from the pipeline in accordance with [Section 02650, Sanitary Sewer Line Cleaning](#).
- D. Inspection of pipelines shall be performed by experienced NASSCO, PACP certified personnel trained in locating breaks, obstacles, and service connections by closed circuit television. The interior of the pipeline shall be carefully inspected to determine the locations and extent of any structural failures and defects. A video and suitable log shall be kept and turned over to the Owner. Television survey shall be performed in accordance with [Section 02956, Television Inspection](#), including Preconstruction, Post Construction and Warranty Surveys.
- E. Line Obstructions - It shall be the responsibility of the Contractor to clear the line of obstructions that will interfere with the installation and long-term performance of the product. If pre-installation inspection reveals an obstruction, misalignment, broken or collapsed section or sag that was not identified as part of the original scope of work and will prohibit proper installation of the product, the Contractor will provide video inspections to the Owner for review with a recommendation on

SECTION 02955 – CURED IN PLACE PIPE OR ALTERNATE POINT REPAIR

how to proceed with the work. The Owner may direct the Contractor to not attempt installation. The Owner may elect to resolve issues preventing the installation of internal point repair and reissue the work to Contractor at a later date for completion. The Owner may also elect to replace or otherwise repair the pipe without follow-up installation of the internal point repair.

All costs to provide video, recommendation and other associated costs are incidental to this contract. The Contractor will not be compensated for work that is not completed, including making the determination the point repair product cannot be installed due to the existing condition of the pipe or manhole. Payment will only be made for the work completed in accordance with the unit rates listed within Attachment C - Cost Proposal.

3.2 SANITARY SEWER SPILLS/BACKUP

- A. The Contractor shall be responsible for spills, overflows and backups resulting from the work in connection with this contract. See specified requirements in sections:
1. [02640](#), Technical Provisions for Inspection and Rehabilitation
 2. [02650](#), Sanitary Sewer Line Cleaning
 3. [02651](#), Sanitary Sewer Overflow Response.

3.3 INSTALLATION

- A. Prior to the installation of CIPP, all active leaks shall be stopped using chemical grout in accordance with [Section 02959, Sewer Sealing by Chemical Grout](#). Impregnate the liner with the 100 percent solids epoxy; drop cloths, tarpaulins, etc. shall be used to prevent epoxy material from contacting the adjacent ground. Place the liner on the placement carriage and maneuver carriage and liner into position allowing 100 percent solids epoxy resin to permeate into any cracks in the host pipe. Heat may be introduced to speed up curing time. Curing shall be in accordance with manufacturer's recommendations. Retract the placement carriage and remove from pipe.
- B. For alternate method of point repair follow manufacture's installation instructions and stop all active leaks using chemical grout in accordance with [Section 02959, Sewer Sealing by Chemical Grout](#) as approved by the Owner.
- C. Service connections shall be reconnected as specified in [Section 02954, Sewer Main Rehabilitation by Lining](#) or as approved by the Owner.

3.4 ACCEPTANCE

- A. For CIPP: The finished liner shall be continuous over the entire length of the installation. The liner shall be free from visual defects, damage, deflection, holes, delamination, uncured resin, and the like. There shall be no visible infiltration through the liner or from behind the liner.
- B. For Alternate method of point repair: Follow manufacture's recommendations as approved by the Owner

SECTION 02955 – CURED IN PLACE PIPE OR ALTERNATE POINT REPAIR

3.5 CLEANUP

After the installation has been completed and accepted, the Contractor shall clean up the entire project area and return the ground pre-existing conditions or better. All excess material and debris not incorporated into the permanent installation shall be disposed of by the Contractor.

3.6 WARRANTY

During the warranty period, any defects which affect the integrity or strength of the pipe shall be repaired at the Contractor's expense. Prior to the repair of the defective work, the Contractor shall submit a Shop Drawing indicating the method of repair, for the Owner's approval. The Contractor shall obtain approval for the Owner for method of repair, which may require field or workshop demonstration.

PART 4

4.1 Requirements as set forth in [Section 01025, Measurement and Payment](#) and stated herein

- A. When submitting a request for draft and final payment submit the following:
1. Information required per Special Provisions, Section 18-Reports and Invoicing.
 2. Documentation of materials used and installation mechanisms as stated herein.
 3. Provide Pre and Post CCTV Reports with each Invoice and video inspection NASSCO compliant and compatible with WinCan.
 4. Provide quality assurance reports per recommendations of Manufacture or supplier of products.
 5. Clearly label and date each, report, pre and post CCTV to identify the correct location it represents.
- B. Payment will be in accordance with the Contract Documents at the unit rate provided in Attachment C - Cost Proposal and any written modifications issued by the County Purchasing Agent.

END OF SECTION

SECTION 02956 – TELEVISION INSPECTION

PART 1 GENERAL

1.1 SUMMARY

- A. The Contractor shall furnish all labor, equipment, material and supplies and perform all operations necessary to conduct the internal pre and post closed-circuit television inspection (CCTV) of all pipelines rehabilitated under this contract. This work includes remote televising and recording of the sewer inspection.

The Contractor shall also furnish all labor, equipment, material and supplies and perform all operations necessary to conduct the pre and post NASSCO level I MACP manhole inspection for all manholes rehabilitated under this contract.

The Contractor shall include the cost of internal pre and post closed-circuit television inspections for pipelines and the inspection of manholes, NASSCO level I MACP as an incidental to the cost of all work. These costs shall be included in the unit prices for the various items listed within Attachment C - Cost Proposal. All project locations will be within the Owner's service area.

- B. Related Work Specified in other sections include, but is not limited to, the following:
1. [Section 01025](#), Measurement and Payment
 2. [Section 02640](#), Technical Provisions for Inspection and Rehabilitation
 3. [Section 02650](#), Sanitary Sewer Line Cleaning
 4. [Section 02651](#), Sanitary Sewer Overflow Response
 5. [Section 02954](#), Sewer Main Rehabilitation by Lining
 6. [Section 02959](#), Sewer Sealing by Chemical Grout
 7. [Section 02960](#), Temporary Bypass Pumping Systems
- C. The Contractor will be held fully liable for any damages incurred that are caused by his or her negligence.

1.2 DEFINITIONS

- A. NASSCO - National Association of Sewer Service Companies.
- B. PACP - Pipeline Assessment Certification Program.
- C. LACP – Lateral Assessment Certification Program.
- D. MACP- Manhole Assessment Certification Program.
- E. Television Inspection - is a video inspection performed by the Contractor of sanitary sewer system to assess the condition of the line, cleaning completed and document various types of rehabilitation complete. The inspection shall be compliant with PACP, MACP and LACP standards.

SECTION 02956 – TELEVISION INSPECTION

- F. Television investigation - is a video observation of the sanitary sewer system or private lateral performed by the Contractor to identify an obstruction and/or to verify the need for heavy cleaning. Investigation is not required to be compliant with PACP, MACP and LACP standards.
- G. Television Inspection Log - is information collected and recorded by each television operator for any Television Inspection effort submitted to the Owner. Television Inspection codes, Sewer Line Assessment Codes shall be in accordance with NASSCO PACP, MACP and LACP standards.
- H. Manhole inspection - Manhole inspection compliant to NASSCO level I MACP.

1.3 COMPLIANCE AND ACCEPTANCE

- A. The following defines each work item, the level of effort, and quality of work that will be necessary to meet the intent of this specification.
- B. Television Inspection
 - 1. CCTV inspections will be delivered entirely in electronic format to be compatible with WinCan XV format.
 - 2. All CCTV work shall conform to the most current NASSCO PACP, MACP and LACP standards. The documentation of the work shall consist of NASSCO compliant CCTV Reports, NASSCO compliant database, logs, electronic reports, etc. noting defects and observations encountered during the inspection.
 - 3. All Manhole inspections shall be NASSCO level I MACP before and after work is completed.

1.4 REFERENCED DOCUMENTS

- A. All work must also conform to the latest edition of the following specifications (as required in advance by the Owner)
 - 1. NASSCO PACP, MACP and LACP Standards
 - 2. NASSCO Pipe Condition Assessment Specifications using CCTV 2014 (2019 update):
<https://www.nassco.org/sites/default/files/SPECIFICATION%20GUIDELINE%20-%20CCTV%2015Dec2014.pdf>
 - 3. State Department of Transportation (MUTCD)
https://www.virginiadot.org/business/virginia_mutcd_supplement.asp
 - 4. Other permits, as required.
- B. Assumptions
 - 1. It is reasonable and customary to assume the following, unless otherwise detailed in writing:
 - a. The Owner has provided the Parties (Contractor), in writing, with enough information to allow the Contractor to accurately and fully assess the entire scope of the project.

SECTION 02956 – TELEVISION INSPECTION

- b. The Parties are knowledgeable, capable and legally authorized to contract for the services in question.

C. Notification

1. If observed defects are believed to be such that further operations may compromise the structural integrity and/or cause the pipe to become unusable, the Contractor must provide written communication by way of email and phone call to the Owner's designee of the observed condition(s) and reason to believe that continued operations may cause substantial damage. The Owner may direct the Contractor as to what services, precautions, and follow up actions are required. The Owner may direct the Contractor to not attempt the work. The Contractor will not be compensated for work that is not fully completed, including making the determination that issued work cannot be completed due to the existing condition of the sewer system. If the contract documents do not address this potential, then the Owner and Contractor will negotiate in good faith, the conditions under which the work may continue or cease to continue.
2. This exception may only be used to prevent asset damage and shall not be used to eliminate difficult or adverse areas that were previously documented in these documents or by prior written communication with the Owner.

1.5 SUBMITTALS

- A. Contractor shall submit pre and post inspection in accordance with the contract documents. For each pipeline rehabilitated under this contract, provide Pre and Post CCTV inspection with appropriate documents when requesting payment for rehabilitation work. For each manhole provide a NASSCO Level I manhole inspection with appropriate documents when requesting payment for rehabilitation work. It is the intent of the County to have pre and post inspections and/or Pre and Post NASSCO Level I manhole inspections for all work performed to validate the need for rehabilitation, quality of work completed, and payments to improve said asset.
- B. Inspection Equipment: Catalogue cuts and equipment specification information for proposed inspection equipment, including datalogger and software systems. All proposed equipment shall be approved by OWNER prior to being mobilized for WORK.
- C. Sample Submittal: An example of a typical PACP/MACP/LACP Inspection deliverable will be submitted for approval by Contractor prior to mobilizing for WORK. The example deliverable will contain the following:
 - a. A sample Header form as a paper copy with highlighted fields that will be populated for the inspection work
 - b. A sample NASSCO Standard Exchange Database, per Owner-required version, in Microsoft Access file format (.mdb), as exported from the Contractor's data collection software.
 - c. A sample report printout from data collection software.
 - d. Example media files, including observation photos, videos, and reports; with all files consistently utilizing the required file naming conventions and folder structures.
 - e. The proposed viewing software to be used with the proprietary inspections database and related media.

SECTION 02956 – TELEVISION INSPECTION

- f. NASSCO validation report in PDF format, demonstrating the sample is fully conforming to NASSCO standards and conventions. Validation reports can be obtained by submitting a sample database to NASSCO thru their web portal at <https://www.nassco.org/certified-software>.
- g. Inspections database(s) that are fully cross-referenced to the videos, images, and reports.
- h. Example reports will be presented in both hard copy and in PDF format, and all other sample data will be presented in digital format on an external hard drive.

PART 2 PRODUCTS

2.1 GENERAL

- A. The working area shall be reserved for equipment, both operational and stored, and no equipment utilized within the sewer shall be allowed to be stored in the viewing area.
- B. Modifications to the inspection vehicle requirements will be acceptable where off-road type equipment is necessary for sewer manhole access.

2.2 INSPECTION SOFTWARE

- A. The Contractor shall use a datalogger and software system specifically designed for condition assessment and asset management that is NASSCO certified. At a minimum, software shall provide the following for the named Version in the contract documents:
 - 1. Provide only PACP/MACP/LACP codes for conditions and asset/survey information. The Software shall ensure each entered code is validated against NASSCO requirements.
 - 2. Provide all NASSCO required and optional fields for both survey headers and observations.
 - 3. Import and export the standard NASSCO transfer files and consolidated information from multiple sources into one database.
 - 4. Summarize observed defects and inspection results by location, type and severity and NASSCO rating systems.

2.3 TELEVISION INSPECTION AND COMPUTERIZED EQUIPMENT

- A. The Contractor shall use a color pan and tilt camera specifically designed and constructed for sewer pipe inspection. Inspection for manholes to be NASSCO level I MACP. Each sewer to be televised shall be suitably isolated to control flow during the inspection. The Contractor shall provide a recording of the sewer inspection, locating each sewer service connection entering the sewer.
- B. CCTV Equipment: Select and use CCTV equipment that will produce a color recording. The camera and video system components shall have the following properties:
 - 1. Footage counters accurate to two-tenths of a foot that displays on the TV monitor the exact distance of the camera from the starting point of the recording.

SECTION 02956 – TELEVISION INSPECTION

2. Lighting system that allows the features and conditions of the pipe to be clearly seen. Lighting shall not cause shadows or loss of color within the field of view of the camera.
 3. Capability to operate in 100 percent humidity condition while keeping camera lens clear of debris and buildup, allowing a clear inspection view.
 4. Capability to produce a minimum 470 lines vertical resolution color video picture. Picture quality and definition shall be to the satisfaction of the County.
- C. The inspection vehicle shall comprise totally separate viewing and working areas. Where practical the viewing shall be insulated against noise and extremes in temperature, include the provision for air conditioning, and shall be provided with means of controlling external and internal sources of light in a manner capable of ensuring that the monitor screen display is in accordance with the specification. Seating accommodation shall be provided to enable two people, in additions to the operator, to view clearly the onsite monitor, which shall display the inspection as it proceeds. Images shall be able to be printed directly from the system along with text annotations highlighting specific points in the image and the current control settings.
- D. Lighting for the pan and tilt camera shall provide a clear picture of the entire periphery of the existing sewer.
- E. The pan and tilt camera shall pause, pan, and visually inspect all service connections, pipe ends, and maintenance or structural defects. Stop at each service connection for at least 30 seconds and provide a 360-degree pan & tilt view. If a blockage cannot be removed within sewer and hampers the televising of the sewer in one direction, the Contractor shall attempt to complete the section by televising from the other manhole to complete the section, this reversal should immediately follow the initial direction. The Contractor must immediately report the obstruction to the Owner, see [Section 02956, Television Inspection](#), Part 3 Execution, paragraph 3.6, A13 and [Section 02954, Sewer Main Rehabilitation by Lining](#), Part 3 Execution, paragraph 3.1 G.
- F. If the image quality is not adequate to allow proper inspection coding, the Contractor shall be required to repeat the survey at the Contractor's expense.
- G. Pipe Inspection Camera: The pipe inspection camera and video components shall have the following additional properties:
1. Capability to produce a video recording using a pan-and-tilt, radial viewing, pipe inspection camera that pans ± 275 degrees and rotates 360 degrees.
 2. Camera height adjustment so that the camera lens is always centered at one-half the inside diameter in the pipe being televised. The camera lens may be centered higher only if necessary, to keep the camera out of the flow.
- H. Recording: All recordings are to be in digital format.
1. Image Capture: Digitized picture images shall be stored and be exportable as JPEG formats.
 2. Video Capture: Full time live video and audio files shall be captured for each pipe segment. The files shall be stored in industry standard Windows Media or MPEG-2 format on a USB 2.0 external hard drive and viewable on a personal computer that utilizes Microsoft Media Player, version 9.0 or later. Alternate digital formats will not be accepted unless approved by the Owner in advance of submittal. The video shall have a minimum resolution of 960 pixels (x) by 720 pixels (y) and an encoded frame rate of 60 Hz. System

SECTION 02956 – TELEVISION INSPECTION

shall perform an automatic disk image/file naming structure to allow saved video/data sections to be "burned" to digital format. It shall have the capability of "burning" a minimum of 120 minutes of recording. The video recording shall be free of electrical interference and shall produce a clear and stable image. The audio recording shall be sufficiently free of background and electrical noise as to produce an oral report that is clear and discernable. The digital recordings and inspection data shall be cross-referenced to allow instant access to any point of interest within the digital recording.

3. The Contractor shall perform all CCTV inspections in accordance with NASSCO's Assessment Certification Programs. CCTV inspections will be delivered entirely in electronic format. The entire survey shall be recorded in an approved electronic format submitted with electronic links between the data and the video. All television inspection reports shall be with-in +/- two (2) feet of the measured linear footage between manholes along the existing sewer centerline from the start of pipe to end of pipe. All Owner and PACP required header information must be fully and accurately entered on all CCTV reports. Work not following these specifications may be rejected for payment and the Contractor may be required to re do the work.
 - I. The Contractor shall provide a NASSCO certified operator on site at all times during the entire survey. If video is to be coded separately from the actual recording, both the onsite Operator and the individual performing the PACP coding shall be PACP certified. The Contractor shall provide proof of certification prior to commencement of work, prior to a change in personnel involved in data collection, and as requested by the Owner.
 - J. CCTV Reports, logs, electronic reports, and worksheets must include the following information and conform to the applicable guidelines:
 1. CCTV Reports shall comply to NASSCO PACP, LACP and MACP inspection criteria and Certified Database. NASSCO compliant electronic reports, logs and worksheets must accompany all inspection work.
 2. All Owner and NASSCO PACP required header information must be fully and accurately entered on all CCTV reports.
 3. All inspection documents to be submitted in PDF format.
 4. For any single inspection all data shall be recorded accurately. All inspection data on the inspection video shall be accurate and match specific information submitted on the inspection documents. The submitted inspection documents, videos and invoices must contain all required information such as street names, times, dates asset identifiers (manhole and pipe identification numbers), sizes, lengths, defect descriptions and other information which is consistent with the video submitted. Each inspection will document the inspection of one sewer Asset. Inspections listing more than one Asset will not be accepted. Inaccurate or incomplete inspection packages will be immediately rejected.

2.4 MANHOLE INSPECTION

- A. All manhole inspections will require the Contractor to fill out the appropriate NASSCO MACP Header forms. The Contractor will be required to perform MACP Level I manhole inspections before and after the work is complete.

SECTION 02956 – TELEVISION INSPECTION

- B. Contractor shall find the manhole in the field and seek assistance from the Owner if unable to locate them, see [Section 02640, Technical Provisions for Inspection and Rehabilitation](#), paragraph 1.16.
- C. No additional compensation will be given for locating manholes in the field.
- D. Inspection software used by the manhole inspection equipment shall be MACP compliant and final reporting and database shall be in digital format. Provide inspection as follows:
 - 1. MACP Level 1 w/ Photos and Videos can be accomplished utilizing equipment that can be lowered into the manhole from the ground surface. The Contractor will be required to:
 - a. Take a minimum of 5 photos of the surrounding area from above the rim of the manhole frame.
 - b. Take a minimum of 10 high quality photos above and below the rim and an internal video of the manhole from rim to invert.
 - c. Take an internal video of the manhole from rim to invert.
 - d. Note visual observations and defects on the MACP Level 1 form.
 - 2. Manhole inspection shall be performed by a NASSCO/MACP certified operator and shall meet the coding and reporting standards and guidelines as set by MACP. All report annotations, manhole conditions and manhole defects shall be identified properly using MACP codes as defined by MACP, and condition scores ratings shall be calculated according to MACP.

PART 3 EXECUTION

3.1 GENERAL

- A. A competent supervisor shall be present at all times during active inspection activities. The field supervisor shall be approved in writing by the Owner prior to commencement of work. Any change of supervision must also be approved in writing by the Owner prior to the change. Field Supervisor, or designee, is responsible for providing weekly reports of project activity to be submitted electronically to the Owner with all pertinent information pertaining to the project. Submit weekly schedules in accordance with [Section 02640, Technical Provisions for Inspection and Rehabilitation](#).
- B. The Contractor shall furnish and maintain, in good condition, all cleaning and televising equipment necessary for proper execution of the work.
- C. Maintaining Flow: It will be the responsibility of the Contractor, throughout the tenure of this contract, to provide and maintain sufficient flow within the sewer system at all times and prevent any backwater flooding due to obstruction caused by cleaning or inspection equipment.
- D. Retrieval of Materials and Equipment: It shall be the Contractor's responsibility to remove materials and equipment that has been lodged in the sewer from cleaning, television inspection, or point repairs.

SECTION 02956 – TELEVISION INSPECTION

- E. Inspection work shall be completed with a minimum of inconvenience and disturbance to the residents and the employees of the adjacent dwellings, commercial and government facilities, and the traveling public.
- F. Inspection operations shall be confined strictly within the limits of rights-of-way or easements unless written permission is obtained to occupy additional ground. Any obvious existing defects discovered prior to inspection shall be reported to the County including, but not limited to, manholes and pipes.
- G. Upon completion of work, the Contractor shall clean up and restore the area of operations to a condition at least equal to original conditions. Damage to property including adjacent structures, signs, fences, trees, shrubs, lawns, sidewalks, utilities, storm drains, etc., will be the Contractor's responsibility, and restoration of same shall be made at Contractor's expense.

3.2 FLOW CONTROL/TEMPORARY BYPASS

- A. During television inspection of a sewer line section the Contractor shall reduce the flow depth to an acceptable level by performing the television inspection during minimum flow hours, plugging, trucking, bypassing, or other acceptable flow control methods. Video inspection made while floating the camera is not acceptable unless approved by the Owner.
- B. The Contractor shall notify the Owner if unable to reduce flow depth in the pipe to an acceptable level for television inspection.
 - 1. Temporary bypass systems shall be provided in accordance with [Section 02960, Temporary Bypass Pumping Systems](#), and the contract documents.

3.3 SANITARY SEWER SPILLS/BACKUP

- A. The Contractor shall be responsible for spills, overflows and backups resulting from the work in connection with this contract. See specified requirements in sections:
 - 1. [02640](#), Technical Provisions for Inspection and Rehabilitation
 - 2. [02650](#), Sanitary Sewer Line Cleaning
 - 3. [02651](#), Sanitary Sewer Overflow Response.

3.4 CLEANING

- A. Cleaning shall be conducted to accomplish the work then it shall be done in accordance with [Section 02650, Sanitary Sewer Line Cleaning](#).

3.5 MAINTENANCE OF TRAFFIC

- A. The Contractor shall be responsible for maintaining traffic as specified in [Section 02640, Technical Provisions for Inspection & Rehabilitation](#).

SECTION 02956 – TELEVISION INSPECTION

3.6 SEWER LINE INSPECTION

A. CCTV Inspection

1. Sewers shall be visually inspected by means of CCTV. The camera shall be placed at the center of the manhole and videotaping shall commence prior to entering the pipe. The Contractor shall show the inside of the manhole walls and the pipe (connection to the wall at both the upstream and downstream manhole).
2. CCTV Camera Prime Position: The CCTV camera shall be positioned to reduce the risk of picture distortion. In circular sewers the CCTV camera lens shall be positioned centrally (i.e. in prime position) within the sewer. In non-circular sewers, picture orientation shall be taken at mid-height, unless otherwise agreed, and centered horizontally. In all instances the camera lens shall be positioned looking along the axis of the sewer when in prime position. A positioning tolerance of no more than 10% of the vertical sewer dimension shall be allowed when the camera is in prime position.
3. Camera and monitor image color shall be synchronized and calibrated per the manufacturer's recommendations at the beginning of each workday and anytime the picture becomes distorted, or whenever directed by the Owner.
4. The camera shall be moved through the line in either direction at a moderate rate, stopping when necessary to permit proper documentation of the sewer's condition. In no case shall the television camera be advanced at a speed greater than 30 feet per minute. Manual winches, power winches, TV cable, and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions shall be used to move the camera through the sewer line.
5. If the camera is being pulled through the sewer line by a hydraulic cleaning unit hose, the cleaning nozzle shall be located a minimum of twelve (12) feet away from the camera to allow a clear, unobstructed view. Jet nozzle shall be used in front of the camera while televising through a dip to draft out water. If, during the inspection operation, the television camera will not pass through the entire sewer section, the Contractor shall set up his equipment so that the inspection can be performed from the opposite manhole or structure. If a reverse setup is required for the inspection of the pipe segment, the Contractor will complete the setup at no additional cost to the Owner or County.
6. The Contractor shall maintain camera in clear focus at all times. Picture quality and definition shall be to the satisfaction of the Owner; and if unsatisfactory, equipment shall be removed and replaced with adequate equipment.
7. Whenever non-remote powered and controlled winches are used to pull the television camera through the line, telephones or other suitable means of communication shall be set up between the two manholes of the section being inspected to ensure good communications between members of the crew.
8. Movement of the television camera shall be temporarily halted, pan and tilt for a minimum of ten (10) seconds at all points of interest including all obstructions, broken pipe, other suspected defects and point sources of infiltration and/or inflow until the severity and leakage rate from each source is quantified by using pan and tilt camera. All points of interest shall also be indicated via audio during inspection.

SECTION 02956 – TELEVISION INSPECTION

9. Service connections and the service laterals shall be inspected to the extent possible from inside the main sewer pipe segment that is being inspected.
10. Throughout the television inspection activities, the Owner reserves the right to require altering the speed at which the camera is moved through the sewer. However, at no point should an inspection exceed 30 feet per minute.
11. Should the quality of the picture fail to provide a clear view of the entire sewer, the Contractor shall make appropriate adjustments in his monitoring equipment or discontinue work until the Owner agrees an acceptable picture has been obtained.
12. Should any inspection equipment become stuck in the sewer, the Contractor will be responsible for its removal at no additional cost to the Owner.
13. If an obstruction prevents the camera from passing, and cannot be removed by regular or heavy sewer cleaning, the following procedures shall apply:
 - a. Abandon the survey (using MSA code and comments indicating the reason) and complete a reverse inspection up to the point where the survey was abandoned.
 - b. If a portion of the pipe longer than 10 feet cannot be inspected after attempting a reverse inspection, abandon the incomplete inspection and report the pipe segment to the Owner. Provide the owner with available video from abandoned inspection.
 - c. When submitting abandoned inspection to the Owner also make a recommendation for extreme sewer cleaning if applicable and/or any recommendation on how to complete the inspection and rehabilitation. The Owner will provide the final decision on how the work will proceed.
 - d. The Owner may direct the Contractor to not attempt follow-up cleaning and inspection. The Contractor will not be compensated for work that is was not completed, including making the determination that cleaning, inspection and installation of CIPP could not be accomplished due to the existing condition of the sewer system. The Owner may elect to resolve issues preventing the work from proceeding and reissue the work to Contractor at a later date for completion. The Owner may also elect to replace or otherwise repair the sewer without the use of this contract.
14. Conduct work so as not to cause damage to the sewer system, its connections, apparatus and/or adjacent properties. For any impacts resulting from the work follow [Section 02651, Sanitary Sewer Overflow Response](#), [Section 02640, Technical Provisions for Inspection and Rehabilitation](#), and the contract documents. Any damage caused during the operations shall be repaired to the complete satisfaction of the Owner at no additional cost to the Owner.

3.7 INSPECTION AND DELIVERABLES FOR PIPELINE AND MANHOLES

- A. Written Inspection Reports: Provide PDF location records to clearly identify the location of each defect, or lateral connection, in relation to adjacent manholes, using a standard stationing system zeroed on the upstream manhole. Record all information requested using proper NASSCO/PACP/MACP/LACP defect codes. The reports shall include at least the minimum amount of information required by PACP/MACP/LACP, including required PACP/MACP/LACP

SECTION 02956 – TELEVISION INSPECTION

header information. Color still-shot images of all defects encountered shall be included with each pipe segment. Log sheets, graphs, and other appropriate reporting information shall be provided for other approved types of pipeline inspection equipment.

B. Electronic Inspection Reports (PACP/MACP Database Records)

1. Provide a NASSCO/PACP/MACP (version 7.0 or later) certified database listing all PACP/MACP/LACP required data fields for each pipe segment.
2. Provide one inspection record per mainline sewer segment and private service lateral. If the conditions of the pipe segment do not permit inspection of the entire asset from one direction, provide a second inspection record from the opposite end to the point the initial inspection was abandoned (reversals not required for private laterals).
3. Each inspection record shall contain the video file name associated with the inspection in the "tape/media number" PACP/MACP header field. Provide only the video file name and extension of this field. Do not provide file paths or drive letters.

C. Inspection Recordings:

1. Provide digital CCTV inspection recordings for all pipes. Manhole only inspections to be MACP Level 1 w/ Photos and Videos.
2. Recording shall be of a quality sufficient for the Owner to evaluate the condition of the sewer, locate the sewer service connections, and verify cleaning and joint testing. If the Owner determines that the quality is not sufficient, re-televiser the sewer segment and provide a new recording and report at no additional compensation. Payment for televised inspection will not be made until the Owner approves the recordings and reports.
 - a. Camera distortions, inadequate lighting, dirty lens, or blurred/hazy picture, disagreement between video/photos and inspection documents will be cause for rejection.
 - b. Pipe stationing not shown on the video or in a font style or color that is unreadable will be cause for rejection.
3. TV inspection recordings shall not be edited.
4. Digital recordings: Electronic recording file must allow snap scrolling to allow easy and quick access of the entire recording.
5. Digital Recording File Management:
 - a. Provide one electronic video file of each inspection. Multiple inspections per video file and multiple video files per inspection will be cause for rejection.
 - (1) File name format for mainline videos:
 - (a) [UpstreamStructureID]-[DownstreamStructureID]_[InspectionDirection]_[DATE] ;
 - (b) Where Date is hhmmmmddyyyy (hour, minute, month, day, year)
 - (2) The photo file name format shall be
 - (a) [Up streamStructureID]-DownstreamStructureID] _ [InspectionDirection] _ [DATE] _ [videofootage] _ [Sequence]
 - (b) Where Date is hhmmmmddyyyy (hour, minute, month, day, year)

SECTION 02956 – TELEVISION INSPECTION

- (c) Video footage is the footage of the snapshot
- (d) Sequence is the # of picture

6. As a minimum requirement each inspection must contain this information:
 - Contractor's Name and Contact Information
 - Crew lead, field supervisor
 - Owner's Name
 - Project Name
 - Contract Number
 - Inspection Type
 - Digital Video/photo Number
 - Date Inspected
 - Pipe Segment and/or Manhole Asset Identification Number on documents and videos/photos
 - NASSCO Compliant inspection data on documents and videos/photos, including the video/photo header
7. Manhole only inspections to be MACP Level 1 w/ Photos and Videos. Accomplished utilizing equipment that can be lowered into the manhole from the ground surface. The Contractor will be required to:
 1. Take a minimum of 5 photos pre and post of the surrounding area from above the rim of the manhole frame.
 2. Take a minimum of 10 high quality photos above and below the rim invert pre and post.
 3. Take an internal video of the manhole from rim to invert pre and post.
 4. Note visual observations and defects on the MACP Level 1 form.
8. The Contractor shall submit deliverables listed within the contract to the Owner in electronic format, either by external hard drive, ShareFile upload or as agreed by Owner. Pre and Post inspections shall be submitted as part of each invoice, and upon request. Name and submit all inspection items as follows:
 - a. Parent folder to be named by invoice number, example FY20 010. Each sub-folder to be named by Pipe Segment/Manhole Asset Identification Number (Asset ID) and it will contain all inspection and installation data for one pipe segment. Up to ten (10) pipe segments can be submitted within each invoice. Within each subfolder name inspection items by Asset ID and type of item, for example:
 - (1) 079-1-102-079-1-103 Pre CCTV
 - (2) 079-1-102-079-1-103 Post CCTV
 - (3) 079-1-102-079-1-103 Pre-Video
 - (4) 079-1-102-079-1-103 Post-Video

SECTION 02956 – TELEVISION INSPECTION

- b. Folders containing cumulative inspection data for the project shall be updated each month. Includes, inspection schedules, a cumulative PACP/MACP database as applicable, videos, photos and Inventory Tracking Log for every pipe in the scope.

Deliverable	Content	Media	Schedule
Inspection Logs	Inspection location, CCTV camera location within the sewer and each defect coded feature of the sewer	ShareFile Upload	Upon Completion of all inspection work.
Photographs	Captured still images from CCTV video recordings at points of significant inflow and infiltration or defects classified PACP coding 3 and above, as requested by the Owner. Images shall be cross-referenced to inspection logs by labeling directly on image. Photo will be taken every time an inspection is abandoned.	ShareFile Upload	Upon Completion of all inspection work.
Inspection Data	Visual and audio record of CCTV inspections (in MPEG-4 format), including inspection database (PACP compatible software in WinCan VX format)	ShareFile Upload	Upon Completion of all inspection work.
Red Lined Counter Maps	Field notes recording manholes not located, with request to locate manholes and manholes that could not be accessed (rusty shut), manholes found but not shown on drawings, etc.	ShareFile Upload	Weekly or two weeks in advance of the work.
Work Schedules	Scheduled work to be completed each week submitted one week in advance. Scheduled work from previous week that was not completed as planned, include explanation why work was not performed.	ShareFile Upload	Weekly

END OF SECTION

SECTION 02957 – SEWER MANHOLE REHABILITATION

PART 1 GENERAL

1.1 SCOPE OF WORK

- A. These Specifications include the minimum requirements for the rehabilitation of manholes as directed by the OWNER using cementitious coatings, polymer coatings, repair and replacement of manhole frame and covers including brick and grade ring transitions, rain pots underneath rim setting, chimney seals and chemical grouting. Manhole rehabilitation types will include:
1. Manhole Structural Repair- repair, rebuild existing structure and restore manhole components. Grouting to stop leaks but no coatings.
 2. Manhole Grouting only.
 3. Manhole Cementous coating overtop of existing manhole.
 4. Manhole Cementous and Polymer coating overtop of existing manhole.
 5. Manhole Structural Repair and grouting to stop leaks with Manhole Cementous coating or Cementous and Polymer coating overtop of existing manhole.
- Note: Manhole internal and external chimney seals and/or expansion band joint seals may be used in combination with rehabilitation types 1-5.*
- B. Related Work Specified in Other Sections Include, but is not limited to, the following:
1. [Section 01025](#), Measurement and Payment
 2. [Section 01300](#), Submittals
 3. [Section 02640](#), Technical Provisions for Inspection and Rehabilitation
 4. [Section 02650](#), Sanitary Sewer Line Cleaning
 5. [Section 02651](#), Sanitary Sewer Overflow Response
 6. [Section 02956](#), Television Inspection
 7. [Section 02959](#), Sewer Sealing by Chemical Grout
 8. [Section 02960](#), Temporary Bypass Pumping Systems
- C. The rehabilitation of manholes shall be accomplished by the application or installation of rehabilitation components either individually or together. These may include grouts, protective coatings, a variety of linings, inserts, seals and mechanical devices that, when installed, shall protect the manhole structure, seal it from Inflow & Infiltration (I & I), rebuild it structurally (if needed) and provide chemical resistance for the length of time specified. The Contractor is responsible for the accurate and complete installation, and warranty of each manhole Rehabilitation Component System (SYSTEM) specified by the Owner.
- D. The SYSTEM for each manhole, shall at a minimum, include I&I control (through grout injection or approved equal), structural protection (through calcium aluminate cementitious products or approved equal) and/or corrosion protection (through polymer coating system or approved equal). The unit prices in Attachment C - Cost Proposal shall include all costs per to provide the minimum SYSTEM.

SECTION 02957 – SEWER MANHOLE REHABILITATION

- E. The manhole SYSTEM's installed shall cause no adverse effects to any of the Owner's processes or facilities either during or after application. The use of the product, by the Contractor, shall not result in the formation or production of any detrimental compounds or by-products at the wastewater treatment plant. The Contractor shall notify the Owner and identify any by-products produced as a result of the installation operations, test and monitor the levels, and comply with any and all local waste discharge requirements. The Contractor shall cleanup, restore existing surface conditions and structures, and repair any of the manhole SYSTEM's installed and determined to be defective. The Contractor shall conduct installation operations and schedule cleanup in a manner to cause the least possible obstruction and inconvenience to traffic, pedestrians, businesses, and property owners or tenants.
- F. The prices submitted by the Contractor, shall include all costs of permits, labor, equipment and materials for the various items necessary for furnishing and applying, complete in place, manhole SYSTEM's, in accordance with these specifications. All items of work not specifically mentioned herein which are required to make the product perform as intended and deliver the final product as specified herein shall be included in the respective lump sum and unit prices in Attachment C- Cost Proposal. These Specifications include the minimum requirements for the rehabilitation of manholes defined herein as part of these contract documents.

1.2 DESCRIPTION OF WORK AND PRODUCT DELIVERY

- A. The work on this contract requires the Contractor to furnish, install and test, a variety of products to rehabilitate manholes using various SYSTEM's. The Contractor shall deliver a finished product(s) including all materials, labor, equipment, and services necessary for traffic control, bypass pumping and/or diversion of sewage flows, cleaning equipment, product installation, all quality controls and samples for performance of required material tests, test results, final inspection and warranty work, all as specified in these contract documents. All costs to furnish, install and test all SYSTEM's shall be included in the unit rates in Attachment C- Cost Proposal.
- B. The SYSTEM's furnished shall be complete integrated and compatible systems including all materials, manufacturer's recommended equipment and manufacturer's installation procedures. The SYSTEM manufacturer may submit to the Owner, all required product information during the SYSTEM approval process. The Owner will review the information and respond to the Contractor, who will be responsible for transmitting the result of the review to the manufacturer. All communications regarding the submitted SYSTEM will be accomplished through the Contractor. The review process shall not create any agreement or liability between the Owner and the manufacturer. Those SYSTEM's that have been pre-approved will not need to be re-submitted as required in the submittal section of these specifications unless any of the system components have changed from those pre-approved by the Owner. All other component products will be required to meet the submittal requirements as contained within the contract documents.
- C. The SYSTEM's installed shall be free of all defects that will affect the design and service life and operation of the manhole.
- D. The SYSTEM installed shall eliminate water leakage into the manhole and prevent water or vapors to leak out of the manhole through pin-holes or other defects. If leakage occurs either in or out of the manhole the Contractor shall seal these areas to stop all leakage using a material compatible with the SYSTEM applied and as specified by the manufacturer. If leakage occurs through any SYSTEM applied to the manhole, the SYSTEM shall be repaired or removed as

SECTION 02957 – SEWER MANHOLE REHABILITATION

recommended by the manufacturer. All repair materials shall have the same estimated life expectancy than the SYSTEM installed. Final approval of the SYSTEM installation will be based on meeting the acceptance test requirements for each SYSTEM applied/installed.

- E. The SYSTEM (applied to the intended structure) shall be designed against corrosion and typical chemicals found in domestic sewage, unless otherwise specified in the detailed section of the contract documents. The Contractor/manufacturer of the SYSTEM shall provide testing data that supports their SYSTEM's design and service life.
- F. SYSTEM'S may be designed to rehabilitate the existing manhole against corrosion, I&I structural build-back, or a combination of the three.
 - 1. A manhole is specified to be structurally replaced, being able to sustain all earth, hydrostatic and dynamic loading without support by the existing structure.
 - 2. A manhole is specified to be structurally rebuilt, with build-back materials, or rehabilitated to sustain hydrostatic loading by groundwater.
 - 3. A manhole is specified to receive a corrosion protective coating sufficiently thick to totally protect the existing host structure from further corrosion, deterioration and water vapor transmission.
 - 4. A manhole is specified to receive a coating to renew mortar or other deteriorated components of a manhole but has no specified longevity or corrosion resistance requirement. The manufacture's third-party testing will be acceptable for application suitability.
 - 5. A manhole is specified to receive patch repair materials for portions of the manhole. The manufacture's third-party testing will be acceptable for application suitability.
- G. All manhole steps shall be replaced after coating or lining application.
- H. Flow from existing active service connections entering the manhole shall be maintained or bypassed if the flow will affect proper SYSTEM application/installation.
- I. All component materials furnished, as part of this contract shall be marked with detailed product information, stored in a manner specified by the manufacturer and tested to the requirements of this contract.
- J. Testing shall be executed by the contractor in the presence of the owner. Warranty inspections shall be executed by the Owner or its representative. Any defects found shall be repaired or replaced by the Contractor.
- K. The Contractor shall furnish, from the project installation, all samples for product testing. The Contractor shall be responsible for testing and maintaining the chain of custody, delivery of the samples to an Owner approved independent laboratory and paying for all material and product testing performed under this contract. Prior to testing the Contractor shall submit to the Owner for approval, the name and location of the independent testing laboratory with a certified statement from the laboratory indicating they are independent from and not associated with the Contractor in any way.
- L. Compensation for all work required for testing and providing test results to the Owner shall be included in the rates given in Attachment C- Cost Proposal and in accordance with [Section 01025, Measurement and Payment](#) and the contract documents. No separate payment will be made.

SECTION 02957 – SEWER MANHOLE REHABILITATION

1.3 SCOPE OF WORK INCLUDED

- A. A detailed description of each SYSTEM included in the contract, complete with estimated quantities.

1.4 PERFORMANCE WORK STATEMENT (PWS) SUBMITTAL

- A. The Contractor shall submit, to the Owner, a Performance Work Statement (PWS) prior to the start of work, which clearly defines various manhole SYSTEM's proposed for delivery in conformance with the requirements of these contract documents.
- B. For all manholes, structural defects and adjustments to grade shall be accomplished prior to the installation of a coating system as recommended by the Manufacturer. Two main classes of SYSTEM's to be used for Rehabilitation include structure Repair SYSTEM's and Coating SYSTEM's. They will be used in combination to rehabilitate manholes within the sewer system. The PWS shall at a minimum contain the following:
1. Clearly indicate that the SYSTEM will conform to the project requirements as outlined in the Description of Work, Scope of Work Included and as further delineated in these contract documents.
 2. The manufacturer's description of the SYSTEM materials are to be furnished for the project. Material descriptions shall be sufficiently detailed in the submittals to verify conformance to these specifications and/or shall conform to the pre-approved SYSTEM submission.
 3. The Contractor's experience for each type of rehabilitation component shall be as more specifically delineated in the detailed specifications. The name and experience of each lead individual performing work on this contract with certifications, for each component, shall be submitted with the PWS. If personnel are substituted after submittal of the PWS, the name and experience of the individual shall be submitted to the Owner for approval before starting any work.
 4. Information on the SYSTEM and all tools and equipment required for a complete application/installation, shall be submitted. The PWS shall identify which tools and equipment will be redundant on the job site in the event of equipment breakdown. The Contractor shall outline the mitigation procedure to be implemented in the event of key equipment failure during the installation process.
 5. A detailed description of the Contractor's proposed procedures for cleaning and preparing the manhole structure, prior to applying/installing the SYSTEM shall be submitted as part of the PWS. The Contractor will describe in detail what substrate testing will be performed by the contractor to verify acceptability of the SYSTEM material to be applied.

SECTION 02957 – SEWER MANHOLE REHABILITATION

1.5 SUBMITTALS

- A. Product data submittals required for all rehabilitation SYSTEM's proposed for installation under this contract shall include:
1. SYSTEM material type and manufacturer to be used including catalog data sheets, ASTM references, material composition, manufacturers recommended specifications, component physical properties and chemical resistance. (PWS)
 2. Manufacturer's detailed description of the recommended procedures for handling and storing materials including a proposed method for monitoring temperatures of the storage location, if applicable to the specific SYSTEM material. (PWS)
 3. Manufacturers detailed description of the recommended material installation/application process including mixing, additives, set time, cure time (return to service) and all equipment required for quality product delivery. (PWS)
 4. Technical data sheet describing each rehabilitation component to be applied/installed, stating the expected longevity of the component in a wastewater environment. Data shall be based on independent third-party tests. (PWS)
 5. Manufacturer's detailed description of all required field-testing processes and procedures. (PWS)
 6. Copies of independent testing performed on the rehabilitation component, indicating that the product meets the requirements as specified in these contract documents and the manufacturers design. (PWS)
 7. Technical data sheet and project specific data for manhole repair materials to be used in conjunction with each rehabilitation component(s) including application cure time and surface preparation procedures. (PWS)
 8. Certification that backup installation equipment is available on the job site or can be delivered to the job site by the morning of the next business day. (PWS)
 9. Shipping information including: (Jobsite)
 - a. Shipped item, including manufacturer, stock and lot number
 - b. Date shipped including origination and delivery locations
 - c. Shipping method and carrier
 - d. All shipping, storage and safety requirements including MSDS documents.
 - e. Date delivered to project site including name and signature of receiver
 10. By-Pass Pumping Plan if applicable to the SYSTEM's being installed. (PWS)
 11. Traffic Control plan, if applicable for the SYSTEM's being installed.
 12. Certified statement, from the manufacturer, that the contractor/installer is an approved installer of the SYSTEM with certificates of completed training for each crew member involved in each rehabilitation component. This requirement shall comply with the specific SYSTEM requirements specified in the contract documents. (PWS)

SECTION 02957 – SEWER MANHOLE REHABILITATION

13. For each manhole rehabilitation, a complete and accurate record of all SYSTEM's installed/applied shall be prepared by the Contractor. The record shall include identifying manhole number, location, quantities of rehabilitation components installed.
 14. Submittal of all quality assurance documentation and test reports for SYSTEM's installed. (After Rehabilitation Completion)
 15. The Contractor shall provide testing and test results for all products furnished and installed on this contract in accordance with All ASTM standards and referenced requirements as stated herein.
- B. Manhole Rehabilitation SYSTEM's to furnish and install include:
1. Manhole Grouting and I/I control
 2. Cementitious Coatings
 3. Polymer Coatings
 4. Manhole frame and cover replacement
 5. Manhole rain pot insert under frame and cover
 6. Manhole top adjustment to grade with grade rings or brick
 7. Manhole steps, remove and replace
 8. Manhole bench and channel replacement
 9. Manhole bench and channel repair
 10. Internal and external chimney seals
 11. Expansion band joint seals
- C. All work to be in conformance with the Fairfax County Public Facility Manual (PFM)
- D. Compensation for all work required to furnish and install each SYSTEM shall be paid at the rates given in Attachment C - Cost Proposal and in accordance with [Section 01025. Measurement and Payment](#), and the contract documents
- 1.6 QUALITY CONTROL PLAN (QCP)
- A. A detailed quality control plan (QCP) shall be submitted to the Owner, prior to the start of work that fully represents and conforms to the quality control requirements of these specifications. The QCP shall be submitted prior to the initiation of the contract and resubmitted at each contract renewal. At a minimum the QCP shall include the following:
1. A detailed description of the proposed quality controls to be performed by the Contractor.
 2. Defined responsibilities, of each of the Contractor's personnel, for assuring that all quality control requirements, for this contract, are met. These shall be assigned, by the Contractor, to his specific personnel.
 3. Proposed procedures for quality control, product sampling and testing shall be defined.

SECTION 02957 – SEWER MANHOLE REHABILITATION

4. Proposed methods for product performance controls, including method of and frequency of product sampling and testing both in raw material form and cured product form as applicable.
5. A scheduled review of Contractor performance and product test results. Meeting to be held with the Contractor and acceptable to the Owner, at a scheduled time and location as agreed.
6. Inspection forms and guidelines for quality control inspections shall be prepared in accordance with the standards specified in this contract and submitted with the QCP.
7. Proposed methods and procedures for SYSTEM repair or replacement, (as defined in Section 1.7) in the event of product defects or total failure.

1.7 SYSTEM REPAIR/REPLACEMENT

- A. Due to mechanical damage or defects in application, SYSTEM's will occasionally need to be repaired or a portion of the installed product replaced. The Manufacturer shall outline specific repair or replacement procedures for potential issues that may occur during the application of any SYSTEM. Repair/replacement procedures shall be as recommended by the SYSTEM Manufacturer and shall be submitted as part of the PWS.
- B. Issues, that may not affect the operation and long-term life of the product, shall be identified and defined by the Manufacturer.
- C. Repairable issues that may occur in the SYSTEM shall be specifically based on Manufacturer's recommendations, including a detailed step-by-step repair procedure, resulting in a finished product meeting the estimated life cycle of the component and requirements of these contract specifications.
- D. Un-repairable issues that may occur in the SYSTEM shall be clearly defined based on the Manufacturer's recommendations. The Contractor together with the manufacturer shall define the best recommended procedure for the total removal and replacement of the SYSTEM.
- E. The Contractor shall receive no additional compensation for the repair or replacement of any SYSTEM's deemed non-conforming to the requirements of these contract documents and unacceptable by the Owner.

1.8 REFERENCES

- A. ASTM and other applicable standard documents, that are listed in the detailed specifications, are made a part of these specifications by reference to the extent stated herein and shall be the latest edition thereof. Where there are differences between codes, standards and these specifications, these specifications shall govern.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Rehabilitation component materials are to be kept dry, protected from weather and stored under cover and in accordance with manufacturer's recommendations.

SECTION 02957 – SEWER MANHOLE REHABILITATION

- B. Polymer and Cementitious protective coating materials are to be stored at temperatures as recommended by the manufacturer and handled according to their material safety data sheets. Do not store near flame, heat or strong oxidants.
- C. All Safety Data Sheets (SDSs) for all materials to be furnished for products used.

1.10 SAFETY

- A. The Contractor shall conform to all work safety requirements of pertinent regulatory agencies and shall secure the site for working conditions in compliance with the same. The Contractor shall erect such signs and other devices as are necessary for the safety of the work site.
- B. The Contractor shall perform all of the Work in accordance with applicable OSHA safety standards. Emphasis shall be placed upon the requirements for entering confined spaces and with the equipment being utilized for manhole rehabilitation components. Confined space, defined as any space having one or more of the following characteristics:
 - 1. Limited openings for entry and exit.
 - 2. Unfavorable natural ventilation.
 - 3. Not designed for continuous worker occupancy.
- C. The Contractor shall have on the job site at all times at a minimum the following safety equipment:
 - 1. Gas monitor capable of testing and detecting for combustible gas, oxygen deficiency and hydrogen sulfide.
 - 2. Confined space access and retrieval winch system.
 - 3. Ventilating fans with large diameter ventilating hose.
 - 4. Supplied air respirator, MSHA/NIOSH approved type.
 - 5. Safety harness and life lines.
 - 6. Other equipment as may be required for a specific project
 - 7. All equipment to be available for use, in sufficient quantity, by the Contractor, Engineer and Owner for the duration of the project.
- D. All entries into or work within confined spaces shall be conducted in accordance with the U.S. Department of Health and Human Services/National Institute for Occupational Safety and Health [DHHS (NIOSH)] Publication No. 87-113, A Guide to Safety in Confined Spaces.
- E. The Contractor shall submit a proposed Safety Plan to the Owner, as part of the PWS and prior to beginning any work, identifying all competent persons, equipment and operating procedures. The plan shall include a description of a daily safety program and daily safety meeting for the job site and all emergency procedures to be implemented in the event of a safety incident. All work shall be conducted in accordance with the Contractor's submitted Safety Plan.

SECTION 02957 – SEWER MANHOLE REHABILITATION

1.11 WARRANTY

- A. The materials used for the project shall be certified by the manufacturer for the specified purpose. The manufacturer shall warrant any SYSTEM to be free from defects in raw materials for five (5) years after installation or from the date of acceptance by the Owner, or in accordance with the manufacturer recommendation, whichever is later. The Owner considers a warranty with a longer time frame to be more valuable when cost is in line with other products offering only a Five-year warranty. The Contractor shall warrant the installation of the rehabilitation component for the duration of the Warranty. During the warranty period if the rehabilitation component, fails, delaminates, peels or shows any defect, which may materially affect the integrity, strength, function and/or operation of the manhole structure, it shall be immediately repaired at the Contractor's expense in accordance with procedures included in Section 1.7 Rehabilitation Component Repair/Replacement.
- B. After a manhole has been renewed and for the term of the warranty and final acceptance of the work, the Owner may inspect all or portions of the renewed manholes. The specific locations will be selected at random by the Owner and will include all types of structures rehabilitated under this contract.
- C. If any of the rehabilitation components have developed defects since the time of Quality Assurance and Testing, the defects shall be repaired and/or the component shall be replaced as defined in Section 1.7 Rehabilitation Component System (SYSTEM) Repair/Replacement. Owner may inspect all manholes where SYSTEM's have been applied/installed under this contract.
- D. All verified defects shall be repaired and/or replaced by the Contractor and shall be performed in accordance with Section 1.7 Rehabilitation Component System Repair/Replacement and per the original specifications, all at no additional cost to the Owner.

1.12 WARRANTY INSPECTIONS

- A. Visual inspection to determine integrity of SYSTEM materials, water-tightness and workmanship will be conducted within 6 months of installation and again before the expiration of the guarantee period.
- B. If possible, inspection should be performed in the spring during high groundwater and frequent rainfall events.
- C. The Owner shall perform, at its own cost, warranty inspections with its own personnel or personnel independent of the installation contractor.
- D. Ten (10) percent of manholes rehabilitated shall be inspected, at locations randomly selected, by the Owner.
- E. No infiltration or inflow shall be visible in the renewed manhole.
- F. If any SYSTEM fails the warranty inspection, the Owner shall inspect all SYSTEM's installed in the contract, together with Contractor.
- G. The Contractor will correct any SYSTEM that fails the Warranty inspection as directed and to the satisfaction of the Owner.

SECTION 02957 – SEWER MANHOLE REHABILITATION

PART 2 PRODUCTS

2.1 REHABILITATION COMPONENT SYSTEM PRODUCTS

- A. The SYSTEM'S defined herein include those identified as commercially accepted methods for manhole rehabilitation. Methods or products not defined herein must be pre-approved by the Owner before use on this project under these specifications.
- B. All products shall conformance to the requirements of the Fairfax County Public Facility Manual (PFM), references ASTM and requirements herein.
- C. Each manhole system shall include required structural repairs and adjustments to grade, and Chemical Grouts for I&I control. Repairs shall be completed prior to installation of Cementitious manhole restoration and Polymer (Epoxy, Polyurethane or Polyurea Coatings). The Owner will direct which manholes will receive repairs only and which ones will be repaired and coated with Cementitious or Cementitious/Polymer materials.

2.2 CHEMICAL GROUTS

A. REFERENCES

- 1. ASTM F2414-03 Standard Practice for Sealing Sewer Manholes Using Chemical Grouting

B. CHEMICALGROUT TYPES

- 1. The Contractor shall specifically define the type of chemical grout that will be furnished for the project. Depending on the specific application either Acrylic or Acrylate Based Grout or Urethane Based Grout shall be furnished. The type of grout to be used shall be in accordance with the manufacturer's recommendation for the specific application within the County.
- 2. Contractor shall deliver materials to job site in undamaged, unopened containers bearing manufacturer's original labels. Materials used as chemical grout shall be transported, stored, mixed and applied in manner prescribed by the manufacturer of the specified materials, as detailed in published data provided by manufacturer.

C. MATERIALS

- 1. Contractor shall provide a chemical sealant solution containing principal chemical sealant constituent, initiator (trigger) and catalyst specifically recommended for the purpose of sealing leaks in manholes. Chemical sealant constituent, initiator (trigger) and catalyst shall be compatible when mixed. Solution shall have ability to tolerate dilution and react in moving water. After final reaction, it shall be a stiff, impermeable, yet flexible gel. The grout proportions shall be such that dilute aqueous solutions, when properly catalyzed will form stiff gels. Materials provided shall gel in a predetermined time period when exposed to normal groundwater pH ranges and be capable of formula adjustments to compensate for changing conditions. Final reaction shall produce a continuous, irreversible, impermeable stiff Gel and shall not be rigid or brittle.

SECTION 02957 – SEWER MANHOLE REHABILITATION

2. The grout shall exhibit the following properties:
 - a. Controllable reaction times and shrinkage through the use of chemicals supplied by the same manufacturer. The minimum set time shall be established so that adequate grout travel is achieved.
 - b. Resistance to chemicals, to most organic solvents, mild acids and alkali.
 - c. The grout shall be non-toxic in its cured form.
 - d. Sealing material shall not become rigid or brittle when subjected to a dry environment. The material shall be able to withstand freeze/thaw and moving load conditions as verified by third party testing.
3. The Contractor shall identify the type of grout and additives used on the contract and furnish references of successful use in similar applications. The Contractor shall select the choice of materials based on chemical and physical properties and expected performance for the requirements of the contract documents.
4. Grout conditions may be adjusted for catalyzing the reaction, inhibiting the reaction, lowering the freezing temperature the grout solution, adding fillers, providing strength or for inhibiting root growth according to the instructions of the grout manufacturer and in the specified quantities as recommended by the grout manufacturer.

D. MIXING & HANDLING

1. Mixing and handling of chemical grout, which may be toxic under certain conditions, shall be done in such a manner as to minimize any hazard to personnel and the public in accordance with the manufacturer's recommendations. It is the responsibility of the Contractor to provide appropriate protective measures to ensure that chemicals are handled only by trained and authorized personnel. All equipment used to install the grout shall be as recommended by the manufacturer and only personnel thoroughly familiar with all aspects of the grouting material and meeting the qualification requirements specified herein, shall perform the actual grouting operation.

2.3 CEMENTITIOUS MANHOLE RESTORATION

A. REFERENCES

1. ASTM F2551 Standard Practice for Installing a Protective Cementitious Liner System in Sanitary Sewer Manholes
2. ASTM C150 Standard Specification for Portland Cement Type I
3. ASTM C33-86 Standard Specification for Concrete Aggregates
4. ASTM C78 Standard Test Method for Flexural Strength of Concrete; Using Simple Beam with Third Point Loading
5. ASTM C109/C109M-05 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)
6. ASTM C157/C157M-06 Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete

SECTION 02957 – SEWER MANHOLE REHABILITATION

7. ASTM C267 Test Methods for Chemical Resistance of Mortars, Grouts and Monolithic Surfacing and Polymer Concretes
8. ASTM C293-02 Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Center-Point Loading)
9. ASTM C309 Specification for Liquid Membrane-Forming Compounds for Curing Concrete
10. ASTM C321-00(2005) Standard Test Method for Bond Strength of Chemical-Resistant Mortars
11. ASTM C348-02 Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars
12. ASTM C494-86 Standard Specification for Chemical Admixtures for Concrete
13. ASTM C496/C496M-04e1 Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens
14. ASTM C666/C666M-03 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
15. ASTM C882-05 Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete by Slant Shear
16. ASTM- Referenced within the contract and/or considered applicable to products being offered, as normally being submitted as an industry standard. Any product submitted without proper ASTM references will be rejected for use.

B. GENERAL

1. For each manhole provide field assessment to determine proper SYSTEMS of rehabilitation for use. Prior to cementitious restoration complete structural repairs and adjust manhole to grade in accordance with all regulations, laws and jurisdictional requirements. All work to be completed in accordance with the Fairfax County Public Facility Manual (PFM) and referenced documents therein.
2. When Owner directed, the Contractor shall provide a cementitious restoration material designed for structural build-back, I&I abatement, corrosion resistance, and repairing inverts to design requirements. All materials applied to a structure shall be compatible, as specified by the manufacturer.

C. MANHOLE REPAIR MATERIALS

1. Infiltration Control – Cementitious Material
 - a. All fast setting materials furnished shall be designed specifically for leak control, to be applied in dry powder form, with no prior mixing of water, directly to active leaks under hydrostatic pressure in manholes or related structures, in accordance with the manufacturer's recommendations.
2. Infiltration Control - Oakum Water Plugs
 - a. Rapid setting, oil free oakum and hydrophilic grout to seal active water leaks prior to applying other SYSTEM's
 - b. Oil-free oakum meeting Federal Specification HH-P-117
 - c. Two-part urethane resin.

SECTION 02957 – SEWER MANHOLE REHABILITATION

3. Invert Repair and Patching
 - a. All material furnished, by the Contractor, shall be designed to fill large voids in manhole walls and to repair or reconstruct inverts where no hydrostatic pressure exists. Material shall consist of rapid setting cements, mono-crystalline quartz aggregates, and various accelerating agents. Material shall not contain chlorides or metallic particles and shall be applied in accordance with the manufacturer's recommendations.
 - b. Repair and Patching Materials shall have its bond strength tested to substrate failure according to ASTM C952 and be compatible with all other material components applied to the manhole.
4. Manhole Adjustment to Grade- Brick, grade rings, motor, rain pot, frame and cover.
 - a. New frame and cover will be provided by the Owner if replaced, allow 30 days for delivery and pickup at County properties as directed at no additional cost to the Owner.
 - b. Follow requirements for Invert Repair and Patching
 - c. All materials furnished to comply with ASTM standards and PFM
5. Grouting mix:
 - a. For stopping severe infiltration, the Contractor shall provide a polymer solution that reacts freely with water to form a strong film, gel, or foam of polyurethane. See specification section 2.2 Grouts.
6. Cementitious Coating Restoration Materials for manhole walls, channels, corbels, chimneys and benches. The Contractor shall install cementitious restoration materials that shall be specifically designed for the rehabilitation of manholes and other related wastewater structures. Liner materials shall be cement based, poly-fiber reinforced, shrinkage compensated, and enhanced with chemical admixtures and siliceous aggregates. Liner materials shall be mixed with water per manufacturer's written specifications and applied using equipment specifically designed for, troweling, low-pressure spray or centrifugal spin casting application. All cementitious liners shall be troweled to densify and smooth out the surfaces.

2.4 POLYMER SYSTEMS (EPOXY, POLYURETHANE, POLYUREA COATINGS)

A. REFERENCES

1. ASTM D543 - Resistance of Plastics to Chemical Reagents.
2. ASTM D638 - Tensile Properties of Plastics.
3. ASTM D695 - Compressive Properties of Rigid Plastics.
4. ASTM D790 - Flexural Properties of Unreinforced and Reinforced Plastics.
5. ASTM D2240 - Standard Test Method for Rubber Property—Durometer Hardness
6. ASTM D4060 - Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abrader

SECTION 02957 – SEWER MANHOLE REHABILITATION

7. ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages
8. ASTM D7234 - Pull-off Strength of Coatings Using a Portable Adhesion Tester.
9. SSPC SP-13/NACE No. 6 – Surface Preparation of Concrete
10. NACE SP0188 - For performing holiday detection
11. CIGMAT - Evaluation of Liner System for Wastewater Concrete and Clay Brick Facilities
12. ASTM G210 - Severe Wastewater Analysis Test

B. GENERAL

1. For each manhole provide field assessment to determine proper SYSTEM of rehabilitation for use. Prior to restoration complete other repairs as needed in accordance with all regulations, laws and jurisdictional requirements. All work to be completed in accordance with the Fairfax County Public Facility Manual (PFM) and referenced documents therein.
2. All materials applied to a structure shall be compatible, as specified by the manufacturer.

C. EXISTING SUBSTRATE PREPARATION

1. Standard Portland cement or new concrete (not quick setting high strength cement) must cure a minimum of 28 days prior to application of the coating product(s).
2. Remove existing coatings prior to application of the SYSTEM which may affect the performance and adhesion of the SYSTEM.
3. Thoroughly clean, removing all laitance and prepare existing products to effect a mechanical bond with the SYSTEM.
4. Manufacturer shall recommend specific methods for surface preparation.

D. REPAIR AND RESURFACING PRODUCTS

1. Repair products shall be used to fill voids, bug holes, and/or smooth transitions between components prior to the installation of the SYSTEM. Repair materials must be properly cured and must be compatible with the SYSTEM and shall be used and applied in accordance with the manufacturer's recommended requirements.
2. Resurfacing products shall be used to fill large voids, lost mortar in masonry structures, smooth deteriorated surfaces and to rebuild severely deteriorated structures.
3. The following products may be accepted and approved as compatible repair and resurfacing products for use within the specifications:
 - a. 100% solids, solvent-free polymer grout specifically formulated for epoxy polymer top coating compatibility.
 - b. Factory blended, rapid setting, high early strength, fiber reinforced, non-shrink repair mortar that can be troweled or pneumatically spray applied maybe approved if specifically formulated to be suitable for polymer top coating with the specified

SECTION 02957 – SEWER MANHOLE REHABILITATION

polymer product. The length of resurfacing material cure required before polymer top-coating, shall be as recommended by the manufacturer.

- c. All repair and resurfacing materials should be properly cured and prepared for surface top-coat application.

E. SYSTEM APPLICATION

1. Polymer System manufacturer shall provide System application procedures and requirements.
2. Manufacturer recommended and approved application equipment.
3. Hard to reach areas, primer application and touch-up may be performed using hand tools.

2.5 MANHOLE STRUCTURAL REPAIR ONLY

- A. All other manhole repair and rehabilitation products shall meet appropriate ASTM requirements and industry standards as approved by the Owner.
 1. Submit all product material technical specifications, installation procedures and manufactures recommendations on warranty and measures for correcting defective work for approval by the Owner. Payment for all manhole work shall be at the rates listed in Attachment C - Cost Proposal and in accordance with [Section 01025, Measurement and Payment](#). All other costs are considered as incidental and should be included in the unit rates given in Attachment C - Cost Proposal.

PART 3 EXECUTION

3.1 GENERAL

- A. Maintain all flow in the manhole throughout duration of project.
- B. Schedule, plan and report work following [Section 02640, Technical Provisions for Inspection and Rehabilitation](#).
 1. Submit a weekly schedule for proposed work and work completed the prior week.
 2. Provide public and County/Owner notification in advance of the work.
- C. Contractor Experience
 1. Submit to Owner current documentation, from the SYSTEM product manufacturer, certifying that the Contractor's training, the Contractor's personnel and equipment comply completely with their product Quality Assurance requirements.
 2. For a manhole coating or lining product to be considered for this project, a minimum of 1000 vertical feet of documented manhole rehabilitation must have been completed by the Contractor in the previous three (3) year period.
 3. For all SYSTEM products, to be considered for this project, a minimum of a three (3) year successful installation history must be documented.

SECTION 02957 – SEWER MANHOLE REHABILITATION

4. In all cases a minimum of five (5) recent verifiable references of the Contractor's work is required, indicating the successful application of the SYSTEM products of the same material type as specified herein or to be furnished by the Contractor and applied in a similar project environment as included in these contract specifications.

D. MANHOLE PREPARATION

1. Bypass Pump sewage, in the manhole, as required following [Section 02960, Temporary Bypass Pumping Systems](#).
2. Clean interior surfaces of manhole of debris, dirt, oil, grease, remains of old coating materials, and any other extraneous materials following [Section 02650, Sanitary Sewer Line Cleaning](#).
3. Pressure wash manhole walls to remove loose mortar, concrete and debris. Pressure washing levels, used for cleaning, shall be as recommended by the manufacturer.
4. Repair irregularities in manhole using materials, compatible with proposed resurfacing material, as recommended by the manufacturer.
5. Repair leakage in manhole using materials, compatible with proposed resurfacing material, specified in these contract specifications.
6. Trim and grout incoming laterals and pipes as required and/or specified.
7. Remove debris from manhole and incoming sewer connections.
 - a. Handle cleaning water to prevent water and residue from causing damage.
 - b. Do not discharge debris downstream through the sanitary sewer system.
 - c. Filter solids-laden water through a de-silting device.
 - d. Properly dispose of debris and residue from cleaning and other construction operations in a manner satisfactory to Owner and authority having jurisdiction over area where work site is located.

3.2 CHEMICAL GROUT

A. GENERAL

1. Grouting should only be performed on a structurally sound manhole unless the grout is used to prevent water from entering the manhole during application of a lining or coating system. All structural repairs, adjustments to the frame and cover and installation of grade rings, brick or other materials shall be completed prior to beginning the grouting operation. Normal grouting operations shall be performed at the temperatures as recommended by the manufacturer.

B. CHEMICAL GROUTING APPLICATION

1. Grouting applications may include sealing a manhole from infiltration/Inflow prior to application of a coating or lining or other structural rehabilitation component or using the grout for sealing the entire manhole structure. If the entire manhole is to be sealed,

SECTION 02957 – SEWER MANHOLE REHABILITATION

grouting shall include corbel, wall, pipe seals, bench and invert as recommended by the manufacturer of the grouting material.

C. DRILLING AND GROUT INJECTION

1. Drilling grout injection holes in the manhole in strategic locations to re-direct flow coming through cracks and other defects in the wall, or to seal the entire exterior surface of the manhole, shall be in accordance with the recommendations of the grout manufacturer.
2. Grout shall be injected through the drilled holes using the recommended probe and applying pressures that will effectively inject the grout but, not cause damage to the manhole structure or the surrounding area.
3. Grout typically, shall be injected through the lowest holes first, working the grout higher until the manhole is externally sealed with grout. Additional holes may be required to verify that the grout has encompassed the entire outside of the manhole.
4. The injection holes shall be cleaned and patched as recommended by the manufacturer.

D. TESTING AND ACCEPTANCE

1. Visual inspection – all leakage into the manhole must be eliminated.
2. All ASTM testing and standards meet product requirements.
3. All Manhole inspections shall be NASSCO level I MACP compliant. Perform inspection before (Pre) and after work (Final) is completed following [Section 02956, Television Inspection](#). Final inspection to meet contract requirements for acceptance.

3.3 CEMENTITIOUS RESTORATION

A. GENERAL

1. Before starting any patch, work or liner application install a perforated device, catch bucket, or other straining device to prevent construction debris from entering downstream pipes.
2. Provide all materials, labor, equipment, etc. required to perform the work as recommended by the manufacturer and as required by the contract documents.
3. Inspect each manhole to determine methods of stopping leaks and applying patch repairs.
4. Promptly inform Owner of errors or discrepancies between the contract documents and the field conditions found. When possible, the Contractor will provide video inspections and/or photos to the Owner for review with a recommendation on how to proceed with the work. The Owner may direct the Contractor to not attempt installation. The Owner may also elect to resolve issues preventing the work from proceeding and reissue the work to Contractor at a later date for completion. The Owner may also elect to replace or otherwise perform the work themselves without any involvement or payment to the Contractor.

All costs to provide videos/photos, recommendations and other associated costs are incidental to this contract. The Contractor will not be compensated for work that is not

SECTION 02957 – SEWER MANHOLE REHABILITATION

completed, including making the determination the work cannot be installed due to the existing condition of the pipe or manhole. Payment will only be made for the work completed in accordance with the unit rates listed in Attachment C - Cost Proposal.

5. Install all products in accordance with manufacturer's instructions regarding surface preparation, product application and curing.
6. Confirm that all material to be used, for the rehabilitation of the manhole are compatible with each other. Do not use any materials that have not been verified for compatibility.

B. SEALING ACTIVE LEAKS

1. The work consists of hand applying a dry quick-setting cementitious mix designed to instantly stop running water or seepage in all types of concrete and masonry structures. The applicator shall apply material in accordance with manufacturer's recommendations in accordance with the following minimum specifications.
 - a. The area to be repaired must be clean and free of all debris per the guidelines set forth elsewhere in these specifications.
 - b. Once cleaned, prepare crack or hole by chipping out loose material to a minimum depth recommended.
 - c. As recommended by the manufacturer, place a generous amount of the dry quick-setting cementitious material to the active leak, with a smooth fast motion, maintaining external pressure for 30 seconds, repeat until leak is stopped.
 - d. Proper application should not require any special mixing of product or special curing requirements after application.
 - e. Use of Oil-free Oakum Water Plugs.
 - (1) Saturate oakum with resin following approved submittals.
 - (2) Use additives as required.
 - (3) Place and cure following manufacturer's recommendations.

C. INVERT REPAIR

1. The work consists of hand mixing and applying a rapid setting, high early strength, non-shrink patching material to fill all large voids and repair manhole channels prior to spray lining of the manhole. For invert repairs, flow must be temporarily restricted by inflatable or mechanical plugs prior to cleaning.
 - a. The area to be repaired must be cleaned and free of all debris.
 - b. Mix water shall be clean potable water and require no additives or admixtures for use with cementitious patching materials.
 - c. Cementitious material shall be mixed in a mortar tub or 5-gallon pail with water per manufacturer's specifications. Material should be mixed in small quantities, to avoid setting prior to placement in voids or channels.
 - d. Once mixed to proper consistency, the materials shall be applied to the invert or void areas by hand or trowel. In invert applications, care should be taken to not apply excessive material in the channel, which could restrict flow. Once applied, materials should be smoothed either by hand or trowel in order to facilitate flow.
 - e. Flows in channels shall be re-established when material has cured enough to withstand the flow as determined by the manufacturer.

SECTION 02957 – SEWER MANHOLE REHABILITATION

- D. APPLICATION OF CEMENTITIOUS MANHOLE LINER
1. The work consists of troweling, spray applying and/or centrifugally spin-casting a cementitious based liner to the inside of the existing manhole. The necessary equipment and application methods to apply the cementitious based liner materials shall be only as recommended and approved by the material manufacturer.
 2. Material shall be mixed with water in accordance with manufacturer's specifications. Once mixed to proper consistency, the materials shall be pumped via a rotor-stator style progressive cavity pump through a material plaster hose for delivery to the appropriate and / or selected application device. The equipment shall be as recommended by the manufacturer, matched for the material being applied.
 3. If a chimney seal is required in conjunction with the lining technology, the Contractor should contact the chimney seal manufacturer to determine the proper preparation required for effectively installing the chimney seal after the coating has been applied and cured.
- E. SPRAY APPLICATION OF THE CEMENTITIOUS MATERIAL.
1. All material shall be applied and finished, by the Contractor, using equipment specified by the manufacturer.
 - a. Material hose shall be coupled to a low-velocity spray application nozzle. Pumping of the material shall commence and the mortar shall be atomized by the introduction of air at the nozzle, creating a low-velocity spray pattern for material application.
 - b. Spraying shall be performed by starting at the manhole invert and progressing up the wall to the corbel and chimney areas.
 - c. Material shall be applied to a specified uniform minimum thickness as required by the manufacturer and as necessary for proper curing and application. Material shall be applied to the bench area in such a manner as to provide for proper drainage.
 - d. Material shall be troweled smooth to compact material into voids. A brush or broom finish may be applied when a top coating is desired.
- F. SPIN CASTING APPLICATION OF THE CEMENTITIOUS MATERIAL
1. All material shall be applied and finished by the Contractor using equipment specified by the manufacturer.
 - a. Material hose shall be coupled to a high-speed rotating applicator device. The rotating casting applicator shall then be positioned within the center of the manhole at either the top of the manhole chimney or the lowest point elevation corresponding to the junction of the manhole bench and walls.
 - b. The high-speed rotating applicator shall then be initialized and pumping of the material shall commence. As the mortar begins to be centrifugally cast evenly around the interior of the manhole, the rotating applicator head shall be raised and / or lowered at a controlled retrieval speed conducive to providing a uniform material thickness on the manhole walls.

SECTION 02957 – SEWER MANHOLE REHABILITATION

- c. Controlled multiple passes are then made until the specified minimum finished thickness is attained. If the procedure is interrupted for any reason, simply stop the retrieval of the applicator head until flows are recommenced.
- d. Material thickness may be verified at any point with a depth gauge and shall be no less than a uniform ½-inch. If additional material is required at any level, the rotating applicator head shall be placed at that level and application shall recommence until that area is thickened.
- e. Material shall be applied only when manhole is in a saturated surface dry (SSD) state, with no visible water dripping or running over the manhole walls.
- f. The low-velocity spray nozzle and the centrifugal spin casting head may be used in conjunction to facilitate uniform application of the mortar material to irregularities in the contour of the manhole walls and bench areas.
- g. Troweling of materials shall begin immediately following the spray application. Initial troweling shall be in an upward motion, to compress the material into voids and solidify manhole wall. A brush or broom finish may be applied if top coating is desired.
- h. Curing will take place once the manhole cover has been replaced. It is important that the manhole cover is replaced no more than 10-20 minutes after troweling is complete to avoid moisture loss in the material due to sunlight and winds.
- i. Material shall not be applied during freezing weather conditions. Material shall not be placed when the ambient temperature is 37 degrees Fahrenheit and falling or when the temperature is anticipated to fall below 32 degrees Fahrenheit for 24 hours.

G. TESTING AND ACCEPTANCE

1. Visual inspection – verify no infiltration, cracks, or loose material.
2. All ASTM testing and standards meet product requirements.
3. All Manhole inspections shall be NASSCO level I MACP compliant. Perform inspection before (Pre) and after work (Final) is completed following [Section 02956, Television Inspection](#). Final inspection to meet contract requirements for acceptance.

3.4 POLYMER LINERS (EPOXY, POLYURETHANE, POLYUREA COATINGS)

A. GENERAL

1. Contractor shall comply with local, state and federal regulatory and other applicable agencies with regard to environment, health and safety during work.
2. Any active flows shall be dammed, plugged or diverted as required to ensure all liquids are maintained below or away from the surfaces to be coated.
3. Temperature of the surface to be coated should be maintained between 40 deg F and 120 deg F or as recommended manufacturer.
4. Specified surfaces should be shielded to avoid exposure of direct sunlight or other intense heat source. Where varying surface temperatures do exist, coating application shall be

SECTION 02957 – SEWER MANHOLE REHABILITATION

scheduled when the temperature is falling and not rising or as recommended by the manufacturer.

5. Prior to commencing surface preparation, Contractor shall inspect all surfaces specified to receive the coating. Notify Owner, in writing, of any noticeable disparity in the site, structure or surfaces which may interfere with the work, use of materials or procedures as specified herein. When possible, the Contractor will provide video inspections and/or photos to document discovered interference and submit to the Owner for review with a recommendation on how to proceed with the work. The Owner may direct the Contractor to not attempt installation. The Owner may also elect to resolve issues preventing the work from proceeding and reissue the work to Contractor at a later date for completion. The Owner may also elect to replace or otherwise perform the work themselves without any involvement or payment to the Contractor.

All costs to provide videos/photos, recommendations and other associated costs are incidental to this contract. The Contractor will not be compensated for work that is not completed, including making the determination the work cannot be installed due to the existing condition of the pipe or manhole. Payment will only be made for the work completed in accordance with the unit rates listed in Attachment C - Cost Proposal.

B. SURFACE PREPARATION

1. Oils, grease, incompatible existing coatings, waxes, form release, curing compounds, efflorescence, sealers, salts, or other contaminants which may affect the performance and adhesion of the coating to the substrate shall be entirely removed.
2. Concrete and/or mortar damaged by corrosion, chemical attack or other means of degradation shall be removed so that only sound substrate remains.
3. Choice of surface preparation method(s) should be based upon the condition of the structure and concrete or masonry surface, potential contaminants present, access to perform work, and required cleanliness and profile of the prepared surface to receive the specified polymer coating product, as recommended by the manufacturer.
4. Surface preparation methods or combination of methods that may be used include high pressure water cleaning, high pressure water jetting, abrasive blasting, shot blasting, grinding, scarifying, detergent water cleaning, hot water blasting and others as described in NACE No. 6/SSPC SP-13. Whichever method(s) are used, they shall be performed in a manner that provides a uniform, sound clean neutralized surface with sufficient profile to promote an acceptable bond with the specified polymer coating.
5. Infiltration shall be stopped by using a material which is compatible with the repair products and is suitable for top-coating with the epoxy coating product. The manufacturer shall verify the product compatibility, in writing, to the Owner.
6. Manhole Chimney Joint and Casting: The area between the manhole and the manhole ring and the manhole casting shall be a termination point of the specified epoxy coating product.

C. APPLICATION OF REPAIR AND RESURFACING PRODUCTS

1. Areas where reinforcing bars have been exposed shall be repaired in accordance with the manufacturer's recommendations.

SECTION 02957 – SEWER MANHOLE REHABILITATION

2. Areas where rebar has been exposed and is corroded shall be first prepared as required for the repair work. The exposed rebar shall then be abrasive blasted and coated with the polymer coating product specified as recommended by the manufacturer.
 3. Repair products shall be used to fill voids, bug holes, and other surface defects which may affect the performance or adhesion of the epoxy coating product.
 4. Resurfacing products shall be used to repair, smooth or rebuild surfaces with rough profiles to provide a concrete or masonry substrate suitable for the polymer coating product to be applied. These products shall be installed to minimum thickness as recommended within the manufacturer's published guidelines. Should structural rebuild be necessary, these products shall be installed to a thickness as specified in the contract documents. Structural rebuild should be specified in advance whenever feasible and paid for at a separate unit price in Attachment C – Cost Proposal.
 - a. Repair and resurfacing products shall be handled, mixed, installed and cured in accordance with manufacturer recommendations.
 - b. All repaired or resurfaced surfaces shall be inspected for cleanliness and suitability to receive the coating product(s). Additional surface preparation may be required prior to coating application.
 - c. If a chimney seal is required in conjunction with the lining technology, the Contractor should contact the chimney seal manufacturer to determine the proper preparation required for effectively installing the chimney seal after the coating has been applied and cured.
- D. APPLICATION OF POLYMER COATING PRODUCT
1. Application procedures shall conform to the recommendations of the epoxy coating product manufacturer, including environmental controls, product handling, mixing, application equipment and methods.
 2. Spray equipment shall be specifically designed to accurately ratio, apply the polymer coating product, shall be in proper working order and shall be as recommended by the product manufacturer.
 3. Contractors qualified in accordance with these specifications shall perform all aspects of polymer coating product installation.
 4. Prepared surfaces shall be coated by spray application of the coating product(s) described herein to a minimum as recommended by the manufacturer to meet the requirements of these contract documents.
 5. NOTE: Coating thickness recommendations are available through the polymer coating product manufacturer based upon project assessment. Contact the manufacturer of the polymer coating for project specific recommendations and provide to Owner.
 6. Subsequent top coating or additional coats of the polymer coating product shall occur within the product's recoat time. Additional surface preparation procedures will be required if this recoat time is exceeded. The polymer manufacturer's re-coat time for the specific application, based on temperature and project conditions, shall be strictly followed by the applicator.

SECTION 02957 – SEWER MANHOLE REHABILITATION

7. The polymer coating product shall mechanically bond with adjoining construction materials throughout the manhole structure to effectively seal and protect concrete or masonry substrates from infiltration and attack by corrosive elements. Procedures and materials necessary to effect this bond shall be as recommended by the polymer coating product manufacturer. No hollow spots will be accepted.
8. Contractor must submit manufacturers recommended method for terminating a coating or lining in a manhole.
9. If required sewage flow shall be stopped, bypassed or diverted for application of the polymer coating product to the invert and interface with pipe materials.

E. TESTING AND ACCEPTANCE

1. Visual Inspection - Installed liner system shall be completely free of pinholes and hollow spots/voids and other defects that will reduce the life expectancy of the applied system.
2. Film thickness Measurements – (either wet or dry) Liner thickness shall be the minimum value as specified by product manufacturer and Owner requirements.
3. Holiday Detection Test (Spark Testing), to identify pinholes, thin material and any defects that will affect the life of the installed system.
4. Adhesion Testing – To verify that the system has consistently mechanically bonded to the host structure.
5. Additional Tests to meet product manufacturer recommendations and/or ASTM requirements.

F. The manhole frame and cover shall be manufactured and installed to the dimensions shown on the contract documents.

1. All materials furnished to comply with ASTM standards and PFM.

G. Measurement shall be by each manhole frame and cover removed and replaced.

1. Materials for new frame and cover will be provided by the Owner if replaced, allow 30 days for delivery and pickup at County properties as directed at no additional cost to the Owner.

H. Payment shall be at the unit price in Attachment C - Cost Proposal.

1. Payment includes removal of existing frame and cover, replacing frame and cover, and disposal of old frame and cover as required.

3.5 REPLACE FRAME AND COVER

A. The manhole frame and cover shall be manufactured and installed to the dimensions shown on the contract documents.

1. All materials furnished to comply with ASTM standards and PFM.

SECTION 02957 – SEWER MANHOLE REHABILITATION

- B. Measurement shall be by each manhole frame and cover removed and replaced.
 - 1. Materials for new frame and cover will be provided by the Owner if replaced, allow 30 days for delivery and pickup at County properties as directed at no additional cost to the Owner.
- C. Payment shall be at the unit price in Attachment C - Cost Proposal.
 - 1. Payment includes removal of existing frame and cover, replacing frame and cover, and disposal of old frame and cover as required.
 - 2. If existing frame and cover is reused no payment will be made.

3.6 MANHOLE STEPS

- A. Manhole steps shall be driven into pre-cast or drilled holes. Steps shall be installed no more than 16 inches apart vertically on the interior of the manhole wall at a point 4" below the base flange of the manhole casting.
 - 1. All materials furnished to comply with ASTM standards and PFM.
- B. Measurement shall be for each manhole step provided.
- C. Payment shall be at the price in Attachment C - Cost Proposal.
 - 1. Payment includes the removal and replacement of manhole steps per each in Attachment C - Cost Proposal.

3.7 QUALITY ASSURANCE AND TESTING

- A. GENERAL
 - 1. The Contractor shall test the installed SYSTEM's as specified by these contract documents. 10% of the installed SYSTEM's shall be tested using a testing procedure as further delineated below. If more than 5% of the tested SYSTEM's fail the test than an additional 10% of the manholes are selected for further testing. This process continues until the SYSTEM's tested meet the requirements of these contract documents, to the satisfaction of the Owner.
- B. CHAIN OF CUSTODY
 - 1. The Contractor shall furnish, from the project installation, all samples for product testing. The Contractor shall produce test samples from the work and transmit samples to a third-party testing laboratory recommended by the manufacturer and approved by the Owner. The Contractor will maintain the chain of custody of all samples that are transmitted and tested to verify SYSTEM compliance with these contract documents.
 - 2. Prior to testing the Contractor shall submit to the Owner for approval, the name and location of the independent testing laboratory with a certified statement from the laboratory indicating they are independent from and not associated with the Contractor in any way.

SECTION 02957 – SEWER MANHOLE REHABILITATION

C. TEST REQUIREMENTS

1. Visual Inspection
 - a. All manholes shall be visually inspected. Any leakage into the manhole in areas where SYSTEM's were installed by the Contractor shall be identified.
 - b. The Contractor shall provide samples for testing the actual installed SYSTEM. Samples shall be provided, at a minimum from one location per every ten (10) SYSTEM's installed.
2. Cementitious Material Property Testing
 - a. Where specified one 2 X 2 inch sample cube shall be taken for every 50 bags of material used. Samples shall be sprayed from nozzle, and sent, by the Contractor, to an independent test laboratory for compression strength testing as described in ASTM C-109.
3. Vacuum Testing
 - a. Where specified if the entire manhole including invert and pipe penetrations is rehabilitated to as new condition then a Vacuum Test may be performed according ASTM F1244. If vacuum test fails then the contractor shall spray entire manhole with a soap solution and retest to determine where air is entering the manhole. Contractor shall determine if failure was due to improper rehabilitation or poor pipe condition or improperly seated plugs. If Contractor determines that the failure is due to improper rehabilitation, then the Contractor shall repair manhole according to manufacturer recommendations and retest until a successful vacuum test is achieved. If the Contractor and county jointly determine that the failure was due to poor condition of the pipes, or annular space between the pipe and its liner, or the inability to seat the plugs properly and that there are no visible defects in the applied product then the owner may deem the manhole rehabilitation as passed and acceptable.
4. Film Thickness Measurements
 - a. Where applicable and specified during application a wet film thickness gauge, meeting ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages, shall be used. Measurements shall be taken, in the presents of the Owner's representative, documented and attested to by Contractor for submission to Owner.
5. Holiday Detection Test
 - a. Where specified Holiday Detection shall be performed for all coating systems installed in corrosive environments.
 - b. After the epoxy coating product have set in accordance with manufacturer instructions, all surfaces shall be inspected for holidays with high-voltage holiday detection equipment. Reference NACE RPO 188-99 for performing holiday detection.
 - c. All detected holidays shall be marked and repaired by abrading the coating surface with grit disk paper or other hand tooling method. After abrading and cleaning, additional coating can be hand applied to the repair area.

SECTION 02957 – SEWER MANHOLE REHABILITATION

- d. All touch-up/repair procedures shall follow the coating manufacturer's recommendations.
 - e. Documentation on areas tested, results and repairs made shall be provided to the Owner, in writing, by Contractor.
6. Adhesion Testing
- a. A minimum of 10% of the manholes coated shall be tested for adhesion/bond of the coating to the substrate. Testing shall be conducted in accordance with ASTM D4541, ASTM D7234, or NACE SP018. Owner's representative shall select the manholes to be tested.
 - b. A minimum of three (3) - 50 mm dollies shall be affixed to the coated surface at the cone area, mid-section and at the bottom of the structure or in areas suspect from non-destructive evaluation and testing. The adhesive used to attach the dollies to the coating shall be rapid setting with tensile strengths in excess of the coating product and permitted to cure in accordance with manufacturer recommendations. The coating and dollies shall be adequately prepared to receive the adhesive.
 - c. Failure of the dolly adhesive shall be deemed a non-test and require retesting. Prior to performing the pull test, the coating shall be scored to the substrate by mechanical means without disturbing the dolly or bond within the test area.
 - d. Two of the three adhesion pulls shall exceed 300 psi or concrete failure with more than 50% of the subsurface adhered to the coating.
 - e. Should a structure fail to achieve two successful pulls as described above, additional testing shall be performed at the discretion of the Owner. Any areas detected to have inadequate bond strength shall be evaluated by the Owner.
 - f. Further bond tests may be performed in that area to determine the extent of potentially deficient bonded area and repairs shall be made by Contractor.
7. All testing shall meet all ASTM testing and standards. Conduct testing in accordance with the contract specifications and the submitted PWS.

3.8 MANHOLE STRUCTURAL REPAIR ONLY-EXECUTION

- A. All other manhole repair and rehabilitation products to be installed in accordance with the manufacture's recommendations meeting applicable ASTM, industry standards and the requirements of this contract. All products to be approved by the Owner in advance of the work.

3.9 SANITARY SEWER SPILLS/BACKUP

- A. The Contractor shall be responsible for spills, overflows and backups resulting from the work in connection with this contract. See specified requirements in sections:
 1. [02640](#), Technical Provisions for Inspection and Rehabilitation
 2. [02650](#), Sanitary Sewer Line Cleaning
 3. [02651](#), Sanitary Sewer Overflow Response

SECTION 02957 – SEWER MANHOLE REHABILITATION

PART 4

4.1 Requirements as set forth in [Section 01025, Measurement and Payment](#) and stated herein

- A. When submitting a request for draft and final payment submit the following:
 - 1. Information required per Special Provisions, Section 18-Reports and Invoicing.
 - 2. Documentation of grout materials used and installation mechanisms as stated herein.
 - 3. Provide Pre and Post CCTV reports with each Invoice and with video inspection NASSCO compliant and compatible with WinCan.
 - 4. Provide quality assurance reports per recommendations of Manufacture or supplier of grouting products.
 - 5. Clearly label and date each, report, pre and post CCTV to identify the correct location it represents.
- B. Payment will be in accordance with the Contract Documents at the unit rate provided in Attachment C - Cost Proposal and any written modifications issued by the County Purchasing Agent.

END OF SECTION

PAGE INTENTIONALLY LEFT BLANK

SECTION 02959 – SEWER SEALING BY CHEMICAL GROUT

PART 1 GENERAL

1.1 SCOPE OF WORK

- A. The Owner will designate and assign work to the Contractor for sewer requiring rehabilitation. In general terms it is expected that grouting rehabilitation should relate to rehabilitation work as follows:
1. CIPP- Rehabilitate using CIPP for pipe or manhole.
 2. Chemical Grout- Rehabilitate pipeline or manhole using only grout to seal leaks.
 3. Chemical Grout- Seal leaks prior to CIPP installation in pipelines.
 4. Chemical Grout- Seal leaks at service connections (Laterals) resulting from CIPP
 5. Chemical Grout- Seal leaks in connection with internal point repairs.
 6. Chemical Grout- Seal leaks in connection with manhole rehabilitation.
 7. Chemical Grout- Seal leaks as directed by Owner
- B. Contractor shall provide all labor, materials, tools, equipment and incidentals as shown, specified, and required for testing sewer pipe joints by applying a positive air pressure to the joints, monitoring and recording the pressure in the void. The intent of joint & connection testing is to identify those sewer joints, lateral connections and laterals that are not watertight and that can be successfully sealed by packer injection grouting. This document can be utilized for the following applications:
1. Test all joints in a mainline segment
 2. Test all service lateral connections from the sewer main at the tap interface between the main line sewer and sewer lateral.
 3. Test all lateral connections where they connect to the manhole.
 4. Test all other defects the Contractor deems acceptable for testing.
- C. Provide all labor, materials, tools, equipment, and incidentals as shown, specified, and required to grout pipeline joints, service lateral connection at manhole walls, manholes, lateral connections to the mains and other defects the Contractor deems acceptable for use of the packer injection method.
1. Packer injection grouting is used to reduce the infiltration within the pipeline, seal annular space between liners and host pipes at lateral connections, seal pipe joints that have failed the joint test criteria, provide external pipe support, but not a structural rehabilitation, by stabilizing soils outside the pipe and prevent further loss of pipe bedding into the pipe.
 2. Packer injection grouting shall be accomplished by pressure injection of chemical grout into the soils encompassing the exterior of pipe joint. Chemical grouts shall be designed to be injected into the soil surrounding the pipe, which stabilizes the soil and forms a permanent impermeable seal called a grout/soil ring, and into the annular space between liners and host pipes. Adequate volumes of grout must be injected to form an effective seal. Adequate amounts of grout are based generally upon pipe size and field conditions.

SECTION 02959 – SEWER SEALING BY CHEMICAL GROUT

This application will be through structurally sound joints and lateral connections through penetrations from within the pipe by using the packer method in tandem with a closed-circuit television (CCTV) inspection system.

- D. Related Work Specified in Other Sections Include, but is not limited to, the following:
1. [Section 01025](#), Measurement and Payment
 2. [Section 01300](#) Submittals
 3. [Section 02640](#), Technical Provisions for Inspection and Rehabilitation
 4. [Section 02650](#), Sanitary Sewer Line Cleaning
 5. [Section 02651](#), Sanitary Sewer Overflow Response
 6. [Section 02954](#), Sewer Main Rehabilitation by Lining
 7. [Section 02956](#), Television Inspection
 8. [Section 02960](#), Temporary Bypass Pumping Systems

1.2 REQUIREMENTS

- A. Contract requires work in active or bypassed sewers. Contractor shall follow all federal, state and local requirements for safety in confined spaces and uniform traffic controls.
- B. Additional safety considerations including safely handling, mixing, and transporting of chemical grouts should be provided by the grout manufacturer/supplier, and should include safe operating practices and procedures, appropriate personal protective equipment (PPE) for the various grouting operations, and proper storage, transportation, mixing, and disposal of grouts, additives, and their associated containers.
- C. Provide public notice to residences and businesses when the performing work. Submit a work schedule and schedule of completed work each week. Provide traffic control and follow all safety regulations. Maintain a neat, clean orderly site. Adhere to scheduled working hours, protect property and persons. Restore and leave each project site in a condition equal to or better than its original condition. See [Section 02640, Technical Provisions for Inspection and Rehabilitation](#), and the contract documents for additional information.

1.3 QUALITY ASSURANCE

- A. Require completion of grout handling, mixing and application training certification from the grout manufacturer/supplier for personnel working with chemical grouts and additives.
- B. Commercially Proven Products:
 1. Minimum 12,000 mainline joints and 1,000 lateral-mainline interfaces successfully grouted and documented in the United States.
- C. The Owner may inspect and test grout at factory, before delivery to site, while in storage, or prior to use.
- D. Internally CCTV inspect host pipe prior to grouting, during grouting and post grouting.

SECTION 02959 – SEWER SEALING BY CHEMICAL GROUT

1.4 SUBMITTALS

- A. The Contractor shall provide a minimum 48-hour advance written notice of proposed testing schedules and testing procedures for review and concurrence of the Owner.
- B. Equipment operating procedures and systems.
- C. Catalog data showing manufacturer's clarifications and updates, ASTM references, material composition, specifications, and physical and chemical properties of grout.
- D. Calculations of expected volumes of annular space between packer and pipe wall, to be used in calculating required gel times.
- E. Manufacturer's recommended procedures for handling, storing, mixing and injecting grout.
- F. Method of Construction.
- G. Access manholes and site locations.
- H. Work dimensions.
- I. Size of working area.
- J. Impacted portions of existing sewer.
- K. Site access points.
- L. Bypass pumping plan: Following [Section 02960, Temporary Bypass Pumping Systems](#).
- M. Chemical Grout information:
 - 1. Description of chemical grout materials to be used.
 - 2. Description of proposed additives to be used.
 - 3. Manufacturers recommended procedures for storing, mixing, testing and handling of chemical grouts.
 - 4. MSDS sheets for all materials to be used.
- N. Identify the manufactures & models of the packers to be utilized on the project.
- O. Upon completion of each pipe segment, submit to the Owner a report showing the following data for each joint and/or lateral connection tested, grouted or attempted to be grouted as required by PACP.
 - 1. Identification of the sewer pipe section tested by assigned sewer ID (if available) and length.
 - 2. Type of pipe material, diameter & depth of pipe to the surface at manholes.
 - 3. Length of pipe sections between joints.
 - 4. Test pressure used and duration of test.
 - 5. Pass/fail results for each joint/connection tested.
 - 6. Location stationing of each joint/connection tested, and location of any joints/connections not tested with an explanation for not testing.
 - 7. Volume of grout material used on each joint or connection.

SECTION 02959 – SEWER SEALING BY CHEMICAL GROUT

8. Gel set time used (cup test results from tanks)
9. Grout mix record of the batches mixed including amount of grout and catalyst, additives, temperature of the grout solution in tanks.
10. Operator conducting testing and sealing shall be noted on the reports.
11. Video recordings
 - a. Video recording shall include testing and sealing operations for each joint/lateral (including inflation and deflation over the joint/lateral) displaying the final air test of joints or laterals.
 - b. Additional final recording, if specified, shall include inspection of the pipe or lateral after all grouting work is complete.

1.5 REFERENCE STANDARDS TO BE USED

- A. National Association of Sewer Service Companies (NASSCO) prepared Pipeline/Lateral Assessment and Certification Program (PACP/LACP/MACP), TV inspection form and sewer condition codes
- B. ASTM F2304 Standard Practice for Rehabilitation of Sewers using Chemical Grouting (latest revision)
- C. ASTM F2454 Standard Practice for Sealing Lateral Connections and lines from the Mainline Sewer Systems by Lateral Packer Method, Using Chemical Grouting (latest revision)

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect, store, and handle grout or other material during transportation and delivery, while stored on-site, and during installation following manufacturer's recommendations.
- B. Grout Material found defective or damaged due to manufacture or shipment:
 1. Remove from Contract site and replace, following Owner's direction, at no cost to the Owner.

PART 2 PRODUCTS

2.1 TESTING EQUIPMENT & GROUTING EQUIPMENT

- A. The basic equipment used for mainline pipe joints and for laterals connected to the mainline shall consist of a remotely operated color television camera capable of pan and tilt, joint testing device (referred to hereafter as a packer), and test monitoring equipment. The equipment shall be constructed in such a way as to provide means for introducing air under pressure into the void area created by the expanded ends of the packer against the host pipe and a means for continuously measuring, viewing and recording the actual static pressure of the test medium and grout within the void area only. The packer shall be of a size less than the diameter of the host pipe, with the cables at either end used to pull it through the line and may be constructed in such a manner as to allow a restricted amount of sewage to flow at all times. Packer shall be

SECTION 02959 – SEWER SEALING BY CHEMICAL GROUT

expanded by air pressure. Packers shall be of low void space construction with void volume given by the packer manufacturer.

- B. The device for testing lateral connections shall consist of inflatable mainline end elements and a lateral grouting plug that creates a void area extending beyond the main connection. Whenever possible, use a lateral grouting plug sized to match the diameter of the lateral being grouted with an effective sealing length of at least 4 feet. Where the lateral is capped, utilize alternate lateral grouting plug or equipment sized appropriately for the capped lateral. In cases where the lateral transitions from 6" to 4" in diameter, use a 4" lateral grouting plug. However, it is possible that due to physical restrictions the lateral plug may not launch and thus the service may not be able to be grouted.
- C. Void pressure data shall be transmitted from the void area to the monitoring equipment or video picture of a pressure gauge mounted on the packer and connected to the void area. All test monitoring equipment shall be above ground in a location suitable for simultaneous and continuous observation of the televising monitor and test monitoring equipment.
- D. Grouting equipment shall consist of the packer, appropriate pumping and hosing systems capable of supplying an uninterrupted flow of sealing materials to completely fill the voids. Grout pumping system shall be sized to deliver a mixed volume of grout at a minimum of 3 gpm and 30 gallons of uninterrupted flow within 10 minutes.
- E. Volume of mixed grout pumped must be capable of being measured and recorded for each grouted joint/connection. Generally, the equipment shall be capable of performing the specified operations in sewers where flows do not exceed 25 percent of pipe diameter unless permitted by the Owner.
- F. Connection and lateral service sealing shall be accomplished using the lateral grouting plugs and push packers specified above. Provide back-up bladders for each packer on-site at all times during grouting procedures.
- G. Equipment for cleaning lateral blockages shall be readily available while any lateral grouting work is being performed.

2.2 GROUTS – GENERAL

- A. All grout materials must have the following characteristics:
 - 1. While being injected, the grout must be able to react /perform in the presence of water (groundwater).
 - 2. The ability to increase grout mix viscosity, density and gel strength by increased concentration of constituents or the use of approved additives.
 - 3. The cured grout must withstand submergence in water without degradation.
 - 4. The resultant grout formation must be homogeneous and prevent the passage of water (infiltration) through the pipe joint.
 - 5. The grout must not be biodegradable.
 - 6. The cured grout should be chemically stable and resistant to organics found in sewage.

SECTION 02959 – SEWER SEALING BY CHEMICAL GROUT

7. Residual grout shall be easily removable from the sewer line to prevent blockage of the sewage flow.
- B. Handle, mix, and store grout in accordance with the manufacturer's recommendations. The materials shall be delivered to the site in unopened original manufacturer's containers.

2.3 CHEMICAL GROUTS

- A. Water based chemical grouts shall have the following characteristics:
1. A minimum of 10% acrylamide base material by weight in the total grout mix. A higher concentration of acrylamide base material is recommended to increase strength or offset dilution during injection.
 2. The ability to tolerate some dilution and react in moving water during injection.
 3. A viscosity of approximately 2 centipoises, which can be increased with approved additives.
 4. A controllable reaction time from 10 seconds to 1 hour.
 5. A reaction (curing) that produces a homogenous, chemically stable, non-biodegradable, firm, flexible gel.
 6. The ability to increase mix viscosity, density and gel strength by increased concentrations of the mix constituents or by the use of approved additives.
 7. Approved Manufacturers:
 - a. Avanti AV-100
 - b. Avanti AV-118
 - c. or equal.
- B. Acrylate base grout shall have the following characteristics:
1. A minimum of 10% acrylate base material by weight in the total grout mix.
 2. The ability to tolerate some dilution and react in moving water during injection.
 3. A viscosity of approximately 1-3 centipoise, which can be increased with approved additives.
 4. A controllable reaction time from 10 seconds to 1 hour.
 5. A reaction (curing) that produces a homogenous, chemically stable, non-biodegradable, firm, flexible gel.
 6. The ability to increase mix viscosity, density and gel strength by the use of approved additives.
 7. Approved Manufacturers:
 - a. DeNeef AC-400
 - b. DeNeef Gelacryl SR
 - c. Avanti AV-160
 - d. or equal.

SECTION 02959 – SEWER SEALING BY CHEMICAL GROUT

2.4 ADDITIVES

- A. At the Contractor's discretion and according to field conditions, additives may be selected and used within the manufacturers recommended quantities.
- B. Strengthening Agents
 - 1. For joint grouting, a latex or "diatomaceous earth" additive may be added to increase compressive and tensile strength. The quantity of strengthening agent additive shall be as recommended by the manufacturer and approved by the Owner. Product Manufacturer:
 - a. Avanti AV-257 Icoset
 - b. DeNeef Reinforcing Agent
 - c. or equal.
- C. Dye - A manufacturer approved water soluble dye without trace metals may be added to the grout tank(s) for visual confirmation.
- D. Gel Time Modifier - A gel time extending agent may be used in accordance with the manufacturer's recommendations to extend gel time as necessary.
- E. Freeze/Thaw - In those lines where the grouting material may be exposed to a freeze-thaw cycle, ethylene glycol or other Owner approved additive shall be used to prevent chemical grout cracking once set.
- F. When using non soluble additives the grout tanks must have mechanical mixing devices to keep the additives in suspension and maintain a uniform solution of grout and additive.

PART 3 EXECUTION

3.1 CONTROL TESTS

- A. Packer Tests - Demonstrate the acceptable performance of air test.
 - 1. To ensure the accuracy, integrity and performance capabilities of the testing equipment, a demonstration test will be performed in an above-ground 8" nominal diameter test cylinder suitable to contain the full length of the packer and sustain the void test pressure. The test cylinder shall be equipped with a void release valve to exercise a controlled release of pressurized air from the void area to test the packer under both sound and leaking conditions. The test cylinder shall also be equipped with a local pressure gauge (0-25 psi) within the void space.
 - a. With the void release valve sealed, inflate the packer and air test void at 7-10 psi. The observed void pressure at the test cylinder pressure gauge must be within ± 1.0 psi of the reading in the control center/studio void pressure gauge and follow both up and down pressure changes (allowing time for pressure equalization).
 - b. If above test is passed, crack the release valve to simulate a very small leak. The cylinder shall be equipped with a void release valve to exercise a controlled release of the test media with the associated pressure drop to be equally displayed ± 1.0 psi of the cylinder gauge and test monitoring equipment.

SECTION 02959 – SEWER SEALING BY CHEMICAL GROUT

2. After entering each pipeline segment with the test equipment, but prior to the commencement of joint testing, position the packer on a section of sound sewer pipe between pipe joints, and perform a test as specified. The equipment shall hold a 7-10 psi test pressure for a period of 15 seconds with a pressure drop of less than 1 psi. In the event of a failed test, repair any defective equipment and re-test to verify proper operation of all equipment at no additional compensation. Should it be found that the surface or porosity conditions of the barrel of the sewer pipe cannot meet the joint test requirements, then the performance testing shall be waived or modified as determined by the Owner.
 3. If air testing cannot be performed successfully, repair or otherwise modify air test equipment and repeat the tests. This test may be required at any other time during the performance of joint testing work if the Owner suspects the testing equipment is not functioning properly.
- B. Pump Tests - At the beginning of the contract, prior to application of grout, perform a pump test to determine if proper ratios are being pumped from the grout component tanks at the proper rates and to measure pump rates. Use separate containers to capture the discharges from each of the grout component hoses, to simulate the actual volumes of each component through the interconnect hoses, hose reel and length of grout hose and confirm accuracy of grout pump totalizer. Take corrective action if ratios or rates are not within manufacturer's recommended standards.
- C. Grout Tests - Perform and record a grout gel test in the presence of the Owner by recording the grout tank solution temperature, catalyst tank solution temperature, ambient air temperature in truck, and gel time of the sample whenever the following conditions occur:
1. At the beginning of each day, the material in the hoses shall be recycled to the tanks and a sample shall be taken.
 2. When new batches of grout are mixed.
 3. Whenever the temperature in the tanks or ambient temperature have changed by more than +/- 10°F from the previous gel test.

3.2 PIPE PREPARATION

- A. Prior to the application of the chemical grouting materials, the Contractor shall thoroughly clean the sewer designated to receive the chemical grouting following [Section 02650, Sanitary Sewer Line Cleaning](#). Cleaning shall constitute removal of all loose debris & solids which inhibit proper seating of the packer. If protruding taps are present, they shall be trimmed and paid for at the price contained in Attachment C - Cost Proposal.
- B. Line Obstructions and defects - It shall be the responsibility of the Contractor to clear the line of obstructions that will interfere with the installation and long-term performance of the grout. If pre-installation inspection reveals an obstruction, misalignment, broken or collapsed section, dropped joints or other defects that were not identified as part of the original scope of work and will prohibit grouting (test and seal), the Contractor will provide video inspections to the Owner for review and recommendation. The Owner may direct the Contractor to not attempt grouting. The Contractor will not be compensated for work that is not completed, including making the determination that grouting cannot be installed due to the existing condition of the pipe or

SECTION 02959 – SEWER SEALING BY CHEMICAL GROUT

manhole. The Owner may elect to resolve issues preventing the installation of grout and reissue the work to Contractor at a later date for completion. The Owner may also elect to replace or otherwise repair the pipe without follow-up grouting.

3.3 ROOTS AND LOOSE DEBRIS IN LATERAL CONNECTIONS

- A. Remove all roots and loose debris from laterals connected to manholes where laterals connect to the manhole wall in preparation for testing and grout sealing.
- B. During mainline sewer cleaning or joint testing, document all lateral connections containing roots, mineral deposits or obstructive conditions that are either (a) greater than fine roots or (b) of a nature to prevent testing and sealing of connection. For each such connection, submit a screen shot image clearly showing the extent of roots or obstructive condition to the Owner. Submit images in electronic format, labeled and organized in a manner to easily retrieve the image for the lateral connection in question. The list of lateral connections with roots shall include upstream and downstream manhole numbers and stationing.

The Owner will review the list of lateral connections containing roots and obstructions. Then direct the Contractor as to which laterals are:

1. To be cleaned and grouted.
2. To be grouted without cleaning – in which case such lateral connection would be excluded from warranty testing.
3. Removed from the scope of work – in which case no payment for such lateral will be made.
4. Costs for Cleaning lateral connections will be included in the unit rates within the Attachment C - Cost Proposal.

3.4 GROUT PREPARATION

- A. Follow the manufacturer's recommendations for the mixing and safety procedures.
- B. Adjust gel time as necessary to compensate for changes in temperature in grout component tanks or hoses. The addition of dilution water to extend gel times is not acceptable unless resulting base grout tank only material exceeds 20% by weight for solution grouts.
- C. During the grouting process, the Grouting Technician shall monitor the grout component tanks to make sure that proper ratios are being pumped. If unequal levels are noted in the tanks, repeat the pump test as described above and correct any defective equipment.
- D. Gel times shall be calculated using the following formula unless Contractor experience and/or field conditions dictate otherwise. Any alterations of the gel time formula shall be recommended by the manufacturer and approved by the Owner.

$$Gel\ Time = \left(\frac{Volume\ of\ Pipe\ / \ Pac\ ker\ Void\ Space\ (gal)}{Pumping\ Rate\ (gpm)} \right) \left(\frac{60\ sec}{1\ min} \right) + 20\ sec(+/-\ 5\ sec)$$

SECTION 02959 – SEWER SEALING BY CHEMICAL GROUT

- E. Packer/Pipe void shall be defined as the volume between the inflated packer and the inside pipe wall when the packer is inflated per manufacturer recommendations. For example: an 8" pipe with a packer void space of 0.3 gallons and a 3 gpm pumping rate would provide.

$$Gel\ Time = \left(\frac{.3(gal)}{3(gpm)} \right) \left(\frac{60sec}{1min} \right) + (20sec) = 26sec(+/-5sec)$$

3.5 TESTING AND GROUTING DEFECTS

- A. Testing and grouting will not be required on pipe exhibiting the following conditions or characteristics:
1. Longitudinally cracked, fractured or broken pipe.
 2. Sections of the pipe with structural defects between joints.
 3. Any section of pipe or joints that are in such poor structural condition that in the judgment of Contractor, significant structural damage of the pipe would occur as a result of the pressure test.
- B. When testing and sealing leaks the Contractor shall exercise judgement to not impose loads or pressures that would damage the existing sewer.
- C. Grout all circumferential cracks and fractures or other defects as needed for leak control and as needed to perform work under this contract. Do not test or grout any other pipe defects that will result in damage to the existing sewer. Promptly repair any sewer damage resulting from the Contractor's operations at no additional compensation.

3.6 LATERAL CONNECTION TESTING PROCEDURE

- A. Lateral connection joint testing pressure shall be equal to 0.5 psi per vertical foot of pipe depth plus 2 psi; however, test pressure shall not exceed 10 psi without approval of the Owner.
- B. Air testing lateral connections shall be accomplished by isolating the area to be tested with the lateral connection packer and by applying positive pressure into the isolated void area. A pan and tilt camera shall be used to position the lateral packer for laterals directly connected to the mainline sewer. The lateral bladder shall be inverted from the mainline assembly into the lateral pipe and inflated. The mainline elements shall then be inflated to isolate the lateral connection and the portion of the lateral to be tested. A sensing unit shall monitor the pressure of the packer void and will accurately transmit a continuous readout of the void pressure to the control panel at the grouting truck or to a pressure gauge on the packer recorded by the CCTV camera.
- C. The test procedure will consist of applying a controlled air pressure into each isolated void area. Air shall then be slowly introduced into the void area until a pressure equal to or greater than the required test pressure, but in no cases greater than 2 psi above the required test pressure, is observed on the pressure monitoring equipment. Once the designated pressure in the isolated void is displayed on the meter of the control panel, the application of air pressure will be stopped, and a 15 second waiting period will commence. The void pressure will be observed during this period. If the void pressure drop is greater than 2.0 psi within 15 seconds, the lateral shall be considered to have failed the air test and shall be grouted and retested.

SECTION 02959 – SEWER SEALING BY CHEMICAL GROUT

- D. After completing the air test for each individual lateral specified herein, deflate the lateral packer, with the void pressure meter continuing to display void pressure. If the void pressure does not drop to 0.0 +/- 0.5 psi, the equipment shall be adjusted to provide a zero void pressure reading at the monitor.

3.7 GROUTING GENERAL

- A. Grout all joint, lateral connections and defects that failed the pressure test by the injection method. This shall be accomplished by forcing grout through a system of pumps and hoses into and through the joints of the sewer from the packer within the sewer pipe. Remove excess grout from pipe and laterals. Excess grout shall be defined as a thickness of grout that given its location, size and geometry, could cause a blockage or impede sewer flows. Flush or push forward to the next downstream manhole, remove from the sewer system, and properly dispose of excess grout.

3.8 PIPE JOINT SEALING BY PACKER INJECTION OR GROUTING FOR MAINLINE SEWERS

- A. Position the mainline packer over the joint or defect to be sealed by means of a CCTV camera in the line. Position the push/pull packer over the joint or defect to be sealed by a means of visual observation, marked push rod, or where a cleanout is available, through a CCTV camera in the lateral. For push packers, start work at the most distant point to be grouted. Take an accurate measurement of the location of the defect to be sealed using a portion of the packer as a point of reference for positioning the injection area of packer over the defect. Pneumatically expand the packer sleeves such that they seal against the inside periphery of the pipe to form a void area at the joint now completely isolated from the remainder of the pipeline.
- B. Pump grout materials, in stages if needed, into this isolated area to refusal until and the void or surrounding soil has been filled or solidified with the goal of applying 0.25 to 0.5 gallons of grout per inch-diameter per pipe joint. Refusal is when the packer void pressure during grout pumping instantaneously rises or “spikes” by 4 to 5 psi or more above the normal void pressure experienced during grout pumping operation. Refusal may also be revealed when pumping void pressure exceeds the holding pressure of the packer end elements as evidenced by “blow-by” past the packer sealing end elements. Refusal shall mean, when the joint will not accept any more grout because it has flowed throughout the void, through any joint failure and into the surrounding soil; gelled or filled the available void space; and formed a cohesive seal stopping further grout flow, then the joint will have then been sealed. Record the amount of grout pumped on the sealing log. If sealing is not achieved refer to para.3.9.D.
- C. Upon completion of the injection, deflate the packer to break away from the ring of gel formed by the packer void. The packer should then be re-inflated and the joint retested at a pressure equal to the initial test pressure. If the joint fails this air test, repeat the grouting procedure at no additional cost to the Owner, except for the additional grout used. Repeat this sequence of air testing, grouting and subsequent air testing until either the joint is sealed, or it is determined that the grout consumption is too high (see section 3.9.D). The final determination to stop subsequent attempts to seal a joint will be made jointly between the Owner and the Contractor. Should the void pressure meter not read zero ± 0.5 psi, clean the equipment of residual grout or make the necessary equipment repairs/adjustments to produce accurate void pressure readings.

SECTION 02959 – SEWER SEALING BY CHEMICAL GROUT

- D. If mainline joints require more than 0.5 gallon of grout per inch-diameter per pipe joint, modify grouting procedure to perform stage grouting by pumping additional grout in up to 4 gallon increments, waiting 1 gel set cycle time or 1 full minute, whichever is greater between stages. Maximum number of stages shall not exceed two stages of 4 gallons each unless approved by the Owner.
- 3.9 LATERAL CONNECTION SEALING FROM THE MAINLINE BY PACKER INJECTION GROUTING
- A. Lateral connection sealing begins if the lateral connection does not pass the air test, shows evidence of leakage, has been successfully cleaned to remove roots, or where Contractor has been directed. The lateral packer shall remain in position during the pressure test, thus maintaining the isolated void. Pressure inject grout through the lateral packer into the annular space between the lateral grouting plug and the lateral pipe.
- B. When pumping grout, operate the pumps until the mixed grout has flowed through any joint failure, through any annular space, and into the surrounding soil; gelled or filled the available void space; formed a cohesive seal stopping further grout flow; and minimum of 8 psi back pressure is achieved while pumping. As grout pumping continues the void pressure will slowly rise to a range of about 2 to 4 psi, continue pumping until a point where there is a sudden increase in the void pressure. This increase from 2 to 4 psi to over 8 to 10 psi takes place in a matter of a few seconds. If the grout pumped exceeds 1 gallon per foot of lateral bladder plus 3 gallons, it will be suspected that there are significant voids on the outside of the pipe or that the packer is not properly sealed. Check that the packer is sealed properly. If it is, modify grouting procedure to stage grouting by pumping additional grout equivalent to 1 gallon plus 0.25 gallon per foot of lateral bladder, waiting 1 full minute, and retesting. The maximum number of stages shall not exceed two stages unless authorized by the Owner.
- C. Upon completion of the lateral connection sealing procedure, deflate the lateral bladder, re-inflate and air test the lateral connection a second time to confirm the sealing of the connection in accordance with the air testing procedure. If the lateral connection fails this air test, repeat the grouting procedure at no additional cost to the Owner, except for the additional grout used. Air tests after grouting laterals containing roots is not required.
- D. Confirm lateral flows after sealing each lateral connection. If a grout blockage exists, the Contractor shall immediately clear the lateral at no additional cost to the Owner.
- E. After grouting lateral connections (with the appropriate size lateral bladder), a thin residual grout film may be present inside the lateral wall. The amount of residual grout film present is dependent on the lateral bladder used, geometry of the lateral and positioning of the packer. This thin layer of cured grout is normal and will eventually peel off the sidewall of the pipe. The residual chemical grout film is not “sandwiched” between two structures and will eventually peel off the sidewall of the pipe. This residual chemical grout film is not considered excess grout. The Contractor shall remove residual grout and such removal will not be paid for. The costs for removal of residual grout shall be included in the unit prices for Grout, contained within Attachment C - Cost Proposal.

SECTION 02959 – SEWER SEALING BY CHEMICAL GROUT

3.10 JOINT SEALING VERIFICATION

- A. Record grouting of joints in conjunction with the testing of joints. Record the void pressure drop continuously on video and in writing immediately before sealing, and immediately after grouting. After the packer is deflated and moved, record on video the visual inspection of the joint.
- B. Use of standardized test and seal data sheets and PACP data codes is required.

3.11 DISPOSAL

- A. Collect and properly dispose of cleaning materials used in the cleaning of the grouting equipment.

3.12 POST-CONSTRUCTION INSPECTION

- A. After grouting is complete, perform post-cleaning video inspections of the pipelines. Only PACP certified personnel trained in locating breaks, obstacles and service connections by closed circuit television shall perform the inspection. The Contractor shall provide the Owner with a copy of the post-cleaning video and inspection log in digital format when submitting draft invoices for payment and for later reference by the Owner.

3.13 QUALITY CONTROL

- A. Conduct warranty CCTV inspection of mainline sewers at no additional cost, on all of the pipe sections which contain joint, lateral or defect grouting. This work shall be completed during conditions of high ground water and shall commence a minimum of 11 months after installation and be completed a maximum of 18 months after installation. Any joints, lateral connections or defects which were originally sealed and are observed to be leaking shall be re-sealed at no cost to the Owner.
- B. All warranty inspections in the last year of this contract must be completed and accepted or repaired within 6 months of the expiration date of the contract.

PART 4

4.1 Requirements as set forth in [Section 01025, Measurement and Payment](#) and stated herein

- A. When submitting a request for draft and final payment submit the following:
 - 1. Information required per Special Provisions, Section 18-Reports and Invoicing.
 - 2. Documentation of grout materials used and installation mechanisms as stated herein.
 - 3. Provide Pre and Post CCTV reports with each Invoice and with video inspection NASSCO compliant and compatible with WinCan.
 - 4. Provide quality assurance reports per recommendations of Manufacture or supplier of grouting products.
 - 5. Clearly label and date each, report, pre and post CCTV to identify the correct location it represents.
- B. Payment will be in accordance with the Contract Documents at the unit rate provided in Attachment C - Cost Proposal and any written modifications issued by the County Purchasing Agent.

END OF SECTION

SECTION 02960 – TEMPORARY BYPASS PUMPING SYSTEMS

PART 1 GENERAL

1.1 DESCRIPTION

- A. This section includes requirements for implementing a temporary pumping system for the purpose of diverting existing sewage flow around work area for duration of the project when necessary to complete the sewer repairs and rehabilitation.
- B. The design, installation, and operation of the temporary pumping system shall be the Contractor's responsibility. The Contractor shall employ the services of a vendor or staff member who can demonstrate to the Owner that he specializes in the design and operation of temporary bypass pumping systems.
- C. Scope: The Contractor shall furnish, construct, maintain and operate bulkheads, plugs, hoses, piping, and pumps to bypass sewage flow while maintenance or construction operations are in progress. The flow shall be diverted by pumping around the construction location to a downstream manhole. Bypass pumping shall prevent backup or overflow onto streets, yards and unpaved areas or into buildings, adjacent ditches, storm sewers, and waterways, without diverting sewage outside of the sewer system. The Contractor shall provide adequate redundancy for the bypass system as specified here within.
- D. No overflow, overland flow, or discharge from a sanitary sewer will be permitted. Pipe will not be allowed to be submerged in bodies of water or streams in part or in whole.
- E. The Contractor shall provide three (3) levels of bypass capability as follows:
 - 1. 2 MDG and less- This level of bypass is where the average daily flow is 2 MGD or less for use when bypassing sewer pipes with diameters of 15 inches and less. The Contractor may use higher capacity bypass systems for his convenience at his expense. Bypass pumping at this level is incidental to the contract. Include the all costs for maintaining sewage flows up to and including 2.0 MGD within the unit rates of Attachment C - Cost Proposal. Submit Contractor's typical bypass plan to the Owner for bypass systems of 2.0 MGD and less.
 - 2. Above 2.0-5.0 MGD- This level of bypass is where the average daily flow is expected to be above 2.0 to 5.0 MGD for bypassing sewer with pipe diameters of 15 inches and greater. Approval by the Owner for the use of this bypass system will on a case by case basis. The Contractor shall provide flow meter data or other documentation acceptable to the Owner when requesting the use of this bypass system. Costs for this bypass system will be provided as a daily rate in a separate pay item within Attachment C - Cost Proposal.
 - 3. Above 5.0-10.0 MGD- This level of bypass is where the average daily flow is expected to be above 5.0 to 10.0 MGD for bypassing sewer with pipe diameters of 15 inches and greater. Approval by the Owner for the use of this bypass system will on a case by case basis. The Contractor shall provide flow meter data or other documentation acceptable to the Owner when requesting the use of this bypass system. Costs for this bypass system will be provided as a daily rate in a separate pay item within Attachment C - Cost Proposal.

SECTION 02960 – TEMPORARY BYPASS PUMPING SYSTEMS

- F. Compensation for Temporary Bypass Systems costs will be as follows:
1. Bypass systems greater than 2 MGD for sewer lines 15 inch thru 18 inch – Payment will be made when approved by the Owner in advance of the work. Payment to be made under Items for Bypass Pumping above 2.0 – 5.0 MGD or above 5.0 MGD – 10 MGD.
 2. Bypass systems for sewer pipe diameters less than 15 inches – Costs are incidental to the contract and are considered as being included within the unit rates within Attachment C - Cost Proposal. No separate payment or compensation will be made for bypassing used on sewer lines with pipe diameters less than 15 inches.
 3. Traffic controls shall be paid for as outlined in [Section 02640, Technical Provisions for Inspection and Rehabilitation](#) and [Section 01025, Measurement and Payment](#).
 4. For Bypass systems greater than 2 MGD
 - a. The Contractor shall conduct operations to preserve all improvements at the site in a safe manor. Any damage done by the Contractor outside the established limits of the work will be repaired at the Contractor's expense.
 - b. Restoration costs for backfill materials and pavement restoration resulting from the installation of bypass piping below the existing roadway may be paid for under those items contained within Attachment C - Cost Proposal. Pay limits shall be in accordance with VDOT Specifications and Owner requirements. Any roadway damage resulting from Contractor's negligence and failure to properly protect roadway will not be paid for.
 - c. Manholes that have been dismantled to accommodate bypass piping will be restored to their previous condition. Costs to restore the manholes will be at the unit rates provided in Attachment C - Cost Proposal.
 - d. Temporary 6-foot-high fencing when used shall be at the unit rate in Attachment C - Cost Proposal.
 - e. Prior to the start of work the Contractor shall submit to the Owner proposed costs for sediment controls and site restoration expected to result from bypass installation. Include costs for silt fence, construction entrances, various sediment control devices, and restoration of curb and gutter, sidewalks, seed, sod, plantings, signage and street markings with supported documentation acceptable to the Owner. Items already listed in Attachment C - Cost Proposal shall not be included. Rental rates for bypass road ramps for conveyance of flows over paved surfaces such as driveways, will be considered for payment when the Owner agrees their use is required. No other separate part of the bypass system will be considered for payment outside of the items listed and within Attachment C - Cost Proposal.
Upon agreement by the Owner, the Contractor may be compensated for these additional items under Specialized Mobilization Item 1. No other compensation will be considered.
- G. The by-passing pump system must continuously run 24 hours per day, 7 days per week for the duration of the required bypass operation. The system will not intermittently run based on flow or level sensors.

SECTION 02960 – TEMPORARY BYPASS PUMPING SYSTEMS

- H. Related Work Specified in Other Sections Include, but is not limited to, the following:
1. [Section 01025](#), Measurement and Payment
 2. [Section 01300](#), Submittals
 3. [Section 02640](#), Technical Provisions for Inspection and Rehabilitation
 4. [Section 02650](#), Sanitary Sewer Line Cleaning
 5. [Section 02651](#), Sanitary Sewer Overflow Response
 6. [Section 02954](#), Sewer Main Rehabilitation by Lining
 7. [Section 02955](#), Cured In Place or Alternative Pipe Point Repair
 8. [Section 02956](#), Television Inspection
 9. [Section 02957](#), Sewer Manhole Rehabilitation
 10. [Section 02959](#), Sewer Sealing by Chemical Grout

1.2 QUALITY ASSURANCE

- A. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction and as specified herein. The Contractor shall be responsible for damage due to sewer backup or overflow onto streets, yards and unpaved areas or into buildings, adjacent ditches, storm sewers, and waterways. Violations from sewage spills shall be the sole responsibility of the Contractor.
- B. Perform leakage and pressure tests on discharge piping using clean water, before operation. Discharge piping system previously used to discharge sewer shall be flushed prior to test and discharged into the existing sewer and shall not impeded normal function of the sewer system. Notify the Owner 48 hours prior to testing with clean water free from sewage.
- C. Maintain and inspect temporary pumping system every two hours. A responsible operator shall be on site when pumps are operating.
- D. Keep and maintain spare parts for pumps and piping on site, as required for sustained operation.
- E. Maintain fuel supply, adequate hoisting equipment and accessories on site for each pump.
- F. Protect bypass system from vandalism, pedestrians, roadway traffic and weather conditions that may impact performance.

1.3 SUBMITTALS

- A. Provide three (3) bypass pumping plan submittals for bypass systems that are 2 MDG and less, above 2.0-5.0 MGD and above 5.0-10.0 MGD. Submit per [Section 01300, Submittals](#) and in accordance with the following:
1. The Contractor shall submit a detailed bypass pumping plan (BPP) for approval by the Owner a minimum of 30 days prior to startup of the bypass system. Work shall not commence until the plan has been approved by the Owner. The Owners acceptance does not constitute validation of the design or function of the bypass system for the Contractor

SECTION 02960 – TEMPORARY BYPASS PUMPING SYSTEMS

or his subcontractors. The Contractor is solely responsible for providing the bypass system design, setup, maintenance, safety and function. The acceptance of the bypassing system in advance by the Owner shall in no way relieve the Contractor of his responsibility and/or public liability. The Contractor shall submit a written description and drawings showing the methods and equipment to be used for a sewage bypass pumping system at each pump station or manhole. The BPP shall include the following at a minimum:

- a. Indicate number, size, material, location and method of installation of suction and discharge piping
- b. Size of pipeline or conveyance system to be bypassed, site access point, and expected flow.
- c. Staging areas for pumps, piping and related items.
- d. Size and location of manhole or access points for suction and discharge hose or piping. Provide detailed explanation of any structural adjustments to the manholes to accommodate piping and methods utilized to restore the manholes to the pre-existing condition.
- e. Road crossing details, including any road cuts, temporary paving, and hose ramp details.
- f. Sections showing suction and discharge pipe depth, embedment, select fill and special backfill, if buried.
- g. No parking, detour, and traffic management plan relative to bypass system locations.
- h. Temporary pipe supports and anchoring required.
- i. Thrust and restraint block sizes and locations.
- j. Sewer plugging method, location and type of plugs.
- k. Bypass pump sizes, capacity, number of each size to be on site and power requirements.
- l. The bypass system shall undergo maintenance as necessary for full operation. For all maintenance, provide a checklist of maintenance schedules and activities. This checklist will include items to be checked/replaced, the duration of the event, and the interval at which the event shall occur. The checklist shall include the following at a minimum:
 - (1) Float systems and switches
 - (2) Valves and fittings
 - (3) Voltage tests
 - (4) Impeller clearance
 - (5) Seals, gaskets, and O-rings
 - (6) Pump performance, rated versus observed
 - (7) Fluid levels
 - (8) Temperature
- m. Backup pump, power and piping equipment.

SECTION 02960 – TEMPORARY BYPASS PUMPING SYSTEMS

- n. Calculations of static lift, friction losses, and flow velocity. Pump curves showing pump operating range.
 - (1) High level in suction manhole shall not cause backup into any service lateral connection.
 - (2) Calculation shall show the available net positive suction head (NPSH) is greater than the required NPSH
 - (3) Flow velocity shall be maintained between 2.5 feet per second (fps) and 8 fps.
- o. Design plans and computation for access to bypass pumping locations indicated on drawings.
- p. Calculations for selection of bypass pumping pipe size.
- q. Method of noise control for each pump and/or generator.
- r. Method to comply with the Noise Ordinance, Chapter 108.1 of the Code of the County of Fairfax, including any documentation for Noise Variance requests which have been approved.
- s. Method of protecting discharge manholes or structures from erosion and damage.
- t. Method of repair used to rebuild manhole structures which have been dismantled for the purpose of installing bypass suction or discharge piping.
- u. Schedule for installation and maintenance of bypass pumping lines.
- v. Procedures to monitor upstream mains for backup impacts.
- w. Procedures for setup and breakdown of pumping operations, including flushing and disinfecting prior to shutdown and dismantling.
- x. Plan to monitor weather and schedule work to ensure the submitted system is sufficient to protect against backups or flooding during the actual performance of work in the field
- y. Emergency plan detailing procedures to be followed in event of pump failures, sewer overflows, service backups, and sewage spillage.
 - (1) Maintain copy of emergency plan on site for duration of project and on site.
- z. Configuration of an alarm detection and notification system including bypass components to be monitored, alarm settings, and groups with associated project team members established for reporting purposes.
- aa. Sample of customer notification of bypass pumping and sewer service disruption.
- bb. The bypass plan shop drawing shall be signed and sealed by a licensed professional engineer in the Commonwealth of Virginia. The shop drawings shall be affixed with the following certification statement:
 - (1) “By this submittal, we hereby represent that we have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and pertinent data including field conditions, and have checked and coordinated each item with all Contract requirements as it pertains to the sewer bypass system on this project. We certify the Pump and Bypass lines are of adequate capacity and size to handle flow without causing a sanitary sewer overflow. The bypass system will not adversely affect the service connections upstream of the sewer being cleaned and/or televised.”

SECTION 02960 – TEMPORARY BYPASS PUMPING SYSTEMS

1.4 SANITARY SEWER SPILLS, OVERFLOWS AND BACKUPS

- A. The Contractor shall be responsible for spills, overflows and backups resulting from the work in connection with this contract. See specified requirements in sections:
1. [02640](#), Technical Provisions for Inspection and Rehabilitation
 2. [02650](#), Sanitary Sewer Line Cleaning
 3. [02651](#), Sanitary Sewer Overflow Response.

1.5 DELIVERY AND STORAGE

- A. Transport, deliver, handle, and store pipe, fittings, pumps, ancillary equipment and materials to prevent damage and following manufacturer's recommendations.
1. Inspect all material and equipment for proper operation before initiating work.
- B. Material found to be defective or damaged due to manufacturer or shipment.
1. When the Owner deems repairable: Repair as recommended by manufacturer.
 2. When the Owner deems not repairable: Replace as directed by the Owner before initiating work.
 3. Repair or replacement of defective or damaged material and equipment will be at no cost to Commission.

PART 2 PRODUCTS

2.1 MATERIALS FOR 2.0 MGD AND LESS BYPASS SYSTEM

- A. Provide materials that meet or exceed the requirements of the approved bypass pumping plan and these contract documents.

2.2 MATERIALS FOR ABOVE 2.0-5.0 MGD AND ABOVE 5.0-10.0 MGD BYPASS SYSTEMS

- A. Discharge and Suction Pipes: Approved by the Owner.
1. Discharge piping:
 - a. Determined according to flow calculations and system operating calculations.
 - b. Shall be HDPE or approved equal.
 2. Suction piping:
 - a. Determined according to pump size, flow calculations, and manhole depth following manufacturer's specifications and recommendations.
 - b. Shall be HDPE or approved equal.

SECTION 02960 – TEMPORARY BYPASS PUMPING SYSTEMS

- B. High-Density Polyethylene (HDPE).
1. All polyethylene (HDPE) pipes shall meet the requirements of ASTM F714. Dimension Ratio (DR) rating of the pipe shall be sufficient to withstand the pressure and leakage test outlined below.
 2. HDPE Pipe shall be furnished in standard laying lengths not exceeding 50 feet.
 3. Homogenous throughout, free of visible cracks, discoloration, pitting, varying wall thickness, holes, foreign material, blisters, or other deleterious faults.
 - a. Defective areas of pipe: Cut out and joint fused as stated herein.
 4. Assembled and joined at site using couplings, flanges or butt-fusion method to provide leak proof joint. Follow manufacturer's instructions. Heat fused joints shall follow ASTM D 2657.
 - a. Threaded or solvent joints and connections are not permitted.
 5. Fusing: By personnel certified as fusion technicians by manufacturer of HDPE pipe and/or fusing equipment.
 6. Butt-fused joint: True alignment and uniform roll-back beads resulting from use of proper temperature and pressure.
 - a. Allow adequate cooling time before removal of pressure.
 - b. Watertight and have tensile strength equal to that of pipe.
 - c. Acceptance by Owner before insertion.
 7. Design piping, joints, and accessories to withstand at least twice the maximum system pressure or 50 psi, whichever is greater.
 8. When subject to traffic loading, protect system, using traffic ramps or covers.
 - a. Install system and maintain H-20 loading requirements while in use or as directed by the Owner.
 - b. Road crossings shall be designed to convey the design flow while maintaining clear traffic flow along the existing roadways.
- C. Valves and Fittings: Determined according to flow calculations, pump sizes previously determined, and system operating pressures.
- D. Air Release Valves: The blow-off side of the air release valve shall be routed back to the manhole where the suction lines come from.
- E. Plugs: Selected and installed according to size of line to be plugged, pipe and manhole configurations, and based on specific site.
1. It is expected that all Plugs shall be new. "New" means never been used before on any previous application. (First time use.) Any request for permission to use Plugs which are not new on bypass of 2 MGD or less, and at the risk of the Contractor must be submitted to the Owner with supporting documentation that the plug will function without failure. Bypass systems over 2 MGD to have new plugs. Any plug which has failed will be removed the job site and replaced in kind or better.
 2. Additional plugs: Available in the event a plug fails. Plugs will be inspected before use for defects which may lead to failure.

SECTION 02960 – TEMPORARY BYPASS PUMPING SYSTEMS

3. Each plug shall have air hose and pressure gauge mounted at the surface for easy monitoring of the air pressure in the plug.
- F. For bypass systems over 2 MGD, aluminum "irrigation type" piping, low or medium PE pipe, PVC pipe, or flexible hoses shall not be permitted.
- G. For bypass of 2 MGD and less submit piping to Owner for approval.

2.3 EQUIPMENT FOR 2.0 MGD AND LESS BYPASS SYSTEM

- A. Provide materials that meet or exceed the requirements of the approved bypass pumping plan and these contract documents.

2.4 EQUIPMENT FOR ABOVE 2.0-5.0 MGD AND ABOVE 5.0-10.0 MGD BYPASS SYSTEMS

- A. Pumps.
 1. Provide pumps of the fully automatic, self-priming type, submersible hydraulic or submersible electric, in good working order. Pumps shall not require the use of foot-valves or vacuum pumps in the priming system. All pumps used must be constructed to allow dry running for extended periods of time to accommodate the cyclical nature of sewer flows.
 2. Provide pumps with a working pressure gauge on the discharge.
 3. Provide Stop/Start and electronic level based controls for each pump. Provide a cellular auto-dialer set to notify key personnel if pump speed increases past a set- point as defined by the Owner to maintain operating levels and flow in the sewers.
 4. Provide level sensors able to accurately and dependably detect changes in water level in increments of 0.01 feet.
 5. Provide pumps with an electronic level control system to start and stop additional pumps and to adjust pump speeds in response to water level changes.
 6. Provide critically silenced pumps. Pumps defined as critically silenced shall include, but not be limited to, a critical grade silenced muffler, isolated engine vibration, acoustical sound deadening material in the enclosure, and silenced priming exhaust. Additional methods of silencing pump operation may be provided as necessary to achieve critical silence.
 7. Provide stand-by pumps of adequate capacity, installed within the bypass system and isolated by valving. The pump shall be identical (make, model and manufacture) to the largest primary bypass pump.
 8. Constructed to allow dry running for long periods of time to accommodate cyclical nature of effluent flows.
 9. Critically silenced Dry Prime Pumps shall have sound attenuating enclosures which will limit noise to no more than 68dB at 30 feet away from the pump.
 10. Pumps shall be able to be primed to 28 feet of suction lift from dry.
 11. Re-priming shall be automatic.

2.5 MANUFACTURERS FOR 2.0 AND LESS BYPASS SYSTEM

- A. Acceptable manufacturers shall be as submitted and approved, that meet or exceed the requirements of the approved bypass pumping plan and these contract documents.

SECTION 02960 – TEMPORARY BYPASS PUMPING SYSTEMS

2.6 MANUFACTURERS FOR ABOVE 2.0-5.0 MGD AND ABOVE 5.0-10.0 MGD BYPASS SYSTEMS

- A. Acceptable manufacturers are listed below.
1. Xylem
 2. Sunbelt Rentals
 3. Rain for Rent
 4. Or Approved Equal

PART 3 EXECUTION

3.1 MONITORING

- A. The Contractor shall provide on-site person to manually oversee all bypass pumping operations 24 hours per day, 7 days per week when the bypass pumping system is in operation.
- B. The 24-hour monitoring person shall be properly trained, experienced, and mechanically qualified such that they can quickly and effectively address any potential emergency and non-emergency situations associated with the pumps and bypass pumping system that must remain in operation for an extended period.
- C. The Contractor shall provide an Emergency contact list to the County to include at least 3 contacts. The email and phone numbers will be provided for each contact person to ensure notification to the Contractor can be accomplished 24 hours a day 7 days a week. These contacts shall include officers of the company, field management and persons on site who can respond to resolve bypass pumping issues resulting from public complaints and other deficiencies in the work, see [02640](#), Part 1 General, paragraph 1.22 Emergency Response.

3.2 PROTECTION OF PUBLIC AND PRIVATE PROPERTY

Precautions shall be taken to ensure flow control and bypass pumping operations shall not cause flooding or damage to public or private properties. In the event flooding or damage occurs, Contractor shall make provisions to correct such damage at no additional cost to Owner or public. Contractor shall be solely responsible for reporting associated cleanup and repair, claims, damages to public or private property, overflows from the sewer system and violations resulting in fines as a result of the flow control or bypass pumping operation.

3.3 PREPARATION

- A. Determining location of bypass pipelines.
1. The bypass piping shall be located above ground. Above-ground piping shall be located as approved by the Owner.
 2. Buried piping, where required, shall have minimal disturbance to existing utilities.
 - a. The Contractor shall field locate existing utilities in proposed bypass area prior to excavation
 - b. Costs associated with relocation of utilities and obtaining approvals at no cost to the Owner.
 3. Obtain approvals for placement within public or private property.
 4. Obtain Owner's approval of location.

SECTION 02960 – TEMPORARY BYPASS PUMPING SYSTEMS

- B. The Contractor shall sequence the bypass operation to minimize its duration. All submittals shall be approved, and materials delivered related to the bypass prior to initiating the bypass operation.

3.4 FLOW CONTROL

- A. Flows shall be plugged, trucked, or otherwise handled to prevent flows from interfering with the work to be performed on a given portion of the sanitary sewer system.
- B. Flow control shall include the operation of public and private pump stations to control flows in the system as well as performing work during nighttime conditions to control flow in the system.
- C. The Contractor shall contact the Owner and private pump station operators to coordinate with the operation of the pumping stations discharging to the gravity sewer as required to perform the work. The Contractor shall not operate municipal or private pumping stations.

3.5 PRECAUTIONS

- A. When flow in a sewer line is plugged, blocked, or bypassed by the Contractor, the Contractor shall take precautions to protect the public health and to protect the sanitary sewer lines from damage resulting from sewer surcharging. Further, the Contractor shall take precautions to ensure sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved and shall be responsible for any damage resulting from the flow control operations.
- B. When flow in a sewer line is plugged or blocked by the Contractor, the Contractor shall monitor the conditions upstream of the plug and shall be prepared to immediately start bypass pumping, if needed. Any liquid or solid matter that is bypass pumped from the sewage collection system shall be discharged to another sewer manhole or appropriate watertight vehicle or container only. No such liquid or solid matter shall be allowed to be discharged, stored, or deposited on the ground, swale, road, stormwater drainage system, or open environment. The Contractor shall protect all pumps, conduit, and other equipment used for bypass from traffic.
- C. Should any liquid or solid matter from the sewer collection system be spilled, discharged, leaked or otherwise deposited to the open environment as a result of the Contractor's flow control operations, the Contractor shall immediately clean and disinfect the affected area, notify the Authority's operating personnel and appropriate regulatory agencies, and perform required cleanup operations at no additional cost to the Owner.
- D. If a manhole contains mechanical or electrical hardware or equipment, do not proceed with work at the manhole and notify the Owner. Manholes Containing Mechanical or Electrical Equipment shall not be bypassed unless approved by the Owner.
- E. Upon completion of bypass pumping operations, and after the receipt of written permission from Owner, remove piping, restore property to pre-construction condition and restore pavement.

END OF SECTION

SECTION 02972 – VACUUM EXCAVATION

PART 1 GENERAL

1.1 SUMMARY

- A. The County recognizes that during the performance of work under this contract that certain customers will occasionally not be able to be without sewer service during sewer rehabilitation work impacting their property. These critical customers are large grocery stores, industrial businesses, residents with special needs and others. It is expected that the first effort by the Contractor to resolve service interruption issues should include contact with the property owner to discuss doing the work after hours or making other accommodations. Should it not be possible for the Contractor to address the service interruption issues with the customer, a vacuum cleanout may be installed as part of a sewer bypass system to keep the customer in service until the work can be completed. This will assist the Contractor in completing work, which otherwise would not be possible to complete without maintaining service.
- B. When approved by the Owner, the Contractor shall furnish all labor, equipment, material and supplies and perform all operations necessary to perform work associated with lateral cleanout by vacuum excavation and provide means to bypass sewer from the vacuum excavated cleanout into the local sewer system. The work includes vacuum excavation, backfill, pipe, fittings, connection to services, testing bypass pumping to isolate sewer service from customer for the duration of the work, plugging the service tap at the mainline sewer pipe, bypassing flows from the customer's lateral into the sewer system during the work, plumbing permit and all incidentals required to isolate the sewer service flows from the customer. It is the intent of this specification to provide a cost-effective installation of a sewer lateral clean out without conventional excavation for use during bypass operations to maintain flows of the customers sewer lateral into the local sewer system.
- C. Related Work Specified in other sections include, but is not limited to, the following:
1. [Section 01025](#), Measurement and Payment
 2. [Section 02640](#), Technical Provisions for Inspection and Rehabilitation for Inspection
 3. [Section 02650](#), Sanitary Sewer Line Cleaning
 4. [Section 02651](#), Sanitary Sewer Overflow Response
 5. [Section 02954](#), Sewer Main Rehabilitation by Lining
 6. [Section 02959](#), Sewer Sealing by Chemical Grout
 7. [Section 02960](#), Temporary Bypass Pumping Systems
- D. The Contractor will be held fully liable for any damages incurred that are caused by his or her negligence.

1.2 SUBMITTALS

- A. Contractor shall submit submittals for work in accordance with [Section 01300, Submittals](#) and the Contract Documents as applicable.

SECTION 02972 – VACUUM EXCAVATION

PART 2 PRODUCTS

2.1 GENERAL

- A. The molded PVC saddle product and vacuum excavation process consists of locating a sewer lateral pipe by the most effective means available to the installer. The most common method utilized and associated with vacuum excavation consists of inserting a video camera with an internal sonde into the lateral service line from the mainline pipe. Locating the lateral pipe is accomplished using a locating receiver. The located lateral pipe shall be marked by driving a steel pin in the soil when possible and marking the surface with marking paint and a marking flag.
- B. Borehole approximately twenty-inches (20") in diameter shall be created by vacuum excavation. A saddle is affixed to one end of a PVC riser pipe utilizing a solvent weld. A mastic adhesive/sealant is applied to the underside of the saddle. The pipe and saddle are inserted down into the hole with the saddle end first, to snap fit onto the exterior of the lateral pipe. The saddle is pressed down onto the lateral pipe whereby the saddle expands under the downward force until the bottom-most portion of the saddle has surrounded more than fifty percent (50%) of the pipe diameter.
- C. Once the saddle has surrounded more than half of the pipe and passes the spring line of the pipe, the saddle retracts thus pulling downward until the saddle has snapped as it encompasses a majority of the pipe. Next, the annular space between the borehole and the riser pipe is filled with sand or pea-gravel to within six-inches (6") of the surface grade and an approved cleanout cap is installed. A hydrostatic water test is performed, and the crown of the lateral pipe is cut open. The surface is then restored to its original condition.
- D. The installed sewer cleanout and bypass piping shall allow suction of sewer flows from the customers lateral to the bypass pumps and then discharge the collected sewer flow to the local sewer system.

2.2 MATERIAL

- A. The material shall be a one-piece, molded PVC saddle and shall be compatible with the riser pipe. Solvent welding the riser pipe into the saddle boss. The saddle shall conform to the lateral pipe by a snap fit where the lateral pipe is either four (4") or six (6") in diameter. The riser pipe shall be installed in accordance with the most current version of the Virginia uniform statewide building code (USBC). The resin will be a one-part marine grade adhesive/sealant designed for the specific designed for the application of a VAC-A-TEE saddle, or approved equal, adhered to the lateral pipe by a chemical bond. The process shall be VAC-A-TEE® by LMK Enterprises, Inc. or approved equal.

SECTION 02972 – VACUUM EXCAVATION

PART 3 EXECUTION

3.1 GENERAL

- A. The Owner may direct, at the request of the Contractor, the installation of a vacuum excavated cleanout. These cleanouts would be used in conjunction with a bypass system to keep critical customers in service during rehabilitation work where conventional bypass systems would prevent normal use of sewer service during the work by a business or resident within the County. The installation of a vacuum excavated cleanout will be directed as a last resort after all other options have been exhausted to keep said customer in service. The Owner and Contractor must exhaust all options before proceeding with the work. During the performance of work under this contract the Contractor will identify and report to the Owner any customer that must remain in service for his work to proceed. The Contractor will provide the Owner with the name of resident or business, address, phone number, and reasons they cannot be without service.
- B. The Owner will contact the customer to confirm the continuous need for service. Generally, the Contractor's representative will be a part of this process to provide input on planning and services required including the availability of sub-contractors as needed. The Contractor will be required to provide all follow up notifications and coordination of the work with the customer and the Owner. The Contractor will assist in the acquisition of waivers, permissions, Right of Entry, and other written documents to allow the work to proceed as directed by the Owner. The final paperwork shall clearly specify the following:
1. Date the work will be done.
 2. Duration of the work.
 3. Permission to proceed with agreed conditions of the work.
 4. Accommodations in place which allow the Owner to use the property without interruption while the work is underway.
 5. Exact details of how the site will be restored including how the vacuum cleanout will be left in place or abandoned. This will include a joint inspection with the Owner, Contractor and customer upon completion of the work to sign off on a final acceptance.
 6. A list of emergency contacts the customer may use if problems occur on site.
- C. The installed vacuum cleanout will be utilized as an access point to pick up sewer flows from the customer who cannot be without service. Flows will be picked up at the vacuum excavated cleanout and then will be pumped, discharges into the local sewer system or tanker trucks.
- D. The site shall be left clean and the property restored to conditions equal to site conditions prior to the installation.
- E. In grass areas, the sod shall be neatly cut and removed. In pavement areas, the pavement shall be straight-line marked, cut and removed. Costs for site restoration will be paid under those items and contained within Attachment C - Cost Proposal.
- F. The vacuum excavated borehole shall be approximately twenty inches (20") in diameter and all spoils shall be deposited in a vacuum truck.
- G. A riser pipe of an appropriate length shall be solvent welded to the saddle.

SECTION 02972 – VACUUM EXCAVATION

- H. The adhesive/sealant shall be applied to the underside of the saddle at no less than a ¼” thick layer.
- I. The saddle and riser pipe shall be carefully inserted into the bore hole, setting the saddle onto the pipe, applying a downward force causing the saddle to expand and snap onto the lateral pipe.
- J. Immediately after the saddle has been affixed to the lateral pipe, the riser pipe should be secured by backfilling the bore hole with sand or pea-gravel to within 6-inches of the original grade.
- K. Deviations: Should soil conditions reveal running sand or similar conditions that would prohibit the installation, the installation shall be terminated, and the borehole filled with flowable grout. The surface area shall be restored to its original condition.

3.2 TESTING AND CUTTING

- A. Prior to set-up of suction lines, bypass pumps and discharge lines, an exfiltration test shall be performed by filling the riser pipe with a 6-foot column of water. The test shall be performed no less than 12-hours from the time of affixing the saddle to the pipe. The column of water shall be held for five minutes. The water level shall be measured from the top of the riser pipe. Zero leakage is allowed.
- B. A diamond core saw shall be introduced into the riser pipe, the crown of the pipe is cut, and the coupon is removed.
- C. An approved cap or cover is installed at ground level or below ground level.

3.3 FINAL ACCEPTANCE

- A. Upon completion, the installer will deliver a videotape of the completed work to the Owner. The Owners will review the documentation and the site to determine that the scope of work is complete, and the work is satisfactory. Work must be accepted by the Owner and the customer who accepted the installation of the vacuum cleanout prior to payment.

PART 4

4.1 Requirements as set forth in [Section 01025, Measurement and Payment](#) and stated herein

- A. Payment will be in accordance with the Contract Documents at the unit rate provided in Attachment C - Cost Proposal and any written modifications issued by the County Purchasing Agent.

END OF SECTION

COUNTY OF FAIRFAX COMMONWEALTH OF VIRGINIA

GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS

BIDS ON SOLICITATIONS ISSUED BY THE COUNTY WILL BIND BIDDERS TO THE APPLICABLE CONDITIONS AND REQUIREMENTS IN THE GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS (GCIB) UNLESS OTHERWISE SPECIFIED IN THE SOLICITATION AND SUBJECT TO APPLICABLE STATE, LOCAL, AND FEDERAL LAWS.

BIDDERS OR THEIR AUTHORIZED REPRESENTATIVES SHOULD INFORM THEMSELVES FULLY AS TO THE CONDITIONS, REQUIREMENTS, AND SPECIFICATIONS OF EACH COUNTY PROCUREMENT BEFORE SUBMITTING BIDS. FAILURE TO DO SO WILL BE AT THE BIDDER'S OWN RISK AND RELIEF CANNOT BE SECURED ON THE PLEA OF ERROR.

- 1. AUTHORITY-**The Purchasing Agent has the sole responsibility and authority for purchasing supplies, materials, equipment, and services, except as excluded in the Fairfax County Purchasing Resolution. The Purchasing Agent's responsibility and authority includes, but is not limited to, issuing and modifying solicitations, negotiating and executing contracts, and placing purchase orders. In discharging these responsibilities, the Purchasing Agent may be assisted by contract specialists. Unless specifically delegated by the Purchasing Agent, no other County officer or employee is authorized to order supplies or services, enter into purchase negotiations or contracts, or in any way obligate the government of the County of Fairfax for an indebtedness. Any purchase ordered or contract made that is contrary to these provisions and authorities shall be of no effect, void, and does not bind the County.

- 2. DEFINITIONS-** Unless otherwise defined in the GCIB, capitalized terms shall have the meanings defined by the Fairfax County Purchasing Resolution.

AGENCY: Any Department, Agency, Authority, Commission, Board or other unit in the Administrative Service of the County.

BID: The offer of a bidder to provide specific goods or services at specified prices and/or other conditions specified in the solicitation.

BIDDER/OFFEROR: Any individual, company, firm, corporation, partnership or other organization bidding on solicitations issued by the Purchasing Agent and offering to enter into contracts with the County. The term "bidder" will be used throughout this document and shall be construed to mean "offeror" where appropriate.

CONTRACTOR: Any individual, company, firm, corporation, partnership or other organization to whom an award is made by the County.

INVITATION FOR BID (IFB): A request which is made to prospective suppliers (bidders) for their quotation on goods or services desired by the County. The issuance of an IFB will contain or incorporate by reference the specifications and contractual terms and conditions applicable to the procurement.

PURCHASING AGENT: The Purchasing Agent employed by the Board of Supervisors of Fairfax County, Virginia.

REQUEST FOR PROPOSAL (RFP): A request for an offer from prospective offerors which will indicate the general terms which are sought to be procured from the offeror. The RFP will specify the evaluation factors to be used and will contain or incorporate by reference other contractual terms and conditions applicable to the procurement.

SOLICITATION: The process of notifying prospective bidders that the County wishes to receive bids on a set of requirements to provide goods or services. The notification of County requirements may consist of public advertising (newspaper, County Web Site, or other electronic notification), the mailing of Notices of Solicitation, Invitation for Bid (IFB) or Request for Proposal (RFP), the public posting of notices, issuance of an informal solicitation to include telephone calls to prospective bidders.

CONDITIONS OF BIDDING

- 3. BID FORMS-**Unless otherwise specified in the solicitation, all bids must be (i) submitted on the forms provided by the County, including the bid Cover Sheet and Pricing Schedule(s); (ii) properly signed in ink in the identified spaces; and (iii) submitted in a sealed envelope or package.

If the bid prices or any other submissions differ on the copy of the submitted bid, the ORIGINAL copy shall prevail.

- 4. LATE BIDS & MODIFICATIONS OF BIDS-**
 - Bids or proposals received after the date and time specified for receipt in the solicitation will not be considered.
 - If an emergency, unanticipated event, or closing of County offices interrupts or suspends normal County business operations so that bids cannot be received at the County office designated for receipt of bids by the exact time specified in the solicitation, then bids will be due at the same time of day specified in the solicitation on the first work day that normal County business operations resume.**

General Conditions and Instructions to Bidders

- c. The official time used for receipt of bids/modifications is the time and date stamp clock located in the Department of Procurement & Material Management. No other clocks, calendars or timepieces are recognized. All bidders must ensure all bids/modifications are received prior to the scheduled due date/time.
5. **WITHDRAWAL OF BIDS**- Bids shall be withdrawn only as set forth in the Fairfax County Purchasing Resolution.
6. **ERRORS IN BIDS**-When an error is made in extending total prices, the unit bid price will govern. Erasures in bids must be initiated by the bidder. Bidders are cautioned to recheck their bids for possible error. Errors discovered after public opening cannot be corrected and the bidder will be required to perform if its bid is accepted.
7. **LABELING OF BIDS** – All bids and proposals submitted in response to a County solicitation must be submitted in a sealed envelope or package identified with the solicitation number, title, and bidder's name and address clearly marked on the outside of the envelope or package.
8. **ACCEPTANCE OF BIDS/BINDING 90 DAYS**-Unless otherwise specified, all formal bids submitted shall be binding for ninety (90) calendar days following bid opening date, unless extended by mutual consent of all parties.
9. **CONDITIONAL BIDS**-Conditional bids may be rejected in whole or in part.
10. **BIDS FOR ALL OR PART**-The Purchasing Agent reserves the right to make award on all items in the aggregate or on any of the items on an individual basis, whichever is in the best interest of the County. A bidder may restrict its bid to consideration in the group aggregate by so stating, but must name a single unit price on each item bid. Any bid in which the bidder names a total price for all the articles without quoting a unit price for each and every separate item may not be considered for award.
11. **AREA BIDS**-For the purchase and delivery of certain goods and services the County may be divided into Areas (e.g., Areas I, II, III, and IV). When such goods and services are included in the Pricing Schedule, bidders may bid on all areas or an individual area. A map showing the areas of the County will be furnished with the solicitation when required.
12. **RECEIPT OF BIDS**-Bids received prior to the time of opening will be securely kept, unopened by the County. No responsibility will attach to the Purchasing Agent or her representative for the premature opening of a bid not properly addressed and identified. Unless specifically authorized in the solicitation, telegraphic, electronic, or facsimile bids/modifications will not be considered by the County.
13. **BID OPENING**-All bids received in response to an Invitation for Bid (IFB) will be opened at the date, time and place specified, read publicly, and made available for inspection as provided in paragraph 64, General Conditions and Instructions to Bidders. The Purchasing Agent's representative assigned to open the bids will decide when the specified time for bid opening has arrived. Tabulations of bids received are posted on the County's website at: <https://www.fairfaxcounty.gov/procurement/bid-tab>
- Proposals received in response to a Request for Proposal (RFP) will be made available as provided in Paragraph 64, General Conditions and Instructions to Bidders.
14. **OMISSIONS & DISCREPANCIES**-Any items or parts of any equipment listed in this solicitation that clearly necessary for the operation and completion of such equipment, but are: (i) not fully described by the County; or (ii) are omitted by the County from such specification, shall be considered a part of such equipment even if not directly specified or called for in the specifications.
- If a bidder finds discrepancies or ambiguities in, or omissions from, the solicitation, including the drawings and/or specifications, it shall notify the Purchasing Agent at least five (5) days prior to the date set for the opening of bids. If necessary, the Purchasing Agent will send a written addendum for clarification to all bidders no later than three (3) days before the date set for opening of bids. Notifications regarding specifications will not be considered if received within five days of the date set for opening of bids.
15. **BIDDER INTERESTED IN MORE THAN ONE BID**-If more than one bid is offered by a bidder, directly or indirectly, all such bids may be rejected. A bidder who has quoted prices on work, materials, or supplies to a bidder is not disqualified from quoting prices to other bidders or firms submitting a bid directly for the work, materials or supplies.
16. **TAX EXEMPTION**-The County is exempt from the payment of any federal excise or any Virginia sales tax. Fairfax County's Federal Excise Tax Exemption Number is 54-74-0127K.
17. **PROHIBITION AGAINST UNIFORM PRICING**-The Purchasing Agent encourages open and competitive bidding by all possible means and endeavors to obtain the maximum degree of open competition on all purchase transactions using the methods of procurement authorized by the Fairfax County Purchasing Resolution. Each bidder, by virtue of submitting a bid, guarantees that it has not been a party with other bidders to an agreement to bid a fixed or uniform price. Violation of this implied guarantee shall render void the bids of participating bidders. Any disclosure to or acquisition by a competitive bidder, in advance of the opening of the bids, of the terms or conditions of the bid submitted by another competitor may render the entire proceedings void and may require re-advertising for bids.
18. **UNBALANCED BIDS**—A Bid shall be mathematically unbalanced if the Bid contains unit pricing that does not reflect reasonable costs (including actual labor and material cost, overhead and profit) for the performance of the bid item(s) in question. A Bid shall be materially unbalanced if there is a reasonable doubt that award of the mathematically unbalanced Bid will result in the lowest ultimate cost to the County. A Bid that is, in the sole discretion of the County Purchasing Agent, both mathematically and materially unbalanced, may be rejected as non-responsive.

General Conditions and Instructions to Bidders**SPECIFICATIONS**

- 19. CLARIFICATION OF TERMS**—If any prospective bidder has questions about the specifications or other solicitation documents, the prospective bidder should contact the contract specialist whose name appears on the face of the solicitation no later than five working dates before the due date. Any revisions to the solicitation will be made only by addendum issued by the contract specialist.
- 20. BRAND NAME OR EQUAL ITEMS**—Unless otherwise provided in the Invitation for Bid, the name of a certain brand, make or manufacturer does not restrict bidders to the specific brand, make or manufacturer named; it conveys the general style, type, character, and quality of the article desired. Any article that the County in its sole discretion determines to be the equivalent of that specified, considering quality, workmanship, economy of operation, and suitability for the purpose intended, shall be accepted. The bidder is responsible for clearly and specifically identifying the product being offered and providing sufficient descriptive literature, catalog cuts and technical detail to enable the County to determine if the product offered meets the requirements of the solicitation. This is required even if offering the exact brand, make, or manufacturer specified. Failure to furnish adequate data for evaluation purposes may result in declaring a bid nonresponsive. Unless the bidder clearly indicates in its bid that the product is an equivalent product, such bid will be considered to offer the brand name product referenced in the solicitation.
- 21. SPECIFICATIONS**—When a solicitation contains a specification that states no substitutes, no deviation therefrom will be permitted and the bidder will be required to furnish articles in conformity with that specification.

The bidder must abide by and comply with the true intent of the specifications and not take advantage of any unintentional error or omission, but shall fully complete every part as the true intent and meaning of the specifications and drawings. Whenever the mention is made of any articles, material, or workmanship to be in accordance with laws, ordinances, building codes, underwriter's codes, A.S.T.M. regulations or similar expressions, the requirements of these laws, ordinances, etc., shall be construed as to the minimum requirements of these specifications.

AWARD

- 22. AWARD OR REJECTION OF BIDS**—The Purchasing Agent shall award the contract to the lowest responsive and responsible bidder complying with all provisions of the IFB, provided the bid price is reasonable and it is in the best interest of the County to accept it. Awards made in response to a RFP will be made to the highest qualified offeror whose proposal is determined, in writing, to be the most advantageous to the County taking into consideration the evaluation factors set forth in the RFP. The Purchasing Agent reserves the right to award a contract by individual items, in the aggregate, or in combination thereof, or to reject any or all bids and to waive any informality in bids received whenever such rejection or waiver is in the best interest of the County. Award may be made to as many bidders as deemed necessary to fulfill the anticipated requirements of Fairfax County. The Purchasing Agent also reserves the right to reject the bid of a bidder deemed to be a non-responsible bidder.

In determining the responsibility of a bidder, the following criteria will be considered:

- a. The ability, capacity and skill of the bidder to perform the contract or provide the service required;
 - b. Whether the bidder can perform the contract or provide the service promptly, or within the time specified, without delay or interference;
 - c. The character, integrity, reputation, judgment, experience and efficiency of the bidder;
 - d. The quality of performance of previous contracts or services;
 - e. The previous and existing compliance by the bidder with laws and ordinances relating to the contract or services;
 - f. The sufficiency of the financial resources and ability of the bidder to perform the contract or provide the service;
 - g. The quality, availability and adaptability of the goods or services to the particular use required;
 - h. The ability of the bidder to provide future maintenance and service for the use of the subject of the contract;
 - i. Whether the bidder is in arrears to the County on debt or contract or is a defaulter on surety to the County or whether the bidder's County taxes or assessments are delinquent; and
 - j. Such other information as may be secured by the Purchasing Agent having a bearing on the decision to award the contract. If an apparent low bidder is not awarded a contract for reasons of non-responsibility, the Purchasing Agent shall so notify that bidder and shall have recorded the reasons in the contract file.
- 23. NOTICE OF ACCEPTANCE/CONTRACT DOCUMENTS**—A written award (or Acceptance Agreement) mailed or otherwise furnished to the successful bidder within the time for acceptance specified in the solicitation shall result in a binding contract. The following documents, which are included in the solicitation, are incorporated by reference in and made part of the resulting contract:
- a. County of Fairfax Solicitation Form (Cover Sheet) and other documents which may be incorporated by reference, if applicable
 - b. Acceptance Agreement
 - c. General Conditions and Instructions to Bidders
 - d. Special Provisions and Specifications
 - e. Pricing Schedule
 - f. Any Addenda/Amendments/Memoranda of Negotiations
- 24. TIE-BIDS** – If all bids are for the same total amount or unit price (including authorized discounts and delivery times), and if the public interest will not permit the delay of re-advertisement for bids, the Purchasing Agent is authorized to award the contract to the tie bidder that has its principal place of business in the County, or if there be none, to the resident Virginia tie bidder, or if there be none, to one of the tie bidders by drawing lots in public; or the Purchasing Agent may purchase the goods or services

General Conditions and Instructions to Bidders

in the open market except that the price paid shall not exceed the lowest contract bid price submitted for the same goods or services. The decision of the County to make award to one or more such bidders shall be final.

25. PROMPT PAYMENT DISCOUNT-

- a. Unless otherwise specified in the solicitation, prompt payment discounts requiring payment in less than fifteen (15) days will not be considered in evaluating a bid for award. However, even though not considered in the evaluation, such discounts will be taken if payment is to be made within the discount period.
- b. If a discount for prompt payment is allowed, the discount period will begin on the date of receipt of a properly completed invoice or acceptance of materials or services, whichever is later.
- c. For determining acceptance of supplies in accordance with the provisions of the prompt payment discount paragraph, inspection and acceptance shall be accomplished only after examination (including testing) of supplies and services to determine whether the supplies and services conform to the contract requirements.

For the purpose of earning the discount, payment is deemed to be made as of the date of mailing of the County check or issuance of an Electronic Funds Transfer, or completion of a credit card transaction.

26. INSPECTION-ACCEPTANCE- Acceptance shall occur only after receipt and inspection provided such inspection, as appropriate, is accomplished within a reasonable time. The County reserves the right to conduct any test/inspection it may deem advisable to assure goods and services conform to the specifications.

27. DEFINITE BID QUANTITIES-Where definite quantities are specifically stated, acceptance will bind the County to order quantities specified and to pay for, at contract prices, all such supplies or services delivered that meet specifications and conditions of the contract. However, the County will not be required to accept delivery of any balances unordered, as of the contract expiration date, unless the Contractor furnished the Purchasing Agent with a statement of unordered balances not later than ten (10) days after the termination date of the contract.

28. REQUIREMENT BID QUANTITIES-On "Requirement" bids, acceptance will bind the County to pay for, at unit bid prices, only quantities ordered and delivered. Where the County specifies estimated quantities, the Contractor shall not be required to deliver more than ten (10) percent in excess of the estimated quantity of each item, unless otherwise agreed upon.

CONTRACT PROVISIONS

29. TERMINATION OF CONTRACTS-Contracts will remain in force for full periods specified and/or until all articles ordered before date of termination shall have been satisfactorily delivered and accepted and thereafter until all requirements and conditions shall have been met, unless:

- a. Terminated prior to expiration date by satisfactory deliveries of entire contract requirements, or upon termination by the County for Convenience or Cause.
- b. Extended upon written authorization of the Purchasing Agent and accepted by Contractor, to permit ordering of unordered balances or additional quantities at contract prices and in accordance with contract terms.

30. TERMINATION FOR CONVENIENCE-A contract may be terminated in whole or in part by the County in accordance with this clause whenever the Purchasing Agent determines that such a termination is in the best interest of the County. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance shall be terminated and the date upon which termination becomes effective. An equitable adjustment in the contract price shall be made for completed service, but no amount shall be allowed for anticipated profit on unperformed services.

31. TERMINATION OF CONTRACT FOR CAUSE-

- a. If, through any cause, the Contractor fails to fulfill in a timely and proper manner its obligations under this contract, or if the Contractor violates any of the covenants, agreements, or stipulations of this contract, the County shall have the right to terminate the contract. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance shall be terminated and the date upon which termination becomes effective. In such event all finished or unfinished documents, data, studies, surveys, drawings, maps, models, and reports prepared by the Contractor under the contract shall, at the option of the County, become its property and the Contractor shall be entitled to receive just and equitable compensation for any satisfactory work completed on such documents.
- b. Termination of the Contract for Cause does not relieve the Contractor of liability to the County for damages sustained by the County by virtue of any breach of contract by the Contractor for the purpose of set off until such time as the exact amount of damages due to the County from the Contractor is determined.

32. CONTRACT ALTERATIONS-No alterations in the terms of a contract shall be valid or binding upon the County unless made in writing and signed by the Purchasing Agent or her authorized agent.

33. SUBLETTING OR ASSIGNMENT -It is mutually understood and agreed that the Contractor shall not assign, transfer, convey, sublet or otherwise dispose of his or her contractual duties to any other person, firm or corporation, without the previous written consent of the Purchasing Agent. If the Contractor desires to assign its right to payment of the contract, Contractor shall notify the Purchasing Agent immediately, in writing, of such assignment of right to payment. In no case shall such assignment of contract relieve the Contractor from its obligations or change the terms of the contract.

General Conditions and Instructions to Bidders

- 34. FUNDING-** The obligation of the County to pay compensation due the Contractor under the contract or any other payment obligations under any contract awarded pursuant to this contract is subject to appropriations by the Fairfax County Board of Supervisors to satisfy payment of such obligations. The County's obligations to make payments during subsequent fiscal years are dependent upon the same action. If such an appropriation is not made for any fiscal year, the contract shall terminate effective at the end of the fiscal year for which funds were appropriated and the County will not be obligated to make any payments under the contract beyond the amount appropriated for payment obligations under the contract. The County will provide the Contractor with written notice of non-appropriation of funds within thirty (30) calendar days after action is completed by the Board of Supervisors. However, the County's failure to provide such notice will not extend the contract into a fiscal year in which sufficient funds have not been appropriated.
- 35. DELIVERY/SERVICE FAILURES-**If a Contractor (i) fails to deliver goods or services within the time specified or within a reasonable time as interpreted by the Purchasing Agent; or (ii) fails to make replacements or corrections of rejected articles or services when so requested, immediately or as directed by the Purchasing Agent, then the Purchasing Agent shall have the authority to purchase in the open market goods or services of comparable grade or quality to replace goods or services not delivered or rejected. On all such purchases, the Contractor shall reimburse the County, within a reasonable time specified by the Purchasing Agent, for any expense incurred in excess of contract prices. Such purchases shall be deducted from the contract quantities if applicable. Should public necessity demand it, the County reserves the right to use or consume articles delivered or services performed which are substandard in quality, subject to an adjustment in price to be determined by the Purchasing Agent.
- 36. NON-LIABILITY-**The Contractor shall not be liable in damages for delay in shipment or failure to deliver when such delay or failure is the result of fire, flood, strike, the transportation carrier, act of God, act of Government, act of an alien enemy or by any other circumstances which, in the Purchasing Agent's opinion, are beyond the reasonable control of the Contractor. Under such circumstances, however, the Purchasing Agent may, at her discretion terminate the contract.
- 37. NON-DISCRIMINATION-**During the performance of this contract, the Contractor agrees as follows:
- a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this non-discrimination clause.
 - b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.
 - c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.
 - d. The Contractor will include the provisions of the foregoing paragraphs a, b, and c above in every subcontract or purchase order of over \$10,000 so that the provisions will be binding upon each subcontractor or vendor.
 - e. Contractor shall, throughout the term of this contract, comply with the Human Rights Ordinance, Chapter 11 of the Code of the County of Fairfax, Virginia, as reenacted or amended. Contractor shall further require that all of its subcontractors will comply with the Human Rights Ordinance, Chapter 11 of the Code of the County of Fairfax, Virginia, as reenacted or amended
- 38. SMALL, WOMEN-OWNED, AND MINORITY-OWNED BUSINESS USE-**
- a. It is the declared policy of the County of Fairfax, through its Small and Minority Business Enterprise Program, that Fairfax County and its employees undertake every effort to increase opportunity for use of small or minority businesses in all aspects of procurement to the maximum extent feasible.
 - b. Where it is practicable for any portion of the awarded contract to be subcontracted to other suppliers, the contractor is encouraged to offer such subcontracting opportunities to small, women and minority businesses.
 - c. Where Federal grants or monies are involved, it is the policy of Fairfax County, through its agents and employees, to comply with the requirements set forth in the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, as they pertain to small and minority business use.
- 39. GUARANTEES & WARRANTIES-**All guarantees and warranties required shall be furnished by the Contractor and shall be delivered to the Purchasing Agent before contract execution. Unless otherwise stated, manufacturer's standard warranty applies.
- 40. PRICE REDUCTION-**If the Contractor makes a general price reduction for any material covered by the solicitation to customers generally, an equivalent price reduction shall apply to this contract for the duration of the contract period (or until the price is further reduced). Such price reduction shall be effective at the same time and in the same manner as the reduction in the price to customers generally. For purpose of this provision, a "general price reduction" shall mean any horizontal reduction in the price of an article or service offered (1) to Contractor's customers generally, or (2) in the Contractor's price schedule for the class of customers (i.e., wholesalers, jobbers, or retailers), which was used as the basis for bidding on this solicitation. An occasional sale at a lower price, or sale of distressed merchandise at a lower price is not a "general price reduction" under this provision. The Contractor shall submit its invoice at such reduced prices indicating on the invoice that the reduction is pursuant to the "Price Reduction" provision of the contract documents. The Contractor will also within ten days of any general price reduction notify the Purchasing Agent of such reduction by letter. FAILURE TO DO SO MAY RESULT IN TERMINATION OF THE CONTRACT.
- 41. CHANGES-**If in the Purchasing Agent's opinion, it becomes proper or necessary in the execution of this contract to make any change in design, or to make any alterations that will increase the expense, the Purchasing Agent shall determine an equitable adjustment to the Contractor's compensation.

General Conditions and Instructions to Bidders

No payment shall be made to the Contractor for any extra material or services, or of any greater amount of money than stipulated to be paid in the contract, unless some changes in or additions to the contract requiring additional outlay by the Contractor are first expressly authorized and ordered in writing by contract amendment or otherwise furnished by the Purchasing Agent.

- 42. PLACING OF ORDERS**-Orders against contracts will be placed with the Contractor by Purchase Order or Procurement Card (P-Card) executed and released by the Purchasing Agent or their designee. When a Blanket Purchase Order has been released by the Purchasing Agent, telephonic orders may be placed directly with the Contractor by authorized personnel in the ordering Agency.

DELIVERY PROVISIONS

- 43. SHIPPING INSTRUCTIONS - CONSIGNMENT**-Unless otherwise specified in the solicitation each case, container, package, etc., delivered under the contract must be plainly marked, stating the Contractor's name, purchase order number, and delivery address as indicated in the order. Deliveries must be made within the hours of 8:00 AM - 3:00 PM. Deliveries at any other time will not be accepted unless specific arrangements have been previously made with the receiver at the delivery point. No deliveries will be accepted on Saturdays, Sundays and holidays, unless previous arrangements have been made. It shall be the responsibility of the Contractor to insure compliance with these instructions for items that are drop-shipped.
- 44. RESPONSIBILITY FOR MATERIALS OR GOODS TENDERED**-Unless otherwise specified in the solicitation, the Contractor is responsible for the materials or supplies covered by the contract until they are delivered at the delivery point designated by the County. The Contractor bears all risk of loss on rejected materials or supplies after notice of rejection. Rejected materials or supplies must be removed by and at the expense of the Contractor promptly after notification of rejection, unless public health and safety require immediate destruction or other disposal of rejected delivery. If rejected materials are not removed by the Contractor within ten (10) days after date of notification, the County may return the rejected materials or supplies to the Contractor at its risk and expense or dispose of them as the County's own property.
- 45. INSPECTIONS**-Inspection and acceptance of materials or supplies will be made after delivery at the designated destinations unless otherwise stated. If inspection is made after delivery at the designated destination, the County will bear the expense of inspection except for the value of samples used in case of rejection. Final inspection is conclusive except in regard to latent defects, fraud or such gross mistakes as to amount to fraud. Final inspection and acceptance or rejection of the materials or supplies will be made as promptly as practicable, but failure to inspect and accept or reject materials or supplies shall not impose liability on the County for such materials or supplies as are not in accordance with the specifications.
- 46. COMPLIANCE**-Delivery must be made as ordered and in accordance with the contract or as directed by the Purchasing Agent when not in conflict with the contract. The decision of the Purchasing Agent as to reasonable compliance with delivery terms shall be final. If the Contractor claims the delay in receipt of goods was caused by the County, the Contractor must provide evidence satisfactory to the Purchasing Agent supporting the Contractor's claim. Any request for extension of delivery time from that specified in the contract must be approved by the Purchasing Agent, such extension applying only to the particular item or shipment affected. If the Contractor is delayed by the County, there shall be added to the time of completion a time equal to the period of such delay caused by the County. However, the Contractor shall not be entitled to claim damages or extra compensation for such delay or suspension. These conditions may vary for construction contracts. See contract for the individual instructions.
- 47. POINT OF DESTINATION**-All materials shipped to the County must be shipped F.O.B. DESTINATION unless otherwise stated in the contract or purchase order. The materials must be delivered to the "Ship to" address indicated on the purchase order.
- 48. ADDITIONAL CHARGES**-Unless bought F.O.B. "shipping point" and Contractor prepays transportation, no delivery charges shall be added to invoices except when express delivery is authorized and substituted on orders for the method specified in the contract. In such cases, difference between freight or mail and express charges may be added to invoice.
- 49. METHOD AND CONTAINERS**-Unless otherwise specified, goods shall be delivered in commercial packages in standard commercial containers that are constructed to ensure acceptance by common or other carrier for safe transportation to the point of delivery. Containers become the property of the County unless otherwise specified by bidder.
- 50. REPLACEMENT**-Materials or components that have been rejected by the Purchasing Agent, in accordance with the terms of a contract, shall be replaced by the Contractor at no cost to the County.
- 51. PACKING SLIPS OR DELIVERY TICKETS**-All shipments must be accompanied by Packing Slips or Delivery Tickets and must contain the following information for each item delivered:
- a. The Purchase Order Number,
 - b. The Name of the Article and Stock Number (Supplier's),
 - c. The Quantity Ordered,
 - d. The Quantity Shipped,
 - e. The Quantity Back Ordered,
 - f. The Name of the Contractor.

Contractors are cautioned that failure to comply with these conditions is sufficient reason for the County's refusal to accept the goods.

General Conditions and Instructions to Bidders**BILLING**

52. **BILLING**-Billing for the Fairfax County Public Schools and for County agencies: Unless otherwise specified on the contract or purchase order (PO), invoices are to be submitted for each purchase order immediately upon completion of the shipment or services. Invoices should be mailed to the "BILL TO" address on the PO or to the appropriate address specified in the contract.

PAYMENTS

53. **PAYMENT**-Payment shall be made after satisfactory performance that is in accordance with all provisions of the contract, and upon receipt of a properly completed invoice. The County reserves the right to withhold any or all payments or portions thereof for Contractor's failure to perform in accordance with the provision of the contract or any subsequent modifications.
54. **PARTIAL PAYMENTS**-Unless otherwise specified, partial payments will be made upon acceptance of materials or services so invoiced if in accordance with completion date. However, up to 5 percent (5%) of the value of the entire order may be retained until completion of contract.
55. **PAYMENT FOR EQUIPMENT, INSTALLATION, AND TESTING**-When equipment requires installation (which includes erection, setting up or placing in position, service, or use) and testing, and the installation or testing is delayed, payment may be made on the basis of 50% of the contract price when such equipment is delivered on the site. A further allowance of 25% may be made when the equipment is installed and ready for test. The balance shall be paid after the equipment is tested and found to be satisfactory. If the equipment must be tested, but installation is not required to be made by the Contractor or if the equipment must be installed but testing is not required, payment may be made on the basis of 75% at the time of delivery and the balance shall be paid after satisfactory test or installation is completed.

GENERAL

56. **GENERAL GUARANTY**-Contractor agrees to:
- a. Save the County, its agents and employees harmless from liability of any nature or kind for the use of any copyrighted or uncopyrighted composition; secret process, patented or unpatented; invention; article or appliance furnished or used in the performance of a contract for which the Contractor is not the patentee, assignee, licensee or owner.
 - b. Warrant that when the contract includes a software license, or use of licensed software, the Contractor is the owner of the Software or otherwise has the right to grant to the County the license to use the Software granted through the Contract without violating or infringing any law, rule, regulation, copyright, patent, trade secret or other proprietary right of any third party.
 - c. Protect the County against latent defective material or workmanship and to repair or replace any damages or marring occasioned in transit or delivery.
 - d. Furnish adequate protection against damage to all work and to repair damages of any kind to the building or equipment, to his or her own work or to the work of other contractors, for which his or her workers are responsible.
 - e. Pay for all permits, licenses and fees and give all notices and comply with all laws, ordinances, rules, regulations, and policies of the County.
 - f. Protect the County from loss or damage to County owned property while it is in the custody of the Contractor.
57. **SERVICE CONTRACT GUARANTY**-Contractor agrees to:
- a. Furnish services described in the solicitation and resultant contract at the times and places and in the manner and subject to conditions of those documents provided that the County may reduce the said services at any time.
 - b. Enter upon the performance of services with all due diligence and dispatch, assiduously press to its complete performance, and exercise therein the highest degree of skill and competence.
 - c. All work and services rendered in strict conformance to all laws, statues, and ordinances and the applicable government rules, regulations, methods, and procedures.
 - d. Allow services to be inspected or reviewed by an employee of the County at any reasonable time and place selected by the County. The County is under no obligation to compensate Contractor for any services not rendered in strict conformity with the contract.
 - e. Stipulate that the presence of a County Inspector shall not lessen the obligation of the Contractor for performance in accordance with the contract requirements, or be deemed a defense on the part of the Contractor for infraction thereof. The Inspector is not authorized to revoke, alter, enlarge, relax, or release any of the requirements of the contract documents. Any omission or failure on the part of the Inspector to disapprove or reject any work or material shall not be construed to be an acceptance of any such defective work or material. Notification of an omission or failure will be documented by the Purchasing Agent.
58. **INDEMNIFICATION**-
- a. General Indemnification. Contractor must indemnify, keep and save harmless, and defend the County, its agents, officials, employees and volunteers against Claims that may accrue or arise against the County as a result of the granting a contract, if the Claim was caused by the negligence or error, or omission of the Contractor, its employees, its subcontractor, or its subcontractor's employees. As used in this Section, a Claim includes: injuries, death, damage to property, breach of data security, suits, liabilities, judgments, or costs and expenses. Upon request by the County, the Contractor must at its own expense: appear, defend, and pay all attorney's fees and all costs and other expenses related to the Claim. If, related to a Claim, any judgment is rendered against the County or a settlement reached that requires the County to pay money, the Contractor must at its own expense satisfy and discharge the same. Contractor expressly understands and agrees that any

General Conditions and Instructions to Bidders

performance bond or insurance protection required by this Contract, or otherwise provided by the Contractor, does not limit the Contractor's responsibility to indemnify, keep and save harmless, and defend the County as provided in this Contract.

- b. **Intellectual Property Indemnification.** In addition to the General Indemnification, Contractor will indemnify the County for and defend the County against third-party claims for infringement of any valid United States patent, trademark or copyright by the Contractor's products, software, services, or deliverables. Contractor must indemnify the County for any loss, damage, expense or liability, including costs and reasonable attorney's fees that may result by reason of any such claim.

In the event of a claim covered by this subparagraph, and in addition to all other obligations of Contractor in this Paragraph 58, Contractor must at its expense and within a reasonable time: (a) obtain a right for the County to continue using such products and software, or allow Contractor to continue performing the Services; (b) modify such products, software, services or deliverables to make them non-infringing; or (c) replace such products or software with a non-infringing equivalent. If, in the Contractor's reasonable opinion, none of the foregoing options is feasible Contractor must immediately notify the County and accept the return of the products, software, services, or deliverables, along with any other components rendered unusable as a result of the infringement or claimed infringement, and refund to the County the price paid to Contractor for such components as well as any pre-paid fees for the allegedly infringing services, including license, subscription fees, or both. Nothing in Paragraph 58, however, relieves the Contractor of liability to the County for damages sustained by the County by virtue of any breach of contract related to a third-party infringement claim.

- c. **Right to Participate in Defense.** The County may, at its sole expense, participate in the defense or resolution of a Claim. Contractor will have primary control of the defense and resolution of the Claim, except when such defense or resolution requires the County to (i) admit liability or wrongdoing; or (ii) to pay money. In either of these cases Contractor must obtain the County's prior written consent before entering into such settlement or resolution.
- d. **No Indemnification by the County.** The parties agree that under applicable law the County cannot indemnify or defend the Contractor. To the extent any promise or term contained in this Contract, including any exhibits, attachments, or other documents incorporated by reference therein, includes an indemnification or obligation to defend by the County, that promise or term is stricken from this Contract and of no effect.

59. OFFICIALS NOT TO BENEFIT-

- a. Each bidder, offeror, or contractor shall certify, upon signing a bid, proposal, or contract, that to the best of their knowledge no Fairfax County official or employee having official responsibility for the procurement transaction, or member of their immediate family, has received or will receive any financial benefit of more than nominal or minimal value relating to the award of this contract. If such a benefit has been received or will be received, this fact shall be disclosed with the bid or proposal or as soon thereafter as it appears that such a benefit will be received. Failure to disclose the information prescribed above may result in suspension or debarment, or rescission of the contract made, or could affect payment pursuant to the terms of the contract.
- b. Whenever there is reason to believe that a financial benefit of the sort described in paragraph "a" has been or will be received in connection with a bid, proposal or contract, and that the Contractor has failed to disclose such benefit or has inadequately disclosed it, the County Executive, as a prerequisite to payment pursuant to the contract, or at any other time, may require the Contractor to furnish, under oath, answers to any interrogatories related to such possible benefit.
- c. In the event the bidder or offeror has knowledge of benefits as outlined above, this information should be submitted with the bid or proposal. If the above does not apply at time of award of contract and becomes known after inception of a contract, the bidder or offeror shall address the disclosure of such facts to the Fairfax County Purchasing Agent, 12000 Government Center Parkway, Suite 427, Fairfax, Virginia 22035-0013. Relevant Invitation/Request for Proposal Number (see cover sheet) should be referenced in the disclosure.

60. LICENSE REQUIREMENT-All firms doing business in Fairfax County, shall obtain a license as required by Chapter 4, Article 7, of The Code of the County of Fairfax, Virginia, as amended, entitled "Business, Professional and Occupational Licensing (BPOL) Tax." Questions concerning the BPOL Tax should be directed to the Department of Tax Administration, telephone (703) 222-8234 or visit: http://www.fairfaxcounty.gov/dta/business_tax.htm. The BPOL Tax number must be indicated in the space provided on the Cover Sheet, "Fairfax License Tax No." when appropriate.

61. AUTHORIZATION TO CONDUCT BUSINESS IN THE COMMONWEALTH: A contractor organized as a stock or nonstock corporation, limited liability company, business trust, or limited partnership or registered as a registered limited liability partnership shall be authorized to transact business in the Commonwealth as a domestic or foreign business entity if so required by Title 13.1 or Title 50 of the *Code of Virginia* or as otherwise required by law. Any business entity described above that enters into a contract with a Fairfax County pursuant to the Fairfax County Purchasing Resolution shall not allow its existence to lapse or its certificate of authority or registration to transact business in the Commonwealth, if so required under Title 13.1 or Title 50, to be revoked or cancelled at any time during the term of the contract. Fairfax County may void any contract with a business entity if the business entity fails to remain in compliance with the provisions of this section.

62. COVENANT AGAINST CONTINGENT FEES-The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For violation of this warranty, the County shall have the right to terminate or suspend this contract without liability to the County or in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

General Conditions and Instructions to Bidders

- 63. VIRGINIA FREEDOM OF INFORMATION ACT-**All proceedings, records, contracts and other public records relating to procurement transactions shall be open to the inspection of any citizen, or any interested person, firm or corporation, in accordance with the Virginia Freedom of Information Act except as provided below:
- a. Cost estimates relating to a proposed procurement transaction prepared by or for a public body shall not be open to public inspection.
 - b. Any competitive sealed bidding bidder, upon request, shall be afforded the opportunity to inspect bid records within a reasonable time after the opening of all bids but prior to award, except in the event that the County decides not to accept any of the bids and to reopen the contract. Otherwise, bid records shall be open to public inspection only after award of the contract. Any competitive negotiation offeror, upon request, shall be afforded the opportunity to inspect proposal records within a reasonable time after the evaluation and negotiations of proposals are completed but prior to award except in the event that the County decides not to accept any of the proposals and to reopen the contract. Otherwise, proposal records shall be open to the public inspection only after award of the contract except as provided in paragraph "c" below. Any inspection of procurement transaction records under this section shall be subject to reasonable restrictions to ensure the security and integrity of the records.
 - c. Trade secrets or proprietary information submitted by a bidder, offeror or Contractor in connection with a procurement transaction or prequalification application submitted pursuant to the prequalification process identified in the Special Provisions, shall not be subject to the Virginia Freedom of Information Act; however, the bidder, offeror or Contractor shall (i) invoke the protections of this section prior to or upon submission of the data or other materials, (ii) identify the data or other materials to be protected, and (iii) state the reasons why protection is necessary.
 - d. Nothing contained in this section shall be construed to require the County, when procuring by "competitive negotiation" (Request for Proposal), to furnish a statement of the reasons why a particular proposal was not deemed to be the most advantageous to the County.
 - e. The County cannot maintain as confidential any information, data, or records obtainable through the Virginia Freedom of Information or similar law. This includes records or information that have not been properly designated as trade secret or proprietary information pursuant to Va. Code Ann. § 2.2-4342(F).
 - f. A bidder or offeror shall not designate as trade secrets or proprietary information (a) an entire bid, proposal, or prequalification application; (b) any portion of a bid, proposal, or prequalification application that does not contain trade secrets or proprietary information; or (c) line item prices or total bid, proposal, or prequalification application prices.

BIDDER/CONTRACTOR REMEDIES**64. INELIGIBILITY-**

- a. Any person or firm suspended or debarred from participation in County procurement shall be notified in writing by the Purchasing Agent.
 1. The Notice of Suspension shall state the reasons for the actions taken and such decision shall be final unless the person or firm appeals within ten (10) days of receipt of the Notice by instituting legal action as provided in the Code of Virginia.
 2. The Notice of Debarment shall state the reasons for the actions taken and the decision shall be final unless the person or firm appeals within ten (10) days of receipt of the Notice by instituting legal action as provided in the Code of Virginia.
- b. The Purchasing Agent shall have the authority to suspend or debar a person or firm from bidding on any contract for the causes stated below:
 1. Conviction for commission of a criminal offense as an incident to obtaining or attempting to obtain a public or private contract or subcontract, or in the performance of such contract or subcontract;
 2. Conviction under state or federal statutes of embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, or any other offense indicating a lack of business integrity or business honesty which currently, seriously, and directly affects responsibility as a County Contractor;
 3. Conviction under the state or federal antitrust statutes arising out of the submission of bids or proposals;
 4. Violation of contract provisions, as set forth below, of a character which is regarded by the Purchasing Agent to be so serious as to justify suspension or debarment action:
 - a. failure without good cause to perform in accordance with the specifications or within the time limit provided in the contract; or
 - b. a recent record of failure to perform or of unsatisfactory performance in accordance with the terms of one or more contracts; provided, that failure to perform or unsatisfactory performance caused by acts beyond the control of the Contractor shall not be considered to be a basis for suspension or debarment;
 5. Any other cause the Purchasing Agent determines to be so serious and compelling as to affect responsibility as a Contractor, such as debarment by another governmental entity for any cause listed herein, or because of prior reprimands;
 6. The contractor has abandoned performance, been terminated for default on a Fairfax County project, or has taken any actions that inure to the detriment of Fairfax County or a Fairfax County project.
 7. The Contractor is in default on any surety bond or written guarantee on which Fairfax County is an obligee.
- c. If, upon appeal, it is determined that the action taken by the Purchasing Agent was arbitrary or capricious, or not in accordance with the Constitution of Virginia, statutes or regulations, the sole relief available to the person or firm shall be restoration of eligibility. The person or firm may not institute legal action until all statutory requirements have been met.

General Conditions and Instructions to Bidders**65. APPEAL OF DENIAL OF WITHDRAWAL OF BID-**

- a. A decision denying withdrawal of a bid submitted by a bidder or offeror shall be final and conclusive unless the bidder appeals the decision within ten (10) days after receipt of the decision by instituting legal action as provided in the Code of Virginia. The bidder or offeror may not institute legal action until all statutory requirements have been met.
- b. If no bid bond was posted, a bidder refused withdrawal of bid under the provisions of Article 2, Section 5.A.8, of the Fairfax County Purchasing Resolution, prior to appealing, shall deliver to the County a certified check or cash bond in the amount of the difference between the bid sought to be withdrawn and the next low bid. Such security shall be released only upon a final determination that the bidder was entitled to withdraw the bid.
- c. If, upon appeal, it is determined that the decision refusing withdrawal of the bid was not an honest exercise of discretion, but rather was arbitrary or capricious or not in accordance with the Constitution of Virginia, applicable state law or regulation, or the terms or conditions of the Invitation to Bid, the sole relief shall be withdrawal of the bid.

66. APPEAL OF DETERMINATION OF NONRESPONSIBILITY-

- a. Any bidder who, despite being the apparent low bidder, is determined not to be a responsible bidder for a particular County contract shall be notified in writing by the Purchasing Agent. Such notice shall state the basis for the determination, which shall be final unless the bidder appeals the decision within ten (10) days of receipt of the notice by instituting legal action as provided in the Code of Virginia. The bidder may not institute legal action until all statutory requirements have been met.
- b. If, upon appeal, it is determined that the decision of the Purchasing Agent was arbitrary or capricious and the award for the particular County contract in question has not been made, the sole relief available to the bidder shall be a finding that the bidder is a responsible bidder for the County contract in question. Where the award has been made and performance has begun, the County may declare the contract void upon a finding that this action is in the best interest of the public. Where a contract is declared void, the performing Contractor shall be compensated for the cost of performance up to the time of such declaration. In no event shall the performing Contractor be entitled to lost profits.

67. PROTEST OF AWARD OR DECISION TO AWARD-

- a. Any bidder or offeror may protest the award or decision to award a contract by submitting a protest in writing to the Purchasing Agent, or an official designated by the County of Fairfax, no later than ten (10) days after the award or the announcement of the decision to award, whichever occurs first. Any potential bidder or offeror on a contract negotiated on a sole source or emergency basis who desires to protest the award or decision to award such contract shall submit such protest in the same manner no later than ten days after posting or publication of the notice of such contract as provided in Article 2, Section 2, of the Fairfax County Purchasing Resolution. However, if the protest of any actual or potential bidder or offeror depends in whole or in part upon information contained in public records pertaining to the procurement transaction which are subject to inspection under Article 2, Section 5.D of the Fairfax County Purchasing Resolution, then the time within which the protest must be submitted shall expire ten days after those records are available for inspection by such bidder or offeror under Article 2, Section 5.D, or at such later time as provided herein. No protest shall lie for a claim that the selected bidder or offeror is not a responsible bidder or offeror. The written protest shall include the basis for the protest and the relief sought. The Purchasing Agent shall issue a decision in writing within ten (10) days of the receipt of the protest stating the reasons for the action taken. This decision shall be final unless the bidder or offeror appeals within ten (10) days of receipt of the written decision by instituting legal action as provided in the Code of Virginia. Nothing in this section shall be construed to permit a bidder to challenge the validity of the terms or conditions of the Invitation for Bid or Request for Proposal.
- b. If prior to award it is determined that the decision to award is arbitrary or capricious, then the sole relief shall be a finding to that effect. The Purchasing Agent shall cancel the proposed award or revise it to comply with the law. If, after an award, it is determined that an award of a contract was arbitrary or capricious, then the sole relief shall be as hereinafter provided. Where the award has been made but performance has not begun, the performance of the contract may be declared void by the County. Where the award has been made and performance has begun, the Purchasing Agent may declare the contract void upon a finding that this action is in the best interest of the County. Where a contract is declared void, the performing Contractor shall be compensated for the cost of performance at the rate specified in the contract up to the time of such declaration. In no event shall the performing Contractor be entitled to lost profits.
- c. Pending final determination of a protest or appeal, the validity of a contract awarded and accepted in good faith in accordance with this article shall not be affected by the fact that a protest or appeal has been filed.
- d. An award need not be delayed for the period allowed a bidder or offeror to protest, but in the event of a timely protest, no further action to award the contract will be taken unless there is a written determination that proceeding without delay is necessary to protect the public interest or unless the bid or offer would expire.

68. CONTRACTUAL DISPUTES-

- a. Any dispute concerning a question of fact as a result of a contract with the County which is not disposed of by agreement shall be decided by the Purchasing Agent, who shall reduce her decision to writing and mail or otherwise forward a copy to the Contractor within ninety (90) days. The decision of the Purchasing Agent shall be final and conclusive unless the Contractor appeals within six (6) months of the date of the final written decision by instituting legal action as provided in the Code of Virginia. A Contractor may not institute legal action, prior to receipt of the Purchasing Agent's decision on the claim, unless the Purchasing Agent fails to render such decision within the time specified.
- b. Contractual claims, whether for money or other relief, shall be submitted in writing no later than sixty days after final payment; however, written notice of the Contractor's intention to file such claim shall have been given at the time of the occurrence or

General Conditions and Instructions to Bidders

beginning of the work upon which the claim is based. Nothing herein shall preclude a contract from requiring submission of an invoice for final payment within a certain time after completion and acceptance of the work or acceptance of the goods. Pendency of claims shall not delay payment of amounts agreed due in the final payment.

- 69. LEGAL ACTION**-No bidder, offeror, potential bidder or offeror, or Contractor shall institute any legal action until all statutory requirements have been met.
- 70. VENUE:** This contract and its terms, including but not limited to, the parties' obligations, the performance due, and the remedies available to each party, are governed, construed, and interpreted in accordance with the laws of the Commonwealth of Virginia. Any jurisdiction's choice of law, conflicts of laws, rules, or provisions that would cause the application of any laws other than those of the Commonwealth of Virginia do not apply. Any and all disputes, claims, and causes of action arising out of or in any way connected with this contract or its performance must be brought in the applicable court of Fairfax County, or in the United States District Court for the Eastern District of Virginia, Alexandria Division.
- 71. COOPERATIVE PURCHASING**-The County or any entity identified in the Fairfax County Purchasing Resolution, Article 1, Section 3 may participate in, sponsor, conduct or administer a cooperative procurement agreement as set forth in the Fairfax County Purchasing Resolution.
- 72. DRUG FREE WORKPLACE**-During the performance of a contract, the Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor. For the purposes of this section, "drug-free workplace" means a site for the performance of work done in conjunction with a specific contract awarded to a Contractor in accordance with this section, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.
- 73. IMMIGRATION REFORM AND CONTROL ACT**-Contractor agrees that it does not and shall not during the performance of the contract for goods and services in the Commonwealth, knowingly employ an unauthorized alien as defined in the Federal Immigration Reform and Control Act of 1986.
- 74. AUDIT OF RECORDS** The parties agree that the County or its agent must have reasonable access to and the right to examine any records of the contractor involving transactions related to the contract or compliance with any clauses thereunder, for a period of three (3) years after final payment. The contractor shall include these same provisions in all related subcontracts. For purposes of this clause, the term "records" includes documents, and papers regardless of whether they are in written form, electronic form, or any other form.
- 75. NONVISUAL ACCESS**-All information technology, which is purchased or upgraded by the County under this contract, must comply with the following access standards from the date of purchase or upgrade until the expiration of the Contract:
- a. Effective, interactive control and use of the technology (including the operating system), applications programs, and format of the data presented, shall be readily achievable by nonvisual means;
 - b. the technology equipped for nonvisual access shall be compatible with information technology used by other individuals with whom the blind or visually impaired individual interacts;
 - c. Nonvisual access technology shall be integrated into networks used to share communications among employees, program participants, and the public; and
 - d. The technology for nonvisual access shall have the capability of providing equivalent access by nonvisual means to telecommunications or other interconnected network services used by persons who are not blind or visually impaired. A covered entity may stipulate additional specifications in any procurement.
 - e. Compliance with the nonvisual access standards set out this Section is not required if the Board of Supervisors determines that (i) the information technology is not available with nonvisual access because the essential elements of the information technology are visual and (ii) nonvisual equivalence is not available.

APPROVED:

/S/ Elizabeth D. Teare
COUNTY ATTORNEY

/S/ Cathy A. Muse
COUNTY PURCHASING AGENT



County of Fairfax, Virginia

ADDENDUM

DATE: May 8, 2020

ADDENDUM NO. 1

TO: ALL PROSPECTIVE OFFERORS
REFERENCE: RFP 2000003120
TITLE: Sewer Rehabilitation
DUE DATE/TIME: June 5, 2020 @ 10:00 a.m. **(REVISED)**

The referenced Request for Proposal is amended as follows:

1. The Due Date/Time has been extended to **June 5, 2020 @ 10:00 A.M.**
2. The following are corrections being made to the Special Provisions:
 - a. **Add** the following to Section 6, paragraph 6.8:
 - **Mobilization and Demobilization Requirements** - The County will advise two weeks in advance when off-road sites are available for access. The Rehabilitation contractor shall mobilize and begin sewer rehabilitation work and demobilize his operations within a mutually agreed upon time frame. If no mutual agreement can be made, then mobilization and initiation of sewer rehabilitation work and or demobilization will be within two weeks of written notice.
 - b. **Delete** the word "manhole" in Section 18, paragraph 18.3, item 3b.
3. The following are corrections being made to Attachment B:
 - a. **Change** the last sentence in Section 01025, paragraph 2.31B to read as:
 - Traffic control for a four-lane road with posted speed limit greater than 45 miles per hour, item **87** and Bypass pumping greater than 2 MGD, items **54** and **55** will be paid for separately when needed and directed by the County.
 - b. **Change** the last sentence in Section 01025, paragraph 2.32B to read as:
 - Traffic control for a four-lane road with posted speed limit greater than 45 miles per hour, item **87** and Bypass pumping greater than 2 MGD, items **54** and **55** will be paid for separately when needed and directed by the County.
 - c. **Delete** the reference to "**Item 86**" and **replace** with "**Item 87**" in Section 02640, paragraph 1.9W.
 - d. **Delete** the reference to "**Item 86**" and **replace** with "**Item 87**" in Section 02640, paragraph 1.9W, #3.

RFP 2000003120
Addendum No. 1
Page 2

e. **Delete** the reference to “**paragraph 2.18**” and **replace** with “**paragraph 2.20**” in the last sentence of Section 02954, paragraph 3.1D.

4. Refer to Attachment 1 in this document for responses to questions received.

All other terms and conditions remain the same.



Nicole Cifci, CPPB, VCA
Contract Specialist II

THIS ADDENDUM IS ACKNOWLEDGED AND IS CONSIDERED A PART OF THE SUBJECT REQUEST FOR PROPOSAL:

Name of Firm

(Signature)

(Date)

A SIGNED COPY OF THIS ADDENDUM MUST BE RETURNED PRIOR TO DUE DATE/TIME OR MUST ACCOMPANY PROPOSAL BY WAY OF UPLOAD TO FAIRFAX COUNTY’S PROCUREMENT PORTAL AT [HTTPS://FAIRFAXCOUNTY.BONFIREHUB.COM](https://fairfaxcounty.bonfirehub.com).

NOTE: SIGNATURE ON THIS ADDENDUM DOES NOT SUBSTITUTE FOR YOUR SIGNATURE ON THE ORIGINAL RFP DOCUMENT. THE ORIGINAL PROPOSAL DOCUMENT MUST BE SIGNED.

RFP 2000003120

Addendum No. 1

Page 3

ATTACHMENT 1

- Q1. Is the offeror required to provide pricing for both UV and water cure or may they provide pricing for just one Curing method?
A1. Please reference paragraph 7.3f of the RFP regarding alternative approaches. If you have alternative approaches to the line items listed in Attachment C, a separate document can be created and submitted. With your technical proposal please provide written documentation to explain the reason for the proposed alternative and how you will meet the materials strength and durability requirements of ASTM and referenced specifications to validate the product will perform as good or better than the original product.
- Q2. What is the Contract time for this project?
A2. Please reference Section 3 of the RFP.
- Q3. There were no Qualification Forms provided in the Specification document are we supposed to create our own Qualification paperwork?
A3. There are no qualification forms, the information should be provided per paragraph 7.2 of the RFP.
- Q4. Is there a Bid Bond required to bid this project? There is no mention of one in the Specification and there was no Bid Bond document in the specification.
A4. A bid bond is not required to submit a proposal.
- Q5. If there is a Bid Bond, what is the %?
A5. See response to Q4.
- Q6. Do we provide our own Bid Bond?
A6. See response to Q4.
- Q7. What is the Retainage %?
A7. See response to Q4.
- Q8. What are the Liquidated Damages?
A8. A contractor may be charged \$100.00 per business day for not correcting punch list items within 60 days of notice, see Attachment B, Section 02640, paragraph 1.20 Punch List Items.
- Q9. Is there a Maintenance Bond?
A9. Maintenance Bonds are not required. Please reference Section 33 of the RFP regarding bonds and when they are required. However, all pipeline and manhole rehabilitation products do require a warranty when used, see Attachment B, Section 02954 paragraph 1.10A, Section 02955 paragraph 3.6, Section 02957 paragraph 1.11A, and paragraph 2.5A1, Section 02959 paragraph 3.13A.
- Q10. What are the specifications of the Maintenance Bond?
A10. See response to Q9.
- Q11. Is there an MBE/WBE goal? What is the MBE/WBE goal?
A11. No.

RFP 2000003120

Addendum No. 1

Page 4

ATTACHMENT 1

Q12. Excel bid form, does the contractor need to price each item to be considered responsive? Or can they not price one section if it is not in their capabilities?

A12. The County is seeking several types of products and tools to rehabilitate the sewer system that will provide flexibility to meet a variety of needs and conditions in the field. When submitting your proposal, it is important to provide flexibility in the products and services being offered. If all items are accounted for, this will allow the County the ability to rehabilitate the sewer system under a variety of circumstances and conditions. You may submit items and prices for work that your company can complete. Or you could find a subcontractor and submit the item and price for work completed by them. Or you could offer another similar product as outlined in Q1. Or you can provide nothing and still be considered responsive.

Q13. Liquidated damages?

A13. See response to Q8.

Q14. Is there an Engineering estimated value for this project?

A14. Please see paragraph 4.6 of the RFP.

Q15. Since this in unknown scope can you provide the following (to be used for bidding purposes)?

1. Average distance (LF) between manhole to manhole runs – used to determine potential shot length for bidding?
2. Average number of potential service connection between manholes (Manhole to Manhole) – used to determine potential site time needed per shot to reinstate services?
3. percentage of lines with a depth of between 17 VF to 25 VF deep – to determine a percentage of thicker liner that may be utilized on contract?
4. Percentage of work that will be in easements?

A15. Information regarding details about the scope can be found in Section 1; Section 5, Item 5.3; and Section 6, Item 6.2.

1. **The average length of an 8-18-inch line is 178 feet.**
2. **The average number of service connections is 5 for each sewer segment.**
3. **The percentage of manholes over 17 VF deep are 3.5 % or 3262 of manholes over 17 feet deep/ 95637 of all manholes in the system. Additional information can be found in Attachment B, Section 02954, paragraph 2.2J and paragraph 2.4E.**
4. **Our best estimate would be about 30%-35% of the work will be in off road in easements. You could receive packages that may have more or less work in easements. Please see additional information in Section 6, paragraphs 6.4 through 6.8.**

Q16. Will the county consider reducing the warranty years for the CIPP, currently at 5 years?

A16. No

Q17. Will the county consider removing the “free of any leakage through the CIPP wall” – ASTM 1216 indicates an approved leak rate for CIPP rehabilitate pipes?

A17. No, we have had no issue meeting this requirement. Leakage test for this project will not be conducted on gravity sewer per ASTM 1216, section 8.3.

RFP 2000003120

Addendum No. 1

Page 5

ATTACHMENT 1

Q18. Are there plans associated with this work? If not, can a sample assignment be given as means to use for determining potential cost structure of the bid?

A18. There are no plans at this current time. The estimated quantities listed in Attachment C – Cost Proposal represent 50% of the estimated quantity to be completed each year within Fairfax County. For additional information regarding the process please reference Attachment B, Section 02640, paragraph 1.2B, paragraphs 1.16 A through E. A contractor would receive a list of manholes and/or sewer segments to rehabilitate, and also a CCTV report for each line on the list. Using the list and CCTV report, the contractor would use the Fairfax County Digital Map Viewer to view each sewer segment on a map and use the Fairfax County ArcGIS online Map Service for Mobile devices to find each manhole in the field. The contractor will confirm the location by street address and other landmarks in the field as well. Then confirm field measurements for design and arrange crew, materials and equipment for the installation which includes public notifications and other duties.

Q19. Do you foresee this bid being postponed or cancelled due to the virus?

A19. At this current time, the County will not be cancelling this RFP, however the due date has been extended to June 5, 2020 at 10:00 A.M.

Q20. Is project tax free?

A20. Please see Appendix A, Item 16.

Q21. Prevailing wage needed?

A21. No

Q22. The project shows 14 and 16-inch pipe this will require a special fabricated liner which will increase the per foot cost.

1. Can you confirm the county has 14 and 16-inch pipe? These are not standard pipe sizes.
2. If these pipe are actually in Fairfax county – can you please provide the potential material these pipe may be made out of?
3. Usually when we find odd pipe it's not your standard material, they are usually some sort of plastic pipe. If these are a plastic pipe (PVC, Truss, etc) most reputable contractors will utilize a nonstandard liner (reinforced) and a nonstandard resin (epoxy) to ensure the finish product is acceptable, if plastic is assumed for these odd shapes can you indicate in the spec that a reinforced liner with epoxy resin (still a water shot) must be used?

- Utilizing standard liner materials with standard resins can cause a violent exotherm resulting in brittle resin, spider cracks or the liner can shift. This is caused by the plastic pipes absorbing the heat that is supposed to cure the liner resulting in achieving optimal curing temp prematurely and not allowing sufficient time for the liner to cure properly therefore compromising the cure.

A22. Question #1: Yes, the County has 14- and 16-inch pipe

Question #2: Based on GIS data, the materials for 14 and 16-inch pipe are DIP, Cast Iron and AC Pipe, these materials must be verified in field.

Question #3: Lining odd pipes: Feel free to submit product and prices that may address situations where different curing methods and materials could be used for those situations' your company has seen as part of your proposal. Ambient cure for PVC would be considered as well as other options.

RFP 2000003120

Addendum No. 1

Page 6

ATTACHMENT 1

Q23. Would Fairfax County accept a PVC Liner process as an alternate method to the specified Cure in Place process?

A23. Please see response to Q1.

Q24. We understand the Owner does not wish steam cure CIPP to be utilized for this project. However, if the contractor utilizes industry accepted methods of odor mitigation (fans, plugs, etc.) will Contractors be allowed to utilize air inversion & steam cured CIPP for this contract?

A24. No

Q25. The Special Revisions reference styrene free resins along with products containing the 'least amount of styrene odors to minimize public complaints'. Will the Owner please define acceptable levels of styrene odors?

A25. Paragraph 5.2 of the RFP provides key types of Sewer Rehabilitation and considerations being sought. We are interested in styrene free resins that will produce the least amount of styrene odors.

Q26. To insure an apples to apples pricing comparison with regards to CIPP materials, should all Bidders utilize styrene free resin in their submitted pricing? The current specification appears to leave a large area of interpretation regarding what CIPP materials will be accepted by the Owner?

A26. Styrene free resins are not a requirement across the board. Submit the products and prices you are offering in accordance with the RFP. The criteria for award can be found in Section 15 of the RFP.

Q27. May I get the Plan Holder List for this project if available?

A27. We do not have a plan holder list.

Q28. May I also get an estimated value for this project if available?

A28. See response to Q14.

Q29. Will the owner please provide an editable version of the RFP to facilitate preparation of the Technical Response? (no liability to owner for contractor's use of editable document)?

A29. The County cannot provide an editable copy of the RFP.

Q30. Please confirm number of firms to be awarded.

A30. Please see paragraph 1.3 of the RFP.

Q31. Will the owner please describe concerns related to using steam cure for CIPP small diameter rehabilitation? Steam curing is the preferred method for small diameter CIPP. Lining can be designed with Non-Styrene resins to mitigate potential concerns. UV lining also contains styrene, so other than time differences the county will be absorbing significant cost viz. steam-cured CIPP. Concerns relating to vapors, etc. can be addressed at the points of inversion with temporary stacks, fans, etc., as well as robust and timely public outreach/education. Also, recommend FFX CO consider the recent findings of the NASSCO CIPP Emissions Report (FEB 2020), whereby styrene levels and management are discussed and detailed in direct relation to impact on personnel? (paragraph 5.2, bullets 1 and 2)

A31. The County does not want steam to be used and is not accepting steam.

RFP 2000003120

Addendum No. 1

Page 7

ATTACHMENT 1

Q32. Given the discussion in the question above, will the owner please remove the restriction on use of steam for curing CIPP? (paragraph 5.2, bullets 1 and 2)

A32. No

Q33. Will the owner please describe what "...Non-CIPP methods..." are applicable to this statement? (paragraph 5.2, bullet 4)

A33. The County has customers that have medical issues which require them not to be exposed to chemicals. In addition, it may be desirable to rehabilitate the sewer in certain situations with a product or process that introduces the least or no amount of byproducts into the environment. The County Non-CIPP method could be Sewer Main Rehabilitation by Mechanical Liner referenced in Attachment B, Section 02953. If your company has products and services to offer in this category they may be submitted. Also, alternative approaches may be submitted in accordance with paragraph 7.3f of the RFP that would help address the need for products that introduce the least or no amount of byproducts into the environment as described above.

Q34. In paragraph 6.2, please clarify what the owner envisions regarding the phrase "...conducting public outreach..." Does the owner envision a full outreach program including website production and management, town hall meetings, media buys, etc.? Or does the owner envision the typical advance notice to residents and businesses in the area to be lined, including "No Park" notices, door hangers, mailbox inserts, etc?

A34. Fairfax County is not looking for website production/management, town hall meetings and media buy. For additional information regarding public outreach please see paragraph 5.8 of the RFP and Attachment B, Section 02640, paragraph 1.3 A through E.

Q35. In paragraph 6.3e, please clarify reference to required cleaning-- is this a separate task for this contract, or part of the Annual Cleaning referenced in para. 4.6?

A35. Paragraph 6.3e is a reference for cleaning required under this contract to complete any sewer restoration or repair. This contract will have three types of cleaning which are regular cleaning, heavy cleaning and extreme sewer cleaning. Additional information on the types of cleaning can be found in Attachment B, Section 02650. Paragraph 4.6 is a reference to funds budgeted to the Sewer Rehabilitation program each year.

Q36. In paragraph 6.8, bullet 1 (Site Preparation), Please confirm that the Rehabilitation Contractor has ultimate approval of the adequacy of any access roads installed on its' behalf by the Site Prep Contractor, and that Rehabilitation Contractor's schedule will be adjusted in accordance with access acceptance date and site prep duration?

A36. It has been our experience that access to off road areas can be a problem for some sewer rehabilitation installations. The County has decided to have a Site Prep contractor to help with difficult access issues. The selected Site Prep contractor will have the ability for site grading and excavating to install new manholes, pipe and other items as needed. They will have the required skills to construct the access in accordance with contract documents and County instructions. The County understands your need to have input on the access installations. Therefore, we added project coordination meetings to this contract. The purpose of these meetings will be to ensure reasonable access can be established to get your equipment in and out safely. The County wants your input before we direct the Site Prep contractor to proceed and this is a requirement is part of this contract. The County will inspect, manage, direct, and pay the Site Prep contractor. When the site is ready and permits are in place we will advise the Sewer Rehabilitation Contractor to proceed. The Site Prep contractor will be required to move on or off within two weeks of notification. This will

RFP 2000003120

Addendum No. 1

Page 8

ATTACHMENT 1

allow the County to complete work in off road areas. Additional information on site access and project coordination meetings can be found in paragraphs 4.5, 6.5, and 6.8 of the RFP and in Attachment B, Section 02640, paragraphs 1.25 A & B. Please see Item 1a on page 1 of this addendum for a change to Section 6.8.

Q37. In paragraph 15.4, Ref. language "Selection shall be made of two or more offerors..." This is in conflict with Section 1.3 ref. intent to award to "...up to two..." Please confirm a maximum of two firms will be selected a Rehabilitation Contractors for this RFP.

A37. See response to Q30.

Q38. In paragraph 17.3, Ref. "Procurement Cards..." Is this payment option relevant to this contract?

A38. Please see paragraph 17.1 of the RFP.

Q39. In paragraph 25.1, Please confirm any MBE/WBE contract percentage requirements?

A39. See response to Q11.

Q40. The warranty for this project at this time is 5 years (per spec section 02954 A) on other projects in Fairfax County the warranty has been either 3 or 1 year. Can the warranty on this project be reduced to either 3 or 1 year?

A40. No

Q41. When will this be awarded and will a notice to proceed begin?

A41. The County anticipates awarding this contract by late summer or early fall. A notice to proceed will be provided after an award is made.

Q42. Do we have to bid on all items in attachment C?

A42. See response to Q12.

Q43. We request that the solicitation due date for RFP 2000003120 be extended 2 weeks. This request is based on the information presented at the pre-bid conference held this week, as well as the short period (since formal advertisement) currently given to prepare the information requested in the RFP.

A43. The proposal due date has been extended to June 5, 2020 at 10:00 A.M.



County of Fairfax, Virginia

ADDENDUM

DATE: May 21, 2020

ADDENDUM NO. 2

TO: ALL PROSPECTIVE OFFERORS

REFERENCE: RFP 2000003120

TITLE: Sewer Rehabilitation

DUE DATE/TIME: June 5, 2020 @ 10:00 a.m.

The referenced Request for Proposal is amended as follows:

1. Refer to Attachment 1 in this document for responses to questions received.

All other terms and conditions remain the same.

Nicole Cifci, CPPB, VCA
Contract Specialist II

THIS ADDENDUM IS ACKNOWLEDGED AND IS CONSIDERED A PART OF THE SUBJECT REQUEST FOR PROPOSAL:

Name of Firm

(Signature)

(Date)

A SIGNED COPY OF THIS ADDENDUM MUST BE RETURNED PRIOR TO DUE DATE/TIME OR MUST ACCOMPANY PROPOSAL BY WAY OF UPLOAD TO FAIRFAX COUNTY'S PROCUREMENT PORTAL AT [HTTPS://FAIRFAXCOUNTY.BONFIREHUB.COM](https://fairfaxcounty.bonfirehub.com).

NOTE: SIGNATURE ON THIS ADDENDUM DOES NOT SUBSTITUTE FOR YOUR SIGNATURE ON THE ORIGINAL RFP DOCUMENT. THE ORIGINAL PROPOSAL DOCUMENT MUST BE SIGNED.

Department of Procurement and Material Management
12000 Government Center Parkway, Suite 427
Fairfax, VA 22035
Website: www.fairfaxcounty.gov/procurement
Phone: 703-324-3206, **TTY:** 711, **Fax:** 703-324-3228

RFP 2000003120

Addendum No. 2

Page 2

ATTACHMENT 1

- Q1. Will the Owner/Engineer provide copies of existing CCTV files for pipe segments proposed rehabilitation?
- A1. The County will issue the work in phases, with each phase the Contractor will receive a list of manholes and or sewers to be rehabilitated. In addition, a PDF NASSCO Compliant CCTV inspection log is provided for the pipes which has been by the County inspected. County video of the inspections will not be provided. Please see Attachment B, Section 02640 paragraph 1.2B and Section 02956 for additional information.**
- Q2. Will the Owner/Engineer please confirm if there are any prevailing wage requirements for this job?
- A2. Please see Addendum 1, response to Q21.**
- Q3. Will the Owner/Engineer please provide the anticipated NTP date for this project?
- A3. Please see Addendum 1, response to Q41.**
- Q4. Will the Owner/Engineer please provide a copy of the current plan holders list?
- A4. Please see Addendum 1, response to Q27.**
- Q5. Will the Owner/Engineer please provide any previous itemized bid tabulations for projects of similar scope?
- A5. Current contract pricing can be found here: www.fairfaxcounty.gov/contracts and by searching by Contract Number: 4400008683.**
- Q6. Will the Owner/Engineer please provide the budget for this project?
- A6. Please see Paragraph 4.6 of the RFP.**
- Q7. What flows and discharge lengths should we assume for bypass?
- A7. Some bypass will be setup in the roadway, and some will off road. Requirements for bypass can be found in Attachment B, Section 02960 Temporary Bypass Systems and Section 01025 Measurement and Payment. Assume various situations on and off road throughout Fairfax County in accordance with the specifications**
- Q8. Based on Addendum No. 1, questions and answers, we notice some discrepancies and further clarification is needed. Please note Q1, A22-Q3, Q24, Q25, Q26, Q31, Q32; we would like to obtain clarification that the only styrene product aloud will be a water cured installation. Please advise.
- A8. Steam cure is not allowed see paragraph 5.2 of the RFP. Styrene can be used for water cured, UV cured and Ambient cured, but it must not exceed 50 ppm see Attachment B, Section 02640, paragraph 1.8 Styrene Monitoring and Safety Program, item C.**
- Q9. Given the bid date has been moved to 5 JUN, will the owner also extend the cutoff date for questions to at least 22 MAY?
- A9. The due date for questions was extended to May 27, 2020 at 11:00 A.M, this information is listed in Bonfire.**

RFP 2000003120

Addendum No. 2

Page 3

ATTACHMENT 1

- Q10. Given there are no locations with this type of procurement, will the owner please consider adding a uniform allowance for extra permits (e.g. Fairfax County Parks Authority), in that the contractor does not have any way to determine location, duration, access, or other key elements required for permit planning? The allowance to apply to all bidders, and managed in conjunction with DPWES?
- A10. No allowance will be allowed, permit requirements can be found in paragraphs 6.3b, 6.6 and 6.8 of the RFP. Costs should be included in the unit rates, see Attachment B, Section 02640, paragraph 1.4 Permits.**
- Q11. Will the owner consider providing an allowance or line item quantity for flagging operations? Given there are no locations with this type of procurement, the contractor has no way currently to identify MOT requirements, especially VDOT/MUCTD required flagging operations. While allowance is for >45 MPH, there are many "solid yellow line" roads in FFX CO that are less than 45 MPH but will potentially require flagging.
- A11. The contractor is required to obtain VDOT permits, and for compliance to those permits, see Attachment B, Section 02640, paragraph 1.9 Traffic Maintenance and Protection-General Requirements. There will be no allowance or additional line items for flagging operations.**
- Q12. Will it be possible to perform sequential lining operations through a manhole? Is there any limit on length of liner installed?
- A12. Yes, you may line thru manhole if given two adjoining lines. No limit on length but the installation will be governed by manufacturers recommendations, means and methods, product ability and materials properties. Finished product to meet the ASTM standards and Contract requirements. Install CIPP in authorized locations only.**
- Q13. On page 02954-12, there is a chart that lays out minimum thicknesses for felt liners. It does not mention GRP or UV liners. Due to the increased strength that GRP liners provide, they are usually designed having a thinner wall. Can ASTM F1216 be used to calculate the liner thickness? Please advise.
- A13. Yes, ASTM F1216 may be used, with supporting documentation and test results to confirm product meets contract criteria.**
- Q14. Will the owner please provide a bid quantity for buried manholes? This will allow development of unit prices for better cost control. Conversely, will the owner provide an allowance for all bidders relating to buried manhole location?
- A14. Each year we may see approximately five to ten manholes which are covered over. One or two of these may be buried 12 inches or more. Attachment B, Section 02640, paragraph 1.16 Request to Locate Missing Manholes provides procedures to request a manhole be located by County personnel. Requests must be given two weeks in advance. When manholes are rehabilitated there may be a need to adjust them to grade. Attachment C, Items 69 and 70 will be used for this purpose. The owner will not provide an allowance for buried manholes.**
- Q15. Will the owner please provide the scoring criteria/detail within each category?
- A15. The criteria and point values included in the RFP will be used in evaluating the proposals. No additional scoring criteria detail will be provided.**

RFP 2000003120

Addendum No. 2

Page 4

ATTACHMENT 1

Q16. Will the Owner please confirm that Owner hydrants will be nearby all CIPP work to facilitate cleaning & CIPP scopes? If not, how will the Contractor be compensated for supplying water to the work site(s)?

A16. Fairfax Water Authority owns the fire hydrants in Fairfax County. The Fairfax County Wastewater Collection Division does not own or operate fire hydrants. According to our GIS maps there are 29,255 fire hydrants throughout the County. Attachment B, Section 02640, paragraph 1.10, Water Usage from Fire Hydrants, requires the contractor to obtain a permit from the Fairfax Water Authority to use their water. The cost of supplying water to the work site should be included in your unit prices

Q17. Pursuant to Specification 02954–Sewer Main Rehabilitation by Lining 2.4.E. the CIPP Minimum Liner Thickness Chart is based on resin impregnated felt products cured with hot water. Considering the RFP is requiring Glass Reinforced Pipe (GRP/UV-cure) as a requirement, we would like to propose a corresponding table for GRP liners cured by UV light which have substantially higher strength characteristics? GRP Liner designs will yield substantially thinner liner thicknesses than the felt calculations in this chart and should not be prescribed to match the thicker walls for the lower strength of felt. The chart below is based on the calculations as prescribed in the specifications using the strength characteristics of our GRP/UV Cured product?

MINIMUM LINER THICKNESS		
Minimum Lining Thickness Following Installation Operations and Curing GRP Liner and UV Curing		
Host Pipe Diameter	Depth	Minimum Liner Thickness
8" diameter	Up to 17 feet	3.0 mm
8" diameter	Over 17 to 25 feet	4.0 mm
10" diameter	Up to 11 feet	3.0 mm
10" diameter	Over 11 to 18 feet	4.0 mm
10" diameter	Over 18 to 25 feet	4.0 mm
12" diameter	Up to 12 feet	4.0 mm
12" diameter	Over 12 feet to 18 feet	5.0 mm
12" diameter	Over 18 to 25 feet	6.0 mm
15" diameter	Up to 10 feet	5.0 mm
15" diameter	Over 10 to 14 feet	6.0 mm
15" diameter	Over 14 to 20 feet	7.0 mm
18" diameter	Up to 8 feet	Submit to Owner
18" diameter	Over 8 feet	Submit to Owner

A17. Attachment B, Section 02954–Sewer Main Rehabilitation by Lining, paragraph 2.4.E. the CIPP Minimum Liner Thickness Chart is based on resin impregnated felt products cured with hot water and ambient temperature. It does not include UV curing. Requirements for the design of UV CIPP can be found in Attachment B, Section 02954-Sewer Main Rehabilitation by Lining, paragraph 2.4 Structural Requirements. All UV CIPP must meet these requirements. You may include the chart for your product when you submit your proposal. The County will consider other UV CIPP products which may have a different thickness than shown on the table for your product, if they meet the requirements of all specifications.

RFP 2000003120

Addendum No. 2

Page 5

ATTACHMENT 1

Q18. CIPP Spec Section 02954, sub section 2.4 E:

1. This section indicates minimum liner thickness, some of these values are a lot thicker than the standard installed liners, for example 8" liner is usually 4.5 mm. 6 mm or is rear cases 7.5 mm however you indicated over 17VF deep needs to be 8 mm – designs will show that a 6 mm liner would be more than structural at that depth, what is the reasoning for the additional thickness requirement?
2. Can the liner thickness to be installed be designed by the contractor and stamped by a third party engineer to show that the minimum required liner thickness to achieve structural integrity be the criteria to determine the minimum thickness to be installed for the deeper manholes rather than the table provided in the documents?
3. Also the thickness ranges for CIPP liners are in 1.5 mm increments 4.5, 6.0, 7.5, 9.0, 10.5, 12.0 mm etc – your chart is showing 8 mm and 11 mm both of which are not "standard tube" and will have to be specially fabricated resulting in a higher price tag, can you adjust the "required" mm according to the SOP of CIPP liner thickness?

A18. Question #1: The table provides minimum thickness for felt liners. The thickness for each diameter and depth is in line with requirements set by other jurisdictions throughout the United States, the owners experience and preference. If you have an alternative approach to establish minimum thickness for your product you may submit it with your proposal, see paragraph 7.3.f of the RFP. Please provide written documentation to explain the reason for the proposed alternative and how you will meet the materials strength and durability requirements of ASTM and referenced specifications to validate the product will perform as good or better than the original product specified.

Question #2: The calculations shall be performed and certified by a qualified Professional Engineer licensed in the state of Virginia, see Attachment B, Section 02954, paragraph 1.4A6. If the calculated minimum liner thickness is less than shown on the table, then the minimum liner thickness on the table shall govern, see Attachment B, Section 02954, paragraph 2.4.E

Question #3: The fabric tube wall thickness shall be constructed as a minimum to the nearest 0.5 mm increment, rounded up from the design thickness for each section of CIPP, see Attachment B, Section 02954, paragraph 2.2J.



County of Fairfax, Virginia

ADDENDUM

DATE: May 28, 2020

ADDENDUM NO. 3

TO: ALL PROSPECTIVE OFFERORS

REFERENCE: RFP 2000003120

TITLE: Sewer Rehabilitation

DUE DATE/TIME: June 5, 2020 @ 10:00 a.m.

The referenced Request for Proposal is amended as follows:

1. The following are corrections being made to Attachment C:
 - a. **Change** the Unit for Item 1 from "LS" to "EA".
 - b. **Delete** the word "per tap" and **replace** with "per joint" in the description of Items 39 through 40.
2. Refer to Attachment 1 in this document for responses to questions received.

All other terms and conditions remain the same.

Nicole Cifci, CPPB, VCA
Contract Specialist II

THIS ADDENDUM IS ACKNOWLEDGED AND IS CONSIDERED A PART OF THE SUBJECT REQUEST FOR PROPOSAL:

Name of Firm

(Signature)

(Date)

A SIGNED COPY OF THIS ADDENDUM MUST BE RETURNED PRIOR TO DUE DATE/TIME OR MUST ACCOMPANY PROPOSAL BY WAY OF UPLOAD TO FAIRFAX COUNTY'S PROCUREMENT PORTAL AT [HTTPS://FAIRFAXCOUNTY.BONFIREHUB.COM](https://fairfaxcounty.bonfirehub.com).

NOTE: SIGNATURE ON THIS ADDENDUM DOES NOT SUBSTITUTE FOR YOUR SIGNATURE ON THE ORIGINAL RFP DOCUMENT. THE ORIGINAL PROPOSAL DOCUMENT MUST BE SIGNED.

Department of Procurement and Material Management
12000 Government Center Parkway, Suite 427
Fairfax, VA 22035
Website: www.fairfaxcounty.gov/procurement
Phone: 703-324-3206, **TTY:** 711, **Fax:** 703-324-3228

RFP 2000003120

Addendum No. 3

Page 2

ATTACHMENT 1

- Q1. As this is a Unit Price RFP with indefinite quantities and Task Order Driven, and the bidder does not know the ultimate quantity or value of work, can a line item be included on the Cost Proposal for the Contract Bonds for this project? That way, all Bond Costs are recovered, where if spread throughout the bid items, there is a possibility the Bond Costs may not be fully be captured if work is not done or quantities achieved for certain bid items of work.
- A1. The County does not want a separate cost for bonds, all costs should be incorporated into the individual line items on the pricing schedule.**
- Q2. The Bid Form description for Bid Items 39 through 45 reads ...up to ___ gallons per tap. The Bid Unit Price UOM reads per each and Sec 1025 Para 2.15B Measurement for Payment reads per each joint. Please clarify the description in the bid form that it should read per each joint and not per each tap?
- A2. The description for items 39-45 should read “per joint” not “per tap.” Please reference Item 1b above.**
- Q3. The Bid Form Bid Item 1, UOM reads Lump Sum with quantity of 1 for Emergent and Large Planned Work. Per Sec 1025 Para 2.1B, the Payment will be for Each Occurrence when special and or emergent work is required. The Cost Proposal for Bid Item 1 UOM should be for each, correct?
- A3. The UOM for Item 1 should be for each occurrence or “EA”. Please reference Item 1a above.**
- Q4. Are Bid Items 34-36 trenchless “no-dig” repairs or external “open cut” repairs? It is not clear in the Specs for Measurement and Payment 1025 2.11 to 2.13 and Sec 2954 if they are. Please clarify as all other items in the Cost Proposal Category are trenchless methods.
- A4. Items 34-36 are to be completed using trenchless methods, no excavation.**
- Q5. Per Section 2953 Para. 3.1.D6 the liner is radially expanded by mechanical means...until the liner contacts the inside wall of the existing pipe. How is it confirmed / guaranteed that that the liner makes and maintains contact with the inside wall of the existing pipe after mechanically expanded?
- A5. Verification of contact with the wall should be in accordance with the manufacturer’s recommendations and instructions.**
- Q6. Why is Steam Cured CIPP not allowed for this project? The process is an acceptable means and methods for curing CIPP Liners all over the world, is less disruptive for customers due to decreased liner processing time with shorter outage times, and provides the same finished product as Hot Water Heat Curing, meeting the contract physical properties of the liners.
- A6. Owner preference.**
- Q7. Per Section 2959 Para 2.1.E requires the volume of mixed grout pumped be measured and recorded for each grouted joint/connection. Does this measurement and recordation need to be performed electronically?
- A7. It is a VDOT requirement for thickness to be a minimum of 1.5 inches. For additional information contact VDOT at <http://www.virginiadot.org>.**



County of Fairfax, Virginia

NOTICE OF AWARD

Date of Award: 2021 March 8 | 10:11:52 EST

NOTE: Multiple Awards were made as a result of RFP 2000003120. To review other contract awards you can search the contract register www.fairfaxcounty.gov/contracts by Contract Description "Sewer Rehabilitation".

CONTRACT TITLE: Sewer Rehabilitation

SOLICITATION NUMBER: RFP 2000003120

CONTRACT NUMBER: **4400010426**

NIGP CODE: **91381**

CONTRACT PERIOD: 2 years from Date of Award

RENEWAL: Three (3) one (1) year renewals

CONTRACTOR:
Granite Inliner, LLC
4520 North State Rd 37
Orleans, IN 47452

SUPPLIER CODE:
1000006358

Contact: Allison Brown or Michael Chretien
E-mail: Allison.brown@gcinc.com or Michael.chretien@gcinc.com
Phone: 812-865-3232 or 301-486-7570

TERMS: Net 30 days

FOB: Destination

PRICES: See Attached Pricing Schedule

DPMM CONTACT: Nicole Cifci, CPPB, VCA, Contract Specialist II
Telephone: 703-324-2854
E-mail: Nicole.Cifci@FairfaxCounty.gov

ORDERING INSTRUCTIONS:

Any County Department and Fairfax County Schools may enter into FOCUS a shopping cart indicating the item required, the quantity, the payment terms and the delivery date. The purchase order must be annotated with the contract number. Requests exceeding the small purchase threshold (\$10k) will be routed to DPMM and a purchase order will be executed.

DocuSigned by:

Nicole Cifci

C42AFD859238483...

Nicole Cifci, CPPB, VCA
Contract Specialist II

DISTRIBUTION:

Dept. of Finance – Accounts Payable/e
DPWES - WCD– Russ Russell/e
DPMM Supplier Diversity/e

Contract Specialist – Nicole Cifci
Assistant Contract Specialist – Team 2

Department of Procurement & Material Management
12000 Government Center Parkway, Suite 427
Fairfax, VA 22035-0013
Website: www.fairfaxcounty.gov/procurement
Phone (703) 324-3201, **TTY:** 711, **Fax:** (703) 324-3228

Notice of Award
4400010426
Page 2

PRICING SCHEDULE

ITEM NO.	SPEC SECTION (Attachment B)	DESCRIPTION	UNIT	UNIT PRICE
1	GC	Specialized Mobilization (Emergency and Large Planned Work)	LS	\$4,500.00
CIPP LINER INSTALLATION				
2	2954	8" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$43.00
3	2954	10" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$48.50
4	2954	12" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$60.00
5	2954	14" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$66.50
6	2954	15" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$69.50
7	2954	16" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$76.00
8	2954	18" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$85.00
9	2954	8" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$44.00
10	2954	10" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$55.00
11	2954	12" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$59.00
12	2954	14" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$75.00
13	2954	15" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$78.50
14	2954	16" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$86.00
15	2954	18" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$130.00
HYDROPHILIC END SEALS				
16	2954	8" Hydrophilic End Seal Sleeve	EA	\$120.00
17	2954	10" Hydrophilic End Seal Sleeve	EA	\$125.00
18	2954	12" Hydrophilic End Seal Sleeve	EA	\$150.00
19	2954	15" Hydrophilic End Seal Sleeve	EA	\$165.00
20	2954	18" Hydrophilic End Seal Sleeve	EA	\$175.00
SEWER CLEANING				
21	2650	8" - 12" Heavy Sewer Cleaning	LF	\$2.40
22	2650	14" - 18" Heavy Sewer Cleaning	LF	\$2.65
23	2650	Manhole Heavy Sewer Cleaning	VF	\$102.00
24	2650	Extreme Heavy Sewer Cleaning Hourly crew rate when directed by the County (not used in conjunction with any other sewer cleaning item)	HR	\$340.00
MECHANICAL LINER INSTALLATION				
25	2953	8" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$112.00
26	2953	10" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$128.00
27	2953	12" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$131.00
28	2953	14" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$153.00
29	2953	15" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$156.00
30	2953	16" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$160.00
31	2953	18" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$164.00
SEWER PIPELINE REINSTATEMENT & REPAIRS				
32	-	Emergency Robotic Reinstatement of sewer service connections on sewer pipes previously rehabilitated by others	EA	\$145.00
33	2954	Robotic reinstatement of sewer connections after installation of CIPP or other rehabilitation method.	EA	\$145.00
34	2954	4" Sewer Main/Lateral Interface (Tap), repair and permanently seal	EA	\$2,750.00

Notice of Award
4400010426
Page 3

PRICING SCHEDULE

ITEM NO.	SPEC SECTION (Attachment B)	DESCRIPTION	UNIT	UNIT PRICE
35	2954	6" Sewer Main/Lateral Interface (Tap), repair and permanently seal	EA	\$2,750.00
36	2954	8" Sewer Main/Lateral Interface (Tap), repair and permanently seal	EA	\$3,100.00
37	2954	Trim Protruding Service Connection > ½ inch	EA	\$285.00
SEWER PIPELINE REPAIRS - GROUT				
38	2959	4, 6 and 8-inch Sewer Main/Lateral Interface (Tap), grout repair and permanently seal. Includes up to up to two gallons per tap.	EA	\$615.00
39	2959	8 "pipe joint chemical grout repair and permanently seal. Includes up to up to two gallons per tap.	EA	\$75.00
40	2959	10 "pipe joint chemical grout repair and permanently seal. Includes up to up to three gallons per tap.	EA	\$78.00
41	2959	12 "pipe joint chemical grout repair and permanently seal. Includes up to up to three gallons per tap.	EA	\$83.00
42	2959	14"pipe joint chemical grout repair and permanently seal. Includes up to up to four gallons per tap.	EA	\$107.00
43	2959	15 "pipe joint chemical grout repair and permanently seal. Includes up to up to four gallons per tap.	EA	\$112.00
44	2959	16 "pipe joint chemical grout repair and permanently seal. Includes up to up to four gallons per tap.	EA	\$116.00
45	2959	18 "pipe joint chemical grout repair and permanently seal. Includes up to up to five gallons per tap.	EA	\$120.00
46	2959	Gallons of grout used for repair and seal. This item includes grout in excess of established amounts stipulated in items 36-43 and when needed to seal unspecified pipe defects.	GAL	\$20.00
SEWER PIPELINE REPAIRS - INTERNAL POINT REPAIR				
47	2955	8" Trenchless Point Repair (Internal)	LF	\$660.00
48	2955	10" Trenchless Point Repair (Internal)	LF	\$680.00
49	2955	12" Trenchless Point Repair (Internal)	LF	\$735.00
50	2955	14" Trenchless Point Repair (Internal)	LF	\$735.00
51	2955	15" Trenchless Point Repair (Internal)	LF	\$790.00
52	2955	16" Trenchless Point Repair (Internal)	LF	\$790.00
53	2955	18" Trenchless Point Repair (Internal)	LF	\$870.00
BYPASS				
54	2960	Contingent Bypass Pumping >2.0 MGD – 5.0 MGD	DAY	\$6,600.00
55	2960	Contingent Bypass Pumping 5.1 MGD – 10.0 MGD	DAY	\$9,250.00
56	2972	4" lateral cleanout by vacuum excavation	EA	\$2,100.00
57	2972	6" lateral cleanout by vacuum excavation	EA	\$2,200.00
58	2972	8" lateral cleanout by vacuum excavation	EA	\$2,500.00
MANHOLE REHABILITATION & REPAIR				
59	2957	Manhole Rehabilitation - Cementitious - 4' Diameter (0'- 6' Depth)	VF	\$205.00
59-A	2957	Manhole Rehabilitation - Cementitious - 4' Diameter (0'- 6' Depth) - 2" Thick	VF	\$410.00
60	2957	Manhole Rehabilitation - Cementitious - 4' Diameter (Depth >6')	VF	\$195.00
60-A	2957	Manhole Rehabilitation - Cementitious - 4' Diameter (Depth >6') - 2" Thick	VF	\$390.00
61	2957	Manhole Rehabilitation - Cementitious - 5' Diameter (0'- 6' Depth)	VF	\$245.00
61-A	2957	Manhole Rehabilitation - Cementitious - 5' Diameter (0'- 6' Depth) - 2" Thick	VF	\$490.00
62	2957	Manhole Rehabilitation - Cementitious - 5' Diameter (Depth >6')	VF	\$235.00
62-A	2957	Manhole Rehabilitation - Cementitious - 5' Diameter (Depth >6') - 2" Thick	VF	\$470.00
63	2957	Manhole Rehabilitation - Polymer - 4' Diameter (0'-6' Depth)	VF	\$285.00

Notice of Award
4400010426
Page 4

PRICING SCHEDULE

ITEM NO.	SPEC SECTION (Attachment B)	DESCRIPTION	UNIT	UNIT PRICE
64	2957	Manhole Rehabilitation - Polymer - 4' Diameter (Depth >6')	VF	\$292.00
65	2957	Manhole Rehabilitation - Polymer - 5' Diameter (0'-6' Depth)	VF	\$292.00
66	2957	Manhole Rehabilitation - Polymer - 5' Diameter (Depth >6')	VF	\$292.00
67	2957	Manhole Frame and Cover Replacement	EA	\$1,560.00
68	2957	Manhole insert under frame and cover, rain pot	EA	\$130.00
69	2957	Adjustment manhole top to grade using pre-cast grade rings	VF	\$840.00
70	2957	Adjustment manhole top to grade using brick	VF	\$840.00
71	2957	Manhole internal chimney seal	VF	\$735.00
72	2957	Manhole external chimney seal	VF	\$800.00
73	2957	Manhole chemical grout leak repair	GAL	\$176.00
73-A	2957	Parsons Quick Plug Cement	Pound	\$20.00
73-B	2957	Parsons RPM Cement	Pound	\$20.00
74	2957	Manhole Expansion Band Joint seal 4' Diameter Manhole	EA	\$1,295.00
75	2957	Manhole Expansion Band Joint seal 5' Diameter Manhole	EA	\$1,470.00
76	2957	4 Foot Diameter Manhole Bench and Channel Replacement	EA	\$1,440.00
77	2957	5 Foot Diameter Manhole Bench and Channel Replacement	EA	\$1,610.00
78	2957	4 Foot Diameter Manhole Bench and Channel Repair	EA	\$667.00
79	2957	5 Foot Diameter Manhole Bench and Channel Repair	EA	\$667.00
80	2957	Manhole Steps	EA	\$115.00
SITE ACCESS AND RESTORATION				
81	-	Temporary 6-foot-high chain link fencing for staging and work areas (install and remove)	LF	\$18.00
82	-	Mill and Overlay Pavement Repair	SY	\$57.00
83	-	Asphalt Concrete Base Pavement Repair	SY	\$40.00
84	-	Asphalt Concrete Surface Material	SY	\$23.00
85	-	Aggregate Base Material	CY	\$45.00
86	-	Select Backfill Material	CY	\$45.00
87	-	Temporary Traffic Control Greater Than 45 MPH Posted Speed Limit	Per Day	\$3,300.00
CIPP LINER INSTALLATION UTILIZING STYREDUX TABLETS (ADD ON COST PER LF)				
88	2954	8" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$2.95
89	2954	10" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$3.95
90	2954	12" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$4.50
91	2954	14" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$5.25
92	2954	15" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$6.15
93	2954	16" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$7.05
94	2954	18" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$8.25



County of Fairfax, Virginia

AMENDMENT

2022 June 8 | 09:44:43 EDT

AMENDMENT NO. 1

CONTRACT TITLE: Sewer Rehabilitation

CONTRACTOR

Granite Inliner, LLC.
4520 North State Rd 37
Orleans, IN 47452

SUPPLIER CODE

1000006358

CONTRACT NO.

4400010426

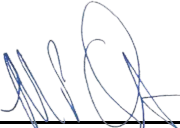
By mutual agreement, Contract 4000010426 is amended as indicated below:

1. Correct the Unit of Measure on Line 1 from LS to EA per Addendum 3 of the RFP.
2. Correct the Descriptions of Lines 39-45 from per tap to per joint per Addendum 3 of the RFP.
3. Allow a price increase effective immediately, as indicated on the attached pricing schedule.

Please provide a current Certificate of Insurance (COI) in accordance with the CONTRACT INSURANCE PROVISIONS paragraph of this contract within ten (10) days after receipt of this executed amendment.

All other terms and conditions remain the same.

ACCEPTANCE:


BY: 

(Signature)

Area Manager
(Title)

Michael Chretien
(Printed)

6/7/2022
(Date)

DocuSigned by:

Steve Pierson, CPPB
Contracts Manager
9BE821303D064CD...

For Lee Ann Pender, CPPB
Director/County Purchasing Agent

DISTRIBUTION

Dept. of Finance – Accounts Payable/e
DPWES – WCD – Robert White/e
DPWES – WCD – Junaid Malik/e

Contract Specialist – Nicole Cifci
Assistant Contract Specialist - Team 2
Contractor – Michael.chretien@gcinc.com

DS


Department of Procurement & Material Management
12000 Government Center Parkway, Suite 427
Fairfax, VA 22035-0013
Website: www.fairfaxcounty.gov/procurement
Phone 703-324-3201, TTY: 711, Fax: 703-324-3228

Amendment 1

4400010426

Page 2

PRICING SCHEDULE

ITEM NO.	SPEC SECTION (Attachment B)	DESCRIPTION	UNIT	OLD UNIT PRICE	NEW UNIT PRICE
1	GC	Specialized Mobilization (Emergency and Large Planned Work)	EA	\$4,500.00	\$4,995.00
CIPP LINER INSTALLATION					
2	2954	8" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$43.00	\$47.73
3	2954	10" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$48.50	\$53.84
4	2954	12" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$60.00	\$66.60
5	2954	14" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$66.50	\$73.82
6	2954	15" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$69.50	\$77.15
7	2954	16" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$76.00	\$84.36
8	2954	18" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$85.00	\$94.35
9	2954	8" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$44.00	\$48.84
10	2954	10" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$55.00	\$61.05
11	2954	12" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$59.00	\$65.49
12	2954	14" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$75.00	\$83.25
13	2954	15" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$78.50	\$87.14
14	2954	16" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$86.00	\$95.46
15	2954	18" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$130.00	\$144.30
HYDROPHILIC END SEALS					
16	2954	8" Hydrophilic End Seal Sleeve	EA	\$120.00	\$133.20
17	2954	10" Hydrophilic End Seal Sleeve	EA	\$125.00	\$138.75
18	2954	12" Hydrophilic End Seal Sleeve	EA	\$150.00	\$166.50
19	2954	15" Hydrophilic End Seal Sleeve	EA	\$165.00	\$183.15
20	2954	18" Hydrophilic End Seal Sleeve	EA	\$175.00	\$194.25
SEWER CLEANING					
21	2650	8" - 12" Heavy Sewer Cleaning	LF	\$2.40	\$2.66
22	2650	14" - 18" Heavy Sewer Cleaning	LF	\$2.65	\$2.94
23	2650	Manhole Heavy Sewer Cleaning	VF	\$102.00	\$113.22
24	2650	Extreme Heavy Sewer Cleaning Hourly crew rate when directed by the County (not used in conjunction with any other sewer cleaning item)	HR	\$340.00	\$377.40
MECHANICAL LINER INSTALLATION					
25	2953	8" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$112.00	\$124.32
26	2953	10" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$128.00	\$142.08
27	2953	12" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$131.00	\$145.41
28	2953	14" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$153.00	\$169.83
29	2953	15" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$156.00	\$173.16
30	2953	16" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$160.00	\$177.60
31	2953	18" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$164.00	\$182.04
SEWER PIPELINE REINSTATEMENT & REPAIRS					
32	-	Emergency Robotic Reinstatement of sewer service connections on sewer pipes previously rehabilitated by others	EA	\$145.00	\$160.95
33	2954	Robotic reinstatement of sewer connections after installation of CIPP or other rehabilitation method.	EA	\$145.00	\$160.95
34	2954	4" Sewer Main/Lateral Interface (Tap), repair and permanently seal	EA	\$2,750.00	\$3,052.50
35	2954	6" Sewer Main/Lateral Interface (Tap), repair and permanently seal	EA	\$2,750.00	\$3,052.50
36	2954	8" Sewer Main/Lateral Interface (Tap), repair and permanently seal	EA	\$3,100.00	\$3,441.00
37	2954	Trim Protruding Service Connection > ½ inch	EA	\$285.00	\$316.35

Amendment 1
4400010426
Page 3

PRICING SCHEDULE

ITEM NO.	SPEC SECTION (Attachment B)	DESCRIPTION	UNIT	OLD UNIT PRICE	NEW UNIT PRICE
SEWER PIPELINE REPAIRS - GROUT					
38	2959	4, 6 and 8-inch Sewer Main/Lateral Interface (Tap), grout repair and permanently seal. Includes up to up to two gallons per tap.	EA	\$615.00	\$682.65
39	2959	8 "pipe joint chemical grout repair and permanently seal. Includes up to up to two gallons per joint.	EA	\$75.00	\$83.25
40	2959	10 "pipe joint chemical grout repair and permanently seal. Includes up to up to three gallons per joint.	EA	\$78.00	\$86.58
41	2959	12 "pipe joint chemical grout repair and permanently seal. Includes up to up to three gallons per joint.	EA	\$83.00	\$92.13
42	2959	14" pipe joint chemical grout repair and permanently seal. Includes up to up to four gallons per joint.	EA	\$107.00	\$118.77
43	2959	15 "pipe joint chemical grout repair and permanently seal. Includes up to up to four gallons per joint.	EA	\$112.00	\$124.32
44	2959	16 "pipe joint chemical grout repair and permanently seal. Includes up to up to four gallons per joint.	EA	\$116.00	\$128.76
45	2959	18 "pipe joint chemical grout repair and permanently seal. Includes up to up to five gallons per joint.	EA	\$120.00	\$133.20
46	2959	Gallons of grout used for repair and seal. This item includes grout in excess of established amounts stipulated in items 36-43 and when needed to seal unspecified pipe defects.	GAL	\$20.00	\$22.20
SEWER PIPELINE REPAIRS - INTERNAL POINT REPAIR					
47	2955	8" Trenchless Point Repair (Internal)	LF	\$660.00	\$732.60
48	2955	10" Trenchless Point Repair (Internal)	LF	\$680.00	\$754.80
49	2955	12" Trenchless Point Repair (Internal)	LF	\$735.00	\$815.85
50	2955	14" Trenchless Point Repair (Internal)	LF	\$735.00	\$815.85
51	2955	15" Trenchless Point Repair (Internal)	LF	\$790.00	\$876.90
52	2955	16" Trenchless Point Repair (Internal)	LF	\$790.00	\$876.90
53	2955	18" Trenchless Point Repair (Internal)	LF	\$870.00	\$965.70
BYPASS					
54	2960	Contingent Bypass Pumping >2.0 MGD – 5.0 MGD	DAY	\$6,600.00	\$7,326.00
55	2960	Contingent Bypass Pumping 5.1 MGD – 10.0 MGD	DAY	\$9,250.00	\$10,267.50
56	2972	4" lateral cleanout by vacuum excavation	EA	\$2,100.00	\$2,331.00
57	2972	6" lateral cleanout by vacuum excavation	EA	\$2,200.00	\$2,442.00
58	2972	8" lateral cleanout by vacuum excavation	EA	\$2,500.00	\$2,775.00
MANHOLE REHABILITATION & REPAIR					
59	2957	Manhole Rehabilitation - Cementitious - 4' Diameter (0'- 6' Depth)	VF	\$205.00	\$227.55
59-A	2957	Manhole Rehabilitation - Cementitious - 4' Diameter (0'- 6' Depth) - 2" Thick	VF	\$410.00	\$455.10
60	2957	Manhole Rehabilitation - Cementitious - 4' Diameter (Depth >6')	VF	\$195.00	\$216.45
60-A	2957	Manhole Rehabilitation - Cementitious - 4' Diameter (Depth >6') - 2" Thick	VF	\$390.00	\$432.90
61	2957	Manhole Rehabilitation - Cementitious - 5' Diameter (0'- 6' Depth)	VF	\$245.00	\$271.95
61-A	2957	Manhole Rehabilitation - Cementitious - 5' Diameter (0'- 6' Depth) - 2" Thick	VF	\$490.00	\$543.90
62	2957	Manhole Rehabilitation - Cementitious - 5' Diameter (Depth >6')	VF	\$235.00	\$260.85
62-A	2957	Manhole Rehabilitation - Cementitious - 5' Diameter (Depth >6') - 2" Thick	VF	\$470.00	\$521.70
63	2957	Manhole Rehabilitation - Polymer - 4' Diameter (0'-6' Depth)	VF	\$285.00	\$316.35
64	2957	Manhole Rehabilitation - Polymer - 4' Diameter (Depth >6')	VF	\$292.00	\$324.12
65	2957	Manhole Rehabilitation - Polymer - 5' Diameter (0'-6' Depth)	VF	\$292.00	\$324.12
66	2957	Manhole Rehabilitation - Polymer - 5' Diameter (Depth >6')	VF	\$292.00	\$324.12
67	2957	Manhole Frame and Cover Replacement	EA	\$1,560.00	\$1,731.60
68	2957	Manhole insert under frame and cover, rain pot	EA	\$130.00	\$144.30
69	2957	Adjustment manhole top to grade using pre-cast grade rings	VF	\$840.00	\$932.40
70	2957	Adjustment manhole top to grade using brick	VF	\$840.00	\$932.40
71	2957	Manhole internal chimney seal	VF	\$735.00	\$815.85

Amendment 1
4400010426
Page 4

PRICING SCHEDULE

ITEM NO.	SPEC SECTION (Attachment B)	DESCRIPTION	UNIT	OLD UNIT PRICE	NEW UNIT PRICE
72	2957	Manhole external chimney seal	VF	\$800.00	\$888.00
73	2957	Manhole chemical grout leak repair	GAL	\$176.00	\$195.36
73-A	2957	Parsons Quick Plug Cement	Pound	\$20.00	\$22.20
73-B	2957	Parsons RPM Cement	Pound	\$20.00	\$22.20
74	2957	Manhole Expansion Band Joint seal 4' Diameter Manhole	EA	\$1,295.00	\$1,437.45
75	2957	Manhole Expansion Band Joint seal 5' Diameter Manhole	EA	\$1,470.00	\$1,631.70
76	2957	4 Foot Diameter Manhole Bench and Channel Replacement	EA	\$1,440.00	\$1,598.40
77	2957	5 Foot Diameter Manhole Bench and Channel Replacement	EA	\$1,610.00	\$1,787.10
78	2957	4 Foot Diameter Manhole Bench and Channel Repair	EA	\$667.00	\$740.37
79	2957	5 Foot Diameter Manhole Bench and Channel Repair	EA	\$667.00	\$740.37
80	2957	Manhole Steps	EA	\$115.00	\$127.65
SITE ACCESS AND RESTORATION					
81	-	Temporary 6-foot-high chain link fencing for staging and work areas (install and remove)	LF	\$18.00	\$19.98
82	-	Mill and Overlay Pavement Repair	SY	\$57.00	\$63.27
83	-	Asphalt Concrete Base Pavement Repair	SY	\$40.00	\$44.40
84	-	Asphalt Concrete Surface Material	SY	\$23.00	\$25.53
85	-	Aggregate Base Material	CY	\$45.00	\$49.95
86	-	Select Backfill Material	CY	\$45.00	\$49.95
87	-	Temporary Traffic Control Greater Than 45 MPH Posted Speed Limit	Per Day	\$3,300.00	\$3,663.00
CIPP LINER INSTALLATION UTILIZING STYREDUX TABLETS (ADD ON COST PER LF)					
88	2954	8" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$2.95	\$3.27
89	2954	10" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$3.95	\$4.38
90	2954	12" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$4.50	\$5.00
91	2954	14" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$5.25	\$5.83
92	2954	15" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$6.15	\$6.83
93	2954	16" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$7.05	\$7.83
94	2954	18" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$8.25	\$9.16



County of Fairfax, Virginia

AMENDMENT

2022 July 15 | 14:18:11 EDT

AMENDMENT NO. 2

CONTRACT TITLE: Sewer Rehabilitation

CONTRACTOR

Granite Inliner, LLC.
4520 North State Rd 37
Orleans, IN 47452

SUPPLIER CODE

1000006358

CONTRACT NO.

4400010426

By mutual agreement contract 4400010426 is amended as follows effective immediately:

1. **Replace** paragraph 2.3 H in Attachment B: Section 02954 – Sewer Main Rehabilitation by Lining, with the following:
 - Steam cure is only allowed on felt tube with a styrene barrier that meets the styrene requirements within this contract.

2. **Replace** paragraph 3.2 A in Attachment B: Section 02954 – Sewer Main Rehabilitation by Lining, with the following:
 - The liner shall be installed using standard water curing, ultraviolet light (UV), or steam cure (Styrene Barrier Liner Only). Insert liner within one hour of final cleaning pass. All liners shall be cured in the host pipe per the manufacturer’s specifications as described and submitted in the Performance Work Statement (PWS).

3. **Replace** paragraph 2.40 in Attachment B: Section 01025 – Measurement and Payment with the following:
 - MAINTENANCE OF TRAFFIC WHEN TRAFFIC CONTROL PLAN IS REQUIRED (Item No. 87)
 - A. *Measurement:* Traffic control for a road when a traffic control plan is required as outlined in the approved Fairfax County Blanket permit shall be measured on a daily rate (DAY).
 - B. *Payment:* Traffic Control shall be made at the contract unit price in Attachment C – Cost Proposal per day (DAY). The unit price shall include all items required to complete the operation including but not limited to signs, cones, barrels, arrow boards, crash attenuators, flaggers, shadow vehicles, mobilization/demobilization, cleanup, and other items required to complete the operation, which is not included in other contract items. Refer to the latest version of the VDOT Virginia Work Area Protection Manual for traffic control requirements.

4. **Replace** paragraph 1.9 W in Attachment B: Section 02640 – Technical Provisions for Inspection and Rehabilitation with the following:
 - The cost of maintenance of traffic within roadways where a Traffic Control Plan is required by the VDOT Blanket Permit shall be paid as described under 01025 Measurement and Payment, Item 87 and as described herein.

DS
MB

Department of Procurement & Material Management

12000 Government Center Parkway, Suite 427
Fairfax, VA 22035-0013

Website: www.fairfaxcounty.gov/procurement

Phone (703) 324-3201, TTY: 711, Fax: (703) 324-3681

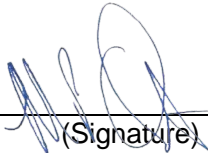
Amendment 2
 4400010426
 Page 2

5. **Add** the following items to the contract:

CIPP LINER INSTALLATION				
Item No.	SPEC SECTION (Attachment B)	DESCRIPTION	UNIT	Unit Price
95	2954	8" CIPP Liner Installation Manhole to Manhole (Styrene Barrier)	LF	\$47.73
96	2954	10" CIPP Liner Installation Manhole to Manhole (Styrene Barrier)	LF	\$53.84
97	2954	12" CIPP Liner Installation Manhole to Manhole (Styrene Barrier)	LF	\$66.60
98	2954	14" CIPP Liner Installation Manhole to Manhole (Styrene Barrier)	LF	\$73.82
99	2954	15" CIPP Liner Installation Manhole to Manhole (Styrene Barrier)	LF	\$77.15
100	2954	16" CIPP Liner Installation Manhole to Manhole (Styrene Barrier)	LF	\$84.36
101	2954	18" CIPP Liner Installation Manhole to Manhole (Styrene Barrier)	LF	\$94.35

All other prices, terms, and conditions remain the same.


ACCEPTANCE:

BY:  _____
 (Signature)

_____ Area Director
 (Title)

_____ Michael Chretien
 (Printed)

_____ 7/14/2022
 (Date)

DocuSigned by: Steve Pierson, CPPB
 Steve Pierson Contracts Manager
 9BE821303D064CD...

For Lee Ann Pender, CPPB
 Director/County Purchasing Agent

DISTRIBUTION

Dept. of Finance – Accounts Payable/e
 DPWES – WCD – Robert White/e
 DPWES – WCD – Junaid Malik/e

Contract Specialist – Nicole Cifci
 Assistant Contract Specialist - Team 2
 Contractor – Michael.chretien@gcinc.com



County of Fairfax, Virginia

AMENDMENT

2022 October 21 | 10:36:13 EDT

AMENDMENT NO. 3

CONTRACT TITLE: Sewer Rehabilitation

CONTRACTOR

Inliner Solutions, LLC
4520 North State Rd 37
Orleans, IN 47452

SUPPLIER CODE

1000006358

CONTRACT NO.

4400010426

By mutual agreement contract 4400010426 is amended as follows effective immediately:

1. **Change** the vendor's information as indicated below:

	Original Contractor Name	New Contractor Name
Contractor Name	Granite Inliner, LLC	Inliner Solutions, LLC

2. **Replace** the table in paragraph 2.4 E in Attachment B: Section 02954 – Sewer Main Rehabilitation by Lining, with the following:

MINIMUM LINER THICKNESS		
Minimum Lining Thickness Following Installation Operations and Curing Felt Liner and Ambient Temperature, Hot Water Cured CIPP		
Host Pipe Diameter	Depth	Minimum Liner Thickness
8" diameter	Up to 17 feet	6 mm
8" diameter	Over 17 to 25 feet	Submit to Owner
10" diameter	Up to 11 feet	6 mm
10" diameter	Over 11 to 18 feet	Submit to Owner
10" diameter	Over 18 to 25 feet	Submit to Owner
12" diameter	Up to 12 feet	Submit to Owner
12" diameter	Over 12 to 18 feet	Submit to Owner
12" diameter	Over 18 to 25 feet	Submit to Owner
15" diameter	Up to 10 feet	8 mm
15" diameter	Over 10 to 14 feet	Submit to Owner
15" diameter	Over 14 to 20 feet	Submit to Owner
18" diameter	Up to 8 feet	Submit to Owner
18" diameter	Over 8 feet	Submit to Owner

This amendment in no way alters the prices, terms, and conditions of the original contract. Inliner Solutions, LLC hereby assumes all responsibilities and obligations under the contract.

DS

MB

Department of Procurement & Material Management

12000 Government Center Parkway, Suite 427

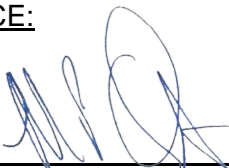
Fairfax, VA 22035-0013

Website: www.fairfaxcounty.gov/procurement

Phone (703) 324-3201, TTY: 711, Fax: (703) 324-3681

Amendment 3
4400010426
Page 2

ACCEPTANCE:


BY: 

(Signature)

Area Director
(Title)

Michael Chretien
(Printed)

10/20/2022
(Date)

DocuSigned by:

Steve Pierson, CPPB
Contracts Manager
9BE821303D064CD...

For Lee Ann Pender, CPPB
Director/County Purchasing Agent

DISTRIBUTION

Dept. of Finance – Accounts Payable/e
DPWES – WCD – Robert White/e
DPWES – WCD – Junaid Malik/e
Contractor - sgrogan@TEAMIPR.COM

Contract Specialist – Nicole Cifci
Assistant Contract Specialist - Team 2
Contractor – Michael.chretien@gcinc.com



County of Fairfax, Virginia

AMENDMENT

2022 December 14 | 09:21:54 EST

AMENDMENT NO. 4

CONTRACT TITLE: Sewer Rehabilitation

CONTRACTOR

Inliner Solutions, LLC
4520 North State Rd 37
Orleans, IN 47452

SUPPLIER CODE

1000006358

CONTRACT NO.

4400010426

By mutual agreement contract 4400010426 is renewed for one (1) year at existing prices, terms, and conditions, effective March 8, 2023 through March 7, 2024. This is the first of three renewal options for this contract.

Please provide a current Certificate of Insurance (COI) in accordance with the CONTRACT INSURANCE PROVISIONS paragraph of this contract within ten (10) days after receipt of this executed amendment

ACCEPTANCE:

BY: Kevin Schnabel
(Signature)

Area Director
(Title)

Kevin Schnabel
(Printed)

12/13/2022
(Date)

DocuSigned by:
Michael Blair
4A680AC3B52246A...

For Lee Ann Pender, CPPB
Director/County Purchasing Agent

DISTRIBUTION

Dept. of Finance – Accounts Payable/e
DPWES – WCD – Robert White/e
DPWES – WCD – Junaid Malik/e
Contractor - sgrogan@teamipr.com

Contract Specialist – Nicole Cifci
Assistant Contract Specialist - Team 2
Contractor – Michael.chretien@gcinc.com



County of Fairfax, Virginia

AMENDMENT

2023 September 1 | 07:06:26 EDT

AMENDMENT NO. 5

CONTRACT TITLE: Sewer Rehabilitation

CONTRACTOR

Inliner Solutions, LLC
4520 North State Rd 37
Orleans, IN 47452

SUPPLIER CODE

1000006358

CONTRACT NO.

4400010426

By mutual agreement, Contract 4000010426 is amended to allow a price increase effective immediately, as indicated on the attached pricing schedule.

In addition, the contact person is being updated as summarized below:

	Original Contact	New Contact
Name	Michael Chretien	John Oberliesen
Telephone	301-486-7570	301-310-5384
Email	Michael.chretien@gcinc.com	john.oberliesen@puriscorp.com

Please provide a current Certificate of Insurance (COI) in accordance with the CONTRACT INSURANCE PROVISIONS paragraph of this contract within ten (10) days after receipt of this executed amendment.

DocuSigned by:

Steve Pierson
9BE821303D064CD...

For Lee Ann Pender, CPPB
Director/County Purchasing Agent

DISTRIBUTION

Dept. of Finance – Accounts Payable/e
DPWES – WCD – Robert White/e
DPWES – WCD – Anna Neugebauer/e
Contractor - john.oberliesen@puriscorp.com

Contract Specialist – Nicole Cifci
Assistant Contract Specialist - Team 2
Contractor – Marjorie.Perdue@puriscorp.com

^{DS}
MB

Department of Procurement & Material Management

12000 Government Center Parkway, Suite 427
Fairfax, VA 22035-0013

Website: www.fairfaxcounty.gov/procurement

Phone 703-324-3201, TTY: 711, Fax: 703-324-3228

Amendment 5
4400010426
Page 2

PRICING SCHEDULE

ITEM NO.	SPEC SECTION (Attachment B)	DESCRIPTION	UNIT	OLD UNIT PRICE	NEW UNIT PRICE
1	GC	Specialized Mobilization (Emergency and Large Planned Work)	EA	\$4,995.00	\$5,144.85
CIPP LINER INSTALLATION					
2	2954	8" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$47.73	\$49.16
3	2954	10" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$53.84	\$55.46
4	2954	12" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$66.60	\$68.60
5	2954	14" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$73.82	\$76.03
6	2954	15" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$77.15	\$79.46
7	2954	16" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$84.36	\$86.89
8	2954	18" CIPP Liner Installation Manhole to Manhole (Water Cured)	LF	\$94.35	\$97.18
9	2954	8" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$48.84	\$50.31
10	2954	10" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$61.05	\$62.88
11	2954	12" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$65.49	\$67.45
12	2954	14" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$83.25	\$85.75
13	2954	15" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$87.14	\$89.75
14	2954	16" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$95.46	\$98.32
15	2954	18" CIPP Liner Installation Manhole to Manhole (UV Cured)	LF	\$144.30	\$148.63
HYDROPHILIC END SEALS					
16	2954	8" Hydrophilic End Seal Sleeve	EA	\$133.20	\$137.20
17	2954	10" Hydrophilic End Seal Sleeve	EA	\$138.75	\$142.91
18	2954	12" Hydrophilic End Seal Sleeve	EA	\$166.50	\$171.50
19	2954	15" Hydrophilic End Seal Sleeve	EA	\$183.15	\$188.64
20	2954	18" Hydrophilic End Seal Sleeve	EA	\$194.25	\$200.08
SEWER CLEANING					
21	2650	8" - 12" Heavy Sewer Cleaning	LF	\$2.66	\$2.74
22	2650	14" - 18" Heavy Sewer Cleaning	LF	\$2.94	\$3.03
23	2650	Manhole Heavy Sewer Cleaning	VF	\$113.22	\$116.62
24	2650	Extreme Heavy Sewer Cleaning Hourly crew rate when directed by the County (not used in conjunction with any other sewer cleaning item)	HR	\$377.40	\$388.72
MECHANICAL LINER INSTALLATION					
25	2953	8" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$124.32	\$128.05
26	2953	10" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$142.08	\$146.34
27	2953	12" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$145.41	\$149.77
28	2953	14" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$169.83	\$174.92
29	2953	15" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$173.16	\$178.35
30	2953	16" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$177.60	\$182.93
31	2953	18" Non-CIPP Liner Installation Manhole to Manhole (Mechanical Installation)	LF	\$182.04	\$187.50
SEWER PIPELINE REINSTATEMENT & REPAIRS					
32	-	Emergency Robotic Reinstatement of sewer service connections on sewer pipes previously rehabilitated by others	EA	\$160.95	\$165.78
33	2954	Robotic reinstatement of sewer connections after installation of CIPP or other rehabilitation method.	EA	\$160.95	\$165.78
34	2954	4" Sewer Main/Lateral Interface (Tap), repair and permanently seal	EA	\$3,052.50	\$3,144.08
35	2954	6" Sewer Main/Lateral Interface (Tap), repair and permanently seal	EA	\$3,052.50	\$3,144.08
36	2954	8" Sewer Main/Lateral Interface (Tap), repair and permanently seal	EA	\$3,441.00	\$3,544.23
37	2954	Trim Protruding Service Connection > ½ inch	EA	\$316.35	\$325.84

Amendment 5
4400010426
Page 3

PRICING SCHEDULE

ITEM NO.	SPEC SECTION (Attachment B)	DESCRIPTION	UNIT	OLD UNIT PRICE	NEW UNIT PRICE
SEWER PIPELINE REPAIRS - GROUT					
38	2959	4, 6 and 8-inch Sewer Main/Lateral Interface (Tap), grout repair and permanently seal. Includes up to up to two gallons per tap.	EA	\$682.65	\$703.13
39	2959	8 "pipe joint chemical grout repair and permanently seal. Includes up to up to two gallons per joint.	EA	\$83.25	\$85.75
40	2959	10 "pipe joint chemical grout repair and permanently seal. Includes up to up to three gallons per joint.	EA	\$86.58	\$89.18
41	2959	12 "pipe joint chemical grout repair and permanently seal. Includes up to up to three gallons per joint.	EA	\$92.13	\$94.89
42	2959	14 "pipe joint chemical grout repair and permanently seal. Includes up to up to four gallons per joint.	EA	\$118.77	\$122.33
43	2959	15 "pipe joint chemical grout repair and permanently seal. Includes up to up to four gallons per joint.	EA	\$124.32	\$128.05
44	2959	16 "pipe joint chemical grout repair and permanently seal. Includes up to up to four gallons per joint.	EA	\$128.76	\$132.62
45	2959	18 "pipe joint chemical grout repair and permanently seal. Includes up to up to five gallons per joint.	EA	\$133.20	\$137.20
46	2959	Gallons of grout used for repair and seal. This item includes grout in excess of established amounts stipulated in items 36-43 and when needed to seal unspecified pipe defects.	GAL	\$22.20	\$22.87
SEWER PIPELINE REPAIRS - INTERNAL POINT REPAIR					
47	2955	8" Trenchless Point Repair (Internal)	LF	\$732.60	\$754.58
48	2955	10" Trenchless Point Repair (Internal)	LF	\$754.80	\$777.44
49	2955	12" Trenchless Point Repair (Internal)	LF	\$815.85	\$840.33
50	2955	14" Trenchless Point Repair (Internal)	LF	\$815.85	\$840.33
51	2955	15" Trenchless Point Repair (Internal)	LF	\$876.90	\$903.21
52	2955	16" Trenchless Point Repair (Internal)	LF	\$876.90	\$903.21
53	2955	18" Trenchless Point Repair (Internal)	LF	\$965.70	\$994.67
BYPASS					
54	2960	Contingent Bypass Pumping >2.0 MGD – 5.0 MGD	DAY	\$7,326.00	\$7,545.78
55	2960	Contingent Bypass Pumping 5.1 MGD – 10.0 MGD	DAY	\$10,267.50	\$10,575.53
56	2972	4" lateral cleanout by vacuum excavation	EA	\$2,331.00	\$2,400.93
57	2972	6" lateral cleanout by vacuum excavation	EA	\$2,442.00	\$2,515.26
58	2972	8" lateral cleanout by vacuum excavation	EA	\$2,775.00	\$2,858.25
MANHOLE REHABILITATION & REPAIR					
59	2957	Manhole Rehabilitation - Cementitious - 4' Diameter (0'- 6' Depth)	VF	\$227.55	\$234.38
59-A	2957	Manhole Rehabilitation - Cementitious - 4' Diameter (0'- 6' Depth) - 2" Thick	VF	\$455.10	\$468.75
60	2957	Manhole Rehabilitation - Cementitious - 4' Diameter (Depth >6')	VF	\$216.45	\$222.94
60-A	2957	Manhole Rehabilitation - Cementitious - 4' Diameter (Depth >6') - 2" Thick	VF	\$432.90	\$445.89
61	2957	Manhole Rehabilitation - Cementitious - 5' Diameter (0'- 6' Depth)	VF	\$271.95	\$280.11
61-A	2957	Manhole Rehabilitation - Cementitious - 5' Diameter (0'- 6' Depth) - 2" Thick	VF	\$543.90	\$560.22
62	2957	Manhole Rehabilitation - Cementitious - 5' Diameter (Depth >6')	VF	\$260.85	\$268.68
62-A	2957	Manhole Rehabilitation - Cementitious - 5' Diameter (Depth >6') - 2" Thick	VF	\$521.70	\$537.35
63	2957	Manhole Rehabilitation - Polymer - 4' Diameter (0'-6' Depth)	VF	\$316.35	\$325.84
64	2957	Manhole Rehabilitation - Polymer - 4' Diameter (Depth >6')	VF	\$324.12	\$333.84
65	2957	Manhole Rehabilitation - Polymer - 5' Diameter (0'-6' Depth)	VF	\$324.12	\$333.84
66	2957	Manhole Rehabilitation - Polymer - 5' Diameter (Depth >6')	VF	\$324.12	\$333.84
67	2957	Manhole Frame and Cover Replacement	EA	\$1,731.60	\$1,783.55
68	2957	Manhole insert under frame and cover, rain pot	EA	\$144.30	\$148.63
69	2957	Adjustment manhole top to grade using pre-cast grade rings	VF	\$932.40	\$960.37
70	2957	Adjustment manhole top to grade using brick	VF	\$932.40	\$960.37
71	2957	Manhole internal chimney seal	VF	\$815.85	\$840.33

Amendment 5
4400010426
Page 4

PRICING SCHEDULE

ITEM NO.	SPEC SECTION (Attachment B)	DESCRIPTION	UNIT	OLD UNIT PRICE	NEW UNIT PRICE
72	2957	Manhole external chimney seal	VF	\$888.00	\$914.64
73	2957	Manhole chemical grout leak repair	GAL	\$195.36	\$201.22
73-A	2957	Parsons Quick Plug Cement	Pound	\$22.20	\$22.87
73-B	2957	Parsons RPM Cement	Pound	\$22.20	\$22.87
74	2957	Manhole Expansion Band Joint seal 4' Diameter Manhole	EA	\$1,437.45	\$1,480.57
75	2957	Manhole Expansion Band Joint seal 5' Diameter Manhole	EA	\$1,631.70	\$1,680.65
76	2957	4 Foot Diameter Manhole Bench and Channel Replacement	EA	\$1,598.40	\$1,646.35
77	2957	5 Foot Diameter Manhole Bench and Channel Replacement	EA	\$1,787.10	\$1,840.71
78	2957	4 Foot Diameter Manhole Bench and Channel Repair	EA	\$740.37	\$762.58
79	2957	5 Foot Diameter Manhole Bench and Channel Repair	EA	\$740.37	\$762.58
80	2957	Manhole Steps	EA	\$127.65	\$131.48
SITE ACCESS AND RESTORATION					
81	-	Temporary 6-foot-high chain link fencing for staging and work areas (install and remove)	LF	\$19.98	\$20.58
82	-	Mill and Overlay Pavement Repair	SY	\$63.27	\$65.17
83	-	Asphalt Concrete Base Pavement Repair	SY	\$44.40	\$45.73
84	-	Asphalt Concrete Surface Material	SY	\$25.53	\$26.30
85	-	Aggregate Base Material	CY	\$49.95	\$51.45
86	-	Select Backfill Material	CY	\$49.95	\$51.45
87	-	Temporary Traffic Control Greater Than 45 MPH Posted Speed Limit	Per Day	\$3,663.00	\$3,772.89
CIPP LINER INSTALLATION UTILIZING STYREDUX TABLETS (ADD ON COST PER LF)					
88	2954	8" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$3.27	\$3.37
89	2954	10" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$4.38	\$4.51
90	2954	12" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$5.00	\$5.15
91	2954	14" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$5.83	\$6.00
92	2954	15" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$6.83	\$7.03
93	2954	16" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$7.83	\$8.06
94	2954	18" CIPP Liner Installation Manhole to Manhole (Water Cure) Utilizing Styredux Tablets	LF	\$9.16	\$9.43
CIPP LINER INSTALLATION					
95	2954	8" CIPP Liner Installation Manhole to Manhole (Styrene Barrier)	LF	\$47.73	\$49.16
96	2954	10" CIPP Liner Installation Manhole to Manhole (Styrene Barrier)	LF	\$53.84	\$55.46
97	2954	12" CIPP Liner Installation Manhole to Manhole (Styrene Barrier)	LF	\$66.60	\$68.60
98	2954	14" CIPP Liner Installation Manhole to Manhole (Styrene Barrier)	LF	\$73.82	\$76.03
99	2954	15" CIPP Liner Installation Manhole to Manhole (Styrene Barrier)	LF	\$77.15	\$79.46
100	2954	16" CIPP Liner Installation Manhole to Manhole (Styrene Barrier)	LF	\$84.36	\$86.89
101	2954	18" CIPP Liner Installation Manhole to Manhole (Styrene Barrier)	LF	\$94.35	\$97.18