ROCKY MOUNT
FINANCE
THE CENTER OF IT ALL

Energy Resources

Request for Proposal #: 320-041125AG Re-Bid

Natural Gas System Annual Labor Contract FY26

Date of Issue: 12/10/2025

Proposal Due Date: 1/6/2026
at 02:00 P.M. ET

Direct all inquiries concerning this RFP to:
Alicia Gaines
Purchasing Associate III
Email: alicia.gaines@rockymountnc.gov
Phone: 252-972-1227

Sealed, mailed responses ONLY will be accepted for this solicitation.

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ROCKY MOUNT
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SUPPLEMENTAL VENDOR INFORMATION

HISTORICALLY UNDERUTILIZED BUSINESSES

Historically Underutilized Businesses (HUBs) consist of minority, women and disabled business firms that are at least fifty-one percent owned and operated by an individual(s) of the categories. Also included in this category are disabled business enterprises and non-profit work centers for the blind and severely disabled.

Pursuant to G.S. 143B-1361(a), 143-48 and 143-128.4, the City invites and encourages participation in this procurement process by businesses owned by minorities, women, disabled, disabled business enterprises, and non-profit work centers for the blind and severely disabled. This includes utilizing subcontractors to perform the required functions in this IFB. Any questions concerning NC HUB certification, contact the **North Carolina Office of Historically Underutilized Businesses** at (919) 807-2330. The Vendor shall respond to questions a and b below.

a) Is Vendor a Historically Underutilized Business? ☐ **Yes** ☐ **No**

b) Is Vendor Certified with North Carolina as a Historically Underutilized Business? ☐ **Yes** ☐ **No** If so, state HUB classification: _____

CONTRACTOR REGISTRATION

New vendors must complete a vendor registration form using the link below. If you are a current vendor that has not completed the online vendor registration, also complete the form. Once registration is complete, email a copy of your W-9 and E-Verify Affidavit to the contact person listed on the coversheet.

https://www.rockymountnc.gov/316/Vendor-Registration

ADVERTISEMENT FOR BIDS

CITY OF ROCKY MOUNT, NORTH CAROLINA
NATURAL GAS SYSTEM ANNUAL LABOR AGREEMENT

Pursuant to Section 143-129 of the General Statutes of North Carolina, sealed proposals endorsed "RFP 320-041125AG Re-Bid – Natural Gas System Annual Labor Agreement" will be received by the City of Rocky Mount Purchasing Office in the Frederick E. Turnage Administrative Complex, 331 South Franklin Street, until 2:00 P.M., on **Tuesday, January 6, 2026,** at which time they will be publicly opened and read in Conference Room #1 located on the 2nd floor of the Frederick E. Turnage Administrative Complex.

This Work can involve the installation, replacement, repair, abandonment and removal of natural gas facilities in and adjacent to the existing City of Rocky Mount, North Carolina's natural gas distribution systems. The methods of installation for the facilities may include direct burial, horizontal directional drill and boring.

All work shall be completed in accordance with the Specifications included in the bid package. The bid package shall include the cost to install various pipeline facilities (pipe, fittings, valves, etc.) listed in the Proposal Contract. All work completed on the City of Rocky Mount natural gas system, which has facilities in both Edgecombe and Nash County, North Carolina, should be completed in accordance with local, state, and federal regulations as described in the Contract Documents.

Proposals must be submitted on standard forms provided in the Specifications booklet and must be marked "Proposal for Natural Gas System Annual Labor Contract, RFP 320-041125AG Re-Bid". The quantities listed for the various requirements of these specifications are "estimated quantities" with the City reserving the right to make quantity adjustments should the need arise.

Instructions for submitting bids and complete specifications for the work, equipment, supplies, or services desired may be obtained online at https://www.rockymountnc.gov/Bids.aspx or https://evp.nc.gov/solicitations/

Each proposal must be accompanied by a deposit equal to five (5%) percent of the estimated Contract amount of $700,000 or $35,000. This deposit may consist of cash or a certified check drawn on a bank or trust company authorized to do business in the State of North Carolina or on a bank insured by the Federal Deposit Insurance Corporation, payable to the City of Rocky Mount, North Carolina, or a five (5%) percent Bid Bond issued by any insurance company authorized to do business in the State of North Carolina, the deposit to be retained in the event of failure of the Successful Bidder to execute the contract within (10) days after the award or to give satisfactory surety as required.

All contractors are hereby notified that they shall properly comply with any North Carolina state laws governing their respective trades.

The length of the Contract will be one (1) year.

The City of Rocky Mount reserves the right to reject any and all bids and will not discriminate against any bidder submitting a bid because of race, creed, color, national origin, religion, or handicap.

CITY OF ROCKY MOUNT
Alicia Gaines
Purchasing Associate III

CITY OF ROCKY MOUNT
ROCKY MOUNT, NORTH CAROLINA NATURAL GAS SYSTEM ANNUAL LABOR CONTRACT FY26
INSTRUCTION TO BIDDERS

General:
To be valid for consideration, bids must be completed and submitted in accordance with these Instructions to Bidders.

Schedule:
The table below shows the *intended* schedule for this RFP. The City will make every effort to adhere to this schedule.

Event	Responsibility	Date and Time
Issue RFP	City	Wednesday 12/10/2025
Submit Written Questions	Vendor	Wednesday 12/17/2025
Provide Response to Questions	City	Friday 12/19/2025
Submit Proposals	Vendor	Tuesday 1/6/2026 2:00 pm

Examination of Bid Documents and Site:
Before submitting bids, each Bidder must examine the bid documents thoroughly; familiarize itself with Federal, State, and Local laws, ordinances, rules, and regulations affecting the Work; and correlate its observations with requirements of the Bid Documents.

Should a Bidder find discrepancies in, or omissions from, the Contract Documents, or should He be in doubt as to their meaning, He should notify the Engineer immediately. The Engineer may send written instructions to each person receiving a set of Contract Documents following such notice from a Bidder(s).

Whenever a certain brand, make, or manufacturer is noted in the Specifications, it is intended to denote the quality standard of the article desired or being provided by the Owner, but unless otherwise noted does not restrict Bidder or the Owner to the specific brand or manufacturer. It is intended to set forth and convey to the prospective Bidder the general style, type, character, and quality of the article desired or being provided.

Each Bidder is requested and expected to be familiar with the typical construction conditions that may be encountered in and around the City of Rocky Mount's natural gas distribution system to alert Himself to local and special conditions which may be encountered during construction of assigned tasks such as: labor and transportation, handling and storage of materials, the availability of materials, and site access. Failure to make such investigations shall not relieve the successful Bidder from performing and completing the Work in accordance with the Contract Documents.

Interpretations:
No oral interpretations of the Bid Documents will be made to any Bidder. To be given consideration, requests for interpretations must be received in time to allow preparation of a written response at least five (5) days prior to the date fixed for receipt of bids. Interpretations will be issued in the form of a written Addendum (Addenda) to the Bid Documents. Each Addendum shall be provided to all parties recorded by The City of Rocky Mount Purchasing Department as having received Bid Documents, prior to scheduled receipt of bids. Only interpretations by formal written addenda will be binding.

All communications in regard to interpretations and any other matters related to this project shall be addressed to the Purchasing Division, Alicia Gaines, Purchasing Associate III, City of Rocky Mount Finance Department, PO Box 1180, Rocky Mount, NC 27802-1180.

Preparation of Bid Documents:
Each bid package shall include the following properly executed documents:

1. Proposal Form
2. Bid Bond
3. Non-Collusion Affidavit
4. Reference Request
5. Supplemental Vendor Information
6. Minority Business Participation
7. Federal Employer Identification
8. Proposal Execution
9. General Terms Acceptance
10. E-Verify
11. Debarment and Suspension

Each proposal must be submitted in a sealed envelope, marked sufficiently to indicate its contents without being opened. This envelope shall be enclosed in a second envelope. The Contractor's North Carolina License Number shall be noted on the outside envelope with the following notation "North Carolina License No. _____". Beneath the Contractor's License Number, each Bidder shall also note the Project Bid Number (CRM RFP 320-041125AG Re-Bid). The outside envelope shall be addressed to:

Alicia Gaines
Purchasing Associate III
City of Rocky Mount
331 South Franklin Street
Rocky Mount, North Carolina, 27804.

Proposal Form:
All proposals must be made upon the blank form of Proposal provided in this bid package. Unit bid prices are to be submitted in figures based on the estimated quantities associated with each line item, and the total sum will be used to determine the lowest bidder. The prices are to include the furnishing of all equipment, tools, and other facilities, and the performance of all labor work, except such as may be otherwise expressly provided for in the Contract Documents.

Each Bidder is required to bid on all requested unit prices listed in the Proposal Form unless otherwise stated. The Bidder shall sign his Proposal correctly, and proposals may be rejected if they show any omissions, alterations of form, additions not called for, a conditional bid, or any irregularities of any kind.

Bid Bond:
The Bidder shall submit a Bid Bond with the Bid package in the amount equal to five percent (5%) of the estimated Contract amount of $700,000 or $35,000. The deposit shall be in the form of a Certified Check drawn on a bank or trust company insured by the Federal Deposit Insurance Corporation, payable to the City of Rocky Mount or by a Bid Bond issued by a surety licensed to conduct business in North Carolina. The Bid Deposit is to be retained in the event of failure of the successful Bidder to execute the Contract within ten (10) days after the Notice of Award is issued or failure to give satisfactory surety as required.

Non-Collusion Affidavit:
Each bid shall be accompanied by a Non-Collusion Affidavit executed on the form provided herein. The Non-Collusion Affidavit must be completed in the state and county wherein the affiant resides and/or maintains his place of business. In Section 1, the affiant will place his name, residence, and office address. In Section 3, if the affiant is an individual, he will place on the first line the word, "Himself", and allow the remaining lines to be blank; if the affiant is acting on behalf of a corporation, partnership, etc., all lines of Section 3 must be filled in.

Equal Opportunity Employment:
The North Carolina General Statutes Section 143-422 will govern the terms of this contract.

Modification and Withdrawal of Bids:

Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a bid must be executed) and delivered to the place where bids are to be submitted at any time prior to the opening of bids.

Receipt and Opening of Bids:
Sealed bids for the Natural Gas System Annual Labor Contract FY26 will be received by the City of Rocky Mount Purchasing Office in the Frederick E. Turnage Administrative Complex, 331 South Franklin Street, until 2**:00** PM (EST) on **Wednesday, December 31, 2025**, at which time they will be opened and read publicly in the Conference Room #1 located on the 2nd floor of the Frederick E. Turnage Administrative Complex. Any bids received after the time and date specified will not be considered. Conditional bids will be rejected.

Bidders or their authorized Agents are invited to be present.

Award of Contract:
The Contract may be awarded by the City Council of the City of Rocky Mount, North Carolina, within one hundred (100) calendar days from the date of the opening of the Proposals submitted, and no Proposal may be withdrawn by a bidder until the expiration of that amount of time. The award of the contract will be to the lowest responsible and responsive Bidder, whose qualifications indicate the award will be in the best interest of the City of Rocky Mount and whose bid meets the prescribed requirements.

The City reserves the right to reject any and all bids and waive any and all informalities, and the right to disregard all nonconforming or conditional bids or counterproposals.

The City reserves the right to request additional financial statements together with statements of past related experience, personnel, and equipment available to perform the Contract. Failure or refusal to furnish such a statement or statements shall constitute a basis for disqualifying any Bidder.

The length of the Contract will be one (1) year. The City does not anticipate that the Work will require continuous Contractor crew(s) presence during the Contract Length. The Contractor must agree to commence work on or before a date agreed upon for each task assignment issued by the Engineer and to fully complete the Work within a schedule established by the City. Dependent on the size, value, and required schedule of the individual assignments, the City may include a Liquidated Damages clause in the task assignment. When the Liquidated Damages clause is included in a task assignment, the Contractor must also agree to pay as liquidated damages the sum of $500.00 for each consecutive calendar day beyond the established completion date.

No charge or claims of the Contractor will be allowed for the hinderance or delay from any cause in the progress of the Work.

Agreement:
The Agreement will be prepared by the City of Rocky Mount and provided to the successful Bidder. The Insurance Certificate and Bonds shall be drawn on forms acceptable to the City.

Payment and Performance Bond:
The successful Bidder shall furnish a Payment and Performance Bond from a surety company authorized to do business in North Carolina for one hundred percent (100%) of the estimated Contract value, conditioned on the faithful performance of the terms of the Contract.

In place of such bond, the successful Bidder may provide money, government securities, or a Certified Check on a North Carolina bank or trust company, payable to the City of Rocky Mount, North Carolina, for the full amount of the Contract to guarantee the performance of the terms of the Contract. A Payment and Performance Bond shall be executed on forms furnished elsewhere within these Contract Documents.

Insurance:

Insurance requirements are listed in the General Conditions. Types of insurance and amounts required are listed there.

Permits, Taxes and Licenses:

The Contractor shall obtain and pay for all necessary permits, taxes and licenses required in connection with the Work, and he must strictly comply with all laws, local ordinances, and regulations that may apply to the Work.

GENERAL CONDITIONS FOR NATURAL GAS SYSTEM

NATURAL GAS ANNUAL LABOR CONTRACT FY26

CITY OF ROCKY MOUNT
ENERGY RESOURCES DEPARTMENT
NATURAL GAS DIVISION

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CITY OF ROCKY MOUNT

GENERAL CONDITIONS FOR
NATURAL GAS SYSTEM ANNUAL LABOR CONTRACT

GENERAL CONDITIONS

These conditions and every part herein are binding upon the Contractor insofar as they can or do apply to him or his Work, and he shall be responsible for neglect to read or to attend to any paragraph or item contained herein. The Engineer shall decide as to the meaning and applicability of any part of these General Conditions, or of anything in the Technical Specifications, and in each case his decision shall be binding and final.

1.1 Scope of Work

This Contract covers the general construction services required for the installation, replacement, repair or maintenance of natural gas distribution facilities within the City of Rocky Mount's natural gas distribution system. These facilities will be located within the City of Rocky Mount and surrounding Nash and Edgecombe Counties.

The Work consists of and includes the performing of all operations and the furnishing of all plant, labor, equipment, and other facilities and things necessary or proper for or incidental to the construction and testing of natural gas supply and/or distribution mains, all complete, tested, accepted, and connected to the existing gas system.

1.1.1 General Construction Conditions

Natural gas main and service installations will vary in size from one-half (½) inch services to twelve (12) inch mains. The main and service piping will typically be medium density or high density polyethylene but may include steel piping and fittings to connect to existing steel facilities. The mains and services will be operated at 60 psig. Typically, mains and services will be tested at 100 psig to allow for a maximum allowable operating pressure of 67 psig.

This Contract shall require the Contractor to work on live gas mains and services.

The types of Work required under this Contract shall include: direct burial, directional drilling, plowing-in, dead insertion, and bore installation of polyethylene and steel gas mains and services.

The City anticipates a need for utilization of one to two (1-2) crews for this Contract.

Award of this Contract shall in no way restrict the City from using its own construction crews or from hiring additional Contractors to perform the same or similar type of Work.

1.1.2 Value of Contract

The Work to be performed under this Contract is funded entirely through the City's Gas annual budget; therefore, the City does not guarantee a minimum or maximum value of this Contract. The City's fiscal year is July 1 through June 30.

1.2 Definitions

Whenever in these Contract Documents the following terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

OWNER: The City of Rocky Mount, North Carolina, as represented by its duly authorized representative.

ENGINEER: Rob Pate, Gas Distribution Manager for the City of Rocky Mount. The word Engineer shall be understood as referring to the Engineer of the Owner.

INSPECTOR: An authorized representative of the Engineer or Owner assigned to make any and all necessary inspections of the Work performed and material furnished by the Contractor.

BIDDER: Any individual, firm, or corporation with whom a contract is made by the Owner.

SUB-CONTRACTOR: The term Sub-Contractor, as employed herein, includes only those having a direct contract with the Contractor, and it includes one who furnished material worked to a special design according to the Plans and Specifications of this Work, but does not include one who merely furnished material not so worked.

CHANGE ORDER: A written agreement between the Owner and the Contractor with the approval of the Engineer, which, when duly executed, becomes part of the Contract. Change orders may either increase or decrease the Work to be performed under the Contract.

NOTICE TO PROCEED: A written notice from the Owner notifying the Contractor to begin prosecution of the Work.

CONTRACT PERIOD: The period of time between the date of commencement specified by the Owner on a written Notice to Proceed and the elapse of the specified number of consecutive calendar days stated in the Proposal form will be known as the Contract Period.

SURETY: The corporate body which is bound with and for the Contractor and which engages to be responsible for the Contractor and his accepted performance of the Work as covered herein.

SURETY BOND OR PERFORMANCE BOND: The approved form of security furnished by the Contractor and his surety as a guarantee of good faith on the part of the Contractor to execute the Work in accordance with the terms of the Contract required in the amount of one hundred (100%) percent of the Contract price.

WORK: The term Work, as used herein, refers to and includes all plant, labor, supplies, equipment, and other things necessary or proper for or incidental to the carrying out and completion of the terms of this Contract.

1.3 Standards Compliance

The Contractor shall comply with all provisions of the City of Rocky Mount's "Operations and Maintenance Plan".

1.4 Regulatory Compliance

1.4.1 Drug-Free Workplace

During the performance of this contract, the Contractor agrees to:

(1) Provide a drug-free workplace for the Contractor's employees.
(2) 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 violation of such prohibition.
(3) State in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace.
(4) Include the provisions of the foregoing clauses in every subcontract, so that the provisions will be binding upon each subcontractor or vendor.

"Drug-free workplace" means a site for the performance of Work done in connection with a project in accordance with this chapter. The employees of the Contractor 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 Work.

1.4.1.1 Drug Testing

Any and all employees of the Contractor who will be involved with the performance of construction and maintenance operations under this Contract shall be required to participate in an anti-drug/drug testing program. This program shall be administered in accordance with Title 49 of the Code of Federal Regulations, Chapter I, Part 199 (49 CFR 199), "Drug Testing," and Subtitle A, Part 40, "Procedures for Transportation Workplace Drug Testing Programs." The program must have been in force for no less than 12 months, and the Contractor must show proof of enforcement to the Owner.

The Contractor shall furnish the City with documentation of participation in a qualified drug-testing program. Prior to the performance of any fusion and/or tie-in operations, a negative (no evidence of drug use) test must be documented for all employees who will be involved with these operations.

The Contractor shall provide the Engineer with its Business Tax Identification Number (BTIN). The Contractor shall also provide a completed copy of PHMSA's Drug and Alcohol Testing MIS Data Collection Form when it is submitted to PHSMA annually for the duration of the Contract.

1.4.2 Operator Qualification

Contractors are required to provide a current copy of the Company's written Operator Qualification (OQ) Plan prior to award of the Contract. Copies of all employee OQ qualifications shall be provided to the Engineer prior to beginning the Work. The OQ written plan and employee records shall be in accordance with Title 49 of the Code of Federal Regulations, Chapter I, Part 192 (49 CFR 192), Subtitle N, "Qualification of Pipeline Personnel" and shall meet or exceed the requirements of the City of Rocky Mount's Operator Qualification Program. The Contractor's training and qualification process used for qualifying personnel that will provide services for this Contract shall meet the City's program requirements. The Contractor will be provided with a list of the City's minimum Operator Qualification requirements for qualification of personnel.

During the progress of the Contract, the Contractor shall furnish the City with records of continuous employee qualification for all employees as requested. Qualification documentation shall be provided for all new employees prior to performing work on the City's natural gas system.

The City may, at its discretion, accept the provisions of a Contractor's Plan. Contractors shall make available, upon request, written records of their employee's qualifications. At a minimum these records shall include:

(1) Identification of qualified individual(s)
(2) Identification of covered task(s) each individual is qualified to perform
(3) Date that current qualification was received
(4) Method of evaluation used to obtain qualification
(5) Name of individual or organization for each covered task
(6) Training program outlines and materials
(7) List of non-qualified individuals that will be performing tasks on behalf of the City while under the direction of a Contract qualified individual.

1.5 Owner's Engineer

Rob Pate, City of Rocky Mount Gas Distribution Manager, is the designated Engineer.

The term Engineer, as used herein, indicates the individual or firm named above and/or his duly authorized representative(s).

The Engineer shall have general supervision of the Work as the agent of the Owner. He shall have the authority to direct the construction insofar as the proper execution of the Contract is affected.

All Work shall be subjected to inspection of the Engineer to ascertain that Work is done in accordance with the Contract and whose determination of the quality, acceptability, and fitness of the Work shall be final.

The Engineer shall be the sole judge of the adequacy of the construction equipment furnished by the Contractor and shall have the right to require the Contractor to provide additional equipment and to replace inadequate equipment. He shall decide upon all questions which may arise as to the interpretation of the Plans and Specifications.

1.6 Insurance

The Contractor shall provide the Owner with certificates and/or memoranda of all insurance required, each with the following notation or endorsement: "Written notice" by registered mail of cancellation, expiration, non-renewal or changes in coverage, during the full period of construction covered by this Contract shall be given to the Owner ten (10) days prior to date of such cancellation, expiration, non- renewal, or changes in coverage affecting this policy." The City of Rocky Mount shall be named as co-insured on all policies.

Certificates and/or memoranda of insurance shall be provided in such quantities as required to be bound with each copy of Agreement and/or Contract.

1.6.1 Liability Insurance

(1) The Contractor shall maintain in a company acceptable to the Owner such insurance as will protect him from claims to property or from any personal injury, including death, which may arise from operations under this Contract, whether such operations are performed by the Contractor or by any Sub-Contractor or anyone directly or indirectly employed by either of them. This general liability insurance must include pollution liability insurance coverage. The minimum required limits of such liability insurance, unless modified by requirements specified in the Special Conditions section will be as follows:

a)	General Liability:	$2,000,000.00
b)	Railroad Crossings:	$2,000,000.00 each crossing
c)	Workmen's Compensation:	Statutory
d)	Bodily Injury:	$300,000.00 / $500,000.00
e)	Property Damage:	$200,000.00
f)	Automobile Bodily Injury:	$300,000.00/$500,000.00
g)	Automobile Property Damage:	$200,000.00

(2) The Contractor shall maintain in a company acceptable to the Owner, complete Owner's Protective Liability Insurance in the limits specified above for Bodily Injury Liability Insurance and Property Damage Liability Insurance.

(3) Fire and Extended Coverage Insurance. The Contractor shall insure all Work covered by his Contract against loss or damage by fire, and against loss or damage by the standard extended coverage insurance endorsement, in an Insurance Company or Companies acceptable to the Owner. The amount of insurance at all times shall be at least equal to the amount paid on account of Work and materials installed or delivered but not yet paid for by the Owner. The policies shall be in the names of the Owner and the Contractor showing the amount and type of coverage, terms of policies, and other data and shall be delivered to the Owner before any payment will be made to the Contractor.

1.7 Performance and Payment Bond

Performance and Payment Bond(s) in the full amount of the Contract Price will be required of the successful Bidder to guarantee the faithful performance of the Work in compliance with the Contract Documents and to guarantee the payment of all labor and material bills in connection with compliance of the Contract. The bond(s) shall be on approved form and dated the same as the Contract and accompanied by a current Power of Attorney. These bonds must be executed with the Contract and delivered to the Owner within ten (10) days after the date of official notice of award and transmittal of Contracts for execution or else the bid security shall be forfeited to the Owner and shall be considered as liquidated damages. The Bonding Company shall be licensed to do business in the State in which the Work is to be performed.

1.8 Responsibility, Risk, Blame, Etc.

The Contractor shall indemnify and save the Owner and Engineer harmless from and against all losses, claims, demands, suits, actions, recoveries, and judgments of every nature and description brought or recoverable against it or them by reason of any act or omission of the Contractor, his agent, or employees, in the execution of the Work or in consequence of any negligence or carelessness regarding the same.

The Contractor shall assume all risk and bear any loss or injury to property or persons occasioned by neglect or regulation, or order. The Contractor shall give to the proper authorities all required notices relating to the Work, obtain all official permits and licenses and pay all proper fees. He shall make good any injury that may have occurred to any adjoining building, structure, or utility in consequence of this Work.

The Contractor shall defend all suits or claims for infringement of any patent rights and shall save the Owner and Engineer harmless from loss on account thereof. If the Contractor has information that a process or article specified is an infringement of a patent, he shall promptly give such information to the Engineer. The Contractor shall pay all royalties and license fees.

1.9 Contract Documents

The Contract Documents consist of the Agreement, the General Conditions, the Technical Specifications, the Drawings (including such detail drawings as may be furnished from time to time during the performance of the Work in explanation of said drawings), the accepted Proposal, the Performance Bond, the Power of Attorney, Workmen's Compensation Insurance, Public Liability and Property Damage Insurance, and Builder's Risk or Fire Insurance Certificates. These form the Contract. The Contract Documents are complementary and what is called for by one shall be as binding as if called for by all.

Where reference is made to Specifications such as ASTM or ANSI, the latest edition shall be used unless otherwise stated.

The Engineer may issue additional instructions by means of supplemental Plans/Drawings or otherwise, from time to time during the progress of the Contract, to illustrate more fully the intent of the Contract Work or to illustrate changes in the Work.

The Contractor shall keep one copy of all Plans/Drawings and Specifications with each crew on the site of the Work.

All Plans/Drawings, Specifications, and copies thereof furnished by the Engineer are his property. They are not to be used on other Work and, except for the signed Contract set, are to be returned to him on request, at the completion of the Work.

1.9.1 Plan and Specifications Contradictions

When deemed necessary, the Engineer shall provide Plans for individual projects. Where contradictions in the Plans and Specifications occur, the more restrictive provision shall apply unless otherwise

authorized by the Engineer. The Contractor shall immediately notify the Engineer of any such contradiction and shall abide by the Engineer's decision.

1.9.2 Interpretation of Specification Intent

The Engineer shall have the authority to interpret the intent and meaning of these specifications. **1.9.3**

Implied Work

All incidental work required through the Plans and/or the Specifications and Work Orders, or as otherwise directed by the Engineer, for which no payment is specifically provided, and any and all work or materials not specified herein which may fairly be implied as included in the Contract and necessary to complete the Work, and which the City shall judge to be so included, shall be executed and/or furnished by the Contractor without extra compensation.

1.9.4 Required Work Not Covered by a Unit Cost

A price must be submitted to and approved by the Engineer prior to performing the Work for any required Work that is outside of the scope of services described in the Contract Documents or is determined that it does not qualify as implied work and is not covered by a specific unit cost in the Bid Proposal. Any Work performed without prior, written approval from the Engineer will be performed at the sole expense of the Contractor.

1.10 Employment Practices

The Contractor shall comply with all local, state, and federal laws relating to the terms and conditions of the employment of workers to perform any Work under the Contract and shall conform in every respect with applicable rules, regulations, and statutes pertaining to wages and hours of work, discriminatory employment practices, whose age or physical condition is such that his employment might be injurious to his health or safety or to that of others.

The Contractor shall provide such equipment and medical facilities as are necessary to supply first aid service to anyone who may be injured in connection with the Work. All accidents in which death or serious injuries or serious damages are caused shall be reported immediately by telephone or messenger to both the Engineer and the Owner. The Contractor may be required to report the facts of any such accident in writing to the Engineer, giving full details and statements of witnesses.

1.11 Permits and Licenses

Permits and licenses of a temporary nature necessary for the prosecution of the Work shall be secured and paid for by the Contractor. Permits and licenses for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn and specified. If the Contractor observes that the Drawings and Specifications are at variance therewith, he shall promptly notify the Engineer in writing.

1.12 Assignment

Neither party to the Contract Documents shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any monies due or to become due to him hereunder, without the previous written consent of the Owner.

1.13 Sub-Contracting

The Contractor shall not award any Work to any Sub-Contractor without prior written approval of the Owner. Approval will be contingent upon the Contractor supplying written information concerning the proposed award as the Owner may require.

If the Contractor sublets any part of the Contract, the Contractor shall be as fully responsible to the Owner for the acts and omissions of his Sub-Contractor and of the persons either directly or indirectly employed by his Sub-Contractor, as he is for the acts and omissions of persons directly employed by him.

Nothing contained in the Contract Documents shall create any contractual relation between any Subcontractor and the Owner.

1.14 Special Services

The Contractor may be required to provide special construction services during the course of the Work. These services may include surveying, geotechnical, meter and regulator station fabrication and installation, etc. When Contractor forces are to perform the special services, the Contractor shall submit costs for performing the services to the Engineer for approval. When outside services are used to perform the special services tasks, the Contractor shall provide to the Engineer for approval a minimum of two quotes from companies specializing in the particular service. The Contractor shall be responsible for contacting, subcontracting with, and supervising personnel for the company(s) performing these services.

Measurement and Payment

The Contractor shall be compensated for special services as described above on a cost-plus basis. The Contractor will be reimbursed the direct costs associated with the particular work plus fifteen (15) percent to cover the cost of any and all equipment, material and labor required to complete the special services.

1.15 Force Account Services

The Contractor may be required to provide construction services not covered by the Specifications. The only time that force account prices shall be allowed are for:

(1) System repair services
(2) Emergency response services
(3) When the Contractor is asked to mobilize an additional crew(s), except for a welder and related welding equipment, with less than fourteen calendar days' notice.

The City reserves the right to direct the crew size required for force account services. Limitations or directions pertaining to the crew size will be based on the Engineer's assessment of crew requirements for each work order performed under force account services.

Measurement and Payment

The Contractor shall provide unit costs for labor and equipment rates based on the personnel classification and equipment type. The unit price bid for force account services shall include all cost associated with the employment of personnel plus the Contractor's standard profit margin and all cost associate with the operation of equipment plus the Contractor's standard profit margin.

1.16 Work Hours

All Work shall be performed in such a manner that will not conflict with or increase the normal five-day work week of the City of Rocky Mount. The normal work hours are 7:00 a.m. to 3:30 p.m., Monday through Friday. Saturday work and work performed after 5:00 p.m. on Monday through Friday shall normally be limited to clean-up operations and no Work will be scheduled for Sundays or holidays.

The Contractor will typically be allowed to work from 7:00 a.m. to 5:00 p.m. on Monday through Friday as long as the work between 3:30 p.m. and 5:00 p.m. does not require the presence of any City personnel other than the inspector that is assigned to the project.

Work after 5:00 p.m. (night work) is not included in the Contract normal working hours and will not typically be allowed. Occasional work after the normal work hours provided for in this section may be allowed with the Engineer's approval but is not an expressed privilege of the Contract. The City may, upon the request of the Contractor, allow night work with the understanding that the work as described above is being performed entirely for the convenience of the Contractor, as long as a City inspector is available to be onsite and no other City personnel are required to be available for assistance, make repairs, etc. If the Contractor chooses to perform the night work for his convenience, all additional costs, without exception, to the Contractor including labor, rental equipment, etc., will not be considered a basis for additional compensation to the Contractor.

Weekend work is not included in the Contract normal working hours and the Contractor will not be allowed to perform any work required by the Contract except for cleanup.

1.17 Contract Length

This Contract will be for one (1) year. The City further reserves the right to terminate the Contract at any time.

1.17.1 Task Length, Time for Completion and Liquidated Damages

Time is an essential element of the Contract and it is important that each task assigned through the Work be prosecuted vigorously to completion. Each task assignment will include a time for completion (Task Length). When the task assignment is provided to the Contractor, the Engineer will also designate whether the task assignment is subject to liquidated damages or not.

Where a task assignment is subject to liquidated damages, it is expressly understood and agreed by and between the Contractor and the Owner that the Task Length for the task assigned to the Contractor is a reasonable time for the completion of the Work and that for each consecutive normal working day (Monday through Friday whether work is performed by the Contractor or not) that any Work shall remain uncompleted after the end of the task assignment Task Length, the Contractor shall pay to the City the amount of five hundred dollars ($500.00) per consecutive working day, not as a penalty but as a predetermined and agreed liquidated damage. Such amount shall be deducted by the Owner from any balance due or to become due the Contractor under the terms of the Contract. During the liquidated damages period, considerations for holidays that are observed by the City will be provided to the Contractor. However, the Engineer shall determine if and how much consideration the Contractor will be allowed for non-performance of work resulting from inclement weather.

Considerations for holidays and inclement weather will be included in the development of the Task` Length and no extension of the Task Length will be allowed for weather related downtime, unless the downtime related to inclement weather exceeds the average normals.

The City may grant to the Contractor an extension of the Task Length for additional Work resulting from any modification(s) to the scope of the project, for delays caused by the City or for other reasons beyond the control of the Contractor which in the City's judgment would justify such extension. A request for a time extension shall be made within seven (7) calendar days following any event causing a delay.

No extension of the Length will be allowed when the actual installed quantities as described in the original Contract are less than twenty-five (25) percent in excess of the estimated Contract quantities. If the Contractor is requested by the City to install facilities that are not described in the original Contract, then the Contractor shall submit a written request for an extension of the Task Length. The Engineer will review the request for additional time and make a determination at that time or defer to a later date within the Task Length as to the allowance for additional time. If the Engineer determines that additional time is justified, then the Engineer shall make a determination for the length of extension allowed.

The assessment of liquidated damages for failure to complete the Work within the Task Length shall not constitute a waiver of the City's right to collect any additional damages that the City may sustain by failure of the Contractor to carry out the terms of the Contract.

1.18 Notice to Proceed

No Work shall begin on this project until the Engineer has issued a Notice to Proceed directing the Contractor to proceed with the Work.

1.19 Scheduling of Work

The Engineer shall have control of the order in which the various parts of the Work are to be performed. The order of Work as determined by the Contractor will be followed expect where the Engineer determines that such order would not be to the best interests of the City of the general public.

For larger tasks, the Contractor shall be required to furnish the Engineer, within three (3) weeks after Notice to Proceed, a detailed cost breakdown, to be used as a basis for authorizing Progress Payments, and a construction Progress Schedule showing estimated dates for commencing and completing each phase of construction.

1.20 Responsibility for Connecting to Existing Work

It shall be the expressed responsibility of the Contractor to connect his Work to each part of the existing Work or Work previously installed where shown on the Drawings, and where directed by the Specifications to provide a complete installation.

1.21 Supervision

The Contractor shall keep on the Work at all times during its progress a competent foreman for each crew. The foreman or foremen having a minimum of three (3) years' experience in the installation of natural gas distribution facilities. The foreman who are adequately trained and knowledgeable of the requirements of natural gas system construction and repairs such that they may perform the Work and direct other Contractor personnel to perform the Work. The foremen shall be able to understand the Plans and these Specifications and be able to follow verbal direction for the installation and repair of the natural gas facilities. The Superintendent shall manage all Work performed by all of the Contractor's crews. The Superintendent shall not be replaced without written notice to the Engineer except under extraordinary circumstances, as determined by the Engineer. The Superintendent will be the Contractor's representative at the site and shall have authority to act on behalf of the Contractor. All communications to or from the Superintendent shall be binding as if given to or received from the Contractor.

1.21.1 Foreman

The Contractor shall provide foreman who are adequately trained and knowledgeable of the requirements of natural gas system construction and repairs such that they may perform the Work and direct other Contractor personnel to perform the Work. The foremen shall be able to understand the Plans and these Specifications and be able to follow verbal direction for the installation and repair of the natural gas facilities.

1.22 Contractor Crew Requirements

The Contractor shall provide a sufficient number of crews to efficiently complete the Work required by each task assignment within the Contract Length. For the purpose of this Contract, the term crew shall be defined as a collective group of Contractor personnel consisting of a foreman and other necessary personnel knowledgeable and able to perform a specific task or tasks. The number of crews required will be dependent on the concurrent tasks assigned.

1.22.1 Increase / Reduction of Crews

Crews may be introduced to or removed from the projects by the Contractor or at the request of the City as long as sufficient crews remain onsite to complete the Work in accordance with the Contract Documents.

When additional crews are requested by the City, and the Contractor has the additional personnel available, the Contractor shall be allowed fourteen (14) to mobilize the crew(s).

The Contractor may introduce additional crews to perform the Work, as it deems necessary. The City shall be provided five (5) working days' notice by the Contractor prior to introduction of the new crews. The City reserves the right to deny the Contractor's request for additional crews based on its ability to provide inspection of all Work being performed, or estimated to be performed, by all of the crews.

The City shall not, typically, request a reduction of the number of crews that the Contractor uses to complete the Work; however, the City reserves the right to limit the number of crews associated with this Work.

1.23 Cooperation with Municipal Departments, Public Utilities, Etc.

The Contractor's attention is called to the fact that there may be possible delays on the assigned tasks due to work being performed by municipal departments, public utilities, and/or others. The Contractor shall cooperate with the above parties in every way possible, so that the construction can be completed in the least possible time. It is distinctly understood that the Contractor will have no claim whatsoever against the Owner for any delay caused him during the construction of this project due to the work being performed by other parties. The Contractor shall have made himself familiar with all laws, ordinances, and regulations which in any manner affect those engaged or employed in the Work, or materials and equipment used in or upon the Work, or in any way affect the conduct of the Work, and no plea of misunderstanding will be considered on account of his ignorance thereof.

1.24 Inspection

The Engineer shall have access to the Work at all times. The Contractor shall provide proper facilities for such access and for inspection. The Engineer shall be present for all testing or approval of the Work that is required by the Specifications, the Engineer's instructions, laws, ordinances, or any public authority.

The Engineer, in order to be present, shall be given sufficient notice prior to any required testing or approval. The Contractor shall have no claim against the City for time or monies when sufficient notice, as described above, is not given to the Engineer.

The Engineer may require re-examination of any of the Work. If required, the Contractor shall provide all labor, material and equipment necessary to uncover the Work. If the Work is determined to be in accordance with the Specifications, the City will pay the costs of re-examination and replacement. If the Work is not in accordance with the Specifications, the Contractor shall pay such costs.

Inspector(s) may be stationed at the Work site to report to the Engineer as to the progress of the Work, the manner in which it is being performed, and also to report whenever it appears that the materials furnished, or the Work performed by the Contractor fails to meet the requirements of the Plans or Specifications.

If a dispute arises between the Inspector and the Contractor as to the materials furnished or to the manner of performing the Work, the Inspector shall have the authority to reject the questionable materials or suspend the Work until the issue can be referred to and a decision can be made by the Engineer. Inspectors are not allowed to revoke, alter, increase, relax or release any requirements of these Specifications or to issue instructions contrary to the Contract Documents.

Inspectors shall in no case act as foremen or perform duties for the Contractor or interfere with the management of the Work by the Contractor.

1.24.1 Final Inspection

The Engineer will make a final inspection of all Work required by the assigned task as soon as possible after notification from the Contractor that the Work is substantially complete and ready for inspection. If any of the Work is not acceptable at the time of the inspection, the Engineer will advise the Contractor, in writing, as to the particular items to be completed or corrected before the Work can be given final approval and final payment for the Work is approved.

1.25 Changes in The Work

Without invalidating the Contract, the Owner may order extra Work or make changes by altering, adding to, or deducting from the Work, the Contract Sum being adjusted accordingly. All such Work shall be executed under the conditions of the original Contract except that any claim for extension of time caused thereby shall be adjusted at the time of ordering such change.

The Owner reserves the right to increase or decrease each bid item in a task assignment up to 20%, at the unit prices in the Proposal, for similar type Work without a change order.

Where changes ordered by the Owner involve a monetary consideration, the Contract shall be adjusted by negotiation with the terms of said negotiation being expressed in a supplemental agreement of Change Order signed by the Owner, the Contractor, and the Engineer.

1.26 Payment to Contractor

1.26.1 Invoices

Upon completion of all Work required and upon receipt from the Contractor of acceptable certificates and waivers, showing that no right or lien exists in connection with the Work, the City will make monthly progress payments to the Contractor based on duly certified partial payment applications approved by the Engineer for Work completed during the preceding Work period. The City will retain ten (10%) percent of the amount of each progress payment until final completion and acceptance of all Work required by the Contract and in accordance with the Contract Documents.

As the City is providing most of the materials for this Project, there will be no allowance to the Contractor or payment for the cost of stored materials.

a) The Vendor must submit one monthly invoice within fifteen (15) calendar days following the end of each month in which work was performed.

b) Invoices must be submitted to the following address:

City of Rocky Mount Attn: Accounts Payable
PO BOX 1180
Rocky Mount, NC 27802
or
acctpayable@rockymountnc.gov

c) Payment amounts will be made on a NET 30-day pay period upon submission of an invoice and appropriate trip tickets to support such invoice.

Progress payments shall in no way be considered acceptance of the Work, nor as a release of the Contractor's responsibility for Work completed prior to final acceptance.

1.26.2 Final Payment

Upon completion of all Work required and upon receipt from the Contractor of acceptable certificates and waivers, showing that no right or lien exists in connection with the Work, the Engineer will submit a Final Certificate of Payment to the City as to the entire amount of Work performed and compensation earned by the Contractor.

1.26.3 Taxes

The Contractor shall include in his Proposal the costs for all Federal, State, and local taxes applicable to the Work.

Each month, if requested by the Owner, or at the completion of the Work, the Contractor shall furnish the Owner with statements evidencing payment of any sales, use, or excise tax and whatever documents are necessary for the Owner to make request for tax refund as provided by law.

1.27 Guarantee of Work

Except as otherwise specified all Work shall be guaranteed by the Contractor and his sureties against defects resulting from the use of faulty or inferior materials, equipment or workmanship for one year from the date of final completion of the Contract as signified by acknowledgement of receipt of Final Payment by the Contractor, or from the date of final completion as otherwise established by the Owner, the Engineer, and the Contractor.

If within any guarantee period, repairs or changes in connection with guaranteed Work are rendered necessary as a result of the use of materials, equipment, or workmanship which are inferior, defective, or not in accordance with the terms of the Contract, the Contractor shall promptly, upon receipt of notice from the Owner and without expense to the Owner, place in satisfactory condition, in every particular, all of such guaranteed Work. This obligation shall survive termination of the Contract.

1.28 Suspension of Work

The Work may be suspended by the Engineer when deemed in the best interest of the City.

TECHNICAL SPECIFICATIONS FOR NATURAL GAS SYSTEM

ANNUAL LABOR CONTRACT

CITY OF ROCKY MOUNT
ENERGY RESOURCES DEPARTMENT
NATURAL GAS DIVISION

TABLE OF CONTENTS

1 SECTION 1 - CONSTRUCTION MATERIALS

1.1 Pipe

1.1.1 Polyethylene Gas Pipe

All polyethylene gas pipe be either medium density or high-density polyethylene. The polyethylene pipe shall be manufactured and tested in accordance with ASTM specifications D2513, D2683 and D3261.

Materials used for the manufacture of the high-density polyethylene pipe shall be PE3408/PE4710-PE100 high-density polyethylene meeting cell classification 445576C per ASTM D3350; and shall be listed in PPI (Plastics Pipe Institute) TR-4 with standard grade HDB ratings of 1600 psi at 73°F and 1000 psi at 140°F. The material shall also be listed in the same PPI document as a PE100 with an MRS (Minimum Required Strength) of 10 MPa (1450 psi) at 20°C (68°F). Materials shall be stabilized against ultraviolet deterioration and shall be suitable for unprotected outdoor storage for at least ten (10) years.

MDPE materials used for the manufacture of polyethylene pipe and fittings shall be PE 2708 medium-density polyethylene meeting cell classification 234373E per ASTM D 3350; and shall be listed in PPI (Plastics Pipe Institute) TR-4 with standard grade HDB ratings of 1250 psi at 73°F and 800 psi at 140°F. Materials shall be stabilized against ultraviolet deterioration and shall be suitable for unprotected outdoor storage for at least three (3) years.

The polyethylene pipe shall not contain any rework and/or regrind material.

All polyethylene pipes for use with natural gas shall be Iron Pipe Size (IPS), unless noted as copper tubing size (cts).

PE3408/PE4710-PE100 polyethylene pipe properties shall be as listed in Table 1.1.1.

TABLE 1.1.1
POLYETHYLENE PIPE PROPERTIES

SIZE (INCHES)	SDR	COIL/STRAIGHT LENGTH (FT.)
12	11.0 (HDPE) 11.5 (MDPE)	40’ (Straight Length)
10	11.0	40’ (Straight Length)
8	11.0	40’ (Straight Length)
6	11.0	40’ (Straight Length)
4	11.0	40’ (Straight Length)
2	11.0	500’ Coil
1-1/4	11.0	500’ Coil
1	12.5 CTS	500’ Coil
½	6.9 CTS	500’ or 1000’ Coil

1.1.1.1 Polyethylene Pipe Marking

Pipe should be marked with a 1-Dimension bar code and a 16-Digit alpha numeric code that identifies the manufacturer, production run number, date of manufacture, pipe type and material grade per ASTM F 2897.

The City utilizes collection systems and software developed by Magnolia River to capture pipe, valve and fittings installations.

1.2 Pipe Fittings

1.2.1 Polyethylene Pipe Fittings

Polyethylene pipe fittings shall be butt fusion; saddle fusion or electrofusion fittings manufactured by an approved manufacturer and shall be composed of the same material as the pipe, as specified in 1.1.1 Polyethylene Gas Pipe. All polyethylene fittings shall conform to ASTM D2517. All fittings shall be SDR 11, iron pipe size (IPS). The SDR of the polyethylene fittings installed shall match or exceed the SDR of the pipe. The difference in the SDR of the fitting and the pipe shall not exceed one SDR size.

1.2.2 Electrofusion Fittings

Electrofusion fittings shall be manufactured of polyethylene resins compatible with PE3408/PE4710-PE100, high-density pipe or PE2708 medium-density pipe. The fittings shall be engineered to be used with and meet or exceed the resistance properties of SDR 11, polyethylene pipe.

1.2.3 Service Tees

Service tapping tees for polyethylene mains shall be composed of the same material as the pipe, as specified in 1.1.1 Polyethylene Gas Pipe. Service tees for polyethylene mains shall be electrofusion fittings.

Electrofusion service tees shall be standard chimney and self-tapping with the appropriate IPS or CTS sized outlets. Electrofusion service tees for two (2) inch outlets shall be high volume tap style. The cap of the service tapping tee shall provide a leak free seal between the cap and the stem of the tee. The base (saddle) of the tapping tee shall match the size of the main that is being tapped.

Service tees for steel mains shall be machined of solid forged steel and shall meet or exceed all applicable sections of DOT/CFR Title 49, Part 192. Service tees for steel mains shall be weld inlet by weld outlet with a weld transition coupling when making connections to plastic service lines. Tees shall be “valve” tees with a mechanism that can be used to shut off the flow of gas to the service line.

1.2.4 Service Risers

Service risers shall be prefabricated and anodeless, requiring no cathodic protection. The riser shall meet or exceed 49 CFR 192 requirements. Three-quarter (3/4) inch risers shall be straight or pre-bent and one and one-quarter (1-1/4) inch risers and two (2) inch risers shall be pre-bent or bent at a thirty (30) inch rise. The above grade portion of the riser shall provide a gas tight seal between the casing pipe and the carrier pipe. A minimum twelve (12) inch polyethylene pigtail inlet shall be provided. The polyethylene pigtail shall be manufactured of the same material as specified in 1.1.1 Polyethylene Gas Pipe above and have fusion compatibility with the service line piping. The outlet of the riser shall be threaded to accommodate a meter valve.

1.2.5 Transition Fittings

Steel to polyethylene transition fittings shall meet or exceed 49 CFR 192, ASTM D2513 and ASTM A53 specifications. The steel portion of the fitting shall be coated with electrostatically applied epoxy and the end shall be beveled for welding and tapered to match the pipe bore. The polyethylene portion of the fittings shall be composed of the same material as the pipe, as specified in 1.1.1 Polyethylene Gas Pipe. The longitudinal pull-out strength of the transition from steel to polyethylene shall exceed the yield factor of polyethylene pipe.

1.2.6 Couplings

Seal and restraint couplings shall be used for all 2" through 8" connections. Seal only couplings shall be used for all 10" connections. Soil embedment will typically provide restraint for non-restrained couplings used for joining operations, but the Engineer reserves the right to require additional restraint measures. Couplings shall be installed as per the manufacturer's instructions.

1.2.7 Tapping Tees

Tapping tees for steel mains shall be machined of solid forged steel and shall meet or exceed all applicable sections of DOT/CFR Title 49, Part 192. Tapping tees for direct connections to steel mains shall be weld inlet by weld outlet.

1.2.8 Hot Tap Fittings

Hot tap fittings shall be of the full encirclement type constructed of cast steel for welding to steel pipe with working pressures as specified in the plans and shall be designed for making taps on natural gas mains under pressure. Stopper fittings shall be supplied with a completion plug and blind flange (with studs, nuts and gasket).

Tapping and stopping equipment shall be that as recommended by the fitting manufacturer for the type of tap and stop required. The normal operating pressures will not be lowered to facilitate lower pressure tapping and stopping equipment. Tapping and stopping equipment shall be designed to sustain the normal operating pressure of the existing distribution system. **1.3 Valves**

All valves to be installed in the gas distribution system shall be wrench operated, low maintenance or no maintenance valves as indicated on the Plans.

1.3.1 Main Valves

1.3.1.1 Polyethylene Valves

All main valves shall be polyethylene, full opening, ball type and maintenance free. The valves shall be composed of the same material as the pipe, as specified in 1.1.1 Polyethylene Gas Pipe. Valve outlets shall be manufactured for butt fusion. The valves shall have factory applied PE 3408 or PE 2708 extensions, in conformance with 1.1.1 Polyethylene Gas Pipe above, on both ends. Extensions shall be joined by butt fusion.

1.3.2 Service Valves (Customer Shut-off Valves)

All polyethylene service shut-off valves shall be ball or plug type and maintenance free. The valves shall be composed of the same material as the pipe, as specified in 1.1.1 Polyethylene Gas Pipe.

1.3.3 Cut-off Valves (Meter Valves)

All cut-off valves shall be tamper-proof with a lockwing head and capable of being re-lubricated under pressure. The valve body shall be cast iron with the inlet and outlet connections being female internal pipe threads. The exterior surfaces of the valves shall be galvanized. Cut-off valves shall have a 175-psi maximum working pressure.

1.3.4 Excess Flow Valves (EFV)

All excess flow valves shall be self-resetting valves. The EFV shall be incorporated into the electrofusion tapping tee and shall have a stab type outlet.

Each EFV will be sized by the Engineer and will be based on the operating pressure, the customer gas loads and the length of the individual service lines.

The Contractor will use the manufacturer provided identification for service lines with EFV's installed. The supplier of the coupling and valve will provide either an aluminum identification tag or an adhesive identification tag. The tag shall include information detailing the EFV manufacturer, series number, pipe manufacturer, etc. The aluminum tag shall be to the service riser with nylon UV stabilized cable/zip ties.

1.4 Valve Boxes

Valve boxes shall be installed to facilitate the operation of the valve.

Locating stations shall be installed facilitate the locating of polyethylene mains and facilities.

Valve boxes; including bottom sections, top sections, extension pieces, collars and covers shall be cast iron. Valve boxes shall be suitable for HS-20 (AASHTO) traffic loading. Slip type or screw type valve boxes will be allowed for use with mainline valves. Valve box covers shall have the word "GAS" embossed on top and shall be painted yellow.

1.5 Locating Stations

Locating stations shall be installed facilitate the locating of polyethylene mains and facilities.

Locating stations shall be above grade post style.

The above ground stations shall be yellow in color. The post shall be six (6) feet long and three and one half (3.5) inches in diameter. Each post must have the following printed legibly on a background of sharply contrasting color:

(1) The word "WARNING" followed by the words "Gas Pipeline" with a letter height of at least one (1) inch and a one-quarter (1/4) inch wide stroke.

(2) The name "City of Rocky Mount" followed by "(252) 467-4800" (telephone number).

1.6 CP Test Stations

Test Stations boxes shall be installed to facilitate the monitoring of cathodic protection.

Test stations shall be five-wire above ground test stations. The post shall be round with a threaded or slip-type cap opening to the wiring terminal.

The above ground stations shall be yellow in color. The post shall be six (6) feet long and three and one half (3.5) inches in diameter. Each post must have the following printed legibly on a background of sharply contrasting color:

(3) The word "WARNING" followed by the words "Gas Pipeline" with a letter height of at least one (1) inch and a one-quarter (1/4) inch wide stroke.

(4) The name "City of Rocky Mount" followed by "(252) 467-4800" (telephone number).

Wire for test stations shall be AWG No. 10, solid conductor copper with 600-volt insulation designed to meet U.S.E. requirements for buried service. Insulation color shall be black for anodes and steel casing pipe and white for steel carrier pipe.

1.7 Pipeline Markers

Pipeline markers shall be installed facilitate public awareness of the natural gas mains and facilities.

The above ground pipeline markers shall be yellow in color. The post shall be six (6) feet long and three and one half (3.5) inches in diameter. Each marker must have the following printed legibly on a background of sharply contrasting color:

(1) The word “WARNING” followed by the words “Gas Pipeline” with a letter height of at least one (1) inch and a one-quarter (1/4) inch wide stroke.

(2) The name “City of Rocky Mount” followed by “(252) 467-4800” (telephone number).

1.8 Miscellaneous Materials

1.8.1 Joint Repair

All steel fittings, valves, pipe joints, piping installed below ground that is not plant coated, and holidays in the plant coating shall be wrapped with a tape coating system designed for corrosion protection.

Wrapping shall be performed with heat applied tape tested in accordance with ASTM D1737, ASTM G22 and ASTM D1000. The thickness of the tape shall be 50 mils. The tape shall be applied with a double, continuous overlap wrapping.

Where permitted by the Engineer, other equivalent means of corrosion protection may be utilized. Application of these materials shall be performed in the manner recommended by the respective manufacturer of the protective/coating material.

1.8.2 Tracer Wire

Tracer wire for typical polyethylene pipe installations shall be AWG No. 12 or AWG No. 10, single conductor copper clad steel (CCS) wire. The wire shall have a high-flex (annealed) carbon steel core with a concentrically clad copper coating measuring at least 3% of the conductor diameter. Insulation shall be minimum 30 mils, solid color, 30-volt high density polyethylene designed to meet U.S.E. requirements for buried service. Insulation color shall be yellow.

Tracer wire for polyethylene underwater crossings and extra depth bores shall be AWG No. 8 single conductor copper clad steel (CCS) wire. The wire shall have a high-flex (annealed) carbon steel core with a concentrically clad copper coating measuring at least 3% of the conductor diameter. Insulation shall be minimum 30 mils, solid color, 30-volt high density polyethylene designed to meet U.S.E. requirements for buried service. Insulation color shall be yellow.

1.8.3 Warning Tape

Warning tape shall be polyethylene with a three (3) inch width and have a minimum 4.0 mil overall thickness. The warning tape shall be non-metallic/non-conductive. The warning tape, including labeling, shall not contain any dilutants, pigments or other contaminants, and shall resist degradation by elements encountered in the soil. The warning tape shall be solid yellow and imprinted with black words “Caution – Gas Line Buried Below”.

1.8.4 Protective Sleeves

Protective sleeves for polyethylene pipe shall be constructed of fiberglass reinforced polyethylene (FRP) and shall be of a type and design approved by the Engineer.

1.9 Coarse Aggregate

Coarse Aggregate used for road repair and replacement shall consist of crushed stone, crushed slag, or crushed or uncrushed gravel with clean, hard, tough, and durable pieces free from adherent coatings and deleterious amounts of friable, thin, elongated, or laminated pieces; soluble salts; or organic materials and shall conform to the requirements of the NCDOT specifications.

1.10 Stone

1.10.1 Riprap and Bedding

Stone for riprap and bedding shall be sound, durable, and free from seams, cracks, and other structural defects. Riprap and bedding shall be crushed stone, minimum Grade B conforming to the requirements the NCOT specifications.

1.10.2 Backfill

Stone for porous backfill shall be aggregate size No.78 or No. 8, minimum Grade B conforming to the requirements of the NCDOT specifications.

1.11 Crusher Run Aggregate

Crushed aggregate used for backfilling and bedding pipe, maintaining traffic, and repairing and constructing private access pavements shall be crushed from stone, slag or gravel and shall contain all the sizes produced when the original aggregate is reduced through a series of crushers to the maximum size specified. It shall be free of all deleterious substances and shall conform to the requirements of the NCDOT specifications.

1.12 Select Fill

Material used for bedding or backfill material purposes shall consist of approved materials; typically, clean topsoil or other borrow material capable of achieving necessary compaction required for protection of the pipe and pipe and trench stabilization, as approved by the Engineer.

1.13 Sand

Sand shall be naturally occurring sand or manufactured stone sand. Natural sand shall consist of grains of hard, sound material, predominantly quartz, occurring in natural deposits. Manufactured sand shall consist of sound crushed particles of minimum Grade B stone, essentially free from flat or elongated pieces, with sharp edges and corners removed. All sand shall be clean and free from foreign matter such as loam, dirt, sticks, roots, leaves, silt, vegetable matter, and oil or dyestuffs.

1.14 Other Materials

Special material specifications may be listed on any supplemental Plans or drawings.

The Contractor shall provide special materials, as directed by the Engineer.

2 SECTION 2 - GENERAL CONSTRUCTION REQUIREMENTS

2.1 Standards

The Work covered by these Specifications consists of, and includes, the performance of all operations and the furnishing of all labor, equipment, supplies and other facilities and materials, as required, necessary for the construction of natural gas distribution mains and related appurtenances complete. The Work shall be complete, tested, accepted and connected to the existing natural gas distribution systems.

All Work on the natural gas distribution system shall be performed in accordance with: Title 49 of the Code of Federal Regulations, Chapter I, Part 192 (49 CFR 192), "Transportation of Natural and other Gas by Pipeline: Minimum Federal Safety Standards," as amended; the City of Rocky Mount's Natural Gas System Operation and Maintenance Plan (O&M Plan), as amended; and any other applicable standards which are hereby incorporated into these Specifications by reference. The Contractor will be provided with copies of the applicable sections of the O&M Plan. Each crew shall have a copy of sections of the O&M Plan that are relevant to the Work being performed. The requirements of the O&M Plan shall prevail when there is a conflict between the Contract documents and the O&M Plan.

General construction operations applicable to natural gas facilities installation shall be performed in accordance with: Title 29 of the Code of Federal Regulations, Chapter I (29 CFR 1926), "Occupational Safety and Health Standards for the Construction Industry"; and any other applicable standards which are hereby incorporated into these Specifications by reference.

2.2 Mobilization

The Contractor shall furnish all equipment, materials and labor necessary for the performance of construction preparatory operations, including but not limited to: the securing of all necessary bonds, insurance, permits and licenses; the movement of personnel, material and equipment to and from the project site; the establishment of the Contractor's offices and storage and equipment areas; the establishment of all markings, signs, traffic detours and controls; and all other facilities necessary to perform the Work as specified herein.

Measurement and Payment

The cost of mobilization is considered incidental to the Work and a specific contract unit price will not be provided. The cost of any and all bonds, licenses, equipment, materials, labor, etc., required for startup or mobilization operations shall be included in the unit price bid for the various bid items.

2.3 Equipment, Tools, Labor and Materials

2.3.1 Equipment, Tools, Labor, and Materials To Be Furnished By City

The City shall supply no equipment, tools, or labor necessary for the completion of the Work as specified herein.

The City shall supply the Contractor with all pipe, tees, elbows, reducers, elbows, bends, reducers, transition fittings, couplings, electrofusion couplings, caps, plugs, tracer wire, warning tape, valves, valve boxes (bottom section, top section, lids), test/locating stations, galvanic anodes, hi-volume tapping tees, tapping fittings, gravel, stone, sand and select fill necessary for the completion of the Work specified herein. Electrofusion couplings shall only be provided for connections identified in the Plans or as identified by the Engineer. All other materials furnished by the City will be available to the Contractor at the City's warehouse located at 724 Albemarle Avenue, Rocky Mount, NC or at Energy Resources Pole Yard 1251 Thorpe Road, Rocky Mount, NC.

The City shall not be responsible for additional compensation or extensions of time due to delays in the delivery of materials beyond their control. Should delivery of materials affect the current Work, the Contractor shall adjust the construction schedule such that Work can remain continuous.

2.3.2 Contractor's Responsibility for Material Furnished by City

When materials are furnished by the City, the following conditions shall apply:

(1) It shall be the Contractor's responsibility to independently review each task assignment and determine the quantities of materials that are necessary to complete the Work in accordance with the Specifications.
(2) The Contractor's responsibility for the material(s) furnished by the City shall begin at the point of delivery from the City, and upon acceptance of the material by the Contractor. The point of delivery is considered the City provided storage site or the City's warehouse.
(3) All materials removed from the warehouse shall be included on a requisition receipt furnished by warehouse staff.
(4) Any materials remaining after construction shall be returned to the warehouse and itemized on a turn-in ticket. Damaged materials and pipe sections less than five (5) feet in length shall not be included with the returned materials. All pipe returned shall be cut straight and beveled as required.
(5) An allowance of up to ten (10) percent the total pipe received by the Contractor will be provided for without liability to the Contractor. No allowance for waste will be provided for any other materials provided by the City.
(6) Any materials charged out by the Contractor and not used or not returned will be charged to the Contractor. Cost of materials includes the total cost of the material incurred by the City. All charges resulting from failure to return unused materials shall be deducted from any monies due the Contractor.
(7) Material may be checked out from the warehouse or returned Monday through Friday, between 7:30am and 3:30pm.
(8) The Contractor shall be responsible for the safe storage of all material after delivery to him and until it has been incorporated into the completed project.
(9) The Contractor shall be responsible for inspection of the material(s) prior to acceptance from the warehouse. Any material furnished by the City that becomes damaged after acceptance by the Contractor shall be replaced by and at the expense of the Contractor, and the Contractor shall promptly remove all such damaged and defective material from the job site.
(10) No separate payment will be made to the Contractor for time, labor and equipment necessary for the Contractor to receive and haul materials from the warehouse to the Work site(s) or to return unused materials to the warehouse; such costs are to be included in the unit prices bid for the various work items.

2.3.3 Equipment, Tools, Labor and Materials To Be Furnished By Contractor

The Contractor shall provide all equipment, tools and labor necessary for the completion of the Work specified herein.

The Contractor shall provide and pay for all equipment, tools and labor necessary for the proper completion of the Work specified herein, including but not limited to: excavation and trenching equipment; tapping and stopping fittings and equipment; pipe cutting, jointing equipment and supplies; pipeline testing equipment; traffic control devices; erosion and sedimentation control devices and materials; and any and all applicable safety equipment which may be required.

The Contractor shall supply all material items not specifically stated in 2.3.1 Equipment, Tools, Labor and Materials to Be Furnished by City, which are necessary for the completion of the Work specified herein. Unless otherwise specified, all materials shall be new. Materials and/or Work not specifically addressed herein, but nonetheless required for a complete, operating, and acceptable installation of the Work, shall be considered subsidiary to the various bid items requiring such materials and/or Work and the cost thereof shall be considered to be included in the bid price of the principal items.

Workmanship, tools, equipment and materials shall be of good quality meeting established industry standards. The Contractor shall, as required by the Engineer, furnish satisfactory evidence as to the kind and quality of materials.

Only equipment that will not damage the surfacing along any improved roadways shall be used. When crossing improved roadways with equipment that will damage it, wood boards, flat pads or other approved methods shall be used to prevent damage to the roadway. The Contractor shall repair any and all resulting damage at no cost to the City.

The Contractor shall, as required by the Engineer, furnish a complete list of equipment that will be employed on the job from the commencement of the Work and until the Engineer accepts the job.

2.4 Inspection of Materials

All materials whether furnished by the City or the Contractor are subject to inspection and approval.

Prior to installation of the natural gas distribution facilities, the Contractor shall inspect all pipe, fittings, valves, and other appurtenances in accordance with all provisions specified herein as well as all applicable manufacturers' standards and specifications. The Contractor shall remove from the Work all materials which do not meet the provisions specified herein, as well as any and all manufacturer's standards and specifications, and replace such with acceptable materials.

The Contractor shall produce evidence, as required by the Engineer, that any and all items of the Work have been installed in accordance with the project Plans and Specifications. The Engineer will conduct field inspections and witness field tests as specified herein.

Inspection of material at the point of delivery, on the job site, or in place shall not relieve the Contractor of his responsibility and the material may be subject to rejection until final acceptance of the completed project.

2.5 Material and Equipment Storage

The Contractor will locate and provide a secure site in the vicinity of each project site for the stockpiling and storage of materials and equipment. The Contractor shall not store any material and equipment in public rights-of-way or unauthorized private property. The Contractor shall provide access to the Engineer for the purpose of inspecting and inventorying materials.

Equipment and materials, which are part of the Contract, shall be protected and stored in accordance with the recommendations of the manufacturer. The Contractor shall assume the risk of loss or theft of or damage to all equipment and materials delivered to or accepted by him or her until such equipment and materials have been completely installed and accepted by the Engineer.

Should the Contractor fail to maintain a secure location for material storage, the Engineer shall have the right to terminate release of excess materials provided to the Contractor.

2.5.1 General

(1) Equipment and pipe shall be placed in the direct vicinity of the location where it is to be used. Temporary storage locations may be restricted by the Engineer if construction and traffic conditions warrant.
(2) Equipment and pipe shall not block access to or visibility of any fire hydrants, driveways, traffic signs, utilities, intersections, sidewalks, bike lanes, crosswalks or drainage paths.
(3) Only the amount of pipe that can be installed and backfilled in three consecutive days shall be stored in the public right-of-way or private easements. Pipe shall not be stored in public rights-of-way or private easements through weekends.

(4) Pipe that can be easily lifted by hand and weighing less than 200 pounds shall not be stored in the public right-of-way or private easements.

2.5.2 Trucks and Equipment

(1) Equipment is defined as, but not limited to, backhoes, trenchers, directional drill units etc.
(2) Only equipment in good mechanical condition shall be stored in the public right-of-way or on private easements.
(3) Any equipment that cannot be repaired by the end of the day shall be removed immediately from the public right-of-way or private easements.
(4) All equipment and materials shall be removed at the request of the Engineer for reasons related to weather, job shutdown, safety or reasonable complaints and requests from residents and/or business owners.
(5) Trucks and portable equipment such as generators, compressors and tamps shall be removed at the end of each day.

2.5.3 Granular Material

(1) When stored in the roadway, granular material such as backfill and bedding shall be placed in a manner to protect the curb and gutter and not damage landscaping and structures behind the curb.
(2) The stored granular material shall be located a minimum of one foot in front of the face of curb, so as not to obstruct the drainage of water, unless otherwise directed by the Engineer.
(3) No more than the amount of granular material that can be used in one day shall be stored in road or public rights-of-way at any time.
(4) No granular material shall be stored within ten feet of any catch basin or curb return.

(5) Granular material shall not be allowed to enter the storm drain or sanitary sewer systems.
(6) The job site shall be swept clean at the end of each work day.

2.6 Pipe and Materials Handling

The Contractor shall load, unload, haul, receive, sign for, store, and otherwise be responsible for all materials. All materials shall be handled and placed in a manner that prevents damage and does not interfere with public and private travel.

All pipes shall be lifted, rolled, or otherwise handled either manually or by mechanical means so as to not damage the pipe. All damaged pipe shall be repaired and acceptance of it shall be contingent upon approval by the Engineer.

In all cases, materials shall be handled in a manner which shall not result in damage to the materials and which is suitable to the Engineer.

Polyethylene pipe shall be protected from fire, excessive heat, harmful chemicals, and long-term exposure to direct sunlight. The Contractor shall exercise due care during handling to prevent gouges, scratches, cuts, kinks, flattening, or punctures in the pipe. All defects or damage which could impair the serviceability of the polyethylene pipe, in the opinion of the Engineer, including cuts, gouges or scratches which are deeper than ten (10) percent of the wall thickness of the pipe or pipe that has a non-conforming shape shall be removed from the pipe joint or the piping system. The Contractor shall avoid dropping or dragging the pipe when loading, unloading, moving and placing polyethylene pipe. Chains shall not be used for handling polyethylene pipe.

Polyethylene pipe shall be stored in the shade to minimize expansion of the pipe and adverse effects of ultraviolet light to the pipe.

The height of polyethylene pipe stacks shall not exceed four (4) feet. Pipe shall not be stored overnight on the job site unless it is stored in an area protected from vandals. Pipe and other materials shall not be placed directly on the ground but rather on wooden pallets or a similar clean, flat surface.

Shipping caps or inserts shall remain in place until the pipe is incorporated into the pipeline to keep the pipe free of debris and other foreign matter.

Fusion operations on polyethylene pipe shall be performed adjacent to the trench and the pipe lifted and lowered into the trench. Where necessary to fuse polyethylene pipe at another location than adjacent to the trench, as allowed and confirmed by the Engineer, the pipe shall be lifted and carried to the trench. Under no circumstances shall any length or portion of the polyethylene pipe be dragged, slid, pushed or pulled, on any surface to the trench.

2.7 Submittals

The Contractor shall be required to submit shop drawings and samples, as directed, to the Engineer for review and approval in accordance with the Specifications provided herein.

All submittals shall be identified as required by the Engineer, and shall be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and any and all other data which may be required by the Engineer to show that the materials and equipment the Contractor proposes to provide, and use are in accordance with required Specifications.

2.8 Right-of-Way and Easements

The Contractor shall confine construction operations to the immediate vicinity of the project location as shown on the Plans, or as directed by the Engineer, and in no case shall the Contractor encroach beyond the limits of the public rights-of-way or easements acquired specifically for the installation of the natural gas facilities. The Contractor shall further use due care in placing construction tools, equipment, excavated materials, and pipeline facility materials and supplies so as to cause the least possible damage to property and shall at no time cause interference with traffic. The placing of such tools, equipment, and materials shall be subject to the approval of the Engineer. Any damage resulting from the placement of equipment and materials or construction operation occurring outside of public right-of-way or designated work areas shall be the sole responsibility of the Contractor. The Contractor shall make satisfactory settlement for any damage directly with the property owner involved.

The Contractor shall conduct the construction in such a manner to cause the least inconvenience to the citizens of the area, thereby maintaining good public relations. The Contractor shall not unnecessarily interfere with the use of any public or private improvements, including landscaping; nor shall He unnecessarily damage such improvements. The Contractor shall repair any damage to such improvements to pre-construction condition, or as otherwise directed by the Engineer.

2.8.1 Protection of Existing Property Irons and Monuments

The Contractor shall use care in protecting existing property irons and monuments adjacent to his working area. If a property iron or monument must be removed to install new facilities, the Contractor shall be responsible for locating the iron or monument in such a manner that a surveyor, registered by the North Carolina Board of Examiners for Engineers and Surveyors, can accurately replace the iron or monument after construction of the new facilities. If a property iron, or monument is destroyed because of neglect on the part of the Contractor, a surveyor registered by the North Carolina Board of Examiners for Engineers and Surveyors shall immediately replace it at the Contractor’s expense.

2.9 Cooperation Among Contractors

The Contractor shall not hinder the work being performed by other contractors within the limits of or adjacent to this Project. The Contractor shall cooperate with other contractors, utilities, or entities working in the Project area or adjacent to the Project area. The Engineer shall provide assistance, when necessary, to ensure that the Project is completed in a manner that is in the best interest of the City.

When contracts are awarded to, or contracts are active by separate contractors for concurrent construction in or adjacent to the Work area, the Contractor shall update the Project Schedule and submit this schedule to the Engineer for review. For separate contracts awarded by other entities, the Engineer shall review and compare the contractor schedules with the appropriate department(s). If necessary, revisions to the schedule will be provided to the Contractor. The Contractor shall be allowed to request modifications to the revised schedule, which will not conflict with or hinder the work scheduled to be performed by others.

The Contractor shall assume all liability, financial or otherwise, in connection with the Contract and shall protect and save harmless the City from any and all damages and claims that may arise because of any inconvenience, delay, or loss he experiences as a result of the presence and operations of other contractors working in or near the Work. The Contractor shall also assume all responsibility for any of the Work not completed due to the presence or operation of other contractors.

Except for an extension of the Contract Length, the City will not be responsible for any inconvenience, delay, or loss experienced by the Contractor as a result of his failure to gain access to the Work at the time contemplated. When the failure to gain access is not due to any fault or negligence of the Contractor, an extension of the Contract Length will be allowed on the basis of the amount of time delayed.

The City will not assume any responsibility for acts, failures, or omissions that delay the Work, except as provided herein.

If the Contractor or any of their subcontractors or employees cause loss or damage to any other Contractor, and if such other Contractor makes a claim against the City, its employees or agents, due to any loss so sustained the City shall notify the Contractor, who shall defend, indemnify and save harmless the City, its employees and agents against any such claim, expense or judgment arising there from.

Upon the written request of the Contractor, the Engineer may relieve the Contractor of the requirement of maintaining and protecting certain portions of the Work which have been completed in all respects in accordance with the requirements of the Specifications and other Contract Documents and to the satisfaction of the Engineer and of which the City has taken occupancy or use of, and thereafter except with the Engineer's consent, the Contractor will not be required to do further work thereon. In addition, such action by the Engineer will relieve the Contractor of responsibility for injury or damage to said completed portions of the Work resulting from work performed by other contractors, utilities or entities. However, nothing in this section will be construed as relieving the Contractor of full responsibility for repairing, removing and replacing defective work or materials found at any time before the completion and acceptance of all Work by the Engineer or within the Guarantee Period for the Work.

2.10 Maintenance of Traffic

The Contractor shall be required to provide maintenance of traffic within the construction area for the duration of the construction period, including during any temporary suspension of Work. Maintenance of traffic shall be performed conforming to the current editions of the "Manual on Uniform Traffic Control Devices".

When requested by the Engineer, the Contractor shall provide a detailed Traffic Maintenance Plan for portions of the Work prior to beginning Work to be performed under this Contract. The submitted traffic plan shall be reviewed by the Engineer for completeness and compliance with the requirements of the City and NCDOT. If revisions are required for the plan(s), the Contractor shall be provided with the revised plan or be required to submit a revised plan. The Contractor must have an approved traffic maintenance plan prior to commencing the Work for the section(s) covered by the plan.

The Contractor shall be responsible for managing the work area in a manner that causes minimum impact to vehicular traffic. The Contractor shall not close any roadway.

All materials, equipment and labor used for traffic control measures shall meet the requirements of the North Carolina Department of Transportation. Traffic control measures shall be made available to the Engineer for inspection prior to commencement of the Work.

Measurement and Payment

Maintenance of traffic is considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for maintenance of traffic, as specified herein, shall be included in the unit prices bid for the various pay items of the Work.

2.10.1 Traffic Cones, Barrels, Barricades and Signs

The Contractor shall furnish, install and maintain sufficient traffic cones, barrels, barricades and signs to perform the Work in accordance with the NCOT requirements for traffic control. The traffic cones, barrels, barricades and signs shall be in accordance with the specifications provided for in the "Manual on Uniform Traffic Control Devices".

2.10.2 Flagging Operations

The Contractor shall be required to provide certified flaggers for traffic control as directed by the Engineer, or when deemed that safe two-way traffic may not be maintained.

The Contractor shall furnish sufficient personnel and equipment to perform flagging operations as required by the Work. The personnel shall be certified by the North Carolina Department of Transportation to perform flagging operation. The equipment shall meet the guidelines and specifications of NCOT.

2.10.3 Maintenance of Ingress and Egress

The Contractor shall strive to maintain, at all times during the execution of the Work, continuous ingress and egress to all affected properties and traveled ways. When ingress and egress to affected parcels must be blocked, due to the direct execution of the Work, twenty-four (24) hours advance notice must be given to the affected property owner by the Contractor. In no case shall the blocking of ingress and egress be allowed for more than eight (8) hours consecutively.

2.11 Pavement Removal and Disposal

Removal of pavement includes cutting of the pavement, breaking of the pavement and excavating the pavement using conventional trenching, hand and pneumatic equipment. Pavement removal includes removal of all layers of bituminous asphalt, concrete pavement, concrete caps and other materials necessary to properly install the pipe and/or appurtenances. The removal of pavement for test holes shall be in accordance with 2.14.2 Test Hole Excavations.

Maximum cutting dimensions for trenches and bellholes shall be in accordance with 2.18 Surfaced Area Restoration. Cutting in excess of these dimensions, unless approved by the Engineer, shall not be measured for payment. Pavement cutting shall be required in all direct burial applications, as indicated on the construction Plans, as required by permit, or as directed by the Engineer.

Where pavement is cut and replaced, the Contractor shall cut the edges to a straight and even line. Non-uniform edges will not be permitted or accepted.

All pavements removed as part of the Work shall be removed from the jobsite and disposed of in accordance with the requirements of Federal, State, County, City, and all applicable environmental regulations.

Measurement and Payment

The Contractor should be aware that the thickness and materials of the surface and subgrades may vary.

Removal and disposal of pavement along mainline trenches, as described above, will be measured for payment in units of linear feet through the removed pavement section at the time of the excavation and

installation of gas facilities. Unit bid price shall also include cutbacks of surface pavement grades and stepping of sub and base pavement grades.

Removal and disposal of pavement for excavation of bellholes within previously unexcavated and restored asphalt sections, as described above, will be measured for payment in units of square feet of the removed pavement section. Unit bid price shall also include cutbacks of surface pavement grades and stepping of sub and base pavement grades.

The cost of removal and disposal of bellhole pavement within the limits of previously excavated and restored trenchlines for this project shall be considered incidental and shall not be measured for payment a second time. The cost of any and all equipment, materials, and labor required for removal and disposal of asphalt for bellholes, as specified herein, shall be included in the various pay items of the Work.

Payment for removal and disposal of pavement will be made at the unit price bid. The bid price shall include the cost of any and all equipment, material and labor required for removal and disposal of bituminous and concrete pavement, concrete caps, and other materials. Pavement removed and disposed of in excess of what is allowable and reasonable for installation of pipe and appurtenances shall be performed at the expense of the Contractor and will not be measured for payment.

2.11.1 Sidewalk, Driveway, Curb and Gutter Removal and Disposal

Removal of concrete sidewalks, driveways, and concrete curbing and gutters includes the cutting of or the breaking of the concrete structure using conventional excavating, hand and pneumatic equipment. Removal of concrete sidewalks, driveways and concrete curbing and gutters shall correspond to existing jointing. Removal of partial sidewalk sections shall not be permitted.

Cutting of the concrete sections shall be performed using appropriate saw(s) and shall be in a neat and workmanlike manner. The Contractor shall only remove sections necessary for the proper installation of the natural gas mains or sections damaged as a result of the construction activity.

All sidewalk, driveway or curbing and gutter sections removed as part of the Work shall be removed from the jobsite and disposed of in accordance with the requirements of Federal, State, County, City, and all applicable environmental regulations.

Measurement and Payment

Removal and disposal of concrete sidewalk and driveway as described above will be measured for payment in units of square feet of the removed sidewalk or driveway section.

Payment for removal and disposal of concrete sidewalk and driveway sections will be made at the unit price bid. The bid price shall include the cost of any and all equipment, material and labor required for removal and disposal of concrete sections. Concrete sidewalk and driveway sections removed and disposed of in excess of what is allowable and reasonable for installation of mains and appurtenances shall be performed at the expense of the Contractor and will not be measured for payment.

Removal and disposal or storage of concrete curbing and gutters as described above will be measured for payment in units of linear feet of the removed curb and gutter.

Payment for removal and disposal or storage of concrete sections will be made at the unit price bid. The bid price shall include the cost of any and all equipment, material and labor required for removal and disposal or storage of curbing and gutters. Sections removed in excess of what is allowable and reasonable for installation of mains and appurtenances shall be performed at the expense of the Contractor and will not be measured for payment.

2.12 Erosion & Sediment Control

The Contractor shall be required to provide a means of protecting and minimizing the effects of erosion and sediment displacement to the construction area and all immediate surrounding areas that may be affected by the construction activity.

Erosion and sediment control measures, including but not limited to: temporary stone construction entrances; silt fences; storm drain inlet protectors; stone for erosion control; soil stabilization mats; topsoil; temporary seeding; and permanent seeding shall be installed and maintained as indicated on the Plans, or as otherwise directed by the Engineer.

All erosion and sediment control measures shall be installed/placed in accordance with the North Carolina Department of Environmental Quality's Erosion and Sediment Control Planning and Design Manual, latest edition. The Contractor shall insure that all sedimentation features are in place as construction proceeds and shall remove these features as ground cover is established with approval of the Engineer and/or controlling authorities.

(1) SEED AND MULCH: This Work includes the final preparation of the ground, distribution of fertilizers, lime, mulch, and seed over the entire area disturbed by construction activities including the restoration of trenches, ditches, and other damaged areas.

The seed mixture shall be as specified below:

AUGUST 16 TO APRIL 30	**LB/ACRE**
Kentucky 31 Fescue	80
Sericea Lespedeza	20
Kobe Lespedeza	10
Rye Grain	40

MAY 1 TO AUGUST 15	**LB/ACRE**
Kentucky 31 Fescue	80
Sericea Lespedeza	20
Kobe Lespedeza	10
Rye Grain	15

The following fertilizers shall be added to the soil as needed.

Ground Agricultural Limestone (fine) 2 tons/acre 10-10-10 800 lbs/acre
Mix fertilizer with soil to a depth of 4"-6" by disking or other approved method.

Mulch the entire area with a dry straw (preferably wheat) free of noxious weeds. Mulch shall be reasonably bright in color and shall not be musty, moldy, caked, decayed, or dusty. Tack mulch with emulsified asphalt at the rate of 0.10 gal/SY (10 gal/1000SF) or approved equal. The rye grain is an acceptable substitute for tacking of straw at 5 lb/acre to be seeded prior to mulch application from August 16 to November 1.

(2) STONE CONSTRUCTION ENTRANCE: A graveled area should be located where vehicles enter and leave a construction site to provide a buffer for the deposition of mud and sediment. This is especially important where vehicles exit construction areas directly onto public roads or other offsite paved areas. The gravel pad shall be the full width of the entrance area and sufficiently long for vehicles to drop their mud and sediment. The pad shall be stable enough for construction traffic. The entrances should not be constructed on steep grades or at curves in public roads. If vehicle tires are washed in this area the graveled area shall be well stabilized at these points and drainage provided to a sediment trap.

(3) TEMPORARY SEDIMENT TRAPS: Install temporary sediment traps in bar ditches prior to stream crossings where the shoulder of the road has been disturbed by construction activity. These sediment traps shall be excavated to be a minimum of (1') foot below the lowest level of the existing ditch. They should be two (2') feet wide and ten (10') feet long at the bottom of the trap with 2:1 sides. At the downstream end of the trap, a gravel filter dam shall be placed to the top of the ditch. This gravel shall be minimum of one (1') foot at its top elevation when measured along the flow line of the ditch. After ground cover has been established and approved by the Engineer, the gravel shall be removed, and the sediment trap filled, compacted, and seeded as above.

(4) STORM DRAIN INLET PROTECTION: Install storm drain inlet protection at all storm drain inlets prior to beginning construction activity. These storm drain inlet protection devices shall be constructed of one-half (1/2) inch wire mesh covering the opening with #57 washed stone. After ground cover has been established and approved by the Engineer, the gravel and mesh shall be removed.

(5) SILT FENCE: Silt fence shall be placed between the top of the slope and the edge of the creek throughout the disturbed area. The silt fence shall extend five (5') feet into the undisturbed area to insure sediments are trapped as desired. Silt fences shall be placed so that the lower six (6") inches are placed below the surface of the ground. Posts shall be driven to a depth of eighteen (18") inches and shall be spaced at six (6') foot intervals maximum. After ground cover has been established and approved by the Engineer, the silt fence shall be removed, and the remaining disturbed areas seeded as above.

(6) RIPRAP FOR SLOPE PROTECTION: Riprap for slope protection shall be used at all stream crossings and shall be placed on the stream embankments where shown.

Riprap shall be Class I weighing from 5 to 200 pounds of which thirty (30%) percent shall weigh a minimum of 60 pounds and no more than ten (10%) percent shall weight less than 15 pounds each.

Riprap shall be hard angular weather resistant stone with a specific gravity of 2.5 or greater. Riprap shall be placed at a thickness of 1.5 times the maximum stone diameter and shall be embedded at the base of the slope in a keyway. A filter blanket of sand and gravel six (6") inches thick shall be placed between the riprap stones and the soil.

(7) GRASS MATTING: Grass matting may be required in ditch lines over 2% disturbed by construction of gas lines to adequately stabilize the ditches. Should the above procedures, including seed and mulch, not stabilize the disturbed ditch line, the Contractor shall use a grass matting as directed by the Engineer or controlling authority. This matting shall be installed per manufacturer's instructions and shall be of sufficient length to eliminate erosion of the ditch line. Jute netting over the seed bed or a pre-seeded manufactured netting may be used. Submit product information to the Engineer for approval.

(8) MAINTENANCE OF SEDIMENT CONTROL FACILITIES: The Contractor shall inspect the facilities periodically (minimum once per week) and after each rain. Sediment shall be removed from sediment traps and properly disposed of after the excavated area has filled to its original level.

Silt fences shall be reconstructed as necessary by re-staking or replacement as needed.

Measurement and Payment:

Measurement and payment for the installation and maintenance of the various required erosion and sediment control measures installed and maintained in accordance with the erosion and sediment details, shall be as follows:

(1) Seed and Mulch – Seeding and mulching will not be measured for payment. The cost of seeding and mulching that includes all equipment, material and labor required for the placement and maintenance of seed and mulch shall be included in the cost of the other unit prices bid.

(2) Temporary Stone Construction Entrances - Temporary stone construction entrances will be measured for payment in units of tons. The unit price bid shall include all equipment, material and labor required for the installation and maintenance of said entrances.

(3) Temporary Sediment Traps- Temporary sediment traps will be measured for payment based upon the number installed. The unit price bid shall include all equipment, material and labor required for the installation and maintenance of said temporary sediment traps.

(4) Silt Fences - Silt fences will be measured for payment based upon the linear footage of silt fence installed. The unit price bid shall include all equipment, material and labor required for the installation and maintenance of said fences.

(5) Stone for Erosion Control - Stone for erosion control will be measured and paid for in units of tons. The unit price bid shall include all equipment, material and labor required for the installation and maintenance of said stone.

(6) Grass Mats - Grass mats will be measured and paid for in units of square yards installed. The unit price bid shall include all equipment, material and labor required for the installation and maintenance of said stabilization mats.

(7) Topsoil - Placement of topsoil will be measured for payment in units of tons. The unit price bid shall include all equipment, material and labor required for the installation and maintenance of topsoil.

2.13 Pipe Bending

2.13.1 Polyethylene Pipe

Pipe bends shall be used, as required, in place of fabricated fittings to change the horizontal and/or vertical alignment of polyethylene pipe.

The bending radius for polyethylene pipe shall not be less than the minimum recommended by the manufacturer for the kind, type, grade, wall thickness, and diameter of the particular polyethylene used as listed in Table 2.13.1.

TABLE 2.13.1
MINIMUM BENDING RADIUS OF POLYETHYLENE PIPE (GAS – SDR VARIED)

Pipe Size	d (inches)	Trench R = 25 (d) (No Fittings)	Trench R = 100 (d) (With Fittings)	HDD R = 25 (d) x 2 (No Fittings)
1/2” CTS	0.625”	1.0 feet	5.2 feet	2.1 feet
1” CTS	1.125”	2.3 feet	9.4 feet	4.7 feet
1-1/4” IPS	1.660”	3.5 feet	13.8 feet	7.0 feet
2” IPS	2.375”	4.9 feet	19.8 feet	9.8 feet
3” IPS	3.500”	7.3 feet	29.2 feet	14.6 feet
4” IPS	4.500”	9.4 feet	37.5 feet	18.8 feet
6” IPS	6.625”	13.8 feet	55.2 feet	27.6 feet
8” IPS	8.625”	18.0 feet	71.9 feet	36.0 feet
10” IPS	10.750”	22.4 feet	89.6 feet	44.8 feet
12” IPS	12.750”	26.6 feet	106.3 feet	53.2 feet

* Formula for 1/2" CTS pipe is R=20(d)

A manufactured elbow shall be used if a change in direction cannot be accomplished in accordance with Table 2.13.1. Care shall be taken to prevent kinking in the polyethylene pipe. If the polyethylene pipe becomes kinked, the kinked section shall be cut out and replaced.

All fittings including butt fused, saddle fused and/or electrofused valves, elbows, tees and couplings shall be installed such that they are located on a straight section of pipe, a minimum of three (3) feet from any field bend.

Measurement and Payment

Pipe bending operations are considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for pipe bending operations shall be included in the unit prices bid for the various pay items of the Work.

2.14 Pipe Installation

2.14.1 Location of Other Utilities

The location of existing utilities shown on the drawings was taken in part from records and in part from field surveys and may not be complete or represent the exact location of the existing utilities. The City assumes no responsibility for the existence and/or location of any other utilities in the Work area. It shall be the responsibility of the Contractor, to investigate and verify the existence and location of all utilities within the vicinity of the Work.

The Contractor shall comply with all the provisions of the Underground Utility Damage Prevention Act and hold the City harmless against any loss, damages or claims of any nature whatsoever arising out of the Contractor's failure to comply with the requirements of the aforesaid Act.

At least three complete working days prior to starting the Work the Contractor shall verify the existence and location of all underground utilities, structures and associated appurtenances. The Contractor shall notify NC811 to locate all participating underground utilities. The Contractor shall be responsible for identifying all utilities in the Work area that are not participating members of the one-call system. These utility operators shall be provided with a minimum of three complete working days to have their facilities located prior to starting the Work.

Prior to commencing any excavation, the Contractor must inspect the site for clear evidence of unmarked facilities. The excavator must notify NC811 and allow for the facilities to be marked if evidence of such facilities is present.

If during the course of the excavation, a utility line has been exposed, before backfilling, the Contractor must inspect these facilities to ascertain if the facilities have been damaged. If damage of any kind is discovered or suspected, it is the Contractor's responsibility to notify the utility owner immediately.

The excavation of test holes may, upon the approval and/or direction of the Engineer, be required to ascertain the existence, location, size, type, and alignment of existing utilities or underground structures. The dimensions of these test holes shall be the minimum required to effectively locate the utilities and underground structures.

In the event that any gas lines, water lines, sewer lines, electric lines, cables, conduit, and/or any other existing utility, either underground or above ground, are damaged by the Contractor during the prosecution of the Work, the owner of the damaged utility shall be notified immediately. Any fine, penalty or costs associated with the repair of the damaged utility are the sole responsibility of the Contractor. All damaged utilities shall be repaired or replaced by the respective utility company(s) at the expense of the Contractor.

The Work shall be coordinated and performed in a manner so that all existing fire hydrants, without exception, shall be accessible at any time during the Work.

The Contractor shall maintain the existing streams, ditches, drainage structures, culverts and flows at all times during the Work. The Contractor shall pay for all personal injury and property damage that may occur as a result of failing to facilitate drainage.

The Contractor shall maintain sewage flow at all times by pumping and/or diversion, or other means acceptable to the Engineer. At no time shall the Contractor allow raw sewage to flow out of the sewer system to adjacent land or waterways. At no time shall the Contractor cause sewage to surcharge the sewage system such that sewage backs up into any service connection. In the event such backup occurs, the Contractor shall correct and pay for all damage caused. **Measurement and Payment**

Utility locating operations is considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for utility locating operations shall be included in the unit prices bid for the various pay items of the Work.

2.14.2 Test Hole Excavations

The excavation of test holes shall be utilized as a means to ascertain the existence, location, size, type, and vertical alignment of existing utilities or underground structures. Failure to take such precautions may result in the Contractor adjusting the work or having the existing utility relocated, at the Contractors expense. The Contractor shall excavate test holes to evaluate the locations of known utilities that will be crossed when boring or directional drilling installation methods are used.

Excavation of test holes shall include cutting, breaking and removal of the pavement surface, excavation of subsurface materials or excavation of soil or other materials necessary to properly inspect the buried utilities or drainage structures. Excavation of soil and subsurface materials shall be performed using conventional hand, vacuum and/or compressed air methods.

All pavement and subsurface materials excavated as part of the Work shall be removed from the jobsite and disposed of in accordance with the requirements of Federal, State, County, City, and all applicable environmental regulations.

Restoration of asphalt or concrete surfacing for test holes shall be in accordance with 2.18 Surfaced Area Restoration.

Measurement and Payment

The excavation and restoration of test holes, including asphalt and concrete restorations, are considered incidental and will not be measured for payment. The cost of any and all equipment and labor required for excavation and restoration of the test holes shall be included in the unit prices bid for the various pay items of the Work.

2.14.3 Required Clearance

All gas mains shall be installed such that a minimum of twelve (12) inches, or as otherwise specified by the Engineer or detailed on the Plans, horizontal and vertical clearance is maintained from all other existing underground utilities and/or structures, thereby permitting proper routine maintenance and protection against damage which may result from proximity to the utilities and/or structures.

In ledge installation or in boulders or other large stones, there shall be at least 6” clearance between the pipe and any ledge. This clearance is the minimum to be permitted between any part of the pipe or appurtenance being laid and any part or projection or point of a boulder, stone, or rock.

2.14.4 Alignment

All gas mains shall be installed true to the horizontal and vertical alignment indicated on the Plans and Contract Documents, or as otherwise directed by the Engineer. The Contractor shall make no deviations

to the proposed horizontal and/or vertical alignment of the gas mains unless otherwise directed to do so by the Engineer.

In such cases where the proposed horizontal and/or vertical pipeline alignment will cause conflict with other utilities and/or structures or result in less than the specified minimum clearance or cover, the Engineer shall be notified, and the pipeline relocated as per his direction. Any and all costs associated with such changes will be paid for at the unit prices bid for the required equipment, material and labor. No additional payments will be made for such work.

2.14.5 Required Cover

All gas mains installed within public rights-of-way shall have a minimum cover of twenty-four (24) inches between the top of the main and the finished grade or as otherwise shown on the Plans or as directed by the Engineer. The depths shall be continuous along the length of the mains.

All gas mains installed on private property shall be installed with a minimum cover of eighteen (18) inches between the top of the main and the finished grade or as otherwise shown on the Plans or as directed by the Engineer. The depths shall be continuous along the length of the mains.

When the mains cross creeks, land subjected to flooding, or major drainage ditches, a minimum of forty-eight (48) inches, or as otherwise directed by the Plans or Engineer, of cover shall be provided.

The Contractor may, upon the approval of the Engineer, install gas mains with less cover when the specified minimum cover cannot be obtained, provided the main is adequately protected from all superimposed loads by means of approved sleeving or shielding. Under no circumstances shall the cover between the top of the gas main and the finished grade be less than twenty-four (24) inches.

The Contractor may, upon the approval of or at the direction of the Engineer, install the pipe with greater cover than the specified maximum, as based on subsurface utility(s) locations and other field conditions. **2.14.6 Direct Burial**

The Contractor shall, unless otherwise indicated on the Plans, specified herein or as directed by the Engineer, install all gas mains and associated facilities by direct burial.

Direct burial of the gas mains and associated facilities shall include, but not be limited to: clearing and grubbing, trench excavation (trenching), rock excavation (as required), trench stabilization (as required), lowering and laying pipe, and backfilling, as described herein.

Measurement and Payment

Direct burial installation of gas mains will be measured for payment based upon the linear footage of pipe installed. Pipe will be measured horizontally and through in-line fittings, valves and specials.

Direct buried pipe in-place will be paid for at the unit price bid. The bid price shall include the cost of any and all material, equipment and labor required for pipe laying operations, including: trench excavation; temporary trench stabilization; dewatering; installation of the pipe, elbows, tees, reducers, transition fittings, sleeves, couplings, end caps, plugs, locating devices; bedding with native fill; backfill; testing; purging; seeding and mulching; and cleanup.

Select backfill, when used to replace unsuitable native fill, shall be measured and paid for in accordance to 2.14.6.6 Backfilling.

Sand bedding, when required by the Engineer, shall be measured and paid for in accordance with 2.14.6.3.1 Pipe Protection.

2.14.6.1 Clearing, Grubbing and Tree Removal

The Contractor shall clear all brush and timbers located along the alignment of the proposed pipeline, and properly dispose of such, off-site, in a prompt manner prior to commencing trenching operations.

In all cases where cultivated shrubbery, trees or otherwise valuable timber exists along the proposed pipeline route or right-of-way, the Engineer shall reserve the right to require the Contractor to adjust the alignment of the pipe or use an approved alternative method of installation which will not damage said shrubbery, trees or timber.

Measurement and Payment

Clearing, grubbing and tree removal operations which can be reasonably and effectively accomplished with a bush hog or standard trenching equipment are considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for such clearing, grubbing and tree removal, as specified herein, shall be included in the unit prices bid for the various pay items of the Work.

Since the City does not anticipate any clearing operations which will required the removal of larger timber, the clearing and removal of large trees, stumps, etc., which may not be accomplished using a bush hog or standard equipment will be considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for such clearing, as specified herein, shall be included in the unit prices bid for the various pay items of the Work.

2.14.6.2 Trenching

Trenching shall include all excavation necessary to prepare the ditch for the pipe to be installed regardless of what means or methods are necessary to produce such ditch. All trench excavation operations shall be performed in accordance with 29 CFR 1926, Subpart P - Excavations.

Prior to trenching, the Contractor shall verify the existence, location, elevation and orientation of all underground and aboveground facilities within the vicinity of the Work, in accordance with 2.14.1 Location of Other Utilities. The Contractor shall exercise care in the vicinity of any and all such obstructions.

The trench shall be excavated to a depth that will provide the minimum required cover, as specified in 2.14.5 Required Cover.

The width of the trench shall conform to the dimensions as detailed on the Plans and shall be wide enough to permit backfill to be tamped around the pipe(s) so that voids between pipe and backfill do not occur. Special care must be exercised to be certain there are no longitudinal voids beneath the pipeline. The typical maximum width of the trench shall be eight (8) inches plus the pipe diameter and the typical minimum width of the trench shall be four (4) inches plus the pipe diameter.

In locations where the trench is adjacent to roads, railroads, creeks, draining ditches, streams, tile, or other utility lines, the trench shall be as required by these Specifications and/or controlling authorities and as approved by the Engineer. It shall be the Contractor's responsibility to determine the location and elevations wherever necessary of any existing surface or subterranean public utilities or other surface of underground improvements in advance of the Work being done, either from local information or by actually uncovering the utility improvement. Any such existing water line, sewer line, cable, conduit power line, or any

other existing utility, either underground or above ground, damaged by the Contractor in prosecuting the Work, is to be immediately repaired at his expense.

In the event that a change in the proposed route of the pipeline may be affected when unforeseen obstacles to construction make such rerouting desirable in the opinion of the Engineer and as approved by the City, such change will be made at no extra cost to the City except as according to the unit cost of items included in the Contract Price. The Contractor shall not open more trench in advance of pipe laying than is necessary to expedite the Work.

The trench shall be excavated in a manner that offers smooth, firm and continuous support along the entire length of the pipeline. All sharp objects and debris shall be removed from the trench or the pipe shall be bedded with sand or clean fill to protect the pipe. A minimum of six (6) inches of pipe bedding shall be required in such locations. Where pipe bedding is required, the trench shall be over-excavated to a depth that will provide the minimum required cover, as specified in 2.14.5 Required Cover.

Whenever wet or otherwise unsuitable material, which is incapable of properly supporting the pipe, as determined by the Engineer, is encountered in the trench bottom, such material shall be over-excavated as directed by the Engineer to a depth necessary to allow for construction of stable pipe bedding. The over-excavated portion of the trench shall then be backfilled with select fill to proper grade to provide the minimum required cover, as specified in 2.14.5 Required Cover.

Unless determined unacceptable by the Engineer for backfilling operations, the Contractor shall store all excavated materials adjacent to the excavated trench for use in the backfilling operations.

The trench shall be marked and/or barricaded where a hazard exists or might exist. Road signs with proper instructions shall be used to describe hazards and to control traffic so that accidents might be prevented. Trench openings shall be covered or filled-in prior to periods when such when such openings are left unattended.

The terms “excavating” and “trenching” shall include all materials excavated in making a trench except naturally deposited or ledge rock which cannot be excavated by the use of a unit crane backhoe without blasting. The Contractor shall make the necessary boring and testing to satisfy himself as to the amount of rock to be excavated.

Measurement and Payment

Trench excavation is considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for trench excavation, as specified herein, shall be included in the unit price bid for direct burial installation of the appropriate size/type pipe.

Select fill material required for adequate pipe support and where wet or otherwise unsuitable material is encountered will be measured for payment in tons of material placed. Payment will not be based on delivered volumes or delivery tickets, unless specifically authorized by the Engineer. The Engineer shall verify the amount of select fill prior to payment. Select fill material placement will be paid for at the unit price bid and shall include the cost of any and all equipment, material and labor required for select fill placement as described above.

Where the Contractor is directed by the Engineer, the Contractor will provide extra depth trench excavation for direct burial of pipe. Compensation for extra depth shall only be made when the excavation required is in excess of sixty (60) inches and shoring equipment is utilized for the installation of the pipe.

Extra depth trench excavation will be measured and paid for in units of feet of depth per linear foot of pipe (FT/LF) for all of the excavation exceeding sixty (60) inches when shoring equipment is utilized. Extra depth trench excavation will be paid for at the unit price bid and shall include the cost of any and all equipment and labor required for extra depth trench excavation.

2.14.6.3 Rock Excavation

Rock excavation includes the excavation of rock occurring in mass and ledge formations of such character and structure as to warrant removal by means of hydraulic hammer and specialized rock trenching equipment. Blasting shall not be allowed as a means to remove rock.

Rock to be excavated shall be verified by the Engineer prior to excavation, measurement, and payment. Prior to excavating any rock, the earth shall be stripped away, and the Engineer shall be notified in order that measurements may be made. **Rock excavated and/or rock material disposed of prior to being measured by the Engineer shall not be paid for as rock excavation**.

Rock that has been removed during the excavation process shall not be used in the backfilling operations for the trench. The Contractor shall provide sufficient clean backfill to replace any and all reduced volumes of clean material resulting from required rock excavation. The Contractor shall promptly remove all excavated rock material and properly dispose of the material off-site.

Measurement and Payment

Rock excavation will be measured for payment in units of cubic yards of rock removed. The cost of removing and disposing of rock smaller than one-half cubic yard in size and the cost of furnishing and installing earth fill for padding in such locations shall not be measured for payment under rock excavation but shall be included in the unit prices bid for the various pay items of the Work.

Excavated rock quantities shall be calculated by: multiplying the average trench width (feet) by the average trench depth (feet) from the surface of the rock to the lesser of: 1) six (6) inches below the proposed pipe bottom or, 2) the actual bottom of the rock ledge. The resulting product shall be multiplied by the length of cut (feet) in the rock formation. The resultant product of these operations shall be divided by twenty-seven (27) to convert the volumetric quantity from cubic feet (CF) to cubic yards (CY).

Payment for rock excavation shall be limited to a trench width, not to exceed twentyfour (24) inches for gas mains. Rock removed and disposed of in excess of what is required and reasonable for installation of the pipe and appurtenances shall be performed at the expense of the Contractor and will not be measured for payment.

Rock excavation will be paid for at the unit price bid and shall include the cost of any and all equipment, material and labor required for rock excavation within the previously defined limits.

2.14.6.3.1 Pipe Protection

Prior to laying a section of pipe in the trench where rock has been excavated, the Contractor shall provide a minimum of six (6) inches of sand bedding and the pipe shall be wrapped with an approved rock shield.

Where sand bedding is required, the trench shall be excavated to a depth that will provide the minimum required cover, as specified in 2.14.5 Required Cover.

Rock shield shall be continuous though the extent of the rock removal section.

Measurement and Payment

Sand bedding as required in areas of rock excavation will be measured for payment in units of tons. All measurements will be based on the volume of sand bedding required for the trench or bellhole and subsequently converted to the weight measurement based on conversion factors accepted by the North Carolina Department of Transportation. Payment will not be based on delivered volumes or delivery tickets, unless specifically authorized by the Engineer.

Sand bedding placement will be paid for at the unit price bid and shall include the cost of any and all equipment, material and labor required for sand bedding placement as described above.

Rock shield installation is considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for the installation of rock shield shall be included in the unit price bid for rock excavation.

2.14.6.3.2 <u>Blasting</u>

All blasting operations required for the purpose of rock excavation, including but not limited to permit acquisition, employee training/certification, explosives handling/storage and charge detonation, shall be performed in accordance with 29 CFR 1926, Subpart U - Blasting and the Use of Explosives, and all applicable Federal, State, and Local laws.

The Contractor shall be responsible for securing any and all required permits and for providing trained/certified blasting personnel. Prior to blasting, the Contractor shall submit to the Engineer for approval a written blasting procedure that includes addressing the protection of existing subsurface utilities and structures.

If the proposed blasting is within two-hundred (200) feet of a live gas main or service, prior to blasting the Contractor shall submit to the Engineer for approval a written blasting procedure which includes charge specifics, calculations, etc., and addresses the protection of existing subsurface utilities and structures, and protection of life and property.

Signals warning persons of danger shall be given before every blast.

Blasting mats shall be required for all blasting operations. Blasting operations shall not be performed within five (5) feet, or a distance otherwise determined by the Engineer, of any existing water, gas, fuel, and/or sanitary sewer lines or drainage structures.

Any and all damage resulting from blasting operations shall be the responsibility of the Contractor and shall be promptly repaired to the satisfaction of the Engineer at no cost to the City.

Measurement and Payment

Blasting operations are considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for blasting operations shall be included in the unit price bid for rock excavation.

2.14.6.4 Trench Stabilization

Where the depth of the trench and/or the type and condition of the soil requires stabilization, the Contractor shall provide a method of trench stabilization as directed and approved by the Engineer.

All materials and installation methods required for shoring, bracing and any other required means of trench stabilization shall conform to any and all requirements of 29 CFR 1926 and applicable appendices.

Trench stabilization system members shall be securely connected and installed in a manner that prevents sliding, falling, kickouts or other predictable failures of the trench sides. Support systems shall be installed and removed in a manner that protects employees from all forms of trench failure or from being struck by members of the support system.

Cross braces installed above the pipe to support the sheeting shall be removed only after pipe embedment has been completed.

Measurement and Payment

Trench stabilization measures are considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for the installation and maintenance of any required temporary trench stabilization measures shall be included in the unit price bid for the various pay items of the Work.

2.14.6.5 Lowering and Laying Pipe

Belt slings and/or padded calipers, which are sized to the particular pipe being laid, shall be used to handle the pipe provided such slings or calipers are free of all characteristics which might damage the pipe. No chain or slings shall be passed through the inside bore of any pipe, valve, or fitting.

Inspection of the trench shall be made by the Contractor prior to lowering the pipe to ensure that no rocks or other sharp objects that may damage the pipe are located within the trench.

Under no conditions shall pipe be laid in water.

When polyethylene pipe is laid in the trench, sufficient slack in the placed pipe should be provided to allow for the contraction of the placed pipe. Plastic pipe shall be lowered into the ground without being placed in excessive tension of flexure, and without exceeding the bending limits. Avoid twisting, stretching, crimping or kinking the plastic pipe when lowering it into a ditch. If the pipe is kinked or crimped, the damaged section shall be removed and replaced.

If pipe is damaged during the lowering-in process, the pipe shall be removed from the trench and the damaged section removed.

Any section of pipe already laid and found to be defective shall be taken up and replaced with new pipe.

When piping is lowered into the trench, care shall be exercised to avoid over stressing or buckling the piping or imposing excessive stress on the joints.

Joints shall be carefully cleaned before pipes are lowered into the trenches and shall be kept clean during laying operations by means of plugs or other approved devices. Every precaution must be taken to ensure that foreign materials are kept from entering the pipe while being installed. At no time should any debris, tools, rags, or any other material, be

placed inside the pipe or fittings. Where the Work is suspended, at night or for any other reason, the open ends of the pipe shall be securely plugged or closed to prevent entrance of water and other foreign material.

Measurement and Payment

Pipe lowering and laying operations are considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for lowering and laying pipe shall be included in the unit prices bid for the various pay items of the Work.

2.14.6.6 Backfilling

Backfilling operations shall include the furnishing of all labor, materials and equipment necessary for the backfilling and compaction of all trenches, bellholes, and excavations over the entire length of the pipeline, as specified herein and in accordance with the North Carolina Department of Transportation Specifications and Special Provisions, latest edition.

Trenches shall not be backfilled until the pipe, or any facility, has proper cover, bedding and smooth, firm and continuous support along the entire length of the pipe, as specified in 2.14.6.2 Trenching.

The trench shall be backfilled as soon as possible after the pipe has been properly placed.

Where the trench crosses driveways or other places used for the travel of vehicles or pedestrians, proper care shall be taken so as not to impede the flow of traffic. All traveled ways, including driveways; walks or streets crossed by the trench shall be compacted by mechanical means at +/- 20% of optimum moisture content to 95% of the theoretical maximum density as determined in accordance with the requirements of ASTM D-1557/AASHTO T-180, VTM-1 and as specified in the North Carolina Department of Transportation specifications. Where deemed necessary, the Engineer may elect to have density tests performed on the backfilled trench by an independent contractor or consultant at the City's expense.

Unsuitable material encountered during trench excavation shall not be used as backfill. Unsuitable material shall be removed to the limits established by the Engineer and replaced with select fill, as specified herein.

Wherever it is deemed necessary by the Engineer, hand labor shall be used in starting the backfill. The backfill placed from the bottom of the ditch to the top of the pipe shall be placed in the trench simultaneously on both sides of the pipe for the full width of the trench in layers not to exceed six (6) inches in depth. The backfill material shall be thoroughly compacted under and on each side of the pipe to provide solid backing against the external surface of the pipe and to remove all voids. The trench may be backfilled from one foot above the pipe to the top of the trench with mechanical equipment suitable for such work, provided the machine is operated parallel to the trench, and the material is placed in the trench in layers or lifts not to exceed twelve (12) inches for the full width.

The Contractor shall use materials removed during the excavation operation for the backfilling operation, unless these materials are unsuitable as determined by the Engineer.

All trenched construction shall be adequately compacted by means of rolling, tamping with mechanical rammers, or hand tamping such that no future settlement of the trench backfill will occur. If vibratory rollers are used for backfill compaction, vibratory motors shall not be activated until at least three (3) feet of backfill has been placed and compacted around the pipe. Flooding shall not be permitted as a means of backfill consolidation. Backfill compaction

achieved by means of driving any type of construction equipment and/or vehicles, other than those specifically designed for trench compaction work, across any part of the trench shall not be permitted. The Contractor shall refill and compact backfill areas where settlement occurs.

All trench compaction operations shall be performed in accordance with the North Carolina Department of Transportation specifications.

Measurement and Payment

Backfilling operations are considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for the completion of backfilling operations, shall be included in the unit prices bid for the various pay items of the Work.

Select fill material required for adequate pipe support, where wet or unsuitable material is encountered will be measured for payment in tons of material placed. The Engineer shall verify the amount of select fill prior to payment. Select fill material placement will be paid for at the unit price bid and shall include the cost of any and all equipment, material and labor required for select fill placement as described above. No payment will be allowed if the Contractor chooses to replace the excavated material, which in the opinion of the Engineer is suitable for the backfilling operation, with select fill.

2.14.6.7 Bellholes

Bellholes shall include all excavation necessary to prepare the area for the installation of short pipe segments, main tie-ins and miscellaneous appurtenance installations regardless of what means or methods are necessary to produce such bellhole. All bellhole excavation operations shall be performed in accordance with 29 CFR 1926, Subpart P - Excavations.

Prior to excavating bellholes, the Contractor shall verify the existence, location, elevation and orientation of all underground and aboveground facilities within the vicinity of the Work, in accordance with 2.14.1 Location of Other Utilities. The Contractor shall exercise care in the vicinity of any and all such obstructions.

The bellhole shall be excavated to a depth that will provide the minimum required cover, as specified in 2.14.5 Required Cover. For tie-ins, the bellhole shall be excavated to a depth that allows proper preparation and connection of the facilities.

When working within paved surface areas, the size of the bellhole shall conform to the dimensions as detailed in 2.18 Surfaced Area Restoration and shall be wide enough to permit backfill to be tamped around the facilities so that voids between the facilities and backfill do not occur. Special care must be exercised to be certain there are no longitudinal voids beneath the facilities.

All sharp objects and debris shall be removed from the bellhole or the facilities shall be bedded with sand or clean fill to provide protection for the facilities. A minimum of six (6) inches of pipe bedding shall be required in such locations. Where pipe bedding is required, the bellhole shall be over-excavated to a depth that will provide the minimum required cover, as specified in 2.14.5 Required Cover.

Whenever wet or otherwise unsuitable material, which is incapable of properly supporting the facilities, as determined by the Engineer, is encountered in the trench bottom, such material shall be over-excavated as directed by the Engineer to a depth necessary to allow for construction of stable pipe bedding. The over-excavated portion of the trench shall then be backfilled with select fill to proper grade to provide the minimum required cover, as specified in 2.14.5 Required Cover.

Unless determined unacceptable by the Engineer for backfilling operations, the Contractor shall store all excavated materials adjacent to the excavated trench for use in the backfilling operations.

Measurement and Payment

Bellhole excavation is considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for bellhole excavation, as specified herein, shall be included in the unit price bid for associated installations.

Select fill material required for adequate support and where wet or otherwise unsuitable material is encountered will be measured for payment in tons of material placed. Payment will not be based on delivered volumes or delivery tickets, unless specifically authorized by the Engineer. The Engineer shall verify the amount of select fill prior to payment. Select fill material placement will be paid for at the unit price bid and shall include the cost of any and all equipment, material and labor required for select fill placement as described above.

2.14.7 Directional Drilling

The Contractor shall, as directed by the Plans or the Engineer, install the pipe by directional drilling.

Prior to commencing directional drilling operations, the Contractor shall be required to provide proof to the Engineer that the personnel performing the drilling operations have a minimum of one year of experience performing directional drilling operations of this type.

All directionally drilled mains shall be installed in accordance with 2.13 Pipe Bending; 2.14.3 Required Clearance; 2.14.5 Required Cover; and all other applicable requirements specified herein.

The length of each continuous directionally drilled installation shall be limited by the size and type of drilling equipment utilized for the operation, or as otherwise determined by the Engineer.

A minimum of one (1) bellhole per drilled section of mains shall be excavated around the pipe and along the drill path to verify its location, depth and structural integrity. The sending and receiving pits for the directional drilling operation shall not be considered as part of the required number of inspection bellholes.

Redundant tracer wire shall be installed along with all directionally drilled polyethylene pipes. Tracer wire installation shall be in accordance with 2.14.13 Pipe Locating Devices.

Measurement and Payment

Directionally drilled gas mains will be measured for payment based upon the linear footage and diameter of pipe installed. Pipe will be measured horizontally.

Directionally drilled pipe in-place will be paid for at the unit price bid for polyethylene pipe. The cost of any and all equipment, material and labor required for directional drilling operations, including: excavating and backfilling sending and receiving pits and inspection bellholes; directionally drilling the pipe; testing and purging; and restoration shall be included in the unit price bid.

Should the Contractor encounter rock that general directional drilling and cannot complete the installation with standard directional drilling equipment, the Contractor shall submit pricing to the City in accordance with change order procedures.

2.14.7.1 Equipment

The directional drilling system/equipment used for pipe installation as specified herein shall be subject to the approval of the Engineer and shall incorporate the following features:

(1) The system shall be remotely steerable permitting control of horizontal and vertical alignment within a window of ± two (2) inches.
(2) The system shall provide for electronic monitoring of horizontal and vertical alignment. The locating tool shall be calibrated daily to an accuracy of ± two (2) inches.
(3) The system shall incorporate a means of logging the vertical alignment of the drill.
(4) The system shall be capable of turning 90° in a radius of 160 feet.
(5) The system may utilize an inert and environmentally risk-free drilling fluid. No toxic or otherwise hazardous chemical additive shall be added to the drilling fluid. A dry boring system is also acceptable.
(6) Back reaming bits shall be of a diameter at least two (2) inches larger than the outside diameter of the pipe to be installed.
(7) Drilling equipment shall be fitted with a permanent alarm system capable of detecting an electric current. The system shall have an audible alarm to warn the operator when the drill head nears electrified cables.

2.14.7.2 Procedure

The Contractor shall submit the drilling fluid mix to the Engineer for approval prior to beginning any directional drilling operation.

The leading end of the pipe shall be capped prior to insertion through the boring hole or sleeve.

A “weak link” shall be incorporated into the operation to ensure that damage will not occur to the pipeline by exceeding the maximum tensile stresses. The weak link may include approved breakaway connectors or a reduced size piping system. The “weak link” shall be connected between the leading end of the pipe being pulled and the connection to the directional drill rods.

If the weak link breaks or is otherwise substantially damaged, as determined by the Engineer, during installation, the drilling operation shall be abandoned, and new undamaged piping reinstalled at the Contractor’s expense. No payment will be granted for the abandoned section(s) of pipe.

The leading ten (10) feet of the installed pipe shall be pulled through the receiving pit and inspected. If any abrasions, gouges or cuts are present which, in the opinion of the Engineer, may compromise the integrity of the pipe, the pipe shall be exposed back to the point where the damage originated. All damaged pipe that is determined by the Engineer to be unacceptable shall be removed and replaced at the Contractor’s expense.

All pulled-in pipe shall be allowed to relax for a minimum of eight (8) hours prior to joining to existing pipe.

All fused joints contained within the polyethylene piping to be installed by directional drilling shall be allowed to cool down in accordance with the manufacturer’s recommended fusion procedures prior to commencing the pulling operation.

2.14.7.3 Drilling Mud Disposal

The Contractor shall be required to submit drilling mud component summaries for each directional drilling operations. For drilling muds that contain other additives than bentonite and water, the Contractor shall be required to dispose of all drilling mud in accordance with the North Carolina Waste Management guidelines, NC Solid Waste Section Guidance for Managing Horizontal Drilling Muds from Pipelines and other such Utility Projects (April 2018).

2.14.8 Plowing

When the integrity of the pipe will not be compromised, polyethylene gas pipe may be installed by plowing. Plowing shall not be allowed in rocky soils, congested areas, or any other areas deemed inappropriate by the Engineer. The Engineer will make all determinations as to where the Contractor shall be allowed to plow-in pipe.

The Contractor shall be allowed to plow-in sections of pipe three hundred (300) feet or less in length at a time. The pipe shall be inspected at sufficient intervals, by means of bellholes, and at all exit holes to determine the condition of the pipe. A minimum of one bellhole, located at the midpoint of the plowed segment, shall be required for inspection purposes. Stretched, gouged, scratched, kinked or cut pipe will not be accepted. If damage to the pipe is noted, the earth shall be excavated away from the pipe in both directions until the full extent of the damage is exposed to the satisfaction of the Engineer. The damaged pipe shall then be cut out and replaced at no additional cost to the City.

Polyethylene pipe shall be allowed to relax for a sufficient length of time, as determined by the Engineer, prior to joining sections of plowed-in pipe or making tie-ins to existing mains. The recommended relaxation period is between eight (8) and twenty-four (24) hours. Sections of plowed-in pipe to be joined or tied into existing mains shall be sufficiently overlapped in the tiein bellholes to allow for shrinkage due to relaxation of the pipe. Fused joints shall be allowed to cool for a minimum of twenty (20) minutes prior to being installed by plowing.

Tracer wire shall be installed along with all plowed in polyethylene pipe. Tracer wire installation shall be in accordance with 2.14.13 Pipe Locating Devices.

Measurement and Payment

Installation of polyethylene gas and water services by plowing will be measured for payment based upon the linear footage and diameter of pipe installed.

Plowed-in pipe in-place will be paid for at the unit price bid for installation of polyethylene service pipe. The bid price shall include the cost of any and all equipment, material and labor required for plowing operations, including: excavating and backfilling exit holes and inspection bellholes; plowing in the pipe and associated fittings; locating devices, testing, purging, seeding and mulching, and cleanup.

2.14.8.1 Weak Link or Breakaway System

A weak link or breakaway system capable of alerting personnel of stresses to the pipe that may result in damage shall be used during directional drilling or plowing installations, when the pipe is being pulled into the soil or an annular space created for the pipe. A weak link device is not necessary *only* when the pulling equipment is incapable of exceeding the Allowable Tensile Load (ATL) for the pipe being installed. The weak link or breakaway system may consist of:

(1) a stainless steel breakaway connector, utilizing a single use connector pin system,
(2) a calculated weakened pipe,
(3) or a three-foot section of polyethylene pipe as allowed in Table 2.14.8.1.

Polyethylene pipe shall not be stressed more than seventy-five (75%) percent of the materials' yield strength. A weak joint composed of a segment of smaller diameter pipe, as shown below, may be used in lieu of a stain gauge. **TABLE 2.14.8.1**

INSTALLED PE PIPE	WEAK LINK
3/4" SDR 11	5/8" SDR 7
2" SDR 11	1 ¼" SDR 10 OR 11
4" SDR 11	3" SDR 11

The weak link shall be connected between the leading end of the pipe being pulled and the connection to the plow blade or drill head. If the weak link breaks or is otherwise substantially damaged during installation, the drilling operation shall be abandoned, and new undamaged piping shall be installed.

2.14.9 <u>Underboring</u>

The Contractor shall, as directed by the Plans or the Engineer, install the pipe by bore the gas mains beneath certain traveled ways and/or watercourses.

All underboring methods shall be subject to the approval of the Engineer and may include dry boring or jack and boring.

The boring methods and equipment utilized shall be industry proven and accepted, subjected to the approval of the Engineer. All employees of the Contractor utilized in boring operations shall be trained and experienced with the specific boring method and equipment chosen. The Contractor shall, as required, provide the Engineer with documentation of said training and experience.

All underboring equipment utilized shall be properly sized to install the carrier pipe without removing any excess spoil. The diameter of the auger used in any boring operation shall not, in any case, be greater than four (4) inches larger than the outside diameter of the casing or carrier pipe to be installed.

Underboring operations shall be performed in such a manner that settlement, displacement, distortion, or any other damage to the existing ground surface, utilities and or structures will not occur. Where a utility is damaged or severely displaced, the authority having jurisdiction over the utility or structure shall be contacted immediately. The Contractor shall be responsible for promptly repairing or having repaired any such damage, to the Engineer's and the affected utility owner's satisfaction, at no cost to the City.

Underboring operations shall, at all times, be conducted in a manner that does not create a hazard or impede the flow of traffic.

Carrier pipe installation shall be performed immediately upon completion of the boring operation. Soil voids that remain around the pipe after installation shall be properly filled with hydraulic cement grout, as directed by the Engineer. The grout shall be placed under pressure in a manner approved by the Engineer.

The Contractor shall, as directed, repair or replace, at his own expense any pipe that is damaged during boring operations.

If the bored carrier pipe strikes an obstruction during the boring operation, the cost of removing the obstruction shall be borne by the Contractor. If the obstruction cannot be removed, the boring operation shall be: abandoned; the pipe filled with cement grout, plugged and abandoned in place; and the bore re-attempted at a different location, as directed by the Engineer. The Contractor shall be responsible for any and all costs associated with an abandoned bore. No payment will be allowed for the abandoned section(s) of pipe.

When, in the opinion of the Engineer, a completed bore results in a deficiency which renders the pipe unusable, including but not limited to: insufficient cover; insufficient clearance with existing underground utilities and/or structures; excessive curvature of the pipe; excessive damage to the pipe and/or coating; or failure to stay within the right-of-way, the bore shall be abandoned; the pipe filled with cement grout, plugged and abandoned in place; and a new bore completed at no additional cost to the City.

The lengths of all required bores shall be as shown on the Plans or as otherwise directed by the Engineer. The typical allowance of five (5) feet outside of the edge of pavement or travel area outside of the roadway being bored will be provided for installation of pipe by bore methods.

Tracer wire shall be installed along with all polyethylene carrier pipes bored without a casing pipe. Tracer wire installation shall be in accordance with 2.14.13 Pipe Locating Devices.

Measurement and Payment

Gas mains installed by boring the pipe in-place will be measured for payment based upon the linear footage of pipe installed. The pipe will be measured horizontally.

Boring will be paid for at the unit price bid. The cost of any and all equipment, material and labor required for boring, including: excavating and backfilling sending and receiving pits; boring the main; testing and purging; and restoration, shall be included in the unit price bid.

Payment shall be made based upon the minimum required length of bore. Bored distances in excess of the minimum required length shall not be paid for as boring but shall be paid for at the unit price bid for direct burial of the appropriate size/type pipe.

Payment for work area restoration within surfaced areas shall be in accordance with 2.18 Surfaced Area Restoration.

2.14.10 Casing Pipe Installation

The Contractor may be required to install the gas mains within a steel casing pipe, as indicated on the Plans or as otherwise directed by the Engineer.

The Contractor may, upon the approval and/or direction of the Engineer, choose or otherwise be directed to install the casing pipe by trenching and/or boring as specified in 2.14.6 Direct Burial and 2.14.9 Underboring.

The casing pipe shall be a minimum of two (2) nominal pipe sizes larger than the outside diameter of the carrier pipe, joints or couplings. The Contractor may, upon the approval of the Engineer, install a larger diameter casing pipe than is specified or otherwise shown on the Plans. If a larger diameter casing pipe is installed, all minimum cover and clearance requirements, as specified herein, shall be met.

The casing pipe shall be installed true to line and grade; sloping to one end with an even bearing throughout its length. The casing pipe installation shall be made so as to allow free and unrestricted movement of the carrier pipe during insertion.

Lengths of steel casing pipe shall be joined by welding the joints completely around the circumference of the pipe as specified in 3.2 Welding.

Casing pipe vent(s) shall be installed at the end(s) of the casing pipe, or as directed by the Engineer. The vent pipes shall be welded on the casing pipe before the carrier pipe is inserted. The vents shall be painted above grade with a corrosion resistant primer and paint as directed by the Engineer. The vent opening(s) shall be screened and turned downward. Approved gas warning signs shall be attached to the vent pipe(s) or placed immediately adjacent to the casing vent(s) at each end of the casing pipe.

Both ends of all casing pipe installations, except underwater crossings, shall be sealed.

Dependent on the material of the carrier pipe, either insulating or non-insulating casing spacers shall be set within one (1) foot of each end of the casing and placed along the carrier pipe at a maximum spacing of eight (8) feet.

When the carrier pipe is steel, the two metallic structures shall be checked to verify electrical isolation. Anodes and cathodic protection test stations shall be installed at each casing end or per the construction Plans. The Engineer shall be contacted to verify and approve all cathodic protection devices and connections prior to backfilling. The Contractor shall correct any shorting to the casing and/or carrier pipe using a method approved by the Engineer at no additional cost to the City.

For a polyethylene piping system, the casing pipe shall be prepared to the extent necessary to remove any sharp edges, projections, or abrasive material which could damage the plastic during and after insertion. Plastic casing bushings shall be installed at each end of the casing pipe. Polyethylene pipe shall be inserted into the casing pipe in such a manner so as to protect the polyethylene pipe from damage. The leading end of the polyethylene pipe shall be capped prior to insertion.

Measurement and Payment

Casing pipe installation will be measured for payment based upon the linear footage of casing pipe installed horizontally between the ends and includes carrier pipe, casing vent pipes and cathodic protection test stations as directed by the Engineer or as shown on the Plan(s).

Casing pipe installed any method will be paid for at the unit price bid based on the pipe size. The cost of any and all equipment, material and labor required for boring with casing, including: excavating and backfilling sending/receiving pits; joining of pipe segments, bore operations for the casing pipe; proper installation of the carrier pipe and fittings within the casing; installation of all spacer, end seals and vents; nondestructive testing, pressure and leak testing, purging; and restoration, shall be included in the unit price bid.

The cost of any and all equipment and labor required for the removal, disposal, and restoration of pavement shall be paid for at the unit prices bid for pavement removal and disposal, and for surfaced area restoration.

Casing pipe payment will be made in addition to the installation of the polyethene carrier pipe within the casing pipe.

The measurement and payment for the installation of cathodic protection test station and anodes shall be in accordance with 3.11 Test Stations.

2.14.11 Underwater Crossings

Where gas mains cross watercourses or drainage ditches, the pipe shall be provided with a minimum of forty-eight (48) inches cover between the top of the pipe and the bottom of the watercourse or ditch. The pipe shall be fitted to the terrain with any necessary bends and/or fittings. Bends shall not exceed the minimum bending radius previously specified in 2.13 Pipe Bending.

The Contractor shall perform all pipe installation operations in a manner that will minimize disturbances to the watercourse. The appropriate diversion channels, flumes and/or cofferdams shall be installed and maintained, as indicated on the Plans, or as otherwise directed by the Engineer

All gas mains may be required to be installed within casing pipe, as indicated on the Plans or as otherwise directed by the Engineer. Installation of the casing pipe shall include pipe spacers placed near both ends of the casing pipe and at ten (10) feet on center (O.C.) throughout the remaining length of the sleeve. The ends of the casing pipe shall not be sealed.

The watercourse banks shall be backfilled to the original alignment of the bank line, and protected from erosion, as indicated on the Plans and as required by any jurisdictional regulatory agency. Where necessary, the City will obtain all required permits for underwater crossings. The Contractor shall comply with all provisions of the permits. Failure to do so may result in removal from the job.

Measurement and Payment

Underwater crossings will be measured for payment based upon the linear footage of pipe installed and method of installation within the limits of the watercourse or the installations from overbend to overbend, as determined by the Engineer. Pipe will be measured horizontally and through in-line fittings, valves and specials.

Underwater crossings will be paid for at the unit price bid for the appropriate method of installation of the various size/type pipes. The bid price shall include the cost of any and all equipment, material and labor required for the underwater installation, including: the installation and maintenance of the appropriate diversion channels, flumes and/or cofferdams; and the installation of the appropriate steel sleeves and river weights.

Casing pipe installation, when required, shall be paid for as provided for in 2.14.10 Casing Pipe Installation.

2.14.12 Installation In Railroad Right-of-Way

Piping passing through the CSX Transportation right-of-way shall be installed in accordance with Part 5, of the American Railway Engineering Association (AREA) Specifications, and as directed by the CSX Transportation permit requirements. The City will obtain all required permits for installations in railroad rights-of-way. The Contractor shall comply with all provisions of the permits.

Crossings shall be located as to cross tracks at approximate right angles, but not less than 45 degrees.

The gas main crossing railroads shall be encased in casing pipes. Casing pipes shall be API 5L Grade B steel, with sealed ends and vent pipes installed. Vent pipes shall be two (2) inch diameter welded steel, no couplings are allowed. Welds on casing pipe shall be completed before carrier pipe is inserted. Carrier pipe shall be steel and as specified on the permit. Depth of casing pipe shall be as directed by the permit.

All welds on steel pipe within railroad rights-of-way shall be radiographed.

Measurement and Payment

No separate compensation shall be provided for the installation of the gas facilities within railroad rights-of-way, as described above. The installation shall be measured for payment as follows:

(1) The casing pipe, including vents, casing spacers and end seals shall be in accordance with 2.14.10 Casing Pipe Installation.
(2) The carrier pipe to be inserted in the casing pipe based on the method of installation
(3) The cathodic protection test stations and anodes shall be in accordance with 3.11 Test Stations.

2.14.13 Pipe Locating Devices

The Contractor shall install tracer wire with all uncased polyethylene pipes to facilitate location of the pipe with commercially available electronic pipe locators. Warning tape shall also be installed with all direct buried mains and shall be continuous over the length of the mains. Installation of tracer wire and warning tape shall be as included in Table 2.14.13.1.

TABLE 2.14.13.1
INSTALLATION OF LOCATING DEVICES

Method of Construction	Tracer Wire Location	Warning Tape Location
Direct Bury	6” Min./12” Max. Above Pipe	4” - 6” Below Grade
Directional Drill	Pull Through Bore Hole With Pipe	Not Required

Bored	Pull Through Bore Hole With Pipe	Not Required
Cased	Connect Voids in Host Pipe	Not Required

The tracer wire shall be installed a maximum of twelve (12) inches above the pipe and a minimum of six (6) inches above the pipe for direct bury installations. The warning tape shall be installed approximately four (4) to six (6) inches below finished grade.

Measurement and Payment

Unless specifically outlined below, all Work associated with the installation of pipe locating devices is considered incidental and will not be measured for payment. The cost of any and all equipment, material and labor required for the installation of pipe locating devices shall be included in the unit prices bid for the various pay items.

2.14.13.1 Electrically Conductive Tracer Wire

The Contractor shall be required to install an electrically conductive tracer wire (tracer wire) as a means of facilitating the location of buried or inserted polyethylene pipe.

When polyethylene pipe is installed by boring without a casing pipe, the tracer wire shall be redundant (two separate wires) and attached to the bull-nose in order to facilitate installation.

When polyethylene pipe is installed by directional drilling, the tracer wire shall be redundant (two separate wires) and attached immediately behind the directional head in order to facilitate installation.

The tracer wire shall be inserted in one-half inch (1/2”) PE pipe and pulled into each valve box with sufficient slack to extend a minimum of twenty-four (24) inches above finished grade. The tracer wire shall not be cut but should remain continuous.

In the event that the continuity of the tracer wire is broken during installation, the Contractor shall install, at no additional cost to the City, a replacement tracer wire by either open trenching or plowing, as directed by the Engineer. Prior to the completion of the project, the Engineer may perform a continuity test. If the test determines that there are disruptions to the continuity, the Contractor shall excavate and repair the damaged wire at no expense to the City.

Tracer wire shall not be mechanically fastened to the pipe.

Under no circumstances shall the tracer wire be wrapped around the polyethylene pipe.

Where new tracer wire is connected to existing tracer wire or where separate spools of tracer wire are connected, the tracer wire shall be spliced using an approved split bolt connector or an approved waterproof slicing kit. These connections shall be wrapped using splicing tape and/or plastic electrical tape in order to waterproof the splice. Tracer wire shall be spliced to locating tape using splice clamps as approved by the locating tape manufacturer, or an approved equal.

2.14.13.2 Warning Tape

The Contractor shall be required to install warning tape as a safety measure and as a means of facilitating the location of and preventing damage to all direct buried gas mains.

Where new warning tape is connected to existing warning tape or where separate rolls of warning tape are connected, the warning tape shall be joined to provide continuous coverage over the mains.

The warning tape shall bypass valve boxes.

2.15 Road Crossings

Certain city and state roads will be crossed in the course of the project(s). All roads will be bored unless specific instructions are given on the Plan Sheets or by the Engineer to cut the road. No roads shall be open cut without special approval from the Engineer and North Carolina Department of Transportation officials.

2.16 Abandonment of Existing Facilities

The Contractor shall, as indicated on the Plans or as otherwise directed by the Engineer, be required to remove from service certain sections of the existing gas facilities, including but not limited to: mains, services, various fittings, valves and valve boxes.

Abandonment of existing facilities shall be accomplished by either in-place abandonment or complete removal of these facilities, as indicated on the Plans or otherwise directed by the Engineer.

In-place abandonment shall consist of: restraint of existing facilities, disconnection of the facilities from the existing system; purging of natural gas from all gas mains and services; properly sealing the ends of all abandoned pipe; backfilling all exposed portions of abandoned pipe; removing top section of abandoned valve boxes and backfilling with sand and asphalt; and restoration of the affected area as directed by the Engineer.

Sealing of natural gas mains shall be accomplished by installing an appropriate welded, fused, or mechanical joint fitting or by welding a steel plate to the open end(s) as directed by the Engineer. For abandonment of two (2) inch and smaller diameter mains, the Contractor shall use an internal rubberbased compression stopper.

When natural gas service lines are abandoned in-place in conjunction with the main, the Contractor shall cut off the service piping/riser a minimum of six (6) inches below the finished grade at the customer meter and install an approved internal rubber-based compression stopper in the open end of the pipe. In addition, the Contractor shall cut off the service piping/riser of any previous abandonment to these same standards describe above, where the previously abandoned piping/riser was abandoned above grade. When natural gas service lines are abandoned in-place and the existing main is to remain operational, the Contractor shall remove a section of the service pipe within two feet of the existing main and install an approved internal rubber-based compression stopper in each of the open pipe ends.

Valves and valve boxes shall be abandoned in place, unless otherwise directed by the Plans or the Engineer. The abandonment shall not be performed until the abandonment of the main is complete. A one (1) foot square hole shall be cut around valve boxes located in the pavement or concrete and the Contractor shall render the valve inoperable by breaking off the top section of the valve box a minimum of six (6) inches below the surface of the surrounding pavement or grade and filling the valve box with the same material (asphalt, concrete, dirt, etc.) directly adjacent to the valve box. Compaction of the material used to fill the valve box shall be completed such that settlement will not result. Asphalt shall be compacted with an approved roller or vibratory plate.

Purging of gas mains and services shall be performed, as directed by the Engineer, with compressed air and shall continue until a reading of zero (0) percent gas is measured using an approved, calibrated combustible gas indicator (CGI). **All purging operations shall be done under the direct supervision of the Engineer. A minimum of eight (8) hours advance notice shall be provided to the Engineer.**

Detailed information concerning all abandoned facilities, including, but not limited to; size of pipe, length of pipe abandoned, fittings installed, etc. shall be collected and submitted to the Engineer by the Contractor for all projects.

The Contractor shall be required, as directed by the Engineer, to return various abandoned distribution facility components to the City in working condition.

Measurement and Payment

With the exception of asphalt/concrete removal and restoration, in-place abandonment of existing distribution facilities is considered incidental work and will not be measured for payment. No additional compensation shall be provided to the Contractor for the abandonment of any existing facilities, regardless of the abandonment location or its proximity of the new facilities. The cost of any and all equipment, material and labor required for in-place abandonment operations shall be included in the unit price bid for the various pay items of the Work.

Roadway asphalt and concrete bellhole removal shall be measured for payment in accordance with 2.11 Pavement Removal and Disposal.

Concrete sidewalk and driveway bellhole removal shall be measured for payment in accordance with 2.11.1 Sidewalk, Driveway and Curb and Gutter Removal and Disposal.

Restoration of removed asphalt and concrete sections necessary for the in-place abandonment of facilities shall be measured for payment in accordance with 2.18 Surfaced Area Restoration.

2.16.1 Removal of Facilities

The Work covered by this Contract shall require the Contractor to remove sections of abandoned piping, valves, valve boxes and other facilities.

After isolating and purging, the facilities shall be removed from the ditch and the ditch shall be backfilled and compacted. Compaction shall be equal to that of the surrounding soil or as otherwise specified on the project Plans or as required by the Engineer. Compaction within traveled ways, including driveways, sidewalks, streets or alleys shall meet the density requirements as specified in Section 2.14.6.6 Backfilling. Following backfilling and compaction, the surface shall be graded to match the existing grade and contour. Removed piping and materials shall be properly disposed of or otherwise handled as directed by the Engineer.

The Contractor shall be required to remove short sections of piping at tie-in locations, at the direction of the Engineer or as deemed necessary by the Contractor, to facilitate tie-in operations. Additionally, removal of pipe will only be required where indicated on Plans, or as directed by the Engineer.

Measurement and Payment

With the exception of asphalt/concrete removal and restoration, abandonment of facilities by removal is considered incidental and will not be measured for payment. Seeding, mulching and tacking of the surface are considered incidental and shall not be measured for separate payment.

The cost of any and all equipment, material and labor required for the removal, disposal, and restoration (including seeding, mulching and tacking of the surface) shall be included in the unit prices bid for various pay items of the Work. Pavement removal/disposal and surfaced area restoration, where necessary, will be paid for at the respective unit prices bid for this Work.

Roadway asphalt and concrete bellhole and trenchline removal shall be measured for payment in accordance with 2.11 Pavement Removal and Disposal.

Concrete sidewalk and driveway bellhole and trenchline removal shall be measured for payment in accordance with 2.11.1 Sidewalk, Driveway and Curb and Gutter Removal and Disposal.

Restoration of removed asphalt and concrete sections necessary for the abandonment of facilities by removal shall be measured for payment in accordance with 2.18 Surfaced Area Restoration.

2.17 Clean Up

The Contractor shall keep the right-of-way reasonably clear of construction debris during the progress of the Work. Cleanup shall consist of all Work necessary to restore the affected area to pre-construction condition. This operation shall include, but not be limited to, the removal of excess excavated materials, equipment, rock and other materials that cannot be placed in the trench backfill. Cleanup shall also consist of the repairing or restoration of trenches, restoration to pre-construction topography, disposal of vegetative debris and re-seeding and mulching as directed by the Engineer, in accordance with the North Carolina Department of Transportation specifications.

The Contractor shall take steps to keep all paved surfaces clear of soil (compacted or loose) and loose gravel or stone during the construction period. When a mechanical sweeper is used, the sweeper attachment shall be covered to minimize dust. If, in the opinion of the Engineer, dust, stone or mud is excessive, the Contractor shall immediately take action to resolve the problem. Dust, mud, stone, dirt, and other debris tracked onto paved roadways shall be removed daily. The Contractor will be required to provide a water storage tank and hoses. Under no circumstances may the Contractor connect to and use private water supplies.

The Contractor shall be responsible for and shall remedy any blockages of storm drains caused by dirt, mud, or other debris washed from his job site.

Finish grading shall be performed as necessary to re-establish slopes. The grades shall be formed to easy contours sloping towards inlets and ditches. This grading shall eliminate low spots and pockets that do not drain. Ditches shall be excavated to the section and elevations shown and shall be excavated with smooth slopes to avoid low spots and pockets that do not drain.

Developed property including but not limited to walks, steps, fences, mailboxes, paper boxes, disturbed by the Work shall be restored or replaced to their original or better condition, except as shown on the Plans or directed by the Engineer. Ditches shall be restored to their original shape and slope. All disturbed areas not covered by pavement or structures shall be fertilized, limed, seeded, and mulched. Any washing or erosion of the surface, and any areas where grass seed does not germinate, shall be repaired and reseeded until an adequate stand of grass is achieved.

The Contractor shall be required to dress-up all work areas daily. The daily dress-up shall include backfill and compaction, removal of rocks and large dirt clods, raking to a consistent grade, removal of construction materials and debris, providing and placing a straw covering as required, and providing and placing soil stabilization measures as required by the Engineer. Final cleanup and restoration shall be performed within five working days of completion of all work within individual properties or sections of properties as designated by the Engineer.

The Work required prior to final cleanup and restoration shall include the installation and activation of the distribution mains. This cleanup shall continuously follow, as described above, to the Engineer's satisfaction. Untimely cleanup resulting from the pipeline construction activities may result in the suspension of new construction, as deemed necessary by the Engineer. **Measurement and Payment**

Cleanup operations are considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for cleanup shall be included in the unit prices bid for the various pay items of the Work.

2.18 Surfaced Area Restoration

The City shall perform all final asphalt and concrete restoration. The Contractor shall complete all place and properly compact the stone base and fill. The stone base shall be placed and maintained in all affected surfaced work areas to match the existing surfaced areas.

The Contractor shall provide temporary restoration for all roadway, driveway, parking and walkway surfaces necessarily removed for the installation of the mains.

The Contractor assumes all responsibility for the restoration of surfaced work areas, and for safely maintaining the pavement cuts and normal traffic flow until final acceptance of the Work.

Measurement and Payment

Stone used for the surfaced area restorations, including gravel roadways and driveways shall be measured for payment based on the tons of stone placed. Excess quantities of stone shall not be included in the measurement for payment. The cost of any and all equipment, material and labor required for surfaced area restoration operations shall be included in the unit prices bid.

2.19 Concrete Structures

Concrete structures, including but not limited to headwalls and drainage structures damaged during construction, shall be promptly and satisfactorily restored to pre-construction condition, as directed by the Engineer, in accordance with all applicable requirements of the North Carolina Department of Transportation.

Measurement and Payment

Concrete structure restoration costs, necessary for the installation of gas facilities, will be measured for payment in units of cubic yards. Damage to concrete structures, resulting from the actions of the Contractor and not directly related to the installation of the natural gas facilities shall not be measured for payment. Concrete structure restoration will be paid for at the unit price bid. The bid price shall include the cost of any and all equipment, material and labor required for concrete structure restoration, including: the cutting, removal, disposal and replacement (including: reinforcement, finishing and jointing) of all classifications, thickness', and widths of concrete. Any damage to concrete structures incidental to the Work shall be repaired at the Contractor's expense.

3 SECTION 3 - GAS DISTRIBUTION FACILITIES INSTALLATION

3.1 Contractor Qualifications

The Contractor shall use only competent and skilled workmen for the performance of any and all Work on the natural gas distribution system, as specified herein. The workmen shall not perform any welding or heat fusion operations on any pipe or associated fittings within the system until they have been qualified to perform such operations in accordance with the test requirements specified in 3.1.1 Welding Qualifications and 3.1.2 Heat Fusion Qualifications.

The Contractor shall furnish evidence, as required by and to the satisfaction of the Engineer, that the specified testing requirements have been met for each employee prior to their utilization on the Work.

Measurement and Payment

Qualification of the Contractor's personnel for welding and heat fusion operations is considered incidental and will not be considered for payment. All costs associated with qualifying the Contractor's personnel, including but not limited to testing and certification, as specified herein, shall be included in the unit prices bid for the various pay items of the Work.

3.1.1 Welding Qualifications

The Contractor's welders shall provide evidence of being qualified in accordance with the procedures listed in Section 6 or Section 12 of the API Standard 1104 or Section IX of the ASME Boiler and Pressure Vessel Code, "Welding and Brazing Qualifications". Welds made for the initial qualification shall satisfy nondestructive test requirements. Each welder shall provide a copy of the welding procedure(s) that they qualified by. The Engineer shall review the welding procedure to determine if it is acceptable for use on the City's natural gas distribution system. If the Engineer determines that the qualifying welding procedure is inadequate for use on the City's natural gas distribution system, each welder shall qualify under the City's welding procedure. The Contractor shall provide the qualification through a qualified testing laboratory and provide copies of the results to the Engineer at no cost to the City.

3.1.1.1 Initial Qualification

Welders or welding operators shall be qualified in accordance with the procedures listed in Section 6 or Section 12 of the API Standard 1104 or Section IX of the ASME Boiler and Pressure Vessel Code, "Welding and Brazing Qualifications". Welds made for the initial qualification shall satisfy nondestructive test requirements.

The welder shall butt weld two sections of eight (8) inch or twelve (12) inch nominal pipe size placed in a fixed position at an incline of forty-five (45) degrees.

(1) The combination of pipe size and position qualifies the welder to perform butt and fillet welds in any position and all pipe diameters.

(2) The weld shall be non-destructively tested in accordance with the requirements of API 1104 or Section IX of the ASME Boiler and Pressure Vessel Code. If a weld sample fails this test, the welder is not qualified to perform welds on the City's natural gas system.

3.1.1.2 Re-qualification

After the initial test, a welder or welding operator shall maintain qualification to perform welding operations by the following:

(1) At intervals of each calendar year and not exceeding 15 months between qualification, each welder or welding operator shall requalify in accordance with the initial qualification requirements.

(2) With intervals not to exceed 7 1/2 months and at least twice each calendar year; each welder or welding operator shall have a production weld cut out, tested, and found acceptable in accordance with the qualifying test.

3.1.1.3 Welding Procedure

The Engineer may accept welding procedures provided by the Contractor contingent upon documentation that demonstrates proper qualification of the procedure.

3.1.2 Heat Fusion Qualifications

Operators of heat fusion equipment, including: butt fusion, saddle fusion and electrofusion, shall be tested and certified in accordance with the requirements of 49 CFR 192, Subpart F, Paragraph 285 along with any and all additional requirements of the specific pipe and/or fitting manufacturer.

If the technician performs unsatisfactorily in the fusion of the joints or fittings for which the technician is approved for as indicated on his fusion permit, the City reserves the right to revoke his/her permit to fuse polyethylene pipe on the City's natural gas system.

Any employee of the Contractor shall be re-trained and shall provide evidence of re-training from an acceptable source to the Engineer if:

(1) Any production joint is found unacceptable by pressure testing.

(2) If during any twelve (12) month period a person has three (3) joints or three (3) percent of the joints made, whichever, is greater under that procedure that fail during the operation of a pipeline facility.

Documentation: Each technician making joints in polyethylene pipe must provide evidence of current heat fusion certification from an approved pipe manufacturer or fusion equipment vendor. Copies of the qualification cards shall be submitted upon request and shall be available on the job site. Each qualification card must include the following information:

(1) Technician name
(2) Testing date
(3) Employer name
(4) Statements of testing in accordance with regulatory requirements:
    (a) The joints performed met the requirements of 192.283
    (b) The procedures used to qualify the technician are in accordance with 192.285
(5) Technician's signature and date
(6) Instructor's signature and date
(7) Types of equipment used during testing

(8) Expiration date for each testing type performed

3.2 Welding

All steel pipe and/or fittings, connections and other fabrications within the gas distribution system shall be welded, unless otherwise specified or directed by the Engineer.

All welds shall be performed in accordance with the requirements of API 1104 and all other requirements as set forth in the City's Natural Gas Operation and Maintenance Plan. The kind, character and disposition of all welds shall be subject to the approval of the Engineer.

Measurement and Payment

Welding operations are considered incidental work and will not be measured for payment. The cost of any and all equipment, material specifically provided by the City and labor required for the performance of welding

operations and inspection thereof, including: welding rods, fluxes, filler metals, windguards and welding machines, shall be included in the unit prices bid for the various pay items of the Work.

3.2.1 Procedure

All welding material and/or equipment shall, at all time, be protected from damage and kept in good working condition. Filler metals and fluxes shall be protected from deterioration and excessive moisture changes. Welding rods and other materials that show signs of deterioration or damage shall be replaced. Welding machines, which, in the opinion of the Engineer, are in poor repair or are not of sufficient capacity to perform the Work shall be replaced at the Contractor's expense.

Suitable windguards shall be provided to protect the Work during periods of excessive wind.

The Contractor shall, at the direction of the Engineer, temporarily suspend all welding operations whenever conditions are not conducive to the performance of good work.

All steel pipe, fittings, connections and fabrications shall be butt welded by the shielded metal arc welding process using a manual welding technique, unless alternative methods have been submitted to and approved by the Engineer.

All surfaces to be welded shall be properly cleaned and free of material that may be detrimental to the integrity of the completed weld. The ends of pipe and/or fittings at all welded joints shall be properly beveled using an appropriate pipe-beveling machine as approved by the Engineer.

Each completed weld shall be free of overlaps, undercuts, excessive convexity, scale, oxides, pinholes, non-metallic inclusions, air pockets and all other defects.

Arc burns on the pipe and/or fittings shall be removed by grinding, provided the resulting pipe wall thickness is not less than ninety (90) percent of the required design wall thickness. Arc burns that grinding cannot repair and repair attempts that result in less than ninety (90) percent of the original wall thicknesses shall be cut out.

All welds shall be air-cooled. Accelerated cooling by any method shall not be permitted.

3.2.2 Inspection

Visual, nondestructive and/or destructive testing procedures shall be implemented, as required by the Engineer, to determine the quality of the welds.

The Engineer may, at his discretion, require x-ray or other nondestructive testing of any and all welds prior to the initiation of coating or coating repair procedures. Should any weld prove to be defective for any reason, the Contractor shall assume any and all costs associated with the testing, cutting out and replacement of the weld.

The Contractor shall be required, at his expense, to radiograph all welds within CSX Transportation rights-of-way. In addition, the Contractor may be required to have certain welds radiographed, at his expense, to verify compliance with API 1104 Standards. Such tests shall be required on all welds identified by the Engineer based upon observation of poor welding techniques, previously identified substandard welds, and/or evidence of leakage during pressure testing.

The Engineer shall make all determinations as to what constitutes an acceptable weld as well as the disposition of all defective welds. These determinations shall be made upon completion of either a visual or a radiograph inspection.

3.3 Heat Fusion

All polyethylene pipe and/or fitting connections and other fabrications within the gas distribution system shall be made by heat fusion, unless otherwise directed by the Engineer. Heat fusion shall include: butt fusion, saddle fusion and electrofusion. Socket fusion shall not be used for joining polyethylene pipe and fittings.

Measurement and Payment

Heat fusion operations are considered incidental work and will not be measured for payment. The cost of any and all equipment, material specifically provided by the City and labor required for heat fusion operations and inspection thereof, including: heat fusion machines and wind guards, shall be included in the unit prices bid for the various pay items of the Work.

3.3.1 Procedure

All heat fusion jointing procedures shall be performed in accordance with 49 CFR 192 and any and all recommended Specifications and procedures provided by the pipe and/or fitting manufacturer. The technician shall have the necessary information relating to the fusing on the project site such as fusion temperature, interface pressure and cooling time before fusing operations are performed.

Heat fusion equipment shall, at all time, be protected from damage and kept in good working condition. Fusion equipment that shows signs of deterioration or damage shall be replaced. Heat fusion machines that, in the opinion of the Engineer, are in poor repair or are not of sufficient capacity to perform the Work shall not be used in conjunction with Work on City of Rocky Mount natural gas facilities.

Suitable windguards shall be provided to protect the Work during periods of excessive wind or cold weather. When the ambient temperature is below 32°F care must be taken to maintain the proper heater plate temperature. An infrared heat temperature gun shall be utilized to verify heater plate temperature. The gun is subject to verification of its accuracy.

The Contractor shall, at the direction of the Engineer, temporarily suspend all heat fusion operations whenever conditions are not conducive to the performance of good work.

All fused joints and other connections shall be air-cooled. Accelerated cooling by any method shall not be permitted.

Fusion operations on polyethylene pipe shall be performed adjacent to the trench and the pipe lifted and lowered into the trench. Where absolutely necessary to fuse polyethylene pipe at another location than adjacent to the trench, as allowed and confirmed by the Engineer, the pipe shall be lifted and carried to the trench. Under no circumstances shall any length or portion of the polyethylene pipe be dragged, slid, pushed or pulled, on any surface to the trench.

Non-handheld fusion equipment and the piping beyond the fusion area shall be uniformly supported during the fusion process. This support will be intended to produce a pipeline fused joint perpendicular to the pipeline outside wall. At no time shall fusion operations be performed when the butt fusion equipment and the piping beyond the joining area cannot be supported.

3.3.2 Control of Static Electricity on Polyethylene Pipe

The Contractor shall provide an industry accepted means of external static grounding or passive dissipation during all tapping, repair, squeeze off, and purging operations performed on live gas mains.

Acceptable methods of dissipating or preventing the accumulation of static electricity include:

(1) Wetting the exposed area with an electrically conductive liquid (e.gl soapy water with glycol added when ambient temperatures are below freezing).

(2) Using an anti-static plastic film or wet non-synthetic cloth wound around or laid in contact with the entire section of exposed pipe and grounded with a brass pin driven into the ground.
(3) Commercially available electrostatic discharge systems may be considered as a means of eliminating static electricity from both the inside and outside of PE pipe.

3.3.3 Inspection

Visual, nondestructive and/or destructive testing procedures shall be implemented, as required by the Engineer, to determine the quality of the fused joints.

The Engineer may, at his discretion, require nondestructive testing and inspection of any or all fused joints prior to the initiation of backfilling or insertion operations.

The Engineer shall make all determinations as to what constitutes an acceptable fused joint as well as the disposition of all defective joints. These determinations shall be made upon completion of a visual inspection. Defective joints shall be removed from the piping system at the Engineer's direction and at no cost to the City.

3.3.4 Joint Identification

Each fuse or weld performed on the City's natural gas distribution system shall be permanently marked to identify the person making the joint. Contractor personnel shall identify every joint that they make by writing the following information on the pipe adjacent to the pipe joint.

Contractor Name
Last Name (full), First Name (initial)
Date

More than one name are acceptable if two or more individuals are involved in making the joint. The marking of each joint shall be done using an indelible marking pen of a silver color or other contrasting color to the pipe or fitting.

3.4 Accidental Ignition Prevention

The Contractor shall take steps to minimize the danger of accidental ignition of natural gas in any structure or area where the presence of or the potential presence of natural gas constitutes or may constitute a hazard of fire or explosion. In addition; consideration of abnormal operating conditions requires that protection measures should be employed where there is a potential for accidental venting of gas.

The Contractor's personnel shall position fire extinguishers (minimum 10 pound) in the direct vicinity of any operation where there will be venting gas or the potential for venting gas including:

(1) Connection of new piping to active mains;
(2) Purging operations – activation of mains;
(3) Excavation activities crossing active natural gas facilities or within three feet of known parallel active facilities.

The fire extinguisher(s) shall be placed prior to commencing each of these operations and shall remain in place for the duration of the operation.

All fire extinguishers shall have tags affixed to the extinguisher by a service company, which clearly states the date of service and the date of expiration. Expired or untagged fire extinguishers shall not be used during the progress of the Work.

Only unused or fully charged fire extinguishers shall be used for the purpose of this section.

3.5 Pipe Laying

All fins and burrs shall be removed from pipe and fittings prior to jointing. Prior to placing into position, all pipe, fittings, valves, and accessories shall be cleaned and maintained in a clean condition.

Proper facilities shall be provided for lowering sections of pipe into trenches. Under no circumstances shall any pipe, fittings, valves, or any other main material be dumped or otherwise dropped into trenches.

Gas mains shall be graded in straight lines. The pipe shall be firmly and uniformly supported along its entire length at the proper elevation and grade. The pipe shall be laid such that the full length of each pipe section and fitting rests solidly on the pipe bedding. Pipe sections that have the grade and/or joint disturbed after laying shall be taken up and re-laid.

Trenches shall be kept clear and free of water until joints have been properly made and the trench backfilled.

Whenever Work is not in progress, and at the end of each work day, the open ends of pipe shall be temporarily closed with watertight caps or plugs.

Pipe and/or fittings shall not be installed when, in the opinion of the Engineer, trench and/or weather conditions prevent proper installation.

3.6 Installation of Polyethylene Pipe

All polyethylene gas pipe and fittings shall be installed in accordance with SECTION 2 GENERAL CONSTRUCTION REQUIREMENTS, and any and all applicable requirements of ASTM D2774 and the City‘s Gas Operations and Maintenance Manual.

3.6.1 Jointing

Polyethylene gas mains shall be joined by butt fusion and electrofusion.

Sections of polyethylene pipe should be joined into continuous lengths on the job site above ground. The joining method shall be the heat fusion method and shall be performed in strict accordance with the pipe manufacturer’s recommendations. The heat fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe manufacturer.

Heat fusion joining shall be 100% efficient, zero-leakage, offering a joint weld strength equal to or greater than the tensile strength of the pipe. Socket fusion shall not be used. Extrusion welding or hot gas welding of polyethylene pipe shall not be used. Flanges, unions, transition fittings and approved mechanical couplings may be used to mechanically connect polyethylene pipe without butt fusion.

3.6.2 Deflection

The maximum bending radius for polyethylene gas main shall be as provided for in 2.13 Pipe Bending. If the alignment is such that a deflection in excess of the specified limitation is required, special bends or fittings shall be installed to provide angular deflections within the specified limits.

3.7 Pipe Cuts

Cutting of pipe for inserting valves, fittings, or other closure pieces shall be done in a neat and workmanlike manner without damage to the pipe.

Temperatures near or below freezing will affect polyethylene pipe by increasing stiffness, vulnerability to impact damage and sensitivity to suddenly applied stress especially when cutting. Pipe should be firmly supported on

both sides when cutting with a handsaw. Low temperature can cause the pipe to fracture at the cut if bending stress is applied.

3.8 Valves

Valve installations shall include the valve, complete valve box assembly and any required blocking.
After delivery, all valves shall have the interior surfaces cleaned of all foreign matter prior to installation.

Valves shall be fully opened and fully closed a sufficient number of times to ensure that all parts are in proper working order. Valves and valve boxes shall be installed and set plumb where indicated on the Plans, or as otherwise directed by the Engineer.

To avoid transmitting external loads to the main or valve, valve boxes shall be supported, independently of the main or valve, by blocking under the valve box with brick, concrete block, or similar masonry material. Similar material shall be used to block under the center of the valve.

Valves shall be installed at all locations indicated on the Plans, or as otherwise directed by the Engineer.

Valve installations shall include the valve, complete valve box assembly, and any required blocking.

Prior to installation, all valves shall be fully opened and fully closed a sufficient number of times to ensure that all parts are in proper working order.

All polyethylene valves shall be installed below grade by butt fusion, unless otherwise directed by the Engineer. Butt fusion operations on polyethylene valves shall be in accordance with 3.3 Heat Fusion.

All steel valves shall be installed below grade by welding, unless otherwise directed by the Engineer. Welding operations on steel valves shall be in accordance with 3.2 Welding.

Valve boxes shall be installed so as not to hinder the operation of the valve.

Valve boxes shall be insulated from the valve by blocking under the valve box with brick, concrete block or suitable masonry material. Similar material shall be used to block under the center of the valve.

Backfill shall be carefully tamped around each valve box to a distance of four (4) feet on all sides of the box, or to the undisturbed trench face if less than four (4) feet, such that the plumbness of the valve box is maintained.

A pre-manufactured concrete collar or a poured in place concrete collar shall be installed around the lid area of each valve box which is installed outside of paved roadways. Each poured in place concrete collar shall be eighteen (18) inches by eighteen (18) inches by a minimum of four (4) inches and shall be composed of concrete capable of reaching a compressive strength of 2500 psi.

All valves shall be in the open position during pressure testing and shall remain as such upon completion of the tests. **Under no circumstances shall the Contractor operate any valves within the existing gas distribution system, or otherwise interrupt or restore gas service to any customer. City personnel shall perform all valve operations and service restoration, as required.**

Measurement and Payment

Valve installations will be measured for payment based upon the number installed.

The unit price bid shall include the cost of any and all equipment, material and labor required for valve installation, including complete valve box assemblies, and blocking as describe above.

3.9 Customer Service Line Installation

The Contractor shall be required to either replace existing customer service lines or reconnect existing customer service lines to the new mains. The service lines shall be installed as directed by the Engineer, in accordance with all provisions specified in SECTION 2, GENERAL CONSTRUCTION REQUIREMENTS.

The horizontal alignment of renewed customer service lines shall be performed with the following priorities: 1) customer service lines shall be installed, where possible, in a direct line perpendicular with the building being served and 2) for customer service renewals the lines shall be installed, where possible, parallel to the existing service line.

All customer service line pipe sizes shall be as directed by the Engineer.

Polyethylene tapping tees shall be located on the main at least twelve (12) inches from a fused joint, valve, coupling or fitting. No tapping shall take place until the affected main has a passed leakage test. All taps must be made on a live main.

The minimum depth of new service line shall be in accordance with 2.14.5 Required Cover.

The service line riser and meter valve shall terminate at a height above grade as directed by the manufacturer or when renewing services at a height that matches that of the existing service riser. The service riser shall be located as directed by the Engineer.

The installation of the customer meter and connection to the customer piping shall be performed by City personnel.

Under no circumstances shall the Contractor interrupt or restore gas service to any customer. The Contractor shall not perform tie-over operations, which require service interruption, when the average daily temperature is below 34 degrees Fahrenheit. All gas service interruptions and restorations will be performed by City personnel.

The Contractor shall be responsible for checking for leakage of gas around the tapping tee on the main and around the cut-off (meter valve) on the riser by applying a foaming leak locating solution to the joints in addition to pressure testing the service line. Any such leaks must be repaired immediately.

City personnel will connect the service into the existing meter after proof of a satisfactory pressure test has been obtained and gas supply is present in the new piping.

The Contractor shall not cut-off, dismantle or otherwise disturb any existing gas service unless an emergency exists.

3.9.1 New or Renewed Services

The Contractor shall be required to install new or renew existing steel and polyethylene gas customer service lines and connect such service lines to the new or existing mains. The service lines shall be installed as directed by the Engineer, in accordance with all applicable provisions of SECTION 2, GENERAL CONSTRUCTION REQUIREMENTS. All services shall be renewed by direct burial, directional drilling, plowing, or insertion.

Installation of new or replacement steel or polyethylene gas services shall include, but not be limited to: installation of the new service line and, where required, in place abandonment of the existing service line.

The Contractor shall be required to pressure test all service lines complete in accordance with Section 3.12 Pressure and Leak Testing. After the installation of the gas service, the Contractor shall be required to restore the site to its pre-construction condition or better.

Measurement and Payment

Service line installations or renewals will be measured in linear feet of service line installed from the centerline of the main to the pipe connection point at the customer service riser and paid for at the unit price bid per linear foot and material. Pipe will be measured horizontally and through any in-line fittings, valves and/or couplings.

The unit price bid shall include the cost of any and all equipment, material and labor required for the complete service line installation, including testing and site restoration.

Payment for service components shall be in accordance with 3.9.3 Service Components.

3.9.2 Existing Service Tie-Over

The Contractor shall be required to transfer all existing services, which conform to the following requirements, as indicated on the Plans or as directed by the Engineer.

- Existing service piping may not have less than eighteen (18) inches of cover within roadway areas.
- Existing service piping may not have less than twelve (12) inches of cover outside of roadways and on private property.
- Existing polyethylene service piping shall have tracer wire along the entire service length for locating purposes. The tracer wire shall be spliced / joined to the tracer wire installed with the new service pipe segment.

The transfer of services shall include: excavation of the main, installation of the side-wall, heat fused or welded tapping tee, connection to the existing service piping, installation of additional piping necessary to connect the existing piping to the new main, installation of an EFV in accordance with 3.9.3.3 Excess Flow Valves (EFV) or installation of shut-off valve in accordance with 3.9.3.4 Customer Service Shut-off Valves, testing, actual tapping of the main, and site restoration. This work shall be installed as directed by the Engineer and in accordance with all applicable provisions of SECTION 2, GENERAL CONSTRUCTION REQUIREMENTS.

The installation of service line components and connecting pipe when transferring existing polyethylene services to the new main will not be measured for payment under 3.9.3 Service Components or SECTION 2, GENERAL CONSTRUCTION REQUIREMENTS.

Measurement and Payment

Service line tie-over will be measured for payment based upon the number and size installed and paid for at the unit price bid. The unit price bid shall include the cost of any and all material, equipment and labor required for the installation of service components and line pipe as describe above.

The installation of service line components and connecting pipe when transferring existing services to the new main **will not** be measured for payment under 3.9.3 Service Components or SECTION 2, GENERAL CONSTRUCTION REQUIREMENTS.

3.9.2.1 Residential Service Line Tie-Over

A residential service line is defined for this contract as being a natural gas customer service line provides service to one, and only one, single-family dwelling.

Service line tie-over installation for residential customer service lines shall include: 1) excavation of the main, 2) verification of required depth of existing service piping at the main, 3) excavation of a sight hole within five (5) feet of the main and within the property being

serviced to verify required depth of the service line, 4) excavation of a sight hole at the meter riser that is sufficient to determine the required depth of the service line 5) installation of the side-wall, heat fused or welded tapping tee, 6) installation of an EFV in accordance with 3.9.3.3 Excess Flow Valves (EFV), 7) installation of additional piping necessary to connect the existing piping to the new main, 8) connection to the existing service piping, 9) testing of both the existing facilities and the new facilities , 10) actual tapping of the main, and 11) site restoration. This work shall be installed in accordance with all applicable provisions of SECTION 2, GENERAL CONSTRUCTION REQUIREMENTS.

The tie-over operation shall be terminated, and the service line shall be renewed in its entirety should the depths determined during Items 2, 3, and 4 above not meet the requirements of 2.14.5 Required Cover at no additional cost to the City.

3.9.2.2 Commercial Service Line Tie-Over

A commercial service line is defined for this contract as being a natural gas customer service line that provides service to multi-family dwellings, apartments, and businesses.

Service line tie-over installation for commercial customer service lines shall include: 1) excavation of the main, 2) verification of required depth of existing service piping at the main, 3) excavation of a sight hole within five (5) feet of the main and within the property being serviced to verify required depth of the service line, 4) excavation of a sight hole at the meter riser that is sufficient to determine the required depth of the service line 5) installation of the tapping tee, 6) installation of an EFV in accordance with 3.9.3.3 Excess Flow Valves (EFV) or installation of a customer shutoff valve in accordance with 3.9.3.4 Customer Service Shut-off Valves, 7) installation of additional piping necessary to connect the existing piping to the new main, 8) connection to the existing service piping, 9) testing of both the existing facilities and the new facilities, 10) actual tapping of the main, and 11) site restoration. This work shall be installed in accordance with all applicable provisions of SECTION 2, GENERAL CONSTRUCTION REQUIREMENTS.

The tie-over operation shall be terminated, and the service line shall be renewed in its entirety should the depths determined during Items 2, 3, and 4 above not meet the requirements of 2.14.5 Required Cover at no additional cost to the City.

3.9.3 Service Components

The Contractor shall be required to install gas service components for all existing steel service replacements (3.9.1 New or Renewed Services) at locations as indicated on the Plans or as otherwise directed by the Engineer. Gas service component installation shall be in accordance with all applicable provisions of SECTION 2, GENERAL CONSTRUCTION REQUIREMENTS, as specified herein.

Gas service component installation shall include; a service tee, a prefabricated anodeless riser, a meter valve, and a meter plug. Dependent on the operating pressure of the main, the customer usage and the type of customer being served, an excess flow valve or a customer service shut-off valve may be required.

The riser shall be aligned as directed by the Engineer and shall terminate with a meter valve and meter valve plug.

The Contractor shall be responsible for checking for leakage of gas around the tapping tee on the main and around the cut-off (meter valve) on the riser by applying a foaming leak locating compound to the joints in addition to pressure testing the service line. Any such leaks must be repaired immediately.

3.9.3.1 Residential Service Line Components

A residential service line is defined for this contract as being a natural gas customer service line provides service to one, and only one, single-family dwelling.

Service line component installation for new or renewed residential customer service lines shall include the installation of the following components: 1) service tapping tee, 2) EFV in accordance with 3.9.3.3 Excess Flow Valves (EFV), 3) anodeless riser, 4) luboseal (meter valve), and 5) meter valve plug.

Service line component installation for the tie-over of existing residential customer service lines shall include the installation of the following components: 1) service tapping tee and 2) EFV in accordance with 3.9.3.3 Excess Flow Valves (EFV),

In addition to the installation of the service line components, the residential service line component installation shall include: excavation of the main; the connection to the gas service piping; the complete tapping of the main, leak testing, and site restoration. This work shall be installed in accordance with all applicable provisions of
SECTION 2, GENERAL CONSTRUCTION REQUIREMENTS.

Measurement and Payment

Residential service line components will not be measured for payment. The cost for installation of the residential service line components shall include the cost of any and all material, equipment and labor required for the installation of service components as describe above and be included in the unit price bid for 3.9.1 New or Renewed Services or 3.9.2 Existing Service Tie-Overs.

3.9.3.2 Commercial Service Line Components

A commercial service line is defined for this contract as being a natural gas customer service line that provides service to multi-family dwellings, apartments, and businesses.

Service line component installation for new or renewed commercial service lines shall include the installation of the following components: 1) service tapping tee, 2) EFV in accordance with 3.9.3.3 Excess Flow Valves (EFV) or customer shut-off valve in accordance with 3.9.3.4 Customer Service Shut-off Valves, 3) anodeless riser, 4) luboseal (meter valve), and 5) meter valve plug.

Service line component installation for the tie-over of commercial service lines shall include the installation of the following components: 1) service tapping tee and 2) EFV in accordance with 3.9.3.3 Excess Flow Valves (EFV) or customer shut-off valve in accordance with 3.9.3.4 Customer Service Shut-off Valves.

In addition to the installation of the service line components, the commercial service line component installation shall include: excavation of the main; the connection to the gas service piping; the complete tapping of the main, leak testing, and site restoration. This work shall be installed in accordance with all applicable provisions of
SECTION 2, GENERAL CONSTRUCTION REQUIREMENTS.

Measurement and Payment

Commercial service line components will not be measured for payment. The cost for installation of the commercial service line components shall include the cost of any and all material, equipment and labor required for the installation of service components as describe above and be included in the unit price bid for 3.9.1 New or Renewed Services or 3.9.2 Existing Service Tie-Overs.

3.9.3.3 Excess Flow Valves (EFV)

Excess flow valves shall be installed in all new or renewed residential and commercial customer service lines and service line tie-overs as directed by the Engineer. Excess flow valves must be pressure tested with the complete service line. Test medium must be introduced from the riser to properly pressure test service lines with EFV's installed.

3.9.3.3.1 Preparation

For new or renewed customer service line:

(1) Install the customer service line complete. A complete service line shall consist of the service tapping tee, service piping, anodeless riser (straight or pre-bent), and a meter valve.
(2) Open the meter valve and clear the complete service line of any impurities using compressed air.

(3) Close the meter valve and install a threaded plug in the downstream (outlet) side of the valve.

For tie-over of existing customer service line:

(1) Complete the installation of customer service line tie-over complete. A complete service line tie-over shall consist of the service piping, anodeless riser (straight or pre-bent), and a meter valve.
(2) Open the meter valve and clear the complete service line of any impurities using compressed air.
(3) Close the meter valve and install a threaded plug in the downstream (outlet) side of the valve.

3.9.3.3.2 Procedure

(1) Remove a section of the polyethylene service pipe with appropriate cutting tools to accommodate the installation of the EFV. The segment removed should be sufficient to allow installation of the EFV without kinking or stretching the service line pipe.
(2) Location of EFV
    (a) For new or renewed customer service lines: The EFV shall be installed a minimum of four inches (4") and a maximum of twelve inches (12") from the service tapping tee.
    (b) For existing customer service line tie-overs: The EFV shall be installed at the tie-over location, or as close as possible to the service line connection at the main.
(3) General Installation Precautions
    (a) The valve shall be installed such that the arrow on the valve/fitting is pointed in the same direction as the flow of gas in the pipe.
    (b) Care should be taken during the installation of the valve to ensure that no dirt or other foreign materials are allowed to get into the service piping or the EFV fitting.
(4) Identification of Service Lines With EFV's Installed

Upon completion of the installation of the complete service and EFV, the Contractor shall securely attach the identification marker(s) on the anodeless riser at the crimping point(s) near the top of the riser. (5) Start-Up Requirements:

    (a) Following installation of the EFV, these procedures shall be performed to make the service operational:

(b) Close the meter valve.
(c) If the customer meter is installed, disconnect anodeless riser/meter valve from meter.
(d) Pressurize the upstream (inlet) side of valve. For services up to one hundred (100) feet in length allow at least five (5) minutes for the line to pressurize and for the pressure to equalize across the valve. For services greater that one hundred (100) feet in length, allow eight (8) to ten (10) minutes for this process.

(e) Perform a pressure/leak test of the complete service line in accordance with City procedures. For service lines on steel mains this step will be performed as second pressure test.
(f) Slowly open the meter valve and purge the air from the customer service line in accordance with City procedures. (g) Close the meter valve.
(h) Insure that all connections downstream of the meter valve are secure and fully gas tight.
(i) Connect/reconnect service riser/meter valve to customer meter.
(j) Slowly open the meter valve to allow gas service to the customer. Quick opening of the valve may cause the EFV to close prematurely.

Measurement and Payment

Payment for excess flow valve installations will be made in accordance 3.9.3 Service Components and 3.9.1 New or Renewed Services.

3.9.3.4 Customer Service Shut-off Valves

Shut-off valves shall be installed in all new or renewed commercial, industrial, multifamily, or other buildings for public gathering, where the customer usage exceeds 1000 scfh or as otherwise directed by the Engineer. The shut-off valves shall be installed in conjunction with the service line complete, and in accordance with Section 3.9 Customer Service Line Installation.

When the shut-off valve is located in sodded areas, a 6”x6” poured concrete collar shall be placed around the valve box lid.

Service shut-off valve installation shall include the valve and complete valve box assembly.

Prior to installation, all valves shall be fully opened and closed a sufficient number of times to ensure that all parts are in proper working order.

All polyethylene shut-off valves shall be joined to the adjacent pipe below grade by butt fusion, unless otherwise directed by the Engineer. Butt fusion operations on polyethylene valves shall be in accordance with 3.3 Heat Fusion. The valve shall be installed as close to the customer service tapping tee at the main as possible, unless otherwise directed by the Engineer.

Valve boxes shall be installed plumb and directly over the valve in such a manner as to not hinder the operation of the valve or require excavation.

The service shut-off valve shall be pressure and leak tested in conjunction with the service line, in accordance with Section 3.12 Pressure and Leak Testing. All valves shall be in the open position during the pressure/leak testing and shall remain open upon completion of the tests.

Measurement and Payment

Payment for customer service shut-off valve installations will be made in accordance 3.9.2 Service Components and 3.9.3 Existing Service Tie-Over.

The unit price shall include the cost of any and all equipment, material and labor required for the valve installation, including valve box assemblies, as described above. **3.10 Customer Service Meter Protection System**

Customer service meter protection systems shall be installed when the customer service meter is installed in driveways or other areas where vehicular traffic may potentially damage the facility, or as otherwise directed by the Engineer.

Customer service meter protection system installations shall be either light duty or heavy traffic types as described in the typical detail drawings.

Measurement and Payment

Customer service meter protection system installations will be measured for payment based upon the number and type installed.

The unit price bid shall include the cost of any and all equipment, material and labor required for the complete customer service meter protection system installation, as described above.

3.11 Test Stations

Test stations shall be installed to facilitate the monitoring of cathodic protection (CP) systems on buried steel facilities.

Wire lead connections to steel facilities and anodes will be performed by the Contractor.

Measurement and Payment

Test station installations will be measured for payment based upon the number installed.

The unit price bid shall include the cost of any and all equipment, material and labor required for the complete test station installation, as described above.

3.12 Pressure and Leak Testing - General

Each gas main and service installed within the City's distribution system shall be pressure and leak tested, as specified herein. The Contractor shall provide the necessary materials, labor and pumps required to pressurize the gas main and services in a satisfactory and efficient manner. **All pressure and leak testing shall be done in the presence of the Engineer. Tests performed without supervision will not be accepted and the Contractor shall be required to retest at his expense.**

When the length of any pipe section exceeds 1,000 feet, the Engineer reserves the right to require the pipe to be tested in sections determined by the Engineer.

All new gas mains and services shall be pressure tested using compressed air or nitrogen. Water shall not be used as a test medium for gas mains and services. The method and procedure for each pressure test shall be subject to the approval of the Engineer.

Natural gas shall not be admitted into any gas main or service line prior to the Engineer's approval and the successful completion of all required pressure tests. **Measurement and Payment**

Pressure and leak testing operations are considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for pressure and leak-testing operations shall be included in the unit prices bid for the various pay items of the Work.

3.12.1 Preparation

Prior to testing, each section of two (2) inch or larger nominal diameter main shall be thoroughly cleaned by forcing an appropriate pig type mechanical cleaner through the pipe a sufficient number of times to remove all foreign matter which may have been trapped inside the pipe during construction. A minimum of two pig runs shall be required. Mains that have a nominal diameter of less than two (2) inches and service lines shall be cleaned by swabbing or by forcing compressed air through the pipe at a sufficient rate such that all foreign matter is removed.

Unless there is no alternative as determined by the Engineer, pressure testing against closed valves will not be allowed.

Each test segment shall be completely backfilled along its entire length prior to testing.

Twenty-four (24) hours prior to commencing any main testing operations, the Contractor shall submit a test schedule to the Engineer for approval.

3.12.2 Procedure

After the pipe has been prepared in accordance with 3.12.1 Preparation, pressure and leak tests shall be performed as specified herein in accordance with 49 CFR 192, Subpart J.

Pressure testing procedures shall not be initiated until at the completion of the manufacturer's recommended cool down time following the completion of the last fused joint.

All pressure tests for mains shall be monitored by means of chart recording devices with an attached pressure gauge located, as directed by the Engineer, along the main(s) or services to be tested. Chart recording devices are not required for the testing of services. The chart recording devices shall be capable of recording the sustained test pressure for the duration of the test. The gauge shall be liquid filled, calibrated in increments of two (2) psi or less, of such size that pressures tested will not register less than 10% or more than 90% of the gauge capacity, and capable of measuring pressures to a minimum of one hundred (125) psig. The Contractor shall provide evidence of recent and accurate calibration of all chart-recording instruments. The date and time of the commencement and completion of the pressure test, the footage of pipe and the size(s) of pipe shall be recorded on the back of the pressure chart, which shall be signed by the Contractor's superintendent and the Engineer. The original test chart shall be submitted to the Engineer for verification.

The City reserves the right to utilize its own test recording apparatuses, on any job at the discretion of the Engineer.

All gas mains and services installed within the distribution system shall be tested at onehundred (100) psig or as directed by the Engineer for the minimum duration specified in the following tables.

TABLE 3.12.2.1
MINIMUM TEST DURATIONS OF MAINS

Pipe Length (feet)	Nominal Pipe Size
0 – 500 feet	1 hour
501 – 1000 feet	2 hours
Over 1000 feet	Additional 1 hour for each additional 1000 feet not to exceed 24 hours total

TABLE 3.12.2.2
MINIMUM TEST DURATIONS OF SERVICES LESS THAN 2”

Pipe Length (feet)	Nominal Pipe Size
0 – 250 feet	15 minutes
Over 250 feet	1 hour

TABLE 3.12.2.3
MINIMUM TEST DURATIONS OF SERVICES 2” AND LARGER

Pipe Length (feet)	Nominal Pipe Size
0 – 500 feet	1 hour
501 – 1000 feet	2 hours
Over 1000 feet	Additional 1 hour for each additional 1000 feet not to exceed 24 hours total

Any variations in the test durations specified in Table 3.12.2.1, Table 3.12.2.2 or Table 3.12.2.3 shall be subject to the approval of the Engineer.

The hourly pressure along with the ambient temperature at the beginning and end of the test shall be recorded for the on the City’s standard form. The date and time of the commencement and completion of the pressure test shall be recorded on the form, which shall be signed by the Contractor’s inspector and submitted to the Engineer for verification.

After correcting for temperature changes, the test shall show no loss of pressure over the duration of the test.

All tie-in welds, fusions and fittings not included in the pressure test shall be leak tested with a foaming leak locating solution after the main or service line has been placed into service.

Any and all breaks, leaks or defects in the pipe, valves and fittings discovered during the pressure and/or foaming leak locating solution tests shall be located, repaired or replaced, and re-tested by the Contractor, at the Contractor’s expense, as directed by the Engineer.

3.13 Purging

Upon the successful completion of the pressure, and after the gas main or each section thereof has been cleaned and approved in every respect to the satisfaction of the Engineer, the Engineer will be notified, and, under their supervision, natural gas will be admitted into the completed mains in sufficient quantities such that all air is purged out of the line(s).

The Contractor shall provide a purging plan to the Engineer for approval.

All purging operations will be done under the direct supervision of the Engineer. The Contractor shall provide a minimum of twenty-four (24) hours’ notice to the Engineer prior to commencing any purging operations.

Under no circumstances shall the Contractor operate any existing valves within the City’s natural gas distribution system.

Smoking and open flames shall be prohibited during purging operations.

Vent gas outdoors and to a safe location away from sources of ignition. Vent gas away from overhead utility lines, building ventilator systems, or other areas where the introduction of gas may create a hazard. Provide fire extinguishers at each vent point.

When feasible, discharge point should be seven (7) feet or more above ground level. Polyethylene pipe shall not be used as a vent pipe because of the danger of ignition from static electricity created by the gas flow. Secure vent line to prevent movement while venting gas. Electrically ground the vent piping to prevent ignition from static electricity, unless there is already electrical continuity between the vent pipe and the ground.

When a reading of 100-percent gas is measured using an approved, calibrated CGI, all valves shall be closed, and gas pressure continuously maintained on the line(s). The CGI shall be provided by the Contractor and operated by qualified personnel.

The City will provide all of the natural gas necessary for the purging operations.

Measurement and Payment

Purging operations are considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for purging operations shall be included in the unit prices bid for the various pay items of the Work.

3.14 Tie-Ins to Existing System

It is the expressed responsibility of the Contractor to connect the Work to existing or previously installed facilities as shown on the Plans or as directed by the Engineer.

The Contractor shall not commence tie-in procedures until the new mains have been cleaned and tested in accordance with 3.12 Pressure and Leak Testing – General.

The Plans describe generalized tie-in procedures and materials. The Contractor shall be aware that additional fittings or alignment changes may be necessary to properly and efficiently complete the tiein operations. The Contractor, at no cost to the City, shall furnish and install the necessary materials required to complete the tie-in as shown on the Plans or as directed by the Engineer.

The Contractor shall prepare as much Work in advance and shall have available the appropriate tapping and squeeze-off equipment necessary for the various fittings shown on the Plans and trained and experienced personnel to operate this equipment. The tie-in operations shall be performed in a sequence as directed by the Engineer. Once started, all Work requiring a shutdown of service must be worked on continuously until all service is restored.

The Contractor shall have available the appropriate squeeze-off tools for plastic pipe. All points on the plastic pipe where the squeeze-off is applied shall be sufficiently marked or have an electrofusion coupling installed to mark the location and to reinforce the pipe.

All tie-in operations, including but not limited to installation of the tie-in fitting and main blow-downs shall be performed under the direct supervision of the Engineer. The Contractor shall provide the Engineer with at least seventy-two (72) hours advance notice prior to initiating tie-in procedures.

Under no circumstances shall the Contractor operate any valves within the existing gas distribution system, or otherwise interrupt or restore gas service to any customer. City personnel shall perform all valve operations and service restorations, as required.

Measurement and Payment

Squeeze off, fused, coupled and welded transition tie-in operations are considered incidental to the Work and will not be measured for payment. The cost of any and all equipment, material and labor required for these tie-in operations shall be included in the unit prices bid for the various pay items of the Work.

Payment for temporary bypass operations required to keep the existing main live during the tie-in operations shall be based upon each complete operation. The unit bid price shall include the cost of any and all equipment, material and labor as required and detailed on the plans for temporary bypass operations, including but not limited to: all necessary tees, piping for the bypass line, and abandonment of bypass facilities upon the completion of the tie-in operation.

3.15 Squeeze-Off Guidelines

Squeeze-off is a technique used to control the flow of gas or liquid in polyethylene pipe by compressing the pipe between parallel bars until the inside surfaces make contact. The Contractor shall adhere to the guidelines contained in the Performance Pipe Technical Note PP 801 –TN, as provided with modifications below, when performing squeeze off operations on polyethylene pipe.

(1) Ensure the tool meets the requirements of ASTM F1563 and that it is square to the pipe with the squeeze off plates parallel to each other.
(2) A thorough inspection of the pipe for cuts, scrapes, gouges or anomalies should be made before placing of the squeeze off tool.
(3) Locate the squeeze off tool a minimum of 3x the pipe diameter, or 12 inches, whichever is greater, from any fusion joint, mechanical connection, prior squeeze off point, or second squeeze off tool.
(4) Compress the pipe at a slow rate to allow stress relaxation in the pipe. ASTM F1041 recommends a maximum compression rate of 2ipm. For example, it should take no less than 2.25 minutes to fully compress 4” IPS pipe (4.5inch/2ipm).
(5) Do not over-squeeze the pipe. The squeeze off tool should contain stops that limit the squeeze to 70% of twice the maximum wall thickness as described in ASTM F1563.

(6) When removing the squeeze off tool it is critical to release the squeeze very slowly. ASTM F1041 recommends that the release rate not exceed 0.5ipm. For example, it should take no less than 9 minutes to fully release 4” IPS pipe (4.5inch/0.5ipm).
(7) After the squeeze off tool has been removed, the pipe should be closely inspected for any signs of damage. Any pipe suspected of damage during a squeeze off should be replaced or removed from service.
(8) Cold weather increases the pipe’s susceptibility to damage. Compression and release times should increase in cold weather.
(9) Do not squeeze off the pipe in the same place more than once. A single squeeze off includes the operation to stop or reduce the flow of gas and the re-rounding of the pipe. Do not squeeze on pipe sections containing deep scratches (>10% of pipe wall thickness).
(10) If the installer or operator does not follow the approved procedure during a squeeze off, such as what might occur in an emergency, presume the pipe damaged and replace or remove from service.

During squeeze-off operations, the velocity of the gas flowing through the flattened section of pipe increases. This increases the rate and amount of static charge build-up. In addition to the potential for pipe damage due to static discharge, the buildup of a static charge represents an explosion hazard. Where there is a flammable or combustible environment in conjunction with static charges, arc preventing safety precautions are necessary. Grounding procedures in accordance with 3.3.2 Control of Static Electricity on Polyethylene Pipe shall be used during all squeeze-off operations.

CITY OF ROCKY MOUNT PUBLIC UTILITIES
NATURAL GAS DIVISION

BID PROPOSAL

NATURAL GAS SYSTEM
ANNUAL LABOR CONTRACT FY26

The undersigned, as Bidder, hereby declares that He, or He and His associates are the only person or persons interested in the proposal as principal or principals; that this proposal is made without connection with any other person, company, or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud.

The Bidder further declares that he has examined the site of the Work and informed himself fully in regard to all conditions pertaining to the place where the Work is to be done; that he has examined the Specifications for the Work and all contractual documents relative thereto, and has read all special provisions furnished prior to the bid opening; that he has satisfied himself relative to the work to be performed, and materials and equipment to be furnished.

The Bidder proposes and agrees, if this proposal is accepted, to contract with the City of Rocky Mount, North Carolina in the form of contract specified, to furnish all materials as described in the Contract documents, equipment, machinery, tools, apparatus, means of transportation, and labor necessary to perform in full and complete the requirements of the Specifications and Contract Documents, to the full and entire satisfaction of the City of Rocky Mount, North Carolina with definite understanding that no money will be allowed for extra work except as set forth in the attached Contract Documents, for the unit prices set opposite the items that follow.

Final payment shall be made for the measured quantities at the Unit Prices listed below. All items necessary to complete the installations as described in the Contract Documents shall be included in the Unit Prices listed below and no other claim shall be made for payment. The Unit Prices shall include all required sales tax, freight charges, and all other applicable taxes and fees. The Contractor is to understand that the estimated quantities of the Work are for Bid analysis purposes only.

Unit of Measure Legend

LF = linear foot	FT/LF = foot (depth) per linear foot
SF = square foot	TON = ton
CY= cubic yard	EACH = each

BID PROPOSAL

The Contractor shall provide unit prices for the installation of natural gas facilities as described in the Specifications.

ITEM #	DESCRIPTION OF WORK	UNITS	ESTIMATED QUANTITY	UNIT PRICE	EXTENDED PRICE
	PIPE				
1.0	Install polyethylene gas mains by direct burial or plow				
1.1	10” nominal diameter	LF	2,500	$	$
1.2	8” nominal diameter	LF	1,000	$	$
1.3	6” nominal diameter	LF	10,000	$	$
1.4	4” nominal diameter	LF	1,500	$	$
1.5	2” nominal diameter	LF	5,000	$	$
2.0	Install polyethylene gas mains by directional drill				
2.1	10” nominal diameter	LF	250	$	$
2.2	8” nominal diameter	LF	500	$	$
2.3	6” nominal diameter	LF	500	$	$
2.4	4” nominal diameter	LF	1,000	$	$
2.5	2” nominal diameter	LF	1,500	$	$
	VALVES				

3.0	Install polyethylene gas valves & valve boxes				
3.1	10” nominal diameter	EACH	15	$	$
3.2	8” nominal diameter	EACH	5	$	$
3.3	6” nominal diameter	EACH	25	$	$
3.4	4” nominal diameter	EACH	8	$	$
3.5	2” nominal diameter	EACH	20	$	$
ITEM #	**DESCRIPTION OF WORK**	**UNITS**	**ESTIMATED QUANTITY**	**UNIT PRICE**	**EXTENDED PRICE**
		CUSTOMER SERVICES			
4.0	Install polyethylene gas service lines by direct burial or plow				
4.1	2” nominal diameter	LF	500	$	$
4.2	3/4” nominal diameter	LF	2,000	$	$
5.0	Install polyethylene gas mains by directional drill				
5.1	2” nominal diameter	LF	500	$	$
5.2	3/4” nominal diameter	LF	2,000	$	$
6.0	Install polyethylene gas service line tie-over for existing polyethylene service line				

6.1	2” nominal diameter	EA	25	$	$
6.2	1-1/4” nominal diameter	EA	5	$	$
6.3	3/4” nominal diameter	EA	70	$	$
	MISCELLANEOUS FACILITIES				
7.0	Install and complete bottom-out hot tap fitting				
7.1	8” bottom out	EACH	2	$	$
7.2	6” bottom out	EACH	2	$	$
	EROSION AND SEDIMENT CONTROL				
8.0	Provide and install erosion and sediment control measures				
8.1	Temporary stone construction entrance	EACH	4	$	$
8.2	Sediment (silt) fencing	LF	500	$	$
8.4	Stone riprap	TON	15	$	$
8.5	Soil stabilization mats	SQ. FT	1000	$	$
	REMOVAL AND RESTORATION				
9.0	Sand placement – Owner provided	TON	15	$	$
10.0	Stone for driveway placement – Owner provided	TON	30	$	$

ITEM #	CLASSIFICATION	UNITS	ESTIMATED QUANTITY	UNIT PRICE	EXTENDED PRICE
		FORCE ACCOUNT – LABOR			
1.0	Foreman	HOURLY	80	$	$
2.0	Welder	HOURLY	20	$	$
3.0	Equipment Operator	HOURLY	40	$	$
4.0	Dump Truck Drive	HOURLY	40	$	$
5.0	Laborer	HOURLY	240	$	$

ITEM #	EQUIPMENT TYPE	UNITS	ESTIMATED QUANTITY	UNIT PRICE	EXTENDED PRICE
		FORCE ACCOUNT – EQUIPMENT			
1.0	Backhoe	HOURLY	30	$	$
2.0	Dump truck	HOURLY	30	$	$
3.0	Welding rig	HOURLY	20	$	$
4.0	Directional drill	HOURLY	40	$	$
5.0	Pickup truck	HOURLY	240	$	$
6.0	Crew truck	HOURLY	240	$	$
7.0	Skid steer	HOURLY	20	$	$

8.0	Trenching machine	HOURLY	60	$	$
9.0	Plow – walk behind	HOURLY	20	$	$
10.0	Electrofusion equipment	HOURLY	40	$	$
11.0	Air compressor	HOURLY	30	$	$
ITEM #	**EQUIPMENT TYPE**	**UNITS**	**ESTIMATED QUANTITY**	**UNIT PRICE**	**EXTENDED PRICE**
12.0	Tamp	HOURLY	20	$	$
13.0	Pump	HOURLY	20	$	$
14.0	Asphalt/concrete saw	HOURLY	20	$	$
15.0	Piercing tool (boring)	HOURLY	40	$	$

Our total bid price for the Work as described in these Contract Documents is:
dollars ($).

In submitting the above bids, We represent and warrant that the prices for all items listed above represent Our proposal and bid for the Work herein described.

We understand that the execution of this Proposal Contract does not limit the Owner in the use of Its own construction crews or construction crews of one or more other Contractors in the area covered by this Contract.

The Bidder further agrees that:

a) The City, in protecting its best interest, reserves the right to reject any or all bids or waive any defects in favor of the City. Any changes, erasures, deletions in the unit prices above, modifications in the bid form, or alternate proposals not specified in the bid proposal shall make the proposal irregular and subject to rejection;

b) In case of failure on his part to execute the said agreement within ten (10) consecutive calendar days after written notice being given on the award of the Contract, the monies payable by the Securities accompanying this bid shall be paid to the City of Rocky Mount, North Carolina, as liquidated damages for such failure; otherwise, the Securities accompanying this bid shall be returned to the undersigned;

c) That the Work under this Contract will commence not later than ten (10) consecutive calendar days after the date of a written “Notice to Proceed” given by the City to the Contractor.

Enclosed herewith is the following Security, offered as evidence that the undersigned will enter into agreement for the execution and completion of the Work in accordance with the Plans and Specifications.

Bidder's Bond or Certified Check in the amount of $_____.

If Bond, Name of Surety: . _____

If Check, Name of _____ Bank: .

This bid is subject to acceptance within a period of sixty (60) days from the date of this bid proposal.

The undersigned Bidder acknowledges receipt of the following Addenda, which have been considered in preparation of this Bid:

No. _____ Dated _____

No. _____ Dated _____

No. _____ Dated _____

No. _____ Dated _____

CONTRACTOR: _____ SIGNATURE: _____

ADDRESS: _____ SIGNATURE: _____
(printed)

_____

_____ TITLE: _____

DATE: _____ PHONE: _____

FEDERAL TAX ID #: _____ FAX #: _____

EMAIL _____ :

BID BOND

KNOW ALL MEN BY THESE PRESENTS, That we _____

_____,

as Principal; and as Surety, are hereby held and firmly bound unto CITY OF ROCKY MOUNT, NORTH CAROLINA, hereinafter called the Obligee, in the penal sum of _ Dollars ($___), lawful money of the United States of America, for payment of which well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns SIGNED, SEALED, and dated this _ day of _,

20_____.

WHEREAS, the Principal is herewith submitting a proposal for _____

___ and the Principal desires to file the Bid Bond in lieu of accompanying his proposal with the cash deposit as required in the Contract Documents.

NOW THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION is such that if the Principal shall be awarded the Contract for which the bid is submitted and shall execute the Contract and give bond for the faithful performance thereof within ten days after the award of the same to the Principal, then this obligation shall be null and void, but if the Principal fails to so execute such Contract and give performance bond as required elsewhere in these Contract Documents, the Surety shall, upon demand, forthwith pay to the Obligee the amount set forth in the first paragraph hereof, and upon failure to forthwith make such payments, the Surety shall pay the Obligee an amount equal to double the amount of this bid as set forth in the first paragraph hereof.

(Seal if incorporated)

_____

(Principal)

_____

(Business Address)

_____ BY: _____

(Witness) (Signature of Company Official)

_____

(Relationship to Company)

(Seal if incorporated) _____

(Surety)

_____

(Business Address)

_____ BY: _____

(Signature of Company Official)

_____

(Relationship to Company)

CITY OF ROCKY MOUNT
ROCKY MOUNT, NORTH CAROLINA NATURAL GAS SYSTEM
ANNUAL LABOR CONTRACT FY26

NON-COLLUSION AFFIDAVIT

STATE OF _____

COUNTY OF _____

The undersigned being first duly sworn as provided by law, deposes and says:

1. His name is _____

   And he resides at _____

   And his office is at _____

2. He makes this affidavit with the knowledge and intent that it is to be filed with the City of Rocky Mount, North Carolina, and that it will be relied upon by said City in any consideration which it may give to and any action which it may take with respect to this proposal.

3. He makes and is authorized to make this affidavit on behalf of:

   _____
   (Name of Corporation, Partnership, Individual, etc.)

   A formed under

   the laws of _____
   (State)

   Which he is the _____
   (Sole Owner, Partner, President, etc.)

---

4. Neither the undersigned nor any other person, firm, or corporation, named in the above paragraph 3 nor anyone else to the knowledge of the undersigned, have themselves solicited or employed anyone else to solicit favorable action for this proposal by the City of Rocky Mount, North Carolina; also, that no head of any department or employee therein, or any officer of the City is directly or indirectly interested therein.

5. That the undersigned certifies in connection with this bid or proposal that:

A. The price of this bid or proposal has been independently arrived at without collusion with any other bidder or offeror or with any competitor.

B. Unless otherwise required by law, the price in this bid or proposal has not been knowingly disclosed and will not be knowingly disclosed prior to opening, in the case of a bid, or prior to award, in the case of a proposal, directly or indirectly to any other bidder or to any competitor; and

C. No attempt has been or will be made to induce any other person or firm to submit or not to submit a bid or proposal.

6. The affiant certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification.

_____

(Affiant)

Sworn to before me and subscribed in my presence this

_____ day of _____ _____ , 20 .

(Notarial Seal)

_____

(Notary Public)

ROCKY MOUNT
FINANCE
THE CENTER OF IT ALL

REFERENCES

Vendors shall provide at least three (3) different references for which your company has provided Services of similar size and scope to that proposed herein. The City of Rocky Mount shall contact these users to determine the Services provided are substantially similar in scope to those proposed herein and Contractor's performance has been satisfactory. The information obtained shall be considered in the evaluation of the quote. If City of Rocky Mount references is provided it cannot be counted towards your three (3) required references but may be included in addition to.

COMPANY NAME	CONTACT NAME	COMPANY EMAIL	TELEPHONE NUMBER
Optional: City of Rocky Mount			

MINORITY BUSINESS PARTICIPATION

The Bidder has the responsibility to make a good faith effort to solicit minority proposals and to attain the aspirational ten percent (10%) goal. We encourage all Bidders even MWBE/HUBs to obtain the aspirational goal where subcontracting and supplier opportunities exist. Use the table below to note the MWBE businesses that will be used as suppliers or subcontractors for this contract.

MWBE FIRM	OWNERSHIP STATUS	ADDRESS	WORK TYPE

If the goal of 10% participation by HUB Certified or minority businesses is not achieved, the Bidder shall provide the following documentation to the City of his/her good faith efforts:

Examples of documentation that may be required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

a) Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.

b) Copies of quotes or responses received from each MWBE responding to the solicitation.

c) A telephone log of follow-up calls to each firm sent a solicitation.

d) For subcontracts where a minority business is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.

e) Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.

f) Copy of pre-bid roster

g) Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.

h) Letter detailing reasons for rejection of minority business.

i) Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in a non-responsive bid.

ROCKY MOUNT
FINANCE
THE CENTER OF IT ALL

Request for Proposal # 320-041125AG Re-Bid

For purchasing division processing, please provide your company's Federal Employer Identification Number or alternate identification number (e.g. Social Security Number). Pursuant to North Carolina General Statute 132-1.10(b) this identification number shall not be released to the public. **This page will be removed and shredded, or otherwise kept confidential**, before the procurement file is made available for public inspection.

This page is to be filled out and returned with your bid.
Failure to do so may subject your bid to rejection.

ID Number:

Federal ID Number or Social Security Number

Vendor Name

"All bidders are hereby notified that they must have the proper license as required under the North Carolina laws. All prospective contractors shall be responsible for complying with state law and local ordinances."

City of Rocky Mount
ENERGY RESOURCES

Refer ALL Inquiries regarding this RFP to: Alicia Gaines Purchasing Associate III	Request for Proposal # 320-041125AG Re-Bid Proposals due date: 1/6/2026 2:00 pm **Contract Type:** Service

EXECUTION

In compliance with this Request for Quote, and subject to all the conditions herein, the undersigned Vendor offers and agrees to furnish and deliver any or all items upon which prices are quoted, at the prices set opposite each item within the time specified herein. By executing this quote, the undersigned Vendor certifies that this quote is submitted competitively and without collusion (G.S. 143-54), that none of its officers, directors, or owners of an unincorporated business entity has been convicted of any violations of Chapter 78A of the General Statutes, the Securities Act of 1933, or the Securities Exchange Act of 1934 (G.S. 14359.2), and that it is not an ineligible Vendor as set forth in G.S. 143-59.1. False certification is a Class I felony. Furthermore, by executing this quote, the undersigned certifies to the best of Vendor's knowledge and belief, that it and its principals are not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any Federal or State department or City department. As required by G.S. 143-48.5, the undersigned Vendor certifies that it, and each of its sub-contractors for any Contract awarded as a result of this RFQ, complies with the requirements of Article 2 of Chapter 64 of the NC General Statutes, including the requirement for each employer with more than 25 employees in North Carolina to verify the work authorization of its employees through the federal E-Verify system. G.S. 133-32 and Executive Order 24 (2009) prohibit the offer to, or acceptance by, any City Employee associated with the preparing plans, specifications, estimates for public Contract; or awarding or administering public Contracts; or inspecting or supervising delivery of the public Contract of any gift from anyone with a Contract with the City , or from any person seeking to do business with the City . By execution of any response in this quote, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization. **Do you have a financial interest or tangible personal benefit with a city of Rocky Mount employee, officer, or agent? ____ Yes ____ No If yes note the employee, officer, or agent; department; and the perceived or actual conflict of interest.**

_____

Failure to execute/sign quote prior to submittal shall render quote invalid and it WILL BE REJECTED. Late quotes cannot be accepted.

VENDOR:			
STREET ADDRESS:		P.O. BOX:	ZIP:
CITY & STATE & ZIP:		TELEPHONE NUMBER:	TOLL FREE TEL. NO:
PRINCIPAL PLACE OF BUSINESS ADDRESS IF DIFFERENT FROM ABOVE (SEE INSTRUCTIONS TO VENDORS ITEM #11):			
PRINT NAME & TITLE OF PERSON SIGNING ON BEHALF OF VENDOR:		FAX NUMBER:	
VENDOR'S AUTHORIZED SIGNATURE:	**DATE:**	EMAIL:	

Offer valid for at least 60 days from date of quote opening, unless otherwise stated here: _____ days.

ACCEPTANCE OF PROPOSAL

If any or all parts of this quote are accepted by the City of Rocky Mount, an authorized representative of the City of Rocky Mount shall affix his/her signature hereto and this document and all provisions of this Request for Quote along with the Vendor response and the written results of any negotiations shall then constitute the written agreement between the parties. A copy of this acceptance will be forwarded to the successful Vendor(s).

FOR CITY USE ONLY: Offer accept, and Contract awarded this _____ day of _____, 20___ as indicated on the attached certification, by _____Purchasing Manager.

PRE-AUDIT: This instrument has been preaudited in the manner required by the Budget and Fiscal Control Act.

_____

Finance Director Date

ROCKY MOUNT
FINANCE
THE CENTER OF IT ALL

ACCEPTANCE OF GENERAL TERMS & CONDITIONS

Review Terms and Conditions: General at ***https://www.rockymountnc.gov/316/Vendor-Registration*** Terms and conditions on the vendor webpage that do not apply to this bid: Federal UG Terms, FEMA Contract Provisions, Sample Contract Terms.

- ☐ Check here to indicate that you have read and agree to the City of Rocky Mount General Terms & Conditions.

STATE OF _____

AFFIDAVIT

COUNTY OF _____

****

I, _____ (*the individual attesting below*), being duly authorized by and on behalf of_(the entity bidding on project hereinafter "Employer") after first being duly sworn hereby swears or affirms as follows:

1. Employer understands that **E-Verify** is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hires employees pursuant to federal law in accordance with NCGS 64-25(5).
2. Employer understands that Employers Must Use E-Verify. Each employer, after hiring an employee to work in the United States, shall verify the work authorization of the employee through E-Verify in accordance with NCSG 64-25(a).
3. Employer is a person, business entity, or other organization that transacts business in this State and that employs 25 or more employees in this State. **(Mark Yes or No)**
    a. YES___, or
    b. NO _____
4. Employer's subcontractors comply with E-Verify, and if Employer is the winning bidder on this project Employer will ensure compliance with E-Verify by any subcontractors subsequently hired by Employer.

This_____day of_____, 20_____.

Signature of Affiant

Print or Type Name:

State of County of

Signed and sworn to (or affirmed) before me, this the

day of , 20

My Commission Expires:

Notary Public (Affix Official/Notarial Seal)

ROCKY MOUNT, NC
THE CENTER OF IT ALL

City of Rocky Mount
Certification Regarding Debarment and Suspension

Contracts for construction or services shall comply with the provisions of 43 CFR Part 12, Subpart C (Uniform Administrative Requirements for Grants and Cooperative Agreements with State and Local Governments). In order to comply with this provision, no contract may be awarded by the grantee (City of Rocky Mount), a subgrantee or contractor of any grantee or subgrantee to any party that has been debarred or suspended under Executive Order 12549. By signing this document, you certify to the best of your knowledge that the company, its principals, and its subcontractors which may be awarded a contract with the City of Rocky Mount:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or criminal offence in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission or embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statement, or receiving stolen property;
(c) Are not presently indicted for or otherwise criminally charged by a governmental entity (Federal, State, or local) with commission of any of the offenses in paragraph (b) of this certification; and
(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

BY_____ **DATE**_____
(Signature of Owner or Authorized Representative)

_____ _____
(Company Name) (Name/Location of Project)

NORTH CAROLINA CONTRACT

NASH COUNTY

THIS AGREEMENT, made and entered into this day of _____, between the CITY OF ROCKY MOUNT, NORTH CAROLINA, hereinafter called the Owner, party of the first part, and _____, hereinafter called the Contractor, party of the second part.

WITNESSETH:

ITEM 1. That for and in consideration of the payment and agreements to be made and performed by the said party of the first part, and under penalty expressed in the bond bearing even date with these presents and herein annexed, the said party of the second part, at its (or his) own proper cost and expense, and with skill and diligence will do all the Work and furnish all equipment and do all things necessary to adhere to the NATURAL GAS SYSTEM ANNUAL LABOR CONTRACT for the CITY OF ROCKY MOUNT, NORTH CAROLINA as set out in the Specifications, Proposal, and General Conditions for the Contract and other documents attached.

ITEM 2. It is agreed and understood between the parties hereto that the Contractor will accept and the Owner will pay for the Work at the unit price stipulated in the Proposal, and the payment shall be made at the time and in the manner set forth in the Specifications. These items refer directly to the Proposal and only such items of work as are listed shall be performed and paid for under this contract.

ITEM 3. That the Work is to be commenced not later than ten (10) days upon receipt of NOTICE TO PROCEED and will be diligently prosecuted to completion within the agreed upon time period for each individual project. For each calendar day that any Work (including final clean-up except when specifically excluded) shall remain uncompleted after the end of the period stipulated, the Contractor will be assessed $500.00 per calendar day for liquidated damages.

ITEM 4. That the Owner will require full release of all claims for materials or labor furnished for this Work, prior to the final payment.

ITEM 5. That the Contractor shall deliver to the Owner at the time of signing this contract a performance and payment bond and certificates of insurance covering the public liability and Workmen’s Compensation Insurance, saving Owner harm from accidents of all kinds, all acceptable to the Owner.

ITEM 6. That the term “Materials” as used herein include, in addition to materials incorporated in the project, such materials as are used or are to be used in the operation thereof including equipment, and such other materials as may be used and/or consumed in the Work.

ITEM 7. That the Contractor shall be responsible for all fees or claims for any patented invention used by him, whether it be in equipment, materials, or machinery, and shall defend any suit that may be brought against the Owner, and

shall hold said Owner harmless for use or infringement of any patented thing or method used in connection with the Work.

ITEM 8. Equal Opportunity Employer. The nondiscrimination clause contained in Section 202 Executive Order 11246, as amended by Execution Order 11375, relative to Race, Color, Religion, Sex or National Origin, and the implementing rules and regulations prescribed by the Secretary of Labor, are incorporated herein.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized officers as of the day first above written in three (3) counterparts, each of which shall, without proof or accounting for the other counterparts, be deemed as an original agreement.

CONTRACTOR

_____ _____

Print Name & Title Authorized Signature

ATTEST:

_____ _____

Secretary Name Signature

CITY OF ROCKY MOUNT

_____

City Mayor

ATTEST:

_____

City Clerk

PRE-AUDIT

This instrument has been preaudited in the manner required by the Budget and Fiscal Control Act.

_____ _____

Finance Director Date

PERFORMANCE AND PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, the undersigned _ as principal, and __
a Corporation duly authorize to transact business in the State of North Carolina, as surety, are held and firmly bound unto the _ existing under the laws of the State of North Carolina and hereinafter called the
Obligee, in the penal sum of _____
($_) Dollars, lawful money of the United States for the payment of which well and truly to be made, the said principal and the said surety do hereby bind ourselves, our heirs, executors, administrators, and assigns, jointly and severally, by these presents, as follows:

The Condition of this obligation is such that; whereas _____
_____
_____ by an instrument in writing attached hereto and bearing date of ___ has agreed with said Obligee to furnish all equipment and do all work necessary and to furnish labor and equipment to construct ___
_____
_____,
as shown on Plans and specified thereby and in the Specifications, Proposal, and other Contract Documents hereto attached.

NOW THEREFORE, if said _____
_____
shall well and truly in good, sufficient, and workmanlike manner and to the satisfaction of the Obligee perform and complete the work required, and shall defend, indemnify, and save harmless said Obligee against all damages, claims, demands, expense, and charge of every kind (including claims of patent infringement) arising out of injury or damage to persons or property by reason of said agreement and the work thereunder required of (It-Him) or arising from any act, omission, or neglect of said, his agents, servants, or employees with relation to said work; and shall pay all costs, charges, rentals, and expenses for labor, materials, supplies, and equipment, and deliver the said to the Obligee completed and ready for occupancy or operations, and free from all liens,

encumbrances, or claims for labor, material, or otherwise; and shall pay, all other expenses lawfully chargeable to the Obligee by reason of any default or neglect of the said __

_____

_____

in the relation of said agreement and said work then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED FURTHER, that the said surety for value received hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract, or the work to be performed thereunder, or the specifications accompanying the same, shall in any way affect its obligation on this bond and it does hereby waive notice of any change, extension of time, alteration, or addition to the terms of the contract, or the work or to the specifications.

PROVIDED FURTHER, that if the Contractor, or his, their, or its subcontractor or subcontractors fail to duly pay for any labor, material, team hire, sustenance, provisions, provender, or any other supplies or materials used or consumed by such Contractor or his, their or its subcontractors in performance of work contracted to be done, the Surety will pay the same in any amount not exceeding the sum specified in the bond, together with interest as provided by law.

IN WITNESS WHEREOF: Said principal and surety have hereunto set their hands and seals at:_, this _ day of ___, A.D., 20_.

(SEAL) _____

(Contractor)

_____

_____

_____

(Address)

WITNESS:

_____ _____

(Name of Person Executing)

(SEAL)

_____ _____

(Title) (Surety)

_____ _____

(Title) (Address)

APPROVED AS TO FORM:

_____

(Attorney for Owner)