



TOWN OF DENTON, MARYLAND VISITOR CENTER WATER MAIN EXTENSION

GMB PROJECT No. 250044

May 2026

GMB

GEORGE, MILES & BUHR, LLC

ARCHITECTS/ENGINEERS

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SALISBURY/BALTIMORE/SEAFORD



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DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

SECTION 00010

ADVERTISEMENT FOR BIDS VISITOR CENTER WATER MAIN EXTENSION

DENTON, MARYLAND

Sealed bids will be received by TOWN OF DENTON (herein called the "OWNER") at the Denton Town Office located at 4 N. Second Street, Denton, MD 21629, until 10:00 A.M. local time on June 26, 2026. The bids will be opened at the Denton Town Office which will be publicly read out loud. Opening Friday, June 26, 2026 at 10:01 A.M.

The work includes but is not limited to constructing, complete with all equipment and accessories, the following: new water main piping, valves, fittings, and appurtenances, erosion and sediment control measures, traffic control measures, and site restoration and paving. The work shall be completed in strict conformity with the Contract Documents.

Contract Documents may be obtained from the Town of Denton website: <https://dentonmaryland.com/news/requests-for-proposals-rfps/> or by calling the Town of Denton office at (410) 479-3625.

The Contractor shall have a minimum of three (3) years of experience performing construction work of a similar nature.

The successful bidder must agree to commence work on or before a date specified in a written Notice to Proceed from the Owner to be issued after Town Council approval of the recommended contractor, and to substantially complete the project by December 31, 2026.

Bidders shall visit the site before submitting a bid for this work and thoroughly familiarize themselves as to the accuracy and correctness of the same.

No Bidder may withdraw his bid within sixty (60) days after the actual date of the opening thereof.

Each Bid must be accompanied by a Bid Bond payable to the Owner for five (5) percent of the total amount of the bid.

A recommended pre-bid meeting will be held at the Wharves of Choptank J.O.K. Walsh Visitor & Heritage Center (3 Crouse Park Lane, Denton, MD 21629) on Wednesday, June 10, 2026 at 10:00 A.M. to allow Bidders an opportunity to obtain information on the project from the Owner.

The TOWN OF DENTON hereby notifies all bidders that in regard to any contract entered into pursuant to this advertisement; bidders will be afforded full opportunity to submit bids in response to this notice and will not be subjected to discrimination on the basis of race, color, sex or national origin in consideration for an award.

The Contractor, in performing the work furnished by this contract or furnishing the services provided herein, shall not discriminate against any person seeking employment with or employed by him because of race, creed, color or national origin.

The Town reserves the right to reject any and all bids, waive formalities, informalities and technicalities therein, and to take whatever bid they determine to be in the best interest of the Town considering the lowest or best bid, quality of goods and work, time of delivery or completion, responsibility of bidders being considered, previous experience of bidders, or any other factors they deem appropriate.

TOWN OF DENTON is Tax Exempt and will require W9 and tax/business related information.

Davis-Bacon Prevailing Wage Rates and Regulations apply to this project. The CONTRACTOR specifically agrees to conform to all provisions of the prevailing Federal wage rates under Davis-Bacon and associated applicable requirements.

For more information and/or a bid packet, please contact Katie Northam at knortham@dentonmaryland.com.

*** END OF SECTION ***

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

SECTION 00015

BID SCHEDULE VISITOR CENTER WATER MAIN EXTENSION

| <u>Date</u> | <u>Step</u> |
|---------------|--|
| May 27, 2026 | RFP Available / Begin Advertising |
| May 27, 2026 | Mail Bid Proposals to Firms on File |
| June 3, 2026 | Newspaper Advertisement |
| June 10, 2026 | Pre-Bid Meeting – 10:00 A.M. |
| June 17, 2026 | Deadline for Questions – 4:00 P.M. |
| June 22, 2026 | Final Addendum Issued |
| June 26, 2026 | Final Bid Acceptance – 10:00 A.M. |
| June 26, 2026 | Open Bids (public) – 10:01 A.M. |
| June 26, 2026 | Begin Bid Review / Selection Process |
| July 2, 2026 | Tentative Date for Award by Town Council |

*** END OF SECTION ***

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

SECTION 00100

INSTRUCTIONS TO BIDDERS

BIDS will be received by the TOWN OF DENTON (herein called the "OWNER") at the Denton Town Office located at 4 N. Second Street, Denton, MD 21629, until 10:00 A.M. local time on June 26, 2026. The bids will be opened at the Denton Town Office which will be publicly read out loud. Opening Friday, June 26, 2026 at 10:01 A.M.

The work includes but is not limited to constructing, complete with all equipment and accessories, the following: new water main piping, valves, fittings, and appurtenances, erosion and sediment control measures, traffic control measures, and site restoration and paving in Denton, Maryland.

BIDDERS are advised that the work is to be accomplished on a lump sum basis and all work shown on the Contract Drawings and specified herein shall be included in the prices BID unless otherwise specifically defined.

Each BID must be submitted in a sealed envelope, addressed to the TOWN OF DENTON at 4 N. Second Street, Denton, MD 21629. Each sealed envelope containing a bid must be plainly marked on the outside as VISITOR CENTER WATER LINE EXTENSION and the envelope should bear on the outside the name of the BIDDER, his address, and his Contractor's license number. BIDDER shall include a copy of his license with the completed bid form. If sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope, with the notation "**SEALED BID ENCLOSED**" on the face thereof. Any BID received after the time and date specified may not be considered.

Bids will not be accepted at any other location. The Town of Denton will not be responsible for any bids delivered to any location other than the Denton Town Office.

BIDDERS are cautioned that bids mailed or shipped express to arrive the day of the bid opening must arrive no later than 10:00 A.M. on the date specified. Please check your method of delivery to see if they confirm to this schedule.

All BIDS must be made on the BID form supplied by the Owner. All blank spaces for BID prices must be filled in, in ink or typewritten, and the BID form must be fully completed and executed when submitted. One copy of the BID form is required. Any interlineation, alteration, or erasure on the BID form must be initialed by the signer of the BID. Each copy of the BID shall be signed by the person or persons legally authorized to bind the BIDDER to a contract, using the legal name of the signer. A BID submitted by an agent shall have a current Power of Attorney attached certifying the agent's authority to bind the BIDDER.

BIDDERS shall supply all information and submittals required by the bid documents to constitute a proper and responsive BID. Any ambiguity in any BID as a result of omission, error, lack of clarity or noncompliance by the BIDDER with specifications, instructions, and/or all conditions of bidding shall be construed in the light most favorable to the Owner.

The OWNER may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. No BIDDER may withdraw a BID within 60 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

A BIDDER for a public construction contract, other than a contract for construction or maintenance of public highways, may withdraw his bid from consideration if the price bid was substantially lower than the other bids due solely to a mistake therein, provided the bid was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional arithmetic error or an unintentional omission of a quantity of work, labor or material made directly in the compilation of a bid, which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of original work papers, documents and materials used in the preparation of the bid sought to be withdrawn. The procedure for withdrawal of bid due to error is as follows:

The BIDDER shall give notice in writing of his claim of right to withdraw his BID within two business days after the conclusion of the BID opening procedure and shall submit original work papers with such notice.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities by examination of the site and a review of the Drawings and Specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

Unless otherwise specified, the contract shall be awarded to the lowest **responsible** and **responsive** BIDDER complying with the provisions of the BID documents, provided the BID price is reasonable, does not exceed the funds available, and is in the best interest of the Owner. The Owner reserves the right to reject the BID of any BIDDER who has failed to perform properly in any way or to complete on time contracts previously awarded, or a BID from any BIDDER who investigation shows is not in a position to perform the contract.

In determining a BIDDER's responsibility, the Owner may consider the following in addition to price: the BIDDER's ability, capacity, and skill to provide the goods and/or services required within the specified time; the BIDDER's ability to provide needed maintenance and service; the character, integrity, reputation, experience, and efficiency of BIDDER; the quality of BIDDER's performance of previous and/or existing contracts; whether the BIDDER is in arrears to the Owner, in debt on a contract, or in default on any surety.

In determining a BIDDER's responsiveness, the Owner shall consider whether the BID conforms in all material respects to the BID documents. The Owner reserves the right to waive any irregularities.

Each BIDDER shall be prepared to supply evidence of his qualifications and capacity to perform work as proposed. Items which may be considered evidence are as follows: a current financial statement; a list of current and past similar contracts; an explanation of methods to be used in fulfilling this contract; a statement of current work load and/or capacity. Additional particular items may be requested as needed by the Owner. All qualifications shall be received within ten (10) days of request by the Owner.

The Owner reserves the right to reject any and all BIDS, to accept any BID in whole or in part, to add or delete quantities, to waive any informalities in BIDS received, to reject a BID not accompanied by any required BID security or other data required by BIDDING documents, and to accept or reject any BID which deviates from specifications when in the best interest of the Owner.

The successful BIDDER's local personal property taxes must be on a current basis. If any such taxes are delinquent, they must be paid before award of contract. Failure to pay will result in the award of the BID to another firm.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve him from fulfilling any of the conditions of the contract.

Each BID must be accompanied by a BID BOND payable to the OWNER for five (5) percent of the total amount of the BID. When the Agreement is executed the bonds of the unsuccessful BIDDERS will be returned, upon request. The BID BOND of the successful BIDDER will be retained until the performance BOND and payment BOND has been executed and approved, after which it will be returned, upon request. A certified check may be used in lieu of a BID BOND.

A performance BOND and payment BOND in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the Contract.

Attorneys-in-fact who sign BID BONDS or performance BONDS must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the Contract is awarded will be required to execute the Agreement and obtain the performance BOND and payment BOND within ten (10) calendar days from the date when NOTICE OF AWARD is delivered to the BIDDER. THE NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may at his option consider the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER shall sign the Agreement and return to such party an executed duplicate of the Agreement within ten (10) days of receipt of acceptable performance BOND and payment BOND, and Agreement signed by the party to whom the Agreement was awarded. Should the OWNER not execute the Agreement within such period, the BIDDER may by WRITTEN NOTICE withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

The NOTICE TO PROCEED shall be issued within ten (10) days of the execution of the Agreement by the OWNER. Should there be reason why the NOTICE TO PROCEED cannot be issued within such period, the time may be extended by mutual agreement between the OWNER and CONTRACTOR. If the NOTICE TO PROCEED has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

The OWNER may make such investigations as he deems necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the

right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Agreement and to complete the WORK contemplated therein. A conditional or qualified BID will not be accepted.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the contract throughout.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from any obligation in respect to his BID.

The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when requested to do so by the OWNER.

The BIDDER certifies that his/her bid is made without any previous understanding, agreement, or connection with any person, firm, or corporation making a bid for the same project; without prior knowledge of competitive prices; and is in all respects fair, without outside control, collusion, fraud, or otherwise illegal action.

Prices quoted to the Owner are not to include Federal or State taxes. The Owner is tax exempt and will so certify upon request.

The ENGINEER is George, Miles & Buhr LLC, 954 Ridgebrook Road, Sparks, Maryland 21152, Phone 410-329-5005.

*** END OF SECTION ***

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

SECTION 00200

BID FORM

**VISITOR CENTER WATER MAIN EXTENSION
DENTON, MARYLAND**

Date _____

TO: TOWN OF DENTON

Gentlemen:

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State _____ doing business as _____ (Insert "a corporation", "a partnership", or "an individual" as applicable.) to the OWNER.

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all WORK for the VISITOR CENTER WATER MAIN EXTENSION, DENTON, MARYLAND in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

By submission of this BID, each BIDDER certifies, and in the case of a joint BID each party thereto certifies as to his own organization, that this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to his BID with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED from the Owner to be issued after Town Council approval of the recommended contractor, and to substantially complete the PROJECT by December 31, 2026. The schedule for the WORK will be confirmed prior to award. BIDDER further agrees to pay liquidated damages, the sum of \$500.00 for each consecutive calendar day thereafter that he is in default in completing the Contract.

BIDDER acknowledges receipt of the following ADDENDA:

BID SCHEDULE

BASE BID: VISITOR CENTER WATER MAIN EXTENSION TOTAL BID

Furnishing all materials, labor and equipment to complete the project VISITOR CENTER WATER LINE EXTENSION, DENTON, MARYLAND as described in the Contract Documents and other appurtenant items as required by the Contract Documents, for the total amount of

| Bid Item | Description | Estimated Quantity | Unit | Unit Cost | Total |
|-----------------------------|---|---------------------------|-------------|------------------|--------------|
| Lump Sum Bid Items | | | | | |
| A-1 | Mobilization / Demobilization, Bonding, Stakeout, etc. | 1 | LS | \$ | \$ |
| A-2 | Maintenance of Traffic | 1 | LS | \$ | \$ |
| Unit Price Bid Items | | | | | |
| B-1 | Inlet Protection (All Types) | 1 | Each | \$ | \$ |
| B-2 | Silt Fence | 91 | LF | \$ | \$ |
| B-3 | Stabilized Construction Entrance | 77 | SY | \$ | \$ |
| B-4 | Removal of Existing Pavement, Sidewalk, Curb, and Combination Curb & Gutter | 36 | SY | \$ | \$ |
| B-5 | 8-inch Ductile Iron Class 53 Water Main Pipe and Appurtenances | 7 | LF | \$ | \$ |
| B-6 | 10-inch Ductile Iron Class 53 Water Main Pipe and Appurtenances | 244 | LF | \$ | \$ |
| B-7 | 12-inch HDPE DIPS DR-9 Water Main Pipe and Appurtenances | 1,070 | LF | \$ | \$ |
| B-8 | Jack-and-Bore Roadway Crossing including Steel Casing | 1 | Each | \$ | \$ |
| B-9 | 6-inch Insertion Valve | 1 | Each | \$ | \$ |
| B-10 | 10-inch Gate Valve with Valve Box | 1 | Each | \$ | \$ |
| B-11 | Fire Hydrant including Connection, 6-inch Lead, and Appurtenances | 1 | Each | \$ | \$ |
| B-12 | Blowoff Assembly including Connection, 2-inch Lead, and Appurtenances | 1 | Each | \$ | \$ |
| B-13 | Concrete Encasement | 5 | CY | \$ | \$ |
| B-14 | Pavement Repair | 30 | SY | \$ | \$ |
| B-15 | Concrete Sidewalk, Curb, Gutter Repair | 55 | SF | \$ | \$ |
| B-16 | Topsoil Furnished and Placed at 4-inch Depth | 966 | SY | \$ | \$ |
| B-17 | Seeding and Mulching | 966 | SY | \$ | \$ |
| Contingent Bid Items | | | | | |
| G-1 | Contingent Tree Removal (12-inch and Larger) | 2 | Each | \$ | \$ |
| G-2 | Contingent Test Pit Excavation | 10 | CY | \$ | \$ |
| G-3 | Contingent Excavation | 50 | CY | \$ | \$ |
| G-4 | Contingent Special Backfill | 25 | CY | \$ | \$ |
| G-5 | Contingent Graded Aggregate Base (GAB) | 25 | CY | \$ | \$ |
| G-6 | Contingent Concrete Encasement | 5 | CY | \$ | \$ |
| G-7 | Contingent 8-inch Pipe Bend | 2 | Each | \$ | \$ |
| G-8 | Contingent 10-inch Pipe Bend | 4 | Each | \$ | \$ |

TOTAL BID:

\$ _____
(Figures)

(Sum of Items A-1 through G-8, Written)

The low bidder will be determined based on the Total Bid. Contract will be awarded to the lowest, responsive and responsible bidder.

LISTING OF SUBCONTRACTORS

The undersigned BIDDER proposes to use the following named SUBCONTRACTORS:

Enclosed herewith is a Certified Check or Bid Bond in the amount of Five Percent (5%) of the Base Bid.

The following Corporation is chartered in the State of _____.

Witness

Signature

Title

CORPORATE SEAL

Firm Name

Date

Business Address

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____ as Principal, and _____ as Surety, are hereby held and firmly bound unto the TOWN OF DENTON as OWNER in the penal sum of _____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this _____ day of _____, 2026.

The Condition of the above obligation is such that whereas the Principal has submitted to the OWNER a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for the VISITOR CENTER WATER LINE EXTENSION, DENTON, MARYLAND Project with contract and the work to be done hereunder and the specifications accompanying the same shall be deemed a part thereof to the same extent as if fully set out herein.

NOW, THEREFORE,

(a) If said BID shall be rejected, or

(b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Agreement attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

In WITNESS, WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____(L.S.)
Principal

Surety

By:

IMPORTANT - Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

AFFIDAVIT OF QUALIFICATION TO BID

I hereby affirm that

1. I am the _____ and the duly authorized

(Title)

representative of the firm of

(Name of Firm)

whose address is

and that I possess the legal authority to make this Affidavit on behalf of myself and the firm for which I am acting.

2. Except as described in paragraph 3 below, neither I nor the above firm, nor to the best of my knowledge, any of its officers, director, or partners, or any of its employees directly involved in obtaining contracts with the State or any county, bi-county or multi-county agency, or subdivision of the State have been convicted of, or have pleaded nolo contendere to a charge of, or have during the course of an official investigation or other proceeding admitted in writing or under oath, acts or omission which constitute bribery, attempted bribery, or conspiracy to bribe under the provision of Article 27 of the Annotated Code of Maryland or under the laws of any state or the federal government (conduct prior to July 1, 1977 is not required to be reported).

3. (State "None" or, as appropriate, list any conviction, plea, or admission described in paragraph 2 above, with the date, court, official, or administrative body, the individuals involved and their position with the firm, and the sentence of disposition if any).

I acknowledge that this Affidavit is to be furnished to the Town of Denton and, where appropriate the Board of Public Works and to the Attorney General under section 16D of Article 78A of the Annotated Code of Maryland. I acknowledge that, if the representations set forth in this Affidavit are not true and correct, The Town of Denton may terminate any contract awarded and take any other appropriate action. I further acknowledge that I am executing this Affidavit in compliance with section 16D of Article 78A of the Annotated Code of Maryland, which provides that certain persons who have been convicted of or have admitted to bribery, attempted bribery, or conspiracy to bribe may be disqualified, either by operation of law or after a hearing, from entering into contracts with the State or any of agencies or subdivisions.

I do solemnly declare and affirm under the penalties of perjury that the contents of the Affidavit are true and correct.

Signature

Date

NON-COLLUSION CERTIFICATE

I CERTIFY THAT I AM THE _____
(Title)

and the duly authorized representative of the firm of

_____ whose address is _____

AND THAT NEITHER I nor, to the best of my knowledge, information and belief, the above firm nor any of its other representatives I here represent have:

- a. Agreed, conspired, connived, or colluded to produce a deceptive show of competition in the compilation of the bid or offer being submitted herewith:
- b. Not in any manner, directly or indirectly, entered into any agreement, participated in any collusion to fix the bid price or price proposal of the bidder, or offer of herein or any competitor, or otherwise taken into action in restraint of free competitive bidding in connection with the Contract for which the within bid or offer is submitted.

In making this affidavit, I represent that I have personal knowledge of the matters and facts herein stated.

Signature

Date

Printed or typed name

*** END OF SECTION ***

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

SECTION 00500

AGREEMENT

THIS AGREEMENT, made this ____ day of _____, 2026, by and between the Town of Denton, hereinafter called "OWNER" and _____ hereinafter called "CONTRACTOR" doing business as a corporation.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the construction as shown on drawings marked VISITOR CENTER WATER MAIN EXTENSION, DENTON, MARYLAND.
2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT described herein.
3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS on _____, which is the NOTICE TO PROCEED and will complete all the work before _____, unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.
4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sums as shown in the BID schedule.
5. The term "CONTRACT DOCUMENTS" means and includes the following:
 - a. Advertisement for Bids
 - b. Information for Bidders
 - c. Bid Form
 - d. Bid Bond
 - e. Agreement
 - f. Performance Bond
 - g. Payment Bond
 - h. General Conditions
 - i. Supplementary Conditions
 - k. Permit Authorizations
 - k. Drawings by George, Miles & Buhr, LLC, dated May 2026.
 - l. Specifications by George, Miles & Buhr, LLC, dated May 2026.
 - m. Addenda:
6. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the CONTRACT DOCUMENTS.

7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this AGREEMENT in 3 each of which shall be deemed an original on the date first above written.

OWNER:

Town of Denton

BY _____

Name _____
(Please Type)

Title _____

(SEAL)

ATTEST:

Name _____
(Please Type)

Title _____

CONTRACTOR:

BY _____

Name _____

(Please Type)

Address _____

(SEAL)

ATTEST:

Name _____

(Please Type)

Title _____

*** END OF SECTION ***

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

SECTION 00600

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal, and (insert “corporation”, “partnership” or “individual”)

(Name of Surety)

(Address of Surety)

hereinafter called surety, are held and firmly bound unto _____

TOWN OF DENTON
(Name of Owner)

4 N Second Street, Denton, MD 21629
(Address of Owner)

hereinafter called OWNER, in the penal sum of _____
_____ Dollars, (\$_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the ____ day of _____, 2026, a copy of which is hereto attached and made a part hereof for VISITOR CENTER WATER LINE EXTENSION, DENTON, MARYLAND.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to

the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, 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 to WORK to be performed thereunder or the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____, 2026.

ATTEST:

| | |
|-----------------------|-----------|
| _____ | _____ |
| (Principal) Secretary | Principal |
| | _____ (s) |

(SEAL)

| | |
|---------------------------|-----------|
| _____ | _____ |
| (Witness as to Principal) | (Address) |
| _____ | _____ |
| (Address) | |
| _____ | _____ |
| | Surety |

ATTEST:

| | |
|----------------------|------------------|
| _____ | _____ |
| Witness as to Surety | Attorney-in-Fact |
| _____ | _____ |
| (Address) | (Address) |
| _____ | _____ |

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

*** END OF SECTION ***

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

SECTION 00650

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal, and (insert “corporation”, “partnership” or “individual”)

(Name of Surety)

(Address of Surety)

hereinafter called surety, are held and firmly bound unto

Town of Denton
(Name of Owner)

4 N Second Street, Denton, MD 21629
(Address of Owner)

hereinafter called OWNER, in the penal sum of _____
_____ Dollars, (\$_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the ____ day of _____, 2026, a copy of which is hereto attached and made a part hereof for VISITOR CENTER WATER LINE EXTENSION, DENTON, MARYLAND.

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK

whether by SUBCONTRACTOR or otherwise, 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 to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in ____ counterparts, each one of which shall be deemed an original, this the _____ day of _____ 2026.

ATTEST:

| | |
|---------------------------|--------------------|
| _____ | _____ |
| (Principal) Secretary | Principal _____(s) |
| (SEAL) | |
| _____ | _____ |
| (Witness as to Principal) | (Address) |
| _____ | _____ |
| (Address) | |
| _____ | _____ |
| | Surety |

ATTEST:

| | |
|----------------------|------------------|
| _____ | _____ |
| Witness as to Surety | Attorney-in-Fact |
| _____ | _____ |
| (Address) | (Address) |
| _____ | _____ |

NOTE: Date of BOND must not be prior to date of Contact. If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

*** END OF SECTION ***

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

SECTION 00700

PREVAILING WAGE RATES

This project is subject to Federal Prevailing Wages and associated requirements under the Davis-Bacon and Related Acts.

The U.S. Department of Labor has assigned for this project the Prevailing Wage Determination included in the following Attachment A.

ATTACHMENT A

"General Decision Number: MD20260033 05/18/2026

State: Maryland

Construction Types: Heavy and Highway

Counties: Maryland Counties of
Caroline

Excludes Dredging

| | |
|---------------------|------------------|
| Modification Number | Publication Date |
| 0 | 01/02/2026 |
| 1 | 05/18/2026 |

SAMD2024-006 05/08/2025

| | Rates | Fringes |
|---|----------|---------|
| TRUCK DRIVER (WATER)..... | \$ 29.39 | 10.51 |
| TRUCK DRIVER (TACK/TAR)..... | \$ 28.69 | 10.51 |
| TRUCK DRIVER (LOW BOY)..... | \$ 29.68 | 10.51 |
| TRUCK DRIVER (DUMP)..... | \$ 23.63 | 4.78 |
| TRUCK DRIVER (DUMP - ARTICULATING)..... | \$ 19.67 | 2.15 |
| POWER EQUIPMENT OPERATOR: SCREED..... | \$ 29.00 | 7.50 |
| POWER EQUIPMENT OPERATOR: MILLING MACHINE..... | \$ 31.05 | 7.64 |
| POWER EQUIPMENT OPERATOR: EXCAVATOR..... | \$ 33.00 | 7.17 |
| POWER EQUIPMENT OPERATOR: CRANE..... | \$ 41.00 | 18.10 |
| POWER EQUIPMENT OPERATOR: BACKHOE..... | \$ 25.70 | 1.58 |
| POWER EQUIPMENT OPERATOR (VACUUM TRUCK)..... | \$ 37.50 | 14.85 |
| POWER EQUIPMENT OPERATOR (SKID STEER (BOBCAT))..... | \$ 23.88 | 3.17 |
| POWER EQUIPMENT OPERATOR (SCRAPER)..... | \$ 23.00 | 6.79 |
| POWER EQUIPMENT OPERATOR (ROLLER - EARTH)..... | \$ 25.75 | 5.11 |
| POWER EQUIPMENT OPERATOR (ROLLER - ASPHALT)..... | \$ 26.22 | 4.80 |
| POWER EQUIPMENT OPERATOR (PAVER)..... | \$ 24.00 | 5.20 |
| POWER EQUIPMENT OPERATOR (LOADER)..... | \$ 23.95 | 5.07 |
| POWER EQUIPMENT OPERATOR (GRADALL)..... | \$ 32.00 | 2.66 |
| POWER EQUIPMENT OPERATOR (BULLDOZER)..... | \$ 24.38 | 3.82 |
| POWER EQUIPMENT OPERATOR (ASPHALT DISTRIBUTOR)..... | \$ 32.50 | 7.81 |
| PAINTER (BRIDGE)..... | \$ 44.18 | 16.08 |
| MILLWRIGHT..... | \$ 38.61 | 17.21 |
| LABORER: PIPELAYER..... | \$ 26.80 | 7.08 |
| LABORER: ASPHALT RAKER..... | \$ 21.66 | 3.09 |
| LABORER (TAMPER)..... | \$ 21.66 | 3.09 |
| LABORER (SCAFFOLD BUILDER)..... | \$ 26.80 | 7.08 |
| LABORER (PLASTERER - HANDLER)..... | \$ 21.66 | 3.09 |
| LABORER (MORTAR MIXER)..... | \$ 21.66 | 3.09 |
| LABORER (MASON TENDER)..... | \$ 26.80 | 7.08 |
| LABORER (LUTEMAN)..... | \$ 21.66 | 3.09 |
| LABORER (LAYOUT)..... | \$ 21.66 | 3.09 |
| LABORER (LANDSCAPING)..... | \$ 21.66 | 3.09 |
| LABORER (JACKHAMMER)..... | \$ 21.66 | 3.09 |
| LABORER (HAZARDOUS MATERIAL HANDLER)..... | \$ 26.80 | 7.08 |
| LABORER (HAND ROLLER)..... | \$ 21.66 | 3.09 |
| LABORER (GRADE CHECKER)..... | \$ 21.66 | 3.09 |
| LABORER (FLAGGER)..... | \$ 21.66 | 3.09 |
| LABORER (FIREPROOFER - MIXER)..... | \$ 21.66 | 3.09 |
| LABORER (DENSITY GAUGE)..... | \$ 21.66 | 3.09 |

| | | |
|---|----------|-------|
| LABORER (CONCRETE VIBRATOR)..... | \$ 21.66 | 3.09 |
| LABORER (CONCRETE TENDER)..... | \$ 21.66 | 3.09 |
| LABORER (CONCRETE SURFACER)..... | \$ 26.80 | 7.08 |
| LABORER (CONCRETE PUDDLER)..... | \$ 21.66 | 3.09 |
| LABORER (COMMON)..... | \$ 21.66 | 3.09 |
| LABORER (BURNER)..... | \$ 26.80 | 7.08 |
| LABORER (BLASTER - DYNAMITE)..... | \$ 26.80 | 7.08 |
| LABORER (ASPHALT PAVER)..... | \$ 26.80 | 7.08 |
| LABORER (AIR TOOL OPERATOR)..... | \$ 26.80 | 7.08 |
| CARPENTER-SHORING SCAFFOLD BUILDER..... | \$ 37.08 | 25.48 |
| CARPENTER..... | \$ 27.00 | 7.35 |

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least \$13.65 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract from May 11, 2026, through December 31, 2026. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than **SU**, **UAVG**, **SA**, or **SC** denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The **SU** identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

SU wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The **SA** identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications

and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the **SA** identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION

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DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

SECTION 00720

GENERAL CONDITIONS

- | | |
|--|---|
| 1. Definitions | 17. Subsurface Conditions |
| 2. Additional Instructions and Detail Drawings | 18. Suspension of Work, Termination and Delay |
| 3. Schedules, Reports and Records | 19. Payments to Contractor |
| 4. Drawings and Specifications | 20. Acceptance of Final Payment as Release |
| 5. Shop Drawings | 21. Insurance |
| 6. Materials, Services and Facilities | 22. Contract Security |
| 7. Inspection and Testing | 23. Assignments |
| 8. Substitutions | 24. Indemnification |
| 9. Patents | 25. Separate Contracts |
| 10. Surveys, Permits, Regulations | 26. Subcontracting |
| 11. Protection of Work, Property, Persons | 27. Engineer's Authority |
| 12. Supervision by Contractor | 28. Land and Rights-of-Way |
| 13. Changes in Work | 29. Guaranty |
| 14. Changes in Contract Price | 30. Taxes |
| 15. Time for Completion and Liquidated Damages | |
| 16. Correction of Work | |

1. DEFINITIONS

1.1 Wherever used in the CONTRACT DOCUMENTS, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

1.2 ADDENDA - Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the CONTRACT DOCUMENTS, DRAWINGS and SPECIFICATIONS, by additions, deletions, clarifications or corrections.

1.3 BID - The offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the WORK to be performed.

1.4 BIDDER - Any person, firm or corporation submitting a BID for the WORK.

1.5 BONDS - Bid, Performance, and Payment Bonds and other instruments of security, furnished by the CONTRACTOR and his surety in accordance with the CONTRACT DOCUMENTS.

1.6 CHANGE ORDER - A written order to the CONTRACTOR authorizing an addition, deletion or revision in the WORK within the general scope of the CONTRACT DOCUMENTS, or authorizing an adjustment in the CONTRACT PRICE or CONTRACT TIME.

1.7 CONTRACT DOCUMENTS - The contract, including Advertisement For Bids, Information For Bidders, BID, Bid Bond, Agreement, Payment Bond, Performance Bond, NOTICE OF AWARD, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS, and ADDENDA.

1.8 CONTRACT PRICE - The total monies payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.

1.9 CONTRACT TIME - The number of calendar days stated in the CONTRACT DOCUMENTS for the completion of the WORK.

1.10 CONTRACTOR - The person, firm or corporation with whom the OWNER has executed the Agreement.

1.11 DRAWINGS - The part of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared or approved by the ENGINEER.

1.12 ENGINEER - The person, firm or corporation names as such in the CONTRACT DOCUMENTS.

1.13 FIELD ORDER - A written order effecting a change in the WORK not involving an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, issued by the ENGINEER to the CONTRACTOR during construction.

1.14 NOTICE OF AWARD - The written notice of the acceptance of the BID from the OWNER to the successful BIDDER.

1.15 NOTICE TO PROCEED - Written communication issued by the OWNER to the CONTRACTOR authorizing him to proceed with the WORK and establishing the date of commencement of the WORK.

1.16 OWNER - A public or quasi-public body or authority, corporation, association, partnership, or individual for whom the WORK is to be performed.

1.17 PROJECT - The undertaking to be performed as provided in the CONTRACT DOCUMENTS.

1.18 RESIDENT PROJECT REPRESENTATIVE - The authorized representative of the OWNER who is assigned to the PROJECT site or any part thereof.

1.19 SHOP DRAWINGS - All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the CONTRACTOR, a SUBCONTRACTOR, manufacturer, SUPPLIER or distributor, which illustrate how specific portions of the WORK shall be fabricated or installed.

1.20 SPECIFICATIONS - A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

1.21 SUBCONTRACTOR - An individual, firm or corporation having a direct contract with the CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the WORK at the site.

1.22 SUBSTANTIAL COMPLETION - That date as certified by the ENGINEER when the construction of the PROJECT or a specified part thereof is sufficiently completed, in accordance with the CONTRACT DOCUMENTS, so that the PROJECT or specified part can be utilized for the purposes for which it is intended.

1.23 SUPPLEMENTAL GENERAL CONDITIONS - Modifications to General Conditions required by a Federal agency for participation in the PROJECT and approved by the agency in writing prior to inclusion in the CONTRACT DOCUMENTS, or such requirements that may be imposed by applicable state laws.

1.24 SUPPLIER - Any person or organization who supplies materials or equipment for the WORK, including that fabricated in a special design, but who does not perform labor at the site.

1.25 WORK - All labor necessary to produce the construction required by the CONTRACT DOCUMENTS, and all materials and equipment incorporated or to be incorporated in the PROJECT.

1.26 WRITTEN NOTICE - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address or delivered in person to said party or his authorized representative on the WORK.

2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

2.1 The CONTRACTOR may be furnished additional instructions and detail drawings, by the ENGINEER, as necessary to carry out the WORK required by the CONTRACT DOCUMENTS.

2.2 The additional drawings and instruction thus supplied will become a part of the CONTRACT DOCUMENTS. The CONTRACTOR shall carry out the WORK in accordance with the additional detail drawings and instructions.

3. SCHEDULES, REPORTS AND RECORDS

3.1 The CONTRACTOR shall submit to the OWNER such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable as are required by the CONTRACT DOCUMENTS for the WORK to be performed.

3.2 Prior to the first partial payment estimate the CONTRACTOR shall submit construction progress schedules showing the order in which he proposes to

carry on the WORK, including dates at which he will start the various parts of the WORK, estimated date of completion of each part and, as applicable:

3.2.1. The dates at which special detail drawings will be required; and

3.2.2. Respective dates for submission of SHOP DRAWINGS, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.

3.3 The CONTRACTOR shall also submit a schedule of payments that he anticipates he will earn during the course of the WORK.

4. DRAWINGS AND SPECIFICATIONS

4.1 The intent of the DRAWINGS and SPECIFICATIONS is that the CONTRACTOR shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all incidental work necessary to complete the PROJECT in an acceptable manner, ready for use, occupancy or operation by the OWNER.

4.2 In case of conflict between the DRAWINGS and SPECIFICATIONS, the SPECIFICATIONS shall govern. Figure dimensions on DRAWINGS shall govern over scale dimensions, and detailed DRAWINGS shall govern over general DRAWINGS.

4.3 Any discrepancies found between the DRAWINGS and SPECIFICATIONS and site conditions or any inconsistencies or ambiguities in the DRAWINGS or SPECIFICATIONS shall be immediately reported to the ENGINEER, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. WORK done by the CONTRACTOR after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

5. SHOP DRAWINGS

5.1 The CONTRACTOR shall provide SHOP DRAWINGS as may be necessary for the prosecution of the WORK as required by the CONTRACT DOCUMENTS. The ENGINEER shall promptly review all SHOP DRAWINGS. The ENGINEER'S approval of any SHOP DRAWING shall not release the CONTRACTOR from responsibility for deviations from the CONTRACT DOCUMENTS. The approval of any SHOP DRAWING which substantially deviates from the requirement of the CONTRACT DOCUMENTS shall be evidenced by a CHANGE ORDER.

5.2 When submitted for the ENGINEER'S review, SHOP DRAWINGS shall bear the CONTRACTOR'S certification that he has reviewed, checked and approved the SHOP DRAWINGS and that they are in conformance with the requirements of the CONTRACT DOCUMENTS.

5.3 Portions of the WORK requiring a SHOP DRAWING or sample submission shall not begin until the SHOP DRAWING or submission has been approved by the ENGINEER. A copy of each approved SHOP DRAWING and each approved sample shall be

kept in good order by the CONTRACTOR at the sit and shall be available to the ENGINEER.

6. MATERIALS, SERVICES AND FACILITIES

6.1 It is understood that, except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the WORK within the specified time.

6.2 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the WORK. Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.

6.3 Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

6.4 Materials, supplies and equipment shall be in accordance with samples submitted by the CONTRACTOR and approved by the ENGINEER.

6.5 Materials, supplies or equipment to be incorporated into the WORK shall not be purchased by the CONTRACTOR or the SUBCONTRACTOR subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

7. INSPECTION AND TESTING

7.1 All materials and equipment used in the construction of the PROJECT shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the CONTRACT DOCUMENTS.

7.2 The OWNER shall provide all inspection and testing services not required by the CONTRACT DOCUMENTS.

7.3 The CONTRACTOR shall provide at his expense the testing and inspection services required by the CONTRACT DOCUMENTS.

7.4 If the CONTRACT DOCUMENTS, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any WORK to specifically be inspected, tested, or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the ENGINEER timely notice of readiness. The CONTRACTOR will then furnish the ENGINEER the required certificates of inspection, testing or approval.

7.5 Inspections, tests or approvals by the engineer or others shall not relieve the CONTRACTOR from his obligations to perform the WORK in accordance with the requirements of the CONTRACT DOCUMENTS.

7.6 The ENGINEER and his representatives will at all times have access to the WORK. In addition, authorized representatives and agents of any participat-

ing Federal or state agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The CONTRACTOR will provide proper facilities for such access and observation of the WORK and also for any inspection, or testing thereof.

7.7 If any WORK is covered contrary to the written instructions of the ENGINEER it must, if requested by the ENGINEER, be uncovered for his observation and replaced at the CONTRACTOR'S expense.

7.8 If the engineer considers it necessary or advisable that covered WORK be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request, will uncover, expose or otherwise make available for observation, inspection or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such WORK is defective, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such WORK is not found to be defective, the CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate CHANGE ORDER shall be issued.

8. SUBSTITUTIONS

8.1 Whenever a material, article or piece of equipment is identified on the DRAWINGS or SPECIFICATIONS by reference to brand name or catalogue number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The CONTRACTOR may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the CONTRACT DOCUMENTS by reference to brand name or catalogue number, and if, in the opinion of the ENGINEER, such material, article, or piece of equipment is of equal substance and function to that specified, the ENGINEER may approve its substitution and use by the CONTRACTOR. Any cost differential shall be deductible from the CONTRACT PRICE and the CONTRACT DOCUMENTS shall be appropriately modified by CHANGE ORDER. The CONTRACTOR warrants that if substitutes are approved, no major changes in the function or general design of the PROJECT will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the CONTRACTOR without a change in the CONTRACT PRICE or CONTRACT TIME.

9. PATENTS

9.1 The CONTRACTOR shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and save the OWNER harmless from loss on account thereof, except that the OWNER shall be responsible for any such loss when a particular process, design, or the

product of a particular manufacturer or manufacturers is specified, however if the CONTRACTOR has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the ENGINEER.

10. SURVEYS, PERMITS, REGULATIONS

10.1 The OWNER shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the WORK together with a suitable number of bench marks adjacent to the WORK as shown in the CONTRACT DOCUMENTS. From the information provided by the OWNER, unless otherwise specified in the CONTRACT DOCUMENTS, the CONTRACTOR shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations and other working points, lines, elevations and cut sheets.

10.2 The CONTRACTOR shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

10.3 Permits and licenses of a temporary nature necessary for the prosecution of the WORK shall be secured and paid for by the CONTRACTOR unless otherwise stated in the SUPPLEMENTAL GENERAL CONDITIONS. Permits, licenses and easements 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 CONTRACT DOCUMENTS are at variance therewith, he shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in Section 13. CHANGES IN THE WORK.

11. PROTECTION OF WORK, PROPERTY AND PERSONS

11.1 The CONTRACTOR will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the WORK. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the WORK and other persons who may be affected thereby, all the WORK and all materials or equipment to be incorporated therein., whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

11.2 The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He will erect and maintain, as required by the conditions and progress

of the WORK, all necessary safeguards for safety and protection. He will notify owners of adjacent utilities when prosecution of the WORK may affect them. The CONTRACTOR will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the CONTRACTOR, any SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or to the acts or omissions of the OWNER or the ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the CONTRACTOR.

11.3 In emergencies affecting the safety of persons or the WORK or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization from the ENGINEER or OWNER, shall act to prevent threatened damage, injury or loss. He will give the ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and CHANGE ORDER shall thereupon be issued covering the changes and deviations involved.

12. SUPERVISION BY CONTRACTOR

12.1 The CONTRACTOR will supervise and direct the WORK. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The CONTRACTOR will employ and maintain on the WORK a qualified supervisor or superintendent who shall have been designated in writing by the CONTRACTOR as the CONTRACTOR'S representative at the site. The supervisor shall have full authority to act on behalf of the CONTRACTOR and all communications given to the supervisor shall be as binding as if given to the CONTRACTOR. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the WORK.

13. CHANGES IN THE WORK

13.1 The OWNER may at any time, as the need arises, order changes within the scope of the WORK without invalidating the Agreement. If such changes increase or decrease the amount due under the CONTRACT DOCUMENTS, or in the time required for performance of the WORK, an equitable adjustment shall be authorized by CHANGE ORDER.

13.2 The ENGINEER, also, may at any time, by issuing a FIELD ORDER, make changes in the details of the WORK. The CONTRACTOR shall proceed with the performance of any changes in the WORK so ordered by the ENGINEER unless the CONTRACTOR believes that such FIELD ORDER entitles him to a change in CONTRACT PRICE or TIME, or both, in which event he shall give the ENGINEER WRITTEN NOTICE thereof within seven (7) days after the receipt of the ordered change. Thereafter the CONTRACTOR shall document the basis for the change in CONTRACT PRICE or TIME within thirty (30) days. The CONTRACTOR shall not execute such changes

pending the receipt of an executed CHANGE ORDER or further instruction from the OWNER.

14. CHANGES IN CONTRACT PRICE

14.1 The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one or more of the following methods in the order of precedence listed below:

- (a) Unit prices previously approved.
- (b) An agreed lump sum.
- (c) The actual cost for labor, direct overhead,

materials, supplies, equipment, and other services necessary to complete the work. In addition, there shall be added an amount to be agreed upon but not to exceed fifteen (15) percent of the actual cost of the WORK to cover the cost of general overhead and profit.

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

15.1 The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.

15.2 The CONTRACTOR will proceed with the work at such rate of progress to insure full completion within the CONTRACT TIME. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.

15.3 If the CONTRACTOR shall fail to complete the WORK within the CONTRACT TIME, or extension of time granted by the OWNER, then the CONTRACTOR will pay to the OWNER the amount for liquidated damages as specified in the BID for each calendar day that the CONTRACTOR shall be in default after the time stipulated in the CONTRACT DOCUMENTS.

15.4 The CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the WORK is due to the following, and the CONTRACTOR has promptly given WRITTEN NOTICE of such delay to the OWNER or ENGINEER.

15.4.1 To any preference, priority or allocation order duly issued by the OWNER.

15.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to, acts of God, or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and

15.4.3 To any delays of SUBCONTRACTORS occasioned by any of the causes specified in paragraphs 15.4.1 and 15.4.2 of this article.

16. CORRECTION OF WORK

16.1 The CONTRACTOR shall promptly remove from the premises all WORK rejected by the ENGINEER for failure to comply with the CONTRACT DOCUMENTS, whether incorporated in the construction or not, and the CONTRACTOR shall promptly replace and reexecute the WORK in accordance with the CONTRACT DOCUMENTS and without expense to the OWNER and shall bear the expense of making good all WORK of other CONTRACTORS destroyed or damaged by such removal or replacement.

16.2 All removal and replacement WORK shall be done at the CONTRACTOR'S expense. If the CONTRACTOR does not take action to remove such rejected WORK within ten (10) days after receipt of WRITTEN NOTICE, the OWNER may remove such WORK and store the materials at the expense of the CONTRACTOR.

17. SUBSURFACE CONDITIONS

17.1 The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the OWNER by WRITTEN NOTICE of:

17.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the CONTRACT DOCUMENTS: or

17.1.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the CONTRACT DOCUMENTS.

17.2 The OWNER shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the WORK, an equitable adjustment shall be made, and the CONTRACT DOCUMENTS shall be modified by a CHANGE ORDER. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless he has given the required WRITTEN NOTICE: provided that the OWNER may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

18. SUSPENSION OF WORK, TERMINATION AND DELAY

18.1 The OWNER may suspend the WORK or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the CONTRACTOR, by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER which notice shall fix the date on which WORK shall be resumed. The CONTRACTOR will resume that WORK on the date so fixed. The CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of

the CONTRACT TIME, or both, directly attributable to any suspension.

18.2 If the CONTRACTOR is adjudged a bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the WORK or if he disregards the authority of the ENGINEER, or if he otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNER may, without prejudice to any other right or remedy and after given the CONTRACTOR and his surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE, terminate the services of the CONTRACTOR and take possession of the PROJECT and of all materials, equipment, tools, construction equipment and machinery thereon owned by the CONTRACTOR, and finish the WORK by whatever method he may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the WORK is finished. If the unpaid balance of the CONTRACT PRICE exceeds the direct and indirect costs of completing the PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER. Such costs incurred by the OWNER will be determined by the ENGINEER and incorporated in a CHANGE ORDER.

18.3 Where the CONTRACTOR'S services have been so terminated by the OWNER, said termination shall not affect any right of the OWNER against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by the OWNER due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.

18.4 After ten (10) days from delivery of a WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, the OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the Contract. In such a case, the CONTRACTOR shall be paid for all WORK executed and any expense sustained plus reasonable profit.

18.5 If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty (30) days after it is submitted, or the OWNER fails to pay the CONTRACTOR substantially the sum approved by the ENGINEER or awarded by arbitrators within thirty (30) days of its approval and presentation, then

the CONTRACTOR may, after ten (10) days from delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER, terminate the CONTRACT and recover from the OWNER payment for all WORK executed and all expenses sustained. In addition and in lieu of terminating the CONTRACT, if the ENGINEER has failed to act on a request for payment or if the OWNER has failed to make any payment as aforesaid, the CONTRACTOR may upon ten (10) days written notice to the OWNER and the ENGINEER stop the WORK until he has been paid all amounts then due, in which event and upon resumption of the WORK, CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

18.6 If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified, with a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

19. PAYMENTS TO CONTRACTOR

19.1 At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER'S title to the material and equipment and protect his interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in writing his reasons for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment estimate. The OWNER will, within ten (10) days of presentation to him of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate. The OWNER shall retain ten (10) percent of the amount of each payment until final completion and acceptance of all work covered by the CONTRACT DOCUMENTS. The OWNER at any time, however, after fifty (50) percent of the WORK has been completed, if he finds that satisfactory progress is being made, shall reduce retainage to five (5%) percent on the current and remaining estimates. When the WORK is substantially complete (operational or bene-

ficial occupancy), the retained amount may be further reduced below five (5) percent to only that amount necessary to assure completion. On completion and acceptance of a part of the WORK on which the price is stated separately in the CONTRACT DOCUMENTS, payment may be made in full, including retained percentages, less authorized deductions.

19.2 The request for payment may also include an allowance for the cost of such major materials and equipment which are suitably stored either at or near the site.

19.3 Prior to SUBSTANTIAL COMPLETION, the OWNER, with the approval of the ENGINEER and with the concurrence of the CONTRACTOR, may use any completed or substantially completed portions of the WORK. Such use shall not constitute an acceptance of such portions of the WORK.

19.4 The OWNER shall have the right to enter the premises for the purpose of doing work not covered by the CONTRACT DOCUMENTS. This provision shall not be construed as relieving the CONTRACTOR of the sole responsibility for the care and protection of the WORK, or the restoration of any damaged WORK except such as may be caused by agents or employees of the OWNER.

19.5 Upon completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the final payment request that the WORK has been accepted by him under the conditions of the CONTRACT DOCUMENTS. The entire balance found to be due the CONTRACTOR, including the retained percentages, but except such sums as may be lawfully retained by the OWNER, shall be paid to the CONTRACTOR within thirty (30) days of completion and acceptance of the WORK.

19.6 The CONTRACTOR will indemnify and save the OWNER or the OWNER's agents harmless from all claims growing out of the lawful demands of SUBCONTRACTORS, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the WORK. The CONTRACTOR shall, at the OWNER'S request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the CONTRACTOR fails to do so the OWNER may, after having notified the CONTRACTOR, either pay unpaid bills or withhold from the CONTRACTOR' unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the CONTRACTOR shall be resumed. In accordance with the terms of the CONTRACT DOCUMENT, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the CONTRACTOR, his Surety, or any third party. In paying any unpaid bills of the CONTRACTOR, any payment so made by the OWNER shall be considered as a payment made under the CONTRACT DOCUMENTS

by the OWNER to the CONTRACTOR and the OWNER shall not be liable to the CONTRACTOR for any such payments made in good faith.

19.7 If the OWNER fails to make payment thirty (30) days after approved by the ENGINEER, in addition to other remedies available to the CONTRACTOR, there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the CONTRACTOR.

20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

20.1 The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this WORK and for every act and neglect of the OWNER and others relating to or arising out of this WORK. Any payment, however, final or otherwise, shall not release the CONTRACTOR or his sureties from any obligations under the CONTRACT DOCUMENTS or the Performance BOND and Payment BONDS.

21. INSURANCE

21.1 The CONTRACTOR shall procure and maintain, at Contractor's own expense, during the contract time, the following insurance coverage. Prior to the execution of any contract, the successful bidder shall submit a "Certificate of Insurance" indicating it carries the specified insurance in the amount specified below in this bid. Coverage shall be maintained throughout the term of the contract.

Required Coverage:

- A. General Liability – Minimum \$1,000,000 per Occurrence /\$2,000,000 aggregate
- B. Auto Liability – Minimum \$1,000,000 CSL
- C. Workers' Compensation Insurance - Minimum required by Maryland State Law.
- D. Employer Liability – Minimum \$500,000
- E. Excess/Umbrella Liability - \$1,000,000 - \$5,000,000
- F. Pollution Liability – Minimum \$1,000,000 per Occurrence
- G. Cyber Insurance – Minimum \$1,000,000
- H. All required coverage shall include and specifically name the Town of Denton as an additional insured and loss payee with respect to all operations under the contract.
- I. Contractor shall furnish the Town with any up-to-date certificates of insurance stating the requirements listed above at contract implementation.
- J. Certificates of Insurance shall contain a provision that coverage afforded under the policies will not be cancelled unless at least fifteen (15) days prior WRITTEN NOTICE has been given to the TOWN.

The Contractor shall require any subcontractors to obtain and maintain comparable levels of coverage and shall provide the Contract Monitor with the same documentation as is required of the Contractor.

22. CONTRACT SECURITY

22.1 The CONTRACTOR shall within ten (10) days after the receipt of the NOTICE OF AWARD furnish the OWNER with a Performance Bond and a Payment Bond in panel sums equal to the amount of the CONTRACT PRICE, conditioned upon the performance by the CONTRACTOR of all undertakings, covenants, terms, conditions and agreements of the CONTRACT DOCUMENTS, and upon the prompt payment by the CONTRACTOR to all persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the WORK is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a surety on any such BOND is declared a bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of Surety Companies accepted on Federal BONDS. CONTRACTOR shall within ten (10) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other surety or sureties as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable BOND to the OWNER.

23. ASSIGNMENTS

23.1 Neither the CONTRACTOR nor the OWNER shall sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or of his right, title or interest therein, or his obligations thereunder, without written consent of the other party.

24. INDEMNIFICATION

24.1 The CONTRACTOR will indemnify and hold harmless the OWNER and the ENGINEER and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the WORK, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the CONTRACTOR, and SUBCONTRACTOR, anyone directly or indirectly employed by any of them or anyone for whose acts of them may be liable.

24.2 In any and all claims against the OWNER or the ENGINEER, or any of their agents or employees, by any employee of the CONTRACTOR, any SUBCONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or any SUBCONTRACTOR under workmen's compensation acts, disability benefit acts or other employee benefits acts.

24.3 The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the ENGINEER, his agents or employees arising out of the preparation or approval of maps, DRAWINGS, opinions, reports, surveys, CHANGE ORDERS, designs or SPECIFICATIONS.

25. SEPARATE CONTRACTS

25.1 The OWNER reserves the right to let other contracts in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK and shall properly connect and coordinate his WORK with theirs. If the proper execution or results of any part of the CONTRACTOR'S WORK depends upon the Work of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such WORK that render it unsuitable for such proper execution and results.

25.2 The OWNER may perform additional WORK related to the PROJECT by himself, or he may let other contracts containing provisions similar to these. The CONTRACTOR will afford the other CONTRACTORS who are parties to such Contracts (or the OWNER, if he is performing the additional WORK himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of WORK and shall properly connect and coordinate his WORK with theirs.

25.3 If the performance of additional WORK by other CONTRACTORS or the OWNER is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves him in additional expense or entitles him to an extension of the CONTRACT TIME, he may make a claim therefore as provided in Sections 14 and 15.

26. SUBCONTRACTING

26.1 The CONTRACTOR may utilize the services of specialty SUBCONTRACTORS on those parts of the WORK which, under normal contracting practices, are performed by specialty SUBCONTRACTORS.

26.2 The CONTRACTOR shall not award WORK to SUBCONTRACTOR(s), in excess of fifty (50%) percent of the CONTRACT PRICE, without prior written approval of the OWNER.

26.3 The CONTRACTOR shall be fully responsible to the OWNER for the acts and omissions of his SUBCONTRACTORS, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

26.4 The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS to the CONTRACTOR by the terms of the CONTRACT DOCUMENTS insofar as applicable to the WORK of SUBCONTRACTORS and to give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise over the CONTRACTOR under any provision of the CONTRACT DOCUMENT.

26.5 Nothing contained in this CONTRACT shall create any contractual relation between any SUBCONTRACTOR and the OWNER.

27. ENGINEER'S AUTHORITY

27.1 The ENGINEER shall act as the OWNER'S representative during the construction period. He shall decide questions which may arise as to quality and acceptability of materials furnished and WORK performed. He shall interpret the intent of the CONTRACT DOCUMENTS in a fair and unbiased manner. The ENGINEER will make visits to the site and determine if the WORK is proceeding in accordance with the CONTRACT DOCUMENTS.

27.2 The CONTRACTOR will be held strictly to the intent of the CONTRACT DOCUMENTS in regard to the quality of materials, workmanship and execution of the WORK. Inspections may be made at the factory or fabrication plant of the source of material supply.

27.3 The ENGINEER will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

27.4 The ENGINEER shall promptly make decisions relative to interpretation of the CONTRACT DOCUMENTS.

28. LAND AND RIGHTS-OF-WAY

28.1 Prior to issuance of NOTICE TO PROCEED, the OWNER shall obtain all land and rights-of-way necessary for carrying out and for the completion of the WORK to be performed pursuant to the CONTRACT DOCUMENTS, unless otherwise mutually agreed.

28.2 The OWNER shall provide to the CONTRACTOR information which delineates and describes the lands owned and rights-of-way acquired.

28.3 The CONTRACTOR shall provide at his own expense and without liability to the OWNER any additional land and access thereto that the CONTRACTOR may desire for temporary construction facilities, or for storage of materials.

29. GUARANTY

29.1 The CONTRACTOR shall guarantee all materials and equipment furnished and WORK performed for a period one (1) year from the date of SUBSTANTIAL COMPLETION. The CONTRACTOR warrants and guarantees for a period of one (1) year from the date of SUBSTANTIAL COMPLETION of the system that the completed system is free from all defects due to faulty materials or workmanship and the CONTRACTOR shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The Performance BOND shall remain in full force and effect through the guarantee period.

30. TAXES

30.1 The CONTRACTOR will pay all sales, consumer, use and other similar taxes required by the law of the place where the WORK is performed.

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

SECTION 00730

SUPPLEMENTAL GENERAL CONDITIONS

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| 1. Definitions | 17. Subsurface Conditions |
| 2. Additional Instructions and Detail Drawings | 18. Suspension of Work, Termination and Delay |
| 3. Schedules, Reports and Records | 19. Payments to Contractor |
| 4. Drawings and Specifications | 20. Acceptance of Final Payment as Release |
| 5. Shop Drawings | 21. Insurance |
| 6. Materials, Services and Facilities | 22. Contract Security |
| 7. Inspection and Testing | 23. Assignments |
| 8. Substitutions | 24. Indemnification |
| 9. Patents | 25. Separate Contracts |
| 10. Surveys, Permits, Regulations | 26. Subcontracting |
| 11. Protection of Work, Property, Persons | 27. Engineer's Authority |
| 12. Supervision by Contractor | 28. Land and Rights-of-Way |
| 13. Changes in Work | 29. Guaranty |
| 14. Changes in Contract Price | 30. Arbitration |
| 15. Time for Completion and Liquidated Damages | 31. Taxes |
| 16. Correction of Work | |

These Supplemental General Conditions supplement, modify and take precedence over the General Conditions.

1. DEFINITIONS

1.1 SUPPLEMENTAL GENERAL CONDITIONS - Modifications to General Conditions and taking precedence over General Conditions.

1.2 SPECIAL PROVISIONS - Special requirements relative to the project taking precedence over General Conditions and Supplemental General Conditions.

2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

No Modifications to General Conditions.

3. SCHEDULES, REPORTS AND RECORDS

No Modifications to General Conditions.

4. DRAWINGS AND SPECIFICATIONS

4.1 Wherever the words "directed", "required", "ordered", "approved", "acceptable". or others of like import appear in the specifications, they shall mean as directed, required, ordered, approved or acceptable by or to the Owner and by or to the Engineer acting as the Owner's agent.

4.2 All reference to Federal or other standards appearing on the drawings or in the specifications shall mean the current edition thereof.

4.3 The Contractor shall maintain, at the job site, one complete set of drawings and specifications. The Contractor shall record on this set all changes and field adjustments. The set shall be kept available for inspection by representatives of the Owner and Engineer. These drawings shall be delivered to the Engineer upon completion of the project and shall serve as the basis for preparation of Record Drawings.

4.5 Locations of overhead and underground utilities shown on the drawings were derived from existing records and from field observations, in order to provide the Contractor with as much information as could reasonably be ascertained without actually excavating and exposing subsurface utilities. The Owner and the Engineer do not warrant or guarantee the complete accuracy of the information shown. Some utilities may not be shown, and the location of those shown may not be entirely accurate.

4.6 All incidental items of labor and materials not specifically delineated by the Contract Documents, but which are necessary to provide a fully operable facility, and which may reasonably be interpreted as being a part of the work, shall be accomplished by the Contractor without extra charge.

5. SHOP DRAWINGS

5.1 The Contractor shall submit to the Engineer, six copies, plus the number required by the Contractor, layout drawings for installation and erection of the work and shop drawings for all fabricated or manufactured articles to be used in the work.

5.2 All shop drawings shall be submitted to the Engineer through the Contractor. Direct submittals by Subcontractors will not be accepted.

5.3 The Engineer's review of layout and shop drawings will be only to verify general compliance with contract documents. Figures, dimensions and other detail will not be checked. Any notation made on shop drawings by the Engineer shall be for the Contractor's guidance but shall not relieve the Contractor from his responsibility to re-check, verify and resolve items so noted. The Engineer's review of shop drawings shall not relieve the Contractor from responsibility for errors or omissions thereon, whether or not called to the attention of the Contractor by the Engineer.

5.4 Detailed shop drawings, data, and literature for fabricated materials or equipment to be incorporated in the work shall be submitted to the Engineer for review for general compliance with the contract documents before fabrication. The Contractor shall obtain and check manufacturer's shop drawings, certified prints, and other pertinent data for conformance with all requirements of the Plans and Specifications and in ample time to permit satisfactory progress of the work. After completion of such checking and verification by the Contractor, the Contractor shall sign or stamp such drawings, which stamp shall state as follows:

Checked by _____
(Checker's Name)

Signed by _____
(Contractor's Name)

All data, drawings, and correspondence from subcontractors, manufacturers, or suppliers shall be routed through the Contractor. The Engineer shall review only such data and details as are transmitted to him by the Contractor. All correspondence from the Contractor to the Engineer shall refer to the appropriate section of these specifications containing the subject matter of the inquiry.

5.5 At the time of each submission, the Contractor shall call to the Engineer's attention, in writing, any deviations that the shop drawings may have from the requirements of the Plans and Specifications. Such submissions shall also include reasons for the deviations and request a modification to the Contract Documents.

5.6 The shop drawings are intended to be utilized by the Contractor for additional fabrication, assembly, and erection data. The shop drawings do not change or supersede the Plans and Specifications except in specific cases when the Contractor requests in writing and receives approval in writing for a deviation from the Plans and Specifications. The Contractor's request for a change shall give, in detail, the specific change requested and shall state the reason for the change. Changes requested by the Contractor and approved by the Engineer shall not be construed to include approval of any change except the changed details specifically requested and approved.

5.7 The Contractor will also submit to the Engineer for review with such promptness as to cause no delay in work, all samples required by the Contract Documents. All samples shall have been checked by and stamped with the approval of the Contractor, identified clearly as to material, manufacturer, any pertinent catalog numbers and the use for which intended.

5.8 The Contractor's attention is specifically directed to the fact that no work shall be fabricated, nor equipment or materials ordered, nor any construction performed, prior to approval by the Engineer of shop drawings applicable thereto. Construction performed in violation of this requirement will be neither approved nor certified for payment until applicable shop drawings have been submitted and approved. If any equipment or materials are ordered by the Contractor prior to submission and approval of shop drawings, he does so at his own risk.

6. MATERIALS, SERVICES AND FACILITIES

No Modifications to General Conditions.

7. INSPECTION AND TESTING

7.1 Upon completion of the work, and prior to final acceptance thereof by the Owner, the Contractor shall place all systems in service and shall operate and maintain all mechanical and electrical equipment for a period of five days. At the end of this time, components deemed satisfactory shall thereafter be operated and maintained by the Owner.

8. SUBSTITUTIONS

8.1 When, in the bid proposal, the Bidder is required to designate the suppliers of one or more equipment items from among those named in the specification, he will be obligated to furnish the items so designated, and no substitutions will be authorized.

8.2 If any substituted equipment necessitates changing architectural or structural items, or electrical, water, gas, air or other utility services from the sizes, capacities and configurations

shown on the Drawings, it shall be the Contractor's responsibility to bear the cost of engineering fees to analyze, design, specify and formulate the construction changes necessitated by the proposed deviations from the specified equipment and/or the Contract Drawings. All redesigns shall bear the seal and be the responsibility of a Professional Engineer licensed in the State within which the project is located.

9. PATENTS

No modifications to General Conditions.

10. SURVEYS, PERMITS, REGULATIONS

10.1 Work done by the Contractor without his having first established proper lines and grade, or work done by him to incorrect line and grade. may be ordered removed and replaced at no increase in contract price.

10.2 Any bench marks destroyed through or as a direct result of the Contractor's construction operations shall be replaced and/or restored at his expense with no additional cost to the Owner.

10.3 Local, State and Federal permits secured by the Owner will be included in Special Provisions or will be provided to prospective bidders by Addenda. The Contractor shall comply with the provisions of all such permits, and the cost of all work dictated by such permits shall be included in the prices bid.

11. PROTECTION OF WORK, PROPERTY AND PERSONS

11.1 The Contractor shall make final and exact determination of the location and extent of all overhead and underground utilities in proximity to his work and will pay for any damage done to them due to his operations.

11.2 The Contractor shall at his own expense sustain in their places and protect from direct or indirect injury all pipes, wires, conduits, poles, tracks, walls, buildings, and other structures or property in the vicinity of his work whether above or below the ground, or that may appear in the trench. He shall at all times have a sufficient quantity of timber and plank, chains, ropes, etc. on the site and shall use them as necessary for sheeting his excavations and for sustaining or supporting any structures that are uncovered, undermined, endangered, threatened, or weakened. The Contractor shall take all risks attending the presence or proximity of pipes, wires, conduits, poles, tracks, walls, buildings, and other structures and property of every kind and description in or over his trenches or in the vicinity of his work whether above or below the surface ground; and he shall be responsible or all damage and assume all expense for direct or indirect injury caused by his work to any of them or to any person or property by reason of injury to them whether such structures are or are not shown on the drawings.

11.3 If the Contractor damages any utility, he shall immediately take such measures as are required to prevent further damage and to protect life and property. He shall also immediately notify the affected utility company and make such arrangements as are acceptable to them for permanent repair of the damage.

11.4 The Contractor shall be solely responsible for initiating, formulating, supervising, reviewing and overseeing any and all SAFETY precautions, practices, procedures, and programs which are, or should be provided in connection with the Work. Contractor will take all necessary or proper

precautions for the SAFETY of and will provide the necessary protection to prevent damage, injury or loss to the work, property and/or persons.

12. SUPERVISION BY CONTRACTOR

No Modifications to General Conditions.

13. CHANGES IN THE WORK

No modifications to General Conditions.

14. CHANGES IN CONTRACT PRICE

14.1 It is the Contractor's responsibility to notify his Surety of any changes affecting the general scope of the Work or change in the Contract Price, and the amount of the applicable Bonds shall be adjusted accordingly. Contractor shall furnish proof of such adjustment to Owner.

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

15.1 "Acts of God", as referenced in General Conditions, shall be interpreted to mean a cataclysmic phenomenon of nature. Climatic and subsurface conditions which may be abnormal for the area over all or part of the time span of the work, but which do not preclude prosecution of the work with the proper use of specified methods and equipment, shall not be considered as Acts of God.

16. CORRECTION OF WORK

No modifications to General Conditions.

17. SUBSURFACE CONDITIONS

17.1 The Owner and the Engineer in no way warrant or guarantee the accuracy of, information shown provided relative to subsurface conditions, types of subsurface materials or depths below ground surface of groundwater table or wet materials. Prior to submitting his bid proposal, the Bidder shall make his own on-site investigations of these conditions and materials and shall base his bid upon his own findings.

17.2 The Owner will not approve any request for change order based upon the contention that subsurface conditions or materials vary from those indicated on the drawings, on the premise that the Contractor's bid was based upon his own investigation of these materials and conditions.

17.3 Where test borings are shown, they have been so shown for the information of all parties concerned. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only, and neither the Owner nor the Engineer guarantees the accuracy of the information furnished or that the information is representative of the work area as a whole. Such information has been made available for the convenience of all bidders. It is further understood and agreed that the submission of a proposal shall be prima facie evidence that the bidder accepts sole responsibility for all assumptions, deductions, or conclusions which he may make or obtain from his examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Engineer or Owner.

17.4 Whether or not rock or other subsurface conditions are shown on the plans, the Contractor is not relieved of the responsibility of making his own investigations to determine the type of subsurface materials.

18. SUSPENSION OF WORK, TERMINATION AND DELAY

No modifications to General Conditions.

19. PAYMENTS TO CONTRACTOR

19.1 Payment for major materials and equipment stored on site will be limited to those items actually on the site of this work and under lock and key in Owner's or Contractor's building and for which proper insurance certificates have been submitted. It is the Engineer's decision as to whether a material or equipment item is considered major.

19.2 Each request for payment shall contain Contractor's certification that he has paid all Subcontractors and Materialsmen in the same proportion for all work and materials supplied by them as his own receipts.

19.3 Prior to final payment, the Contractor shall furnish a complete release of liens form, appropriate to the project, executed by all Subcontractors and materialsmen.

19.4 The Owner and the Engineer shall not be, precluded or estopped by any measurement, estimate or certificate made or given by them, either before or after the completion and acceptance of the work and payment therefore, from showing the true and correct amount and character of the work performed and materials furnished by the Contractor. The Owner and the Engineer may show at any time that such measurement, estimate or certification was incorrectly made, or that some or all work or materials do not in fact conform to the contract requirements. The Owner shall not be precluded or estopped, notwithstanding any such measurement, estimate, certification or payment, from recovering from the Contractor and his surety such damages as he may sustain by reason of the Contractor's failure to comply with the terms of the contract documents.

20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

No modifications to General Conditions.

21. INSURANCE

21.1 Contractor shall secure "All Risk" type Builder's Risk Insurance for work to be performed, in accord with General Conditions Item 21.5.

22. CONTRACT SECURITY

22.2 Performance and Payment Bonds - Bonds shall each be in a sum equal to the amount of the contract price.

23. ASSIGNMENTS

No modifications to General Conditions.

24. **INDEMNIFICATION**

No modifications to General Conditions.

25. **SEPARATE CONTRACTS**

No modifications to General Conditions.

26. **SUBCONTRACTING**

26.1 The Contractor shall submit to the Engineer a list of the names of proposed subcontractors and such other persons and organizations who are to furnish principal items of materials or equipment for the project. The Engineer may notify the Contractor in writing if either the Owner or the Engineer, after due investigation, has reasonable objection to any subcontractor, person, or organization on such list. The failure of the Owner or the Engineer to make objection to any subcontractor, person, or organization on the list shall not constitute an acceptance of such subcontractor, person, or organization. Acceptance of any such subcontractor, person, or organization shall not constitute a waiver of any right of the Owner or the Engineer to reject defective work, material, or equipment or work, material, or equipment not in conformance with the requirements of the Contract Documents.

26.2 If the Owner or the Engineer refuses to accept any subcontractor, person, or organization or such list, the Contractor will submit an acceptable substitute, and the Contract price shall remain unchanged or shall be increased or decreased by the difference in cost occasioned by such substitution, and an appropriate change order, if necessary, shall be issued.

27. **ENGINEERS AUTHORITY**

No modifications to General Conditions.

28. **LAND AND RIGHTS-OF-WAY**

28.1 All permanent construction will be within lands of the Owner, public rights-of-way or rights-of-way through private property acquired by the Owner and the Contractor shall confine his operations strictly within the limits of the rights-of-way and construction areas, unless he has written permission of the Owner of the adjacent property to occupy additional ground. A copy of the written permission shall be placed on file with the Owner.

29. **GUARANTY**

29.1 The Contractor hereby guarantees all of the work performed under this contract for a period of one year, unless otherwise noted, after substantial completion has been certified by the Owner and the Engineer. The guarantee shall be as follows:

29.2 Against all faulty or imperfect materials and against all imperfect, careless and/or unskilled workmanship, as evidenced by failure of structures, and/or equipment, etc.

29.3 The Contractor agrees to replace with proper workmanship and materials, and to re-execute, correct or repair, without cost to the Owner, any work which may be found to be improper or imperfect.

29.4 The guarantee obligations assumed by the Contractor under these Contract Documents shall not be held or taken to be in any way impaired because of the specifications, indication or approval by or on behalf of the Owner of any articles, materials, means, combinations or things used or to be used in the construction, performance and completion of the work, or any part thereof.

30. **ARBITRATION**

Delete this section in its entirety.

31. **TAXES**

No modifications to General Conditions.

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01001

LIST OF DRAWINGS

PART 1 - GENERAL

| <u>SHEET NO.</u> | <u>TITLE</u> |
|------------------|--|
| 1 | TITLE SHEET |
| 2 | GENERAL NOTES AND DETAILS |
| 3 | WATER MAIN PLAN AND PROFILE |
| 4 | CONSTRUCTION DETAILS |
| 5 | CONSTRUCTION DETAILS |
| 6 | TRAFFIC CONTROL PLAN, NOTES AND DETAILS |
| 7 | TRAFFIC CONTROL PLAN, NOTES AND DETAILS |
| 8 | EROSION AND SEDIMENT CONTROL PLANS |
| 9 | EROSION AND SEDIMENT CONTROL NOTES AND DETAILS |
| 10 | EROSION AND SEDIMENT CONTROL NOTES AND DETAILS |

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

PART 4 - MEASUREMENT AND PAYMENT

Not Used.

*** END OF SECTION ***

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. The work under this Contract consists of constructing, complete with all equipment and accessories, the following:

1. New water main piping, valves, fittings, and appurtenances.
2. Erosion & sediment control measures.
3. Traffic control measures.
4. Site restoration and paving.

C. The work under this Contract includes all requirements to provide a fully finished and operable water distribution system including miscellaneous items and incidentals as shall be indicated, shown, specified, or required to complete the work in strict conformity with the Contract Documents. The Contractor shall provide all labor, equipment, tools, appliances, materials and incidentals, and shall perform all operations required to completely finish all of the work to the satisfaction of the Owner and the Engineer. The Contractor shall be obligated to furnish a complete water main.

D. The Contractor's attention is directed to the fact that the existing potable water system must be maintained in service throughout the project. No disruptions to the water supply will be permitted without the prior written approval of the Town and the Engineer.

E. The work under this Contract consists of constructing approximately 1,300 feet of new 8-inch, 10-inch, and 12-inch water main from the intersection of 1st Street and eastbound Maryland Business Route 404 / Franklin Street to the Wharves of Choptank J.O.K. Walsh Visitor and Heritage Center at 3 Crouse Park Lane in the Town of Denton, MD. The work includes installing a steel casing via jack-and-bore crossing Maryland Business Route 404 and installing the new water main through the casing. Ground surface disturbance on the south side of eastbound Maryland Business Route 404 from the intersection with 1st Street to the area of the jack-and-bore receiving pit is prohibited with that section of water main to be installed via directional drilling methods. Access to the jack-and-bore receiving pit shall be from the roadway with the contractor temporarily removing sections of guardrail for access and replacing them when not actively working there. Also included are erosion and sediment control, traffic control, and site restoration.

1.02 FIELD CONTROL OF THE WORK / SURVEYS

A. The Contractor shall engage an independent licensed surveyor qualified in the various types of survey work specified herein. The surveying firm shall have a trained staff large enough to perform the specified duties. Within fifteen (15) days after the award of the Contract, the

Contractor shall submit the name of the licensed surveyor including the surveyor's qualifications. The surveyor's duties shall be as outlined herein:

1. Survey, set, and maintain guide stakes required for earth movement and levels.
2. Establish the locations and level of all structures. Establish the limit of disturbed area.
3. Check grades, contours, and levels throughout earth movement operation making allowances for required depressions under paving and sodded areas.
4. Establish lines and grades for underground lines. Make interim checks as required to adhere to the Contract Drawings.
5. Inform the Engineer immediately if, during the survey, deviations from the Contract Drawings are uncovered.

1.03 TIME OF COMPLETION OF CONTRACT AND LIQUIDATED DAMAGES

The Bid Form states the number of consecutive calendar days allowed from date of "Notice to Proceed" to date of completion of the work under this contract. For each and every day that the Contractor is in default in completing the Contract as defined in the General Conditions and in the Bid, the Contractor shall pay to the Owner liquidated damages.

1.04 CONTRACT DOCUMENTS

A. All work shall be completed in accordance with the Contract Documents. Contract Documents for this project include:

1. Instructions to Bidders.
2. Proposal (Bid) Form.
3. Agreement.
4. General Conditions.
5. Supplementary Conditions.
6. Technical Specifications (Divisions 01 and 02).
7. Construction Drawings (Plans).
8. Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction, latest edition and all addenda thereto.
9. Maryland Department of Transportation State Highway Administration Standard Specifications for Construction and Materials, latest edition, and all addenda thereto.

B. The Contract Drawings and Technical Specifications are complementary. However, should a dispute arise as to which shall govern, the Technical Specifications will apply.

C. If there is any discrepancy between the "Standard General Conditions" and the "Technical Specifications," the Technical Specifications shall govern.

1.05 WAGE RATES

A. The Contractor shall comply within price bid and without extra cost to the Owner with any and all minimum wage rate determinations made applicable to this project by the State of Maryland, Department of Licensing and Regulation, Division of Labor and Industry or the Federal Wage Rates, whichever is higher.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

A. Contractor shall be solely responsible for the means, labor, methods, techniques, sequences, and procedures of construction.

B. Construction work under this contract shall be performed in a manner that minimizes impact to normal facility operations.

C. The Contractor shall submit to the Engineer drawings showing details of all temporary connections or facilities as required.

D. No extra payment shall be made for any labor, materials, tools, equipment, or temporary facilities required during the construction of facilities. All costs therefore shall be considered to have been included in the price(s) bid.

PART 4 - MEASUREMENT AND PAYMENT

Not Used.

*** END OF SECTION ***

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 REQUIREMENTS

A. Payment for the work completed under this Contract will be made at the lump sum prices, unit prices, and contingent unit prices bid of which shall include the furnishing of all labor, tools, equipment, and materials and the performance of all work required to complete the project as indicated and specified in accordance with all requirements of the Contract Documents and to the entire satisfaction of the Owner, Engineer, and Resident Project Representative. All incidental minor and miscellaneous items, work, and materials for which no specific lump sum or unit price bid item is shown and which are necessary to complete the work and to maintain and/or repair the work shall be done and furnished by the Contractor without extra charge.

B. It is intended that all work shown on the Contract Drawings and included in the Specifications is to be paid for under Part A – Lump Sum Bid Items, Part B – Unit Cost Bid Items and Part C – Contingent Bid Items. Part A – Lump Sum Bid Items will be paid based on the percentage Work complete. Part B – Unit Cost Bid Items will be paid based on the quantity of item installed in place. Part C – Contingent Bid Items will be made only where authorized in writing by the Town. The Contractor shall not be entitled to receive additional compensation for anything furnished or done except for such extra work authorized in writing by the Town.

C. The Contractor shall submit to the Town for acceptance ten (10) days after the award of the contract a breakdown of the bid. This breakdown shall add up to the 100% value of the bid and shall be arranged to conform the items in the Bid Form. The breakdown will be used for the purpose of arriving at a basis for the monthly estimate. Expenses which the Contractor incurs in connection with bidding this Contract, such as office expenses and all other expenses included in overhead shall not be included as separate items in the breakdown but rather shall be proportioned between the various items which constitute the breakdown.

1.02 PART A – LUMP SUM BID ITEMS

Item No. A-1: Mobilization / Demobilization, Bonding, Stake-Out, Etc.

A. This item of Work shall consist of all of the efforts associated with mobilization / demobilization and general conditions as described in the Specifications. The work shall include, but not be limited to, temporary utilities, submittals, closeout and clean-up, construction stakeout, maintaining as-built drawings, administrative overhead costs, bonding, etc..

B. This item shall be limited to no more than five percent (5%) of the total Base Bid.

C. Measurement and payment shall be made on the percentage complete for this item as agreed to by the Town and Contractor at each pay application not to exceed the lump sum price bid. Refer to Specification Section 01100 – Mobilization for more information.

Item No. A-2: Maintenance of Traffic

A. This item of Work shall consist of furnishing, installing, and maintaining all signage including covering and uncovering of signage as the progress of construction evolves, installing jersey barriers, posting flagging personnel, and performing all maintenance of traffic in a safe manner during the course of the Work in accordance with the plans and the Town's Standards and Specifications.

B. Measurement and payment shall be made on the percentage complete for this item as agreed to by the Town and Contractor at each pay application not to exceed the lump sum price bid.

1.03 PART B – UNIT COST BID ITEMS

Item No. B-1: Inlet Protection (All Types):

A. This item of Work shall consist of the protection and maintaining of the storm drain inlets shown in the contract drawings and called out as needing protection. Installation will be in accordance with the Maryland Department of the Environment and these Specifications. This item shall cover all inlets including but not limited to standard inlets, at-grade inlets, curb inlets, gutter inlets, and combination inlets.

B. Measurement shall not be made. Payment shall be made at the unit price bid each for storm drain inlets needing protection.

Item No. B-2: Silt Fence

A. This item of Work shall include and cover the furnishing and placing of silt fence in accordance with the Maryland Department of the Environment and these Specifications as directed by the Engineer including all necessary labor and materials necessary to maintain silt fence throughout the entire duration of the project.

B. Measurement shall be made horizontally per foot along the length of the silt fence. Payment for all work in connection with furnishing and placing silt fence will be made at the unit price bid for the number of linear feet actually installed.

Item No. B-3: Stabilized Construction Entrance

A. This item of Work shall include and cover the furnishing and placing of stabilized construction entrance in accordance with the Maryland Department of the Environment and these Specifications as directed by the Engineer including all necessary labor and materials necessary to maintain stabilized construction entrance throughout the entire duration of the project.

B. Measurement shall be made per square yard furnished and placed. Payment for all work in connection with furnishing and placing stabilized construction entrance will be made at the unit price bid for the number of square yards actually installed.

Item No. B-4: Removal of Existing Pavement, Sidewalk, Curb, and Combination Curb & Gutter

A. This item of Work shall include removal of existing pavement, sidewalk, curb, combination curb & gutter, or other miscellaneous surfaces to the standard cutback dimensions shown on the

details or as directed by the Resident Project Representative. Areas beyond the standard cutback dimensions that require removal due to the Contractor's activities will not be measured for payment. The price bid shall include all work specified herein regardless of type or depth of material placed including all excavation, backfill, and proper disposal of surplus materials, trimming existing pavement, subgrade preparation, pavement markings, and furnishing all labor, tools, equipment, materials, and incidentals necessary to satisfactorily complete the work as shown and specified in the Contract Documents.

B. Measurement shall be made per square yard of pavement, sidewalk, curb, or combination curb & gutter removed. Payment shall be made at the unit price bid per square yard.

Item No. B-5: 8-Inch Ductile Iron Class 53 Water Main Pipe and Appurtenances

A. This item of Work shall consist of furnishing and installing the 8-inch ductile iron water main pipe including bends / fittings and buttresses / anchorages / thrust blocks at the locations shown on the contract drawings. The Work shall include utility locating along the alignment, test pitting, excavation, pipe bedding, laying and testing of pipe, backfill, compaction, installation of detection tape, and all other work required to install the water main. Installation shall be in accordance with the Town Standards and Specifications.

B. Measurement shall be made on the basis of the length of pipe installed horizontally along the center line complete in place. Payment shall be made at the unit price bid per linear foot of pipe complete in place.

Item No. B-6: 10-Inch Ductile Iron Class 53 Water Main Pipe and Appurtenances

A. This item of Work shall consist of furnishing and installing the 10-inch ductile iron water main pipe including bends / fittings and buttresses / anchorages / thrust blocks at the locations shown on the contract drawings. The Work shall include utility locating along the alignment, test pitting, excavation, pipe bedding, laying and testing of pipe, backfill, compaction, installation of detection tape, and all other work required to install the water main. Installation shall be in accordance with the Town Standards and Specifications.

B. For the portion of 10-inch ductile iron water main pipe to be installed in a steel casing, refer to Item No. B-8: Jack-and-Bore Roadway Crossing including Steel Casing for additional information.

C. Measurement shall be made on the basis of the length of pipe installed horizontally along the center line complete in place. Payment shall be made at the unit price bid per linear foot of pipe complete in place.

Item No. B-7: 12-Inch HDPE DIPS DR-9 Water Main Pipe and Appurtenances

A. This item of Work shall consist of furnishing and installing the 12-inch HDPE water main pipe including bends / fittings and buttresses / anchorages / thrust blocks at the locations shown on the contract drawings. The Work shall include utility locating along the alignment, test pitting, excavation, pipe bedding, laying and testing of pipe, backfill, compaction, installation of detection tape, and all other work required to install the water main. Installation shall be in accordance with the Town Standards and Specifications.

B. This item of Work shall cover installation of HDPE water main pipe regardless of method of installation which may be via open cut excavation or directional drilling. Installation via open cut excavation shall be in accordance with the Town Standards and Specifications. Installation via directional drilling shall be in accordance with Specification Section 02402: Directional Drilling.

C. The transition from HDPE to ductile iron pipe or ductile iron fittings shall be at the locations shown on the drawings. The transition shall be made per the Specification Section 02402: Directional Drilling and in accordance with the "DIP to HDPE Restrained Coupling" detail included in the drawings. All materials, equipment, and labor associated with the HDPE to DIP transitions are considered incidental to this bid item.

D. Measurement shall be made on the basis of the length of pipe installed horizontally along the center line complete in place. Payment shall be made at the unit price bid per linear foot of pipe complete in place.

Item No. B-8: Jack-and-Bore Roadway Crossing including Steel Casing

A. This item of Work shall consist of furnishing the steel casing and installing it via jack-and-bore crossing the roadway at the location(s) indicated on the contract drawings. The Work shall include utility locating along the alignment and the sending and receiving pits, test pitting, excavation, steel casing, installation and testing of the steel casing, backfill, compaction, and all other work required to install the steel casing. The Work shall also include the spacers, end seals, and appurtenances necessary to install the water main pipe through the casing pipe as well as any additional measures for installing water main pipe through the steel casing. Installation shall be in accordance with the Town Standards and Specifications.

B. Measurement shall be made on the basis of the length of steel casing installed horizontally along the centerline complete in place including furnishing and installing the steel casing, spacers, end seals, and appurtenances necessary to install water main pipe through the casing pipe. The water main pipe to be installed through the casing shall be included as part of Item No. B-6: 10-Inch Ductile Iron Class 53 Water Main Pipe and Appurtenances. Payment shall be made at the unit price bid per linear foot of casing complete in place.

Item B-9: 6-Inch Insertion Valve

A. This item of Work shall consist of furnishing and installing (cutting in) all 6-inch insertion valves, roadway valve boxes and valve box adaptors, testing of the complete installation, and all items necessary to satisfactorily complete the work in accordance with the contract drawings and at the indicated location(s). Work will include excavation, backfill, compaction, bedding, and alignment in accordance with Town's Standards and Specifications.

B. Measurement shall not be made. Payment shall be made at the unit price bid each for 6-inch insertion valve with valve box properly installed.

Item B-10: 10-Inch Gate Valve with Valve Box

A. This item of Work shall consist of furnishing and installing 10-inch gate valves and valve boxes in accordance with the contract documents and at the indicated locations. Work will include excavation, backfill, compaction, bedding, and alignment in accordance with Town's Standards and Specifications.

B. Measurement shall not be made. Payment shall be made at the unit price bid each for 10-inch gate valve with valve box properly installed.

Item B-11: Fire Hydrant including Connection, 6-Inch Lead, and Appurtenances

A. This item of Work shall consist of furnishing and installing the fire hydrant, 6-inch ductile iron water main lead pipe including bends / fittings and buttresses / anchorages / thrust blocks, and the 6-inch valve and valve box at the locations shown on the contract drawings. The Work shall include utility locating along the alignment, test pitting, excavation, pipe bedding, laying and testing of pipe, backfill, compaction, installation of detection tape, and all other work required to install the fire hydrant. Installation shall be in accordance with the Town Standards and Specifications.

B. Measurement shall not be made. Payment shall be made at the unit price bid each for fire hydrants properly installed.

Item B-12: Blowoff Assembly including Connection, 2-Inch Lead, and Appurtenances

A. This item of Work shall consist of furnishing and installing the blowoff assembly, 2-inch lead pipe including bends / fittings and buttresses / anchorages / thrust blocks, and the 24-inch meter pit with cover at the locations shown on the contract drawings. The Work shall include utility locating along the alignment, test pitting, excavation, bedding, laying and testing of pipe, backfill, compaction, installation of detection tape, and all other work required to install the blowoff assembly. Installation shall be in accordance with the Town Standards and Specifications

B. Measurement shall not be made. Payment shall be made at the unit price bid each for blowoff assemblies properly installed.

Item B-13: Concrete Encasement

A. This item of Work shall consist of furnishing and placing concrete as shown on the Drawings. Installation shall be in accordance with the Town Standards and Specifications.

B. Measurement under this item will be made on the basis of the actual in-place cubic yard volume of material satisfactorily furnished and placed. Payment will be made at the unit price bid per cubic yard.

Item B-14: Pavement Repair

A. This item of Work shall include repair of existing pavement to the standard cutback dimensions shown on the details or as directed by the Resident Project Representative. Areas beyond the standard cutback dimensions that require repair due to the Contractor's activities will not be measured for payment. The price bid shall include all work specified herein including all Graded Aggregate Base (GAB) or No. 57 stone, base course asphalt, surface course asphalt, compaction, pavement markings, and incidental materials as well as furnishing all labor, tools, equipment, materials, and incidentals necessary to satisfactorily complete the work as shown and specified in the Contract Documents. The Work will be completed in accordance with Town Standards and Specifications.

B. Measurement of the pavement repair shall be made per square yard. Payment shall be made at the unit price bid per square yard acceptably placed.

Item B-15: Concrete Sidewalk, Curb, Gutter Repair

A. This item of Work shall include all materials and labor required to repair concrete sidewalk, curb, and curb & gutter in accordance with the contract drawings. The price bid for repairing existing concrete sidewalk, curb, and curb & gutter shall include all work specified herein regardless of type or depth of material placed including all excavation, backfill, and disposal of surplus materials and furnishing all labor, tools, equipment, materials, and incidentals necessary to satisfactorily complete the work as shown and specified in with the Contract Documents, and accepted by the Resident Project Representative. The Work will be completed in accordance with Town Standards and Specifications.

B. Measurement shall be made per square yard of pavement, sidewalk, curb, or combination curb & gutter repaired. Payment shall be made at the unit price bid per square yard.

Item B-16: Topsoil Furnished and Placed at 4-Inch Depth

A. This item of Work shall include all materials and labor required to furnish and place topsoil. This includes the acceptable storage of topsoil and compaction. The Work will be completed in accordance with Town Standards and Specifications.

B. Measurement shall be made per square yard topsoil furnished and placed. Payment shall be made at the unit price bid per square yard.

Item B-17: Seeding and Mulching

A. This item of Work shall include all materials and labor required for seeding and mulching. The Work will be completed in accordance with Town Standards and Specifications.

B. Measurement of the seeding and mulching be made per square yard. Payment shall be made at the unit price bid per square yard.

1.04 PART C – CONTINGENT BID ITEMS

Item C-1: Contingent Tree Removal (12-Inch and Larger)

A. This item of Work shall cover removal and disposal of all trees 12 inches in diameter at breast height (DBH) and larger when directed by the Engineer. Any trees removed as part of the work that are smaller than 12 inches in diameter are considered incidental.

B. Measurement shall not be made. Payment shall be made at the unit price bid each for 12-inch and larger trees removed.

Item C-2: Contingent Test Pit Excavation

A. This item of Work consists of excavating test pits, whether by hand or equipment, when directed by the Engineer. This work does not include test pits associated with locating existing utilities within the alignment shown on the Drawings. Test pitting existing utilities shown along the alignment for water installation is incidental to the linear footage cost of water main.

B. Measurement of volume of excavated material will be based on the average dimensions of length, width, and depth of test pits excavated within the limits directed by the Engineer. Payment will be made at the unit price bid per cubic yard.

Item C-3: Contingent Excavation

A. This item of Work shall consist of excavation, hauling, and disposal of all unsuitable material below subgrade or of all material in addition to that shown on the Drawings, specified, or included in other Bid Items and in accordance with the written direction of the Engineer.

B. Measurement under this item will be made on the basis of the actual volume of material excavated in cubic yards measured in place as directed by the Engineer. Payment will be made at the unit price bid per cubic yard.

Item C-4: Contingent Special Backfill

A. This item of Work shall consist of furnishing and placing special backfill in addition to that shown on the Drawings, specified, or as included in other Bid Items or in the event that sufficient suitable material is not available from the required excavations on site and in accordance with the written direction of the Engineer.

B. Measurement under this item will be made on the basis of the cubic yard volume of material satisfactorily furnished and placed as directed by the Engineer. Payment will be made at the unit price bid per cubic yard.

Item C-5: Contingent Graded Aggregate Base (GAB)

A. This item of Work shall consist of furnishing and placing Graded Aggregate Base (GAB) in addition to that shown on the Drawings, specified, or as included in other Bid Items or in the event that sufficient suitable material is not available from the required excavations on site, and in accordance with the written direction of the Engineer.

B. Measurement under this item will be made on the basis of the cubic yard volume of material satisfactorily furnished and placed as directed by the Engineer. Payment will be made at the unit price bid per cubic yard.

Item C-6: Contingent Concrete Encasement

A. This item of Work shall consist of furnishing and placing concrete in addition to that shown on the Drawings, specified, or as included in other Bid Items in accordance with the written direction of the Engineer. Installation shall be in accordance with the Town Standards and Specifications.

B. Measurement under this item will be made on the basis of the actual in-place cubic yard volume of material satisfactorily furnished and placed, as directed by the Engineer. Payment will be made at the unit price bid per cubic yard.

Item C-7: Contingent 8-Inch Pipe Bend

A. This item of Work shall consist of the furnishing and installation of additional 8-inch pipe bends beyond those shown on the contract drawings which are incidental to the linear footage cost of the corresponding water main bid item. This will be employed only at the direction of the Engineer and conform to the Town Standards and Specifications.

B. Measurement shall not be made. Payment shall be made at the unit price bid each for 8-inch pipe bend.

Item C-8: Contingent 10-Inch Pipe Bend

A. This item of Work shall consist of the furnishing and installation of additional 10-inch pipe bends beyond those shown on the contract drawings which are incidental to the linear footage cost of the corresponding water main bid item. This will be employed only at the direction of the Engineer and conform to the Town Standards and Specifications.

B. Measurement shall not be made. Payment shall be made at the unit price bid each for 10-inch pipe bend.

1.05 ESTIMATED QUANTITIES

A. All estimated quantities identified in this Specification and contained on the Construction Drawings are approximate and are to be used only as a basis for estimating the probable cost of the work. The actual amounts of work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials furnished.

B. The Contractor agrees to make no claim for damages, anticipated profits, or otherwise on account of any difference between the amount of the work actually performed and materials actually furnished and the estimated amounts herein, except as follows. Either the Owner or the contractor may demand in writing that a supplemental agreement or change order be prepared to authorize an adjustment in the unit price of any major contract item if the quantity of said major contract item increases or decreases by more than 25 percent from that shown in the Contract Documents. A major contract item is defined as any item having an original contract value in excess of 10 percent of the total original task.

1.06 PAYMENT

A. A retainage of 10% of all invoices payable to the Contractor shall be held by the Owner until after final acceptance of the work. Once 50 percent or more of the Work has been completed, the Owner and Engineer may at their discretion elect to hold no additional retainage as long as the character and progress of the Work remain satisfactory.

B. The Contractor shall promptly pay each Subcontractor (including suppliers, laborers and materialmen) performing labor or furnishing material for the work upon receipt of payment from the Owner out of the amount paid to the Contractor on account of the work for each subcontractor, supplier, laborer, or materialmen, the amount to which said subcontractor is entitled, reflecting the percentage actually retained, if any, from payments to the Contractor on account of such work.

C. The Owner may upon request and at the Owner's discretion furnish to any subcontractor, if practicable, information regarding the percentages of completion or the amounts applied for by the Contractor and the action taken thereon by the Owner on account of work done by such subcontractor. The Owner shall not have any obligation to pay nor to see to the payment of any monies to any subcontractor except as may otherwise be required by law.

D. No progress payment nor any partial or entire use of occupancy of the project by the Owner shall constitute an acceptance of any work which is not in accordance with the Contract Documents.

1.07 PAYMENTS WITHHELD

A. The Owner may decline to pay all or any part thereof or, because of subsequent observations, may nullify the whole or any part of any payment previously issued to such extent as may be necessary in its opinion to protect the Owner from loss because of the following:

1. Defective work not remedied.
2. Third party claims filed or reasonable evidence indicating probable filing of such claims.
3. Failure of the Contractor to make payments properly to subcontractors or for labor, material, or equipment.
4. Reasonable evidence that the work cannot be completed for unpaid balance of the Contract sum.
5. Damage to the Owner or another Contractor.
6. Reasonable evidence that the work will not be or has not been completed within the Contract time.
7. Failure to carry out the work in accordance with the Contract Documents.
8. Cancellation, material change, or lapse of required insurance as specified in the Contract Documents.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

*** END OF SECTION ***

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01030

ALTERNATIVES

PART 1 - GENERAL

1.01 RELATED WORK

A. Alternative equipment, methods and materials must be listed in the Bid. Failure to submit information on alternative equipment, methods and materials as requested by the Owner is cause for rejection of the proposed alternative and only the specified equipment and materials will be permitted to be incorporated in the finished project.

B. All alternative equipment, methods and materials offered in the Bid must comply with the detailed requirements of the Specifications and shall be covered by the specified guarantees and warranties. If it is determined that the alternative equipment, methods and materials do not conform with the Specifications, such proposed alternative shall not be accepted, and the Contractor will be required to furnish and install the specified equipment and materials.

C. No alternative materials, methods and equipment will be incorporated in the finished project except an alternative accepted in writing by Owner pursuant to the requirements of this Section. Acceptance by Owner of any such alternative shall not relieve Contractor of responsibility for assuring that any such alternative will, after installation or incorporation in the Work, conform to any performance requirements and other information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

1.02 PAYMENT

A. The Contractor shall pay for all installation costs necessitated by the selection of alternative equipment, methods and material. Such costs are included in the Contract price and any modifications as stated in the Bid.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

PART 4 - MEASUREMENT AND PAYMENT

Not Used.

*** END OF SECTION ***

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01040

COORDINATION

PART 1 - GENERAL

1.01 CONSTRUCTION SEQUENCING AND COORDINATION

A. Work under this contract shall interfere to the least extent possible with the operations of the existing water supply system for the Town, with the work of Town personnel, and with the work of other contractors. Temporary measures must be implemented to provide water through the system if existing water main is taken out of service.

B. Operations of valves and/or gates required to perform the work shall be done by Town personnel. The Owner or the Owner's designated agent will supervise this work and no valve, gate, or other equipment shall be operated without the Owner's knowledge. Written requests to operate valves or gates or other actions which could affect normal operations shall be directed to the Owner at least 14 days in advance of the need to do so.

C. Connections to existing pipes and structures shall be scheduled and coordinated in advance with the Owner and the Engineer. It may be necessary to make connections during the night hours or weekends. No claim for extra compensation or extension of contract time will be allowed on account of the necessity for connections to be made during normal "off" hours. Permission of the Owner shall be obtained by the Contractor prior to making any connections to the existing system.

D. Temporary Interruptions:

1. The duration of temporary interruptions of normal water system operations shall be as mutually agreed upon by the Town, the Engineer, and the Contractor.

2. In order to minimize each shutdown period, the Contractor shall complete the work to the fullest extent possible prior to each shutdown request. The Contractor shall have completed all necessary preparatory work including testing and shall have adequate personnel available to keep each shutdown period to a minimum. All equipment and materials required to complete the work during a shutdown period shall be on the job site before the shutdown is commenced.

3. The Contractor shall carefully coordinate all work and schedules. Written requests for temporary shutdowns shall be directed to the Engineer at least 21 days in advance of the proposed shutdown.

4. Prior to any proposed shutdown period, the Contractor shall submit to the Engineer in writing detailed descriptions and schedules of the proposed construction procedures during the shutdown period. Information submitted shall include a complete inventory of materials and equipment needed to perform the work. No shutdown of a facility or operation shall be

permitted until the Engineer and Owner have reviewed and approved in writing the proposed construction plans and procedures.

5. If work during any shutdown period is not done satisfactorily, or as planned, or within the maximum time allocated, the Resident Project Representative may order the Contractor to place the facility (or portion thereof) back into service and reschedule the work or the Resident Project Representative may order the work required to place the facility or operation back in service done with other forces at the expense of the Contractor.

6. No extra payment will be made for any labor, materials, tools, equipment, or temporary facilities required during the shutdown periods. All costs therefore shall be considered to have been included in the prices bid for the contract.

1.02 INTERFACE WITH EXISTING FACILITIES

A. All work must be accomplished while the existing water system is in operation. All work shall be accomplished so as to minimize interference with the operation of the system.

B. The Contractor shall locate all existing utilities prior to excavation and shall exercise caution to protect them during construction.

C. All operational functions in the existing facilities shall be performed by Town personnel unless otherwise authorized. The Contractor shall conduct his operations so as not to interfere with or injure the work of other contractors or workers performing work for the Town. The Contractor shall promptly make good at its own expense any injury or damage which may be done to such work by the Contractor or the Contractor's employees, agents, or subcontractors.

1.03 MAINTENANCE OF TRAFFIC

A. It shall be the responsibility of the Contractor not to interfere with or create any hazards to traffic. No equipment or material will be stored or permitted to stand where traffic must be maintained. It shall be the responsibility of the Contractor to control dust on all roadways and walkways on which traffic is being maintained.

B. A single lane of 10 feet minimum width shall be provided at all times for local traffic and/or emergency vehicles (fire, police, ambulances, or school buses). Flaggers and appropriate signage in conformance with the MUTCD shall be provided, installed, and maintained by the Contractor so as to adequately and safely control traffic movement and flow where the roadway is restricted to one lane of traffic.

C. Contractor shall be required to schedule work so as to cause the least amount of inconvenience to commercial, private, and public properties and access thereto. The Contractor shall maintain at least one lane of a minimum width of ten feet (10') for entrance and egress at all times when constructing across entrances.

D. Any work within State Highway Administration (SHA) right-of-way shall be in accordance with the Contract Documents, the Maryland Department of Transportation State Highway Administration (MDSHA) Standard Specifications for Construction and Materials, latest edition, and all addenda thereto, and the requirements of any permits issued by the State Highway Administration.

E. Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

1.04 SEQUENCE OF CONSTRUCTION

A. The Contractor is responsible for all construction sequencing. The Contractor shall, in accordance with Specification Section 01300 – Submittals, submit and obtain approval of a detailed sequence of construction. Acceptance of this plan by the Engineer denotes only lack of objection at the time and in no way implies that the Engineer guarantees that the particular sequence of construction as proposed by the Contractor will in fact work. Also, any approval given is done so with the stipulation that all work done shall comply with the plans and specifications.

B. As construction proceeds, should the Contractor's sequence cause operational problems that were unforeseen at the time of approval, the Engineer reserves the right to withdraw the previous approval and require the Contractor to submit and obtain approval of an amended sequence of construction.

C. The following is a “Suggested Sequence of Construction”. The descriptions do not purport to include or detail all steps necessary to complete the work. The suggested sequence of construction may be modified by the Contractor to suit existing conditions with the approval of the Owner and Engineer. There will be only one “Notice to Proceed” for the entire Contract. Specific work tasks not mentioned in the suggested sequence of construction but necessary for a complete project shall be accomplished at the Contractor’s discretion. All work shall comply with the plans, specifications, and project constraints.

D. Suggested Sequence of Construction:

1. Notify the Town of Denton Department of Public Works (410-479-5446) at least five (5) days prior to beginning work on-site.
2. Notify Miss Utility of Delmarva (1-800-441-8355) at least three (3) working days prior to beginning work.
3. Notify the Caroline Soil Conservation District at (410) 479-1202 at least 72 hours before commencing work. Work may not commence until the permittee or the responsible personnel have met on site with the Caroline Soil Conservation District Inspector to review the approved plans.
4. Conduct a Pre-Construction Meeting with the Town, the Caroline Soil Conservation District, the Contractor, and the Engineer.
5. Clear and grub only that portion of the project area necessary for sediment and erosion control measures or devices.
6. Install all sediment and erosion control measures and devices.
7. Notify Soil Conservation District Inspector upon completion of the installation work noted above. Contact the Soil Conservation District Inspector to approve the installation of erosion and sediment controls.

8. With the approval of the Soil Conservation District Inspector, clear and grub the remainder of the site and stabilize immediately.
9. Install traffic control measures and devices where needed.
10. Begin excavation and installation of utilities. Work shall be limited to that which can be backfilled and stabilized in one day. Stabilize work area at the end of each day.
11. The work under each phase of work shall generally include the following:
 - a. Install, test, and disinfect proposed new water main. The Contractor shall ensure that the valve(s) is(are) properly supported prior to pressurizing / testing the proposed main.
 - b. Connect to existing utilities where applicable.
 - c. Complete all stabilization as per the plans including paving, concrete sidewalk, curb or combination curb & gutter, and seeding and mulching.
12. Remove any remaining traffic control measures and devices.
13. With permission from the Soil Conservation District Inspector, remove stabilized construction entrance(s) and immediately stabilize all affected areas with seed and erosion control blanket as per the stabilization specifications.
14. Restore and stabilize all disturbed areas.
15. Following approval from the Soil Conservation District Inspector, remove all remaining sediment control measures and stabilize all remaining areas.
16. Clean up entire construction site.

Notes:

1. Stockpile soils from excavations are to be placed on the uphill side of trenches. All excess materials shall be removed by the Contractor every day before leaving the site.

1.05 COORDINATION OF TRADES

A. Where the work of any trade shall be installed in close proximity to work of other trades or where there is evidence that the work of any trade shall interfere with the work of other trades, the Contractor shall work out space allocations to make a satisfactory adjustment. If so ordered by the Engineer, the Contractor shall prepare composite working drawings and sections at a suitable scale, not less than 1/4 inch equal 1 foot, clearly showing how work is to be installed in relation to the work of the other trades. If the Contractor permits any work to be installed before coordinating with the various trades or causes interference with work of other trades, the Contractor shall make necessary changes in the work to correct the condition without extra cost to the Owner.

B. The Contractor shall arrange that each trade determine the location, size, and arrangement of all chases and openings and shall establish clearances in concealed spaces required for the

proper installation of its work and shall see that such are provided.

1.06 CLEANUP

A. The Contractor shall keep all trash, garbage, spent material containers, etc. picked up on a daily basis.

B. Upon completion of the work and before final acceptance will be made, the work site, storage areas, and other areas occupied by the Contractor during construction shall be cleaned and all surplus and discarded materials, false work, and rubbish placed thereon by the Contractor shall be removed by the Contractor. The Contractor's storage area shall be top-soiled, seeded, and mulched. No additional payment will be made for the work as all such costs shall be included in the price bid for other items.

C. Should daily site cleaning and final restoration not be performed, the Owner shall have such done with the costs of same being charged to the Contractor.

1.07 TOOLS, ACCESSORIES AND SPARE PARTS

A. Unless otherwise stated, the Contractor shall furnish with each type, kind, and size of equipment one complete set of any special tools and appliances which may be needed to adjust, operate, maintain, or repair the equipment.

B. Each piece of equipment shall be provided with a substantial name plate which is securely fastened in place and clearly inscribed with the manufacturer's name, year of manufacture, and principal rating data.

C. Where the Specifications require spare parts to be furnished by the Contractor, said spare parts for each item of equipment shall be kept separate and tagged to identify the specific item of equipment to which they belong, shall be packaged so as to preclude damage from handling and storage, and shall be bagged or packaged together where items are small in dimension.

1.08 DELAYS AND EXTENSIONS OF TIME

A. The Contractor shall not be entitled to payment or compensation of any kind from the Owner for direct, indirect, or impact damages including but not limited to costs of acceleration arising because of hindrance or delay from any cause whatsoever whether such hindrances or delays be reasonable or unreasonable, foreseeable or unforeseeable, or avoidable or unavoidable provided, however, that this provision shall not preclude recovery by the Contractor of damages for hindrances or delays due solely to fraud or bad faith on the part of the Owner or the Owner's agents.

B. In the event the Contractor requests an extension of the contract time, the Contractor shall furnish such justification and supporting evidence as the Owner may deem necessary for a determination of whether or not the Contractor is entitled to an extension of time under the provisions of the contract. The Contractor shall submit such requests in writing to the Engineer (with a copy to the Owner) within fifteen (15) days of the incident which caused the delay. The Owner shall base its findings of fact and decision on such justification and supporting evidence and shall advise the Contractor in writing thereof. If the Owner finds that the Contractor is entitled to any extension of the contract time, the Owner's determination of the duration of the extension shall be based upon the currently approved progress schedule and on all data relevant to the extension. Such data will be incorporated into the schedule in the form of a revision thereto

accomplished in a timely manner. The Owner and the Engineer reserve the right to delay final decisions regarding time extension requests to within thirty (30) days of the point that it would impact the approved contract time. The Contractor acknowledges and agrees that actual delays in activities or time required to accomplish change order activities which, according to the schedule, do not affect the critical path and therefore do not have any effect upon contract completion time, will not be a basis for an extension of time.

1.09 WARRANTY AND GUARANTEE

A. Contractor should note that the work may be phased and that there may be multiple completion dates and warranty periods.

B. The Contractor shall initiate all requests for acceptance by the Owner of substantially completed phases of the work. The request shall include a detailed listing of equipment and/or materials included in that particular phase of the work (i.e. serial numbers, quantities, descriptions, etc.).

C. Prior to this request, all specified operation and maintenance instructions and training shall have been provided for the Owner's personnel and all certificates, spare parts, test equipment, record drawings, and other items required to be delivered shall have been provided and all punch-list items have been addressed to the Engineer's and Owner's satisfaction and that all additional required documents have been submitted, such as AIA lien release forms, warranty bond, etc..

D. Upon receipt of the request, the Engineer, the Owner, and the Contractor will make an inspection of the work to determine the status of completion as defined in the General Conditions.

E. Substantial completion dates for each phase of the work shall be expressly established in writing by the Owner.

F. The Contractor shall warrant and guarantee to the Owner for a period of one (1) year from the date(s) of Substantial Completion Acceptance the following:

1. That all materials and equipment provided under this contract are new unless otherwise specified.
2. That all work is of good quality and free from faults and defects and in accordance with the requirements of the Contract Documents.
3. That all equipment and systems and each and every part thereof shall operate (with proper care and attention) in a satisfactory and efficient manner and in accordance with the Contract Documents. Equipment accepted in intermediate phases of the contract shall be warranted and guaranteed for a period of one (1) year from Substantial Completion Acceptance of that particular phase of the contract.
4. That the Contractor shall, upon receipt of written notice from the Owner, promptly replace with workmanship and materials which comply with these specifications, and re-execute, correct, or repair, without cost to the Owner, all work which may be found to be not in accordance with the Contract Documents.
5. That the guarantee obligations assumed by the Contractor under these Contract Documents shall not be held or taken to be in any way impaired because of the specifications, indication or approval by or on behalf of the Owner of any articles, materials, means,

combinations of things used or to be used in the construction, performance and completion of the work, or any part thereof.

6. That no use or acceptance by the Owner of the work or any part thereof, nor any failure to use the same, nor any repairs, adjustments or corrections made by the Owner due to the Contractor's failure to comply with any of his obligations under the Contract Documents, shall impair in any way the guarantee obligations of the Contractor under these Contract Documents.

G. If the Contractor fails to make repairs during the guarantee period(s), the Owner may cause such damaged or defective work to be repaired and made good at the cost and expense of the Contractor including, but not limited to, compensation if required for additional professional services and Owner staff's time and material. The Contractor shall also bear the expenses of making good all work destroyed or damaged by the correction, removal, or replacement of the Contractor's defective work.

1.10 FINAL COMPLETION ACCEPTANCE

A. Upon completion of the final phase of the warranty period, the Contractor shall request, in writing, final acceptance of the contract by the Owner.

B. See the General Conditions for other terms of the warranty period.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

PART 4 - MEASUREMENT AND PAYMENT

Not Used.

*** END OF SECTION ***

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01100

MOBILIZATION

PART 1 - GENERAL

1.01 GENERAL

A. Mobilization shall include, but not necessarily be limited to, the performance of preparatory construction operations including the movement of personnel and equipment to the project site; application, fee payment and acquisition for all necessary permits (i.e., erosion & sediment control for staging areas, temporary and permanent building permits, SHA permits, utility connections, etc.); construction stake-out; and the establishment of the Contractor's offices, buildings, and other facilities necessary to begin work on a substantial phase of the Contract. The cost of required insurance and bonds shall be included in this item.

B. The Contractor shall furnish proof of carriage of insurance as specified in the General Conditions and/or Supplementary Conditions.

C. All work performed in providing the facilities and services shall be done in a safe and workmanlike manner.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. Mobilization will not be measured but will be paid for on a lump sum basis.

4.02 BASIS OF PAYMENT

A. When the Contractor has established the necessary facilities as expressed above, an allowance of 50% of the lump sum price bid will be payable as part of the first monthly estimate. The remaining 50% will be prorated equally by monthly estimates over the remaining duration of the contract. The price bid shall include all labor, materials, equipment, tools, and incidentals necessary to complete the work.

B. Payment of the lump sum price bid will not be made more than once regardless of if the Contractor may have for any reason shut the work down on the project, moved equipment away from the project site, and then back again.

C. This cost for this item shall be limited to no more than five (5) percent of the total bid price.

*** END OF SECTION ***

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01200

PROJECT MEETINGS

PART 1 - GENERAL

1.01 PRE-CONSTRUCTION MEETING

A. Prior to the start of construction, a Pre-Construction Meeting shall be held with the Owner, Engineer, Contractor, and other interested parties in attendance. The meeting shall cover the general features of the project and various requirements of the Contract.

1.02 PROGRESS MEETINGS

A. Over the duration of the Contract, there will be progress meetings held on an as-needed basis as determined by the Town. The meetings will be attended by the Owner, Engineer, Resident Project Representative, and Contractor and will be used to discuss the progress of the project and the coordination of subcontracts. Representatives of the Contractor will be required to attend all progress meetings. Representatives of subcontractors whose work may be discussed should also be available to attend.

B. It is imperative that progress meetings be held on a regular basis. If it becomes necessary to meet more frequently due to unforeseen conditions and problems, the meetings will be established to the satisfaction of all parties involved.

C. The Contractor's set of updated as-built drawings shall be reviewed prior to the start of each progress meeting.

D. The Contractor's updated construction schedule shall be reviewed at each progress meeting.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

PART 4 - MEASUREMENT AND PAYMENT

Not Used.

*** END OF SECTION ***

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. Shop drawings are generally defined as all fabrication and erection drawings, diagrams, brochures, schedules, bills of material, and other data prepared by the Contractor, subcontractors, suppliers, or manufacturers which illustrate the manufacturer, fabrication, construction, and installation of the work or a portion thereof.

B. All costs necessary for compliance with the requirements of this section of the Specifications shall be included under the prices bid. The Contractor shall furnish all shop drawings in digital form in a manner which will be agreed to at the Pre-Construction Meeting.

C. Detailed shop drawings, data, or literature for fabricated materials or equipment to be incorporated in the work shall be submitted to the Engineer for review for general compliance with the Contract Documents before fabrication. The Contractor shall allow up to 3 weeks for Engineer's review of shop drawing submittals. Prior to submittal to the Engineer, the Contractor shall obtain and check manufacturer's shop drawings, certified prints, and other pertinent data for conformance with all requirements of the Plans and Specification and in ample time to permit satisfactory progress of the work. After the completion of such checking and verification by the Contractor, the Contractor shall stamp and sign such drawings with the stamp stating:

Checked by _____
(Contractor's Name)

Signed by _____
(Checker's Name)

D. All data, drawings, and correspondence from subcontractors, manufacturers, or suppliers shall be routed through the Contractor. The Engineer shall review only such data and details as are transmitted to the Engineer by the Contractor. All correspondence from the Contractor to the Engineer shall refer to the appropriate section of these specifications containing the subject matter of the inquiry.

E. All shop drawings shall be in conformance with all requirements of the plans and specifications. All shop drawings, except diagrams, brochures, schedules, and illustrations shall be to an appropriate scale no smaller than 1/8 inch = 1 foot – 0 inches and shall give all dimensions necessary for installation and incorporation in the work. All shop drawings shall be accurate and complete showing outline and section views, details, materials, accessories, appurtenances, and related items. Shop drawings showing piping and conduit systems shall incorporate sufficient views to show all fittings and specialties including locations and spacing of hangers and supports. Piping and/or conduit systems 3-inches in diameter and smaller may be shown as single line. Equipment and specialties installed within and/or connected to piping and

conduit systems shall be cross-referenced to equipment and specialty shop drawings by shop drawing identification number, manufacturer name, catalog or model number, and equipment numbers shown on the plans. Electrical shop drawings shall include, but are not necessarily limited to, complete terminal identification diagrams and schedule, complete point-to-point interconnection diagram, complete single line and elementary wiring diagrams for all power, signal, control, and lighting systems together with panel layout drawings. Terminal point and wire identification on all working drawings shall be identical to related terminal point and wire identifications on equipment and panels and absolutely no deviation from this requirement will be permitted.

F. The Contractor shall submit to the Engineer all shop drawings and approval data in digital format. The Engineer will review each submittal and add the Engineer's notation of the action taken which will be returned to the Contractor in digital form.

G. At the time of each submission, the Contractor shall call to the Engineer's attention, in writing, any deviations that the shop drawings may have from the requirements of the Plans and Specifications.

H. The Contractor shall maintain a current Shop Drawing spreadsheet which references all shop drawing numbers, titles, date submitted, date returned, and action taken. The Contractor shall provide an updated shop drawing spreadsheet to the Owner and the Owner's Engineer during each progress meeting and any other time that the Owner requests an updated copy.

I. Upon review by the Engineer of the above drawings, lists, samples, and other data, the same shall become a part of the Contract and the fabrications furnished shall be in conformity with the same provided that the review of the above drawings, lists, specifications sample, or other data shall in no way release the Contractor from his responsibility for the proper fulfillment, by any fabrication, or the requirements of this Contract.

J. Corrections or comments made on the shop drawings during the Engineer's review do not relieve the Contractor from compliance with the requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. The Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, and in performing the work in a safe manner. If the shop drawings deviate from the Contract Documents, the Contractor shall advise the Engineer of the deviations in writing accompanying the shop drawing including the reasons for the deviations and shall request deviation from the Contract Documents.

K. The Contractor's attention is specifically directed to the fact that no work shall be fabricated, nor equipment or materials ordered, nor any construction performed, prior to approval by the Engineer of shop drawings applicable thereto. Construction performed in violation of this requirement will be neither approved nor certified for payment until applicable shop drawings have been submitted and approved. If the Engineer so directs, the Contractor shall disassemble and remove any such construction performed prior to approval by the Engineer of shop drawings applicable thereto and the Contractor will be allowed neither additional compensation nor extension of contract time. If any equipment or materials are ordered by the Contractor prior to submission and approval of shop drawings, it is at the Contractor's own risk.

L. It shall be the responsibility of the Contractor to make all the necessary changes in other items which result from deviations or changes requested by the Contractor and approved by the Engineer so that all items perform the requirements and intent of the Contract Documents.

M. The shop drawings are intended to be utilized by the Contractor for additional fabrication, assembly, and erection data. The shop drawings do not change or supersede the Plans and Specifications except in specific cases when the Contractor requests in writing and receives approval in writing for a deviation from the Plans and Specifications. The Contractor's request for a change shall give in detail the specific change requested and shall state the reason for the change. Changes requested by the Contractor and approved by the Engineer shall not be construed to include approval of any change except the changed details specifically requested and approved.

N. The Contractor will also submit to the Engineer for review with such promptness as to cause no delay in work all samples required by the Contract Documents. All samples shall have been checked by and stamped with the approval of the Contractor, identified clearly as to material, manufacturer, any pertinent catalog numbers, and the use for which intended.

O. After review by the Engineer, shop drawings shall be returned to the Contractor marked as one of the following: APPROVED, APPROVED AS NOTED, REVISE AND RESUBMIT, REJECTED, or REVIEWED FOR INFORMATION. Unapproved shop drawings (i.e., REVISE AND RESUBMIT or REJECTED) shall be returned to the Contractor for necessary modifications. Subsequently, the Contractor shall submit revised shop drawings to the Engineer for approval. The resubmitted shop drawing will indicate the original drawing number to be followed by "R1", "R2", or "R3", etc. (as applicable) to indicate the version of the resubmittal. Shop drawings marked REVIEWED FOR INFORMATION shall be returned to the Contractor with no action taken as these items do not require approval and have been reviewed for informational purposes only.

P. Within fourteen (14) days of the Pre-Construction Meeting, the Contractor shall submit a list of all shop drawings to be submitted for review and approval by the Engineer and the Owner. This list can then be used as a checklist to ensure that all items are submitted.

1.02 OPERATION AND MAINTENANCE MANUALS

A. The Contractor shall furnish the Engineer five (5) copies of a complete instruction manual for installation, operation, maintenance and lubrication of each component of mechanical and electrical equipment. In addition, the Contractor shall submit copies in an Owner approved electronic format. Final operation and maintenance manuals shall be furnished at least ninety (90) days prior to the anticipated completion of the project.

B. Manuals shall include operating and maintenance information on all systems and items of equipment. The data shall consist of catalogs, brochures, bulletins, charts, schedules, equipment numbers, wiring diagrams, and assembly drawings which shall describe location, operation, maintenance, lubrication, operating weight, lubrication charts showing manufacturer recommended lubricants for each rotating or reciprocating unit, and other necessary information for the Owner to establish a complete operation and maintenance program.

1. Manuals shall include a complete and detailed listing describing routine maintenance for each time interval: daily, weekly, monthly, quarterly, semi-annually, and yearly. Routine maintenance shall include lubrication, adjustments, inspections, calibrations, etc., and a list of acceptable equivalent lubricants from at least three (3) different major manufacturers whose products are locally available.

2. A manufacturer and/or vendor responsible routine maintenance description such as "see instruction manual" will not be acceptable.

C. The following items shall also be submitted:

1. Two (2) prints of one (1) 8" x 10" color photograph of each major piece of equipment.
2. Name of manufacturer with address and phone number for service and parts.
3. Name, address, and phone number of the nearest service representative for the manufacturer.
4. Complete "nameplate" data including serial number for each piece of equipment.
5. A list of spare parts including part number and other information needed to order parts.
6. Weight of individual components of each piece of equipment weighing over 100 pounds.
7. Complete electrical wiring diagrams.
8. A complete shop drawing spreadsheet which references all shop drawing numbers, titles, date submitted, date returned, and action taken. An updated copy will be submitted at each progress meeting and at the request of the Owner.

D. Where an O&M manual includes information on equipment not supplied or installed, the extraneous information shall be marked out to avoid confusion.

E. Where an O&M manual contains a written warranty or guarantee, it shall be certified to meet the minimum duration and requirements defined in the Contract Documents.

1.03 ELECTRONIC O&M DATA

A. In addition to the printed operations and maintenance materials specified above, the Contractor shall furnish all specified operations and maintenance materials in electronic format prior to Substantial Completion. Electronic equipment manual files shall be submitted in Portable Document Format (.PDF).

B. Electronic files shall be submitted in an Owner-approved electronic format.

C. In addition to the complete manual submitted in .PDF format, the supplier shall furnish electronic files containing the following information in Microsoft Word (.docx):

1. Operation Description – Discuss operational procedures for the equipment supplied. Operational procedures shall include "startup procedures," "normal operation," "automated operation," and "shutdown procedures." Where multiple modes of automatic operation exist, describe each mode separately.
2. Controls – Provide a table outlining the controls provided for the unit. Utilize two columns in the table. The left-hand column shall indicate the location of the control (e.g., local to the pump, remote control panel, etc.). In the right-hand column describe the control and its function.
3. Troubleshooting – Provide a troubleshooting table with three columns entitled "Problem," "Possible Causes," and "Corrective Action." Under the "Problem" column, identify possible

problems that may occur with the equipment or system including but not limited to, all malfunctions that can be expected for the equipment and all alarm indications provided by the system. Under the “Possible Causes” column, identify the causes that may be the root of each “problem.” Under the “Corrective Action” column, provide direction to verify and rectify / repair the “Problem.”

4. Preventive Maintenance – Provide a preventive maintenance table containing headings for “Daily,” “Weekly,” “Monthly,” and “Annual” (or other period as required) maintenance requirements. Under each heading, indicate visual inspections, procedural inspections, calibration routines, lubrication, and all other manufacturer-suggested preventive maintenance procedures required for the equipment or system. List recommended lubricants and any special tools required for the recommended maintenance.

5. Nameplate Data – Provide nameplate data tables consisting of two columns. In the left-hand column, indicate the equipment name, equipment designation, manufacturer, model number, serial number, year installed, dimensions, minimum and maximum speed, minimum and maximum torque, measurement range, accuracy, and all other data that may assist maintenance personnel in identifying, replacing, and maintaining the piece of equipment. Provide the appropriate values and designations in the right-hand column. Provide a separate nameplate data table for each major system component including gear reducers, motors, etc. as applicable. Motor nameplate data tables shall include as a minimum manufacturer, model, serial number, enclosure type, voltage, speed, service factor, frame size, NEMA design, and insulation class.

6. Manufacturer and Sales Representative Information – Indicate the equipment manufacturer name, mailing address, telephone number, fax number, email address, website address, and contact person’s name. Provide the same information for the local manufacturer’s representative who supplied the equipment.

D. Programmable Logic Controller (PLC) and Human – Machine Interface (HMI) data files shall be provided in their native format and .PDF report format where applicable. These files are to be provided with the O&M information and updated when any program change is made during the warranty period.

1.04 CONSTRUCTION SCHEDULE

A. The Contractor shall submit, for approval, a Critical Path Method (CPM) construction schedule plotting work increments against time, indicating anticipated date of beginning and completion of each work increment, and indicating completion of all increments by the scheduled completion date. The Contractor shall assign such work forces as are necessary to accomplish all increments of the work within the time allotted on the construction schedule.

B. The CPM construction schedule shall be submitted in an Owner-approved electronic format which can be modified by the Owner. The CPM construction schedule shall be done in Primavera software (or comparable program if acceptable by the Owner) and shall show the schedule for completion of each major item broken down into tasks including one for each section of the specifications, e.g., excavation, concrete, HVAC, etc. as applicable.

C. The construction schedule shall be submitted within fourteen (14) days after the Pre-Construction Meeting.

D. The CPM construction schedule shall be updated monthly to reflect actual progress versus original schedule. This CPM construction schedule shall be used to document any additional time requested for changes in the scope of work. Time extension requests will be reviewed only if justification is given by the Contractor and shown to affect the critical path.

E. The Contractor shall provide a 30-day outlook schedule at each monthly progress meeting which summarizes the upcoming work over the next month.

1.05 BREAKDOWN OF LUMP SUM PRICES

A. Within fourteen (14) days of the Pre-Construction Meeting, the Contractor shall submit, for approval, a breakdown into construction categories of his lump sum bid prices. This breakdown shall add up to the full 100 percent value of his lump sum bid price and all parts of it shall be covered by the Performance Bond. The breakdown shall be used for the purpose of arriving at a basis for monthly estimates.

1.06 RECORD DRAWINGS

A. During the progress of the project, the Contractor shall keep a careful record at the job site of all changes and corrections to the information shown on the Drawings. The Contractor shall enter such changes and corrections on one set of Contract Drawings immediately. The record drawings shall indicate in addition to all interior changes and corrections the actual location referenced from two permanently fixed surface structures of all subsurface utilities installed or uncovered by the Contractor. Within 90 days of final completion of the project, the Contractor shall submit to the Engineer one set of record drawings showing the aforementioned data. If the Contractor fails to maintain the record drawings as required herein, final payment, with respect to the Contract as a whole, will be withheld until proper record drawings have been furnished to the Engineer.

B. The Contractor shall keep one copy of all Contract Documents and approved Shop Drawings at the site in good order and annotated to show all changes made during the construction process. These shall be available to the Engineer and shall be delivered to the Engineer upon completion of the project.

1.07 SUBMISSION OF MANUFACTURER'S CERTIFICATES

A. General:

1. The Contractor shall submit manufacturer's certificates for the installation of those items of major equipment named in the various sections of specifications.

2. Such manufacturer's certificates shall state that the equipment has been installed under either the continuous or periodic supervision of the manufacturer's authorized representative, that it has been adjusted and initially operated in the presence of the manufacturer's authorized representative, and that it is operating in accordance with the specified requirements to the manufacturer's satisfaction.

B. Manufacturer's Representative:

1. The definition of "manufacturer's representative" shall be as follows: a representative from the manufacturer's plant familiar with the actual problems of manufacturing, installing, and operating the particular equipment or product and with enough years of experience in

this field to determine the successful operation of the equipment or product. Sales representatives or agents of the manufacturers will not be acceptable.

2. As related to his obtaining the manufacturer's certificates, the Contractor shall include in this contract price the cost of furnishing competent and experienced manufacturer's representatives who shall represent the manufacturer on equipment and products furnished and listed under this Contract to assist the Contractor to install, adjust, start up, and test the equipment and products in conformity with the Contract Documents. After the equipment and products have been operated through the preliminary testing period for each phase of construction and before being put into permanent service by the Owner, such manufacturer's representative shall make all adjustments and tests required to provide that such equipment and products are in proper and satisfactory operating condition and meet the requirement for issuing the manufacturer's certificate.

1.08 WARRANTY SUBMITTALS REQUIREMENTS

A. For all major pieces of equipment, the Contractor shall submit a warranty from the equipment manufacturer. The manufacturer's warranty period shall be concurrent with the Contractor's for a period of one year from Substantial Completion unless otherwise specified in the individual specification.

B. Copies of all approved equipment warranties shall be included in the final operations and maintenance manual in the appropriate equipment section.

C. All equipment warranties shall be received and approved prior to approval of the final payment application for the project.

1.09 OPERATING INSTRUCTIONS

A. Particular sections of these Contract Documents require that the Contractor furnish qualified personnel to instruct Town operations personnel in the proper operation and maintenance of equipment and systems provided in this Contract. Such instruction periods shall be in accordance with the requirements of the individual sections of the Contract Documents and with the following paragraphs.

B. When specified in individual sections of these specifications, upon completion of all work and testing for a particular section of the General Requirements, the Contractor shall furnish, at no extra cost to the Owner, the necessary manufacturer's engineers, representatives, technicians, skilled labor, and helpers and shall operate all systems and equipment for the specified instruction period. During this period, the manufacturer's representatives shall fully instruct the Engineer and/or his representatives and the Owner's personnel in the operation, maintenance, lubrication, and adjustment of all systems and equipment.

C. If the Operation and Maintenance Manuals specified herein are not available at the time of the instruction period, the Contractor shall provide the Engineer with one copy of the manufacturer's operation literature for each system or item of equipment. Installation and operating sheets or booklets normally shipped with equipment may be used for this purpose.

D. The Contractor shall schedule the instruction period for a time mutually agreeable with the Engineer and the Owner. A minimum of twenty-one (21) days notice shall be provided.

E. All training may be video recorded by the Owner.

1.10 PROGRESS PHOTOGRAPHS

A. The Contractor shall furnish the Owner with photographs over the course of construction with the cost of such included in the lump sum or unit costs of bid items. Photographs shall be taken before the site has been disturbed and on an average of once a month during construction and at the completion of the work. They shall be clearly marked with date, project name and number, and a description sufficient to orient the photograph as to the portion of the work. A minimum of twelve (12) photographs shall be taken each month and the proofs provided to the Owner in an approved electronic format.

1.11 LIST OF SUBCONTRACTORS

A. The Contractor shall submit a list of subcontractors, for approval, within fourteen (14) days after the Bid Due Date.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

PART 4 - MEASUREMENT AND PAYMENT

Not Used.

*** END OF SECTION ***

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01400

QUALITY CONTROL

PART 1 - GENERAL

1.01 CODES, RULES, PERMITS AND FEES

A. General:

1. Local, State, and Federal permits required for this project must be obtained by the Contractor unless they are included herein. Any permits secured by the Town will be made available to prospective Bidders on request. The Contractor shall comply with the provisions of all such permits and the cost of all work dictated by such permits shall be included in the prices bid.

2. The Contractor shall give all necessary notices, obtain all permits (except those referenced above), and pay all governmental taxes, fees, and other costs in connection with the work, file all necessary plans, prepare all documents, and obtain all necessary approvals of all governmental departments having jurisdiction, obtain all required Certificates of Inspection and Approval for the work, and deliver same to the Engineer except as otherwise noted herein.

B. Compliance: All materials furnished and all work installed shall comply with the requirements of all governmental departments having jurisdiction.

1.02 VERIFICATION OF DIMENSIONS

A. The Contractor shall be responsible for field verification of all dimensions of existing facilities, underground utilities, and other items which are shown on the Contract Drawings.

B. The Contractor shall be responsible for the cross-checking dimensions between different drawings as facilities are being laid out. Any discrepancies shall be immediately brought to the attention of the Engineer.

1.03 STANDARDS

A. Reference to a technical society, institution, association, or governmental authority is made in the specifications in accordance with the following abbreviations:

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| AA | Aluminum Association |
| AABC | Associated Air Balance Council |
| AAN | American Association of Nurserymen |
| AAMA | Architectural Aluminum Manufacturers Association |
| AASHTO | American Association of State Highway and Transportation Officials |
| ABMA | American Boiler Manufacturers Association |
| ACI | American Concrete Institute |

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|--------|--|
| ACPA | American Concrete Pipe Association |
| ACRI | Air Conditioning and Refrigeration Institute |
| ADC | Air Diffusion Council |
| AEIC | Association of Edison Illuminating Companies |
| AFBMA | Antifriction Bearing Manufacturers Association |
| AGA | American Gas Association |
| AGCA | Associated General Contractors of America |
| AGMA | American Gear Manufacturers Association |
| AHA | American Hardboard Association |
| AIA | American Institute of Architects or American Insurance Association |
| AISC | American Institute of Steel Construction |
| AISI | American Iron and Steel Institute |
| AITC | American Institute of Timber Construction |
| ALS | American Lumber Standards |
| AMCA | Air Moving and Conditioning Association |
| ANSI | American National Standards Institute |
| AOAC | Association of Official Agricultural Chemists |
| AMCA | Air Moving and Conditioning Association |
| APA | American Plywood Association |
| API | American Petroleum Institute |
| ARI | American Refrigeration Institute |
| ASAHC | American Society of Architectural Hardware Consultants |
| ASCE | American Society of Civil Engineers |
| ASHRAE | American Society of Heating, Refrigerating, and Air Conditioning Engineers |
| ASLA | American Society of Landscape Architects |
| ASME | American Society of Mechanical Engineers |
| ASSE | American Society of Sanitary Engineers |
| ASTM | American Society for Testing and Materials |
| AWG | American Wire Gage |
| AWI | Architectural Woodwork Institute |
| AWPA | American Wood Preservers' Association |
| AWPI | American Wood Preservers' Institute |
| AWS | American Welding Society |
| AWWA | American Water Works Association |
| BHMA | Builders Hardware Manufacturers Association |
| BIA | Brick Institute of America (formerly SCPI) |
| BOCA | Building Official Code Administration |
| CBMA | Certified Ballast Manufacturers Association |
| CDA | Copper Development Association |
| CE | Corps of Engineers |
| CISPI | Cast Iron Soil Pipe Institute |
| CMAA | Crane Manufacturers Association of America |
| CRA | California Redwood Association |
| CRSI | Concrete Reinforcing Steel Institute |
| CS | U.S. Commercial Standard |
| DEPA | Douglas Fir Plywood Association |
| DHI | Door and Hardware Institute |
| DIPRA | Ductile Iron Pipe Research Association |
| EEL | Edison Electric Institute |
| EJCDC | Engineers' Joint Contract Documents Committee |
| EPA | Environmental Protection Agency |
| ETL | Electrical Testing Laboratories |

| | |
|--------|---|
| FAA | Federal Aviation Agency |
| FCI | Fluid Controls Institute |
| FGMA | Flat Glass Marketing Association |
| FIA | Factory Insurance Association |
| FM | Factory Mutual |
| FS | Federal Specification |
| FSA | Fluid Sealing Association |
| FTI | Facing Tile Institute |
| GA | Gypsum Association |
| HEI | Heat Exchange Institute |
| HI | Hydronics Institute |
| HMI | Hoist Manufacturers Institute |
| HPMA | Hardwood Plywood Manufacturers Association |
| HTI | Hand Tools Institute |
| I-B-R | Institute of Boiler and Radiator Manufacturers |
| IEEE | Institute of Electrical and Electronics Engineers |
| IES | Illuminating Engineering Society |
| IFI | Industrial Fasteners Institute |
| IPCEA | Insulated Power Cable Engineers Association |
| ISA | Instrument Society of America |
| LCA | Landscape Contractors Association |
| MDNR | Maryland Department of Natural Resources |
| MHI | Materials Handling Institute |
| MIA | Marble Institute of America |
| MIL | Military Specification |
| MLA | Metal Lath Association |
| MMA | Monorail Manufacturers Association |
| MS | Military Specification |
| MSHA | Maryland State Highway Administration |
| NAAMM | The National Association of Architectural Metal Manufacturers |
| NACE | National Association of Corrosion Engineers |
| NBBPVI | National Board of Boiler and Pressure Vessel Inspectors |
| NBHA | National Builders Hardware Association |
| NBS | National Bureau of Standards |
| NCSPA | National Corrugated Steel Pipe Association |
| NEC | National Electric Code |
| NECA | National Electrical Contractors Association |
| NEMA | National Electrical Manufacturer's Association |
| NEMI | National Elevator Manufacturing Industry |
| NFPA | National Fire Protection |
| NHLA | National Hardwood Lumber Association |
| NIST | National Institute of Standards and Technology |
| NLA | National Lime Association |
| NLMA | National Lumber Manufacturer's Association |
| NPC | National Plumbing Code |
| NRMCA | National Ready Mixed Concrete Association |
| NSC | National Safety Council |
| NPT | National Pipe Thread |
| NTMA | National Terrazzo and Mosaic Association, Inc. |
| NWMA | National Woodwork Manufacturer's Association |
| OSANA | Official See Analyses of North America |
| OSHA | Williams-Steiger Occupational Safety and Health Act |

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|--------|---|
| PCA | Portland Cement Association |
| PCI | Prestressed Concrete Institute |
| PGMS | Professional Grounds Management Society |
| PS | Product Standard |
| RTI | Resilient Tile Institute (formerly AVATI) |
| SAE | Society of Automotive Engineers |
| SCPRF | Structural Clay Products Research Foundation |
| SDI | Steel Deck Institute |
| SIGMA | Sealed Insulating Glass Manufacturers Association |
| SFPA | Southern Forest Products Association |
| SJI | Steel Joist Institute |
| SMA | Screen Manufacturers Association |
| SMACNA | Sheet Metal and Air Conditioning Contractors National Association |
| SPFA | Steel Plate Fabricators Association |
| SPI | Society of the Plastics Industry |
| SPTA | Southern Pressure Treaters Association |
| SSI | Scaffolding and Shoring Institute |
| SSPC | The Society for Protective Coatings |
| TCA | Tile Council of America |
| UL | Underwriters Laboratories, Inc. |
| USBR | U.S. Bureau of Reclamation |

B. Any reference to standard specifications of any society, institute, association, or governmental authority is a reference to the standard specifications of such organization that are in effect at the date of the Contractor's Proposal. If such specifications are revised prior to completion of any part of the work to which such revision would pertain, the Town may allow the Contractor to perform such work in accordance with the revised specifications.

C. No provision of any standard, specification, manual, code, or instruction shall be effective to change the duties and responsibilities of Town, Contractor, Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents nor shall it be effective to assign to the Town, Engineer, and any of their consultants, agents, or employees any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

PART 4 - MEASUREMENT AND PAYMENT

Not Used.

*** END OF SECTION ***

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01410

TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 LABORATORY

A. The Contractor shall select (subject to the Owner's approval), employ, and pay for the services of an Independent Testing Laboratory to perform specified inspection, sampling, and testing where specified in the various sections of the specifications.

1. The Contractor shall cooperate with the testing laboratory to facilitate execution of its required services.
2. Employment of testing laboratory shall in no way relieve the Contractor's obligations to perform the Work of the Contract.

1.02 LABORATORY DUTIES

- A. Cooperate with the Engineer and Contractor and provide qualified personnel after due notice.
- B. Perform specified inspections, sampling, and testing of materials and methods of construction regarding compliance with specified standards and compliance of materials with the requirements of the Contract Documents.
- C. Promptly notify Engineer of observed irregularities or deficiencies of work or products.
- D. Promptly submit report of each test and inspection to the Engineer with each report including the following:
1. Date issued.
 2. Project title and number.
 3. Testing laboratory name, address, and telephone number.
 4. Name and signature of laboratory inspector.
 5. Date and time of sampling or inspection.
 6. Record of temperature and weather.
 7. Date of test.
 8. Identification of product and specification section.
 9. Location of sample or test in the project.

10. Type of inspection or test.
 11. Results of tests and compliance with Contract Documents.
 12. Interpretation of test results, when requested by Engineer.
- E. Perform additional tests as required by Engineer or the Owner.

1.03 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
1. Release, revoke, alter, or expand the requirements of the Contract Documents.
 2. Approve or accept any portion of the work.

1.04 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel and provide access to the work.
- B. Furnish incidental labor and facilities:
1. To provide access to work to be tested and to maintain traffic in order to provide laboratory personnel a safe work site.
 2. To obtain and handle samples at project site or at source of product to be tested or to assist in doing so if directed by the Resident Project Representative.
 3. To facilitate inspections and tests.
 4. For storage and curing of test samples or to assist in doing so if directed by the Resident Project Representative.
- C. Inspection and testing exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor at no additional cost to the Owner.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

PART 4 - MEASUREMENT AND PAYMENT

4.01 GENERAL

A. Payment is incidental to other work. Testing will not be paid for as a separate item. All costs in connection therewith shall be incidental and included in the items of work contained in the proposal.

*** END OF SECTION ***

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 SANITARY FACILITIES

A. The Contractor shall provide and maintain approved sanitary facilities for the full term of the Contract.

1.02 FIELD CONDITIONS AND MEASUREMENTS

A. The Contractor shall base all measurements, both horizontal and vertical from established benchmarks and monuments. The Contractor shall be responsible for field verification of all dimensions and conditions at the job site.

B. Should the Contractor discover any discrepancy between actual conditions and those indicated which prevent following good practice or the intent of the Contract Drawings and Specifications, the Contractor shall notify the Engineer in writing and shall not proceed with the work until written instructions from the Engineer have been received.

C. No claims shall be made for extra payment or extensions of Contract completion time if the Contractor fails to notify the Engineer of any discrepancy before proceeding with the affected aspect of the work.

1.03 PROTECTION OF PERSONS AND PROPERTY

A. The Contractor shall be responsible for initiating, maintaining, and providing supervision of safety precautions and programs in connection with the work including, but not limited to, all legally required precautions and programs.

B. The Contractor shall provide the confined space entry plan and all appurtenances for confined space entry to the Owner and/or Engineer prior to entering any manhole or vault.

C. The Contractor shall take all reasonably necessary precautions for safety of and shall provide all reasonably necessary protection to prevent damage, injury, or loss to: (1) employees on the work and other persons who may be affected thereby; (2) the work, materials, and equipment to be incorporated therein; and (3) other property at or adjacent to the site.

D. The Contractor shall give all notice and comply with all applicable laws, ordinances, rules, regulations, and orders of public authorities bearing on the safety of persons and property and their protection from damage, injury, or loss arising from Contractor's operations hereunder.

E. The Contractor shall be liable for damage or loss (other than damage or loss to property insured under the property insurance provided or required by the Contract Documents to be provided by the Owner) to property at the site to the extent caused in whole or in part by the

Contractor, a subcontractor of the Contractor, or anyone directly or indirectly employed by either of them or by anyone for whose acts they may be liable, except damage or loss attributable to the acts or omissions of the Owner, the Owner's separate contractors or anyone directly or indirectly employed by them, or by anyone for whose acts they may be liable and not attributable to the fault or negligence of the Contractor.

1.04 CONTRACTOR WORK AREAS

A. Work areas will be as shown generally on the Contract Drawings. Work areas will be for use by the Contractor for parking of worker's vehicles, storage of materials, tools, equipment, and other items necessary for construction. The Contractor shall be fully responsible for the security of these areas including fencing, guards, and other means of security. Under no circumstances will the Owner be responsible for the security of any property belonging to the Contractor, subcontractors, or any of the Contractor's work forces.

1.05 DRAINAGE

A. The Contractor shall keep all existing surface and subsurface drainage and water courses unobstructed or provide equal courses effectively placed and prevent accumulations of surface water.

1.06 SOIL EROSION AND SEDIMENT CONTROL

A. Adequate control of soil erosion and sedimentation of both a temporary and permanent nature on areas disturbed by this work shall be provided at no extra cost to the Owner subject to the approval of the Engineer.

B. It shall be the Contractor's responsibility to adhere to the Standards and Specifications for Soil Erosion and Sediment Control as approved and adopted by the State of Maryland, Water Management Administration, an agency of the Department of the Environment.

1.07 SAFETY

A. Precaution shall be exercised at all times for the protection of persons (including employees) and property. The safety provisions of applicable laws, building codes, and construction codes shall be observed. Machinery and equipment shall be guarded and all hazards shall be eliminated in accordance with the safety provisions of the Manual of Accident Prevention in Construction published by the Associated General Contractors of America to the extent that such provisions are not in contravention of applicable law.

B. The Contractor shall comply with the U.S. Department of Labor, Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Act of 1970 (Public Law 91-596) and under Section 107 of the Contract Work Hours and Safety Standards (Public Law 91-54).

C. Nothing in the Occupational Safety and Health Act of 1970 shall be construed to supersede or in any manner affect any worker's compensation law or to enlarge or diminish or affect in any manner the common law or statutory rights, duties, or liabilities of employers and employees under any law with respect to injuries, diseases, or death of employees arising out of or in the course of employment.

D. The Contractor shall comply with all regulations and requirements of the Maryland Occupational Safety and Health Administration (MOSHA).

PART 2 – PRODUCTS

2.01 MATERIALS

A. The Contractor shall provide either new or used materials and equipment for temporary facilities that are in substantially undamaged condition and without significant deterioration and which are recognized in the construction industry by compliance with appropriate standards as being suitable for intended use in each case. Where a portion of temporary utility is provided for Contractor by a utility company, the Contractor shall provide remainder with matching and compatible materials and equipment and comply with recommendations of the utility company.

PART 3 - EXECUTION

3.01 INSTALLATION OF POWER DISTRIBUTION SYSTEM

A. The Contractor shall provide all necessary power required for its operations under the contract and shall provide and maintain all temporary power lines required to perform the work in a safe and satisfactory manner.

3.02 WATER SUPPLY

A. The Contractor shall not make any connection to or draw water from any fire hydrant or pipeline without first obtaining permission of the Owner. For each such connection made, the Contractor shall first attach to the fire hydrant or pipeline a valve and a meter, if required by the Owner, of a size and type acceptable to the Owner. Any connection made to the existing facility shall be required to have a backflow prevention device.

3.03 INSTALLATION OF SANITARY FACILITIES

A. Fixed or portable chemical toilets shall be provided wherever needed for the use of Contractor's employees. Toilets at construction job sites shall conform to the requirements of Subpart D, Section 1926.51 of the OSHA Standards for Construction.

3.04 INSTALLATION OF COMMUNICATIONS

A. The Contractor shall provide and maintain at all times during the progress of the work not fewer than one telephone in good working order at the site of the work.

3.05 INSTALLATION OF LIGHTING

A. All work conducted at night or under conditions of deficient daylight shall be suitably lighted to ensure proper work and to afford adequate facilities for inspection and safe working conditions.

3.06 PROGRESS CLEANING

A. The Contractor shall keep project areas free of waste materials, debris, and rubbish and maintain the site in a clean and orderly condition. Debris and rubbish shall be removed from the site weekly and disposed of off-site.

3.07 OPERATIONS AND TERMINATIONS

A. Inspections: Prior to placing temporary utility services into use, the Contractor shall inspect and test each service and arrange for the required inspections and tests by the applicable governing authorities and obtain the required certifications and permits for use thereof.

B. Protection: The Contractor shall maintain distinct markers for underground lines and protect them from damage during excavating operations.

C. Termination and Removal: When need for a temporary utility service or a substantial portion thereof has ended or when its service has been replaced by use of permanent services or not later than time of substantial completion, the Contractor shall promptly remove installation unless requested by the Owner to retain it for a longer period. The Contractor shall complete and restore work which may have been delayed or affected by installation and use of temporary utility including repairs to construction and grades and restoration and cleaning of exposed surfaces.

D. Removal of Water Connections: Before final acceptance of the work on the project, all temporary connections and piping installed by the Contractor shall be entirely removed and all affected improvements shall be restored to their original condition or better to the satisfaction of the Owner and to the agency owning the affected utility.

PART 4 – MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. There will be no measurement for construction facilities and temporary controls but they will be included with other items of work.

4.02 BASIS OF PAYMENT

A. Payment is incidental to other work. All costs in connection therewith shall be incidental and included in the items of work contained in the proposal.

*** END OF SECTION ***

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01600

MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 EQUIPMENT AND PRODUCTS SPECIFIED

A. Where any item of equipment or product or system is specified, it is to be understood that equal quality equipment or products or systems of either a named manufacturer or of an unnamed manufacturer which meet the detailed requirements of the specifications are intended. In each case, the equipment, product, or system is subject to the approval of the Engineer as to the equality thereof. It is distinctly understood that: (1) the Engineer and the Owner shall use their own judgment in determining whether or not any item of equipment or product proposed is equal in quality to that specified; (2) the decision of the Engineer and the Owner on all such questions of equality shall be final; and (3) in the event of any adverse decision by the Engineer or Owner, no claim of any sort shall be made or allowed against the Engineer or the Owner.

B. Substituted items other than those named shall be equal to or better in quality and performance and must be suitable for the available space, required arrangement, and application. The Contractor shall submit any and all data necessary to determine the suitability of substituted items.

C. If any submitted equipment necessitates changes to architectural or structural items or to electrical, water, gas, air, or other utility services from the sizes, capacities, and configurations shown on the Drawings, it shall be the Contractor's responsibility to bear the cost of engineering fees to analyze, design, specify, and formulate the construction changes necessitated by the proposed deviations from the specified equipment and/or the Contract Drawings. All re-designs shall bear the seal and be the responsibility of a professional Engineer registered in the State of Maryland.

D. Substituted items are warranted by the Contractor to perform equal to or better than those specified. Substituted items failing to do so will be replaced by the Contractor at no cost to the Owner. No excuses such as improper design, construction, operation, or maintenance shall be accepted.

E. The Contractor's attention is directed to the fact that the Bid Form may have requirements that on certain pieces of equipment, the Contractor must base the Bid on a named piece of equipment. In the Bid Form, the Contractor is allowed to offer substitute equipment for review.

1.02 "OR EQUAL" SPECIFICATIONS

A. The specifications have been subjected to prior review with the intent of removing proprietary, exclusionary, or discriminating requirements other than those based upon performance unless the requirements are necessary to test or demonstrate a specific thing or to provide interchangeability of parts and equipment.

B. In some sections of the specifications, an item of material or equipment may be specified by the name of a manufacturer without the addition of the "or equal" expression. It is to be understood that these items are so specified for reasons of standardization and to provide interchangeability of parts and equipment.

C. Minor items including such articles as electrical fittings, plumbing fittings, hardware, and other similar articles will be identified by one brand name to generally indicate design. For these items, a substitution of equal items is generally acceptable by the Engineer.

1.03 SINGULAR NUMBER

A. Where a material, a device, or part of the equipment is referred to in the singular number, it is intended that such reference shall apply to as many items of material, devices, or parts of the equipment as are required to complete the installation.

1.04 EQUIPMENT UNIFORMITY

A. All valves and other multiple-unit equipment shall be, to the greatest extent possible within its category, the product of a single manufacturer.

1.05 STORAGE AND PROTECTION OF MATERIALS AND EQUIPMENT

A. All equipment and materials provided and work performed under this Contract shall be protected from damage before, during, and after installation. The Contractor shall be responsible for work, equipment, and materials until inspected, tested, and finally accepted.

B. During construction, the open ends of work shall be effectively closed with temporary covers or plugs to prevent the entry of foreign material.

C. Where permanent equipment called for under this Contract is installed before the erection of adequate protective structures, the Contractor without additional compensation, therefore shall provide approved effective and durable covers for fully protecting such equipment against damage from the elements or from any other cause.

D. Electrical equipment shall be carefully and effectively covered with waterproof material and otherwise protected at all times from the elements.

E. All structures, machinery, equipment, piping, electric conduit, wiring, accessories, and appurtenances shall be adequately supported and safeguarded against all damage or injury during performance of work under this Contract. The Contractor shall be responsible for all damage or injury resulting from his operations and shall repair such damage immediately and to the satisfaction of the Engineer and the Owner.

F. Store and protect products in accordance with the manufacturer's recommendations.

G. Uncovered Storage:

1. The following types of materials may be stored out-of-doors without cover:

- a. Reinforcing Steel.
- b. Piping – except PVC.

- c. Castings.
- d. Handrailing.

2. Store the above materials on wood blocking so there is no contact with the ground.

H. Covered Storage:

1. The following type of material may be stored out-of-doors if covered with material impervious to water:

- a. Rough lumber.
- b. Masonry units.
- c. PVC pipe which shall be covered with material which also blocks sunlight.

2. Tie down covers with rope and slope to prevent accumulation of water on covers.

3. Store materials on wood blocking.

I. Fully Protected Storage:

1. Store all products not named above in buildings or trailers which have a concrete or wooden floor, a roof, and fully closed walls on all sides.

2. Provide heated storage space for materials which would be damaged by freezing.

3. Protect mechanical and electrical equipment from being contaminated by dust, dirt, and moisture.

4. Maintain humidity at levels recommended by manufacturers for electrical and electronic equipment.

5. Temporarily connect equipment with built-in space heaters to a power source and keep heaters in operation.

6. Prior to installation of the units, they shall be stored at locations approved by the Engineer.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

PART 4 - MEASUREMENT AND PAYMENT

Not Used.

*** END OF SECTION ***

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01700

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SUBSTANTIAL COMPLETION

A. The project will be considered substantially complete when all materials, systems, and equipment have been installed, tested, and are fully operational to the satisfaction of the Owner and Engineer.

1.02 RESTORATION AND CLEANUP

A. Restore and/or replace paving, curbing, sidewalks, gutters, shrubbery, fences, sod, or other disturbed surfaces and structures to a condition equal to or better than that before the work began and to the satisfaction of the Owner. Execute final cleaning prior to final inspection.

1.03 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and is ready for Owner's representatives' inspection. Provide submittals to Owner that are required by governing or other authorities. Submit application for final payment identifying total adjusted Contract sum, previous payments, and sum remaining due.

1.04 FINAL ACCEPTANCE

A. Upon completion of all work under this Contract, the Contractor shall request, in writing, final acceptance by the Owner.

B. Upon receipt of the request, the Engineer, the Owner, and the Contractor will make a Final Inspection of the project to determine the status of completion as follows:

1. If the Engineer does not consider the project to be complete, the Engineer will notify the Contractor in writing of this fact and will include the reasons why the project is not considered complete.
2. Any items not satisfactorily completed or unsatisfactory as determined by the Engineer shall be promptly remedied or completed.
3. Upon satisfactory correction of defects or incomplete information or work, the Engineer will certify to the Owner that the project is finally complete.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

PART 4 - MEASUREMENT AND PAYMENT

Not Used.

*** END OF SECTION ***

DIVISION 02 – SITEWORK

SECTION 02010

SUBSURFACE EXPLORATION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Prior to submitting a Bid, Bidders shall make their own investigations of the on-site conditions and materials and shall base their Bids upon their own findings. The Owner will not approve any request for change order based upon the contention that subsurface conditions or materials vary from those indicated on the Drawings. The Contractor's bid shall be based upon their own investigation of these materials and conditions.

1.02 EXISTING SUBSURFACE LINES

A. All known subsurface lines, pipes, conduits, and structures are shown on the plans and profiles. The lines shown are based upon the best available plans and maps. The locations have not been verified by test pits and the Engineer and Owner assume no responsibility for the accuracy of the Drawings. In any area where the Contractor must make connections to or cross existing lines, it shall be the Contractor's responsibility to test pit the lines and verify the locations to their own satisfaction. In the event that lines are not found located as shown on the plans, the Contractor shall notify the Engineer so that an evaluation can be made as to the magnitude and method of any adjustments in the plans. The elevations of the pipelines at these locations are critical and thus, these locations should be test pitted as soon as possible after the Notice to Proceed. The cost of these test pits shall be included in the prices bid.

B. The Contractor shall be required to verify the location and depth of all critical lines using test pits before beginning work.

C. The Contractor shall be solely responsible for any damage to any underground or aboveground lines encountered in any manner during construction. When crossing and working in the vicinity of existing utility lines it will be the Contractor's responsibility to properly support and maintain the operation of the utility lines. Extreme care must be exercised in excavation and refill operations. The Contractor will correct at their own expense any damage caused to existing lines.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

PART 4 - MEASUREMENT AND PAYMENT

Not Used.

*** END OF SECTION ***

DIVISION 02 – SITEWORK

SECTION 02012

TEST PITS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Test pits shall include, but not necessarily be limited to, excavation to determine the exact location and/or elevation of underground structures, utilities, and other obstructions, the backfill and compaction of the excavation, and the stabilization of the surface in accordance with the Contract Documents.

B It shall be the Contractor's responsibility to determine the location and/or elevation of underground structures and utilities by the use of test pit excavation, electronic instrumentation, and non-destructive vacuum extraction methods prior to initiating excavation operations for the installation of the proposed facilities.

1.02 QUALITY ASSURANCE

A. Materials: It is intended that all materials removed from the test pit excavation, exclusive of paving materials, be used for backfill. The Resident Project Representative will inspect all material prior to its use as backfill to determine the material's suitability for use as backfill.

B. Field Tests: The Engineer or Resident Project Representative may, at their discretion, arrange for in-place moisture / density testing of the backfilled excavation. The Contractor shall be governed by the requirements of Specification Section 02250 – Trench Excavation, Backfill and Compaction.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Use of Excavated Material: All suitable material excavated from test pits shall be used, as far as practicable, for backfill. The Contractor shall properly store or stockpile and protect all materials that are to be reused in the work. The Contractor shall replace, at their own expense, material that was suitable when excavated, which has subsequently become unsuitable because of careless, neglectful, wasteful, or unprotected storage. The Contractor shall have no property right in any material taken from any excavation and no excavated material shall be wasted or otherwise removed from the project site without written permission of the Owner. All unsuitable material shall be removed from the excavation and disposed of off-site by and at the expense of the Contractor.

B. Borrow: Borrow material for test pit backfill shall meet the requirements of the Town Standards and Specifications.

PART 3 - EXECUTION

3.01 GENERAL

A. It shall be the Contractor's responsibility to determine the location and/or elevation of underground structures and utilities by the use of test pit excavation prior to initiating excavation operations for the installation of the proposed facilities. Test pits shall be of the size, depth, and location as approved by the Resident Project Representative. Should the location and/or elevation thus determined be different from that shown on the Plans, the Contractor shall promptly furnish the correct information to the Engineer so that the impact on the project may be determined.

3.02 TEST PITS

A. Surface preparation, excavation, backfill, compaction, and maintenance of the backfilled excavation shall be as specified in Specification Section 02250 – Trench Excavation, Backfill and Compaction for trenches except that the limits of the work shall be as approved by the Resident Project Representative.

B. Restoration shall be as specified in Specification Section 02250 – Trench Excavation, Backfill and Compaction unless otherwise specified or directed by the Resident Project Representative:

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. Incidental Test Pitting: With the exception of “Contingent Test Pit Excavation”, test pitting will not be measured as a separate item but will be included with other items of work contained in the Proposal.

B. Contingent Test Pitting: Measurement for test pits will be made on the basis of the volume of material actually removed from within the limits specified by the Resident Project Representative. This item will only be used if directed by the Resident Project Representative

4.02 BASIS OF PAYMENT

A. Incidental Test Pitting: With the exception of “Contingent Test Pit Excavation”, test pitting will not be paid for as a separate item but shall be included in the price bid for installing pipe, conduit, or other underground utility or constructing the various appurtenances included in the contract. The bid prices shall include furnishing all labor, tools, equipment, and materials necessary to complete the work as shown and specified in strict accordance with the Contract Documents and accepted by the Resident Project Representative. No payment will be made for test pit excavation performed to establish the location of existing utilities at locations designated in the Plan.

B. Contingent Test Pitting: Payment for contingent test pits will be made at the price bid in the bid proposal for “Contingent Test Pit Excavation”. The price bid shall include furnishing all labor, material, equipment, and incidentals necessary to perform the excavation, backfill, compaction, and surface stabilization or pavement patch for the test pit as specified in Specification Section 02250 – Trench Excavation, Backfill and Compaction.

*** END OF SECTION ***

DIVISION 02 – SITEWORK

SECTION 02110

CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Clearing and grubbing shall include, but not necessarily be limited to, clearing areas of trees, brush, shrubs, downed timber, rotten wood, other vegetation, debris, and rubbish as well as removal of fences and incidental structures and grubbing or removing from the ground all stumps, roots and stubs, brush, organic materials, and debris in accordance with the Contract Documents.

1.02 QUALITY ASSURANCE

A. The Resident Project Representative will inspect the work to ensure that it is performed in accordance with the Contract Documents.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 GENERAL

A. Unless otherwise indicated in the Contract Documents, all trees and other growth within the limits of disturbance (LOD) may be removed.

B. Within the limits indicated on the Plans to be cleared and grubbed, the Engineer has the right to designate trees and other growth which the Town may desire to leave standing.

C. Limits of clearing and grubbing include only those areas within the limits of disturbance or easement or right-of-way which are necessary for construction. Clearing will not be permitted outside of the limits of disturbance presented in the Contract Documents unless approved by the Town in writing.

3.02 DISPOSAL LOCATIONS

A. Perishable materials and debris shall be removed from the site and disposed of at locations off the project and outside the limits of view from the project by the Contractor. The Contractor shall make all necessary arrangements with property owners in writing for obtaining suitable disposal locations and furnish the Engineer with a copy of the agreement. The cost involved shall be included in the prices bid. The Contractor shall be responsible for obtaining all state and local

permits for the disposal locations and furnish the Engineer with evidence indicating the sites are approved for disposal.

PART 4 - MEASUREMENT AND PAYMENT

4.01 GENERAL

A. Clearing and Grubbing: Clearing and grubbing will not be measured. Clearing and grubbing will not be paid for as a separate item so payment for clearing and grubbing is incidental to other work which includes removal of trees less than 12 inches in diameter at breast height. All costs in connection therewith shall be incidental and included in the items of work contained in the proposal.

B. Tree Removal (12-Inch and Larger): Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

*** END OF SECTION ***

DIVISION 02 – SITEWORK

SECTION 02151

SHEETING, SHORING, AND/OR BRACING

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Contractor shall furnish all labor, materials, equipment and services necessary for and reasonably incidental to the furnishing, driving, and placing of all sheeting, bracing, and shoring as required and/or as herein specified.

B. The work under this section shall include, but is not limited to, the following: Timber sheeting, sheet piling, bracing, tie backs, and shoring of all walls, structures, underground utilities or objects, horizontally, vertically or both, and includes the work performed by the Contractor and all subcontractors employed to perform all work specified in all divisions of these specifications.

C. Related work specified elsewhere:

1. Section 02250 – Trench Excavation, Backfill and Compaction.
2. Section 02401 – Dewatering.

1.02 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies:

1. Shoring materials and installation work shall conform to Federal, State, and local laws, rules, regulations, requirements, precautions, orders, and decrees.
2. Provide material for all sheet piling, sheeting, bracing, and shoring and drive or set in place in accordance with Federal, State and local laws for excavations and construction and as may be required to protect the workers and all other personnel, or to maintain the trench widths specified in Section 02250 – Trench Excavation, Backfill and Compaction regardless of whether the same is or is not considered necessary by the Contractor.

1.03 RESPONSIBILITY FOR PERFORMANCE

A. The responsibility for the performance of shoring methods and devices, including slopes, if any, shall lie entirely with the Contractor. The correction of settlement and damage to persons and property due to settlement shall be the responsibility of the Contractor.

B. Shoring shall be executed in such a way that underground utilities are not damaged or disturbed and so that access to them is not hindered.

C. The failure or refusal of the Engineer or Resident Project Representative to suggest the use of bracing or sheeting, or a better quality, grade, or section, or larger sizes of steel or timber, or

to suggest sheeting, bracing, struts, or shoring to be left in place shall not in any way or to any extent relieve the Contractor of any responsibility concerning the condition of excavation or of any of the Contractor's obligations under the Contract, nor impose any liability on the Engineer or the Owner, nor shall any delay whether caused by any action or want of action on the part of the Contractor, or by any act of the Engineer, Owner, or their agents, or employees, resulting in the keeping of any excavation open longer than would otherwise have been necessary, relieve the Contractor from the necessity of properly and adequately protecting the excavation from caving or slipping, nor from any of his obligations under the Contract relating to injury to persons, or property, nor entitle the Contractor to any claims for extra compensation.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Props, shores, jacks, needles, braces, sheeting, cribbing, etc. shall be materials standard with and available to the Contractor which are of proper size and are in good serviceable condition. Materials that are unsuitable for the intended purpose or which are severely damaged shall not be used.

PART 3 - EXECUTION

3.01 INSTALLATION

A. The Contractor shall support the sides and ends of all excavations, wherever necessary, with sheeting, shoring, and/or bracing of the quality and character as required. Using skilled labor, drive or set sheeting, sheet piling, braces, or shores in place shall be so arranged such that they may be withdrawn as the excavations are backfilled without injury to piping and structures and without injury to or settlement of adjacent structures and pavements.

B. Excavations, if over four feet in depth, unless in solid rock, hard shale or hardpan, shall be shored, sheeted, and braced. All shoring and bracing shall be constructed in accordance with the minimum requirements for trench timbering and shall be effective to the bottom of the trench. All trenches four (4) feet or more in depth shall at all times be supplied with at least one (1) ladder for each one hundred (100) feet in length or fraction thereof. The ladder shall extend from the bottom of the trench to at least (3) feet above the surface of the ground and shall support a minimum weight of 300 pounds per step.

C. Where the cross section of the horizontal stringer or wale is not square, the greatest dimension shall be placed in a horizontal plane to gain the maximum strength of the member.

D. Where a mechanical digger is used, the sheeting and bracing shall be placed as close as possible to the lower end of the boom.

E. The bracing shall be held in place by hydraulic jacks, screw jacks or by cross braces cleated and wedged in place. Where the width of the excavation is such that horizontal bracing is not feasible, diagonal cross bracing shall be installed such that the bottom of the bracing shall bear against a footing in the earth at the bottom of the excavation and adequate means shall be taken to prevent that bracing from kicking out. In hand excavated trenches, cleats shall be securely fastened to join the ends of braces to stringers to prevent the braces from being knocked out of place.

F. Excavated material and superimposed loads shall not be placed nearer than 18 inches to the sides of a trench or other excavation unless bracing has been installed which is designed to withstand the load.

G. When trenches are undercut, they shall be shored to safely support the overhanging material. The design of shoring shall be performed and sealed by a professional structural Engineer registered in the State of Maryland. The design shall be submitted to the Engineer for review prior to installation.

H. If a trench is cut or an embankment is created by excavating or grading alongside an existing structure, object, or underground utility, and the footing or elevation of the bottom of the structure, object, or utility is nearer to the trench or embankment than the angle of repose for the soil, the sidewall of the trench or the embankment shall be rigidly and adequately supported and braced. If the method of and the materials to be used for support are not indicated on the Contract Drawings, same shall be submitted to the Engineer for review in accordance with 3.01.G above prior to the start of the excavation or grading work.

I. When the depth of the trench requires two (2) lengths of sheet piling, one above the other, the lower length shall be set aside the bottom stringers or wales of the upper length and driven down and braced as the excavation continues.

J. Remove sheeting, bracing, and shores as trenches and other excavations are being backfilled.

1. All sheeting, shoring, and/or bracing in excavations shall be withdrawn in stages on both sides of trenches to prevent lateral movement of the pipe.

2. In withdrawing sheeting and sheet piling, exercise care to ensure that all voids or holes left by planks as they are withdrawn are backfilled and thoroughly rammed with thin rammers provided specially for that purpose.

3. Exercise care to carry backfill up evenly on all sides of items installed in excavations.

K. Where the Engineer permits the Contractor to leave sheet piling in place at the Contractor's own request, the Contractor will not be entitled to any extra compensation.

L. Any sheeting ordered left-in-place by the Engineer shall be cut-off a minimum of two feet below finished grade. The Contractor shall remove and properly dispose of the material cut off without compensation therefore.

M. Wherever necessary in quicksand, or soft ground, or for the protection of any structure or property, sheeting shall be driven without extra compensation to such additional depth below the bottom of the trench as may be required or directed.

N. A trench box may be used in lieu of sheeting, shoring and/or bracing only upon approval of appropriate Safety Agencies.

PART 4 - MEASUREMENT AND PAYMENT

4.01 GENERAL

A. Payment Incidental to Other Work: Sheeting and shoring will not be paid for as a separate item. All costs in connection therewith shall be incidental and included in the other items of work contained in the proposal.

*** END OF SECTION ***

DIVISION 02 – SITEWORK

SECTION 02160

REMOVAL OF EXISTING PAVEMENT, SIDEWALK, CURB, AND COMBINATION CURB & GUTTER

PART 1 - GENERAL

1.01 DESCRIPTION

A. Removal of existing roadway or driveway pavement, sidewalk, curb, and/or combination curb & gutter shall include, but not necessarily be limited to, the removal and disposal of pavement areas inclusive of pavement, sidewalk, curb, handicap ramps, driveway aprons, and other miscellaneous surfaces in accordance with the Contract Documents.

1.02 QUALITY ASSURANCE

A. The Resident Project Representative will inspect the work to ensure that it is performed in accordance with the Contract Documents.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 GENERAL

A. Pavement, including base courses, sidewalk, curb and/or combination curb & gutter, and other miscellaneous surfaces shall be removed for the full depth thereof. The Contractor shall use suitable equipment, tools, and methods for cutting and trimming as well as removing the materials to the neat lines established by the Engineer in accordance with the details and permit requirements and shall not in any manner disturb or damage the sections of base or pavement to be salvaged or adjacent grass, sod, or other surfaces. Damage done by the Contractor's equipment or methods to those areas designated for salvaging shall be repaired and restored at the Contractor's expense. Where the old sub-grade is satisfactory as to condition and elevation, special care shall be taken in the removal operation in order to avoid the disturbing of the old sub-grade.

B. Concrete sidewalks, driveway aprons, etc. shall be removed to the nearest joint provided the joint is more than 1 foot from the edge of any utility trench. Concrete curb and combination curb and gutter may be neatly saw-cut and a portion removed provided that the remaining section is 4 feet long or longer.

3.02 DISPOSAL OF REMOVED MATERIALS

A. The materials removed in this operation shall be broken up and disposed by the Contractor in an approved manner.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. Removal of existing pavement, sidewalk, curb, combination curb & gutter, or other miscellaneous surfaces will be to the standard cutback dimensions shown on the details or as directed by the Resident Project Representative. Areas beyond the standard cutback dimensions that require removal due to the Contractor's activities will not be measured for payment.

B. Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

4.02 BASIS OF PAYMENT

A. Removal of existing pavement, sidewalk, curb, combination curb & gutter, or other miscellaneous surfaces will be made at the price bid per square yard (SY). The price bid shall include all work specified herein regardless of type or depth of material placed including all excavation and disposal of surplus materials, trimming existing pavement, backfill, subgrade preparation, pavement markings, and furnishing all labor, tools, equipment, materials, and incidentals necessary to satisfactorily complete the work as shown and specified in strict accordance with the Contract Documents and accepted by the Resident Project Representative.

B. Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

*** END OF SECTION ***

DIVISION 02 – SITEWORK

SECTION 02245

SPECIAL BACKFILL

PART 1 - GENERAL

1.01 DESCRIPTION

A. Special backfill shall include, but not necessarily be limited to, furnishing and placing satisfactory foundation bedding and backfill materials for pipes, vaults, manholes, and/or other structures in accordance with the Contract Documents.

1.01 QUALITY ASSURANCE

A. All special backfill material will be subject to test by the Resident Project Representative to determine the material's compliance with these Specifications.

1.01 SUBMITTALS

A. Certificates of compliance shall be submitted in accordance with the General Provisions for all special backfill material furnished. The certificate shall state that the material meets the requirements specified herein

PART 2 - PRODUCTS

2.01 GENERAL

A. The Town will not furnish any special backfill material.

2.02 CONTRACTOR'S OPTIONS

A. The Contractor may furnish either stone or slag meeting the material and gradation requirements specified herein unless otherwise noted and subject to the restrictions indicated in Section 2.03.

2.03 DETAILED MATERIAL REQUIREMENTS

A. Material for special backfill shall meet the requirements of Maryland designation BRG S/B, ASTM D 2940 designation GA S/B, or AASHTO M 43, size number 57.

PART 3 - EXECUTION

3.01 GENERAL

A. When portions of foundations are lower than the planned bottom of the structure, the bottom shall, if called for by the Contract Documents or directed by the Resident Project Representative, be raised by the placement of special backfill material. It may be placed with mechanical equipment or manually depending upon the volume of material involved.

B. If areas of the foundation are soft, composed of mud, or are in the Resident Project Representative's judgment unfit to receive the pipe, conduit, structure, concrete, or masonry, then such unacceptable material shall be removed and replaced with special backfill material.

C. The Resident Project Representative will be the sole judge as to the use of special backfill for foundation stabilization.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. Measurement for furnishing and installing special backfill will be made on the basis of the volume of material accepted and satisfactorily placed to the lines, grades, and dimensions shown on the Standard Details, noted in the Contract Documents, or as directed by the Resident Project Representative.

B. When agreed upon in writing before the work is begun, the quantity of special backfill material accepted and satisfactorily placed may be measured by converting its certified scale weight to volume on the basis of an agreed upon density or unit weight for the particular material used.

C. Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

4.02 BASIS OF PAYMENT

A. Payment for furnishing and installing special backfill will be made at the unit price bid. The price bid shall include furnishing, excavating and hauling, clearing, grubbing, sloping, draining, formation and compaction of embankments, backfills, subgrade, and all labor, tools, equipment, and materials for the work except as otherwise specified and disposing of overburden or other unsuitable spoil material. No payment will be made for any special backfill that is used because of any error in the Contractor's operations such as excavating beyond specified lines or grades.

B. Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

*** END OF SECTION ***

DIVISION 02 – SITEWORK

SECTION 02250

TRENCH EXCAVATION, BACKFILL AND COMPACTION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Trench excavation, backfill, and compaction shall include, but not necessarily be limited to, the excavation, backfill, and compaction of trenches for storm drains, water mains, sanitary sewers, and other underground utility systems shown on the Plans and in accordance with the Contract Documents.

B. The Contractor shall excavate, sheet, shore, dewater, backfill, and compact all structural and trench excavations necessary for constructing the work under this Contract. The Contractor shall furnish all labor, materials, and equipment necessary for completion of the work, all in accordance with the Contract Documents.

1. The Contractor shall be responsible for adhering to all Federal, State, and local regulations with regards to excavation and backfill.

2. The Contractor shall be responsible for stockpiling of topsoil in such a manner as to not interfere with the prosecution of the work.

C. Related Work Specified Elsewhere:

1. Section 02012 – Test Pits.

2. Section 02110 – Clearing and Grubbing.

3. Section 02151 – Sheeting, Shoring and/or Bracing.

4. Section 02160 – Removal of Existing Pavement, Sidewalk and Curb, and Combination Curb & Gutter.

5. Section 02245 – Special Backfill.

6. Section 02401 – Dewatering.

7. Section 02660 – Patching Existing Pavement, Sidewalk and Curb.

1.02 QUALITY ASSURANCE

A. Materials:

1. All materials removed from trench excavations and used for backfill may be subjected to testing requested by the Resident Project Representative to determine the material's suitability

for use as backfill. The material may be tested to determine organic content, mechanical properties, density, or any other properties pertinent to the satisfactory completion of trench backfilling.

B. Field Tests:

1. Tests and inspections will be performed by an independent testing agency employed by the Contractor. Work of the testing agency includes but is not limited to:

- a. Inspection of excavations and verification of subgrade suitability.
- b. Prior approval of material used as fill and backfill.
- c. Verification of compaction by in-place density tests.

2. The Contractor shall arrange for all in-place moisture / density testing on the project. The Resident Project Representative shall determine the number of samples to be taken, the location of samples, and the frequency of tests required to confirm compliance with the Specifications. The Contractor shall provide access and assistance in obtaining samples and shall provide a smooth surface for conducting moisture / density tests. The Contractor will not be entitled to any claim for additional compensation due to the testing requirements specified herein.

3. At the start of the trenching operation, the Contractor shall demonstrate to the Resident Project Representative that the compaction density specified in Section 02250.3 can be attained by the compaction equipment and methods the Contractor intends to use. Once the method and equipment has been approved, no substitutions will be permitted without the Resident Project Representative's approval. Additional demonstration of the suitability of the compaction equipment and methods will be required whenever there is a significant change in material characteristics.

4. Should testing determine that the required density is not being met or the material is outside the specified moisture range, the Contractor shall, without additional compensation, re-excavate, rework, and/or recompact the particular layer or section until the required density and/or moisture is attained.

1.03 SUBMITTALS

A. The Contractor shall submit for approval to the Engineer a list of compaction equipment intended to be used on the project, the recommendations of the equipment manufacturer as to the maximum lift thickness that can be placed, and the method of compaction to be used with this equipment to achieve the required compaction.

B. The Contractor shall submit for approval to the Engineer the sources of common borrow and select borrow.

C. Delivery Tickets:

1. The Contractor shall submit delivery tickets with each load of common borrow and select borrow brought to the site under the authorization of the Engineer showing the following information.

- a. Name and location of supplier or source.
- b. Type and amount of material delivered.
- c. Test information on the material as required by the specifications.

1.04 JOB CONDITIONS

A. Environmental Requirements:

1. Do not perform excavating, backfilling, or compacting when weather condition of materials are such that, in the opinion of the Engineer, work cannot be performed satisfactorily.
2. Do not use frozen materials as backfill or place backfill materials on frozen subgrade or trench surfaces. Do not use wet materials containing moisture in excess of the amount necessary for satisfactory compaction.
3. Prior to use, moisten dry backfill material not having sufficient moisture to obtain satisfactory placement or compaction.
4. Accommodation of Drainage: Keep sewers, drains, and ditches open for surface drainage. No damming or ponding of water in gutters or other waterways will be permitted. Do not direct flow of water across or over pavements except through approved pipes or properly constructed troughs. Provide pipes or troughs of such sizes and lengths as may be required. Control grading in the vicinity of excavations so the ground surface is properly pitched to prevent water running into excavated areas.
5. Pumping: Dewatering shall be accomplished in accordance with Specification Section 02401 – Dewatering.
6. Control groundwater and surface water during construction in order to maintain soil stability. Maintain the water table elevation sufficiently below the levels of excavation so that slopes will remain stable and bottoms of excavations will not become loosened by flow of water. If the foundation material loses its strength due to improper dewatering techniques, over excavate the material and replace it with compacted stone at no additional cost to the Owner.

B. Protection:

1. The Contractor shall, at the Contractor's own expense, sustain in their places and protect from direct or indirect injury all pipes, walls, buildings, and other structures or property in the vicinity of his work, whether above or below ground, or that may appear in the excavation. The Contractor shall at all times have a sufficient quantity of timber and plank, chains, ropes, and other material and equipment on the ground and shall use them as necessary for sheeting excavations and for sustaining or supporting any structures that are uncovered, undermined, endangered, threatened, or weakened.
 - a. Perform sheeting and shoring in accordance with all local, State and Federal regulations.

2. Pipes and underground conduits exposed as a result of the Contractor's operations shall be adequately supported along their entire exposed length by timber or planking installed in such manner that the anchorage of the supporting members will not be disturbed or weakened during the backfilling operation. Backfill of selected material shall be carefully rammed and tamped under and around the supports and all supports shall be left in place as a guard against breakage of the supported structure due to backfill settlement. No additional payment will be due the Contractor neither for the material left in place nor for the labor of installing and maintaining supports.

3. The Contractor assumes all risks attending the presence or proximity of pipes, poles, wells, wires, walls, and other structures and property, of every kind and description, in or over the excavation, or in the vicinity of the work, whether above or below the surface of the ground and the Contractor alone shall be responsible for all damages and assure all expense for direct or indirect injury caused by the Contractor's work to any of them whether such structures are or are not indicated on the Contract Drawings.

4. The Owner reserves the right under such conditions to stop the excavation or any other part of the work and to require the Contractor to complete the structure and the backfilling up to such a point as the Owner, without assuming responsibility for safety to persons or property, may require before proceeding further with the excavation and the Contractor shall not thereby become entitled to demand or to receive any allowance or compensation other than an extension of the contract time for as many days as the Owner may determine that the work was delayed by such stoppage.

C. Borrow Excavation: Where the required quantity of backfill exceeds the quantity of suitable material excavated within the limits of the project site and rights-of-way, obtain sufficient material to complete the backfill at no additional cost to the Owner. If borrow excavation is needed, notify the Engineer sufficiently in advance of borrow excavation requirements to permit the Engineer to verify the need for such borrow excavation and to view the proposed borrow pit and determine the suitability of the material to be provided. Borrow excavation from outside sources must be suitable in all respects and will be subject to the approval of the Engineer whose written consent must be obtained before its use will be permitted.

D. Responsibility for Condition of Excavation: The Contractor shall solely be responsible for the condition and results of excavations made by the Contractor's forces. Slides and cave-ins shall be removed without extra compensation at whatever time and under whatever circumstances they may occur.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Refer to the Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction, latest edition and all addenda thereto for information on materials.

B. Excess Material: The Contractor will not be allowed to dispose of excess material on the site.

C. Underground Warning Tape:

1. Provide for:

- a. Telephone conduit, orange.
- b. Electrical conduit, red.
- c. Potable water, blue.
- d. Sewer, green.
- e. Non-potable water (utility), purple.

PART 3 - EXECUTION

3.01 PREPARATION

A. Subgrade Preparation: Areas on which bedding layers are to be placed shall be trimmed and dressed to conform to cross sections shown on the Drawings within an allowable tolerance of +/- 2 inches from the theoretical slope lines and grades. Where such areas are below the allowable minus tolerance limit, they shall be brought to grade by filling with earth similar to the adjacent material and well compacted or by filling with well compacted bedding material. No additional payment will be made for any material thus required. No bedding shall be placed upon a frozen surface. No snow, ice, or any frozen material shall be incorporated in the bedding. The prepared base will be inspected by the Resident Project Representative immediately prior to placing the bedding and no material shall be placed thereon until that area has been approved.

3.02 PERFORMANCE

A. Excavation:

1. General:

- a. Perform excavation using machinery except that hand excavation may be required where necessary to protect existing structures or buried utilities. No additional compensation will be paid for hand excavation instead of machine excavation as may be necessary from any cause whatsoever.
- b. Perform excavation of every description and of whatever substances encountered to the lines and grades or depths indicated by the Drawings and as specified herein.
- c. Where workspace is limited, remove excavated material from the limited area and replace the material after the structure has been installed. No additional compensation will be made for such removal and replacement.

2. Segregation of Materials:

- a. Unsuitable excavated materials shall be hauled off site and disposed of at a proper disposal site. The Contractor shall include all costs associated with the hauling of excess material off site within the other items of work contained in the proposal.
- b. Suitable excavated materials shall be aerated and dried prior to using the material as backfill. All materials deemed by the Contractor as suitable for backfill must be tested by the independent Testing Agency provided by the Contractor.

3. Excavation Below Subgrade:

- a. Do not excavate below depths indicated on the Drawings or such depths as required by the Resident Project Representative.
- b. Excavation below depths indicated on the Drawings, through the fault of the Contractor, shall be restored to the indicated or required depths with gravel bedding at the expense of the Contractor.
- c. The Contractor's attention is directed to the fact that all excavations shall be performed in such a manner as to protect the subgrade from unnecessary disturbance. Immediately upon completion of excavation for a structure, the Contractor shall be required to place gravel bedding on subgrade to prevent any subsequent damage to the subgrade surface. Gravel bedding shall be placed within 24 hours after the excavation work is completed. Additionally, no heavy equipment will be permitted on the subgrade surface until the stone is in place.

B. Backfilling:

1. Perform backfilling using machinery except that hand backfilling may be required where necessary to prevent displacing walls, foundations, or buried utilities or damage to such. No additional compensation will be paid where backfilling by hand is required.
2. Prior to backfilling, clean excavation free of trash and debris.
3. General Backfill:
 - a. Spread material uniformly without segregation of coarse and fine material.
 - b. Place aggregate in uniform horizontal lifts not exceeding six inches (6") in depth.
 - c. Unless noted otherwise, compact each layer with a vibratory compactor to a density of not less than 90% of maximum dry weight density as determined by ASTM D 1557.
4. Gravel Bedding: Compacted stone or gravel bedding as indicated on the Contract Drawings to be used as a subbase under slabs, footings, and foundations, and as fill material in pipe trenches.
 - a. Spread material uniformly without segregation of coarse and fine material.
 - b. Place aggregate in uniform horizontal lifts not exceeding six inches (6") in depth.
 - c. Compact each layer with a vibratory compactor to a density of not less than 95% of maximum dry weight density as determined by ASTM D 1557.
5. Structural / Piping Backfill: Fill or borrow material to be used as a subbase under slabs, footings, pipes, or foundations unless otherwise noted on the Contract Drawings.
 - a. Place backfill in loose uniform horizontal lifts not exceeding six inches (6") in depth.

b. Maintain moisture content of backfill at compaction within two percent of optimum moisture as determined by ASTM D 698.

c. Compact backfill to at least 95 percent of the maximum dry density based on ASTM D 1557.

6. Trench Backfilling:

a. Backfill trenches as rapidly as practicable after completion of construction work therein or after excavations have served their purpose.

b. Use material from excavation for backfill unless, in the opinion of the Testing Agency or Owner's Engineer or Resident Project Representative, such material is not suitable for use as backfill.

c. Trench backfill below pipes shall be considered structural / piping backfill and shall be installed as such.

d. When backfilling above piping, materials may be backfilled by machinery in eight (8) inch lifts. Compact each layer for the full trench width to 95 percent of its maximum dry density as determined by ASTM D 1557.

e. Special Foundations: Where the bottom of the trench at the subgrade is found to consist of material which is unstable to such a degree that in the opinion of the Resident Project Representative, it cannot be removed and replaced with an approved material thoroughly compacted in place to support the pipe properly, the Contractor shall construct a foundation for the pipe consisting of piling, timbers, or other materials in accordance with plans prepared by the Engineer. Compensation for such additional work shall be in accordance with the General Conditions of the Contract.

f. Any consolidation method utilizing water such as jetting or puddling shall not be permitted. Consolidation shall proceed from the center of the trench to the sides to prevent arching. No extra payment for excavated material backfill will be given to the Contractor.

g. Underground Warning Tape: For the purpose of early warning and identification of buried pipes during future trenching or other excavation, provide continuous identification tapes in trenches. Install in accordance with printed recommendations of the tape manufacturer and as modified herein. Bury tape at a depth of 12 inches below grade or in pavements, measure 12 inches from subgrade of pavement.

7. Roadway Backfill:

a. Backfill to within 1 foot of the proposed subgrade elevation in accordance with Structural / Piping Backfill requirements above. The remainder of the backfill shall be compacted to 97 percent of its maximum dry density as determined by ASTM D 1557.

b. Shape subgrade of roadways to no more than 0.10 foot above or below the elevations indicated on the Contract Drawings.

c. Perform finish rolling on roadway subgrade just prior to installation of aggregate base course.

8. Utility Backfilling: Provide for utilities within backfill areas in accordance with Town Standards and Details.

9. Selected Compacted Fill: Place fill in eight inch loose even horizontal layers and compact to a density at least ninety-five (95%) percent of the maximum density based on ASTM D 698 - 70, Method D. When the material is too coarse to satisfactorily use this method, compacting shall be determined by the Testing Agency based on non-movement of the material under the compaction equipment. Vibratory compaction of the coarse material may be required. The moisture content of "Selected Compacted Fill" at the time of compaction shall not be more than 2 percentage points above the optimum moisture content (ASTM D698-70), except that "Selected Compacted Fill" which displays pronounced elasticity or deformation under the compaction or construction equipment shall not have a moisture content greater than the optimum moisture content. The in-place density of the "Selected Compacted Fill" shall be determined in accordance with ASTM D 2167 - 66 or ASTM D 2922 - 71. Make a minimum of one field moisture-density determination for each structure.

3.03 RESTORATION AND CLEAN-UP OF SURFACE

A. Replacement of Structures by Contractor: The Contractor shall restore (unless otherwise stipulated) all sidewalks, curbing, gutters, shrubbery, fences, poles, sod, or other property and surface structures removed or disturbed as a part of the work to a condition equal to or better than their condition prior to the start of the work began furnishing all labor and materials which are incidental thereto.

B. Clean-Up and Maintenance of Surfaces:

1. General: During construction, the surfaces of all areas including, but not limited to, roads, streets, and driveways shall be maintained on a daily basis to produce a safe, desirable, and convenient condition. Streets shall be swept and flushed after backfilling and recleaned as dust, mud, stones, and debris caused by the work or related to the work again accumulates. Failure of the Contractor to perform this work shall be cause for the Engineer to order the work by others and backcharge all costs to the Contractor.

a. All surplus materials furnished by the Contractor and temporary structures shall be removed from the site by the Contractor.

b. All dirt, rubbish, and excess earth from the excavation shall be disposed of by the Contractor in a manner and place acceptable to all governing agencies.

c. The construction site shall be left clean at the end of each working day to the satisfaction of the Resident Project Representative.

2. Repair or Correction of Unsatisfactory Conditions: All unsatisfactory conditions resulting from the work shall be corrected.

a. Any subnormal or dangerous condition caused by the work, on any surface, shall be repaired or corrected within two hours of observance or notification of its existence. If repairs or corrections are not made within this period, the Owner shall cause to have the work completed with the resulting cost subtracted from the Contractor's next monthly payment request. Any such costs shall be deemed a reduction in the total amount due the

Contractor under the contract and no subsequent reimbursement shall be made to the Contractor by the Owner for these costs.

3.04 FIELD QUALITY CONTROL

A. Testing: Testing shall be performed by the Contractor's independent testing agency as prior approved for laboratory testing.

1. In-place field density tests conducted in accordance with ASTM D 1556, ASTM D 2167, or ASTM D 2922. If methods of ASTM D 2922 are used for density testing, the moisture content must be determined as stated in ASTM D 3017.
2. Perform up to two (2) field moisture-density determination (test) for each lift of material placed.
3. Test locations as directed by the Resident Project Representative.
4. The Resident Project Representative may require additional tests whenever necessary to ensure that the specified density is being obtained.

B. Corrective Measures: Whenever tests indicate that the field moisture or density does not meet specified requirements, take corrective action as approved by the Resident Project Representative. The costs associated with corrective measures and retesting shall be borne by the Contractor.

1. Corrective measures may include loosening the soil and wetting or drying it prior to re-compaction, additional compaction, or removing and replacing the material.
2. Retest material that did not meet the moisture and density requirements after corrective measures have been performed.

C. Retesting: The Resident Project Representative may at any time require retesting of any material, whether in stockpiles or being placed, if it appears that the material differs from that which has previously been approved for use.

D. Roadway Subgrade:

1. Surface Tolerance: Check finished subgrade surface for smoothness and elevation in accordance with the following:
 - a. Use an approved template shaped to conform to the design requirement indicated on the Drawings for checking crown and contour of roadways.
 - b. Use an approved ten (10) foot straight edge to check for longitudinal irregularities in the subgrade.
 - c. Surface irregularities shall not exceed 1/2-inch.
 - d. Use string lines for controlling the finished elevation of roadway subgrade. Maintain such lines until surface irregularities have been satisfactorily corrected.

2. Corrections: Correct surface irregularities exceeding previously specified limits to the Resident Project Representative's satisfaction either by removing or adding material as required, followed by rolling until satisfactorily compacted.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. Trench excavation, backfill, and compaction will not be measured as a separate item but will be included with other items of work contained in the Proposal.

4.02 BASIS OF PAYMENT

A. No separate payment will be made for trench excavation, backfill, and compaction. The cost shall be included in the price bid for installing pipe, conduit, or other underground utility or constructing the various appurtenances included in the contract. The bid prices shall include furnishing all labor, tools, equipment, and materials necessary to complete the work as shown and specified in strict accordance with the Contract Documents and accepted by the Resident Project Representative.

*** END OF SECTION ***

DIVISION 02 – SITEWORK

SECTION 02401

DEWATERING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Contractor shall keep excavations and structures free from water while the construction work is in progress and to such an extent as may be necessary while excavation work is being carried on. Dewatering shall include, but not necessarily be limited to, designing, furnishing, installing, maintaining, operating, and removing temporary dewatering systems as required to lower and control water levels and hydrostatic pressures during construction and disposing of pumped water in accordance with the Contract Documents and applicable environmental requirements.

B. Dewatering is to be employed to lower the water table and intersecting seepage which would otherwise emerge from the trench side-walls or bottom of the trench or excavation thereby reducing lateral loads on sheeting and bracing, improving the excavating and hauling characteristics of sandy soil, and preventing rupture or heaving of the bottom of an excavation.

C. Related work specified elsewhere:

1. Section 02540 – Erosion and Sediment Control Measures

1.02 SUBMITTALS

A. Contractor shall submit, for the Owner's information, drawings and data showing proposed plan for dewatering of work areas. Drawings and data shall include the planned method of dewatering, the location of water table before and during dewatering, the excavation plan, the location and capacity of such facilities as dewatering wells, well points, sumps, collection, and discharge lines, the standby unit proposed, and protective fills and ditches required for control of ground water and surface water.

B. The dewatering plan shall be submitted within thirty (30) days after receipt of Notice to Proceed. Contractor shall furnish other information as may be required by the Owner for the complete understanding of the dewatering and excavation plan.

C. Submittal for the Owner's information will not relieve the Contractor of the responsibility for the adequacy of the dewatering and excavation plan or for furnishing equipment, labor, and materials necessary for dewatering the various parts of the work. If, during the progress of the work, the dewatering system and excavation plans are inadequate or the Contractor's plan of construction is inoperative the Contractor shall, at no additional expense to the Owner, furnish, install, and operate such additional dewatering equipment and make such changes in other features of the plan or operation as may be necessary to perform the work.

1.03 PERMITS

A. If well-pointing is required, the wells must be installed by a licensed well driller and a permit to construct such wells must first be obtained by the Contractor from the appropriate regulatory agency within the State of Maryland.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 METHODS

A. Dewatering may be accomplished by ordinary pumping methods, by the use of underdrains, or by deep well points. In order to ensure continuous dewatering, duplicate units of the selected system incorporated with emergency power should be employed so that a reliable operation may be obtained. It is essential that all excavations be kept dry during construction operations.

B. All well points must be installed by a well driller licensed in the State of Maryland.

3.02 DEWATERING OF WORK AREAS

A. All permanent improvements shall be constructed in areas free from water. Contractor shall construct and maintain permanent or temporary slopes, dikes, levees, drainage ditches, sumps, and observation wells necessary for the removal of water from work areas. Contractor shall design, furnish, install, maintain, and operate necessary pumping and other dewatering equipment required for dewatering the various work areas and for keeping the foundation and other work areas free from water from any and all sources.

B. Dewatering shall be performed in advance of excavation. The dewatering shall be accomplished in a manner that will prevent loss of fines from the foundation, will maintain stability of excavated slopes and bottoms of excavations, and will permit construction operations to be performed in the dry. Dewatering of excavation shall be performed to the extent required to permit placement of compacted fill materials in the dry and to prevent sloughing of excavation side slopes.

C. It is absolutely essential that all trenches be kept dry during the making of joint connections.

D. Dewatering shall be performed so as not to undermine or structurally endanger existing structures.

E. The requirements for dewatering pipe trenches include an obligation on the part of the Contractor to secure a dry trench bottom. If the Contractor elects to use gravel bedding to assist in drainage of trench bottom, the Contractor may do so to the extent approved by the Resident Project Representative, but no payment will be made for gravel so used.

3.03 DISPOSAL OF DRAINAGE WATER

A. The disposal of all water from the dewatering and control of water operation and surface drainage shall be accomplished in a manner to have no detrimental effect on any of the new or existing facilities. The method and location of disposal of all water shall be subject to the approval of the Engineer. In addition, no water shall be drained into work built or under construction without

prior consent of the Engineer. Water removed from the excavation shall be pumped to the nearest suitable discharge location and be in accordance with the approved Erosion and Sediment Control Plan.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHODS OF MEASUREMENT

A. Dewatering will not be measured for payment.

4.02 BASIS OF PAYMENT

A. Payment for dewatering shall be included in the price bid for other related items of work.

*** END OF SECTION ***

DIVISION 02 – SITEWORK

SECTION 02402

DIRECTIONAL DRILLING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Description of Work: Portions of the pipeline may be installed via directional drilling methods to prevent the disturbance of existing surface features as shown on the Drawings and in accordance with this Specification.

B. The Contractor shall be responsible for test-pitting or otherwise locating and protecting existing underground utilities that may be affected by the new work under this project. The Contractor shall be solely responsible to repair any existing facilities that are damaged in the course of work on this project.

1.02 QUALITY ASSURANCE

A. Experience: The Contractor must have been actively engaged in horizontal directional drilling for a minimum of 3 years.

B. Field Supervisory Personnel: The Contractor's on site supervisory personnel must be experienced in the performance of work and tasks as stated herein for a minimum of 3 years.

1.03 SUBMITTALS

A. Shop Drawings and Product Data. Furnish completely dimensioned shop drawings, cuts, or other data as required to provide a complete description of conduit and specialties in accordance with Specification Section 01300 – Submittals.

B. Certifications: The Contractor shall submit certifications for pipe and materials to the Engineer for approval. Certifications shall state that materials furnished comply with standards specified herein.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Packing Lists: Packing lists shall accompany each pipe delivery made to the site. Absence of such list may cause refusal of shipment.

1. Packing lists shall indicate customer's order number or contract number, truck routing, type and classes of pipe, pipe diameters, weights and lengths of pipe, date of manufacture, and plant identification of the particular lots of piping contained in the shipment.

2. Submit a copy of packing lists to the Resident Project Representative or Engineer as soon as practicable after delivery of piping.

- B. Handling: Exercise care so as to not damage to materials during loading and unloading operations.
- C. Storage: Store materials so as not to contact earth or other contaminants.

PART 2 - PRODUCTS

2.01 HDPE PIPE

- A. HDPE pipe shall be manufactured per Specification Section 02550 – Water Mains, Valves, and Appurtenances.
- B. Joining: Pipe segments shall be joined to one another by thermal butt fusion in accordance with procedures recommended by the pipe manufacturer. Pipe segments shall be butt fusible at 500° F +/- 10° F.

2.02 DETECTION WIRE

- A. Two redundant detection wires shall be pulled along with the pipeline.
- B. The detection wires shall be PVC-coated 6-gauge stranded copper wire or equivalent tape or wire-like item that is capable of carrying a charge and being detected with standard subsurface detection equipment.
- C. The detection wire shall be continuous and fastened longitudinally along the entire length of the pipe with splices designed for underground service.
- D. Testing of the detection wire shall be the responsibility of the Contractor.

PART 3 - EXECUTION

3.01 PREPARATION – FIELD MEASUREMENT

- A. The Drawings are in general indicative of the work with symbols and notations for clarity. However, the drawings are not an exact representation of all conditions involved. Therefore, layout piping to suit actual field measurements. No extra compensation will be made for work due to differences between indicated and actual dimensions.
- B. Submit details of proposed departures necessitated by field conditions or other causes to the Engineer for approval.

3.02 DIRECTIONAL DRILLING

- A. Directional drilling shall include all work necessary and required for the installation of high-density polyethylene (HDPE) pipes as shown on the drawings and as specified herein. Services furnished by the Contractor shall be performed in accordance with the best industry practice and these Contract Documents.
- B. The Contractor shall furnish all labor, equipment, and materials necessary for a complete installation, including but not limited to:

1. Clearing, grading, and general site / access preparation necessary for construction operations in accordance with these Specifications and Drawings.
 2. Transportation of all equipment, labor, and materials to and from the job site.
 3. Assembly of pipes.
 4. Erection of drilling equipment at the rig site.
 5. Drilling of a small diameter pilot hole along the alignment defined on the drawings and as specified herein.
 6. Reaming the pilot hole as specified herein to a diameter suitable for installation of the HDPE pipe.
 7. Pulling the assembled pipe through the reamed hole along with the detector wire.
 8. Provide containment and proper off-site disposal of all excess materials from the directional drilling operations.
 9. Cleanup and final restoration of all work areas.
- C. Pneumatic, water jetting, or mechanical methods of directional drilling will not be accepted.
- D. The Contractor will at all times provide and maintain instrumentation which will accurately locate the drill head and measure drilling fluid flow discharge rate and pressure. The Engineer will have access to these instruments and readings at all times.
- E. Shop drawings shall be submitted as specified in Specification Section 01300 – Submittals, for the following materials and procedures:
1. Details of equipment and detailed working drawings describing the proposed method of directional drilling. This shall include arrangement of equipment, location and size of drilling and receiving pits, methods of dewatering, method of removing spoils material and approved disposal site, size and capacity of equipment, method of installing pipe, method of fusing pipe segments, type of cutting head, pipe and seals, support segments, method of monitoring and controlling line and grade. Sufficient material shall be submitted to show compliance with the Contract Documents and to show that articles proposed for use in the work are acceptable. Directional drilling work shall not proceed until shop drawings have been reviewed and approved by the Engineer. If in the opinion of the Engineer, modifications to the methods are required during construction, the Engineer may direct the Contractor to discontinue any directional drilling activities until working drawings are submitted and approved delineating such modifications.
 2. All drawings, catalog cuts, and other descriptive data covering several related items in the same system shall be submitted at the same time in order that their complete integrated applicability in the entire system be adequately reviewed.
 3. Product information, material specifications, handling procedures, material safety data sheet, special precautions required, and method of mixing and application of Bentonite / drilling mud or other drilling fluid.

4. The Contractor must submit for review to the engineer documentation demonstrating experience and expertise in trenchless directional drilling methods. The supporting documentation shall include references for whom similar work has been performed, a list of projects showing successful completion of directional drilling of at least 25,000 linear feet of pipe within the last twenty-four (24) months, and names of all supervisory personnel trained and experienced in directional drilling methods.

F. The Contractor shall take precautions to protect the pipe while being handled. Chains, end hooks, or cable slings shall not be used to handle the pipe. Care shall be taken to protect the pipe from scarring, gouging, or excessive abrasion. If pipe is stacked, stacking height shall not exceed the manufacturer's recommendations.

G. The Contractor's operations will be conducted in a location which contains existing underground and above ground utilities. Therefore, the Contractor must exercise caution including, but not limited to, undertaking the following steps:

1. Verify the location of all adjacent underground utilities. This shall include exposing any utilities which are located within 30 feet of the design drilled paths.
2. Modify drilling practices or down hole assemblies to prevent damage to adjacent underground and above ground utilities.

H. Drilling Fluid:

1. Information on the composition of all drilling fluid used shall be submitted for approval prior to utilization. The fluids shall be inert and of no risk to the environment. No fluid will be approved or utilized that does not comply with permit requirements and environmental regulations.
2. The drilling fluid should remain in the bore hole to increase the stability of the surrounding soil and to reduce the drag on the pulled conduit.
3. Disposal of drilling fluid and all other spoils shall be the responsibility of the Contractor and shall be conducted in compliance with all relative environmental regulations, right-of-way and workspace agreements, and permit requirements. The spoils shall be recovered by use of a vacuum system mounted on a vehicle for removal of the spoil to an approved spoil site.
4. Drilling fluid returns at locations other than the entry and exit points shall be minimized. The Contractor shall immediately clean up any drilling fluid that inadvertently surfaces.
5. Excess drilling fluid shall be disposed of at a pre-approved location found by the Contractor. The Contractor is responsible for transporting all excess fluids and other spoils off-site and paying any disposal costs.
6. Drilling fluid and other spoils shall not be discharged into sanitary sewers, storm drain systems, ditches, wetlands, or waterways.

I. Clean water required for drilling and hydrostatic testing shall be provided by the Contractor. The Contractor is responsible for transporting and storing any water required.

J. Restoration of any areas disturbed by the drilling equipment shall be restored in accordance

with the drawings and specifications.

K. Alignment, Adjustments and Re-Starts:

1. The Contractor shall follow the pipe profile as shown on the plans within the tolerances specified herein. The Contractor shall notify the Owner for approval if any additional plan / profile adjustments need to be made prior to performing the adjustment.
2. In the event difficulties are encountered at any time during the directional drilling operation which require the complete withdrawal from the drilled hole, the Contractor shall be allowed to withdraw from and abandon the drilled hole and begin a second installation attempt within the prescribed right-of-way.
3. All withdrawals, abandonments, and re-starts during performance of the directional drilling shall be at no additional cost to the Owner.
4. The pilot hole shall be drilled along the path shown on the plan and profile drawings to the following tolerances:
 - a. Vertical Alignment: Plus or minus 0.25 foot (maintain minimum cover).
 - b. Horizontal Alignment: Plus or minus 1.0 foot.
 - c. Entry Point Location: The pilot hole shall initially penetrate the ground surface at the approved location(s).
 - d. Exit Point Location: The pilot hole shall finally penetrate the ground surface within plus or minus 0.5 foot of the alignment shown on the plans.

L. The drilling system shall include electronic monitoring of the drilling head horizontal and vertical location with an accuracy range within one inch of the actual position of the conduit. Position readings shall be recorded at a maximum of 10-foot intervals.

M. Boring distances shall be kept to a maximum. The equipment must be capable of boring and installing a continuous run of up to 1,000 linear feet.

N. At the Engineer's option, the Contractor shall test pit the pipe installation to verify horizontal and vertical location to the satisfaction of the Engineer. This test pitting shall be done at no more than 100 feet intervals and at critical locations. Cost for this test pitting shall be included in the price bid.

3.03 DEFECTS TO BE CORRECTED

A. If, at any time before the expiration of the guarantee period under this contact, any broken pipe or any other defects are found in any of the lines or in any of the appurtenances, the Contractor shall cause the same to be removed and replaced by proper material and workmanship, without extra compensation for the labor and material required, even though such injury or damage may not have been due to any act, default, or negligence on the part of the Contractor. All materials shall be carefully examined by the Contractor for defects prior to installation and any found defective shall be rejected for use.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHODS OF MEASUREMENT

A. Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

4.02 BASIS OF PAYMENT

A. Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

*** END OF SECTION ***

DIVISION 02 – SITEWORK

SECTION 02540

EROSION AND SEDIMENT CONTROL MEASURES

PART 1 - GENERAL

1.01 DESCRIPTION

A. This work shall consist of the installation of both structural and vegetative erosion and sediment control practices as indicated on the Plans. The practices shall include, but are not limited to, the use of berms, dikes, swales, silt fences, inlet protections, sediment traps and sediment basins, crushed stone, filters, or other approved methods indicated on the Plans.

1.02 JOB CONDITIONS

A. Erosion and sediment control measures shall be implemented any time that land is disturbed by construction activities including clearing, grading, excavating, stripping, filling, or related work unless exempt by State law or local ordinance.

B. Application of erosion and sediment control measures shall be coordinated with the construction of permanent facilities to ensure effective control of erosion from the construction site.

1.03 QUALITY ASSURANCE

A. The Contractor shall obtain and maintain on the site at all times a copy of the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control available from the local Soil Conservation District.

B. The specific construction requirements in this document for the practices being employed are to be strictly adhered to throughout construction.

1.04 PERMITS

A. The Contractor shall not utilize any off-site areas for obtaining borrow material or for depositing spoil material unless those areas have an approved erosion and sediment control plan and all current permits as may be required by state law or local ordinance.

PART 2 - PRODUCTS

2.01 FILTER CLOTH

A. The plastic filter fabric shall be a porous plastic sheet of woven calendered and palmered polypropylene woven filament yarn. The plastic yarn shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of propylene, ethylene, ester, amide, or

vinylidene-chloride and shall contain stabilizers and/or inhibitors added to the base plastic if necessary to make the filaments resistant to deterioration due to ultra-violet and heat exposure.

B. Seams of fabric shall be sewn with thread meeting or exceeding specifications given for plastic yarn and shall be bonded by cementing or calendering. Seams shall be tested in accordance with method ASTM D 1683 and the seam strength shall meet the strength specified herein but shall not be less than 90 percent of the tensile strength of the imaged fabric in any principal direction.

PART 3 - EXECUTION

3.01 GENERAL

A. The Contractor shall adhere strictly to the "sequence of construction" as tabulated on the approved Plans. If such a "sequence of construction" is not included on the Plans, the Contractor shall submit his schedules of erosion and sediment control work to the Sediment Control Inspector for approval. No work shall begin until erosion control schedules are approved by the Sediment Control Inspector.

B. Phasing of erosion and sediment control measures with the construction project, unless approved otherwise, shall be as follows:

1. Clear only those areas as required to construct the erosion and sediment control practices indicated on the plans as perimeter controls and install the perimeter controls as detailed before continuing construction. Perimeter controls shall include earth berms, embankments, swales, silt fences, stone outlet structures, pipe outlet structures, and sediment basins.

2. Proceed with clearing, stripping, grading, and related construction activity to the extent that erosion from exposed surfaces can be managed effectively by the controls in place. The Contractor shall endeavor to minimize the extent of exposed earth by avoiding mass grading as practical and shall follow with stabilization immediately as finished grading is accomplished. No disturbed earth shall be allowed to remain exposed for longer than 14 days without receiving temporary stabilization with seed and mulch or a mulching tool outside of the growing season.

3. As construction of drainage structures is completed, apply the erosion controls where detailed on the Plans for pipe entrances, inlets, etc. and apply permanent structural practices as may be indicated for grade stabilization, slope protection, open channels, and swales.

4. Trenching operations shall be stabilized at the end of each working day. Trenches shall be opened only to the extent that work can be completed within the day.

C. All excavated material shall be placed on the high side of the excavation whenever possible and confined to an area where it will not obstruct the normal flow of drainage courses.

3.02 STABILIZED STONE CONSTRUCTION ENTRANCE

A. Areas other than haul roads through which vehicular access to and from the site could be gained shall be stabilized by the Contractor.

B. Care shall be exercised to prevent natural or fill soils from intermixing with the stone aggregate. All contaminated stone aggregate shall be removed and replaced with uncontaminated stone aggregate.

3.03 TEMPORARY GRADING

A. The Contractor shall temporarily grade the stockpile area in such a manner that runoff from the site will flow to sediment control devices.

3.04 SILT FENCE AND/OR SUPER SILT FENCE

A. The Contractor shall construct and maintain silt fencing where shown on the drawings and in accordance with the details as shown on the Contract Drawings.

3.05 INLET PROTECTION

A. The Contractor shall construct and maintain inlet protection of the type(s) required where shown on the drawings and in accordance with the details as shown on the Contract Drawings.

3.06 GROUND STABILIZATION

A. Temporary Stabilization: Swales, ditches, stockpiles of earth and topsoil, and other cleared or graded areas shall be temporarily stabilized with mulch or bales of straw.

B. Permanent Stabilization: All areas disturbed by the Contractor and not paved or stoned surfaced shall be seeded as shown on the Drawings.

3.07 MAINTENANCE, REMOVAL, AND RESTABILIZATION

A. At the end of each working day and after any rainfall event, the Contractor shall inspect all erosion and sediment control structures. Any structures found to need maintenance or repair shall be serviced immediately to ensure continuous functioning. Special attention should be given to cleanout of sediment trapping devices such as silt traps and sediment basins so that minimum design storage volumes are never reduced by excess sediment.

B. All areas where temporary sediment control structures are constructed shall be restored to the original grade or constructed to the finished grades as shown on the Drawings.

C. After contributing areas become stabilized with vegetation and/or hard surfacing, the Contractor may remove the specified erosion and sediment controls protecting those areas after obtaining approval.

D. Re-stabilization of surfaces disturbed by the removal of erosion and sediment controls shall commence immediately following removal. Re-stabilization efforts shall include restoration of surfaces to required grades, topsoiling, seeding, sodding, mulching, or other treatment as specified on the Plans.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHODS OF MEASUREMENT

A. Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

4.02 BASIS OF PAYMENT

A. Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

*** END OF SECTION ***

DIVISION 02 – SITEWORK

SECTION 02550

WATER MAINS, VALVES, AND APPURTENANCES

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Contractor shall furnish and install all water mains and appurtenances including, but not necessarily limited to, water pipe, fittings, and valves and roadway boxes in accordance with these specifications, as indicated on the Drawings, and as required to complete the work.

1.02 SUBMITTALS

A. Shop Drawings and Product Data: Furnish completely dimensioned shop drawings, cuts or other data as required to provide a complete description of valves and piping specialties as specified in Specification Section 01300 – Submittals. Shop drawings shall include the following information:

1. Polyvinyl chloride (PVC) pipe and couplings: product information and dimensions, pressure rating, and storage, handling, and installation recommendations.
2. Ductile iron pipe and fittings: product information and dimensions, pressure rating or class, storage, handling, installation recommendations, details of special elbows and fittings (if any), and joint details.
3. Tie rods, retainer glands, and associated hardware: product information and dimensions, pressure rating, and installation recommendations.
4. Valves: product description, pressure, torque, or other operating ratings when specified, parts and materials list, detailed assembly drawings, direction of opening, and maintenance requirements and procedures.

B. Certifications: The Contractor shall submit certificates of compliance for pipe, fittings, valves, coatings, linings, and materials to the Engineer for approval. Certifications shall state that materials furnished comply with standards specified herein.

1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Packing Lists: Packing lists shall accompany each pipe delivery made to the site. Absence of such list may cause refusal of shipment.

1. Packing lists shall indicate customer's order number or contract number, truck routing, type and classes of pipe, pipe diameters, weights and lengths of pipe, date of manufacture, and plant identification of the particular lots of piping contained in the shipment.
2. Submit a copy of packing lists to the Resident Project Representative or Engineer as soon as practicable after delivery of piping.

B. Handling: Exercise care so as to not damage exterior coatings and linings of pipes during loading and unloading operations.

1. Use lifting devices or harnesses of the type recommended by pipe manufacturers in handling pipes.
2. Do not drop pipe and pipe fittings, valves, or appurtenances.

C. Storage: Store pipe, fittings, valves, and appurtenances so as not to contact earth or other contaminants.

1.04 QUALITY ASSURANCE

A. Materials:

1. The Resident Project Representative will inspect all materials before and after installation to ensure compliance with the Contract Documents. When specific tests of materials are called for in the referenced standards and specifications, the Engineer has the option of requiring that any or all of these tests be performed for materials furnished for a specific project.

2. Polyvinyl chloride (PVC) pipe and couplings shall be homogeneous throughout and free from visible cracks, bubbles, blisters, holes, foreign inclusions, cuts, or scrapes on inside or outside surfaces, or other imperfections which may impair the performance or life of the pipe. Each pipe shall be straight to within 1-1/4 inch per 20-foot length of pipe when uniformly supported along its entire length and shall have a true circular cross-section to within $\pm 1/64$ inch.

3. Ductile iron pipe (DIP) and fittings shall be sound and without defects that might impair its service. Defective areas shall not exceed the maximum allowable minus wall thickness tolerance specified in AWWA C110 or C151. Repair of defects by welding or other methods will not be allowed. Defective or damaged lining areas may be repaired by cutting out the defective or damaged lining to the metal so that the edges of the lining not removed are perpendicular or slightly undercut. The cutout area and the adjoining lining shall be thoroughly wetted, and a stiff mortar applied and troweled smooth with the adjoining lining. After any surface water has evaporated, but while the patch is still moist, it shall be cured by the application of a seal coat.

B. Chlorination and Field Tests:

1. General:

a. The Contractor shall furnish all labor, tools, materials, and equipment necessary to perform the tests specified and to chlorinate the water mains.

b. The Contractor shall schedule all tests with the Resident Project Representative at least 24 hours in advance of the test and shall conduct all acceptance testing in the presence of the Resident Project Representative.

c. The section of water main shall be filled from such existing fire hydrant or main as may be designated by the Resident Project Representative. The Contractor shall furnish

a backflow preventer ahead of the new water main. When charging and testing water mains which are not sufficiently close to existing water mains carrying Town water to permit connection direct by pipe or hose lines, tank wagons shall be used to haul water and serve as suction wells.

d. Any defective work which shows up while conducting tests or before conditional acceptance and any leaks occurring after conditional acceptance but before final acceptance due to either blown joints or cracked pipe or fittings shall be replaced or repaired by the Contractor at no additional expense to the Town. Should the work be done by the Town in the case of an emergency, the Contractor shall reimburse the Town for the actual cost of replacing such materials and making such installations.

2. Chlorination, Flushing, and Bacteriological Testing:

a. Refer to the Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction, Section 7.10 Sterilization of Water Mains.

3. Hydrostatic Testing:

a. Refer to the Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction, Section 7.11 Testing.

PART 2 – PRODUCTS

2.01 GENERAL

A. All potable water piping shall be certified as “lead free” in accordance with the strictest requirements of the State of Maryland and Federal Safe Drinking Water Act as amended by the Reduction of Lead in Drinking Water Act effective January 4, 2014.

B. The use of “steel wedge” type restrained gaskets to restrain push-on pipe such as US Pipe Field Lok 350, American Fast-Grip gaskets, or equal is not acceptable and shall not be allowed.

2.02 POLYVINYL CHLORIDE (PVC) PIPE WATER MAIN

A. Refer to the Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction, Section 7 Water Mains and Appurtenances.

B. Polyvinyl chloride pipe specified herein is manufactured to ductile iron pipe size. However, if adapters for connecting polyvinyl chloride pipe to ductile iron fittings and valves are necessary, they shall be of the type recommended by the pipe manufacturer. Adapters must be manufactured of material specified herein or approved by the Engineer. Furnishing and installing adapters shall be included in the unit prices bid for the pipe.

C. Polyvinyl chloride pipe shall be delivered and stockpiled in unit pallets and stored on a flat surface. No stacking of pallets above 5 feet in height will be allowed. If pipe is stockpiled for more than 30 days prior to installation in the trench, it must be suitably covered with reflective materials to protect the pipe from ultra-violet rays emanating from sunlight. Do not use plastic sheets. Allow for air circulation under covering.

D. Bowed sections of pipe will be unacceptable and installation of pipe which has bowed,

whether or not the bow has been corrected, will not be allowed.

2.03 DUCTILE IRON PIPE (DIP) WATER MAIN

A. Refer to the Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction, Section 7 Water Mains and Appurtenances.

2.04 HIGH DENSITY POLYETHYLENE (HDPE) PIPE WATER MAIN

A. Pipe shall be DR 9 and pressure rated 250 psi and shall be furnished in DIP sizes as shown on the Drawings. Piping shall be manufactured in accordance with ASTM D3350 and shall be so marked.

B. Pipes shall be joined to one another by thermal fusion in accordance with procedures recommended by the pipe manufacturer. Butt fusion joining of pipes of different DRs shall not be permitted.

C. All butt fusion joints shall be inspected visually to ensure joint quality. The size and shape of the fusion beads indicate if a proper joint has been made. The double bead width should be 2 to 2-1/2 times the height from the pipe surface. Both beads should be uniform in size and shape all around the joint. The depth of the v-groove between the beads must not be more than half the bead height.

D. Poor quality joints shall be removed and re-done. The first butt fusion joint of each day shall be destructively tested per the manufacturer's recommendation. This testing shall confirm the joint integrity, operator procedure and fusion machine set-up. Field fusion shall not proceed until a test joint passes destructive testing.

E. The minimum bending radius of the installed pipe shall be per the minimum recommended by the manufacturer. Should a smaller radius be required, the contractor shall propose the use of a fitting pending the approval of the engineer. The bending radius for pipe in storage shall conform to the manufacturer's recommendations.

F. Storage of all piping shall be as per the recommendations of the manufacturer.

2.05 JOINING HIGH DENSITY POLYETHYLENE (HDPE) PIPE and DUCTILE IRON PIPE (DIP)

A. Restrained Coupling for Joining HDPE and DIP:

1. Restrained Coupling shall be Series 2000PV as manufactured by EBAA Iron, Inc., or equal.
2. The coupling shall be rated for the same pressure as the HDPE pipe it is restraining.

B. Stainless Steel Inserts:

1. Stainless steel inserts for stiffening HDPE pipe shall be as manufactured by Ford Meter Box Company, or equal.
2. The stiffeners shall be solid 18-8 304 stainless steel per ASTM A240. One end shall be flared to retain placement within the line and the other end shall be tapered to provide for

easy installation.

2.06 MECHANICAL JOINT FITTINGS

A. Refer to the Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction, Section 7 Water Mains and Appurtenances.

2.07 PIPE AND FITTING COATINGS

A. Refer to the Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction, Section 7 Water Mains and Appurtenances.

2.08 GATE VALVES

A. Refer to the Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction, Section 7 Water Mains and Appurtenances.

2.09 INSERTION VALVES

A. Insertion valves shall be capable of installation, without shutdown, at one location, of pipe sizes in the range of 4" to 12" diameters. The capabilities specified herein are minimum mandatory requirements that must be met by any insertion equipment or insertion valve offered.

B. The insertion valve shall be capable of pressure-tight assembly to exterior of the pipe in which flow is to be stopped at a working pressure not to exceed 250 psi. The valve assembly shall be designed as to be easily rotated 120 degrees, perpendicular across the top of the pipe, while riding on two (2) separate rubber gaskets, constructed of EPDM or SBR. The valve shall be constructed of a two (2) piece, ductile iron casting (top & bottom), to be bolted together, using ductile iron bolts with zinc alloy anodes for corrosion protection, manufactured to the ductile iron specification of ASTM 536 65-45-12.

C. The valve shall meet or exceed AWWA Specification C509 for resilient seal valves suitable for potable water service and as specified in Paragraph 2.08 Gate Valves herein. The ductile iron gate shall have a resilient rubber seal 360 degrees around the gate and is expandable to the ID (Inside Diameter) of the pipe. The valve stem shall be made of stainless steel with a tensile strength of 60,000 psi. The valve body shall have an epoxy coating of no less than 8 mills. The valve shall use stainless steel fasteners joining the bonnet to the top casting. The final restraint fasteners around the valve casting shall be constructed of minimum 304 stainless steel.

D. The design of valve shall be such that the valve shall have a satisfactory seal against the pipe exteriors by using multiple gaskets if necessary.

E. The insertion valves shall be EZ Valve as manufactured by Advanced Valve Technologies, or equal.

2.10 VALVE BOXES

A. Refer to the Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction, Section 7 Water Mains and Appurtenances.

2.11 AIR RELEASE VALVES AND VAULTS

A. Refer to the Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction, Section 7 Water Mains and Appurtenances.

2.12 PIPELINE DETECTION SYSTEM

A. Refer to the Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction, Section 7 Water Mains and Appurtenances.

PART 3 - EXECUTION

3.01 WATER MAIN AND FITTINGS

A. Refer to the Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction, Section 7 Water Mains and Appurtenances.

3.02 FITTINGS, GATE VALVES AND VALVE BOXES, AIR RELEASE VALVES AND VAULTS

A. Refer to the Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction, Section 7 Water Mains and Appurtenances.

3.03 INSTALLING PIPE IN FREEZING WEATHER

A. No pipe shall be laid upon a foundation into which frost has penetrated nor at any time when the Resident Project Representative deems that there is danger of the formation of ice or the penetration of frost at the bottom of the excavation unless all required precautions as to the minimum length of open trench and promptness of refilling are observed.

3.06 DEFECTS TO BE MADE GOOD

A. At any time before the final acceptance of the contract, if any broken pipes or any defects are found in the water mains or in any of their appurtenances, the Contractor shall cause the same to be removed and replaced with proper material and workmanship without extra compensation for the labor and material required even though such injury or damage may not have been due to any act, default, or negligence on the part of the Contractor. All materials shall be carefully examined by the Contractor for defects just before placing and any materials found defective shall not be placed in the line.

PART 4 – MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

4.02 BASIS OF PAYMENT

A. General:

1. Payment will be made at the unit and/or lump sum prices bid. The prices bid shall include

and cover furnishing all labor, tools, equipment, and materials necessary to complete the work as shown and specified in strict accordance with the Contract Documents and accepted by the Engineer.

2. The prices bid for furnishing and installing water mains, valves, and appurtenances shall include the following:

- a. Trench excavation, backfill, compaction, and incidental items.
- b. Furnishing and installing granular pipe bedding materials and concrete for pipe fitting anchorages, buttresses, and thrust blocking as shown on the Standard Details and as required elsewhere in the Contract Documents.
- c. Furnishing and installing restrained joint pipe, restrained joints, and/or joint restraint systems where required by the Contract Documents.
- d. Furnishing and installing tie rods, retainer glands, and concrete valve supports.
- e. Furnishing and installing all incidentals including, but not limited to, test pitting, storage and re-handling of surface materials over excavations, excavation of all materials encountered in the trenches (except excavation of material below subgrade when directed and refill) and for any extra excavation that may be necessary in sheeting, shoring, or bracing the trench, the shaping of the trench bottom as shown on the Standard Details for proper bedding, backfilling as required (except replacement of material unsuitable for backfill), the placing and removal or cutting off of required sheeting, shoring, and bracing not ordered to be left in place, the removal and disposal of surplus material, removing existing buttresses when necessary, connecting to existing pipelines, structures, or valves including tapping sleeves and valves, making of joints of all types, the furnishing and installing of plugs, temporary line stops, and temporary bulkheads, the furnishing and placing of concrete buttresses and anchors, furnishing and placing marker tape, the pumping and disposal of water, necessary diversion of water during any construction, the support and protection of all structures and their restoration in case of injury, as specified or as directed, the temporary repairs to pavement and other unimproved areas, the restoration of unimproved areas by furnishing and placing topsoil, seed, fertilizer and mulch or sod, the compaction of backfill material, testing and disinfecting the water main, and the furnishing of all labor, equipment, tools, and other incidentals necessary to satisfactorily complete and make the water main operational.

3. Payment will be made for contingent items when ordered by the Engineer.

B. Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

*** END OF SECTION ***

DIVISION 02 – SITEWORK

SECTION 02660

PATCHING EXISTING PAVEMENT, SIDEWALK, CURB, AND COMBINATION CURB & GUTTER

PART 1 - GENERAL

1.01 DESCRIPTION

A. Patching existing pavement (roadway, driveway, driveway apron), sidewalk, curb, and combination curb & gutter shall include, but not necessarily be limited to, patching pavement areas inclusive of pavement base, base courses, and surface courses, sidewalk, curb, combination curb & gutter, handicap ramps, driveway aprons, and other miscellaneous surfaces in accordance with the Contract Documents.

B. Patching pavement shall include, but not necessarily be limited to, repairing and/or replacing existing pavements to a condition that is equal to or better than the condition of existing prior to construction and in reasonably close conformity with the lines, grades, and typical sections shown on the Contract Documents or as directed by the Engineer.

C. Sidewalk construction shall include, but not necessarily be limited to, repairing and/or replacing existing sidewalk and/or handicap ramps to a condition that is equal to or better than the condition of existing prior to construction and in reasonably close conformity with the lines, grades, and typical sections shown on the Contract Documents or as directed by the Engineer.

D. Curb and combination curb & gutter construction shall include, but not necessarily be limited to, repairing and/or replacing existing curb and combination curb & gutter to a condition that is equal to or better than the condition of existing prior to construction and in reasonably close conformity with the lines, grades, and typical sections shown on the Contract Documents or as directed by the Engineer.

E. Related work specified elsewhere:

1. Section 02160 – Removal of Existing Pavement, Sidewalk, Curb, and Combination Curb & Gutter.

1.02 QUALITY ASSURANCE

A. The Resident Project Representative will inspect the work to ensure that it is performed in accordance with the Contract Documents.

B. The Contractor shall provide all required testing and sampling, trial mixes, storage, temperature control, dust control, field tests, concrete tests, etc. required by the Maryland Department of Transportation State Highway Administration Standard Specifications for Construction and Materials, latest edition and all addenda thereto.

C. All graded aggregate base materials, concrete mixes, tack coat, hot mix asphalt mixes, pavement markings, and other materials used shall have been approved by the Maryland State Highway Administration for use on State Highway work and produced in plants approved by the State Highway Administration. The Contractor shall provide certificates of compliance that these materials are approved by the Maryland State Highway Administration.

D. Certified load tickets shall be furnished by the Portland cement concrete producer and delivered to the Engineer.

E. The temperature of the hot mix asphalt shall not be less than required by the State Highway Administration at the time of placement.

PART 2 - PRODUCTS

A. The Owner will not furnish any materials for patching existing pavement, sidewalk, curb, or combination curb & gutter.

B. All materials shall be in accordance with the Maryland Department of Transportation State Highway Administration Standard Specifications for Construction and Materials, latest edition and all addenda thereto.

PART 3 - EXECUTION

3.01 GENERAL

A. All work shall be in accordance with the Maryland Department of Transportation State Highway Administration Standard Specifications for Construction and Materials, latest edition and all addenda thereto.

B. The existing pavement that must be removed shall be broken and removed. During the removal, care shall be exercised to leave the undisturbed portion of the existing pavement with neatly trimmed vertical edges. The underlying subgrade shall be trimmed as directed, refilled if necessary, uniformly compacted, and brought to a suitable subgrade to receive the patch. For trench patching, the existing pavement shall be cut back from the edge of the trench in a neat line in accordance with the appropriate detail(s). Patching pavement for roads within the State Highway Administration (SHA) right-of-way shall be in accordance with the applicable detail for SHA roads. All other roads shall be patched per the detail(s) as indicated on the Plans.

C. After the final pavement patching has been completed, the Contractor shall restore all existing pavement markings in kind to better than or equal to conditions prior to construction to the satisfaction of the Resident Project Representative.

D. For curb or combination curb & gutter replacement, excavation shall be made to the required depth and the subgrade shaped and adequately compacted at the required elevation. All soft and unsuitable material shall be removed and replaced with suitable material.

E. For sidewalk replacement, excavation shall be made to the required depth and to a width that will permit the installation and bracing of forms where required. The foundation shall be shaped and compacted to a firm even surface in accordance with the section shown on the Plans. All soft and unsuitable material shall be removed and replaced with suitable material. The subgrade

shall be compacted to 92% maximum density as determined by AASHTO T 180, Method A after which it shall be accurately trimmed to the proper shape and required grade.

F. Concrete curb, combination curb and gutter, and monolithic median may be constructed by either the slip-form or conventional fixed form method to match the existing curb to be replaced.

G. Concrete shall be cured and protected from cold weather in accordance with SHA requirements. During the cure period, all pedestrian and vehicular traffic shall be excluded.

H. No plastering of the surface will be permitted.

I. After the forms have been stripped and any necessary repairs are satisfactorily completed, the spaces in front and back of the curb or sidewalk shall be backfilled to the required elevations using suitable material. It shall be consolidated to the satisfaction of the Resident Project Representative.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

A. Patching of existing pavement (roadway, driveway, driveway apron), sidewalk, curb, combination curb & gutter, or other miscellaneous surfaces as directed by the Engineer or Resident Project Representative will be measured as follows:

1. Measurement of pavement patches (roadway, driveway, driveway apron) will be made to the standard cutback dimensions shown on the details or as directed by the Resident Project Representative. Areas beyond the standard cutback dimensions that require patching due to the Contractor's activities will not be measured for payment. The quantity of patch pavement will be measured based on the surface area of material acceptably placed.
2. Measurement for patching sidewalks will be based on the finished surface area of material acceptably placed.
3. Measurement for patching existing curb and combination curb & gutter will be made along and parallel to the finished top of curb at its front or roadside edge based on the length of material acceptably placed. Measurement will be made along the item from end to end of each continuous section.

B. Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

4.02 BASIS OF PAYMENT

A. Payment for patching pavement (roadway, driveway, driveway apron), sidewalk, curb, combination curb and gutter, or other miscellaneous surfaces as directed by the Engineer or Resident Project Representative will be as follows:

1. The price bid for patching existing pavement (roadway, driveway, driveway apron), shall include all work specified herein regardless of type or depth of material placed including all excavation, backfill, and disposal of surplus materials, trimming existing pavement, subgrade preparation, pavement markings, and furnishing all labor, tools, equipment, materials, and incidentals necessary to satisfactorily complete the work as

shown and specified in strict accordance with the Contract Documents, and accepted by the Resident Project Representative.

2. The price bid patching existing sidewalk shall include all work specified herein regardless of type or depth of material placed including all excavation, backfill, and disposal of surplus materials and furnishing all labor, tools, equipment, materials, and incidentals necessary to satisfactorily complete the work as shown and specified in strict accordance with the Contract Documents, and accepted by the Resident Project Representative.

3. The price bid for patching existing curb and combination curb & gutter shall include all work specified herein, regardless of type, width or depth of material placed including all excavation, backfill, and disposal of surplus materials, and furnishing all labor, tools, equipment, materials, and incidentals necessary to satisfactorily complete the work as shown and specified in strict accordance with the Contract Documents, and accepted by the Resident Project Representative.

B. Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

*** END OF SECTION ***

DIVISION 02 – SITEWORK

SECTION 02910

JACK AND BORE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Boring and/or jacking pipe shall include, but not necessarily be limited to, furnishing and installing casing pipe beneath railways, roadways, or other locations indicated on the drawings and in accordance with the Contract Documents.

1.02 QUALITY ASSURANCE

A. Materials

1. General: The Engineer may inspect all materials before and/or after installation to ensure compliance with the Contract Documents. When specific materials tests are required by the referenced standards and specifications, the Engineer will have the option of requiring that any or all of these tests be performed for materials furnished for a specific project.

2. Steel Casing Pipe: Steel casing pipe shall be free from any visible defects or surface imperfections such as kinks, scars, or bends which may impair the performance or life of the pipe. Defects shall be considered injurious when the depth of the defect is greater than 12.5% of the nominal wall thickness. The pipe shall be substantially round. The outside circumference of the pipe shall not vary more than $\pm 1\%$ from the nominal outside circumference based upon the diameter specified. The pipe shall not deviate by more than 1/8 inch from a 10-foot-long straightedge held against the pipe. Defective or damaged coatings may be repaired in accordance with the coating manufacturer's written recommendations.

3. Ductile Iron Carrier Pipe: Ductile iron carrier pipe shall conform to Specification Section 02550 – Water Mains, Valves, and Appurtenances.

B. Field Tests:

1. General: No testing will be conducted on bored and/or jacked casing pipe installed in accordance with this Section although the work may be visually inspected after installation by the Engineer prior to the installation of the carrier pipe.

2. Bored and/or Jacked Casing Pipe: Bored or jacked casing pipe shall be installed to the line and grade indicated on the Plans to within a tolerance of 2 inches.

3. Carrier Pipe: Carrier pipe will be inspected and tested in accordance with Specification Section 02550 – Water Mains, Valves, and Appurtenances.

1.03 SUBMITTALS

A. Shop Drawings:

1. Shop drawings shall be submitted as specified in Specification Section 01300 – Submittals for the pipe. The shop drawings shall include product information on material strength, type or class, and joint details.
2. The Contractor shall also submit detailed drawings including proposed method of boring and advancing casing or proposed method of preparing bored hole for installation of casing pipe; size, capacity, and arrangement of equipment; size and location of pit including configuration, backstop, pit base material, and type of cutter head; and proposed method of monitoring and controlling line and grade. Boring / jacking work shall not proceed until drawings have been reviewed and returned by the Engineer.

B. Certificates of Compliance:

1. Certificates of compliance shall be submitted in accordance with Specification Section 01300 – Submittals for pipe and bituminous coatings if required. The certificate shall state that the item furnished has been manufactured in accordance with and meets the requirements of the standard referenced.

1.04 REFERENCES

- A. ASTM A-53: Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
- B. ASTM A-666: Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
- C. AWWA C-200: Steel Water Pipe 6 Inch and Larger.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Steel Casing Pipe:

1. Smooth walled with minimum yield strength of 42,000 psi (ASTM A53 Grade B).
2. Minimum wall thickness: 3/8 inch or as indicated on Drawings.
3. Joints: Fully welded around circumference of pipe with complete penetration weld. Weld of sufficient strength to withstand forces at pipe joints without distortion of pipes.
4. Coating: None.

B. Casing Spacers:

1. Treat stainless steel metal surfaces and welds in order to reduce chemical reactivity of its surface.

2. Bands and Risers.
 - a. Minimum 2 pieces, stainless steel plate: ASTM A666 Type 304.
 - b. Band Minimum Thickness: 14 gauge for carrier pipes up to 12 inches diameter and 12 gauge for more than 12 inches.
3. Runners:
 - a. High density molecular polyethylene or polymer reinforced fiberglass with DURO Hardness A of 80 and minimum dielectric strength of 500 volts per mil with sufficient compressive and shear strengths.
 - b. Attach to risers with bolts or welded studs.
 - c. Fill bolt holes with silicone caulk.
4. Spacer Band: Line with minimum 0.090-inch-thick ribbed PVC liner of DURO Hardness A of 80 and minimum dielectric strength of 50,000 volts per mil.
5. Approved Manufacturers:
 - a. Pipeline Seal and Insulator Inc.
 - b. Cascade Waterworks Manufacturing Company.
 - c. Advanced Products and Systems, Inc. (APS).
 - d. BWM Company.
 - e. CCI Pipeline Systems, LLC.
 - f. Or equal (with minimum 5 years of fabricating casing spacers in the United States).

C. Casing End Seals:

1. Approved Manufacturers:
 - a. Advance Products & Systems, Model AC or AM.
 - b. Pipeline Seal & Insulator, Inc., Model S or C.
 - c. Maloney Technical Products, MULTIFLEX End Seal.
 - d. BWM Company.
 - e. CCI Pipeline Systems, LLC.
 - f. Or equal.

D. Mortar for Grout:

1. Mortar shall be as specified in Section 4.5 of the Town of Denton Department of Public Works Standard Specifications and Details for Public Works Construction.

PART 3 - EXECUTION

3.01 PREPARATION

A. Preliminary work shall consist of excavating and sheeting a suitable shaft on the lower side of the crossing and installation of a backstop and guide timbers. The guide timbers shall be long enough to hold at least two lengths of pipe and shall be carefully checked for line and grade before any pipe is placed on them.

3.02 JACKING AND BORING

A. When augers or similar devices are used for pipe emplacement, the front of the pipe shall be provided with mechanical arrangements or devices that will positively prevent the auger and cutting head from leading the pipe so that there will be no unsupported excavation ahead of the pipe. The arrangement shall be removable from within the pipe in the event an obstruction is encountered. The excavation by the cutting head shall not exceed the outside diameter of the pipe by more than 1/2 inch. The face of the cutting head shall be arranged to provide reasonable obstruction to the free flow of soft material.

B. The use of water or other liquids to facilitate casing emplacement and spoil removal is prohibited.

C. If an obstruction is encountered during installation that stops the forward action of the pipe, and it becomes evident that it is impossible to advance the pipe, operations shall cease and the pipe abandoned in place and filled completely with grout.

D. Bored or jacked installations shall have a bored hole essentially the same as the outside diameter of the pipe plus the thickness of the protective coating, if required. If voids should develop or if the bored hole diameter is greater than the outside diameter of the pipe (plus coating, if required) by more than approximately 1 inch, grouting or other methods approved by the Engineer shall be employed to fill such voids.

E. All operations shall be conducted so as not to interfere with, interrupt, or endanger the operation of traffic, or damage, destroy, or endanger the integrity of any surface facilities.

3.03 INSTALLATION OF CARRIER PIPE

A. Carrier pipe shall be installed within the casing pipe as shown in the Contract Documents.

B. Where shown or specified in the Contract Documents, the annular space between the casing and carrier pipes shall be filled with sand or grout.

PART 4 - MEASUREMENT AND PAYMENT

4.01 METHODS OF MEASUREMENT

A. Refer to Specification Section 01025 – Measurement and Payment for information on

measurement and payment.

4.02 BASIS OF PAYMENT

A. Refer to Specification Section 01025 – Measurement and Payment for information on measurement and payment.

*** END OF SECTION ***