

PROJECT NO. 50131613
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BARRACKS WEST WATER MAIN REPLACEMENT PROJECT

Contract Documents & Technical Specifications

OCTOBER 2023



SUBMITTED BY
Dewberry Engineers Inc.
4805 Lake Brook Drive, Suite 200
Glen Allen, Virginia 23060
804.290.7957

SUBMITTED TO
Albemarle County Service Authority
168 Spotnap Road
Charlottesville, Virginia 22911
434.977.4511



**Contract Documents and
Technical Specifications**

for

**Barracks West Water Main Replacement Project
*100% Documents***

Prepared For:

**Albemarle County Service Authority
168 Spotnap Road
Charlottesville, Virginia 22911**

Prepared By:

**Dewberry Engineers Inc.
4805 Lake Brook Drive, Suite 200
Glen Allen, Virginia 23060
(804) 290-7957**

DEI Project No.: 50131613

Prepared October 2023

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ALBEMARLE COUNTY SERVICE AUTHORITY
BARRACKS WEST WATER MAIN REPLACEMENT PROJECT

Project Number 2021-05

ADVERTISEMENT FOR BIDS

The Albemarle County Service Authority (ACSA) is seeking proposals from qualified contractors for the **BARRACKS WEST WATER MAIN REPLACEMENT PROJECT** (Project Number 2017-10). Proposals will be received at the office of ACSA, 168 Spotnap Road, Charlottesville, Virginia 22911 until **2:00 PM, local prevailing time, on Thursday, December 11, 2025**. At that time the bids will be opened and read aloud by live streaming video.

The Contract will be for furnishing and installing approximately 3,700 linear feet of 8-inch waterline and 560 linear feet of 4-inch waterline, including associated interconnections, hydrants, meter installations, appurtenances, abandonment of existing waterline, and reconnection of existing water services as shown and specified in the Contract Documents. New waterlines shall be zinc-coated ductile iron pipe along Saponi Lane, Burgoyne Road, and Runnel Court in the Barracks West apartment complex in Charlottesville, Virginia. Work shall be performed over the course of a 7-month period, commencing on the date the Notice to Proceed is issued.

A virtual **non-mandatory** Pre-Bid Conference will be held at **2:00 PM, local prevailing time, on Thursday, November 13, 2025**.

Internet links to the virtual Pre-Bid Conference and Bid Opening will be sent to plan holders, as well as posted on the ACSA website, serviceauthority.org, prior to each meeting.

Bidders are encouraged to test their connectivity prior to the Pre-Bid Conference and Bid Opening dates and times noted herein.

The purpose of the Pre-Bid Conference is for bidders to familiarize themselves with the project and to ask questions pertaining to the Contract Documents. Bidders are reminded that no oral interpretations of meaning of drawings and specifications can be made. Conflicts in the Contract Documents, if any, will be resolved by written Addendum.

It is the bidder's responsibility to visit the site to determine the scope of work necessary and to include all incidental work in the unit prices offered in this contract. Actual measured quantities shall be the basis for final payment made. Unit quantities in the proposal Bid Form are approximate only and for the purpose of comparing bids.

The Authority reserves the right to reject any or all proposals and to waive any irregularities or informalities in the proposals. Each proposal shall be accompanied by a bid guarantee in an amount equal to at least 5% (five percent) of the amount bid. At the option of the bidder, the guarantee may be certified check, bank draft, or bid guarantee. The bid guarantee shall ensure the execution of the contract as required by the specifications. The contract is to be awarded on the basis of the bidder's qualifications and the total estimated cost on a unit price basis as stated in the proposal.

An internet link to electronic copies (PDF format) of the Bid Documents may be obtained **FREE OF CHARGE** by submitting an email request to jweiler@serviceauthority.org.

No partial sets of the drawings and/or the Project Manual will be issued. All prospective bidders and plan holders shall furnish their company name, complete mailing address with zip code, and contact information (including name, e-mail address, telephone and facsimile numbers).

Bidders must be licensed contractors in Virginia in accordance with Title 54.1, Chapter 11, of the Code of Virginia.

The bidder and its subcontractors must comply with the provisions of Executive Orders 11246, as amended, and 11375, which prohibit discrimination in employment regarding race, creed, color, sex, or national origin.

Bidders must certify that they do not, and will not, maintain or provide for their employees any facilities that are segregated on a basis of race, color, creed, or national origin.

Questions concerning the project should be addressed to Mr. Justin Weiler, P.E., Senior Civil Engineer, of the Albemarle County Service Authority at the above address and must be received no later than seven (7) calendar days preceding the date of "Bid Opening".

Albemarle County Service Authority
Jeremy M. Lynn, P.E.
Director of Engineering

END OF SECTION AB

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**ALBEMARLE COUNTY SERVICE AUTHORITY
BARRACKS WEST WATER MAIN REPLACEMENT PROJECT**

INSTRUCTIONS TO BIDDERS AND GENERAL TERMS

A. General

1. **CONTACT INFORMATION:** Questions concerning the project should be addressed to the following:

Mr. Justin Weiler, PE
Senior Civil Engineer
ACSA
168 Spotnap Road
Charlottesville, Virginia 22911
(434) 977-4511
2. **COMPETITION INTENDED:** It is the ACSA's intent that this solicitation permit competition. It shall be the bidder's responsibility to advise the ACSA in writing if any language, requirement, specification, etc., or any combination thereof, stifles competition or inadvertently restricts or limits the requirements stated in this solicitation to a single source. The ACSA must receive such notification not later than five (5) business days prior to the deadline set for acceptance of the bids.
3. **TAX EXEMPTION:** The ACSA is exempt from the payment of any federal excise or any Virginia sales tax. The price bid must be net, exclusive of taxes. Tax exemption certificates will be furnished, if requested by the successful bidder.
4. **AVAILABILITY OF FUNDS:** It is understood and agreed between the contractor and the ACSA that the ACSA shall be bound hereunder only to the extent of the funds available or which hereafter become available for the purpose of the contract.
5. **PRECEDENCE OF TERMS:** In the event there is a conflict between any of the following sections: the Instructions to Bidders and General Terms, Standard General Conditions and the ACSA Supplementary Conditions, the ACSA Supplementary Conditions shall first apply, followed by the Instructions to Bidders and General Terms and then the Standard General Conditions.
6. **NONDISCRIMINATION OF CONTRACTORS:** A bidder, offeror, or contractor shall not be discriminated against in the solicitations or award of this contract because of race, religion, color, sex, national origin, age or disability.
7. **APPLICABLE LAW AND COURTS:** Any contract resulting from this solicitation shall be governed in any respects by the laws of Virginia, and any litigation with respect thereto shall be brought in the Circuit Court or General District Court of Albemarle County, Virginia. The contractor shall comply with applicable federal, state and local laws and regulations.

B. Qualifications

1. **STATE REGISTRATION OF CONTRACTORS:** Attention is directed to Chapter 11, Title 54.1 of the Code of Virginia (Re: State registration of contractors), which requires that all bidders must show evidence of the proper license under the provision of this chapter before such bid is considered.
2. **DEBARMENT STATUS:** By submitting their bids, bidders certify that they are not currently debarred by the ACSA, the Commonwealth of Virginia, the Federal Government, any local government or government agency/entity/authority from submitting bids or proposals on contracts for the type of goods and/or services covered by this solicitation, nor are they an agent of any person or entity that is currently so debarred.
3. **ETHICS IN PUBLIC CONTRACTING:** The provisions contained in Sections 2.2-4367 through 2.2-4377, Code of Virginia, as amended, shall be applicable to all contracts solicited or entered into by the ACSA. By submitting their bids, all bidders certify that their bids are made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other bidder, supplier, manufacturer or subcontractor in connection with their bid, and that they have not conferred on any public employee having official responsibility for this procurement, transaction of any payment, loan, subscription, advance, deposit of money, services or anything of more than normal value, present or promised, unless consideration of substantially equal or greater value was exchanged.

The bidder certifies that to the best of their knowledge, no employee of the ACSA, nor any member thereof, nor any public agency or official impacted by the solicitation or resulting contract has any pecuniary interest in the business of the bidder, and that no person associated with the bidder has any interest that would conflict in any manner with the performance of the contract resulting from this solicitation.

4. **IMMIGRATION REFORM AND CONTROL ACT OF 1986:** By submitting their bids, the bidders certify that they do not and will not, during the performance of this contract, employ illegal alien workers or otherwise violate the provisions of the federal Immigration Reform and Control Act of 1986, as amended.
5. **ANTI-TRUST:** By entering into a contract, the contractor conveys, sells, assigns, and transfers to the ACSA all rights, title and interest in and to all causes of the action it may now have or hereafter acquire under the antitrust law of the United States and Albemarle County, relating to the particular goods or services purchased or acquired by the ACSA under said contract. Consistent and continued tie bidding could cause rejection of bids by the ACSA and/or investigation for Anti-Trust violations.
6. **ANTI-DISCRIMINATION:** By submitting their bid, bidders certify to the ACSA that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, where applicable, the Virginians With Disabilities Act, the Americans With Disabilities Act and Code of Virginia § 2.2-4311, as amended. If the award is made to a faith-based organization, the organization shall not discriminate against any

recipient of goods, services, or disbursements made pursuant to the contract on the basis of the recipient's religion, religious belief, refusal to participate in a religious practice, or on the basis of race, age, color, gender or national origin and shall be subject to the same rules as other organizations that contract with public bodies to account for the use of the funds provided; however, if the faith-based organization segregates public funds into separate accounts, they shall be subject to audit by the public body. (Code of Virginia § 2.2-4343.1.E).

7. **DRUG-FREE WORKPLACE:** During the performance of this contract, the contractor agrees to (i) provide a drug-free workplace for the contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

For the purposes of this section, "drug-free workplace" means a site for the performance of work done in connection with a specific contract awarded to a contractor, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

8. **RESPONSIBLE LAND DISTURBER:** The contractor will be required to have on staff, and assigned to this project, a Responsible Land Disturber (RLD) in accordance with the Contract Documents, and the provisions set forth in the Virginia Erosion and Sediment Control (ESC) Program, established by revisions to the Virginia Erosion and Sediment Control Law (Title 10.1, Chapter 5, Article 4 of the Code of Virginia). Proof of certification for the RLD is not required as a part of the bid package; however, this information may be requested at a later date during the bid evaluation phase.

C. Bid Period

1. **BRAND NAME OR EQUAL ITEMS:** Unless otherwise provided in the solicitation, the name of a certain brand, make or manufacturer does not restrict bidders to the specific brand, make or manufacturer named; it conveys the general style, type, character, and quality of the article desired. Any article which the ACSA, in its sole discretion determines to be the equal of that specified, considering quality, workmanship, economy of operation, and suitability for the purpose intended, may be accepted. The bidder is responsible to clearly and specifically indicate the product being offered and to provide sufficient descriptive literature, catalog cuts and technical detail to enable the ACSA to determine if the product offered meets the requirements of the solicitation.

2. **FORMAL SPECIFICATIONS:** When a solicitation contains a specification which states no substitutes, no deviation therefrom will be permitted and the bidder will be required to furnish articles in conformity with that specification.
3. **OMISSIONS & DISCREPANCIES:** Any items or parts of any equipment or materials listed in this solicitation which are not fully described or are omitted from such specification, and which are clearly necessary for the completion of such equipment or material and its appurtenances, shall be considered a part of such equipment or material although not directly specified or called for in the specifications. The bidder shall abide by and comply with the true intent of the specifications and not take advantage of any unintentional error or omission, but shall fully complete every part as the true intent and meaning of the specifications and drawings. Whenever the mention is made of any articles, material or workmanship to be in accordance with laws, ordinances, building codes, underwriter's codes, AWWA regulations, A.S.T.M. regulations or similar expressions, the requirements of these laws, ordinances, etc., shall be construed as to the minimum requirements of these specifications.
4. **EQUIPMENT AND MATERIAL STANDARDS:** Any equipment and material delivered shall be standard new equipment and material, latest model, the best quality, and the highest grade work, except as otherwise specifically stated in the bid. Any part of nominal appurtenances which are usually provided in the manufacturer's stock model shall be furnished.
5. **BIDDERS INTERESTED IN MORE THAN ONE BID:** If more than one bid is offered by any one party, either directly or by or in the name of their clerk, partner, or other persons, all such bids may be rejected. A party who has quoted prices on work, materials, or supplies to a bidder is not thereby disqualified from quoting prices to other bidders or firms submitting a bid directly for the work, materials or supplies.

D. Receipt of Bids

1. Sealed bids for the BARRACKS WEST WATER MAIN REPLACEMENT PROJECT will be received by the Albemarle County Service Authority, at the office of the ACSA, 168 Spotnap Road, Charlottesville, Virginia, until **2:00 PM, local prevailing time, on Thursday, December 11, 2025.**

The signed bid and requested documents shall be submitted in a sealed envelope and identified with the following information:

- a. Bidder's name and complete mailing address
 - b. Contract number and title of project
 - c. Bid due date and time
2. **OPENING:** At the time fixed for the opening of responses to a bid, all bids will be opened and the names of the bidders and the amount bid shall be read aloud and made readily available to the public.

The bid package **must** include the following items and be signed by the individual signing the Bid Form; all signatures shall be in ink:

- a. A completed, signed, Bid Form, Section 00400 of these Contract Documents, including unit prices, if required, for performing the complete scope of work in accordance with these documents. The Contractor's Virginia license number will be required as a part of the bid package.
- b. A bid bond, a certified check upon a solvent bank or trust company, made payable to the order of the Albemarle County Service Authority, or cash escrow in the amount of five percent of the total bid price submitted.
- c. Completed Receipt of Addenda form, Section 00490 of these Contract Documents.
- d. Any additional information required.

The Qualification Statement (Section 00431) and Contractor's Financial Statement (Section 00432) may be required by the ACSA after receipt of Bids, but are not required as a part of the bid package.

A statement as to available machinery and equipment to undertake the work may also be requested.

3. **NO CONTACT POLICY:** No bidder shall initiate contact related to the solicitation with any ACSA employee, after the date and time established for receipt of bids. Any contact initiated by a bidder with any ACSA representative, concerning this solicitation, is prohibited and may cause the disqualification of the bidder from this procurement process.
4. **USE OF ACSA BID FORM AND TERMS AND CONDITIONS:** Failure to submit a solicitation on the official ACSA Bid Form provided for that purpose, or unauthorized modification of or additions to any portion of the solicitation documents, may be a cause for rejection of the bid. The ACSA reserves the right to decide, on a case-by-case basis, in its sole discretion, whether to reject any bid which has been modified. The ACSA shall not be responsible for any errors or omissions of the bidder. The Bid Form shall be signed by a representative authorized to legally bind the firm. Claims, as a result of failure to inspect the job site, shall not be considered by the ACSA.

The bidder shall fully complete the Bid Form in the manner indicated. All prices shall be entered in ink; and all changes in prices made by the bidder after the original entry shall also be made in ink, and the bidder shall initial such changes.

The bidder must sign the Bid Form correctly and legibly; and the bidder shall state their interest, title, or office in the company or firm submitting the bid. If the bid should be made by an individual, the name and address of the organization, and the full name of the individual, shall be shown; if made by a firm or partnership, the name and address of the organization, and the full names of each partner or person holding interest in the firm, shall be shown; and if made by a corporation, the name and address of the corporation, and the full names of the officers of the corporation shall be shown.

5. **LATE BIDS:** No bid will be received after the time specified for receipt of the bids. Bids received after the time specified shall be returned unopened.

The ACSA is not responsible for delays in the delivery of the mail by the U.S. Postal Service, private carriers or the inter-office mail system. It is the sole responsibility of the bidder to ensure their bid reaches the designated location by the date and hour specified.

6. **WITHDRAWAL OF BIDS:** A bidder for a contract other than for public construction may request withdrawal of their bid under the following circumstances:
 - a. Bids received at the address shown in the solicitation, prior to the time of acceptance, may be withdrawn on written request from the bidder.
 - b. No bid may be withdrawn after the time set for opening of bids has passed, except as provided for by the Code of Virginia, Chapter 43, Title 2.2, Section 4330, as amended, and in manner prescribed in the aforesaid Section 11.54, as amended. The ACSA reserves the right to hold the bids for a period of 90 days after the date set for receipt of bids.
 - c. Bids shall not be withdrawn after award of a contract. No plea or claim of mistake in a solicitation or resulting contract shall be available as a defense in any legal proceeding.

No bid may be withdrawn when the result would be the awarding of the contract on another bid from the same bidder or of another bidder in which the ownership of the withdrawing bidder is more than five percent. If a bid is withdrawn, the lowest remaining bid shall be deemed to be the low bid. No bidder who is permitted to withdraw a bid shall, for compensation, supply any material or labor to, or perform any subcontract or other work agreement for the person or firm to whom the contract is awarded; or otherwise benefit, directly or indirectly, from the performance of the project for which the withdrawn bid was submitted.

7. **ERRORS IN BIDS:** When an error is made in extending total prices, the unit bid price will govern. When a discrepancy exists between the written word and the numeric amount, the written word shall govern.
8. **FAMILIARITY:** Each bidder, by making their bid, represents that they have read and understand the bidding documents, and have familiarized themselves with the local conditions under which the work is to be performed and all State laws and local ordinances and regulations which may affect the conduct of the work or those engaged or employed on the work.

E. Acceptance of Bids

1. **ACCEPTANCE OF BIDS:** Unless otherwise specified, all formal bids submitted shall be valid for a minimum period of ninety (90) calendar days following the date established for acceptance. At the end of the ninety (90) calendar days, the bid may

be withdrawn at the written request of the Bidder. If the proposal is not withdrawn at that time, it remains in effect until an award is made or the solicitation is canceled.

2. PRICING:

- a. Prices should be stated in units of quantity as specified on the bid form.
- b. Life cycle cost analysis may be considered when determining the lowest responsive and responsible bid. This analysis may consider, in addition to purchase price, any proposed upward or downward escalator clauses proposed for the initial contract term and any potential renewal terms; operating and related costs over the life of the item including maintenance, down time, energy costs, salvage value, etc.
- c. Bid prices shall be for complete installation ready for ACSA use and shall include all applicable freight and installation charges; extra charges will not be allowed.

3. FACTORS OTHER THAN PRICE IN AWARD DECISION: The following factors, in addition to price (as they apply), shall be a consideration in the award decision:

- a. The quality of performance/workmanship of previous contracts, services or products, or references which attest to other specific experiences;
- b. The timely completion of previous contracts or services or the timely delivery of past orders; or references which attest to other specific experiences;
- c. The sufficiency of financial resources and its impact on ability of the bidder to perform the contract or provide the services;
- d. The ACSA reserves the right to conduct on-site inspections of any bidder's facilities prior to award. The results of said inspection will be considered by the ACSA in determining the bidder's capabilities of successfully administering to this contract;
- e. The ability and availability of the bidder to provide both quality and timely maintenance, service, and/or parts;
- f. The resale value, life cycle costing, and value analysis of a product;
- g. The availability and capability of local and regional vendor support as it affects the quantity, quality, and timeliness of the work or products required;
- h. Delivery of a product and timely completion of a project as stated by a vendor in the bid;
- i. Substantial compliance or noncompliance with specifications set forth in the bid as determined by the ACSA;
- j. Product or parts inventory capability as it relates to a particular bid; and

- k. Results of product testing.
- 4. TIE BIDS: In the case of a tie bid, the ACSA may give preference to goods, services and construction produced in Albemarle County. If such choice is not available, preference shall then be given to goods and services produced in the Commonwealth pursuant to the Code of Virginia § 2.2-4324. If no ACSA or Commonwealth choice is available, the tie shall be decided by lot.
- 5. BID SECURITY: The bid security of all except the three lowest responsive, responsible bidders will be returned within five days after the receipt of bids. The bid securities of the three lowest responsive, responsible bidders will be returned only after the required bonds and insurance are furnished and the contract executed with the successful bidder.

F. Award

- 1. AWARD OR REJECTION OF BIDS: The ACSA shall award the contract to the lowest, responsive and responsible bidder complying with all provisions of the Contract Documents, provided the bid price is reasonable and it is in the best interest of the ACSA to accept it. A “responsive” bid shall be evidenced by:
 - a. a complete Bid Form;
 - b. a Bid Form not evidencing any apparent unbalanced pricing for performance of the items of work;
 - c. a Bid Form without excisions, alterations, special conditions or qualifications made by the bidder; and
 - d. a Bid Form containing no alternative bids or offerings (by inclusion, attachment, or otherwise) for any items unless such alternative bids or offerings are requested in the Contract Documents.

That a bidder is “responsible” may be evidenced by the following facts:

- a. they maintain a permanent place of business;
- b. they have adequate financial capability for meeting the obligations inherent in the work;
- c. they have adequate equipment to properly perform the work within the time limit specified; and
- d. they have a competent and experienced organization.
- e. they have performed and completed similar work of similar magnitude in a satisfactory manner.

The ACSA may make such investigations as it deems necessary to determine the bidder’s ability to perform the work and the bidder shall furnish to the ACSA all such information and data for this purpose as the ACSA may request. The ACSA reserves the right to reject any bid if investigation of such bidder fails to satisfy the ACSA that the bidder is properly qualified to carry out the obligations of the contract.

By the tender of a bid for performing the work, the bidder warrants that they are experienced in such construction and are familiar with all phases of the work necessary for a complete job.

The Contractor shall have on the project at all times a superintendent who shall also be experienced in the particular type of construction and shall be familiar with all phases of the work.

The bidder must satisfy themselves of the accuracy of the estimated quantities in the Bid Form by examination of the site and a review of the drawings and specifications, including Addenda. After a bid has been awarded, the Contractor shall not assert that there was misunderstanding concerning the quantities of work or of the nature of the work to be done as called for in the Contract Documents.

The Contract Documents contain the provisions required for the construction of the project. Information obtained from an officer, agent, or employee of the ACSA or any other person shall not affect the risks or obligations assumed by the Contractor or relieve them from fulfilling any of the conditions of the Contract Documents.

The ACSA reserves the right to award a contract by individual items, in the aggregate, or in combination thereof, or to reject any or all bids and to waive any informality in bids received whenever such rejection or waiver is in the best interest of the ACSA. The ACSA reserves the right to negotiate with the lowest responsive, responsible bidder should bids exceed available funds. The ACSA shall reject the bid if the bidder is deemed to be a non-responsive, or non-responsible bidder.

2. **ASSIGNMENT OF CONTRACT:** The Contractor shall not assign their Contract, nor any part thereof, nor any monies due, or to become due thereunder, without prior written approval of the ACSA.
3. **PROTEST OF AWARD OR DECISION TO AWARD:** Any bidder who desires to protest the award or decision to award a contract by the ACSA shall submit such protest in writing to the ACSA no later than ten (10) days after public notice of the award or announcement of the decision to award, whichever comes first. No protest shall lie for a claim that the selected bidder is not a responsible bidder. The written protest shall include the basis for the protest and the relief sought. The ACSA shall issue a decision in writing within five (5) days after receipt of the protest stating the reasons for the action taken. This decision shall be final unless the bidder appeals within ten (10) days of the written decision by instituting legal action. Nothing in this paragraph shall be construed to permit a bidder to challenge the validity of the terms or conditions of the solicitation.

G. Successful Bidder's Requirements

1. **PERFORMANCE BOND, PAYMENT BOND AND INSURANCE:** The bidder whose Bid is accepted shall enter into a written contract for the performance of the Work and furnish within 15 days after the date of a written Notice of Award by the ACSA, which has been delivered to such bidder personally or by mail to such bidder at the address given in their Bid, the following: (1) a performance bond in an amount equal to 100 percent of the contract sum conditioned on the faithful performance of the contract in strict conformity with the plans, specifications and conditions of the Contract Documents, (2) a payment bond in an amount equal to 100 percent of the

contract sum, conditioned upon the prompt and faithful payment of all persons and entities who have and fulfill contracts which are directly with the Contractor for performing labor or furnishing materials in the prosecution of the work provided for in the Contract Documents, and (3) one or more certificates of insurance evidencing the types and amounts of insurance coverage required to be maintained by the Contractor under the contract documents.

2. **CONTRACT SECURITY:** If a bidder to whom the contract is awarded refuses or neglects to execute it or fails to furnish the required Performance and Payment Bonds and Insurance within fifteen (15) days of the date of Notice of Award, the amount of the bid security shall be forfeited and shall be retained by the ACSA as liquidated damages, and not as a penalty, since said sum is a fair estimate of the amount of damages to the ACSA. However, no forfeiture under a bid bond shall exceed the difference between the bid for which the bond was written and the next low bid.

In addition, if the bidder to whom the Contract is awarded refuses or neglects to execute it or fails to furnish the required Performance and Payment Bonds and Insurance as herein provided, the award of the contract may be annulled and the contract awarded to the next lowest responsive, responsible bidder and such bidder shall fulfill every stipulation of these documents as if they were the original party to whom it was made; or ACSA may reject all of the bids as its interest may require. Except as provided in the Contract Documents, no plea of mistake in the bid shall be available to the bidder for the recovery of their bid security or as a defense to any action based upon the neglect or refusal to execute a contract.

Any performance or payment bond required hereunder shall be in the form included in these Contract Documents and shall be executed by a surety company legally authorized to do business as a surety in the Commonwealth of Virginia and meeting the requirements stated in Article 14 of the General Conditions. In lieu of a payment or performance bond, the successful bidder may furnish a cash escrow or certified check payable to the order of ACSA.

3. **SUBCONTRACTORS:** No part of the Contract shall be sublet without prior written approval of the ACSA. The bidder shall, prior to execution of the Contract, immediately submit to the ACSA the names of Subcontractors when they propose to employ on the project.
4. **ESCROW AGREEMENT:** In accordance with Virginia Public Procurement Act, Article 2.2-4334, adopted July 1, 2001, the Contractor shall have fifteen calendar days after notification of award by the ACSA in which to execute and submit to the ACSA an escrow agreement. If the escrow agreement form is not submitted within the fifteen-day period, the Contractor shall forfeit their rights to the use of the escrow account procedure. A copy of an escrow agreement is included within these contract documents (Section 00850).
5. **NOTICE TO PROCEED:** The Contractor shall be notified by letter, giving Notice to Proceed, when work may begin under this Contract. Such notice will be issued as determined by the ACSA, but not before receipt and acceptance of the Contractor's

Performance and Payment Bonds, Certificate of Insurance, and a fully executed Standard Form of Agreement.

END OF SECTION IB

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**SECTION 00400
BID FORM**

BARRACKS WEST WATER MAIN REPLACEMENT PROJECT

To Albemarle County Service Authority, 168 Spotnap Road, Charlottesville, Virginia 22911:

Made by:

Name of Bidder _____

(Individual, partnership or corporation, as case may be)

Place of Business of Bidder _____

Telephone No. _____ Fax No. _____

Date of Bid _____

(If Bidder is a partnership, fill in the names and addresses of all partners in the following blanks)

Name of Partners

Residence of Partners

(If Bidder is a corporation, fill in the following blanks)

Organized under the laws of the State of

Name and Address of President

Name and Address of Secretary

Name and Address of Treasurer

The above-named Bidder affirms and declares:

1. The Bidder is of lawful age and that no other individual, partnership, corporation, or other entity has any interest in this Bid or in the Contract proposed to be entered into.
2. This Bid is made without any understanding, agreement or connection with any other

-
- individual, partnership, corporation or other entity making a bid for the same purposed, and is in all respects fair and without collusion or fraud.
3. The Bidder is not in arrears to Albemarle County Service Authority or Albemarle County upon debt or contract, and is not default, as surety or otherwise, upon any obligation to Albemarle County Service Authority or Albemarle County.
 4. No officer or employee whose salary is payable in whole or in part by Albemarle County Service Authority is presently nor shall become interested, directly or indirectly, as a contracting party, partner, stockholder, surety or otherwise, in this Bid, or in the performance of the Contract, or in the supplies, materials, or equipment and work or labor to which it relates, or in any portion of the profits thereof.
 5. All proposed goods and services shall meet the requirements of the Contract Documents and that the Bidder is financially solvent and sufficiently experienced and competent to perform the Work.
 6. The Bidder has carefully examined the site of the Work and that, from his own investigations, has been satisfied as to the nature and location of the Work; the character, quality and quantity of existing materials and all conditions likely to be encountered; the kind and extent of equipment and other facilities needed for the performance of the Work; the general and local conditions; and all other items which reasonably may be expected to affect the Work or its performance.

The undersigned, as Bidder, also declares that they have carefully examined and fully understand all the component parts of the Contract Documents and agrees to execute the Contract and furnish Performance and Payment Bonds and Insurance, if required by the Contract Documents, and will completely perform the Work in strict accordance with the terms of the Contract Documents for the prices set forth on the following page(s).

ALBEMARLE COUNTY SERVICE AUTHORITY
BARRACKS WEST WATER MAIN REPLACEMENT PROJECT

INSTRUCTIONS: The Bidder shall fill in all blanks providing the following: The Bidder's proposed amount of cost per Unit Price in words; the Bidder's proposed Unit Price in figures; and the Bidder's proposed computed total price in figures, for each Contract Item described below. (The computed total price is obtained by multiplying the Estimated Quantity by the Bidder's Unit Price.) Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures. In case of discrepancy between unit prices and totals, unit prices will prevail. Refer to Section 01027 for a detailed description of each contract item number.

All blanks shall be filled in.

CONTRACT ITEM NO.	DESCRIPTION OF UNIT PRICE IN WORDS	ESTIMATED QUANTITY AND UNIT	UNIT PRICE	COMPUTED TOTAL PRICE
1	Mobilization (shall not exceed 3% of total bid) _____Dollars and _____Cents	1 Lump Sum	\$ _____	\$ _____
2	Furnish, Install, Excavate and Backfill 8-inch Ductile Iron Waterline _____Dollars and _____Cents	3,702 LF	\$ _____	\$ _____
3	Furnish and Install 8-inch Gate Valve _____Dollars and _____Cents	8 Each	\$ _____	\$ _____
4	Furnish and Install 12"x8" Tapping Sleeve and Valve _____Dollars and _____Cents	2 Each	\$ _____	\$ _____

CONTRACT ITEM NO.	DESCRIPTION OF UNIT PRICE IN WORDS	ESTIMATED QUANTITY AND UNIT	UNIT PRICE	COMPUTED TOTAL PRICE
5	Furnish, Install, Excavate and Backfill 6-inch Ductile Iron Waterline (includes 6" DIP for hydrants) ____ Dollars and ____ Cents	211 LF	\$ _____	\$ _____
6	Furnish and Install 6-inch Gate Valve ____ Dollars and ____ Cents	10 Each	\$ _____	\$ _____
7	Furnish, Install, Excavate and Backfill 4-inch Ductile Iron Waterline ____ Dollars and ____ Cents	558 LF	\$ _____	\$ _____
8	Furnish and Install 4-inch Gate Valve ____ Dollars and ____ Cents	2 Each	\$ _____	\$ _____
9	Furnish and Install Fire Hydrant Assembly ____ Dollars and ____ Cents	10 Each	\$ _____	\$ _____

CONTRACT ITEM NO.	DESCRIPTION OF UNIT PRICE IN WORDS	ESTIMATED QUANTITY AND UNIT	UNIT PRICE	COMPUTED TOTAL PRICE
10	Remove and Dispose of Existing Fire Hydrant Complete _____ Dollars and _____ Cents	3 Each	\$ _____	\$ _____
11	Furnish and Install 1-inch Copper Piping _____ Dollars and _____ Cents	1,340 LF	\$ _____	\$ _____
12	Furnish and Install Meter Box and Yoke, and Install Water Meter _____ Dollars and _____ Cents	37 Each	\$ _____	\$ _____
13	Pavement Milling _____ Dollars and _____ Cents	9,535 SY	\$ _____	\$ _____
14	SM-9.5A Asphalt Surface Course, including overlay _____ Dollars and _____ Cents	9,535 SY	\$ _____	\$ _____
15	BM-25 Asphalt Base Course _____ Dollars and _____ Cents	3,230 SY	\$ _____	\$ _____

CONTRACT ITEM NO.	DESCRIPTION OF UNIT PRICE IN WORDS	ESTIMATED QUANTITY AND UNIT	UNIT PRICE	COMPUTED TOTAL PRICE
16	Miscellaneous Concrete _____Dollars and _____Cents	20 CY	\$ _____	\$ _____
17	Remove Unsuitable Material and Backfill with Select Fill Aggregate _____Dollars and _____Cents	200 CY	\$ _____	\$ _____
18	Remove Unsuitable Material and Backfill with Select Fill Earth _____Dollars and _____Cents	200 CY	\$ _____	\$ _____

COMPUTED TOTAL AMOUNT FOR ALL CONTRACT ITEMS (SUM OF CONTRACT ITEMS 1 THROUGH 18 ABOVE) _____ _____ _____ _____ DOLLARS AND _____ CENTS	\$ _____
---	-----------------

All blanks must be filled in:

Bid items 17 and 18 shall be based on the estimated quantities above, complete and in accordance with the applicable portions of the plans and specifications. Payment for each of these items will be based on the actual quantities authorized and approved by the Owner or Owner's representative in the field during construction multiplied by the unit cost provided by the bidder above. The final

contract amount shall be adjusted upward or downward based on the actual quantities versus the bid quantities for items 17 and 18.

The Work will be substantially completed within 180 calendar days after the date when the Contract Times commence to run as provided in paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions within 210 calendar days after the date when the Contract Times commence to run.

In submitting this Bid, it is understood that the right is reserved by Albemarle County Service Authority to reject any and all Bids. It is agreed that this Bid may not be withdrawn for a period of ninety (90) days from the date fixed for opening of the Bids. Accompanying this Bid, at the election of the undersigned bidder, is: (i) a certified check, (ii) a cash escrow, or (iii) a bid bond in the sum of _____ Dollars (\$_____)

which certified check shall become the property of Albemarle County Service Authority, or which cash escrow or bid bond shall become forthwith due and payable to Albemarle County Service Authority, if this bid shall be accepted by Albemarle County Service Authority and the undersigned shall fail to execute a contract with, and to furnish the required contract security and certificates of insurance to Albemarle County Service Authority within 10 days after the date of written notice by Albemarle County Service Authority to the undersigned so to do; however, no forfeiture under a bid bond or other such bid security shall exceed the difference between the bid for which the bond or other bid security was posted and the next low bid.

Date _____

(Name of Bidder)

By _____
(Signature)

Title _____

Virginia Contractor's Registration Number _____

Address _____

Where Bidder is a corporation, add:

Attest: _____
Secretary

(SEAL)

The Bid must be sworn to by the person signing it in one of the following forms:

(Form of affidavit where Bidder is an individual)

_____ of _____
(City or County) (State or Commonwealth)

_____,
being duly sworn, deposes and says: That I am the person described in and who executed the
foregoing Bid and that the several matters therein stated are in all respects true.

(Signature)

STATE OF VIRGINIA

CITY / COUNTY OF _____

The foregoing instrument was acknowledged before me this ____ day of _____, _____, by

Notary Public

My Commission Expires: _____

Notary Registration Number: _____

(SEAL)

(Form of affidavit where Bidder is partnership)

_____ of _____
(City or County) (State or Commonwealth)

_____,
being duly sworn, deposes and says: That I am a general partner of

_____,
the partnership described in and which executed the foregoing Bid; that I duly subscribed the name
of the partnership thereunto on behalf of the partnership; and that the several matters therein stated
are in all respects true.

(Signature)

STATE OF VIRGINIA

CITY / COUNTY OF _____

The foregoing instrument was acknowledged before me this ____ day of _____, _____, by

Notary Public

My Commission Expires: _____

Notary Registration Number: _____

(SEAL)

(Form of affidavit where Bidder is corporation)

_____ of _____
(City or County) (State or Commonwealth)

_____,
being duly sworn, deposes and says: That I reside in the City of _____;
that I am the _____ of _____
(Title)

(Name of Company)

the corporation described in and which executed the foregoing Bid; that I know the seal of the corporation; that the seal affixed to this Bid is such corporate seal and was so affixed by order of the Board of Directors of the corporation; that I signed my name thereto by like order; and that I have knowledge of the several matters therein stated and they are in all respects true.

(Signature)

STATE OF VIRGINIA

CITY / COUNTY OF _____

The foregoing instrument was acknowledged before me this ____ day of _____, _____, by _____

Notary Public

My Commission Expires: _____

Notary Registration Number: _____

(SEAL)

END OF SECTION 00400

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SECTION 00430
BID BOND

KNOW ALL PERSONS BY THESE PRESENTS: That we undersigned, _____
as Principal (Bidder), and _____, as Surety, are hereby held and
firmly bound unto the Albemarle County Service Authority as Obligee (OWNER), in the amount of
_____ Dollars (\$ _____), being five (5)
PERCENT OF THE DOLLAR VALUE OF THE BID, for the payment whereof Principal and Surety
jointly and severally bind themselves, their heirs, executors, administrators, successors and assigns
firmly by these presents.

WHEREAS, Principal has submitted a certain Bid attached hereto and hereby made a part hereof to
enter into an AGREEMENT in writing for the BARRACKS WEST WATER MAIN REPLACEMENT
PROJECT.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION is such that, if Principal shall not
withdraw his Bid during the period of 90 days following the opening of Bids, and if it's Bid is accepted
enter into a formal Contract in accordance with the AGREEMENT included as a part of the Contract
Documents and that the Performance Bond and the Payment Bond be given, then this obligation
shall be void; otherwise it shall remain in full force and effect and the Principal and Surety will be
liable to the Obligee for the lesser of: (1) the difference between the Bid for which the Bond was
written and the next low Bid, or (2) the face amount of the Bid Bond.

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 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.

Signed and sealed this _____ day of _____ 20 ____.

(Principal) Seal

(Witness) By: _____
(Name and Title)

(Surety) Seal

Resident Virginia Agent By: _____
(Attorney-in-Fact)

IMPORTANT - Surety companies executing Bonds must be 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 00430

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5. List the construction projects your organization has under way on this date:

Contract Amt.	Class of Work	Percent Completed	Name and Address of Owner or Contracting Officer

6. List projects your organization has completed in past three years:

Contract Amt.	Class of Work	When Completed	Name and address of Owner

Use blank sheet if additional space is needed.

7. Have you ever failed to complete any work awarded to you? _____

If so, where and why?

-
8. Has any officer or partner of your organization ever been an officer or partner of some other organization that failed to complete a construction contract?

If so, state name of individual, other organization and reason therefore

9. Has any officer or partner of your organization ever failed to complete a construction contract handled in his own name?

If so, state name of individual, name of Owner and reason therefore

10. In what other lines of business are you financially interested? _____
-

11. Give the names and addresses of all banks with whom you have done business during the past five years.

12. Give the names and addresses of all surety companies with whom you have done business during the last five years.

13. What is the construction experience of the principal individuals of your organization?

Individual Name	Present Position or Office	Years of Construction Experience	Magnitude and Type of Work	In What Capacity

14. In what manner have you inspected this proposed work? Explain in detail.

15. Explain your plan or lay out for performing the proposed work _____

16. The work, if awarded to you, will have the personal supervision of whom?

17. Do you intend to sublet any other portions of the work? _____

If so, state amount of sub-contract, and, if known, the name and address of the sub-contractor, amount and type of his equipment and financial responsibility _____

18. From which sub-contractors or agents do you expect to require a bond? _____

19. What equipment do you own that is available for the proposed work?

Quantity	Item	Description, Size, Capacity, Etc.	Condition	Years of Service	Present Location

20. What equipment do you intend to purchase for use on the proposed work, should the contract be awarded to you?

Quantity	Item	Description, Size, Capacity, Etc.	Approximate Cost

21. How and when will you pay for the equipment to be purchased? _____

22. Do you propose to rent any equipment for this work? _____ If so, state type, quantity and reasons for renting _____

23. Have you made contracts or received firm offers for all materials within prices used in preparing your proposal? _____

24. It is required that the Standard Form of Contractor's Financial Statement be filed with this Statement. Have you done so? _____

Dated at _____
this _____
day of _____, _____

Name of Organization

By _____

Title of Person Signing

STATE OF _____)

) S.S:

COUNTY OF _____)

_____ being duly sworn deposes and says
that he is _____ of _____

Name of Organization

and that the answers to the foregoing questions and all statements therein contained are true and correct.

Sworn to before me this

_____ day of _____, _____

Notary Public

My commission expires _____

END OF SECTION 00431

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SECTION 00432

STANDARD FORM OF

CONTRACTOR'S FINANCIAL STATEMENT

Submitted by _____) ☐ An Individual
) ☐ A Co-partnership
) ☐ A Corporation

With principal office at _____

To _____

Condition at close of business _____ *20* _____

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Condition at close of business _____ 20____										
ASSETS		DOLLARS								¢
1. Cash (a) On Hand \$ _____ (b) In bank \$ _____ (c) Elsewhere \$ _____										
2. Notes receivable:										
(a) Due within 90 days										
(b) Due after 90 days										
(c) Past due										
3. Accounts receivable from completed contracts, exclusive of claims not approved for payment										
4. Sums earned on uncompleted contracts as shown by Engineer's or Architect's estimate										
(a) Amount receivable after deducting retainage										
(b) Retainage to date, due upon completion of contracts										
5. Accounts receivable from source other than construction contracts										
6. Deposits for bids or other guarantees:										
(a) Recoverable within 90 days										
(b) Recoverable after 90 days										
7. Interest accrued on loans, securities, etc.										
8. Real estate:										
(a) Used for business purposes										
(b) Not used for business purposes										
9. Stocks and bonds:										
(a) Listed-present market value										
(b) Unlisted-present value										
10. Materials in stock not included in Item 4:										
(a) For uncompleted contracts (present value)										
(b) Other materials (present value)										
11. Equipment, book value										
12. Furniture and Fixtures, book value										
13. Other assets										
Total assets										
LIABILITIES										
1. Notes payable:										
(a) To banks regular										
(b) To banks for certified checks										
(c) To others for equipment obligations										
(d) To others exclusive of equipment obligations										
2. *Accounts Payable:										
(a) Not past due										
(b) Past due										
3. Real estate encumbrances										
4. Other liabilities										
5. Reserves										
6. Capital stock paid up										
(a) Column										
(b) Common										
(c) Preferred										
(d) Preferred										
7. Surplus (net worth) Earned \$ _____ Unearned \$ _____										
Total Liabilities										
CONTINGENT LIABILITIES										
1. Liability on notes receivable, discounted or sold										
2. Liability on accounts receivable, pledged, assigned or sold										
3. Liability as Bondsman										
4. Liability as guarantor or contracts or on accounts of others										
5. Other contingent liabilities										
Total contingent liabilities										

DETAILS RELATIVE TO ASSETS

*List separately each item amounting to 10 percent or more of this total and combine the remainder.

1*	CASH			
	(a) on hand		\$ _____	
	(b) deposited in banks named below		\$ _____	
	(c) elsewhere - (state where)		\$ _____	
NAME OF BANK		LOCATION	DEPOSIT IN NAME OF	AMOUNT

2*	NOTES RECEIVABLE				
	(a) due within 90 days		\$ _____		
	(b) due after 90 days		\$ _____		
	(c) past due		\$ _____		
RECEIVABLE FROM: NAME AND ADDRESS		FOR WHAT	DATE OF MATURITY	HOW SECURED	AMOUNT
Have any of the above been discounted or sold? _____ If so, state amount, to whom, and reason _____					

3*	Accounts receivable from completed contracts exclusive of claims not approved for payment _____			
	_____ \$ _____			
NAME AND ADDRESS OF OWNER		NATURE OF CONTRACT	AMOUNT OF CONTRACT	AMOUNT RECEIVABLE
Have any of the above been assigned, sold or pledged? _____ If so, state amount, to whom, and reason _____				

4*	Sums earned on uncompleted contracts, as shown by engineer's or architect's estimate: (a) Amount receivable after deducting retainage _____ \$ _____ (b) Retainage to date due upon completion of contract _____ \$ _____					
DESIGNATION OF CONTRACT AND NAME AND ADDRESS OF OWNER	AMOUNT OF CONTRACT	AMOUNT EARNED	AMOUNT RECEIVED	RETAINAGE		AMOUNT EX- CLUSIVE OF RETAINAGE
				WHEN DUE	AMOUNT	

Have any of the above been sold, assigned, or pledged? _____ If so, state amount, to whom, and reason _____

5*	Accounts receivable not from construction contracts _____ \$ _____
-----------	--

RECEIVABLE FROM: NAME AND ADDRESS	FOR WHAT	WHEN DUE	AMOUNT

What amount, if any, is past due \$ _____ \$ _____

6	Deposits with bids or otherwise as guarantees _____ \$ _____
----------	--

DEPOSITED WITH: NAME AND ADDRESS	FOR WHAT	WHEN RECOVERABLE	AMOUNT

7	Interest accrued on loans, securities, etc. _____ \$ _____	
ON WHAT ACCRUED	TO BE PAID WHEN	AMOUNT

8	Real Estate (a) Used for business purposes _____ \$ _____		
	Book Value (b) Not used for business purposes _____ \$ _____		
DESCRIPTION OF PROPERTY	IMPROVEMENTS		TOTAL BOOK VALUE
	NATURE OF IMPROVEMENTS	BOOK VALUE	
1.			
2.			
3.			
4.			
LOCATION	HELD IN WHOSE NAME	ASSESSED VALUE	AMOUNT OF ENCUMBRANCES
1.			
2.			
3.			
4.			

9	Stocks and Bonds: (a) Listed - present market value _____ \$ _____ (b) Unlisted - present value _____ \$ _____							
	DESCRIPTION	ISSUING COMPANY	LAST INT. OR DIV. PAID		FAIR VALUE	PRESENT MARKET VALUE	QUAN-TITY	AMOUNT
			DATE	%				
	1.							
	2.							
	3.							
WHO HAS POSSESSION		IF ANY ARE PLEDGED OR IN ESCROW, STATE FOR WHOM AND REASON AMOUNT PLEDGED OR IN ESCROW						
	1.							
	2.							
	3.							

10	Materials in stock and not included in Item 4, Assets: (a) For use on uncompleted contracts (present value) _____ \$ _____ (b) Other materials (present value) _____ \$ _____			
	DESCRIPTION OF MATERIAL	QUANTITY	PRESENT VALUE	
			FOR UNCOMPLETED CONTRACT	OTHER MATERIALS

11*	Equipment at book value _____ \$ _____				
QUANTITY	DESCRIPTION AND CAPACITY OF ITEMS	AGE OF ITEMS	PURCHASE PRICE	DEPRECIATION CHARGED OFF	BOOK VALUE
Are there any liens against the above? _____ If so, state total amount _____					

12	Furniture and fixtures at book value _____ \$ _____
-----------	---

13	Other assets _____ \$ _____	
DESCRIPTION		Amount

TOTAL ASSETS \$ _____

DETAILS RELATIVE TO LIABILITIES

*Include all amounts owing sub-contractors for all work in place and accepted on completed and uncompleted contracts including retainage

1	NOTES PAYABLE			
	(a) To banks, regular _____ \$ _____			
	(b) To banks for certified checks _____ \$ _____			
	(c) To others for equipment obligations _____ \$ _____			
	(d) To others exclusive of equipment obligations _____ \$ _____			
TO WHOM: NAME AND ADDRESS		WHAT SECURITY	WHEN DUE	AMOUNT

2*	ACCOUNTA PAYABLE			
	(a) Not past due _____ \$ _____			
	(b) Past due _____ \$ _____			
TO WHOM: NAME AND ADDRESS		FOR WHAT	DATE PAYABLE	AMOUNT

3	Real Estate encumbrances (See Item 8, Assets) _____ \$ _____
----------	--

4	Other Liabilities _____ \$ _____		
	DESCRIPTION		AMOUNT

5	Reserves _____ \$ _____						
	INTEREST	INSURANCE	BLDGS. & FIXT.	PLANT DEPT	TAXES	BAD DEBTS	
	\$	\$	\$	\$	\$	\$	\$

DETAILS RELATIVE TO LIABILITIES

6	Capital Stock paid up	
	(a) Common _____	\$ _____
	(b) Preferred _____	\$ _____

7	Surplus: \$ _____	\$ _____
----------	-------------------	----------

TOTAL LIABILITIES \$ _____

If a corporation, answer this: Capital paid in cash, \$ _____ When incorporated _____ In what State _____ President's name _____ Vice-President's name _____ Secretary's name _____ Treasurer's name _____	If a co-partnership, answer this: Date of organization _____ State whether partnership is general, limited or association _____ _____ _____ _____ Name and address of partners: _____ _____ _____
--	---

The undersigned hereby declares: that the foregoing is a true statement of the financial condition of the individual, co-partnership or corporation herein first named, as of the date herein first given; that this statement is for the express purpose of inducing the party to whom it is submitted to award the submitted a contract; and that any depository, vendor or other agency herein named is hereby authorized to supply such party with any information necessary to verify this statement.

NOTE: A co-partnership must give firm name and signatures of all partners. A corporation must give full corporate name, signature of official and affix corporate seal.

AFFIDAVIT FOR INDIVIDUAL

STATE OF _____)
) ss.:
COUNTY OF _____)

_____ being duly sworn, deposes and says that the foregoing financial statement, taken from his books, is a true and accurate statement of his financial condition as of the date thereof and that the answers to the foregoing interrogatories are true.

Sworn to before me this _____
_____ (Applicant must also sign here)

_____ day of _____

(Notary Public)

AFFIDAVIT FOR CO-PARTNERSHIP

STATE OF _____)
) ss.:
COUNTY OF _____)

_____ being duly sworn, deposes and says that a member of the firm of _____; that they are familiar with the books of the said firm showing its financial condition; that the foregoing financial statement, taken from the books of the said firm, is a true and accurate statement of the financial condition of the said firm as of the date thereof and that the answers to the foregoing interrogatories are true.

(All members of firm must also sign here)

Sworn to before me this _____
_____ day of _____

(Notary Public)

AFFIDAVIT FOR CORPORATION

STATE OF _____)
) ss.:
COUNTY OF _____)

_____ being duly sworn, deposes and says that
he is _____ of the _____ the corporation
described in and which executed the foregoing statement; that he is familiar with the books of the
said corporation showing its financial condition; that the foregoing financial statement, taken from
the books of the said corporation, is a true and accurate statement of the financial condition of
said corporation as of the date thereof and that the answers to the foregoing interrogatories are
true.

Sworn to before me this

_____ day of _____

Notary Public

END OF SECTION 00432

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**SECTION 00490
RECEIPT OF ADDENDA**

BARRACKS WEST WATER MAIN REPLACEMENT PROJECT

As a matter of convenience at the opening of bids, the Bidder is requested to acknowledge below the numbers of the Addenda received. Failure of any Bidder to receive any addenda or interpretation shall not relieve said Bidder from any obligation under his proposal as submitted.

This Form should be included in the bid submittal.

The undersigned Bidder has received the following addenda:

<u>Addendum Number</u>	<u>Date</u>
_____	_____
_____	_____
_____	_____

(Name of Bidder)

By _____
(Signature)

(Printed Name and Title :)

END OF SECTION 00490

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SECTION 00500

**STANDARD FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR
ON THE BASIS OF A STIPULATED PRICE**

THIS AGREEMENT is by and between _____

(hereinafter called OWNER) and _____

(hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 - WORK

1.01 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The project includes, however is not limited to: 3,700 linear feet of 8-inch ductile iron waterline and 560 linear feet of 4-inch waterline, including associated interconnections, hydrants, meter installations, appurtenances, abandonment of existing waterline, and reconnection of existing water services.

ARTICLE 2 - THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

Barracks West Water Main Replacement Project
Albemarle County, Virginia

ARTICLE 3 - ENGINEER

3.01 The Director of Engineering for the Albemarle County Service is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Days to Achieve Substantial Completion and Final Payment*

A. The Work will be substantially completed within 180 calendar days after the date when the Contract Times commence to run as provided in paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions within 210 calendar days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty), CONTRACTOR shall pay OWNER \$500.00 for each day that expires after the time specified in paragraph 4.02 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by OWNER, CONTRACTOR, shall pay OWNER \$500.00 for each day that expires after the time specified in paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 - CONTRACT PRICE

5.01 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to paragraphs 5.01.A and 5.01.B below:

A. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in this paragraph 5.01.B:

UNIT PRICE WORK

<u>No.</u>	<u>Item</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Estimated</u>
------------	-------------	-------------	-------------------------------	-------------------	----------------------------

(See attached Bid Form, Section 00400)

TOTAL OF ALL UNIT PRICES: _____ \$ _____ (dollars)
(use words)

As provided in paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by ENGINEER as provided in

paragraph 9.08 of the General Conditions. Unit prices have been computed as provided in paragraph 11.03 of the General Conditions.

B. For all Work, at the prices stated in CONTRACTOR's Bid, attached hereto as an exhibit.

ARTICLE 6 - PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

A. CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

6.02 Progress Payments; Retainage

A. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment on or about the 15th day of each month during performance of the Work as provided in paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the schedule of values established in paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements:

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER may determine or OWNER may withhold, in accordance with paragraph 14.02 of the General Conditions:

a. 95 % of Work completed (with the balance being retainage).

b. 95 % of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

2. Upon Substantial Completion, OWNER shall pay an amount sufficient to increase total payments to CONTRACTOR to 95 % of the Work completed, less such amounts as ENGINEER shall determine in accordance with paragraph 14.02.B.5 of the General Conditions and less 100 % of ENGINEER's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 Final Payment

A. Upon final completion and acceptance of the Work in accordance with paragraph 14.07 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.07.

ARTICLE 7 - INTEREST

7.01 It is the option of the CONTRACTOR to establish an escrow account for deposit of retained funds. Forms and requirements to establish such an account are available from the Service Authority upon request. Funds retained but not so deposited will not be subject to accrued interest.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

A. CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. CONTRACTOR has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. CONTRACTOR has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions.

E. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all *additional or supplementary* examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, including applying the specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto

F. CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

G. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.

H. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

I. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 - CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents include the following:
1. This Agreement (pages 1 to __, inclusive);
 2. Performance Bond (pages __ to __, inclusive);
 3. Payment Bond (pages __ to __, inclusive);
 4. Other Bonds (pages __ to __, inclusive);
 - a. _____ (pages ____ to ____, inclusive);
 - b. _____ (pages ____ to ____, inclusive);
 - c. _____ (pages ____ to ____, inclusive);
 5. Albemarle County Service Authority General Terms and Conditions (pages __ to __, inclusive);
 6. General Conditions (pages __ to __, inclusive);
 7. Supplementary Conditions (pages __ to __, inclusive);
 7. Specifications as listed in the table of contents of the Project Manual;
 8. Drawings consisting of a cover sheet and sheets numbered T1 through C15, inclusive, with each sheet bearing the following general title: BARRACKS WEST WATER MAIN REPLACEMENT PROJECT
 9. Addenda (numbers ____ to ____, inclusive);
 10. Exhibits to this Agreement (enumerated as follows):
 - a. CONTRACTOR's Bid (as provided in Section 00400, inclusive);
 - b. Documentation submitted by CONTRACTOR prior to Notice of Award (pages __ to __, inclusive);
 - c. Certificate of Insurance;
 11. The following which may be delivered or issued on or after the Effective Date of Agreement and are not attached hereto:
 - a. Written Amendments;
 - b. Work Change Directives;
 - c. Change Order(s);

d. Notice to Proceed.

B. The documents listed in paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in paragraph 3.05 of the General Conditions.

ARTICLE 10 - MISCELLANEOUS

10.01 Terms

A. Terms used in this Agreement will have the meanings indicated in the General Conditions.

10.02 Assignment of Contract

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 Successors and Assigns

A. OWNER and CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 Severability

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 Other Provisions

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or on their behalf.

This Agreement will be effective on _____, _____ which is the Effective Date of the Agreement).

OWNER:

CONTRACTOR:

Albemarle County Service Authority

By: _____

By: _____

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest: _____

Attest: _____

Address for giving notices:

Address for giving notices:

(If OWNER is a corporation, attach evidence of authority to sign. If OWNER is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of OWNER-CONTRACTOR Agreement.)

License No. _____
(Where applicable)

Agent for service of process: _____

(If CONTRACTOR is a corporation or a partnership, attach evidence of authority to sign.)

Designated Representative:

Designated Representative:

Name: Mr. Justin Weiler, P.E.

Name: _____

Title: Senior Civil Engineer

Title: _____

Address: 168 Spotnap Road

Address: _____

Charlottesville, VA 22911

Phone: (434) 977-4511

Phone: _____

Facsimile: (434) 979-0698

Facsimile: _____

END OF SECTION 00500

P:\ACSA20\50131613 - Barracks West WM\Specs\00500 - Standard Form of Agreement.doc

PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

(Space is provided below for signatures of additional parties, if required.)

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

Attest:

Signature and Title

SURETY

(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

Attest:

Signature and Title:

EJCDC No. C-610 (2002 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, and the American Institute of Architects.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.
2. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.
3. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
 - 3.1. Owner has notified Contractor and Surety, at the addresses described in Paragraph 10 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
 - 3.2. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 3.1; and
 - 3.3. Owner has agreed to pay the Balance of the Contract Price to:
 1. Surety in accordance with the terms of the Contract;
 2. Another contractor selected pursuant to Paragraph 4.3 to perform the Contract.
4. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:
 - 4.1. Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
 - 4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
 - 4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
 - 4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
 1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
 2. Deny liability in whole or in part and notify Owner citing reasons therefor.
5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
6. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:
 - 6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract;
 - 6.2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and
 - 6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.
7. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.
8. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.
9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
10. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.
11. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
12. Definitions.
 - 12.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
 - 12.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
 - 12.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
 - 12.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY – Name, Address and Telephone
 Surety Agency or Broker
 Owner's Representative (engineer or other party)

PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest:

Signature and Title

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

Attest:

Signature and Title:

EJCDC No. C-615 (2002 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, the American Institute of Architects, the American Subcontractors Association, and the Associated Specialty Contractors.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
 - 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
 - 4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2. Claimants who do not have a direct contract with Contractor:
 1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
 2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
 - 6.1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 6.2. Pay or arrange for payment of any undisputed amounts.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. DEFINITIONS

- 15.1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 15.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 15.3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

**FOR INFORMATION ONLY – Name, Address and Telephone
Surety Agency or Broker:
Owner's Representative (engineer or other party):**

**SECTION 00620
CERTIFICATE OF INSURANCE**

* Attach Certificate of Insurance Hereto.

**Coverage shall comply with the requirements of
SECTION 00800 – Supplemental Conditions**

END OF SECTION 00620

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**SECTION 00630
NOTICE TO PROCEED**

To:

Project: *BARRACKS WEST WATER MAIN REPLACEMENT PROJECT*

Amount of Contract: _____

You are hereby notified to commence work on the referenced Project on or before _____, and shall fully complete all of the work of said Project within 210 consecutive calendar days thereafter. Your completion date is therefore _____, 20____.

The Contract provides for an assessment of the sum of \$500 as liquidated damages for each consecutive calendar day after the above established Project completion date that the work remains incomplete.

Dated this _____ day of _____.

By: _____
Jeremy M. Lynn, P.E.
Title: Director of Engineering

Acceptance of Notice

Receipt of the foregoing Notice to Proceed is hereby acknowledged.

By _____
(Contractor's Name)

this _____ day of _____ 20____.

By _____
Title _____

END OF SECTION 00630

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

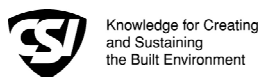
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The Associated General Contractors of America



Construction Specifications Institute

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National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314

American Council of Engineering Companies
1015 15th Street, N.W., Washington, DC 20005

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and

authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

20. *Field Order*--A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

22. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*--Polychlorinated biphenyls.

31. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline,

kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. *Resident Project Representative*--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *Schedule of Values*--A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

41. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. *Site*--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

43. *Specifications*--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

45. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

47. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

48. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

49. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *Work*--The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by

Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 Terminology

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.

B. Intent of Certain Terms or Adjectives

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered", "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. Day

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

- a. does not conform to the Contract Documents, or
- b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or

c. has been damaged prior to Engineer's - recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. Furnish, Install, Perform, Provide

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 Delivery of Bonds and Evidence of Insurance

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 Copies of Documents

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 Starting the Work

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 Before Starting Construction

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule; indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 Preconstruction Conference

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

- a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
- b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;
2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or
3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or
2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaption by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract.

Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party..

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as

necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous

areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

- a. reviewing and checking all such information and data,
- b. locating all Underground Facilities shown or indicated in the Contract Documents,
- c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and
- d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further

disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. Reports and Drawings: Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

B. Limited Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified

in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on

a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the

Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions,

and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract

Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or

received from the superintendent shall be binding on Contractor.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

- c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
- 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services;
- 4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. Special Guarantee: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. Engineer's Cost Reimbursement: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract

Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. Contractor's Expense: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual

or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. Removal of Debris During Performance of the Work: During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. Cleaning: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. Loading Structures: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Draw-

ings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples*: Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals , any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents

with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. Engineer's Review

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the 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.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. Resubmittal Procedures

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 Continuing the Work

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or

disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 Contractor's General Warranty and Guarantee

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 Indemnification

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or

arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal

shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and

properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

8.06 *Insurance*

A. Owner's responsibilities, if any, in respect of purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep

Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show

partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall

promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any bond to be given to a surety, the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and

Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have

resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. Costs Excluded: The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

C. Contractor's Fee: When all the Work is performed on the basis of cost-plus, Contractor's fee shall

be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. Documentation: Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. Cash Allowances

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. Contingency Allowance

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an

allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted

by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to

be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
2. correct such defective Work; or
3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications .

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress

payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. Review of Applications

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent

inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

- a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
- b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
- c. there are other items entitling Owner to a set-off against the amount recommended; or
- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

14.03 Contractor's Warranty of Title

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 Substantial Completion

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial

Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals

that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations

under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and , will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance

with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be

governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SECTION 00800 SUPPLEMENTAL CONDITIONS

SUPPLEMENTS

These supplementary conditions modify, change, delete from, or add to the Standard General Conditions of the Construction Contract, EJCDC Document C-700, 2002 edition, to the extent indicated. Where any article, paragraph, subparagraph, or clause of the General Conditions is altered by these supplements, the unaltered provisions of the article, paragraph, subparagraph, or clause shall remain in effect.

DEFINITIONS

Revise Article 1 - Definitions as follows: Revise the definition of the term "Engineer" to read "The Albemarle County Service Authority or the representative of the owner as designated by the Albemarle County Service Authority."

INDEMNIFICATION

Delete 4.03G in its entirety.

INSURANCE

Add the following to paragraph 5.03 as subparagraph 5.03.C and 5.03.D:

5.03.C The contractor shall assume and agree to hold harmless, indemnify, save, protect, and defend the Albemarle County Service Authority, its officers, agents and employees, against any and all liability for injuries and damages to contractor himself and to contractor's employees, agents, subcontractors, and guests, third parties or otherwise, incident to or resulting from any and all operations performed under the terms of this contract. In addition to any other forms of insurance or bonds required under contracts and specifications pertaining to this project, the following public liability insurance schedule shall apply to all work performed under the terms of this contract. The insurance specified shall be with an insurance company acceptable to the parties hereto and licensed to do business in the Commonwealth of Virginia.

5.03.D Insurance Schedule: The contractor shall carry public liability insurance in amount not less than those specified below, including the contractual liability assumed by the contractor, and shall deliver certificates of insurance from carriers, acceptable to the owner specifying such limits, with the Albemarle County Service Authority, its officers, agents and employees named as additional insureds.

5.03.D.1 Workman's Compensation and Employer's Liability Insurance shall be in strict accordance with the requirements of the current and applicable Workman's Compensation Laws of the State. The insurance shall cover all of the contractor's employees employed or associated with the project; and where any part of the work is subcontracted, the contractor shall require the subcontractor to provide similar Workman's Compensation and Employer's Liability Insurance for all employees of the subcontractor unless such employees are covered by the protection afforded by the contractor. In case any class of employees engaged in hazardous work under this contract

is not protected under the Workman's Compensation Statute, the contractor shall provide, and shall cause such subcontractor to provide, adequate coverage for the protection of all employees on the project not otherwise protected under applicable provisions of the Statutes relating to Workman's Compensation and Employer's Liability Insurance. The minimum limits of coverage shall be as follows:

- | | | |
|----|--|---------------|
| A. | State | Statutory |
| B. | Applicable Federal | Statutory |
| C. | Employer's Liability | \$500,000 |
| D. | Benefits required by union labor contracts | As Applicable |
| E. | Voluntary Compensation | \$500,000 |
| F. | Broad Form All States Endorsement | |

5.03.D.2 Comprehensive General Liability Insurance shall protect the contractor and any subcontractors performing work under this contract from any claims for bodily injury, for sickness or disease, for death, for personal injury, and for property damages which may arise either directly or indirectly out of, or in connection with, the performance of work under this contract. The Comprehensive General Liability Insurance Coverage shall include: Premises Operations; Independent Contractor's Protection; Products Liability and Completed Operations; and Broad Form Property Damage. The minimum limits of coverage shall be as follows:

- | | | |
|----|---|---|
| A. | Bodily Injury | \$1,000,000 Each Occurrence
\$1,000,000 Annual Aggregate |
| B. | Property Damage | \$1,000,000 Each Occurrence
\$1,000,000 Annual Aggregate |
| C. | Property Damage Liability shall provide Explosion, Collapse and Underground coverages | |

5.03.D.3 Contractual Liability: Minimum limits of coverage shall be as follows:

- | | | |
|----|-----------------|---|
| A. | Bodily Injury | \$1,000,000 Each Occurrence |
| B. | Property Damage | \$1,000,000 Each Occurrence
\$1,000,000 Annual Aggregate |

5.03.D.4 Personal injury (with Employment Exclusion deleted). The minimum limits of coverage shall be as follows:

Annual Aggregate	\$1,000,000
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5.03.D.5 Comprehensive Automobile Liability Insurance (owner, nonowner, hired) shall protect the contractor and any subcontractor performing work under this contract from any claims for bodily injury, for death, and for property damages which may arise either directly or indirectly

out of, or in connection with, the performance of work under this contract. The minimum limits of coverage shall be as follows:

Combined single limits for bodily injury and property damage.

- | | | |
|----|-----------------|-----------------------------|
| A. | Bodily | \$1,000,000 Each Occurrence |
| B. | Property Damage | \$1,000,000 Each Occurrence |

5.03.D.6 Aircraft Liability (owned and nonowned), when applicable. The minimum limits of coverage shall be as follows:

Combined single limits for bodily injury and property damage.

- | | | |
|----|-----------------|----------------------|
| A. | Bodily Injury | \$1,000,000 Per Seat |
| B. | Property Damage | Included |

5.03.D.7 Umbrella Excess Liability over Primary Insurance. The minimum limits of coverage shall be as follows:

- | | | |
|----|-----------------|-------------|
| A. | Each Occurrence | \$3,000,000 |
| B. | Aggregate | \$3,000,000 |

5.03.D.8 Contractual Liability covers the following indemnity agreement:

The contractor shall indemnify and hold harmless the Albemarle County Service Authority, its officers, agents and employees against and from all liability, claims, damages, demands and costs, including attorney fees of every kind in nature and attributable to bodily injury, sickness, disease or death or to damage or destruction of property resulting from or in any manner arising out of or in connection with the project and the performance of the work under this contract.

5.03.D.9 Additional liability coverage for owner will be provided by endorsement as additional insureds on contractor's general liability policy.

Delete paragraph 5.05 in its entirety.

Modify the first sentence in paragraph 5.06.B to read as follows:

Contractor shall purchase and maintain such boiler and machinery insurance as may be required by the supplementary conditions or by law.

Delete paragraph 5.06.C in its entirety.

Delete paragraph 5.06.E in its entirety.

Delete the last sentence in paragraph 5.07.A in its entirety.

Delete paragraph 5.08.A in its entirety.

Delete paragraph 5.08.B in its entirety.

Modify paragraph 5.09.A to read as follows:

If owner has any objections to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by contractor on the basis of its not complying with the Contract Documents, owner will notify contractor in writing thereof within ten days of the date of delivery of such certificates to owner in accordance with paragraph 2.05.C.

PERMITS

Concerning Article 6, paragraph 6.08.A, the permits to be obtained and the utility connection charges to be paid by the owner are specified in Special Conditions. All other permits and charges shall be the responsibility of the contractor.

NONDISCRIMINATION IN EMPLOYMENT

Add the following paragraph to Article 6, Contractor's Responsibilities:

6.09.D The provisions of Section 2.2-4201, 2.2-4311 and 2.2-4312 of the Code of Virginia, as amended, prohibiting employment discrimination by the contractor and the contractor's responsibility to maintain a drug free work place, are made a part of the Contract Documents. The contractor shall familiarize himself and comply with the provisions of Section 2.2-4201, 2.2-4311 and 2.2 4312.

PROGRESS PAYMENTS

Progress payments shall conform to the requirements specified in the Form of Agreement, except as specified in Article 14, Payments to Contractor and Completion, for requirements not covered in the Form of Agreement. Retainage in the amount of five percent (5%) with respect to progress payments will be stipulated in the Agreement to be withheld until substantial completion of the work. No reduction in the retainage will be made prior to substantial completion of the work.

The Agreement will further stipulate that upon substantial completion of the work, the amount to be retained shall be reduced to the amount determined by the Engineer or withheld by the owner to cover the cost of work remaining to be completed or withheld in accordance with paragraph 14.02.B.5 of the General Conditions. The Form of Agreement shall be modified in accordance with the retainage requirements.

Subject to the provisions of Article 14 of the General Conditions, the Agreement will stipulate that the owner will make progress payments on or about the 15th day of the month following each application for payment. The contractor shall submit his application for payment on or about the 1st day of the month. The application shall include work through the 25th day of the preceding month.

It is the contractor's option to utilize the owner's escrow accounting procedures for

retainage held on this contract. If the contractor desires to utilize these procedures he must complete an Escrow Agreement available from the owner and return it with the executed Contract Agreement.

ARTICLE 16 - DISPUTE RESOLUTION

Add the following paragraph to Article 16, Section 16.01C as paragraph 4:

4. Venue for purposes of resolution in the court system shall be in the Albemarle County General District Court or the Albemarle County Circuit Court.

END OF SECTION 00800

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**SECTION 00850
ALBEMARLE COUNTY SERVICE AUTHORITY
ESCROW AGREEMENT**

THIS AGREEMENT, made and entered into this _____ day of _____, 20____, by and among **ALBEMARLE COUNTY SERVICE AUTHORITY**, a public body politic and corporate, organized and existing under the laws of the Commonwealth of Virginia (the "Authority"), _____ a _____ corporation, ("Contractor"),

(Name of Bank)

(Address of Bank)

a trust company, bank, or savings and loan institution with its principal office located in the Commonwealth (hereinafter referred to as "Bank"); and _____ (the "Surety") provides:

Albemarle County Service Authority and Contractor have entered into a contract for the Albemarle County Service Authority's BARRACKS WEST WATER MAIN REPLACEMENT PROJECT. This Agreement is pursuant to, but in no way amends or modifies, the Contract. Payments made hereunder or the release of funds from escrow shall not be deemed approval or acceptance of performance by the Contractor.

In order to assure full and satisfactory performance by the Contractor of its obligations under the Contract, Albemarle County Service Authority is required thereby to retain certain amounts otherwise due Contractor. Contractor has, with the approval of Albemarle County Service Authority, elected to have these retained amounts held in escrow by the Bank. This Agreement sets forth the terms of the escrow. The Bank shall not be deemed a party to, bound by, or required to inquire into the terms of, the Contract or any other instrument or agreement between Albemarle County Service Authority and the Contractor.

Albemarle County Service Authority shall, from time to time, pursuant to the Contract, pay to the Bank amounts retained by it under the Contract. Except as to amounts actually withdrawn from escrow by Albemarle County Service Authority, the Contractor shall look solely to the Bank for the payment of funds retained under the Contract and paid by Albemarle County Service Authority to the Bank.

The risk of loss by diminution of the principal of any funds invested under the terms of this Contract shall be solely upon Contractor.

Funds and securities held by the Bank pursuant to this Escrow Agreement shall not be subject to levy, garnishment, attachment, lien, or other process whatsoever. The Contractor agrees not to assign, pledge, discount, sell or otherwise transfer or dispose of his interest in the escrow account or any part thereof, except to the Surety following written notice to Albemarle County Service Authority.

Upon receipt of checks or warrants drawn by Albemarle County Service Authority and made payable to the Bank as escrow agent, the Bank shall promptly notify the Contractor, negotiate the same and deposit or invest and reinvest the proceeds in approved securities in accordance with the written instructions of the Contractor. In no event shall Bank invest the escrowed funds in any security not approved in accordance with the terms hereof.

The following securities, and none other, are approved securities for all purposes of this Agreement:

1. United States Treasury Bonds, United States Treasury Notes, United States Treasury Certificates of Indebtedness or United States Treasury Bills;
2. Bonds, notes and other evidences of indebtedness unconditionally guaranteed as to the payment of principal and interest by the United States;
3. Bonds or notes of the Commonwealth of Virginia;
4. Bonds of any political subdivision of the Commonwealth of Virginia, if such bonds carried, at the time of purchase by the Bank or deposit by the Contractor, a Standard and Poor's or Moody's Investors Service rating of at least "A"; and
5. Certificates of deposit issued by commercial banks located within the Commonwealth of Virginia, including, but not limited to, those insured by the Bank and its affiliates.

Any bonds, notes, or other evidences of indebtedness listed in Section (1) through (3) above may be purchased pursuant to a repurchase agreement with a bank, within or without the Commonwealth of Virginia having a combined capital, surplus and undivided profit of not less than \$25,000,000, provided the obligation of Bank to repurchase is within the time limitations established for investments as set forth herein. The repurchase agreement shall be considered a purchase of such securities even if title, and/or possession of such securities is not transferred to the escrow agent, so long as the repurchase obligation of the Bank is collateralized by the securities themselves, and the securities have on the date of the repurchase agreement a fair market value equal to at least 100% of the amount of the repurchase obligation of the Bank, and the securities are held by a third party and segregated from other securities owned by the Bank.

No security is approved hereunder which matures more than five years after the date of its purchase by Bank or deposit by Contractor.

In the event that the amounts paid to the Bank by Albemarle County Service Authority constitute proceeds of bonds issued by Albemarle County Service Authority, then, to the extent that the rate of interest paid on any funds invested under the terms of the Contract exceeds the rate of interest on Albemarle County Service Authority's bonds, such "excess interest" shall be paid to Albemarle County Service Authority.

The Contractor may from time to time withdraw the whole or any portion of the escrowed funds by depositing with the Bank approved securities in an amount equal to, or in excess of, the amount so withdrawn. Any securities so deposited or withdrawn shall be valued at such time of deposit or withdrawal at the lower of par or market value, the latter as determined by the Bank. Any securities so deposited shall thereupon become a part of the escrowed fund.

Upon receipt of a direction signed by an authorized representative of Albemarle County Service Authority, the Bank shall pay the principal of the fund, or any specified amount thereof, to Albemarle County Service Authority.

For its services hereunder the Bank shall be entitled to a reasonable fee in accordance with its published schedule of fees or as may be agreed upon by the Bank and the Contractor. Such fee and any other costs of administration of this Agreement shall be paid from the income earned upon the escrowed fund and, if such income is not sufficient to pay the same, by the Contractor.

The net income earned and received upon the principal of the escrowed fund shall be paid over to the Contractor in quarterly or more frequent installments. Until so paid or applied to pay the Bank's fee or any other costs of administration such income shall be deemed a part of the principal of the fund.

The Surety undertakes no obligation hereby but joins in this Agreement for the sole purpose of acknowledging that its obligations as surety for the Contractor's performance of the Contract are not affected hereby.

WITNESS the following signatures, all as of the day and year first above written.

ALBEMARLE COUNTY SERVICE AUTHORITY

By: _____

Quin Lunsford

Executive Director

[CONTRACTOR]

By: _____

Name: _____

Title: _____

[BANK]

By: _____

Name: _____

Title: _____

[SURETY]

By: _____

Attorney-in-fact

COMMONWEALTH OF VIRGINIA)

) to-wit:

ALBEMARLE COUNTY)

Subscribed and sworn to before me, the undersigned Notary Public, by Quin Lunsford, Executive Director of Albemarle County Service Authority, a public body politic and corporate organized and existing under the laws of the Commonwealth of Virginia, this _____ day of _____, 20 ____.

Notary Public

My Commission Expires:

(SEAL)

END OF SECTION 00850

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SECTION 00900
ADDENDA

PART 1 - GENERAL

- 1.01 Addenda, if issued, shall be inserted following this page. Addendum No. 1 will begin on page 00910-1, Addendum No. 2 will begin on page 00920-1, etc.
- 1.02 The bidder is reminded to complete Section 00490 entitled "Receipt of Addenda" when preparing Bid Form for submission.

END OF SECTION 00900

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SECTION 01010 SUMMARY OF WORK

PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project: Barracks West Water Main Replacement Project. All work shown on Drawings and/or called for in these Specifications shall be performed under the General Contract, unless specifically noted to the contrary in the Contract Documents.

The project includes, however is not limited to: 3,700 linear feet of 8-inch ductile iron waterline and 560 linear feet of 4-inch waterline, including associated interconnections, hydrants, meter installations, appurtenances, abandonment of existing waterline, and reconnection of existing water services.

- B. Contractor's Duties: CONTRACTOR'S duties in performance of the WORK shall include, however are not limited to:
1. Responsibilities: CONTRACTOR shall be:
 - a) Responsible for the management of the Project.
 - b) Responsible for hiring all subcontractors.
 - c) The sole arbitrator of the division of WORK of all trades, associated with WORK provided for in the Contract Documents.
 2. Work: Except as specifically noted, provide and pay for all:
 - a) Labor, materials, and equipment.
 - b) Tools, construction equipment and machinery.
 - c) Water, heat, and utilities required for construction.
 - d) Other facilities and services necessary for proper execution and completion of WORK.
 3. Permits and Fees: Secure and pay for, as necessary for proper execution and completion of WORK, and as applicable at time of receipt of Bids:
 - a) Permits (including building and trade permits),
 - b) Government fees,
 - c) Bonds,
 - d) Licenses, and
 - e) Insurance.
 4. Notices: Unless specifically indicated otherwise, give required Notices to ENGINEER, government agencies, (local, state and federal), utility companies and others as required and within the time frames identified in the Contract Documents.

5. Regulations: Comply with all codes, ordinances, rules regulations, orders, and other legal requirements of public authorities which bear on performance of WORK.
6. Written Notice: Promptly submit Written Notice to ENGINEER of observed conflicts in Contract Documents. It is CONTRACTOR'S responsibility to make certain that all work performed as defined in the Drawings and Specifications comply with codes and regulations.
7. Coordinate: Coordinate WORK with appropriate authorities, *i.e.*, utility companies, Virginia Department of Health (VDH), and Virginia Department of Transportation (VDOT), etc, and other Contractors who may be performing other work at the project site of this work or adjacent to this work.

1.2. ADDITIONAL ENGINEERING SERVICES

In the event that the ENGINEER is required to provide additional engineering services as a result of CONTRACTOR error or omissions; substitution of materials or equipment by the CONTRACTOR that are different from what is specified that results in change in dimensions, layout, power requirements, etc.; or if the ENGINEER is required to examine and evaluate any changes proposed by the CONTRACTOR for the convenience of the CONTRACTOR; or if the ENGINEER is required to witness retests of project components, then the ENGINEER's charges in connection with such additional services shall be charged to the CONTRACTOR by the ENGINEER.

1.3. AGREEMENT

Construct WORK under single, all-inclusive AGREEMENT.

1.4. LINES, GRADES, AND REFERENCE POINTS

- A. Project Stakeout: Lines, grades, and construction staking necessary for the proper prosecution of all the WORK specified here in will be established by CONTRACTOR at his expense by a Professional Land Surveyor licensed in the Commonwealth of Virginia.
- B. Project Control: Ground control and Field surveying has been established during design of the Project by ENGINEER. These points will be provided only one (1) time upon request. All existing grade stakes, reference lines, etc. destroyed by CONTRACTOR during the progress of its WORK will be replaced at CONTRACTOR'S expense.
- C. Field Verification: Where called for on the Drawings and Specifications or, required for accuracy and fit with existing WORK, CONTRACTOR will make its own field measurements to verify any dimensions shown on the Drawings. Consequently, OWNER and ENGINEER present this information only as an approximation and not a guideline. CONTRACTOR shall be responsible for verification prior to submittal.

1.5 RESPONSIBILITY REGARDING EXISTING UTILITIES AND STRUCTURES

- A. Existing Structures: The existence and location of underground utilities indicated on the Drawings are not guaranteed and shall be investigated and verified in the field by CONTRACTOR before WORK is begun. Excavation in the vicinity of existing structures and utilities shall be carefully performed by hand if deemed appropriate by CONTRACTOR.
- B. Responsibility: CONTRACTOR shall be held responsible for any damages to, and for maintenance and protection of, existing utilities and structures; and, for repair of such to the complete satisfaction of the respective owner(s).
- C. Pre-Existing Conditions: For the protection of both itself and OWNER, CONTRACTOR shall make a survey of adjacent properties before commencing operations. Such a survey shall locate all existing cracks and damage to the existing structures by means of drawings and preconstruction photographs. "Tell tales" shall be placed as directed by ENGINEER.
- D. Documentation: A copy of this report and preconstruction photographs shall be filed with ENGINEER. Any refusal of owner(s) of adjacent property to permit entry for purposes of inspection shall be noted in the report. The purpose of filing the report is to document the pre-existing conditions. Any liability resulting from this documentation as provided by the contract is solely the CONTRACTOR's responsibility.
- E. Protection of the Work: CONTRACTOR shall continuously maintain adequate protection of all its WORK and materials from damage or theft and shall protect OWNER'S property and all adjacent property from injury or loss arising in connection with activities provided for this Project. CONTRACTOR shall be liable for any such damage, injury, or loss.
- F. Protection of Adjacent Facilities: CONTRACTOR shall take, use, provide, and maintain all necessary precautions, safeguards, and protection to prevent accidents, or injury to persons or property on, about, or adjacent to the site of the WORK. CONTRACTOR shall post danger signs warning against any hazards created by the WORK being done under this CONTRACT. CONTRACTOR shall designate a responsible member of its organization to be responsible for the prevention of accidents on the Project. The name of this person so designated shall be reported in writing to ENGINEER. In an emergency affecting the safety of life, or of the WORK or adjoining property, CONTRACTOR, without special instructions or authorization from ENGINEER or OWNER, is hereby permitted to act, at its discretion, to prevent such threatened loss or injury. It must take such action if so instructed or authorized by ENGINEER or OWNER.
- G. Requirements of Law: CONTRACTOR shall also protect adjacent property as required by law.

1.6 APPLICABLE CODES

- A. Specified Codes: Whenever reference is made to the furnishing of materials or testing thereof to conform to the standards of any technical organization or body, it shall be construed to mean the latest standard, code, specification, or tentative specification adopted and published at the date of Advertisement for Bids, even though reference has been made to an earlier standard; and such standards are made a part thereof to the extent which is indicated or intended.
- B. Non-Specified Codes: When no reference is made to a code, standard, or specification, the standard Specifications of the ASTM, the ASA, the AIEE, or the NEMA or others, as applicable, shall govern.
- C. Permits: CONTRACTOR shall be responsible for compliance with all state and local codes and ordinances.
 - 1. Virginia Department of Transportation (VDOT): A permit from the Virginia Department of Transportation (VDOT) shall be obtained by the CONTRACTOR. CONTRACTOR shall be responsible for complying with all conditions of this permit, including but not limited to the Performance Bond and the inspection fees. A copy of the Dual Obligatee Rider to be included as a condition of the permit is included in the Appendix. If CONTRACTOR is "shutdown" by VDOT for non-compliance with this permit, then no extension of time will be granted for such "shutdown". CONTRACTOR will be responsible for payment of any highway inspection fees that may be required by the VDOT. CONTRACTOR shall be responsible for insuring that the requirements outlined in the "Virginia Work Area Protection Manual", by the VDOT, are incorporated in its construction methods; and no additional compensation will be made for this compliance. CONTRACTOR shall be responsible for all surface restoration required by VDOT and no additional compensation will be allowed.
 - 2. State and Local Codes/Ordinances: CONTRACTOR shall be responsible for compliance with state and local codes and ordinances.

1.7 COORDINATION

- A. All WORK shall be coordinated with the OWNER and individual property owners and business owners. At least 48 hours Notice will be given for any WORK involving the existing facilities.

1.8 EQUIPMENT/MATERIAL GUARANTEE

CONTRACTOR shall furnish a written guarantee from the manufacturer of the equipment and material to ENGINEER at the time of completion of WORK and before acceptance of the installation. The guarantee does not apply to any item damaged from misuse, lack of maintenance, alternation, neglect, accident, or wear from normal use.

- A. Initial Installation: All equipment/material installed per the Contract Documents shall be free from defect in material or workmanship, and CONTRACTOR shall repair or replace at its expense any such defective equipment for a period of 1 year from the date of Final Acceptance unless otherwise noted in the Contract Documents.
- B. After Installation: CONTRACTOR shall be responsible for repair or replacement of any equipment or material which fails to meet the design requirements as specified which are revealed during fabrication, installation, demonstration and/or acceptance testing. Repair or replacement of any such equipment/material shall be completed within 60 days at the expense of CONTRACTOR. Liquidated Damages for failure to complete such repair or replacement within the specified time will be assessed in the manner specified in the General Conditions.

1.9 WORK OUTSIDE REGULAR HOURS

- A. If the CONTRACTOR desires to perform work outside the regular hours, he shall request permission to work 48 hours in advance to allow arrangements to be made for proper inspection. The OWNER may refuse the CONTRACTOR permission to work if the 48-hour notice is not given or for other just cause. Reasonable efforts shall be made by the CONTRACTOR to avoid undue noise during the night and on Saturdays and Sundays, if it is necessary to work at such times. Under normal circumstances the CONTRACTOR will not be permitted to work on Saturdays and Sundays.

Unless specifically scheduled to work outside normal hours by the OWNER in the interest of public safety or convenience, then the CONTRACTOR will be liable for the expense of overtime work required by OWNER's and/or ENGINEER's employees. This expense includes but is not limited to OWNER and ENGINEER called to the job site outside normal working hours to resolve problems directly related to the project. Normal or regular working hours are defined as 9:00 AM to 3:30 PM Monday through Friday for all work located in VDOT right-of-way. Normal or regular working hours for any work located within the limits of easements are defined as 8:00 AM to 5:00 PM.

IF CONTRACTOR anticipates working outside normal work hours, he shall notify the ENGINEER and OWNER as soon as possible and no less than 48 hours in advance.

- B. Holiday Restrictions – Work will not be allowed in VDOT right-of-way from noon on the preceding weekday through the following state observed holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day (From Noon on Wednesday preceding Thanksgiving Day until Noon on the Monday following Thanksgiving Day), and Christmas Day. If observed holiday falls on a Monday, the permit will not be valid from noon on the preceding Friday through noon on Tuesday.

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

3.1 CONSTRUCTION SCHEDULE AND SEQUENCE

- A. It shall be the CONTRACTOR'S responsibility to propose a construction schedule to complete all work in the Contract completion time noted in the Information for Bidders and as supplemented herein.
- B. The OWNER shall have the right to the use of completed facilities as they become available, this shall not relieve contractor of this responsibility to complete work on any such facility.
- C. The CONTRACTOR shall ensure that all service connections are maintained throughout the duration of the project.

END OF SECTION 01010

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**SECTION 01027
BASIS OF MEASUREMENT AND PAYMENT**

PART 1 - GENERAL

1.1. SCOPE

Under this section of the specifications, the CONTRACTOR shall furnish all necessary labor, machinery, apparatus, tools, materials, equipment, services, and other necessary supplies and perform all work including excavation and backfilling at the unit or lump sum prices for the following items.

PART 2 - PRODUCTS

2.1 PAYMENT FOR STORED MATERIALS

Payment will be made for materials stored on-site for which a paid invoice or other proof of payment is made within 30 days of receipt.

2.2. ITEMS INCIDENTAL TO THE WORK

Any item not specifically referenced in the Bid Schedule but required by the plans and specifications shall be considered incidental to the work. The cost for these items shall be included in the most appropriate Bid Item.

2.3. BID FORM ITEMS

Item No.:

1. **Mobilization** – Mobilization includes the cost associated with beginning the construction. This item includes but is not limited to the cost of bonds insurance permits and moving equipment to the site. The cost will be lump sum and shall not exceed 3% of the total bid. Half of the mobilization will be paid at the time of the first pay request; the remainder will be paid upon completion.
2. **8-inch Waterline** – Eight-inch waterline shall be paid for on a horizontal linear foot basis. The method of measurement used throughout the project will be the physical horizontal measurement of the pipe installed. The price in this bid item shall include all cost required to install the waterline which are not specifically included in another bid item. This includes but is not limited to the preparation of the work area, clearing, grubbing, tree and stump removal, erosion and sediment control measures, pavement demolition and removal, gravel road/driveway removal, excavation and disposal of any rock off site, connection to existing waterline, pipe, fittings, placement, location marking, testing, connection of existing or new service lines to new waterline, backfill, and surface restoration (excluding pavement and gravel repair).

3. **8-inch Gate Valve** – Eight-inch gate valves shall be paid for each installation. The pay item includes but is not limited to all labor, equipment, and materials shown in the drawing detail on the plans to complete the installation.
4. **12-inch x 8-inch Tapping Sleeve and Valve** – Twelve-inch x eight-inch tapping sleeve and valve shall be paid for each installation. The pay item includes but is not limited to all labor, equipment, and materials shown on the drawing detail in the plans, excavation, connection to existing twelve-inch waterline, backfill, and surface restoration (excluding pavement repair) to complete the installation.
5. **6-inch Waterline** – Six-inch waterline shall be paid for on a horizontal linear foot basis. The method of measurement used throughout the project will be the physical horizontal measurement of the pipe installed. The price in this bid item shall include all cost required to install the waterline which are not specifically included in another bid item. This includes but is not limited to the preparation of the work area, clearing, grubbing, tree and stump removal, erosion and sediment control measures, pavement demolition and removal, gravel road/driveway removal, excavation and disposal of any rock off site, pipe, fittings, placement, location marking, testing, backfill, and surface restoration (excluding pavement and gravel repair).
6. **6-inch Gate Valve** – Six-inch gate valves shall be paid for each installation. The pay item includes but is not limited to all labor, equipment, and materials shown in the drawing detail on the plans to complete the installation.
7. **4-inch Waterline** – Four-inch waterline shall be paid for on a horizontal linear foot basis. The method of measurement used throughout the project will be the physical horizontal measurement of the pipe installed. The price in this bid item shall include all cost required to install the waterline which are not specifically included in another bid item. This includes but is not limited to the preparation of the work area, clearing, grubbing, tree and stump removal, erosion and sediment control measures, pavement demolition and removal, gravel road/driveway removal, excavation and disposal of any rock off site, connection to existing waterline, pipe, fittings, placement, location marking, testing, connection of existing or new service lines to new waterline, backfill, and surface restoration (excluding pavement and gravel repair).
8. **4-inch Gate Valve** – Four-inch gate valves shall be paid for each installation. The pay item includes but is not limited to all labor, equipment, and materials shown in the drawing detail on the plans to complete the installation.
9. **Fire Hydrant Assembly** – Fire hydrant assemblies shall be paid for each installation. The pay item includes, but is not limited to all labor, equipment, and materials shown on the drawing detail in the plans to complete the

installation with the exception of the six-inch gate valve and six-inch piping included under separate bid items.

10. **Remove / Dispose of Existing Fire Hydrant Complete** – The removal of the existing fire hydrants shall be paid for each removal, and include all labor, equipment, materials, clearing, grubbing, excavation, backfill, and erosion and sediment control to complete the removal and disposal of the existing fire hydrant assembly, including proper abandonment of the valve and removal of the valve box.
11. **1-inch Copper Piping** – One-inch copper piping shall be paid for on a horizontal linear foot basis. The method of measurement used throughout the project will be the physical horizontal measurement of the pipe installed. The price in this bid item shall include all cost required to install the copper piping which are not specifically included in another bid item. This includes but is not limited to the preparation of the work area, clearing, grubbing, erosion and sediment control measures, excavation and disposal of any rock off site, installation of copper pipe, testing, backfill, and surface restoration (excluding pavement repair).
12. **Installation of Meter Box, Meter Yoke, and Water Meter** – Installation of the new meter box, meter yoke, and water meter shall be paid for each installation. The pay item includes, but is not limited to all labor, equipment, materials shown on the drawing detail in the plans, coordinating and confirming the final location, clearing, grubbing, excavation and disposal of any rock off site, tapping the water main for the new service, connecting new service to the new water meter, testing, backfill, and erosion and sediment control to complete the installation of the new meter box, meter yoke, and water meter and re-connect the existing water service connection on the customer's side of the new water meter. Water meter to be furnished by ACSA. Removal and disposal of the existing water meter box, meter, and associated appurtenances, and the disconnection and capping of the existing water service connection from the existing waterline to be abandoned is also included in this line item.
13. **Pavement Milling** – Pavement milling shall be paid for on a square yard basis. The pay item includes, but is not limited to all labor, equipment, materials, and erosion and sediment control to complete the 1.5-inch thick milling per the limits shown on the plans.
14. **SM-9.5A Asphalt Surface Course, including overlay** – SM-9.5A asphalt surface course shall be paid for on a per square yard basis. The pay item includes, but is not limited to all labor, equipment, and materials shown on the drawing detail in the plans, and erosion and sediment control to install the surface course of asphalt, including pavement overlay.
15. **BM-25 Asphalt Base Course** – BM-25 asphalt base course shall be paid for on a per square yard basis. The pay item includes, but is not limited to all labor, equipment, and materials shown on the drawing detail in the plans, and erosion and sediment control to install the base course of asphalt.

16. **Miscellaneous Concrete** – Miscellaneous concrete shall be paid for on a per cubic yard basis. The pay item includes, but is not limited to all labor, equipment, materials and erosion and sediment control required to repair and/or replace any curb, gutter, sidewalk, or other concrete infrastructure affected by construction activities.
17. **Remove Unsuitable Material and Backfill with Select Fill Aggregate** – This pay item shall be paid on a cubic yard basis and includes, but is not limited to all labor, equipment, and materials required for the excavation and proper disposal off-site of unsuitable material where authorized or directed by OWNER or Owner's representative in the field below the levels required for the Work in Bid Items 1 through 18, and providing, backfilling, and compacting pipe bedding material per specifications. This pay item will only be utilized when authorized and directed by Owner or Owner's representative in the field. Payment amount for removal of unsuitable material and backfilling with select fill aggregate shall be based on the actual quantities authorized and approved by the Owner multiplied by the unit cost provided by the bidder on the Bid Form. The final contract amount shall be adjusted upward or downward based on the actual quantity of unsuitable material removed and select fill aggregate backfilled. Field measurements shall be based on a standard trench width of 24-inches when installing pipe in areas under pavement, and a standard trench width of the external diameter of the installed pipe plus 16-inches when installing pipe in areas outside the limits of pavement. Removal of unsuitable material and backfill of select fill aggregate in areas of trench wider than specified due to contractor's over-excavation shall be provided at no cost to the OWNER.
18. **Remove Unsuitable Material and Backfill with Select Fill Earth** – This pay item shall be paid on a cubic yard basis and includes, but is not limited to all labor, equipment, and materials required for the excavation and proper disposal off-site of unsuitable material where authorized or directed by OWNER or Owner's representative in the field within the levels required for the Work in Bid Items 1 through 18, and providing and backfilling with satisfactory soil materials per specifications when satisfactory soil materials are not available from excavated soils. This pay item will only be utilized when authorized and directed by Owner or Owner's representative in the field. Payment amount for removal of unsuitable material and backfilling with select fill earth shall be based on the actual quantities authorized and approved by the Owner multiplied by the unit cost provided by the bidder on the Bid Form. The final contract amount shall be adjusted upward or downward based on the actual quantity of unsuitable material removed and select fill earth backfilled. Field measurements shall be based on a standard trench width of 24-inches when installing pipe in areas under pavement, and a standard trench width of the external diameter of the installed pipe plus 16-inches when installing pipe in areas outside the limits of pavement. Removal of unsuitable material and backfill of select fill earth in areas of trench wider than specified due to contractor's over-excavation shall be provided at no cost to the OWNER.

2.4 ROCK

Rock excavation is unclassified for this Project.

- A. Unclassified: No additional payment will be made for rock excavation or disposal off site.

PART 3 - EXECUTION

3.1. PAY ITEMS

The items listed herein before are the same items listed in the Bid herein before and constitute all of the pay items in this contract. Any other items of work listed in the Specifications, or shown on the Drawings, shall be considered incidental to the above items.

3.2. REQUIREMENTS FOR PARTIAL PAYMENTS

- A. Partial Payment requests will be made on an approved form. The Contractor will attach copies of invoices for all materials included in the Payment Request. Payments will be made on all major items of materials stored on site; however, the Owner will not pay for miscellaneous incidental materials stored on site, nor for any materials stored off site.
- B. The effective date for Partial Payment shall be established during the Pre-Construction Conference. Requests for payment shall be evaluated on the basis of work completed as of the effective date, not on the basis of projected work completed.
- C. Retainage for Partial Payments from the Owner shall be in accordance with the General Conditions.
- D. The work to be performed under the Contract will commence with the date established in the Notice to Proceed. Substantial Completion shall be achieved within the time period stated in the Bid Proposal.
- E. Prior to the Pre-Construction Conference, the Contractor shall submit the following:
 - 1. List of principal Subcontractors and Suppliers
 - 2. Schedule of Values
 - 3. Progress Schedule and first progress report
 - 4. Schedule of Submittals and Shop Drawings
 - 5. Copies of building permits, other required permits, and similar start-up authorization certifications.

3.3. FINAL PAYMENT

- A. Final Payment may be requested when the Engineer is satisfied and the following conditions have been fulfilled:

1. Complete close-out requirements specified in Section 01700 Project Closeout.
2. Complete work listed as incomplete at time of Substantial Completion or otherwise assure Owner of subsequent completion of individual incomplete items. Retainage will be held until all punch list items are completed and close-out documents are received.
3. Settle liens and other claims or assure Owner of subsequent settlement. Execute and submit to Engineer for approval, five (5) copies each of Contractor's Affidavit of Payment of Debts and Claims and Contractor's Affidavit of Release of Liens.
4. Submit proof of payment on fees, taxes, and similar obligations.
5. Transfer operational, access, security, and similar provisions to Owner and remove temporary facilities, tools, and similar items.
6. Obtain consent of surety for final payment. Execute and submit to Engineer for approval, five (5) copies of Consent of Surety to Final Payment.

END SECTION 01027

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SECTION 01200 PROJECT MEETINGS

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The Engineer and Owner will schedule and administer a preconstruction meeting, periodic progress meetings, and specially called meetings through the progress of the work.
 - 1. Prepare agenda for meetings
 - 2. Make physical arrangements for meetings
 - 3. Preside at meetings
- B. Representative of the Contractor, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
- C. The Contractor shall attend meetings to ascertain that work is expedited consistent with Contract Documents and construction schedules.

1.2. PRECONSTRUCTION MEETING

- A. A preconstruction meeting will be scheduled before the Contractor starts Work.
- B. Location: At the Owners offices or place designated by the Owner.
- C. Attendance:
 - 1. Owner's representative
 - 2. Contractor's project manager and superintendent
 - 3. Major subcontractors
 - 4. Utilities representative
 - 5. Others as appropriate
- D. Suggested Agenda:
 - 1. Distribution and discussion of:
 - a. List of major subcontractors and suppliers
 - b. Projected construction schedules
 - 2. Critical work sequencing

-
3. Major equipment deliveries and priorities
 4. Project coordination:
 - a. Designation and responsible personnel
 5. Procedures and processing of:
 - a. Field decisions
 - b. Proposal requests
 - c. Submittals
 - d. Change Orders
 - e. Applications for payment
 6. Adequacy of distribution of Contract Documents
 7. Procedures for maintaining Record Documents
 8. Use of premises:
 - a. Office, work and storage areas
 - b. Owner's requirements
 9. Construction facilities, controls and construction aids
 10. Temporary utilities
 11. Housekeeping procedures
 12. Check of required Bond and Insurance certifications
 13. Liquidated damages
 14. Check of required Permits
 15. Laboratory testing of material requirements
 16. Inventory of material stored on site.
 17. Wage determination compliance and records, work hours
 18. MBE/WBE fair share objective, affirmative action, nondiscrimination policies, if appropriate
 19. Communication lines and contact persons, including address and telephone number
 20. Manufacturer's operation and maintenance manuals, and operation and maintenance training.

21. Regulatory agency inspections
22. Progress agency inspections
23. Job site safety

1.3. PROGRESS MEETINGS

- A. Regular periodic meetings will be held as deemed necessary by the Engineer and Owner or Owner's Inspector.
- B. Additional meetings will be scheduled as required by progress of the work.
- C. Location of the meetings: A site designated by the Owner
- D. Attendance:
 1. Engineer and his professional consultants as needed
 2. Contractor and his Subcontractors (as appropriate to the agenda)
 3. Owner's representative
 4. Others as appropriate
- E. Suggested Agenda:
 1. Review and approval of minutes of previous meeting
 2. Review of work progress since previous meeting
 3. Field observations, problems, conflicts
 4. Problems which impede Construction Schedule
 5. Review of off-site fabrication, delivery schedules
 6. Corrective measures and procedures to regain projected schedule
 7. Revisions to Construction Schedule
 8. Progress schedule during succeeding work period
 9. Coordination of schedules
 10. Review of submittal schedules, expedite as required
 11. Maintenance of quality standards

-
- 12. Pending changes and substitutions
 - 13. Review proposed changes for:
 - a. Effect of Construction Schedule and on completion date
 - b. Effect of other contracts of the Project
 - F. The Contractor is to attend progress meetings and is to study previous meeting minutes and current agenda items, in order to be prepared to discuss pertinent topics such as deliveries of materials and equipment, progress of the work, etc.
 - G. The Contractor is to provide a current shop drawing submittal log at each progress meeting in accordance with Section 01300.

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

Not Applicable

END OF SECTION 01200

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SECTION 01300 SUBMITTALS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. The Contractor shall provide samples and shop drawings as requested under the specifications in accordance with the following requirements. When the Work of the Project is divided into separate Contracts, each Prime Contractor shall provide submittals directly to the Engineer. No materials shall be used in the work which do not equal the approved samples or shop drawings.
- B. Materials or appliances requiring approval must not be fabricated or incorporated into the work until approval has been given. The approval or acceptance of samples shall not preclude the rejection of any material upon the discovery of defects prior to the final acceptance of the complete work.
- C. After a material has been approved, no change in brand or manufacturer will be permitted unless satisfactory written evidence is presented to, and approved by the Engineer, that the manufacturer cannot make scheduled delivery of approved material, or that other conditions are apparent which indicate the approval of such substitute materials to be in the best interest of the Owner.
- D. Samples, shop drawings, material lists, manufacturers' literature, and other required information shall be submitted in sufficient time, and clearly marked, to permit proper consideration and action on same before any materials which such samples, shop drawings, and information represent are delivered to the site. The Contractor shall be held responsible for any delay in the progress of the Work which may be due to his failure to observe these requirements.
- E. Shop drawings and samples shall be submitted to the Engineer in sufficient quantity to permit the Engineer to retain two (2) copies and return the number of copies required by the Contractor.
- F. Any submittal which requires the selection of color by the Engineer shall be submitted such that all color selections can be made at the same time. Submittals shall be held by the Contractor for a single submittal of all items requiring color choice or sufficient time will be allowed for the Engineer to receive all submittals to prepare a comprehensive color selection.

PART 2 - SAMPLES

2.1 SAMPLES

- A. Samples and mock-ups shall be submitted in duplicate except where a greater number is specifically required by the specifications.
- B. Samples and manufacturers' literature shall be forwarded (prepaid) to Engineer's

office accompanied with a transmittal letter containing the following information: name of project, contractor, description of product, manufacturer, model number, ASTM or Federal Specification number where applicable. Catalogs shall be marked to indicate specific items submitted for approval.

- C. Samples which are rejected by the Engineer must be re-submitted as soon as possible after notification of rejection and shall be marked "Re-submitted Sample" in addition to other required information.
- D. The right shall be reserved to require submission of samples of any material or any material lists, whether or not particularly mentioned in the Specifications.

2.2 SHOP DRAWINGS

- A. Submission of shop drawings shall comply with the following requirements:
 - 1. The shop drawings shall be clearly marked and submitted sufficiently in advance of the work which they cover to afford ample time for checking, correcting, and rechecking if necessary. No claim for delay will be granted the Contractor if caused by his failure to comply with the requirements of this Section.
 - 2. Before submitting for approval, the Contractor shall check all shop drawings, including those submitted by subcontractors, for accuracy and to ascertain that all work contiguous with and having bearing on other work shown on the shop drawings is accurately drawn, and that the work shown is in conformity with the contract requirements.
 - 3. Shop drawings submitted for approval shall bear the Contractor's stamp of approval as evidence that such drawings and details have been checked by the Contractor. The submission of shop drawings (in either the original submission or when resubmitted with corrections) constitutes evidence that the Contractor has checked all information therein, and that he accepts and is willing to perform the work, as shown, in a workmanlike manner and in accordance with the best standard practices.
 - 4. No claim for an extra shall be based on work shown on the shop drawings, unless such claim is noted on the Contractor's transmittal letter accompanying the shop drawings.

The Contractor's approval shall contain the following statement:

"The equipment and material shown and marked in this submittal is that proposed to be incorporated into this Project, and has been checked for and is in compliance with the Contract Documents unless otherwise shown in bold face type or lettering and listed on a page or pages headed "DEPARTURES FROM CONTRACT DOCUMENTS," and can be installed in the allocated spaces.

Checked By: _____ Date: _____

The person signing the stamp shall be one designated in writing by the Contractor as having that authority. The signature shall be handwritten in ink. Stamped signatures are not acceptable.

5. The Engineer's approval of shop drawings and schedules shall not relieve the Contractor from responsibility for deviation from drawings and specifications unless he has in writing called the Engineer's attention to such deviations at the time of submission. The Engineer's approval shall not relieve Contractor from responsibility for errors of any sort on shop drawings or schedules.

B. ENGINEER'S ACTION:

Review is only for conformance with the design concept of the project. Markings or comments do not relieve the CONTRACTOR from compliance with the contract documents nor allows departure therefrom. The CONTRACTOR remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes, for technique of assembly, for coordination of the work with all trades, and for performing this work in compliance with the contract documents.

Where action and return is required or requested, ENGINEER will review each submittal, mark with "Action".

1. Final Unrestricted Release: Work may proceed, provided it complies with Contract Documents, when submittal is returned with the following marking:

"No Exceptions Taken"

2. Final-But-Restricted Release: Work may proceed, provided it complies with notations and corrections on submittal and with Contract Documents, when submittal is returned with the following marking:

"Make Changes Noted"

3. Returned for Re-submittal: Do not proceed with work. Revise submittal in accordance with notations thereon, and resubmit without delay to obtain a different action marking. Do not allow submittals with the following marking (or unmarked submittals where a marking is required) to be used in connection with performance of the work:

"Revise and Resubmit"

4. Returned for Non-Compliance: Do not proceed with work. Product submitted does not comply with Contract Documents. Resubmit for product complying with the requirements of the Contract Documents. Do not allow submittals with the following marking to be used in connection with performance of the work:

"Not Approved" or "Rejected"

PART 3 - PRODUCTS

Not Applicable

PART 4 - EXECUTION

Not Applicable

END OF SECTION 01300

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SECTION 01500 TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SCOPE

Refer to General Conditions for requirements for the Contractor to provide temporary facilities as required for performance of the Work and fulfillment of the Contract. This section specifies certain minimum temporary facilities to be provided by Contractor regardless of methods and means selected for performance of the Work. This section is not intended to limit the Contractor's provisions for temporary facilities nor does it assure compliance with local governing regulations. Use of alternate provisions for temporary facilities is the Contractor's option, subject to the Engineer's acceptance. Temporary facilities are defined to exclude tools and construction machines, testing, demolition, alterations, soil borings, mock-ups and similar items.

1.2 COST OF TEMPORARY SERVICES

Costs for temporary services, utilities and facilities, unless otherwise specifically indicated shall be the responsibility of the Contractor.

1.3 SEPARATE PRIME CONTRACTORS

- A. When the Project Work is divided into more than one Contract, each Contractor will be responsible for an equitable share in the cost of producing and maintaining temporary facilities. The General Construction Contractor will be responsible for all temporary facilities described herein. The Engineer will approve assessments by the General Construction Contractor for the use of these temporary facilities by the other Prime Contractors.
- B. Each Prime Contractor will be responsible for providing his own Field Office and Materials Storage.
- C. Installation of temporary electrical and water service shall be provided by the Contractor.
- D. Any utilities which are disturbed shall be repaired at the expense of the Contractor who is responsible for damages.

PART 2 - PRODUCTS

2.1 MATERIALS STORAGE

Provide suitable and sufficient enclosed and covered spaces, with raised flooring, to protect materials and equipment subject to damage by weather or construction. Materials stored on site which have not been properly protected shall not be acceptable for use in construction or approved for payment.

2.2 FENCING AND BARRICADES

- A. Provide fences and barricades and protection devices sufficient to prevent injury to persons or damage to property in accordance with all Safety Requirements of applicable standards, codes, ordinances, and insurance agencies.
- B. Provide temporary walkways as necessary for safe, uninterrupted pedestrian traffic.

2.3 SCAFFOLDING AND SHORING

- A. Provide scaffolding, ramps, runways, platforms, guards, rails, stairs, and ladders as necessary for this work.
- B. Meet all safety requirements of applicable standards, codes, ordinances, and insurance agencies.
- C. Provide lights and signs to prevent damage or injury.
- D. Provide all shoring, bracing and sheeting as required for safety and proper execution of the Work. Remove when no longer required.

2.4 LIFTING AND HOISTING

Provide hoists, temporary elevators, lifts, cranes, and towers necessary for expediting the handling of materials.

2.5 TOILETS

Provide adequate and sanitary temporary outside toilet facilities for use of persons working at site. Provide toilet facilities with adequate light and ventilation and toilet tissue in suitable holder. Comply with applicable legal and health requirements. Toilet facilities shall be secluded from public observation and shall not create nor allow a public nuisance. Temporary sanitary facilities shall be removed upon completion of the work and the premises shall be left clean. Workmen shall not use permanent washroom facilities in existing facilities or new work except by written permission of the Owner.

2.6 ELECTRICITY

- A. Make arrangements for, and provide temporary equipment, poles, wiring, switches, and outlets necessary to provide an adequate supply of electricity for lighting and power for construction purposes. Cost of temporary service shall be borne by the Contractor.
- B. The Contractor shall make arrangements for meter installation, service connections, and wiring to meet the requirements of completed project.

2.7 WATER

- A. Make arrangements for, and provide temporary equipment and piping necessary to

provide an adequate supply of water for construction purposes. Cost shall be borne by the Contractor.

- B. The Contractor shall make arrangements for main connection, and incoming pipes to meet requirements of completed project.

2.8 PUMPING AND DRAINING

Provide pumping equipment to keep construction and storage areas free from standing water that could cause damage or that would interfere with the work.

2.9 ACCESS

- A. The Project Site shall at all times be accessible for delivery of construction materials and equipment. Maintenance of access points and access roads, loading and unloading areas and directional signage shall be the responsibility of the Contractor.
- B. Provide signage and barricades to clearly direct pedestrian and construction traffic.
- C. Any damage to existing paved surfaces, curbing, landscaping, etc. shall be restored or repaired by the Contractor.
- D. Stabilize parking areas and access roads with a base of crushed stone as soon as practicable after finish grading.

2.10 FIRST AID FACILITIES

The Contractor shall provide at the site, such reasonable equipment and facilities as are necessary to supply first aid to any of his personnel who may be injured in connection with the work.

2.11 BARRICADES, WARNING SIGNS, AND LIGHTS

Contractor shall provide, erect and maintain as necessary, strong and suitable barricades, fencing, danger signs and warning lights and as may be required for the safety of all those employed in the work, visiting the construction site, and for the general public.

PART 3 - EXECUTION

3.1 GENERAL

- A. Maintain all necessary temporary facilities until the project has reached Substantial Completion and is accepted by the Owner.
- B. Provide sheds and covered spaces suitable for storage of materials and equipment requiring protection as approved by the Engineer.
- C. Erect and maintain scaffolding, ramps, platforms, guards, rails, stairs, and ladders as necessary for this work to meet all applicable safety laws and ordinances.

- D. Maintain safety lights signage and other safety provisions. Keep safety lights burning from twilight to dawn.
- E. Install lifting and hoisting equipment to meet all applicable safety requirements.
- F. Maintain adequate toilet facilities and keep toilets in clean and sanitary condition.
- G. Make arrangements and install temporary water, electric, and telephone service required for the project.
- H. Maintain temporary heating system during cold weather to adequately protect the work in place or work being placed. Specific requirements for environmental conditions can be found in the technical sections of the Specifications.
- I. Pump or drain water to keep work and storage area free from water which could interfere with the work, or could cause damage. Distribute discharge to prevent erosion.
- J. Remove all temporary work at the completion of the project, unless directed otherwise by the Engineer.
- K. Clean spaces that were occupied by temporary work. Periodically, and as directed by the Engineer, remove all debris and rubbish from the site.
- L. Comply with the project's Storm Water Pollution Prevention Plan.

3.2 ACCIDENT

- A. The Contractor shall promptly report in writing to Owner and Engineer all accidents what-so-ever arising out of, or in connection with, the performance of the work, whether on or adjacent to the site, which cause death, personal injury or property damage, giving full details and statements of witnesses.
- B. If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the Owner and the Engineer.
- C. If any claim is made by anyone against the Contractor or a subcontractor on account of any accidents, the Contractor shall promptly report the facts in writing to the Owner and Engineer, giving full details of the claim.

3.3 ACCOMMODATION OF TRAFFIC

- A. During the progress of the work; streets, driveways, sidewalks, and crossings shall be kept open for the passage of traffic and pedestrians and shall not be unnecessarily obstructed unless authorized by the authority having jurisdiction over same. The Contractor shall take such measures at his own expense, as may be necessary to keep streets and driveways open for traffic, and shall give advance notice to the Fire and Police Departments and the School Transportation Division of

his proposed street operations.

- B. Warning signs shall be provided along all highways while work is in progress; and where traffic direction is required flagmen shall be designated by the Contractor to direct traffic past the equipment, machinery, or construction operations. Barricades and lights shall be provided as required to protect traffic. Where trenches have been cut in road shoulders on which traffic may pass at times, red flags and warning signs shall be placed at frequent intervals and maintained until the shoulder is safe for travel. The traveling public shall be warned of the construction with signing that is in accordance with VDOT policy.
- C. The Contractor shall notify Albemarle County and VDOT five working days in advance of work in highway right-of-way, and shall fully cooperate with all parties.
- D. The Contractor shall construct and maintain, without extra compensation, such adequate and proper bridges over excavations as may be necessary or directed for the purpose of accommodating pedestrians or vehicles.
- E. All temporary means constructed by the Contractor for maintaining traffic shall be removed upon completion of the work unless otherwise specified by the Engineer and any damage done to public or private property shall be corrected or other action taken to restore to original condition by the Contractor.
- F. All dirt spilled from the Contractor's trucks on existing pavements over which it is hauled or which has otherwise been deposited thereon shall be removed by the Contractor whenever in the opinion of the Engineer the accumulation is sufficient to cause the formation of mud, dust, interference with traffic or create a traffic hazard.

3.4 PUBLIC CONVENIENCE AND PROTECTION

- A. During progress of the work, the convenience and protection of the public shall be provided for, and interference's held to a minimum.
- B. The Contractor shall, at all times, conduct the work in such a manner as to insure the least practicable obstruction to public travel. The convenience of the general public and of the residents along or adjacent to the area of the work shall be provided for in a satisfactory manner, consistent with the operation and local conditions. Road and streets must be kept open at all times or suitable detours provided. Access to fire hydrants and other fire extinguishing equipment shall be provided and maintained at all times.
- C. When necessary, for the protection of the public, the Contractor shall provide watchmen and/or lights to burn between twilight and sunrise, and shall erect and maintain barriers and all other necessary protection around the work at his own expense. He shall also take other precautions as may be necessary to protect life and property. The Owner reserves the right to remedy any neglect on the part of the Contractor as regards to the protection of the work after twenty-four (24) hours notice in writing; and, in cases of emergency, the Owner shall have the right to remedy any neglect without previous notice, and in either case deduct the cost of such remedy from money due the Contractor.

3.5 PERIODIC CLEAN UP; BASIC SITE RESTORATION

- A. During construction, the CONTRACTOR shall regularly remove from the site of the work all accumulated debris and surplus materials of any kind which result from his operations. Unused equipment and tools shall be stored at the CONTRACTOR'S yard or base of operations for the project.
- B. When the work involves installation of sewers, drains, water mains, manholes, underground structures, or other disturbance of existing features in or across streets, rights-of-way, easements, or private property, the CONTRACTOR shall (as the work progresses) promptly backfill, compact, grade, and otherwise restore the disturbed area to the basic condition which will permit resumption of pedestrian or vehicular traffic and any other critical activity or functions consistent with the original use of the land. All work within 500 feet of the forward progress shall be complete with the exception of testing. The CONTRACTORS forward progress is subject to being suspended if in the opinion of the ENGINEER the above requirement is not met. The requirements for temporary paving of streets, walks, and driveways are specified elsewhere. Unsightly mounds of earth, large stones, boulders, and debris shall be removed so that the site presents a neat appearance.
- C. The CONTRACTOR shall perform the clean-up work on a regular basis and as frequently as ordered by the ENGINEER. Basic site restoration in a particular area shall be accomplished immediately following the installation and/or completion of the required facilities in that area. Furthermore such work shall also be accomplished, when ordered by the ENGINEER, if partially completed facilities must remain incomplete for some time period due to unforeseen circumstances.
- D. Upon failure of the CONTRACTOR to perform periodic clean-up and basic restoration of the site to the ENGINEER'S or OWNER'S satisfaction, the OWNER may, upon five (5) days prior written notice to the CONTRACTOR, without prejudice to any other rights or remedies of the OWNER, cause such work for which the CONTRACTOR is responsible to be accomplished to the extent deemed necessary by the ENGINEER or OWNER, and all costs resulting therefrom shall be charged to the CONTRACTOR and deducted from the amounts of money that may be due him. The CONTRACTOR shall receive no consideration for time extension or compensation for production time lost while not in compliance with the requirements for clean up.
- E. The CONTRACTOR shall promptly replace or restore all existing improvements and facilities such as mailboxes, signs, ornamental or decorative items, etc. that are temporarily removed to facilitate construction. Improvements and facilities that are damaged by the CONTRACTOR during the course of construction shall be promptly replaced at the CONTRACTOR'S expense.

END OF SECTION 01500

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SECTION 01700 PROJECT CLOSEOUT

PART 1 - GENERAL

1.1. SUMMARY

- A. This Section provides for the orderly and efficient transfer of the WORK from the CONTRACTOR to OWNER.

1.2 RELATED SECTIONS

- A. The provisions and intent of the AGREEMENT, including the General Conditions, Supplemental Conditions, and other requirements of the Contract Documents apply to the WORK as specified in this Section. WORK related to this Section is described throughout the Specifications.

1.3 SUBMITTALS

- A. Contractor's As-Built Markups for Record Drawings
- B. Affidavit of Payment
- C. Affidavit of Release of Liens
- D. Final Change Order (based on actual quantities installed)
- E. Consent of Surety for Final Payment
- F. Contractor's Certification of Completion
- G. Final Waiver of Lien
- H. Final Pay Application

1.4 WARRANTY

- A. Guarantee: CONTRACTOR warrants the equipment and/or materials delivered and installed under the AGREEMENT are free from defects in design, material or workmanship, and against damage caused prior to final inspection. Unless otherwise specified, this warranty extends for a period of 1 year from the date of Final Completion.
- B. Prompt Repair: CONTRACTOR shall promptly repair or replace all defective or damaged items delivered under the AGREEMENT. CONTRACTOR may elect to have any replaced item returned to its plant at its sole expense.
- C. Owner's Option: In the event of equipment and/or materials failure, during such time or in such a location that immediate repairs are mandatory, CONTRACTOR shall

respond promptly, regardless of time. If CONTRACTOR is not available, OWNER personnel or other contractors, secured by OWNER, will effect repairs. CONTRACTOR shall then reimburse OWNER for parts and labor and/or other contractors costs necessary to correct deficiencies as defined within the warranty clause and time.

PART 2 - PRODUCTS

2.1 SUBSTANTIAL COMPLETION

- A. Record Drawings: The CONTRACTOR shall maintain an accurate set of Record Drawings and Specifications as called for in the Supplemental Conditions. Prior to Substantial When the WORK is divided in to separate contracts, each Prime Completion, CONTRACTOR shall prepare marked prints showing the installed locations and sizes of all underground or concealed portions of the WORK that are different from those shown in the Contract Documents. These Drawings shall be based on the set kept at the Project site and shall also show any other changes made to the Project during construction. These Drawings shall be submitted to ENGINEER at completion of the WORK.

As-built information shall include the following as a minimum, where applicable:

1. Size, horizontal and vertical location of any existing utilities uncovered during the course of the work. This shall include telephone cables and conduits, fiber-optic cables and conduits, television cables, electrical cables and conduits, gas lines, water lines, sewer force mains, sanitary sewers, storm sewers, and the like.
2. Location of lines plugged or capped.
3. Swing ties to all structures installed such as manholes, air vents, hydrants, valve boxes, blowoffs, cleanouts, and the like.
4. Sizes and types of materials used and changes in sizes and types of materials.
5. Location of all sleeves, bends, and other fittings including method of restraint used; for example, thrust block, retainer glands, tie rods, and the like.
6. The Record Documents are a specific contract requirement of the Contractor. Final payment will not be issued until said documents have been submitted to the Engineer in an acceptable form.

- B. Owner's Manuals: Not Applicable

2.2 WARRANTIES:

Four (4) copies of warranties shall be submitted prior to substantial completion for equipment installed.

PART 3 - EXECUTION

3.1 SUBSTANTIAL COMPLETION PROCEDURES

- A. Owner's Use: The following procedures are to be applied towards OWNER'S utilizing the Project:
1. Initial Punch List: Within a reasonable time after receipt from CONTRACTOR of a comprehensive list of items which need to be completed or corrected, the ENGINEER will determine status of completion.
 2. Incomplete Work: Should ENGINEER determine that the WORK is not substantially complete:
 - a. Notification: ENGINEER will promptly so notify CONTRACTOR, in writing, given the reasons therefor.
 - b. Contractor Remedy: CONTRACTOR shall promptly remedy the deficiencies and notify ENGINEER when ready for inspection.
 - c. Additional Cost: The cost of reinspection for Substantial Completion will be borne by CONTRACTOR.
 3. Completed Work: When ENGINEER concurs that the WORK is substantially complete:
 - a. Releases/Consent of Surety: Contractor shall forward a completed "Release and Waiver of Claims" and "Consent of Surety" to ENGINEER prior to ENGINEER'S preparation of the "Certificate of Substantial Completion" and the list of items to be completed or corrected by CONTRACTOR.
 - b. Engineer's Acceptance: ENGINEER will submit the Certificate to OWNER and to CONTRACTOR for their written acceptance of the responsibilities assigned to them in the Certificate.
 4. Retainage: Five percent (5%) of contract total will be held until close-out documents are received and all punch list items are completed.

3.2 INSTRUCTIONS TO OWNER

- A. Operation and Maintenance: CONTRACTOR shall instruct OWNER or its authorized representative in the proper operation and maintenance of all elements of the Project systems as specified.

3.3 CLEAN-UP/RESTORATION

- A. Definition: Except as otherwise specifically provided, "clean" (for the purpose of this Section) shall be interpreted as meaning the level of cleanliness generally provided by VDOT roadway construction projects.
- B. General: Prior to completion of the WORK, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described above. Restore all disturbed areas to a condition equal to or better than that prior to construction.
- C. Site: Unless otherwise specifically directed by ENGINEER, hose down all paved areas on the site. Completely remove all resultant debris.
- D. Timing: Schedule final cleaning as approved by ENGINEER, to enable OWNER to receive a completely clean Project.

3.4 FINAL COMPLETION

- A. Notification: Prepare and submit to ENGINEER a written notice that the Project is complete and ready for final inspection and acceptance.
- B. Verification: Verify that the WORK is complete.
- C. Certification: CONTRACTOR shall certify that:
 - 1. Review: Contract Documents have been reviewed
 - 2. Inspection: WORK has been inspected for compliance with the Contract Documents.
 - 3. Completeness: WORK has been completed in accordance with the Contract Documents.
 - 4. Testing: Equipment and systems have been tested as required, and are operational.
 - 5. Final Inspection: WORK is completed and ready for final inspection.
- D. Incomplete Determination: Should ENGINEER determine that the WORK is incomplete or defective:
 - 1. Notification: ENGINEER will promptly so notify CONTRACTOR, in writing, listing the incomplete or defective WORK.
 - 2. Contractor Remedy: CONTRACTOR shall remedy the deficiencies promptly, and notify ENGINEER when ready for inspection.
 - 3. Additional Cost: The cost of reinspection for Final Completion will be borne by CONTRACTOR.

- E. Acceptance: When ENGINEER determines that the WORK is acceptable under the Contract Documents, it will request the final Application for Payment from CONTRACTOR.
- F. Reimbursement: CONTRACTOR shall reimburse OWNER for all trips to the Project site by ENGINEER after Substantial Completion in excess of two (2) trips if such excess trips are necessitated due to the Project's remaining incomplete.

3.5 FINAL PAYMENT

- A. Application: Submit a final Application for Payment to ENGINEER, showing all adjustments to the agreed to sum.
- B. Change Order: If so required, ENGINEER will prepare a final Change Order showing adjustments to the AGREEMENT which were not made previously by Change Orders.

END OF SECTION 01700

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SECTION 02120 EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 SCOPE

- A. Compliance: This WORK shall be performed in accordance with the Erosion and Sediment Control Plan of the construction Drawings and the details provided therein, and as described, detailed and required by the Virginia Department of Environmental Quality (VDEQ) in the most recent edition of the Virginia Erosion and Sediment Control Handbook and the land disturbance permit required by the local authority.

The Contractor shall be responsible for providing an employee who will be in responsible charge as a Responsible Land Disturber (RLD) for the erosion and sediment control plan and requirements for the project that are certified by the Virginia Department of Environmental Quality. The name of the Contractor's RLD and copy of his current certification shall be provided to the Owner, Engineer and Erosion and Sediment Control Plan approving authority prior to issuance of the Notice To Proceed for the project. The Contractor shall be responsible for posting the Erosion and Sediment Control bond and attending a preconstruction conference with the County of Albemarle, the Erosion and Sediment Control Plan approving authority, unless the project is determined to be exempt.

The Contractor shall adhere to all conditions of the VDEQ Storm Water Management General Permit for Construction Activities.

- B. Details: Erosion & Sediment control measures shown on the drawings are based on an assumed construction method, the CONTRACTOR's selected construction methods may require modification to the details to meet the E & S Requirements. The CONTRACTOR is responsible for making any modifications to comply with the land disturbance permit.

1.2 RELATED SECTIONS

Intent: The provisions and intent of the AGREEMENT, including the General Conditions, Supplemental Conditions, and other requirements of the Contract Documents apply to the WORK as specified in this Section. WORK related to this Section is described throughout the Specifications.

1.3 REFERENCES

Virginia Erosion and Sediment Control Handbook, latest edition
Virginia Department of Transportation (VDOT) Road and Bridge Specifications, latest edition

1.4 SUBMITTALS

- A. Permanent Seed Mixture: Provide written notification as to the seed mixture to be used in accordance with the contract documents.
- B. Erosion and Sediment Control: Submit and maintain on-site a copy of the Erosion and Sediment Control permit issued by the local approving authority for both on-site and off-site operations.
- C. Responsible Land Disturber: Copy of Certification to be submitted at the pre-construction meeting.

1.5 MAINTENANCE

Maintain all erosion and sediment control structures to be utilized during the life of the Project in compliance with the regulations of the Virginia Erosion and Sediment Control Handbook until vegetative cover is acceptable to the Erosion and Sediment Control inspector and approval acceptance is received.

PART 2 - PRODUCTS

2.1 FILTER FABRIC

Geotextile fabric for use in Silt Fences, Silt Barriers, or Filter Barriers: Fabric shall contain ultraviolet inhibitors and stabilizers to provide at least 6 months of expected, usable construction life at a temperature range of 0 degrees F to 125 degrees F. The tensile strength of the material after 6 months of installation shall be at least 50 percent of the initial strength.

<u>Physical Property</u>	<u>Test Method</u>	<u>Requirements (Min.)</u>
Filtering Efficiency	VTM-51	75%
Flow Rate	VTM-51	0.2 gal/sq. ft./minute
Tensile Strength @ 20 (Max.) elongation	VTM-52	Extra Strength: 60 lb./linear inch Standard Strength: 30 lb./linear inch

Seams shall be equal in strength to the basic material.

Additional fabric material or non-corrosive steel wire may be incorporated into fabric to increase overall strength.

2.2 TEMPORARY SEEDING

A suitable mixture shall be selected from those listed in Virginia Erosion and Sediment Control Handbook and as shown on the plans. As indicated on the plans, the measures of surface roughening and soil stabilization matting or blankets shall be used on steep slopes

to reduce runoff velocity and aid in the establishment of vegetative cover with seeding.

2.3 PERMANENT SEEDING

A suitable mixture shall be selected from those listed in Virginia Erosion and Sediment Control Handbook and as shown on the plans. As indicated on the plans, the measures of surface roughening and soil stabilization matting or blankets shall be used on steep slopes to reduce runoff velocity and aid in the establishment of vegetative cover with seeding.

2.3 MULCH

A suitable mixture shall be selected from those listed in Virginia Erosion and Sediment Control Handbook and as shown on the plans.

PART 3 - EXECUTION

3.1 EROSION AND SEDIMENT CONTROL MEASURES

- A. Measures: Silt fence, inlet protection, soil stabilization, construction safety fence, temporary vegetation, and all other items for erosion and sediment control shall be constructed as directed by the ENGINEER or in the locations shown or designated on the Drawings in accordance with the details provided.
- B. Schedule: CONTRACTOR shall institute the erosion and sediment control program as a part of clearing and grubbing, and prior to rough grading. The initial program shall include, however is not limited to, the installation of silt fences, staked straw bales, diversion ditches and/or gravel weirs as shown on erosion and sediment control Drawing at the limits of clearing and grubbing where silt-carrying surface water runoff may be diverted and/or filtered prior to leaving the disturbed area.
- C. Temporary Seeding: "Permanent or temporary soil stabilization shall be applied to denuded areas within seven (7) days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven (7) days to denuded areas that may not be at final grade but will remain dormant (undisturbed) for longer than 30 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year."
- D. Steep Slopes: On all steep slopes, where erosion is probable, hydroseed areas as soon as possible in strict accordance with applicable provision of Section 603 of the VDOT Road and Bridge Specifications. Maximum allowable slope to be seeded is 2:1. As indicated on the plans, the measures of surface roughening and soil stabilization matting or blankets shall be used on steep slopes to reduce runoff velocity and aid in the establishment of vegetative cover with seeding.
- E. Pipe Outfalls: Any pipe outfall areas disturbed by construction shall be protected with no-erodible materials conforming to the Virginia Erosion and Sediment Control Handbook.

- F. Maintenance: All erosion and sediment control devices installed during the course of construction shall be maintained in proper working order at all times, and shall not be removed until final stabilization of all disturbed areas or at the direction of the ENGINEER.

3.2 CLEANING OF ROADS AND STREETS

CONTRACTOR shall maintain a vehicle wash rack or gravel bed at all vehicle egress areas. All vehicles shall be thoroughly cleaned of mud and silt before leaving the construction site to avoid tracking mud and silt onto roads, streets, and highways. In the event that tracking does occur, CONTRACTOR shall immediately clean the street or road of all debris, mud or silt and shall pay all damages resulting therefrom. A daily survey of the condition of the adjacent streets and roads shall be made and recorded in the field log along with daily cleanup of the streets of the tracking from the site onto roads, alleys, parking lots, and highways.

3.3 PROTECTION OF STORMWATER SYSTEMS

Stormwater structures which will receive runoff from the construction shall be protected from the buildup of mud or silt as outlined by the Virginia Erosion and Sediment Control Handbook or as directed by ENGINEER.

3.4 OFF-SITE BORROW / DISPOSAL AREAS

Contractor shall be responsible for establishing erosion and sediment control measures at all off-site borrow and/or disposal areas.

END OF SECTION 02120

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SECTION 02140 DEWATERING

PART 1 - GENERAL

1.1 SUMMARY

Keep all excavations and site structures free from water during construction.

1.2 RELATED SECTIONS

Intent: The provisions and intent of the AGREEMENT, including the General Conditions, Supplemental Conditions, and other requirements of the Contract Documents apply to the WORK as specified in this section. WORK related to this Section is described throughout the Specifications.

1.3 SUBMITTALS

- A. Dewatering Plan: CONTRACTOR shall submit, for ENGINEER'S review, Drawings and data showing its proposed plan and required equipment for dewatering of all WORK areas. The Drawings and data shall include the planned method of dewatering excavations, wells, well points, sumps, collection and discharge lines, standby units proposed, and protective fills and ditches required for control of ground water, leachate and surface water.
- B. Schedule: The plan for dewatering shall be submitted within 7 days before the start of work. CONTRACTOR shall furnish such other information as may be required for ENGINEER'S complete understanding and analysis of the dewatering, grading and excavation plan.
- C. Engineer's Review: Review by ENGINEER shall not relieve CONTRACTOR of the responsibility for the adequacy of the dewatering plan or for furnishing all equipment, labor and materials necessary for dewatering the various parts of the WORK. If, during the progress of the WORK, it is determined by ENGINEER that the dewatering system grading and excavation Drawings, text and proposed methodology are inadequate, or that CONTRACTOR'S plan of construction is inoperative, CONTRACTOR shall, at its sole expense, furnish, install and operate such additional dewatering equipment and make such changes in other features of the Dewatering Plan or operation as may be necessary to perform the WORK in a manner satisfactory to ENGINEER.

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

3.1 METHODS

- A. Method: Dewatering can be accomplished by ordinary pumping methods, by the use of under drains or deep well points, whichever will produce the above results. In order to assure the continuous dewatering, duplicate units of the selected system incorporated with emergency power should be employed so that a reliable operation may be obtained.
- B. Location: All site WORK areas shall be dewatered where surface, leachate and/or ground water flows, if any, will adversely impact construction.
- C. Maintenance: All permanent improvements shall be constructed in areas free from water. Construct and maintain all permanent or temporary slopes, dikes, levees, drainage ditches, sumps, and observation wells necessary for the removal of water from WORK areas. Design, furnish, install, maintain, and operate all necessary pumping and other dewatering equipment required for dewatering the various site WORK areas and for keeping the foundation and other areas free from water from any and all sources.
- D. Schedule: All dewatering shall be performed in advance of grading, excavation and/or filling. The dewatering shall be accomplished in a manner that will prevent loss of fines from the foundation, will maintain stability of all excavated slopes and bottoms of excavations, and will permit all construction operations to be performed in the dry. Dewatering of excavations shall be performed to the extent required to permit placement of compacted fill materials in the dry and to prevent sloughing of the excavation side slopes.
- E. Requirements: Lower the ground water level a minimum of 3 feet below sub-foundation grade or as recommended by Geotechnical Engineer prior to sub-foundation preparation and placement of foundation materials. During the placement and compaction of fill or bedding materials, the water level at every point within the limits of fills being placed shall be maintained a minimum of 3 feet or greater or as recommended by Geotechnical Engineer below fill placement level in order that the required compaction can be achieved.

Where conditions are such that running or standing water occur in the trench bottom or the soil in the trench bottom displays a "quick" tendency, the water shall be removed by pumps and suitable means such as well points or previous under drain bedding until the pipe has been installed and the backfill has been placed to a sufficient height to prevent pipe flotation.

- F. No installation will be permitted in trenches unless the subgrade is dry. If, in the opinion of the ENGINEER, the CONTRACTOR has failed to obtain an absolutely dry trench bottom by use of all known methods of trench dewatering, the ENGINEER may then order the CONTRACTOR to excavate below grade and place sufficient selected fill material over the trench bottom. Additional excavation and fill shall meet the requirements of Section 02270.

3.2 PROTECTION OF FOUNDATIONS AND EXISTING FACILITIES

- A. Contingency: Furnish standby equipment of sufficient size and capacity to insure continuous operation of the dewatering system. Any damage to structures due to a failure of dewatering equipment shall be repaired by CONTRACTOR at its expense, to the satisfaction of ENGINEER. CONTRACTOR may consider the use of recharge systems or other methods of protection of existing facilities.
- B. Completion: Dewatering shall be maintained in the WORK areas for as long as is necessary for the completion of WORK. Upon completion of the dewatering and control of water operation, all temporary dewatering facilities shall be removed in a manner satisfactory to ENGINEER.

3.3 DISPOSAL OF DRAINAGE WATER

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 ENGINEER; in addition, no water shall be drained into WORK completed or under construction without prior consent of ENGINEER. Disposal of all water from dewatering activities shall comply with all Commonwealth of Virginia erosion and sediment control requirements.

END OF SECTION 02140

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SECTION 02270 EARTHWORK FOR UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

The CONTRACTOR shall furnish all labor and equipment for excavation, installation, backfill, and testing of all water lines, and appurtenances as shown on the Drawings and specified herein. This section specifies excavation and backfill for all underground utilities.

1.2 RELATED SECTIONS

Intent: The provisions and intent of the AGREEMENT, including the General Conditions, Supplemental Conditions, and other requirements of the Contract Documents apply to the WORK as specified in this Section. WORK related to this Section is described throughout the Specifications.

1.3 REFERENCES

- A. American Society of Testing and Materials (ASTM)
- B. Virginia Department of Transportation (VDOT) Road and Bridge Specifications
- C. American Society of Civil Engineers (ASCE), Manual No. 37
- D. American Association of State Highway and Transportation Officials (AASHTO)
- E. Federal Highway Administration (FHA), Bulletin No. 373
- F. Occupational Safety and Health Administration Regulations (OSHA)

1.4 QUALITY ASSURANCE

- A. Standards: Backfill material shall comply with the standards of the American Association of State Highway and Transportation Officials:
 - T-191 "Density of Soil In-Place by the Sand-Cone Method"
 - T-180 "Moisture-Density Relations of Soils using a 10 lb. Hammer and an 18 inch Drop"
- B. All costs for testing shall be borne by CONTRACTOR.
- C. Geotechnical Testing Agency Qualifications (Contractor provided): An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548 for testing indicated.

PART 2 - PRODUCTS

2.1 BACKFILL MATERIALS

Initial backfill materials shall conform to the following:

- A. Classification: USCS Soil Classification System (FHA Bulletin No. 373).
 - 1. Class I: Angular, 6 to 25 mm (1/4 to 1 inch) graded stone.
 - 2. Class II: Coarse sands and gravels with maximum particle size of 25 mm (1 inch including variously graded sands and gravels containing small percentages of fine, generally granular and non-cohesive, either wet or dry. Soil types GW, GP, SW, and SP are included in this class.
 - 3. Class III: Fine sand and clayey gravels less than 1 inch including fine sands, sand-clay mixtures, and gravel-clay mixtures. Soil types GM, GC, SM, and SC are included in this class.
- B. Concrete: Concrete shall comply with Section 217 of the VDOT *Road and Bridge Specifications*, and shall have a 28-day compressive strength of 2,500 psi.

PART 3 - EXECUTION

3.1 EXCAVATION

- A. General:
 - 1. All excavation shall be open-cut type except where otherwise shown on the Drawings and unclassified regardless of the nature of material encountered to the depths indicated on the Drawings. No separate payment will be made for rock excavation, or excavation of buried construction debris (such as brick, concrete, wood, rebar, etc), to the depths indicated on the Drawings.
 - 2. The slope of the sides of the excavation shall be kept as nearly vertical as possible consistent with the types of materials encountered. Where trenches would become unreasonably large due to a deep excavation or extremely wet condition, CONTRACTOR shall slope or bench the trench walls to maintain safe working conditions per OSHA Trenching Criteria.
 - 3. A clear area shall be maintained a sufficient distance back from the top edge of the excavation to avoid overloading which may cause slides, cave-ins or shifting of the pipe. Any damage to pipes or structures occurring through settlements, heaving, water or earth pressures, slides, cave-ins or other causes shall be repaired by CONTRACTOR at its expense. CONTRACTOR has the option of shoring, including sheet piling, which shall be installed during excavation where required for the protection of workmen, banks, roadways and adjacent paving, structures, and utilities or as directed by ENGINEER.
 - 4. All excavation shall be performed in accordance with the current OSHA guide lines and any other regulatory authorities having jurisdiction. Provide adequate equipment to comply with OSHA regulations.

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5. During excavation operations, material suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks of the trench on the up gradient side of the trench.
- B. Protection: Protect existing structures, utilities, sidewalks, pavements, and other facilities in areas of work. Barricade open excavations and provide warning lights.
- C. Shoring or Sheet piling: Shoring or sheet piling shall be removed as the WORK progresses, unless left in place by written order of ENGINEER. All blasting operations shall conform to Paragraph 3.8.
- D. Trench Width: CONTRACTOR shall comply with all local, state and federal guidelines when excavating trenches. Whenever the trench depth is less than five (5) feet, the trench width shall be as narrow as is practicable to permit the pipe to be laid and joined properly, and to permit the backfill to be placed and compacted properly. The clear width of the trench at an elevation of one (1) foot above the top of the pipe shall be approximately equal to the external diameter of the pipe plus sixteen (16) inches. The width of the trench above the top of the pipe may be as wide as necessary for sheet piling and bracing and the proper performance of the WORK. Whenever the trench depth exceeds five (5) feet, approved shoring or trench boxes shall be used.

Excavation at manholes and similar structures shall be sufficient to leave at least twelve (12) inches clearance between their outer surface and the embankment or sheet piling. Minimum clearance between side of trench and pipe shall be eight (8) inches.

- E. Trench Length: No more than 100 feet of trench shall be opened in advance of the completed waterline when located along streets, highways, or private roads and not more than 200 feet of trench in other locations.
- F. Sidewalls: The sidewalls of pipe trenches shall be as nearly vertical as practicable to a point above the top of the pipe.
- G. Overexcavation: Trenches shall be excavated to the design grade of the pipe to provide uniform bearing and support along the entire length of pipe. Care shall be taken not to over excavate. Over excavation of otherwise suitable material shall be replaced with VDOT No. 68 or 21A crushed stone or gravel. The cost of such fill shall be borne by CONTRACTOR.
- H. Rock: Where rock is encountered in trench excavation, whether solid or in the form of loose rock, shale, or large boulders, it shall be removed by approved methods to the extent that no projection of rock shall be nearer than six (6) inches to any part of the water pipe, nor project beyond the lines and grades of structures. Any blasting operations shall conform to Paragraph 3.8. No blasting shall be done within twenty-five (25) feet of any completed work or adjacent to any other structure unless proper precautions are taken. End of water line adjacent to blasting shall be covered to avoid receiving debris. No rock or asphalt over six (6) inches in any dimension shall be placed in the trench and in no case shall rock or asphalt be placed closer than two (2) feet vertically to the installed pipe.

Where the bottom of the pipe trench occurs in rock, the rock shall be excavated to 6 inches for pipes 24-inches in diameter and smaller, and 9 inches for pipes 30-inches in diameter and larger, below the trench depth indicated on the Drawings or specified elsewhere. Overdepths in rock excavation and unauthorized overdepths shall be backfilled with VDOT No. 68 crushed stone or gravel.

- I. Unsuitable Material: All excavated material not suitable for backfill shall be removed and disposed of in an acceptable manner. Grading shall be done as may be necessary to prevent water from flowing into trenches or other excavations, and any water accumulating therein shall be removed by approved methods. Whenever wet or otherwise unsuitable material incapable of properly supporting the pipe is encountered in the trench bottom, such material shall be overexcavated to a depth necessary to allow for construction of a stable pipe bedding. The trench shall be backfilled with suitable materials to proper grade. The CONTRACTOR shall notify ENGINEER immediately when such conditions are encountered and the ENGINEER will determine the amount of overexcavation required. No additional compensation will be considered for additional excavation.
- J. Installation of Identification: During back-filling/top soiling of underground piping, install continuous underground-type plastic line markers, located directly over buried lines. See section 02798, "Utility Location and Identification" for additional information.

3.2 SEPARATION OF WATERLINES AND SANITARY SEWERS

- A. Waterlines shall be laid at least ten feet horizontally from sewer lines and sewer manholes whenever possible; the distance shall be measured edge-to-edge. When local conditions prevent a horizontal separation of ten feet, the waterline may be laid closer to a sewer main or sewer manhole provided that: (1) the bottom (invert) of the waterline is at least 18 inches above the top (crown) of the sewer; (2) where this vertical separation cannot be obtained, the sewer shall be constructed of AWWA approved Ductile Iron water pipe, pressure-tested in place to 30 psi without leakage prior to back-filling; and (3) the sewer manhole shall be of watertight construction and tested in place.
- B. Crossing: Waterline crossing over a sewer line shall be laid to provide a separation of at least 18 inches between the bottom of the waterline and the top of the sewer whenever possible.
- C. When local conditions prevent a vertical separation described above, the following construction shall be used: (1) sewers passing over or under waterlines shall be constructed of AWWA approved Ductile Iron water pipe, pressure tested in place to 30 psi without leakage prior to back-filling; (2) waterlines passing under sewers shall, in addition, be protected by providing:
 - 1. A vertical separation of at least 18 inches between the bottom of the sewer and the top of the waterline.
 - 2. Adequate structural support for the sewer to prevent excessive deflection of joints and the settling on and breaking of the water line.

3. That the length of waterline be centered at the point of the crossing so that joints shall be equidistant and as far as possible from the sewer. The length of sewer pipe shall also be centered at the point of crossing, so that joints shall be equidistant and as far as possible from the water line.
4. Sewer Manholes: If a waterline passes within 10 feet of a sewer manhole, the sewer manhole shall be tested and made watertight.
5. Sewers and Sewer Manholes: No water pipes shall pass through or come in contact with any part of a sewer manhole.

3.3 BEDDING

- A. General: The trench shall be excavated to a depth required so as to provide a uniform and continuous bearing and support for the pipe. It shall be permissible to disrupt the finished surface of the trench over a maximum length of eighteen (18) inches near the middle of each length of pipe for the withdrawal of pipe slings or other lifting tackle. The finished subgrade shall be prepared accurately by means of hand tools. Where excavation is made in rock or boulders, the subgrade shall be made by backfilling with six (6) inches of No. 68 or 21A Virginia Department of Transportation stone which shall be thoroughly compacted. The bedding material shall extend evenly to the trench wall.
- B. Bedding in Good Soil: The bottom of the trench shall be scraped and compacted. All stones shall be removed to insure the pipe doesn't rest on rock, or a four (4) inch bedding of No. 68 Virginia Department of Transportation Stone shall be provided. The bedding material shall extend evenly to the trench wall. Bell holes shall be cut for the proper marking of the joints and to prevent the pipe from resting on the bells.
- C. Bedding in Poor Soil: Whenever the soil at the bottom of the trench is soft, unstable or saturated with water, a foundation of granular fill beneath the bedding shall be provided to a depth required to stabilize the soil. Bedding type shall be submitted to the ACSA and approved before incorporating into the work.

3.4 BACKFILLING

- A. General: All trenches or excavation shall be backfilled to the original surface of the ground or to such other grades as may be shown on the approved plans. Backfilling shall be subject to the approval of the ACSA for the type of construction used. All backfilling shall be carried along as speedily as possible with the trench being filled, in general, as soon as the concrete, or mortar and masonry are sufficiently set. New trenching will not be permitted when earlier trenches need backfilling or labor is needed to restore the surfaces of streets or other areas to a safe and proper condition.
- B. Operation: CONTRACTOR shall keep trenches backfilled on a daily basis. Prior to the end of the working day, each trench will be completely backfilled. All backfill shall be brought up equally along each side of the pipe in such manner as to avoid displacement of or damage to the pipe.

- C. Material: The backfill material shall consist of material which has been excavated from the trench when the trench is located greater than 1' outside the limits of existing pavement. Rubbish, frozen material, broken pavement or other debris, stones greater than a maximum dimension six (6) inches organic muck, sticky masses of clay and gumbo, or other materials considered deleterious by ENGINEER and which are difficult to properly compact shall not be put back in the trench. Backfill material for trenches located within the limits of existing pavement shall be compacted VDOT No. 21B stone aggregate and meet the requirements of the Pavement Repair Detail on the plans.
- D. Disposal of Unsatisfactory Material: When, in the opinion of ENGINEER, the excavated material is not satisfactory for use as backfill, the material shall be disposed of under direction of ENGINEER. Select material shall be brought in by CONTRACTOR. No extra payment will be made for disposing of unsatisfactory material or bringing in select material.
- E. Backfilling: Backfill over all pipe to a depth of twenty-four (24) inches shall be carefully placed in layers approximately six (6) inches thick, each layer being thoroughly tamped and compacted by hand or pneumatic tamper in place. Special care shall be taken in using a mechanical tamper directly over the pipe.

Above twenty-four (24) inches, backfill shall be deposited in six (6) inch layers in traffic areas, twelve (12) inch layers in non-traffic areas, or a thickness which will permit compaction to a density of at least 95% of the maximum density at optimum moisture content as determined by the AASHTO Standard Proctor test (AASHTO Designation T-99) under all proposed traffic areas. Backfill in existing traffic areas shall be in accordance with the Virginia Department of Transportation's standards.

- F. Compaction: The material to be used for backfill shall contain a moisture content that will facilitate compaction. Unless otherwise shown on the plans, the backfill in all trenches shall be thoroughly compacted. The compacting shall be done by suitable mechanical means. In all cases, special care shall be taken to see that the spaces at the sides of the trench are thoroughly filled and compacted. If necessary, the earth shall be moistened during the operations.
- G. Testing: All costs associated with testing shall be borne by CONTRACTOR. The backfill shall be tested to ensure the required density is being achieved. It shall be required that a minimum of one (1) compaction test will be conducted on trench backfill per 400 linear feet of waterline. The location of tests shall be selected in the field by ACSA and will not necessarily be limited to regular intervals.

The results of all compaction tests shall be submitted to ACSA for review and approval prior to acceptance of construction. The degree of compaction required for trenches in streets and paved areas is 95% of maximum density and for trenches in all other areas the required density shall be 90% of maximum density. If the tests indicate the required density has not been obtained, the contractor shall remove, replace and recompact the material to the specified density. Failure of any compaction tests may result in additional compaction tests being required.

- H. Protection of Pipe: Backfilling shall be done in such a way as to prevent dropping of material directly on top of the pipe from more than a three (3) foot vertical distance. When placing material from a bucket it must be lowered so that the shock of the falling earth will not damage the water line.
- I. Excess Disposal: Excess material shall be disposed of at the discretion of the OWNER. No additional payment will be made for disposal of excess material.
- J. Settlement: All backfilled areas where settlement occurs shall be filled and maintained during the life of the Project and for a period of 1 year following the date of final acceptance of all WORK.
- K. Hazards: When the CONTRACTOR is notified by ENGINEER or OWNER that any backfill presents a hazard, CONTRACTOR shall correct such hazardous condition at once.

3.5 FILL

- A. Material: Fill shall be provided where required to raise the subgrade to the elevations shown on the Drawings. The material used, the maximum thickness of each layer prior to compaction, and the percent of maximum density required at optimum moisture content as determined by AASHTO T-99, shall be as stated hereinafter in this Specification. Fill material shall be free of debris, roots, and organic or frozen materials.
- B. Foundation: No fill shall be placed until the subgrade has been checked and approved by a licensed Geotechnical Engineer, and in no case shall fill be placed on a subgrade that is muddy, frozen, or that contains frost.
- C. Moisture Content: Each layer shall be uniformly spread and moistened, or dried by aeration as required to attain the proper moisture content for the required degree of compaction.
- D. Placing: The approved materials shall be placed in successive horizontal layers of loose material not more than 6 inches thick where compaction is by rollers or vibrators and 4 inches thick where mechanical tamping is required. If sands or poorly graded gravels (either of which contains less than 15 percent passing the No. 200 sieve) are used, they shall be placed fully saturated to prevent bulking. Well graded gravel shall be placed at the optimum moisture content. For all other materials, each layer shall be wetted or dried by aeration to a moisture content within 2 to 4 percent of optimum.

3.6 BORROW

- A. Availability: Where satisfactory materials are not available in sufficient quantity from required excavations, suitable materials shall be obtained from approved off-site borrow areas.
- B. Placement: Borrow material shall be placed and compacted only when approved by ENGINEER and a Licensed Geotechnical Engineer.

- C. Payment: No separate payment will be made for furnishing and placing approved borrow material. Compensation in full is included in the agreed to price paid for this Project.

3.7 COMPACTION

- A. Method: Where sands and/or gravels are used for backfill, the material shall be compacted to maximum possible density with a plate-type vibrating compactor of standard manufacture, consisting of a variable speed power unit attached to a vibratory plate. The vibrator may be single or multiple type and shall provide sufficient unit pressure on the vibratory plate to obtain maximum density. When the proper moisture content is obtained for all other soils to be used for backfill, they shall be compacted to a density of 95 percent of maximum density or increased as required in pavement areas.
- B. Moisture: Moisture density relations, specified for materials used for fills and backfill, shall be determined and the degree of compaction controlled (except where otherwise specified) in accordance with the requirements of AASHTO T 99.

3.8 BLASTING

- A. Blasting can be used if approved by OWNER.
- B. Blasting, where required, shall be done with care in accordance with all applicable Federal, State, and local laws, ordinances, rules and regulations of the authorities having jurisdiction and by skilled and experienced blasters. A blasting permit must be obtained from the Albemarle County Department of Fire & Rescue prior to commencing the work. All Federal, State, and local regulations governing construction safety shall be adhered to and any violation of such regulations shall be deemed the sole responsibility of the Contractor. Proper notification shall be given to the ACSA and the public prior to the commencement of blasting operations. Blasting on Saturdays, Sundays, and holidays will be permitted only with written permission from the ACSA.
- C. Precautions shall be taken to prevent injury to persons and damage to property. No blasting shall be done within twenty-five (25) feet of any completed work or adjacent to any other structures unless proper precautions are taken. Ends of utility lines adjacent to the blasting area shall be covered to avoid debris and damage. Whenever blasting will be undertaken in the vicinity of an existing utility, it shall only be done with direct "onsite" supervision of the ACSA. Any damage as a result of blasting operations shall be the sole responsibility of the Contractor.

3.9 AGGREGATE

- A. Gravel Roads, Drives, and Shoulders: Disturbed gravel roads, driveways and shoulders shall be replaced with VDOT No. 21A stone aggregate a minimum of 4 inches or equal to the original thickness, whichever is greater.

END OF SECTION 02270

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SECTION 02500 PAVEMENT

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The Contractor shall provide all labor, materials, equipment and services necessary for, and incidental to, the construction or repair of all paved areas, as shown on the Drawings, as specified herein and in accordance with the VDOT's Road and Bridge Standards and Specifications (See 2.1 A).

PART 2 - PRODUCTS

2.1 ASPHALT CONCRETE PAVEMENT

- A. Asphalt Concrete Pavement shall be in accordance with the requirements of Virginia Department of Transportation "Road and Bridge Specifications", and "Road and Bridge Standards", with the latest incorporated revisions, also referred to as the Standard Specifications.
- B. Pavement shall be furnished as shown on the Drawings, to the following cross-section and in accordance with the Standard Specifications.
 - 1. Dense Graded Aggregate Base Course shall consist of VDOT No. 21B, to the limits and depths shown on the details on the Contract Drawings, compacted to a density of at least 95% of maximum dry density as determined by ASTM D 698.
 - 2. Asphalt Concrete Base Course shall consist of BM-25.0 to the limits and thicknesses shown in the details on the Contract Drawings.
 - 3. Asphalt Concrete Surface Course shall consist of SM-9.5A, to the limits and thicknesses shown in the details on the Contract Drawings.

PART 3 - EXECUTION

3.1 GENERAL

- A. The work includes the removal of existing pavement and the provision of new pavement where trenches, pits, and other excavations are made in the existing pavement.
- B. Pavement shall be constructed to the finished grades shown on the Drawings or to match existing grade, and shall match and tie into the surrounding pavement in a neat and acceptable manner.

- B. Subgrades shall be prepared in accordance with Section 02270 – Earthwork for Utilities and the Standard Specifications.
- C. Asphalt concrete surface courses for paved areas shall not be placed until completion of all earthwork, backfilling, and finish grading. Upon completion, tracked vehicles shall be prohibited from traveling on paving.

3.2 AGGREGATE AND PAVING

- A. Gravel Roads, Drives, and Shoulders: Disturbed gravel roads, driveways and shoulders shall be replaced with VDOT No. 21A stone aggregate a minimum of 4 inches or equal to the original thickness, whichever is greater.
- A. Open Pavement Cuts: All open cuts through pavement on existing dedicated streets shall be replaced with a minimum of 10" crushed stone #21B, asphalt concrete BM-25 minimum 6", and bituminous concrete SM-9.5A minimum 1.5".
- B. Paved Drives/Private Streets: Existing paved driveways and undedicated streets that are disturbed shall be paved with bituminous concrete SM-9.5A minimum 1.5", or equal to its original thickness, whichever is greater

END OF SECTION 02500

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SECTION 02665 POTABLE WATER SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of potable water systems work is indicated on drawings and by requirements of this Section.
- B. Refer to Division 2 Section, "Earthwork for Utilities", for excavation and backfill required for potable water systems, not work of this Section.

1.3 QUALITY ASSURANCE

- A. Manufacturer's qualifications: Firms regularly engaged in manufacture of potable water systems materials and products, of types and sizes required, whose products have been in satisfactory use in similar service.
- B. Codes and Standards:
 - 1. The Virginia Department of Health Waterworks Regulations.
 - 2. American WaterWorks Association (AWWA)

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data and installation instructions for potable water system piping and products, in accordance with requirements of Division 1.
- B. Record drawings: At project closeout, submit record drawings of installed potable water system piping and products, in accordance with requirements of Division 1.
- C. Maintenance Data: Submit maintenance data and parts lists for potable water system materials and products. Include this data, product data, shop drawings, and record drawings in maintenance manual; in accordance with requirements of Division 1.

PART 2 - PRODUCTS

2.1 PIPE

All pipe shall be approved by the Albemarle County Service Authority (ACSA). Unless otherwise approved in writing by the ACSA, all water mains and distribution lines shall be of the material herein listed. The ACSA reserves the right to select the type and/or class

material which shall be used from the following:

A. Ductile Iron Pipe:

1. Ductile iron pipe shall be centrifugally cast pipe manufactured in accordance with AWWA C151, current revision. The joints shall be push-on type, unless mechanical joints are specified on the plans, in accordance with AWWA C111, current revision. The pipe shall have an interior cement mortar lining in accordance with AWWA C104, current revision.
2. The minimum wall thickness for ductile iron pipe shall be of a thickness necessary to safely and effectively install corporation stops. Pipe 8-inches and smaller shall have a minimum wall thickness of 0.31-inches. Pipe 10-inches and larger shall have a minimum wall thickness of 0.34-inches. Pipe shall be manufactured by Griffin Pipe Products, Inc., U.S. Pipe & Foundry Co., Atlantic States Cast Iron Pipe Co., American Cast Iron Pipe Co., or equal.
3. Exposed pipe shall have flanged joints conforming to the requirements of AWWA C111/A21.11, current revision. Bolts shall be high strength cast iron having an ultimate tensile strength of 75,000 psi and a minimum yield point of 45,000 psi.
4. A minimum of 5% of the pipe furnished shall be gauged for roundness full length and so marked. Pressure class of pipe shall be increased if the specific installation warrants it.
5. The exterior surface of all ductile iron pipe and fittings shall be coated with arc-sprayed zinc per ISO 8179. Application rate shall be a minimum of 200 grams per square meter of pipe surface area. A finishing layer topcoat shall be applied to the zinc.

B. Copper Pipe:

1. All piping 2 inches and smaller shall be copper pipe
2. All copper pipe shall meet the requirements of ASTM B88. Copper pipe for exterior use shall be soft type K.

C. PVC Pipe:

1. PVC pipe shall be Schedule 80 and only be used for casing pipe for copper water service lines in VDOT rights-of-way.
2. Schedule 80 PVC pipe shall conform to ASTM D1785, current revision.

D. Brass Pipe:

1. Brass pipe shall conform to ASME B-687, current revision, Schedule 40 or 80.
2. Brass pipe shall not be used below ground except for blow-off assemblies.

2.2 PIPE FITTINGS

A. DIP Pipe

1. All fittings for DIP Pipe shall be compatible with the pipe specified herein meeting the specifications as included in the above pipe specifications and per AWWA C110, current revision, or AWWA C153, current revision. All fittings shall have an interior cement mortar lining in accordance with AWWA C104, current revision. Fittings shall be manufactured by Tyler (with D.I. T-bolts or Corten steel bolts), Standard International (with Corten steel bolts), Union Foundry Co., Star Pipe Products, Sigma Corporation, or equal.
2. DIP in buildings, tanks, and to a point 5 feet outside these premises shall be flange fitted unless mechanical joints are shown on the Drawings.
3. Gaskets shall be of vulcanized natural or vulcanized synthetic rubber, free of porous areas, foreign material or visible defects. Rubber gaskets shall conform to all applicable provisions of AWWA C111, current revision. Gaskets shall be protected from exposure to excessive heat and cold, direct sunlight, ozone (from electric motors and equipment), oil, grease or other contaminants. Lubricant used to facilitate assembly of joints shall be a non-toxic, tasteless, odorless grease that will not support bacteria.
4. Fittings shall have a fusion-bonded epoxy lining and coating per AWWA C116. Bolts utilized shall also be poly-coated to ensure corrosion protection.

B. Copper Pipe

Fittings for exterior use shall be standard water works flare or compression fittings of brass for flared copper pipe and conforming to ANSI B16.26.

C. PVC Pipe

PVC fittings shall be Schedule 80 and conforming to ASTM D2467, current revision.

D. Brass Pipe

Brass fittings shall be in accordance with ASTM B16.15 and ASTM B-62.

2.3 IDENTIFICATION

Refer to Section 02798 – Utility Location and Identification.

2.4 VALVES & ACCESSORIES

A. Gate Valves

1. Gate valves 2-inch and smaller shall be inside screw, solid bronze, tapered seat, double disc construction, and rated for 200 psi working pressure.
2. Larger gate valves shall be resilient seated. The resilient seated type shall be non-rising stem, fully encapsulated wedge in accordance with AWWA C509, current revision.

3. Gate valves shall be one make and shall open by a counter-clockwise rotation of the valve stem with a 2-inch square operating nut. The operating nut shall be no greater than 5-feet below finished ground. Operating nuts placed greater than 5 feet below finished ground shall be equipped with approved operating nut extensions to meet the minimum depth requirement. The valve shall have an unobstructed water way when fully opened equal in diameter to the nominal valve size. Gate valves installed in access vaults, pumping stations, etc. shall be equipped with handwheels indicating the direction of turn to open or close the valve. Gate valves shall have one "O" ring above and one "O" ring below the stem thrust collar. The thrust collar shall be lubricated with oil to assure positive operation in opening and discharging.
 4. Gate valves fourteen (14) inches and larger shall have a working pressure of no less than 250 psi and test pressure of 300 psi. Four (4) inch to twelve (12) inch gate valves shall have a working pressure of no less than 250 psi and a test pressure of 400 psi. Gate valves shall have one O-ring above and one O-ring below the stem thrust collar. The thrust collar shall be lubricated with oil to ensure positive operation in opening and closing.
 5. Gate valves shall be manufactured by U.S. Pipe (Metroseal 250 resilient seated gate valve, 4" and larger), American Flow Control (Series 2500 resilient wedge valve, 2" and larger), Kennedy (Ken-Seal II resilient wedge gate valve, 4" and larger), Mueller (Series 2360 resilient wedge gate valve), American AVK (Series 45 resilient wedge gate valve), or approved equal.
- B. Tapping Valves
Tapping valves shall meet the same specifications as gate valves, except they shall have a full, unobstructed opening to receive a full size shell cutter. It shall be a standard mechanical joint type on one end and a flanged joint on the other end. Tapping valves shall be American Flow Control Series 2500, Kennedy Ken-Seal II resilient wedge gate valve (4" and larger), Mueller Series T-2360 resilient wedge gate valve, Clow, or approved equal.
- C. Tapping Sleeves
Tapping sleeves may be split sleeve with mechanical joint type end seals or stainless steel meeting the requirements of AWWA C223, current revision. They shall have the same working and test pressures as noted for the gate valves. Tapping sleeves shall be Mueller Catalog No. H-615, American Flow Control mechanical joint tapping sleeve, Clow, Romac Model SST, or SST III (stainless steel), Ford Model FAST (stainless steel), Power Seal Pipeline Products Corp. Powersleeve Model 3490, or PowerMJ Model 3490MJ, Smith-Blair Inc. Model 663 (all stainless steel; mechanical joint outlet option is also approved), Cascade Model CST-EX, or approved equal.
- D. Valve Boxes
1. Cast iron valve boxes shall be furnished for all buried valves at the locations shown on the Drawings. Valve boxes shall be screw type adjustable cast iron, heavy-duty traffic-rated, with 5 ¼ inch inside diameter and flared base. Covers shall be marked "WATER" and bases shall be the round type. Valve boxes shall be coated with bituminous paint on both sides.

2. All valves deeper than 4 feet shall have valve stem extenders pinned at the valve. All valves shall be capable of being operated by a 48-inch valve wrench. All valve boxes shall be placed so as not to transmit shock or stress to other valve and shall be centered and plumb over the operating nut of the valve.
3. Valve boxes shall be adjusted flush with the finish grade.
4. Valve boxes shall be manufactured by Bingham & Taylor (Fig. No. 4906, genuine Buffalo style with standard cover; extensions – Fig. No. 4905-X), Capital Foundry (cast iron screw type Part No. 461S-T-HD, 562S-T-HD, 664S-T-HD; standard cover with 1-1/2" lip), East Jordan Iron Works (8550 Series, Two Piece Screw Type with 6800 Valve Box Drop Lids), or approved equal.
5. Valve Box Risers shall be manufactured by East Jordan Iron Works (8500, lock-in set screw required), Acheson (valve box adjusting rings, AVAR-10 through AVAR-40), or approved equal.

E. Corporation Stops

1. At the location indicated on the plans and where directed, corporation stops of sufficient size with quarter-bend couplings, if required, shall be furnished and installed approximately 45 degrees below the top of the pipe in accordance with applicable standards and specifications. All corporation stops shall have ball style valves and have a pressure rating of 300 psi.
2. Corporation stops shall be manufactured by Mueller (Catalog No. B-25000), Ford (Model No. FB600-4), McDonald (Model 4701B), or approved equal.

F. Copper Meter Coppersetters

1. For three quarter (3/4) inch and one (1) inch meters, the coppersetter shall be installed no less than twelve (12) inches or more than sixteen (16) inches from the top of the meter box. All three-quarter (3/4) inch and one (1) inch water meters shall be placed in a horizontal inlet and outlet coppersetter. The coppersetter shall have a multi-purpose connection on the customer side and the supply side. It shall also have a lock-winged ball valve on the supply side and a ball valve on the customer side. See Detail W-4 for additional information on coppersetter installation.
2. For one and one-half (1.5) inch and two (2) inch meters, the coppersetter shall be installed twelve (12) inches from the top of the meter box. All one and one-half (1 1/2) inch and two (2) inch water meters shall be placed in horizontal inlet and outlet two-inch coppersetter. The coppersetter shall have FIP threads on the customer side and the supply side. It shall also have a lock-winged ball valve on the supply side and a ball valve on the customer side. The coppersetter shall be fifteen (15) inches tall. See Detail W-9 for additional information on coppersetter installation.
3. Meter coppersetters shall be Ford Model No VV 72 (5/8"x3/4"), Ford Model No. VV 74 (1"), McDonald Model No. 20-209 WWDD33, 20-412 WWDD44,

Ford Model No. VBB77-12B-11-77, Mueller Model No. B-2423 (1-1/2", 2"; laying length for meter varies with specific meter size – coordinate with ACSA prior to installation), McDonald Series 20 (horizontal style – 1", 5/8"x3/4"; low bypass – 1-1/2" & 2"), or approved equal.

G. Service Laterals

1. Copper pipe for lateral connections shall be soft type "k" copper with standard water works flare or compression fittings.
2. Compression/Flared fittings shall be Ford Grip Joint, Mueller Model 110, McDonald "T" Series, or approved equal.

H. Service Saddles

Service saddles shall be Romac Style 202NS or 202 BS with stainless steel straps, Ford Style FS202 or 202BS with wide stainless steel band (4 bolts), Smith-Blair Inc. Coated Model 317 or Model 325 with stainless steel straps, Hymax DR or BR 2S Series with stainless steel straps, or approved equal.

I. Concrete Thrust Blocks

All fittings, plugs, tees, bends, and reducers shall be sufficiently anchored with concrete thrust blocks. Concrete thrust blocks shall have bearing on undisturbed earth with bearing area no less than detailed in the Contract Drawings.

J. Joint Restraint

Where indicated on the drawings, mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1 and shall be EBAA Iron, Inc., Megalug Series 1100, Sigma Corporation Series D-SLDE, Star Pipe Products Series 3000P, Romac RomaGrip, Ford Series 1400, or approved equal.

2.5 METER BOXES

- A. Meter boxes and vaults of appropriate size shall be installed around all meter coppersetters as indicated on the plans. They shall be installed in non-paved areas. The box/vault and lid shall conform to the finished grade after installation. Meter boxes and vaults shall be located and installed to prevent water, dirt, or debris from entering or covering them. If changes in grade at the meter box or vault are made before Final Acceptance is granted or during the 1-year warranty period after Final Acceptance, the Developer is responsible for resetting the meter box or vault to match the finished grade.
- B. All meter boxes shall have non-locking lids and will be used for water meters up to and including one (1) inch in size. See Detail W-5 for additional information. Lids shall be provided with a two (2) inch recessed hole tapped into the lid. Blind taps or plugs shall be provided to prevent debris from entering the box prior to use. The Contractor must ensure a clear two (2) inch opening where the hole is cast into the lid to accommodate a touch read sensor.
- C. Meter boxes (5/8" and 1") shall be Carson 2200 Series (plastic), Oldcastle FL30 (for paved areas); Lid – Water Logo, 2-inch recess probe; Box – FL30T 18" meter box (02006045); Extension - 02001090, or approved equal.

2.6 WATER SERVICE LATERALS

- A. Water service laterals shall extend from the main to the property line of the lot or parcel. Water service laterals are to be soft Type "K" copper tubing, installed at a minimum depth of 36-inches from the main line to a meter setting below finished grade.
- B. Detached single family and attached single family residential service laterals shall be 1-inch in diameter. Attached single family residential service laterals can also be grouped into a dual service with a shared 1-inch diameter service line. Water service laterals for 1-inch and 2-inch meter installations shall be 2-inch in diameter.
- C. All one (1) inch and two (2) inch diameter water service laterals, within existing or proposed VDOT right-of-way, shall be installed in casing pipes of appropriate size and material, as approved by the ACSA.
- D. Meter boxes with meter yokes or coppersettors are to be installed at the end of each service lateral and are to be constructed in such a manner as to prevent conflict with proposed finished grading or other proposed construction such as driveways, drainage ditches, etc. All water service laterals must be well referenced for future location per detail.

2.7 BLOW-OFF ASSEMBLIES

- A. Provisions shall be made for blow-offs by means of a regular blow-off assembly or hydrant assembly, as may be directed by the Albemarle County Service Authority. All pipe work for the blow-off assemblies shall conform in all respects to applicable portions of these specifications and to the plans. Blow-off assemblies shall not be connected directly to any storm drain or sanitary sewer systems. Blow-off assemblies shall be placed behind the curb, and shall be required at all dead-ends.
- B. Dead-end blow-Off assemblies (type A) shall be installed as shown on the drawings and in accordance with the following specifications:
 - 1. Blow-off lines shall be two (2) inch diameter PVC or brass pipe. A PVC nipple shall be provided at the end of the assembly with a PVC threaded cap. The threads between the nipple and the cap shall be lubricated before installation to allow removal when needed.
 - 2. Gate valves and boxes shall be of the type described in the applicable sections of these specifications.
 - 3. If the grade allows, a two (2) inch diameter drain pipe shall be properly installed in the meter box.
- C. In-line blow-off assemblies (type B) shall be located at major low points in the system as determined by the ACSA.

2.8 AIR RELIEF VALVE ASSEMBLIES

- A. Approved automatic air relief valves shall be installed at the high points in the system. Each assembly shall consist of a corporation stop, riser pipe, ball valve, fittings, and a precast concrete manhole cone section (including frame and cover

with the word "WATER" cast on it), or approved equal. Manhole cone section, frame, and cover shall be HS-20 rated for heavy duty traffic. The riser shall be soft Type K copper pipe. Fittings shall be brass or bronze. Gate valves shall be of the type described in this Section. A 1-inch diameter air relief valve shall be used on lines smaller than 12-inches in diameter. A 2-inch diameter air relief valve shall be used on lines equal to or larger than 12- inches in diameter. Air relief valves shall be manufactured by APCO (Model No. 143C: 1", 145C: 2" combination air release valve), CLA-VAL (Model No. 361-CAV: 1", 362-CAV: 2" combination air release valve), Crispin (Model No. UL10: 1", UL20: 2" universal air release valve), ARI Valve (Model D-040 combination air release valve: 1", 2"), Val-Matic (Models 15A.3 and 22.3(1")), or approved equal.

- B. If the grade allows, a 2-inch drain pipe shall be properly installed in the cone section of the manhole.
- C. Air relief valve assemblies shall not be connected directly to any storm drain or sanitary sewer systems.

2.9 FIRE HYDRANTS

- A. Hydrants shall be manufactured in accordance with the most current revision of ANSI/AWWA C502-05 and shall be approved by the National Board of Fire Underwriters. Hydrants shall have 6-inch barrel with 5-1/4-inch clear opening through the valve and shall be provided with a 4-1/2-inch pumper connection and (2) 2-1/2-inch ID hose connections. Fire Hydrants shall be manufactured by M&H (Model 129, color – safety red), Kennedy (Guardian Model No. K-81A or K-81D, color – safety red), Clow Medallion (color – safety red), Mueller (Super Centurion 250, color Mueller Red), American Darling (B-84-B-5, color – safety red), or approved equal.
- B. Fire hydrants shall be installed in such a manner as to provide the proper fire protection as approved by the County's Fire Official to all structures and no hydrant shall be more than 500 feet from any other hydrant measured along the centerline of the public right-of-way, private road, or other applicable access route. The maximum distance to a fire hydrant from any point on a deadend street or road frontage shall be 200 feet. Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at a spacing not to exceed 1,000 feet. Generally, fire hydrants shall be placed no closer than 40 feet to any major structures.
- C. Fire hydrants shall be installed in areas where weep holes are above the prevailing groundwater table. Design elevations and the location of drainage structures shall be used to ensure the weep holes of the hydrant are not subject to groundwater immersion. If, during the course of construction, groundwater is observed in the trench, the fire hydrant shall be moved to higher ground and the separation between fire hydrants will be adjusted accordingly. If fire hydrants cannot be placed above groundwater, the weep holes shall be plugged and the hydrant shall be pumped dry.
- D. Hydrants shall be of the frost-proof and non-flooding type which will not flood in case the barrel or valve stem is damaged, with orifices for draining the hydrant

when the valve is closed. A safety flange shall be provided so that the barrel will not break if struck by a vehicle or other object, and the hydrant can be repaired without digging. Hydrants shall have a 42-inch minimum bury and be designed for 150 psi working pressure and 300 psi hydrostatic test pressure. All working parts shall be bronze to bronze. All hydrants shall open counterclockwise and be preceded in the line by a gate valve. The pumper connection shall face the roadway. Fire hydrants shall have a moisture-proof chamber around operating threads filled with USDA H-1 food grade oil or grease which shall lubricate the threads.

- E. Hydrants shall be set plumb with the invert of the pumper connection no less than eighteen (18) inches and no more than twenty-two (22) inches above grade. The maximum number of allowable hydrant risers for each hydrant is 2. Unless the hydrant location is specifically indicated otherwise, it shall be located so that the center is not less than two (2) nor more than ten (10) feet from the back of the curb of the adjacent street, with the pumper connection facing the street, unless otherwise directed by the Fire Official. The connecting pipe will have the same depth of cover as the distribution mains. The base and back of the hydrant, opposite the pipe connection, shall be firmly blocked against the vertical face of the trench with cast-in-place concrete to prevent the hydrant from blowing off the line. If the character of the soil is such that in the opinion of the ACSA the hydrant cannot be securely blocked, a steel pile shall be used. Not less than seven (7) cubic feet of No. 68 stone shall be placed around the base of the hydrant to ensure drainage. The backfill around hydrants shall be thoroughly compacted to grade line. Hydrants and valves shall have the interiors cleaned of all foreign matter before installation. Stuffing boxes shall be tightened and the hydrant or valve shall be inspected in open and closed positions, to see that all parts are in working condition. Bags shall be tied securely over all fire hydrants as soon as they are installed. These bags shall not be removed until approved by the ACSA. Each new fire hydrant shall be painted, if the ACSA determines the factory finish has been compromised. Paint for hydrant shall be Devoe DP 58106 (Safety Red BAR-OX Alkyd Industrial Gloss Enamel). Paint for caps shall be Axon Products, Inc. Silver-White 1440 Alert.
- F. The threads on the 4-1/2 inch pumper (steamer) connection and on the operating nut shall be National Standard threads. The threads on the hose connections shall be Albemarle County Service Authority standard thread (Charlottesville thread), 3-21/64 inch female, 3-9/32 inch male, eight threads per inch (Gauge 8-322) except for the Scottsville service area which are National Standard threads. All threads shall be thoroughly lubricated with a food grade lubricant. All of the male connections shall have caps and chains. The cap nuts and the operating nut shall be 1-1/2 inch Pentagon and shall open counterclockwise.

PART 3 - EXECUTION

3.1 INSPECTION

General: Examine areas and conditions under which potable water system's materials and products are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to the Owner.

3.2 INSTALLATION OF IDENTIFICATION

Refer to Section 02798.

3.3 INSTALLATION OF PIPE, PIPE FITTINGS, AND ACCESSORIES

A. General

1. Installation of pipe, fittings, valves, and associated appurtenances shall be in accordance with the requirements of the following specifications:

Ductile Iron Pipe - ANSI/AWWA C600

2. Every precaution shall be taken to insure that the entire length of pipe is supported evenly with the joints mated securely together. Pipe bedding shall be as specified by the pipe manufacturer.

B. Handling

1. Pipe, fittings, valves, hydrants, and accessories shall be loaded and unloaded by lifting with hoists or skidding so as to avoid shock or damage. Under no circumstance shall they be dropped. Pipe shall not be skidded or rolled against pipe already on the ground. Pipe shall be handled so that the coating and lining shall not be damaged.
2. All materials shall be shipped, unloaded, and stored in accordance with the manufacturer's recommendations. All materials shall be handled in such a manner as to avoid damage to the material. When such damage cannot be repaired to the Engineer's satisfaction, the item shall be replaced at the Contractor's expense. The interior of all pipe and accessories shall be kept free from dirt and foreign matter at all times.

C. Trench Preparation

1. Trench preparation shall be in accordance with Section 02270 - Earthwork for Utilities.

D. Dewatering

1. Dewatering shall be in accordance with Section 02140 - Dewatering.

E. Placement

1. Installation of all piping, fittings, valves, hydrants, and appurtenances shall be to the lines, grades and locations shown on the Contract Drawings. All valve and hydrant stems shall be set plumb. All pipe, fittings, and accessories shall be carefully lowered into the trench using suitable equipment in such a manner as to prevent damage to pipe fittings. Under no circumstances shall pipe or accessories be dropped or dumped into the trench. The pipe or accessories shall be inspected for defects prior to lowering into the trench. Any foreign matter or dirt shall be removed from the interior of pipe before lowering into position in the trench. For waterlines, if dirt that, in the opinion of the Engineer or his designee, will not be removed by the flushing operation enters the pipe, the interior of the pipe shall be cleaned and swabbed as necessary, with a 5 percent hypochlorite disinfecting solution.

2. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. If the pipe-laying crew cannot put the pipe in the trench and in place without getting earth into the pipe, the Engineer may require that before lowering the pipe into the trench, a heavy tightly woven canvas bag of suitable size be placed over each end left there until the connection is to be made to the adjacent pipe. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe. When pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the Engineer. This provision shall apply during any suspense of work such as the noon hour as well as overnight. If water is in the trench, the seal shall remain in place until the trench is pumped completely dry.
 3. The cutting of pipe for inserting valves, fittings, or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or cement lining and so as to leave a smooth end at right angles to the axis of the pipe. Care shall be taken to avoid damaging the lining of the pipe. Flame cutting of pipe by means of acetylene torch shall not be permitted.
- F. Tapping Water Mains
1. All tapping on existing mains shall be accomplished with ACSA forces unless otherwise approved. Tap sizes and location shall be as shown on the typical details, appended herein.
 - a. Tapping PVC, Asbestos-Cement or DI Pipe – the following procedures are required when tapping existing PVC, asbestos-cement or ductile iron water mains:
 - 1) Taps shall be located at least eighteen (18) inches from the joint.
 - 2) Tapping procedures shall be in accordance with the manufacturer's published recommendations.
 - 3) Tapping sleeves and valves shall be used on four (4) inch or larger taps.
 - 4) Tapping sleeves shall be subjected to an air test at thirty-five (35) psi for a duration of five minutes, prior to making a tap. The test pressure shall not exceed forty (40) psi in any case.
 - 5) All two (2) inch taps shall be made using saddles.
 - b. General Requirements for Tapping PVC and Asbestos-Cement Pipe (AC Pipe)

The following procedures are required when tapping existing PVC or asbestos-cement pipe water mains:

 - 1) Only one tap shall be located in a common line parallel to the longitudinal axis.
 - 2) When multiple taps are necessary on the same length of pipe they shall be located on slightly different planes and separated by at least three (3) feet.
 - 3) Saddles shall be used on all taps.
 - 4) Tapping sleeves on PVC or asbestos-cement waterlines shall

be supported by a concrete pad, cast-in-place, prior to the tap being made. A concrete thrust block shall also be provided behind the tapping sleeve.

c. Special Requirements for Tapping PVC Pipe

The pipe shall be tapped only when the ambient temperatures fall within the following range limits:

<u>Temperature Limits for Tapping PVC Pipe</u>		
<u>Connection</u>	<u>Minimum</u>	<u>Maximum</u>
Dry Taps	0° F (-18° C)	100° F (38° C)
Wet Taps	32° F (0° C)	90° F (32° C)

No taps shall be made where the pipe is discolored.

d. Special Requirements for Tapping Asbestos-Cement Pipe

- 1) Special precautions shall be taken preparing and tapping transite (asbestos cement) pipe. The EPA has recognized asbestos as presenting a cancer or lung disease health hazard. The EPA in conjunction with the US OSHA have established regulations to address asbestos exposure. 29 CFR 1926.1101 address asbestos in the construction industry and 29 CFT 1910.134 addresses the use of respirators approved for use working with asbestos products. Any Contractor working with or around asbestos-cement pipe shall be familiar with these regulations
- 2) Any employee working on or around asbestos-cement pipe shall have had at a minimum EPA's Sixteen Hour Maintenance and Custodial training. Any employee performing the tapping operation shall have completed EPA's Four Day Asbestos Abatement Worker training. All tapping work shall be supervised by an EPA certified "Competent Person".

G. Deflection of Pipe

Wherever it is necessary to deflect the pipe from a straight line, either in vertical or horizontal plane, to avoid obstructions or to plumb the line for valve installation, or where long radius curves are permitted, the amount of deflection allowed shall not exceed the following table or 80% of the deflection allowed by the pipe manufacturer, whichever is less.

<u>Pipe Size</u>	<u>Allowable Joint Deflection (degrees)</u>	<u>Minimum Allowable Radius (feet)</u>	<u>Offset per full length joint of pipe (in.)</u>
4	4	286	17
6	4	286	17
8	4	286	17
10	4	286	17
12	4	286	17

H. Valve, Fittings, and Fire Hydrants

1. Bracing of Fittings: All tees, valves, fittings, plugs, caps, and fire hydrants shall be substantially braced, blocked and/or anchored to prevent any movement by providing adequate reaction backing. This backing shall be a concrete thrust block with a compressive strength of not less than 2500 psi. Backing shall be placed between solid undisturbed earth and the fitting to be anchored and shall be so placed that pipe and fitting joints will be accessible for repairs. Mechanical joint restraint shall also be required as indicated on drawings.
2. Fitting Installations: Hydrants, valves and valve boxes shall be set plumb, and centered, with valve boxes placed directly over the valves. If possible, valve boxes shall be located outside the area of roads and streets. Valves shall be backfilled with no less than four (4) cubic feet of clean No. 68 stone to a depth six (6) inches above the base of the valve box. Earth fill shall be carefully tamped around the valve box to a distance of four (4) feet on all sides of the box, or to the undisturbed trench face if less than four (4) feet.
3. Cross Anchor Restraints: Wherever it is not practical to use threaded rods to restrain valves on the end of water lines, cross anchors shall be constructed in accordance with the typical detail Figure W-3C "Cross Anchor Restraints for Valves." Cross anchors shall be installed around ductile iron pipe wherever the last valve on a water line is greater than six (6) feet from a mechanical joint tee. Such installations shall include ends of transmission mains, where a future extension is possible.

3.4 TESTING

A. General

1. All pipe, valves, fittings, and appurtenances shall be tested and inspected for water-tightness and soundness before being accepted in accordance with the requirements specified herein and as directed by the Engineer.
2. All testing shall be done in the presence of the Engineer or his representative. Contractor shall provide all equipment and perform all work required for the purposes. In case any section under test shows leakage in excess of the allowable amount, the Contractor shall make such repairs to the line as are required to bring the loss within the stipulated limits. The first mile or 20% of the total quantity, whichever is less, of waterline shall be tested prior to proceeding with the project. Thereafter, line testing shall be done in increments of one mile or 20% of the total quantity, whichever is less.
3. The Contractor shall be responsible for all costs associated with testing. Reinspection fees are charged for retesting when initial tests fail. Contact the Albemarle County Service Authority for current rate schedules.

All testing will be performed in accordance with the AWWA C600, current revision. The contractor shall provide the Albemarle County Service Authority with 48 hours notice prior to undertaking any tests.

B. Pressure Testing

1. All pressure testing will be performed in accordance with AWWA C600, current revision. The Contractor shall provide the ACSA with two (2) business days' notice prior to undertaking any tests.
2. After the pipe has been laid, all newly laid pipe or any valved section thereof shall be subjected to a hydrostatic pressure of at least 200 psi or 150% of the average working pressure, whichever is greater.
3. Test Pressure Restrictions.
Test pressures shall:
 - a. Not exceed pipe or thrust restraint design pressure;
 - b. Be of at least 2-hour duration;
 - c. Not vary by more than +/-5 psi;
 - d. Not exceed twice the rated pressure of the valves or hydrants when the pressure boundary of the test section includes closed gate valves or hydrants;
 - e. Not exceed the rated pressure of the valve.
4. Pressurization
Each valved section of pipe shall be filled with water slowly and the specified test pressure shall be applied by means of a pump connected to the pipe in a manner satisfactory to the ACSA. The water and container used to pump up the line to be tested shall be properly disinfected.
5. Air Removal
Before applying the specified test pressure, air shall be expelled completely from the pipe, valves, and hydrants.
6. Examination.
All exposed pipe, fittings, valves, hydrants, and joints shall be examined carefully during the test. Any damaged or defective pipe, fittings, valves, or hydrants that are discovered following the pressure test shall be repaired or replaced with sound material and the test shall be repeated until it is satisfactory to the ACSA.

C. Disinfection

1. General - All waterlines shall be disinfected prior to being placed in operation. Prior to disinfection all waterlines shall be flushed unless the tablet method of disinfection is used. All valves and hydrants shall be operated during this operation. Flushing velocities shall not be less than 3.0 ft/sec. If ductile iron pipe is being used, the water used to flush the waterline should not remain in contact with the waterline for more than 24 hours. Waterlines shall be disinfected in accordance with AWWA C651, current revision.
2. Continuous Feed Method - Potable water shall be introduced into the pipe line at a constant flow rate and protected by an approved backflow prevention device. Chlorine shall be added at a constant rate to this flow so that the chlorine concentration in the water in the so that the chlorine concentration in the water in the pipe is at least 50 mg/l. The chlorinated

water shall remain in the pipe line at least 24 hours, after which, the chlorine concentration in the water shall be at least 10 mg/l. All valves and appurtenances shall be operated while the chlorinated water remains in the pipe line.

3. **Tablet Method** - This method shall not be used if non-potable water or foreign material have entered the lines or if the water temperature is below 5°C (41°F). Tablets of calcium hypochlorite, containing 70 percent available chlorine by weight, shall be placed in each pipe section and in all appurtenances. Enough tablets shall be used to insure that a chlorine concentration of 50 mg/l is provided in the water. They shall be attached by a food grade adhesive to the top of the pipe sections and crushed or rubbed in all appurtenances. The adhesive shall be approved by the Engineer. The velocity of the potable water in the pipe line shall be less than 1 ft./sec. The water shall remain in contact with the pipe for 24 hours and shall have a minimum concentration of 25 mg/l.

a. **Schedule of Maximum Fill Rates**

Pipe Diameter	Fill Rate	Pipe Diameter	Fill Rate
4"	40 GPM	14"	500 GPM
6"	90 GPM	16"	600 GPM
8"	160 GPM	18"	800 GPM
10"	260 GPM	20"	1000 GPM
12"	350 GPM	24"	1400 GPM

- b. **Number of Hypochlorite Tablets of 5-G Required for Dose of 50 mg/l (based on three and three-quarters grams of 70% available chlorine per tablet):**

Joint Length (ft)	Diameter of Pipe (inches)					
	2	4	6	8	10	12
13 or less	1	1	2	2	3	5
18	1	1	2	3	5	6
20	1	1	2	3	5	7
30	1	2	3	5	7	10
40	1	2	4	6	9	14

- c. **Grams of HTH Powder required for Dose of 50 mg/l (based on 65% available chlorine in HTH powder):**

Joint Length (ft)	Diameter of Pipe (inches)					
	2	4	6	8	10	12
13	0.6	2.5	5.56	9.88	15.45	22.24
18	0.85	2.5	7.69	13.69	21.39	30.80
20	0.95	3.8	8.56	15.21	23.76	34.22
30	1.43	5.7	12.83	22.81	35.65	51.33
40	1.90	7.6	17.11	30.42	47.53	68.44

The cost of all such testing will be the responsibility of the Contractor. All valves and appurtenances shall be operated while chlorinated water is in the pipe line.

4. Disinfection shall include hydrants and other special pipe, taps and fittings used at connections to existing piping. These shall be thoroughly disinfected before installation. Excavation for such connections shall be kept free from water until the connection is completed and great care shall be exercised to prevent contamination of the pipe and connection fittings.
5. Connections - The inside of the existing pipe within three (3) feet of point of connection shall be disinfected by spraying with a solution containing not less than 200 mg/l of chlorine immediately before connection is made. On completion of disinfection the piping shall be flushed thoroughly with potable water, and samples shall be taken and tested by a recognized testing laboratory. The water shall be proven safe for human consumption before acceptance of disinfection. Should the samples show the water is unsafe, the piping shall be disinfected until satisfactory tests are obtained.
6. Final Flushing - After the retention period, the main shall be flushed of the high chlorine water with potable water until the water leaving the system shows a chlorine concentration of less than 1 mg/l or no higher than that prevailing in the water used for flushing. Water with a chlorine concentration greater than 2.0 mg/l shall either be dechlorinated or the high chlorine water shall be discharged directly to sanitary sewer line.
7. Testing - After the lines have been flushed, the waterlines shall be tested in the following methods:
 - a. All chlorine residual determinations shall be made using only those methods approved by the Virginia Department of Health. One approved method is the DPD Kit method.
 - b. Two water samples shall be collected at least 16 hours apart for bacteriological testing. The samples shall be collected at regular intervals, not to exceed 1,200 feet throughout the length of pipe. All bacteriological samples collected following disinfection shall be analyzed by a laboratory certified by the Virginia Department of General Services, Consolidated Laboratory Services. The results of these samples must indicate the absence of coliform contamination. If contamination is indicated, then the disinfection procedure must be repeated.
8. It is the Contractor's responsibility to ensure their operations do not contaminate the public water supply. If at any time, the water in the existing system becomes contaminated, they shall be held financially accountable for any corrective action taken by the ACSA. In addition, the Contractor shall be responsible for the cost of defending and settlement of all claims resulting from their negligence, including but not limited to, court costs and attorney's fees.

3.5 ABANDONMENT OF EXISTING WATERLINE

- A. General: Waterlines to be abandoned shall be permanently disconnected from the remaining system and drained. Waterlines to be abandoned within limits of VDOT right-of-way shall be filled with flowable fill. Details of the abandonment shall be approved by ACSA and VDOT.
- B. Special Requirements for Cutting Transite (Asbestos Cement) Pipe
 1. Special precautions shall be taken preparing and cutting transite (asbestos cement) pipe. The EPA has recognized asbestos as presenting a cancer or lung disease health hazard. The EPA in conjunction with the US OSHA have established regulations to address asbestos exposure. 29 CFR 1926.1101 addresses asbestos in the construction industry and 29 CFR 1910.134 addresses the use of respirators approved for use working with asbestos products. Any Contractor working with or around asbestos cement pipe shall be familiar with these regulations.
 2. Any employee working on or around asbestos cement pipe shall have had at a minimum EPA's sixteen hour maintenance and custodial training. Any employee performing the cutting operation shall have completed EPA's 4 day Asbestos Abatement Worker training. All cutting work shall be supervised by an EPA certified "Competent Person".
- C. Work Practices for Asbestos Cement Pipe Operations
 1. No chop saws will be used on any materials containing asbestos unless it is equipped with the appropriate hepa filter system.
 2. A pressurized sprayer filled with water will be used as needed to keep the asbestos containing material sufficiently wet.
 3. The use of compressed air to blow dust off protective clothing, uniforms and tools is prohibited.
 4. A catch basin will be placed under the cutting equipment and guillotine saw to catch any contaminated water.
 5. All tools and equipment will be cleaned while in the work area while personnel are wearing appropriate protective equipment.
 6. All tools and equipment (bits, blades, etc.) will be cleaned and washed in a way to contain water for disposal in an absorbent media or filtered through a 5 micron system and released to atmosphere.
 7. All asbestos material, asbestos waste by products, water used for working on asbestos material and cleaning tools and equipment and protective clothing must be properly disposed of in the following manner:
 - a. Determine how much waste needs to be disposed of and choose the appropriate bags. Do not overfill bags. Fill to approximately half full if dealing with water or heavy material.
 - b. Do not place objects in bags that have jagged edges or corners that will damage bags.
 - c. Once bag is filled to appropriate level remove as much air from bag while sealing as possible by squeezing or using hepa vac. Hepa vac is preferred method. Once bag is sealed and taped place bag in another bag and repeat air removal and seal and tapping procedure.

- d. Label bag with appropriate warning label if bags are not identified by manufacturer with proper asbestos label.
 - e. Once bags are securely sealed the bags should be wet wiped with a rag or hepa vacuumed to remove any fibers on bags.
 - f. All bags or containers, or wrapped pipe pieces, must be labeled according to the NESHAP regulations.
 - g. The asbestos-containing waste materials must be transported in a closed container or box from site of removal to storage or disposal facility.
 - h. The material being transported must be labeled with the name of the waste generator or owner, and the location of where waste was generated or removed as per NESHAP regulations.
8. A DOT label is also required and must contain the RQ or Reportable Quantity if over one pound. Waste, asbestos mixture and NA2212 the North American shipping number assigned to asbestos.

END OF SECTION 02665

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SECTION 02798 UTILITY LOCATION AND IDENTIFICATION

PART 1 - GENERAL

1.1 SUMMARY

The purpose of this Section is to specify the requirements for utility location tape. In general, all utility pipelines shall be marked by appropriately marked metallic tape 12 to 24 inches above the conduit.

1.2 RELATED SECTIONS

Intent: The provisions and intent of the AGREEMENT, including the General Conditions, Supplemental Conditions, and other requirements of the Contract Documents apply to the WORK as specified in this Section. WORK related to this Section is described throughout the Specifications.

1.3 REFERENCES

Code of Virginia

1.4 SUBMITTALS

See Section 01300.

1.5 SEQUENCING

The tape wire shall be installed at the same time as the pipeline.

PART 2 - PRODUCT

2.1 WARNING AND IDENTIFICATION TAPE

Polyethylene plastic and metallic core or metallic-faced, acid-and alkali-resistant, polyethylene plastic warning tape manufactured specifically for warning and identification of buried utility lines. Provide tape on rolls, 3-inch minimum width, color coded as specified below for the intended utility with warning and identification imprinted in bold black letters continuously over the entire tape length. Warning and identification to read, "CAUTION, BURIED (intended service) LINE BELOW" or similar wording. Color and printing shall be permanent, unaffected by moisture or soil. Warning tape shall be manufactured by Allen Systems, Harris Industries, Inc., or approved equal.

Warning Tape Color Codes

Blue:	Water
-------	-------

Warning Tape for Metallic Piping: Acid and alkali-resistant polyethylene plastic tape conforming to the width, color, and printing requirements specified above. Minimum thickness of tape shall be 0.003 inch. Tape shall have a minimum strength of 1500 psi otherwise, and 1250 psi crosswise, with a maximum 350 percent elongation.

END OF SECTION 02798

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SECTION 02904 SEEDING

PART 1 - GENERAL

1.1 SCOPE

The work covered by this Section consists of furnishing all plants, labor, equipment, and materials, and in performing all operations in connection with seeding the graded areas, all slopes adjacent to the graded areas; all paving shoulders and slopes and all disturbed or scarred areas, complete in strict accordance with the plans and specifications.

PART 2 - PRODUCTS

2.1 SEED

All seed used shall be in accordance with the requirements of these specifications, Section 604, Seeding of the current edition of the VDOT Road and Bridge Specifications, and the Virginia Erosion and Sediment Control Field Manual. All seed shall be standard, furnished in sealed standard containers. Seed which has become wet, moldy, or otherwise damaged in transit or storage shall not be acceptable. As indicated on the plans, the measures of surface roughening and soil stabilization matting or blankets shall be used on steep slopes to reduce runoff velocity and aid in the establishment of vegetative cover with seeding.

2.2 FERTILIZER

Fertilizer shall be 10-10-10 grade, uniform in composition, free flowing and suitable for application with approved equipment, delivered to the site in bags or other convenient containers, each fully labeled, conforming to the applicable State fertilizer laws, and bearing the name, trade name or trade mark, and warranty of the producer.

2.3 LIME

Lime shall be ground limestone containing not less than 85 percent of total carbonates and shall be ground to such fineness that at least 50 percent will pass through a 100-mesh sieve and at least 90 percent will pass through a 20-mesh sieve. Coarser materials will be acceptable provided the specified rates of application are increased proportionately, on the basis of quantities passing the 100-mesh sieve but no additional payment will be made for the increased quantity. The Engineer shall be furnished with duplicate copies of invoices for all fertilizer and lime used on the project. Invoices for fertilizer shall show the grade furnished. Invoices for lime shall show total minimum carbonates and minimum percentages of the material furnished that pass the 100- and 20-mesh sieves.

2.4 MULCH

Mulching material shall meet requirements shown in the organic mulch materials and application rates detail on the plans. Mulch shall not be musty, moldy, caked, decayed or extremely dusty.

PART 3 - EXECUTION

3.1 PREPARATION OF SEED BED

- A. Fertilizer shall be distributed uniformly at a rate of 450 pounds per acre over the areas to be seeded, and shall be incorporated into the soil to a depth of at least 3 inches by disking, harrowing, or other methods. Distribution by means of an approved seed drill equipped to sow seed and distribute fertilizer at the same time will be acceptable. Immediately following or simultaneously with the incorporation of the fertilizer, lime shall be incorporated into the soil to a depth of at least 3 inches by disking, harrowing, or other methods. The incorporation of the lime together with the fertilizer may be performed in one operation. Lime shall be applied at a rate of 2 tons per acre.
- B. Temporary seeding shall be accomplished in the same manner as described in this section.

3.2 PLANTING SEED

Seed shall be broadcast either by hand or approved sowing equipment at the rate specified herein. The seed shall be uniformly distributed over the designated areas. Half the seed shall be sown with the sower moving in one direction, and the remainder shall be sown with the sower moving at right angles to the first sowing. The seed shall be covered to an average depth of 1/4 inch by means of a brush harrow, spike-tooth harrow, chain harrow, cultipacker, or other approved device. Broadcast seeding shall not be done during windy weather. If inspection during seeding operation or after there is a show of green indicates that strips wider than the space between the rows planted have been left or other areas skipped, the Engineer may require the sowing of additional seed on these areas. Seed shall be applied per the appropriate rate shown in the erosion and sediment control seeding details on the plans.

3.3 COMPACTING

Immediately after the operations specified above have been completed, the entire area shall be compacted by means of a cultipacker, roller, or other approved equipment weighing 60-90 pounds per linear foot of roller. When a cultipacker or similar equipment is used, the final rolling shall be at right angles to the existing slopes to prevent water erosion, or at right angles to the prevailing wind to prevent dust, as required by the Engineer.

3.4 MULCHING

Mulch shall be spread over all seeded areas per the appropriate rate shown in the organic mulch materials and application rates detail on the plans. Mulch shall be applied to a uniform depth by an approved method and in such a manner that not more than 10 percent of the soil surface is exposed.

3.5 PROTECTION AND MAINTENANCE

The area shall be protected against traffic or other use by erecting barricades immediately after seeding is completed and by placing warning signs on the various areas of a type approved by the Engineer. As indicated on the plans, the measures of surface roughening and soil stabilization matting or blankets shall be used on steep slopes to reduce runoff velocity

and aid in the establishment of vegetative cover with seeding. Seeded areas shall be maintained by mowing to the satisfaction of the Engineer. Any areas which do not produce a healthy show of grass shall be reseeded during the next proper season, at the Contractor's expense.

3.6 HYDRO-SEEDING

At the Contractor's option, hydro-seeding methods may be used in lieu of previously described methods for the placement of seed. Contractor shall submit proposed method and equipment to the Engineer and Owner for approval.

END OF SECTION 02904

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APPENDIX A
VDOT Land Use Permit
Dual Oblige Rider

DUAL OBLIGEE RIDER

To be attached to and form a part of contract bond number _____ issued by
the _____ on behalf of

in the amount of _____
Dollars (\$ _____) and dated _____
in favor of _____

in consideration of the sum of One Dollar (\$1.00), and other good and valuable consideration receipt of which is hereby acknowledged, the Undersigned hereby agree as follows:

VDOT is hereby added to said surety bond as an additional obligee for the purposes of guaranteeing any work associated with the referenced contract performed within VDOT's right of way under the terms of the land use permit for that purpose.

The conditions of this obligation are such that if the said Principal shall in all respects comply with the terms and conditions of said permit(s), and fully meet and perform obligations thereunder in accordance with requirements for permits as set forth in the Land Use Permit Manual in effect at time of permit issuance, and shall satisfactorily complete the work permitted, then this obligation to the Department would be void, otherwise to be and remain in full force and virtue.

The surety bond securing performance on the specified permit may be canceled only upon satisfactory completion of the specified permit, as determined by the VDOT representative.

The surety's obligation to the Department shall be no greater than its obligation to the county, city, or town administering the project, and the amount of the bond is the limit of the surety's obligation to either or both obligees.

APPENDIX B

Geotechnical Test Boring Logs



Schnabel TEST ENGINEERING BORING LOG

Project: ACSA Water Main Replacement
Barracks West
Albemarle County, Virginia

Boring Number: **B-01**
Contract Number: 23430019
Sheet: 1 of 1

Contractor: Ayers & Ayers, Inc.
Powhatan, Virginia
Contractor Foreman: M. White
Schnabel Representative: C. Lewis
Equipment: CME-55 (Truck)
Method: 2-1/4" I.D. Hollow Stem Auger

Hammer Type: Safety Hammer (140 lb)
Dates Started: 4/5/23 **Finished:** 4/5/23
North: 3911346.983 ft **East:** 11479443.91 ft

Ground Surface Elevation: 567± (ft) **Total Depth:** 7.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/5	---	Dry	---	---
Completion	4/5	---	Dry	---	---
Casing Pulled	4/5	---	Dry	---	1.5'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING		TESTS	REMARKS
					DEPTH	DATA		
0.3	Asphalt; 3 inches	FILL	566.7	A	S-01, SPT 5+4+3 REC=6", 33%			FILL
0.5	Crushed stone; 3 inches		566.5					
	FILL, sampled as clayey sand, fine to coarse grained sand; moist, brown, contains mica, and rock fragments							
2.0	SILTY SAND, fine to medium grained sand; moist, light brown and orangish brown, contains mica	SM	565.0	B	S-02, SPT 3+3+5 REC=14", 78%	MC = 13.1% Resistivity = 15000 Ohms-cm Redox = 458 mv Sulfides = 0 pH = 4.8		RESIDUUM
					S-03, SPT 5+6+8 REC=15", 83%			
					S-04, SPT 6+6+11 REC=14", 78%			
7.0			560.0					

Bottom of Boring at 7.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings, borehole plug, and Aquaphalt upon completion.



TEST BORING LOG

Project: ACSA Water Main Replacement
Barracks West
Albemarle County, Virginia

Boring Number: B-02
Contract Number: 23430019
Sheet: 1 of 1

Contractor: Ayers & Ayers, Inc.
Powhatan, Virginia
Contractor Foreman: M. White
Schnabel Representative: C. Lewis
Equipment: CME-55 (Truck)
Method: 2-1/4" I.D. Hollow Stem Auger

Hammer Type: Safety Hammer (140 lb)
Dates Started: 4/5/23 **Finished:** 4/5/23
North: 3911359.589 ft **East:** 11479780.18 ft

Ground Surface Elevation: 554± (ft) **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/5	---	Dry	---	---
Completion	4/5	---	Dry	---	---
Casing Pulled	4/5	---	Dry	---	2.5'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING		TESTS	REMARKS
					DEPTH	DATA		
0.3	Asphalt; 3.5 inches		553.7					FILL
0.6	Crushed stone; 2 inches		553.4					
	FILL, sampled as clayey sand, fine to coarse grained sand; moist, brown, contains crushed stone, rock fragments, and mica	FILL		A		S-01, SPT 12+8+10 REC=12", 67%		
						S-02, SPT 6+20+50/5" REC=5", 29%		
2.7	DISINTEGRATED ROCK, sampled as silty sand, fine to coarse grained sand; moist, reddish brown and light brown, contains rock fragments, and mica	DR	551.3	C		S-03, SPT 50/1" REC=0", 0%		RESIDUUM Augers grinding and scraping
						S-04, SPT 50/0" REC=0"		
5.0			549.0		5			

Bottom of Boring at 5.0 ft.
Auger refusal at 5.0 ft.
Boring terminated at auger refusal.
Boring backfilled with cuttings, borehole plug, and Aquaphalt upon completion.



Boring Number: **B-02A**
Contract Number: 23430019
Sheet: 1 of 1

Ground Surface Elevation: 554± (ft) **Total Depth:** 5.2 ft

Date	Time	Depth	Casing	Caved
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Casing Pulled	4/5	---	Dry	---	2.0'
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Schnabel TEST ENGINEERING BORING LOG

Project: ACSA Water Main Replacement
Barracks West
Albemarle County, Virginia

Boring Number: **B-03**
Contract Number: 23430019
Sheet: 1 of 1

Contractor: Ayers & Ayers, Inc.
Powhatan, Virginia
Contractor Foreman: M. White
Schnabel Representative: C. Lewis
Equipment: CME-55 (Truck)
Method: 2-1/4" I.D. Hollow Stem Auger

Hammer Type: Safety Hammer (140 lb)
Dates Started: 4/5/23 **Finished:** 4/5/23
North: 3911049.201 ft **East:** 11479185.29 ft

Ground Surface Elevation: 578± (ft) **Total Depth:** 7.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/5	---	Dry	---	---
Completion	4/5	---	Dry	---	---
Casing Pulled	4/5	---	Dry	---	1.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING		TESTS	REMARKS
					DEPTH	DATA		
0.4	Asphalt; 5 inches		577.6					FILL
0.7	Crushed stone; 2 inches		577.3					
	FILL, sampled as silty sand, fine to coarse grained sand; moist, brown, contains mica, and rock fragments	FILL		A		S-01, SPT 9+8+6 REC=6", 33%		RESIDUUM
2.0	SILTY SAND, fine to medium grained sand; moist, light brown and orangish brown, contains mica		576.0			S-02, SPT 6+8+9 REC=8", 44%		
		SM		B		S-03, SPT 4+8+14 REC=10", 56%		
					5	S-04, SPT 8+9+12 REC=15", 83%		
7.0			571.0				LL = 39 PL = 28 MC = 10.7% % Passing #200 = 47.0 Resistivity = 17000 Ohms-cm Redox = 425 mv Sulfides = 0 pH = 4.8	
Bottom of Boring at 7.0 ft. Boring terminated at selected depth. Boring backfilled with cuttings, borehole plug, and Aquaphalt upon completion.								



TEST BORING LOG

Project: ACSA Water Main Replacement
Barracks West
Albemarle County, Virginia

Boring Number: **B-04**
Contract Number: 23430019
Sheet: 1 of 1

Contractor: Ayers & Ayers, Inc.
Powhatan, Virginia
Contractor Foreman: M. White
Schnabel Representative: C. Lewis
Equipment: CME-55 (Truck)
Method: 2-1/4" I.D. Hollow Stem Auger

Hammer Type: Safety Hammer (140 lb)
Dates Started: 4/5/23 Finished: 4/5/23
North: 3911109.528 ft East: 11479417.48 ft

Ground Surface Elevation: 590± (ft) Total Depth: 7.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/5	---	Dry	---	---
Completion	4/5	---	Dry	---	---
Casing Pulled	4/5	---	Dry	---	1.3'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING		TESTS	REMARKS
					DEPTH	DATA		
0.4	Asphalt; 4.5 inches		589.6	A				FILL
0.5	Crushed stone; 2 inches	FILL	589.5					Split spoon deviated from vertical. RESIDUUM
1.0	FILL, sampled as clayey sand, fine to coarse grained sand; moist, brown and orangish brown, contains mica, and rock fragments		589.0			S-01, SPT 10+16+10 REC=10", 56%		
	SILTY SAND, fine to medium grained sand; moist, light grayish brown, contains mica, and rock fragments	SM		B		S-02, SPT 10+8+9 REC=15", 83%		
						S-03, SPT 7+10+12 REC=12", 67%		
						S-04, SPT 7+9+13 REC=14", 78%		
7.0			583.0					

Bottom of Boring at 7.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings, borehole plug, and Aquaphalt upon completion.



Schnabel TEST ENGINEERING BORING LOG

Project: ACSA Water Main Replacement
Barracks West
Albemarle County, Virginia

Boring Number: **B-05**
Contract Number: 23430019
Sheet: 1 of 1

Contractor: Ayers & Ayers, Inc.
Powhatan, Virginia
Contractor Foreman: M. White
Schnabel Representative: C. Lewis
Equipment: CME-55 (Truck)
Method: 2-1/4" I.D. Hollow Stem Auger

Hammer Type: Safety Hammer (140 lb)
Dates Started: 4/5/23 **Finished:** 4/5/23
North: 3911139.345 ft **East:** 11479875.71 ft

Ground Surface Elevation: 548± (ft) **Total Depth:** 7.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/5	---	Dry	---	---
Completion	4/5	---	Dry	---	---
Casing Pulled	4/5	---	Dry	---	2.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING		TESTS	REMARKS
					DEPTH	DATA		
0.3	Asphalt; 4 inches	FILL	547.7	A	5	S-01, SPT 11+10+9 REC=11", 61%	LL = 64 PL = 43 MC = 32.3% % Passing #200 = 61.7 Resistivity = 41000 Ohms-cm Redox = 466 mv Sulfides = Trace pH = 4.6	FILL
0.6	Crushed stone; 3 inches		547.4			S-02, SPT 3+4+6 REC=7", 39%		
	FILL, sampled as clayey sand, fine to coarse grained sand; moist, light brown, contains mica, and rock fragments Change: orangish brown and brown							
4.0	GRAVELLY ELASTIC SILT; moist, reddish brown, contains mica, and rock fragments	MH	544.0	B	5	S-03, SPT 7+13+17 REC=9", 50%		RESIDUUM
7.0			541.0			S-04, SPT 9+19+17 REC=12", 67%		

Bottom of Boring at 7.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings, borehole plug, and Aquaphalt upon completion.



Schnabel TEST ENGINEERING BORING LOG

Project: ACSA Water Main Replacement
Barracks West
Albemarle County, Virginia

Boring Number: **B-06**
Contract Number: 23430019
Sheet: 1 of 1

Contractor: Ayers & Ayers, Inc.
Powhatan, Virginia
Contractor Foreman: M. White
Schnabel Representative: C. Lewis
Equipment: CME-55 (Truck)
Method: 2-1/4" I.D. Hollow Stem Auger

Hammer Type: Safety Hammer (140 lb)
Dates Started: 4/5/23 **Finished:** 4/5/23
North: 3911049.302 ft **East:** 11479654.73 ft

Ground Surface Elevation: 576± (ft) **Total Depth:** 7.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/5	---	Dry	---	---
Completion	4/5	---	Dry	---	---
Casing Pulled	4/5	---	Dry	---	2.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING		TESTS	REMARKS
					DEPTH	DATA		
0.3	Asphalt; 4 inches	FILL	575.7	A	S-01, SPT 19+10+11 REC=7", 39%			FILL
0.7	Crushed stone; 4 inches		575.3					
	FILL, sampled as sandy fat clay; moist, brown, contains mica							
2.0	SANDY FAT CLAY; moist, orangish brown and reddish brown, contains mica	CH	574.0	B	S-02, SPT 7+9+10 REC=12", 67%		MC = 11.6% Resistivity = 80000 Ohms-cm Redox = 500 mv Sulfides = 0 pH = 4.8	RESIDUUM
4.0	SILTY SAND, fine to coarse grained sand; moist, orangish brown and reddish brown, contains mica	SM	572.0		S-03, SPT 9+16+20 REC=15", 83%			
	Change: grayish brown				S-04, SPT 7+15+20 REC=11", 61%			
7.0			569.0					

Bottom of Boring at 7.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings, borehole plug, and Aquaphalt upon completion.



TEST BORING LOG

Project: ACSA Water Main Replacement
Barracks West
Albemarle County, Virginia

Boring Number: **B-07**
Contract Number: 23430019
Sheet: 1 of 1

Contractor: Ayers & Ayers, Inc.
Powhatan, Virginia
Contractor Foreman: M. White
Schnabel Representative: C. Lewis
Equipment: CME-55 (Truck)
Method: 2-1/4" I.D. Hollow Stem Auger

Hammer Type: Safety Hammer (140 lb)
Dates Started: 4/5/23 Finished: 4/5/23
North: 3910800.436 ft East: 11479439.15 ft

Ground Surface Elevation: 592± (ft) Total Depth: 6.9 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/5	---	Dry	---	---
Completion	4/5	---	Dry	---	---
Casing Pulled	4/5	---	Dry	---	2.5'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING		TESTS	REMARKS
					DEPTH	DATA		
0.4	Asphalt; 4.5 inches		591.6	A				FILL
0.6	Crushed stone; 2.5 inches		591.4					
	FILL, sampled as silty sand, fine to coarse grained sand; moist, gray, contains mica, and rock fragments	FILL				S-01, SPT 28+13+5 REC=12", 67%		
2.0	ELASTIC SILT; moist, reddish brown, contains mica	MH	590.0	B		S-02, SPT 7+3+5 REC=10", 56%		RESIDUUM
4.5	SILTY SAND, fine to coarse grained sand; moist, light brown, contains mica, and rock fragments	SM	587.5			S-03, SPT 10+24+23 REC=12", 67%		
						S-04, SPT 8+17+50/5" REC=10", 59%		
6.5	DISINTEGRATED ROCK, sampled as silty sand, fine to coarse grained sand; moist, light brown and reddish brown	DR	585.5	C				Augers grinding and scraping
6.9			585.1					

Bottom of Boring at 6.9 ft.

Boring terminated at selected depth.

Boring backfilled with cuttings, borehole plug, and Aquaphalt upon completion.



TEST BORING LOG

Project: ACSA Water Main Replacement
Barracks West
Albemarle County, Virginia

Boring Number: B-08
Contract Number: 23430019
Sheet: 1 of 1

Contractor: Ayers & Ayers, Inc.
Powhatan, Virginia
Contractor Foreman: M. White
Schnabel Representative: C. Lewis
Equipment: CME-55 (Truck)
Method: 2-1/4" I.D. Hollow Stem Auger

Hammer Type: Safety Hammer (140 lb)
Dates Started: 4/5/23 **Finished:** 4/5/23
North: 3910727.743 ft **East:** 11479785.39 ft

Ground Surface Elevation: 562± (ft) **Total Depth:** 6.4 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/5	---	Dry	---	---
Completion	4/5	---	Dry	---	---
Casing Pulled	4/5	---	Dry	---	2.2'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING		TESTS	REMARKS
					DEPTH	DATA		
0.3	Asphalt; 4 inches		561.7	A		S-01, SPT 9+7+7 REC=11", 61%		FILL
0.5	Crushed stone; 2 inches		561.5					
	FILL, sampled as silty sand, fine to coarse grained sand; moist, brown, contains mica		560.0	C	5	S-02, SPT 13+31+41 REC=12", 67%	LL = NP MC = 13.7% % Passing #200 = 28.6 Resistivity = 10000 Ohms-cm Redox = 325 mv Sulfides = 0 pH = 6.8	RESIDUUM
2.0	DISINTEGRATED ROCK, sampled as silty sand, fine to coarse grained sand; moist, light brown and orangish brown, contains rock fragments					S-03, SPT 32+36+50/4" REC=8", 50%		
						S-04, SPT 24+50/5" REC=5", 45%		
6.4			555.6					

Bottom of Boring at 6.4 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings, borehole plug, and Aquaphalt upon completion.



TEST BORING LOG

Project: ACSA Water Main Replacement
Barracks West
Albemarle County, Virginia

Boring Number: **B-09**
Contract Number: 23430019
Sheet: 1 of 1

Contractor: Ayers & Ayers, Inc.
Powhatan, Virginia
Contractor Foreman: M. White
Schnabel Representative: C. Lewis
Equipment: CME-55 (Truck)
Method: 2-1/4" I.D. Hollow Stem Auger

Hammer Type: Safety Hammer (140 lb)
Dates Started: 4/5/23 Finished: 4/5/23
North: 3910738.622 ft East: 11478937.87 ft

Ground Surface Elevation: 608± (ft) Total Depth: 2.5 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/5	---	Dry	---	---
Completion	4/5	---	Dry	---	---
Casing Pulled	4/5	---	Dry	---	2.5'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING		TESTS	REMARKS
					DEPTH	DATA		
0.3	Asphalt; 4 inches		607.7					FILL
0.5	Crushed stone; 2 inches		607.5					
	FILL, sampled as clayey sand, fine to coarse grained sand; moist, brown, contains rock fragments	FILL		A		S-01, SPT 10+11+6 REC=12", 67%		
2.5			605.5			S-02, SPT 5 REC=0", 0%		SPT terminated due to underground obstruction.

Bottom of Boring at 2.5 ft.
Boring backfilled with cuttings, borehole plug, and Aquaphalt upon completion.
Boring terminated due to underground obstruction.



Schnabel TEST ENGINEERING BORING LOG

Project: ACSA Water Main Replacement
Barracks West
Albemarle County, Virginia

Boring Number: B-09A
Contract Number: 23430019
Sheet: 1 of 1

Contractor: Ayers & Ayers, Inc.
Powhatan, Virginia
Contractor Foreman: M. White
Schnabel Representative: C. Irizarry
Equipment: CME-45B (ATV)
Method: 2-1/4" I.D. Hollow Stem Auger

Hammer Type: Safety Hammer (140 lb)
Dates Started: 5/3/23 **Finished:** 5/3/23
North: 3910748.325 ft **East:** 11478929.25 ft

Ground Surface Elevation: 608± (ft) **Total Depth:** 10.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/3	---	Dry	---	---
Completion	5/3	---	Dry	---	---
Casing Pulled	5/3	---	Dry	---	5.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING		TESTS	REMARKS
					DEPTH	DATA		
0.5	Asphalt; 6.0 inches		607.5					FILL
	FILL, sampled as sandy elastic silt; moist, dark brown, contains mica, and rock fragments	FILL		A		S-01, SPT 8+12+15 REC=12", 67%		
	Change: yellowish brown					S-02, SPT 10+6+10 REC=10", 56%		
4.0	Change: contains asphalt fragments		604.0					
	SILTY SAND, fine to medium grained sand; moist, reddish brown, contains mica	SM		B	5	S-03, SPT 3+6+8 REC=12", 67%		RESIDUUM
	Change: light brown							
	Change: light brown and gray					S-04, SPT 5+10+11 REC=12", 67%		
						S-05, SPT 4+11+11 REC=13", 72%		
10.0			598.0		10			

Bottom of Boring at 10.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings, borehole plug, and Aquaphalt upon completion.



TEST BORING LOG

Project: ACSA Water Main Replacement
Barracks West
Albemarle County, Virginia

Boring Number: B-10
Contract Number: 23430019
Sheet: 1 of 1

Contractor: Ayers & Ayers, Inc.
Powhatan, Virginia
Contractor Foreman: M. White
Schnabel Representative: C. Irizarry
Equipment: CME-45B (ATV)
Method: 2-1/4" I.D. Hollow Stem Auger

Hammer Type: Safety Hammer (140 lb)
Dates Started: 5/3/23 **Finished:** 5/3/23
North: 3910566.344 ft **East:** 11479151.69 ft

Ground Surface Elevation: 599± (ft) **Total Depth:** 10.0 ft

Groundwater Observations

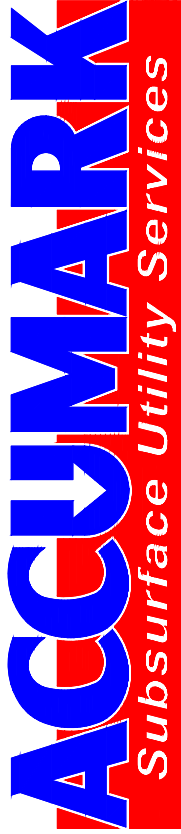
	Date	Time	Depth	Casing	Caved
Encountered	5/3	---	Dry	---	---
Completion	5/3	---	Dry	---	---
Casing Pulled	5/3	---	Dry	---	5.5'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING		TESTS	REMARKS
					DEPTH	DATA		
0.5	Asphalt; 6.5 inches		598.5					FILL
	FILL, sampled as sandy silt; moist, brown and gray, contains mica, and rock fragments	FILL		A		S-01, SPT 11+6+6 REC=12", 67%		
						S-02, SPT 5+5+5 REC=4", 22%		
						S-03, SPT 4+8+7 REC=15", 83%		
5.0	SANDY ELASTIC SILT; moist, reddish brown, contains mica, and rock fragments	MH	594.0		5			RESIDUUM
				B		S-04, SPT 4+9+10 REC=14", 78%		
9.0	SILTY SAND, fine to medium grained sand; moist, light brown, contains mica	SM	590.0			S-05, SPT 6+9+19 REC=18", 100%		
10.0			589.0		10			

Bottom of Boring at 10.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings, borehole plug, and Aquaphalt upon completion.

APPENDIX C

Utility Test Hole Reports



Proud - Professional - Precise

TEST HOLE INVENTORY REPORT - QUALITY LEVEL "A"

ACSA Barracks West Apartments, Charlottesville, VA

Dewberry

Date	TH #	Utility Requested	Utility Found	Existing Grade Depth	Material Type	Utility Elevation	Pavement Thickness	Utility Owner
04/21/23	1	Water	8" Water	A 3.78	Ductile Iron	592.55	0.8' Asphalt	CVL
04/21/23	2	Sanitary Force Main	6" Sanitary Force Main	A 7.03	Concrete	582.83	1.0' Asphalt	CVL
04/24/23	3	Electric	2.25" Electric	A 4.32	DB Cable	593.43	0.8' Asphalt	DOM
04/24/23	4	Telephone	(2) 1" Electric 3.5" Telephone	B 4.32 A 3.47	DB Cable Steel	593.43 595.36	0.8' Asphalt	DOM BTS
04/21/23	5	Gas	2" Gas	A 2.83	Plastic	583.12	0.4' Asphalt	CVL
04/24/23	6	Water, CATV	1.5" CATV 4" Water	A 1.89 B 4.90	Plastic Ductile Iron	552.65 549.64	0.8' Asphalt	CMC CVL
04/24/23	7	Unknown	(2) 4" Unknown	A 1.79	Plastic	561.70	0.8' Asphalt	UNK

Dewberry - Point of Contact: Heather Campbell (804) 205-3351

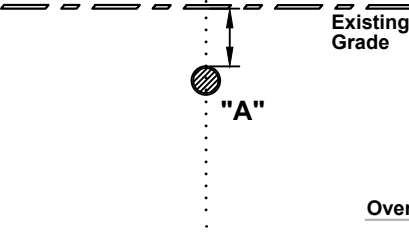
AccuMark - Point of Contact: James Brooks (804) 432-5832

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Subsurface Utility Services

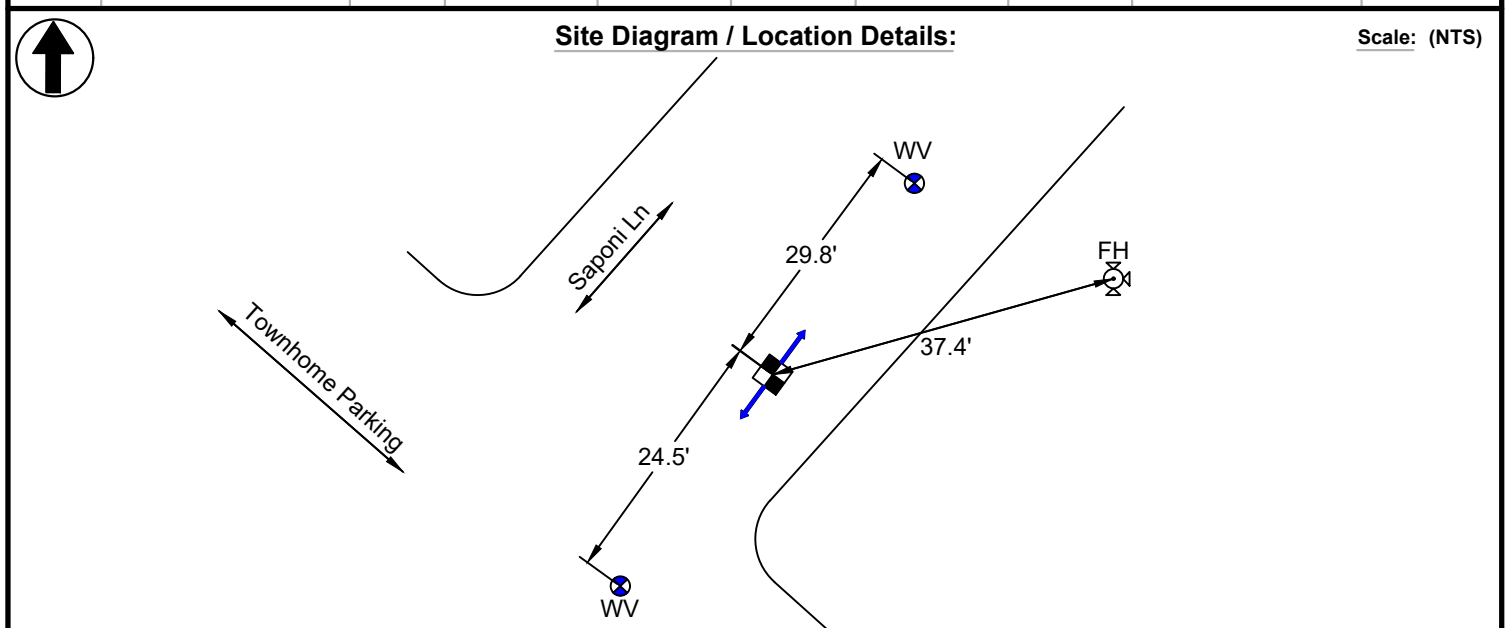
Proud - Professional - Precise
Utility Test Hole Report - Quality Level "A"

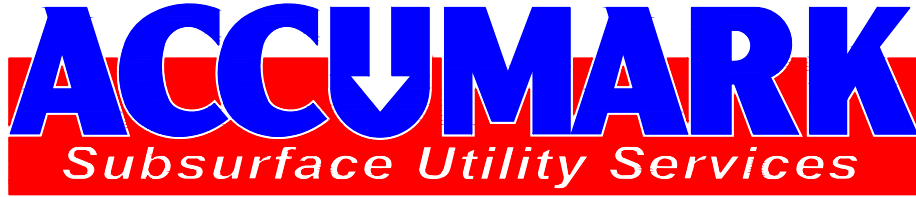
Test Hole #:	1	Accumark Job#:	23-189
Project Name:	ACSA Barracks West Apartments	Client Reference#:	N/A
Requested By:	Dewberry	Test Hole Date:	04/21/23
	Glen Allen, VA	Project Location:	Charlottesville
Point of Contact:	Heather Campbell		Charlottesville, VA
	(804) 205-3351	Soil Conditions:	Clay, Dry, Hard
Utility Requested:	Water	Pavement Condition:	Good 0.8' Asphalt

Test Hole Cross Section		Elevation / Survey Information:	
		Located By: <u>Accumark, Inc.</u> Vertical Datum: <u>NAVD88</u> Benchmarks Used: BM#1 Elev: <u>N/A</u> Description: <u>N/A</u> BM#2 Elev: <u>N/A</u> Description: <u>N/A</u> Test Hole Reference Mark Northing: <u>3910820.28</u> Easting: <u>11479049.77</u> Elevation: <u>596.33</u>	
Drawn Facing:	Overall Utility Width:		
Northeast	9.0" +/-		

General Notes:
Target utility found. PK set over the crown of the target utility.

Exposed Utility Information									
Utility	Utility Found	Utility Size	Material Type	Depth @ Top of Utility	Elevation @ Top	Duct Bank		Utility Owner	Condition
						Bottom Depth	Elevation		
A	Water	8"	Ductile Iron	3.78	592.55	N/A	N/A	CVL	Good





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Utility Test Hole Report - Quality Level "A"

Test Hole #:	<u>1</u>	Project Numbers:	<u>23-189</u>
Project Name:	<u>ACSA Barracks West Apartments</u>		
Client:	<u>Dewberry</u>	Project Location:	<u>Charlottesville, Virginia</u>



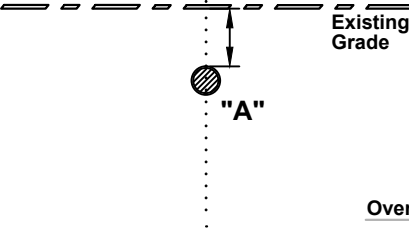
DWH 05/01/23

ACCUMARK

Subsurface Utility Services

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Utility Test Hole Report - Quality Level "A"

Test Hole #:	2	Accumark Job#:	23-189
Project Name:	ACSA Barracks West Apartments	Client Reference#:	N/A
Requested By:	Dewberry	Test Hole Date:	04/21/23
	Glen Allen, VA	Project Location:	Charlottesville
Point of Contact:	Heather Campbell		Charlottesville, VA
	(804) 205-3351	Soil Conditions:	Clay, Dry, Soft
Utility Requested:	Sanitary Force Main	Pavement Condition:	Good 1.0' Asphalt

Test Hole Cross Section		Elevation / Survey Information:	
		Located By:	Vertical Datum
Drawn Facing:		Accumark, Inc.	NAVD88
Northeast		Benchmarks Used:	
		BM#1 Elev: N/A	Description: N/A
		BM#2 Elev: N/A	Description: N/A
		Test Hole Reference Mark	
		Northing:	Easting:
		3910861.13	11479101.74
		Elevation:	
		589.86	
Overall Utility Width:			
7.0" +/-			

General Notes:

Target utility found. PK set over the crown of the target utility.

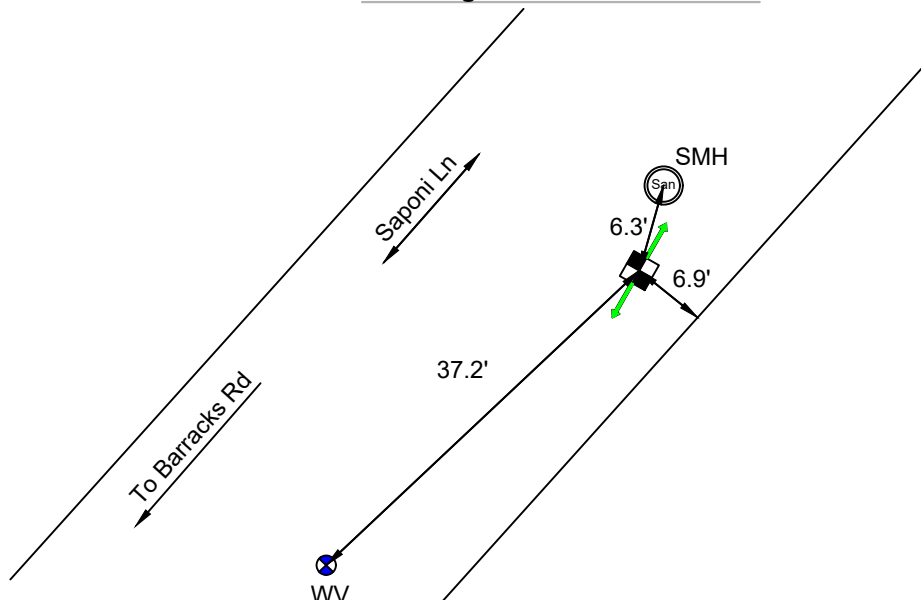
Exposed Utility Information

Utility	Utility Found	Utility Size	Material Type	Depth @ Top of Utility	Elevation @ Top	Duct Bank		Utility Owner	Condition
						Bottom Depth	Elevation		
A	Sanitary Force Main	6"	Concrete	7.03	582.83	N/A	N/A	CVL	Good



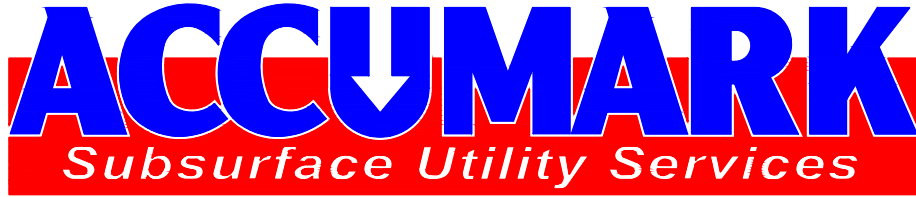
Site Diagram / Location Details:

Scale: (NTS)



Note: This report depicts and describes the conduits or cables that were visible to our crew upon excavating the test hole. There may be additional conduits or cables located below this configuration which were not visible to the test hole crew.

DWH 04/27/23



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Utility Test Hole Report - Quality Level "A"

Test Hole #:	<u>2</u>	Project Numbers:	<u>23-189</u>
Project Name:	<u>ACSA Barracks West Apartments</u>		
Client:	<u>Dewberry</u>	Project Location:	<u>Charlottesville, Virginia</u>



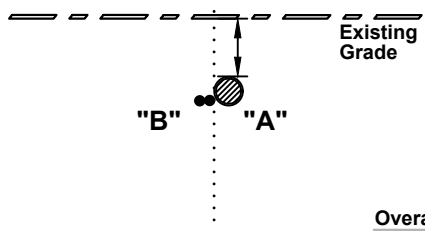
DWH 05/01/23

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Subsurface Utility Services

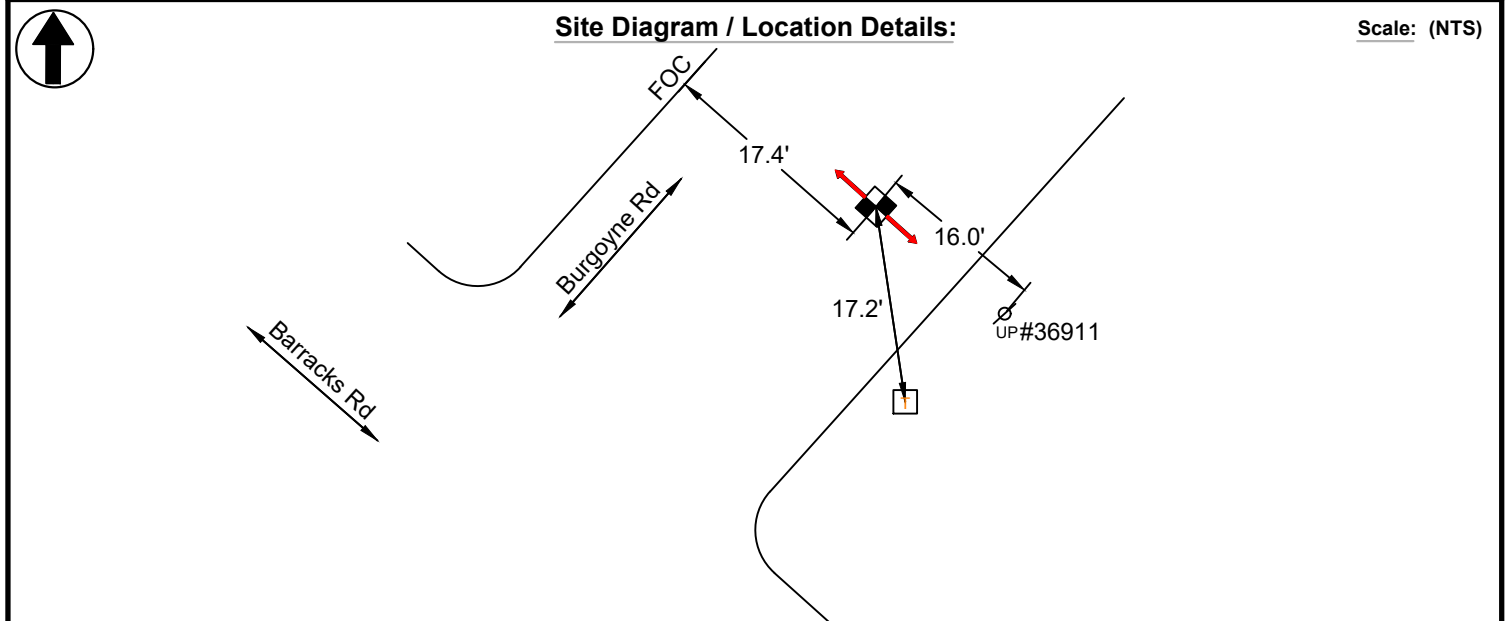
Proud - Professional - Precise
Utility Test Hole Report - Quality Level "A"

Test Hole #:	3	Accumark Job#:	23-189
Project Name:	ACSA Barracks West Apartments	Client Reference#:	N/A
Requested By:	Dewberry	Test Hole Date:	04/24/23
	Glen Allen, VA	Project Location:	Charlottesville
Point of Contact:	Heather Campbell		Charlottesville, VA
	(804) 205-3351	Soil Conditions:	Clay, Soft
Utility Requested:	Electric	Pavement Condition:	Good 0.8' Asphalt

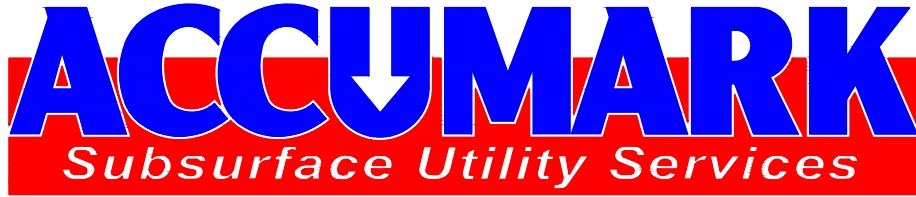
Test Hole Cross Section 		Elevation / Survey Information: Located By: Accumark, Inc. Vertical Datum: NAVD88 Benchmarks Used: BM#1 Elev: N/A Description: N/A BM#2 Elev: N/A Description: N/A Test Hole Reference Mark Northing: 3910568.38 Easting: 11479158.77 Elevation: 597.75	
Drawn Facing:	Northwest	Overall Utility Width:	4.0" +/-

General Notes:
Target utility found. PK set over the center of the utility configuration.

Exposed Utility Information									
Utility	Utility Found	Utility Size	Material Type	Depth @ Top of Utility	Elevation @ Top	Duct Bank		Utility Owner	Condition
						Bottom Depth	Elevation		
A	Electric	2.25"	DB Cable	4.32	593.43	N/A	N/A	DOM	Good
B	Electric	(2) 1"	DB Cable	4.32	593.43	N/A	N/A	DOM	Good



Note: This report depicts and describes the conduits or cables that were visible to our crew upon excavating the test hole. There may be additional conduits or cables located below this configuration which were not visible to the test hole crew.



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Utility Test Hole Report - Quality Level "A"

Test Hole #:	<u>3</u>	Project Numbers:	<u>23-189</u>
Project Name:	<u>ACSA Barracks West Apartments</u>		
Client:	<u>Dewberry</u>	Project Location:	<u>Charlottesville, Virginia</u>



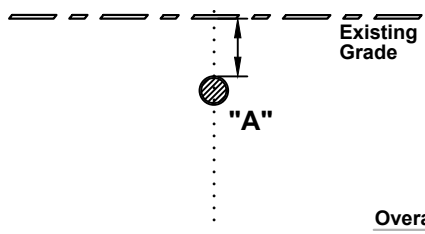
DWH 05/01/23

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Subsurface Utility Services

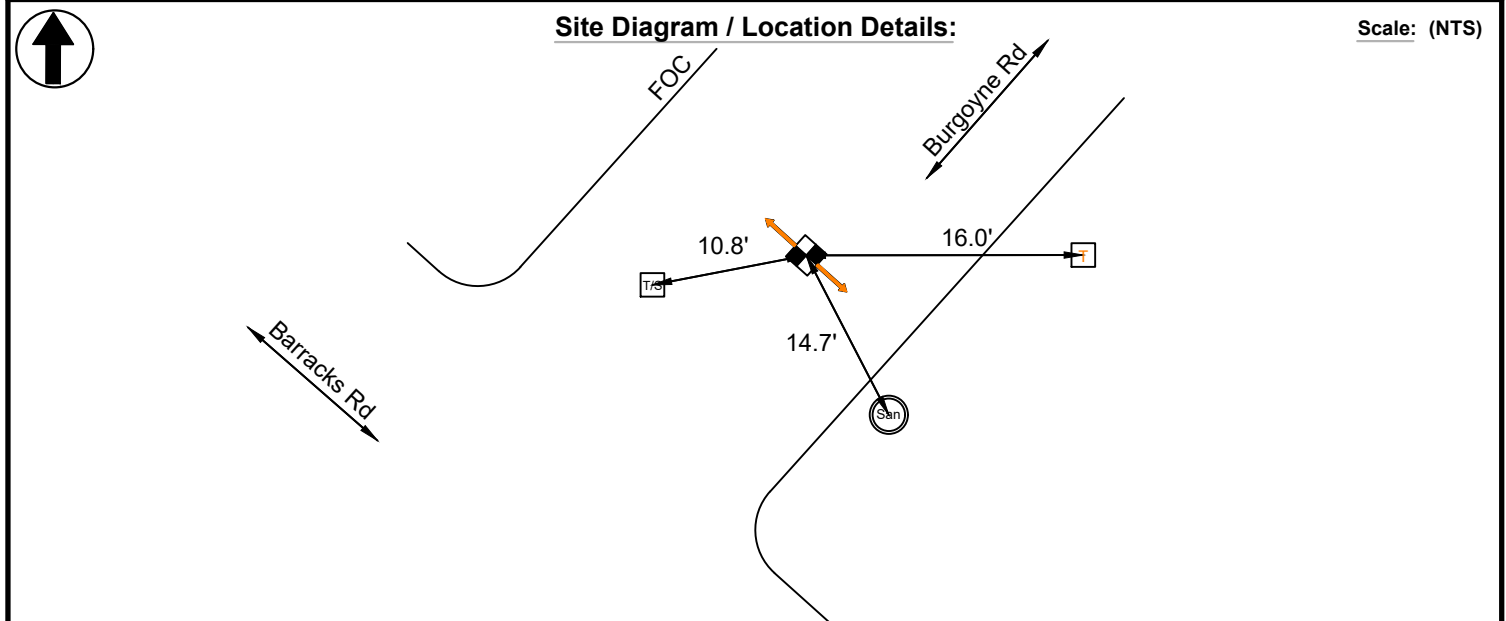
Proud - Professional - Precise
Utility Test Hole Report - Quality Level "A"

Test Hole #:	4	Accumark Job#:	23-189
Project Name:	ACSA Barracks West Apartments	Client Reference#:	N/A
Requested By:	Dewberry	Test Hole Date:	04/24/23
	Glen Allen, VA	Project Location:	Charlottesville
Point of Contact:	Heather Campbell		Charlottesville, VA
	(804) 205-3351	Soil Conditions:	Clay, Soft
Utility Requested:	Telephone	Pavement Condition:	Good 0.8' Asphalt

Test Hole Cross Section 		Elevation / Survey Information: Located By: <u>Accumark, Inc.</u> Vertical Datum: <u>NAVD88</u> Benchmarks Used: BM#1 Elev: <u>N/A</u> Description: <u>N/A</u> BM#2 Elev: <u>N/A</u> Description: <u>N/A</u> Test Hole Reference Mark Northing: <u>3910556.05</u> Easting: <u>11479144.50</u> Elevation: <u>598.83</u>	
Drawn Facing:	Overall Utility Width:		
Northwest	4.0" +/-		

General Notes:
Target utility found. PK set over the crown of the target utility.

Exposed Utility Information									
Utility	Utility Found	Utility Size	Material Type	Depth @ Top of Utility	Elevation @ Top	Duct Bank		Utility Owner	Condition
						Bottom Depth	Elevation		
A	Telephone	3.5"	Steel	3.47	595.36	N/A	N/A	BTS	Good



Note: This report depicts and describes the conduits or cables that were visible to our crew upon excavating the test hole. There may be additional conduits or cables located below this configuration which were not visible to the test hole crew.

ACCUMARK

Subsurface Utility Services

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Utility Test Hole Report - Quality Level "A"

Test Hole #:	<u>4</u>	Project Numbers:	<u>23-189</u>
Project Name:	<u>ACSA Barracks West Apartments</u>		
Client:	<u>Dewberry</u>	Project Location:	<u>Charlottesville, Virginia</u>



DWH 05/01/23

ACCUMARK

Subsurface Utility Services

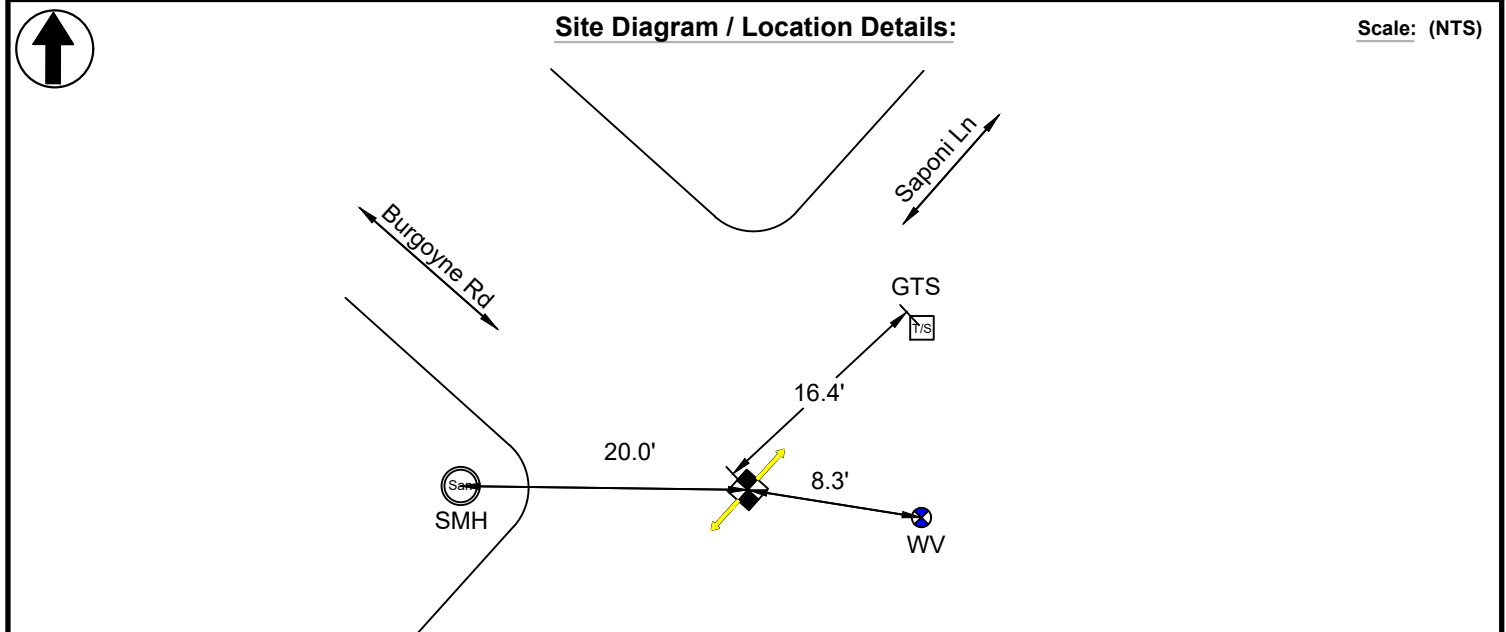
Proud - Professional - Precise
Utility Test Hole Report - Quality Level "A"

Test Hole #:	5	Accumark Job#:	23-189
Project Name:	ACSA Barracks West Apartments	Client Reference#:	N/A
Requested By:	Dewberry	Test Hole Date:	04/21/23
	Glen Allen, VA	Project Location:	Charlottesville
Point of Contact:	Heather Campbell		Charlottesville, VA
	(804) 205-3351	Soil Conditions:	Clay, Soft
Utility Requested:	Gas	Pavement Condition:	Good 0.4' Asphalt

Test Hole Cross Section		Elevation / Survey Information:	
		Located By:	Vertical Datum
		Accumark, Inc.	NAVD88
		Benchmarks Used:	
		BM#1 Elev: N/A	Description: N/A
		BM#2 Elev: N/A	Description: N/A
		Test Hole Reference Mark	
		Northing:	Easting:
		3910926.45	11479167.41
		Elevation:	
		585.95	

General Notes:
Target utility found. PK set over the crown of the target utility.

Exposed Utility Information									
Utility	Utility Found	Utility Size	Material Type	Depth @ Top of Utility	Elevation @ Top	Duct Bank		Utility Owner	Condition
						Bottom Depth	Elevation		
A	Gas	2"	Plastic	2.83	583.12	N/A	N/A	CVL	Good



Note: This report depicts and describes the conduits or cables that were visible to our crew upon excavating the test hole. There may be additional conduits or cables located below this configuration which were not visible to the test hole crew.

ACCUMARK

Subsurface Utility Services

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Utility Test Hole Report - Quality Level "A"

Test Hole #:	<u>5</u>	Project Numbers:	<u>23-189</u>
Project Name:	<u>ACSA Barracks West Apartments</u>		
Client:	<u>Dewberry</u>	Project Location:	<u>Charlottesville, Virginia</u>



DWH 05/01/23

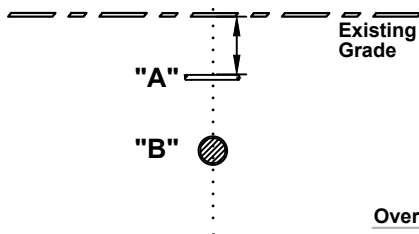
ACCUMARK

Subsurface Utility Services

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Utility Test Hole Report - Quality Level "A"

Test Hole #:	6	Accumark Job#:	23-189
Project Name:	ACSA Barracks West Apartments	Client Reference#:	N/A
Requested By:	Dewberry	Test Hole Date:	04/24/23
	Glen Allen, VA	Project Location:	Charlottesville
Point of Contact:	Heather Campbell		Charlottesville, VA
	(804) 205-3351	Soil Conditions:	Clay, Soft
Utility Requested:	Water, CATV	Pavement Condition:	Good 0.8' Asphalt

Test Hole Cross Section



Drawn Facing:

Northwest

Overall Utility Width:

A - 1.75" B - 4.75" +/-

Elevation / Survey Information:

Located By:		Vertical Datum
Accumark, Inc.		NAVD88
Benchmarks Used:		
BM#1 Elev:	N/A	Description: N/A
BM#2 Elev:	N/A	Description: N/A
Test Hole Reference Mark		
Northing:	Easting:	Elevation:
3911436.71	11479599.94	554.54

General Notes:

Target utility found. Hub & tac set over the intersection of utility "A" and "B".

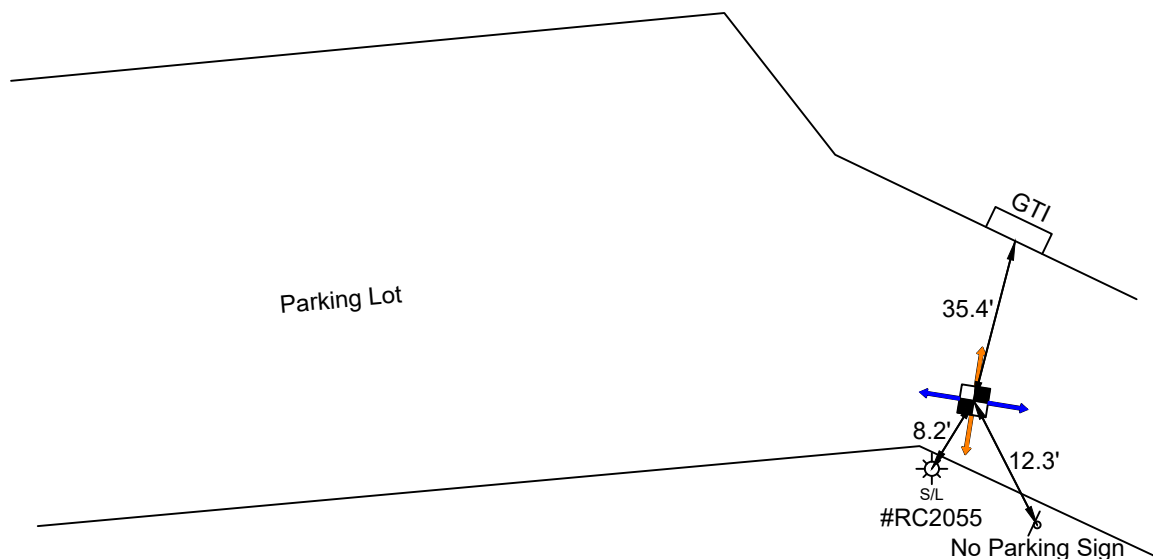
Exposed Utility Information

Utility	Utility Found	Utility Size	Material Type	Depth @ Top of Utility	Elevation @ Top	Duct Bank		Utility Owner	Condition
						Bottom Depth	Elevation		
A	CATV	1.5"	Plastic	1.89	552.65	N/A	N/A	CMC	Good
B	Water	4"	Ductile Iron	4.90	549.64	N/A	N/A	CVL	Good



Site Diagram / Location Details:

Scale: (NTS)



Note: This report depicts and describes the conduits or cables that were visible to our crew upon excavating the test hole. There may be additional conduits or cables located below this configuration which were not visible to the test hole crew.

DWH 04/27/23

ACCUMARK

Subsurface Utility Services

Proud • Professional • Precise

Utility Test Hole Report - Quality Level "A"

Test Hole #:	<u>6</u>	Project Numbers:	<u>23-189</u>
Project Name:	<u>ACSA Barracks West Apartments</u>		
Client:	<u>Dewberry</u>	Project Location:	<u>Charlottesville, Virginia</u>



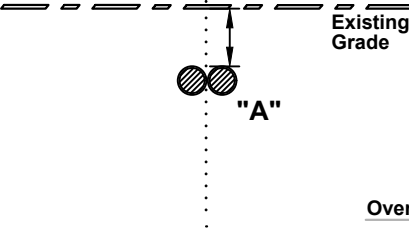
DWH 05/01/23

ACCUMARK

Subsurface Utility Services

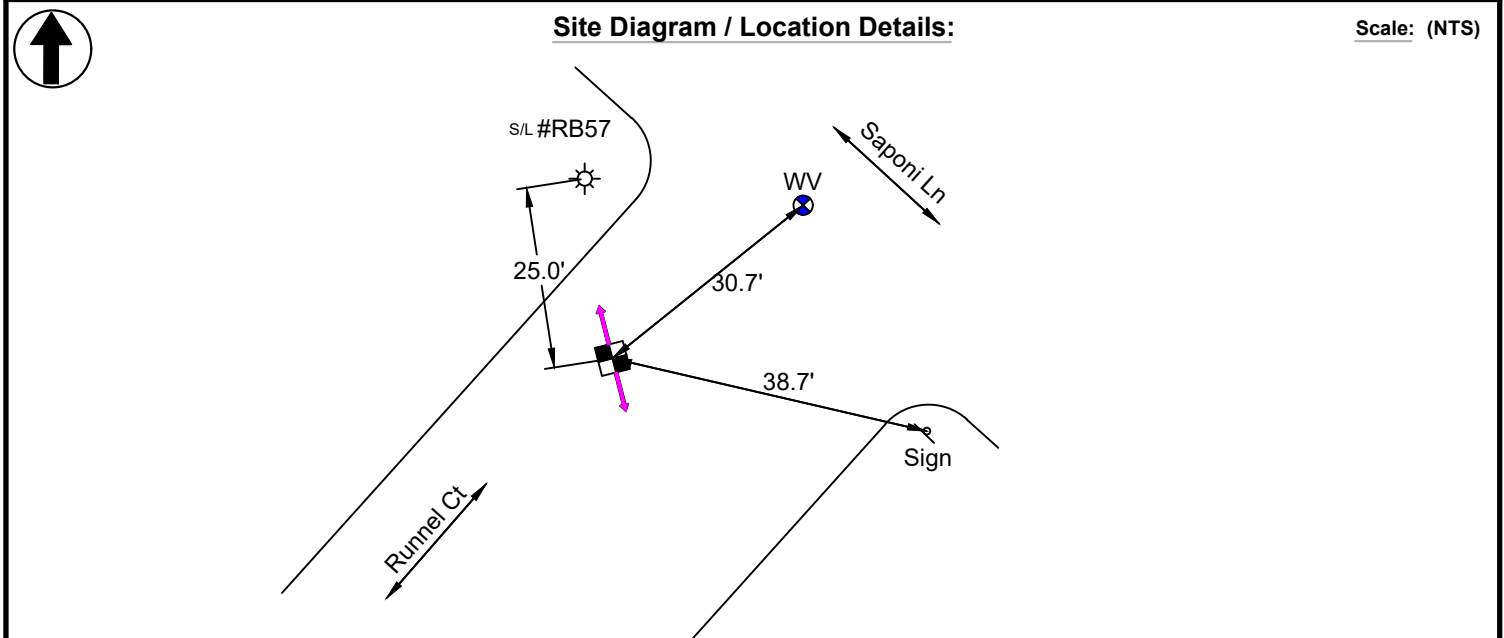
Proud - Professional - Precise
Utility Test Hole Report - Quality Level "A"

Test Hole #:	7	Accumark Job#:	23-189
Project Name:	ACSA Barracks West Apartments	Client Reference#:	N/A
Requested By:	Dewberry	Test Hole Date:	04/24/23
	Glen Allen, VA	Project Location:	Charlottesville
Point of Contact:	Heather Campbell		Charlottesville, VA
	(804) 205-3351	Soil Conditions:	Clay, Soft
Utility Requested:	Unknown	Pavement Condition:	Good 0.8' Asphalt

Test Hole Cross Section		Elevation / Survey Information:	
		Located By: Accumark, Inc. Vertical Datum: NAVD88 Benchmarks Used: BM#1 Elev: N/A Description: N/A BM#2 Elev: N/A Description: N/A Test Hole Reference Mark Northing: 3911245.46 Easting: 11479762.95 Elevation: 563.49	
Drawn Facing:	Northwest	Overall Utility Width:	9.0" +/-

General Notes:
Target utility found. PK set over the center of the utility configuration.

Exposed Utility Information									
Utility	Utility Found	Utility Size	Material Type	Depth @ Top of Utility	Elevation @ Top	Duct Bank		Utility Owner	Condition
						Bottom Depth	Elevation		
A	Unknown	(2) 4"	Plastic	1.79	561.70	N/A	N/A	UNK	Good



Note: This report depicts and describes the conduits or cables that were visible to our crew upon excavating the test hole. There may be additional conduits or cables located below this configuration which were not visible to the test hole crew.

Proud • Professional • Precise

Utility Test Hole Report - Quality Level "A"

Test Hole #:	<u>7</u>	Project Numbers:	<u>23-189</u>
Project Name:	<u>ACSA Barracks West Apartments</u>		
Client:	<u>Dewberry</u>	Project Location:	<u>Charlottesville, Virginia</u>



DWH 05/01/23