



# Augusta County, Virginia

## Notice of Invitation for Bids – Fixed Completion Date

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**Issued Date:** August 24, 2017

**IFB #** 81010-17-03

**Project Title:** VDOT Project # ECON-007-978, M501

UPC #: 110532

Centerview Drive

AND

Centerview Drive Extension Project (Station 17+78 to Station 22+30)

County Funds

**Work Site:** Mill Place Commerce Park, Verona, VA

Sealed Bids for this project will be received at the location stated below subject to the Conditions cited herein until 2:00 p.m. local time **Friday, September 8, 2017** for a Class A Contractor to furnish all labor, and equipment necessary to complete the project known as Centerview Drive - Economic Development Access Project in Augusta County pursuant to the scope of work and specifications as specified.

**Mandatory Contract Completion Date:** **April 30, 2018**

The completed and signed bid form shall be returned in an envelope or package, sealed and addressed as follows:

**Augusta County Government Center  
ATTN: Corey Richie, Senior Purchasing Assistant  
Centerview Drive Project  
Finance Department  
P.O. Box 590  
Verona, VA 24482**

Additional copies of this Notice may be obtained along with the complete Invitation to Bid, including plans/drawings, may be obtained by contacting the Bid Officer:

Corey Richie, Senior Purchasing Assistant  
Finance Department  
Phone: (540) 245-5741 ext. 1  
Email: [crichie@co.augusta.va.us](mailto:crichie@co.augusta.va.us)

A nonrefundable fee of \$70.00 (check only made payable to Augusta County Treasurer) is required for each complete set (a set includes both projects - HARDCOPY) of plans/drawings

(only complete sets will be issued). If delivery via UPC Ground is desired, an additional \$15.00 (for a total of \$85.00 Pre-paid by check only) will be required. Please allow one (1) business day for pickup and two (2) business days for UPS delivery.

AND/OR

A nonrefundable fee of \$50.00 (Pre-paid by check only made payable to Augusta County Treasurer) is required for each electronic copy (includes both projects) of plans/drawings (only complete sets will be issued). Delivery will made via Priority Mail. Please allow one (1) business day for pickup and two (2) to three (3) business days for Priority Mail delivery.

AND/OR

A prospective bidder may access the County's web site at [www.co.augusta.va.us](http://www.co.augusta.va.us) and chose the Featured Services tab / Current Bids tab / 81010-17-03 tab to obtain plans, bidding proposal, and geotechnical reports as desired.

All requests for additional information should be provided in writing by means of a Pre-Bid Question Form available from the Bid Officer. The Pre-Bid Question Form must be directed to the Bid Officer.

**Note: This public body does not discriminate against faith-based organizations in accordance with the *Code of Virginia*, § 2.2-4343.1 or against a bidder or offeror because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment.**

## TABLE OF CONTENTS

Proposed Schedule of Events Checklist	4
Instruction to Bidders	5
Pre-Bid Question Form	12
<b>Bid Form*</b>	13
Contract Fixed Date Time Limit	15
<b>Bid Schedule/Additive Pricing*</b>	16
C-25 VDOT Source of Materials Documentation	19
<b>C-104*</b> Bidders Statement (Affidavit)	21
<b>C-105*</b> Bidders Certification (Affidavit)	22
Contract with General Conditions	24
Special Terms and Conditions	51
Technical Specifications	53
Special Provision Copied Notes	L-1
Special Provision – Non-Discrimination in Employment and Contracting Practices (1-10-17)	L-8
SP105-000100-00 Informal Partnering (R7-12-16)	L-9
SP105-060100-11 Subcontracting (2-9-17)	L-11
SS105-002016-02 Section 105 – Control of Work (12-14-16)	L-12
SS106-002016-01 Section 106 – Control of Material (7-12-16)	L-14
SP107-000110-00 Stormwater Pollution Prevention Plan (SWPPP) (7-12-16)	L-15
SS107-002016-01 Section 107 – Legal Responsibilities (7-12-16)	L-16
Special Provision Section 108.02 – Limitation of Operations (10-18-16)	L-18
Special Provision Controlled Blasting Near Important Karst Features(10-17-16)	L-20
SP108-000100-00 Progress Schedule for Category I Projects (R7-12-16)	L-22
SS208-002016-01 Subbase and Aggregate Base Materials (10-5-16)	L-26
SS210-002016-01 Section 210 – Asphalt Materials (8-22-16)	L-27
SS232-002016-01 Section 232 – Pipe and Pipe Arches (R7-12-16)	L-28
SS242-002016-01 Section 242 – Fences (2-1-17)	L-30
SS244-002016-01 Sectin 244 – Roadside Development Materials (10-5-16)	L-31
SS302-002016-01 Section 302 – Drainage Structures (7-12-16)	L-33
Special Provision – Construction Quality Control Plan (1-26-17)	L-36

(\*Required in Bid submission package)

# Augusta County, Virginia

## Proposed Schedule of Events Checklist

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### Schedule of Events:

- |  |                                |
|--|--------------------------------|
| 1. Advertise and mail solicitations:     | August 24, 2017                |
| 2. Last Date to Submit Written Questions | September 1, 2017 at 4:00 p.m. |
| 3. Bid Due Date/Opening:                 | September 8, 2017 at 2:00 p.m. |
| 4. Review Initial Lowest Bid:            | September 9, 2017              |
| 5. Submit Lowest Bid for Board Approval  | September 13, 2017             |
| 6. Notice of Decision to Award           | September 14, 2017             |
| 7. Awarding of Bid and Contract Signing: | September 27, 2017             |
| 8. Notice to Proceed                     | October 2, 2017                |
| 9. Mandatory Completion Date:            |                                |
| Substantial Completion                   | December 30, 2017              |
| Final Completion                         | April 30, 2018                 |

# Augusta County, Virginia

## Instruction to Bidders

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**The Invitation For Bids (IFB)** consists of the Notice, this Instruction To Bidders, the Bid Form, the Pre-Bid Question Form, the proposed Construction Contract with General Conditions, the Special Conditions (if any), the Scope of Work as described by the Plans and Specifications, other documents listed in the Specifications including any applicable forms to be used, and any addenda which may be issued, specifically including any report from a Pre-Bid Conference, all of which request qualified Bidders to submit competitive prices or bids for providing the described work on the project.

**1. CONDITIONS AT SITE OR STRUCTURE:** Bidders shall visit the site and shall be responsible for ascertaining pertinent local conditions such as location, accessibility, general character of the site or building, and the character and extent of existing work within or adjacent to the site. Claims, as a result of failure to have done so, will not be considered by the County.

**2. EXPLANATIONS TO BIDDERS:** No oral explanation in regard to the meaning of drawings and specifications will be made and no oral instructions will be given before the award of the contract. Discrepancies, omissions or doubts as to the meaning of any IFB document, drawings or specifications shall be communicated in writing to the designated Bid Officer for interpretation. Bidders should use the "Pre-bid Question Form" provided in the bid documents. Bidders must so act to assure that questions reach the Bid Officer at least six (6) business days prior to the time set for the receipt of bids to allow a sufficient time for an addendum to reach them before the submission of their bids. If, however, there are two (2) weeks or less between the first bid advertisement and the time set for receipt of bids, then bidders must submit questions so that they reach the Bid Officer no later than three (3) business days prior to the time set for receipt of bids. Any interpretation made will be in the form of an addendum to the IFB which will be forwarded to all Bidders, and its receipt shall be acknowledged by the Bidder on the Bid Form.

**3. TIME FOR COMPLETION:**

(a) The Contract Completion Date will be designated by the County in the Notice to Proceed in one of the following manners:

(1) If the County specified a mandatory Contract Completion Date in the Invitation for Bids, the date designated in the Notice to Proceed will be no later than that date, or

(2) If a mandatory Contract Completion Date was absent from the Invitation for Bids, the Contract Completion Date designated in the Notice to Proceed will be determined through the bidding process taking into account the Contractor's proposed Time for Completion.

(b) Unless otherwise specified, the Contractor shall achieve Final Completion within thirty (30) days after the date of Substantial Completion.

(c) The Contractor, in preparing and submitting his bid, is required to take into consideration normal weather conditions. Normal weather does not mean statistically average weather, but rather means a range of weather conditions which might be anticipated (*i.e.*, conditions which are not extremely unusual). Normal weather conditions shall be determined from the public historical

records available for the Augusta County area, including the U.S. Department of Commerce, Local Climatological Data Sheets, Oceanic and Atmospheric Administration/Environmental Data and Information Service, National Climatic Center and the National Weather Service. No additional compensation will be paid to the Contractor because of adverse weather conditions; however, an extension of time for abnormal weather will be considered by the County as indicated in the General Conditions.

#### **4. PREPARATION AND SUBMISSION OF BIDS:**

- (a) Bids shall be submitted on the forms furnished, or copies thereof, and shall be signed in ink. Erasures or other changes in a bid must be explained or noted over the signature of the bidder. Bids containing any conditions, omissions, unexplained erasures, alterations or items not called for in the proposal, or irregularities of any kind, may be rejected by the County as being incomplete or non-responsive.
- (b) Each bid must give the complete legal name and full business address of the Bidder and be signed by the Bidder, or the Bidder's authorized representative, with his usual signature. Bids by partnerships must be signed in the partnership name by one of the general partners of the partnership or an authorized representative, followed by the designation/title of the person signing, and a list of the partners. Bids by corporations must be signed with the legal name of the corporation followed by the name of the state in which it is incorporated and by the signature and title of the person authorized to bind it in this matter. The name of each person signing shall be typed or printed below the signature. A signature on a bid by a person who identified his title as "President," "Secretary," "Agent," or other designation without disclosing the principal firm, shall be held to be the bid of the individual signing. When requested by the County, satisfactory evidence of the authority of the officer signing on behalf of the corporation shall be furnished. Trade or fictitious names may be referenced by using "t/a \_\_\_\_\_," but bids shall be in the legal name of the person or entity submitting the bid.
- (c) Bids with the bid guarantee shall be enclosed in a sealed envelope which shall be marked and addressed as indicated by the advertisement. If a contract is for one hundred twenty thousand dollars (\$120,000) or more, or if the total value of all construction, removal, repair or improvements undertaken by the bidder within any twelve-month period is seven hundred fifty thousand dollars (\$750,000) or more, the bidder is required under Title 54.1, Chapter 11, Code of Virginia (1950), as amended, to be licensed in Virginia as a "Class A Contractor." If a contract is for seven thousand five hundred dollars (\$7,500) or more, but less than one hundred twenty thousand dollars (\$120,000), the bidder is required to be licensed in Virginia as a "Class B Contractor." Unless otherwise specified in the Notice of Invitation to Bid, a Class B contractor may bid on project. The bidder shall place on the outside of the envelope containing the bid and shall place in the bid over his signature whichever of the following notations is appropriate and insert his Contractor license/registration number:

Licensed Class \_\_\_ (A or B) Virginia Contractor No. \_\_\_\_\_

If the bidder fails to provide this information on his bid or on the envelope containing the bid and fails to promptly provide said Contractor license number to the County in writing when requested to do so before or after the opening of bids, he shall be deemed to be in violation of Section 54.1-1112 of the Code of Virginia (1950), as amended, and his bid will not be considered.

- (d) The Board for Contractors has interpreted its regulations to mean "a licensed Contractor can bid on a contract which contains work outside his license classification(s) as long as he subcontracts those items for which he is not qualified to perform to licensed contractors with the appropriate License Classification and the work of the second party is incidental to the contract." Therefore,

the County may, as a part of determining whether the Bidder is "responsible," require the apparent low Bidder to submit a listing of his subcontractors along with the license number and classification or specialty of each.

- (e) The bidder must also place its Employer Identification Number (SSN or EIN) in the space provided at the bottom of the Bid Form.

#### **5. BID GUARANTEE:**

- (a) All construction bids (including the Total Base Bid plus all Additive Bid items) shall be accompanied by a Bid Bond or Certified Check payable to the County as obligee in an amount equal to five percent (5%) of the amount of the bid. A Bid Bond must be issued by a surety company which is legally authorized by the Virginia State Corporation Commission to do fidelity and surety business in the Commonwealth of Virginia. Such Bid Bond shall guarantee that the bidder will not withdraw his bid during the period of thirty (30) days following the opening of bids; that if his bid is accepted, he will enter into a formal contract with the County in accordance with the Contract included as a part of the IFB Documents; that he will submit a properly executed and authorized Standard Performance Bond and Standard Labor and Material Payment Bond acceptable in form and content to the County; and that in the event of the withdrawal of said bid within said period, or failure to enter into said contract and give said bonds within ten (10) days after he has received notice of acceptance of his bid, the bidder shall be liable to the County for the difference between the amount specified in said bid and such larger amount of which the County may contract with another party to perform the work covered by said bid, up to the amount of the bid guarantee. This amount represents the damage to the County on account of the default of the bidder in any particular hereof. See Virginia Code § 2.2-4336.
- (b) See Virginia Code § 2.2-4338 for provisions allowing alternative forms of bid security in lieu of a Bid Bond.
- (c) The Bid Bonds or other bid security will be returned to all except the three lowest bidders after the formal opening of bids. The remaining Bid Bonds or bid security will be returned to the Bidders after the County and the accepted Bidder have executed the Contract and the Performance Bond and the Payment Bond have been approved by the County.
- (d) If the required Contract and bonds have not been executed within thirty (30) days after the date of the opening of the bids, then the bond or other bid security of any Bidder will be returned upon his request, provided he has not been notified of the acceptance of his bid prior to the date of such request.

**6. MODIFICATION OF BIDS:** A bidder may withdraw or modify their bid provided that the designated officer or agency of the county has received written notice prior to the deadline fixed for bid receipt. The withdrawal or modification must be signed again by the authorized representative of the contractor making the modification or withdrawal. Written modification may be made by a revised sealed bid form, by a writing on the envelope, or by a separate document. The modification should state specifically what is to be modified and by what amount or state the item to be modified and what the correct amount should be. **Unless otherwise specified by the Bidder, the modification will be applied to the TOTAL BASE BID amount shown on the Bid Form.** In order to maintain the integrity of the sealed bidding process, modifications should be phrased as increases or decreases in the total bid (i.e. minus \$5000); they should not state a new total base bid. **The County will not accept bid withdrawals or modifications by telegram, facsimile, or email.**

#### **7. RECEIPT OF BIDS:**

- (a) Bids will be received at or before the date and the hour and at the place stipulated in the Invitation for Bids as may be modified by subsequent Addenda.
- (b) It is the responsibility of the Bidder to assure that his bid and any bid modifications are delivered to the place designated for receipt of bids by the date and hour (deadline) set for receipt of bids. Therefore, it is the Bidder's responsibility to take into account all factors which may impact on its bid deliverer/courier's ability to deliver the bid and to implement whatever actions are necessary to have the bid delivered to the proper bid receipt location prior to the bid receipt deadline. No bids or bid modifications submitted or offered after the date and hour designated for receipt of bids will be accepted or considered. **Again, the County will not accept any bid, bid withdrawal, or bid modification by telegram, facsimile, or email.**
- (c) The Bid Officer is the County's representative designated to receive bids at the time and place noted in the IFB and to open the bids received at the appointed time. The completed and signed bid form shall be returned in an envelope or package, sealed and addressed as follows:

**Augusta County Government Center  
ATTN: Corey Richie, Senior Purchasing Assistant  
Centerview Drive Project  
Finance Department  
P.O. Box 590  
Verona, VA 24482**

- (d) **The official time used for the receipt of responses is determined by reference to the clock designated by the Bid Officer.** The Bid Officer shall determine when the Bid Receipt Deadline has arrived and shall announce that the Deadline has arrived and that no further bids or bid modifications will be accepted. All bids and bid modifications in the possession of the Bid Officer and his assistants at the time the announcement is completed are deemed to be timely, whether or not the bid envelope has been physically date/time stamped or otherwise marked by the time the Bid Officer makes the deadline announcement.

#### **8. OPENING OF BIDS:**

- (a) Bids will be opened at the time and place stated in the Invitation for Bids or as modified by subsequent Addenda, and their contents publicly announced. The Bid Officer shall decide when the specified time for bid opening has arrived. No responsibility will be attached to any officer or agent for the premature opening of a bid not properly addressed and identified.
- (b) The provisions of § 2.2-4342 of the Code of Virginia (1950), as amended, shall be applicable to the inspections of bids received.

**9. ERRORS IN BIDS:** A Bidder may withdraw his bid from consideration if the price bid was substantially lower than the other bids due solely to a mistake therein, provided the bid was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional arithmetic error or an unintentional omission of a quantity of work, labor or material made directly in the compilation of a bid, which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection or original work papers, documents and materials used in the preparation of the bid sought to be withdrawn.

County policy requires that bidders for public construction contracts be given an opportunity to withdraw their bids due to error. The withdrawal procedure outlined below will be utilized:

Withdrawal procedure: the Bidder shall give notice in writing of his claim of right to withdraw his bid within two (2) business days after the conclusion of the bid opening procedure and shall submit original work papers, documents, and materials used in the preparation of the bid with such notice. The contract shall not be awarded until the two (2) working day period has lapsed.

The delivery of a Bidder's original work papers, documents, and other materials used in preparation of the bid must be submitted either in person or by registered mail. The County will treat the materials as trade secrets or proprietary information subject to the conditions of subsection F of Virginia Code § 2.2-4342.

No bid shall be withdrawn under this section when the result would be the awarding of the contract to another bid of the same Bidder or of another Bidder in which the ownership of the withdrawing bidder is more than five (5) percent.

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.

If a bid is successfully withdrawn, the lowest remaining bid shall be deemed to be the lowest bid. However, the County may deny the withdrawal of a bid subsequent to Virginia Code § 2.2-4330. The County must notify the Bidder in writing of its decision stating its reasons and award the contract to such Bidder at the bid price, provided that such Bidder is responsible and responsive.

**10. REJECTION OF BIDS:** The County reserves the right to cancel the Invitation for Bid and to reject all bids at its sole discretion when such rejection is in the interest of the County, or to reject the bid of any Bidder who is determined to be not responsive or responsible. A statement justifying the decision to reject all bids will be placed in the procurement file.

**11. DETERMINATION OF RESPONSIBILITY:** Each bidder shall be prepared, if so requested by the County, to present evidence of his experience, qualifications and financial ability to carry out the terms of the Contract.

Prior to award of the Contract, an evaluation will be made to determine if the low Bidder has the capability, in all respects, to perform fully the contract requirements and the moral and business integrity and reliability which will assure good faith performance, and who has been pre-qualified, if required. Factors to be evaluated include, but are not limited to:

- (a) sufficient financial ability to perform the contract as evidenced by the bidder's ability to obtain payment and performance bonds from an acceptable surety;
- (b) appropriate experience to perform the Work described in the bid documents;
- (c) any judgments entered against the bidder, or any officers, directors, partners or owners for breach of a contract for construction;
- (d) any substantial noncompliance with the terms and conditions of prior construction contracts with a public body without good cause where the substantial noncompliance is documented;

- (e) a conviction of the bidder or any officer, director, partner, project manager, procurement manager, chief financial officer, or owner in the last five years of a crime relating to governmental or non-governmental construction or contracting; or
- (f) any current debarment of the contractor, any officer, director or owner, from bidding or contracting by any public body of any state, any state agency, or any agency of the federal government.

The County reserves the right to disqualify or refuse to accept the bid of any Bidder who has been convicted, or entered a plea of guilty or *nolo contendere*, in any federal or state court to any charge involving any unlawful, corrupt or collusive practice involving a public contract whether federal, state or local, or who has been determined in any judicial proceeding to have violated any antitrust, bid-rigging or collusive practice statute in connection with any public contract, or against whom such formal criminal prosecution or other judicial proceeding has been instituted.

A Bidder who, despite being the apparent low Bidder, is determined not to be a responsible bidder shall be notified in writing in conformance with the procedures in section 2.2-4359 of the Code of Virginia (1950), as amended.

## 12. AWARD OF CONTRACT:

- (a) **Basis for Contract Award:** The Contract, if awarded, will be awarded to the lowest responsive and responsible Bidder, if any, provided his bid is reasonable and it is in the best interest of the County to accept it and subject to the County's right to reject any and all bids and to waive informality in the bids and in the bidding. The Bid Form may contain a multi-part Base Bid and may contain Additive Bid Items. Determination of the lowest responsive Bidder, if any, will be based on the Total Base Bid Amount **entered on the Bid Form** including any properly submitted bid modifications plus as many Additive Bid Items taken in sequence as the County in its discretion chooses to award. **Where the sum of the values entered in the multiple parts do not agree with the Total Base Bid amount, the Total Base Bid amount entered on the bid form, including any properly submitted bid modifications, shall take precedence. Also, where there is a discrepancy between the total base bid in its written format and the total base bid in its numeric format, the written format shall prevail.**
- (b) **Lowest Bidder:** The lowest bidder is normally the bid that guarantees the performance of the contract requirements for the least dollar amount within a reasonable amount of time. However, the County may take into account variations in the bids' times for completion by considering the possibility of either a positive or negative fiscal impact. In their discretion, the County may perform a cost-savings analysis taking into account potential profits from use, savings on other expenses, and any other financial benefits that may derive from an earlier completion date. If after such analysis a bid with a greater Total Base Bid and earlier completion date is determined to actually be the lowest bidder, that bidder will be awarded the contract.
- (c) **Informalities:** The County reserves the right to waive any informality in the bids when such waiver is in the interest of the County.
- (d) **Negotiation With Lowest Responsible Bidder:** If award of a contract to the lowest responsive and responsible Bidder is precluded because of limitations on available funds, under the provisions of Virginia Code § 2.2-4318 (the Public Procurement Act), the County reserves the right to negotiate the Total Base Bid amount with the lowest responsive, responsible Bidder to obtain a contract price within the available funds. This may involve changes in either the features

or scope of the work included in the Base Bid. Such negotiations with the apparent low Bidder may include reducing the quantity, quality, or other cost saving mechanisms involving items in the Total Base Bid. Negotiations for Additive Bid Items are excluded. The County shall notify the lowest responsive and responsible Bidder that such a situation exists and the County and Bidder shall then conduct their negotiations in person, by mail, by telephone or by any means they find convenient. If an acceptable contract can be negotiated, the changes to the Invitation for Bid documents agreed upon in the negotiations shall be summarized in a "Post Bid Modification" and included in the contract. If an acceptable contract cannot be negotiated, the County shall terminate negotiations and reject all bids.

- (e) **Notice of Award:** The Notice of Award, the Notice of Intent to Award, or the Notice of Decision to Award will be posted at the County's standard location for posting notices. In addition the County may also post such notice on the County's website.

**13. ETHICS IN PUBLIC CONTRACTING:** The provisions, requirements and prohibitions as contained in § 2.2-4367 *et seq.* Code of Virginia (1950), as amended, pertaining to bidders, offerers, contractors, and subcontractors are applicable to this project.

# Augusta County, Virginia

## Pre-Bid Question Form

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**Project Title:** Centerview Drive (UPC #: 110532) and **IFB# 81010-17-03**  
Centerview Drive Extension Project (Station 17+78 to Station 22+30)

The undersigned potential Bidder would like to request a written clarification, interpretation, or explanation to the following question or question(s):

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Please note that all questions should be directed to the Bid Officer designated on the Notice of Invitation to Bid and should be received at least six (6) business days prior to the time set for the receipt of bids to allow for sufficient time for an addendum to reach all Bidders. If there are two (2) weeks or less between the issuance of the Invitation to Bid and the time set for receipt of bids, then Bidders may continue to submit questions up until three (3) business days prior to the time set for receipt of bids.

The County will endeavor to respond to all inquiries in the most timely manner possible. However, if in their discretion they determine the inquiry to be inappropriate for any reason, the County may refuse to respond. Multiple inquiries of substantially the same question may be answered in one addendum.

Firm Name and Address:

_____	Telephone (____) _____
_____	Fax (____) _____
_____	Email _____

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Title: \_\_\_\_\_

# Augusta County, Virginia

## Bid Form

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**Project Title:** Centerview Drive (UPC #: 110532) and **IFB# 81010-17-03**  
 Centerview Drive Extension Project (Station 17+78 to Station 22+30)

**Qualification of Bidders:**

Under Virginia law, all bidders must prove their eligibility to perform and / or satisfy the requirements of this contract before bidding. To this end, all bidders must be properly licensed in Virginia prior to beginning work or certified and have not been debarred.

Bidders must also have the capability in all respects to fully satisfy all of the contractual requirements.

**Years in Business:**

Indicate the length of time your firm has been in business providing this type of construction:  
 \_\_\_\_\_ years \_\_\_\_\_ months.

**References:**

Indicate below a listing of at least three (3) **recent** references for whom you have provided construction of **similar scope and time frame**. Include the date service was furnished and the name and address of the person bid officer has your permission to contact.

Date	Client	Telephone Number / Contact
		(    ) _____
		_____
		_____
		(    ) _____
		_____
		_____
		(    ) _____
		_____
		_____

**Bidder’s Proposal:**

The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the County in the form included in the Invitation to Bid to perform all work as specified or indicated for the prices and within the time indicated in this Bid and in accordance with the terms and conditions of the Invitation to Bid.

*Bidder accepts all of the terms and conditions of the Invitation to Bid including the Instructions to Bidders. Specifically, the Bidder accepts without limitation those terms and conditions dealing with the disposition of Bid Security. The Bid will remain subject to acceptance for 180 (one hundred eighty) days after the Bid opening, or for such longer period of time that the Bidder may agree to in writing upon request of the County.*

**Bidder’s representations:**

In submitting this Bid, Bidder represents, as set forth in the Invitation for Bids, that:

- A. Bidder has examined and carefully studied all documents contained in the Invitation to Bid and the following addenda, receipt of which is hereby acknowledged.

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- B. Bidder 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. Bidder 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. Bidder has carefully studied all applicable explorations and tests including, but not limited to, subsurface and / or hazardous environmental conditions.
- E. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the work at the price bid.
- F. Bidder is aware of the general nature of work to be performed by the County and others at the site that relates to the work.
- G. Bidder has given the County written notice of all conflicts, errors, ambiguities, or discrepancies that the Bidder has discovered in the Invitation to Bid and subsequent addendum, and the written resolution thereof by the County is acceptable.
- H. The Invitation for Bids and subsequent addendum are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the work for which this Bid is submitted.

Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over the County.

Bidder will complete the Work in accordance with the Contract Documents for the following, in accordance with the attached Bid Schedule:

**Project # ECON-007-978, M501 (UPC #:110532) – Centerview Drive – Access Funds**

**PROJECT BID:** (MUST BE IN NUMERIC AND WRITTEN FORMAT) \$ \_\_\_\_\_ (NUMERIC)

\_\_\_\_\_dollars (WRITTEN)  
This blank is your lump sum bid for the Access Road project only. This figure is for VDOT programming purposes only. The written entry will take precedence over the numeric entry.

**Project # Centerview Drive Extension (Station 17+78 to Station 22+30) – County Funds**

**PROJECT BID:** (MUST BE IN NUMERIC AND WRITTEN FORMAT) \$ \_\_\_\_\_ (NUMERIC)

\_\_\_\_\_dollars (WRITTEN)  
This blank is your lump sum bid for the Extension project only. This figure is for VDOT programming purposes only. The written entry will take precedence over the numeric entry.

The above two bids should equal the TOTAL BASE BID below.

**TOTAL BASE BID:** (MUST BE IN NUMERIC AND WRITTEN FORMAT) \$ \_\_\_\_\_  
(NUMERIC)

\_\_\_\_\_dollars (WRITTEN)  
This blank is your definite bid. Failure to correctly complete this blank will not be considered an informality under any circumstances. The written entry will take precedence over the numeric entry.

**EARLIEST POSSIBLE START DATE:** \_\_\_\_\_

**BID SCHEDULE/ADDITIVE PRICING:**

In the event of additions or deductions to the work required by the Contract Documents, the Contractor will be paid extra or shall credit the Owner, as the case may be, on the basis of the unit prices quoted herein. Prices shall include all overhead, profit, labor, materials, equipment and incidental work and shall be the sum total compensation payable or creditable for such items of work in place. These unit prices shall be good for the duration of the contract.

The quantities shown below are for informational purposes only. The contractor shall make his own determination as to the accuracy of these quantities and shall use these quantities at his own risk.

Bids will be considered irregular and may be rejected if the unit prices contained in the bid are obviously unbalanced so that they are substantially in excess of the cost analysis values as determined by the Augusta County Engineer's Office. Augusta County reserves the right to reject an individual unit price included herein.

<b>CENTERVIEW DRIVE (UPC 110532)</b>						
<b>UNIT PRICE - BID SCHEDULE</b>						
<b>Item Code</b>	<b>Spec. No.</b>	<b>Description</b>	<b>Estimated Quantities</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total (\$)</b>
00100	513	Mobilization	1	LS		
00101	517	Construction Survey	1	LS		
00110	301	Clearing and Grubbing	1	AC		
51910	315	Saw Cut Existing Pavement	36	LF		
00120	303	Regular Exc Cut to Fill (Roadway)	3250	CY		
		Regular Exc. Cut to Fill (Onsite)	2560	CY		
00124	303	Rock Excavation	580	CY		
01156	302	15" HDPE	430	LF		
		15" HDPE End Section	3	EA		
		PVC Sleeve 6"	50	LF		
06818	302	Drop Inlet DI-3B, L=6'	2	EA		
06835	302	Drop Inlet DI-3C, L=6'	2	EA		
07508	302	Drop Inlet DI-7, Grate I B	1	EA		
69627	204,245, 303,414	Dry Rip-Rap Class A1	17	TON		
N/A	245, 414	Geotextile Drainage Fabric (for Rip Rap Bedding Matl)	14	SY		
00585	501	Underdrain CD-2	130	LF		
00588	501	Underdrain UD-4	2491	LF		
00596	302	Endwall EW-12	2	EA		
10607	211,315	Asphalt Concrete Type SM-12.5A	547	TON		
10611	211,315	Asphalt Concrete Type IM-19.0A	547	TON		
10643	211,315	Asphalt Concrete Type BM-25.0A	820	TON		
10128	208,309	Aggregate Base Material Type 1, No. 21B	2186	TON		
13220	504	Hydraulic Cement Conc. Sidewalk 4"	372	SY		

00525	217	Concrete Class A3 Miscellaneous (Handicap Ramps)	19	CY		
12600	105, 502	Standard Combination Curb and Gutter CG-6	1848	LF		
12610	105, 502	Radial Combination Curb and Gutter CG-6	689	LF		
13108	105, 502	CG-12 Detectable Warning Surface	14	SY		
13212	219, 503	R/W Monument RM-2	16	EA		
N/A	PLANS	Misc. MOT	1	LS		
N/A	602,603	Topsoil, Permanent Seed, Mulch, Fertilizer & Lime	4	AC		
N/A	603	Temporary Seeding	3	AC		
N/A	107,303	Construction Entrance	1	EA		
27451	107,242, 303	Inlet Protection (TY. A)	3	EA		
27461	107,242, 303	Inlet Protection (TY. B)	6	EA		
27321	244,606	Protective Cover EC-2	1636	SY		
27340	303	Siltation Control Excavation	750	CY		
	LOCAL	CL 52 Ductile Iron Water Line 6 "	10	LF		
	LOCAL	CL 52 Ductile Iron Water Line 8 "	517	LF		
	LOCAL	8" Gate Valve	2	EA		
	LOCAL	8"x6"x8" Tee	1	EA		
	LOCAL	8" Cap	1	EA		
N/A	LOCAL	Furnish and Install Fire Hydrant and Valve	1	EA		
N/A	LOCAL	Install Water Line Warning Tape	517	LF		
N/A	LOCAL	Install Water Line Warning Tape Overtop of 6" Sleeve	50	LF		

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for any additive / deductive Bid items will be based on actual quantities provided, determined as provided in the Contract Documents.

Bidder accepts the provisions of the agreement as to liquidated damages in the event of failure to complete the work within the times specified.

Firm Name and Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone (    ) \_\_\_\_\_

Fax (    ) \_\_\_\_\_

Email: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Type/Print: \_\_\_\_\_

Title: \_\_\_\_\_

EIN#: \_\_\_\_\_





**COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION**

PROJECT: ECON-007-978, C501

CONTRACT I.D. NUMBER: IFB# 81010-17-03

PROJECT: Centerview Drive Extension (Station 17+78 to Station 22+30)

This form must be completed, signed and returned with bid; and failure to do so may result in the rejection of your bid. **THE CONTRACTOR SHALL AFFIRM THE FOLLOWING STATEMENT EITHER BY SIGNING THE AFFIDAVIT AND HAVING IT NOTARIZED OR BY SIGNING THE UNSWORN DECLARATION UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE UNITED STATES.** A SEPARATE FORM MUST BE SUBMITTED BY EACH PRINCIPAL OF A JOINT VENTURE BID.

**STATEMENT.** In preparation and submission of this bid, I, the firm, corporation or officers, agents or employees thereof did not, either directly or indirectly, enter into any combination or arrangement with any persons, firm or corporation or enter into any agreement, participate in any collusion, or otherwise take any action in the restraint of free, competitive bidding in violation of the Sherman Act (15 U.S.C. Section 1) or Article 1.1 or Chapter 12 of Title 18.2 (Virginia Governmental Frauds Act), Sections 59.1-9.1 through 59.1-9.17 or Sections 59.1-68.6 through 59.1-68.8 of the Code of Virginia.

**AFFIDAVIT**

The undersigned is duly authorized by the bidder to make the foregoing statement to be filed with bids submitted on behalf of the bidder for contracts to be let by the Commonwealth Transportation Board.

Signed at \_\_\_\_\_, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_  
County (City), STATE

\_\_\_\_\_  
(Name of Firm) By: \_\_\_\_\_ Title (print)  
STATE of \_\_\_\_\_ COUNTY (CITY) of \_\_\_\_\_

To-wit: I \_\_\_\_\_, a Notary Public in and for the State and

County(City) aforesaid, hereby certify that this day \_\_\_\_\_ personally appeared before me and made oath that he is duly authorized to make the above statements and that such statements are true and correct.

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_  
My Commission expires \_\_\_\_\_

Notary Public

**OR  
UNSWORN DECLARATION**

The undersigned is duly authorized by the bidder to make the foregoing statement to be filed with bids submitted on behalf of the bidder for contracts to be let by the Commonwealth Transportation Board.

Signed at \_\_\_\_\_, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_  
County (City), STATE

\_\_\_\_\_  
(Name of Firm) By: \_\_\_\_\_ Title (print)  
(Signature)

**COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION  
AFFIDAVIT**

PROJECT: ECON-007-978, C501  
PROJECT: Centerview Drive Extension (Station 17+78 to Station 22+30)

CONTRACT I.D. NUMBER: IFB# 81010-17-03

This form must be completed, signed, notarized and returned with bid; and failure to do so, may result in the rejection of your bid. A separate form must be submitted by each principal of a joint venture bid.

- I, the firm, corporation or officers, agents or employees thereof have neither directly nor indirectly entered into any combination or arrangement with any person, firm or corporation or entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract, the effect of which is to prevent competition or increase the cost of construction or maintenance of roads or bridges.

During the preceding twelve months, I (we) have been a member of the following Highway Contractor's Associations, as defined in Section 33.2-1106 of the Code of Virginia. (If none, so state).

NAME	Location of Principal Office
_____	_____
_____	_____
_____	_____

- I (we) have \_\_\_\_\_, have not \_\_\_\_\_, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that I/We have \_\_\_\_\_, have not \_\_\_\_\_, filed with the joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

**Note:** The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor [41 CFR 60-1.7(b)(1)], and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contract or subcontracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contract and subcontract unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

(Continued)

3. The bidder certifies to the best of its knowledge and belief, that it and its principals:
- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any Federal department or agency;
  - (b) Have not within a three year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offence in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
  - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated above; and
  - (d) Where the bidders is unable to certify to any of the statements in this certification, the bidder shall show an explanation below.

Explanations will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any explanation noted, indicate below to whom it applies, initiating agency, and dates of action. Providing false information may result in federal criminal prosecution or administration sanctions. The bidder shall provide immediate written notice to the Department if at any time the bidder learns that its certification was erroneous when submitted or has become erroneous by reason of change circumstances.

The undersigned is duly authorized by the bidder to make the foregoing statements to be filed with bids submitted on behalf of the bidder for contracts to be let by the Commonwealth Transportation Board.

Signed at \_\_\_\_\_, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_  
County (City), STATE

\_\_\_\_\_  
(Name of Firm) By: \_\_\_\_\_ (Signature) \_\_\_\_\_ Title (print)

STATE of \_\_\_\_\_ COUNTY (CITY) of \_\_\_\_\_

To-wit: \_\_\_\_\_

I \_\_\_\_\_, a Notary Public in and for the State and County(City) aforesaid, hereby certify that this day \_\_\_\_\_

personally appeared before me and made oath that he is duly authorized to make the above statements and that such statements are true and correct.

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_  
My Commission expires \_\_\_\_\_

Notary Public

**AUGUSTA COUNTY, VIRGINIA  
CONSTRUCTION CONTRACT  
WITH GENERAL CONDITIONS**

**Project Title: Centerview Drive (UPC #: 110532) and Centerview Drive Extension Project (Station 17+78 to Station 22+30) IFB# 81010-17-03**

THIS AGREEMENT, made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and between **THE COUNTY OF AUGUSTA, VIRGINIA**, a political subdivision of the Commonwealth of Virginia, hereinafter referred to as "County" or "Owner," and \_\_\_\_\_, hereinafter referred to as "Contractor."

W I T N E S S E T H:

For and in consideration of the mutual covenants contained herein, the parties agree as follows:

1. Contract documents. The Contract between County and Contractor shall consist of this document signed by the County and Contractor and the following documents which are expressly incorporated herein:

- A. The Invitation for Bids and the Bid submitted.
- B. General Conditions.
- C. Special Conditions.
- D. The Plans and Specifications.
- E. All modifications, including addenda and subsequent change orders.
- F. Any other documents expressly incorporated herein, or in any other

construction document.

2. Contractor's obligations. the contractor shall (A) furnish all of the materials and perform all of the work in the construction of \_\_\_\_\_

\_\_\_\_\_, hereinafter called the "Work," as more specifically defined in the attached General Conditions, in accordance with the attached Plans and Specifications on the land owned by the County designated as

\_\_\_\_\_ in Augusta County, Virginia; and (B) perform and observe all its other obligations under the Contract Documents.

3. County's obligations. The County shall (A) pay the Contractor the Contract Price for its performance, in accordance with and subject to the applicable provisions in the attached Special Conditions; (B) obtain any needed construction financing; and (C) perform and observe all its other obligations under the Contract Documents.

4. Contract price. The contract price shall be the total base bid plus or minus any modifications, including addenda and subsequent change orders. The total base bid is \$\_\_\_\_\_.

WITNESS the following signatures and seals:

COUNTY OF AUGUSTA, VIRGINIA

By: \_\_\_\_\_

(SEAL)

ATTEST: \_\_\_\_\_

\_\_\_\_\_  
Contractor

By: \_\_\_\_\_

(SEAL)

ATTEST: \_\_\_\_\_

**AUGUSTA COUNTY, VIRGINIA  
CONSTRUCTION CONTRACT  
GENERAL CONDITIONS**

**1. DEFINITIONS**

Whenever used in these General Conditions of the Construction Contract ("General Conditions") or in the Contract Documents, the following terms have the meanings indicated, which are applicable to both the singular and plural and the male and female gender thereof:

Beneficial Occupancy: The condition after Substantial Completion but prior to Final Completion of the Project at which time the Project, or portion thereof, is sufficiently complete and systems operational such that the County could, after obtaining necessary approvals and certificates, occupy and utilize the space for its intended use. Guarantees and warranties applicable to that portion of the Work begin on the date the County accepts the Project, or a portion thereof, for such Beneficial Occupancy, unless otherwise specified in the Supplemental Conditions or by separate agreement.

Change Order: A document issued on or after the effective date of the Contract between County and Contractor which is agreed to by the Contractor and approved by the County, and which authorizes an addition, deletion or revision in the Work, including any adjustment in the Contract Price and/or the Contract Completion Date. A Change Order, once signed by all parties, is incorporated into and becomes a part of the Contract.

Construction: The term used to include new construction, reconstruction, renovation, restoration, major repair, demolition and all similar work upon buildings and ancillary facilities, including any draining, dredging, excavation, grading or similar work upon real property.

Contract: This document signed by the County and Contractor, including all bid documents and other Contract Documents, hereinafter referred to as the Contract.

Contract Completion Date: The calendar date by which the Work must be substantially complete. The Contract Completion Date is customarily established in the Notice To Proceed, based on the Time for Completion. In some instances, however, the Contract contains a mandatory Contract Completion Date, which shall be stated in the Invitation to Bid. The Contract Completion Date may only be modified by a duly approved Change Order.

Contract Documents: The Contract between County and Contractor signed by the County and the Contractor and any documents expressly incorporated therein. Such incorporated documents customarily include the Invitation to Bid, the Bid submitted by the Contractor, these General Conditions, any Supplemental Conditions, the plans and specifications, all modifications to the foregoing, including addenda and subsequent Change Orders, and all documents incorporated by reference in the foregoing.

Contract Price: The total compensation payable to the Contractor for performing the Work, subject to modification by Change Order.

Contractor: The person with whom the County has entered into a contractual agreement to do the Work.

County: Augusta County, or the agency or department thereof which is a party to the Contract. For purposes of the Contract, the term County shall include the County, whether or not the County owns the site or the building.

County's or Owner's Representative: The Owner's Representative as used herein shall be the County's designated representative on the Project. The Owner's Representative shall be the person through whom the County generally conveys written decisions and notices. In the event of the incapacity or other unavailability of the designated Owner's Representative, the County Administrator shall be the Owner's Representative until a substitute is named.

Day(s): Calendar day(s) unless otherwise noted.

Defective: An adjective which, when modifying the word Work, refers to Work that is unsatisfactory, faulty, deficient, does not conform to the Contract Documents or does not meet the requirements of inspections, standards, tests or approvals required by the Contract Documents, or Work that has been damaged prior to final payment (unless responsibility for the protection thereof has been expressly assumed by County at Substantial Completion or Beneficial Occupancy).

Drawing: A page or sheet of the Plans which presents a graphic representation, usually drawn to scale, showing the technical information, design, location, and dimensions of various elements of the Work. The graphic representations include, but are not limited to, plan views, elevations, transverse and longitudinal sections, large and small scale sections and details, isometrics, diagrams, schedules, tables and/or pictures.

Emergency: Any unforeseen situation, combination of circumstances, or a resulting state that would result in one or more of the following: (a) danger to life or property, (b) interruption or termination of essential services, (c) substantial financial loss to the procuring agency, or (d) inability to meet a mandatory deadline.

Field Order: A written order issued by the County's Representative which clarifies or explains the plans or specifications, or any portion or detail thereof, without changing the design, the Contract Price, the Time for Completion or the Contract Completion Date.

Final Completion Date: The date of the County's acceptance of the Work from the Contractor upon confirmation from the County's Representative and the Contractor that the Work is totally complete.

Notice: All written notices, including demands, instructions, claims, approvals and disapprovals, required or authorized under the Contract Documents. Any written notice by either party to the Contract shall be sufficiently given by any one or combination of the following, whichever shall first occur: (1) delivered by hand to the last known business address of the person to whom the notice is due; (2) delivered by hand to the person's authorized agent, representative or officer wherever they may be found; or (3) enclosed in a postage prepaid envelope addressed to such last known business address and delivered to a United States Postal Service official or mailbox. Notice is effective upon such delivery. All notices to the County should be directed to the County's Representative.

If the County and the Contractor agree in writing that Notices transmitted by Facsimile (Fax) or Email are acceptable for the Project, such Notice shall be transmitted to the Fax number or Email address listed in the agreement and, in the case of Fax, shall have a designated space for the Fax Notice recipient to acknowledge his receipt by authorized signature and date. The Fax Notice with authorized signature acknowledging receipt shall be Faxed back to the sender. The Faxed Notice shall be effective on the date it is acknowledged by authorized signature. Emailed notices shall be acknowledged by Reply Email upon receipt. All Faxed and Emailed Notices shall also be sent by hard copy, which shall be effective upon delivery, as provided herein. Notice shall be effective upon the date of acknowledgment of the Faxed or the Emailed Notice or the date of delivery, whichever occurs first.

Notice to Proceed: A written notice given by the County to the Contractor fixing the date on which the Contract time will commence for the Contractor to begin the prosecution of the Work in accordance with the requirements of the Contract Documents. The Notice to Proceed will customarily identify a Contract Completion Date.

Owner: Augusta County, Virginia.

Person: This term includes any individual, corporation, partnership, association, company, business, trust, joint venture, or other legal entity.

Plans: The term used to describe the group or set of project-specific drawings which are included in the Contract Documents.

Project: The term used instead of the specific or proper assigned title of the entire undertaking which includes, but is not limited to, the "Work" described by the Contract Documents.

Project Inspector: One or more persons utilized by the County to inspect the Work for the County and/or to document and maintain records of activities at the Site to the extent required by the County. The County shall notify the Contractor in writing of the appointment of such Project Inspector(s).

Provide: Shall mean furnish and install ready for its intended use.

Site: Shall mean the location at which the Work is performed or is to be performed.

Specifications: That part of the Contract Documents containing the written administrative requirements and the technical descriptions of materials, equipment, construction systems, standards, and workmanship which describe the proposed Work in sufficient detail and provide sufficient information for the Building Official to determine code compliance and for the Contractor to perform the Work.

Subcontractor: A person having a direct contract with Contractor or with any other Subcontractor for the performance of the Work.

Submittals: All shop, fabrication, setting and installation drawings, diagrams, illustrations, schedules, samples, and other data which are specifically prepared by or for the Contractor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted by the Contractor to illustrate material, equipment or conformance of some portion of the Work with the requirements of the Contract Documents.

Substantial Completion: The condition when the County agrees that the Work, or a specific portion thereof, is sufficiently complete, in accordance with the Contract Documents, so that it can be utilized by the County for the purposes for which it was intended. The County at its sole discretion may, after obtaining the necessary approvals and certificates, take Beneficial Occupancy at this time or choose to wait to occupy until after Final Completion is achieved.

Supplier: A manufacturer, fabricator, distributor, materialman or other vendor who provides material for the Project but does not provide on-site labor.

Time for Completion: The number of consecutive days following the issuance of the Notice to Proceed which the Contractor has to substantially complete all Work required by the Contract. When the Notice to Proceed is issued, it states a Contract Completion Date, which has been set by the County based on the Time for Completion. The Time for Completion may only be modified by a duly approved Change Order.

Underground Facilities: Any item of public or private property which is buried or placed below ground or submerged for use in connection with the storage or conveyance of water, sewage, electronic telecommunications, electric energy, cable television, oil, petroleum products, gas, or other substances, and includes but is not limited to pipes, sewers, combination storm/sanitary sewer systems, conduits, wells, cables, valves, lines, wires, manholes, attachments, and those portions of poles below ground.

Work: The services performed under this Contract including, but not limited to, furnishing labor, and furnishing and incorporating materials and equipment into the construction. The Work also includes the entire completed construction, or the various separately identifiable parts thereof, required to be furnished under the Contract Documents.

## **2. CONTRACT DOCUMENTS**

(a) Original copies. The Contract between County and Contractor shall be signed by the County and the Contractor in as many original counterparts as may be mutually agreed upon, each of which shall be considered an original.

(b) Time of the essence. All time limits stated in the Contract Documents, including but not limited to the Time for Completion of the Work, are of the essence of the Contract.

(c) Severability clause. If any provision of this Contract shall be held invalid by any court of competent jurisdiction, such holding shall not invalidate any other provision.

(d) Conflicting clauses. In the event there is a conflict between the provisions of the General Conditions and Supplemental Conditions, the provisions of the Supplemental Conditions shall apply. A specific provision in any

other Contract Document shall take precedence over a provision of the General Conditions unless such precedence would result in a violation of law.

### **3. LAWS AND REGULATIONS**

(a) The Contractor shall comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work and shall give all notices required thereby.

(b) The Contractor shall assure that all Subcontractors and tradesmen who perform Work on the project are properly licensed by the Department of Professional and Occupational Regulation as required by the Code of Virginia and applicable regulations.

(c) If the Contractor violates laws or regulations that govern the Project, the Contractor shall indemnify and hold the County harmless against any fines and/or penalties that result from such violation. To the extent that such violation is the result of negligence or other actionable conduct of the Contractor, the Contractor shall indemnify and hold the County harmless against any third party claims, suits, awards, actions, causes of action or judgments, including but not limited to attorney's fees and costs incurred thereunder, that result from such violation.

### **4. NONDISCRIMINATION**

(a) During the performance of this Contract, the Contractor agrees as follows:

i. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

ii. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.

iii. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

iv. The Contractor will include the provisions of the foregoing paragraphs in every subcontract or purchase order of over ten thousand dollars (\$10,000), so that the provisions will be binding upon each Subcontractor or vendor.

(b) Where applicable, laws protecting the rights of the disabled, including the Virginians with Disabilities Act and the federal Americans with Disabilities Act, shall apply to the Contractor and all Subcontractors.

(c) It is the policy of the County of Augusta that the County and its employees undertake every effort to increase the opportunity for utilization of minority-owned and woman-owned businesses in all aspects of procurement to the maximum extent feasible. Accordingly, the Contractor agrees:

i. In connection with the performance of this contract, the Contractor agrees to use his or her best effort to carry out this policy and to insure that minority-owned and woman-owned businesses shall have the maximum practicable opportunity to compete for subcontract work under this contract consistent with the efficient performance of this contract.

ii. As used in this contract the term "minority-owned business" means a business or other entity that is at least fifty-one (51) percent owned and controlled by one or more socially and economically disadvantaged person(s). For purposes of this definition, the term "control" shall mean exercising the power to make policy decisions and being actively involved in day-to-day management. Such disadvantage may arise from cultural, racial, chronic economic circumstance or background or other similar cause. Such persons include, but are not limited to, Black Americans, Hispanic Americans, Asian Americans, Eskimos, and Aleuts.

iii. As used in this contract the term “woman-owned business” means a business or other entity that is at least fifty-one (51) percent owned and controlled by one or more women. For purposes of this definition, the term “control” shall mean exercising the power to make policy decisions and being actively involved in day-to-day management.

iv. Prior to final payment, the Contractor must provide documentation regarding the actual good faith minority-owned business participation efforts undertaken in connection with the contract. In connection with the performance of this contract, “good faith efforts” shall mean those measures which were utilized to allow equitable participation of minority employees and subcontractors.

v. Contractors may rely on oral or written representations by subcontractors regarding their status as minority-owned or woman-owned business enterprises in lieu of independent investigation.

vi. Where Federal grants or monies are involved it is the policy of Augusta County, through its agents and employees, to comply with the requirements set forth in the U.S. Office of Management and Budget Circular No. A-102, uniform administrative requirements for Grants and Cooperative Agreements with State and Local Governments, as they pertain to small and minority business utilization.

## **5. PROHIBITION OF ALCOHOL AND OTHER DRUGS**

(a) 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 in accordance with this chapter, 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.

(b) The Contractor shall also establish, maintain and enforce policies which prohibit the following acts by all Contractor, Subcontractor and Supplier personnel at the Site: (1) the manufacture, distribution, dispensation, possession, or use of alcohol, marijuana or other drugs, except possession and medically prescribed use of prescription drugs; and (2) the impairment of judgment or physical abilities due to the use of alcohol, marijuana or other drugs, including impairment from prescription drugs.

## **6. CONTRACT COMPLETION DATE AND TIME FOR COMPLETION**

(a) The Contract Completion Date will be designated by the County in the Notice to Proceed and will be no later than the mandatory Contract Completion Date specified in the Invitation to Bid. An earlier date may be determined through the bidding process taking into account the Contractor's proposed Time for Completion.

(b) The Work must be substantially completed by the Contract Completion Date. Unless otherwise specified, the Contractor shall achieve Final Completion within thirty (30) days after the date of Substantial Completion.

(c) The Contractor, in submitting his Time for Completion, acknowledges that he has taken into consideration normal weather conditions. In addition, the Contractor recognizes that only adverse abnormal weather conditions will be considered as a basis for Change Orders. Normal weather does not mean statistically average weather, but rather means a range of weather patterns which might be anticipated based on weather data from the past ten (10) years. Abnormal weather conditions means only those extremely unusual weather patterns that radically deviate from the public historical records available and that reasonably impair the progress of work. No additional compensation will be paid to the Contractor because of abnormal weather conditions; however, a Change Order modifying the Contract Completion Date based upon abnormal weather will be considered by the County in

extraordinary circumstances. In order to request an extension of time due to weather, the Contractor must petition the County within seven (7) days of the completion of the calendar month during which the abnormal weather is claimed to have occurred.

(d) The Contractor represents and agrees that he has taken into account in his bid the requirements of the bid documents, local conditions, availability of materials, equipment, and labor, and any other factors which may affect the performance of the Work. The Contractor agrees and warrants that he will achieve Substantial Completion of the Work to allow the County to have Beneficial Occupancy not later than the Time for Completion or Contract Completion Date. The Contractor agrees and warrants that he will achieve Final Completion of the Work (the entire completion of all Work, including "punch list" items), not later than thirty (30) days after achieving Substantial Completion, unless otherwise agreed by the County.

(e) Early Completion of Project: Extensions of time, damages for delay, and all other matters between the County and the Contractor will be determined using the contractually required Substantial Completion date. However, the Contractor may attempt to achieve Substantial Completion on or before the Contract Completion Date. Such planned early completion shall be for the Contractor's convenience only and shall not create any additional rights of the Contractor or obligations of the County under this Contract, nor shall it change the Time for Completion or the Contract Completion Date. The Contractor shall not be required to pay damages to the County because of its failure to achieve Substantial Completion by its planned earlier date. Likewise, the County shall not pay the Contractor any additional compensation for achieving Substantial Completion early nor will the County owe the Contractor any compensation should the County, its officers, employees, or agents cause the Contractor not to achieve Substantial Completion earlier than the date required by the Contract Documents.

(f) Late Completion of Project: In the event the Contractor wishes to modify the Contract Completion Date, he must comply with Section 43: Damages for Delay; Extensions of Time.

## **7. CONDITIONS AT SITE**

(a) The Contractor bears the risk of unforeseen difficulties with site conditions during the performance of the contract. The Contractor shall have visited the Site prior to bidding and is totally responsible for having ascertained pertinent local conditions such as location, accessibility and general character of the Site, and the character and extent of existing improvements and work within or adjacent to the Site. Claims, which result from the Contractor's failure to do so, will be deemed waived.

(b) If, in the performance of the Contract, subsurface or latent conditions at the Site are found which are materially different from those frequently present in the County or from those indicated in the Contract Documents, the Contractor must report such conditions to the County and to the A/E before the conditions are disturbed. Upon such notice, or upon his own observation of such conditions, the A/E shall promptly propose such changes in the Contract Documents as he finds necessary to conform to the different conditions.

(c) If the Contractor, during the course of the Work, observes the existence of any material which he knows, should know, or has reason to believe is hazardous to human health, the Contractor shall promptly notify the County. The County will provide the Contractor with instructions regarding the disposition of the material. The Contractor shall not perform any Work involving the material or any Work causing the material to be less accessible prior to receipt of special instructions from the County.

## **8. CONTRACT SECURITY**

(a) The Contractor shall deliver to the County or its designated representative, a Standard Performance Bond and a Standard Labor and Material Payment Bond, each fully executed by the Contractor and one or more surety companies legally licensed to do business in Virginia and each in an amount equal to one hundred percent (100%) of the accepted bid. If more than one surety executes a bond, each shall be jointly and severally liable to the County for the entire amount of the bond. Sureties shall be selected by the Contractor, subject to approval by the County. No payment on the Contract shall be due and payable to the Contractor until the bonds have been approved by the County and its attorney.

(b) Alternative forms of security for payment and/or performance may be accepted in the discretion of the County.

## **9. SUBCONTRACTS**

(a) The Contractor shall, as soon as practicable after the signing of the Contract, notify the County in writing of the names of all Subcontractors proposed for the principal parts of the Work and of such other parts as the County's Representative may direct. Where the specifications establish qualifications or criteria for Subcontractors, manufacturers, or individuals performing Work on the Project, the Contractor shall be responsible for ascertaining that those proposed meet the criteria or qualifications. The Contractor shall not employ any Subcontractor that the County may, within a reasonable time, object to as unsuitable. The County shall not direct the Contractor to contract with any particular Subcontractor unless provided in the Supplemental Conditions.

(b) The County shall, on request, furnish to any Subcontractor, if practicable, the amounts of payments made to the Contractor and Requests for Payment submitted by the Contractor and any other documentation submitted by the Contractor which would tend to show what amounts are due and payable by the Contractor to the Subcontractor.

(c) The Contractor shall be fully responsible to the County for all acts and omissions of his agents and employees and all succeeding tiers of Subcontractors and Suppliers performing or furnishing any of the Work. Nothing in the Contract Documents shall create any contractual relationship between the County and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of the County to pay for or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization, except as may otherwise be required by law.

(d) The Contractor shall be fully responsible for his invitees at the Site and for those of his Subcontractors, Suppliers, and their employees, including any acts or omissions of such invitees.

(e) The Contractor agrees that he alone is responsible for all dealings with his Subcontractors and Suppliers, and their subcontractors, employees and invitees, including, but not limited to, the Subcontractors' or Suppliers' claims, demands, actions, disputes and similar matters unless specifically provided otherwise by the Contract or by statute.

### **[SECTION 10 OMITTED]**

## **11. INDEMNIFICATION**

Except as provided in § 11-4.1 of the Code of Virginia, the Contractor agrees to indemnify, defend and hold harmless the County, its officers, agents, and employees from any claims, damages and actions of any kind or nature, whether at law or in equity, arising from or caused by the use of any materials, goods, or equipment of any kind or nature furnished by the Contractor, or arising from or caused by any services of any kind or nature provided by the Contractor, provided that such liability is not attributable to the sole negligence of the County or to failure of the County to use the materials, goods, or equipment in the manner already and permanently described by the Contractor on the materials, goods or equipment delivered.

## **12. CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE**

(a) The Contractor shall not commence Work under this Contract until he has obtained all the insurance required hereunder from an insurer authorized to do business in Virginia and such insurance has been approved by the County; nor shall the Contractor allow any Subcontractor to commence Work on his subcontract until the same types of insurance in an appropriate amount have been obtained by the Subcontractor and approved by the Contractor. Approval of insurance by the County shall not relieve or decrease the liability of the Contractor hereunder.

(b) The Contractor shall take out and shall maintain at all times during the performance of the Work Workers' Compensation and Employers' Liability Insurance for all of his employees engaged in the Work in an amount not less than the minimum required by §11-46.3 and §65.2-100 et seq. of the Code of Virginia, and, in case any of the Work is sublet, the Contractor shall require each Subcontractor similarly to provide Workers' Compensation and Employers' Liability Insurance for all of the latter's employees to be engaged in the Work. The Contractor shall submit on the form provided by the County a Certificate of Coverage verifying Workers' Compensation coverage prior to award of the Contract. The Contractor shall likewise obtain a Certificate of Coverage for Workers'

Compensation coverage from each subcontractor prior to awarding the subcontract and shall provide a copy to the County.

(c) During the performance of the Work under this Contract, the Contractor shall maintain commercial general liability insurance to include Premises / Operations Liability, Products and Completed Operations Coverage, Independent Contractor's Liability, County's and Contractor's Protective Liability, and Personal Injury Liability, which shall insure him against claims of personal injury, including death, as well as against claims for property damage, which may arise from operations under this Contract, whether such operations be by himself or by any Subcontractor, or by anyone directly or indirectly employed by either of them. The amounts of general liability insurance shall be not less than \$1,000,000 per occurrence and \$2,000,000 aggregate combined limit. The County of Augusta, its officers, employees and agents, shall be named as an additional insured with respect to the Work being procured. The Supplemental Conditions may require the Contractor to provide an Umbrella insurance policy in a specified amount for the Project.

(d) During the performance of the Work under this Contract, the Contractor shall maintain automobile liability insurance which shall insure him against claims of personal injury, including death, as well as against claims for property damage, which may arise from operations under this Contract, whether such operations be by himself or by any Subcontractor, or by anyone directly or indirectly employed by either of them. The amounts of automobile insurance shall be not less than \$1,000,000 combined limit for bodily injury and property damage per occurrence.

(e) Written evidence of all required insurance shall be delivered to the County's Representative prior to the Notice to Proceed and, in any event, no later than thirty (30) days following the award of the contract. The Contractor shall ensure that in the event of cancellation of any insurance, not less than thirty (30) days prior written notice will be sent by the Insurer to the County. A copy of any insurance policy shall be given to the County upon demand. Cancellation of any required insurance policy is a material breach of this contract.

(f) The Contractor is not required to have "all risk" builders risk insurance for this project. The County maintains insurance on the existing building (including fire, vandalism and extended coverage) which covers alterations and new construction as well as materials for the project stored on the site or immediately adjacent thereto. Upon written application from the Contractor prior to commencing the work, the County will have the Contractor named in the endorsement as his interest may appear. The Contractor, as an additional insured, shall be responsible for payment of any and all deductibles applicable to claims made while the Contractor is in control of or occupies the building for the performance of the Work under this Contract. Contractor's tools, equipment, etc., which are not materials to be incorporated in the construction are not covered by this insurance.

### **13. TAXES, FEES AND ASSESSMENTS**

The Contractor shall, without additional expense to the County, pay all applicable federal, state, and local taxes, fees, and assessments except the taxes, fees and assessments on the real property comprising the Site of the project.

### **14. PATENTS**

The Contractor shall obtain all licenses necessary to use any invention, article, appliance, process or technique of whatever kind and shall pay all royalties and license fees. The Contractor shall hold the County, its officers, agents and employees, harmless against any loss or liability for or on account of the infringement of any patent rights in connection with any invention, process, technique, article or appliance manufactured or used in the performance of the Contract, including its use by the County, unless such invention, process, technique, article or appliance is specifically named in the specifications or plans as acceptable for use in carrying out the Work. If, before using any invention, process, technique, article or appliance specifically named in the specifications or plans as acceptable for use in carrying out the Work, the Contractor has or acquires information that the same is covered by letters of patent making it necessary to secure the permission of the patentee, or other, for the use of the same, he shall promptly advise the County. The County may direct that some other invention, process, technique, article or appliance be used. Should the Contractor have reason to believe that the invention, process, technique, article or appliance so specified is an infringement of a patent, and fail to inform the County, he shall be responsible for any loss or liability due to the infringement.

**[SECTION 15 OMITTED]**

**16. INSPECTION**

The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the Work called for by this contract conforms to the Contract requirements. The Contractor shall maintain complete inspection records and make them available to the County and the County's Representative. All work is subject to inspection and testing at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the Contract.

**17. SUPERINTENDENCE BY CONTRACTOR**

(a) The Contractor shall have a competent foreman or superintendent, satisfactory to the County, on the Site at all times during the progress of the Work. The superintendent or foreman shall be familiar with and be able to read and understand the plans and specifications, and be capable of communicating orally and in writing with the County's inspectors and the Contractor's workers. The Contractor shall be responsible for all construction means, methods, techniques, sequences and procedures, for coordinating all portions of the Work under the Contract except where otherwise specified in the Contract Documents, and for all safety and worker health programs and practices. The Contractor shall notify the County, in writing, of any proposed change in superintendent, including the reason therefore, prior to making such change.

(b) The Contractor shall, at all times, enforce strict discipline and good order among the workers on the Project, and shall not employ on the Work, or contract with, any unfit person, anyone not skilled in the Work assigned to him, or anyone who will not work in harmony with those employed by the Contractor, the Subcontractors, the County or the County's separate contractors and their subcontractors.

(c) The County may, in writing, require the Contractor to remove from the Site any employee or Subcontractor's employee the County deems to be incompetent, careless, not working in harmony with others on the Site, or otherwise objectionable, but the County shall have no obligation to do so.

**18. CONSTRUCTION SUPERVISION, METHODS AND PROCEDURES**

(a) The Contractor shall be solely responsible for supervising and directing 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. The Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of construction and for coordinating all portions of the Work under the Contract, except where otherwise specified in the Contract Documents. However, the Contractor shall not be responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence or procedure of construction which is indicated in and required by the Contract. The Contractor is solely responsible to the County that the finished Work complies with the Contract Documents.

(b) The Contractor shall be solely responsible for health and safety precautions and programs for workers and others in connection with the Work. No inspection by, knowledge on the part of, or acquiescence by the Project Inspector, the County's Representative or other County employees and agents, or any other entity whatever shall relieve the Contractor from its sole responsibility for compliance with the requirements of the Contract or its sole responsibility for health and safety programs and precautions.

(c) If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, the Contractor may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to the County. The Contractor must submit in a timely manner its written request for the substitution to the County's Representative. Such request must include sufficient information to allow the County to determine that the substitute proposed is equivalent to that indicated or required by the Contract and be received by such a date to ensure the County has adequate time to review the request and respond without creating a need for an extension of the Contract Completion Date.

(d) The divisions and sections of the Specifications and the identification of any drawings shall not control the Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

## **19. SCHEDULE OF THE WORK**

General: The Contractor is responsible for the scheduling and sequencing of the Work, for coordinating the Work, for monitoring the progress of the Work, and for taking appropriate action to keep the Work on schedule.

## **20. SCHEDULE OF PAYMENTS TO CONTRACTOR**

(a) Contract price. The County shall pay the Contractor as just compensation for the performance of this contract, subject to any additions or deductions as may have been authorized by approved written change orders, the unit or lump sum price as contained in the bid documents.

(b) Acceptance and payment. Upon receipt of written notice from the Contractor that the work is ready for final inspection and acceptance, the County shall within one week make such inspection. When the County finds the work complete under the contract and the contract fully performed the County will promptly issue a final certificate stating that the work required by this contract has been completed and is accepted by the County under the terms and conditions of the contract. The entire balance found to be due to the Contractor shall be paid to the Contractor by the County within thirty (30) days after the date of the final certificate and receipt of all required Submittals.

## **21. ACCESS TO WORK**

The County, the County's Representative, the County's inspectors and other testing personnel, inspectors from the Department of Labor and Industry, and others authorized by the County, shall have access to the Work at all times. The Contractor shall provide proper facilities for access and inspection.

## **22. SURVEYS AND LAYOUT**

(a) When applicable, the County shall furnish the Contractor all necessary documents showing property lines and the location of existing buildings and improvements. The Contractor shall provide competent surveying and engineering services to execute the Work in accordance with the Contract and shall be responsible for the accuracy of these surveying and engineering services.

(b) Such general reference points and benchmarks on the Site as will enable the Contractor to proceed with the Work will be established in the plans and specifications. If the Contractor finds that any previously established reference points have been lost or destroyed, he shall promptly notify the County's Representative.

(c) The Contractor shall protect and preserve the established benchmarks and monuments and shall make no changes in locations without written notice to the County's Representative and the written approval from the County. Any of these which may be lost or destroyed or which require shifting because of necessary changes in grades or locations shall, subject to prior written approval of the County, be replaced and accurately located by the Contractor.

## **23. PLANS AND SPECIFICATIONS**

(a) The general character and scope of the Work are illustrated by the plans and the specifications. If the Contractor deems additional detail or information to be needed, he may request the same by Field Order in writing from the County's Representative. The request shall precisely state the detail or information needed and shall explain why it is needed. The Contractor shall also indicate a date when the requested information is required.

(b) If the Contractor finds a conflict, error, or other discrepancy in the plans or specifications, he shall notify the County's Representative in writing as soon as possible, but before proceeding with the affected Work.

(c) Measurements or dimensions shown on the drawings for Site features, utilities and structures shall be verified at the Site by the Contractor. The Contractor shall not scale measurements or dimensions from the drawings. If there are discrepancies, the County's Representative shall be consulted.

(d) As-Built Drawings: The Contractor shall maintain at the Site for the County one copy of all drawings, specifications, addenda, approved shop or setting drawings, Change Orders and other modifications (collectively referred to herein as "As-Built Drawings") in good order and marked to record all changes as they occur during construction. These shall be available to the County, the Project Inspector, the County's other inspectors and to the County's testing personnel. The drawings shall be neatly and clearly marked in contrasting color during construction to record all variations made during construction. The representation of such variations shall include such supplementary notes, symbols, legends, and details as may be necessary to clearly show the as-built construction.

(e) Record Drawings: Upon completion of the Work and prior to the final inspection, the Contractor shall deliver to the County's Representative one complete set of "As-Built Drawings" referred to in the preceding subsection.

## **24. SUBMITTALS.**

(a) The Contractor shall submit a listing of all Submittals required by the County or which the Contractor identifies as necessary, fixing the dates for the submission of shop or setting drawings, samples and product data. The listing shall be in a format acceptable to the County.

(b) Submittals shall be forwarded to the County's Representative for approval if required by the specifications or if requested by the County. No part of the Work dealt with by a Submittal shall be fabricated by the Contractor, save at his own risk, until such approval has been given.

(c) The Contractor shall furnish to the County's Representative for approval the name of the manufacturer, the model number, and other identifying data and information respecting the performance, capacity, nature and rating of the machinery and mechanical and other equipment which the Contractor contemplates incorporating in the Work. When Submittals are required by this Contract for materials, the Contractor shall furnish full information concerning the material or articles which he contemplates incorporating in the Work. When required, samples shall be submitted for approval at the Contractor's expense, with all shipping charges prepaid. Machinery, equipment, material and articles installed or used without required approval shall be at the risk of subsequent rejection.

(d) Submittals shall be accompanied by a letter of transmittal which shall list the Submittals included, the specification section number applicable to each, and the date shown on each Submittal. Submittals shall be complete in every respect and bound in sets. Each Submittal shall be clearly marked to show each item, component and/or optional feature proposed to be incorporated into the Project. Cross reference to the plans or specifications as needed to identify the use for which the item or component is intended.

(e) The Contractor shall check the Submittals for compliance with the requirements of the Contract Documents. The Contractor shall clearly note in writing any and all items which deviate from the requirements of the Contract Documents. Reasons for deviation shall be included with the Submittal.

(f) The Contractor shall forward all Submittals sufficiently in advance of construction requirements to allow reasonable time for checking, correcting, resubmitting and rechecking.

(g) If a Submittal indicates a departure from the Contract requirements, the County may approve or reject the Submittal as the County, in its sole discretion, sees fit. The departure from the Contract requirements shall be further authorized by a Change Order, if a reduction or increase in the Contract Price is appropriate.

(h) The Contractor shall verify that the Submittals conform to the design concept and functional requirements of the plans and specifications, that the detailed design portrayed in shop drawings and proposed equipment and materials shown in Submittals are of the quality specified and will function properly, and that the Submittals comply with the Contract Documents.

## **25. FEES, SERVICES AND FACILITIES**

- (a) The Contractor shall obtain all permits, and shall pay for all fees and charges, including, but not necessarily limited to, fees necessary for temporary access and public right-of-way blockage or use, for use of landfill and other waste disposal facilities, for temporary connections to utilities, and for the use of property (other than the Site) for storage of materials and other purposes unless otherwise specifically stated in the Contract Documents.
- (b) Certain projects such as renovations and interior modifications of existing buildings will usually have water and electric service to the building. In those instances, water and electric power, if required for the Work under the Contract, will be furnished by the County subject to reasonable use by the Contractor, only to the extent and capacity of present services. The Contractor shall be responsible for providing required connections, temporary wiring, piping, etc. to these services in a safe manner and in accordance with applicable codes. All temporary wire, pipe, etc. shall be removed before the Substantial Completion inspection. Acceptance by the Contractor of the use of County's water and electricity constitutes a release to the County of all claims and of all liability to the Contractor for whatever damages which may result from power and water outages or voltage variations.
- (c) The County shall pay any connection charges for permanent utility connections directly to the utility Supplier. The Contractor shall coordinate such connections with the utility Supplier.
- (d) It is understood that, except as otherwise specifically stated in the Contract Documents, the Contractor, either directly or through his Subcontractors, shall provide and pay for all material, labor, tools, equipment, water, light, power, telephone and other services or facilities of every nature whatsoever necessary to execute completely and deliver the Work within the Contract Time for Completion or before the Contract Completion Date.

## **26. EQUALS**

- (a) Brand names: Unless otherwise stated in the specifications, the name of a certain brand, make or manufacturer denotes the characteristics, quality, workmanship, economy of operation and suitability for the intended purpose of the article desired, but does not restrict the Contractor to the specific brand, make, or manufacturer; it is set forth to convey to the Contractor the general style, type, character and quality of the article specified.
- (b) Equal materials, equipment or assemblies: Whenever in these Contract Documents, a particular brand, make of material, device or equipment is shown or specified, such brand, make of material, device or equipment shall be regarded merely as a standard. Any other brand, make or manufacturer of a product, assembly or equipment which in the opinion of the County is the equal of that specified, considering quality, capabilities, workmanship, configuration, economy of operation, useful life, compatibility with design of the Work, and suitability for the intended purpose, will be accepted unless rejected by the County as not being equal.
- (c) Substitute materials, equipment or assemblies: The Contractor may propose to substitute a material, product, equipment, or assembly which deviates from the requirements of the Contract Documents but which the Contractor deems will perform the same function and have equal capabilities, service life, economy of operations, and suitability for the intended purpose. The proposal must include any cost differentials proposed. If the proposed substitute is acceptable to the County, a Change Order will be proposed to the Contractor to accept the substitute and to deduct the proposed cost savings from the Contract Price. The County shall have the right to limit or reject substitutions at its sole discretion as provided in Virginia Code § 2.2-4315.
- (d) The Contractor shall be responsible for making all changes in the Work necessary to adapt and accommodate any equal or substitute product which it uses. The necessary changes shall be made at the Contractor's expense.

## **27. AVAILABILITY OF MATERIALS**

If a brand name, product, or model number included in the Contract Documents is not available on the present market, alternate equal products or model numbers may be proposed by the Contractor for approval by the County.

## **28. CONTRACTOR'S TITLE TO MATERIALS**

No materials or supplies for the Work shall be purchased by the Contractor, or by any Subcontractor or Supplier, subject to any security interest, installment or sales contract or any other agreement or lien by which an interest is retained by the seller or is given to a secured party. The Contractor warrants that he has clear and good title to all materials and supplies which he uses in the Work or for which he accepts payment in whole or in part.

## **29. STANDARDS FOR MATERIALS INSTALLATION & WORKMANSHIP**

(a) Unless otherwise specifically provided in the Contract, all equipment, material, and accessories incorporated in the Work are to be new and in first class condition.

(b) Unless specifically approved by the County or required by the Contract, the Contractor shall not incorporate into the Work any materials containing asbestos or any material known by the industry to be hazardous to the health of building construction workers, maintenance workers, or occupants. If the Contractor becomes aware that a material required by the Contract contains asbestos or other hazardous materials, he shall notify the County's Representative immediately and shall take no further steps to acquire or install any such material without first obtaining County approval.

(c) All workmanship shall be of the highest quality found in the construction industry in every respect. All items of Work shall be done by craftsmen or tradesmen skilled in the particular task or activity to which they are assigned. In the acceptance or rejection of Work, no allowance will be made for lack of skill on the part of workmen. Poor or inferior workmanship (as determined by the County or other inspecting authorities) shall be removed and replaced at Contractor's expense such that the Work conforms to the highest quality standards of the trades concerned, or otherwise corrected to the satisfaction of the County, or other inspecting authority, as applicable.

(d) Under the various sections of the plans or specifications, where specified items are supplied with the manufacturer's printed instructions, recommendations, or directions for installation, or where such instructions, recommendations, or directions are available, installation of the specified items shall be in strict accordance with the manufacturer's printed instructions unless those instructions contradict the plans or specifications, in which case the County's Representative will be notified for an interpretation and decision.

(e) Under the various sections of the plans or specifications, where reference is made to specific codes or standards governing the installation of specified items, installation shall in all cases be in strict accordance with the referenced codes and standards. Where no reference is made to specific codes or standards, installation shall conform to the generally recognized applicable standards for first-class installation of the specific item to be installed. Contractors are expected to be proficient and skilled in their respective trades and knowledgeable of the Codes and Standards of the National Fire Protection Association (NFPA), National Electric Code (NEC), Occupational Safety and Health Act (OSHA) and other codes and standards applicable to installations and associated work by his trade.

(f) Where the manufacturer's printed instructions are not available for installation of specific items, where specific codes or standards are not referenced to govern the installation or specific items, or where there is uncertainty on the part of the Contractor concerning the installation procedures to be followed or the quality of workmanship to be maintained in the installation of specific items, the Contractor shall consult the County's Representative for approval of the installation procedures or the specific standards governing the quality of workmanship the Contractor proposes to follow or maintain during the installation of the items in question.

(g) During and/or at the completion of installation of any items, the tests designated in the plans or specifications necessary to assure proper and satisfactory functioning for its intended purpose shall be performed by the Contractor or by its Subcontractor responsible for the completed installation. All costs for such testing are to be included in the Contract Price. If required by the Contract Documents, the Contractor shall furnish prior to final inspection the manufacturers' certificates evidencing that products meet or exceed applicable performance, warranty and other requirements, and certificates that products have been properly installed and tested.

### **30. WARRANTY OF MATERIALS AND WORKMANSHIP**

- (a) The Contractor warrants that, unless otherwise specified, all materials and equipment incorporated in the Work under the Contract shall be new, in first class condition, and in accordance with the Contract Documents. The Contractor further warrants that all workmanship shall be of the highest quality and in accordance with the Contract Documents and shall be performed by persons qualified at their respective trades.
- (b) Work not conforming to these warranties shall be considered defective.
- (c) This warranty of materials and workmanship is separate and independent from and in addition to any of the Contractor's other guarantees or obligations in the Contract or under Virginia law.
- (d) The Contractor shall ensure that all manufacturer's warranties and similar guarantees are properly extended to the County and that documents evidencing the same are submitted to the County's Representative prior to final inspection.

### **31. USE OF SITE AND REMOVAL OF DEBRIS**

- (a) The Contractor shall:

- (1) Perform the Work in such a manner as not to interrupt or interfere with the operation of any existing activity on, or in proximity to, the Site or with the Work of any other separate contractor;
  - (2) Store his apparatus, materials, supplies and equipment in such orderly fashion at the Site of the Work as will not unduly interfere with the progress of his Work or the work of any other separate contractor; and
  - (3) Place upon the Work or any part thereof only such loads as are consistent with the safety of that portion of the Work.

- (b) The Contractor expressly undertakes, either directly or through his Subcontractor(s), to effect all cutting, filling or patching of the Work required to make the same conform to the plans and specifications, and, except with the consent of the County's Representative, not to cut or otherwise alter the Work of any other separate contractor. The Contractor shall not damage or endanger any portion of the Work or Site, including existing improvements, unless called for by the Contract.

- (c) The Contractor expressly undertakes, either directly or through his Subcontractor(s), to clean up frequently all refuse, rubbish, scrap materials and debris caused by his operations, to the end that at all times the Site shall present a neat, orderly and workmanlike appearance. No such refuse, rubbish, scrap material and debris shall be left within the completed Work nor buried on the building Site, but shall be removed from the Site and properly disposed of in the County landfill or otherwise as required by law. The Contractor shall be responsible for the payment of all applicable tipping fees or other disposal fees at any landfill or other waste disposal facility.

- (d) The Contractor expressly undertakes, either directly or through his Subcontractor(s), before final payment or such prior time as the County may require, to remove all surplus material, false Work, temporary structures, including foundations thereof, plants of any description and debris of every nature resulting from his operations and to put the Site in a neat, orderly condition; to thoroughly clean and leave reasonably dust free all finished surfaces including all equipment, piping, etc., on the interior of all buildings included in the Contract; and to clean thoroughly all glass installed under the Contract, including the removal of all paint and mortar splatters and other defacements. If the Contractor fails to clean up at the time required herein, the County may do so and charge the costs incurred thereby to the Contractor.

- (e) The Contractor shall prevent Site soil erosion, the runoff of silt and/or debris carrying water from the Site, and the blowing of dust or debris off the Site in accordance with the applicable requirements and standards of the Contract and the County's Erosion and Sediment Control and Stormwater Management Regulations.

## **32. TEMPORARY ROADS**

Temporary roads, if required, shall be established and maintained until permanent roads are accepted, then removed and the area restored to the conditions required by the Contract Documents. Crushed rock, paving and other road materials from temporary roads shall not be left on the Site unless permission is received from the County to bury the same at a location and depth approved by the County.

## **33. SIGNS**

The Contractor may not, without the prior written consent of the County, erect signs at or near the Site. Signs required by law, such as the posting of building permits, are allowed. No signs shall be erected without prior approval of the County as to purpose, design and location.

## **34. PROTECTION OF PERSONS AND PROPERTY**

(a) The Contractor expressly undertakes both directly and through his Subcontractors, to take every reasonable precaution at all times for the protection of all persons and property which may come on the Site or be affected by the Contractor's Work.

(b) The Contractor shall be solely responsible for providing on site all necessary safety equipment and supplies and for initiating, maintaining and supervising all safety precautions and programs in connection with the Work.

(c) The Contractor shall continuously maintain adequate protection of all his Work from damage and shall protect the County's property from injury or loss arising in connection with this Contract. He shall make good any such damage, injury or loss, except as may be directly and solely due to errors in the Contract Documents or caused by agents or employees of the County. The Contractor shall adequately protect adjacent property to prevent any damage to it or loss of use and enjoyment by its owners. The Contractor shall provide and maintain all passageways, guard fences, lights and other facilities for protection as required by public authority, local conditions, or the Contract.

(d) In an emergency affecting the health, safety or life of persons or of the Work, or of the adjoining property, the Contractor, without special instruction or authorization from the County, shall act, at his discretion, to prevent such threatened loss or injury. Also, should he, to prevent threatened loss or injury, be instructed or authorized to act by the County, he shall so act immediately, without appeal.

(f) When necessary for the proper protection of the Work, temporary climate control of a type approved by the County must be provided by the Contractor, at the Contractor's expense, unless otherwise specified.

## **35. CLIMATIC CONDITIONS**

The Contractor shall suspend activity on and protect any portion of the Work that may be subject to damage by climatic conditions.

**[SECTION 36 OMITTED]**

## **37. PAYMENTS BY CONTRACTOR**

Under Virginia Code § 2.2-4354:

(a) The Contractor is obligated to take one of the two following actions within seven (7) days after receipt of amounts paid to the contractor by the County for work performed by subcontractors under that contract:

(1) Pay subcontractors for the proportionate share of the total payment received from the County attributable to the work performed by the subcontractors under that contract; or

(2) Notify the County and subcontractor, in writing, of his intention to withhold all or a part of any subcontractor's payment with the reason for nonpayment.

(b) Individual Contractors are required to provide their social security numbers; and proprietorships, partnerships, and corporations are required to provide their federal employer identification numbers.

(c) The Contractor is obligated to pay interest to a subcontractor on all amounts owed by the Contractor that remain unpaid after seven days following receipt by the Contractor of payment from the County for work performed by the subcontractor under that contract, except for amounts withheld as allowed in subdivision a.

(d) Unless otherwise provided under the terms of this contract, interest shall accrue at the rate of one percent (1%) per month.

(e) The Contractor is further required to include in each of its subcontracts a provision requiring each subcontractor to include or otherwise be subject to the same payment and interest requirements with respect to each lower-tier subcontractor.

(f) The Contractor's obligation to pay an interest charge to a subcontractor pursuant to the payment clause in this section shall not be construed to be an obligation of the County. A contract modification shall not be made for the purpose of providing reimbursement for the interest charge. A cost reimbursement claim shall not include any amount for reimbursement for the interest charge.

### **38. CHANGES IN THE WORK**

(a) Requests for Change Orders may be initiated by any party at any time. The County may, by written Change Order and without notice to the sureties, approve changes in the Work which are within the general scope of the Contract. However, no change will be made which will increase the total Contract Price to an amount more than twenty percent (20%) in excess of the original Contract Price without notice to sureties.

(b) In making any change, the charge or credit for the change shall be determined by a mutually agreed fixed amount change to the Contract Price and/or time allowed for completion of the Work. The following procedure shall be followed:

(1) The party receiving the proposed change shall review the proposed change and shall respond in writing within fourteen (14) days after receipt of the proposed change, stating the effect of the proposed change upon the Work, including any increase or decrease in the Contract time and Price.

(2) The Contractor shall furnish to the County an itemized breakdown of the quantities and prices used in computing the proposed change in Contract Price.

(3) The County shall review the Contractor's proposed price and respond to the Contractor within thirty (30) days of receipt. If a change to the Contract Price and time for performance are agreed upon, both parties shall sign the Change Order. Changes to the Contract time and/or Price shall be effective when signed by both parties.

(4) Change Order shall be substantiated by documentation itemizing the estimated quantities and costs of all labor, materials and equipment required as well as any mark-up used. The price change shall include the Contractor's overhead and profit.

(5) All Change Orders must state that the Contract Time for Completion or Contract Completion Date is not changed or is either increased or decreased by a specific number of days. The old Time for Completion and, if changed, the new Time for Completion must be stated.

(6) If the parties are unable to agree on the terms of a Change Order, the matters in dispute shall be resolved as provided in § 47 of these General Conditions unless an alternative procedure is set forth in the Supplemental Conditions.

### **39. EXTRAS**

If the Contractor claims that any instructions given to him by the County, by drawings or otherwise, involve extra Work which increases the scope of the Contract, then, except in emergencies endangering life or property, he shall give the County written notice thereof before proceeding to execute the Work. Said notice shall be given promptly enough to avoid delaying the Work and in no instance later than fourteen (14) days after the receipt of such instructions. Should it not be immediately clear to the Contractor that the change involves extra Work outside the scope of the Contract, written notice shall be sufficient if given as soon as possible after such realization, but in no event later than fourteen (14) days after the start of such Work. If the County agrees, a Change Order shall be issued as provided in Section 38 of these General Conditions, and any additional compensation shall be determined as provided in said Section. Except as otherwise specifically provided, no claims for extra Work shall be allowed unless timely notice, as required by this Section, is given by the Contractor and unless such Work is performed pursuant to written Change Order as provided in Section 38.

### **40. CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE THE CONTRACT**

If the Work should be stopped under an order of any court or other public authority for a period of ninety (90) days through no fault of the Contractor or anyone employed by him, or if the County should fail to pay to the Contractor within thirty (30) days any sum certified by the County's Representative, when no dispute exists as to the sum due or any provision of the Contract, then the Contractor may, upon ten (10) days written notice to the County, stop Work or terminate the Contract and recover from the County payment for the cost of the Work actually performed, together with overhead and profit thereon, but profit on the Work performed shall be recovered only to the extent that the Contractor can demonstrate that he would have had profit on the entire Contract if he had completed the Work. The Contractor may not receive profit or any other type of compensation for parts of the Work not performed. The Contractor may recover the reasonable cost of physically closing down the Site, but no other costs of termination. The County may offset any claims it may have against the Contractor against the amounts due to the Contractor. In no event shall termination of the Contract by the Contractor terminate the obligations of the Contractor's surety on its payment and performance bonds.

### **41. COUNTY'S RIGHT TO TERMINATE THE CONTRACT FOR CAUSE**

(a) If the Contractor should be adjudged as bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, the County may terminate the Contract. If the Contractor should refuse or should repeatedly fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials and equipment, or if he should fail to make prompt payment to Subcontractors or Suppliers of material or labor, or if he should disregard laws, ordinances or the written instructions of the County, or otherwise be in substantial violation of any provision of the Contract, then the County may terminate the Contract.

(b) Prior to termination of the Contract, the County shall give the Contractor and his surety ten (10) days written notice pursuant to Section 1 ("Notice") of these General Conditions, during which the Contractor and/or his surety may rectify the basis for the notice. If rectified to the satisfaction of the County within said ten (10) days, the County may rescind its notice of termination. If not, the termination for cause shall become effective at the end of the ten (10) day notice period. In the alternative, the County may, in writing, postpone the effective date of the termination for cause, at its sole discretion, if it should receive reassurances from the Contractor and/or its surety that the basis for the termination will be remedied in a time and manner which the County finds acceptable. If at any time after such postponement, the County determines that Contractor and/or its surety has not or is not likely to rectify the causes of termination in an acceptable manner or within the time allowed, then the County may immediately terminate the Contract for cause, without the necessity of further ten (10) day notice, by notifying the Contractor and his surety in writing of the termination. In no event shall termination for cause terminate the obligations of the Contractor's surety on its payment and performance bonds.

(c) Upon termination of the Contract, the County shall take possession of the Site and of all materials, tools and equipment thereon and finish the Work by whatever method he may deem expedient. In such case the Contractor shall not be entitled to receive any further payment. If the expense of finishing the Work, including compensation

for additional managerial and administrative services, shall exceed the unpaid balance of the Contract Price, the Contractor shall pay the difference to the County, together with any other expenses of terminating the Contract and having it completed by others.

(d) If it should be judicially determined that the County improperly terminated this Contract for cause, then the termination shall be deemed to be a termination for the convenience of the County.

(e) Termination of the Contract under this Section is without prejudice to any other right or remedy of the County.

#### **42. TERMINATION BY COUNTY FOR CONVENIENCE**

(a) County may terminate this Contract, in whole or in part, at any time without cause upon giving the Contractor written notice of such termination pursuant to Section 1 ("Notice") of these General Conditions. Upon such termination, the Contractor shall immediately cease Work and remove from the Site all of its labor forces and such of its materials as County elects not to purchase or to assume in the manner hereinafter provided. Upon such termination, the Contractor shall take such steps as County may require to assign to the County the Contractor's interest in all Subcontracts and purchase orders designated by County. After all such steps have been taken to County's satisfaction, the Contractor shall receive as full compensation for termination and assignment the following:

(1) All amounts then otherwise due under the terms of this Contract based upon approved Requests for payment.

(2) Amounts due for Work performed in accordance with the Contract subsequent to the latest approved Request for Payment through the date of termination.

(3) Reasonable compensation for the actual cost of demobilization incurred by the Contractor as a direct result of such termination.

The Contractor shall not be entitled to any compensation or damages for lost profits or for any other type of contractual compensation or damages other than those provided by this section. Upon payment of the foregoing, County shall have no further obligations to Contractor of any nature.

(b) In the event the parties cannot agree on the whole amount to be paid to the Contractor by reason of termination under this section, the County shall pay the amounts, as determined by the County's Representative, as follows, without duplicating any amounts which may have already been paid under the preceding paragraph of this section:

(1) All amounts then otherwise due under the terms of this Contract based upon approved Requests for payment.

(2) Amounts due for Work performed in accordance with the Contract subsequent to the latest approved Request for Payment through the date of termination, which shall be the total of:

(a) cost of work performed or supplies delivered;

(b) the costs of settling and paying any reasonable claims to subcontractors and suppliers; and

(c) a mark-up of ten percent (10%) for profit and overhead.

(3) Reasonable compensation for the actual cost of demobilization incurred by the Contractor as a direct result of such termination.

The total sum to be paid shall not exceed the contract price, as reduced by the amount of payments otherwise made, and as further reduced by the contract price of work not done or supplies not delivered. If there is evidence that the Contractor would have sustained a loss on the entire Project had it been completed, no profit shall be included or

allowed hereunder and an appropriate adjustment shall be made reducing the amount of the settlement to reflect the indicated rate of loss.

(c) In the event the Contractor is not satisfied with any payments which the County's Representative shall determine to be due under this section, the Contractor may proceed in accordance with Section 47, "Contractual Disputes."

(d) In no event shall termination for the convenience of the County terminate the obligations of the Contractor's surety on its payment and performance bonds.

### **43. DAMAGES FOR DELAYS; EXTENSION OF TIME**

(a) If the Contractor is delayed at any time in the progress of the Work by any act or omission of the County, its agents or employees or any separate independent contractor of the County, and the act or omission is the result of or is necessitated by causes outside the County's control; or if the Contractor is delayed by strikes, fires, unusual delays in transportation or unavoidable casualties, or other causes outside the County's or Contractor's control, the Contractor shall give the County written notice within ten (10) days of the inception of the delay. The County shall extend the time for Substantial Completion or Final Completion, as the case may be, for the length of time that the Substantial Completion or Final Completion of the Work was actually delayed thereby, and the Contractor shall not be charged with liquidated or actual damages for delay during the period of such extension nor shall the Contractor be due compensation or damages of any kind, under any theory of law, as a result of such delay, the impact of such delay, or acceleration of Work as a result of such delay. In the event a CPM schedule is required by the Contract, no extension of the time allowed for Substantial Completion shall be granted unless the Contractor demonstrates a delay in the critical path of the approved CPM schedule or approved bar graph schedule.

(b) If the Contractor is delayed at any time in the progress of the Work by any act or omission of the County, its agents or employees, due to causes within their control, or delayed by the County's separate, independent contractors, when such delay results from causes within the County's control, and the Contractor intends to seek additional compensation for damages, if any, caused by the delay, the Contractor shall inform the County immediately at the time of the occurrence giving rise to the delay by the fastest means available and shall give written notice no later than two (2) working days after inception of the delay. The Contractor's notice to the County shall specify the nature of the delay claimed by the Contractor, the cause of the delay and the impact of the delay on the Contractor's Work schedule. The County shall then have three (3) working days to respond to the Contractor's notice with a resolution, remedy or direction to alleviate the delay or with a notice rejecting the claim for delay alleged to be caused by the County or parties for whom the County is responsible. If the issue is not then resolved, the Contractor may submit a request for Change Order in accordance with Section 36 or submit a claim as provided for in Section 45. The Contractor shall only be entitled to additional compensation if the delay was unreasonable and was caused solely by acts or omissions of the County, its agents or employees, due to causes within their control, or was caused by the County's separate, independent contractor, when such delay resulted solely from causes within the County's control.

(c) The Contractor shall not be entitled to an extension of the Time for Completion or Contract Completion Date or to any additional compensation for delays caused by acts or omissions of the Contractor due to causes within his control, including, but not limited to, delays resulting from Defective Work including workmanship and/or materials, from rejected work which must be corrected before dependent work can proceed, from Defective Work or rejected work for which corrective action must be determined before like work can proceed, or from incomplete, incorrect or unacceptable Submittals or samples.

(d) No extension of time or additional compensation, if applicable, will be granted for any delay unless the claimed delay directly affects the critical path of the approved CPM schedule or the schedule shown on the approved bar graph schedule, whichever is applicable, and any float has been consumed. No extension of time or additional compensation shall be given for a delay if the Contractor failed to give notice in the manner and within the time prescribed in Subsections (a) or (b) above, whichever applies. Furthermore, no extension of time or additional compensation shall be given for any delay unless a claim therefore is made in writing to the County, within twenty (20) days of the end of the delay. The claim shall state the cause of the delay, the number of days of extension requested and any compensation requested by the Contractor. The Contractor shall report the termination of the delay to the County not less than ten (10) days after such termination. Failure to give notice of either the inception or

the termination of the cause of delay or failure to present a claim for extension of time and/or monetary compensation within the times prescribed shall constitute a waiver of any claim for extension or additional compensation based upon that cause.

(e) Requests for compensation for delays pursuant to Subsection (b) above must be substantiated by itemized data and records clearly showing that the Work delayed could not be completed within the approved schedule, and that the additional costs incurred by the Contractor are directly attributable to the delay in the Work claimed. Furthermore, compensation for delay shall be calculated from the contractual Time for Completion or Contract Completion Date, as adjusted by Change Order, and shall not be calculated based on any early completion planned or scheduled by the Contractor, unless a Change Order has been executed changing the Time for Completion or the Contract Completion Date to reflect such early completion.

If there is an extension in the Time for Completion or the Contract Completion Date and if the Contractor is entitled to additional compensation for the delay, and where there is no change in the Work, an itemized accounting of the following direct Site overhead expenses will be considered as allowable costs to be used in determining the compensation due the Contractor:

Site superintendent pro rata salary, temporary Site office expense, temporary Site facilities, and temporary Site utilities including basic telephone service, electricity, heat, water, and sanitary/toilets. A fifteen percent (15%) markup of these expenses will be allowed to compensate the Contractor for home office and other direct or indirect overhead expenses.

(f) If the Contractor submits a claim for delay damages, the Contractor shall be liable to the County for a percentage of all costs incurred by the County in investigating, analyzing, negotiating and litigating the claim, which percentage shall be equal to the percentage of the Contractor's total delay claim which is determined through litigation to be false or to have no basis in law or in fact.

(g) Any change in the Contract Time for Completion or Contract Completion Date shall be accomplished only by issuance of a Change Order.

(h) If the Contractor fails to complete the Work within the Time for Completion or the Contract Completion Date, the Contractor shall be liable to the County in the amounts set forth in subsection (j) below not as a penalty, but as fixed, agreed and liquidated damages for delay until the Work is substantially or finally completed as the case may be. If liquidated damages are not so fixed in subsection (j), the Contractor shall be liable for any and all actual damages sustained as a result of delay. In addition to damages for delay, whether liquidated or actual, the Contractor shall also be liable for any and all actual damages sustained by the County as a result of any other breach of the Contract, including, but not limited to, Defective Work and abandonment of the Contract.

(i) If the Contractor fails to complete the Work by the Time for Completion or Contract Completion Date, the following provisions apply:

(1) The Contractor shall owe to the County, not as a penalty but as liquidated damages, the sum stated in subsection (j) below as "step one" liquidated damages for each and every partial or total calendar day of delay in Substantial Completion.

(2) Once the Work is substantially complete, the accrual of "step one" liquidated damages shall cease, and the Contractor shall have thirty (30) calendar days in which to achieve Final Completion of the Work.

(3) If Final Completion of the Work is not achieved on or before the thirtieth (30<sup>th</sup>) calendar day after Substantial Completion, and if the County has not granted any extension of time, the Contractor shall owe to the County, not as a penalty but as liquidated damages, the sum stated in subsection (j) below as "step two" liquidated damages for each and every partial or total calendar day of delay in Final Completion.

(j) Time is of the essence of the contract. Should the Contractor fail to complete the Work within the time agreed upon in the Contract or within such extra time as may have been allowed by Change order, there may be deducted from any sums due or that may become due the Contractor the sum set forth in the following schedule for each and every calendar day, exclusive of Sundays and legal holidays, that the Work shall remain uncompleted. This sum

shall be considered and treated not as a penalty but as liquidated damages due the County from the Contractor by reason of inconvenience to the public, added cost of engineering and supervision, operation of alternative public services, and other factors which have caused the expenditure of public funds resulting from the contractor's failure to complete the work within the time specified in the contract.

Schedule of Liquidated Damages

Step One	<b><u>\$350</u></b> per day
Step Two	<b><u>\$350</u></b> per day

(k) Each party hereby waives any claim or defense as to the validity of any liquidated damages stated in this Agreement as they may appear on the grounds that such liquidated damages are void as penalties or are not reasonably related to actual damage.

(l) Completion of the Work, for purposes of this section, shall occur upon preliminary acceptance of all the Work required by the contract documents. Permitting the Contractor to continue and finish the Work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended by Change Order, shall in no way operate as a waiver on the part of the County of any of its rights under the Contract.

**44. INSPECTION FOR SUBSTANTIAL COMPLETION & FINAL COMPLETION**

(a) The Contractor shall notify the County, in writing by "Certificate of Partial or Substantial Completion," of the date when the Work or designated portion thereof, will be, in his opinion, substantially complete and ready for inspection and testing to determine if it has reached Substantial Completion. The notice shall be given at least ten (10) days in advance of said date. Inspection and testing shall take place at a time(s) mutually agreeable to the Contractor and County.

The inspection shall include a demonstration by the Contractor that all equipment, systems and operable components of the project function properly and in accordance with the Contract Documents. The Contractor shall furnish access for the inspection and testing. The inspection and testing shall determine whether Substantial Completion has been accomplished and shall result in either: (a) a written notice that the County does not consider the Work to be substantially complete accompanied by a written list of unfinished Work and Defective Work which must be completed or corrected before the County will concur that the Work is substantially complete, or (b) a written confirmation by the County that the Work is substantially complete accompanied by a written list of unfinished Work and Defective Work, commonly referred to as a "punch list", which must be finished and corrected to obtain Final Completion. If the County has not concurred that the Work is substantially complete, the Contractor shall provide the County another Certificate of Partial or Substantial Completion notifying the County of the date when, in his opinion, the listed items of unfinished Work or Defective Work will be substantially complete and ready for inspection.

(b) The Contractor shall notify the County, in writing, of the date when the Work will reach Final Completion and will be ready for final inspection and testing. The notice shall be given at least five (5) days in advance of said date. That inspection and any necessary testing shall be conducted in the same manner as the inspection for Substantial Completion. When the Work is finally and totally complete, including the elimination of all defects, the Work shall be finally accepted by the County and final payment shall be made in accordance with these General Conditions.

(c) The County's Representative shall conduct the inspections. The County may elect to have other persons of its choosing also participate in the inspections. If one or more Substantial or Final Completion re-inspections are required, the Contractor shall reimburse the County for all costs of re-inspection or, at the County's option, the costs may be deducted from payments due to the Contractor.

(d) Approval of Work at or as a result of any inspection required herein shall not release the Contractor or his surety from responsibility for complying with the Contract.

## 45. GUARANTEE OF WORK

(a) Except as otherwise specified, all Work shall be, and is hereby, guaranteed by the Contractor against defects resulting from the use of materials, equipment or workmanship, which are defective, inferior, or not in accordance with the terms of the Contract, for one (1) year from the date of Final Completion of the entire Project by the County. Equipment and facilities which have seasonal limitations on their operation (e.g. heating or air conditioning units) shall be guaranteed for one (1) full year from the date of seasonally appropriate tests and acceptance, in writing, by the County. Where the County agrees to take Beneficial Occupancy of a portion or phase of the Work which has been determined to be substantially complete before the entire Work is finally completed, the guarantees for the materials, equipment and workmanship in that portion or phase shall begin on the date that the County takes Beneficial Occupancy, unless otherwise specified in the Supplemental Conditions or by separate agreement.

(b) If, within any guarantee period, Work which is not in accordance with the Contract, Defective Work, or inferior material, equipment or workmanship is noted by the County which requires or renders necessary repairs or changes in connection with the guaranteed Work, the Contractor shall, promptly upon receipt of notice from the County, such notice being given not later than two (2) weeks after the guarantee period expires, and without expense to the County:

(1) Place in satisfactory condition in every particular all of such guaranteed Work and correct all defects, inferior materials, equipment or workmanship therein;

(2) Make good all damage to the structure or Site or equipment or contents thereof, which, in the opinion of the County, is the result of the use of materials, equipment or workmanship which are inferior, defective or not in accordance with the terms of the Contract; and

(3) Make good any Work or materials or the equipment and contents of structures and/or Site disturbance that results from fulfilling the provisions of this Section.

(c) In any case, when in fulfilling the requirements of the Contract and this guarantee or any other guaranty or warranty, the Contractor disturbs any work performed by a separate contractor, he shall restore such work to a condition satisfactory to the County and guarantee such restored work to the same extent as if it was guaranteed under this Contract.

(d) If the Contractor, after notice, fails to proceed promptly to comply with the terms of the guarantee as set forth in this Section, the County may have the defects or inferior materials, equipment or workmanship corrected and the Contractor and his surety shall be liable for all expense incurred.

(e) All special warranties and guarantees applicable to definite parts of the Work that may be stipulated in or required by the Contract Documents shall be subject to the terms of this Section during the first year of the life of such special warranty or guarantee.

(f) The guarantee of this Section shall be in addition to and not in lieu of all other warranties, express or implied, applicable to or arising from this Contract or by law.

(g) Nothing contained in this Section shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including liability for Defective Work. This Section relates only to the specific obligation of the Contractor as set forth in this Section to correct the Work and does not limit the time within which his obligation to comply with the Contract Documents may be sought to be enforced, nor the time within which proceedings may be commenced to establish the Contractor's liability with respect to his other obligations under the Contract Documents.

(h) In the event the Work of the Contractor is to be modified by another contractor, either before or after the Final Inspection, the first Contractor shall remain responsible in all respects under this Section's Guarantee of Work and under any other warranties or guarantees, express or implied, applicable to or arising from this Contract or by law. However, the Contractor shall not be responsible for any defects in material or workmanship introduced by the contractor modifying his Work. The first Contractor and the contractor making the modifications shall each be solely responsible for his respective work. The contractor modifying the earlier Work shall be responsible for any

damage to or defect introduced into the Work by his modification. If the first contractor claims that a subsequent contractor has introduced defects of materials and/or workmanship into his Work, it shall be the burden of the contractor making the claim to demonstrate clearly the nature and extent of such introduced defects and the other contractor's responsibility for those defects. Any contractor modifying the work of another shall have the same burden if he asserts that defects in his work were caused by the contractor whose work he is modifying.

#### **46. ASSIGNMENTS**

Neither party to the Contract shall assign the Contract in whole or any part without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him hereunder, without the prior written consent of the County. No assignment shall relieve any party from its obligations under the Contract.

#### **47. CONTRACTUAL DISPUTES**

(Virginia Code § 2.2-4363)

(a) Contractual claims, whether for money or for other relief, shall be submitted, in writing, no later than sixty (60) days after final payment; however, written notice of the Contractor's intention to file such claim must be given at the time of the occurrence or beginning of the Work upon which the claim is based. The filing of a timely notice is a prerequisite to recovery under this Section. Although the Contractor may be required to submit certain classes of claims prior to final payment, and the Contractor is not prevented from filing claims during the pendency of the Work, the County shall not be obligated to render a final written decision on any claim until after final payment. All claims shall be submitted along with all practically available supporting evidence and documentation.

(b) No written decision denying a claim or addressing issues related to the claim, if rendered prior to final payment, shall be considered a denial pursuant to this Section unless the written decision makes express reference to this Section and is signed by the County. The Contractor may not institute legal action prior to receipt of the County's final written decision on the claim unless the County fails to render such a decision within ninety (90) days of submission of the claim or within ninety (90) days of final payment, whichever is later.

(c) The decision of the County shall be final and conclusive unless the Contractor within six (6) months of the date of the final decision on a claim, initiates legal action as provided in § 2.2-4364 of the Code of Virginia. Failure of the County to render a decision within 90 days shall not result in the Contractor being awarded the relief claimed nor shall it result in any other relief or penalty. The sole result of the County's failure to render a decision within 90 days shall be the Contractor's right to immediately institute legal action. No administrative appeals procedure pursuant to § 2.2-4364 of the Code of Virginia has been established for contractual claims under this Contract.

**[SECTION 48 OMITTED]**

#### **49. TRAINING, OPERATION AND MAINTENANCE OF EQUIPMENT**

(a) As a part of the Work, the Contractor in conjunction with his Subcontractors and Suppliers shall provide the County's operations and maintenance personnel with adequate instruction and training in the proper operation and maintenance of any equipment, systems, and related controls provided or altered in the Work. The training requirements may be further defined in the Contract Documents.

(b) The Contractor shall provide the County with a minimum of two (2) copies of operating, maintenance and parts manuals for all equipment and systems provided in the Work. Further specific requirements may be indicated in the Contract Documents.

#### **50. PROJECT MEETINGS**

The intention of this section is to enable the County and the Contractor to have a timely exchange of information and to accomplish the Work in a cooperative manner as required by the Contract Documents. The Contractor is responsible for managing the Work, obtaining approvals and requesting clarifications on a timely, reasonable basis. The County is responsible for making a reasonable effort to provide timely responses to the Contractor.

### **Preconstruction Meeting:**

(a) Prior to the start of construction, a "Pre-construction" meeting shall be held. In attendance should be: (a) the County's Representative and Project Inspector, if any; (b) when appropriate, representatives of each design discipline involved in the Project; (c) the Contractor's Representative and superintendent and, representatives of the Contractor's major Subcontractors, if any; and (d) such other persons either the County or the Contractor may invite. No decisions made at this meeting shall be binding unless appropriate Field Orders or Change Orders are issued. This meeting is to exchange certain information and to clarify and discuss various topics, including but not necessarily limited to, the following:

- (1) Persons involved from each entity and their chain of authority including the names of persons authorized to sign Change Orders and any limits to their authority.
- (2) Names, addresses, telephone numbers and FAX numbers to be used for requests for information or clarification, requests for Change Orders, and distribution of shop drawings, Submittals, and notices.
- (3) Contractor's proposed construction schedule and County's sequencing requirements, if any.
- (4) Procedures for submission of shop drawings, product data and other Submittals, if any.
- (5) Procedures for handling Field Orders and Change Orders, if any.
- (6) Procedures for Contractor's request for time extension, if any.
- (7) Construction Site requirements, procedures and clarifications to the manner of conducting the Work Site specialties, including: dust, erosion control, stormwater management, project signs, clean up and housekeeping, temporary facilities, utilities, security, traffic, and safety layout.
- (8) Quality control, testing, inspections, notices required, the tentative schedule of Site visits by the County's Representative and others, and any proposed changes to the Project Inspector's duties
- (9) Creation, maintenance and distribution of project records.
- (10) Procedures for submission of Requests for Payment.

### **Project Meetings and Progress Reports:**

(b) Attendance at Project Meetings: Unless stated otherwise in the Supplemental Conditions, project meetings will be scheduled at least once a month. Invitees to all project meetings shall include representatives from the Contractor and the County. When appropriate, representatives of subcontractors should also be present. Under no circumstances shall project meetings be considered a reason for extensions of time or damages for delay.

(c) Purpose of Project Meetings: The purpose of project meetings shall be to facilitate the timely exchange of information and cooperate to accomplish the Work as required by the Contract Documents. The meeting is an opportunity to discuss status and workmanship of Work in progress, pending requests for payment, compliance with construction schedule, requests for clarification, pending Change Orders, running punch list items, and potential problems which need attention. No decisions made at this meeting shall be binding unless appropriate Field Orders or Change Orders are issued.

(d) Progress Reports: The first item to be discussed at a project meeting will normally be the presentation of a progress report by the Contractor. Written progress reports may be required by the Supplemental conditions. The Contractor shall review progress not less than each month, but as often as necessary to properly manage the Project and stay on schedule. The Contractor shall collect and preserve information on Change Orders, including extensions of time. The Contractor shall evaluate this information and update the latest accepted schedule as often as necessary to finish before the Contract Completion Date.

(e) Performance Delay: If any elements of the Work are behind schedule, regardless of whether they may prevent the Work from being completed on time, the Contractor must indicate in writing in his progress report what measures he is taking and plans to take to bring each such element back on schedule and to ensure that the Contract Completion Date is not exceeded. Should any of the following conditions exist, the County may require the Contractor to prepare, at no extra cost to the County, a plan of action and a recovery schedule for completing the Work by the Contract Completion Date:

(1) The Contractor's progress report(s) indicates delays that are, in the opinion of the County, of sufficient magnitude that the Contractor's ability to complete the Work on time is brought into question;

(2) The Contractor's progress report(s) indicates delays that are, in the opinion of the County, of sufficient magnitude to put the Contractor thirty (30) or more days behind at any time during construction.

(3) The Contractor desires to make changes in the sequencing of Work or the planned duration of future activities which, in the opinion of the County, are of a major nature.

The plan of action, when required, shall explain and display how the Contractor intends to regain compliance with the accepted Contract Completion Date, as updated by approved Change Orders. It shall be submitted to the County for review within five (5) business days of the Contractor receiving the County's written demand.

**COUNTY OF AUGUSTA, VA**  
**IFB# 81010-17-03**  
**SPECIAL TERMS AND CONDITIONS**

*In the event there is a conflict between any of the other General Terms and Conditions and any Special Terms and Conditions in this solicitation, the Special Terms and Conditions shall apply.*

1. Prior to the start of any construction activities the Contractor shall attend a pre-construction meeting with representatives of Augusta County and other appropriate parties for the purposes of scheduling the work and coordination.
2. The Contractor shall attend bi-weekly progress meetings at the offices of the Owner or other designated location for purpose of reporting progress, problems or otherwise expediting the work. Subcontractors shall also attend this meeting when required to resolve specific issues or problems.
3. Inspection for this project will be handled by the Virginia Department of Transportation. The contractor shall notify the Harrisonburg Residency at (540) 434-2587 forty eight (48) hours prior to inspection services and is responsible for any delays resulting from unacceptable work. The following is a list but not a total list of activities requiring VDOT inspection:
  - Foundation exploration for all culverts or drainage structures with a diameter equivalent to or greater than 36 inches. The contractor performs this exploration. VDOT wants the opportunity to be present.
  - Inspection and proof rolling of the subgrade prior to placement of the base stone.
  - Compaction testing of the base stone as indicated in the VDOT requests the opportunity to be present during testing.
  - Depth of stone is verified by VDOT prior to placement of the asphalt.
  - Compaction testing of the asphalt as described in the VDOT General Notes shown on the approved plans and as required by the Contractor's Quality Control Plan. VDOT requests the opportunity to be present during testing.
  - Where curb and gutter is specified, VDOT inspects and approves the grade string prior to pouring the curb.
  - All drop inlets must be visually inspected by VDOT.
  - The County of Augusta requests a final inspection from VDOT, once construction is complete, prior to beginning the process to bring the road into the system.
  - The source of materials for all materials used in the construction of the road slated to come into the system must be submitted to VDOT for approval.
4. Construction staking shall be done only by a professional engineer or land surveyor registered in the Commonwealth of Virginia. The engineer/surveyor employed by the Contractor shall be responsible for preparation of a detailed staking plan and having that plan reviewed and approved prior to start of work by the Engineer. In accordance with Section 23 of the General Conditions, contractor will maintain a redline set of plans for use in developing a set of as-built drawings which will be handed over to the Engineer. In addition, locations and elevations sufficient to establish proper construction in accordance with the plans will be certified and sealed by contractor's professional engineer or land surveyor on the red-line, or separate as-built drawings.
5. The contractor shall hire an independent materials testing agency acceptable to the Owner to perform soils, asphalt, concrete and other quality control inspection services as required during construction. All tests shall be presented to the VDOT for inspection prior to any acceptance of work performed. All inspectors shall be VDOT-certified, and testing shall be performed in accordance with VDOT specifications and certification manuals of instruction.

6. A Land Disturbance Permit shall be required for this project and will be obtained by the Contractor. All work shall be performed in accordance with the latest edition of the Virginia Erosion and Sediment Control Manual.
7. A Storm Water Pollution Prevention Plan (SWPPP) is provided by the Owner and the Owner will obtain General Permit coverage. The Contractor will transfer the existing registration to their name before the construction start date, shall maintain a copy of the SWPPP onsite at all times and shall adhere to all provisions and requirements of the SWPPP. If the County does not elect to transfer the Contractor's registration to itself or another Contractor, Contractor will submit Notice of Termination when the project is complete and accepted by the County.
8. As a part of this project, contractor is to modify the outlet structure of the existing Sediment Basin downstream of Centerview Drive. This modification may not commence until approved by the county as the VSMP Authority. In the event the contractor's work is otherwise complete except modification of the basin outlet structure, and the County as VSMP Authority is not able to approve the basin modification due to continuing work elsewhere in the watershed, then the County may direct the basin outlet structure to be left in place. This determination will be at the sole discretion of the County as the VSMP Authority. County will NOT seek credit from the contractor if this work is not completed at the direction of the VSMP Authority.
9. The Contractor shall be required to provide adequate and positive site drainage throughout construction. Any subgrade soils which have been weakened due to inadequate drainage, saturation and or disturbance by construction shall be undercut and replaced with compacted structural fill at no additional cost to the Owner.
10. The Contractor shall be responsible for the disposal of all excess materials (including but not limited to undercut, root mat, topsoil and or fill material), obtaining borrow material and the suitability of all on-site material above subgrade. No extra payment will be made for disposal or importing of soils to the project site regardless of the suitability or unsuitability of on-site soils. Bid item Regular Exc. Cut to Fill (Onsite) includes disposal of excess cut material. This material to be placed in the vicinity of the downstream sediment basin in accordance with note on Sheet C3 of the Centerview Drive Extension construction plan.
11. Select geotechnical engineering information is provided for this project. This is for informational purposes only and should not be considered part of the contract documents. The opinions in this report are those of the geotechnical engineer and represent interpretation of the subsurface conditions, test, and the results of analyses conducted. Should the data contained in this report not be adequate for the Contractor's purposes, the Contractor (at his own expense) may make, prior to bidding, independent exploration, tests and analyses. This report may be examined by bidders at the office of the engineer or copies may be procured from the engineer at nominal charge.
12. Whenever the Contractor's operations affect vehicular or pedestrian traffic, the Contractor shall be responsible for furnishing, installing and maintaining any and all safety control devices in accordance with the *VDOT Work Area Protection Manual* and as deemed necessary by VDOT and the Engineer.
13. The contractor shall be responsible for coordination with the Contractor for the adjacent Lot 13 site, currently under construction. The sole construction access to Lot 13 is via the Right of Way for Centerview Drive which will be constructed. The main coordination items will be maintenance of site access and construction of the site entrances at Approx 12+40 and Approx. 17+15.
14. The Contractor shall schedule his work such as to maintain access to adjacent properties at all times, and minimize the disturbed areas left uncompleted and unstabilized.
15. Contractor will place Base and Intermediate asphalt by the Substantial Completion date of December 15, 2017. Surface asphalt is to be placed in the timeframe of March 1, 2018 – April 30, 2018. Areas in sags or where water may collect will be built up with sacrificial asphalt so as to avoid ponding of water within the roadway section. There will be no cost escalation provided, anticipated asphalt cost should be built into the LUMP SUM base bid.
16. The Contractor is reminded that bids shall be **LUMP SUM** and shall include **ALL WORK** necessary to complete the project to the full intent of the plans. In the event of additions or deductions to the work required by the Contract Documents, the Contractor will be paid extra or shall credit the Owner, as the case may be, on the basis of the unit prices quoted on the Bid Schedule. References to "pay items" shown on the plans or specifications are not relevant for this contract.

**COUNTY OF AUGUSTA, VIRGINIA**  
**IFB# 81010-17-03**  
**TECHNICAL SPECIFICATIONS**

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**GENERAL:** The County of Augusta, Virginia is requesting sealed bids for construction of portions of Centerview Drive located in the County's Mill Place Commerce Park.

**REQUIREMENTS:** The Contractor shall furnish all labor, supervision, equipment, tools, parts and materials, as necessary to perform the work required for these projects. Bids shall be LUMP SUM and shall include ALL WORK necessary to complete the projects to the full intent of the plans.

**SCOPE OF WORK:** The project scope will consist of the construction of a two (2) lane facility (30 feet face-to-face of curb) from Mill Place Parkway to approximately 0.22 mile south Mill Place Parkway. Concrete curb & gutter will be added along these sections of Centerview Drive and a two (2) lanes of asphalt pavement will be constructed, sidewalk will be constructed along one side. The projects are approximately 1,280 feet in length.

**SECTION 02100 - SITE CLEARING**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplemental Conditions and other Specification sections, apply to work of this section.

Virginia Department of Transportation (VDOT) Road and Bridge Specifications, Road and Bridge Standards and Work Area Protection Manual, all latest edition.

Virginia Erosion and Sediment Control Handbook, latest edition.

1.02 DESCRIPTION OF WORK:

Extent of site clearing is shown on drawings.

Site clearing work includes, but is not limited to:

- Protection of existing trees;
- Removal of trees and other vegetation;
- Topsoil stripping and stockpiling;
- Clearing and grubbing;
- Removal of above-grade and below-grade improvements;
- Backfilling to original level of any depressions resulting from such removal; and
- Removal and disposal of trash, dumped material and other debris found on the site.

1.03 JOB CONDITIONS:

1.03.1 Traffic: Conduct site clearing operations to ensure minimum interference with roads, streets, and other adjacent occupied or used facilities. Do not close or obstruct streets, driveways, or other occupied or used facilities without permission from authorities having jurisdiction. Access to adjoining properties shall be

maintained at all times. Work within an existing roadway shall be in accordance with VDOT's Work Area Protection Manual.

- 1.03.2 Protection of Existing Improvements: Provide protection necessary to prevent damage to existing improvements indicated to remain in place. Protect improvements on adjoining properties and within VDOT right of way. Restore damaged improvements to their original condition, as acceptable to parties having jurisdiction.
- 1.03.3 Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.

## PART 2 - PRODUCTS

Required erosion control measures shall be as specified in the VDOT Road and Bridge Specifications and Virginia Erosion and Sediment Control Handbook.

## PART 3 - EXECUTION

### 3.01 SITE CLEARING:

- 3.01.1 General: Remove trees, grass and other vegetation, improvements, or obstructions interfering with installation of new construction in accordance with VDOT Specifications Section 301. Remove such items elsewhere on site as specifically indicated on the plans. Only remove those items necessary to perform the work. Install any necessary erosion control measures prior to any land disturbing activity.
- 3.01.2 Topsoil: Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4 inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 1 inch in diameter, and without weeds, roots, and other objectionable material. Remove heavy growths of grass from areas before stripping. Strip and stockpile topsoil in accordance with VDOT Specifications Section 303.04.a

Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material.

Stockpile topsoil in storage piles in such a manner as to freely drain surface water. Cover storage piles if required to prevent wind-blown dust, and seed excess topsoil storage piles in accordance with temporary seeding requirements. Provide perimeter silt fencing around stockpile area to prevent silt from leaving stockpile area site. **Only stockpile that topsoil necessary to provide for final grassed surfaces. Waste excess topsoil off-site or use to flatten fill slopes as directed by the Engineer.**

- 3.01.3 Clearing and Grubbing: Clear site of trees, shrubs and other vegetation, except for those indicated to be left standing, in accordance with Section 301 of the VDOT specifications. Completely remove stumps, roots, and other debris protruding through ground surface that will be less than 5 ft. below the top of earthwork.

Use only hand methods for grubbing inside drip line of trees to be left standing. Hand cut interfering roots of all trees indicated to remain. Protect existing root systems from damage or dryout to the greatest extent possible. Maintain moist condition for root system and cover exposed roots with burlap. Paint root cuts of 1in. diameter and larger with emulsified asphalt tree paint.

- 3.01.4 Removal of Improvements: Remove existing above- and below-grade improvements necessary to permit construction, and other work as indicated.

- 3.01.5 Backfilling of Depressions: Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated. Place fill material in horizontal layers not exceeding 6 in. loose depth, and thoroughly compact to a density equal to adjacent original ground.
- 3.02 DISPOSAL OF EXCESS AND WASTE MATERIALS:
- 3.02.1 Burning On Site: On-site burning will not be allowed on this project.
- 3.02.2 Removal from Site: Remove all waste materials, trash, and debris from the road right of way and dispose of it off site in accordance with Section 106.04 of the VDOT Specifications.
- 3.02.3 Disposal on Site: No on-site disposal areas are available on this project.

END OF SECTION 02100

## **SECTION 02170 - EROSION AND SEDIMENT CONTROL**

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplemental Conditions and other Specification sections, apply to work of this section.

Virginia Department of Transportation (VDOT) Road and Bridge Specifications, Road and Bridge Standards and Work Area Protection Manual, all latest edition.

Virginia Erosion and Sediment Control Handbook, latest edition.

#### 1.02 DESCRIPTION OF WORK:

The Contractor shall furnish all labor, materials, equipment and services necessary for, and reasonably incidental to, preventing pollution of land, air and water and for controlling stormwater runoff and erosion of soil. Erosion and sediment control shall be accomplished so as to preclude sedimentation of existing and proposed drainage ways.

#### 1.03 GENERAL CONTROL MEASURES:

- 1.03.1 All disturbed areas shall be permanently seeded or sodded within 30 days from disturbance unless the Owner grants an exception. Areas which are excepted from permanent vegetation shall be temporarily seeded within 7 days at the Contractor's expense.
- 1.03.2 All disturbed areas shall be protected to control erosion and prevent sedimentation of adjacent properties, VDOT right of way, streams and or drainage ways.
- 1.03.3 Sediment control devices such as diversion berms, sediment traps, filter barriers, vegetation stabilization, etc., shall be used to prevent off-site sedimentation at all times.
- 1.03.4 Topsoil, borrow or waste materials shall be temporarily stockpiled only within the project limits.
- 1.03.5 The proposed grading shall not impair existing surface drainage, constitute a potential erosion hazard, or source of sedimentation to any adjacent property, drainage system or right-of-way.
- 1.03.6 All points of construction ingress and egress shall be protected to prevent tracking of mud on the public streets.

1.04 STORM DRAINAGE CONTROL:

If during construction the Contractor disrupts existing storm drainage patterns, the storm drainage will be handled by providing positive drainage onto stable areas at nonerosive velocities and in a manner consistent with established drainage ways.

1.05 STABILIZATION:

1.05.1 Within seven days of achieving final grade, all disturbed areas shall be stabilized with permanent vegetation and mulch.

1.05.2 For vegetating critical areas, sod or adequate mulch, fertilizer and type of seed will be placed to ensure a vigorous groundcover and such application will be repeated if necessary until such growth is established.

1.05.3 Erosion and sediment control measures may not be removed or relocated without the prior approval of the Engineer.

PART 2 - PRODUCTS

2.01 GROUND LIMESTONE - see Section 02930 - Lawns & Grasses

2.02 COMMERCIAL FERTILIZER - see Section 02930 - Lawns & Grasses

2.03 WATER - shall be clean potable water.

2.04 SEED - see Section 02930 - Lawns & Grasses

2.05 MULCH - see Section 02930 - Lawns & Grasses

2.06 MULCH BINDERS - see Section 02930 - Lawns & Grasses

2.07 OMITTED

2.08.1 EROSION CONTROL STONE (EC-1) AND RIPRAP TYPE I - shall be dry riprap in accordance with VDOT Road and Bridge Specifications, latest edition.

2.08.2 CONSTRUCTION ENTRANCE – Constructed to Standard & Specification 3.02 of the Virginia Erosion & Sediment Control Handbook, latest edition.

2.08.3 SILT FENCES Constructed to Standard & Specification 3.05 of the Virginia Erosion & Sediment Control Handbook, latest edition.

2.08.4 STORM DRAIN INLET PROTECTION - Constructed to Standard & Specification 3.07 of the Virginia Erosion & Sediment Control Handbook, latest edition.

2.08.5 CULVERT INLET PROTECTION - Constructed to Standard & Specification 3.08 of the Virginia Erosion & Sediment Control Handbook, latest edition.

2.08.6 DIVERSION DIKES – Earthen measure constructed to Standard & Specification 3.09 of the Virginia Erosion & Sediment Control Handbook, latest edition.

2.08.7 SEDIMENT BASIN – Temporary barrier or dam with a controlled stormwater release structure formed by constructing an embankment of compacted soil across a drainageway constructed to Standard & Specification 3.14 of the Virginia Erosion & Sediment Control Handbook, latest edition.

- 2.08.8 STORMWATER CONVEYANCE CHANNEL - Constructed to Standard & Specification 3.17 of the Virginia Erosion & Sediment Control Handbook, latest edition.
- 2.08.9 OUTLET PROTECTION - Constructed to Standard & Specification 3.18 of the Virginia Erosion & Sediment Control Handbook, latest edition.
- 2.08.10 SURFACE ROUGHENING - Constructed to Standard & Specification 3.29 of the Virginia Erosion & Sediment Control Handbook, latest edition.
- 2.08.11 TOPSOILING - Constructed to Standard & Specification 3.30 of the Virginia Erosion & Sediment Control Handbook, latest edition.

### PART 3 - EXECUTION

#### 3.01 CONSTRUCTION ENTRANCE, SILT FENCE, DIVERSIONS AND SEDIMENT BASINS

The construction entrance, diversion dikes and silt fence shall be established prior to any land disturbing operation as a first priority item. Contractor will then ensure proper function of the existing Sediment Basin and schedule a pre-construction conference with County ESC administrator after installation of these perimeter ESC items

All ESC items shall be placed and maintained in strict accordance with the latest edition of the Virginia Erosion Control and Sediment Control Handbook to ensure effective use.

- 3.02 LIME - see Section 02930 - Lawns & Grasses
- 3.03 FERTILIZER - see Section 02930 - Lawns & Grasses
- 3.04 SEEDING - see Section 02930 - Lawns & Grasses
- 3.05 MULCHING - see Section 02930 - Lawns & Grasses
- 3.06 MULCH BINDING - see Section 02930 - Lawns & Grasses
- 3.07 GENERAL CONTROL MEASURES

The work site, and areas adjacent thereto, shall be kept clean and free of soil, straw or other materials incidental to the work of this section. Surface drainage from cuts and fills within the construction limits, and from borrow and waste disposal areas, shall, if turbidity producing materials are present, be held in suitable sedimentation ponds or traps or shall be graded to control erosion.

Temporary erosion and sediment control measures such as berms, dikes, drains, or sedimentation basins, if required to meet the above standards, shall be provided and maintained until permanent drainage and erosion control facilities are completed and operative. The area of bare soil exposed at any one time shall be held to a minimum. Fills and waste areas shall be constructed by a selective placement to eliminate silts or clays on the surface that will erode and contaminate adjacent properties, streams or drainage ways.

#### 3.08 STOCKPILING EXCAVATED MATERIAL

Contractor shall temporarily stockpile excavated material and waste materials in such a way as to minimize sedimentation. Performing this effective control measure will minimize the need for straw bales and silt fences. Disturbance shall be kept to a minimum and methods of controlling erosion shall be performed in accordance with plans and specifications and Contractor is not relieved of his responsibility to perform construction practices which will prevent erosion more clearly defined in the Virginia Erosion and Sediment Control Handbook.

#### 3.09 MAINTENANCE

The Contractor shall maintain erosion control measures until permanent vegetation is established and shall not be removed until so directed by the Engineer. During periods of operation, erosion control facilities shall be maintained in proper condition and silt removed as described in the Virginia Erosion and Sediment Control Handbook or as directed by Engineer. Removal of erosion control facilities shall include proper disposal of all collected silt and debris.

**IMPROPER INSTALLATION OR MAINTENANCE OF EROSION CONTROL MEASURES SHALL BE SUFFICIENT GROUNDS FOR THE OWNER TO STOP WORK ON THE PROJECT.**

END OF SECTION 02170

**SECTION 02200 - EARTHWORK**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplemental Conditions and other Specification sections, apply to work of this section.

Virginia Department of Transportation (VDOT) Road and Bridge Specifications, Road and Bridge Standards and Work Area Protection Manual, all latest edition.

Virginia Erosion and Sediment Control Handbook, latest edition.

1.02 DESCRIPTION OF WORK:

Work under this section includes, but is not limited to:

Stripping of topsoil and excavation for construction of utilities, storm sewer, and roadway shown in the drawings and spreading of topsoil for all areas to be seeded as specified in the drawings.

1.02.1 **Definitions:** "Excavation" consists of removal and placement of material to required subgrade **and or** subsoil elevations indicated, and the subsequent disposal of materials removed. "Subgrade" is defined as the undisturbed earth, or the compacted soil layer, immediately below granular subbase, drainage fill, or topsoil materials. "Subsoil" is defined as the undisturbed earth immediately below the existing topsoil layer.

1.03 QUALITY ASSURANCE:

1.03.1 Codes and Standards: Perform excavation and embankment work in compliance with VDOT Specifications unless otherwise modified herein.

1.03.2 Testing and Inspection: The Owner shall hire an independent Geotechnical Engineer to perform soil testing and quality control inspection services during earthwork operations. The Contractor shall be responsible for coordinating for required geotechnical testing as specified in the Special Conditions.

1.04 JOB CONDITIONS:

1.04.1 **Suitability of Materials:** The Contractor shall be responsible for the disposal of excess material (including but not limited to undercut, root mat and excess topsoil and fill material), obtaining borrow material and the suitability of all on-site material above subgrade. No extra payment will be made, regardless of the suitability or unsuitability of on-site soils for the disposal or importing of soils to the project site.

- 1.04.2 Geotechnical Report: Limited geotechnical information is available for this project. A report by Froehling & Robertson, Inc., Reference: Centerview Drive – Augusta County, Augusta County, Virginia, dated April 27, 2017 is for informational purposes only and should not be considered part of the contract documents. The opinions expressed represent the Geotechnical Engineer’s interpretation of the subsurface conditions, tests, and the results of analyses conducted. Should the data contained in this report not be adequate for the Contractor’s purposes, the Contractor may make before bidding, at his own expense, independent exploration, tests and analyses.
- 1.04.3 Site Drainage: Control of surface drainage and groundwater is critical because of the moisture sensitivity of on-site soils. The Contractor shall be required to provide adequate and positive site drainage throughout construction. Any subgrade soils which have been weakened due to inadequate drainage, saturation and or disturbance shall be undercut and replaced with compacted structural fill at no additional cost to the Owner.
- 1.04.4 Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations. Provide minimum of 48-hour notice to the Engineer, and receive written notice to proceed before interrupting any utility.
- Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Engineer and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
- 1.04.5 Protection of Persons and Property: Work within existing roadways shall meet all requirements of VDOT's Work Area Protection Manual. Access to adjoining properties must be maintained at all times. Barricade open excavations occurring as part of this work and post with warning lights.
- Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

## PART 2 - PRODUCTS

### 2.01 SOIL MATERIALS:

- 2.01.1 Satisfactory Soil Materials are defined as on-site soils complying with ASTM D2487 soil classification groups CL, ML, SC, SM, SP, SW, GC, GM, GP, GW Borrow material from off-site sources shall classify CL or better, shall have a minimum CBR value of 8 in accordance with VDOT VTM-8 and must be approved by the Engineer prior to placement.
- 2.01.2 Unsatisfactory Soil Materials are defined as those complying with ASTM D2487 soil classification groups OL, OH, and PT.
- 2.01.3 Backfill and Fill Materials: Satisfactory soil materials free of clay, rock or gravel larger than 2 in. in any dimension, organic matter, clearing debris, waste, frozen materials, and other deleterious matter, and meeting the requirements of Section 2.01.1.
- 2.01.5 Topsoil as defined in Section 02100.

## PART 3 - EXECUTION

### 3.01 EXCAVATION:

- 3.01.1 Excavation is Unclassified, and includes excavation to subgrade elevations indicated, **regardless of character of materials and obstructions encountered.**
- 3.01.2 Unauthorized Excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the Engineer. Unauthorized excavation, as well as remedial work directed by the Engineer, shall be at the Contractor's expense. Backfill and compact unauthorized excavations

in the same manner as specified for authorized excavations of same classification, unless otherwise directed by the Engineer.

3.01.3 Undercut Excavation: When excavation has reached required sub-grade elevations, notify the Engineer who will make an inspection of conditions. If unsuitable bearing material is encountered at required subgrade elevations, carry excavations deeper as directed by the Engineer.

3.01.4 The limits and depth of undercut shall be as directed by the Engineer and adjustments to the Lump Sum contract price shall be made where appropriate. Measurement and basis for any additional payment (or credit as the case may be) shall be made based on the unit prices included in the contract for Excess Excavation (off-site disposal), Geotextile Fabric and or other items as may be appropriate.

Undercut required for the installation of pipe culverts and bedding materials shall not be classified as undercut excavation and shall be included in the unit price of the pipe.

3.01.5 Stability of Excavations: Slope sides of excavations to comply with Virginia OSHA for the construction industry by the Department of Labor and Industry. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.

3.01.6 Dewatering: Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area. Maintain positive drainage away from the construction area at all times.

Do not allow water to accumulate in excavations. Remove water to prevent soil changes detrimental to stability of subgrade. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey stormwater and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

3.01.7 Material Storage: Stockpile satisfactory excavated materials on site in a location as generally shown on the plans until required for backfill or fill. Alternate locations may be approved by the Engineer with appropriate Erosion & Sediment Control measures. Place, grade and shape stockpiles for proper drainage. Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain.

3.01.8 Excavation for Pavements: Cut surface under proposed pavements to comply with cross-sections, elevations and grades as shown on the contract plans and in accordance with VDOT Specifications.

3.01.9 Cold Weather Protection: Protect excavation bottoms against freezing when atmospheric temperature is less than 35°F (1°C).

### 3.02 BACKFILL AND FILL:

3.02.1 General: Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.

In excavations, use satisfactory excavated or borrow material.

Topsoil use satisfactory topsoil and place in a minimum depth as stated in on the contract drawings for all areas to be seeded or landscaped.

Under grassed areas, use satisfactory excavated or borrow material.

Under curb and pavements, use subbase material.

3.02.2 Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, and deleterious materials from ground surface prior to placement of fills in accordance with Section 02100 and as described herein. Existing slopes shall be continuously benched where embankments are constructed one-half width at a time; against slopes of existing embankments or hillsides; or across existing embankments, hillsides, and depressions at a skew angle of 30 degrees or more or the existing slopes are steeper than 4:1. For slopes steeper than 4:1 but not steeper than 1-1/2:1, the bench shall be at least 6 feet in width. For slopes steeper than 1-1/2:1 but less than 1/2:1, the bench shall be at least 4 feet in width. Benching shall consist of a series of horizontal cuts beginning at the intersection with the original ground and continuing at each vertical intersection of the previous cut. Material removed during benching operations shall be placed and compacted as embankment material.

When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up the top 1 ft. of subgrade, pulverize, moisture-condition to optimum moisture content ( $\pm 3\%$ ), and compact to the required percentage of maximum density, unless otherwise directed by the Engineer.

3.02.3 Fill Placement: Place backfill and fill materials in layers not more than 8 in. loose depth for material compacted by heavy compaction equipment, and not more than 4 in. in loose depth for material compacted by hand-operated tampers.

Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content ( $\pm 3\%$ ). Compact each layer to required percentage of maximum dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

Place backfill and fill materials evenly adjacent to structures, piping or conduit to required elevations. Take care to prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping or conduit to approximately same elevation in each lift.

### 3.03 GRADING:

3.03.1 General: Grading operations shall comply with VDOT Specifications, Section 303. Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances (VDOT Specifications, Section 303.05), compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

Construction activities shall be planned to maintain positive drainage away from the construction area throughout grading operations.

### 3.04 COMPACTION:

3.04.1 General: Compact soil in accordance with VDOT Specifications, Section 303.04.

The density of the structural compact fill shall not be less than ninety five percent (95%) of the maximum dry density as determined by Standard Proctor Method (ASTM D-698).

3.04.2 Moisture Control: Where subgrade must be moisture-conditioned before compaction, uniformly apply water to surface of subgrade or layer of soil material to prevent free water appearing on surface during or subsequent to compaction.

Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to satisfactory value.

### 3.05 FIELD QUALITY CONTROL:

3.05.1 Quality Control Testing during Construction: Allow Engineer to inspect and approve subgrade and fill layers before further construction work is performed. Field density determinations shall be performed by the

Owner's Geotechnical Engineer in accordance with VDOT Specification Sections 303, 304 and other approved methods as required.

If in opinion of the Engineer, based on testing service reports and inspection, subgrade or fills which have been placed are below specified density, provide additional compaction at no additional expense.

3.06 MAINTENANCE:

3.06.1 Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

3.06.2 Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

3.06.3 Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.08 DISPOSAL OF EXCESS AND WASTE MATERIALS:

3.08.1 Removal from Right-of-Way: Remove waste, trash, and debris, and dispose of it in a legal manner off site. Excess topsoil, rootmat and other unsuitable soil materials shall be disposed of offsite unless otherwise directed by the Engineer.

END OF SECTION 02200

SECTION 02510 - ASPHALT CONCRETE PAVING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplemental Conditions and other Specification sections, apply to work of this section.

Virginia Department of Transportation (VDOT) Road and Bridge Specifications, Road and Bridge Standards and Work Area Protection Manual, all latest edition.

1.02 DESCRIPTION OF WORK:

Extent of asphalt concrete paving work is shown on drawings.

1.03 SUBMITTALS:

1.03.1 Material Certificates: Provide copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.

1.03.2 Maintenance and Protection of Traffic: The Contractor shall submit a plan indicating proposed sequencing and measures to be used for the maintenance and protection of traffic during operations within or immediately adjacent to existing roadways open to vehicular traffic. This plan shall be reviewed by the Engineer and must be approved prior to the commencement of said operations.

Utilize flagmen, barricades, warning signs and warning lights as required by Virginia Work Area Protection Manual.

1.04 QUALITY ASSURANCE:

1.04.1 Codes and Standards: Comply with Virginia Department of Transportation Road and Bridge Specifications, latest edition.

Contractor shall coordinate installation of road base and asphalt paving with VDOT, Harrisonburg Resident Administrator's Office and obtain approvals prior to placement of base and plant mix.

1.04.2 Testing and Inspection: The Contractor shall hire an independent testing agency acceptable to the Owner to perform asphalt testing and quality control inspection services during paving operations.

1.05 SITE CONDITIONS:

1.05.1 Weather Limitations: Apply overlay tack coats when ambient temperature is above 50°F (10°C), and when temperature has not been below 35° F (1° C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

Construct asphalt concrete surface course when atmospheric temperature is above 40°F (4°C), and when base is dry. Base course may be placed when air temperature is above 30°F (-1°C) and rising.

1.05.2 Grade Control: Establish and maintain required lines and elevations.

PART 2 - PRODUCTS

2.01 MATERIALS:

2.01.1 General: Use locally available materials and gradations that exhibit a satisfactory record of previous installations. All aggregate, asphalt and other associated materials shall meet the requirements of Division II of the VDOT Specifications, for the work shown on the contract drawings.

2.01.2 Asphalt-Aggregate Mixture: Provide plant-mixed, hot-laid asphalt-aggregate mixture complying with Section 211 of the VDOT Specifications for the type mix specified. Plant-mixed asphaltic concrete shall be VDOT Types SM-9.5A, IM-19, and BM-25.0, or as indicated on the contract drawings.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION:

Under the supervision of the Project inspector, proof roll prepared subgrade surface to check for unstable areas and areas requiring additional compaction. Do not begin paving work until deficient subgrade areas have been corrected and are ready to receive paving.

3.02.1 Tack Coat: Apply to contact surfaces of previously constructed asphalt surfaces abutting or projecting into asphalt concrete pavement. Distribute at rate of .05 to .10 gallons per square yard of surfaces as described under Section 310 of the VDOT Specifications.

Exercise care in applying bituminous materials to avoid smearing of adjoining surfaces, structures and trees. Remove and clean damaged surfaces.

3.02 PLACING MIX:

Work shall be performed in accordance with Section 315 of the VDOT Specifications. All pavement courses shall be the minimum compacted thickness as shown on the plans.

3.03 FIELD QUALITY CONTROL:

3.03.1 General: In-place asphalt concrete courses will be tested by the Contractor for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable paving as directed by the Engineer.

3.03.2 Pavement Tolerances: In-place compacted thickness and smoothness will not be acceptable if exceeding the tolerances indicated in Section 315.07 of the VDOT Specifications.

END OF SECTION 02510

## **SECTION 02520 - HYDRAULIC CEMENT CONCRETE WORK**

### **PART 1 - GENERAL**

#### 1.01 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplemental Conditions and other Specification sections, apply to work of this section.

Virginia Department of Transportation (VDOT) Road and Bridge Specifications, Road and Bridge Standards and Work Area Protection Manual, all latest edition.

#### 1.02 DESCRIPTION OF WORK:

Extent of hydraulic cement concrete work is shown on drawings.

Work under this section includes, but is not limited to, sidewalk, curb, curb and gutter, concrete median and concrete-paved ditches.

#### 1.03 QUALITY ASSURANCE:

1.03.1 Codes and Standards: Comply with VDOT Specifications, Section 502 and other relevant sections unless otherwise modified herein.

1.03.2 Testing and Inspection: The Contractor shall hire an independent testing agency acceptable to the Owner to perform concrete testing and quality control inspection services during concrete placement operations.

#### 1.04 SUBMITTALS:

Furnish samples, manufacturer's product data, test reports, and materials' certifications as required in referenced sections for concrete, reinforcing and joint fillers and sealers.

#### 1.05 JOB CONDITIONS:

1.05.1 Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities. Utilize flagmen, barricades, warning signs and warning lights as required by the Virginia Work Area Protection Manual.

### **PART 2 - PRODUCTS**

#### 2.01 MATERIALS:

All materials used in the construction of concrete curbs, sidewalks and paved ditches shall meet the applicable sections of the VDOT Specifications and as noted below:

Concrete shall be Class A3 in accordance with Section 217;

Reinforcing steel shall be in accordance with Section 223;

Admixtures shall be provided in accordance with Section 215; and

Joint fillers and sealers shall be provided in accordance with Section 212.

2.02 CONCRETE MIX, DESIGN AND TESTING:

Comply with requirements of applicable VDOT Road and Bridge sections for concrete mix design, sampling and testing, and quality control and as herein specified.

Design mix to product normal-weight concrete consisting of Portland cement, aggregate, water-reducing or high-range water-reducing admixture (super-plasticizer), air-entraining admixture and water to produce the following properties:

Use VDOT Class A3 concrete, as specified below. Pre-cast items must meet the requirements as described under Section 105.04 of the VDOT Specifications.

Compressive Strength:

Sidewalks: 3,000 lbs. per sq. in., min. at 28 days

Other Items: 3,000 lbs. per sq. in., min. at 28 days, unless otherwise indicated.

Injection Grout: As approved by the engineer based on contractor's submittal

Air Content:

Concrete: 6% ±2%.

Injection Grout: As approved by the engineer based on contractor's submittal

PART 3 - EXECUTION

3.01 CONSTRUCTION METHODS:

3.01.1 Construction staking of all concrete items shall be performed by an engineer or surveyor registered in the Commonwealth of Virginia. The engineer/surveyor shall be responsible for preparation of a detailed staking plan and having that plan reviewed and approved by the Engineer prior to the start of work.

3.01.2 All curb and gutter on this project shall be machine-formed. Exceptions to this requirement must be in writing from the Owner prior to construction.

3.01.3 All construction methods and finishing procedures shall be in accordance with Sections 502 and 504 of the VDOT Specifications. Contractor shall submit written certification that concrete complies with these specifications.

END OF SECTION 02520

**SECTION 02713 – WATER DISTRIBUTION SYSTEM**

PART 1 - GENERAL

1.01 All work shall conform to the latest edition of the Augusta County Service Authority Construction Standards accessible online at: <http://www.acsawater.com/standards>

PART 2 – PRODUCTS

2.01 All work shall conform to the latest edition of the Augusta County Service Authority Construction Standards accessible online at: <http://www.acsawater.com/standards>

PART 3 – EXECUTION

3.01 All work shall conform to the latest edition of the Augusta County Service Authority Construction Standards accessible online at: <http://www.acsawater.com/standards>

PART 4 – TESTING

4.01 All work shall conform to the latest edition of the Augusta County Service Authority Construction Standards accessible online at: <http://www.acsawater.com/standards>

## **SECTION 02930 - LAWNS AND GRASSES**

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplemental Conditions and other Specification sections, apply to work of this section.
- B. Virginia Erosion and Sediment Control Handbook, latest edition.

#### 1.2 SUMMARY

- A. This section includes the following:
  - 1. Fine grading and preparing lawn areas
  - 2. Topsoil
  - 3. Fertilizers
  - 4. Seeding lawns
  - 5. Sodding lawns

#### 1.3 SUBMITTALS

- A. Fertilizer and Lime: Furnish duplicate copies of invoices for all fertilizer and lime used on the project. Invoices for fertilizer shall show the analysis and the quantity furnished. Invoices for lime shall show the percentage of magnesium oxide and quantity furnished. Upon completion of the project, a final check of the total quantities of fertilizer and lime used will be made against the total area seeded and if the rates of application have not been met, additional quantities of these materials shall be applied to make up the application specified.
- B. Seed: Furnish duplicate signed copies of a statement from the vendor, certifying the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging. Each lot of seed will be subject to sampling and testing at the discretion of the Owner.
- C. Mulch: At least 5 working days prior to the initiation of the seeding work, the Contractor shall furnish for approval representative samples of the materials proposed to be used.
- D. Maintenance Instructions: Provide recommended procedures for maintenance of lawns during an entire year.

#### 1.4 QUALITY ASSURANCE

- A. Topsoil Analysis: Furnish a soil analysis made by a qualified independent soil-testing agency stating percentages of organic matter, inorganic matter (silt, clay, and sand), deleterious material, pH, and mineral and plant-nutrient content of topsoil.
  - 1. Report suitability of topsoil for growth of lawns. State recommended quantities of nitrogen, phosphorus, and potash nutrients and any limestone, aluminum sulfate, or other soil amendments to be added to produce a satisfactory topsoil.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Seed: Deliver seed in original sealed, labeled, and undamaged containers.
- B. Sod: Harvest, deliver, store, and handle sod according to the requirements of the American Sod Producers Association (ASPA) "Specifications for Turfgrass Sod Materials and Transplanting/Installing."

## 1.6 COORDINATION AND SCHEDULING

- A. Planting Season: Sow lawn seed and install sod during normal planting seasons for type of lawn work required. Correlate planting with maintenance periods to provide required maintenance.
- B. Weather Limitations: Proceed with planting only when existing and forecast weather conditions are suitable for work.

## 1.7 MAINTENANCE

- A. Begin maintenance of lawns immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:
  - 1. Seeded Lawns: 60 days after date of Final Acceptance.
  - 2. Sodded Lawns: 30 days after date of Final Acceptance.
- B. Maintain and establish lawns by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and mulch to produce a uniformly smooth lawn.
- C. Replant bare areas with same materials as for lawns. Add new mulch in areas where mulch has been disturbed by wind or maintenance operations sufficiently to nullify its purpose. Anchor as required to prevent displacement.
- D. Watering: Provide and maintain temporary hoses, and lawn-watering equipment to convey water from to keep lawns uniformly moist to a depth of 4 inches (100 mm).
  - 1. Water lawn at the minimum rate of 1 inch (25 mm) per week.
- E. Mow lawns as soon as there is enough top growth to cut with mower set at specified height for principal species planted. Repeat mowing as required to maintain specified height without cutting more than 40 percent of the grass height (minimum of 3 mowings). Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain grass to a finished height of 2 to 3 inches (50 to 75 mm) high.
- F. Postfertilization: Apply fertilizer to lawn after first mowing and when grass is dry.
  - 1. Use fertilizer that will provide actual nitrogen of at least 1 lb. per 1000 sq. ft. (0.5 kg per 100 sq. m) of lawn area.

## 1.8 LIMITS OF SEEDING

- A. Spread topsoil and seed all areas disturbed by construction and not otherwise covered by paving or structures.

## PART 2 – PRODUCTS

## 2.1 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with the Association of Official Seed Analysts' "Rules for Testing Seeds" for purity and germination tolerances.

1. Seed Mixture: Provide seed of grass species and varieties, proportions by weight, and minimum percentages of purity, germination, and maximum percentage of weed seed as indicated on Schedule at the end of this section.

## 2.2 SOD

A. Sod: Certified turfgrass sod complying with ASPA specifications for machine-cut thickness, size, strength, moisture content, and mowed height, and free of weeds and undesirable native grasses. Provide viable sod of uniform density, color, and texture of the following turfgrass species, strongly rooted, and capable of vigorous growth and development when planted.

Species: Provide sod of grass species and varieties, proportions by weight, and minimum percentages of purity, germination, and maximum percentage of weed seed as indicated on Schedule at the end of this Section.

## 2.3 TOPSOIL

A. Topsoil Source: Reuse surface soil temporarily stockpiled on the site. Verify suitability of surface soil to produce topsoil meeting requirements herein and amend when necessary. **Supplement with imported topsoil when quantities are insufficient.** Clean topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful to plant growth.

B. Topsoil shall be natural, friable, sandy loam or fine sandy loam, possessing the characteristics of producing heavy growths of agricultural crops and shall be obtained from naturally well-drained areas. The topsoil shall be reasonably free from subsoil, clay lumps, brush, stumps, objectionable weeds, other litter, and any other material or substance which might be harmful to plant growth or a hindrance to grading, planting or maintenance operations. If required from off-site sources, the Owner may require that the topsoil be inspected and approved at its natural location prior to its being moved to the construction site. At the time of inspection, the Owner may require representative soil samples to be taken from several locations of the areas under consideration and tested for physical properties, pH, available phosphate and potash and organic matter. If such tests are required, they shall be at the Contractor's expense.

## 2.4 SOIL AMENDMENTS

A. Lime: ASTM C 602, Class T, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent, with a minimum 99 percent passing a No. 8 (2.36 mm) sieve and a minimum 75 percent passing a No. 60 (250 micrometer) sieve.

1. Provide lime in the form of dolomitic limestone.

B. Aluminum Sulfate: Commercial grade, unadulterated.

C. Sand: Clean, washed, natural or manufactured sand, free of toxic materials.

D. Perlite: Horticultural perlite, soil amendment grade.

E. Peat Humus: Finely divided or granular texture, with a pH range of 6 to 7.5, composed of partially decomposed moss peat (other than sphagnum), peat humus, or reed-sedge peat.

F. Manure: Well-rotted, unleached stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

- G. Herbicides: EPA registered and approved, of type recommended by manufacturer.
- H. Water: Clean, potable water.

## 2.5 FERTILIZER

- A. Slow-Release Fertilizer: Granular fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
  - 1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.

## 2.6 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
- B. Peat Mulch: Provide peat moss in natural, shredded, or granulated form, of fine texture, with a pH range of 4 to 6 and a water-absorbing capacity of 1100 to 2000 percent.
- C. Fiber Mulch: Biodegradable dyed-wood cellulose-fiber mulch, nontoxic, free of plant growth- or germination-inhibitors, with maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

## 2.7 EROSION-CONTROL MATERIALS

- A. Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches (150 mm) long.
- C. Fiber Mesh: Biodegradable twisted jute or spun-coir mesh, 0.92 lb. per sq. yd. (0.5 kg per sq. m) minimum, with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches (150 mm) long.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas to receive lawns and grass for compliance with requirements and for conditions affecting performance of the Work. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
  - 1. Protect adjacent and adjoining areas from hydroseed overspraying, if allowed.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

### 3.3 PLANTING SOIL PREPARATION

- A. Limit subgrade preparation to areas that will be planted in the immediate future.
- B. Loosen subgrade to a minimum depth of 4 inches (100 mm). Remove stones larger than 1-1/2 inches (38 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter from subgrade.

- C. Sift topsoil to remove stones and other objects larger than 1” in any dimension.
- D. Mix soil amendments and fertilizers with topsoil at rates indicated. Delay mixing fertilizer if planting does not follow placing of planting soil within 4 days. Either mix soil before spreading or apply soil amendments on surface of spread topsoil and mix thoroughly into top 4 inches (100 mm) of topsoil before planting.
  - 1. Mix lime with dry soil prior to mixing fertilizer.

### 3.4 SODDING NEW LAWNS

- A. Lay sod within 24 hours of stripping. Do not lay sod if dormant or if ground is frozen.
- B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Tamp and roll lightly to ensure contact with subgrade, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
  - Lay sod across angle of slopes exceeding 3:1.
  - Anchor sod on slopes exceeding 6:1 with wood pegs spaced as recommended by sod manufacturer but not less than 2 anchors per sod strip to prevent slippage.
- C. Saturate sod with fine water spray within 2 hours of planting. During first week, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches (38 mm) below the sod.

### 3.5 SEEDING LAWNS

- A. Sow seed with a spreader or a seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph (8 km/h). Evenly distribute seed by sowing equal quantities in 2 directions at right angles to each other.
  - 1. Do not use wet seed or seed that is moldy or otherwise damaged in transit or storage.
- B. Sow seed at a rate of 3 to 4 lb. per 1000 sq. ft. (1.5 to 2 kg per 100 sq. m).
- C. Rake seed lightly into top 1/8 inch (3 mm) of topsoil, roll lightly, and water with fine spray.
- D. Protect seeded areas exceeding 4:1 slope/grade against erosion by providing erosion-control blankets installed and stapled according to manufacturer's recommendations.
- E. Protect seeded areas less than 4:1 slope/grade against erosion by spreading straw mulch after completion of seeding operations. Spread uniformly at a minimum rate of 2 tons per acre (45 kg per 100 sq. m) to form a continuous blanket 1-1/2 inches (38 mm) loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
  - 1. Anchor straw mulch by crimping into topsoil by suitable mechanical equipment.

### 3.6 RECONDITIONING LAWNS

- A. Recondition existing lawn areas damaged by Contractor’s operations, including storage of materials or equipment and movement of vehicles. Also recondition lawn areas where settlement or washouts occur or where minor regrading is required.

- B. Remove sod and vegetation from diseased or unsatisfactory lawn areas; do not bury into soil. Remove topsoil containing foreign materials resulting from Contractor's operations, including oil drippings, fuel spills, stone, gravel, and other construction materials, and replace with new topsoil.
- C. Where substantial lawn remains, mow, dethatch, core aerate, and rake. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-emergence herbicides.
- D. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of it off the Owner's property.
- E. Till stripped, bare, and compacted area thoroughly to a depth of 6 inches (150mm).
- F. Apply required soil amendments and initial fertilizers and mix thoroughly into top 4 inches (100 mm) of soil. Provide new planting soil as required to fill low spots and meet new finish grades.
- G. Apply seed and protect with straw mulch as required for new lawns.
- H. Apply sod as required for new lawns.
- I. Water newly planted areas and keep moist until new grass is established.

3.7 SATISFACTORY LAWN

- A. Seeded lawns shall be satisfactory/acceptable provided requirements, including maintenance, have been met and a healthy, uniform, close stand of grass is established, free of weeds, bare spots exceeding 5 by 5 inches (125 by 125 mm), and surface irregularities.
- B. Sodded lawns will be satisfactory provided requirements, including maintenance, have been met and healthy, well-rooted, even-colored, viable lawn is established, free of weeds, open joints, bare areas, and surface irregularities.
- C. Replant lawns that do not meet requirements and continue maintenance until lawns are satisfactory/acceptable.
- D. Substantial Completion may be achieved (pending prior Engineer and Owner approval) before achieving a satisfactory/acceptable lawn. Continue to replant and maintain unsatisfactory/ unacceptable lawn areas until acceptance is obtained. Warranties shall begin at the time of acceptance of the lawn.

3.8 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by lawn work from sidewalks and paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto surface of roads, walks, or other paved areas.
- B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period until lawn is established.

3.8 SEED MIXTURES SCHEDULE

- A. Seeded Lawn Areas: Provide certified grass-seed blends or mixes, proportioned by weight, as indicated on the E&SC Plan Sheet
- B. Sodded Lawn Areas: Provide certified grass-seed blends or mixes, proportioned by weight, as follows:

Proportion	Name	Min. Germination	Min. Pure Seed	Max. Weed Seed
128lb/ac	Kentucky 31 Fescue	80 %	85 %	0.50 %
2 lb/ac	Red Top Grass	85 %	92 %	1.00 %

20 lb/ac      Seasonal Nurse Crop

Seasonal Nurse Crop

<u>Date</u>	<u>Species</u>
Mar 1 – May 15	Annual Rye
May 16 – Aug 15	Foxtail Millet
Aug 16 – Oct 31	Annual Rye
Nov 1 – Feb 29	Winter Rye

END OF SECTION 02930

**SPECIAL PROVISION COPIED NOTES**

**cn100-000050-01 VDOT SUPPLEMENTAL SPECIFICATIONS (SSs), SPECIAL PROVISIONS (SPs) AND SPECIAL PROVISION COPIED NOTES (SPCNs)**

Where Virginia Department of Transportation (VDOT) Supplemental Specifications, Special Provisions and Special Provision Copied Notes are used in this contract, the references therein to “the Specifications” shall refer to the *Virginia Department of Transportation Road and Bridge Specifications*, dated 2016 for both imperial and metric unit projects. References to the “Road and Bridge Standard(s)” shall refer to the *Virginia Department of Transportation Road and Bridge Standards*, dated 2008 for both imperial and metric unit projects. References to the “Virginia Work Area Protection Manual” shall refer to the 2011 edition of the *Virginia Work Area Protection Manual with Revision Number 1* incorporated, dated April 1, 2015 for imperial and metric unit projects. References to the “MUTCD” shall refer to the 2009 edition of the *MUTCD with Revision Numbers 1 and 2* incorporated, dated May 2012; and the 2011 edition of the *Virginia Supplement to the MUTCD with Revision Number 1* dated September 30, 2013 for imperial and metric unit projects.

Where the terms “Department”, “Engineer”, “Contract Engineer”, “Construction Engineer”, Materials “Engineer”, and “Operations Engineer” appear in VDOT Supplemental Specifications, Special Provisions and Special Provision Copied Notes used in this contract and the VDOT publication(s) that each references, the authority identified shall be according to the definitions in Section 101.02 of the *Virginia Department of Transportation Road and Bridge Specifications*, dated 2016. Authority identified otherwise for this particular project will be stated elsewhere in this contract.

VDOT Supplemental Specifications, Special Provisions and Special Provision Copied Notes used in this contract and the VDOT publication(s) that each reference are intended to be complementary to the each other. In case of a discrepancy, the order of priority stated in Section 105.12 of the *Virginia Department of Transportation Road and Bridge Specifications*, dated 2016 shall apply.

VDOT Special Provision Copied Notes in this contract are designated with “(SPCN)” after the date of each document. VDOT Supplemental Specifications and Special Provision Copied Notes in this contract are designated as such above the title of each document.

The information at the top and left of each VDOT Special Provision Copied Note in this contract is file reference information for VDOT use only. The information in the upper left corner above the title of each VDOT Supplemental Specification and VDOT Special Provision in this contract is file reference information for VDOT use only.

The system of measurement to be used in this project is stated elsewhere in this contract. VDOT Supplemental Specifications, Special Provisions and Special Provision Copied Notes containing imperial units of measure with accompanying expressions in metric units shall be referred to hereinafter as “dual unit measurement” documents. Such a “dual unit measurement” is typically expressed first in the imperial unit followed immediately to the right by the metric unit in parenthesis “( )” or brackets “[ ]” where parenthesis is used in the sentence to convey other information. Where a “dual unit measurement” appears in VDOT documents, the unit that applies shall be according to the

system of measurement as stated elsewhere in this contract. The unit shown that is not of the declared unit of measurement is not to be considered interchangeable and mathematically convertible to the declared unit and shall not be used as an alternate or conflicting measurement. Where VDOT Specifications are used for metric unit projects and only imperial units of measurement appear the document, the provision(s) in this contract for imperial unit to metric unit conversion shall apply.

10-6-16 (SPCN)

**cn100-000051-00 VDOT SUPPLEMENTAL SPECIFICATIONS (SSs), SPECIAL PROVISIONS (SPs) AND SPECIAL PROVISION COPIED NOTES (SPCNs)**

Where Virginia Department of Transportation (VDOT) Supplemental Specifications, Special Provisions and Special Provision Copied Notes are used in this contract, the references therein to “the Specifications” shall refer to the *Virginia Department of Transportation Road and Bridge Specifications*, dated 2016 for both imperial and metric unit projects. References to the “Road and Bridge Standard(s)” shall refer to the *Virginia Department of Transportation Road and Bridge Standards*, dated 2016 for both imperial and metric unit projects. References to the “Virginia Work Area Protection Manual” shall refer to the 2011 edition of the *Virginia Work Area Protection Manual with Revision Number 1* incorporated, dated April 1, 2015 for imperial and metric unit projects. References to the “MUTCD” shall refer to the 2009 edition of the *MUTCD with Revision Numbers 1 and 2* incorporated, dated May 2012; and the 2011 edition of the *Virginia Supplement to the MUTCD with Revision Number 1* dated September 30, 2013 for imperial and metric unit projects.

Where the terms “Department”, “Engineer”, “Contract Engineer”, “Construction Engineer”, Materials “Engineer”, and “Operations Engineer” appear in VDOT Supplemental Specifications, Special Provisions and Special Provision Copied Notes used in this contract and the VDOT publication(s) that each references, the authority identified shall be according to the definitions in Section 101.02 of the *Virginia Department of Transportation Road and Bridge Specifications*, dated 2016. Authority identified otherwise for this particular project will be stated elsewhere in this contract.

VDOT Supplemental Specifications, Special Provisions and Special Provision Copied Notes used in this contract and the VDOT publication(s) that each reference are intended to be complementary to the each other. In case of a discrepancy, the order of priority stated in Section 105.12 of the *Virginia Department of Transportation Road and Bridge Specifications*, dated 2016 shall apply.

VDOT Special Provision Copied Notes in this contract are designated with “(SPCN)” after the date of each document. VDOT Supplemental Specifications and Special Provision Copied Notes in this contract are designated as such above the title of each document.

The information at the top and left of each VDOT Special Provision Copied Note in this contract is file reference information for VDOT use only. The information in the upper left corner above the title of each VDOT Supplemental Specification and VDOT Special Provision in this contract is file reference information for VDOT use only.

The system of measurement to be used in this project is stated elsewhere in this contract. VDOT Supplemental Specifications, Special Provisions and Special Provision Copied Notes containing imperial units of measure with accompanying expressions in metric units shall be referred to hereinafter as "dual unit measurement" documents. Such a "dual unit measurement" is typically expressed first in the imperial unit followed immediately to the right by the metric unit in parenthesis "( )" or brackets "[ ]" where parenthesis is used in the sentence to convey other information. Where a "dual unit measurement" appears in VDOT documents, the unit that applies shall be according to the system of measurement as stated elsewhere in this contract. The unit shown that is not of the declared unit of measurement is not to be considered interchangeable and mathematically convertible to the declared unit and shall not be used as an alternate or conflicting measurement. Where VDOT Specifications are used for metric unit projects and only imperial units of measurement appear the document, the provision(s) in this contract for imperial unit to metric unit conversion shall apply.

10-6-16 (SPCN)

[cn102-010100-00](#)

**102.01—PREQUALIFICATION OF BIDDERS** - The Contractor is advised that the provisions of Section 102 of the Specifications requiring Prequalification are waived on this contract.

7-12-16 (SPCN)

[cn102-040100-00](#)

**SEC.102.04(a)—EVIDENCE OF EXAMINATION OF SITE OF WORK AND PROPOSAL** — Section 102.04(a) of the Specifications is amended to include the following:

Prospective Bidders are hereby advised that attendance of the Proj. Showing is a prerequisite for submitting a bid proposal for this project. The "Notice of Advertisement for Bids" will designate the date, time and location for showing the work for interested parties. Prospective Bidders shall register in writing with the Engineer at the Project Showing and all attending parties will be noted in the Project Showing letter. Failure on the part of the Prospective Bidder to attend the Project Showing for this project and to register with the Engineer will be cause for rejection of the Bidder's proposal.

7-12-16 (SPCN)

[cq103-010100-00](#)

**NEGOTIATION WITH THE LOWEST SOLE BIDDER** — In the event the Department receives a single responsive and responsible bid that exceeds available funds, the agency may negotiate with that sole bidder to obtain a contract price within available funds in accordance with the provisions of [§2.2-4318](#) of the Code of Virginia. For the purpose of determining when such negotiations may take place, the term "available funds" shall mean those funds, which were budgeted by the agency for this Contract prior to the issuance of the written Invitation for Bids for the same. Negotiations with the sole bidder may include a change in requirements; including price(s). The agency shall initiate such negotiations by written notice to the sole bidder that its bid exceeded the available funds and that the agency wishes to negotiate a lower contract price within the designated available funds. The time, place, and manner of negotiating shall be agreed to by the agency and the sole bidder.

7-12-16\_(SPCN)

cn105-010100-00

**SECTION 105.01—NOTICE TO PROCEED** — The Notice to Proceed date for this contract will be October 2, 2017.

7-12-16 (SPCN)

cn105-060100-00

**SECTION 105.06—SUBCONTRACTING** of the Specifications is amended to replace the first paragraph with the following:

No portion of the Contract shall be subcontracted or otherwise disposed of without the written consent of the Engineer, except for work that is \$25,000 or less per subcontractor, where the cumulative total of the sublets not requiring the Engineer's written consent will not exceed 10 percent of the original contract value. This will not, however, waive the requirements for prequalification, and will be considered part of the percentage the Contractor is allowed to subcontract. The Contractor shall notify the Engineer of the name of the firm to whom the work will be subcontracted, and the amount and items of work involved. Such notification shall be made and verbal approval given by the Engineer prior to the subcontractor beginning work.

5-15-08; Reissued 7-12-16 (SPCN)

cn107-130100-00

**SECTION 107.13(b) LABOR RATE FORMS** of the Specifications is replaced with the following:

(b) **Labor Rate Forms:** The Contractor is advised that labor rate forms will not apply to this contract.

7-12-16 (SPCN)

cn211-000100-00

**POLISHING AGGREGATE IN ASPHALT CONCRETE - Section 211—Asphalt Concrete** of the Specifications is amended as follows:

**Section 211.02—Materials** is amended by replacing (e) with the following:

Fine or coarse aggregate that tend to polish under traffic will not be permitted in any final surface exposed to traffic except as permitted within the limits of Section 211.04(a) and (b) of the Specifications and as designated by the Engineer or as permitted elsewhere in these Specifications.

**Section 211.04—Asphalt Concrete Mixtures** is amended by replacing (a) and (b) with the following:

Asphalt concrete mixtures shall conform to Table II-14 and the following:

(a) **Types SM-9.0A, SM-9.0D, SM-9.0E, SM-9.5A, SM-9.5D and SM-9.5E asphalt concrete** shall consist of crushed stone, crushed slag, or crushed gravel and fine aggregate, slag or stone screenings or a combination thereof combined with asphalt cement.

**NOTE:** For all surface mixes, except where otherwise noted, no more than 5 percent of all aggregate retained on the No. 4 sieve and no more than 20 percent of the total aggregate may be polish

susceptible. At the discretion of the Engineer, a SM-9.5AL may be specified and polish susceptible aggregates may be used (without percentage limits).

- (b) **Types SM-12.5A, SM-12.5D, SM-12.5E, IM-19.0A, IM-19.0D, and IM-19.0E asphalt concrete** shall consist of crushed stone, crushed slag, or crushed gravel and fine aggregate, slag or stone screenings or a combination thereof combined with asphalt cement.

**NOTE:** At the discretion of the Engineer, an intermediate mix may be designated as either a SM-19.0A or SM-19.0D. For SM-12.5 and SM-19.0 surface mixes, no more than 5 percent of the aggregate retained on the No. 4 sieve may be polish susceptible. All material passing the No. 4 sieve may be polish susceptible. No more than 35 percent of the total aggregate composition (polish and non-polish susceptible) shall be passing the No. 8 sieve. At the discretion of the Engineer, a SM-12.5AL may be specified and polish susceptible aggregates may be used (without percentage limits).

10-7-09; Reissued 7-12-16 (SPCN)

cn302

**Pipe Backfill Material** – Pipe backfill shall be performed in accordance with VDOT Standard PB-1 and Section 302.03(a) 2. g. of the Specifications unless noted herein. Regular Backfill material within the limits of roadway embankments and under existing or proposed roadway shall meet a minimum CBR value of 15.0 as determined by VTM-8. Ground line shall be considered the top of trench at the time of pipe installation. When pipe does not project above ground line, Regular Backfill shall extend to the top of the pipe trench in fills or subgrade in cuts. Outlet pipes for storm water management basins shall be installed as noted on the plans. The cost of furnishing, placing and compacting the Regular Backfill and disposing of unsuitable material excavated from the trench shall be included in the price of the pipe and will not be measured and for separate payment.

6-17-13 (SPCN)

Excavation

All regular excavation, borrow excavation and embankment material used to construct embankments for this project shall meet a minimum CBR value of 8 as determined by VTM-8, shall not include USCS CH or MH soils unless stabilized with lime (per VTM-11) or cement (per VTM-72), shall be in accordance with Section 303.04(h) of the 2016 Road and Bridge Specifications or as approved by the District Materials Engineer.

Project soils are expected to meet the above requirements.

cn302-030100-00

**SECTION 302.03(b) PRECAST DRAINAGE STRUCTURES** of the Specifications is amended to include the following:

Precast units, excluding concrete pipe, prestressed concrete items and soundwalls, conforming to the requirements herein will only be accepted under a Quality Control/Quality Acceptance Program (QC/QA). The Contractor shall have the producer perform quality control functions according to a Department approved QC/QA plan. Each piece, manufactured under the QC/QA program, in addition to the date and other required markings, shall be stamped with the letters

(QC), as evidence that the required QC/QA procedures have been performed. Each shipping document shall be affixed with the following:

We certify that these materials have been tested and conform to VDOT Precast Concrete Products Quality Assurance Program

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Signature and Title

1-14-08; Reissued 7-12-16 (SPCN)

[cn303](#)

**SECTION 303 – EARTHWORK** is amended as follows:

**Section 303.04(a) Regular Excavation** of the Specifications is amended to include the following: All Regular Excavation used to construct embankments for this project shall meet a minimum CBR value as shown on the plans as determined by VTM-8, shall not include USCS CH or MH soils unless stabilized with lime (per VTM-11) or cement (per VTM-72), or as approved by the District Materials Engineer. If the Contractor demonstrates that stabilization of the onsite excavation is the most cost effective construction method and pay items for manipulation and cement or lime are not included in the contract, the work will be measured and paid for in accordance with Section 109.05 of the Specifications.

**Section 303.04(b) Borrow Excavation** of the Specifications is amended to replace the fifth paragraph with the following: All Borrow Excavation for this project shall meet a minimum CBR value as shown on the plans as determined by VTM-8, shall not include USCS CH or MH soils unless stabilized with lime (per VTM-11) or cement (per VTM-72), or as approved by the District Materials Engineer. If the Contractor demonstrates that stabilization onsite excavation is the most cost effective construction method and pay items for manipulation and cement or lime are not included in the contract, the work will be measured and paid for in accordance with Section 109.05 of the Specifications. If stabilization is used borrow excavation quantities will be adjusted in accordance with Section 104.02(a) of the Specifications.

**Section 303.04(h) Embankments** of the Specifications is amended to replace the twenty third paragraph with the following: All Embankment for this project shall meet a minimum CBR value as shown on the plans as determined by VTM-8, shall not include USCS CH or MH soils unless stabilized with lime (per VTM-11) or cement (per VTM-72), or as approved by the District Materials Engineer. If the Contractor demonstrates that stabilization of the onsite embankment is the most cost effective construction method and pay items for manipulation and cement or lime are not included in the contract, the work will be measured and paid for in accordance with Section 109.05 of the Specifications. If stabilization is used embankment quantities will be adjusted in accordance with Section 104.02(a) of the Specifications.

(10-6-16) SPCN

[Karst Habitat](#)

Work included in these plans shall be performed in accordance with the Special Provision for Protection of Karst Habitat. In the event a cave, sinkhole, spring,

blowhole, swallet or other karst feature is observed within the project limits or is encountered during construction, the Contractor shall immediately contact the VDOT Project Inspector and the VDOT District Environmental Manager at (540) 332-9101.

Pavement Tie-in

Tie-in to existing pavements along mainline and connectors shall be milled to a depth matching the new surface asphalt course in accordance with Road and Bridge Standard ACOT-1. Widening shall conform to Road and Bridge Standard WP-2. Sawcut is expected to be approximately 7.5 inches in depth along SR 901 mainline.

SP102-010100-00

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION FOR  
**NON-DISCRIMINATION IN EMPLOYMENT AND CONTRACTING PRACTICES**

January 10, 2017

**I. Description**

This Special Provision implements Executive Order 61, ensuring equal opportunity and access for all Virginians in state contracting and public services.

**II. Non-Discrimination**

The Contractor shall maintain a non-discrimination policy, which prohibits discrimination by the Contractor on the basis of race, sex, color, national origin, religion, sexual orientation, gender identity, age, political affiliation, disability, or veteran status. This policy shall be followed in all employment practices, subcontracting practices, and delivery of goods or services. The Contractor shall also include this requirement in all subcontracts valued over \$10,000.

**III. Measurement and Payment**

Conformance with this Special Provision will not be measured for individual payment, and will be considered incidental to the Work.

[SP105-000100-00](#)

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**INFORMAL PARTNERING**

January 14, 2008c; Reissued July 12, 2016

## I. DECLARATION AND DESCRIPTION

The Virginia Department of Transportation (VDOT) is firmly committed to the formation of a partnering relationship with the Contractor, all subcontractors, suppliers, FHWA representatives; where appropriate, other federal agencies, local government officials, utilities representatives, law enforcement and public safety officials, consultants, and other stakeholders to effectively and efficiently manage and complete each construction or maintenance contract to the mutual and individual benefits and goals of all parties. Partnering is an approach to fulfilling this commitment where all parties to the contract, as well as individuals and entities associated with or otherwise affected by the contract, willingly agree to dedicate themselves by working together as a team to fulfill and complete the construction or maintenance contract in cost effective ways while preserving the highest standards of safety and quality called for by the Contract combined with the goals of on time/on budget completion. The approach must still allow for the fact that the members of the team share many common interests yet have differing authorities, interests, and objectives that must be accommodated for the project to be viewed as successful by all parties. It is recognized by VDOT that partnering is a relationship in which:

- Trust and open communications are encouraged and expected by all participants
- All parties move quickly to address and resolve issues at the lowest possible level by approaching problems from the perspectives and needs of all involved
- All parties have identified common goals and at the same time respect each other's individual goals and values
- Partners create an atmosphere conducive to cooperation and teamwork in finding better solutions to potential problems and issues at hand

## II. INFORMAL PARTNERING STRUCTURE

It is the business intent of the Department that **informal** partnering will be required on **this** project, whereby the spirit and principles of partnering are practiced from onsite field personnel to executive level owners and employees. The VDOT Field Guide to Partnering available on the VDOT website <http://www.virginiadot.org/business/resources/partnerfinalallowres.pdf> will be the standard reference guide utilized to structure and guide partnering efforts. This guide will be systematically evaluated to incorporate better practices as our partnering efforts evolve. Of particular note is the need for effective and responsive communication between parties to the partnering relationship as emphasized in Section 105.03(d) of the Specifications.

Informal partnering need not require the services of a professional facilitator and may be conducted by the actual partnering participants themselves. Informal partnering, and more specifically the Partnering Charter, will not change the legal relationship of the parties to the Contract nor relieve either party from any of the terms of the Contract.

## III. PROCEDURES

The following are general procedures for informal partnering and are not to be considered as inclusive or representative of procedural requirements for all projects. Participants shall consult the VDOT Field Guide for Partnering for assistance in developing specific guidelines to those efforts required for their individual projects.

**Prior To Project Construction:** At least 5 days prior to or in connection with the preconstruction conference the Contractor shall attend a conference with the Engineer at which time he and the Engineer shall discuss the extent of the informal partnering efforts required for the project, how these have been accommodated in the Contractor's bid and the identity of expectations and stakeholders associated with the project. Informal partnering efforts require the Department and

the Contractor to mutually choose a single person from among their collective staffs, or a trained facilitator to be responsible for leading all parties through the VDOT Field Guide to Partnering and any subsequent partnering efforts.

**Partnering Meetings During Project Construction:** In informal partnering efforts the Contractor shall provide a location for regularly scheduled partnering meetings during the construction period. Such meetings will be scheduled as deemed necessary by either party. The Contractor and VDOT will require the attendance of their key decision makers, including subcontractors and suppliers. Both the Contractor and VDOT shall also encourage the attendance of affected utilities, concerned businesses, local government and civic leaders or officials, residents, and consultants, which may vary at different times during the life of the Contract. The Department and the Contractor are to agree upon partnering invitees in advance of each meeting. Follow-up partnering workshops may be held throughout the duration of the project as deemed necessary by the Contractor and the Engineer.

#### **IV. MEASUREMENT AND PAYMENT**

**Informal Partnering**, because the extent to which certain partnering activities are pursued is at the Contractor's option, and may vary according to project complexity, work history between the parties, project duration, the Contractor's own unique methods, means, and schedule to execute and complete the work, etc.; will not be paid for as a separate bid item but the all costs associated with informal partnering efforts for the duration of the work shall be considered inclusive and incidental to the cost of other appropriate items.

[SP105-060100-00](#)

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**SECTION 105.06–SUBCONTRACTING**

**(STATE FUNDED PROJECTS)**

February 9, 2017

**SECTION 105.06–Subcontracting** of the Specifications is amended to include the following:

- (d) According to Commonwealth of Virginia Executive Order 20, the Contractor is encouraged to seek out and consider Small, Women-owned, and Minority-owned (SWaM) businesses certified by the Department of Small Business and Supplier Diversity (DSBSD) as potential subcontractors and vendors. Further, the Contractor shall furnish and require each subcontractor (first-tier) to furnish information relative to subcontractor and vendor involvement on the project.

For purposes of this provision, the term “vendor” is defined as any consultant, manufacturer, supplier or hauler performing work or furnishing material, supplies or services for the contract. The Contractor and, or subcontractor (first-tier) must insert this provision in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). The applicable requirements of this provision are incorporated by reference for work done by vendors under any purchase order, rental agreement or agreement for other services for the contract. The Contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or vendor.

The submission of a bid will be considered conclusive evidence that the Contractor agrees to assume these contractual obligations and to bind subcontractors contractually to the same at the Contractor’s expense.

When an approved Form C-31 “Subletting Request” is required according to IIM-CD-2013-06.01, the Contractor shall indicate on the Subletting Request if a subcontractor is a certified DBE or SWaM business.

The Contractor shall report all SWaM vendor payments quarterly to the District Civil Rights Office.

The Contractor shall provide the information in a format consistent with revised Form C-61 Vendor Payment Report, subject to the approval of the Engineer.

If the Contractor fails to provide the required information, the Department may delay final payment according to Specification Section 109.10 of the Specifications.

It is the policy of the Department that Small, Women-Owned, and Minority-Owned (SWaM) Businesses shall have the maximum opportunity to participate in the performance of VDOT contracts. The Contractor is encouraged to take necessary and reasonable steps to ensure that SWaM firms have the maximum opportunity to compete for and perform work on the Contract, including participation in any subsequent subcontracts. If the Contractor intends to sublet a portion of the work on the project according to the provisions of Section 105.06 of the Specifications, the Contractor is encouraged to seek out and consider SWaM firms as potential subcontractors.

SWaM participation shall be according to the special provision for Section 107.15 Use of Small, Women-Owned, And Minority-Owned Businesses (SWaMS).

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2016 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 105—CONTROL OF WORK**

**SECTION 105—CONTROL OF WORK** of the Specifications is amended as follows:

**Section 105.12—Coordination of Plans, Standard Drawings, Specifications, Supplemental Specifications, Special Provisions, and Special Provision Copied Notes** of the Specifications is replaced with the following:

The plans, Standard Drawings, Specifications, Supplemental Specifications, Special Provisions, Special Provision Copied Notes, and other Contract Documents defined in Section 103.06 are parts of the Contract. A requirement occurring in one Contract Document shall be as binding as though occurring in all. The Contract Documents are intended to be complementary, and to include, describe and provide all items necessary for the Contractor's proper and complete performance of the Work.

In case of a discrepancy, the following order of priority will apply, with the highest governing item appearing first and the least governing item appearing last:

- (a) Special Provision Copied Notes. The Contract items, units and unit prices listed in the Contract's Schedule of Items have the same status as Special Provision Copied Notes.
- (b) Special provisions.
- (c) Plans.
- (d) Supplemental Specifications. Those present in the physical, executed Contract will govern over those published in the annual supplemental volume.
- (e) Specifications.
- (f) Standard Drawings (including all revisions issued through the date of Advertisement).

Calculated dimensions, unless obviously incorrect, will govern over scaled dimensions.

Drawings (with the exception of Standard Drawings), sketches, general notes, and other written information that are not included in Special Provisions or Special Provision Copied Notes used in No Plan and Minimum Plan Concept projects will have the same status as plans.

The Contractor shall not take advantage of any obvious or apparent ambiguity, conflict, error or omission in the plans or the Contract. If after beginning work the Contractor discovers an ambiguity, conflict, error, or omission in the Contract, he shall immediately notify the Engineer and before proceeding further with the affected work. The Engineer will then make such corrections and interpretations as may be deemed necessary for fulfilling the intent of the Contract.

**Section 105.17—Inspection of Work** is amended by replacing the third paragraph with the following:

If the Engineer requests it, the Contractor shall remove or uncover such portions of the finished work as may be directed at any time before final acceptance. The Contractor shall restore such portions of the finished work to comply with the appropriate contract specification requirements. If the work exposed does not contain a defect, the uncovering or removing and replacing the covering or making good the parts removed will be paid for as extra work in accordance with Section 104.02 of the Specifications. If the uncovered work contains a defect, the cost of uncovering or removing and replacing the covering or making good the parts removed shall be borne by the Contractor whether or not the Engineer directs the Contractor to mitigate the defective work. Acceptance of

substandard work does not negate the presence of the defect. For the purposes of this section, a defect shall mean any part of the Work that does not conform to the Contract.

SS106-002016-01

July 12, 2016

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2016 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS

**SECTION 106—CONTROL OF MATERIAL**

**SECTION 106—CONTROL OF MATERIAL** of the Specifications is amended as follows:

**Section 106.08—Storing Materials** is amended to replace the third paragraph with the following:

Chemicals, fuels, lubricants, bitumens, paints, raw sewage, and other potential pollutant-generating materials as determined by the Engineer or defined in the *VPDES General Permit For Discharge of Stormwater from Construction Activities* shall not be stored within any flood-prone area unless no other location is available. A flood-prone area is defined as the area adjacent to the main channel of a river, stream or other waterbody that is susceptible to being inundated by water during storm events and includes, but is not limited to, the floodplain, the flood fringe, wetlands, riparian buffers or other such areas adjacent to the main channel. If stored in a flood-prone area, the material shall be stored in one or more secondary containment structures with an impervious liner and be removed entirely from the flood-prone area at least 24 hours prior to an anticipated storm event that could potentially inundate the storage area. Any storage of these materials outside of a flood-prone area that is in proximity to natural or man-made drainage conveyances where the materials could potentially reach a river, stream, or other waterbody if a release or spill were to occur, must be stored in a bermed or diked area or inside a secondary containment structure capable of preventing a release. Any spills, leaks or releases of such materials shall be addressed according to Section 107.16(b) and (e) of the Specifications. Accumulated rain water shall be pumped out of impoundment or containment areas into approved filtering devices. All proposed pollution prevention measures and practices must be identified by the Contractor in his Pollution Prevention Plan as required by the Specifications, other Contract documents and/or the *VPDES General Permit for Discharge of Stormwater from Construction Activities*.

SP107-000110-00

**C-45**

Rev. 10-9-14; Reissued 10-27-16

VIRGINIA DEPARTMENT OF TRANSPORTATION

**STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND THE VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM (VPDES) GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER FROM CONSTRUCTION ACTIVITIES**

**CONTRACTOR CERTIFICATION STATEMENT**

Order No.: \_\_\_\_\_ Project Number: \_\_\_\_\_  
Route: \_\_\_\_\_ Contract ID. #: \_\_\_\_\_

I certify under penalty of law that I understand the terms and conditions of the project contract, plans, permits, specifications and standards related to the erosion and sediment control, stormwater management and stormwater pollution prevention plan requirements for the affected activities associated with this project, and the requirements of the VPDES General Permit for the Discharge of Stormwater from Construction Activities (the VPDES Construction Permit) , if applicable to this project, issued by the Virginia Department of Environmental Quality. The VPDES Construction Permit authorizes the storm water discharges associated with the construction activities from the project site identified and described in the bid documents and subsequent contract including any onsite or off-site support facility areas located within VDOT right of way or easement and required for the complete fulfillment of the work therein.

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Contracting Firm: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

\* Project Address/Location: \_\_\_\_\_  
\_\_\_\_\_

Certified on this date: \_\_\_\_\_

\* Include any off-site support facility areas located within VDOT right of way or easement.  
(Note: This form must be returned with performance and payment bonds)

SS107-002016-01

July 12, 2016

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2016 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 107—LEGAL RESPONSIBILITIES**

**SECTION 107—LEGAL RESPONSIBILITIES** of the Specifications is amended as follows:

**Section 107.16(b)2 Air** is amended to include the following:

Reasonable precautions shall be taken at all times to prevent particulate matter from becoming airborne according to the State Air Pollution Control Board regulation [9 VAC 5 Chapter 50, Article 1](#), Standards of Performance for Visible Emissions and Fugitive Dust/Emissions.

**Section 107.16(e)3 SWPPP Requirements for Support Facilities** is amended to include the following:

The Contractor shall develop and enforce a Spill Prevention Control and Countermeasure (SPCC) Plan conforming to 40 CFR 112 if the aggregated volume of Oil stored within the project limits at any one time is greater than 1320 gallons. Oil, in this context, shall be defined according to 40 CFR 112. The aggregated volume includes that of both stationary and portable storage facilities but does not include individual storage containers with less than a 55 gallon capacity. The Contractor shall include the SPCC Plan as a part of his Pollution Prevention Plan for the project.

**Section 107.16(e)4.a Inspection Requirements** is replaced with the following:

a. Inspection Requirements

The Contractor shall be responsible for conducting site inspections according to the requirements herein. Site inspections shall include erosion, sediment control, and pollution prevention practices and facilities; all areas of the site disturbed by construction activity; all on-site support facilities; and all off site support facilities within VDOT right of way or easement. The Contractor shall document such inspections by completion of Form C-107, Construction Runoff Control Inspection Form, according to the directions contained within the form. Inspections shall be conducted using one of the following schedules:

- Schedule 1 - At least once every 7 calendar days (equivalent to the once every five business days schedule in the VPDES *General Permit for Discharge of Stormwater from Construction Activities*) and within 48 hours following any measureable storm event. If a measureable storm event occurs when there are more than 48 hours between business days, the Contractor shall perform his inspection no later than the next business day. The Contractor shall install a rain gage at a central location on the project site for the purposes of determining the occurrence of a measureable storm event. Where the project is of such a length that one rain gage may not provide an accurate representation of the occurrence of a measurable storm event over the entire project site, the Contractor shall install as many rain gages as necessary to accurately reflect the amount of rainfall received over all portions of the project. The Contractor shall observe all rain gages no less than once each business day at the time prescribed in the SWPPP General Information Sheet notes in the construction plans or other contract documents to determine if a measureable storm event has occurred. The procedures for determining the occurrence of a measurable storm event are identified in the SWPPP General Information Sheet notes in the construction plans or other contract documents.
- Schedule 2 - At least each Monday and Thursday (equivalent to the once every four business days schedule in the VPDES *General Permit for Discharge of Stormwater from*

*Construction Activities*). Where Monday or Thursday is a non-business day, the inspection may be performed on the next business day afterward. In no case shall the inspections be performed less than once every four business days.

The inspection schedule (1 or 2) is to be selected prior to the beginning of land disturbance. Once an inspection schedule is selected, it shall be defined in the appropriate note in the SWPPPP General Information Sheets contained in the construction plan set and shall be used for the duration of the project. A business day is defined as Monday through Friday excluding State holidays. A measurable storm event is defined as one producing 0.25 inches of rainfall or greater over a 24 hour time period.

For those areas of the site that have been temporarily stabilized or where land disturbing activities have been suspended due to continuous frozen ground conditions and stormwater discharges are unlikely, the inspection schedule may be reduced to once per month. If weather conditions (such as above freezing temperatures or rain or snow events) make stormwater discharges likely, the Contractor shall immediately resume the regular inspection schedule. Those definable areas where final stabilization has been achieved will not require further inspections provided such areas have been identified in the project's Stormwater Pollution Prevention Plan.

**Special Provision for Section 108.02 Limitation of Operations**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**SECTION 108.02 LIMITATION OF OPERATIONS**  
(PROTECTION OF KARST FEATURES)

October 18, 2016

**A. Background**

Portions of the project include environmentally sensitive areas for federally protected species. These species are protected by the Endangered Species Act (16 USC 1531 et seq., hereinafter "the Act") and the Virginia Endangered Species Act (29.1-563 et seq.). These acts makes it illegal to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any species protected therein. Activities that may adversely affect surface and ground water quality, subsurface hydrology, and any important karst features (open throated sinkholes and cave entrances) may result in adverse impacts to these species.

**B. Requirements**

1. Erosion & Sedimentation Measures

All E&S measures will adhere to or exceed VDOT's approved statewide plan. When work is proposed within 100 feet of important karst features, the Contractor shall incorporate protective measures (such as E&S fencing, diversion berms, dikes or other, appropriate E&S measures) to avoid offsite sedimentation and runoff to these environmentally sensitive areas. Monitoring, maintenance, and repair will be conducted in accordance with the Department's approved E&S plan.

2. Earth Moving Activities

Earth-disturbing activities will be conducted in a manner that minimizes alteration of existing grade and hydrology to the extent practicable in the vicinity of important karst features. In addition to the requirements in the E&S Plan, the following will be implemented in these environmentally sensitive areas:

- a. If a subsurface void should open or be intersected, or a new sinkhole forms within the right of way or construction work area, work in that area will stop and the void shall be isolated from the rest of the work area with sandbags or other suitable materials. The Contractor shall notify the Engineer, District Environmental Manager, and District Materials Engineer immediately. Appropriate remediation measures shall be employed per Standard Insertable Sheet No. isd/msd 2944) as directed by the Materials Engineer, to ensure project integrity and protection of the environmentally sensitive areas.
- b. Unless otherwise directed by the Materials Engineer, in linear excavations up gradient from and within 100 feet of important karst features, spoils will be placed on the up gradient side of the excavation so that, if any erosion takes place, the stockpiled soil will flow back into the excavation and not down gradient towards the karst feature.

3. Blasting

If blasting is required the Special Provision for Controlled Blasting Near Important Karst Features shall apply.

4. Spill Prevention

To avoid and minimize spills, unless otherwise directed by the Construction Engineer, the contractor shall:

- a. Locate equipment servicing and maintenance areas, including washing operations, more than 100 feet from streams and important karst features.
- b. Provide secondary containment for all hazardous materials, chemicals, fuels, lubricating oils, and petroleum products stored within 100 feet of important karst features and streams; and
- c. Check all equipment daily for leaks before beginning work; leaking equipment shall be removed from the construction limits.

5. Herbicide Usage.

- a. Herbicide usage is restricted to those approved for use in aquatic environments and not known to be toxic to crustaceans.
- b. Before herbicide use, the Contractor shall identify and provide Material Safety Data Sheet(s) of the selected herbicides to the Engineer for review and approval.
- c. All herbicide application within 100 feet of important karst features shall be conducted using non-aerosol application methods.

6. Contractor education

Contractors shall attend a pre-construction meeting prior to beginning work on site to discuss the requirements of these specifications and the importance of adhering to them.

**Special Provision for Controlled Blasting Near Important Karst Features**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**CONTROLLED BLASTING NEAR IMPORTANT KARST FEATURES**

October 17, 2016

**I. DESCRIPTION**

This project is in close proximity to private property, dwellings, water wells, springs, utilities, railroads and/or other structures, including important karst features. Important karst features include caves and open throated sinkholes. The Contractor shall explore other means of loosening and/or reducing the size of the excavation without blasting. If blasting becomes necessary, then controlled blasting techniques shall be employed during construction. The Contractor shall conduct an on-site review of the work involved and develop a plan of operations for performing the excavation work before prosecuting the work. The blasting plan shall be submitted to the Engineer at least two (2) weeks before scheduled blasting.

**II. BLASTING PROCEDURES**

No blasting shall be performed within fifty (50) feet of existing or new bridge foundations, railroad right-of-way, residential or commercial buildings, wells, other structures, or natural resources without the written approval of the Engineer. In the vicinity of proposed concrete construction, blasting shall be scheduled so that blasting operations are fully complete before placing concrete.

All blasting shall be performed in accordance with the current edition of the Virginia Statewide Fire Prevention Code. The Contractor shall use the services of an experienced powder man at all times. The drill hole diameter, hole spacing, and size of charge per hole shall be such as to afford satisfactory breakage with a minimum of vibration. A Construction Blasting Quantity and Distance Table shall be utilized to control the maximum quantity of explosives per shot for instantaneous firing or per delay for delay firing in pounds. At no time shall the total size of any charge cause the particle velocity of the ground motion to exceed 0.50 inches per second when measured at the nearest structure or resource in Section I to a blast.

The Contractor shall maintain a daily log of the type, grade, and quantity of explosives, type of detonating cap, hole locations, depths, and minimum distances from the blasts to private property, dwellings, water wells, springs, utilities, other structures, and natural resources. A copy of this log shall be submitted to the Engineer at the end of each workday on which blasting activity has occurred.

**III. SEISMIC MONITORING**

The Contractor shall also submit a comprehensive blasting plan detailing the blasting techniques to be used near property, structures, and resources described to the Department. Seismic monitoring shall be performed by a qualified firm before performing construction operations near property, structures, and natural resources. Some of the initial blasts shall be monitored close to the blasting while others shall be monitored at property, structures, and natural resources; and the blasting plan shall be revised if it is anticipated that the maximum particle velocity at those locations will exceed 0.50 inches per second.

The seismograph used should have the ability to store digital data for documentation and inspection by or submittal to the Department. Further, the seismograph used shall be capable of accurately measuring frequency and amplitude in three planes: vertically, longitudinally, and transversely. These instruments must be dynamically calibrated and of such sensitivity that displacements as little as 0.0005 inches and frequencies of from 1 to 100 cycles per second may be read. The instruments must also be

capable of adjustment so that the peak of maximum amplitude of vibration can be recorded on the tape or disk.

The Contractor shall cooperate and coordinate blasting activities with the owners of private property, dwellings, water wells, springs, utilities, structures, and natural resources.

The cost for explosives and blasting operations, alternative methods, monitoring, and the recording and submission of daily blasting logs will be considered incidental to the cost of regular excavation, and will not be measured for separate payment. Contractor's failure to maintain and submit daily blasting logs as stipulated herein will result in withholding payment for regular excavation until such time that daily logs are provided.

#### **IV. Rock Slopes**

For use in this Special Provision, slopes shall be considered rock slopes when the following criteria are met:

1. Height of final slope is fifteen (15) feet or greater.
2. Fifty (50) percent of the face of the final slope is rock, based on visual inspection.

All rock slopes with a slope of 1H:1V or steeper shall be pre-split by blasting, controlled blasting or non-explosive techniques, in accordance with Section 303.04a of the Specifications and the preceding sections.

SP108-000100-00

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**PROGRESS SCHEDULE FOR CATEGORY I PROJECTS**

April 28, 2008; Reissued July 12, 2016

**Section 103.06(e) Progress Schedule** of the Specifications is deleted and replaced by this provision.

**Section 108.03 Progress Schedule** of the Specifications is deleted and replaced by this provision.

**I. GENERAL REQUIREMENTS**

The Contractor shall plan and schedule the work and shall submit his initial plan in the form of a Baseline Progress Schedule for the Engineer's review and acceptance. Upon acceptance, the Progress Schedule shall become the project Schedule of Record (SOR). The SOR shall be used by the Engineer for planning and coordination of the Department activities, and for evaluation of the Contractor's progress and the effects of time-related related impacts on the project.

Prior to preparing the schedule, the Engineer or the Contractor may request a schedule development planning meeting to discuss any project specific items required for preparation of the progress schedule. The Contractor shall prepare and submit a practicable schedule to reflect a logical progress of the work. The Progress Schedule shall represent the Contractor's overall work plan to accomplish the entire scope of work according to the Contract. It shall include all items of work required for coordination and inspection and to show progress of the work including, but not limited to the controlling items of work and other relevant time-based tasks required for timely completion of the work, including as applicable, the work to be performed by sub-contractors, suppliers, the Department, and/or others. When preparing the schedule, the Contractor shall consider all known constraints and restrictions such as holidays, seasonal, weather, traffic, utility, railroad, right-of-way, environmental, permits, or other limitations to the work.

The Contractor may be required, as determined by the Engineer, to attend a pre-construction scheduling conference. If required, the scheduling conference may be held in conjunction with the pre-construction conference or at a separate meeting called by the Engineer. The Contractor shall be prepared to discuss his planned or contemplated operations relative to the contract requirements and this special provision. Until the Baseline Progress Schedule is accepted by the Engineer, the Contractor shall keep the Engineer informed of his planned or contemplated operations on a continuing basis.

**II. PROGRESS SCHEDULE SUBMITTAL REQUIREMENTS**

**Baseline Progress Schedule** – The Contractor shall submit to the Engineer his initial progress schedule in the form of a Baseline Progress Schedule at least seven (7) calendar days prior to beginning work. The Baseline Progress Schedule shall include a written Progress Schedule Narrative and a Progress Earnings Schedule. Progress Earnings Schedules will not be required for projects with contract duration of sixty (60) calendar days or less. The Contractor shall submit three (3) sets of the written Progress Schedule Narrative and the Progress Earnings Schedule as defined herein:

1. Progress Schedule Narrative: The Progress Schedule Narrative shall consist of the following written information:

- a) A description of the Contractor's overall plan of operations including the planned procedures and crew(s) required to complete each feature or major operation;
  - b) A Tabular Schedule to establish milestone(s) for completing each phase or stage of work, feature, major traffic switch, and other key milestone dates as specified in the Contract or required to assess progress of the work. The schedule shall also indicate the planned sequence and start/finish dates for each operation, maintenance of traffic (MOT) activities, and other relevant time-based tasks required to complete the work;
  - c) A discussion on the proposed working calendar to indicate the number of working days per week as well as the anticipated number of non-working days per month with considerations for known constraints or restrictions; (i.e. normal weather, traffic, holidays, time of year, utility, etc.);
  - d) A description of any potential issues that may impact the schedule.
2. Progress Earnings Schedule: The Progress Earnings Schedule shall be prepared on the Form C-13C. The Progress Earnings Schedule shall indicate the Contractor's anticipated cumulative percent complete for each month as of the Contractor's progress estimate date as defined in Section 109.08(a) of the Specifications. The anticipated cumulative percent complete shall be based on the anticipated cumulative progress earnings relative to the total contract value. Total contract value will be considered to mean the original amount of the contract including any authorized adjustments for changes to the work according to, but not limited to, the provisions of Sections 109.04 and 109.05 of the Specifications. Anticipated payments for Material on Hand according to Section 109.09 of the Specifications or for other adjustments including asphalt, fuel, retainage, liquidated damages, incentives, disincentives, etc., will not be considered in the Progress Earnings Schedule.

**Revised Progress Schedule** - A Revised Progress Schedule will be required when:

- The Contractor proposes to revise his work plan. (The Contractor may revise his Progress Schedule at any time at his discretion.)
- The Engineer determines the Contractor's work plan or the progress of the work differs or deviates significantly from the SOR. Differs or deviates significantly will be construed to mean major deviations from the SOR that will affect the schedule milestone(s), progress earnings, or project completion.
- The Engineer issues a written request for changes or a directive for changes
- Any of the above conditions impacts or will impact the progress earnings or scheduled dates of any project milestones including project completion

Examples of changes, relative to the above, that will prompt the Engineer to require a Revised Progress schedule include but are not limited to: major deviations from the SOR such as changes to phasing, changes to the general sequence, changes to the proposed method or means, additions or deletions to the work, unanticipated changes deemed beyond the Contractor's control such as those caused by other parties (utilities and railroads) or changes as defined in Section 104 of the Specifications.

When required by the Engineer, the Contractor shall submit the Revised Progress Schedule within ten (10) calendar days of receipt of the Engineer's written request. The Revised Progress Schedule shall be prepared and submitted in the form of a Baseline Progress Schedule; however, it shall reflect the actual progress of accomplished work, including actual dates for completed work or work in progress, any impact of a change, and the proposed plan for completing the remaining work. The Revised Progress Schedule submittal will be reviewed by the Engineer for acceptance as specified herein.

**Failure to Furnish Progress Schedules** – Work shall not commence until the Contractor submits his complete Baseline Progress Schedule according to this special provision, unless otherwise approved in writing by the Engineer.

Delays in work resulting from the Contractor's failure to provide the progress schedule will not be considered just cause for extension of the contract time limit or for additional compensation.

### III. REVIEW AND ACCEPTANCE

The Engineer will review all progress schedule submittals within seven (7) calendar days of receipt of the Contractor's complete submittal. The progress schedule submittal shall be considered complete only when all required submittal items and schedule information as defined herein are provided. Acceptance by the Engineer will be based on completeness and conformance with this provision and the Contract. Such contract requirements may include phasing, sequence of construction, Maintenance of Traffic (MOT), interim milestone(s), or other specified constraints or restrictions.

If the Contractor's progress schedule is deemed to be unacceptable, the Engineer will issue a written notification of non-conformance or incompleteness with a request for resubmission. The Engineer's response will include comments describing the deficiencies prompting the Engineer's decision.

If the Contractor's progress schedule is deemed to be acceptable, the Engineer will issue a written notice of acceptance that may include comments or concerns on the schedule or a request for clarification. When the Engineer's responses include any comments, concerns, or requests for clarification, the Contractor shall respond accordingly within seven (7) calendar days of receipt of the Engineer's response. Failure on the part of the Contractor to respond to the Engineer may adversely affect the Engineer's ability to completely evaluate the Contractor's schedule.

Upon acceptance, the Progress Schedule will become the Schedule of Record (SOR) and will replace any previous SOR. For the purposes of this Special Provision the SOR is defined as the currently accepted progress schedule by which all schedule references will be made and progress will be compared. The SOR will be basis for evaluating the effects of any time-related changes or impacts on the work.

Review and acceptance by the Engineer will not constitute a waiver of any contract requirements and will in no way assign responsibilities of the work plan, scheduling assumptions, and validity of the schedule to the Department. Failure of the Contractor to include in the Progress Schedule any element of work required by contract for timely completion of the project shall not excuse the Contractor from completing the entire scope of work within the contract specified completion milestone(s).

### IV. MONITORING THE WORK AND ASSESSING PROGRESS

**Monitoring The Work** – The Engineer will monitor the work regularly to identify any deviations from the Contractor's scheduled performance relative to the SOR. The Engineer may request a meeting with the Contractor to discuss the Contractor's current progress or to review the approximate date for starting each critical inspection stage during the following thirty (30) calendar days. At least once a week, the Contractor shall advise the Engineer of the approximate timing for anticipated critical stages for the subsequent week. The Engineer shall be advised at least twenty-four (24) hours in advance of any changes in the Contractor's planned operations or critical stage work requiring Department inspection.

**Progress Evaluation** – Progress will be evaluated by the Engineer at the time of the monthly progress estimate relative to the currently accepted Baseline or Revised Progress Schedule. The Contractor's actual progress may be considered unsatisfactory if any of the following conditions occurs:

1. The actual Total earnings to date percentage for work completed is more than ten (10) percentage points behind the cumulative earnings percentage for work scheduled; or

2. Any interim milestone is later than the scheduled milestone by fourteen (14) calendar days or the projected project completion date is later than the contract completion date by fourteen (14) calendar days or ten (10) percent of the contract duration, whichever is less.

**Progress Deficiency and Schedule Slippage** – When the Contractor’s actual progress is trending toward unsatisfactory status, the Engineer will encourage the Contractor to meet to specifically and substantially discuss reversing this trend and the steps he is taking to recover satisfactory progress.

When the Contractor’s actual progress is deemed to be unsatisfactory as defined by any of the conditions listed under **Progress Evaluation** of this provision, the Engineer will issue a written notice of unsatisfactory performance to advise the Contractor that five (5) percent retainage of the monthly progress estimate is being withheld and will continue to be withheld as described in Section 109.08(c) of the Specifications, for each month the Contractor’s actual progress is determined to be unsatisfactory. When the Contractor fails to respond with good faith efforts as described herein to restore satisfactory progress, the Engineer may issue a notice to indicate that he will recommend to the State Contract Engineer or State Construction Engineer that the Contractor be temporarily disqualified from bidding on contracts with the Department as described in Section 102.08 of the Specifications, if progress remains unsatisfactory at the time of preparation of the next monthly progress estimate following the Engineer’s notice. Prior to recommendation for removal from the list of pre-qualified bidders, the Engineer will allow the Contractor fourteen (14) calendar days from the date of the notice to respond. As an example of good faith efforts the Contractor may submit to the Engineer, a proposed recovery plan in the form of a Revised Progress Schedule and a written statement to describe the Contractor’s proposed actions and timeframe to correct the progress deficiency or schedule slippage. The Contractor may also submit to the Engineer a written explanation and supporting documentation to establish that such delinquency was attributable to conditions beyond his control. Any schedule revisions resulting from a recovery plan will be reviewed according to Section III, but shall not replace the current SOR.

When the Engineer determines the Contractor’s progress is again satisfactory, the five (5) percent retainage previously withheld will be released to the Contractor according to the provisions of Section 109.08 (c) of the Specifications.

If the Contractor is temporarily disqualified from bidding on contracts with the Department, the Contractor will not be reinstated until either the Engineer deems that his progress has improved to the extent that the work can be completed within the contract time limit or the project has received final acceptance according to the provisions of Section 108.09 of the Specifications.

## **V. MEASUREMENT AND PAYMENT**

Category I progress schedule submittals including the baseline and any subsequent revisions requested by the Engineer as described herein, will not be measured or paid for separately. All associated costs to prepare, revise, and/or furnish the progress schedules for Category 1 projects according to the requirements herein shall be considered incidental to the work.

SS208-002016-01

July 7, 2016; Issued October 5, 2016

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2016 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS

**SECTION 208—SUBBASE AND AGGREGATE BASE MATERIALS**

**SECTION 208—SUBBASE AND AGGREGATE BASE MATERIAL** of the Specifications is amended as follows:

**Section 208.06—Acceptance** is amended by replacing the sixth paragraph with the following:

If the liquid limit exceeds 30 or the plasticity index exceeds 6 for Type I base material or No. 19 subbase material; or the plasticity index exceeds 9 for Type II base material or subbase materials No. 20, 21, 21A, 21B, or 22 on any individual sample; that portion of the lot from which the sample was taken will be considered a separate part of the lot and the Contractor shall remove that portion from the roadway.

SS210-002016-01

August 22, 2016

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2016 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS

**SECTION 210—ASPHALT MATERIALS**

**SECTION 210—ASPHALT MATERIALS** of the Specifications is amended as follows:

**Section 210.02(g) – Polymer Modified Cationic Emulsified Asphalt** is replaced with the following:

**Polymer Modified Cationic Emulsified Asphalt** shall conform to AASHTO M316. The softening point shall have a minimum value of 100°F.

**Section 210.07(c)1c(2) – CRS-2 Latex** is replaced with the following:

CRS-2 Latex

(a) Tests on Emulsions

- Saybolt Furol Viscosity
- Sieve Test (if necessary)
- Particle Charge Test
- Residue by Evaporation

(b) Tests on residue by Evaporation

- Penetration
- Ring and Ball Softening Point
- Elastic Recovery
- Ductility, 25°C, 5 cm/min

**Section 210.07(d) – Non-Tracking Tack** is replaced with the following:

**Non-Tracking Tack:**

Certified Test Reports for Non-Tracking Tack shall be based upon the results of tests performed, as specified below:

1. Tests on Non-Tracking Tack:

- 
- Residue by Distillation

2. Tests on residue by distillation:

- Ring and Ball Softening Point
- Penetration

[SS232-002016-01](#)

April 19, 2016; Issued July 12, 2016

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2016 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS

**SECTION 232—PIPE AND PIPE ARCHES**

**SECTION 232—PIPE AND PIPE ARCHES** of the Specifications is amended as follows:

**Section 232.02(c)1** is replaced with the following:

**Corrugated steel culvert pipe and pipe arches** shall conform to AASHTO M36 except that helically formed pipe shall be tested in accordance with AASHTO T249 at the rate of one test per week per corrugation machine per work shift. The Contractor shall maintain records of such test for a period of 24 months. Pipe shall be fabricated from materials conforming to AASHTO M218 for galvanized pipe, AASHTO M274 for aluminum coated pipe, AASHTO M246 for polymer coated pipe and AASHTO M289 for aluminum zinc alloy coated pipe. Steel spiral rib pipe shall be of smooth wall spiral rib construction. When connecting bands or flared end sections are required, helically formed pipe shall have rerolled ends with a minimum of two annular corrugations. End sections shall be produced in accordance with AASHTO M36 from materials conforming to the applicable requirements of AASHTO M218 for use with galvanized pipe, AASHTO M274 for use with aluminum-coated or polymer coated pipe, or AASHTO M289 for use with aluminum zinc alloy-coated pipe.

Joints shall be installed as specified on the plans, in the event the joint is not specified, it shall be a leak-resistant joint.

**Section 232.02(c)7** is deleted, and paragraphs 8 and 9 are renumbered to 7 and 8, respectively.

**Section 232.02(l) Polypropylene (PP) Pipe** is replaced with the following:

**Polypropylene (PP) Pipe:** PP corrugated culvert and storm drain pipe shall conform to AASHTO M330, and shall be double wall pipe (Type S) for nominal diameters of 12 inches through 30 inches, inclusive, and shall be triple wall pipe (Type D) for nominal diameters of 36 inches through 60 inches, inclusive. The Department will not permit the use of polypropylene pipe less than 12 inches or greater than 60 inches in diameter. Fittings and joining systems shall also meet AASHTO M330.

**Section 232.02(m) Pipe Joints** is inserted as follows:

**Pipe joints** shall meet the requirements of AASHTO PP-63 for Soil-Tight, Silt-Tight, Leak-Resistant or other special design, except that leak-resistant joints shall not require infiltration or exfiltration testing in the field, and joints shall be on VDOT Materials Division Approved List for pipe joints. Pipe Joint systems shall be submitted to the Materials Division certifying the system meets the requirements for Soil-Tight, Silt-Tight, Leak-Resistant or Special Design in order to be on the approved list.

**Section 232.02(n) Pipe to Structure Connections and Waterstops** is inserted as follows:

Manufactured pipe connection systems for connecting pipe to drainage structures shall be submitted to the Materials Division certifying the system meets the requirements for Soil-Tight, Silt-Tight, or Leak-Resistant in order to be on the approved list. When resilient connectors for silt tight connections are specified for concrete pipe to concrete structures, the connectors shall meet the requirements of ASTM C1478. When resilient connectors for leak resistant connections are

specified for flexible pipe to concrete structures, the connectors shall meet the requirements of ASTM F2510.

When waterstops are specified, they shall meet the requirements of ASTM F2510, Section 4.1 Materials and Manufacture and Section 4.2 Mechanical Devices. The waterstop shall have a 1 inch minimum keylok anchor embedded into the concrete or mortar connection on pipe sizes below 18 inch diameter and 1.5 inch for pipe 18 inches and greater in diameter. There shall be a minimum 2 inches of concrete or mortar connection around the rubber gasket to permit proper consolidation around the gasket. All waterstops shall be secured to the pipe with a take-up clamp before applying mortar.

SS242-002016-01

February 1, 2017

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2016 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS

SECTION 242—FENCES

**SECTION 242—FENCES of the Specifications is amended as follows:**

**Section 242.02(c)2 – Posts for temporary silt fences** is replaced with the following:

**Posts for temporary silt fences** shall be a nominal 2 by 2 inch oak, or steel having a weight of at least 1.25 pounds per linear foot.

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2016 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS**SECTION 244—ROADSIDE DEVELOPMENT MATERIALS**

**SECTION 244—ROADSIDE DEVELOPMENT MATERIALS** of the Specifications is amended as follows:

**Section 244.02(l) – Rolled Erosion Control Products** is replaced by the following:

(l) **Rolled Erosion Control Products:**

1. **Rolled Erosion Control Products (Standard EC-2)** shall conform to Table II-22C and the following requirements. EC-2 products shall be designed for use on geotechnically stable slopes and channels as detailed herein.
  - a. **EC-2, Type 1** shall be a relative short-term single-net erosion control blanket or open weave textile. EC-2, Type 1 shall be one of the following materials: (1) an erosion control blanket composed of processed degradable natural or polymer fibers mechanically-bound together by a single degradable synthetic or natural fiber netting to form a continuous matrix; or (2) an open weave textile composed of processed degradable natural or polymer yarns or twines woven into a continuous matrix. EC-2, Type 1 shall typically have a 12-month functional longevity from the date of installation, be designed for use on up to 1V:3H slopes and channels, with shear stresses up to 1.50 pounds per square foot.
  - b. **EC-2, Type 2** shall be a relative short-term double-net erosion control blanket. The blanket shall be composed of processed natural or polymer fibers mechanically bound between two natural fiber or synthetic nettings to form a continuous matrix. EC-2, Type 2 materials shall typically have a 12-month functional longevity from the date of installation, be designed for use on up to 1V:2H slopes and channels, with shear stresses up to 1.75 pounds per square foot.
  - c. **EC-2, Type 3** shall be an extended term erosion control blanket or open weave textile. EC-2, Type 3 blankets shall be one of the following materials: 1) an erosion control blanket composed of processed slow degrading natural or polymer fibers mechanically-bound together between two slow degrading synthetic or natural fiber nettings to form a continuous matrix; or 2) an open weave textile composed of processed slow degrading natural or polymer yarns or twines woven into a continuous matrix. EC-2, Type 3 material shall typically have a 24-month functional longevity from the date of installation, be designed for use on slopes up to 1V:1.5H and channels, with shear stresses up to 2.00 pounds per square foot.
  - d. **EC-2 Type 4** shall be a long-term erosion control blanket or open weave textile. EC-2, Type 4 blankets shall be one of the following materials: (1) an erosion control blanket composed of processed slow degrading natural or polymer fibers mechanically-bound together between two slow degrading synthetic or natural fiber nettings to form a continuous matrix; or (2) an open weave textile composed of processed slow degrading natural or polymer yarns or twines woven into a continuous matrix. EC-2, Type 4 material shall typically have a 36-month functional longevity from the date of installation, be designed for use on up to 1V:1H slopes and channels, with shear stresses up to 2.25 pounds per square foot.
2. **Permanent Rolled Erosion Control Products (Standard EC-3)** shall be permanent turf reinforcement mats conforming to Table II-22D and the following.

- a. **EC-3, Type 1** shall be a non-degradable mat of sufficient thickness, strength and void space for permanent erosion protection and vegetation reinforcement on geotechnically stable slopes with gradients up to 1V:1.5H, channels with design shear stresses up to 6.0 pounds per square foot, and on other areas where design flow conditions exceed the limits of sustainability for mature natural vegetation.
- b. **EC-3, Type 2** shall be a non-degradable mat with sufficient thickness, strength and void space for permanent erosion protection and vegetation reinforcement on geotechnically stable slopes with gradients up to 1V:1H, channels with design shear stresses up to 8.0 pounds per square foot, and other areas where design flow conditions exceed the limits of sustainability for mature natural vegetation.
- c. **EC-3, Type 3** shall be a non-degradable mat with sufficient thickness, strength and void space for permanent erosion protection and vegetation reinforcement for use on geotechnically stable slopes up to 1V:0.5H, channels with design shear stresses up to 10.0 pounds per square foot, and other areas where design flow conditions exceed the limits of sustainability for mature natural vegetation.

SS302-002016-01

April 28, 2016; Issued July 12, 2016

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2016 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS

**SECTION 302—DRAINAGE STRUCTURES**

**SECTION 302—DRAINAGE STRUCTURES** of the Specifications is amended as follows:

**Section 302.03(a)2.d Joining Pipe** is replaced with the following:

**Joining pipe:** The inspector will verify the correct joint materials are used and installed correctly.

- (1) **Rigid pipe:** The Contractor's method of joining pipe sections shall be such that the sections are aligned and firmly joined to form the joint as specified on the plans.. The joint type shall be installed as specified on the plans, in the event the joint is not specified, it shall be a leak-resistant joint.
- (2) **Flexible pipe:** Flexible pipe sections shall be aligned and firmly joined to form the joint as specified on the plans. In the event the joint is not specified, it shall be a leak-resistant joint.

**Section 302.03(a)3 Tunneling operations** is amended by replacing the sixth paragraph with the following:

Joints will be designed by the Engineer and specified on the plans.

**Section 302.03(b) Precast Drainage Structures** is amended by inserting the following language after the first paragraph:

Precast units, excluding concrete pipe and prestressed concrete items, conforming to the requirements herein will only be accepted under a Quality Assurance (QA) Program. The Contractor shall have the producer perform quality control functions in accordance with a Department approved QA plan. Each piece, manufactured under the QA program, in addition to the date and other required markings, shall be stamped with the letters (QC), as evidence that the required quality control procedures have been performed by the producer. Each shipping document shall be affixed with the following:

We certify that these materials have been tested and conform to VDOT Precast Concrete Products Quality Assurance Program

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Signature and Title

**Section 302.03(b)1 Standard Precast Drainage Units** is replaced with the following:

**Standard precast drainage units** shall conform to the material requirements of AASHTO M 199 and the following:

- a. If the grade on the adjacent gutter is less than 1.5 percent, the grade on the invert of the throat section of the inlet shall be at least 1.5 percent. Precast throats having flat inverts will be permitted in sag locations provided the total length of the required throat opening does not exceed 6 feet.
- b. Pipe openings in precast drainage units shall not exceed the outside cross-sectional dimensions of the pipes by more than a total of 8 inches regardless of the placement of the pipes, the angles of intersection, or the shapes of the pipes. Pipe openings shall be formed, neatly drilled, or neatly cut.

- c. The Contractor shall use the connection specified on the plans to connect pipe to structure. In the event the joint is not specified, it shall be a leak-resistant joint.
- d. When precast units are to be located adjacent to the subbase or base pavement course, the Contractor shall furnish units with chambers having weep holes 3 inches in diameter and hardware cloth. Weep holes shall be located to drain the subbase or base.
- e. Precast units located adjacent to cast-in-place concrete items, such as flumes, ditches, and gutters shall be connected to the adjacent unit by means of No. 4 smooth steel dowels spaced on approximately 12-inch centers throughout the contact length and extending at least 4 inches into the precast unit and the cast-in-place item. If holes to receive the dowels are provided in the precast unit, they shall be not more than 5/8 inch in diameter. The Engineer must approve other methods of providing the connection, such as keyed joints prior to fabrication.
- f. The chamber section shall be installed in the plumb position. The throat and top sections shall have positive restraints, such as adjacent concrete, pavement, or soil, on all sides to prevent displacement and shall have a positive interlock, such as dowels, with the chamber section. The throat and top sections shall be installed to conform to the normal slope of the finished grade and may be canted up to a maximum grade of 10 percent. The chamber may be built up to a maximum of 12 inches at any point to provide for complete and uniform bearing of the throat and top sections on the chamber flat slab top or other approved top section. The built-up section shall be constructed using whole concrete spacer units where feasible and partial and whole sections of concrete block or brick with high-strength grout and mortar. High-strength grout shall be used to provide the final grade adjustment and uniform bearing. The width of the built-up section shall match the wall thickness of the chamber section. The concrete block and brick shall be thoroughly bonded with mortar and the inside and outside of the built-up section shall be plastered with mortar except that the concrete spacer unit shall not be plastered.

**Section 302.03(b)2 Precast arches** is amended to replace c “**Joints**” with the following

**Joints:** Precast arch joints shall meet the requirements of AASHTO PP-63 and be on VDOT Materials Division Approved List No. 14 for pipe joints. The joint type shall be installed as specified on the plans, in the event the joint is not specified, it shall be a leak-resistant joint.

**Section 302.03(c) Drop Inlets, Manholes, Junction Boxes, Spring Boxes, Intake Boxes, and Endwalls** is amended by replacing the ninth paragraph with the following:

Inlet and outlet pipe connections shall be as specified on the plans. In the event the joint is not specified, it shall be a leak-resistant joint. Pipe sections shall be flush on the inside of the structure wall and shall project outside sufficiently for proper connection with the next pipe section. When masonry connections are used, the masonry shall fit neatly and tightly around the pipe, and shall be finished on the exterior of the structure prior to backfilling, and finished on the interior of the structure after backfilling of the structure.

**Section 302.04—Measurement and Payment** is amended by replacing the twelfth paragraph with the following:

**Cast-in-place box culverts** will be measured in cubic yards of concrete and pounds of reinforcing steel and will be paid for at the contract unit price per cubic yard of concrete and per pound of reinforcing steel. These prices shall include sheeting, shoring, dewatering, waterproofing, disposing of surplus and unsuitable material, restoring existing surfaces, the upper 6 inches of bedding material within the neat lines shown on the Standard PB-1 drawings, and all necessary work to key the bottom slab into an existing rock foundation. When not a pay item the cost of temporary stream relocation to facilitate the installation of the structure shall be included in the price for the concrete and steel. Minor Structure Excavation will be paid for in accordance with Section 303 of the Specifications.

**Section 302.04—Measurement and Payment** is amended by replacing the fourteenth paragraph with the following:

**Precast box culverts** will be measured in linear feet along the centerline of the barrel from face of curtain wall to face of curtain wall and will be paid for at the contract unit price per linear foot, unless they are substituting for cast-in-place box culverts. In the event precast box culverts are substituted for cast-in-place box culverts, payment will be made at the contract unit price per cubic yard of concrete and per pound of reinforcing steel for the cast-in-place box culvert plan quantities. This price shall include designing, casting, reinforcing, sheeting, shoring, dewatering, installing, waterproofing, sealing joints, anchoring, disposing of surplus and unsuitable material, restoring existing surfaces, the upper 6 inches of bedding material within the neat lines shown on the Standard PB-1 drawings, fittings, and providing buffer zones and porous backfill for multiple lines. When not a pay item the cost of temporary stream relocation to facilitate the installation of the structure shall be included in the price for the box culvert. Minor Structure Excavation will be paid for in accordance with Section 303 of the Specifications.

**Special Provision for Construction Quality Control Plan**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**LOCAL ASSISTANCE PROGRAM**  
**CONSTRUCTION QUALITY CONTROL PLAN**

January 26, 2017

**I. GENERAL**

Minimally, the Construction Quality Control (QC) Plan must address the following:

1. Describe the Contractor's Quality Control organization, including the number of full-time equivalent employees or Sub-Contractors with specific Quality Control responsibilities, including an organizational chart showing lines of authority and reporting responsibilities.
2. List by discipline the name, qualifications, duties, responsibilities and authorities for all persons proposed to be responsible for Construction Quality Control;
3. Provide Quality Control sampling, testing and analysis plan with methods that include a description of how random locations for testing and sampling are determined;
4. Identify the laboratory(s) to be used for each type of testing;
5. Specify documentation for QC activities;
6. Provide procedures to meet contract requirements for corrective action when QC criteria are not met.

The Contractor's QC Plan shall utilize industry standard inspection procedures as well as those outlined in VDOT's Construction Manual, Materials Manual of Instruction, Road and Bridge Specifications and the minimum requirements specified in Table 3.

**II. LOCALITY/VDOT RESPONSIBILITIES**

Verification Sampling and Testing (VST) and Independent Assurance (IA) sampling and testing shall be performed by the Locality and/or VDOT to validate the Contractor's QC sampling and testing.

The Locality shall hold final authority for determining the acceptance of materials incorporated into the Project. The acceptance decision shall consider results of the Contractor's QC sampling and testing at specified frequencies and locations, the Locality/VDOT VST and IA sampling and testing at specific frequencies and locations, inspection by the Locality of the attributes and processes that may affect the quality of the finished product and any dispute resolution procedures to resolve discrepancies between the verification and Contractor's sampling and testing.

**III. CONTRACTOR'S RESPONSIBILITIES**

The Contractor shall be responsible for the quality of construction and materials incorporated into the Project. The Contractor's QC measures shall ensure that operational techniques and activities provide material of acceptable quality. Contractor sampling and testing shall be performed to control the processes and determine the degree of material compliance with the Contract.

The following Table 1 details comparison tolerances between IA and VST, and IA and QC, results that shall require investigation to determine the cause(s) of any results out of tolerance.

<b>Table 1 – IA Tolerances</b>		
<b>Tests</b>	<b>Tolerance</b>	<b>Source</b>
Soil/Aggregate Wet Density using Nuclear Gauge in Direct Transmission	CL Soil – 1.91 pcf ML Soil – 2.15 pcf SP Soil – 1.86 pcf	AASHTO T 310 / VTM-10
Soil/Aggregate Density using Sand Cone	2.0 pcf	ASTM D1556 / AASHTO T 217
Soil/Aggregate Moisture using Nuclear Gauge in Backscatter Position	CL Soil – 1.44 pcf ML Soil – 1.63 pcf SP Soil – 2.10 pcf	AASHTO T 310 / VTM-10
Soil/Aggregate Moisture determined by Oven Dry	14% difference*	ASTM D2216 / AASHTO T 265
One Point Proctor - Density	4.5 pcf	AASHTO T 99 Method A
One Point Proctor - Moisture	15% difference*	AASHTO T 99 Method A
Concrete Slump	0.82 inch for 1" to 2" slump 1.10 inch for 3" to 4" slump 1.50 inch for 5" to 6" slump	ASTM C143
Concrete Air	0.8% points using pressuremeter 32% difference using rollerometer	ASTM C231 ASTM C173
Concrete Temperature	1 degree F	ASTM C1064
Concrete Unit Weight	2.31 pcf	ASTM C138
Concrete Permeability	51% difference*	VTM-112
Concrete Strength	8% difference on the average of 3 cylinders	ASTM C39 ASTM C31
Asphalt Bulk Specific Gravity	0.02	AASHTO T 166 / VTM-6
*Percent difference calculation shall be $\% \text{ diff} \leq \left( \frac{\text{absolute value}[W_1 - W_2]}{\{[1/2] * [W_1 + W_2]\}} \right) * 100$		

**IV. PREPARATORY INSPECTION MEETINGS**

Prior to the start of work, the Contractor shall hold a Preparatory Inspection Meeting to ensure that all project personnel have a thorough understanding of the upcoming work. The purpose of the Preparatory Inspection Meeting is to provide coordination and communication between the Contractor's production personnel, QC personnel and the Locality. Pay items correspond to the sections of VDOT's Road and Bridge Specifications, such as clearing and grubbing, aggregate base material and asphalt concrete items.

**V. CONTRACTOR SAMPLING AND TESTING**

Contractor shall perform all Quality Control sampling and testing for the project, in accordance with Table 3. All QC sampling and testing shall be performed by technicians certified by VDOT and all laboratory testing shall be performed by AASHTO Materials Reference Laboratory (AMRL) and Cement and Concrete Reference Laboratory (CCRL) accredited laboratories. All materials used in the project shall meet the requirements of the 2016 VDOT Road & Bridge Specifications, plans and special provisions contained herein. All materials utilized on this project shall be from VDOT approved sources and all mix designs shall be VDOT-approved.

Contractor shall furnish copies of all test results to the Project Manager or other authorized Locality representative within 24 hours of completing the test of the acquired sample or the next day of business.

**VI. RECORDS**

The Contractor shall prepare separate test reports meeting the requirements of AASHTO R18 or may use the current appropriate VDOT forms. The Contractor shall also prepare, maintain and submit completed test records and final materials certification in accordance with the requirements of VDOT's LAP Manual, Section 13.2.9.

**VII. ACCEPTANCE**

All plant manufactured materials shall be tested at the plant and accepted by VDOT in accordance with VDOT's QA Programs as described in the VDOT Materials Manual of Instruction. Field testing for density shall be the responsibility of the Contractor for QC. See Section VIII VDOT Inspected and Tested Items for more information.

Locality/VDOT VST sampling and testing, in addition to the Contractor's QC results, shall be used to determine the materials' adherence to specification requirements. Materials that are found to be outside specification requirements shall be investigated by the Locality.

A cooperative effort by the Contractor and the Locality to identify the cause of any non-specification material or any discrepancy in the test results will include the following actions:

- i. A check of test data, calculation and results;
- ii. Observation of the Contractor's sampling and testing by the Locality;
- iii. Check of test equipment by the Locality.

When the source of test result discrepancies between the Contractor and the Locality/VDOT cannot be resolved, a referee split sample shall be obtained and tested; this work shall be performed by the Locality/VDOT. The testing of the sample shall be performed in duplicate by the laboratory without knowledge of the specific project conditions such as the identity of the Contractor, the test results of the Locality/VDOT and Contractor or the specification targets. The results of these tests shall be binding on both the Contractor and the Locality. The Contractor or its representative may witness the testing if requested. Costs incurred for referee testing shall be paid by the party found in error.

The Locality may elect to accept small quantities of material without normal sampling and testing frequencies. The determination to accept materials using this provision rests solely with the Locality. Structural Concrete shall not be considered under the small quantity definition.

An item can be accepted as a small quantity if the proposed project quantity for a specific item is less than one subplot or one-half of a subplot for mainline paving.

Factors that the Locality shall consider prior to use of small quantity acceptance are:

- i. Has the material been previously approved?
- ii. Is the material certified?
- iii. Is there a current mix design or reference design?
- iv. Has it been recently tested with satisfactory results?
- v. Is the material structurally significant?

Small quantity acceptance may be accomplished by visual, certification or other methods. Acceptance of small quantities of materials by these methods must be fully documented. Documentation of materials under these methods must be provided by the Locality. For visual documentation, an entry shall be noted on field records, with a statement as to the basis of acceptance of the material and the approximate quantity involved. A separate list of items and quantities acceptance on visual inspection shall be maintained by the Locality.

**VIII. VDOT INSPECTED AND TESTED ITEMS**

The Contactor shall identify to the Locality any and all off-site fabricated materials from producers not in an existing VDOT QA Program. The inspection of project-specific fabricated items shall be accomplished by VDOT. To facilitate these inspections, the Contractor shall promptly notify the Locality of the intended fabricator and provide two (2) copies of the Approved Shop Drawings. In addition, the Contractor shall submit a Source of Materials, Form C-25, for all materials for which VDOT retains responsibility for testing.

See Table 2 below for a listing of materials for which VDOT retains responsibility for testing:

<b>Table 2 – VDOT Off-Site Fabrication Inspection and Testing</b>	
<b>Item</b>	<b>Point of Contact</b>
Pre-Stressed Concrete Structural Elements, girders (AASHTO and Bulb-T beams) and piles	VDOT Central Office Materials – Structures Section
Structural Steel Elements (beams and girders)	VDOT Central Office Materials – Structures Section
Metal Traffic Signal Poles, Light Poles and Arms	VDOT Central Office Materials – Structures Section
Laminated Bridge Bearing Pads	VDOT Central Office Materials – Physical Lab
Pre-Cast Concrete Structures	VDOT Central Office Materials – Quality Assurance Section (Approved List 34)
Pipe (concrete, steel, aluminum and high density polyethylene) for culverts, storm drains and underdrains	VDOT Central Office Materials – Quality Assurance Section (Approved Lists 25, 26 and 42)
Asphalt Concrete QA Program	VDOT District Materials Section
Aggregate CMA QA Program	VDOT District Materials Section
Hydraulic Concrete QA Program	VDOT District Materials Section

**IX. PAYMENT**

The costs of all material, labor, personnel, equipment, sampling, testing, documentation and report preparation for QC sampling and testing of material under the above Construction Quality Control Plan shall be incidental to the contract bid price for the respective material. No additional compensation shall be provided for these items.

**Table 3 – QC/VST/IA Testing Frequencies**

1 – Contractor QC samples shall be randomly located. Test results are compared against Specifications.  
 2 – Locality and VDOT VST samples shall be randomly located, in different locations than Contractor QC samples. Test results are compared against Specifications.  
 3 – VDOT IA samples are split samples with the Contractor QC and Locality VST samples. Test results are compared against the tolerances provided in Table 1.  
 4 – In lieu of XRF (VMT-130), the following tests may be used: Spark Atomic Emission Spectrometry (ASTM E415), atomic absorption (ASTM E350) and Inductive Coupled Plasma (ICP) spectrometry (ASTM E2594).

Material Type	Spec. Section	Test Reference	QC <sup>1</sup> Frequency	VST <sup>2</sup> Frequency	VDOT IV <sup>2</sup> Frequency	VDOT IA <sup>3</sup> Frequency
<b>BACKFILL</b>	106.03; 302.03; 303.04; 401.03; Contract Special Provisions					
Moisture Density Relations – Standard Proctor, Atterberg Limits, Grain Size Analysis & CBR  (All backfill types and borrow sources)		VTM-1; VTM-7; VTM-8; VTM-25	One (1) test weekly during production and with change in material. Change in material would be a change in the visual USCS soil classification (e.g. CL to CH)	One (1) test every five (5) weeks during production.	Minimum of two (2) tests per year during production or 10% of VST frequency, whichever is greater. Perform at least one (1) test for first five (5) QC tests.	Minimum of two (2) tests per year during production or 10% of VST frequency, whichever is greater. Perform at least one (1) test on QC personnel in the first month of production.
In-Place Density Tests – Box Culverts and Pipes, Drop Inlets, Manholes, Abutments, Retaining Walls (including MSE Walls)		VTM-10	One (1) per 100 LF length, each lift, alternating sides (alternating side applies to box culverts and pipes only); minimum one (1) test per 150 CY; minimum one (1) test per work shift at each location and whenever there is a change in material or compaction equipment/method.	One (1) test per 1500 CY, minimally one (1) test every ten (1) days of production.	Minimum of one (1) test per 15,000 CY. Perform at least one (1) test for first five (5) QC tests.	Minimum of one (1) test per 15,000 CY. Perform at least one (1) test on Contractor QC personnel in the first month.
<b>HYDRAULIC CEMENT CONCRETE (HCC) STRUCTURAL</b>	217					
HCC Entrained Air Content a) Pressuremeter b) Volumetric Meter c) Slump d) Unit Weight e) Temperature		ASTM C231; ASTM C173; ASTM C138; ASTM C1064	Test every load	One (1) test per 500 CY; minimum one (1) test per project	One (1) test per 5000 CY; minimum one (1) test per project	One (1) test per 5000 CY; minimum one (1) test per project
HCC Compressive Strength		ASTM C31/C39	One (1) set of three (3) cylinders per 100 CY; minimum one (1) set of three (3) cylinders per day	One (1) set of three (3) cylinders per 5000 CY; minimum one (1) set of three	One (1) set of three (3) cylinders per 10,000 CY; minimum of one (1) set of three	One (1) set of three (3) cylinders per 10,000 CY; minimum of one (1) set of three (3)

				(3) cylinders per project.	(3) cylinders per project.	cylinders per project.
HCC Chloride Permeability		VTM-112	One (1) set of two (2) cylinders per 100 CY; minimum one (1) set of two (2) cylinders per day.	One (1) set of two (2) cylinders per 5000 CY; minimum one (1) set of two (2) cylinders per project.	One (1) set of two (2) cylinders per 10,000 CY; minimum one (1) set of two (2) cylinders per project.	One (1) set of two (2) cylinders per 10,000 CY; minimum one (1) set of two (2) cylinders per project.
HCC Reinforcing Steel (Non-Corrosion Resistant Bar)		ASTM A615	Verify manufacturer's certificates for every shipment for acceptance prior to placement.	One (1) sample per manufacturer per most common size per project. Test for tensile, yield, elongation and weight per unit length.	One (1) sample per project; test for tensile, yield, elongation and weight per unit length.	Verify 10% of the mill certifications.
HCC Reinforcing Steel (Corrosion Resistant Bar)		ASTM A955; AASHTO MP13-04; ASTM A1035	Verify manufacturer's certificates for every shipment for acceptance prior to placement.	One (1) sample per manufacturer per most common size per project. In addition to testing tensile, yield, elongation and weight per unit length, verify alloy using X-ray Fluorescence (XRF) Spectroscopy <sup>4</sup> .	One (1) sample per project. In addition to testing tensile, yield, elongation and weight per unit length, verify alloy using X-ray Fluorescence (XRF) Spectroscopy <sup>4</sup> .	Verify 10% of the mill certifications.
SOILS / SUBGRADE / EMBANKMENT	106.03; 302.03; 303.04; 305.03; 308.03; 309.05; Contract Special Provisions					
Moisture Density Relations of Soils – Standard Proctor, Atterberg Limits, Grain Size & CBR (Soils/Subgrade/Embankment – this is not redundant with backfill requirements)		VTM-1; VTM-7; VTM-8; VTM-25	Once weekly and with change in material. Change in material would be a change in the visual USCS soil classification (e.g. CL to CH)	Once every five (5) weeks during production.	Minimum of two (2) tests per calendar year during production or 10% of VST frequency, whichever is greater. Perform at least one (1) test for first five (5) QC tests.	Minimum of two (2) tests per calendar year for each QC personnel during production or 10% of VST frequency, whichever is greater. Perform at least one (1) test on QC personnel in the first month of production.

In-Place Density		VTM-10	One (1) test per 500 LF interval each lift; minimum one (1) test per work shift at each location and whenever there is a change in material or compaction equipment/method.	One (1) test per 500 CY (10% of QC frequency); minimally one (1) test every ten (10) days of production.	Minimum of one (1) test per calendar year for each QC personnel during production or 10% of VST frequency, whichever is greater. Perform at least one (1) test for first five (5) QC tests.	Minimum of one (1) test per calendar year for each QC personnel during production or 10% of VST frequency, whichever is greater. Perform at least one (1) test for each QC personnel in the first month of production.
TREATED SUBGRADE / SUBBASE, AGGREGATE, BASE MATERIAL and CEMENT-TREATED AGGREGATE BASE MATERIAL	306.03; 307.05; 308.04; 309.05					
Depth Checks		VTM-38B	One (1) test per 0.5 mile per lane width (Two (2) per mile per paver/mixer width from 0 to 1 miles; three (3) from 1 to 1.5 miles; four (4) from 1.5 to 2 miles; Project divided into lots, each lot stratified and locations determined randomly.)	One (1) test per five (5) miles per lane width (10% of QC frequency); minimally one (1) test per roadway in first five (5) QC tests.	Minimum of one (1) test per project per calendar year or one (1) test per 50 miles per lane width, whichever is greater.	Minimum of one (1) test per project per calendar year or one (1) test per 50 miles per lane width for each QC personnel, whichever is greater. Perform at least one (1) IA test on QC personnel in the first month of production.
In-Place Density		VTM-10	One (1) test per 0.5 mile per lane width; average of five (5) nuclear gauge readings comprises one (1) nuclear density test.	One (1) test per five (5) miles per lane (10% of QC frequency); minimum of one (1) test per roadway.	Minimum of one (1) test per project per year or one (1) test per 50 miles per lane width, whichever is greater.	Minimum of one (1) test per project per year or one (1) test per 50 miles per lane width for each QC personnel, whichever is greater. Perform at least one (1) IA test on QC personnel in the first month of production.
ASPHALT CONCRETE PLACEMENT	315					
Pavement Density by Nuclear Method with In-Place Pavement Density by Cores/Plugs serving the VST function		VTM-76; VTM-6; VTM-22	Establish roller pattern, control strips and test sections. Ten (10) stratified random density tests per test section (5000 LF).	One set of two (2) stratified random cores/plugs per 25,000 LF per paver width. Both cores obtained from the same test section.  Minimum two (2) cores/plugs per project.	One set of two (2) stratified random cores/plugs per 50,000 LF per paver width. Both cores obtained from the same test section.  Minimum two (2) cores/plugs per project.	Materials representative observe and witness QC and VST testing to assure testing is performed properly and equipment is calibrated on a system basis; minimum once per calendar year.

Pavement Density by Core/Plug Method with In-Place Density by Cores/Plugs serving the VST function		VTM-76; VTM-6; VTM-22	Establish roller pattern, control strips and test sections. Five (5) stratified random density tests per test section (5000 LF).	One set of two (2) stratified random cores/plugs per 25,000 LF per paver width. Both cores obtained from the same test section.  Minimum two (2) cores/plugs per project.	One set of two (2) stratified random cores/plugs per 50,000 LF per paver width. Both cores obtained from the same test section.  Minimum two (2) cores/plugs per project.	Materials representative observe and witness QC VST testing to assure testing is performed properly and equipment is calibrated on a system basis; minimum once per calendar year.
In-Place Pavement Density – Distances too short for Control Strip Establishment (Asphalt Pavement)		VTM-6	Minimum of one (1) core/plug per location not long enough to establish roller pattern/control strip	Obtain one (1) random core/plug per ten (10) QC locations.	One (1) stratified random core per twenty (20) QC locations).  Minimum one (1) core/plug per project.	Materials representative observe and witness QC and VST testing to assure testing is performed properly and equipment is calibrated on a system basis; minimum once per calendar year.
Depth Checks by Cores (Asphalt Pavement)		VTM-32	Obtain cores at the following frequency per 24-foot pavement width: from 0 to 0.5 miles, two (2) cores; from 0.5 to 0.75 miles, three (3) cores; from 0.75 to 1 mile, four (4) cores.	Obtain one (1) random core per ten (10) QC locations.	One set of two (2) stratified random cores/plugs per 50,000 LF per paver width. Both cores obtained from the same test section.  Minimum two (2) cores/plugs per project.	Materials representative observe and witness QC and VST testing to assure testing is performed properly and equipment is calibrated on a system basis; minimum once per calendar year.
<b>STONE MATRIX ASPHALT PLACEMENT</b>	<b>317</b>					
In-Place Pavement Density		VTM-6; VTM-22	Establish trial section and test sections. Three (3) stratified random cores/plugs per test strip. Five (5) stratified random density tests per test section (5000 LF).	One set of two (2) stratified random cores/plugs per 25,000 LF per paver width. Both cores obtained from the same test section.  Minimum two (2) cores/plugs per project.	Randomly select and reweigh one (1) QC core/plug per five (5) QC test sections.  Minimum one (1) core/plug per project.	Materials representative observe and witness QC and VST testing to assure testing is performed properly and equipment is calibrated on a system basis; minimum once per calendar year.
<b>HYDRAULIC CEMENT CONCRETE PAVEMENT</b>	<b>217</b>					
HCC Entrained Air Content a) Pressuremeter b) Volumetric Meter c) Slump d) Unit Weight e) Temperature		ASTM C231; ASTM C173; ASTM C143; ASTM C138; ASTM C1064	First three (3) loads and if passing results obtained, then one (1) test per hour.	One (1) test per day of production	One (1) test per 5000 CY; minimum one (1) test per project.	One (1) test per 10,000 CY; minimum one (1) test per project.

Compressive Strength of Concrete Cylinders		ASTM C31; ASTM C39	One (1) set of three (3) cylinders per 250 CY; minimum one (1) set of three (3) cylinders per day.	One (1) set of three (3) cylinders per 10,000 CY; minimum one (1) set of three (3) cylinders per project.	One (1) set of three (3) cylinders per 20,000 CY; minimum one (1) set of three (3) cylinders per project.	One (1) set of three (3) cylinders per 50,000 CY for each QC personnel; minimum one (1) set of three (3) cylinders per project.
<b>HYDRAULIC CEMENT CONCRETE MISCELLANEOUS ITEMS</b>	<b>217</b>					
HCC Entrained Air Content a) Pressuremeter b) Volumetric Meter c) Slump d) Unit Weight e) Temperature		ASTM C231; ASTM C173; ASTM C143; ASTM C138; ASTM C1064	One (1) test per load.	One (1) test per 1250 CY; minimum one (1) test per project.	One (1) test per 12,500 CY; minimum one (1) test per project.	One (1) test per 12,500 CY for each QC personnel; minimum one (1) test per project.
Compressive Strength of Concrete Cylinders		ASTM C31; ASTM C39	One (1) set of three (3) cylinders per 500 CY; minimum one (1) set of three (3) cylinders per day.	One (1) set of three (3) cylinders per 12,500 CY (cumulative); minimum one (1) set of three (3) cylinders per project.	One (1) set of three (3) cylinders per 25,000 CY (cumulative); minimum one (1) set of three (3) cylinders per project.	One (1) set of three (3) cylinders per 25,000 CY for each QC personnel (cumulative); minimum one (1) set of three (3) cylinders per project.
<b>PAVEMENT MARKINGS</b>	<b>704</b>					
Marking and Bead Application Rate		VTM-94	Perform VTM-94 at start-up with periodic checks every three (3) hours of operation.	Randomly select three (3) ten-foot areas at the beginning, middle and end of in-place sections of markings per day. Skip lines and edge lines are considered separately: 1) Inspect PM for correct placement, straightness, edges, thickness, bead distribution and embedment, day and night color and brightness. Inspect structure of tape to ensure patterned waffles have not been damaged by roller.	Upon completion of pavement markings installation, perform two (2) tests consisting of one (1) day and one (1) night time review of the marking installation (examining the brightness and nighttime color while driving along project). Performed by Regional Operations once the markings have been completed.	Review 5% of the C-85 daily reports to verify calculated quantities match the application rates and confirm that daily measurements were performed as described in VTM-94. Performed by Construction staff.
<b>CLEARING AND GRUBBING</b>	<b>301</b>					
Ensure activities are confined to limits and seeded within 30 days of disturbance			Daily	Review documentation monthly	Review documentation upon completion	Monthly

<b>PRE-CAST STRUCTURES</b>	<b>404</b>					
Verify bedding material is installed properly and that pre-cast materials are not chipped or cracked			Daily	Verify QA stamp, installation and documentation monthly	Verify 10% of VST documentation	10% of structure or runs of pipe
<b>EROSION AND SILTATION CONTROL</b>	<b>303.03; Std. 113; DCR Specifications and Certifications</b>					
Monitor for correct installation and maintenance			Daily	Inspection after 0.25" or greater rain event	Monthly inspection of documentation and verification of certifications	Weekly
<b>GEOSYNTHETICS</b>	<b>245</b>	<b>Various</b>				
Each type			One (1) set of required tests for each lot of each different type and manufacturer; visually inspect 100% of installed material	Review documentation monthly	One (1) set of required tests for each different type of material per project	10% of QC visual inspection
<b>UNDERCUT</b>	<b>303.04; Contract Documents</b>					
Review area to determine need for undercut			Prior to start of work at each location; after rain events	Review all reports; verify qualified inspector and correct equipment	Review documentation upon completion	10% of VST frequency
Measure undercut area			Prior to backfill at each location	Review all calculations/reports; verify qualified inspector and correct equipment	Review documentation upon completion	10% of VST frequency
<b>LOAD BEARING PILES</b>	<b>403</b>					
Monitor operations and document blow count			Continuously	Review documentation weekly	Review documentation upon completion	Weekly
Perform Center of Gravity calculations			For each foundation	Review one (1) calculation per twenty (20) foundations	Review one (1) randomly selected calculation per project	N/A

STRUCTURAL STEEL	407					
<p>Receive bolts, sample, verify the documentation is complete and perform laboratory Skidmore, tension and galvanized coating testing</p>	226.02(h)		<p>Each nut-bolt-washer (NBW) assembly lot shall be samples at a minimum rate of two (2) assemblies per NBW lot. The documentation shall be collected from the bolt supplier and the galvanizer for each lot and supplied along with the samples to the Locality. QC personnel shall monitor the storage and conditions of the bolts to ensure they remain in good, well-lubricated condition.</p>	<p>Each NBW lot shall be tested, one (1) bolt in direct tension, one (1) assembly for galvanized coating and one (1) nut for rotational capacity testing (Rot-Cap).</p>	<p>Collect a separate sample (at random) of not less than 10% of the lots sampled (two lot minimum) and test for tension, Rot-Cap and galvanized coating. Review documentation to verify origin and physical properties meet specifications.</p>	<p>Each project phase, two (2) of the sampled NBW assemblies shall be monitored during VST testing.</p>
<p>Verify daily Skidmore testing is performed in accordance with proper procedures for each lot.</p> <p>Note: NBW assembly may be reused after Skidmore testing in a connection if no defects are noted in visual inspection and the nut runs freely up the bolt for the full thread length – only new NBW assemblies may be tested each day.</p>	407.06(c)		<p>Each day and each NBW lot (three bolts per lot) used shall be Rot-Cap tested in the Skidmore device in accordance with proper procedures.</p>	<p>Three (3) NBW assemblies from each lot shall be Rot-Cap tested each week during production.</p>	<p>Collect an independent sample and perform Rot-Cap test once at the start of each phase of erection.</p>	<p>Witness VST once per week during erection; minimum two times per project.</p>
<p>Verify the installation crews are using proper installation procedures in accordance with specifications to tension the bolts</p>	407.06		<p>Monitor each crew during erection to ensure proper technique (TOTN – turn of the nut or DTI – direct tension indicating washers) is followed.</p>	<p>No test</p>	<p>No test</p>	<p>Monitor each crew for six (6) NBW assemblies once each week during erection.</p>

Verify the bolted connections have been tensioned properly using statistical sampling frequency and a calibrated torque wrench	407.06(c)4		For each connection, test 10% or a minimum of two (2) NBW assemblies, verifying the required torque. Complete testing before the deck is formed.	Test two (2) NBW assemblies in 25% of the slip-critical connections (minimum of two connections per traverse line of splices) and two (2) NBW assemblies in 10% of the secondary member connections.	Monitor the VST testing.	Verify that the equipment is calibrated within the appropriate timeframe.
<b>PROTECTIVE COATING OF STEEL STRUCTURES</b>	<b>411; SSPC-PA-2</b>					
Monitor surface preparation and check coating thickness			Take three (3) surface profile measurements per day of blasting. Five (5) spot measurements (15 individual readings) per day as defined in PA-2 for coating thickness after each layer of applied protective coating at each location.	One (1) surface profile measurement per month of blasting. One (1) spot measurement (3 individual readings) per month as defined in PA-2 for coating thickness after each layer of applied protective coating at each location.	One (1) per three (3) months; minimum one (1) per project.	Observe QC testing at 10% of VST frequency. Minimum once per project.
<b>UNDERDRAINS</b>	<b>501</b>	<b>VTM-108</b>				
Inspect to ensure no deficiencies			All accessible outlet locations; additionally a minimum of 10% of longitudinal sections.	One (1) per twenty-five (25) outlet locations; minimum one (1) per project.	Select one (1) uninspected site for Locality to inspect.	Observe one (1) per five (5) QC inspections; minimum one (1) per project.
<b>STORM SEWER AND CULVERT POST-INSTALLATION INSPECTION</b>	<b>302.03(d)</b>	<b>VTM-123</b>				
Various			Per VTM-123	Review each post-installation report.	Review documentation upon completion.	N/A
<b>GUARDRAIL</b>	<b>505</b>					
Verify that guardrail is installed per specifications and at proper height			Daily	Spot-check per 505 LF.	Select one (1) independent site per project for spot-check.	Observe one (1) VST spot-check per mile; minimum two (2) per project.
<b>FENCING</b>	<b>507</b>					
Verify fencing type, height and location			Daily	Review documentation monthly	Review documentation upon completion.	N/A

<b>ROW MONUMENTS</b>	<b>503</b>					
Verify monument type and location			10% of ROW monuments.	Review documentation monthly during installation.	Review documentation upon completion.	N/A
<b>MAINTENANCE OF TRAFFIC</b>	<b>512</b>	<b>Work Zone Safety Checklist</b>				
Monitor installation and maintenance			Daily	Review documentation every two (2) weeks.	Review documentation on each site visit.	N/A
<b>SOUND BARRIER WALLS</b>	<b>519</b>					
Verify location and installation per shop drawings			Daily	Review documentation every two (2) weeks.	Review documentation upon completion.	N/A
<b>TOPSOIL AND SEEDING</b>	<b>602; 603</b>					
			Daily	Review documentation monthly.	Review documentation upon completion.	Review final installation.
<b>PLANTING</b>	<b>605</b>					
Verify that proper plants are installed at correct locations per plans			Daily	Review documentation monthly.	Review documentation upon completion.	Review final installation.
Monitor that plants are cared for during establishment period			Daily	Review documentation monthly.	Review documentation upon completion.	N/A
<b>TRAFFIC SIGNS</b>	<b>512</b>	<b>WAPM; MUTCD</b>				
Verify that signs meeting current standards are utilized in locations per plans			Daily	Review documentation monthly.	Review documentation upon completion.	Weekly
<b>TRAFFIC SIGNALS</b>	<b>703</b>					
Monitor installation for conformance with plans and specifications			Daily	Review documentation monthly.	Review documentation upon completion.	N/A
<b>WATER AND SEWER FACILITIES</b>	<b>520</b>					
Monitor installation for conformance with plans and specifications.			Daily	Review documentation monthly.	Review documentation upon completion.	N/A
<b>SPECIALTY CONTRACT ITEMS</b>						
Various	Various	Various	Monitor at rates set forth in approved Quality Control Plan.	Monitor at rates set forth in approved Quality Assurance Plan.	10% of VST frequency.	10% of VDOT VST frequency.

1 – Contractor QC samples shall be randomly located. Test results are compared against Specifications.  
 2 – Locality and VDOT VST samples shall be randomly located, in different locations than Contractor QC samples. Test results are compared against Specifications.  
 3 – VDOT IA samples are split samples with the Contractor QC and Locality VST samples. Test results are compared against the tolerances provided in Table 1.  
 4 – In lieu of XRF (VTM-130), the following tests may be used: Spark Atomic Emission Spectrometry (ASTM E415), atomic absorption (ASTM E350) and Inductive Coupled Plasma (ICP) spectrometry (ASTM E2594).