# INVITATION TO BID
# No. 202005

## Valley Avenue Improvements

**FOR THE**
**DEPARTMENT OF PUBLIC SERVICES**

## State Project #:U000-138-R04
## FHWA Project #: STP-5138(189)

**Project Manual**
Contract Documents
Specifications

May 2020

**City of Winchester**
**Valley Avenue Improvements**
**ITB# 202005**
**Table of Contents**

**BIDDING DOCUMENTS**


- Invitation to Bid
- Instructions to Bidders
- Bid Form
- Bid Bond
- Non-Collusion Affidavit
- Contract
- Performance Bond
- Labor and Material Payment Bond
- Notice of Intent to Award
- Notice of Award
- Notice to Proceed
- City of Winchester Required General Terms and Conditions
- General Conditions
- Supplement to General Conditions
- Special Terms and Conditions
- Special Provisions - Utilities


**TECHNICAL SPECIFICATIONS**


- Scope of Work – Sequence of Construction
- Surveying
- As-Built Drawings
- Demolition
- Erosion and Sediment Control
- Rock Excavation
- Disposal of Materials
- Maintenance of Traffic
- Concrete (Curb & Gutter, Sidewalks, Entrances)
- Detectable Warning Surfaces
- Earthwork
- Topsoil and Seeding
- Retaining Walls
- Signal Mast Arms, Poles, Luminaire Arms and Sign Supports
- Emergency Vehicle Preemption Equipment
- Traffic Signal Cabinets
- Traffic Signal Controllers
- Video Detection Equipment
- Signal Head Sections
- Radio Equipment

- Storm
- Water Distribution System
- Sanitary Sewer Collection System

**VDOT LOCALLY ADMINISTED PROJECT (LAP) FORMS**

**VDOT SUPPLEMENTS TO THE 2016 VDOT ROAD & BRIDGE SPEC BOOK**

**GEOTECHNICAL REPORT – BORINGS SUMMARY**

**DRAWINGS**

**INVITATION TO BID**

**Valley Avenue Improvements**

**ITB # 202005**

The City of Winchester is submitting this Invitation to Bid to establish a contract with qualified Contractors furnishing all labor, equipment, transportation and materials necessary for the following project:

**Valley Avenue Improvements**

Work includes the construction of Valley Avenue between Shawnee Dr. (City Limits) and Middle Road. Project components include, but are not limited to, the asphalt roadway widening, curb and gutter, sidewalks, drainage system improvements, water system improvements, sanitary sewer system improvements, traffic signal improvements and site restoration.

A **non-mandatory** pre-bid meeting will be held on **Wednesday, June 17, 2020 at 3:30pm** via Webex Conference. To register for this conference, e-mail Kelly Henshaw at kelly.henshaw@winchesterva.gov no later than close of business on Monday, June 15, 2020. Bidders are highly encouraged to attend this meeting to learn information about the project.

All bids shall be received at:

City of Winchester, Virginia
Finance Department
Rouss City Hall, 4th Floor
15 North Cameron Street
Winchester, Virginia 22601
Telephone (540) 667-1815

The contract documents and drawings may be downloaded at no cost from the City's website at:
http://www.winchesterva.gov/purchasing/itbrfp.php

Any questions regarding the contract documents or drawings shall be sent **in writing via e-mail** to:

Kelly Henshaw: kelly.henshaw@winchesterva.gov

Bid prices shall be made on the blank Bid Form provided herein. Bids shall be delivered to the above address on or before **2:30pm (local time) on Wednesday, July 15, 2020,** at which time the bids shall be publicly read aloud.

Each Bid shall be accompanied by complete response to the Contractor Qualification Data Sheet. The successful bidder shall meet the minimum qualifications specified in the Contractor Qualification Data Sheet. A bid from a bidder that does not meet the minimum qualifications specified in the Contractor Qualification Data Sheet, as determined by the City, shall be non-responsive.

Each Bid shall also be accompanied by a satisfactory Bid Guarantee in the amount of 5% of the bid, in the

form of a certified or cashier's check drawn on a bank chartered under the laws of the Commonwealth of Virginia; payable to the Treasurer of the City of Winchester, or a Bid Bond, as a guarantee that the bidder will within fifteen (15) days after the date of the award of the Contract, execute an agreement and file insurance as required by the Contract Documents if his proposal is accepted. If the successful bidder fails to execute and file the agreement and insurance, the amount of the Bid Guarantee shall be forfeited. Bids without a satisfactory Bid Guarantee shall be rejected.

Performance and Payment Bonds will be required of the successful bidder, each in an amount equal to one hundred (100) percent of the amount of the Contract, conditioned upon the faithful performance of the Contract and to the payment in full to all persons furnishing labor, materials, equipment, etc., for and in connection with the work to be performed under the contract.

Bidder desiring to withdraw his bid after the bid opening procedure, 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. Bidder shall submit to the City his original work papers; documents and materials used in preparation of the bid sought to be withdrawn. Bidder withdrawing his bid that does not meet these requirements shall forfeit their bid bond.

The City of Winchester reserves the right to reject any proposal for failure to comply with all requirements of this notice or any of the Contract Documents; however, it may waive any minor defects or informalities at its discretion. The City further reserves the right to reject any and all proposals, cancel the ITB at any time prior to award or to award a contract that in its judgment is in the best interest of the City.

CITY OF WINCHESTER, VIRGINIA

BY: Mike Marzullo, Purchasing Agent

**Valley Avenue Improvements**

**INSTRUCTIONS TO BIDDERS**

**1. OWNER AND ENGINEER:**

The Owner is the City of Winchester Department of Public Services, which shall be represented by the City Engineer or his designee who shall perform the duties of the Engineer. Telephone: Department of Public Services, (540) 667-1815, extension 1481.

**2. COPIES OF CONTRACT DOCUMENTS:**

2.1 Bidding Documents may be examined and downloaded from the City's website at http://www.winchesterva.gov/purchasing/itbrfp at no charge.

City of Winchester, Virginia
Finance Department
Rouss City Hall, 4th Floor
15 North Cameron Street
Winchester, Virginia 22601
Telephone: (540) 667-1815

2.2 Complete set of Bidding Documents shall be used in preparing bids; neither the Owner nor the Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents. Owner and Engineer in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining bids on the Work and do not confer a license or grant for any other use.

**3. EXAMINATION OF CONTRACT DOCUMENTS AND SITE:**

3.1 Before submitting a bid, each bidder must examine the Contract Documents thoroughly, visit the site to familiarize himself with local conditions that may in any manner affect cost, progress, or performance of the work, familiarize himself with federal, state, and local laws, ordinances, rules, and regulations that may in any manner affect cost, progress, or performance of the work; and study and carefully correlate bidder's observations with the Contract Documents.

3.2 Before submitting his bid, each bidder will, at his own expense, make such additional investigations and tests as the bidder may deem necessary to determine his bid for performance of the work in accordance with time and other terms and conditions of the

Contract Documents. The Contractor shall be responsible for taking his own borings or making any investigations he requires to establish subsurface conditions in the area of this Contract. The City does not assume any responsibility for the subsurface conditions which may be encountered. On request, Owner will provide each bidder access to the site to conduct such investigations.

3.3 The submission of a bid will constitute an incontrovertible representation by the bidder that he has examined the site and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions of the Work.

3.4 It is understood and agreed by the bidder that the estimate of quantities (if provided) are approximate, and are presented in order to obtain unit prices and approximate amount of the Contract. The Contractor shall make no claim against the City because of any estimate, tests or representations made by any officer or agent of the City, which may prove to be in any respect erroneous.

3.5 Scope of the work is as specified herein. The Owner, however, reserves the right to make adjustments to the scope of the work. Such adjustments shall be accomplished by appropriate Change Orders.

**4. SPECIFICATIONS:**

The technical specifications for the project are provided within this contract document.

**5. INTERPRETATIONS:**

All questions about the discrepancies or ambiguities in the Contract Documents prior to the bid opening shall be submitted in writing via e-mail to the following:

Kelly Henshaw, City Engineer: kelly.henshaw@winchesterva.gov

Replies to questions will be issued by Addenda mailed or delivered to all parties recorded by the Purchasing Agent as having received the Bidding Documents or by posting on a Question and Answer Bulletin Board posted at the following location:

http://www.winchesterva.gov/purchasing/itbrfp

Questions received less than five (5) calendar days prior to the date for opening of bids may not be answered. Only questions answered by formal written Addenda or in writing on the Question and Answer Bulletin Board will be binding.

**6. REQUIRED BOND - BID GUARANTEE:**

6.1 Bid Guarantee shall be made payable to Owner, in an amount of five percent (5%) of the bidder's maximum bid price and in a form of a certified or cashier's check drawn on a bank chartered under the laws of the Commonwealth of Virginia; payable to the Treasurer, City of Winchester, or a Bid Bond issued by a surety having registered resident agents in Virginia.

6.2 The Bid Guarantee of the successful bidder will be retained until such bidder has executed the Agreement and furnished the required Contract Security, whereupon it will be returned. If the successful bidder fails to execute the agreement and furnish the required Contract Security within fifteen (15) calendar days of the Notice of Award, Owner may annul Notice of Award and the Bid Guarantee of the bidder will be forfeited.

**7. REQUIRED BONDS – PAYMENT AND PERFORMANCE:**

Performance and Payment Bonds will be required of the Successful bidder, each in an amount equal to one hundred percent (100%) of the amount of the Contract, conditioned upon the faithful performance of the Contract and to the payment in full to all persons furnishing labor, materials, equipment, etc., for and in connection with the work to be performed under the Contract.

**8. CONTRACT TIME:**

Contractor agrees that all work shall be completed within 545 calendar days following the Notice to Proceed.

Owner and Contractor recognize that the time is of essence in this Contract, and if the work is not completed within the specified times outlined above, plus any extensions allowed, then the Contractor shall pay, as liquidated damages, $1,000.00 for each calendar day that expires after the specified completion date.

**9. PAYMENT PROCEDURE:**

9.1 The basis for payment shall be the actual percentage of work completed, as determined in the field by the Engineer.

**10. SUBCONTRACTORS:**

10.1 The apparent successful bidder and any other bidder so requested, will within seven (7) days after the day of bid opening submit to Owner a list of all subcontractors and other persons and organizations, including those who are to furnish the principal items of material and equipment, proposed for the work. Such list shall be accompanied by an experience statement with pertinent information as to similar projects and other evidence of qualification for each such subcontractor, person, and organization. If Owner or Engineer, after due investigation has reasonable objection to any proposed subcontractor, other person or organization, either may before giving the Notice of Award request the apparent successful bidder to submit an acceptable substitute without an increase in Bid price. If the apparent successful bidder declines to make any such substitution, the Contract shall not be awarded to such bidder, but his declining to make any such substitution will not constitute grounds for sacrificing his Bid Bond. Any subcontractor, other person, or organization so listed and to whom Owner or Engineer does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer.

10.2 No Contractor shall be required to employ any subcontractor, other person, or organization against whom he has reasonable objection.

**11. SUBSTITUTE MATERIAL AND EQUIPMENT**

11.1 Whenever it is indicated in the Contract Documents that a substitute or "or equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered until after the Effective Date of the Contract Agreement. The procedure for submittal of any such application by Contractor and consideration by Engineer is set forth in the General Conditions.

**12. PREPARATION OF BID:**

12.1 The Bid Form is included in these Specifications, and may not be altered in any way. Additional copies may be obtained from the City of Winchester.

12.2 Bid Forms must be completed in ink or by typewriter. The Total Base Bid price must be stated in words and numerals; in case of conflict, words will take precedence.

12.3 A. Bids MUST give full firm name and address of bidder. Failure to manually sign bid may disqualify it. Person signing bid will show TITLE or AUTHORITY TO BIND THE FIRM IN A CONTRACT. Firm name and authorized signature must appear on bid in the space provided on the bid form. Those authorized to sign are as follows:

If a sole proprietorship, the owner may sign.
If a general partnership, any general partner may sign.
If a limited partnership, a general partner must sign.
If a limited liability company, a "member" may sign or a "manager" must sign if so specified by the articles or organization.
If a regular corporation, the CEO, President or Vice-President must sign.
Others may be granted authority to sign but the City requires that a corporate document authorizing him/her to sign be submitted with bid.

B. A bidder or offeror organized or authorized to transact business in the Commonwealth pursuant to Title 13.1 or Title 50 of the Code of Virginia shall include in its bid or proposal the identification number issued to it by the State Corporation Commission (SCC). Any bidder or offeror that is not required to be authorized to transact business in the Commonwealth as a foreign business entity under Title 13.1 or Title 50 of the Code of Virginia or as otherwise required by law shall include in its bid or proposal a statement describing why the bidder or offeror is not required to be so authorized. Any bidder or offeror described herein that fails to provide the required information may not receive an award unless a waiver of this requirement and the administrative policies and procedures established to implement this section is granted by the City Manager. The SCC may be reached at (804) 371-9733 or at http://www.scc.virginia.gov/default.aspx.

12.4 Bidder shall make acknowledgement on the Bid Form of receipt of all Addenda, the numbers of which shall be filled in the Bid Form.

**SUBMISSION OF BIDS:**

13.1 Bids shall be submitted at the time and place indicated in the Invitation to Bid and shall be included in an opaque sealed envelope, along with the Bid Bond, Non-collusion Affidavit, and other required documents. The sealed envelope shall indicate the Project Title, name and address of the bidder, and State Registration No. of the bidder. If the bid is sent through the mail, or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation **"BID ENCLOSED"** on the face thereof.

13.2 Timely delivery of the Bid shall be the sole responsibility of the Bidder. Bids must be received not later than the time and date stated in the Invitation to Bid. Bids by telephone, facsimile or other forms shall not be accepted.

## 14. MODIFICATION AND WITHDRAWAL OF BIDS:

14.1 Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a bid must be executed) and delivered to the place where bids are to be submitted at any time prior to opening of the bids. The request for withdrawal or modification must be in writing and signed by a person duly authorized to do so.

14.2 No bidder may withdraw his bid within thirty (30) calendar days after the actual date of the bid opening, except as allowed by the Code of the City of Winchester, Virginia, Section 21-43(a), which states "the Bidder shall give notice in writing of his claim of rights to withdraw this bid within two (2) business days after the conclusion of the bid opening procedure". Bidder shall submit to the Owner his original work papers, documents and materials used in preparation of his bid sought to be withdrawn.

**OPENING OF BIDS:**

14.3 Bids shall be opened publicly, and will be read aloud at the time and location indicated on the Invitation to Bid. An abstract of the amounts of the Bids shall be made available after the opening of bids.

14.4 All bids shall remain open for sixty (60) days after the day of the bid opening, but Owner may, in his sole discretion, release any bid and return the Bid Bond prior to that date.

**AWARD OF CONTRACT:**

14.5 Owner reserves the right to reject any and all bids, to waive any and all informalities and to negotiate Contract terms with the successful bidder, and the right to disregard all nonconforming, nonresponsive, or conditional bids, with the concurrence of VDOT. Discrepancies between words and figures shall be resolved in favor of words. Discrepancies between indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

14.6 In evaluating bids, Owner will consider the qualifications of the bidders, whether or not the bids comply with the prescribed requirements, and alternates and unit prices if requested in the Bid Form. Owner may consider the qualifications and experience of subcontractors and other persons and organizations proposed for the work. All bidders must be VDOT prequalified per the LAP manual.

14.7 Owner may conduct such investigations as he deems necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications, and financial ability of the bidders, proposed subcontractors and other persons and organizations, to do the work in

accordance with the Contract Documents and to the Owner's satisfaction within the prescribed time.

14.8 Owner reserves the right to reject the bid of any bidder who does not pass any such evaluations to Owner's satisfaction. VDOT shall concur with any disqualifications.

14.9 If the Contract is to be awarded, it will be awarded on a Base Bid price basis to the lowest responsive and responsible bidder, and whose evaluation by the Owner indicates that the award will be in the best interest of the Project and the City. Discounts for prompt payment, liquidated damages, and cash incentives will not be part of the award.

**15. SIGNING OF CONTRACT:**

Owner shall give Notice of Award to the successful bidder accompanied by at least three (3) unsigned counterparts of the Contract and all other Contract Documents. Within fifteen (15) days thereafter, Contractor shall sign and deliver at least three (3) counterparts of the Contract to the Owner with all other Contract Documents attached. Within ten (10) days thereafter, Owner will deliver all fully signed counterparts to Contractor. Engineer will identify those portions of the Contract Documents not fully signed by Owner and Contractor and shall ensure that all parties appropriately execute all required portions of the contract immediately.

*** * * END OF SECTION * * ***

**BID FORM**
**Valley Avenue Improvements**
**ITB# 202005**

This Bid is submitted to:

City of Winchester, Virginia
Finance Department
Rouss City Hall, 4th Floor
15 North Cameron Street
Winchester, Virginia 22601

In submitting this Bid, bidder acknowledges that the bidder has examined copies of the following Contract Documents:

**BIDDING DOCUMENTS**

- Invitation to Bid
- Instructions to Bidders
- Bid Form
- Bid Bond
- Non-Collusion Affidavit
- Contract
- Performance Bond
- Labor and Material Payment Bond
- Notice of Intent to Award
- Notice of Award
- Notice to Proceed
- City of Winchester Required General Terms and Conditions
- General Conditions
- Supplement to General Conditions
- Special Terms and Conditions
- Special Provisions - Utilities

**TECHNICAL SPECIFICATIONS**

- Scope of Work – Sequence of Construction
- Surveying
- As-Built Drawings
- Demolition
- Erosion and Sediment Control
- Rock Excavation
- Disposal of Materials

- Maintenance of Traffic
- Concrete (Curb & Gutter, Sidewalks, Entrances)
- Detectable Warning Surfaces
- Earthwork
- Topsoil and Seeding
- Retaining Walls
- Signal Mast Arms, Poles, Luminaire Arms and Sign Supports
- Emergency Vehicle Preemption Equipment
- Traffic Signal Cabinets
- Traffic Signal Controllers
- Video Detection Equipment
- Signal Head Sections
- Radio Equipment
- Storm
- Water Distribution System
- Sanitary Sewer Collection System

**VDOT LOCALLY ADMINISTED PROJECT (LAP) FORMS**

**VDOT SUPPLEMENTS TO THE 2016 VDOT ROAD & BRIDGE SPEC BOOK**

**GEOTECHNICAL REPORT – BORINGS SUMMARY**

**DRAWINGS**

**ADDENDA:**

| NUMBER | DESCRIPTION | DATE |
|---|---|---|
| | | |
| | | |
| | | |

Receipt of all of above is hereby acknowledged.

CONTRACTOR: _____

BY (SIGNATURE): _____

NAME AND TITLE: _____

DATE: _____

**BID ITEMS/QUANTITIES**

(a) The Contractor shall provide all unit prices or lump sum prices for all bid items on the Bid Form herein. **If a unit price or lump sum price is omitted or left blank the bid and bidder shall be non-responsive.** The bid forms designate which prices are for *Install* only work, complete and in place, (i.e. assumes equipment and/ or materials will be supplied by the City). All other bid prices are for Furnish and Install work, complete and in place.

(b) The quantities shown for unit bid items are based upon the best information available at time of preparation of these bid documents, and are established for the purpose of obtaining a bid price. No adjustments to the bid prices based on changes to quantities will be considered. All bid prices will be held throughout the duration of the contract regardless of any increase or decrease in bid quantity.

(c) Emergency work shall be negotiated with a maximum allowable amount of 50% over the bid price by item. This excludes all lump sum bid items.

(d) All other bid items not listed or described in the Contract Documents will be negotiated between the City and the Contractor before the time of need. Once a negotiated price is established, it will be used for the remainder of the contract.

The undersigned Bidder proposes to complete all work in accordance with the Contract Documents for the following unit prices:

**City of Winchester**

**Valley Avenue Improvements – ITB #202005**

**BID TABLE**

| ITEM NO. | DESCRIPTION | VDOT/ Spec Ref | ESTIMATED QUANTITY | UNIT | UNIT COST | TOTAL COST |
|---|---|---|---|---|---|---|
| **Mobilization** | | | | | | |
| 1 | Mobilization (Maximum of 3% of Total Price) | VDOT 513 | 1 | LS | | |
| **Demolition/Removal** | | | | | | |
| 2 | Clearing & Grubbing | ATTD | 1 | LS | | |
| 3 | Demolition of Existing Asphalt or Concrete, Includes Disposal | ATTD | 2,500 | SY | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Erosion and Sediment Control** | | | | | | |
| 4 | Erosion and Sediment Control | ATTD | 1 | LS | | |
| **Construction Surveying** | | | | | | |
| 5 | Construction Surveying | ATTD | 1 | LS | | |
| **Maintenance of Traffic** | | | | | | |
| 6 | Maintenance of Traffic | ATTD | 1 | LS | | |
| **Earthwork** | | | | | | |
| 7 | Regular Excavation | ATTD | 4,500 | CY | | |
| 8 | Borrow Excavation (Select Fill) | ATTD | 4,000 | CY | | |
| 9 | Grading | ATTD | 1 | LS | | |
| 10 | Rock Excavation | ATTD | 1,000 | CY | | |
| **Sidewalk/Roadway Improvements** | | | | | | |
| 11 | Standard Curb, CG-2 | ATTD | 3,500 | LF | | |
| 12 | Combination Curb & Gutter, CG-6 | ATTD | 12,600 | LF | | |
| 13 | Concrete Sidewalk, 4” Thick | ATTD | 5,600 | SY | | |
| 14 | Concrete Entrance, CG-9D | ATTD | 500 | SY | | |
| 15 | Concrete Manhole Collars | ATTD | 63 | EA | | |
| 16 | CG-12 Detectable Warning Surface | ATTD | 50 | SY | | |
| 17 | Asphalt Concrete, Type SM-9.5D | VDOT 315 | 8,600 | TON | | |
| 18 | Asphalt Concrete, Type IM-19.0D | VDOT 315 | 450 | TON | | |
| 19 | Flexible Pavement Planing (0-2”) | VDOT 515 | 53,000 | SY | | |
| 20 | Asphalt Concrete, Type BM-25.0A | VDOT 315 | 750 | TON | | |
| 21 | Aggregate Base Material, Type I, No 21B | VDOT 308 | 1,500 | TON | | |
| 22 | Segmental Block Retaining Wall, Precast | ATTD | 950 | SF | | |
| 23 | Mailbox | VDOT 521 | 12 | EA | | |
| **Storm Drainage** | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 24 | Storm Sewer Pipe, 12” RCP | ATTD | 15 | LF | | |
| 25 | Storm Sewer Pipe, 15” RCP | ATTD | 2,710 | LF | | |
| 26 | Storm Sewer Pipe, 18” RCP | ATTD | 900 | LF | | |
| 27 | Storm Sewer Pipe, 21” RCP | ATTD | 625 | LF | | |
| 28 | Storm Sewer Pipe, 24” RCP | ATTD | 1,400 | LF | | |
| 29 | Storm Sewer Pipe, 27” RCP | ATTD | 325 | LF | | |
| 30 | Storm Sewer Pipe, 36” RCP | ATTD | 180 | LF | | |
| 31 | Storm Sewer Pipe, 42” RCP | ATTD | 2,315 | LF | | |
| 32 | Storm Structure V4-1, DI-3B, L=6’ | ATTD | 1 | EA | | |
| 33 | Storm Structure V4-2, DI-2B, L=4’ | ATTD | 1 | EA | | |
| 34 | Storm Structure V4-4, Precast Concrete Pipe Tee | PLAN, ATTD | 1 | EA | | |
| 35 | Storm Structure V4-3, MH-1 or 2 | ATTD | 1 | EA | | |
| 36 | Storm Structure V4-10, Mod. Shallow MH | ATTD | 1 | EA | | |
| 37 | Storm Structure V4-8, DI-2B, L=10’ | ATTD | 1 | EA | | |
| 38 | Storm Structure V4-9, Doghouse MH | ATTD | 1 | EA | | |
| 39 | Storm Structure V4-6, MH-1 or 2 | ATTD | 1 | EA | | |
| 40 | Storm Structure V4-5, DI-2EE, L=6’ | ATTD | 1 | EA | | |
| 41 | Storm Structure V4-14, Modify Exist. MH, Adjust Top | ATTD | 1 | EA | | |
| 42 | Storm Structure V4-7, Modify Exist. DI to MH, Adjust Top | ATTD | 1 | EA | | |
| 43 | Storm Structure V4-11, Modify Exist. MH, Adjust Top | ATTD | 1 | EA | | |
| 44 | Storm Structure V4-12, Modify Exist. MH, Adjust Top | ATTD | 1 | EA | | |
| 45 | Storm Structure V4-13, Modify Exist. MH, Adjust Top | ATTD | 1 | EA | | |
| 46 | Storm Structure V5-1, DI-3B, L=4’ | ATTD | 1 | EA | | |
| 47 | Storm Structure V5-2, Mod. DI-1 (Shallow) SD-5, 3 Grates | ATTD | 1 | EA | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 48 | Storm Structure V5-3, DI-2B, L=6’ | ATTD | 1 | EA | | |
| 49 | Storm Structure V5-4, Mod. DI-1 (Shallow) SD-5, 2 Grates | ATTD | 1 | EA | | |
| 50 | Storm Structure V5-5, Modify Exist. DI to MH, Adjust Top | ATTD | 1 | EA | | |
| 51 | Storm Structure V5-6, MH-2 | ATTD | 1 | EA | | |
| 52 | Storm Structure V5-7, Modify Exist. MH, Adjust Top | ATTD | 1 | EA | | |
| 53 | Storm Structure V5-8, Modify Exist. MH, Adjust Top | ATTD | 1 | EA | | |
| 54 | Storm Structure V5-9, Modify Exist. DI, Adjust Top | ATTD | 1 | EA | | |
| 55 | Storm Structure V5-10, Modify Exist. DI, Adjust Top | ATTD | 1 | EA | | |
| 56 | Storm Structure V6-1, DI-3B, L=6’ | ATTD | 1 | EA | | |
| 57 | Storm Structure V6-2, Mod. DI-1 (Shallow) SD-5, 2 Grates | ATTD | 1 | EA | | |
| 58 | Storm Structure V6-3, DI-4B, L=12’ | ATTD | 1 | EA | | |
| 59 | Storm Structure V6-4, DI-2B, L=8’ | ATTD | 1 | EA | | |
| 60 | Storm Structure V7-1, Mod. DI-1 (Shallow) SD-5, 2 Grates | ATTD | 1 | EA | | |
| 61 | Storm Structure V7-2, Mod. DI-1 (Shallow) SD-5, 2 Grates | ATTD | 1 | EA | | |
| 62 | Storm Structure V7-3, Mod. Shallow MH | ATTD | 1 | EA | | |
| 63 | Storm Structure V7-14, Mod. DI-1 (Shallow) SD-5, 3 Grates | ATTD | 1 | EA | | |
| 64 | Storm Structure V7-16, Mod. Shallow MH | ATTD | 1 | EA | | |
| 65 | Storm Structure V7-4, Mod. DI-1 (Shallow) SD-5, 2 Grates | ATTD | 1 | EA | | |
| 66 | Storm Structure V7-5, Mod. DI-1, (Shallow) SD-5, 3 Grates | ATTD | 1 | EA | | |
| 67 | Storm Structure V7-6, DI-2BB, L=4’ | ATTD | 1 | EA | | |
| 68 | Storm Structure V7-7, DI-2B, L=4’ | ATTD | 1 | EA | | |
| 69 | Storm Structure V7-8, Modify Exist. JB-1, Solid Slab Unit | ATTD | 1 | EA | | |
| 70 | Storm Structure V7-9, MH-1 or 2 | ATTD | 1 | EA | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 71 | Storm Structure V7-13, 12” End Wall (EW-1) | ATTD | 1 | EA | | |
| 72 | Storm Structure V7-10, DI-2B, L=4’ | ATTD | 1 | EA | | |
| 73 | Storm Structure V7-11, Mod. DI-1 (Shallow) SD-5, 4 Grates | ATTD | 1 | EA | | |
| 74 | Storm Structure V7-12, Modify Exist. MH, Adjust Top | ATTD | 1 | EA | | |
| 75 | Storm Structure V7-15, Modify Exist. MH | ATTD | 1 | EA | | |
| 76 | Storm Structure V8-2, Mod. DI-1 (Shallow) SD-5, 2 Grates | ATTD | 1 | EA | | |
| 77 | Storm Structure V8-3, DI-2BB, L=8’ | ATTD | 1 | EA | | |
| 78 | Storm Structure V8-5, DI-2BB, L=12’ | ATTD | 1 | EA | | |
| 79 | Storm Structure V8-6, MH-1 or 2 | ATTD | 1 | EA | | |
| 80 | Storm Structure V8-8, DI-3B, L=10’ | ATTD | 1 | EA | | |
| 81 | Storm Structure V8-9, Doghouse MH | ATTD | 1 | EA | | |
| 82 | Storm Structure V8-10, DI-2BB, L=12’ | ATTD | 1 | EA | | |
| 83 | Storm Structure V8-11, DI-2BB, L=4’ | ATTD | 1 | EA | | |
| 84 | Storm Structure V8-12, DI-2BB, L=4’ | ATTD | 1 | EA | | |
| 85 | Storm Structure V8-13, MH-1 or 2 | ATTD | 1 | EA | | |
| 86 | Storm Structure V8-14, MH-1 or 2 | ATTD | 1 | EA | | |
| 87 | Storm Structure V9-7, Modify Exist. DI to DI-3B, L=10’, Adjust Top | ATTD | 1 | EA | | |
| 88 | Storm Structure V9-1, DI-2BB, L=10’ | ATTD | 1 | EA | | |
| 89 | Storm Structure V9-2, DI-2BB, L=6’ | ATTD | 1 | EA | | |
| 90 | Storm Structure V9-3, DI-2B, L=4’ | ATTD | 1 | EA | | |
| 91 | Storm Structure V9-5, Mod. Large Diameter MH, DI-1 Top | ATTD | 1 | EA | | |
| 92 | Storm Structure V9-8, DI-1 | ATTD | 1 | EA | | |
| 93 | Storm Structure V9-4, Modify Exist. DI to DI-2B, L=18’, Adjust Top | ATTD | 1 | EA | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 94 | Storm Structure V9-6, MH-1 or 2 | ATTD | 1 | EA | | |
| 95 | Storm Structure V9-9, Mod. Shallow Doghouse MH, DI-1 Top | ATTD | 1 | EA | | |
| 96 | Storm Structure V10-2, DI-3BB, L=4’ | ATTD | 1 | EA | | |
| 97 | Storm Structure V10-3, Modify Exist. DI to DI-2B, L=4’, Adjust Top | ATTD | 1 | EA | | |
| 98 | Storm Structure V10-8, DI-1 | ATTD | 1 | EA | | |
| 99 | Storm Structure V10-9, DI-1 | ATTD | 1 | EA | | |
| 100 | Storm Structure V10-10, DI-2B, L=10’ | ATTD | 1 | EA | | |
| 101 | Storm Structure V10-11, DI-2B, L=8’ | ATTD | 1 | EA | | |
| 102 | Storm Structure V10-12, 7’ MH-2 | ATTD | 1 | EA | | |
| 103 | Storm Structure V10-30, DI-2B, L=12’ | ATTD | 1 | EA | | |
| 104 | Storm Structure V10-13, 6’ MH-2 | ATTD | 1 | EA | | |
| 105 | Storm Structure V10-14, DI-4BB, L=8’ | ATTD | 1 | EA | | |
| 106 | Storm Structure V10-15, DI-4CC, L=8’ | ATTD | 1 | EA | | |
| 107 | Storm Structure V10-17, 5’ MH-2 | ATTD | 1 | EA | | |
| 108 | Storm Structure V10-16, Mod. Shallow MH, DI-1 Top | ATTD | 1 | EA | | |
| 109 | Storm Structure V10-18, Modify Exist. MH, Adjust Top | ATTD | 1 | EA | | |
| 110 | Storm Structure V10-5, DI-1 | ATTD | 1 | EA | | |
| 111 | Storm Structure V10-4, DI-1 | ATTD | 1 | EA | | |
| 112 | Storm Structure V10-28, DI-2B, L=4’ | ATTD | 1 | EA | | |
| 113 | Storm Structure V10-6, DI-3CC, L=12’ | ATTD | 1 | EA | | |
| 114 | Storm Structure V10-19, 7’ MH-2 | ATTD | 1 | EA | | |
| 115 | Storm Structure V10-20, 7’ MH-2 | ATTD | 1 | EA | | |
| 116 | Storm Structure V10-21, 6’ MH-2 | ATTD | 1 | EA | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 117 | Storm Structure V10-27, DI-3B, L=4’ | ATTD | 1 | EA | | |
| 118 | Storm Structure V10-22, Modify Exist. DI to MH, Adjust Top | ATTD | 1 | EA | | |
| 119 | Storm Structure V10-29, DI-3B, L=12’ | ATTD | 1 | EA | | |
| 120 | Storm Structure V10-23, DI-3B, L=4’ | ATTD | 1 | EA | | |
| 121 | Storm Structure V10-26, DI-3C, L=6’ | ATTD | 1 | EA | | |
| 122 | Storm Structure V10-24, DI-2B, L=8’ | ATTD | 1 | EA | | |
| 123 | Storm Structure V10-25, DI-2B, L=6’ | ATTD | 1 | EA | | |
| 124 | Storm Structure V11-1, Mod. DI-1 (Shallow) SD-5, 2 Grates | ATTD | 1 | EA | | |
| 125 | Storm Structure V11-2, Mod. DI-1 (Shallow) SD-5, 3 Grates | ATTD | 1 | EA | | |
| 126 | Storm Structure V11-6, Mod. DI-1 (Shallow) SD-5, 2 Grates | ATTD | 1 | EA | | |
| 127 | Storm Structure V11-4, DI-2B, L=4’ | ATTD | 1 | EA | | |
| 128 | Storm Structure V11-3, Modify Exist. MH, Adjust Top | ATTD | 1 | EA | | |
| 129 | Storm Structure V11-5, Mod. DI-1 (Shallow) SD-5, 2 Grates | ATTD | 1 | EA | | |
| 130 | Storm Structure V11-8, Mod. DI-1 (Shallow) SD-5, 2 Grates | ATTD | 1 | EA | | |
| 131 | Storm Structure V11-7, 15” End Section (ES-1 or 2) | ATTD | 1 | EA | | |
| 132 | Storm Structure V11-10, DI-3B, L=6’ | ATTD | 1 | EA | | |
| 133 | Storm Structure V11-11, Modify Exist. MH, Adjust Top | ATTD | 1 | EA | | |
| 134 | Storm Structure V11-13, DI-2C, L=12’ | ATTD | 1 | EA | | |
| 135 | Storm Structure V11-9, MH-1 | ATTD | 1 | EA | | |
| 136 | Storm Structure V11-12, MH-1 | ATTD | 1 | EA | | |
| 137 | Storm Structure H3-6, Modify Exist. MH, Adjust Top, DI-2E, L=6’ | ATTD | 1 | EA | | |
| 138 | Storm Structure V12-1, Modify | ATTD | 1 | EA | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Exist. DI, Adjust Top | | | | | |
| 139 | Storm Structure V12-2, Mod. Shallow MH, DI-1 Top | ATTD | 1 | EA | | |
| 140 | Storm Structure V12-14, Mod. Shallow MH | ATTD | 1 | EA | | |
| 141 | Storm Structure V12-3, DI-2C, L=10’ | ATTD | 1 | EA | | |
| 142 | Storm Structure V12-5, DI-2B, L=4’, Doghouse MH | ATTD | 1 | EA | | |
| 143 | Storm Structure V12-6, DI-2B, L=4’ | ATTD | 1 | EA | | |
| 144 | Storm Structure V12-7, DI-2C, L=6’ | ATTD | 1 | EA | | |
| 145 | Storm Structure V12-8, DI-3CC, L=6’ | ATTD | 1 | EA | | |
| 146 | Storm Structure V12-9, DI-1 | ATTD | 1 | EA | | |
| 147 | Storm Structure V12-12, Mod. Shallow MH | ATTD | 1 | EA | | |
| 148 | Storm Structure V12-11, DI-2B, L=10’ | ATTD | 1 | EA | | |
| 149 | Storm Structure V12-4, DI-2B, L=4’ | ATTD | 1 | EA | | |
| 150 | Storm Structure V12-13, DI-2B, L=4’ | ATTD | 1 | EA | | |
| 151 | Storm Structure V12-15, Doghouse MH | ATTD | 1 | EA | | |
| 152 | Storm Structure V12-10, DI-2B, L=4’ | ATTD | 1 | EA | | |
| 153 | Storm Structure V13-2, Mod. DI-1 (Shallow) SD-5 | ATTD | 1 | EA | | |
| 154 | Storm Structure V14-1, DI-3BB, L=4’ | ATTD | 1 | EA | | |
| 155 | Storm Structure V14-2, DI-4BB, L=6’ | ATTD | 1 | EA | | |
| 156 | Storm Structure V14-3, DI-4EE, L=6’ | ATTD | 1 | EA | | |
| 157 | Storm Structure V14-4, DI-4EE, L=6’ | ATTD | 1 | EA | | |
| 158 | Storm Structure V14-5, 5’ MH-2 | ATTD | 1 | EA | | |
| 159 | Storm Structure V14-6, DI-4BB, L=6’ | ATTD | 1 | EA | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 160 | Storm Structure V14-7, DI-3B, L=6’ | ATTD | 1 | EA | | |
| 161 | Storm Structure V15-1, DI-4BB, L=6’ | ATTD | 1 | EA | | |
| 162 | Storm Structure V15-2, DI-4E, L=6’ | ATTD | 1 | EA | | |
| 163 | Storm Structure V15-3, 5’ MH-2 | ATTD | 1 | EA | | |
| 164 | Storm Structure V15-4, DI-4E, L=6’ | ATTD | 1 | EA | | |
| 165 | Storm Structure V15-6, DI-3B, L=6’ | ATTD | 1 | EA | | |
| 166 | Storm Structure V15-7, DI-3B, L=6’ | ATTD | 1 | EA | | |
| 167 | Storm Structure V15-8, DI-3B, L=4’ | ATTD | 1 | EA | | |
| 168 | Storm Structure V15-5, DI-4BB, L=6’ | ATTD | 1 | EA | | |
| 169 | Storm Structure V15-9, DI-2B, L=6’ | ATTD | 1 | EA | | |
| 170 | Storm Structure V15-3, 5’ MH-2 | ATTD | 1 | EA | | |
| 171 | Storm Structure V16-1, DI-2EE, L=6’ | ATTD | 1 | EA | | |
| 172 | Storm Structure V16-2, DI-3B, L=6’ | ATTD | 1 | EA | | |
| 173 | Storm Sewer Manhole Frame and Cover | ATTD | 30 | EA | | |
| **Traffic Signal** | | | | | | |
| 174 | Sign Panel | VDOT 701 | 6 | SF | | |
| 175 | Pedestrian Actuation PA-2 | VDOT 703 | 5 | EA | | |
| 176 | Pedestal Pole PF-2 12’ | VDOT 700 | 3 | EA | | |
| 177 | Concrete Foundation PF-2 | VDOT 700 | 3 | EA | | |
| 178 | Three Video Detection Camera Intersection | ATTD | 1 | EA | | |
| 179 | Video Detection Camera Cable | ATTD | 701 | LF | | |
| 180 | Video Detection Camera Y Cable (BNS to 2 Wire) | ATTD | 2 | EA | | |
| 181 | Emitters | ATTD | 2 | EA | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 182 | Emergency Preemption Detector Unit | ATTD | 2 | EA | | |
| 183 | 8/2 Conductor Cable (for lighting) | VDOT 700 | 245 | LF | | |
| 184 | 14/2 Conductor Cable Shielded | VDOT 700 | 621 | LF | | |
| 185 | 14/4 Conductor Cable | VDOT 700 | 621 | LF | | |
| 186 | 14/4 Conductor Cable (for EVP Light) | VDOT 700 | 351 | LF | | |
| 187 | 14/7 Conductor Cable | VDOT 700 | 1,052 | LF | | |
| 188 | Hanger Assembly SMB-3, One Way | VDOT 703 | 5 | EA | | |
| 189 | Remove Existing Pole (Pedestal Pole) | VDOT 703 | 2 | EA | | |
| 190 | Remove Existing Foundation (Pedestal Foundation) | VDOT 703 | 2 | EA | | |
| 191 | Remove Existing Signal Head (Ped & Signal) | VDOT 703 | 1 | EA | | |
| 192 | Remove Existing Manhole/Junction Box | VDOT 703 | 2 | EA | | |
| 193 | Install Sign | VDOT 501 | 6 | EA | | |
| 194 | Antenna Cable | ATTD | 150 | LF | | |
| 195 | NS Signalization Test Pit (Ex. Utility Location for Conduits) | VDOT 700 & ATTD | 10 | EA | | |
| 196 | Pedestrian Signal Head SP-8 | VDOT 703 | 5 | EA | | |
| 197 | Junction Box JB-S2 | VDOT 700 | 3 | EA | | |
| 198 | 1-1/2” Metal Conduit | VDOT 700 | 14 | LF | | |
| 199 | 2” PVC Conduit | VDOT 700 | 28 | LF | | |
| 200 | 3” PVC Conduit | VDOT 700 | 26 | LF | | |
| 201 | 4” PVC Conduit | VDOT 700 | 20 | LF | | |
| 202 | Bored 3” Conduit | VDOT 700 | 302 | LF | | |
| 203 | Trench Excavation ECI-1 | VDOT 700 | 88 | LF | | |
| 204 | Test Bore | VDOT 700 | 3 | EA | | |
| 205 | EVP Detector Cable | VDOT 703 | 351 | LF | | |
| 206 | NS Modify Existing Controller | PLAN | 1 | LS | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 207 | Rock Excavation for Signal | ATTD | 10 | CY | | |
| 208 | Relocate Existing Signal Head | VDOT 703 | 6 | EA | | |
| 209 | Video Detection Camera | VDOT 703 | 4 | EA | | |
| **Restoration and Landscaping** | | | | | | |
| 210 | Topsoil and Seeding | ATTD | 7,800 | SY | | |
| **Signs and Pavement Markings** | | | | | | |
| 211 | NS Rest Existing Sign(s) and Post (with new anchor base) | VDOT 510 , PLAN & ATTD | 33 | EA | | |
| 212 | Steel Sign Supports | ATTD | 33 | EA | | |
| 213 | Sign Anchor Bases | ATTD | 149 | LF | | |
| 214 | NS Remove – Disposed Sign(s), Sign Post and Foundation | ATTD | 7 | EA | | |
| 215 | Type B, Class 1 Pavement Line Marking, 4” | VDOT 704 | 33,100 | LF | | |
| 216 | Type B, Class 1 Pavement Line Marking, 6” | VDOT 704 | 1,100 | LF | | |
| 217 | Type B, Class 1 Pavement Line Marking, 24” | VDOT 704 | 430 | LF | | |
| 218 | Pavement Symbol Marking (Single Turn Arrow), Type B, Class 1 | VDOT 704 | 22 | EA | | |
| 219 | Pavement Symbol Marking (Cyclist Thru Arrow), Type B, Class 1 | VDOT 704 | 32 | EA | | |
| 220 | Pavement Symbol Marking (Helmeted Cyclist), Type B, Class 1 | VDOT 704 | 32 | EA | | |
| **Water and Sanitary Sewer** | | | | | | |
| 221 | Water Main Installation, 8” Ductile Iron | ATTD | 850 | LF | | |
| 222 | Water Main Installation, 10” Ductile Iron | ATTD | 550 | LF | | |
| 223 | Gate Valve & Box, 6” | ATTD | 1 | EA | | |
| 224 | Gate Valve & Box, 8” | ATTD | 2 | EA | | |
| 225 | Gate Valve & Box, 10” | ATTD | 3 | EA | | |
| 226 | Wet Tap, ¾-inch | ATTD | 5 | EA | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 227 | Wet Tap, 1-inch | ATTD | 1 | EA | | |
| 228 | Wet Tap, 2-inch | ATTD | 4 | EA | | |
| 229 | Wet Tap, 8-inch | ATTD | 8 | EA | | |
| 230 | Water Service Line, ¾” Copper | ATTD | 150 | LF | | |
| 231 | Water Service Line, 1” Copper | ATTD | 30 | LF | | |
| 232 | Water Service Line, 2” Poly | ATTD | 120 | LF | | |
| 233 | Water Meter Assembly, ¾” | ATTD | 5 | EA | | |
| 234 | Water Meter Assembly, 1” | ATTD | 1 | EA | | |
| 235 | Water Meter Assembly, 2” | ATTD | 4 | EA | | |
| 236 | Fire Hydrant Assembly | ATTD | 4 | EA | | |
| 237 | Replace Existing Sanitary Sewer Manhole | ATTD | 1 | EA | | |
| 238 | Sanitary Sewer Manhole Frame & Cover | ATTD | 1 | EA | | |
| 239 | Modify Existing Sanitary Sewer Manhole | ATTD | 4 | EA | | |
| **Miscellaneous** | | | | | | |
| 240 | As-Built Drawings | ATTD | 1 | LS | | |
| **TOTAL FOR ALL – BASE BID** | | | | | | |

TOTAL BASE BID: $_____

IN WORDS:

_____

CONTRACTOR: _____

BY: (SIGNATURE) _____

NAME AND TITLE: _____

_____

DATE: _____

ADDRESS: _____

_____

_____

TELEPHONE: _____

**NOTE: REQUIRED BID GUARANTEE MUST BE ENCLOSED WITH THIS BID PROPOSAL.**

**BID BOND**

KNOW ALL MEN BY THESE PRESENTSTHAT_____

_____
(Here insert the name & address or legal title of the Contractor)

as Principal, hereinafter called the Contractor and _____

_____
(Here insert the legal title of the Surety)

as Surety, hereinafter called the Surety, are held and firmly bound unto the City of Winchester, Virginia, as obligee, hereinafter called the Owner, in the amount of

_____
(Dollars)

($_____) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a Bid for:

**ITB #202005 – Valley Avenue Improvements**

in accordance with Drawing and Specifications prepared by the Public Services Department, City of Winchester, Virginia.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Obligee shall accept the Bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with terms of such Bid, and give such bonds as specified in the Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bonds, if the Principal shall pay the Obligee the difference not to exceed the penalty hereof between the amount specified in said Bid and such larger amount for which the

Obligee may in good faith contract with another party to perform the Work covered by said Bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

SIGNED AND SEALED THIS_____DAY OF_____A.D., 2020.

_____
PRINCIPAL

_____
TITLE

_____
WITNESS

_____
SURETY

_____
TITLE

_____
WITNESS

**NON-COLLUSION AFFIDAVIT**

STATE OF VIRGINIA

Ss: **ITB #202005 – Valley Avenue Improvements**

CITY OF WINCHESTER, COUNTY of FREDERICK

I,_____of the City of _____

In the County of_____and the State of _____

Of full age, being duly sworn according to law or my oath depose and say that:

I am_____of the firm of_____

_____, of the Company making the Bid for the above named project, and that I executed the said Bid with full authority to do so; that the Company has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bid preparation in connection with the above named project; and that all statements contained in said Bid and in this affidavit are true and correct, and made with full knowledge that the City of Winchester relies upon the truth of the statements contained in said Bid and in the statements contained in this affidavit in awarding the Contract for said Project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by:

_____
(Name of Contractor)

Subscribed and sworn to _____
(Type or print name of applicant under signature)

before me this_____day of_____, 20 .

_____
(Notary Public)

of _____

My commission expires:_____, 20____.

**Valley Avenue Improvements**
**ITB #202005**

**CONTRACT**

THIS CONTRACT, made and entered into in triplicate originals this_____day of _____**, 2020**, by and between the **City of Winchester, Virginia**, Party of the First Part, hereinafter referred to as the **"Owner"** and _____, Party of the Second Part, hereinafter referred to as the **"Contractor"**.

WITNESSETH, That the Contractor and the City for the consideration stated herein agree as follows:

ARTICLE I, SCOPE OF WORK - The Contractor shall perform everything required to be performed and shall provide and furnish all of the labor, materials, necessary tools, expendable equipment and all utility and transportation services required to perform and complete in a workmanlike manner all the work required in connection with:

**ITB #202005 – Valley Avenue Improvements**

all in strict accordance with the Contract Documents prepared by the Public Services Department, City of Winchester, Virginia. The Contractor shall do everything required by this Contract and other Documents constituting a part thereof.

ARTICLE II, CONTRACT PRICE - The City shall pay to the Contractor for the performance of this Contract, subject to any additions or deductions provided therein, in current funds, the Contract Price computed as follows:

**TOTAL CONTRACT PRICE= _____**

ARTICLE III. PAYMENTS - Payments are to be made to the Contractor in accordance with and subject to provisions embodied in the Documents made a part of this Contract.

ARTICLE IV. CONTRACT TIME - Work under this Contract shall commence no later than the date to begin work set forth in a written Notice to Proceed from the City or its authorized representative, to the Contractor. The Contractor shall complete all work under this Contract within 545 calendar days following the Notice to Proceed issued for the project.

The Work shall be prosecuted (performed) regularly, diligently and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. **It is**

**expressly understood and agreed by and between the Contractor and the City that the time for the completion of the Work described herein is a reasonable time for the completion of the same.**

ARTICLE V. ENGINEER – The project has been designed by the City of Winchester Public Services Department, Engineering Division, 15 N. Cameron Street, Winchester, VA 22601, who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

ARTICLE VI. HOLD HARMLESS CLAUSE - Bids shall provide that during the term of the Contract, including warranty period, for the successful bidder indemnifying, defending, and holding harmless the City, its officers, employees, agent and representatives thereof from all suits, actions, claims of any kind, including attorney's fees, brought on account of any personal injuries, damages, or violation of rights sustained by any person or property in consequence of any neglect in safeguarding contract work, or on account of any act or omission by the Contractor or his employees, or from any claims or amounts arising from violation of any law, bylaw, ordinance, regulation or decree. The Contractor agrees that this clause shall include claims involving infringement of patent or copyrights.

ARTICLE VII. LIQUIDATED DAMAGES AND INCENTIVES - **It is hereby fully understood and agreed that the time is of essence in the performance of this Contract**. Further, the parties understand and agree that the actual damages are uncertain and difficult to determine with exactness and that the amount stated herein is not out of proportion to the probable loss. For each and every calendar day that elapses between the Contract Completion Dates specified in Article IV of this Contract and the date on which the work covered by such Contract is actually completed, including the removal of all plant and obstructions from the site of such work, the Contractor shall pay to the City as liquidated damages and not as a penalty, the sum of ONE THOUSAND DOLLARS PER CALENDAR DAY ($1,000.00). The total amount so payable by the Contractor as liquidated damages either may be deducted from any moneys due or payable to the Contractor by the City or so much thereof as is not so deducted shall be chargeable to and will be payable promptly by such Contractor and his Surety, or either of them, to the City. Such liquidated damages shall be payable to reimburse or compensate, at least in part, the City for (1) the administration of the work covered by such Contract and any other contract or contracts beyond the Contract Completion Date, including the additional expense to the City for supervision, inspection, and superintendence; (2) expenditures resulting from the inability of the City (and the general public) to use the improvement being constructed from and after such Contract Completion Date until the actual date of completion; (3) other miscellaneous obligations and expenditures incurred by the City directly as a result of the failure to complete the Work covered by such Contract on or before the Contract Completion Date.



ARTICLE VIII. COMPONENT PARTS OF THIS CONTRACT - That this Contract consists of the following component parts which are made a part of this agreement and Contract as fully

and absolutely as if they were set out in detail in this Contract:

**BIDDING DOCUMENTS**

- Invitation to Bid
- Instructions to Bidders
- Bid Form
- Bid Bond
- Non-Collusion Affidavit
- Contract
- Performance Bond
- Labor and Material Payment Bond
- Notice of Intent to Award
- Notice of Award
- Notice to Proceed
- City of Winchester Required General Terms and Conditions
- General Conditions
- Supplement to General Conditions
- Special Terms and Conditions
- Special Provisions - Utilities

**TECHNICAL SPECIFICATIONS**

- Scope of Work – Sequence of Construction
- Surveying
- As-Built Drawings
- Demolition
- Erosion and Sediment Control
- Rock Excavation
- Disposal of Materials
- Maintenance of Traffic
- Concrete (Curb & Gutter, Sidewalks, Entrances)
- Detectable Warning Surfaces
- Earthwork
- Topsoil and Seeding
- Retaining Walls
- Signal Mast Arms, Poles, Luminaire Arms and Sign Supports
- Emergency Vehicle Preemption Equipment
- Traffic Signal Cabinets
- Traffic Signal Controllers
- Video Detection Equipment
- Signal Head Sections
- Radio Equipment

- Storm
- Water Distribution System
- Sanitary Sewer Collection System

**VDOT LOCALLY ADMINISTED PROJECT (LAP) FORMS**

**VDOT SUPPLEMENTS TO THE 2016 VDOT ROAD & BRIDGE SPEC BOOK**

**GEOTECHNICAL REPORT – BORINGS SUMMARY**

**DRAWINGS**

**ADDENDA:**

Above components are complimentary and what is called for by one shall be binding as if called by all.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals the date first written above.

| CONTRACTOR: | CITY OF WINCHESTER, VIRGINIA: |
|---|---|
| _____ | _____<br>CITY MANAGER |
| _____<br>NAME AND TITLE | _____<br>ATTEST |
| _____<br>ATTEST | |

**PERFORMANCE BOND**

KNOW ALL MEN BYTHESE PRESENTS, that we_____

_____as Principal, hereinafter

called Contractor, and _____

Surety Company, with General Offices in _____

_____, a corporation organized under the laws of the State of_____and authorized to transact business in the State of Virginia as Surety, hereinafter called Surety, are held and firmly bound onto the City of Winchester, Virginia, hereinafter called Owner, in the penal sum

_____

(_____)Dollars, lawful money of the United States, for the payment of which sum, will and truly be made, the Said Contractor and Surety bind themselves, their successors and assigns, jointly and severally, firmly by these presents.

Signed, sealed and delivered this ____day of_____, 2020.

WHEREAS, the above named and bounded Contractor has entered into a written contract with the Owner, dated_____, 2020 for:

**ITB #202005 – Valley Avenue Improvements**

in accordance with the Drawings and Specifications prepared by the Engineering Department, City of Winchester, Virginia, which Contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Contractor shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the Owner.

Whenever Contractor shall be, and declared by Owner to be in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

1. Complete the Contract in accordance with its terms and conditions, or

2. Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or, if the Owner elects, upon determination by the Owner and the Surety jointly of the lowest responsible bidder, arrange for a contract between such bidder and Owner, and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of contract price," as used in this paragraph, shall mean the total amount payable by the Owner to Contractor under the Contract and any amendments thereto, less the amount properly paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators or successors of the Owner.

Signed and sealed this_____day of_____2020.

| | |
|---|---|
| _____ | _____ |
| PRINCIPAL | SURETY |
| _____ | _____ |
| TITLE | TITLE |
| _____ | _____ |
| WITNESS | WITNESS |

**LABOR AND MATERIAL PAYMENT BOND**

KNOW ALL MEN BYTHESE PRESENTS, that we _____

_____as Principal, hereinafter

called Contractor, and _____

Surety Company, with General Offices in _____

_____, a corporation organized under the laws of the State of _____ and authorized to transact business in the State of Virginia as Surety, hereinafter called Surety, are held and firmly bound unto the City of Winchester, Virginia, hereinafter called Owner, in the penal sum _____ (_____)Dollars, lawful money of the United States, for the payment of which sum, will and truly be made, the Said Contractor and Surety bind themselves, their successors and assigns, jointly and severally, firmly by these presents.

Signed, sealed and delivered this_____day of_____2020.
WHEREAS, the above named and bounded Contractor has entered into a written contract with the Owner, dated_____, 2020 for:

**ITB #202005 – Valley Avenue Improvements**

in accordance with the Drawings and Specifications prepared by the Engineering Department, City of Winchester, Virginia, which Contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Contractor shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise it shall remain full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.

2. The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before

the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgement for such sum or sums as my be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:

a) Unless claimant, other than the one having a direct Contract with the Principal, shall have given written notice to any two of the following: the Principal, the Owner, or the Surety above named, within (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage paid, in an envelope addressed to the Principal, Owner or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.

b) After the expiration of one (1) year following the date on which Principal ceased work on said Contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanic's liens which may by be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.

Signed and sealed this_____day of_____, 2020.

_____
PRINCIPAL

_____
TITLE

_____
WITNESS

_____
SURETY

_____
TITLE

_____
WITNESS

**CITY OF WINCHESTER, VIRGINIA**

**NOTICE OF INTENT TO AWARD**

**Date:**

**To:**

Thank you for your proposal concerning our Invitation to Bid For:

The City of Winchester intends to award this Invitation to Bid to:

**This is not a Notice of Award or a Notice to Proceed.**

Sincerely,

Michael Marzullo, CPPB
City of Winchester
Purchasing
Finance Department
15 N. Cameron Street
Winchester, VA 22601
(540) 667-1815 EXT 1477

**NOTICE OF AWARD**

**DATE:**

**TO:**

**PROJECT TITLE:** **ITB# 202005 – Valley Avenue Improvements**

Gentlemen:

Your Bid, dated_____, for the above Project has been considered and you are the apparent successful bidder. You are hereby notified that you have been awarded a Contract for:

The Contract Price of your contract is $_____.

Three copies each of the proposed Contract between Owner and Contractor and the Contract Documents accompany this Notice of Award.

You must comply with the following conditions precedent within fifteen days of the date of this Notice of Award, that is by_____.

1. You must deliver to the Owner three (3) fully executed counterparts of the Contract between Owner and Contractor including all the Contract Documents. This includes the sets of Plans and Specifications. Each of the Contract Documents must bear your signature on the Index page of the Plans and on the Specification Table of Contents page.
2. You must deliver with the executed Contract, Payment and Performance Bonds, and required Certificates of Insurance. The Certificate of Insurance must identify the above referenced project as the project for which insurance is being provided. *Additionally, it must indicate the City of Winchester as the Certificate Holder, and name the City of Winchester as an additional insured.*

Failure to comply with these conditions within the time specified will entitle Owner to consider your bid abandoned, to annul this Notice of Award and to declare your Bid Security forfeited.

After you comply with those conditions, and upon approval of the Contract Security by the Owner, the Owner will return to you one fully signed counterpart of the Contract with the Contract Documents.

City of Winchester, Virginia

By: _____
City Manager

**NOTICE TO PROCEED**

**DATE:**

**TO:**

**Re: City of Winchester, Department of Public Services**

**PROJECT TITLE: ITB #202005 – Valley Avenue Improvements**

Gentlemen:

In accordance with the Contract between Owner and Contractor, you are notified that the Time for Completion under the above Contract will commence to run on _____, 2020. By that date, you are to start performing your obligations under the Contract Documents. In accordance with the Contract between Owner and Contractor, the Work shall be substantially completed within 545 calendar days which is _____, 2020.

City of Winchester, Virginia

By: _____
City Manager

**CITY OF WINCHESTER**

**REQUIRED GENERAL TERMS AND CONDITIONS**

A. APPLICABLE LAWS AND COURTS
B. ANTI-DISCRIMINATION
C. ETHICS IN PUBLIC CONTRACTING
E. IMMIGRATION REFORM AND CONTROL ACT OF 1986
F. DEBARMENT STATUS
G. ANTITRUST
H. MANDATORY USE OF CITY FORM AND TERMS AND CONDITIONS
I. CLARIFICATION OF TERMS
J. PAYMENT
K. PRECEDENCE OF TERMS
L. QUALIFICATIONS OF BIDDERS OR OFFERORS
M. TESTING AND INSPECTION
N. ASSIGNMENT OF CONTRACT
O. SEVERABILITY
P. CHANGES TO THE CONTRACT
Q. DEFAULT
R. TAXES
S. USE OF BRAND NAMES
T. TRANSPORTATION AND PACKAGING
U. INSURANCE
V. ANNOUNCEMENT OF AWARD
W. DRUG-FREE WORKPLACE
X. NONDISCRIMINATION OF CONTRACTORS
Y. AVAILABILITY OF FUNDS
Z. LICENSES AND PERMITS
AZ. TERMINATION
BZ. HOLD HARMLESS INDEMNIFICATION
CZ. CONFIDENTIALITY OF PERSONALLY IDENTIFIABLE INFORMATION
DZ. BID PRICE CURRENCY

These General Terms and Conditions are required for all sealed and unsealed written or verbal solicitations issued by the City of Winchester for procurements that are subject to the Winchester City Code unless changed, deleted or revised by the City Attorney.

A. **APPLICABLE LAWS AND COURTS:** This solicitation and any resulting contract shall be governed by the laws of the Commonwealth of Virginia. Any dispute arising from the performance or non-performance of this Agreement shall be resolved or otherwise litigated in the Circuit Court for the City of Winchester, Virginia or the Fourth Circuit Federal District Court in Harrisonburg, Virginia. The agency and the contractor are encouraged to resolve any issues in controversy arising from the award of the contract or any contractual dispute following the Winchester City Code, Chapter 21-61. The contractor shall comply with all applicable federal, state and local laws, rules and regulations.

B. **ANTI-DISCRIMINATION:** By submitting their (bids/proposals), (bidders/offerors) certify to the City of Winchester that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Contracting Act of 1975, as amended, where applicable, the Virginians With Disabilities Act, the Americans With Disabilities Act and § 2.2-4311 of the *Virginia Public Procurement Act (VPPA).* If the award is made to a faith-based organization, the organization shall not discriminate against any recipient of goods, services, or disbursements made pursuant to the contract on the basis of the recipient's religion, religious belief, refusal to participate in a religious practice, or on the basis of race, age, color, gender or national origin and shall be subject to the same rules as other organizations that contract with public bodies to account for the use of the funds provided; however, if the faith-based organization segregates public funds into separate accounts, only the accounts and programs funded with public funds shall be subject to audit by the public body. (*Code of Virginia*, § 2.2-4343.1E).

In every contract over $10,000 the provisions in 1. and 2. below apply:

1. During the performance of this contract, the contractor agrees as follows:

a. The contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or 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.

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

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

2. The contractor will include the provisions of 1. above in every subcontract or purchase order over $10,000, so that the provisions will be binding upon each subcontractor or vendor.

C. **ETHICS IN PUBLIC CONTRACTING:** By submitting their (bids/proposals), (bidders/offerors) certify that their (bids/proposals) are made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other (bidder/offeror), supplier, manufacturer or subcontractor in connection with their (bid/proposal), and that they have not conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, advance, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.

D. **IMMIGRATION REFORM AND CONTROL ACT OF 1986:** By submitting their (bids/proposals), (bidders/offerors) certify that they do not and will not during the performance of this contract employ illegal alien workers or otherwise violate the provisions of the federal Immigration Reform and Control Act of 1986.

E. **DEBARMENT STATUS:** By submitting their (bids/proposals), (bidders/offerors) certify that they are not currently debarred by the Federal Government, Commonwealth of Virginia, or by any City, Town or County from submitting bids or proposals on contracts for the type of goods and/or services covered by this solicitation, nor are they an agent of any person or entity that is currently so debarred.

F. **ANTITRUST:** By entering into a contract, the contractor conveys, sells, assigns, and transfers to the City of Winchester all rights, title and interest in and to all causes of action it may now have or hereafter acquire under the antitrust laws of the United States and the Commonwealth of Virginia, relating to the particular goods or services purchased or acquired by the City of Winchester under said contract.

H. **MANDATORY USE OF CITY FORM AND TERMS AND CONDITIONS:** Failure to submit a bid/proposal on the official City form provided for that purpose may be a cause for rejection of the bid/proposal. Modification of or additions to the General Terms and Conditions of the solicitation may be cause for rejection of the bid/proposal; however, the City of Winchester reserves the right to decide, on a case by case basis, in its sole discretion, whether to reject such a bid/proposal.

I. **CLARIFICATION OF TERMS:** If any prospective (bidder/offeror) has questions about the specifications or other solicitation documents, the prospective (bidder/offeror) should contact the buyer whose name appears on the face of the solicitation no later than five working days before the due date. Any revisions to the solicitation will be made only by addendum issued by the Purchasing Agent, or designee.

**J. PAYMENT:**

1. To Prime Contractor:

a. Invoices for items ordered, delivered and accepted shall be submitted by the contractor directly to the payment address shown on the purchase order/contract. All invoices shall show the state contract number and/or purchase order number; social security number (for individual contractors) or the federal employer identification number (for proprietorships, partnerships, and corporations).

b. Any payment terms requiring payment in less than 30 days will be regarded as requiring payment 30 days after invoice or delivery, whichever occurs last. This shall not affect offers of discounts for payment in less than 30 days, however.

c. All goods or services provided under this contract or purchase order, that are to be paid for with public funds, shall be billed by the contractor at the contract price, regardless of which department is being billed.

d. The following shall be deemed to be the date of payment: the date of postmark in all cases where payment is made by mail.

e. **Unreasonable Charges**. Under certain emergency procurements and for most time and material purchases, final job costs cannot be accurately determined at the time orders are placed. In such cases, contractors should be put on notice that final payment in full is contingent on a determination of reasonableness with respect to all invoiced charges. Charges which appear to be unreasonable will be researched and challenged, and that portion of the invoice held in abeyance until a settlement can be reached. Upon determining that invoiced charges are not reasonable, the City of Winchester shall promptly notify the contractor, in writing, as to those charges which it considers unreasonable and the basis for the determination. A contractor may not institute legal action unless a settlement cannot be reached within thirty (30) days of notification. The provisions of this section do not relieve an agency of its prompt payment obligations with respect to those charges which are not in dispute (*Code of Virginia,* §2.2-4363).

2. To Subcontractors:

a. A contractor awarded a contract under this solicitation is hereby obligated:

(1) To pay the subcontractor(s) within seven (7) days of the contractor's receipt of payment from the City of Winchester for the proportionate share of the payment received for work performed by the subcontractor(s) under the contract; or

(2) To notify the agency and the subcontractor(s), in writing, of the contractor's intention to withhold payment and the reason.

b. The contractor is obligated to pay the subcontractor(s) interest at the rate of one percent per month (unless otherwise provided under the terms of the contract) on all amounts owed by the contractor that remain unpaid seven (7) days following receipt of payment from the City of Winchester, except for amounts withheld as stated in (2) above. The date of mailing of any payment by U. S. Mail is deemed to be payment to the addressee. These provisions apply to each sub-tier contractor performing under the primary contract. A contractor's obligation to pay an interest charge to a subcontractor may not be construed to be an obligation of the City of Winchester.

K. **PRECEDENCE OF TERMS:** The following General Terms and Conditions APPLICABLE LAWS AND COURTS, ANTI-DISCRIMINATION, ETHICS IN PUBLIC CONTRACTING, IMMIGRATION REFORM AND CONTROL ACT OF 1986, DEBARMENT STATUS, ANTITRUST, MANDATORY USE OF CITY FORM AND TERMS AND CONDITIONS, CLARIFICATION OF TERMS, PAYMENT shall apply in all instances. 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 and take precedence.

The City's procurement, Contractor's response and written negotiation summary shall form part of the Contract. In the case of conflicts, discrepancies, errors or omissions among the City's procurement, the Contractor's response, written negotiation summary and the main body of the Contract, the documents and amendments to them shall take precedence and govern in the following order:

1. Contract
2. Negotiation Summary
3. City's Procurement Document(s)
4. Contractor's Response
5. Other Documents

L. **QUALIFICATIONS OF (BIDDERS/OFFERORS):** All bidders must be VDOT pre-qualified per the LAP manual.

M. **TESTING AND INSPECTION:** The City of Winchester reserves the right to conduct any test/inspection it may deem advisable to assure goods and services conform to the specifications.

N. **ASSIGNMENT OF CONTRACT:** A contract shall not be assignable by the contractor in whole or in part without the written consent of the City of Winchester.

O. **SEVERABILITY OF CONTRACT:** In the event that any provision shall be adjudged or decreed to be invalid, such ruling shall not invalidate the entire Agreement but shall pertain only to the provision in question and the remaining provisions shall continue to be valid, binding and in full force and effect.

**P. CHANGES TO THE CONTRACT:**

1. A public contract may include provisions for modification of the contract during performance, but no fixed-price contract may be increased by more than twenty-five percent of the amount of the contract or ten thousand dollars ($10,000), whichever is greater, without the advance written approval of the City Council. In no event may the amount of any contract, without adequate consideration, be increased for any purpose, including, but not limited to, relief of an offeror from the consequences of an error in its bid or offer (Winchester City Code 21-44).

2. Changes can be made to the contract in any of the following ways:

   a. The parties may agree in writing to modify the scope of the contract. An increase or decrease in the price of the contract resulting from such modification shall be agreed to by the parties as a part of their written agreement to modify the scope of the contract.

   b. The City of Winchester may order changes within the general scope of the contract at any time by written notice to the contractor. Changes within the scope of the contract include, but are not limited to, things such as services to be performed, the method of packing or shipment, and the place of delivery or installation. The contractor shall comply with the notice upon receipt. The contractor shall be compensated for any additional costs incurred as the result of such order and shall give the City of Winchester a credit for any savings. Said compensation shall be determined by one of the following methods:

      1. By mutual agreement between the parties in writing; or
      2. By agreeing upon a unit price or using a unit price set forth in the contract, if the work to be done can be expressed in units, and the contractor accounts for the number of units of work performed, subject to the City of Winchester's right to audit the contractor's records and/or to determine the correct number of units independently; or
      3. By ordering the contractor to proceed with the work and keep a record of all costs incurred and savings realized. A markup for overhead and profit may be allowed if provided by the contract. The same markup shall be used for determining a decrease in price as the result of savings realized. The contractor shall present the City of Winchester with all vouchers and records of expenses incurred and savings realized. The City of Winchester shall have the right to audit the records of the contractor as it deems necessary to determine costs or savings. Any claim for an adjustment in price under this provision must be asserted by written notice to the City of Winchester within thirty (30) days from the date of receipt of the written order from the City of Winchester. If the parties fail to agree on an amount of adjustment, the question of an increase or decrease in the contract price or time for performance shall be resolved in accordance with the procedures for resolving disputes provided by the Disputes Clause of this contract or, if there is none, in accordance with the disputes provisions of the City of Winchester Code. Neither the existence of a claim nor a dispute resolution process, litigation or any other provision of this contract shall excuse the contractor from promptly complying with the changes ordered by the City of Winchester or with the performance of the contract generally.

Q. **DEFAULT:** In case of failure to deliver goods or services in accordance with the contract terms and conditions, the City of Winchester, after due oral or written notice, may procure them from other sources and hold the contractor responsible for any resulting additional purchase and administrative costs. This remedy shall be in addition to any other remedies which the City of Winchester may have.

R. **TAXES:** Sales to the City of Winchester are normally exempt from State sales tax. State sales and use tax certificates of exemption, Form ST-12, will be issued upon request.

S. **USE OF BRAND NAMES:** Unless otherwise provided in this solicitation, the name of a certain brand, make or manufacturer does not restrict (bidders/offerors) to the specific brand, make or manufacturer named, but conveys the general style, type, character, and quality of the article desired. Any article which the public body, in its sole discretion, determines to be the equal of that specified, considering quality, workmanship, economy of operation, and suitability for the purpose intended, shall be accepted. The (bidder/offeror) is responsible to clearly and specifically identify the product being offered and to provide sufficient descriptive literature, catalog cuts and technical detail to enable the City of Winchester to determine if the product offered meets the requirements of the solicitation. This is required even if offering the exact brand, make or manufacturer specified. Normally in competitive sealed bidding only the information furnished with the bid will be considered in the evaluation. Failure to furnish adequate data for evaluation purposes may result in declaring a bid nonresponsive. Unless the (bidder/offeror) clearly indicates in its (bid/proposal) that the product offered is an equal product, such (bid/proposal) will be considered to offer the brand name product referenced in the solicitation.

T. **TRANSPORTATION AND PACKAGING:** By submitting their (bids/proposals), all (bidders/offerors) certify and warrant that the price offered for FOB destination includes only the actual freight rate costs at the lowest and best rate and is based upon the actual weight of the goods to be shipped. Except as otherwise specified herein, standard commercial packaging, packing and shipping containers shall be used. All shipping containers shall be legibly marked or labeled on the outside with purchase order number, commodity description, and quantity.

U. **INSURANCE:** By signing and submitting a bid or proposal under this solicitation, the bidder or offeror certifies that if awarded the contract, it will have the following insurance coverage at the time the contract is awarded. For construction contracts, if any subcontractors are involved, the subcontractor will have workers' compensation insurance in accordance with §§ 2.2-4332 and 65.2-800 et seq. of the *Code of Virginia*. The bidder or offeror further certifies that the contractor and any subcontractors will maintain these insurance coverage during the entire term of the contract and that all insurance coverage will be provided by insurance companies authorized to sell insurance in Virginia by the Virginia State Corporation Commission.

MINIMUM INSURANCE COVERAGES AND LIMITS REQUIRED FOR MOST CONTRACTS:

1. Workers' Compensation - Statutory requirements and benefits. Coverage is compulsory for employers of three or more employees, to include the employer. Contractors who fail to notify the City of Winchester of increases in the number of employees that change their workers' compensation requirements under the *Code of Virginia* during the course of the contract shall be in noncompliance with the contract. The insurer must have an A.M. Best rating of A- or better.

2. Employer's Liability - $100,000.

3. Commercial General Liability - $1,000,000 per occurrence. Commercial General Liability is to include bodily injury and property damage, personal injury and advertising injury, products and completed operations coverage. The City of Winchester must be named as an additional insured and so endorsed on the policy by the insurer. A notation on the certificate of insurance is not sufficient.

4. Automobile Liability - $1,000,000 per occurrence. (Only used if motor vehicle is to be used in the contract.)

**NOTE: In addition, various Professional Liability/Errors and Omissions coverages are required when soliciting those services as follows:**

| **Profession/Service** | **Limits** |
|---|---|
| Accounting | $1,000,000 per occurrence, $3,000,000 aggregate |
| Architecture | $2,000,000 per occurrence, $6,000,000 aggregate |
| Asbestos Design, Inspection or Abatement Contractors | $1,000,000 per occurrence, $3,000,000 aggregate |
| Health Care Practitioner (to include Dentists, Licensed Dental Hygienists, Optometrists, Registered or Licensed Practical Nurses, Pharmacists, Physicians, Podiatrists, Chiropractors, Physical Therapists, Physical Therapist Assistants, Clinical Psychologists, Clinical Social Workers, Professional Counselors, Hospitals, or Health Maintenance Organizations.) | $1,925,000 per occurrence, $3,000,000 aggregate |

(Limits increase each July 1 through fiscal year 2008, as follows:

July 1, 2008 - $2,000,000. This complies with §8.01-581.15 of the *Code of Virginia*.

| | |
|---|---|
| Insurance/Risk Management | $1,000,000 per occurrence, $3,000,000 aggregate |
| Landscape/Architecture | $1,000,000 per occurrence, $1,000,000 aggregate |
| Legal | $1,000,000 per occurrence, $5,000,000 aggregate |
| Professional Engineer | $2,000,000 per occurrence, $6,000,000 aggregate |
| Surveying | $1,000,000 per occurrence, $1,000,000 aggregate |

V. **ANNOUNCEMENT OF AWARD:** Upon the award or the announcement of the decision to award a contract over $50,000, as a result of this solicitation, the Purchasing Agent will publicly post such notice on the City of Winchester's web site (www.winchesterva.gov/purchasing) for a minimum of 10 days.

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

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

X. **NONDISCRIMINATION OF CONTRACTORS**: A bidder, offeror, or contractor shall not be discriminated against in the solicitation or award of this contract because of race, religion, color, sex, national origin, age, disability, faith-based organizational status, any other basis prohibited by state law relating to discrimination in employment or because the bidder or offeror employs ex-offenders unless the state agency, department or institution has made a written determination that employing ex-offenders on the specific contract is not in its best interest. If the award of this contract is made to a faith-based organization and an individual, who applies for or receives goods, services, or disbursements provided pursuant to this contract objects to the religious character of the faith-based organization from which the individual receives or would receive the goods, services, or disbursements, the public body shall offer the individual, within a reasonable period of time after the date of his objection, access to equivalent goods, services, or disbursements from an alternative provider.

Y. **AVAILABILITY OF FUNDS:** In the event that funds are not appropriated for this Contract for any City fiscal year, following the City's current year, the Contract shall terminate automatically as of the last day for which funds were appropriated without the City providing written notice to the Contractor prior to the date of termination. The City shall not consider termination of the Contract pursuant to this section default. Upon such termination, the City shall be released from any obligation to make future payments and shall not be liable for cancellation or termination charges.

Z. **LICENSES AND PERMITS:** Contractors will be responsible for all licenses and permits, if required. Any person, firm, or corporation responding to the City's procurement which is required to have a current and valid City of Winchester business license and, in fact, does not, will not be considered a "responsive bidder" as such term is defined by the Code of Virginia §2.2-4301, as amended. Any bid received from such an entity may be rejected, at the City's sole option, for that reason alone. In addition, the successful bidder or offeror will be required to produce affirmative evidence, satisfactory to the Purchasing Agent, or designee that it has such a license, or is not required to have such a license, prior to approval and execution of any contract to perform the work herein described.

AZ **TERMINATION:**

a. Termination for Convenience: The City of Winchester may terminate a contract, in whole or in part, whenever the City OF Winchester determines that such termination is in the best interest of the City of Winchester, without showing cause, upon giving ten (10) days written notice to the vendor.
b. Termination for Default: When the vendor has not performed or has unsatisfactorily performed the contract, the City of Winchester may terminate the contract for default. Upon termination for default, payment may be withheld at the discretion of the City of Winchester. The Vendor will be paid for work satisfactorily performed prior to termination.

BZ **HOLD HARMLESS:** Bids/Proposal shall provide that during the term of the contract, including warranty period, for the successful bidder/offeror indemnifying, defending, and holding harmless the City, its officers, employees, agent and representatives thereof from all suits, actions, claims of any kind (including claims for attorney's fees) brought on account of any personal injuries, damages, or violation of rights sustained by any person or property in consequence of any neglect in safeguarding contract work, or on account of any act or omission by the contractor or his employees, or from any claims or amounts arising from violation of any law, bylaw, ordinance, regulation or decree. The vendor agrees that this clause shall include claims involving infringement of patent or copyrights.

CZ**.** **CONFIDENTIALITY OF PERSONALLY IDENTIFIABLE INFORMATION:** The contractor assures that information and data obtained as to personal facts and circumstances related to patients or clients will be collected and held confidential, during and following the term of this agreement, and will not be divulged without the individual's and the agency's written consent and only in accordance with federal law or the Code of Virginia. Contractors who utilize, access, or store personally identifiably information as part of the performance of a contract are required to safeguard this information and immediately notify the agency of any breach or suspected breach in the security of such information. Contractors shall allow the City to both participate in the investigation of incidents and exercise control over decisions regarding external reporting. Contractors and their employees working on this project may be required to sign a confidentiality statement.

DZ**.** **BID PRICE CURRENCY:** Prices are to be stated in US dollars unless otherwise specified in the solicitation.

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly By

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

AMERICAN COUNCIL OF ENGINEERING COMPANIES

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by

The Associated General Contractors of America

Construction Specifications Institute

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**
**00700 - 1**

Copyright ©2002

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

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

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

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


**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

**TABLE OF CONTENTS**

Page

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY ..... 6
1.01 *Defined Terms* ..... 6
1.02 *Terminology* ..... 8
ARTICLE 2 - PRELIMINARY MATTERS ..... 9
2.01 *Delivery of Bonds and Evidence of Insurance* ..... 9
2.02 *Copies of Documents* ..... 9
2.03 *Commencement of Contract Times; Notice to Proceed* ..... 10
2.04 *Starting the Work* ..... 10
2.05 *Before Starting Construction* ..... 10
2.06 *Preconstruction Conference* ..... 10
2.07 *Initial Acceptance of Schedules* ..... 10
ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE ..... 10
3.01 *Intent* ..... 10
3.02 *Reference Standards* ..... 11
3.03 *Reporting and Resolving Discrepancies* ..... 11
3.04 *Amending and Supplementing Contract Documents* ..... 11
3.05 *Reuse of Documents* ..... 12
3.06 *Electronic Data* ..... 12
ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS ..... 12
4.01 *Availability of Lands* ..... 12
4.02 *Subsurface and Physical Conditions* ..... 12
4.03 *Differing Subsurface or Physical Conditions* ..... 13
4.04 *Underground Facilities* ..... 14
4.05 *Reference Points* ..... 14
4.06 *Hazardous Environmental Condition at Site* ..... 14
ARTICLE 5 - BONDS AND INSURANCE ..... 16
5.01 *Performance, Payment, and Other Bonds* ..... 16
5.02 *Licensed Sureties and Insurers* ..... 16
5.03 *Certificates of Insurance* ..... 16
5.04 *Contractor's Liability Insurance* ..... 16
5.05 *Owner's Liability Insurance* ..... 17
5.06 *Property Insurance* ..... 17
5.07 *Waiver of Rights* ..... 18
5.08 *Receipt and Application of Insurance Proceeds* ..... 19
5.09 *Acceptance of Bonds and Insurance; Option to Replace* ..... 19
5.10 *Partial Utilization, Acknowledgment of Property Insurer* ..... 19
ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES ..... 19
6.01 *Supervision and Superintendence* ..... 19
6.02 *Labor; Working Hours* ..... 20
6.03 *Services, Materials, and Equipment* ..... 20
6.04 *Progress Schedule* ..... 20
6.05 *Substitutes and "Or-Equals"* ..... 20
6.06 *Concerning Subcontractors, Suppliers, and Others* ..... 22
6.07 *Patent Fees and Royalties* ..... 23
6.08 *Permits* ..... 23
6.09 *Laws and Regulations* ..... 23
6.10 *Taxes* ..... 23

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

6.11 *Use of Site and Other Areas* ... 23
6.12 *Record Documents* ... 24
6.13 *Safety and Protection* ... 24
6.14 *Safety Representative* ... 25
6.15 *Hazard Communication Programs* ... 25
6.16 *Emergencies* ... 25
6.17 *Shop Drawings and Samples* ... 25
6.18 *Continuing the Work* ... 26
6.19 *Contractor's General Warranty and Guarantee* ... 26
6.20 *Indemnification* ... 27
6.21 *Delegation of Professional Design Services* ... 27
ARTICLE 7 - OTHER WORK AT THE SITE ... 28
7.01 *Related Work at Site* ... 28
7.02 *Coordination* ... 28
7.03 *Legal Relationships* ... 28
ARTICLE 8 - OWNER'S RESPONSIBILITIES ... 29
8.01 *Communications to Contractor* ... 29
8.02 *Replacement of Engineer* ... 29
8.03 *Furnish Data* ... 29
8.04 *Pay When Due* ... 29
8.05 *Lands and Easements; Reports and Tests* ... 29
8.06 *Insurance* ... 29
8.07 *Change Orders* ... 29
8.08 *Inspections, Tests, and Approvals* ... 29
8.09 *Limitations on Owner's Responsibilities* ... 29
8.10 *Undisclosed Hazardous Environmental Condition* ... 29
8.11 *Evidence of Financial Arrangements* ... 29
ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION ... 29
9.01 *Owner's Representative* ... 29
9.02 *Visits to Site* ... 29
9.03 *Project Representative* ... 30
9.04 *Authorized Variations in Work* ... 30
9.05 *Rejecting Defective Work* ... 30
9.06 *Shop Drawings, Change Orders and Payments* ... 30
9.07 *Determinations for Unit Price Work* ... 30
9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work* ... 30
9.09 *Limitations on Engineer's Authority and Responsibilities* ... 31
ARTICLE 10 - CHANGES IN THE WORK; CLAIMS ... 31
10.01 *Authorized Changes in the Work* ... 31
10.02 *Unauthorized Changes in the Work* ... 31
10.03 *Execution of Change Orders* ... 31
10.04 *Notification to Surety* ... 32
10.05 *Claims* ... 32
ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK ... 32
11.01 *Cost of the Work* ... 32
11.02 *Allowances* ... 34
11.03 *Unit Price Work* ... 35
ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES ... 35
12.01 *Change of Contract Price* ... 35
12.02 *Change of Contract Times* ... 36
12.03 *Delays* ... 36
ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK ... 36
13.01 *Notice of Defects* ... 36
13.02 *Access to Work* ... 36
13.03 *Tests and Inspections* ... 37
13.04 *Uncovering Work* ... 37

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

13.05 *Owner May Stop the Work* ..... 37
13.06 *Correction or Removal of Defective Work* ..... 37
13.07 *Correction Period* ..... 38
13.08 *Acceptance of Defective Work* ..... 38
13.09 *Owner May Correct Defective Work* ..... 38
ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION ..... 39
14.01 *Schedule of Values* ..... 39
14.02 *Progress Payments* ..... 39
14.03 *Contractor's Warranty of Title* ..... 41
14.04 *Substantial Completion* ..... 41
14.05 *Partial Utilization* ..... 41
14.06 *Final Inspection* ..... 42
14.07 *Final Payment* ..... 42
14.08 *Final Completion Delayed* ..... 43
14.09 *Waiver of Claims* ..... 43
ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION ..... 43
15.01 *Owner May Suspend Work* ..... 43
15.02 *Owner May Terminate for Cause* ..... 43
15.03 *Owner May Terminate For Convenience* ..... 44
15.04 *Contractor May Stop Work or Terminate* ..... 44
ARTICLE 16 - DISPUTE RESOLUTION ..... 45
16.01 *Methods and Procedures* ..... 45
ARTICLE 17 - MISCELLANEOUS ..... 45
17.01 *Giving Notice* ..... 45
17.02 *Computation of Times* ..... 45
17.03 *Cumulative Remedies* ..... 45
17.04 *Survival of Obligations* ..... 45
17.05 *Controlling Law* ..... 46
17.06 *Headings* ..... 46

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

## GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

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

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

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

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

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

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

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

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

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

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

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

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

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

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

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

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

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

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

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

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

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

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

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

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

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

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

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

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

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

30. *PCBs*--Polychlorinated biphenyls.

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

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

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

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

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

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

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

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

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

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

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

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

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

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

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

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

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

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

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

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

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

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

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

B. *Intent of Certain Terms or Adjectives*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered", "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable,"

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

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

C. *Day*

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

D. *Defective*

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

a. does not conform to the Contract Documents, or

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

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

E. *Furnish, Install, Perform, Provide*

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

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

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

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

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

## ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

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

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

2.02 *Copies of Documents*

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

2.03 *Commencement of Contract Times; Notice to Proceed*

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

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

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

2. a preliminary Schedule of Submittals; and

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

2.06 *Preconstruction Conference*

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

2.07 *Initial Acceptance of Schedules*

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

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

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

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

## ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

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

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

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

3.02 *Reference Standards*

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

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

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

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

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

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

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

B. Resolving Discrepancies

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

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

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

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

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

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

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaption by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

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

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

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

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

4.01 *Availability of Lands*

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

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

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

4.02 *Subsurface and Physical Conditions*

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

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

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

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

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

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

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

4.03 *Differing Subsurface or Physical Conditions*

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

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

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

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

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

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

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

C. Possible Price and Times Adjustments

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

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

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

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

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

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

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

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

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

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

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

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

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

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

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

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

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

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

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

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

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

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

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

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

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

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

## ARTICLE 5 - BONDS AND INSURANCE

### 5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

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

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

5.02 *Licensed Sureties and Insurers*

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

5.03 *Certificates of Insurance*

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

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

5.04 *Contractor's Liability Insurance*

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

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

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

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

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

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

b. by any other person for any other reason;

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

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

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

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

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

3. include completed operations insurance;

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

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

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

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

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

5.05 *Owner's Liability Insurance*

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

5.06 *Property Insurance*

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

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

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

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

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

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

6. include testing and startup; and

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

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

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

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

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

5.07 *Waiver of Rights*

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

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

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

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

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

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

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

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

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

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

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

## ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

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

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

6.02 *Labor; Working Hours*

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

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

6.03 *Services, Materials, and Equipment*

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

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

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

6.04 *Progress Schedule*

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

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

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

6.05 *Substitutes and "Or-Equals"*

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

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

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

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

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

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

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

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

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

2. Substitute Items

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

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

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

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

1) shall certify that the proposed substitute item will:

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

b) be similar in substance to that specified, and

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

2) will state:

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

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

c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified , and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

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

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

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

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

6.06 *Concerning Subcontractors, Suppliers, and Others*

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

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

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

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

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

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

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

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

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

6.07 *Patent Fees and Royalties*

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

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

6.08 *Permits*

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

6.09 *Laws and Regulations*

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

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

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

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

A. Limitation on Use of Site and Other Areas

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

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

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

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

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

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

6.12 *Record Documents*

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

6.13 *Safety and Protection*

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

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

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

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

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

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

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

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

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

1. Shop Drawings

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

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

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

a. Submit number of Samples specified in the Specifications.

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

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

C. Submittal Procedures

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

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

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

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

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

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

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

D. *Engineer's Review*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

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

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

E. *Resubmittal Procedures*

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

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

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

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

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

2. normal wear and tear under normal usage.

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

1. observations by Engineer;

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

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

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

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

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

7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

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

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

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

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

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

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

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

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

## ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

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

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

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

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

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

7.02 *Coordination*

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

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

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

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

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

7.03 *Legal Relationships*

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

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

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

## ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

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

8.03 *Furnish Data*

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

8.04 *Pay When Due*

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

8.05 *Lands and Easements; Reports and Tests*

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

8.06 *Insurance*

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

8.07 *Change Orders*

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

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

8.11 *Evidence of Financial Arrangements*

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

## ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

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

9.02 *Visits to Site*

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

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

9.03 *Project Representative*

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

9.04 *Authorized Variations in Work*

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

such adjustment , a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

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

9.06 *Shop Drawings, Change Orders and Payments*

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

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

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

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

9.07 *Determinations for Unit Price Work*

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

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

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

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

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

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

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

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

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

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees,

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

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

## ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

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

10.02 *Unauthorized Changes in the Work*

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

10.03 *Execution of Change Orders*

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

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

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

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

10.04 *Notification to Surety*

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

10.05 *Claims*

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

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

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

1. deny the Claim in whole or in part,

2. approve the Claim, or

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

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

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

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

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

### 11.01 *Cost of the Work*

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

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

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

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

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

5. Supplemental costs including the following:

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

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

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

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

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

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

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

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

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

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

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

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

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

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

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

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

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

11.02 *Allowances*

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

B. *Cash Allowances*

1. Contractor agrees that:

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

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

C. Contingency Allowance

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

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

11.03 *Unit Price Work*

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

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

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

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

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

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

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

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

12.01 *Change of Contract Price*

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

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

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

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

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

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

1. a mutually acceptable fixed fee; or

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

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

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

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

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

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

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

12.02 *Change of Contract Times*

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

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

12.03 *Delays*

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

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

C If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

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

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

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

### 13.01 *Notice of Defects*

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

### 13.02 *Access to Work*

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

### 13.03 *Tests and Inspections*

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

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

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

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

3. as otherwise specifically provided in the Contract Documents.

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

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

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

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

### 13.04 *Uncovering Work*

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

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

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

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

13.05 *Owner May Stop the Work*

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

13.06 *Correction or Removal of Defective Work*

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

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

13.07 *Correction Period*

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

1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

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

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

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

correction or removal and replacement has been satisfactorily completed.

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

13.08 *Acceptance of Defective Work*

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

13.09 *Owner May Correct Defective Work*

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

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

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

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

## ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

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

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

B. *Review of Applications*

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

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

a. the Work has progressed to the point indicated;

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

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

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

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

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

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

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

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

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

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

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

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due*

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

D. *Reduction in Payment*

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

a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

c. there are other items entitling Owner to a set-off against the amount recommended; or

d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

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

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

14.03 *Contractor's Warranty of Title*

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

14.04 *Substantial Completion*

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

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

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

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

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

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

14.05 *Partial Utilization*

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

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

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

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

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

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. Application for Payment

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

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

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

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

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

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

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

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

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

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

14.08 *Final Completion Delayed*

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

14.09 *Waiver of Claims*

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

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

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

## ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

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

15.02 *Owner May Terminate for Cause*

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

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

(including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

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

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

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

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

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

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

3. complete the Work as Owner may deem expedient.

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

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

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

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

15.03 *Owner May Terminate For Convenience*

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

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

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

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

4. reasonable expenses directly attributable to termination.

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

15.04 *Contractor May Stop Work or Terminate*

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

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

## ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

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

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

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

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

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

## ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

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

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

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

17.02 *Computation of Times*

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

17.03 *Cumulative Remedies*

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

**EJCDC C-700 Standard General Conditions of the Construction Contract.**
**Copyright © 2002 National Society of Professional Engineers for EJCDC. All rights reserved.**

1. Delete subparagraph 5.06(A), 5.06(A) Sections 1-7, and subparagraph 5.06(B)

2. Delete sentence in subparagraph 5.07(A) beginning with "All such projects shall contain provisions…."

3. Delete subparagraph 5.07(B), 5.06(B) Sections 1-2, and subparagraph 5.06(C)

4. Delete Paragraph 10.05 (Claims) and replace Paragraph 10.05 (Claims) by reference with the Winchester City Code, Section 21-61 (Contractual Disputes), as amended and where the Winchester City Code does not specify in writing the Virginia Public Procurement Act (VPPA) §2.2-4363 shall apply, as amended. Under Winchester City Code 21-61(C), the Purchasing Agent will render such decision within thirty (30) days.

5. Add subparagraph 12.01(D), as follows:
"In accordance with Winchester City Code, Section 21-44, Contract Modification: A public contract may include provisions for modification of the contract during performance, but no fixed-price contract may be increased by more than twenty-five percent of the amount of the contract or ten thousand dollars ($10,000), whichever is greater, without the advance written approval of the City Council. In no event may the amount of any contract, without adequate consideration, be increased for any purpose, including, but not limited to, relief of an offeror from the consequences of an error in its bid or offer."

6. Delete paragraph 14.09

7. Add subparagraph 17.01 (B), as follows: "This section, or any other General Condition in conflict with Virginia Code §8.01-222 shall not supercede the Commonwealth of Virginia statutory notice provisions. Virginia Code §8.01-222 shall prevail under all circumstances.

**Valley Avenue Improvements**

**CITY SPECIAL CONDITIONS**

**1. SPECIFICATIONS**

The following Supplemental Specifications represent modifications to the corresponding sections of the Virginia Department of Transportation (VDOT) Specifications; hereinabove defined, and relate exclusively to this Contract. In case of conflicting requirements between the Virginia Department of Transportation Specifications and the Supplemental Specifications, the modifications shall govern. Any applicable provision in the Virginia Department of Transportation Specifications not amended by and not in conflict with any Supplemental Specification shall be understood to be in full effect. In the case of conflicting contract requirements with federal-aid rules, federal requirements shall govern.

Unless otherwise described in the Contract Documents, the following specifications and standards apply to this work:

1. Contract's Technical Specifications
2. City of Winchester – Public Services Standards Manual
3. 2016 VDOT Road and Bridge Specifications, including all supplements.

**2. INSURANCE REQUIREMENTS – CITY OF WINCHESTER**

2.1 Before any work at the site is started, Contractor shall deliver to Owner, with a Copy to Engineer, an executed Certificate of Insurance. The Certificate shall indicate that the required insurance is in force and state that the policies will not be materially changed or canceled without a thirty (30) day advance notice by registered mail to Owner and Engineer. The representative signing the Certificate shall furnish evidence that he is authorized to so sign as well as his address and the name and address of the agency or agencies through which the insurance was obtained. Contractor shall take out and maintain the following insurance:

2.2 Contractor's Comprehensive General Liability (bodily injury and property damage) shall be provided for the following limits:

A. Combined single limit 5,000,000 dollars each occurrence
B. Combined single limit: 5,000,000 dollars annual aggregate
C. The general liability insurance shall include the following coverage:

1. Comprehensive Form
2. Premises - Operation
3. Explosion and Collapse Hazard
4. Underground Hazards
5. Products/Completed - Operations Hazards

6. Contractual Liability Insurance
7. Broad Form Comprehensive General Liability, Property Damage, including Completed Operations
8. Independent Contractors (Contractor's Protective Liability)
9. Personal Injury (all insuring agreements), Deleting the Employee Exclusion
10. If protection is under an umbrella policy, it shall not exclude any of the above items under the basic policy.

D. City of Winchester shall be named by endorsement as Additional Insured.

2.3 Contractor's Automobile Liability (bodily injury and property damage) shall be provided for the following limits:

A. Combined single limit: 1,000,000 dollars each occurrence

B. The Automobile Liability Insurance shall include the following coverage:

1. Comprehensive Form
2. Owned
3. Hired
4. Non-Owner

2.4 Contractor's Workers Compensation Insurance as required by Federal, State, and Municipal Laws for the protection of all Contractor's employees working on or in connection with the Project, including broad form, all state and voluntary compensation coverage, and employer's liability coverage with the following limits:

A. Bodily injury by accident 1,000,000 Dollars each accident

B. Bodily injury by disease 1,000,000 Dollars policy limit

C. Bodily injury by disease 1,000,000 Dollars for each employee

2.5 All insurers shall be licensed to conduct business in the Commonwealth of Virginia and all insurance companies are required to have an A.M. Best Company financial rating of A- or better.

2.6 Contractor shall require his insurance agent to certify on the insurance certificate that the insurance coverage specified by these specifications is fully in effect, both in scope and amount. If insurance coverage is effected with more than one company, the individual certificates shall identify the items of insurance which the individual companies cover. The insurance certificates shall contain a provision that the coverage afforded under the policies will not be canceled or materially changed unless at least a thirty (30) days prior written notice has been given to the Owner.

2.7 Left Intentionally Blank

2.8 Notification and Handling of an Insurance Claim:

The general contractor on any City construction project shall be responsible for

ensuring that all matters concerning the completion of an assigned project, including but not limited to handling of insurance claims by third parties arising as a result of the acts and omissions of the general contractor or his subcontractors, are handled in a professional manner. To this end, the City expects the general contractor to act responsibly with regard to prompt payment of valid insurance claims and upon notice of a claim, the general contractor shall immediately notify the Owner's project manager, investigate and document the claim, and make a liability determination within ten (10) business days. Pending subrogation between the general contractor and/or sub-contractor and/or any insurance carrier will not be a cause for delay in payment of a valid claim.

**3. WORKING HOURS**

Work under the Contract shall not be prosecuted on Sundays, or on legal holidays. Work hours (Monday – Saturday) shall be from 7:00 a.m. until 6:00 p.m. If the Contractor wishes to prosecute any portion of the Work outside of the established work hours or on Sundays or legal holidays, he shall first obtain written permission from the Engineer. Such requests shall be submitted at least 48 hours in advance of the period proposed for such overtime work. For the purpose of this Contract, the legal holidays are identified as:

- Labor Day
- Columbus Day
- Veteran's Day
- Thanksgiving Day
- Day after Thanksgiving
- Christmas Eve
- Christmas Day
- New Year's Day
- Martin Luther King Day
- President's Day
- Apple Blossom Friday
- Memorial Day
- Independence Day

**4. PROGRESS PAYMENTS**

4.1 The basis for payments shall be the actual quantity of work completed, as determined in field by the Engineer.

**5. MISCELLANEOUS OTHER CONDITIONS**

5.1 It shall be the responsibility of the Contractor to locate utilities in the field. Contractor shall give all utility companies that may have subsurface or surface utilities in the area adequate notice at least 48 hours in advance that the Contractor is to perform work in this area.

5.2 The attention of the Contractor is drawn to the fact that the possibility exists of the Contractor encountering various water, chemical, electrical, or other lines. Contractor shall exercise extreme care before and during construction to locate and flag these items so as to avoid damage to existing lines. Should damage occur to an existing line, the Contractor shall repair the line at no cost to the Owner. Temporary support, adequate protection and maintenance of all underground and surface utility installations and structures, drains, and other obstructions encountered in the progress of the work shall be provided by the Contractor at his own expense.

5.3 Contractor shall be responsible for the temporary removal and re-installation of structures including, but not limited, to piping, conduits, drains, that may interfere with the work. The cost of such work shall be included in the Bid for the project and shall not result in any additional cost to the Owner. It shall be the Contractor's responsibility to contact and obtain permission from various authorities having jurisdiction over such structures, prior to start of the work.

5.4 Local drainage is not to be blocked. Shoulders, ditches, and drainage facilities shall be kept clear at all times and in condition satisfactory to the Engineer.

5.5 Adequate barricades, construction signs, red lanterns and guards as required shall be placed and maintained during the course of the work, and until it is safe for the pedestrian and vehicular traffic to use the area. The rules and regulations of the Local and State and Federal authorities respecting safety provisions shall be observed.

5.6 All acceptance and payment of work is subject to inspection by the City of Winchester.

5.7 The Contractor shall be responsible to establish and maintain communications with the residents and business owners of the area affected by the construction. The purpose of this communication is to notify the residents and business owners of construction activities which affect them, and to coordinate accommodations for them during construction. The Contractor shall also be required to assist businesses and residents as necessary with access into or out of their property during the construction.

5.8 Contractor and all sub-contractors shall obtain a City of Winchester Business License before beginning work.

5.9 Contractor is responsible for correcting any damages caused to private property as a result of construction, at their own expense. Contractor shall be responsible for completing a video recording (DVD) of the entire project area within the City's right-of-way before construction begins and providing a copy of the DVD to the City. This recording must be completed before the mobilization fee is paid to the contractor. This recording will be the basis for help in determining any damages to private property that

may occur during construction that the contractor may be responsible for.

5.10 The Contractor shall be solely responsible for adhering to all OSHA requirements at all times during the construction of the project.

5.11 The Contractor shall be solely responsible for protecting the newly poured sidewalks from vandalism (i.e. children writing names or words in the wet concrete) and shall be required to replace any concrete that is vandalized as directed by the City at the Contractor's expense.

5.12 The Contractor shall be responsible to construct the new facilities and/or modify existing facilities to ensure positive drainage at all locations.

5.13 The Contractor shall be solely responsible for ensuring that all new sidewalks and ramps constructed meet all current ADA (American's with Disabilities Act) requirements.

*****END SPECIAL CONDITIONS*****

CITY OF WINCHESTER
SPECIAL PROVISION FOR
ONGOING UTILITY RELOCATIONS

Project: U000-138-R04
Date: April 2, 2019

**Section 105.08 of the Specifications is amended to include the following:**

While utility relocations are scheduled to be completed by the beginning of this project, any delays to the utility work may make the proposed relocation work run into the very early stages of roadway construction work.

The following is a brief description of planned work on the utilities of the project:
Shenandoah Valley Electric will be adjusting their poles in sporadic areas along the Eastern side of Valley Avenue.

Verizon will be adjusting their existing poles in various locations on the Wester side of Valley Avenue.

Comcast and Shentel will be transferring their lines from the old poles belonging to Verizon and/or SVEC to the new adjusted poles. This work will have the most chance of overlapping with roadway construction as it cannot be performed until the pole owner has completed their work.

Washington Gas will be relocating underground gas line throughout the project, with the majority of the work being in the existing lanes of Valley Avenue.

If the utility relocation work is ongoing at the time of award, the roadway contractor is expected to coordinate their construction activity and sequencing with the utility companies remaining onsite to continue to actively perform the proposed roadway construction work while allowing for the utility work to complete. No additional time nor monies will be awarded for the coordination with these companies or for adjusting the work plan of the winning bidder.

CITY OF WINCHESTER
SPECIAL PROVISION FOR
COORDINATION OF MINOR UTILITY FACILITIES

Project: U000-138-R04
Date: April 2, 2019

**Section 105.08 of the Specifications is amended to include the following:**

During the life of the project and pursuit of the work as shown in the associated roadway plans, minor utility work may be needed to adjust minor utility items to allow for the proposed work of the project to be performed. Items possibly needing adjusted for the construction include but are not limited to: service lines, manholes/handholes of the utility company to the final grade and anchors or guy wires for access to work areas. Contractor is to coordinate these minor items directly with the utility owner, utilizing the point of contacts shown on the underground utility information sheet of the plans. No additional time nor payment will be granted for coordinating minor adjustments with the utility owners.

# SCOPE OF WORK – SEQUENCE OF CONSTRUCTION



## I. Description.

This specification summarizes the scope of work for this project.

## II. Scope of Work

In general, the project consists of the construction of storm drainage facilities and sidewalks along Valley Avenue between the southern City limits and Middle Road.

## IV. Sequence of Construction

The Contractor shall follow the sequence of construction shown on the construction plans.

The Contractor shall prepare a written project schedule for the construction of the entire project which shall be reviewed and approved by the City before construction begins. This schedule shall delineate the number of work crews and the work each will be completing.

## V. Measurement and Payment.

There is no separate payment for this section.

CITY OF WINCHESTER
TECHNICAL SPECIFICATION
**SURVEYING**



## I. Description.

This work shall consist of performing the necessary field surveying and construction staking to complete the work for this project.

## II. Procedures

A. The Contractor shall be responsible for any surveying and construction staking necessary to complete the project.
B. The Contractor shall be responsible for field verifying the elevations of all sanitary sewer and storm structures and manholes included within this project.
C. The Contractor shall be responsible for locating the tree monuments located in the existing curb line and re-installing them in the same locations.

## III. Measurement and Payment.

**"Construction Surveying"** will be measured and paid for as a lump sum. Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Construction Surveying | Lump Sum |

CITY OF WINCHESTER
TECHNICAL SPECIFICATION
**AS-BUILT DRAWINGS**


May 2020

## I. Description.

This work shall consist of preparing and providing as-built drawings for all utility and finish work completed on the project.

## II. Procedures

1) As-built drawings shall be prepared in accordance with the latest edition of the City's Public Services Standard Manual, Chapter VIII, As-Built Drawings.
2) The Contractor shall provide to the Owner the following:
   a) One hard-copy set of 24x36 drawings
   b) Digital files of the as-builts, in both AutoCAD (*.dwg or *.dxf) and PDF formats

## III. Measurement and Payment.

**"As-Built Drawings"** will be measured and paid for as a lump sum for the project and shall include all necessary materials and work to develop and submit a complete set of as-built drawings, per the City's standards.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| As-Built Drawings | Lump Sum |

CITY OF WINCHESTER
TECHNICAL SPECIFICATION
**DEMOLITION AND REMOVAL**


May 2020

## I. Description.

This work shall consist of demolition/removal and disposal of existing concrete curb & gutter, concrete sidewalk, asphalt roadways, and other items.

## II. Procedures

Demolition of concrete curb & gutter, sidewalks and driveway entrances, and asphalt roadways: existing concrete or asphalt shall be saw cut (if necessary), removed, and properly disposed of. When necessary existing pipes and structures shall be removed and properly disposed of.

## III. Measurement and Payment.

**"Demolition of Existing Asphalt or Concrete, Includes Disposal"** shall be measured and paid for per square yard and shall include saw cutting (if necessary), demolition, removal and disposal. The depth of the materials removed may vary, but must be sufficient to complete the installation of all new items.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Demolition of Existing Asphalt or Concrete, Includes Disposal | Square Yard |

CITY OF WINCHESTER
TECHNICAL SPECIFICATION
**EROSION AND SEDIMENT CONTROL**



## I. Description.

This work shall consist of implementing and maintaining all necessary erosion and sediment control measures to comply with all applicable laws and regulations.

## II. Procedures

A. Permit: The Contractor shall prepare the Stormwater Pollution Prevention Plan (SWPPP) for the project and obtain the required VSMP General Permit for Stormwater Discharges from Construction Activities from the City of Winchester before commencing construction. The contractor shall provide the City with proof of coverage under the VSMP prior to starting construction.

B. General: All materials and erosion control measures shall be in accordance with the Virginia Erosion and Sediment Control Handbook (VESCH), and all revisions and addenda. Methods used on site shall include, but shall not be limited to; VESCH, Chapter 3.

C. Performance Requirements: The erosion control measures shall be installed such that the erosion of disturbed ground and the siltation of storm drain pipes and inlets will be prevented.

D. Regulatory Requirements: All phases of the construction work shall comply with or exceed the minimum state requirements for controlling erosion and sedimentation from "land disturbing activities" as outlined in the "Virginia Erosion and Sediment Control Handbook" (VESCH), and all revisions and addenda thereto.

E. All erosion control facilities shall be inspected by the contractor weekly and after each significant rainfall. Inspection shall be performed daily during periods of prolonged precipitation. Any required repairs shall be made immediately. The contractor shall be required to install all measures necessary to be in compliance with the permit at all times during the project, as directed by the County.

## III. Measurement and Payment.

**"Erosion and Sediment Control"** shall be paid for as a lump sum for the project and shall include all necessary materials and erosion control measures to maintain compliance with the SWPPP obtained for this project by the Contractor. Price shall also include the cost necessary to obtain the SWPPP permit from the City.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Erosion and Sediment Control | Lump Sum |

# ROCK EXCAVATION



## I. Description.

This work shall consist of excavation of solid rock required to complete any work on the project. No blasting shall be allowed.

## II. Measurement and Payment.

**"Rock Excavation"** will be measured and paid for at the contract unit price per cubic yard of rock removed. This price shall include excavation and disposal of material.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Rock Excavation | Cubic Yard |

CITY OF WINCHESTER
TECHNICAL SPECIFICATION
**DISPOSAL OF MATERIALS**



## I. Description.

This work shall consist of properly disposing of all excess and unsuitable materials from the project including, but not limited to: concrete, asphalt, bricks, soil/gravel, rock, existing pipes, existing manholes, signs, posts, etc.

## II. Procedures

A. Disposal of all materials shall comply with all applicable federal, state, and local regulations and compliance shall be the sole responsibility of the Contractor.
B. Prior to commencing work, the Contractor shall submit to the City for approval, a written plan detailing how and where all materials shall be disposed of from the project.
C. The Contractor shall provide the City with copies of written agreements from private landowners and/or written approval from landfill operators accepting disposal of the materials from the project.
D. For disposal of materials on private property, the written disposal plan shall include the following:
   1. the location and approximate boundaries of the disposal area;
   2. procedures to minimize erosion and siltation;
   3. provision of environmentally compatible screening;
   4. restoration plan;
   5. cover vegetation;
   6. other use of the disposal site;
   7. the drainage pattern on and away from the area of land affected, including the directional flow of water and a certification with appropriate calculations that verify all receiving channels are in compliance with Minimum Standard 19 of the Virginia Erosion and Sediment Control Regulations;
   8. location of haul roads and stabilized construction entrances if construction equipment will enter a paved roadway;
   9. constructed or natural waterways used for discharge;
   10. a sequence and schedule to achieve the approved plan and;
   11. the total drainage area for temporary sediment traps and basins shall be shown. Sediment traps are required if the runoff from a watershed area of less than three acres flows across a disturbed area. Sediment basins are required if the runoff from a watershed area of three acres or more flows across a disturbed area. The Contractor shall certify that the sediment trap or basin design is in compliance with VDOT Standards and Specifications, all local, state, and federal laws. Once a sediment trap or basin is constructed, the dam and all outfall areas shall be immediately stabilized.
E. Upon completion of the use of private property as an approved disposal area, the Contractor shall furnish the City a release signed by the property owner indicating that the property has been satisfactorily restored.

## III. Measurement and Payment.

There shall be no separate payment for this work and the costs associated with this work shall be included in other pay items.

# MAINTENANCE OF TRAFFIC



## I. Description.

This work shall consist of maintaining and protecting traffic (vehicular and pedestrian) through areas of construction, maintaining public and private entrances, constructing and obliterating detours, and protecting the traveling public (both vehicles and pedestrians) within the limits of the project and over detours.

## II. Procedures

Traffic shall be maintained and protected in accordance with the requirements of Section 105.14 of the VDOT Specifications. Work shall be scheduled and performed so as to provide minimum interference with and maximum protection for traffic. The Contractor's personnel, equipment, machinery, tools, and supplies shall be kept outside the clear zone and clear of active traffic lanes except as necessary for prosecuting active work. Stabilized construction entrances shall be used in construction areas where there is a potential for construction vehicles to track material from the construction site onto a paved surface. Material that is spilled or tracked onto the traveled pavement during prosecution of the work shall be promptly removed.

The Contractor shall maintain the traffic control devices, which shall include, but not be limited to, repositioning of displaced devices including traffic barrier service, replacement due to inadequate structural integrity including traffic barrier service, replacement due to loss of reflectivity, repair of defaced sheeting and legend, replacement of broken supports, repositioning of leaning signs so they are plumb and the sign face is perpendicular to the pavement edge, cleaning of dirty devices, and replacement of stolen or vandalized devices. Barricades, barriers, and other safety devices shall be inspected at least daily, and deficiencies shall be immediately corrected. Safety and protective devices furnished by the Contractor will remain the property of the Contractor and shall be removed from the project site upon completion of the work or as directed by the City.

The procedures and devices for the maintenance of traffic shall be the same as in Section 512 of the VDOT Specifications.

**The following are specific requirements for this project:**

**A. The traffic on all existing roadways adjacent to the project area shall be maintained throughout the duration of the project.**

The Contractor shall submit a traffic control plan that shall be reviewed and approved by the City before construction commences. **The Contractor shall make immediate changes to the traffic control devices as directed by the City to maintain safety.**

## I. Measurement and Payment.

Maintenance of Traffic shall be paid for as a lump sum and shall include barricades, signs, barrel, obliterating existing pavement markings and installing new (including temporary) pavement markings, flaggers, and any other items necessary to maintain traffic as per these specifications.

| Pay Item | Pay Unit |
|---|---|
| Maintenance of Traffic | Lump Sum |

## I. Description.

This work shall consist of furnishing and installing various concrete components including, but not limited to: curb, gutter, sidewalks and entrances.

## II. Materials

### a) Subbase Material

1) Subbase materials shall be in conformance with VDOT Section 208, gradation size 21-A.

### b) Concrete

1) Concrete shall be Portland Cement air-entrained Class A4 Low Permeability (4,000 psi) with natural sand unless otherwise approved in writing by the Department of Public Services. Additives such as anti-freeze and calcium chloride are prohibited.

### c) Joint Filler

1) Joint filler shall be ½" preformed asphalt expansion joint material conforming to ASTM D994 or ASTM D1751.

### d) Concrete Sealer

1) Sealer shall be Protectosil CHEM-TRETE 40 VOC by Evonik Industries or approved equal.

### e) Rubber

1) Rubber sidewalk shall be KBI Flexi-Pave HD2000. Color shall be "concrete" for sections where the sidewalk is concrete and "brick red" for sections where there is brick sidewalk.

### f) Detectable Warning Pavers

1) Truncated dome pavers used in all handicap accessible ramps shall be Hanover Detectable Warning Pavers, 11 ¾" x 11 ¾" x 2", Red 15 color, Tudor finish, or approved equal.

### g) Brick

1) Brick sidewalks shall be constructed in the Historic District per standard details SW-2, SW-3 and SW-4. Bricks shall be Pine Hall Brick Pavers, Color – Pathway Full Range, or approved equal.

## III. Procedures

### a) Sidewalks and Entrances

1) After sidewalks have been removed, the contractor shall pour replacement sidewalks within 48 hours, weather permitting.
2) The contractor shall provide adequate access for abutting owners/tenants and shall keep all natural drainage unobstructed or provide equal courses effectively placed. The Contractor shall maintain access and drainage in such a manner to afford pedestrian access to houses or buildings.

3) Any drain pipe that is under the sidewalk being replaced and is damaged, broken, or clogged, shall be replaced with SDR 35 or greater PVC pipe.
4) Contractor shall provide concrete forms and pour the concrete in conformance with Section 504 of the VDOT specifications. Concrete shall not be poured until the forms have been inspected and approved by the Department of Public Services – Engineering Division.
5) Grades shall be established by the contractor. The subgrade shall be constructed to a minimum of eight inches below the finished grade of the sidewalk. All soft and unsuitable materials shall be removed and replaced with suitable materials. The subgrade shall be compacted by approved methods until a smooth, hard and dense surface is obtained.
6) Aggregate base shall be applied to a minimum of four inches thick on the subgrade, and shall be placed in conformance with Section 309 of the VDOT Specifications.
7) The concrete for all sidewalks shall have a minimum thickness of four inches, except at driveways, where the minimum thickness shall be 7 inches. The stone subgrade shall be moistened prior to the placing of concrete.
8) The depth of the sidewalk shall be as specified and shall not have a deficiency of more than one-quarter inch.
9) All concrete sidewalks shall be constructed so as to drain to the curb on a minimum slope of one-quarter inch per foot or a maximum slope of one-half inch per foot.
10) Expansion joints shall be constructed at intervals of 30 feet, except for closures, but a slab shall not be less than five feet in length. Slabs shall be separated by transverse premolded expansion joint filler for the full width of the slab, extending from the bottom of the slab to within one-quarter inch of its top surface. The slab between the expansion joints shall be divided into blocks 10 feet in length by scoring transversely. When slabs are more than seven feet in width, they shall be scored longitudinally to secure uniform blocks approximately square. Transverse and longitudinal scoring shall extend to at least one-third of the depth of the concrete slab. Scoring may be done with trowels, finishing and edging tools or by other approved means.
11) Where sidewalks are constructed adjacent to permanent structures or other rigid construction on one side and curb on the other, an expansion joint of premolded material extending along both the structure and the curb shall be placed for the full depth of the slab. A premolded expansion joint shall be placed between the sidewalk and adjacent sidewalk or curb at all intersections or crosswalks, both public and private. All premolded expansion joint filler shall be securely fastened to prevent displacement.
12) Where the sidewalk is constructed in conjunction with adjacent curb, the expansion joints in the curb and sidewalk shall coincide. Where such construction is adjacent to existing curb, the expansion joints shall, if practicable, coincide. Prior to placing concrete around any permanent structure, premolded expansion joint material shall be placed around such structure for the full depth of the sidewalk.
13) Where existing or proposed structures, such as light standards, poles, fire hydrants, etc., are within the limits of the sidewalk area, the concrete around such structures shall be scored in a block <u>eight</u> inches wider than the maximum dimension of the structure at the sidewalk elevation. Prior to placing the concrete around such structure, a premolded expansion joint shall be placed around the structure the full depth of the concrete.

14) Finish concrete walks and driveways as specified in Section 404.19 of the VDOT Specifications.
15) Pedestrian traffic shall not be permitted to use the sidewalk for at least three days after the placing of the concrete. Vehicles shall not be permitted on the concrete until it has been in place for at least ten days, unless high early strength concrete is used.
16) Handicap ramps shall be installed in accordance with VDOT CG-12 curb ramp Specifications. Flares of the CG-12 curb ramps will have a standard broom finish.

**b) Curb and Gutters**

1) The subgrade shall be constructed to the required elevation below the finished surface of the gutter in accordance with dimensions and design as shown on VDOT Standards. Remove all soft and unsuitable material and replace with subbase material, which shall be compacted to 95% density in accordance with AASHTO-T-99 and finished to a smooth surface. Moisten the subbase prior to placing the concrete.
2) Forms shall be constructed of wood or metal conforming to VDOT Section 403.03.
3) Prior to placing concrete, check the line and grade for accuracy and fasten the face forms of the curb to the gutter forms. Spade the concrete and tamp sufficiently to bring the mortar to the surface, after which finish with a magnesium float. Construction shall be in sections of uniform lengths, providing transverse joints at approximately 10-feet intervals and when the time elapsing between placements exceeds 45 minutes. No section shall be less than 6 feet in length. Separate sections by plate steel templates set perpendicular to the grade and center line of the unit specified. The templates shall be 1/8 inch in thickness and shall have a width and depth equal to the unit cross-section. Leave these templates in place until the concrete has set sufficiently to hold its shape.
4) Form expansion joints at intervals of 100 feet or less. When the curb and gutter is constructed adjacent to rigid pavements, the location and width of expansion joints shall coincide with those in the pavement, where practicable. Where stationary structures, such as catch basins and drop inlets, are within the limits of the curb and gutter, place an expansion joint between the structure and the curb and gutter. Place expansion joints at all returns.
5) Screed the face and top of curb and surface of gutter smooth and round the edges to a radius as shown on the VDOT Standards.
6) As soon as the concrete has attained sufficient set, remove the face forms of the curb. The exposed surfaces shall be screeded with a straight edge and finished with a steel trowel. Remove all trowel marks with a brush wet with clear water. Do not use mortar in finishing.
7) The finished surface of curb and gutter shall be true to line and grade with an allowable tolerance as specified in Section 316.05 of the VDOT Specifications.
8) After the concrete has set, fill the spaces on both sides of the gutter or the back side of curb to the required elevation with suitable material and compact to 95% density in layers of not more than 6-inches.
9) The Contractor is responsible for the replacement of any pavement that is damaged and/or removed due to placement of curb and gutter. All patches shall be saw cut and patched according to the latest practices used in asphalt practices used in asphalt patching and as approved by the Department of Public Utilities - Engineering Division.

**c) Construction of Forms**

1) Construct wood forms of sound material, and of the correct shape and dimensions, constructed tightly and of sufficient strength. Brace and tie the forms together so that the movement of men, equipment, materials or placing and vibrating the concrete will not throw them out of line or position. Forms shall be strong enough to maintain their exact shape under all imposed loads.
2) Use form ties of sufficient strength and in sufficient quantities to prevent spreading of the forms. Place ties at least 1 inch away from the finished surface of the concrete.

**e) Preparation for Placing**

1) Remove water from excavations before concrete is deposited. Remove hardened concrete, debris, ice and other foreign materials from the interior of the forms and from the inner surfaces of mixing and conveying equipment. Do not place on frozen ground.
2) Prior to the placing of any concrete, notify the Owner so that proper inspection may be made.

**f) Delivery**

1) Submit a delivery ticket indicating the date, time, ticket and load number, concrete class and design mix, quantity and location of placement. The delivery ticket shall be submitted to the Owner.

**g) Placing Concrete**

1) Before placing concrete, remove all construction debris, water and ice from the places to be occupied by the concrete. Give particular attention to the removal of dirt and debris from all formed construction joints.
2) Concrete, when deposited, shall have a temperature ranging between a minimum of 50 degrees Fahrenheit (F) and a maximum of 90 degrees F. When the temperature of the surrounding air is below 50 degrees or above 90 degrees F, concreting shall be done in accordance with the recommendations noted in ACI-306 and ACI-305 respectively.
3) Mix concrete in such quantities as required for immediate use and place prior to loss of slump.
4) Spade, work and vibrate concrete as it is being poured, to secure its maximum density, free from voids and completely filling the forms.

**h) Removal of Forms**

1) After concrete has been placed, all forms, bracing and supports shall remain undisturbed long enough to allow the concrete to reach the strength necessary to support with safety its own weight plus any live load or pressure that might be placed upon it without causing excessive settlement or deflective or any temporary or permanent damage to the structure. Prevent the breaking of edges and corners of concrete in the stripping of forms. Upon removal of formwork, immediately patch any honeycombed areas and other voids to the satisfaction of the Department of Public Utilities – Engineering Division.
2) Thoroughly clean forms before each reuse.

**i) Protection of New Work**

1) Protect all freshly placed concrete from mechanical injury or action of the elements until such time as the concrete is thoroughly set.

**j) Preformed Joints**

1) Furnish and install preformed expansion joint material at appropriate locations as described above.
2) Tool the concrete edges at expansion or contraction joints to a 1/8-inch radius.

**k) Finishing**

1) After screeding and floating, give concrete slabs a light steel toweling to seal the surface and remove any irregularities left by the float. Just before the concrete becomes non-plastic, the surface of the concrete shall be given a fine broom finish perpendicular to the line of traffic and so executed that the corrugations thus produced will be uniform in character and width. The broomed surface shall be free from porous spots, irregularities, depressions, and small pockets rough spots such as may be caused by accidentally disturbing particles of coarse aggregate embedded near the surface.

**l) Curing**

1) Curing shall be started as soon as it is possible to apply the curing medium without damaging the surface, preferably immediately upon completion of the finishing operation. At no time during the curing period shall the temperature of the concrete be permitted to drop below 40 degrees F.

**m) Sealing**

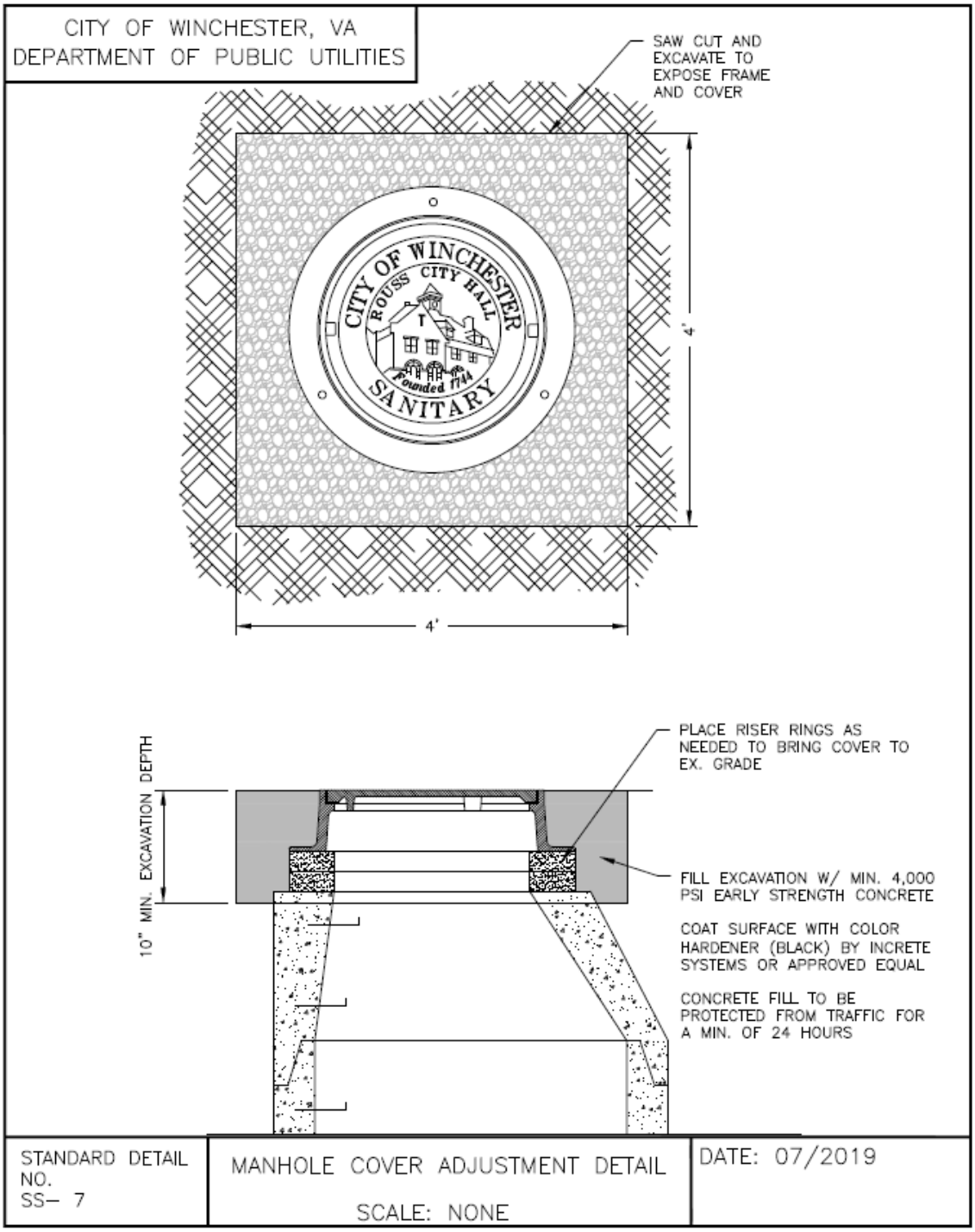
1) Concrete must be allowed to cure for a minimum of 28 days before applying sealer.
2) Contractor shall follow manufacturer's instructions for application and coverage.

**n) Defective Concrete**

1) Defective concrete is defined as concrete in place which does not conform to strength, shapes, alignment, appearance and/or elevations as required; areas which contain faulty surface areas and/or concrete surfaces not finished in accordance with these specifications.
2) Remove all defective concrete and replace in a manner meeting with the approval of the Department of Public Services.

**o) Manhole Collars**

1) Contractor shall saw-cut per the following standard detail and excavate a minimum of 10" to expose the manhole frame and cover.
2) Riser rings shall be placed as needed to bring the manhole cover to the grade of the newly paved street.
3) Excavation area shall be filled with concrete, coated with color hardener and protected from traffic for a minimum of 24 hours.


CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES
SAW CUT AND EXCAVATE TO EXPOSE FRAME AND COVER
CITY OF WINCHESTER
ROUSS CITY HALL
Founded 1744
SANITARY
4'
4'
10" MIN. EXCAVATION DEPTH
PLACE RISER RINGS AS NEEDED TO BRING COVER TO EX. GRADE
FILL EXCAVATION W/ MIN. 4,000 PSI EARLY STRENGTH CONCRETE
COAT SURFACE WITH COLOR HARDENER (BLACK) BY INCRETE SYSTEMS OR APPROVED EQUAL
CONCRETE FILL TO BE PROTECTED FROM TRAFFIC FOR A MIN. OF 24 HOURS
STANDARD DETAIL NO.
SS– 7
MANHOLE COVER ADJUSTMENT DETAIL
SCALE: NONE
DATE: 07/2019

## IV. Measurement and Payment.

**"Standard Curb, CG-2"** will be measured in linear feet and will be paid for at the contract unit price per linear foot. Measurement shall be along the face of curb. This price shall include all equipment, labor and materials for installing the curb, aggregate base course, excavating, backfilling, compacting, disposing of surplus and unsuitable materials, existing site restoration (including but not limited to asphalt and concrete) and any other item required for a complete installation.

**"Combination Curb & Gutter, CG-6"** will be measured in linear feet and will be paid for at the contract unit price per linear foot. Measurement shall be along the flow-line of the gutter. This price shall include all equipment, labor and materials for installing the curb & gutter, aggregate base course, excavating, backfilling, compacting, disposing of surplus and unsuitable materials, existing site restoration (including but not limited to asphalt and concrete) and any other item required for a complete installation.

**"Concrete Sidewalk, 4" Thick"** will be measured in square yards of finished surface, complete-in-place, and will paid for at the contract unit price per square yard. The unit price shall include all equipment, labor and materials for the installation of the sidewalk, excavation and disposal of existing material (soil, grass, or gravel), backfill, aggregate base course, existing site restoration and any other item required for a complete installation.

**"Concrete Entrance, CG-9 (7" Thick)"** will be measured in square yards of finished surface, complete-in-place, and will paid for at the contract unit price per square yard. The unit price shall include all equipment, labor and materials for the installation of the entrance, excavation and disposal of existing material (soil, grass, or gravel), backfill, aggregate base course, existing site restoration and any other item required for a complete installation.

**"Concrete Manhole Collars"** will be measured and paid for at the contract unit price for each manhole frame and cover raised and concrete collar installed. The unit price shall include all equipment, labor and materials for raising the existing collar, saw-cutting, excavation of existing manhole frame and cover and asphalt around the frame and cover, leveling rings, concrete, color hardener, protection of work, traffic control, and any other item required for a complete installation.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Standard Curb, CG-2 | LF |
| Combination Curb & Gutter, CG-6 | LF |
| Concrete Sidewalk, 4” Thick | SY |
| Concrete Entrance, CG-9 (7” Thick) | SY |
| Concrete Manhole Collars | EA |

CITY OF WINCHESTER
TECHNICAL SPECIFICATION
**DETECTABLE WARNING SURFACES**


May 2020

## I. Description.

This work shall consist of providing all labor, tools, equipment, and materials required to construct sidewalk detectable warning surfaces at all ADA ramps at crosswalks.

## II. Materials.

**a) Truncated Dome Pavers**

1) Hanover Detectable Warning Pavers, 11 ¾ ” x 11 ¾ ” x 2”, Red 15 color, Tudor finish, or approved equal.

## III. Procedures

1) Install pavers at all ADA ramps in accordance with all ADA requirements.
2) Install pavers in a 1-inch latex mortar bed, on top of a 4-inch concrete slab.

## IV. Measurement and Payment.

**“Detectable Warning Surfaces, CG-12”** will be measured and paid for at the contract unit price per square yard of surface installed. This price shall include all equipment, labor and materials for installing the truncated dome pavers: pavers, mortar bed, and concrete base slab.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Detectable Warning Surfaces, CG-12 | SY |

CITY OF WINCHESTER
TECHNICAL SPECIFICATION
**EARTHWORK**


May 2020

## I. Description.

This work shall consist of excavation and removal of any unsuitable soil material, the furnishing and placement of imported select fill material where necessary, and any grading required for the project. The excavation and removal of existing materials and the placement of imported fill shall be minimized as much as possible.

## II. Materials and Procedures

1. Imported fill material shall meet the requirements of Select Material Type I (VDOT Specifications Section 207).
2. Imported fill shall be placed and properly compacted as per VDOT Specifications Section 303 and 305.

## III. Measurement and Payment.

**"Regular Excavation"** will be measured in cubic yards of existing unsuitable soil material removed and hauled away and will be paid for at the contract unit price per cubic yard. This price shall include excavation, grading and disposal of material. Any regular excavation shall be approved by the City before completing the work.

**"Borrow Excavation (Select Fill)"** will be measured in cubic yards of select material imported, placed, grading, and compacted and will be paid for at the contract unit price per cubic yard. Any select fill shall be approved by the City before completing the work.

**"Grading"** will be measured and paid for as a lump sum for the entire project and will include moving, placing, and compacting existing on site materials as much as possible and the final grading required for the entire project. It will also include the removal and disposal of any excess soil material for the project.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Regular Excavation | Cubic Yard |
| Borrow Excavation (Select Fill) | Cubic Yard |
| Grading | Lump Sum |

CITY OF WINCHESTER
TECHNICAL SPECIFICATION
**TOPSOIL AND SEEDING**



## I. Description.

This work shall consist of furnishing and placing topsoil and seeding the area with grass.

## II. Materials.

**a) Topsoil**

1) Topsoil shall be VDOT Class B.

**b) Seed**

Seed will be fescue blend (see below) with less than 1% weed seeds and inert matter. (unless otherwise specified)

- 35% Shenandoah Tall II Fescue
- 25% Falcon IV Tall Fescue
- 10% Falcon III Tall Fescue
- 10% Creeping Red Fescue
- 10% Kentucky Bluegrass
- 10% Perennial Ryegrass

*Seed vendor: Trinity Turf, Inc. 2291 Pulse Hill Lane Harrisonburg, VA 22802, or approved equal.

c) Fertilizer

1) Fertilizer will be at a minimum 15-15-15 sulfur coated slow release.

## III. Procedures

a) Contractor shall remove and properly dispose of all the existing loose surface gravel/rocks of the area that shall receive topsoil.
b) A minimum depth of 8-inches of topsoil shall be applied to the entire area.
c) Lime shall be applied to the topsoil (rate of 2 tons/acre).
d) Topsoil shall be prepared as per VDOT Section 603.03(b).
e) Seeding method will be that of hydroseeding. Hydromulch, seed and fertilizer are to be mixed into slurry directly applied to the loosened soil.
f) Clean, dry straw is to cover all seeded areas. All straw is to be heavily tacked using a tackifier and hydroseed slurry so that the straw does not blow away.
g) Contractor shall water the new grass until a full stand of grass reaches a height of 3-inches. Any areas where a full stand of grass does not germinate and grow shall be reseeded at no additional cost to the City.

## IV. Measurement and Payment.

**"Topsoil and Seeding"** will be measured and paid for at the contract unit price per square yard of topsoil placed, prepared, and seeded. This price shall include all equipment, labor and materials for preparing

the area to receive topsoil, placing the topsoil, lime, hydromulch, seed, fertilizer, straw, watering until the grass reaches a height of 3-inches, and re-seeding if necessary.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Topsoil and Seeding | Square Yard |

**CITY OF WINCHESTER**
**TECHNICAL SPECIFICATION**
**RETAINING WALLS**



## I. Description.

This work shall consist of furnishing and installing a segmental retaining wall.

Geotechnical Recommendations: Segmental retaining walls designed to withstand lateral earth pressure and surcharge loads.

Allowable Bearing Pressure – 2,000 psf
Friction Angle for Soil Backfill - 28˚
Unit Weight of Soil Backfill – 120 pcf
Equivalent Active Fluid Pressure – 45 pcf
Equivalent Passive Fluid Pressure – 330 pcf

The Geotech recommends that passive earth pressures be neglected within 12 inches of proposed final grades at the toe of the retaining wall. The bottom of the retaining walls should be placed at a minimum depth of 30 inches below finished grade to provide adequate frost cover protection acceptable for this region. All wall backfills should be placed in accordance with the Compacted Fills section of this report. Heavy earthwork equipment should maintain a minimum horizontal distance away from the walls of one foot per foot of vertical wall height. Lighter compaction equipment should be used close to the walls.

## II. Materials.

**a) Segmental Block Retaining Wall - Precast**

1) Blocks shall be 41-inch "Ledgestone" blocks and cap as manufactured by Redi-Rock, or approved equal.

## III. Procedures

1) Precast wall shall be installed as per manufacturer's instructions.
2) Cast-in place wall shall be constructed as per detail shown on the drawings.

## IV. Measurement and Payment.

**"Segmental Block Retaining Wall, Precast"** will be measured and paid for at the contract unit price per square foot of the face of block installed, including the bottom block. This price shall include all equipment, labor and materials for installing the retaining wall including the excavation, fill material, blocks, the wall cap, the crushed stone leveling pad, and free draining backfill (VDOT No. 57 stone).

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Segmental Block Retaining Wall, Precast | Square Feet |

# SIGNAL MAST ARMS, POLES, LUMINAIRE ARMS AND SIGN SUPPORTS



## I. Descriptions:

This work shall consist of furnishing and/or installing poles for mast arm type traffic signal structures (mast arm poles, with anchor bolts), mast arms, luminaire arms, pedestal poles and sign supports (with anchor base) in conformance with the plans and this provision.

## II. Materials:

Unless otherwise specified, mast arm poles shall be a one piece or sectional single member, tubular form and shall be round tapered shaft, having a taper of approximately 0.14" per foot. For decorative mast arm poles, the shaft shall have 16 equally spaced Doric flutes, sharp and clear-cut throughout the entire length of the shaft. The radius of the flutes shall not exceed the thickness of the shaft. Individually rolled flutes or round poles with separate fluted sheathing will not be acceptable. The pole shafts and arms shall have a removable cap fastened by no less than 3 screws.

Poles, mast arms, luminaire arms, pedestal poles, sign supports, anchor bases and appurtenances shall be galvanized as per ASTM A123 and powder coated black after fabrication. All powder coated items shall be prepared in accordance with SSPC-SP7 prior to application of the powder coated system. All threads shall be protected from damage during the blasting process. Powder finish shall be 3-5 mil on all outside surfaces, with Tiger Drylac Durable Series 38 or approved equal. Powder bake according to manufacturer's recommendations, all galvanized parts shall be pre-baked to ensure all gasses are released from the galvanized surface before powder coating after which the top coat shall be applied. All products shall receive a final inspection before packaging. A mil thickness of 3-5 shall be verified and documented.

Mast arm poles, mast arms, pedestal poles, luminaire arms and sign supports shall be designed in accordance with the 1994 AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals* for an 80 mph wind load and shall include and conform to the following:

A removable steel pole cap and mast arm cap. If field adjusting of pole and/or mast arm length is required, the corresponding cap shall fit the pole and/or mast arm after adjustment. The Engineer will notify the Contractor on a per pole and/or mast arm basis whether length adjustment is required.

A steel "J" hook located within 5-inches of the top of the pole for wire suspension. When pole length has been field adjusted, a "J" hook shall be attached after length adjustment.

A grounding lug welded to the inside of the pole, easily accessible from the handhole. Grounding lug shall be designed to secure the grounding electrode conductor and equipment-grounding conductor by inserting the wire under a set screw type of lug.

### A. Mast Arm Poles.

Mast arm poles shall conform to A 595 Grade A. Mast arm poles shall include a pole flange plate conforming to A 36 and be of adequate size to accommodate the bolt pattern and edge distance for the bolts. The pole flange plate shall be continuously welded to top, bottom and side gusset plates. Top, bottom and side gusset plates shall be continuously welded to the pole and each other. The pole flange

plate shall be parallel to the axis of the pole. The pole flange plates for poles with two arms shall be positioned 90 degrees to each other. The bolted connection between the pole flange plate and the mast arm flange plate shall be suitable for arm lengths and the corresponding loading shown herein and shall be bolted together using either a through flange bolt assembly or a threaded bolt hole assembly in the pole flange plate. The pole flange plate shall have a 2 ½" diameter wiring hole and the pole shall have a 3" diameter wiring hole centered in the assembly. The wiring holes shall be deburred and rounded or fitted with a rubber grommet. The mast arm connection bolts shall consist of A 325 high strength bolts and have a minimum diameter of 1 ¼". Nuts and washers shall conform to A 194, Grade 2 or 2H and F 436, respectively.

The base plate thickness and number and diameter of the anchor bolts for the mast arm poles shall be suitable for the arm lengths and the corresponding loading shown herein. The thickness of the base plate shall be equal to or greater than the nominal diameter of the anchor bolts. The minimum distance from the center of the anchor bolt to the edge of the base plate shall be two times the nominal diameter of the anchor bolt.

All mast arm poles shall have a minimum of six (6) anchor bolts, each having a minimum diameter of 1 ½". The anchor bolt connection to the foundation shall consist of a double-nut connection (upper nut and bottom leveling nut). All anchor bolts shall be F1554, Grade 55 S1 and be galvanized in conformance with A 153. The portion of the anchor bolt to be galvanized shall extend from the top of the anchor bolt to 4" below the top of the foundation. The upper and lower ends of anchor bolts shall be threaded and furnished with two nuts and washers conforming to A 194, Grade 2H or A 563 Grade DH and F 436, respectively, per anchor bolt. No lock nuts or split washers shall be permitted with the anchor bolts. The distance between the top of the foundation and the bottom of the leveling nut shall be 1" maximum.

Grout shall not be installed between the bottom of the base plate and top of the foundation. A vented rodent barrier shall be installed, see drawing at end of specification for details. Nut covers shall be installed at each anchor bolt location.

Mast arm poles shall be of the following types:

**TYPE I** shall be manufactured for single mast arms and shall be designed and fabricated (including arm attachment) to support the mast arm lengths and loadings specified herein. Type I mast arm poles will be one of two sub-types:

- Type I-A mast arm poles shall be 19'-6" in height measured from the bottom of the base plate to centerline of the pole flange plate assembly.
- Type I-B mast arm poles shall be 15'-0" in height measured from the bottom of the base plate to centerline of the pole flange plate assembly. These poles shall be used in conjunction with a modified mast arm indicated in Subsection B.

The intended sub-type for each location will be specified on the contract plans.

**TYPE II** shall be manufactured for dual mast arms and shall be designed and fabricated (including arm attachment) to support two arms - up to 50 feet for one arm and up to 70 feet for the second arm – for the loadings specified herein. Type II mast arm poles will be one of two sub-types:

- Type II-A mast arm poles shall be 19'-6" in height measured from the bottom of the base plate to centerline of the pole flange plate assembly.
- Type II-B mast arm poles shall be 15'-0" in height measured from the bottom of the base plate to centerline of the pole flange plate assembly. These poles shall be used in conjunction with a modified mast arm indicated in Subsection B.

The intended sub-type for each location will be specified on the contract plans.

**TYPE III** shall be manufactured for single mast arm with luminaire arm. Mast arm poles shall be 26'-6" in height measured from the bottom of the base plate to the bottom of the pole cap and designed and fabricated (including arm attachment) to support both mast arm and luminaire arm of the lengths and loadings specified herein. The centerline of the mast arm connection to the pole shall be located 19'-6" from the bottom of the base plate and the upper connection of the luminaire arm to the pole shall be 26'-0" from the bottom of the base plate.

**TYPE IV** shall be manufactured for dual mast arms with luminaire arm. Mast arm poles shall be 26'-6" in height measured from the bottom of the base plate to the bottom of the pole cap and designed and fabricated (including arm attachment) to support two mast arms of any length up to 50 feet for one arm and up to 70 feet for the second arm and a luminaire arm of the length and loadings specified herein. The centerline of the mast arm connection to the pole shall be located 19'-6" from the bottom of the base plate and the upper connection of the luminaire arm to the pole shall be 26'-0" from the bottom of the base plate.

**TYPE V** shall be decorative mast arms. Decorative mast arm poles shall be Union Metal Corporation Columbian Family Series, or approved equal. Mast arm poles shall be 17'-0" in height measured from the bottom of the base plate to the top of the pole and designed and fabricated (including arm attachment) to support both mast arm of the lengths and loadings specified herein. The centerline of the mast arm connection to the pole shall be located 15'-0" from the bottom of the base. The pole top shall be designed to accept a decorative top casting or a top tenon for a pole top luminaire (to be provided by Allegheny Power). These poles shall be used in conjunction with a decorative mast arm indicated in Subsection B.

**TYPE VI** shall be decorative dual mast arms. Decorative dual mast arm poles shall be Union Metal Corporation Columbian Family Series, or approved equal. Mast arm poles shall be 17'-0" in height measured from the bottom of the base plate to the top of the pole and designed and fabricated (including arm attachment) to support two mast arms of any length up to 50 feet for one arm and up to 70 feet for the second arm. The centerline of the mast arm connection to the pole shall be located 15'- 0" from the bottom of the base. The pole top shall be designed to accept a decorative top casting or a top tenon for a pole top luminaire (to be provided by Allegheny Power). These poles shall be used in conjunction with a decorative mast arm indicated in Subsection B.

In addition to the loads indicated in Subsection B below, poles shall be designed to support a CCTV video and associated mounting bracket attached to the side of the pole 1'-0" from the top. The pole shall be designed for installation of CCTV equipment within the full pole circumference. Loading of the CCTV equipment and bracket shall be 15 lbs. dead load and 1 sq. ft. wind load area (includes drag coefficient).

**A. Mast Arms.**

Mast arms shall conform to A 595 Grade A. Mast arms shall have a mast arm flange plate conforming to A 36 and shall be of the same width and height as the pole flange plate with holes to accommodate the bolted connection described herein. The mast arm flange plate shall have a 2 ½" diameter wiring hole centered in the assembly. The wiring hole shall be deburred and rounded or fitted with a rubber grommet. The amount of arm rise (or rake angle) shall not be less than required to prevent the end of the arm from deflecting below the horizontal plane after all equipment and signs are attached nor greater than required to prevent the mounting height of signal heads from exceeding 19 feet as measured from the highest point of the pavement surface to the lowest point of the signal head assembly including backplate (if specified). Modified mast arms and decorative mast arms shall have an initial rake angle and radius (monocurve) to provide an arm rise to the tangent section to meet the requirements above for deflection of signal equipment. The modified mast arms shall only be used with pole Types I-B and II-B as listed in Subsection A. The decorative mast arms shall only be used with pole Types V and VI listed in Subsection A, and shall be interchangeable with 16-flute mast arm pole shafts.

All telescopic field joints in the mast arms shall have a minimum length of 18". The telescopic field joint shall contain a minimum 5/8" diameter galvanized threaded stud with two (2) lock nuts and flat washers installed in a shop drilled ¾" diameter hole in the outboard tube and a field drilled ¾" diameter hole in the inboard tube to assure snug fit. The galvanized threaded stud shall be cut to length in the shop. The minimum size of all extension sections shall be seven (7) gauge steel.

Mast arms shall be one of seven different lengths: 30, 40, 50, 60, 65, 70 and 75 feet and shall be designed to accommodate the dead load and wind load specified below for rigid mounted signal heads and signs.

**30 and 40 Foot Mast Arm Lengths**

Loading concentrated 1'-0" from the end of mast arm shall be a signal with backplate having a dead load of 100 lbs. and a front area of 13 sf. Three (3) additional signal loads, applied at 8'-0" (maximum) increments from the first load to the pole attachment, shall be signals with backplates having a dead load of 60 lbs. and a front area of 8 sf. The side, bottom and ice area shall be based on a standard 12" signal head section with backplate. The wind drag coefficient, Cd, shall be 1.2.

Two (2) sign loads shall be applied as follows: The Type A sign load shall be applied 4'-0" from the end of the mast arm and shall consist of a sign having a dead load of 20 lbs. and a front area of 8 sf. The ice area for the Type A sign shall be based on the front area. The length to width ratio of the Type A sign shall be 1.25 for determining the wind drag coefficient, Cd. The Type B sign load shall be applied at midpoint between the pole attachment and the closest signal load and shall consist of a sign having a dead load of 100 lbs. and a front area of 25 sf. The side, bottom and ice area of the Type B sign shall be based on a depth as indicated in the specification for LED Internally Illuminated Signs. The length to width ratio of the Type B sign shall be 5.33 for determining the wind drag coefficient, Cd.

**50, 60 and 65 Foot Mast Arm Lengths**

Loading shall be the same as for the 30 and 40 foot mast arm lengths except one (1) additional 8'-0" (maximum) increment loading of 60 lbs. and a front area of 8 sf for a signal with backplate shall be applied. The wind drag coefficient, Cd, shall be 1.2.

**70 and 75 Foot Mast Arm Lengths**

Loading shall be the same as for the 30 and 40 foot mast arm lengths except two (2) additional 8'-0" (maximum) increment loads of 60 lbs. and a front area of 8 sf for a signal with backplate shall be applied. The wind drag coefficient, Cd, shall be 1.2.

**30, 40, 50, 60, 65, 70 and 75 Foot Mast Arm Lengths**

Two (2) additional concentrated loads shall be applied to the midpoint of all mast arm lengths. The first additional load shall consist of a video camera and associated mounting bracket having a dead load of 22 lbs. and a 1 sq. ft. area (includes drag coefficient). The second additional load shall consist of an emergency vehicle preemption detection unit with confirmation light and associated mounting bracket having a dead load of 15 lbs. and a 1 sq. ft. area (includes drag coefficient). The dead load and exposed wind area for these two additional loads shall be cumulative.

An appropriate horizontal offset from the centroid of the mast arm to the application of the signal and sign loads shall be considered in the design of the mast arm.

**B. Luminaire Arms.**

Luminaire arms shall conform to A 53 Grade B and be designed for clamp on installation on the Type III, Type IV, Type VII, and Type VIII poles. Luminaire arm design shall be in accordance with the AASHTO design requirements indicated herein. Clamps shall be provided with stainless steel or galvanized hardware with a minimum of four bolts per clamp for securing the clamps to the pole. Use of U-bolts is acceptable for attaching the luminaire arm to the pole. Clamps attaching the luminaire arm to the pole shall be designed to fit the section of pole above the mast arm without using spacers or shims for a uniform rigid installation. A 2" diameter hole shall be shop drilled in the arm clamp. A 1 3/8" diameter hole shall be field drilled in the pole. The wiring hole shall be deburred and rounded or fitted with a rubber grommet.

Luminaire arm shall be a truss type design with a nominal rise of 4'-0" measured from the centerline of the upper mounting assembly of the luminaire arm to the attachment of the luminaire to the luminaire arm. Luminaire arms for either Type III or Type IV poles shall have an arm length of 15'-0".

Luminaire arms shall be designed to accommodate a video camera with a dead load of 22 lbs. and 1 sf wind load area (drag coefficient included) concentrated 1 ft. from the end of arm. An additional load applied on the end of the arm, shall be a luminaire having a dead load of 75 lbs. and 1 sq. ft. wind load area (drag coefficient included).

**C. Pedestal Poles**

Pedestal poles shall conform to the requirements of Section 700 and shall be either straight tubular or decorative, as specified on the plans. Decorative pedestals shall be Union Metal 16-flute with Columbian base or approved equal.

**D. Sign Supports/Anchor Bases**

Sign supports shall conform to A570, Grade 50.

Square Tubular Steel Sign Supports and Square Tubular Steel Anchor bases shall be formed from 12 gauge steel. All sides of the tubes shall have 7/16 inch perforated knock-outs, at one inch centers along the entire length.

The Tubular Steel Sign Supports shall be two inch square tubes. Maximum 9 SF for single sign support or 18 SF for two sign supports of sign areas with a clearance of 7 feet, 0 inches or less from ground to bottom of sign can be installed.

Square Tubular Steel Anchor Bases shall be comprised of two telescoping tubes. The first shall be 2 ¼ inch square, 3 feet long, formed from 12 gauge steel and shall snugly fit over the sign support. The second section shall be 2 ½ inch square, 18 inch long, formed from 12 gauge steel, and shall snugly fit over the 2 ¼ inch section.

**III. WORKING DRAWINGS:**

The Contractor shall submit working drawings, catalog cuts of the equipment to be installed on the mast arm and mast arm pole and design calculations in conformance with Section 105 and 700.03 of the Specifications. Working drawings and design computations shall be certified by a Professional Engineer, holding a valid license to practice engineering in the Commonwealth of Virginia and have experience in the design of traffic signal structures. A total of seven (7) copies of each shall be submitted with the manufacturer's name and address clearly noted.

The working drawings shall clearly depict all pertinent information for the poles, mast arms, luminaire arms, and appurtenances of the traffic signal structure. In addition, the orientation of the anchor bolt layout with respect to the orientation of the mast arm shall be clearly shown.

**IV. PROCEDURES:**

Mast arm poles shall not be erected on concrete foundations until the concrete has obtained a compressive strength of at least 3,000 pounds per square inch. The concrete and reinforcing steel for the traffic signal structure foundations shall conform to Section 217 and Section 223, respectively.

A 3/8" thick anchor plate shall be installed at the bottom of the anchor bolts to maintain alignment of the anchor bolt system. The bolt circle diameter for the anchor bolt holes in the anchor plate shall be the same as the bolt circle diameter for the pole base plate. The size of the anchor bolt holes to be

drilled in the anchor plate shall be 1/16" larger than the nominal diameter of the anchor bolt. A hole equal to the size of the pole diameter measured at the base shall be cut into the center of the anchor plate. The anchor plate shall consist of a ring plate with the ring width equal to the diameter of the F436 washer of the anchor bolt size used plus 1/8".

Anchor bolts shall be installed with misalignments of less than 1:40 from vertical. After installation, firm contact shall exist between the anchor bolt nuts, washers and base plate on any anchor bolt installed in a misaligned position.

Upon installation of the leveling nuts to the specified height, the pole shall be installed and all nuts shall be tightened to a snug condition. Snug is defined as the full force of an ordinary person using an ordinary spud wrench. The nuts shall then be turned an additional 30-degrees (+ 15-degrees, -0- degrees).

The tightening criteria for high strength bolts installed in through flange bolt holes of the mast arm flange plate to pole flange plate connection shall be as follows: Bolts shall be installed in all holes of the flange connection and brought up to a snug tight condition. Snug tightening is defined as the tightness that exists when the plies are in firm contact while all loads of the arm are being released. Adequate tightness may be obtained by a few impacts of an impact wrench or full effort of a person using an ordinary spud wrench. Following this snug tightening operation, all bolts in the connection shall be tightened by half (1/2) turn (± 30-degrees).

All welding shall be performed in conformance with AWS D1.5. Weld type and size shall be designed using the 1994 AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals.*

Unless otherwise specified on the plans, Mast arm poles shall be installed in accordance with these provisions and Section 700 of the Specifications.

For decorative mast arm poles and mast arms the following additional requirements apply:

Decorative mast arm poles shall include a decorative base assembly Union Metal Corporation Model Number 230, or approved equal, and shall conform to the requirements of AA-319-OF Aluminum. It shall be a two piece clamshell design with two removable doors at 180 degrees. The base shall be 40 inches in height and 25 inches in diameter at the bottom. The base halves shall be split equally and fitted to provide a hairline seam when assembled. The base halves shall be secured by stainless steel hardware with internal lugs. The base opening shall match the decorative 16-flute mast arm pole shaft. The foundation must be level to accept the base assembly.

Each mast arm pole shall be provided with a decorative pole top for mast arm poles where a pole top luminaire is not provided. This spiked shaped pole decorative pole top shall be mechanically attached to the top of the shaft to provide access for wiring signals secured by a provided J-hook wire support. Material shall conform to the requirements of AA-319.OF Aluminum.

An optional outlet frame shall be integrally welded into the pole shaft to accommodate an included 20A-125V duplex receptacle. The receptacle frame and cover shall be weatherproof to NEMA 3R standards and painted to match mast arm pole.

Manufacturer shall certify to the City that the accepted decorative mast arm pole, mast arm, and decorative shroud is or will become a stock item, readily available with replacement parts for a minimum ten year period.

An identification tag conforming to the requirements of Section 700.04(e) of the Specifications shall be permanently attached to each mast arm pole.

The Square Tubular Steel Anchor Base assembly shall be constructed by placing the 18 inch base section over the 3 foot base section so that they are flush at the top and the holes are aligned. The entire until shall be driven into the ground so that one or two rows of holes in the Square Perforated Tubular Steel Base are exposed (maximum 4 inch exposure allowed). The base shall be driven so that it remains plumb and to provide the final sign assembly with the correct orientation.

Finished length of the Tubular Steel Sign Supports shall be determined by adding the total height of the signs to 8 feet, 2 inches. The sign support shall be cut to the correct length, and cold spray galvanizing and black paint matching the powder coating shall be applied to the cut end. The signs shall be bolted to the top of the sign supports, using tamper proof bolts or drive rivets. The Square Tubular Steel Sign Supports shall be lowered 8 inches into the base, and the sign support secured to the base using two corner bolts designed for this purpose.

**I. MEASUREMENT AND PAYMENT:**

**Mast arm poles** of the types specified will be measured in units of each for the type specified and will be paid for in units of each. This price bid shall include pole, anchor bolts, anchor plate(s), field adjustment of pole lengths, base plate, pole flange plate(s), grounding lugs, hand holes and covers, terminal strips when required, pole caps, bolt covers, decorative base assemblies (where required), vented rodent barrier, fittings, rubber grommets, J-hook, identification tag, coating system, all hardware, and design and corresponding working drawings.

**Mast arms** will be measured in units of each for the length specified and will be paid for at the contract unit price per each. Mast arms shall include arms, field adjustment of arm lengths, arm flange plates, arm caps, fittings, field drilling of wire outlet holes and rubber grommets, coating system, all hardware, and design and corresponding working drawings.

**Install City-Supplied mast arm pole** will be measured in units of each for all types and will be paid for in units of each. This price shall include picking up the pole, luminaire arm (if applicable), and anchor bolts at the City Yards, located at 301 East Cork Street, transporting same to the project site, installing same at the locations designated on the plans, and field adjustment of pole lengths.

**Install City-Supplied mast arm** will be measured in units of each for all types and lengths and will be paid for in units of each. This price shall include picking up the mast arm and supplied hardware at the City Yards, located at 301 East Cork Street, transporting same to the project site, installing same at the locations designated on the plans, and field adjustment of arm lengths.

**Luminaire arms** will be measured and paid for in accordance with Section 700.05 of the Specifications. Luminaire arms shall also include field drilling of wire outlet holes and rubber grommets, coating system, all hardware, and design and corresponding working drawings.

**Pedestal poles** will be measured and paid for in accordance with Section 700.05 of the Specifications. Pedestal poles shall also include field drilling of wire outlet holes and rubber grommets, coating system, all hardware, and design and corresponding working drawings.

**Square Perforated Tubular Steel Sign Supports** will be measured and paid for at the contract unit price per each. The payment will be full compensation for the sign support, corner bolts, and painting as required, and for all materials, labor, equipment, tools, and incidentals necessary to complete the work.

**Square Tubular Steel Anchor Bases** will be measured and paid for at the contract unit price per LF. The payment will be full compensation for both tubes comprising the base section, all excavation, anchor bases, and for all materials, labor, equipment, tools, and incidentals necessary to complete the work.

Payment for mast arm poles and mast arms will be made under:

| Pay Item | Pay Unit |
|---|---|
| Mast Arm Pole Type I – for up to 40 foot mast arm | Each |
| Mast Arm Pole Type I – for up to 65 foot mast arm | Each |
| Mast Arm Pole Type I – for up to 75 foot mast arm | Each |
| Mast Arm Pole Type II – for up to dual 40 foot mast arm | Each |
| Mast Arm Pole Type II – for up to one 50 and one 70 foot mast arm | Each |
| Mast Arm Pole Type III – for up to 40 foot mast arm | Each |
| Mast Arm Pole Type III – for up to 65 foot mast arm | Each |
| Mast Arm Pole Type III – for up to 75 foot mast arm | Each |
| Mast Arm Pole Type IV – for up to dual 40 foot mast arm | Each |
| Mast Arm Pole Type IV – for up to one 50 and one 70 foot mast arm | Each |
| Mast Arm Pole Type V – for up to 40 foot mast arm | Each |
| Mast Arm Pole Type V – for up to 65 foot mast arm | Each |
| Mast Arm Pole Type V – for up to 75 foot mast arm | Each |
| Mast Arm Pole Type VI – for up to dual 40 foot mast arm | Each |
| Mast Arm Pole Type VI – for up to one 50 and one 70 foot mast arm | Each |
| Mast Arm – 30 Feet | Each |
| Mast Arm – 40 Feet | Each |
| Mast Arm – 50 Feet | Each |
| Mast Arm – 60 Feet | Each |
| Mast Arm – 65 Feet | Each |
| Mast Arm – 70 Feet | Each |
| Mast Arm – 75 Feet | Each |
| Decorative Mast Arm – 30 Feet | Each |
| Decorative Mast Arm – 40 Feet | Each |
| Decorative Mast Arm – 50 Feet | Each |
| Decorative Mast Arm – 60 Feet | Each |
| Decorative Mast Arm – 65 Feet | Each |

| | |
|---|---|
| Decorative Mast Arm – 70 Feet | Each |
| Decorative Mast Arm – 75 Feet | Each |
| Steel Sign Supports | Each |
| Sign Anchor Bases | Each |

# EMERGENCY VEHICLE PREEMPTION EQUIPMENT



## I. Description.

This work shall consist of furnishing and installing emitters and all other emergency preemption equipment in accordance with these specifications and as shown on the plans or as directed by the Engineer.

## II. Equipment.

a) Emergency preemption equipment shall be optically activated providing all features and functions as the existing equipment within the City of Winchester's emergency preemption system and shall fully interface with that existing equipment. Existing equipment consists of 3M Opticom Priority Control System:

   1) Model 721 Detector (Dual-Input, Single-Output) Unit
   2) Model 575 Confirmation Light Kit
   3) Model 138 Detector Cable
   4) Model 752/754 Phase Selectors
   5) Model 757 Auxiliary Harness
   6) Model 760 Card Racks
   7) Model 792H Emitters
   8) Model 793S Emitter Switches

b) Conductor cables between the optical detectors and the phase selector(s)/system chassis shall be in accordance with the manufacturer's recommendations. Transient protection for the cables shall be in accordance with Section 703.02(d) 3b of the Specifications.

c) Mounting System - mounting assemblies for the detectors and emitters shall be fabricated from corrosion resistant materials or shall be galvanized. The detector unit and confirmation light kit must rigidly mount directly to the signal mast arm or to a light mast arm with no moving parts. Unit bracket must be able to be leveled to accommodate mast arms that are slightly off level. Bracket hardware must mount to Pelco Astro-Brac AS-3009 or approved equal.

## III. Procedures.

Locations of optical detectors shown on plans and sketches provided by the City are approximate; actual locations shall be as required for proper signal reception and to avoid interference with other overhead-mounted equipment. Installation of all emergency preemption equipment shall be in accordance with the manufacturer's recommendations. Emergency preemption detector cables shall be permanently identified in accordance with Section 703.03(g) of the Specifications, except tags shall indicate preempt detector and the direction of approach. The Contractor shall provide five sets of the manufacturer's installation, operational and maintenance manuals for each piece of equipment to the Engineer.

## IV. Testing.

Initial testing of the emergency preemption system shall be accomplished in the presence of the Engineer and/or designated representative. The Contractor shall contact the Engineer 48 hours in advance to arrange system testing. The City will provide an operator and vehicle equipped with an emitter for the test to determine if equipment is operating properly in regards to placing the intersection in preemption. A second test will be accomplished by the City during the thirty day intersection demonstration period to verify the logging capabilities of the equipment. Equipment failing either test shall be replaced at the Contractor's expense.

## V. Measurement and Payment.

**Emitters** will be measured in units of each and will be paid for at the contract unit price per each. This price shall include Model 729H Emitters and Model 793S Emitter Switches, mounting bracket attachments, emitter cable, and manufacturer's installation, operational and maintenance manuals. Model 790-CS configuration software shall be included for the City's use for programming emergency vehicles installed with emitters. Work will include preparing catalog cuts of all supplied materials and all incidentals as required. The payment shall be full compensation for all materials, labor, equipment and all other incidentals necessary to furnish and install emitters. The City will make payment for the following item only upon receipt and acceptance by the City.

**Emergency Preemption Detector Unit** will be measured in units of each and will be paid for at the contract unit price per each. This price shall include Model 721 Detectors, Model 575 Confirmation Light Kit, mounting bracket attachments, and manufacturer's installation, operational and maintenance manuals. Work will include preparing catalog cuts of all supplied materials and all incidentals as required. The payment shall be full compensation for all materials, labor, equipment and all other incidentals necessary to complete this work. The City will make payment for the following item only upon completion of the installation and commissioning of the emergency preemption detection system and acceptance by the City.

**Emergency Preemption Detector Controller Equipment** will be measured in units of each and will be paid for at the contract unit price per each. This price shall include Model 753/754 Phase Selectors, Model 757 Auxiliary Harness, Model 760 Card Rack, mounting bracket attachments, and manufacturer's installation, operational and maintenance manuals. Work will include preparing catalog cuts of all supplied materials and all incidentals as required. The payment will be full compensation for all materials, labor, equipment and all other incidentals necessary to complete this work. The City will make payment for the following item only upon completion of the installation and commissioning of the emergency preemption detection system and acceptance by the City.

**Emergency Preemption Detector Cable** will be measured in units of linear feet and will be paid for at the contract unit price per linear foot. This price shall include Model 138 Detector Cable, and manufacturer's installation, operational and maintenance manuals. Work will include preparing catalog cuts of all supplied materials and all incidentals as required. The payment shall be full compensation for all materials, labor, equipment and all other incidentals necessary to complete this work. The City will make payment for the following item only upon completion of the installation and commissioning of the emergency preemption detection system and acceptance by the City.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Emitters | Each |
| Emergency Preemption Detector Unit | Each |
| Emergency Preemption Detector Controller Equipment | Each |

CITY OF WINCHESTER
TECHNICAL SPECIFICATION
**TRAFFIC SIGNAL CABINETS**



## I. Description.

This work shall consist of furnishing and installing NEMA TS-2 traffic signal cabinets in accordance with these specifications and as shown on the plans or as directed by the Engineer. All equipment shall meet the specifications of NEMA TS2-2003.

## II. Equipment.

a) Compatible with Existing City Equipment

Traffic signal cabinets in the City have been procured from RGA Inc. (804-794-1592). The City prefers to maintain consistency between existing equipment and equipment procured under this contract. However, any cabinet that meets these specifications will be allowed, subject to catalog cut review and approval by the City. Existing equipment consists of a Siemens/Eagle TS-2 cabinet with NEMA TS 2 Type 1 controllers

b) Cabinet Enclosure

1) Base Mounted Cabinets shall be 44” Wide, by 77” Tall, by 27.5” overall depth.

2) Pole Mounted Cabinets shall be 30” Wide, by 51” Tall, by 18” overall depth

3) Completely fabricated from .125"-thick type 5052-H32. Vinyl-coated, mill-finished aluminum utilizing intermittently welded construction, subsequently weatherproofed with silicone sealant.

4) Internal attaching components include four (4) adjustable "C" mounting channels (2 per side), and two (2) slotted rails on rear wall for attaching equipment panels.

5) The door opening is single-flanged on the sides and bottom, and double-flanged on top to prevent water drops when the door is open. The opening also includes a mount for two door-operated switches.

6) Thermoconvection air ventilation system utilized with provisions for mounting fan for forced-air cooling. Exhaust outlet openings are provided under the roof over-hang.

7) All internal and external hardware utilizes non-corrosive material.

8) Adjustable 3/8"-diameter stainless steel door stop can be latched in various positions.

9) Three (3) shelves included.

10) Interior walls powder-coated white.

c) Cabinet Door

1) Provided with three-point locking mechanism.

2) ¾"-diameter stainless steel inward turning handle with provisions for padlocking.

3) Main Door lock - industrial standard pin tumbler lock with #2 key.

4) Louvered inlet with filter to prevent dirt from entering with air flow.

5) Closed-cell neoprene door seal gasket used.

6) Heavy gauge aluminum continuous hinge utilizing a non-removable 3/16"-diameter stainless steel hinge pin for door support, carriage bolted in place, for ease of door removal.

7) A 2"-deep, fabricated switch compartment is included with a standard "police" lock and a 14-gauge stainless steel continuous hinge with a 3/32"-diameter hinge pin riveted in place. Compartment is mounted flush to the

d) Base Mounted Cabinet Foundation

The maximum width and depth shall be such that the cabinet will fit entirely on the standard CF- 1 foundation. The cabinet bolt pattern shall be rectangular, with dimensions of 40 5/8 inches in width and 18 1/2 inches in depth. Anchor bolts shall be 3/4 inch in diameter and at least 16 inches in length with a 5-inch L bend.

e) Equipment Documentation

1) Complete instructions and schematics for field connections

2) Complete manuals for all associated equipment

f) Cabinet Assembly

1) Malfunction Management Unit: MMU2-16(IP) EDI Smart Monitor

2) 8 Flash Transfer Relays

3) TF5016 terminal facility

4) Base Mounted Cabinets shall have a 16 Load Switch Terminal Facility with 16 Load Switches. Pole Mounted Cabinets shall have a 12 Load Switch Terminal Facility with 12 Load Switches

5) Base Mounted Cabinets shall have 2 Flashers, Pole Mounted Cabinets shall have 1 Flasher

6) 4 Resistors, Type RE mounted on the left wall inside the cabinet

7) Communications terminal block assembly

1) 3 EDI BIU-700 Bus Interface Units

2) Detector Rack, Type 1

3) 1 SHA-1250 plug-in AC Surge Suppressor

4) Surge Suppressor for pedestrian pushbuttons

5) 1 CPS102 Cabinet Power Supply

6) 1 Solid State Bus Relay

7) EPAC31008 "D" Panel

8) Power Panel with necessary breakers, contactors, bus bars and outlets

9) Cabinet lighting is to be LED strip lighting around door opening with door open switch

10) Technician Switch mounted inside the cabinet with Auto/Flash Switch, Stop Time Switch, Control Equipment Power On/Off Switch, Controller On/Off, Stop Time and Pedestrian Detector Input Switches

11) Police Switch mounted outside the cabinet with Auto/Flash Switch, Manual Advance/ Police Push Button and Signals On/Off Switches.

12) The cabinet shall be provided with two (2) thermostatically controller (adjustable between 80 – 150 degrees Fahrenheit) ventilation fans in the top of the cabinet plenum. The fan shall be a ball bearing type fan and shall be capable of drawing a minimum of 100 cubit feet of air per minute. The fan screen shall use 1/8" size mesh screen or higher.

13) Radio frequency interference filter rated at 50 amps

14) Transient protection devices

15) 12 outlet power strip to be mounted on shelf face

g) Powder Coating

Pole Mounted Cabinets shall be galvanized as per ASTM A123 and powder coated after fabrication. The Contractor will be notified in advance (including the color of finish coat) and cabinets shall be prepared in accordance with SSPC-SP7. All threads shall be protected from damage during the blasting process. Powder finish shall be 3-5 mil on all surfaces, inside and out, with Tiger Drylac Durable Series 38 or approved equal. Powder bake according to manufacturer's recommendations, all galvanized parts shall be pre-baked to ensure all gasses are

released from the galvanized surface before powder coating after which the top coat shall be applied. All products shall receive a final inspection before packaging. A mil thickness of 3-5 shall be verified and documented.

## I. Measurement and Payment.

**Base Mounted Cabinet** will be measured in units of each and will be paid for at the contract unit price per each. This price shall include the controller cabinet, back panels, power panels, detector panels, auxiliary panels, police panels, thermostatically controlled fan units in the cabinet with a vent, flashers, local flasher switches, radio frequency interference filters, signal switches, main switches, police hand controls, conflict monitors, flasher relay assemblies, power relays, signal control assemblies, lamp receptacles and ground fault convenience receptacles, circuit diagrams, flexible cables, grounding systems, transient protection devices, and fittings.

**Pole Mounted Cabinet** will be measured in units of each and will be paid for at the contract unit price per each. This price shall include the controller cabinet, back panels, power panels, detector panels, auxiliary panels, police panels, thermostatically controlled fan units in the cabinet with a vent, flashers, local flasher switches, radio frequency interference filters, signal switches, main switches, police hand controls, conflict monitors, flasher relay assemblies, power relays, signal control assemblies, lamp receptacles and ground fault convenience receptacles, circuit diagrams, flexible cables, grounding systems, transient protection devices, and fittings.

**Powder Coated Pole Mounted Cabinet** will be measured in units of each and will be paid for at the contract unit price per each. This price shall include all of the features of the Pole Mounted Cabinet item noted above, and powder coating.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Base Mounted Cabinet | Each |
| Pole Mounted Cabinet | Each |
| Powder Coated Pole Mounted Cabinet | Each |

CITY OF WINCHESTER
TECHNICAL SPECIFICATION
**TRAFFIC SIGNAL CONTROLLERS**



## I. Description.

This work shall consist of furnishing and installing NEMA TS-2, Type 1 traffic signal controllers in accordance with these specifications and as shown on the plans or as directed by the Engineer.

## II. Equipment.

a) Compatible with Existing City Equipment

Traffic signal controllers shall include all features and functions as existing controllers in the City of Winchester's Pleasant Valley Road closed loop system and shall completely interface with the system masters and the office computers closed loop system software. When the controllers are being installed in an isolated location, or in a system utilizing spread- spectrum radio interconnect, the controllers shall contain an additional RS232C communication port. When the controllers are being installed in a system situation utilizing hardwire interconnect, the controllers shall be capable of supporting full communications with the master controller. Existing equipment consists of Eagle Signal Model EPAC M-52 controllers, Model MARC 360 master controllers and closed loop software.

b) Signal Timing

The City will furnish controller timings including up to 5 coordination plans and preemption timings to the Contractor for implementation. The Contractor shall be present for one AM, one PM, and one either Saturday or Midday peak period once the intersection is operational to view traffic conditions and fine tune timings to provide for the orderly flow of traffic.

c) Traffic Signal Controllers

Traffic signal controllers shall be Eagle Signal Model EPAC M-52, TS-2, Type 1 controllers. The controllers shall be fully compatible for spread-spectrum radio communications for operation within a closed-loop system, and shall include all radio communications modules and firmware.

d) Isolated Intersection Traffic Signal Controller

Traffic signal controllers shall be Eagle Signal Model EPAC M-52, TS-2, Type 1 controllers. The controller shall have all necessary hardware (dual port serial option) and firmware for GPS time interface.

e) Master Controller

Master controllers shall be Eagle Signal Model MARC 360 master controllers. They shall be a stand-alone unit. The latest version of the Eagle closed-loop software for download/upload via laptop computer shall be provided with each Master Controller.

f) GPS Time Reference Receiver

The GPS Time Reference Receiver shall be readily compatible with an Eagle M-52 signal Controller. This equipment shall include a GPS Antenna, 16-foot Cat 5 cable, cable connectors, and controller interface adapters for a complete and operational installation. Installation of the GPS Antenna shall be on top of the cabinet, unless otherwise directed by the Engineer. This item shall be furnished as a turn-key system.

g) Vendor

Contact RGA Inc.
1550 Standing Ridge Drive, Suite 100
Powhatan, VA 23139
Phone: (804) 794-1592
Fax: (804) 379-1016

## III. Measurement and Payment.

**Traffic Signal Controller** will be measured in units of each and will be paid for at the contract unit price per each. This price shall include timing implementation and the traffic signal controller. The payment shall be full compensation for all materials, labor, equipment and all other incidentals necessary to complete this work.

**Isolated Intersection Traffic Signal Controller** will be measured in units of each and will be paid for at the contract unit price per each. This price shall include timing implementation, the traffic signal controller, GPS Time Reference Receiver, GPS antenna, cables, and cable connectors. The payment shall be full compensation for all materials, labor, equipment and all other incidentals necessary to complete this work.

**Master Controller** will be measured in units of each and will be paid for at the contract unit price per each. This price shall include timing implementation, the traffic signal controller, and the closed-loop software. The payment shall be full compensation for all materials, labor, equipment and all other incidentals necessary to complete this work.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Traffic Signal Controller | Each |
| Isolated Intersection Traffic Signal Controller | Each |
| Master Controller | Each |

## I. Description.

This work shall consist of furnishing and installing video detection equipment in accordance with this special provision and as shown on the plans or as directed by the Engineer. Video detection equipment shall detect by processing video images and providing detection input for NEMA TS-1 and NEMA TS-2 traffic signal controllers.

## II. Equipment

### a) Video Image Processor (VIP)

1) The VIP shall be modular by design and housed in either a self-contained stand-alone unit or fit directly into NEMA TS1 & TS2 type racks as well as Type 170/179 input files. The VIP shall be interchangeable between a shelf or rack mount installation without replacing or modifying existing VIP units.

2) The system shall control from 1 to 6 VIP boards allowing for 1 to 12 image sensors

3) The system shall be designed to operate reliably in the adverse environment of roadside cabinets and shall meet or exceed all NEMA TS1 and TS2, as well as Type 170/179 environmental specifications.

4) Ambient operating temperature shall be from –35 to +75 degrees Centigrade at 0 to 95% relative humidity non-condensing.

5) The system shall be powered by 12-40 VDC and draw less than 2 amperes.

6) The system shall utilize cabinet 24 VDC for rack mount installations or external 24 VDC for stand-alone shelf installations.

7) Surge ratings shall be set forth in the NEMA TS1 and TS2 specifications.

8) Serial communications shall be through an RS232 serial port. This port can be used for communications to a modem or laptop to upload/download detector configurations, count data and software upgrades. RS485 on the rear edge connector shall facilitate communications to other VIP boards.

9) Each VIP board shall have 4 opto-isolated open collector outputs. Twenty (20) additional outputs shall be available via the expansion port. The VIP shall have 20 presence detection zones and 4 data detection zones per camera. Data zones shall collect and store vehicle counts, volume, speed, gap time, headway, occupancy, and classification. Data shall be time-stamped (6713 intervals) and stored onboard (non- volatile memory) in intervals from 1-60 minutes.

10) Data alarms are generated for: queue, inverse direction, speed drop, no video, and errors.

11) Must be able to provide single or double loop emulation.

12) Presence hold time must have parameters that range from 10 to 600 seconds.

13) Each VIP board shall allow for 20 digital inputs via the I/O Expansion port.

14) Each VIP board shall have error detection. An output contact will open if the video signal is bad or the VIP board is not functioning properly. A user defined quality level will automatically put the VIP into a recall state in cases of severe degraded visibility (i.e., fog, blizzard, etc.). Normal detection resumes when visibility improves above the user defined quality level.

15) Operator selectable recall shall be available via the VIP front panel. Holding the recall switch on for 5 seconds shall activate this function.

16) A video select button on the VIP front panel will switch between camera images of the VIP.

17) The VIP board shall have 2 video inputs (RS-170 NTSC or CCIR composite video) and two video outputs (one on the front panel and one on the edge connector). The video inputs shall be though the VIP board's edge connector.

18) The VIP board shall have a reset button on the front panel to reset video detectors to "learn" the roadway image. During "relearn", selectable recall can be enabled or disabled for immediate operation. Learning time of video detectors shall be less than 5 minutes.

19) External surge suppression, independent of the VIP board shall separate the VIP from the image sensor.

20) The VIP board shall have separate light emitting diodes (LEDs) that indicate:

    i) POWER: Red to verify power supply.

    ii) I/O COMM: Red to indicate communications to expansion boards.

    iii) VIDEO 1 & 2: Red to verify the presence of video input 75 Ohm.

    iv) TX & RX: Red to indicate communications via the serial port.

    v) OUT1- OUT4: Green if the corresponding detection group is active.

21) The VIP board shall also have 2 separate buttons for VIDEO SELECT:

    i) RECALL: Manually places call on detectors.

    ii) RESET: Manually reset detectors to "learn" new background.

22) The video detection system shall be capable of being programmed locally with a handheld keypad. Keypad and monitor must be separate units. A PC mouse will not be allowed. The monitor is to have a 9 inch, black and white screen.

23) The VIP board shall have a video out female RCA style connector, DB9 female Service port and DB9 I/O Expansion port.

24) The VIP Expansion board shall have 8 dip switches that define inputs and outputs used (range: 1-12 or 13-24). The VIP Expansion board shall also have separate LEDs that indicate:

    i) POWER: Red to verify power supply.

    ii) COMM: Red to indicate communications to VIP board.

    iii) I/O1- I/O4: Green if the corresponding detection group is active.

25) Event Log Database: The VIP module shall have an onboard database capable of time stamping and storing 500 events. The Event Log Database can be viewed or downloaded to a selected spread sheet. Erasure of the Event Log Database shall not alter programmed configurations. As a minimum, the VIP shall log and time stamp the following events:

    i) Firmware upgrade

    ii) Loss of video signal.

    iii) Resumption of video signal.

    iv) Configuration change.

    v) Bad video quality.

    vi) Loss of power to VIP module.

    vii) Resumption of power to VIP module.

    viii) Speed alarm.

    ix) Inverse direction.

    x) Recall activated.

26) Each VIP board shall be capable of processing two (2) separate video signals (two (2) separate cameras) per VIP board. The video signal shall be analyzed in real time (30 times per second).

27) The system shall be expandable up to 12 cameras that may be connected to different

VIP units and programmed independently.

28) The system shall be capable of displaying detectors on the video image with associated outputs. Outputs/Inputs status will be indicated on the screen. Parameters will also include the ability to view raw video without any verbiage and/or detectors for surveillance purposes.

29) Each VIP board will detect within the view of the connected camera the presence of vehicles in user defined zones. Detectors available shall be presence, count, queue, delay, extension, or pulse mode of either arrival or departure of vehicles. Delay and extension shall be defined between 0.1 – 99.9 seconds and pulse mode between 0 – 200msin 33ms increments if NTSC is used. Each VIP board shall also detect and collect traffic data of passing vehicles in user-defined zones within the view of the connected camera.

30) Collected traffic data by direction shall include:

    i) Volume (absolute numbers) per length class and per lane.

    ii) Average speed (km/h or mph) per length class and per lane.

    iii) Average gap time (1/10 sec) per length class and per lane.

    iv) Average headway (m or feet) per lane.

    v) Occupancy (%) per lane

    vi) Concentration (vehicles/km or mile) per lane.

    vii) Average length (m or feet) per lane.

    viii) Confidence level (0-10) per lane.

31) The VIP board shall be programmed without the use of a supervisor computer. A standard CCTV monitor and handheld keypad plugged into the VIP serial port will facilitate detector programming. The handheld keypad shall include the following keys and respective functionalities:

| **Keys** | **Functionality** |
|---|---|
| Enter Key | ● To enter a menu, a submenu or an item within a submenu.<br>● To select a value for a parameter and exit the topic. |
| Escape Key | ● To exit the menu or submenu.<br>● To exit the main menu and save the settings in the current |

| **Keys** | **Functionality** |
|---|---|
| | configuration. |
| Arrow Keys | ● To scroll through a menu.<br>● To scroll through the values of a parameter.<br>● To select a submenu.<br>● To make a presence zone direction sensitive. |
| F1 Next Key | ● To proceed to the next detection zone. |
| F2 Prev Key | ● To move to the previous detection zone. |
| F3 Add Key | ● To add a detection zone. |
| F4 Del Key | ● To delete a detection zone. |
| Dir Key | ● To make a data zone direction sensitive. |
| Help Key | ● To display help text for an item. |
| Output Number Key | ● To assign an output number to a detection zone. |
| Operate Key* | ● To put the board in operation mode. |
| Edit Key | ● To change settings while starting from default values for all parameters. |
| Modify Key* | ● To change settings while starting from the last saved settings for all parameters. |

* The functionality of this key is only for the video system communications modules

32) The VIP board shall store up to 8 detector configurations (4 per video input). It shall be possible to switch between detector configurations manually, automatically by time of day or remote input.

33) Via the serial port, detector configurations can be uploaded to a laptop and stored on disk.

34) Detectors may be linked to 24 outputs and 20 inputs using Boolean Logic features: AND, OR, NOT. It will be possible to generate conditional outputs based upon inputs from a controller.

It shall be possible to make a detector directional sensitive. Options will include an omni-directional detector or a detector that only senses movement: from right to left,

left to right, up to down or down to up as you look at the monitor.

35) All detectors and parameters can be changed without interrupting detection. For example: when one detector is modified, all existing detectors continue to operate, including the one that is being modified. When the new position is confirmed, the new detector will enter a learning phase. Once the new detector is in function, it will take over the job of the old one. In this way, the detector is always fully operational with no interruption on any detector, even during modification. Learning phases for new detectors shall not exceed 10 seconds.

36) Four data detection zones per camera on a two camera VIP board may be used for collection of vehicle count, speed, classification, occupancy, density, headway, and gap time. These detectors will detect and store traffic data at user-defined intervals of 1, 2, 3, 5, 6, 10, 15, 30 & 60 minutes. It shall be possible for each VIP board to store up to 6713 intervals of data in non-volatile memory.

37) Six detectors per camera may be used as queue detectors. Using on screen calibration, queue detectors will detect queue delays and display the queue length in feet or meters. A queue may also generate an output alarm from the VIP board.

38) Associated software shall be used with a PC to download count data and export to a spreadsheet. The software shall also be used to upload/download detector configurations, traffic data, technical events and update software versions of the VIP board.

39) All software upgrades to associated software and VIP board software shall be provided at no cost to the City for the expected life of the VIP board.

40) The VIP board shall have an internal clock with daylight saving time system, which can be enabled or disabled.

41) The VIP board shall provide overlaid tool tips for each individual menu- and submenu-items.

42) The VIP board shall have an optional password implementation. Different user-levels shall be available each having different rights.

43) All equipment must be capable of having a minimum of 10 users that can be defined for each user-level.

44) The VIP board shall be able to delay or extend a detector zone output in combination with an input from the controller.

45) The VIP board shall detect wrong-way drivers and shall provide an alarm/event via communication board and/or output.

1) The VIP board shall provide an alarm and/or output when the user selected queue detection threshold of occupancy is exceeded for more than a user selected time threshold.

2) The VIP board shall distinguish five classes of detected vehicles based upon user selectable vehicle length thresholds.

3) The VIP shall be able to emulate loop emulation with user selectable loop dimensions.

4) The VIP shall have a Detection Hold Time function. The timing parameters shall be 10 – 600 seconds.

5) The VIP board shall provide advanced settings to optimize detection to avoid cross-lane traffic occlusion. Directional detectors shall be able to be programmed for Low, Medium or High depending on the severity of the occlusion.

6) The VIP shall be programmable for Wrong Way Suppression Delay. The timing parameters shall be 1 – 30 seconds.

7) The VIP board shall utilize advanced shadow rejection algorithms. It shall be possible to place detection zones over lane markings without affecting the shadow rejection accuracy from adjacent vehicle (moving) shadows.

8) The VIP board shall utilize an advanced Tree Shadow Suppression algorithm to suppress false detection of moving shadows (non-vehicular, i.e. trees) within a detection zone. It shall be possible to enable or disable this feature.

9) The VIP board shall provide integrated image quality diagnostics eliminating the need for users to manually place quality detection zones on the image. Advanced diagnostic information shall display both the quality of the video images (Qim) as well as the quality of detection (Qdet). The Qim and Qdet together will be averaged to provide an overall quality (Q). Each quality diagnostic (Qim, Qdet & Q) will be based on a 1 (poor quality) to 10 (excellent quality) scale.

10) The VIP board shall provide the capability to enter a “recall” state if the quality threshold falls inside a user-defined range. The range shall be defined by the Quality Level (1-10) and a timeout range of 1 to 99 minutes. For example, if the quality drops to level 5 for 2 minutes, the VIP shall enter a “recall” mode. Once the quality rises above level 5 for 2 minutes, the VIP resumes normal operation. The VIP shall also provide a contact closure output during this condition.

**b) Video System Communications Module**

1) The Communication board shall be modular by design and housed in either a self-contained stand-alone unit or fit directly into NEMA TS1 & TS2 type racks as well as Type 170/2070 input files.

2) The Communication board shall control from 1 to 6 VIP boards allowing for 1 to 12 image sensors.

3) The system shall be designed to operate reliably in the adverse environment of roadside cabinets and shall meet or exceed all NEMA TS1 and TS2, as well as Type 170/2070 environmental specifications.

4) Ambient operating temperature shall be from –34 to +74 degrees Centigrade at 0 to 95% relative humidity non-condensing.

5) The system shall be powered by 12-40 VDC and draw less than 2 amperes.

6) Serial and Ethernet (TCP/IP) communications shall be through respectively an RS232 serial port (F DB9 connector) and Ethernet port (RJ-45 connection). These ports can be used for communications to a laptop or modem to upload/download detector configurations, traffic data, technical events, send software upgrades and do remote setup of detectors. RS485 on the rear edge connector shall facilitate communications to VIP boards.

7) Surge ratings shall be set forth in the NEMA TS1 and TS2 specifications.

8) The Communication board shall have separate light emitting diodes (LEDs) that indicate:

   i) POWER: Red LED to verify power supply.

   ii) LAN: Red LED to indicate data activity over Ethernet communication.

   iii) VIDEO OUT: Female RCA style connector.

   iv) RESET: Manual reset to re-initialize communications.

   v) SERVICE: DB9 female Service port for setup of communication board and also used for serial/dial-up communication.

9) The Video System Communication board shall control from 1 to 6 VIP boards allowing for 1 to 12 image sensors.

10) The Video System Communication board shall provide a serial or Ethernet interface and communication to provide traffic data and allow remote configuration from the Traffic Operations Center.

11) The LAN port shall meet IEEE 802.3 with a RJ-45 connector and meet the following specification: Data rates for Ethernet via LAN port: 10Mbit/s, TCP/IP based protocol.

12) The serial communications port shall meet EIA-232-E and meet the following specifications:

i) Dial-up data rates for RS232 via Serial port: maximum 57600 bps

ii) Direct data rates for RS232 via Serial port: maximum 115200 bps

iii) Mode of operation: asynchronous, serial, 8 bit word, 1 stop bit, duplex or half-duplex

iv) Parity: none

v) Handshake: RTS - CTS, DCD

vi) Configuration: DTE

13) The communication shall support all functions of the video detection system.

14) All data transmissions shall be protected by CRC (cyclic redundancy checking) or an equivalent error detection method.

15) The communication board shall be programmed without the use of a supervisor computer. A standard CCTV monitor and keypad plugged into the communication serial port will facilitate board programming.

16) The communication shall support streaming video over Ethernet and serial communication.

17) Streaming video frame rate:

i) Over Ethernet: 10 frames/second

ii) Over serial communication: guarantee of 1 frame every 2 seconds.

18) Password protected remote setup (configuration upload/download, setup of detectors and detector parameters, setup of communication board parameters, firmware updates for Communication and VIP module) and monitoring of every connected VIP module shall be possible.

19) Dialup shall be possible through PSTN modems.

20) The Communication board shall log data and events provided by the VIP module(s) and transmit data and events to the HOST computer.

21) RS485 communication to every VIP module shall be established via the Edge connector.

22) The Communication board shall able to store on board pre-post video sequences of alarm triggered upon traffic user defined events. When connected to a HOST computer, the JPEG video sequences shall automatically be downloaded to the HOST computer.

23) The Communication board shall be able to accept PAL or NTSC video format.

24) A (via Ethernet) connection with a standard Internet browser shall be possible to communicate with the Communication board for remote set-up, monitoring and real-time data of the VIP modules.

25) Password protection shall be provided on the Communication board for remote operations.

**c) Thermal Camera**

1) Specifications

i) Array Format (NTSC) – 320 x 240

ii) Detector Type – Long-Life, Uncooled VOx Mircrobolometer

iii) Effective Resolution – 76,800

iv) Pixel Pitch – 25 µm : 48º x 37º (FC-348t ; 9mm)

v) Field of View - 34º x 26º (FC-334t; 13mm): 24º x 18º (FC-324t; 19mm)

vi) Spectral Range – 7.5 µm to 13.5µm

vii) Focus Range – Athermalized, focus-free

2) Outputs

i) Composite Video NTSC or PAL

ii) External Analytics Compatible

3) General

i) Weight Dimensions (L, W, H) – 4.2lbs (w/ sun shield); 10.8” x 5.4” x 4.4” (w/ sun shield)

ii) Input Voltage – 90-240 VAC single phase; 50-60 z

iii) Power Consumption – 1.7 W nominal at 110 VAC; 18 W peak w/ heaters

iv) Mounting Provisions – Two ¼-20 threaded holes, 1” spacing along centerline front to back

4) Environmental

   i) IP Rating – IP66

   ii) Operating Temperature Range - -50ºC to 75ºC (continuous operation); -40ºC to 75ºC (cold start)

   i) Storage Temperature Range - -55ºC to 85ºC

   ii) Range Humidity – 0-95% relative

**d) Image Sensor-Housing**

1) The environmental housing shall be an aluminum enclosure designed for outdoor CCD camera installations.

2) Temperature range -40 to +50 degrees C

3) Housing mounting Three 1/4-20 tapped holes

4) Camera mounting Removable cradle assembly

5) Cable entry Three liquid-tight fittings that will accept cable diameters of:

   i) One fitting -2 to 7 mm

   ii) Two fittings - 3 to 10 mm

6) Finish: Off-white semi-gloss polyurethane

7) Construction: Extruded aluminum housing, Aluminum rear-end cap, Aluminum front cap with glass face plate, and Aluminum cradle. A sunshield shall be included

8) Window: 3 mm thick glass that includes a Thermostatically controlled window Heater/defogger strip

9) Rated input voltage: 115 VAC 60 Hertz

10) Voltage range: 108 VAC to 132 VAC

11) Output voltage: 24 VAC 60 Hertz

12) Nominal power: 30 Watts

13) Enclosure protection: Waterproof and dust-tight in a NEMA-4, IP65, enclosure Type 3

**e) Surge Protection**

1) A video surge suppressor(s) shall be available for installation inside the traffic signal controller cabinet. The suppressor shall provide coaxial cable connection points to an EDCO CX06-BNCY or approved equal transient suppresser for each image sensor.

| | | |
|---|---|---|
| 2) | Peak Surge Current (8 x 20 us) | 20KA |
| 3) | Technology | Hybrid, Solid State |
| 4) | Attenuation | 0.1db @ 10Mhz |
| 5) | Response Time | <1 nanosecond |
| 6) | Protection | Line to Ground |
| 7) | Shield to Ground | (isolated shield modules) |
| 8) | Clamp Voltage | 6 volts |
| 9) | Connectors | BNC |
| 10) | Impedance | 75 Ohms |
| 11) | Temperature | -40 to +85 degrees C |
| 12) | Humidity | 0-95% non-condensing |
| 13) | Dimensions | 4.5” x 1.5” x 1.25” |
| 14) | UL Listed | UL 497B |

**f) Image Sensor-Mounting Brackets**

1) Mast arm installations shall be mounted at a sufficient height to prevent occlusion from cross traffic between the stop bar and the mast arm on which the camera is installed. A 74” maximum length of internally reinforced, aluminum tube shall be attached to the mast arm bracket for camera mounting above the mast arm. Camera shall be mounted to the top of the tube with the camera manufacturers recommended bracket. Camera bracket shall provide adjustments for both vertical and horizontal positioning for the camera. Camera attachments shall be designed to securely fasten the camera to prevent the extension tube from falling into the path of vehicles and/or becoming loose. Mounting bracket must fasten to the Mast arm using a 64” or 82” aircraft cable. Miscellaneous hardware shall be stainless steel or galvanized steel. The cameras and associated pole/arm attachment unit shall be designed to withstand a wind load of 90 MPH with a 30-second gust factor.

2) Luminaire arm installations shall be installed on the luminaire arm, with the camera/video manufacturers recommended brackets. Camera luminaire brackets shall provide adjustments for both vertical and horizontal positioning of the camera. Camera attachments shall be designed to securely fasten the camera to the luminaire arm. Mounting bracket shall be made of aluminum. Miscellaneous hardware shall be stainless steel or galvanized steel. The cameras and associated pole/arm attachment unit shall be designed to withstand a wind load of 90 MPH with a 30-second gust factor.

**g) Image Sensor-Cable (Coaxial & Power)**

1) Coaxial & Power cable (Siamese) shall be installed in conduits or overhead as indicated in the plans. Coaxial cable shall be suitable for exterior use and in direct sunlight.

Power cable will have a minimum of five (5) conductors.

2) A junction box on the camera bracket arm shall provide access to video and power cable terminations. No soldering shall be required in the field. Coaxial cable will terminate with a "barrel" style BNC connector and power shall be terminated via a small terminal strip or via "wire nuts."

3) Coaxial cable will be terminated in the surge suppressor before being connected to the VIP boards.

4) Power cable will be terminated into a fuse panel provided by the manufacturer and connected to 120 VAC in the controller cabinet.

5) Description of cable: Composite, 6 Conductors 2 elements: 18awg 5 conductors 7/26 bare copper, .016" polyethylene, 20awg 1 conductor, solid bare copper, 056" foam polyethylene jacket black, overall .030" PVC jacket black.

**h) Video Monitor**

A monochrome monitor for viewing the video output from the video processor unit shall be provided in the controller cabinet irregardless of the programming method utilized by the equipment. Monitor shall have a minimum diagonal measurement of 9". Monitor resolution shall exceed the required camera resolution. Monitor shall be provided with connector and cable for connection to the video processor unit. Monitor shall be provided with front panel mounted controls for contrast, brightness, vertical hold, horizontal hold and power on/off. Monitor shall be provided with 125 VAC power cord. Monitor shall fit on the shelf within the control cabinet without interference to control equipment.

## III. Installation & Training

**a)** The product supplier of the video detection system shall supervise the installation and the testing of the video equipment. A factory certified representative from the manufacturer shall be on-site during installation. The factory representative shall install, make fully operational, and test the system as indicated on the intersection drawings and this specification.

**b)** Two days training shall be provided to personnel of the contracting agency in the operation, setup, and maintenance of the video detection system. Instruction and materials shall be produced for a maximum of 10 persons and shall be conducted at a location selected by the contracting agency. The contracting agency shall be responsible for travel, room and board expenses for its own personnel.

## IV. Warranty

**a)** The video detection system shall be warranted against manufacturing defects in materials and workmanship for a period of two years from date of installation. The video detection supplier shall provide all documentation necessary to maintain and operate the VIP system.

**b)** Life expectancy of the video cameras and VIP boards shall be a minimum of five (5) years.

## V. Measurement and Payment

**3- Video Detection Camera Intersection** will be measured in units of each for the type specified and will be paid for at the contract unit price per each. This price shall include:

- Two 2-position VIP Cards
- Three Camera Assembly Packages
- Three Camera Mounting Assemblies, Mast Arm, Side of Pole, or Luminaire Arm as per the plans
- One Camera Interface Panel, 3-Camera, NEMA
- One 10-Pos Rack wired for ViewCom/E Expansion
- One Power Supply for 10-Pos Rack
- Eight BNC connectors
- One Programming Keypad
- One 9" Monitor
- Software
- Transient protection
- Hardware
- Warranty
- Technical Support

**Video Detection Camera Cable** will be measured in units of linear feet and paid for at the contract unit price per linear foot. This price shall include the Siamese (coaxial and power) cable.

**Video Detection Camera Y Cable** will be measured in units of each for the type specified and will be paid for at the contract unit price per each. This price shall include Y Cables (BNC to 2 wire) for installation into existing racks.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Three Video Detection Camera Intersection | Each |
| Video Detection Camera Cable | Linear Feet |
| Video Detection Camera Y Cable (BNC to 2 wire) | Each |

## I. Description.

This work shall consist of furnishing and installing traffic signal head sections in accordance with these specifications and as shown on the plans or as directed by the Engineer. It is the City's intent that the signal head sections match those being used elsewhere in the City.

## II. Detail Requirements. Traffic Signal Head Sections.

a) All pedestrian signal head sections shall be 16" x 18" LED Dual Pedestrian Countdown signals. All LED traffic signal head sections shall be 12 Inch Balls, and/or 12 Inch Arrows

b) Approved Products - The following manufacturer's products are approved for use in the City of Winchester:

i) Manufacturer:

General Electric
Company 3135 Easton
Turnpike
Fairfield, CT 06828
Toll Free: 1-800-417-0575
www.gelighting.com

ii) Model numbers:

PS7-CFF1-VLA 16" x 18" Overlay Countdown GTX City LED Countdown Pedestrian Signal

DR6-RTFB-VLA TINTED RED 12" BALL GTX City LED Signal Module DR6-YZFB-VLA TINTED YELLOW 12" BALL GTX City LED Signal Module DR6-GTFB-VLA TINTED GREEN 12" BALL GTX City LED Signal Module

DR6-RTAAN-VLA RED 12" GTX City Arrow Signal Module
DR6-YTAAN-VLA YELLOW 12" GTX City Arrow Signal Module
DR6-GTAAN-VLA GREEN 12" GTX City Arrow Signal Module

iii) Distributed and delivered through:

Traffic Systems &
Technology 10110
Battleview Parkway
Manassas, VA 20109
(703) 530-9655

c) The Contractor may provide alternate products for consideration by the Engineer. The alternate system shall meet the specifications listed above and as shown on the plans or as directed by the Engineer. The approval of alternate traffic signal head sections is at the sole discretion of the Engineer.

CITY OF WINCHESTER
TECHNICAL SPECIFICATION
**WIRELESS BROADBAND RADIO EQUIPMENT**



## I. Description

This work shall consist of furnishing and installing spread - spectrum radio equipment in accordance with this special provision and as shown on the plans or as directed by the Engineer. Spread-spectrum radio equipment shall be used for bi-directional data communications between master and local intersection controllers.

## II. Materials

a) **Electrical Items** shall conform to the requirements of Section 238 of the Specifications.
b) **Galvanizing** shall conform to the requirements of Section 233 of the Specifications.
c) **Steel** for fabricated items shall conform to the requirements of Section 226 of the
d) Specifications.
e) **Aluminum** for fabricated items shall conform to the requirements of Section 229 of the
f) Specifications.

## III. EQUIPMENT

a) Compatible with Existing City Equipment

Wireless broadband radios shall include all features and functions as existing radios in the City of Winchester's Pleasant Valley Road closed loop system and shall completely interface with the system and current computer control program. Existing equipment consists of Encom Model COMMPAK BB5858 Ethernet radios. Current computer control program is Encom Stratos Plus Version 2.1.39.0

b) **Power and Communication Cable** Power and communication cable shall be category 5E conforming to the following:
- Number of Conductor Pairs: 4
- Size: 24 AWG
- Stranding: Solid
- Conductor Material: Solid Annealed Bare Copper
- Shield Material: Al Foiled Shield
- Designed for direct exposure to all weather conditions

c) **Antenna Cable:** Antenna cable shall be flexible type coaxial cable conforming to the following:
- Impedance 50 ohms
- Type LMR 400 (Times Microwave) or approved equal
- Feedline loss of the antenna cables shall be no more than 3dB per fifty feet
- Frequency range 902-928 MHz
- Black polyethylene or equal outer jacket
- Minimum bending radius of 1 inch
- Designed for direct exposure to all weather conditions

d) **Antenna Interface Cable:** Antenna cable connecting surge suppressor to radio shall be `"Superflexible" type coaxial conforming to the following:
- Impedance 50 ohms
- RG-58
- Frequency range 902-928 MHz
- Minimum bending radius of 1inch
- Black polyethylene or equal outer jacket
- Maximum length to be 6 feet

e) **Lightning Protection:** Lightning protection device shall conform to the following:
- Frequency Range 1.5 - 1000 MHz, D.C. blocked
- VSWR 1.5:1 Maximum
- Power Capacity 200 Watts @ 900 MHz
- Insertion loss of less than 0.1 dB @ 900 MHz
- Surge 50kA, 8 x 20 microseconds waveform, 500 joules
- Connectors "N" type female

f) Vendor Contact

RGA Inc.
1550 Standing Ridge Drive, Suite 100
Powhatan, VA 23139
Phone: (804) 794-1592
Fax: (804) 379-1016

## IV. Procedures

a. **Transceivers:** The Contractor shall perform a wireless site survey, prior to installing Wireless broadband radios transceivers, connecting cables and other incidentals needed in existing or new traffic control cabinets as indicated by the plans or as directed by the Engineer. Tests shall be performed by the Contractor to determine transceiver system requirements, including signal strength, data transfer capabilities, spectral analyses and repeater locations (if any), and the results shall be submitted to the Engineer for approval prior to the installation of the master, remote and repeater radio transceivers. Only single radio repeaters are to be used for repeater functionality. The Contractor shall install a duplex receptacle (120VAC, 20A) in each cabinet for AC power to the spread-spectrum transceivers. Receptacles shall be wired to the existing 20 amp circuit breaker in accordance with the National Electrical Code. A spare transceiver fuse (F1) shall be included with each transceiver. Spare fuse shall be placed in a resealable envelope, labeled "spare transceiver fuse" and placed in the waterproof enclosure in the control cabinet.

b. **Antennas:** The Contractor shall install antennas, antenna masts, antenna cables and connectors at each master, repeater and remote radio transceiver location. The Contractor shall review all sites prior to installation and check clearance of all antennas to be installed with overhead power lines. Any location where the antenna will be closer than 10 feet to

the primary power line neutrals, the Contractor shall advise the Engineer. At no time shall any antenna be installed that would cause any conflict with distance regulations required by the power company.

Antenna masts shall be mounted on existing steel signal poles closest to the traffic signal controller cabinets. Masts shall be 1½ inch diameter minimum rigid galvanized metal conduit and shall be attached with the same type of band mount brackets required in Standard drawing SM-3 of the *Road and Bridge Standards.* Brackets shall be attached to the top of the pole with the antenna mast positioned horizontally away from the pole to prevent interference with the pole cap and any other attachments. The Contractor shall determine the required number of brackets to properly support the antenna and mast and submit to the Engineer for approval. Bracket hardware shall be galvanized steel or stainless steel. Location and length of the masts shall be determined prior to installation and submitted to the Engineer for approval.

Antennas shall be attached to the antenna mast with antenna manufacturers approved mounting brackets. Remote antennas shall be installed to the antenna masts and oriented such that the antennas point directly towards each respective master/repeater location. Antenna cable shall be attached to the antenna mast with stainless steel self-locking straps at the first point of contact between cable and mast and the last point of contact prior to entering pole and on 18 inch centers between those points. The Contractor shall connect all antenna connections and seal all exposed antenna connections with 2 inch wide butyl rubber tape and cover with three overlapping layers of ¾ inch black UV electrical tape for a waterproof seal. Both layers of tape shall extend 2 inches beyond both ends of connector.

Antenna cables shall be continuous from the antennas to the lightning protection at each location. Antenna lead-in cable shall be run from the lightning protection unit to the transceivers at each location. The length of antenna lead-in cable shall not exceed a maximum of six feet and shall be designed for minimal loss. Antenna cables shall be routed from the traffic signal poles to the controller cabinets through existing spare conduits in pole and cabinet foundations. The Contractor shall connect the existing spare conduit from the pole to the cabinet with the same size conduit at each location prior to installing the antenna cable. Conduit from the pole to the cabinet shall not exceed the antenna cable manufacturers bending radius or exceed the number of bends. In the event there are not spare conduits in either the pole or cabinet foundation or the bending radius and/or the number of conduit bends exceeds the cable manufacturers recommendation, the Contractor shall advise the Engineer and submit a recommended alternate installation for the Engineers approval. Installation of additional conduit in the pole and/or cabinet foundation will be accomplished and paid for in accordance with Section 109.05 of the Specifications. Any cable damaged during installation shall be replaced prior to final acceptance of the project.

When antenna cable lengths are longer than 60 feet the Contractor shall advise the Engineer of such and provide the radio transceiver manufacturer's recommendation for antenna cable for approval prior to installing. Installation of this cable will be accomplished

and paid for in accordance with Section 109.05 of the Specifications. Antenna connectors shall be installed in accordance with the manufacturer's instructions for the particular type of connector used. The Contractor shall be responsible for any special tools required for installing the connectors to assure maximum mechanical and electrical reliability.

The Contractor shall be responsible for drilling any hole in the existing or new traffic signal pole for routing cables from the antenna into the pole. Holes in mast arm poles shall be drilled approximately 2 inches from the top of the pole to the top of the hole on the side opposite the mast arm. On mast arm poles where both remote and repeater antennas will be installed, the second hole shall be drilled 90° to the other hole at the same distance from the top of the pole. If slots for the antenna cable do not exist in the strain poles, holes shall be drilled the same as required for mast arm poles except the first hole shall be drilled on the side opposite the span wire. Holes shall be fitted with a protective neoprene grommet and shall be no larger than required to provide a snug fit for the antenna cable. The Contractor shall install silicone sealant between the grommet and the antenna cable to provide a weatherproof seal. Contractor shall install lightning protection device in traffic signal controller cabinets at each master, remote and repeater radio transceiver location. Lightning protection device shall be installed between the antenna cable and the antenna lead-in cable. Location of lightning protection shall be determined during installation by the Contractor and submitted to the Engineer for approval. Lightning protection shall not interfere with cabinet wiring or traffic control equipment. Lightning protection shall be electrically bonded with a # 6 bare copper conductor to the cabinet ground buss. All connections shall be electrically and mechanically sound.

c. **Equipment Testing:** Contractor shall conduct a VSWR test at each radio transceiver location with a fully configured antenna system. The VSWR shall not exceed 1.5:1 at 900 MHz. The Contractor shall verify all spread-spectrum radio transceiver tests and signal measurements by a factory-authorized technician. Documentation of the measurements shall be submitted to the Engineer prior to final acceptance of the spread-spectrum radio equipment. Testing of the spread - spectrum traffic signal system

## V. WORKING DRAWINGS

The Contractor shall submit catalog cuts of the equipment to be installed in conformance with Section 105 and 700.03 of the Specifications.

## VI. MEASUREMENT AND PAYMENT

**Wireless Broadband Radio Transceivers** will be measured in units of each and will be paid for at the contract unit price per each. This price shall include transceivers, power supplies, modem splitters, antenna lead-in cable, lightning protection, grounding equipment, duplex receptacles with wiring, spare transceiver fuse (F1), testing and connecting cables.

**Antenna Cable** will be measured in linear feet and will be paid for at the contract unit price per linear foot. This price shall include antenna cable, stainless steel straps, tape, neoprene grommets, silicone sealant and connectors.

**Antenna** will be measured in units of each and will be paid for at the contract unit price per each. This price shall include the antenna mast, mounting assemblies, and all tools, incidentals and labor necessary to complete the work.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Spread-Spectrum Radio Transceivers | Each |
| Antenna Cable | Linear Feet |
| Antenna | Each |

CITY OF WINCHESTER
TECHNICAL SPECIFICATION

CITY OF WINCHESTER
TECHNICAL SPECIFICATION
**STORM SEWERS**



## I. Description.

This work shall consist of furnishing and installing or replacing various storm drainage system infrastructure components including, but not limited to: pipe, inlets (precast or cast-in-place), and manholes.

## II. Materials.

**a) Pipe**

1) Unless otherwise noted, all drainage pipes within the roadway shall be Class III reinforced concrete pipe.

**b) Inlets**

1) Inlets shall be standard VDOT inlets, unless otherwise noted.
2) Inlets within the street shall be capable of sustaining an H-20 loading.
3) Covers on DI-3 inlets (including modified VDOT) shall have the City of Winchester logo.

**c) Manholes/Structures**

1) Manholes shall be capable of sustaining an H-20 loading.
2) Manholes can be standard VDOT manholes or a special/modified design.
3) Manholes/Structures that are not standard VDOT designed shall be designed by a Virginia Professional Engineer. Contractor shall submit the sealed design drawings for all special/modified manholes to the City for review and approval.
4) Precast manholes are preferred, but manholes can be cast-in-place as approved by City.
5) All manhole covers shall have the City of Winchester logo.

## III. Procedures

**a) General**

1) The Contractor shall be responsible to construct the project so positive drainage is achieved in all locations within the project area.

**b) Backfill/Bedding**

1) The storm pipe shall be bedded by hand, or approved mechanical method, from 6 inches below the pipe to a minimum of 12-inches above the pipe with crushed stone classified as VDOT No. 57. Bedding material shall be deposited in the trench for its full width of each side of the pipe.
2) All inlets and manholes shall be installed on 6-inches of compacted granular bedding material (VDOT Class 21-A or VDOT No. 57).

**c) Depth and Grades**

1) Depth and grade shall be as shown on the drawings.

## IV. Measurement and Payment.

**"Storm Drain Pipe (Size and Type)"** will be measured in linear feet and will be paid for at the contract unit price per linear foot. Measurement shall be along the centerline of the pipe. This price shall include furnishing and installing: the pipe, all fittings, excavation, removal and disposal of existing asphalt or concrete, bedding and backfill, compaction, removal and disposal of excess material, sheeting, shoring, and restoring existing surfaces.

**"Storm Structure (#)"** will be measured and paid for at the contract unit price for each. This price shall include furnishing and installing: the inlet (pre-cast or cast in place) or structure, excavation, removal and disposal of existing asphalt or concrete, bedding and backfill, compaction, removal and disposal of excess material, sheeting and shoring. Where curb or curb and gutter extend along the drop inlet, the contract unit price for drop inlets shall include that part of the curb or gutter within the limits of the structure. Price shall also include providing a sealed design drawing from a Virginia Professional Engineer for any special or VDOT modified inlet/structure. If the structure is an existing structure, the price shall include any and all modifications required to the existing structure.

**"Adjust Manhole/Structure Top"** will be measured and paid for as a lump sum. This price shall include removal of frames, covers and gratings and the walls shall be reconstructed as required. Cleaned frames shall be reset at the required elevation. Upon completion of the adjustment, each structure shall be cleaned of silt, debris and foreign matter and shall be kept clear of such accumulation until final acceptance.

**"Storm Sewer Manhole Frame & Cover"** will be measured and paid for each. This price shall include furnishing and installing: the manhole frame & cover, excavation, removal and disposal of existing asphalt or concrete, bedding and backfill, compaction, removal and disposal of excess material, sheeting and shoring.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Storm Sewer Pipe (Type and Size) | LF |
| Storm Structure (Type) | Each |
| Adjust. Manhole/Structure Top | Each |
| Storm Sewer Manhole Frame and Cover | Each |

## I. Description.

This work shall consist of furnishing and installing various potable water distribution system infrastructure components including, but not limited to: water mains, water services and meters, fire hydrants, valves, and fittings.

## II. Materials.

### A. Water Mains

1) Ductile iron pipe shall be used for water lines 4 inches and larger in diameter. The ductile iron pipe shall conform to the requirement of AWWA Standard C151. Pipe shall be Class 52 minimum with cement-mortar lining and a bituminous seal coating conforming to the requirements of AWWA C205.
2) Ductile iron pipe shall be zinc coated, conforming to AWWA C150 and C151 with the following minimum properties:
   i) Coating system shall conform to ISO 8179
   ii) Coated with a layer of arc-sprayed zinc – 200 g of zing shall be applied per $m^2$ of pipe surface area.
   iii) Asphaltic top-coat shall be applied. The mean dry thickness shall be greater than or equal to 3 mils. The local allowable thickness is 2 mils.
3) Ductile iron pipe shall be encased in polyethylene in accordance with AWWA C105. Bag shall be V-Bio polywrap flat tube linear low-density polyethylene film (minimum 8 mil) or approved equal.

### B. Pipe Fittings

1) All pipe fittings shall be ductile iron conforming to AWWA C-110, C-111, C-153. Fittings shall be cement-mortar lined and with a bituminous seal coat and epoxy coating.
2) Fittings shall be short body standard with mechanical joints for buried installation and flanged for interior and exterior exposed installations.
3) All fittings shall have a pressure rating of 350 psi or greater.
4) Mechanical joint restraint for ductile iron fittings shall be incorporated in the design of the retainer gland. The gland shall include a restraining mechanism which, when activated, imparts multiple wedging action against the pipe which increases its resistance as pressure increases.
5) Glands shall be designed to allow flexibility of pipe joints after installation and backfill. Glands shall be manufactured of ductile iron, conforming to ASTM A536-80. Glands shall have U.L. listing through 24-inch in size and Factory Mutual approval through 12-inch.
6) Retainer glands shall be used on each side of fittings where the water main changes direction. Additional sets of retainer glands are required at pipe lengths above and below fittings as required.
7) Retainer glands shall be Megalug Series 1100, Uni-Flange Series 1400, or approved equal.
8) Thrust restraint on slip joint ductile iron pipe shall be American Ductile Iron Flex-Ring Joint Pipe or approved equal.
9) All accessories shall be blue fluoropolymer coated.

**C. Direct Bury Gate Valves**

1) Gate valves 12 inches and smaller shall be of the tight-closing resilient seated gate valves, which meet or exceed the requirements for AWWA C-515.
2) All resilient seat valves are to be ductile iron body, internally reinforced molded natural rubber mounted, wedged disc, non-rising stem, tapered seat type.
3) Valves shall have a clear, unobstructed water way when fully opened and shall be at least as large as the pipe inside diameter for which it is intended.
4) Valves shall open counterclockwise and seating shall use compression closure.
5) Valve end connections shall be mechanical joint.
6) Top operating nut shall be 2-inch square operating nut.
7) The operating stem shall be a minimum diameter of 7/8-inch with a triple O-ring seal. The configuration of the O-rings shall be two above and one below the thrust collar.
8) Valves must have a 250 psi working pressure and 400 psi test pressure.
9) Valves installed with more than 5 feet of cover shall have extension rods added to bring the operating nuts to within 3 feet of the surface.
10) Manufacturer shall be Mueller Company (Model 2360), American Flow Control (Series 2500 Resilient Wedge Valve), Kennedy (Model #7571 D.B.) or approved equal.

**D. Valve Box Assemblies**

1) Valve boxes are to be installed on all valves within the water network. These boxes shall be two piece and screw type for adjustment to finish grade.
2) All valve boxes shall be installed upon the valve with the use of a Valve Box Adaptor II as manufactured by Adaptor, Inc. or approved equal. The adaptor shall be manufactured to fit the specified size and brand of both valve and valve box with which it is installed. The adaptor shall be made of a resilient rubber material. The adaptor shall be installed in lieu of hardwood blocking and shall be installed incidental to the valve and box installation.
3) Valve box shall be furnished with a 5-1/4-inch lid made of cast iron and marked "Water".
4) When valve may be subjected to traffic, the top of the valve box shall be flush with the final surface. An 18" x 18" concrete pad (6" thick) is required around valve boxes installed outside of pavement area.

**E. Tapping Sleeves and Valves ("Wet Taps")**

1) Tapping sleeves shall be ductile iron construction meeting ASTM Grade 65-45-12. Side flange seals shall be of the O-ring type. Sleeves shall be coated with asphaltic varnish in compliance with NSF-61.
2) Stainless steel tapping sleeves may be used on pipe sizes 6 inch through 30 inch and shall be Ford Style FAST or FTSS, or approved equal.
3) Tapping sleeves shall be American Flow Control Series 2800, or approved equal.
4) Valves shall be American Flow Control Series 2500 resilient wedge valve or approved equal.
5) Tapping valves shall be resilient seat type with bodies and bonnets made of ductile iron for 250 psi working pressure. Cutters used shall be at least 1/4-inch smaller than the valve size.

**F. Fire Hydrants**

1) Hydrants shall be dry barrel conforming to AWWA C502, and have a traffic breakaway flange and stem coupling.
2) Design of the hydrant shall be of the compression type main valve and O-ring seal between the operating nut and bonnet.
3) Traffic breakaway flange shall be installed 4 inches from the final grade.
4) Hydrant shall have a 6-inch inlet and a 4-1/2 inch valve opening. Outlets shall be one 4-1/2 inch streamer nozzle and two 2-1/2 inch hose nozzles. Outlet nozzles shall be field replaceable utilizing straight threads or quarter turn seal by an O-ring. Each nozzle cap shall be equipped with chain and gasket.
5) Hydrant shall open right (clockwise) utilizing a pentagon shaped nut 1-1/2 inch in size.
6) Install "out-of-service" signs on new fire hydrants until all testing is complete and the hydrants become active.
7) Fire hydrants to be used as air release shall:

    a) Provide positive slope upward from hydrant tee to fire hydrant base.
    b) Mechanical joint ductile iron pipe and fittings with retainer glands at each fitting required.

8) Hydrants shall be American Darling, Model MK-73-2, as manufactured by American Flow Control, Kennedy Valve Guardian K81D, or approved equal. Upper barrel, lower barrel and base must be ductile iron painted yellow. Base bolts and nuts must be stainless steel.
9) Hydrant shall have a solid base surrounding the barrel no less than 24 inches by 24 inches by 6 inches deep. The solid base shall include high density concrete. Tamped soil is not considered a solid base.

**G. Water Services**

**1) 3/4-inch Water Service**

a) Water services to be installed in accordance with the City of Winchester Standard Details.
b) Corporation stops shall conform to AWWA C800, minimum pressure rating of 250 psi, 3/4-inch ball style, as manufactured by Ford, Model FB1000 or approved equal. Connection at corporation stop shall be flared or compression.
c) Service line shall be 3/4-inch ID type "K" copper tubing and shall be one continuous piece from corporation stop to meter setting.
d) Meter setting shall consist of a meter yoke, inlet angle valve, and outlet double check valve. The meter setting shall have two independent vertical cartridge check valves and be in conformance with ASSE 1024. Meter setting shall include:
    - iron yoke bar (Ford model Y502)
    - iron yoke expansion connector (Ford Y502)
    - yoke angle dual check valve (Ford HHCA94-323TV)
    - yoke angle ball valve (Ford BA94-223W)

e) Meter box shall be 18 inches in diameter and 30 inches tall, high density polyethylene (HDPE), with an 18-inch diameter frame and 11-1/2 inch diameter hinged lid. Meter box shall have a 10,000 lb minimum crush rating and shall have a minimum wall thickness of ½ inch. Frame and lid shall be made of cast iron and shall be recessed to accommodate the Neptune Radio Read antennae. Frame and lid shall be A.Y McDonald model number 74M32ARG. Traffic rated lids are required in areas subject to traffic; frame and lids shall be A.Y. McDonald meter box cover 74H32ARG.

**2) 1-inch and Dual ¾-inch Water Service**

a) Water services to be installed in accordance with the City of Winchester Standard Details.
b) Corporation stops shall be 1-inch and shall conform to AWWA C800, as manufactured by Ford, Model FB1000 or approved equal.
c) Service line shall be 1-inch ID type "K" copper tubing and shall be one continuous piece from corporation stop to meter setting.
d) Meter box shall be 20-inch by 24-inch tapered “bullet box” and 30 inches tall, high density polyethylene (HDPE). The interior of the box shall be white for light reflection. Frame and lid shall be made of cast iron and shall be recessed to accommodate the Neptune Radio Read antennae. Frame and lid with centering prongs shall be A.Y. McDonald model number 74MRARG. Traffic rated lids are required in areas subject to traffic and shall be Ford meter box cover X32H.
e) 1-inch meter setting shall consist of a meter yoke, inlet angle valve, and outlet double check valve. The meter setting shall have two independent vertical cartridge check valves and be in conformance with ASSE 1024. Meter settings shall include:
   - Iron yoke bar (Ford model Y504)
   - Iron yoke expansion connection (Ford Y504)
   - Yoke angle dual check valve (For HHCA94-444TV)
   - Yoke angle ball valve (Ford BA94-334W)
f) Dual ¾-inch meter settings shall consist of two single meter settings connected by a U-branch (Ford U48-427.5).

**1) 1-1/2 inch and 2-inch Water Services**

a) Water services to be installed in accordance with the City of Winchester Standard Details.
b) Corporation stops shall be 2 inches in size and shall conform to AWWA C800, as manufactured by Ford, or approved equal.
c) Service line shall be 2-inch ID SDR 9 polyethylene line and shall be one continuous piece from corporation stop to curb stop. Tracer wire shall be wrapped around the polyethylene service line and shall be connected on each end to the corporation stop and the curb stop.
d) Meter shall be set in a custom meter setting consisting of flanged angle valve on the inlet and outlet. Include bypass with ball valve and locking cap.

e) Meter box shall be 4'-0" long x 4'-0" wide x 4'-0" deep as shown in Standard Detail WD-4.
f) Access door shall be H-20 rated as manufactured by Bilco Door Company, Type PCM-2, or Halliday Products Model H1R3030. Dimensions shall be 2'-6" x 2'-6".
g) Backflow device shall meet applicable plumbing codes and City of Winchester Ordinance. Device must be installed outside of meter box.

## III. Procedures

### A. Bedding and Backfill

#### 1) Outside of Traffic Area (see Detail WS-1)

1) The water main pipe, fittings and appurtenances shall be bedded by hand, or approved mechanical method, from 6 inches below the pipe to 12 inches above the pipe with crushed stone classified as VDOT No. 57. Bedding material shall be deposited in the trench for its full width of each side of the pipe, fitting or appurtenance.
2) From 12 inches above the pipe to the final grade, excavated trench material containing stones no greater than 3 inches in diameter may be used as backfill material, unless otherwise specified.

#### 2) Within Traffic Area (See Detail WS-2)

a) The water main pipe, fittings and appurtenances shall be bedded by hand, or approved mechanical method, from 6 inches below the pipe to 12 inches above the pipe with crushed stone classified as VDOT No. 57. Bedding material shall be deposited in the trench for its full width of each side of the pipe, fitting or appurtenance.
b) When pipe is constructed within the road, street, driveway or parking lot, granular backfill (VDOT Class 21A) is required for the full depth of backfill. Backfill shall be placed in 6-inch layers and compacted by tamping.
c) Granular backfill (VDOT Class 21A) is required for the full depth of backfill where the trench is outside of the pavement but the nearest trench wall is within 5 feet of the edge of pavement.
d) Pipe trenches shall be restored within 24 hours. When necessary, trenches may be restored temporarily with cold patch asphalt. When weather permits, temporary trenches must be restored permanently within 7 days.

### B. Thrust Restraint

1) Both megalug mechanical joint restraints and/or megalug slip joint restraint harness <u>and</u> concrete thrust blocks are required in all locations for thrust restraint including:
   a) Bends (Inlet and Outlet)
   b) Tee – All Branches
   c) Offsets – Inlet and Outlet

d) Caps
e) Plugs
f) Dead Ends
g) Hydrant run-outs shall be restrained as dead ends

**C. Depth**

1) All lines shall be laid with a minimum cover of 36 inches from the top of pipe to finished ground surface grade. Water main cover shall not exceed 11 feet with City approval.

**D. Separation of water mains and sewers (both sanitary and storm)**

1) Parallel installation. Under normal conditions water mains shall be laid at least 10 feet horizontally from a sewer or sewer manhole. The distance shall be measured edge to edge.
2) Parallel installation. Under unusual conditions when local conditions prevent a horizontal separation of 10 feet, the water main may be laid closer to a sewer or sewer manhole provided that:

   a) The bottom of the water main shall be at least 18 inches above the top (crown) of the sewer.
   b) Where this vertical separation cannot be obtained, the sewer shall be constructed of Class 52, ductile iron water pipe, pressure tested in place without leakage prior to backfilling.
   c) The sewer manhole shall be of watertight construction and tested in place.

3) Crossing. Under normal conditions, water lines crossing sewers shall be laid to provide a separation of at least 18 inches between the bottom of the water line and the top of the sewer whenever possible.
4) Crossing. Under unusual conditions when local conditions prevent a vertical separation of 18 inches, the following construction shall be used:

   a) Sewers passing over or under water mains shall be constructed of Class 52, ductile iron sewer pipe according to the standards for ductile iron gravity mains.
   b) Water mains passing under sewers shall be protected by providing:

      (1) A vertical separation of at least 18 inches between the bottom of the sewer and the top of the water main.
      (2) Adequate structural support for the sewers to prevent excessive deflection of the joints and the settling on and breaking of the water main. Support may be provided by a concrete cradle sized appropriately for the sizes of the mains and the surrounding soil conditions.
      (3) The length of the water main pipe section shall be centered at the point of crossing so that the joints shall be equidistant and as far as possible from the sewer.

5) No water main shall pass through or come in contact with any part of a sewer manhole.

**E. Connections to Existing System**

1) All connections to the existing system shall be made by a "wet tap" with a tapping sleeve/valve, as directed by the City.

**F. Pressure and Leakage Test**

1) General - Distribution Mains

   a) Testing shall be in accordance with the Virginia Department of Health and AWWA C600.
   b) Test pressure shall not exceed pipe or thrust-restraint design pressures.
   c) Test pressure shall not vary for the duration of the test.
   d) Test pressure shall not exceed the rated pressure of the valves when the pressure boundary of the test section includes closed, resilient-seated gate valves or butterfly valves.
   e) When hydrants are in the test section, the test shall be made against open hydrant valves.

2) Test Procedure - Distribution Mains

   a) After the pipe has been laid all pipe shall be subjected to a hydrostatic pressure of not less than 150 psi or 1.25 times the working pressure at the highest point along the test section.
   b) Each section of pipe to be tested shall be slowly filled with water.
   c) Expel all air from pipeline.
   d) Apply 100 percent of required test pressure at beginning of test. It is good practice to allow the system to stabilize at the test pressure before conducting the leakage test.
   e) Maintain test pressure for a minimum of 2 hours.
   f) There shall be zero leakage during the test period.
   g) If the leakage is greater or the pressure cannot be maintained, the contractor shall locate and make approved repairs as necessary until the leakage is within the specified tolerance.
   h) All visible leaks are to be repaired, regardless of the amount of leakage.

3) Test Procedure - Fire Lines

   a) Test procedure is the same as described above, except that the test pressure shall be 200 psi, duration of test is 1 hour. There shall be zero leakage during the 1-hour test period.

## G. Disinfection

1) Disinfection shall be performed after the pressure testing has passed and approved by the City of Winchester.
2) All water mains shall be disinfected and bacteriological testing completed immediately prior to being placed in operation.
3) The basic disinfection procedure consists of:

   A. Preventing contamination materials from entering the water main during storage, construction or repair.
   B. Removing, by flushing or other means, those materials that may have entered the water main.
   C. Chlorinating any residual contamination that may remain, and flushing the chlorinated water from the main. A newly installed main shall be disinfected in accordance with AWWA C651, and the Virginia Department of Health regulations.
   D. Protecting the existing distribution system from backflow due to hydrostatic pressure test and disinfection procedures.
   E. Determining the bacteriological quality by laboratory test after disinfection.
   F. Final connection of the approved new main to the active distribution system.

4) Chlorination shall be by the tablet method, unless otherwise approved in writing by the City of Winchester. This method may be used only if the pipe and appurtenances are kept clean and dry during construction. Alternate disinfection procedures may be required at the option of the City of Winchester if the circumstances are such that the pipe and appurtenances are not kept clean and dry.

   During construction, 5-g calcium hypochlorite tablets shall be placed in each section of pipe. Also, one such tablet shall be placed in each hydrant, hydrant branch and other appurtenances. Table 1 shows the number of tablets required for commonly used sizes of pipe.

**Table 1. Number of 5-g calcium hypochlorite tablets required for dose of 25 mg/l**

| Length of Pipe Section, ft | | | | | |
|---|---|---|---|---|---|
| Pipe Diameter (inches) | </= 13 | 18 | 20 | 30 | 40 |
| | Number of 5-g calcium hypochlorite tablets | | | | |
| 4 | 1 | 1 | 1 | 1 | 1 |
| 6 | 1 | 1 | 1 | 2 | 2 |
| 8 | 1 | 2 | 2 | 3 | 4 |
| 10 | 2 | 3 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| 12 | 3 | 4 | 4 | 6 | 7 |
| 16 | 4 | 6 | 7 | 10 | 13 |

**Filling and contact.** When installation has been completed, the main shall be filled with water at a rate such that water within the main will flow at a velocity no greater than 1 ft/s. Precautions shall be taken to ensure that air pockets are eliminated. This water shall remain in the pipe for at least 24 hours.

**Final flushing:** After the required retention period, the chlorinated water shall be flushed from the main using potable water. However, the chlorinated water shall not be flushed out until the residual is less than 1 mg/L. A reducing agent shall be applied as required to achieve this residual.

After final flushing and before the main is placed in service, two consecutive sets of acceptable samples, taken at least 24 hours apart, shall be collected from the main. At least one set of samples shall be collected from every 1,000 feet of the new main, plus one set from the end of the line and at least one set from each branch. Samples shall be collected in the presence of an inspector for the Department of Public Utilities in bottles provided by the City. Samples shall be tested for bacteriologic quality by the City of Winchester, and shall show the absence of coliform organisms. If contamination is indicated, then the disinfection/testing procedure must be repeated.

**H. New Service Line Installations**

1) Contractor shall coordinate and schedule with each individual customer any disruption in service necessary to place the new water service lines in operation.

**I. Valve Insertions**

1) As directed by the City, valves shall be inserted into existing water mains, as necessary, to minimize disruptions to existing customers during the project.

**J. Bypass System**

1) Contractor shall provide and operate a water service bypass system as shown on the contract drawings. Contractor shall be permitted to provide an alternate bypass plan for the City's consideration; any deviation from the City-provided plan shall be reviewed and approved by the City prior to bypass system installation.

## IV. Measurement and Payment.

**"Water Main Installation"** will be measured in linear feet and will be paid for at the contract unit price per linear foot. Measurement shall be along the centerline of the pipe and fittings. This price shall include furnishing and installing: the pipe, all fittings, poly-wrap, mechanical restraints and concrete thrust blocks, excavation, removal and disposal of existing pipe, asphalt or concrete, bedding and backfill, base asphalt

in the trench, compaction, removal and disposal of excess material, sheeting and shoring, concrete encasement, testing, disinfecting, dewatering, and any other work necessary to provide a complete and working water system. The price shall also include establishing and maintaining a water main bypass system during installation and the removal and disposal of the existing water main.

**"Gate Valve and Box"** will be measured and paid for each valve installed in the water main and fire hydrant services. This price shall include furnishing and installing: all components shown on standard detail WD-8, including the valve, mechanical restraints and concrete thrust blocks, extension stem, valve box, concrete pad around the valve box (in unpaved areas), excavation, removal and disposal of existing asphalt or concrete, bedding and backfill, base asphalt in the trench, compaction, removal and disposal of excess material, sheeting and shoring.

**"Wet Tap"** will be measured and paid for each tapping sleeve and valve installed to connect to an existing water main. This price shall include furnishing and installing: the tapping sleeve and valve, mechanical restraints and concrete thrust blocks, valve box and extension stem, concrete pad around the valve box (in unpaved areas), excavation, removal and disposal of existing asphalt or concrete, bedding and backfill, base asphalt in the trench, compaction, removal and disposal of excess material, sheeting and shoring.

**"Water Service Line"** will be measured and paid per linear foot of service line installed. This price shall include furnishing and installing the service saddle and tapping the water main, corporation stop, quarter bend coupling, copper or PE service line, excavation, removal and disposal of existing asphalt or concrete, bedding and backfill, base asphalt in the trench, compaction, removal and disposal of excess material, sheeting and shoring. **The existing water meter will be placed in the new meter assembly by the Contractor at the time of placing the new service line in operation.** Price shall also include existing site restoration, including asphalt repairs within the roadway, topsoil, seeding, etc.

**"Water Meter Assembly"** will be measured and paid for each meter assembly installed. This price shall include furnishing and installing: all components shown on standard details WD-1, WD-2, WD-3 or WD-4, including the meter setting, meter box/vault and lid/hatch, valves, backflow devices, excavation, removal and disposal of existing asphalt or concrete, bedding and backfill, base asphalt in the trench, compaction, removal and disposal of excess material, sheeting and shoring. **The existing water meter will be placed in the new meter assembly by the Contractor at the time of placing the new service line in operation.** Price shall also include existing site restoration, including asphalt repairs within the roadway, topsoil, seeding, etc.

**"Fire Hydrant Assembly"** will be measured and paid for each fire hydrant installed. This price shall include furnishing and installing: all components shown on standard detail WD-7, including the fire hydrant, fittings, mechanical thrust restraint and concrete thrust blocks, tie road, concrete base, drainage fill, disinfection and testing, excavation, removal and disposal of existing asphalt or concrete, bedding and backfill, compaction, removal and disposal of excess materials, sheeting and shoring. The lateral piping required will be paid under "Ductile Iron Water Main" and the gate valve/box will be paid for under "Gate Valve and Box."

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Water Main Installation, Size & Type | LF |
| Gate Valve and Box, Size | EA |
| Wet Tap, Size | EA |
| Water Service Line, Size & Type | LF |
| Water Meter Assembly, Size | EA |
| Fire Hydrant Assembly | EA |

## I. Description.

This work shall consist of furnishing and installing various sanitary sewer collection system infrastructure components including, but not limited to: sanitary sewer mains, manholes, laterals and cleanouts.

## II. Materials.

### a) Gravity Sanitary Sewer Mains

1) Sanitary sewers shall be polyvinylchloride (PVC) SDR 26 heavy wall sewer pipe and shall meet or exceed ASTM D-3034. Joints shall be gasketed, bell and spigot type with the bell made integral with the pipe.
2) Each length of pipe shall be marked with the manufacturer's name, trade name, nominal size, class, hydrostatic test pressure, manufacturer's standard symbol to signify it was tested, and date manufactured.
3) When connecting PVC main pipe to either clay or cast iron, Indiana Seal Shear Guards or approved equal are required.

### b) Pipe Fittings

1) PVC fittings used in a gravity collection system shall be of the same SDR rating as the collection pipe being used.
2) Fittings are permitted only on service laterals and drop manholes in gravity collection system.

### c) Manholes

1) Manholes shall be precast reinforced concrete capable of sustaining an H-20 loading and meeting standards put forth under ASTM C-478.
2) Manholes shall have a minimum inside diameter of 48 inches with a minimum wall thickness of five inches.
3) The base section shall be monolithic to a point 12 inches above the crown of the incoming pipe with a minimum base thickness of 8 inches. The base shall have a diameter 12 inches larger than the barrel of the manhole.
4) Pipe holes up to 12 inches in new manholes shall be properly located and cast in place with appropriate boot (Tylox by Hamilton-Kent or approved equal). After assembly, pipe to be grouted in place using non-shrinking grout inside the manhole. Pipe holes 15 inches and above are required to be cored.
5) New mains or six-inch laterals into existing manholes may be cored and shall be sealed using Kor-N-Seal or Lock-Joint with two stainless steel bands by Dukor Co., Milford, NH, to hold the pipe in position.
6) Cone sections shall be eccentric narrowing from 48 inches to 24 inches inside diameter.
7) Flat top sections shall be used in place of a cone section for manholes less than 5 feet deep. The 24-inch access hole shall be offset to allow easy access to steps and shall be reinforced to support H-20 loading.
8) The exterior of the manhole shall be covered with fibrous bitumastic coating.
9) Manhole steps conforming to the applicable provisions of ASTM Specifications C 478 such as aluminum 14967 as manufactured by Alcoa or plastic steps manufactured by MA Industries or equal, shall be factory built into precast sections. Step spacing and

alignment to be maintained uniform and vertical throughout the depth of the manhole.

10) Each manhole section shall have not more than two holes for the purpose of handling and laying. These holes shall be sealed with cement mortar.
11) Joints of the manhole sections shall be of the tongue and groove type; sections shall be joined using profile gaskets for single step joints such as Type 4G manufactured by Press-Seal Gasket Corp,. or equal. Gaskets shall conform to the physical property requirements of ASTM standard C 443 and C 361.
12) All joints, holes, etc., shall be sealed with cement mortar.
13) Drop connections shall be used in the following cases:
    1) For pipes with diameters between 8” and 12”, an inside drop connection shall be used when the distance between the invert in and invert out is greater than 3’-1”. If the distance between the invert in and invert out is less than 3’ – 1”, the incoming line shall be lowered such that the invert in is no greater than 2’ above the invert out.
    2) For pipe with diameters 15” and greater, an outside drop connection shall be used when the distance between the invert in and invert out is greater than 6’-0”. If the distance between the invert in and invert out is less than 6’-0”, the incoming line shall be lowered such that the invert in is no greater than 2’ above the invert out.

**d) Manhole Frame & Cover**

1) Manhole frames and covers shall conform to ASTM A-48. The words "sanitary sewer" and the City Logo shall be cast into the cover and shall be plainly visible, per standard detail SS-6.
2) Manhole frames and covers shall be as manufactured by Neenah Foundry catalog #R-1643, component #N 1371-0061 (frame), and #N 1371-0062 (lid), or approved equal.

**e) Lateral Piping**

1) PVC pipe used for installation of lateral services shall be 4-inch unless otherwise specified and have a minimum wall thickness of SDR 26. All fittings shall be gasketed.
2) D.W.V. fittings shall comply with ASTM D-2665, and be socket by socket. Gasketed adapter shall meet ASTM D-3139 with gaskets meeting ASTM F-477.
3) 4-inch main line and lateral cleanout wyes shall be gasket by gasket by gasket on stand pipe lead.
4) Cleanouts for 4-inch and 6-inch laterals, located in grass areas, shall be cast iron gasketed cleanouts with a recessed brass screw plug, Panella model PA4SV-CSK.
5) Cleanouts subject to traffic or in the sidewalk area shall have a cleanout frame and cover over a PVC cleanout top. Cleanout frames and cover shall be Capitol Foundry model B-1140 or approved equal.
6) Lateral connections to an existing sewer shall be made with a boot-n-saddle with stainless steel straps and appropriate rubber fitting or by cut-in wye, using an 8x6 inch PVC tee wye, then reduced to 4” PVC.
7) Tracer wire shall be provided on all sanitary laterals within 6 feet of the surface.
8) When connecting PVC laterals pipe to existing clay or cast iron pipe, Indiana Seal Shear Guards or approved equal are required.

## III. Procedures

### A. Bedding and Backfill

#### 1) Outside of Traffic Area (see Detail WS-1)

a) The sewer main pipe, fittings and appurtenances shall be bedded by hand, or approved mechanical method, from 6 inches below the pipe to 12 inches above the pipe with crushed stone classified as VDOT No. 57. Bedding material shall be deposited in the trench for its full width of each side of the pipe, fitting or appurtenance.
b) From 12 inches above the pipe to the final grade, excavated trench material containing stones no greater than 3 inches in diameter may be used as backfill material, unless otherwise specified.

#### 2) Within Traffic Area (See Detail WS-2)

a) The sewer main pipe, fittings and appurtenances shall be bedded by hand, or approved mechanical method, from 6 inches below the pipe to 12 inches above the pipe with crushed stone classified as VDOT No. 57. Bedding material shall be deposited in the trench for its full width of each side of the pipe, fitting or appurtenance.
b) When pipe is constructed within the road, street, driveway or parking lot, granular backfill (VDOT Class 21A) is required for the full depth of backfill. Backfill shall be placed in 6-inch layers and compacted by tamping.
c) Granular backfill (VDOT Class 21A) is required for the full depth of backfill where the trench is outside of the pavement but the nearest trench wall is within 5 feet of the edge of pavement.
d) Pipe trenches shall be restored within 24 hours. When necessary, trenches may be restored temporarily with cold patch asphalt. When weather permits, temporary trenches must be restored permanently within 7 days.

### B. Depth

1) All sanitary sewer mains shall be laid with a minimum cover of 36 inches from the top of pipe to finished ground surface grade.

### C. Separation of water mains and sewers (both sanitary and storm)

1) Parallel installation

a) Under normal conditions water mains shall be laid at least 10 feet horizontally from a sewer or sewer manhole. The distance shall be measured edge to edge.
b) Under unusual conditions when local conditions prevent a horizontal separation of 10 feet, the water main may be laid closer to a sewer or sewer manhole provided that:

i. The bottom of the water main shall be at least 18 inches above the top (crown) of the sewer.
ii. Where this vertical separation cannot be obtained, the sewer shall be constructed of Class 52, ductile iron water pipe, pressure tested in place without leakage prior to backfilling.
iii. The sewer manhole shall be of watertight construction and tested in place.

c) Where the sanitary sewer is installed parallel to a storm drainage structure, there shall be at least 10 feet horizontally, measured center to center, between them.

2) Crossing

a) Under normal conditions, water lines crossing sewers shall be laid to provide a separation of at least 18 inches between the bottom of the water line and the top of the sewer whenever possible.
b) Under unusual conditions when local conditions prevent a vertical separation of 18 inches, the following construction shall be used:

i. Sewers passing over or under water mains shall be constructed of Class 52, ductile iron sewer pipe according to the standards for ductile iron gravity mains.
ii. Adequate structural support shall be provided to the mains to prevent excessive deflection and settling. Support may be provided by a concrete cradle sized appropriately for the sizes of main and the surrounding soil conditions.
iii. A full length of the water main pipe section shall be centered at the point of crossing so that the joints shall be equidistant and as far as possible from the sewer.

c) When it is necessary for sanitary sewer mains to cross above water mains, the water main shall be protected by providing:
i. A vertical separation of at least 18 inches between the bottom of the sewer and the top of the water main.
ii. A full length of the sanitary main pipe section shall be centered at the point of crossing so that the joints shall be equidistant and as far as possible from the water main.

d) All crossings should be as close to 90 degrees as possible.
e) No water main shall pass through or come in contact with any part of a sewer manhole.

**D. Inspections and Testing**

1) General

a) All costs of cleaning, inspection and testing are to be borne by the Contractor and/or Developer.
b) Cleaning, televising and testing shall be performed a minimum of 30 days after the completion of backfill and compaction, and shall be witnessed by the City. The Contractor or Developer shall contact the City at the start of the waiting period.
c) Any portion of the sanitary sewer system failing to meet the inspection or testing requirements of the City of Winchester shall be corrected to the satisfaction of the City. The costs for such corrections shall be borne by the Contractor and/or Developer.
d) All repair methods, other than replacement of the defective areas with new materials, shall be subjected to prior approval of the City. Grouted, collared, clamped, or otherwise patched sewer pipe shall not be acceptable.
e) All unacceptable conditions found during television inspection must be corrected and re-televised.

2) Test Procedure – Gravity Sewer Mains

a) The completed sanitary sewer shall be high-pressure water jet cleaned and subjected to a low-pressure air test, in accordance with the following procedures:

1) All service laterals, cleanouts, stubs and fittings within the sewer test section shall be properly capped or plugged during construction to prevent air loss that could cause an erroneous air test result.
2) Plugs shall be supplied and installed by the Contractor in the line to be tested at each manhole. Each plug shall be securely placed.
3) Low pressure air shall be slowly introduced into the sealed line until a constant internal pressure of 4.0 psi is maintained.
4) After a constant pressure of 4.0 psi is reached, the air supply shall be throttled back to maintain that internal pressure for at least two minutes.
5) After the stabilization period, the air hose from the control panel to the air supply shall be shut off or disconnected, and the test shall begin.
6) For a section of the line to pass, there shall be zero leakage for a five-minute interval after the supply has been shut off.

b) The entire length of all flexible sewers shall be tested for deflection using a “go-no-go” mandrell (95% of the pipe’s internal diameter).
c) Sewer line sections shall be visually inspected by means of a closed circuit television. The inspection shall be done one manhole section at a time and recorded on a DVD or flash drive. Sewers are to be flow tested before television inspection to ensure no ponding occurs.

1) The television camera used for the inspection shall be one specifically designed and constructed for such inspection. The image shall be clear enough to enable the City representative and others viewing the monitor to easily evaluate the interior condition of the pipe. The inspection shall be recorded on a DVD or flash drive and the City shall retain a copy of the recording.

2) The visual inspection may be provided by an approved TV inspection firm or by the City. If the Developer should request this service from the City, he/she shall be charged per lineal foot inspected at the current rate.

3) Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe. The camera shall have a footage-recording device and the footage shall be displayed on the monitor.

4) Unacceptable conditions that adversely affect the ability of the system to function as designed or to be properly maintained may include, but are not limited to the following:

   a) Protruding taps.
   b) Root intrusion.
   c) Cracked or faulty pipe.
   d) Improper pipe repair.
   e) Misaligned or deformed pipe.
   f) Debris in line.
   g) Infiltration/exfiltration.
   h) Bellies or sags with a depth greater than or equal to 10% (or a maximum of 1-1/2 inches) of pipe diameter and/or a length greater than 25 feet.

3) Test Procedure - Manholes

   a) Precast concrete manholes shall be tested in accordance with ASTM C 1244-93, standard test method for concrete sewer manholes by the negative air pressure test (vacuum method).
   b) Manholes shall be tested after installation with all connections in place.
   c) Procedure for testing shall be as follows:

      1) Temporarily plug all pipes entering the manhole at least eight inches into the sewer pipe. The plug must be inflated at a location past the manhole/pipe gasket, and braced to prevent the plugs or pipes from being drawn into the manhole.
      2) The test head shall be placed inside the frame at the top of the manhole and inflated, in accordance with the manufacturer's recommendations.
      3) A vacuum of ten inches of mercury (10" Hg) shall be drawn on the manhole. Shut the valve on the vacuum line to the manhole and shut off the pump or disconnect the vacuum line from the pump.
      4) The pressure gauge shall be liquid filled, having a 3.5 inch diameter face with a reading from zero to 30 inches of mercury.
      5) The manhole is considered to pass the vacuum test if the time for the vacuum reading to drop from 10" to 9" Hg is one minute or more.
      6) If the manhole fails the test, necessary repairs shall be made. The vacuum test shall be repeated until the manhole passes the test.
      7) All temporary plugs and braces shall be removed after each test.

d) Manholes shall show no signs of ponding water in the inverts.

**g) New Service Line Installations**

1) Contractor shall coordinate and schedule with each individual customer any disruption in service necessary to place the new sanitary laterals in operation.

**h) Inactive Sewer Laterals**

1) All sewer laterals found to be inactive when excavated shall be sealed with concrete and backfilled. Concrete cap may be placed at the point of excavation as the lateral does not need to be terminated at the main.

## IV. Measurement and Payment.

**"Replace Existing Sanitary Sewer Manhole"** will be measured and paid for each manhole replaced. This price shall include furnishing and installing: the manhole, up to 10 feet of PVC main stubbed from each invert and connected to the existing main, excavation, removal and disposal of existing asphalt or concrete, bedding and backfill, base asphalt in the trench, compaction, removal and disposal of excess material, sheeting and shoring. The price shall also include any pumping and diversion of the existing sanitary flow necessary to complete the work and the removal and proper disposal of the complete existing manhole and up to 10 fee of the existing main replacement extending from the manhole.

**"Sanitary Sewer Manhole Frame & Cover"** will be measured and paid for each framed and cover installed. This price shall include furnishing and installing: the manhole frame & cover, excavation, removal and disposal of existing asphalt or concrete, bedding and backfill, base asphalt in the trench, compaction, removal and disposal of excess material, sheeting and shoring.

**"Modify Existing Sanitary Sewer Manhole"** will be measured and paid for each manhole modified. This price shall include excavation, modification of the manhole, removal and disposal of existing asphalt or concrete, bedding and backfill, base asphalt in the trench, compaction, removal and disposal of excess material, sheeting and shoring. The price shall also include any pumping and diversion of the existing sanitary flow necessary to complete the work and the removal and proper disposal of the complete existing manhole and up to 10 feet of the existing main replacement extending from the manhole.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Replace Existing Sanitary Sewer Manhole | EA |
| Sanitary Sewer Manhole Frame & Cover | EA |
| Modify Existing Sanitary Sewer Manhole | EA |

Form C-48
Rev. 2-23-11

# COMMONWEALTH OF VIRGINIA
# DEPARTMENT OF TRANSPORTATION
# SUBCONTRACTOR/SUPPLIER SOLICITATION AND UTILIZATION FORM (ALL BIDDERS)

**PROJECT NO.** U000-138-R04 **CONTRACT I.D. NO.** _____

**FHWA NO.** STP-5138(189) **DATE SUBMITTED** _____

All bidders, including DBEs bidding as Prime Contractors, shall complete and submit the following information as requested in this form within ten (10) business days after the opening of bids.

The bidder certifies this form accurately represents its solicitation and utilization or non-utilization, as indicated, of the firms listed below for performance of work on this contract. The bidder also certifies he/she has had direct contact with the named firms regarding participation on this project.

**BIDDER** _____ **SIGNATURE** _____

**TITLE** _____

## SUBCONTRACTOR/SUPPLIER SOLICITATION AND UTILIZATION (ALL)

| VENDOR NUMBER | NAME OF SUBCONTRACTOR/SUPPLIER | TELEPHONE NUMBER | DBE OR NON-DBE | UTILIZED (Y/N) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**NOTE**: ATTACH ADDITIONAL PAGES, IF NECESSARY.

BIDDER MUST SIGN EACH ADDITIONAL SHEET TO CERTIFY ITS CONTENT AND COMPLETION OF FORM.

COMM0NWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

# DBE GOOD FAITH EFFORTS DOCUMENTATION

## --DO NOT DETACH--

**THIS INFORMATION MUST BE SUBMITTED WITHIN 2 DAYS AFTER BID OPENING IF YOUR BID DOES NOT MEET THE PROJECT DBE REQUIREMENTS, OR WHEN REQUESTED BY VDOT**

**CONTRACT I.D. NUMBER**_____

**PROJECT NUMBER** U000-138-R04

**FHWA NUMBER** STP-5138(189)

**DISTRICT**_____

**DATE BID SUBMITTED**_____

**BIDDER'S NAME**_____

**SIGNATURE**_____

**TITLE**_____

**VENDOR NUMBER**_____

**DBE GOAL FROM BID PROPOSAL** 11%

COMM0NWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

# DBE GOOD FAITH EFFORTS DOCUMENTATION

**CONTRACT I.D. NO.**_____**DATE SUBMITTED**_____

**IF THE DBE GOAL ESTABLISHED FOR THIS CONTRACT HAS NOT BEEN MET OR VDOT REQUESTS THE SUBMITTAL THEREOF, THE BIDDER IS REQUIRED TO SUBMIT GOOD FAITH EFFORTS AS OUTLINED IN THIS DOCUMENT**.

**THE BIDDER ACKNOWLEDGES AND CERTIFIES THAT THIS FORM ACCURATELY REPRESENTS THE INFORMATION CONTAINED HEREIN.**

**BIDDER**_____**SIGNATURE**_____

**TITLE**_____

**NAMES OF CERTIFIED DBEs AND THE DATES ON WHICH THEY WERE SOLICITED TO BID ON THIS PROJECT**

**INCLUDE THE ITEMS OF WORK OFFERED AND THE DATES AND METHODS USED FOR FOLLOWING UP INITIAL SOLICITATIONS TO DETERMINE WHETHER OR NOT DBEs WERE INTERESTED.**

| NAMES AND VENDOR NUMBERS OF DBEs SOLICITED | DATE OF INITIAL SOLICITATION | ITEM(S) OF WORK | FOLLOW-UP METHODS AND DATES |
|---|---|---|---|
| | | | |

**NOTE**: ATTACH ADDITIONAL PAGES IF NECESSARY

ATTACH COPIES OF SOLICITATIONS, TELEPHONE RECORDS, FAX CONFIRMATIONS, ELECTRONIC INFORMATION, ETC.

COMM0NWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

# DBE GOOD FAITH EFFORTS DOCUMENTATION

**CONTRACT I.D. NO.**_____**DATE SUBMITTED**_____

**IF THE DBE GOAL ESTABLISHED FOR THIS CONTRACT HAS NOT BEEN MET OR VDOT REQUESTS THE SUBMITTAL THEREOF, THE BIDDER IS REQUIRED TO SUBMIT GOOD FAITH EFFORTS AS OUTLINED IN THIS DOCUMENT.**

**THE BIDDER ACKNOWLEDGES AND CERTIFIES THAT THIS FORM ACCURATELY REPRESENTS THE INFORMATION CONTAINED HEREIN.**

**BIDDER**_____**SIGNATURE**_____

**TITLE**_____

## TELEPHONE LOG

| DBE(s) CALLED | TELEPHONE NUMBER | DATE CALLED | TIME CALLED | CONTACT PERSON OR VOICE MAIL STATUS |
|---|---|---|---|---|
| | | | | |

**NOTE:** ATTACH ADDITIONAL PAGES IF NECESSARY

COMM0NWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

# DBE GOOD FAITH EFFORTS DOCUMENTATION

**CONTRACT I.D. NO.**_____**DATE SUBMITTED**_____

**IF THE DBE GOAL ESTABLISHED FOR THIS CONTRACT HAS NOT BEEN MET OR VDOT REQUESTS THE SUBMITTAL THEREOF, THE BIDDER IS REQUIRED TO SUBMIT GOOD FAITH EFFORTS AS OUTLINED IN THIS DOCUMENT.**

**THE BIDDER ACKNOWLEDGES AND CERTIFIES THAT THIS FORM ACCURATELY REPRESENTS THE INFORMATION CONTAINED HEREIN.**

**BIDDER**_____**SIGNATURE**_____

**TITLE**_____

## ITEM(S) OF WORK THAT THE BIDDER MADE AVAILABLE TO DBE FIRMS

**IDENTIFY THOSE ITEM(S) OF WORK THAT THE BIDDER MADE AVAILABLE TO DBE FIRMS OR THOSE ITEM(S) THE BIDDER IDENTIFIED AND DETERMINED TO SUBDIVIDE INTO ECONOMICALLY FEASIBLE UNITS TO FACILITATE DBE PARTICIPATION. FOR EACH ITEM LISTED, SHOW THE DOLLAR VALUE AND PERCENTAGE OF THE TOTAL CONTRACT AMOUNT. IT IS THE BIDDER'S RESPONSIBILITY TO DEMONSTRATE THAT SUFFICIENT WORK TO MEET THE GOAL WAS MADE AVAILABLE TO DBE FIRMS.**

| ITEM(S) OF WORK MADE AVAILABLE | BIDDER NORMALLY PERFORMS ITEM(S) (Y/N) | ITEM(S) BROKEN DOWN TO FACILITATE PARTICIPATION (Y/N) | AMOUNT IN DOLLARS | PERCENTAGE OF CONTRACT |
|---|---|---|---|---|
| | | | | |

**NOTE:** INFORMATION REQUIRED FOR THIS SECTION CONTINUED ON SHEET 5
ATTACH ADDITIONAL PAGES IF NECESSARY

COMM0NWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

# DBE GOOD FAITH EFFORTS DOCUMENTATION

**CONTRACT I.D. NO._____DATE SUBMITTED_____**

**IF THE DBE GOAL ESTABLISHED FOR THIS CONTRACT HAS NOT BEEN MET OR VDOT REQUESTS THE SUBMITTAL THEREOF, THE BIDDER IS REQUIRED TO SUBMIT GOOD FAITH EFFORTS AS OUTLINED IN THIS DOCUMENT.**

**THE BIDDER ACKNOWLEDGES AND CERTIFIES THAT THIS FORM ACCURATELY REPRESENTS THE INFORMATION CONTAINED HEREIN.**

**BIDDER_____SIGNATURE_____**

**TITLE_____**

## ADDITIONAL INFORMATION REGARDING ITEM(S) OF WORK THAT THE BIDDER MADE AVAILABLE TO DBE FIRMS (Continued From Sheet 4)

**ITEM(S) OF WORK MADE AVAILABLE, NAMES OF SELECTED FIRMS AND DBE STATUS, DBEs THAT PROVIDED QUOTES, PRICE QUOTE FOR EACH FIRM, AND THE PRICE DIFFERENCE FOR EACH DBE IF THE SELECTED FIRM IS NOT A DBE.**

| ITEM(S) OF WORK MADE AVAILABLE(CONT.) | NAME OF SELECTED FIRM AND VENDOR NUMBER | DBE OR NON-DBE | NAME OF REJECTED FIRM(S) | QUOTE IN DOLLARS | PRICE DIFFERENCE IN DOLLARS |
|---|---|---|---|---|---|
| | | | | | |

**NOTE: ATTACH ADDITIONAL PAGES IF NECESSARY.**

**IF THE FIRM SELECTED FOR THE ITEM IS NOT A DBE, PROVIDE THE REASON(S) FOR THE SELECTION ON A SEPARATE PAGE AND ATTACH.**

**PROVIDE NAMES, ADDRESSES, AND TELEPHONE NUMBERS FOR THE FIRMS LISTED ABOVE.**

COMM0NWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

# DBE GOOD FAITH EFFORTS DOCUMENTATION

**CONTRACT I.D. NO.**_____**DATE SUBMITTED**_____

**IF THE DBE GOAL ESTABLISHED FOR THIS CONTRACT HAS NOT BEEN MET OR VDOT REQUESTS THE SUBMITTAL THEREOF, THE BIDDER IS REQUIRED TO SUBMIT GOOD FAITH EFFORTS AS OUTLINED IN THIS DOCUMENT.**

**THE BIDDER ACKNOWLEDGES AND CERTIFIES THAT THIS FORM ACCURATELY REPRESENTS THE INFORMATION CONTAINED HEREIN.**

**BIDDER**_____**SIGNATURE**_____

**TITLE**_____

## ADVERTISEMENTS OR PROOFS OF PUBLICATION.

**NAMES AND DATES OF EACH PUBLICATION IN WHCH A REQUEST FOR DBE PARTICIPATION FOR THE PROJECT WAS PLACED BY THE BIDDER. ATTACH COPIES OF PUBLISHED ADVERTISEMENTS OR PROOFS OF PUBLICATION.**

| PUBLICATIONS | DATES OF ADVERTISEMENT |
|---|---|
| | |

**NOTE:** ATTACH ADDITIONAL PAGES IF NECESSARY

COMM0NWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

# DBE GOOD FAITH EFFORTS DOCUMENTATION

**CONTRACT I.D. NO._____DATE SUBMITTED_____**

**IF THE DBE GOAL ESTABLISHED FOR THIS CONTRACT HAS NOT BEEN MET OR VDOT REQUESTS THE SUBMITTAL THEREOF, THE BIDDER IS REQUIRED TO SUBMIT GOOD FAITH EFFORTS AS OUTLINED IN THIS DOCUMENT.**

**THE BIDDER ACKNOWLEDGES AND CERTIFIES THAT THIS FORM ACCURATELY REPRESENTS THE INFORMATION CONTAINED HEREIN.**

**BIDDER_____SIGNATURE_____**

**TITLE_____**

## NAMES OF AGENCIES CONTACTED TO PROVIDE ASSISTANCE

**NAMES OF AGENCIES (SEE SPECIAL PROVISION FOR 107.15) AND THE DATES THESE AGENCIES WERE CONTACTED TO PROVIDE ASSISTANCE IN CONTACTING, RECRUITING, AND USING DBE FIRMS. IF THE AGENCIES WERE CONTACTED IN WRITING, ATTACH COPIES OF SUPPORTING DOCUMENTS.**

| NAME OF AGENCY | METHOD AND DATE OF CONTACT | RESULTS |
|---|---|---|
| | | |

**NOTE:** ATTACH ADDITIONAL PAGES IF NECESSARY**.**

COMM0NWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

# DBE GOOD FAITH EFFORTS DOCUMENTATION

**CONTRACT I.D. NO._____DATE SUBMITTED_____**

**IF THE DBE GOAL ESTABLISHED FOR THIS CONTRACT HAS NOT BEEN MET OR VDOT REQUESTS THE SUBMITTAL THEREOF, THE BIDDER IS REQUIRED TO SUBMIT GOOD FAITH EFFORTS AS OUTLINED IN THIS DOCUMENT.**

**THE BIDDER ACKNOWLEDGES AND CERTIFIES THAT THIS FORM ACCURATELY REPRESENTS THE INFORMATION CONTAINED HEREIN.**

**BIDDER_____SIGNATURE_____**

**TITLE_____**

## TECHNICAL ASSISTANCE AND INFORMATION PROVIDED TO DBEs

**EFFORTS MADE TO PROVIDE INTERESTED DBEs WITH ADEQUATE INFORMATION ABOUT THE PLANS, SPECIFICATIONS, AND REQUIREMENTS OF THE BID DOCUMENTS TO ASSIST THE DBEs IN RESPONDING TO A SOLICITATION.**

**IDENTIFY THE DBEs ASSISTED, THE INFORMATION PROVIDED, AND THE DATE OF CONTACT. ATTACH COPIES OF SUPPORTING DOCUMENTS.**

| DBEs ASSISTED | INFORMATION PROVIDED | DATE OF CONTACT |
|---|---|---|
| | | |

**NOTE:** ATTACH ADDITIONAL PAGES IF NECESSARY.

COMM0NWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

# DBE GOOD FAITH EFFORTS DOCUMENTATION

**CONTRACT I.D. NO.**_____**DATE SUBMITTED**_____

**IF THE DBE GOAL ESTABLISHED FOR THIS CONTRACT HAS NOT BEEN MET OR VDOT REQUESTS THE SUBMITTAL THEREOF, THE BIDDER IS REQUIRED TO SUBMIT GOOD FAITH EFFORTS AS OUTLINED IN THIS DOCUMENT.**

**THE BIDDER ACKNOWLEDGES AND CERTIFIES THAT THIS FORM ACCURATELY REPRESENTS THE INFORMATION CONTAINED HEREIN.**

**BIDDER**_____**SIGNATURE**_____

**TITLE**_____

## EFFORTS MADE TO ASSIST DBEs OBTAIN BONDING, LINES OF CREDIT, INSURANCE, ETC.

**EFFORTS MADE TO PROVIDE INTERESTED DBEs IN OBTAINING BONDING, LINES OF CREDIT, INSURANCE, NECESSARY EQUIPMENT, SUPPLIES, MATERIALS, OR RELATED ASSISTANCE OR SERVICES, EXCLUDING SUPPLIES AND EQUIPMENT THE SUBCONTRACTOR PURCHASES OR LEASES FROM THE PRIME CONTRACTOR OR ITS AFFILIATES.**

**IDENTIFY THE DBEs ASSISTED, THE ASSISTANCE OFFERED, AND THE DATES OF SERVICES OFFERED AND PROVIDED. ATTACH COPIES OF SUPPORTING DOCUMENTS.**

| DBEs ASSISTED | ASSISTANCE OFFERED | DATES SERVICES OFFERED AND/OR PROVIDED |
|---|---|---|
| | | |

**NOTE:** ATTACH ADDITIONAL PAGES IF NECESSARY.

COMM0NWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

# DBE GOOD FAITH EFFORTS DOCUMENTATION

**CONTRACT I.D. NO._____DATE SUBMITTED_____**

**IF THE DBE GOAL ESTABLISHED FOR THIS CONTRACT HAS NOT BEEN MET OR VDOT REQUESTS THE SUBMITTAL THEREOF, THE BIDDER IS REQUIRED TO SUBMIT GOOD FAITH EFFORTS AS OUTLINED IN THIS DOCUMENT.**

**THE BIDDER ACKNOWLEDGES AND CERTIFIES THAT THIS FORM ACCURATELY REPRESENTS THE INFORMATION CONTAINED HEREIN.**

**BIDDER_____SIGNATURE_____**

**TITLE_____**

## ADDITIONAL DATA TO SUPPORT DEMONSTRATION OF GOOD FAITH EFFORTS

| ADDITIONAL DATA TO SUPPORT DEMONSTRATION OF GOOD FAITH EFFORTS |
|---|
| |

**NOTE: ATTACH ADDITIONAL PAGES, IF NECESSARY**

**ORDER NO.:**
**CONTRACT ID. NO.:**

Form C-104
Rev. 7-13-05

# COMMONWEALTH OF VIRGINIA
# DEPARTMENT OF TRANSPORTATION

PROJECT: U000-138-R04

FHWA: STP-5138(189)

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

_____ By: _____ _____
(Name of Firm) (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

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

_____ By: _____ _____
(Name of Firm) (Signature) Title (print)

**ORDER NO.:**
**CONTRACT ID. NO.:**

Form C-105
Rev. 7-13-05

**COMMONWEALTH OF VIRGINIA**
**DEPARTMENT OF TRANSPORTATION**
**AFFIDAVIT**

PROJECT: U000-138-R04

FHWA: STP-5138(189)

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.

1. 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 33.1-336 of the Code of Virginia (1970). (If none, so state).

| NAME | Location of Principal Office |
|---|---|
| | |
| | |
| | |

2. 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)

**ORDER NO.:**
**CONTRACT ID. NO.:**



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

_____ By: _____ _____
(Name of Firm) (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

Form C-111
Rev. 2-15-11

# COMMONWEALTH OF VIRGINIA
# DEPARTMENT OF TRANSPORTATION
# **MINIMUM DBE REQUIREMENTS**

PROJECT NO. U000-138-R04

FHWA NO. STP-5138(189)

*** * * INSTRUCTIONS * * ***

THIS FORM CAN BE USED BY THE CONTRACTOR TO SUBMIT THE NAMES OF DBE FIRMS TO BE UTILIZED ON THE PROJECT. THE CONTRACTOR SHALL INDICATE THE DESCRIPTION OF THE CATEGORY (S, M, SP or H) AND THE TYPE OF WORK THAT EACH DBE WILL PERFORM AND THE ALLOWABLE CREDIT PER ITEM(S). ADDITIONAL SHEETS TO SHOW THE ALLOWABLE CREDIT PER ITEM MAY BE ATTACHED IF NECESSARY. **PLEASE NOTE:** THE AMOUNT OF ALLOWABLE CREDIT FOR A DBE SUPPLIER IS 60% OF THE TOTAL COST OF THE MATERIALS OR SUPPLIES OBTAINED AND 100% FOR A DBE MANUFACTURER OF THE MATERIALS AND SUPPLIES OBTAINED. A CONTRACTOR MAY COUNT 100% OF THE FEES PAID TO A DBE HAULER FOR THE DELIVERY OF MATERIALS AND SUPPLIES TO THE PROJECT SITE, BUT NOT FOR THE COST OF THE MATERIALS AND SUPPLIES THEMSELVES.

**DBE REQUIREMENT** 11 **%**

**PERCENT ATTAINED BY BIDDER** _____ **%**

| NAMES(S) AND CERTIFICATION NO. OF DBE(S) TO BE USED | USED AS SUBCONTR. (S) MFG. (M) SUPPLIER (SP) HAULER (H) | TYPE OF WORK AND ITEM NO(S) | $ AMOUNT OF ALLOWABLE CREDIT PER ITEM |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | **TOTAL** | **$** |

TOTAL CONTRACT VALUE $ _____ x REQUIRED DBE _____ % = $ _____

I/WE CERTIFY THAT THE PROPOSED DBE(S) SUBMITTED WILL BE USED ON THIS CONTRACT AS STATED HEREON AND ASSURE THAT DURING THE LIFE OF THE CONTRACT. I/WE WILL MEET OR EXCEED THE PARTICIPATION ESTABLISHED HEREON BY THE DEPARTMENT.

_____ BY _____
BIDDER SIGNATURE

_____ BY _____
TITLE DATE

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

# CERTIFICATION OF BINDING AGREEMENT
WITH
# DISADVANTAGED BUSINESS ENTERPRISE FIRMS

Project No.: U000-138-R04

Federal Project No.: STP-5138(189)

This form is to be submitted in accordance with the Department's Special Provision for Section 107.15.

It is hereby certified by the below signed Contractors that there exists a written quote, acceptable to the parties involved preliminary to a binding subcontract agreement stating the details concerning the work to be performed and the price which will be paid for the aforementioned work. This document is not intended to, nor should it be construed to, contain the entire text of the agreement between the contracting parties. This document does not take the place of, nor may it be substituted for, an official subcontracting agreement in those situations that may require such an agreement. A copy of the fully executed *subcontract agreement* shall be submitted to the Engineer within fourteen (14) business days after contract execution.

It is further certified that the aforementioned mutually acceptable quote and fully executed subcontract agreement represent the entire agreement between the parties involved and that no conversations, verbal agreements, or other forms of non-written representations shall serve to add to, delete, or modify the terms as stated.

The prime Contractor further represents that the aforementioned mutually acceptable quote and fully executed subcontract agreement shall remain on file for a period of not less than one year following completion of the prime's contract with the Department or for such longer period as provisions of governing Federal or State law or regulations may require. For purposes of this form, the term Prime Contractor shall refer to any Contractor utilizing a DBE subcontractor, regardless of tier, in which they are claiming DBE credit toward the contract goal.

Contractors further jointly and severally represent that said binding agreement is for the performance of a "commercially useful function" as that term is employed in 49 C.F.R. Part 26.55 (c), (d).

**TO BE SIGNED BY THE SUBCONTRACTOR TO THE PRIME CONTRACTOR, AND ANY LOWER TIER SUBCONTRACTORS HAVING A CONTRACT WITH THE BELOW NAMED DBE FIRM**

Prime Contractor _____

By: _____ _____
Signature Title

Date: _____

First Tier Subcontractor if Applicable _____

By: _____ _____
Signature Title

Date: _____

Second Tier Subcontractor if Applicable _____

By: _____ _____
Signature Title

Date: _____

Third Tier Subcontractor if Applicable _____

By: _____ _____
Signature Title

Date: _____

DBE Contractor _____

By: _____ _____
Signature Title

Date: _____

**GUIDELINES** - Applies only to those projects developed through the "Local Assistance Division" for county or city administration and use 2016 VDOT Specifications and 2016 VDOT Standards.

**cn100-000051-02** **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 and the Supplement thereto, dated 2019. References to the "Road and Bridge Standard(s)" shall refer to the *Virginia Department of Transportation Road and Bridge Standards*, dated 2016 with revisions issued online as of the advertisement date for this project incorporated. References to the "Virginia Work Area Protection Manual" shall refer to the 2011 edition of the *Virginia Work Area Protection Manual with Revision Number 2* incorporated, dated September 1, 2019. 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.

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.

12-2-19 (SPCN)

**GUIDELINES —** All Federal-aid projects. {2007-c102r00}

**cn102-000510-00** **SECTION 102.05—PREPARATION OF BID** of the Specifications is amended to include the following:

(g) **Compliance with the Cargo Preference Act**

As required by 46 CFR 381.7 (a)-(b) "Use of United States-flag vessels, when materials or equipment are acquired for a specific highway project, the Contractor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States. a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

3. To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

This requirement will not be applicable when materials or equipment used on the Project are obtained from the existing inventories of suppliers and contractors; they are only applicable when the materials or equipment are acquired for the specific project, and have been transported by ocean vessel.

12-14-15; Reissued 7-12-16 (SPCN) [formerly cn102-050100-00]

**cq107-000130-00**

**GUIDELINES:** For use on all Contracts.

**DRUG-FREE WORKPLACE** – The Contractor shall:

- Provide a Drug-Free Workplace for the Contractor's employees.
- 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.
- State in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a Drug-Free Workplace.
- 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 provision, "Drug-Free Workplace" means a site for the performance of work done in connection with the Contract. The Contractors employees, and those of his Subcontractors, shall be prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession, or use of any controlled substance or marijuana during the performance of the Work.

7-3-19 (SPCN)

SP0F0-000100-00

Reissued July 12, 2016

**PREDETERMINED MINIMUM WAGE RATES**

U.S. DEPARTMENT OF LABOR
OFFICE OF THE SECRETARY
WASHINGTON

**DECISION OF THE SECRETARY**

This case is before the Department of Labor pursuant to a request for a wage predetermination as required by law applicable to the work described.

A study has been made of wage conditions in the locality and based on information available to the Department of Labor the wage rates and fringe payments listed are hereby determined by the Secretary of Labor as prevailing for the described classes for labor in accordance with applicable law.

This wage determination decision and any modifications thereof during the period prior to the stated expiration date shall be made a part of every contract for performance of the described work as provided by applicable law and regulations of the Secretary of Labor, and the wage rates and fringe payments contained in this decision, including modifications, shall be the minimums to be paid under any such contract and subcontractors on the work.

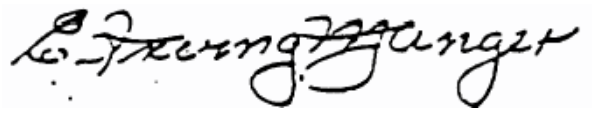
The Contracting Officer shall require that any class of laborers and mechanics which is not listed in the wage determination and which is to be employed under the Contract, shall be classified or reclassified conformably to the wage determination, and a report of the action taken shall be sent by the Federal agency to the Secretary of Labor. In the event the interested parties cannot agree on the proper classification or reclassification of a particular class of laborers and mechanics to be used, the question accompanied by the recommendation of the Contracting Officer shall be referred to the Secretary for determination.

Before using apprentices on the job the contractor shall present to the Contracting Officer written evidence of registration of such employees in a program of a State apprenticeship and training agency approved and recognized by the U.S. Bureau of Apprenticeship and Training. In the absence of such a State agency, the Contractor shall submit evidence of approval and registration by the U.S. Bureau of Apprenticeship and Training.

The Contractor shall submit to the Contracting Officer written evidence of the established apprentice-journeyman ratios and wage in the project area, which will be the basis for establishing such ratios and rates for the project under the applicable contract provisions.

Fringe payments include medical and hospital care, compensation for injuries or illness resulting from occupational activity, unemployment benefits, life insurance, disability and sickness insurance, accident insurance (all designated as health and welfare), pensions, vacation and holiday pay, apprenticeship or other similar programs and other bona fide fringe benefits.

By direction of the Secretary of Labor



E. Irving Manger, Associate Administrator
Division of Wage Determinations
Wage and Labor Standards Administration

"General Decision Number: VA20200121 01/03/2020

Superseded General Decision Number: VA20190121

State: Virginia

Construction Type: Highway

Counties: Frederick and Winchester* Counties in Virginia.

*including the independent city of Winchester

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,

if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

| Modification Number | Publication Date |
|---|---|
| 0 | 01/03/2020 |

ELEC0080-011 06/01/2018

| | Rates | Fringes |
|---|---|---|
| ELECTRICIAN, Includes Traffic Signalization | $ 27.94 | 12.56%+6.95 |

---

PLAS0891-011 06/01/2017

| | Rates | Fringes |
|---|---|---|
| CEMENT MASON/CONCRETE FINISHER | $ 20.10 | 7.38 |

---

SUVA2016-057 07/02/2018

| | Rates | Fringes |
|---|---|---|
| CARPENTER, Includes Form Work | $ 20.97 | 0.00 |

FENCE ERECTOR.....$ 15.28 0.00

IRONWORKER, REINFORCING.....$ 34.18 0.00

IRONWORKER, STRUCTURAL.....$ 34.18 0.00

LABORER: Asphalt, Includes
Raker, Shoveler, Spreader and
Distributor.....$ 19.05 1.75

LABORER: Common or General.....$ 15.14 0.00

LABORER: Grade Checker.....$ 14.88 0.00

LABORER: Pipelayer.....$ 20.48 0.00

LABORER: Power Tool Operator....$ 15.69 0.00

OPERATOR:
Backhoe/Excavator/Trackhoe.....$ 23.93 0.00

OPERATOR: Bobcat/Skid
Steer/Skid Loader.....$ 19.00 3.49

OPERATOR: Broom/Sweeper.....$ 17.40 2.01

OPERATOR: Crane.....$ 29.46 0.00

OPERATOR: Drill.....$ 24.89 0.00

OPERATOR: Gradall.....$ 19.26 0.00

OPERATOR: Grader/Blade.....$ 23.21 0.00

OPERATOR: Hydroseeder.....$ 16.64 0.00

OPERATOR: Loader.....$ 18.92 0.00

OPERATOR: Mechanic.....$ 22.84 0.00

OPERATOR: Milling Machine.....$ 23.19 2.94

OPERATOR: PAVEMENT PLANER
GROUNDSMEN.....$ 19.75 0.00

OPERATOR: PAVEMENT PLANER.....$ 21.14 0.00

OPERATOR: Paver (Asphalt,
Aggregate, and Concrete).....$ 20.33 2.81

OPERATOR: Piledriver.....$ 21.83 4.08

OPERATOR: Roller (Finishing)....$ 18.73 3.23

OPERATOR: Roller.....$ 18.92 0.00

OPERATOR: Screed.....$ 22.13 4.89

OPERATOR: Asphalt Spreader
and Distributor.....$ 20.58 2.31

OPERATOR: Bulldozer,
Including Utility.....$ 20.64 0.00

PAVEMENT MARKING OPERATOR.....$ 22.15 0.00

PAVEMENT MARKING TRUCK DRIVER....$ 18.78 0.00

TRAFFIC CONTROL: Flagger.....$ 13.64 0.00

TRUCK DRIVER : HEAVY 7CY &
UNDER.....$ 15.53 0.00

TRUCK DRIVER: Fuel and
Lubricant Service.....$ 18.25 0.00

TRUCK DRIVER: HEAVY OVER 7
CY.....$ 18.05 0.00

TRUCK DRIVER: Single & Multi
Axle.....$ 18.84 0.00

---

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

==========

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

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

---

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

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

**SP0F0-000130-00**

May 1, 2012; Reissued July 12, 2016
FHWA-1273 (Electronic Version)

The following Form **FHWA-1273** titled **REQUIRED CONTRACT PROVISIONS, FEDERAL-AID CONSTRUCTION CONTRACTS** shall apply to this contract:

==========

FHWA-1273 – Revised May 1, 2012

**REQUIRED CONTRACT PROVISIONS**
**FEDERAL-AID CONSTRUCTION CONTRACTS**

---


I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying


ATTACHMENTS


A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)


## I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The Contractor (or Subcontractor) must insert this form 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 Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

   Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The

design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the Contract by the Contractor's own organization and with the assistance of workers under the Contractor's immediate superintendence and to all work performed on the Ccontract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the Contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the Contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

## II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the Contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

**1. Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth

under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the Contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the Contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the Contract.

b. The contractor will accept as its operating policy the following statement:

> "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2.** **EEO Officer:** The contractor will designate and make known to the Contracting Officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3.** **Dissemination of Policy:** All members of the Contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the Contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the Contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the Contractor's EEO obligations within thirty days following their reporting for duty with the Contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the Contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the Contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4.** **Recruitment:** When advertising for employees, the Contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the Contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the Contractor for employment consideration.

In the event the Contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the Contractor is expected to observe the provisions of that agreement to the extent that the system meets the Contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the Contractor to do the same, such implementation violates Federal nondiscrimination provisions.

The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5.** **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the Contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the Contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the Contractor will inform every complainant of all of their avenues of appeal.

**6.** **Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the Contractor's work force requirements and as permissible under Federal and State regulations, the Contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7.** **Unions:** If the Contractor relies in whole or in part upon unions as a source of employees, the Contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the Contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the Contractor, the Contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the Contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the Contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the Contractor from the requirements of this paragraph. In the event the union referral practice prevents the Contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. **Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

   a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

   b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. **Assurance Required by 49 CFR 26.13(b):**

   a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

   b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. **Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the Contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

   a. The records kept by the Contractor shall document the following:

      (1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

      (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

      (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

   b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This

information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the Contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

## III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the Contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

## IV. Davis-Bacon and Related Act Provisions

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

### 1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are

deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the Contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(I) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(II) The classification is utilized in the area by the construction industry; and

(III) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Contracting Officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the Contracting Officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(3) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the Contracting Officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Contracting Officer shall refer the questions, including the views of all interested parties and the recommendation of the Contracting Officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the Contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

**2. Withholding**

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the Contract, the contracting agency may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

**3. Payrolls and basic records**

a. Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship

programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee ( e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

(2) Each payroll submitted shall be accompanied by a “Statement of Compliance,” signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the Contract and shall certify the following:

(I) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(II) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(III) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the Contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the Contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

**4. Apprentices and trainees**

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. **Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. **Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the Contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. **Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. **Certification of eligibility.**

    a. By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

    b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

    c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

## V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. **Violation; liability for unpaid wages; liquidated damages**. In the event of any violation of the clause set forth in paragraph (1.) of this section, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. **Withholding for unpaid wages and liquidated damages.** The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

## VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the Contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the Contractor's own organization (23 CFR 635.116).

    a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

        (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the Contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the Contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the Contracting Officer determines is necessary to assure the performance of the Contract.

4. No portion of the Contract shall be sublet, assigned or otherwise disposed of except with the written consent of the Contracting Officer, or authorized representative, and such consent when given shall not be construed to relieve the Contractor of any responsibility for the fulfillment of the Contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

## VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the Contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the Contracting Officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the Contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the Contractor enters into pursuant to this contract, that the Contractor and any subcontractor shall not permit any employee, in performance of the Contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to

his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

## VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

> "Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or
>
> Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or
>
> Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;
>
> Shall be fined under this title or imprisoned not more than 5 years or both."

## IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the Contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

## X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

### 1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor).

"Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

**2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense 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;

(3) 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 in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

**3. Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

## XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

    a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

    b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)**

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals for female and minority participation, expressed in percentage terms of the Contractor's aggregate work force in each trade on all construction works in the covered area, are as follows:

   Females- 6.9%
   Minorities - See Attachment "A"

   The goals are applicable to all the Contractor's construction work performed in the covered area, whether or not it is Federal or federally assisted. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

   The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications, set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established herein. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the Contract, the Executives Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs <u>within 10 workings days</u> the award of any construction subcontract in excess of $10,000 at any tier for construction works under this contract. The notification shall list the name, address and telephone number of the subcontractor, employer identification number, estimated dollar amount of the subcontract, estimated starting and completion dates of the subcontract and the geographical area in which the Contract is to be performed.

**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)**

1. As, used in this provision:

   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

   c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U. S. Treasury Department Form 941;

d. "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors and Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the coverer area. Covered construction Contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to

achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, shall assign two or more women to each construction project. The Contractor shall specifically ensure that all foreman, superintendents and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off the street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union, or if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or women sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper or annual report; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents and General Foremen prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including in any news media advertisement that the Contractor is "An Equal Opportunity Employer" for minority and female, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Directs its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one

month prior to the date for the acceptance of applications for apprenticeship or other training by recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures and tests to be used m the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for such opportunities through appropriate training or other means.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated, except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. Goals for women have been established. However, the Contractor IS required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner, that is even thought the Contractor has achieved its goals for women, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized.

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246. as amended.

13. The Contractor, in fulfilling its obligations under these specifications shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from Its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director will proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate and make known to the Department a responsible official as the EEO Officer to monitor all employment related activity, to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, Contractors will not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

**ATTACHMENT A**

| Economic Area | Goal (Percent) |
|---|---|
| Virginia: | |
| 021 Roanoke-Lynchburg, VA | |
| SMSA Counties: | |
| 4640 Lynchburg, VA | 19.3 |
| VA Amherst; VA Appomattox; VA Campbell; VA Lynchburg | |
| 6800 Roanoke, VA | 10.2 |
| VA Botetourt; VA Craig; VA Roanoke; VA Roanoke City; VA Salem | |
| Non-SMSA Counties | 12.0 |
| VA Alleghany; VA Augusta; VA Bath; VA Bedford; VA Bland; VA Carroll; VA Floyd; VA Franklin; VA Giles; VA Grayson; VA Henry; VA Highland; VA Montgomery; VA Nelson; VA Patrick; VA Pittsylvania; VA Pulaski; VA Rockbridge; VA Rockingham; VA Wythe; VA Bedford City; VA Buena Vista: VA Clifton Forge; VA Covington; VA Danville; VA Galax; VA Harrisonburg; VA Lexington; VA Martinsville; VA Radford; VA Staunton; VA Waynesboro; WV Pendleton. | |
| 022 Richmond, VA | |
| SMSA Counties: | |
| 6140 Petersburg - Colonial Heights - Hopewell, VA | 30.6 |
| VA Dinwiddie; VA Prince George; VA Colonial Heights; VA Hopewell; VA Petersburg. | |

6760 Richmond, VA ..... 24.9
VA Charles City; VA Chesterfield; VA Goochland, VA Hanover; VA Henrico; VA New Kent; VA Powhatan; VA Richmond.

Non-SMSA Counties ..... 27.9
VA Albemarle; VA Amelia; VA Brunswick; VA Buckingham, VA Caroline; VA Charlotte; VA Cumberland; VA Essex; VA Fluvanna; VA Greene; VA Greensville; VA Halifax; VA King and Queen; VA King William; VA Lancaster; VA Louisa; VA Lunenburg; VA Madison; VA Mecklenburg; VA Northumberland; VA Nottoway; VA Orange; VA Prince Edward; VA Richmond VA Sussex; VA Charlottesville; VA Emporia; VA South Boston

023 Norfolk - Virginia Beach - Newport News VA:

SMSA Counties:

5680 Newport News- Hampton, VA ..... 27.1
VA Gloucester; VA James City; VA York; VA Hampton; VA Newport News; VA Williamsburg.

5720 Norfolk - Virginia Beach - Portsmouth, VA - NC ..... 26.6
NC Currituck; VA Chesapeake; VA Norfolk; VA Portsmouth; VA Suffolk; VA Virginia Beach.

Non-SMSA Counties ..... 29.7
NC Bertie; NC Camden; NC Chowan; NC Gates; NC Hertford; NC Pasquotank; NC Perquimans; VA lsle of Wight; VA Matthews; VA Middlesex; VA Southampton; VA Surry; VA Franklin.

Washington, DC:

020 Washington, DC.

SMSA Counties:

8840 Washington, DC - MD - VA ..... 28.0
DC District of Columbia; MD Charles; MD Montgomery MD Prince Georges; VA Arlington; VA Fairfax; VA Loudoun; VA Prince William VA Alexandria; VA Fairfax City; VA Falls Church.

Non- SMSA Counties ..... 25.2
MD Calvert; MD Frederick; MD St. Marys: MD Washington; VA Clarke; VA Culpeper; VA Fauquier; VA Frederick; VA King George; VA Page; VA Rappahannock; VA Shenandoah; VA Spotsylvania; VA Stafford; VA Warren: VA Westmoreland; VA Fredericksburg; VA Winchester WV Berkeley; WV Grant; WV Hampshire; WV Hardy; WV Jefferson; WV Morgan.

Tennessee:

052 Johnson City - Kingsport - Bristol, TN - VA

SMSA Counties:

3630 Johnson City - Kingsport -Bristol, TN-VA ..... 2.6
TN Carter; TN Hawkins; TN Sullivan; TN Washington; VA Scott: VA Washington; VA Bristol.

Non-SMSA Counties ..... 3.2
TN Greene; TN Johnson; VA Buchanan; VA Dickenson; VA Lee; VA Russell; VA Smyth; VA Tazewell; VA Wise; VA Norton; WV McDowell; WV Mercer.

Maryland:

019 Baltimore MD

Non-SMSA Counties ..... 23.6
MD Caroline; MD Dorchester; MD Kent; MD Queen Annes; MD Somerset; MD Talbot; MD Wicomico; MD Worchester; VA Accomack; VA Northampton.

**GUIDELINES —** Applies only to those projects developed through the "Local Assistance Division" for county or city administration and use 2016 VDOT Specifications and 2016 VDOT Standards.[Source]

**SP100-000051-00**

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**CHANGED CONDITIONS FOR LOCAL ASSISTANCE PROJECTS**

April 29, 2019

## I. GENERAL

This special provision specifies the process to be followed when conditions specified in the Contract differ from what is encountered during the prosecution of work except as provided elsewhere in the Contract.

## II. DIFFERING SITE CONDITIONS

1. During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the Contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the Contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before the site is disturbed and before the affected work is performed.

2. Upon written notification, the Engineer will investigate the conditions, and if it is determined that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the Contract, an adjustment, excluding anticipated profits, will be made and the Contract modified in writing accordingly. The Engineer will notify the Contractor of the determination whether or not an adjustment of the Contract is warranted.

3. No contract adjustment which results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.

4. No contract adjustment will be allowed under this clause for any effects caused on unchanged work. (This provision may be omitted by the Department at its option.)

## III. SUSPENSION OF WORK ORDERED BY THE ENGINEER

1. If the performance of all or any portion of the work is suspended or delayed by the Engineer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the Contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the Contractor shall submit to the Engineer in writing a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.

2. Upon receipt, the Engineer will evaluate the Contractor's request. If the Engineer agrees that the cost and/or time required for the performance of the Contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or subcontractors at any approved tier, and not caused by

weather, the Engineer will make an adjustment (excluding profit) and modify the Contract in writing accordingly. The Contractor will be notified of the Engineer's determination whether or not an adjustment of the Contract is warranted.

3. No contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed.

4. No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided or excluded under any other term or condition of this contract.

## IV. SIGNIFICANT CHANGES IN THE CHARACTER OF WORK

1. The Engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the Contract nor release the surety, and the Contractor agrees to perform the work as altered.

2. If the alterations or changes in quantities significantly change the character of the work under the Contract, whether such alterations or changes are in themselves significant changes to the character of the work or by affecting other work cause such other work to become significantly different in character, an adjustment, excluding anticipated profit, will be made to the Contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the Contractor in such amount as the Engineer may determine to be fair and equitable.

3. If the alterations or changes in quantities do not significantly change the character of the work to be performed under the Contract, the altered work will be paid for as provided elsewhere in the Contract.

4. The term “significant change” shall be construed to apply only to the following circumstances:

   A. When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction; or

   B. When a major item of work, as defined elsewhere in the Contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed.

**GUIDELINES —** Any and all Federally funded / eligible projects. (Includes Form C-76) {2007-S102CF2}

**SP102-000510-02**

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**USE OF DOMESTIC MATERIAL**

December 19, 2018

**SECTION 102.05 PREPARATION OF BID** of the Specifications is amended to include the following:

In accordance with the provisions of Section 635.410(b) of Title 23 CFR, hereinafter referred to as "Buy America", except as otherwise specified, all iron and steel (including miscellaneous items such as fasteners, nuts, bolts and washers) to be permanently incorporated for use on federal aid projects shall be produced in the United States of America. This applies to any iron or steel item brought onto the project, regardless of the percentage of iron or steel that exists in the pay item or in the final form they take; however, electrical components (i.e., combination products such as signal controllers and similar products which are only sold as a unit) are not subject to Buy America provisions if the product as purchased by the Contractor is less than 50% steel and iron. "Produced in the United States of America" means all manufacturing processes occur in one of the 50 United States, the District of Columbia, Puerto Rico or in the territories and possessions of the United States. "Manufacturing processes" are defined as any process which alters or modifies the chemical content, physical size or shape, or final finish of iron or steel material (such as rolling, extruding, bending, machining, fabrication, grinding, drilling, finishing, or coating). For the purposes of satisfying this requirement "coating" is defined as the application of epoxy, galvanizing, painting or any other such process that protects or enhances the value of the material to which the coating is applied. Non-iron and non-steel materials used in the coating process do not need to be produced in the United States as long as the application of the coating occurred in the United States. The manufacturing process is considered complete when the resultant product is ready for use as an item in the project (e.g. fencing, posts, girders, pipe, manhole covers, etc.) or is incorporated as a component of a more complex product by means of further manufacturing. Final assembly of a product may occur outside of the United States of America provided no further manufacturing processes take place.

For the purposes of this provision, all steel or iron material meeting the criteria as produced in the United States of America will be considered as "Domestic Material." All iron and steel items not meeting the criteria as produced in the United States of America will be considered "Non-Domestic Material."

A minimal amount of "Non-Domestic" steel or iron material may be incorporated in the permanent work on a federal-aid contract provided that the cost of such materials or products does not exceed one-tenth of one percent of the Contract amount or $2500, whichever is greater. The cost of the "Non-Domestic Material" is defined as its monetary value delivered to the job site and supported by invoices or bill of sale to the Contractor. This delivered-to-site cost must include transportation, assembly, installation and testing.

Buy America provisions do not apply to iron or steel products used temporarily in the construction of a project such as temporary sheet piling, temporary bridges, steel scaffolding, falsework or such temporary material or product or material that remains in place for the Contractor's convenience.

Raw materials such as iron ore, pig iron, processed, pelletized and reduced iron ore, waste products (including scrap, that is, steel or iron no longer useful in its present form from old automobiles, machinery, pipe, railroad rail, or the like and steel trimmings from mills or product manufacturing) and

other raw materials used in the production of steel and\or iron products may, however, be imported. Extracting, handling, or crushing the raw materials which are inherent to the transporting the materials for later use in the manufacturing process are exempt from Buy America.

Any items containing foreign source steel or iron billet shall be considered “Non-Domestic Materials.” Additionally, iron or steel ingots or billets produced in the United States, but shipped outside the United States of America for any manufacturing process and returned for permanent use in a project shall be considered “Non-Domestic Materials.”

**Waivers:**

The process for receiving a waiver for Buy America provisions is identified in 23 CFR 635.410(c). The Contractor shall not anticipate that any Buy America provisions will be waived.

**Certification of Compliance:**

The Contractor is required to submit a Certificate of Compliance prior to incorporating any items containing iron or steel items into the project. This shall be accomplished by the Contractor submitting the Form C-76 Certificate of Compliance to the Department when the items are delivered to the project site. The Certification of Compliance will certify whether the items are considered “Domestic Material” or “Non-Domestic Material” as referenced in this Special Provision. The certificate must be signed and dated by the Prime Contractor’s Superintendent and include a Buy America Submittal Number. The Buy America Submittal Number is simply the Contractor’s project specific sequential numbering system that will allow the Contractor and Department to track the total number of certificates provided and the individual items containing iron or steel associated with each certificate.

**Supporting Documentation:**

Supporting documentation to demonstrate compliance with Buy America provisions (such as mill test reports manufacturer/supplier certifications, etc.) shall be organized by Buy America Submittal Number and maintained by the Contractor from the date of delivery until three years after project acceptance. The Contractor may maintain this documentation electronically or in paper format.

The Department or FHWA may review the Contractor’s supporting documentation to verify compliance with the Buy America provisions at any time. Supporting documentation shall be provided within five business days of the request. The burden of proof to meet the Buy America provisions rests with the Contractor. If the supporting documentation does not undeniably demonstrate to FHWA or the Department that the “Domestic Materials” identified in the Certificates of Compliance were produced in the United States of America, then the Department may deduct payment from moneys due the Contractor for the value of the iron and steel that did not meet the Buy America provisions.

**GUIDELINES —** For use on all Federally-Funded projects.

SP107-000120-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**ELECTRONIC SUBMISSION OF PAYROLLS AND DBE SUBCONTRACTOR PAYMENT FOR FEDERALLY FUNDED PROJECTS**

January 21, 2020

## I. GENERAL REQUIREMENTS

The Contractor and all Subcontractors shall submit all certified payrolls and subcontractor payments, including those made to Disadvantaged Business Enterprises (DBEs), using the AASHTOWare Project Civil Rights and Labor (CRL) system in accordance with this specification. The term "subcontractor" shall include all vendors subject to FHWA-1273.

The electronic payroll submission and subcontractor payments through the CRL system replaces the paper submission of the C-57 and C-63 forms otherwise required by Sections 107.14(m) and 107.15 of the Specifications.

## II. SYSTEM REQUIREMENTS

The CRL system is web based. The Contractor shall ensure compatibility with the CRL system as necessary to successfully execute the Work. The CRL system works with Internet Explorer 11 or Google Chrome and requires the ability to read, create, and edit spreadsheets in the .xlsx file format.

The Contractor and Subcontractors will be granted access after submitting forms ITD-35 and ITD-36 for each individual user who requires an account. Only those firms with a required contract in the system should submit the Request Access form. The software is configured so that each firm will only be able see their specific contract information. There will only be one single sign-on process for multiple application access within the Department.

VDOT will provide access and link and a log-in identification (ID) for the CRL system to designated employees of the Contractor and approved subcontractors entered into the system for the contract. The log-in ID and password are unique to the designated employee and must not be shared with other employees. There are no fees associated with accessing the system or to receive a login ID.

The low bidders on Contract awards will be contacted by the State Civil Rights Manager after letting to begin the process for accessing the CRL system for them and their subcontractors. The State Civil Rights Manager will provide all training for entry of certified payrolls and DBE subcontractor payments in CRL.

The CRL website is located at: https://www.virginiadot.org/business/aashtoware_project_civil_rights_and_labor%E2%84%A2_crl_management_system.asp.

## III. PROCEDURES

### 1. CERTIFIED PAYROLL & SUBCONTRACTOR DATA SUBMISSION FOR FEDERALLY FUNDED PROJECTS

The Contractor and all subcontractors shall use the CRL system to provide VDOT electronic certified payrolls. The Contractor shall ensure that all subcontractors submit their certified payrolls into the system electronically.

Electronic submittal of certified payrolls can be submitted using the following methods:

- Manually add, copy, or modify data into CRL;

- Import payroll data with the CRL payroll spreadsheet XML converter tool available at https://xml.cloverleaf.net/spreadsheet/
- Convert payroll system program data to Payroll XML and import it into the CRL system. Information on how to convert to payroll program data to an XML file can be located at https://xml.cloverleaf.net/resourcekit/;
- The Contractor may send, on behalf of a subcontractor, payroll payment information based on a signed, certified paper payroll through the Electronica Proxy Payroll Process. Import payroll data with the CRL payroll spreadsheet XML converter tool available at https://xml.cloverleaf.net/spreadsheet/.

The District Civil Rights Manager or Engineer may require at any time, in writing, certified paper copies of the payrolls conforming to FHWA 1273 from any or all contractors working on the project.

2. **DBE PAYMENT SUBMISSION REQUIREMENTS FOR FEDERALLY FUNDED PROJECTS**

The Contractor shall post payment to DBE firms listed on their C-111 towards meeting their contract DBE goal per Federal DBE regulations. The Contractor shall submit, and shall require each Subcontractor to provide, payment amounts relative to all DBE involvement on the project during the life of the Contract in which participation occurs, and verification is available. The Contractor shall post payments to DBEs in CRL within 7 days after receipt of payment from the Department. Subcontractors shall post payments to DBEs in CRL within 7 days after receipt of payment from the Contractor.

The District Civil Rights Manager may require at any time, in writing, proof of payments from any or all subcontractors working on the project related to contractor DBE payments. The Contractor shall enter all payments made to all subcontractors into the Payment area of CRL for each estimate.

DBE Payments shall be entered only for those business entities that are being utilized in conjunction with performing a Commercial Useful Function (CUF).

More information about the CRL system can be located at https://www.aashtowareproject.org/index.php.

**GUIDELINES —** Federal projects only. {2007-S107HF1}

**SP107-001510-01** [formerly SP107-150100-01]

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**DBE REQUIREMENTS**

August 18, 2017

**SECTION 107 – LEGAL RESPONSIBILITIES** of the Specifications is revised as follows:

**Section 107.15 – Use of Small, Women-Owned, and Minority-Owned Business** is renamed **Use of Disadvantaged Business Enterprises (DBEs)** and replaced with the following:

(a) **Disadvantaged Business Enterprise (DBE) Program Requirements**

Any Contractor, subcontractor, supplier, DBE firm, and contract surety involved in the performance of work on a federal-aid contract shall comply with the terms and conditions of the United States Department of Transportation (USDOT) DBE Program as the terms appear in Part 26 of the Code of Federal Regulations (49 CFR as amended), the USDOT DBE Program regulations; and the Virginia Department of Transportation's (VDOT or the Department) Road and Bridge Specifications and DBE Program rules and regulations.

For the purposes of this provision, Contractor is defined as the Prime Contractor of the Contract; and sub-contractor is defined as any DBE supplier, manufacturer, or subcontractor performing work or furnishing material, supplies or services to the Contract. The Contractor shall physically include this same contract provision in every supply or work/service subcontract that it makes or executes with a subcontractor having work for which it intends to claim credit.

In accordance with 49 CFR Part 26 and VDOT's DBE Program requirements, the Contractor, for itself and for its subcontractors and suppliers, whether certified DBE firms or not, shall commit to complying fully with the auditing, record keeping, confidentiality, cooperation, and anti-intimidation or retaliation provisions contained in those federal and state DBE Program regulations. By bidding on this contract, and by accepting and executing this contract, the Contractor agrees to assume these contractual obligations and to bind the Contractor's subcontractors contractually to the same at the Contractor's expense.

The Contractor or subcontractor shall not discriminate on the basis of race, color, sex, sexual orientation, gender identity, or national origin in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award, administration, and performance of this contract. Failure by the Contractor to carry out these requirements is a material breach of this contract, which will result in the termination of this contract or other such remedy, as VDOT deems appropriate.

All administrative remedies noted in this provision are automatic unless the Contractor exercises the right of appeal within the required timeframe(s) specified herein. Appeal requirements, processes, and procedures shall be in accordance with guidelines stated herein and current at the time of the proceedings. Where applicable, the Department will notify the Contractor of any changes to the appeal requirements, processes, and procedures after receiving notification of the Contractor's desire to appeal.

All time frames referenced in this provision are expressed in business days unless otherwise indicated. Should the expiration of any deadline fall on a weekend or holiday, such deadline will automatically be extended to the next normal business day.

(b) **DBE Certification**

The only DBE firms eligible to perform work on a federal-aid contract for DBE contract goal credit are firms certified as Disadvantaged Business Enterprises by the Virginia Department of Small Business and Supplier Diversity (DSBSD) or the Metropolitan Washington Airports Authority (MWAA) in accordance with federal and VDOT guidelines. DBE firms must be certified in the specific work listed for DBE contract goal credit. A directory listing of certified DBE firms can be obtained from the Virginia Department of Small Business and Supplier Diversity website: *www.sbsd.virginia.gov.*

(c) **Bank Services**

The Contractor and each subcontractor are encouraged to use the services of banks owned and controlled by socially and economically disadvantaged individuals. Such banking services and the fees charged for services typically will not be eligible for DBE Program contract goal credit. Such information is available from the VDOT's Internet Civil Rights Division website: http://www.virginiadot.org/business/resources/Civil_Rights/VDOT_DBE_Program_Plan.pdf

(d) **DBE Program-Related Certifications Made by Bidders\Contractors**

By submitting a bid and by entering into any contract on the basis of that bid, the bidder/Contractor certifies to each of the following DBE Program-related conditions and assurances:

1. That the management and bidding officers of its firm agree to comply with the bidding and project construction and administration obligations of the USDOT DBE Program requirements and regulations of 49 CFR Part 26 as amended, and VDOT's Road and Bridge Specifications and DBE Program requirements and regulations.

2. Under penalty of perjury and other applicable penal law that it has complied with the DBE Program requirements in submitting the bid, and shall comply fully with these requirements in the bidding, award, and execution of the Contract.

3. To ensure that DBE firms have been given full and fair opportunity to participate in the performance of the Contract. The bidder certifies that all reasonable steps were, and will be, taken to ensure that DBE firms had, and will have, an opportunity to compete for and perform work on the Contract. The bidder further certifies that the bidder shall not discriminate on the basis of race, color, age, sex, sexual orientation, gender identity, or national origin in the performance of the Contract or in the award of any subcontract. Any agreement between a bidder and a DBE whereby the DBE promises not to provide quotations for performance of work to other bidders is prohibited.

4. As a bidder, good faith efforts were made to obtain DBE participation in the proposed contract at or above the goal for DBE participation established by VDOT. It has submitted as a part of its bid true, accurate, complete, and detailed documentation of the good faith efforts it performed to meet the Contract goal for DBE participation. The bidder, by signing and submitting its bid, certifies the DBE participation information submitted within the stated time thereafter is true, correct, and complete, and that the information provided includes the names of all DBE firms that will participate in the Contract, the specific line item(s) that each listed DBE firm will perform, and the creditable dollar amounts of the participation of each

listed DBE. The specific line item must reference the VDOT line number and item number contained in the proposal.

5. The bidder further certifies, by signing its bid, it has committed to use each DBE firm listed for the specific work item shown to meet the Contract goal for DBE participation. Award of the Contract will be conditioned upon meeting these and other listed requirements of 49 CFR Part 26.53 and the contract documents. By signing the bid, the bidder certifies on work that it proposes to sublet; it has made good faith efforts to seek out and consider DBEs as potential subcontractors. The bidder shall contact DBEs to solicit their interest, capability, and prices in sufficient time to allow them to respond effectively, and shall retain on file proper documentation to substantiate its good faith efforts. Award of the Contract will be conditioned upon meeting these and other listed requirements of 49 CFR Part 26.53 and the contract documents.

6. Once awarded the Contract, the Contractor shall make good faith efforts to utilize DBE firms to perform work designated to be performed by DBEs at or above the amount or percentage of the dollar value specified in the bidding documents. Further, the Contractor understands it shall not unilaterally terminate, substitute for, or replace any DBE firm that was designated in the executed contract in whole or in part with another DBE, any non-DBE firm, or with the Contractor's own forces or those of an affiliate of the Contractor without the prior written consent of VDOT as set out within the requirements of this provision.

7. Once awarded the contract, the Contractor shall designate and make known to the Department a liaison officer who is assigned the responsibility of administering and promoting an active and inclusive DBE program as required by 49 CFR Part 26 for DBEs. The designation and identity of this officer need be submitted only once by the Contractor during any twelve (12) month period at the preconstruction conference for the first contract the Contractor has been awarded during that reporting period. The Department will post such information for informational and administrative purposes at VDOT's Internet Civil Rights Division website.

8. Once awarded the Contract, the Contractor shall comply fully with all regulatory and contractual requirements of the USDOT DBE Program, and that each DBE firm participating in the Contract shall fully perform the designated work items with the DBE's own forces and equipment under the DBE's direct supervision, control, and management. Where a contract exists and where the Contractor, DBE firm, or any other firm retained by the Contractor has failed to comply with federal or VDOT DBE Program regulations and/or their requirements on that contract, VDOT has the authority and discretion to determine the extent to which the DBE contract regulations and\or requirements have not been met, and will assess against the Contractor any remedies available at law or provided in the Contract in the event of such a contract breach.

9. In the event a bond surety assumes the completion of work, if for any reason VDOT has terminated the prime Contractor, the surety shall be obligated to meet the same DBE contract terms and requirements as were required of the original prime Contractor in accordance with the requirements of this specification.

(e) **Disqualification of Bidder**

Bidders may be disqualified from bidding for failure to comply with the requirements of this Special Provision, the Contract specifications, and VDOT Road and Bridge Specifications.

(f) **Bidding Procedures**

The following bidding procedures shall apply to the Contract for DBE Program compliance purposes:

1. **Contract Goal, Good Faith Efforts Specified:** All bidders evidencing the attainment of DBE goal commitment equal to or greater than the required DBE goal established for the project must submit completed Form C-111, Minimum DBE Requirements, and Form C-48, Subcontractor/Supplier Solicitation and Utilization, as a part of the bid documents.

   Form C-111 may be submitted electronically or may be faxed to the Department, but in no case shall the bidder's Form C-111 be received later than 10:00 a.m. the next business day after the time stated in the bid proposal for the receipt of bids. Form C-48 must be received within ten (10) business days after the bid opening.

   If, at the time of submitting its bid, the bidder knowingly cannot meet or exceed the required DBE contract goal, it shall submit Form C-111 exhibiting the DBE participation it commits to attain as a part of its bid documents. The bidder shall then submit Form C-49, DBE Good Faith Efforts Documentation, within two (2) business days after the bid opening.

   The lowest responsive and responsible bidder must submit its properly executed Form C-112, Certification of Binding Agreement, within three (3) business days after the bids are received. DBEs bidding as prime contractors are not required to submit Form C-112 unless they are utilizing other DBEs as subcontractors.

   If, after review of the apparent lowest bid, VDOT determines the DBE requirements have not been met, the apparent lowest successful bidder must submit Form C-49, DBE Good Faith Efforts Documentation, which must be received by the Contract Engineer within two (2) business days after official notification of such failure to meet the aforementioned DBE requirements.

   Forms C-48, C-49, C-111, and C-112 can be obtained from the VDOT website at:
   *http://vdotforms.vdot.virginia.gov/*

   Instructions for submitting Form C-111 can be obtained from the VDOT website at:
   *http://www.virginiadot.org/business/resources/const/Exp_DBE_Commitments.pdf*

2. **Bid Rejection:** The failure of a bidder to submit the required documentation within the timeframes specified in the **Contract Goal, Good Faith Efforts Specified** section of this Special Provision may be cause for rejection of that bidder's bid.

   If the lowest bidder is rejected for failure to submit the required documentation in the specified time frames, the Department may award the work to the next lowest bidder, or re-advertise the proposed work at a later date or proceed otherwise as determined by the Commonwealth.

3. **Good Faith Efforts Described:** In order to award a contract to a bidder that has failed to meet DBE contract goal requirements, VDOT will determine if the bidder's efforts were adequate good faith efforts, and if given all relevant circumstances, those efforts were made actively and aggressively to meet the DBE requirements. Efforts to obtain DBE participation are not good faith efforts if they could not reasonably be expected to produce a level of DBE participation sufficient to meet the DBE Program and contract goal requirements.

   Good faith efforts may be determined through use of the following list of the types of actions the bidder may make to obtain DBE participation. This is not intended to be a mandatory

checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts of similar intent may be relevant in appropriate cases:

a. Soliciting through reasonable and available means, such as but not limited to, attendance at pre-bid meetings, advertising, and written notices to DBEs who have the capability to perform the work of the Contract. Examples include: advertising in at least one daily/weekly/monthly newspaper of general circulation, as applicable; phone contact with a completely documented telephone log, including the date and time called, contact person, or voice mail status; and internet contacts with supporting documentation, including dates advertised. The bidder shall solicit this interest no less than five (5) business days before the bids are due so that the solicited DBEs have enough time to reasonably respond to the solicitation. The bidder shall determine with certainty if the DBEs are interested by taking reasonable steps to follow up initial solicitations as evidenced by documenting such efforts as requested on Form C-49, DBE Good Faith Efforts Documentation.

b. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the Contractor might otherwise prefer to completely perform all portions of this work in its entirety or use its own forces;

c. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the Contract in a timely manner, which will assist the DBEs in responding to a solicitation;

d. Negotiating for participation in good faith with interested DBEs;

   (1) Evidence of such negotiation shall include the names, addresses, and telephone numbers of DBEs that were considered; dates DBEs were contacted; a description of the information provided regarding the plans, specifications, and requirements of the Contract for the work selected for subcontracting; and, if insufficient DBE participation seems likely, evidence as to why additional agreements could not be reached for DBEs to perform the work;

   (2) A bidder using good business judgment should consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and should take a firm's price, qualifications, and capabilities, as well as contract goals, into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not sufficient reason for a bidder's failure to meet the Contract goal for DBE participation, as long as such costs are reasonable and comparable to costs customarily appropriate to the type of work under consideration. Also, the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make diligent good faith efforts. Bidders are not, however, required to accept higher quotes from DBEs if the price difference can be shown by the bidder to be excessive, unreasonable, or greater than would normally be expected by industry standards;

e. A bidder cannot reject a DBE as being unqualified without sound reasons based on a thorough investigation of the DBE's capabilities. The DBE's standing within its industry, membership in specific groups, organizations, associations, and political or social affiliations, and union vs. non-union employee status are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal for DBE participation;

f. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by VDOT or by the bidder/Contractor;

g. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services subject to the restrictions contained in these provisions;

h. Effectively using the services of appropriate personnel from VDOT and from DMBE; available minority/women community or minority organizations; contractors' groups; local, state, and Federal minority/ women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and utilization of qualified DBEs.

(g) **Documentation and Administrative Reconsideration of Good Faith Efforts**

**During Bidding:** As described in the **Contract Goal, Good Faith Efforts Specified** section of this Special Provision, the bidder must provide Form C-49, DBE Good Faith Efforts Documentation, of its efforts made to meet the DBE contract goal as proposed by VDOT within the time frame specified in this provision. The means of transmittal and the risk for timely receipt of this information shall be the responsibility of the bidder. The bidder shall attach additional pages to the certification, if necessary, in order to fully detail specific good faith efforts made to obtain the DBE firms participation in the proposed contract work.

However, regardless of the DBE contract goal participation level proposed by the bidder or the extent of good faith efforts shown, all bidders shall timely and separately file their completed and executed forms C-111, C-112, C-48, and C-49, as aforementioned, or face potential bid rejection.

If a bidder does not submit its completed and executed forms C-111, or C-112, when required by this Special Provision, the bidder's bid will be considered non-responsive and may be rejected.

Where the Department upon initial review of the bid results determines the apparent low bidder has failed or appears to have failed to meet the requirements of the **Contract Goal, Good Faith Efforts Specified** section of this Special Provision and has failed to adequately document that it made a good faith effort to achieve sufficient DBE participation as specified in the bid proposal, that firm upon notification of the Department's initial determination will be offered the opportunity for administrative reconsideration before VDOT rejects that bid as non-responsive. The bidder shall address such request for reconsideration in writing to the Contract Engineer within five (5) business days of receipt of notification by the Department and shall be given the opportunity to discuss the issue and present its evidence in person to the Administrative Reconsideration Panel. The Administrative Reconsideration Panel will be made up of VDOT Division Administrators or their designees, none of who took part in the initial determination that the bidder failed to make the goal or make adequate good faith efforts to do so. After reconsideration, VDOT shall notify the bidder in writing of its decision and explain the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so.

If, after reconsideration, the Department determines the bidder has failed to meet the requirements of the Contract goal and has failed to make adequate good faith efforts to achieve the level of DBE participation as specified in the bid proposal, the bidder's bid will be rejected.

If sufficient documented evidence is presented to demonstrate that the apparent low bidder made reasonable good faith efforts, the Department will award the Contract and reduce the DBE requirement to the actual commitment identified by the lowest successful bidder at the time of its bid. The Contractor is still encouraged to seek additional DBE participation during the life of the Contract.

However, such action will not relieve the Contractor of its responsibility for complying with the reduced DBE requirement during the life of the Contract or any administrative sanctions as may be appropriate.

**During the Contract:** If a DBE, through no fault of the Contractor, is unable or unwilling to fulfill his agreement with the Contractor, the Contractor shall immediately notify the Department and provide all relevant facts. If a Contractor relieves a DBE subcontractor of the responsibility to perform work under their subcontract, the Contractor is encouraged to take the appropriate steps to obtain a DBE to perform an equal dollar value of the remaining subcontracted work. In such instances, the Contractor is expected to seek DBE participation towards meeting the goal during the performance of the Contract.

If the Contractor fails to conform to the schedule of DBE participation as shown on the progress schedule, or at any point at which it is clearly evident that the remaining dollar value of allowable credit for performing work is insufficient to obtain the scheduled participation, and the Contractor has not taken the preceding actions, the Contractor and any aforementioned affiliates may be subject to disallowance of DBE credit until such time as conformance with the schedule of DBE participation is achieved.

**Project Completion:** If the Contractor fails upon completion of the project to meet the required participation, the Contractor and any prime contractual affiliates, as in the case of a joint venture, may be enjoined from bidding as a prime Contractor, or participating as a subcontractor on VDOT projects for a period of 90 days.

Prior to enjoinment from bidding or denial to participate as a subcontractor for failure to comply with participation requirements, as provided hereinbefore, the Contractor may submit documentation to the State Construction Engineer to substantiate that failure was due solely to quantitative underrun(s), elimination of items subcontracted to DBEs, or to circumstances beyond their control, and that all feasible means have been used to obtain the required participation. The State Construction Engineer upon verification of such documentation shall make a determination whether or not the Contractor has met the requirements of the Contract.

If it is determined that the aforementioned documentation is insufficient or the failure to meet required participation is due to other reasons, the Contractor may request an appearance before the Administrative Reconsideration Panel to establish that all feasible means were used to meet such participation requirements. The decision of the Administrative Reconsideration Panel shall be administratively final. If the decision is made to enjoin the Contractor from bidding on other VDOT work as described herein, the enjoinment period will begin upon the Contractor's failure to request a hearing within the designated time frame or upon the Administrative Reconsideration Panel's decision to enjoin, as applicable.

(h) **DBE Participation for Contract Goal Credit**

1. Cost-plus subcontracts will not be considered to be in accordance with normal industry practice and will not normally be allowed for credit.

2. The applicable percentage of the total dollar value of the Contract or Subcontract awarded to the DBE will be counted toward meeting the Contract goal for DBE participation in accordance with the **DBE Program-Related Certifications Made by Bidders\Contractors** section of this Special Provision for the value of the work, goods, or services that are actually performed or provided by the DBE firm itself or subcontracted by the DBE to other DBE firms.

3. When a DBE performs work as a participant in a joint venture with a non-DBE firm, the Contractor may count toward the DBE goal only that portion of the total dollar value of the Contract equal to the distinctly defined portion of the Contract work that the DBE has

performed with the DBE's own forces or in accordance with the provisions of this Section. The Department shall be contacted in advance regarding any joint venture involving both a DBE firm and a non-DBE firm to coordinate Department review and approval of the joint venture's organizational structure and proposed operation where the Contractor seeks to claim the DBE's credit toward the DBE contract goal.

4. When a DBE subcontracts part of the work of the Contract to another firm, the value of that subcontracted work may be counted toward the DBE contract goal only if the DBE's subcontractor at a lower tier is a certified DBE. Work that a DBE subcontracts to either a non-DBE firm or to a non-certified DBE firm will not count toward the DBE contract goal. The cost of supplies and equipment a DBE subcontractor purchases or leases from the prime Contractor or the prime's affiliated firms will not count toward the Contract goal for DBE participation.

5. The Contractor may count expenditures to a DBE subcontractor toward the DBE contract goal only if the DBE performs a Commercially Useful Function (CUF) on that contract.

6. A Contractor may not count the participation of a DBE subcontractor toward the Contractor's final compliance with the DBE contract goal obligations until the amount being counted has actually been paid to the DBE. A Contractor may count sixty (60) percent of its expenditures actually paid for materials and supplies obtained from a DBE certified as a regular dealer, and one hundred (100) percent of such expenditures actually paid for materials and supplies obtained from a certified DBE manufacturer.

   a. For the purposes of this Special Provision, a regular dealer is defined as a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles, or equipment required and used under the Contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. To be a regular dealer, the DBE firm shall be an established business that regularly engages, as its principal business and under its own name, in the purchase and sale or lease of the products or equipment in question. Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions will not be considered regular dealers.

   b. A DBE firm may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business where it keeps such items in stock if the DBE both owns and operates distribution equipment for the products it sells and provides for the Contract work. Any supplementation of a regular dealer's own distribution equipment shall be by a long-term lease agreement and not on an *ad hoc* or contract-by-contract basis to be eligible for credit to meet the DBE contract goal.

   c. If a DBE regular dealer is used for DBE contract goal credit, no additional credit will be given for hauling or delivery to the project site goods or materials sold by that DBE regular dealer. Those delivery costs shall be deemed included in the price charged for the goods or materials by the DBE regular dealer, who shall be responsible for their distribution.

   d. For the purposes of this Special Provision, a manufacturer will be defined as a firm that operates or maintains a factory or establishment that produces on the premises the materials, supplies, articles, or equipment required under the Contract and of the general character described by the project specifications. A manufacturer shall include firms that produce finished goods or products from raw or unfinished material, or purchase and substantially alter goods and materials to make them suitable for construction use before reselling them.

e. A Contractor may count toward the DBE contract goal the following expenditures to DBE firms that are not regular dealers or manufacturers for DBE program purposes:

(1) The entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant or managerial services, or for providing bonds or insurance specifically required for the performance of the federal-aid contract, if the fee is reasonable and not excessive or greater than would normally be expected by industry standards for the same or similar services.

(2) The entire amount of that portion of the construction contract that is performed by the DBE's own forces and equipment under the DBE's supervision. This includes the cost of supplies and materials ordered and paid for by the DBE for contract work, including supplies purchased or equipment leased by the DBE, except supplies and equipment a DBE subcontractor purchases or leases from the prime Contractor or its affiliates.

f. A Contractor may count toward the DBE contract goal one hundred (100) percent of the fees paid to a DBE trucker or hauler for the delivery of material and supplies required on the project job site, but not for the cost of those materials or supplies themselves, provided that the trucking or hauling fee is determined by VDOT to be reasonable, as compared with fees customarily charged by non-DBE firms for similar services. A Contractor shall not count costs for the removal or relocation of excess material from or on the job site when the DBE trucking company is not the manufacturer of or a regular dealer in those materials and supplies. The DBE trucking firm shall also perform a Commercially Useful Function (CUF) on the project and not operate merely as a pass through for the purposes of gaining credit toward the DBE contract goal. Prior to submitting a bid, the Contractor shall determine, or contact the VDOT Civil Rights Division or its district Offices for assistance in determining, whether a DBE trucking firm will meet the criteria for performing a CUF on the project. See section on **Miscellaneous DBE Program Requirements; Factors used to Determine if a DBE Trucking Firm is Performing a CUF**.

g. The Contractor will receive DBE contract goal credit for the fees or commissions charged by and paid to a DBE broker who arranges or expedites sales, leases, or other project work or service arrangements provided that those fees are determined by VDOT to be reasonable and not excessive as compared with fees customarily charged by non-DBE firms for similar services. For the purposes of this Special Provision, a broker is defined as a person or firm that regularly engages in arranging for delivery of material, supplies, and equipment, or regularly arranges for the providing of project services as a course of routine business but does not own or operate the delivery equipment necessary to transport materials, supplies, or equipment to or from a job site.

(i) **Performing a Commercially Useful Function (CUF)**

No credit toward the DBE contract goal will be allowed for contract payments or expenditures to a DBE firm if that DBE firm does not perform a CUF on that contract. A DBE performs a CUF when the DBE is solely responsible for execution of a distinct element of the Contract work and the DBE actually performs, manages, and supervises the work involved with the firm's own forces or in accordance with the provisions of the **DBE Participation for Contract Goal Credit** section of this Special Provision. To perform a CUF the DBE alone shall be responsible and bear the risk for the material and supplies used on the Contract, selecting a supplier or dealer from those available, negotiating price, determining quality and quantity, ordering the material and supplies, installing those materials with the DBE's own forces and equipment, and paying for those materials and supplies. The amount the DBE firm is to be paid under the Contract shall be

commensurate with the work the DBE actually performs and the DBE credit claimed for the DBE's performance.

**Monitoring CUF Performance**: It shall be the Contractor's responsibility to ensure that all DBE firms selected for subcontract work on the Contract, for which he seeks to claim credit toward the Contract goal, perform a CUF. Further, the Contractor is responsible for and shall ensure that each DBE firm fully performs the DBE's designated tasks with the DBE's own forces and equipment under the DBE's own direct supervision and management or in accordance with the provisions of the **DBE Participation for Contract Goal Credit** section of this Special Provision. For the purposes of this provision the DBE's equipment will mean either equipment directly owned by the DBE as evidenced by title, bill of sale or other such documentation, or leased by the DBE, and over which the DBE has control as evidenced by the leasing agreement from a firm not owned in whole or part by the prime Contractor or an affiliate of the Contractor under this contract.

VDOT will monitor the Contractor's DBE involvement during the performance of the Contract. However, VDOT is under no obligation to warn the Contractor that a DBE's participation will not count toward the goal.

**DBEs Must Perform a Useful and Necessary Role in Contract Completion:** A DBE does not perform a commercially useful function if the DBE's role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation.

**DBEs Must Perform The Contract Work With Their Own Workforces:** If a DBE does not perform and exercise responsibility for at least thirty (30) percent of the total cost of the DBE's contract with the DBE's own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involve, VDOT will presume that the DBE is not performing a CUF and such participation will not be counted toward the Contract goal.

**VDOT Makes Final Determination On Whether a CUF Is Performed:** VDOT has the final authority to determine whether a DBE firm has performed a CUF on a federal-aid contract. To determine whether a DBE is performing or has performed a CUF, VDOT will evaluate the amount of work subcontracted by that DBE firm or performed by other firms and the extent of the involvement of other firms' forces and equipment. Any DBE work performed by the Contractor or by employees or equipment of the Contractor shall be subject to disallowance under the DBE Program, unless the independent validity and need for such an arrangement and work is demonstrated.

(j) **Verification of DBE Participation and Imposed Damages**

Within fourteen days after contract execution, the Contractor shall submit to the Responsible Engineer, with a copy to the District Civil Rights Office (DCRO), a fully executed subcontract agreement for each DBE used to claim credit in accordance with the requirements stated on Form C-112. The subcontract agreement shall be executed by both parties stating the work to be performed, the details or specifics concerning such work, and the price which will be paid to the DBE subcontractor. Because of the commercial damage that the Contractor and its DBE subcontractor could suffer if their subcontract pricing, terms, and conditions were known to competitors, the Department staff will treat subcontract agreements as proprietary Contractor trade secrets with regard to Freedom of Information Act requests. In lieu of subcontract agreements, purchase orders may be submitted for haulers, suppliers, and manufacturers. These too, will be treated confidentially and protected. Such purchase orders must contain, as a minimum, the following information: authorized signatures of both parties; description of the

scope of work to include contract item numbers, quantities, and prices; and required federal contract provisions.

The Contractor shall also furnish, and shall require each subcontractor to furnish, information relative to all DBE involvement on the project for each quarter during the life of the Contract in which participation occurs and verification is available. The information shall be indicated on Form C-63, DBE and SWAM Payment Compliance Report. The department reserves the right to request proof of payment via copies of cancelled checks with appropriate identifying notations. Failure to provide Form C-63 to the District Civil Rights Office (DCRO) within five (5) business days after the reporting period may result in delay of approval of the Contractor's monthly progress estimate for payment. The names and certification numbers of DBE firms provided by the Contractor on the various forms indicated in this Special Provision shall be exactly as shown on the DMBE's or MWAA's latest list of certified DBEs. Signatures on all forms indicated herein shall be those of authorized representatives of the Contractor as shown on the Prequalification Application, Form C-32 or the Prequalification/Certification Renewal Application, Form C-32A, or authorized by letter from the Contractor. If DBE firms are used which have not been previously documented with the Contractor's bid and for which the Contractor now desires to claim credit toward the project goal, the Contractor shall be responsible for submitting necessary documentation in accordance with the procedures stipulated in this Special Provision to cover such work prior to the DBE beginning work.

Form C-63 can be obtained from the VDOT website at: *http://vdotforms.vdot.virginia.gov/*

The Contractor shall submit to the Responsible Engineer its progress schedule with a copy to the DCRO, as required by Section 108.03 of the Specifications or other such specific contract scheduling specification that may include contractual milestones, i.e., monthly or VDOT requested updates. The Contractor shall include a narrative of applicable DBE activities relative to work activities of the Contractor's progress schedule, including the approximate start times and durations of all DBE participation to be claimed for credit that shall result in full achievement of the DBE goal required in the Contract.

On contracts awarded on the basis of good faith efforts, narratives or other agreeable format of schedule information requirements and subsequent progress determination shall be based on the commitment information shown on the latest Form C-111 as compared with the appropriate Form C-63.

Prior to beginning any major component or quarter of the work, as applicable, in which DBE work is to be performed, the Contractor shall furnish a revised Form C-111 showing the name(s) and certification number(s) of any current DBEs not previously submitted who will perform the work during that major component or quarter for which the Contractor seeks to claim credit toward the Contract DBE goal. The Contractor shall obtain the prior approval of the Department for any assistance it may provide to the DBE beyond its existing resources in executing its commitment to the work in accordance with the requirements listed in the **Good Faith Efforts Described** section of this Special Provision. If the Contractor is aware of any assistance beyond a DBE's existing resources that the Contractor, or another subcontractor, may be contemplating or may deem necessary and that have not been previously approved, the Contractor shall submit a new or revised narrative statement for VDOT's approval prior to assistance being rendered.

If the Contractor fails to comply with correctly completing and submitting any of the required documentation requested by this provision within the specified time frames, the Department will withhold payment of the monthly progress estimate until such time as the required submissions are received VDOT. Where such failures to provide required submittals or documentation are repeated the Department will move to enjoin the Contractor and any prime contractual affiliates, as in the case of a joint venture, from bidding as a prime Contractor, or participating as a subcontractor on VDOT projects until such submissions are received.

(k) **Documentation Required for Semi-final Payment**

On those projects nearing completion, the Contractor must submit Form C-63 marked "Semi-Final" within twenty (20) days after the submission of the last regular monthly progress estimate to the DCRO. The form must include each DBE used on the Contract work and the work performed by each DBE. The form shall include the actual dollar amount paid to each DBE for the accepted creditable work on the Contract. The form shall be certified under penalty of perjury, or other applicable law, to be accurate and complete. VDOT will use this certification and other information available to determine applicable DBE credit allowed to date by VDOT and the extent to which the DBEs were fully paid for that work. The Contractor shall acknowledge by the act of filing the form that the information is supplied to obtain payment regarding a federal participation contract. A letter of certification, signed by both the prime Contractor and appropriate DBEs, will accompany the form, indicating the amount, including any retainage, if present, that remains to be paid to the DBE(s).

(l) **Documentation Required for Final Payment**

On those projects that are complete, the Contractor shall submit a final Form C-63 marked "Final" to the DCRO, within thirty (30) days of the final estimate. The form must include each DBE used on the Contract and the work performed by each DBE. The form shall include the actual dollar amount paid to each DBE for the creditable work on the Contract. VDOT will use this form and other information available to determine if the Contractor and DBEs have satisfied the DBE contract goal percentage specified in the Contract and the extent to which credit was allowed. The Contractor shall acknowledge by the act of signing and filing the form that the information is supplied to obtain payment regarding a federal participation contract.

(m) **Prompt Payment Requirements**

The Contractor shall make prompt and full payment to the subcontractor(s) of any retainage held by the prime Contractor after the subcontractor's work is satisfactorily completed.

For purposes of this Special Provision, a subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished, documented, and accepted as required by the contract documents by VDOT. When VDOT has made partial acceptance of a portion of the prime contract, the Department will consider the work of any subcontractor covered by that partial acceptance to be satisfactorily completed. Payment will be made in accordance with the requirements of Section 107.01, Section 109.08, and Section 109.09 of the Specifications.

Upon VDOT's payment of the subcontractor's portion of the work as shown on the monthly progress estimate and the receipt of payment by the Contractor for such work, the Contractor shall make compensation in full to the subcontractor for that portion of the work satisfactorily completed and accepted by the Department. For the purposes of this Special Provision, payment of the subcontractor's portion of the work shall mean the Contractor has issued payment in full, less agreed upon retainage, if any, to the subcontractor for that portion of the subcontractor's work that VDOT paid to the Contractor on the monthly progress estimate.

The Contractor shall make payment of the subcontractor's portion of the work within seven (7) days of the receipt of payment from VDOT in accordance with the requirements of Section 107.01, Section 109.08, and Section 109.09 of the Specifications.

If the Contractor fails to make payment for the subcontractor's portion of the work within the time frame specified herein, the subcontractor shall contact the Responsible Engineer and the Contractor's bonding company in writing. The bonding company and VDOT will investigate the

cause for non-payment and, barring mitigating circumstances that would make the subcontractor ineligible for payment, ensure payment in accordance with the requirements of Section 107.01, Section 109.08, and Section 109.09 of the Specifications.

By bidding on this contract, and by accepting and executing this contract, the Contractor agrees to assume these contractual obligations, and to bind the Contractor's subcontractors contractually to those prompt payment requirements.

Nothing contained herein shall preclude the Contractor from withholding payment to the subcontractor in accordance with the terms of the subcontract in order to protect the Contractor from loss or cost of damage due to a breach of agreement by the subcontractor.

(n) **Miscellaneous DBE Program Requirements**

1. **Loss of DBE Eligibility:** When a DBE firm has been removed from eligibility as a certified DBE firm, the following actions will be taken:

   a. When a Bidder/Contractor has made a commitment to use a DBE firm that is not currently certified, thereby making the Contractor ineligible to receive DBE participation credit for work performed, and a subcontract has not been executed, the ineligible DBE firm does not count toward either the Contract goal or overall goal. The Contractor shall meet the Contract goal with a DBE firm that is eligible to receive DBE credit for work performed, or must demonstrate to the Contract Engineer that it has made good faith efforts to do so.

   b. When a Bidder/Contractor has executed a subcontract with a certified DBE firm prior to official notification of the DBE firm's loss of eligibility, the Contractor may continue to use the firm on the Contract and shall continue to receive DBE credit toward its DBE goal for the subcontractor's work.

   c. When VDOT has executed a prime contract with a DBE firm that is certified at the time of contract execution but that is later ruled ineligible, the portion of the ineligible firm's performance on the Contract before VDOT has issued the notice of its ineligibility shall count toward the Contract goal.

2. **Termination of DBE:** If a certified DBE subcontractor is terminated, or fails, refuses, or is unable to complete the work on the Contract for any reason, the Contractor must promptly request approval to substitute or replace that firm in accordance with this section of this Special Provision.

   The Contractor, as aforementioned in **DBE Program-Related Certifications Made by Bidders/Contractors**, shall notify VDOT in writing before terminating and/or replacing the DBE that was committed as a condition of contract award or that is otherwise being used or represented to fulfill DBE contract obligations during the Contract performance period. Written consent from the Department for terminating the performance of any DBE shall be granted only when the Contractor can demonstrate that the DBE is unable, unwilling, or ineligible to perform its obligations for which the Contractor sought credit toward the Contract DBE goal. Such written consent by the Department to terminate any DBE shall concurrently constitute written consent to substitute or replace the terminated DBE with another DBE. Consent to terminate a DBE shall not be based on the Contractor's ability to negotiate a more advantageous contract with another subcontractor whether that subcontractor is, or is not, a certified DBE.

a. All Contractor requests to terminate, substitute, or replace a certified DBE shall be in writing, and shall include the following information:

(1) The date the Contractor determined the DBE to be unwilling, unable, or ineligible to perform.

(2) The projected date that the Contractor shall require a substitution or replacement DBE to commence work if consent is granted to the request.

(3) A brief statement of facts describing and citing specific actions or inaction by the DBE giving rise to the Contractor's assertion that the DBE is unwilling, unable, or ineligible to perform;

(4) A brief statement of the affected DBE's capacity and ability to perform the work as determined by the Contractor;

(5) A brief statement of facts regarding actions taken by the Contractor which are believed to constitute good faith efforts toward enabling the DBE to perform;

(6) The current percentage of work completed on each bid item by the DBE;

(7) The total dollar amount currently paid per bid item for work performed by the DBE;

(8) The total dollar amount per bid item remaining to be paid to the DBE for work completed, but for which the DBE has not received payment, and with which the Contractor has no dispute;

(9) The total dollar amount per bid item remaining to be paid to the DBE for work completed, but for which the DBE has not received payment, and over which the Contractor and/or the DBE have a dispute.

b. Contractor's Written Notice to DBE of Pending Request to Terminate and Substitute with another DBE.

The Contractor shall send a copy of the "request to terminate and substitute" letter to the affected committed DBE firm, in conjunction with submitting the request to the DCRO. The affected DBE firm may submit a response letter to the Department within two (2) business days of receiving the notice to terminate from the Contractor. The affected DBE firm shall explain its position concerning performance on the committed work. The Department will consider both the Contractor's request and the DBE's response and explanation before approving the Contractor's termination and substitution request, or determining if any action should be taken against the Contractor.

If, after making its best efforts to deliver a copy of the "request to terminate and substitute" letter, the Contractor is unsuccessful in notifying the affected DBE firm, the Department will verify that the affected, committed DBE firm is unable or unwilling to continue the Contract. The Department will immediately approve the Contractor's request for a substitution.

c. Proposed Substitution of Another Certified DBE

Upon termination of a DBE, the Contractor shall use reasonable good faith efforts to replace the terminated DBE. The termination of such DBE shall not relieve the Contractor of its obligations pursuant to this section, and the unpaid portion of the terminated DBE's contract will not be counted toward the Contract goal.

When a DBE substitution is necessary, the Contractor shall submit an amended Form C-111 with the name of another DBE firm, the proposed work to be performed by that firm, and the dollar amount of the work to replace the unfulfilled portion of the work of the originally committed DBE firm. The Contractor shall furnish all pertinent information including the Contract I.D. number, project number, bid item, item description, bid unit and bid quantity, unit price, and total price. In addition, the Contractor shall submit documentation for the requested substitute DBE as described in this section of this Special Provision.

Should the Contractor be unable to commit the remaining required dollar value to the substitute DBE, the Contractor shall provide written evidence of good faith efforts made to obtain the substitute value requirement. The Department will review the quality, thoroughness, and intensity of those efforts. Efforts that are viewed by VDOT as merely superficial or pro-forma will not be considered good faith efforts to meet the Contract goal for DBE participation. The Contractor must document the steps taken that demonstrated its good faith efforts to obtain participation as set forth in the **Good Faith Efforts Described** section of this Special Provision.

3. **Factors Used to determine if a DBE Trucking Firm is performing a CUF:**

The following factors will be used to determine whether a DBE trucking company is performing a CUF:

a. To perform a CUF the DBE trucking firm shall be completely responsible for the management and supervision of the entire trucking operation for which the DBE is responsible by subcontract on a particular contract. There shall not be a contrived arrangement, including, but not limited to, any arrangement that would not customarily and legally exist under regular construction project subcontracting practices for the purpose of meeting the DBE contract goal;

b. The DBE must own and operate at least one fully licensed, insured, and operational truck used in the performance of the Contract work. This does not include a supervisor's pickup truck or a similar vehicle that is not suitable for and customarily used in hauling the necessary materials or supplies;

c. The DBE receives full contract goal credit for the total reasonable amount the DBE is paid for the transportation services provided on the Contract using trucks the DBE owns, insures, and operates using drivers that the DBE employs and manages;

d. The DBE may lease trucks from another certified DBE firm, including from an owner-operator who is certified as a DBE. The DBE firm that leases trucks from another DBE will receive credit for the total fair market value actually paid for transportation services the lessee DBE firm provides on the Contract;

e. The DBE may also lease trucks from a non-DBE firm, including an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit for the total value of the transportation services provided by non-DBE lessees, *not to exceed the value of transportation services provided by DBE-owned trucks on the Contract.* For additional participation by non-DBE lessees, the DBE will only receive credit for the fee or commission it receives as a result of the lease arrangement.

*EXAMPLE*

DBE Firm X uses two (2) of its own trucks on a contract. The firm leases two (2) trucks from DBE Firm Y and six (6) trucks from non-DBE Firm Z.

| | | **Value of Trans. Serv.** (For Illustrative Purposes Only) |
|---|---|---|
| **Firm X** | | |
| Truck 1 | Owned by DBE | $100 per day |
| Truck 2 | Owned by DBE | $100 per day |
| **Firm Y** | | |
| Truck 1 | Leased from DBE | $110 per day |
| Truck 2 | Leased from DBE | $110 per day |
| **Firm Z** | | |
| Truck 1 | Leased from Non DBE | $125 per day |
| Truck 2 | Leased from Non DBE | $125 per day |
| Truck 3 | Leased from Non DBE | $125 per day |
| Truck 4 | Leased from Non DBE | $125 per day |
| Truck 5 | Leased from Non DBE* | $125 per day |
| Truck 6 | Leased from Non DBE* | $125 per day |

DBE credit would be awarded for the total transportation services provided by DBE Firm X and DBE Firm Y, and may also be awarded for the total value of transportation services by four (4) of the six (6) trucks provided by non-DBE Firm Z (not to exceed the value of transportation services provided by DBE-owned trucks).

**Credit = 8 Trucks**
**Total Value of Transportation Services = $820**

In all, full DBE credit would be allowed for the participation of eight (8) trucks (twice the number of DBE trucks owned and leased) and the dollar value attributable to the Value of Transportation Services provided by the 8 trucks.

* With respect to the other two trucks provided by non-DBE Firm Z, DBE credit could be awarded only for the fees or commissions pertaining to those trucks that DBE Firm X receives as a result of the lease with non-DBE Firm Z.

f. For purposes of this section, the lease must indicate that the DBE firm leasing the truck has exclusive use of and control over the truck. This will not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, provided the lease gives the DBE absolute priority for and control over the use of the leased truck. Leased trucks must display the name and identification number of the DBE firm that has leased the truck at all times during the life of the lease.

4. **Data Collection:** In accordance with 49CFR Section 26.11, all firms bidding on prime contracts and bidding or quoting subcontracts on federal-aid projects shall provide the following information to the Contract Engineer annually.

   - Firm name
   - Firm address
   - Firm's status as a DBE or non-DBE
   - The age of the firm and
   - The annual gross receipts of the firm

   The means of transmittal and the risk for timely receipt of this information shall be the responsibility of the bidder. However, the above information can be submitted by means of the Annual Gross Receipts Survey as required in the Prequalification/Certification application.

   All bidders, including DBE prime Contractor bidders, shall complete and submit to the Contract Engineer the Subcontractor/Supplier Solicitation and Utilization Form C-48 for each bid submitted; to be received within ten (10) business days after the bid opening. Failure of bidders to submit this form in the time frame specified may be cause for disqualification of the bidder and rejection of their bid in accordance with the requirements of this Special Provision, the Contract specifications, and VDOT Road and Bridge specifications.

(o) **Suspect Evidence of Criminal Behavior**

Failure of a bidder, Contractor, or subcontractor to comply with the Virginia Department of Transportation Road and Bridge Specifications and these Special Provisions wherein there appears to be evidence of criminal conduct shall be referred to the Attorney General for the Commonwealth of Virginia and/or the FHWA Inspector General for criminal investigation and, if warranted, prosecution.

**Suspected DBE Fraud**

In appropriate cases, VDOT will bring to the attention of the U. S. Department of Transportation (USDOT) any appearance of false, fraudulent, or dishonest conduct in connection with the DBE program, so that USDOT can take the steps, e.g., referral to the Department of Justice for criminal prosecution, referral to the USDOT Inspector General, action under suspension and debarment or Program Fraud and Civil Penalties rules provided in 49CFR Part 31.

(p) **Summary of Remedies for Non-Compliance with DBE Program Requirements**

Failure of any bidder\Contractor to comply with the requirements of this Special Provision for Section 107.15 of the Virginia Road and Bridge Specifications, which is deemed to be a condition of bidding, or where a contract exists, is deemed to constitute a breach of contract shall be remedied in accordance with the following:

1. **Disadvantaged Business Enterprise (DBE) Program Requirements**

   The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award, administration, and performance of this contract. Failure by the Contractor to carry out these requirements is a material breach of this contract, which will result in the termination of this contract or other such remedy, as VDOT deems appropriate.

All administrative remedies noted in this provision are automatic unless the Contractor exercises the right of appeal within the required timeframe(s) specified herein.

2. **DBE Program-Related Certifications Made by Bidders\Contractors**

Once awarded the contract, the Contractor shall comply fully with all regulatory and contractual requirements of the USDOT DBE Program, and that each certified DBE firm participating in the Contract shall fully perform the designated work items with the DBE's own forces and equipment under the DBE's direct supervision, control, and management. Where a contract exists and where the Contractor, DBE firm, or any other firm retained by the Contractor has failed to comply with federal or VDOT DBE Program regulations and/or their requirements on that contract, VDOT has the authority and discretion to determine the extent to which the DBE contract requirements have not been met, and will assess against the Contractor any remedies available at law or provided in the Contract in the event of such a contract breach.

3. **Disqualification of Bidder**

Bidders may be disqualified from bidding for failure to comply with the requirements of this Special Provision, the Contract specifications, and VDOT Road and Bridge Specifications.

4. **Bidding Procedures**

The failure of a bidder to submit the required documentation within the timeframes specified in the **Contract Goal, Good Faith Efforts Specified** section of this Special Provision may be cause for rejection of that bidder's bid. If the lowest bidder is rejected for failure to submit required documentation in the specified time frames, the Department may either award the work to the next lowest bidder, or re-advertise and construct the work under contract or otherwise as determined by the Commonwealth.

In order to award a contract to a bidder that has failed to meet DBE contract goal requirements, VDOT will determine if the bidder's efforts were adequate good faith efforts, and if given all relevant circumstances, those efforts were to the extent a bidder actively and aggressively seeking to meet the requirements would make. Regardless of the DBE contract goal participation level proposed by the bidder or the extent of good faith efforts shown, all bidders shall timely and separately file their completed and executed Forms C-111, C-112, C-48, and Form C-49, as aforementioned, or face potential bid rejection. If a bidder does not submit it's completed and executed C-111, or C-112, when required by this Special Provision, the bidder's bid will be considered non-responsive and may be rejected. If, after reconsideration, the Department determines the bidder has failed to meet the requirements of the Contract goal and has failed to make adequate good faith efforts to achieve the level of DBE participation as specified in the bid proposal, the bidder's bid will be rejected. If sufficient documented evidence is presented to demonstrate that the apparent low bidder made reasonable good faith efforts, the Department will award the Contract and reduce the DBE requirement to the actual commitment identified by the lowest successful bidder at the time of its bid. The Contractor is encouraged to seek additional participation during the life of the Contract.

If the Contractor fails to conform to the schedule of DBE participation as shown on the progress schedule, or at any point at which it is clearly evident that the remaining dollar value of allowable credit for performing work is insufficient to obtain the scheduled participation, the Contractor and any aforementioned affiliates may be enjoined from bidding for 60 days or until such time as conformance with the schedule of DBE participation is achieved. In such

instances, the Contractor is expected to seek DBE participation towards meeting the goal during the prosecution of the Contract.

If the Contractor fails upon completion of the project to meet the required participation, the Contractor and any prime contractual affiliates, as in the case of a joint venture, may be enjoined from bidding as a prime Contractor, or participating as a subcontractor on VDOT projects for a period of 90 days.

Prior to enjoinment from bidding or denial to participate as a subcontractor for failure to comply with participation requirements, as provided hereinbefore, the Contractor may submit documentation to the State Construction Engineer to substantiate that failure was due solely to quantitative underrun(s) or elimination of items subcontracted to DBEs, and that all feasible means have been used to obtain the required participation. The State Construction Engineer upon verification of such documentation shall make a determination whether or not the Contractor has met the requirements of the Contract.

If it is determined that the aforementioned documentation is insufficient or the failure to meet required participation is due to other reasons, the Contractor may request an appearance before the Administrative Reconsideration Panel to establish that all feasible means were used to meet such participation requirements. The decision of the Administrative Reconsideration Panel shall be administratively final. The enjoinment period will begin upon the Contractor's failure to request a hearing within the designated time frame or upon the Administrative Reconsideration Panel's decision to enjoin, as applicable.

5. **Verification of DBE Participation and Imposed Damages**

If the Contractor fails to comply with correctly completing and submitting any of the required documentation requested by this provision within the specified time frames, the Department will withhold payment of the monthly progress estimate until such time as the required submissions are received by VDOT. Where such failures to provide required submittals or documentation are repeated the Department will move to enjoin the Contractor and any prime contractual affiliates, as in the case of a joint venture, from bidding as a prime Contractor, or participating as a subcontractor on VDOT projects until such submissions are received.

(q) **Suspect Evidence of Criminal Behavior**

In addition to the remedies described heretofore in this provision VDOT also exercises its rights with respect to the following remedies:

- Failure of a bidder, Contractor, or subcontractor to comply with the Virginia Department of Transportation Road and Bridge Specifications and these Special Provisions wherein there appears to be evidence of criminal conduct shall be referred to the Attorney General for the Commonwealth of Virginia and/or the FHWA Inspector General for criminal investigation and, if warranted prosecution.

- In appropriate cases, VDOT will bring to the attention of the U. S. Department of Transportation (USDOT) any appearance of false, fraudulent, or dishonest conduct in connection with the DBE program, so that USDOT can take the steps, e.g., referral to the Department of Justice for criminal prosecution, referral to the USDOT Inspector General, action under suspension and debarment or Program Fraud and Civil Penalties rules provided in 49CFR Part 31.

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 RightsOffice.

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
SPECIAL PROVISION FOR
**SECTION 105.06—SUBCONTRACTING**
**(FEDERAL 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 DBE, SWaM, and Non SWaM vendor payments quarterly to the District Civil Rights Office. The Contractor shall provide the information in a format consistent with Form C-63, Vendor Payment Compliance Report, subject to the approval of the Engineer.

DBE Participation and reporting shall be in accordance with the Special Provision for Section 107.15 (Use of Disadvantaged Business Enterprises).

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

# USDOT 1050.2
# APPENDIX A

During the performance of this contract, the consultant, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

(1) **Compliance with Regulations:** The contractor shall comply with the Regulation relative to nondiscrimination in federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

(2) **Nondiscrimination:** The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

(3) **Solicitations for Subcontractors, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

(4) **Information and Reports:** The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Virginia Department of Transportation to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the Virginia Department of Transportation as appropriate, and shall set forth what efforts it has made to obtain the information.

(5) **Sanctions for Noncompliance:** In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the Virginia Department of Transportation shall impose such contract sanctions as it may determine to be appropriate, including, but not limited to:
(a.) withholding of payments to the contractor under the contract until the contractor complies, and/or
(b.) cancellation, termination or suspension of the contract, in whole or in part.

(6) **Incorporation of Provisions:** The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

The contractor shall take such action with respect to any subcontract. or procurement as the Virginia Department of Transportation may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Virginia Department of Transportation to enter into such litigation to protect the interests of the Virginia Department of Transportation, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

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)

**cn315-000100-00**

**SECTION 315.05**(c) **PLACING AND FINISHING** is modified by replacing the third paragraph with the following:

> The longitudinal joint in one layer shall offset that in the layer immediately below by approximately 6 inches or more. The joint in the wearing surface shall be offset 6 inches to 12 inches from the centerline of the pavement if the roadway comprises two traffic lanes. The joint shall be offset approximately 6 inches from the lane lines if the roadway is more than two lanes in width. The longitudinal joint shall be uniform in appearance. On all roads except secondary routes, if the offset for the longitudinal joint varies from a straight line more than 2 inches in 50 feet on tangent alignment, or from a true arc more than 2 inches in 50 feet on curved alignment, the Contractor shall seal the joint using a water-proof sealer at no cost to the Department. The Contractor shall recommend a sealant and installation procedure to the Engineer for approval before proceeding. On all roads except secondary routes, if the offset for the longitudinal joint varies from a straight line more than 3 inches in 50 feet on tangent alignment, or from a true arc more than 3 inches in 50 feet on curved alignment, the Engineer may reject the paving. The Engineer will not require offsetting layers when adjoining lanes are paved in echelon and the rolling of both lanes occurs within 15 minutes after laydown.

1-18-17 (SPCN)

**DENSITY TESTING OF SUBBASE OR AGGREGATE BASE** — Sections 308 and 309 of the Specifications are amended as follows:

**SECTION 308—SUBBASE COURSE** is amended as follows:

**Section 308.03—Procedures** is amended by replacing the last paragraph with the following:

The Department will perform field density determinations with a portable nuclear field density testing device using the density control strip as specified in Section 304 and VTM-10, or by other approved methods as directed by the Engineer.

**SECTION 309—AGGREGATE BASE COURSE** is amended as follows:

**Section 309.05—Density Requirements** is amended by replacing the fifth paragraph with the following:

The base course will be tested in place for depth and density. The Department will perform field density determinations with a portable nuclear field density testing device, using a density control strip as specified in Section 304 and VTM-10 as directed by the Engineer.

2-12-18 (SPCN)

**SP107-110100-00**

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**CONTROLLED BLASTING**

April 11, 2017

## I. DESCRIPTION

This project is in close proximity to private property, dwellings, water wells, springs, utilities, railroads, important karst features, or other structures. Important karst features include, but are not limited to, caves and open throated sinkholes. The Contractor shall explore other means of loosening or reducing the size of the excavated material without blasting to avoid damaging these structures or resources. If blasting is necessary, controlled blasting techniques shall be used 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 weeks before scheduled blasting.

## II. BLASTING PROCEDURES

No blasting shall be performed within 100 feet of existing or new bridge foundations, railroad right-of-way, residential or commercial buildings, wells, other structures, or important karst features 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 used 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 0.20 inches per second when measured at the nearest structure or resource 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 important karst features. 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 submit a comprehensive blasting plan detailing the blasting techniques to be used near property, structures, and important karst features to the Department. Seismic monitoring shall be performed by a qualified firm before performing construction operations near property, structures, and important karst features. Some of the initial blasts shall be monitored close to the blasting while others shall be monitored at property, structures, and important karst features; and the blasting plan shall be revised if the anticipated maximum particle velocity at those locations will exceed 0.20 inches per second.

The seismograph used shall 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 resources.

## IV. Rock Slopes

For use in this Special Provision, slopes shall be considered rock slopes when the height of final slope is 15 feet or greater, and 50% or more 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 controlled blasting or non-explosive techniques in accordance with Section 303.04(a) of the Specifications and the preceding sections.

## V. Measurement and Payment

The cost for explosives and blasting operations, alternative methods, monitoring, and recording and submitting daily blasting logs will be considered incidental to the cost of regular excavation and will not be measured for separate payment. The 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.

**SP303-020100-00**

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**USE OF NUMBER 10 SCREENINGS**

April 28, 2017

## I. DESCRIPTION

This Special Provision cover the use of No. 10 Screenings in various applications on the Project. No. 10 Screenings shall be used in locations designated in the Contract.

## II. MATERIALS

1. **No. 10 Screenings** (also known as quarry dust, rock dust, quarry screenings, rock screenings and quarry byproduct) may be used as an acceptable source of borrow material for the applications described herein. No. 10 Screenings shall conform to the requirements herein and elsewhere in the Contract. For the purpose of this Special Provision, No. 10 Screenings shall be defined as any material that is a byproduct of rock crushing processes, and either has a gradation of 100% passing the 3/8" Sieve and less than 20% passing the No. 200 Sieve, or meets the No. 10 coarse aggregate gradation. No. 10 Screenings shall also have a minimum CBR value of 15 and be either non-plastic or have liquid limit less than 25 and a plasticity index less than 9.

2. **Low-plasticity clay or silt** shall conform to classification CL or ML according to ASTM D2487.

## III. PROCEDURES

### 1. Embankment

No. 10 Screenings shall be compacted to 95% of Standard Proctor dry density, and shall be compacted in the field within a water content range of 2 percentage points either side of the optimum water content. For laboratory optimum water contents greater than 9%, a field optimum water content target of 8.5% shall be used. Both dry density and optimum water content shall be obtained according to VTM-1.

When landscaping is required in areas of No. 10 Screenings use, the Contractor shall make accommodations for landscaping as trees and larger shrubs will not be able to root properly in No. 10 Screenings.

The top and sides of unconfined areas consisting solely of No. 10 Screenings shall be capped with low-plasticity clay or silt material to deter water from penetrating into and saturating embankments constructed of No. 10 Screenings. Fills less than 10 feet in height shall be capped on the sides and top with a minimum 2 feet of low-plasticity clay or silt. At a minimum, fills greater than 10 feet in height shall be capped with 3 feet of low-plasticity clay or silt.

In low-lying areas, drainage areas or areas identified as active or potential wet zones during construction, a separation layer between the bottom of the placed fill and original ground shall be placed to mitigate the potential destabilization of a No. 10 Screenings embankment. The separation layer should be at least 8-inches thick and composed of No. 1 or No. 57 aggregate or another open graded aggregate wrapped in drainage fabric. Riprap bedding fabric meeting the requirements of Section 245 of the Specifications shall be placed between the separation layer and the No. 10 Screenings.

If an embankment greater than 10 feet in height is constructed, survey points shall be taken after the fill is complete at bi-weekly intervals until 2 consecutive measurements are each less than ¼ inch to ensure that settlement is not occurring. If settlement issues are identified, the Contractor

or Design-Builder shall mitigate the causes of settlement as needed (e.g., additional asphalt, ground improvement techniques, removing and replacing settled locations if isolated, etc.).

2. **Structure backfill, building foundation soil, road subgrade, undercut replacement, fill under approach slabs**

   No. 10 Screenings used for these purposes shall have a CBR of at least 30, shall be compacted to 95% of Standard Proctor dry density (100% under approach fills), and shall be compacted in the field within a water content range of 2 percentage points either side of the optimum water content. For laboratory optimum water contents greater than 9%, a field optimum water content target of 8.5% should be used. Both dry density and optimum water content shall be obtained using VTM-1.

   These applications should typically be in confined areas. Where there is no confinement, capping of the unconfined sides shall be as in Paragraph 1 above.

   In low-lying areas, drainage areas or areas identified as active or potential wet zones during construction, the No. 10 Screenings shall be wrapped in drainage fabric.

3. **Pipe Backfill**

   Pipe backfill shall be performed in accordance with Standard Drawing PB-1 and Section 302.03(a)2g of the Specifications unless noted herein. No. 10 Screening may be used as either Regular Backfill or Class I Backfill, as shown in Standard Drawing PB-1. 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.

4. **Reinforced Fill for Mechanically Stabilized Earth Walls**

   No. 10 Screenings used for these purposes shall have a friction angle of at least 34 degrees, with up to 60% passing the No. 40 sieve. They shall be compacted to 95% of Standard Proctor dry density, and shall be compacted in the field within a water content range of 2 percentage points either side of the optimum water content. For laboratory optimum water contents greater than 9%, a field optimum water content target of 8.5% should be used. Both dry density and optimum water content shall be obtained using VTM-1. If the use of No. 10 Screenings conflicts with any other Contract requirement for reinforced fill for MSE walls, No. 10 Screenings shall not be used for this purpose.

5. **Soft ground stabilization**

   No. 10 Screenings may be used as a replacement or stabilizing agent for soft or unsuitable soils in parking areas, under building pads or foundations, or under roadways. In the event soft or unsuitable soils are identified, No. 10 Screenings may replace or be mixed into the soil in a prescribed percentage to improve the bearing capacity of the soil. Replacement shall require confinement by surrounding ground. For mxing, the percentage of screenings to be used shall be determined by sampling the soft/unsuitable soil and mixing with varying percentages of No. 10 Screenings in the laboratory. Proctor samples and CBR samples of each mixture shall be prepared in accordanceVTM-1 and VTM-8, respectively. The mixture resulting in the desired minimum CBR will determine the minimum amount of No. 10 Screenings to be used. Field mixing of the No. 10 Screenings shall be accomplished by layering the appropriate amount of screenings on top of the soft/unsuitable soil followed by blending to a depth of 8 inches to achieve the blend

percentage determined in the laboratory. Mixing shall be accomplished by means of a self-propelled or self-powered machine equipped with a mechanical rotor or other approved type of mixer that will thoroughly blend the No 10 Screenings with the soil.

## IV. MEASUREMENT AND PAYMENT

**No. 10 screenings**, when a pay item, will be measured in tons, and paid for at the Contract ton price based on certified weigh tickets from the source of supply. This price shall include furnishing, transporting, and placing No. 10 screenings; and all work incidental to their use (e.g., capping embankments in accordance with Section III-1 herein).

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| No. 10 Screenings | Ton |

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.

**SP303-020110-00**

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**SHALE FILL**

September 12, 2017

## I. Description

This Special Provision covers the use of shale, siltstone, claystone or other potentially non-durable rock as regular excavation, borrow material, embankment, subgrade or backfill materials.

## II. Definitions

1. **Fill.** Regular excavation, borrow material, embankment, subgrade, or backfill materials.

2. **Shale.** Any type of potentially non-durable rock, including (but not limited to) shale, siltstone, or claystone.

## III. Materials

**Shale** shall be tested in accordance with ASTM D4644 and these test results submitted to the Engineer for approval. Shale shall be categorized as “Durable” if slake durability values are greater than 60% and “Nondurable” if slake durability values are less than or equal to 60%. Shales derived from the Millboro and Needmore Formations, or those containing pyrite, shall not be imported to the project and shall not be used as fill.

## IV. Procedures

Any Fill materials, including Nondurable Shales, shall be compacted at their optimum water content ±2 percentage points, in lifts no thicker than 8 inches uncompacted. Field density determinations shall be performed in accordance with Section 303 of the Specifications. The minimum acceptable density shall be determined in accordance with VTM-10, except that the percentage passing the No. 4 sieve may only be used to determine the corrected density when a sample of the broken down shale (after roller pattern) is used for this test. Roller patterns for these materials may require additional passes to fully break down the larger particles.

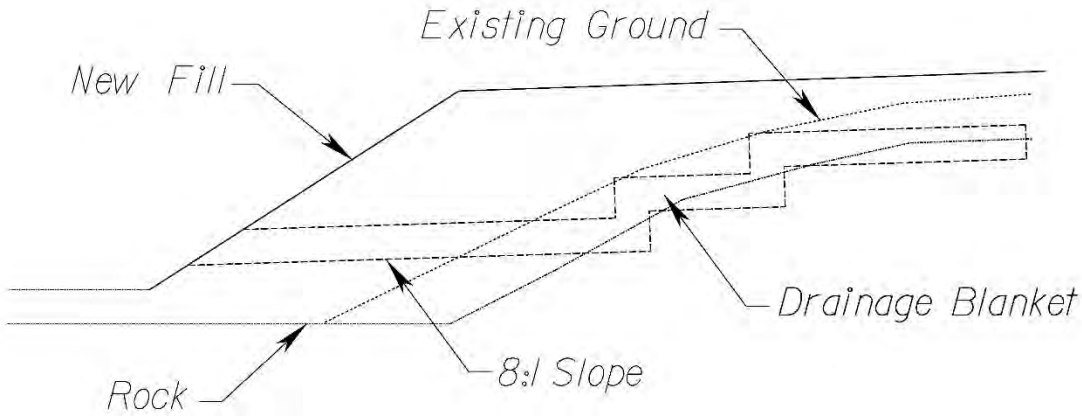
The Contractor shall compact Fills that include Durable Shales in accordance with Section 303 of the Specifications.

The Contractor shall construct embankment fills using durable and nondurable shales in accordance with Figure 1. The drainage blanket shall be comprised of durable rock, a minimum of 12 inches in thickness, and constructed at a minimum grade of 8:1 to drain from benches. Material excavated in accordance with Section 303 of the Specifications to create benches shall be wasted and not used as fill.

## V. Measurement and Payment

All work described in this Special Provision will be measured and paid for in accordance with Section 303.06 of the Specifications.

**Figure 1: Rock Drainage Blanket Detail**




Note: Existing slope to be benched in accordance with section 303.

**SP109-000100-02**

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**ASPHALT MATERIAL PRICE ADJUSTMENT**

April 28, 2017

All asphalt material contained in the attached master listing of eligible bid items and designated by pay items in the contract will be price adjusted according to the provisions as set forth herein. Other items will not be adjusted, except as otherwise specified in the contract. If new pay items which contain asphalt material are established by Work Order, they will not be subject to Price Adjustment unless specifically designated in the Work Order to be subject to Price Adjustment.

Each month, the Department will publish an average state-wide PG 64S-22 f.o.b. price per ton and an average PG 64E-22 f.o.b. price per ton developed from the average terminal prices provided to the Department from suppliers of asphalt cement to contractors doing work in Virginia. The Department will collect terminal prices from approximately 12 terminals each month. These prices will be received once each month from suppliers on or about the last weekday of the month. The high and low prices will be eliminated and the remaining values averaged to establish the average statewide price for the following month. The monthly state-wide average price will be posted on the Construction Division website on or about the first weekday of the following month. In the event the average prices were to change by 10 percent or more of the Base Index during the middle of the month the Contractor can submit a letter to the Department and supplier that provides evidence of the difference in price. Upon receipt of the letter consideration will be given to extend additional adjustments as deemed necessary.

This monthly statewide average price will be the Base Index for all contracts on which bids are received during the calendar month of its posting and will be the Current Index for all asphalt placed during the calendar month of its posting. In the event an index changes radically from the apparent trend, as determined by the Engineer, the Department may establish an index which it determines to best reflect the trend.

The amount of adjustment applied will be based on the difference between the contract Base Index and the Current Index for the applicable calendar month during which the work is performed. The quantity of asphalt cement for asphalt concrete pavement to which adjustment will be applied will be the quantity based on the percent of asphalt cement shown on the appropriate approved job mix formula.

Adjustment of any asphalt material other than PG 64S-22 and PG 64E-22 will be based on the indexes for PG 64S-22.

The quantity of asphalt emulsions to which adjustment will be applied will be the quantity based on 65 percent residual asphalt.

Price adjustment will be shown as a separate entry on the monthly progress estimate; however, such adjustment will not be included in the total cost of the work for progress determination or for extension of contract time.

Any apparent attempt to unbalance bids in favor of items subject to price adjustment or failure to submit required cost and price data as noted hereinbefore may result in rejection of the bid proposal.

VIRGINIA DEPARTMENT OF TRANSPORTATION

**MASTER LISTING OF**

**ASPHALT MATERIAL ITEMS ELIGIBLE FOR PRICE ADJUSTMENT**

| ITEM | DESCRIPTION | UNITS | SPECIFICATION |
|---|---|---|---|
| 10062 | Asphalt-Stab. Open-Graded Material | Ton | 313 |
| 10416 | Liquid Asphalt | Gal | 311 312 |
| 10417 | Tack Coat | Gal | 310 |
| 10420 | Blotted Seal Coat Ty. B | SY | ATTD |
| 10422 | Blotted Seal Coat Ty. C | SY | ATTD |
| 10423 | Blotted Seal Coat Ty. C-1 | SY | ATTD |
| 10424 | Blotted Seal Coat Ty. D | SY | ATTD |
| 10598 | NS Asphalt Concrete | Ton | 315 |
| 10603 | Asphalt Concrete Ty. SM-19.0A | Ton | 315 |
| 10604 | Asphalt Concrete Ty. SM-19.0D | Ton | 315 |
| 10605 | Asphalt Concrete Ty. SM-19.0E (76-22 or 64E) | Ton | 315 |
| 10606 | Asphalt Concrete Ty. SM-9.5 | Ton | 315 |
| 10607 | Asphalt Concrete Ty. SM-12.5A | Ton | 315 |
| 10608 | Asphalt Concrete Ty. SM-12.5D | Ton | 315 |
| 10609 | Asphalt Concrete Ty. SM-12.5E (64E-22) | Ton | 315 |
| 10610 | Asphalt Concrete Ty. IM-19.0A | Ton | 315 |
| 10611 | Asphalt Concrete Ty. IM-19.0D | Ton | 315 |
| 10612 | Asphalt Conc. Base Cr. Ty. BM-25.0 | Ton | 315 |
| 10613 | Asphalt Concrete Ty. BM-37.5 | Ton | 315 |
| 10614 | Asphalt Concrete Ty. IM-19.0E (76-22 or 64E) | Ton | 315 |
| 10635 | Asphalt Concrete Ty. SM-9.5A | Ton | 315 |
| 10636 | Asphalt Concrete Ty. SM-9.5D | Ton | 315 |
| 10637 | Asphalt Concrete Ty. SM-9.5E (64E-22) | Ton | 315 |
| 10639 | Asphalt Concrete Ty. SM-19.0 | Ton | 315 |
| 10642 | Asphalt Concrete Ty. BM-25.0A | Ton | 315 |
| 10643 | Asphalt Concrete Ty. BM-25.0D | Ton | 315 |
| 10650 | Stone Matrix Asphalt SMA-9.5(64H-22) | Ton | 317 |
| 10651 | Stone Matrix Asphalt SMA-9.5(64E-22) | Ton | 317 |
| 10652 | Stone Matrix Asphalt SMA-12.5(64H-22) | Ton | 317 |
| 10653 | Stone Matrix Asphalt SMA-12.5(64E-22) | Ton | 317 |
| 10654 | Stone Matrix Asphalt SMA-19.0(64H-22) | Ton | 317 |
| 10655 | Stone Matrix Asphalt SMA-19.0(64E-22) | Ton | 317 |
| 10701 | Liquid Asphalt Coating | SY | ATTD |
| 12505 | Asphalt Concrete Curb Backup Material | Ton | 315 |
| 13240 | Asphalt Concrete Sidewalk | Ton | 504 |
| 16110 | Emul. Asph. Slurry Seal Type A | SY | ATTD |
| 16120 | Emul. Asph. Slurry Seal Type B | SY | ATTD |
| 16130 | Emul. Asph. Slurry Seal Type C | SY | ATTD |
| 16144 | Latex Mod. Emul. Treat. Type B | Ton | ATTD |
| 16145 | Latex Mod. Emul. Treat. Type C | Ton | ATTD |
| 16146 | Latex Mod. Emul. Treat. Rutfilling | Ton | ATTD |
| 16161 | Modified Single Seal | SY | ATTD |
| 16162 | Modified Double Seal | SY | ATTD |
| 16249 | Nontracking Tack Coat | Gal. | ATTD |

| ITEM | DESCRIPTION | UNITS | SPECIFICATION |
|---|---|---|---|
| 16250 | Liquid Asphalt Matl. CMS-2 (Mod) | Gal | ATTD |
| 16251 | Liquid Asphalt Matl. CMS-2 | Gal | ATTD |
| 16252 | Liquid Asphalt Matl. CRS-2 | Gal | ATTD |
| 16253 | Liquid Asphalt Matl. CRS-2H | Gal. | ATTD. |
| 16254 | Liquid Asphalt Matl. RC-250 | Gal | ATTD |
| 16256 | Liquid Asphalt Matl. RC-800 | Gal | ATTD |
| 16257 | NS Liquid Asphalt Matl. | Gal | ATTD |
| 16260 | Liquid Asphalt Matl. CRS-2L | Gal | ATTD |
| 16325 | NS Asphalt Concrete | Ton | N/A |
| 16326 | Asphalt Concrete Ty. SM-4.75A | Ton | 315 |
| 16327 | Asphalt Concrete Ty. SM-4.75D | Ton | 315 |
| 16328 | Asphalt Concrete Ty. SM-4.75E | Ton | 315 |
| 16330 | Asphalt Concrete Ty. SM-9.0A | Ton | 315 |
| 16335 | Asphalt Concrete Ty. SM-9.5A | Ton | 315 |
| 16337 | Asph. Conc. Ty. SM-9.5ASL (Spot Level) | Ton | 315 |
| 16340 | Asphalt Concrete Ty. SM-9.5D | Ton | 315 |
| 16342 | Asph. Conc. Ty. SM-9.5DSL (Spot Level) | Ton | 315 |
| 16345 | Asphalt Concrete Ty. SM-9.5E (64E-22) | Ton | 315 |
| 16350 | Asphalt Concrete Ty. SM-12.5A | Ton | 315 |
| 16352 | Asph. Con. Ty. SM-12.5ASL (Spot Level) | Ton | 315 |
| 16355 | Asphalt Concrete Ty. SM-12.5D | Ton | 315 |
| 16357 | Asph. Con. Ty. SM-12.5DSL (Spot Level) | Ton | 315 |
| 16360 | Asphalt Concrete Ty. SM-12.5E (64E-22) | Ton | 315 |
| 16362 | Asphalt Concrete Ty. SM-19.0A | Ton | 315 |
| 16363 | Asphalt Concrete Ty. SM-19.0D | Ton | 315 |
| 16364 | Asphalt Concrete Ty. SM-19.0E (76-22 or 64E) | Ton | 315 |
| 16365 | Asphalt Concrete Ty. IM-19.0A | Ton | 315 |
| 16370 | Asphalt Concrete Ty. IM-19.0D | Ton | 315 |
| 16371 | Asphalt Concrete Ty. IM-19.0E (76-22 or 64E) | Ton | 315 |
| 16373 | Asphalt Concrete Ty. IM-19.0A (T) | Ton | 315 |
| 16374 | Asphalt Concrete Ty. IM-19.0D (T) | Ton | 315 |
| 16377 | Asphalt Concrete Ty. BM-37.5 | Ton | 315 |
| 16379 | Asphalt Concrete Ty. IM-19.0T | Ton | 315 |
| 16390 | Asphalt Concrete Ty. BM-25.0A | Ton | 315 |
| 16392 | Asphalt Concrete Ty. BM-25.0D | Ton | 315 |
| 16395 | Asphalt Concrete Ty. BM-25.0A (T) | Ton | 315 |
| 16397 | Asphalt Concrete Ty. BM-25.0D (T) | Ton | 315 |
| 16400 | Stone Matrix Asphalt SMA-9.5(64H-22) | Ton | ATTD |
| 16401 | Stone Matrix Asphalt SMA-9.5(64E-22) | Ton | ATTD |
| 16402 | Stone Matrix Asphalt SMA-12.5(64H-22) | Ton | ATTD |
| 16403 | Stone Matrix Asphalt SMA-12.5(64E-22) | Ton | ATTD |
| 16404 | Stone Matrix Asphalt SMA-19.0(64H-22) | Ton | ATTD |
| 16405 | Stone Matrix Asphalt SMA-19.0(64E-22) | Ton | ATTD |
| 16490 | Hot Mix Asphalt Treatment | Ton | ATTD |
| 16500 | Surf.Preparation & Restoration Type I | Ton | ATTD |
| 16502 | Surf.Preparation & Restoration Type II | Ton | ATTD |
| 16504 | Surf.Preparation & Restoration Type III | Ton | ATTD |

| ITEM | DESCRIPTION | UNITS | SPECIFICATION |
|---|---|---|---|
| 67201 | NS Asphalt Concrete Overlay | Ton | 315 |
| 67210 | NS Asphalt Concrete | Ton | 315 |
| 68240 | NS Asphalt Concrete | Ton | 315 |

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**RESTORING EXISTING PAVEMENT**

July 12, 2016

## I. DESCRIPTION

This work shall consist of restoring existing pavement, removed for installation or repair of utilities such as, but not limited to pipe culverts, conduits, water and sanitary sewer items.

## II. MATERIALS

Asphalt Concrete shall conform to Section 211 of the Specifications.

Aggregate Subbase material shall conform to Section 208 of the Specifications.

Asphalt Material shall conform to Section 210 of the Specifications.

Fine Aggregate shall conform to Section 202 of the Specifications.

Coarse Aggregate for surface treatment shall conform to Section 203 of the Specifications.

Hydraulic Cement Concrete Class A3 shall conform to Section 217 of the Specifications.

Steel Reinforcement shall conform to Section 223 of the Specifications.

## III. PROCEDURES

Pavement restoration shall be according to this Provision and plan notes.

Backfill shall be according to Section 302.03(a)2.g. of the Specifications.

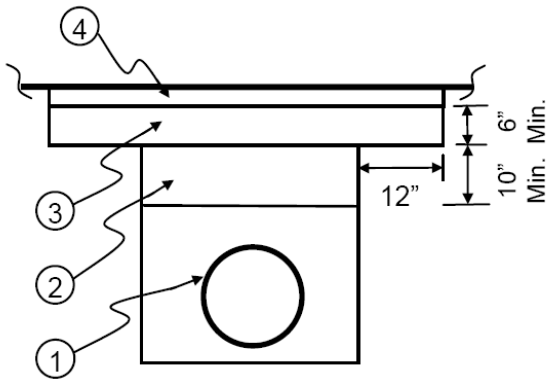
Asphalt Concrete shall be placed and compacted according to Section 315 of the Specifications.

Surface Treatment shall be placed according to the special provision for Asphalt Surface Treatment and the attached drawing.

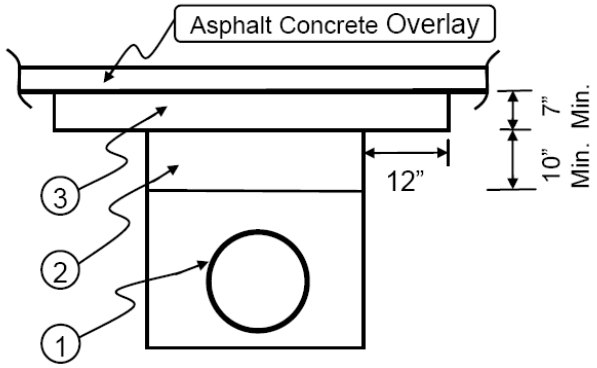
Concrete Pavement shall be placed according to the special provision for Patching Hydraulic Cement Concrete Pavement and this special provision. Open trench in Hydraulic Cement Concrete Pavement should be located at existing transverse joints if at all possible. If concrete pavement is removed within two feet of an existing transverse joint, pavement removal shall be extended two feet beyond the joint. Reinforcing steel and dowels shall be installed according to Road and Bridge Standard PR-2. Joint replacement shall be according to Road and Bridge Standard PR-2.

## IV. MEASUREMENT AND PAYMENT

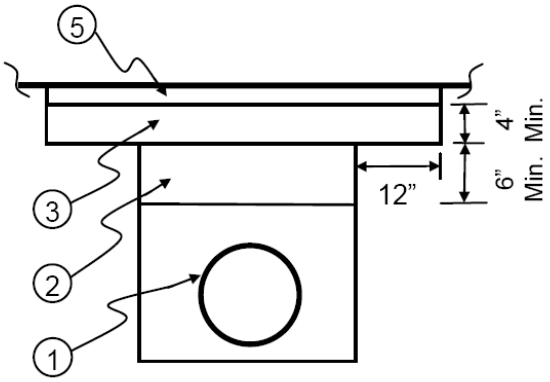
Restoring Existing Pavement unless otherwise specified will not be measured for separate payment, the cost thereof shall be included in the price bid for the utility to which it pertains according to Section 302.04, Section 520.06 or Section 700.05 of the Specifications, as appropriate. However, widths and depths in excess of the attached drawing that are authorized or directed by the Engineer will be paid for according to Section 109.05 of the Specifications.



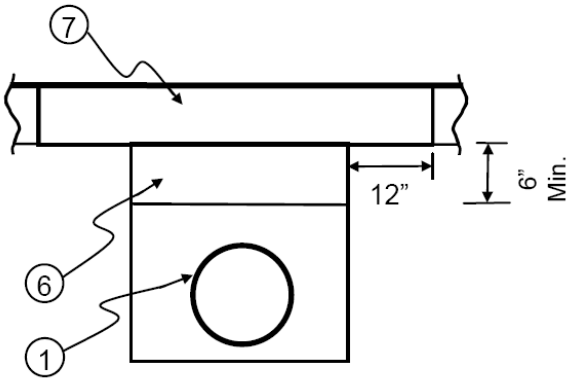

PAVEMENT STRUCTURE
Asphalt Conc. Base and Surface




PAVEMENT STRUCTURE
Scheduled for Asphalt Conc. Overlay




PAVEMENT STRUCTURE
Aggregate Base and Surface Treatment




PAVEMENT STRUCTURE
Hydraulic Cement Concrete

NOTES:

The following methods for restoring existing pavement shall be adhered to unless otherwise specified on the plans.

1. Pipe culverts, conduits and utility items shall be installed according to the applicable Road and Bridge Standards and Specifications.

2. Subbase - Aggregate material Type 1, Size 21A or 21B.

3. Asphalt Concrete Type BM-25.0

4. Surface - Asphalt Concrete Type SM-9.5D @ 165 lbs. per sq. yd.

5. Surface - Blotted Seal Coat Type C: The initial seal and final seal shall be CRS-2, CMA-2 or CMS-2h liquid asphalt material @ 0.17 gal./sq. yd. with 15 lbs. of No. 8P stone/sq. yd. each. The blot seal shall be CRS-2, CMS-2 or CMS-2h liquid asphalt material @ 0.15 gal./sq. yd. with 10 lbs. of fine aggregate grade B sand per sq. yd.

6. Subbase - Aggregate material Type 1 Size 21B

7. Surface - Hydraulic Cement Concrete, high early strength, matching existing structure for depth and surface texture.

SP302-000130-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**MICROTUNNELING**

November 1, 2016

## I. DESCRIPTION

The work covered by this section consists of providing all labor, materials, and equipment, and performing all operations required for installing the specified diameters of pipe by the microtunneling method where the pipe is installed directly behind the microtunneling boring machine (MTBM), in accordance with the requirements of the Contract at the locations, alignments and grades shown on the Plans. Only reinforced concrete pipe (RCP) or steel pipe shall be installed directly unless other pipe types are approved for direct installation by the Engineer. All other pipe types shall be installed within steel casing pipe. Steel casing pipe shall not be used as the final drainage pipe. Subsurface data for the project is available for review at the District Materials Office.

## II. QUALIFICATIONS

The Contractor shall be experienced in microtunneling and have completed a minimum of five pipeline or conduit construction projects in similar ground and ground water conditions with similar cover conditions below an interstate or four-lane divided highway within the last three years.

The Contractor shall furnish to the Engineer a listing of the required information including contact personnel and their current phone numbers. The Contractor shall furnish the name and experience record of the microtunneling foreman or supervisor who will be in daily responsible charge of the microtunneling operation as well as the MTBM operator for each shift. Qualified work crew personnel shall each have a minimum of 3000 linear feet and ten drives operating microtunneling equipment similar to that proposed for this particular work and in similar ground and cover conditions.

## III. SUBMITTALS

The Contractor shall submit five copies of the following material to the Engineer for review and acceptance at least 30 calendar days prior to beginning microtunneling construction:

1. Personnel: Documentation summarizing the pre-qualifications of key personnel and the financial stability of the company.

2. Equipment: Manufacturer's literature describing, in detail, the MTBM and ancillary systems to be used including complete description and details of guidance systems and method of grade and alignment adjustments.

3. Descriptions of similar projects including names, addresses and phone numbers of owner's representatives on which this similar system by the same manufacturer has been successfully used.

4. Description of method to remove and dispose of spoil.

5. Description of lubrication and grouting systems including Material Safety Data Sheets (MSDS), grout mix, proportions, slump, and design strength, as well as equipment and injection pressure.

6. Estimate of anticipated jacking loads.

7. Pit dimensions, locations, surface construction, profile, depth, method of excavation, shoring bracing and thrust block design, including drawings and complete calculations.

8. Layout of equipment at pits.

9. Complete and detailed schedule and sequence of construction.

10. Plan for flood protection and dewatering of pits and tunnel structures during construction.

11. Verification that the casing pipe complies with applicable contract requirements.

12. Condition survey (photographs and ground survey) of existing surface conditions along the planned pipe alignments. Photographs at 100% coverage. Minimum ground survey at edges of pavement and centerline of each travel direction (along pipe alignment), and at pipe centerline and 10-foot offsets (perpendicular to pipe alignment).

13. A detailed plan for monitoring ground surface movement due to the microtunneling operation. The plan shall address the method and frequency of survey measurement. At a minimum, the plan shall include taking measurements of ground movements of all structures, roadways, and any other areas of concern within 25 feet on both sides of all microtunneling pipelines at a maximum spacing of 100 feet along the microtunneled route, or as otherwise required by the Engineer.

14. Contingency plans for review and acceptance for the following potential conditions: Damage to the pipeline structural integrity and repair, loss and return to line and grade, and loss of ground.

15. Contingency plan also required for encountering obstructions. Details of proposed means and methods for obstruction removal are required along the alignment with consideration of possible constraints on surface access, including but not limited to the use of recovery shafts. Recovery shafts shall be constructed in accordance with submittals approved by the Engineer.

16. Procedures to meet all applicable OSHA requirements. These procedures shall be submitted for record purposes only and will not be subject to approval by the Engineer. As a minimum, the following should be included: Protection against soil instability and ground water inflow; safety for shaft access and exit; protection against mechanical and hydraulic equipment operations and for lifting and hoisting equipment and material; ventilation and lighting; monitoring for hazardous gases; protection against flooding and means for emergency evacuation; protection of shaft; emergency protection equipment; and safety supervisory responsibilities.

17. Calculations:

    A. Calculations that clearly state the maximum calculated jacking resistance for the complete pipeline, the need for intermediate jacking stations, if any, and their locations within the pipeline during construction.

    B. Calculations that clearly state the maximum allowable face pressure or slurry pressure that can be exerted at the tunnel face without fluid loss or ground heave.

    C. Calculations that clearly state the relationship between hydraulic pressure in each jacking circuit and the force applied to the pipe during jacking.

18. All Contractor submittals requiring engineering design shall be signed and sealed by a Professional Engineer with at least five years' experience in microtunneling design and construction and registered in the Commonwealth of Virginia.

19. The Contractor shall submit as-built plans of all microtunneling elements within 30 calendar days of project completion. As-built plans shall include details of the installed carrier pipe, temporary works, permanent structures, backfill materials, post-construction surveys, construction photographs, descriptions of problems encountered, and corrective procedures implemented.

## IV. EQUIPMENT AND MATERIALS

1. Microtunneling Boring Machine (MTBM) shall meet the following minimum requirements:

   A. Capable of providing positive face support to balance earth and groundwater pressures at the tunnel face to prevent loss of ground and groundwater inflow.

   B. Articulated to enable remotely controlled steering in both the vertical and horizontal directions to a tolerance of plus or minus 1 inch from design alignment.

   C. Capable of controlling shield rotation by means of a bi-directional drive on the cutter head or by use of mechanical fins or grippers.

   D. Capable of injecting lubricant around the exterior of the pipe being jacked.

   E. Capable of controlling heave and settlement within tolerances specified herein.

   F. Capable of ingesting obstructions up to one-third of the diameter of the tunneling machine by using a crushing chamber or equivalent equipment designed for this purpose. Obstructions include, but are not limited to any of the following that appear partially or completely within the profile of the tunnel and that prevent forward progress of the tunnel excavation: rock fill, boulders, and concrete larger in size than one-third of the diameter of the tunneling machine; stone masonry; buried trees; timbers or planking; conduits; pipes or drains; concrete or steel piles; and steel sheeting.

   G. The MTBM shall have a cutter face capable of supporting the full excavated area at all times, and have the capability of measuring the earth pressure at the face and setting a calculated earth balancing pressure.

2. Slurry System shall meet the following minimum requirements:

   A. Capable of making the adjustments required to counter-balance the earth and ground water pressure to prevent loss of slurry or uncontrolled soil and ground water inflow.

   B. The slurry pressure at the excavation face shall be controlled by the use of slurry pumps.

   C. A slurry bypass method shall be included to allow for a change in direction of flow to be made.

   D. Provide a separation process, properly sized for the tunnel being constructed, the material being excavated, and the workspace available at each area. Separate the spoil from the slurry so that slurry may be returned to the cutting face for reuse.

   E. Monitor the composition of the slurry to maintain the slurry density and viscosity limits as accepted in the submittal.

3. Jacking System shall meet the following minimum requirements**:**

   A. The main jacking equipment installed shall have a jacking capacity that is at least 150% of the maximum calculated allowable jacking load required to install the pipe.

   B. The jacking system shall develop a uniform distribution of jacking forces on the end of the pipe by the use of thruster rings and cushioning material.

   C. A pipe lubrication system shall be utilized and fluid shall be circulated continuously throughout the tunneling operation. An approved lubricant shall be injected at the rear of the MTBM to lower the friction developed on the surface of the pipe during jacking.

D. The pipe lubrication system pressure shall be continuously monitored, recorded, and controlled to prevent pipe buckling, ground heave and migration of fluid to the surface or adjacent structures.

4. Thrust Blocks shall meet the following minimum requirements:

   A. The thrust blocks shall be designed to transfer jacking loads into the earth and support the maximum pressure developed by the main jacking system with a minimum factor of safety of 2.5.

   B. The thrust blocks shall be perpendicular to the pipe alignment.

   C. If concrete thrust blocks or a treated soil zone are used to transfer jacking loads into the soil, the MTBM shall not be jacked until the concrete or other materials have attained the required strength.

5. Excavation Controls shall meet the following minimum requirements:

   A. The control equipment shall integrate the method of excavation and the removal of soil and its simultaneous replacement by the pipe.

   B. The control system shall synchronize spoils removal, excavation and jacking speeds as each pipe section is jacked forward.

   C. Operations shall be stopped when they result in pipe damage or surface disruption. The Contractor shall propose, for the review of the Engineer, immediate action to remedy the problem. If acceptable to the Engineer, such action shall be at no additional cost to the Department.

6. Remote Steering Controls shall provide the following minimum information to the operator:

   A. Any deviation of the MTBM from the required line and grade of the carrier pipe by reference to a laser beam.

   B. Grade and roll of the MTBM.

   C. Jacking load.

   D. Torque and RPM of the cutter head.

   E. Instantaneous jacking rate and total distance jacked.

   F. Indication of steering direction.

   G. The volume of slurry flow in both the supply and return side of the slurry loop.

   H. Indication of slurry bypass valve position.

   I. Indication of pressure of the slurry in the slurry chamber.

7. Guidance and Monitoring Equipment shall meet the following minimum requirements:

   A. Display equipment shall show and record the position of the shield with respect to the design line and grade. Line and grade tolerances of the pipe shall be 1 inch on line between the shafts. A return to line and grade shall be 1 inch in 25 feet.

8. Pipe shall meet the following minimum requirements:

   A. Steel pipe (min. ASTM A139, Grade B) shall be 0.5-in minimum wall thickness, shall be round with a smooth, even outer surface and shall have joints that allow for easy butt-welded connections between pipes.

   B. Pipe ends shall be square and smooth so that the jacking loads are evenly distributed around the entire pipe joint to minimize point loads when the pipe is jacked.

   C. The pipe shall be capable of withstanding the jacking forces that will be imposed by the process of installation.

   D. The driving ends of the pipe and intermediate joints shall be protected against damage.

   E. The detailed method proposed to cushion and distribute the jacking forces shall be submitted to the Engineer for review and acceptance.

   F. Any pipe showing signs of failure shall be jacked through to the reception shaft, removed and replaced at no additional cost to the Department.

   G. The pipe manufacturer's design jacking loads shall not be exceeded during the installation process. The pipe shall be designed to withstand all temporary installation loads.

## V. EXECUTION

1. Grouting shall meet the following minimum requirements:

   A. The annular space created by the over cut of the MTBM shall be filled with pressure-injected grout or other material approved by the Engineer immediately after completion of the tunneling operation. The Contractor shall promptly clean up and properly remove any spillage.

   B. The pressure-injected grout or other approved material shall fill voids outside the limits of the excavation created by caving or collapse of earth cover over the excavation.

   C. The Contractor shall furnish and operate suitable equipment for any required grouting operations depending on the condition of the application. The grouting operation shall not damage adjacent utilities or other properties. Grout shall be injected at a pressure that will not distort or imperil any portion of the work or existing installations or structures.

2. Launching and Receiving Pits shall meet the following minimum requirements:

   A. Launching and Receiving Pits shall be of a size commensurate with safe working practices and located approximately as shown on the Plans. The Contractor may provide additional shafts to better suit the capabilities of the microtunneling equipment proposed, only with written approval of the Engineer. Any request for changes in the location or addition of shafts shall be submitted in writing. The cost of additional access shafts constructed for the Contractor's convenience will be considered incidental to the bid price.

   B. The Contractor shall choose the excavation support system used. The Contractor shall be responsible for the design of the system. The design of pits and shafts shall ensure safe MTBM exit from the launching/driving/jacking pit and entry into the receiving pit. The Contractor shall furnish and install equipment to keep the jacking pit free of excess water. The Contractor shall also provide surface protection during the period of construction to ensure that surface runoff does not enter shafts. All pits shall be backfilled in accordance with Section 303 of the Specifications. All shoring materials, bracing, temporary supports, rubbish, and construction materials shall be removed from the job site and disposed of upon completion of

microtunneling operations.

3. Obstructions shall be addressed as follows:

   A. If the Contractor encounters an obstruction during the microtunneling procedure that stops the forward progress of the Work for greater than one hour, the Contractor shall immediately notify the Engineer. The Engineer shall verify that an obstruction has stopped the forward progress of the Work and shall authorize the Contractor to commence activities to be paid for under the appropriate payment item. Upon authorization by the Engineer, the Contractor shall proceed with removal of the obstruction. Payment for removal shall be from the start of removal operations (not including the first hour) until the successful removal of the obstruction. All work shall be performed in the presence of the Engineer.

   B. If after four hours from the start of removal operations, the obstruction has not yet been removed by appropriate means and methods, further payment shall not be made under this provision. Compensation for obstruction removal efforts beyond four hours will be subject to a determination by the Engineer that a differing site condition exists in accordance with Section 104.03 of the Specifications.

4. Tolerances shall be as follows:

   A. Pipelines shall be installed to within 1 inch of the vertical and 1 inch of the horizontal alignment shown on the plans.

   B. Minimum pipe cover shall be 5 feet or three times the pipe outside diameter, whichever is greater, unless specified otherwise in the Contract.

   C. Steering corrections made to the pipeline shall be carried out in such a manner that the joint-to-joint angle of any two adjacent pipes shall not exceed 0.5 degrees.

   D. If the jacked pipeline is off design line or grade by an amount that requires redesign and construction of the pipeline or associated structure, the Contractor shall do so at no additional cost to the Engineer.

   E. Contractor shall carry out operations to minimize settlement or heave of the ground and shall be responsible for damage due to settlement or heave from any construction induced activities. In the event of movement of the ground surface, structure or utility being detected or damage recorded, the Engineer may order that the work be stopped and secured. Before proceeding, the Contractor shall correct any problems causing or resulting from such movement entirely at its own cost. If ground settlement or heave occurs that might affect the accuracy of temporary or permanent benchmarks, it is the Contractor's responsibility to monitor and report such movement to the Engineer.

   F. Unless otherwise noted in the Contract Documents, settlement or heave at the ground surface during and after construction shall not exceed 0.5 inch within 25 feet laterally on either side of the centerline of the pipe alignment. Over-cut shall not exceed 1 inch on the diameter of the pipe being installed, unless otherwise approved by the Engineer.

## VI. MEASUREMENT AND PAYMENT

**Microtunnel** will be measured in units of linear feet to the nearest 0.1 feet for the diameter specified and will be paid for at the contract unit price per linear foot. This payment made will be full

compensation for furnishing and installing the completed and accepted pipe for the diameter specified measured from the inside face of receiving pit to the inside face of launching/jacking pit; all equipment, tools, materials, incidentals and labor needed to complete the installation including grouting and lubricants; providing launching/jacking/receiving/recovery pits or supplemental shafts including excavation; disposal of material; design and construction of excavation support system; seal slab; dewatering; backfill and restoration of surface; ground surface monitoring; and all other work appurtenant to microtunneling and pipe installation. This payment will also include transportation and testing of the pipe.

All material removed from the microtunneling operation shall be assumed to be unsuitable and shall be disposed of offsite by the Contractor unless otherwise approved by the Engineer. The cost of removal and disposal of the unsuitable material will be included in the Contract unit price per linear foot of Microtunnel. In the event that the Engineer determines that the excavated material from the microtunneling operation is suitable for future roadway embankment use, the Contractor may, at his option, dispose of the material in a designated excess suitable material stockpile area approved by the Engineer. No additional compensation shall be paid to the Contractor for placing the excess material in the stockpile area.

**Obstruction Removal**, when authorized by the Engineer, shall be measured in hours and paid for at the Contract unit price per hour based on the elapsed time from the start of obstruction removal to the successful removal of the obstruction, up to the limit of four hours. No measurement or payment will be made for removal of obstructions requiring an elapsed time of less than one hour or for which the Engineer has not granted approval for payment under this item in advance of performance of the work.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Microtunnel (Diameter) | Linear Foot |
| Obstruction Removal | Hour |

SP515-000100-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**COLD PLANING (MILLING) ASPHALT CONCRETE OPERATIONS**

July 12, 2016

## I. DESCRIPTION

This provision shall govern cold planing (milling) asphalt concrete operations in preparation for pavement repair and/or pavement overlay. Cold planing of asphalt concrete pavement shall be performed according to Section 515 of the Specifications and the requirements herein.

## II. GENERAL PROCEDURES

The Contractor is permitted to perform either regular pavement planing or performance pavement planing to the Contract specified depth or as directed by the Engineer in order to provide a uniform sound substrate prior to paving roadways designated in the schedules according to Section 315 of the Specifications, the requirements herein, or elsewhere in the Contract.

### A. Regular and Performance Planing

The following general conditions apply to either type of cold pavement planing:

Limitations of operations for planing shall be performed according to Section 108.02 of the Specifications, other Contract specific requirements, and as specified herein.

Where the depth of planing designated in the Contract or directed by the Engineer is 2 inches or less, the Contractor shall have the option of planing the abutting lane or shoulder on alternate days or squaring up the planing operation at the end of each work shift. However, abutting lanes or shoulders shall be planed and squared up regardless of planing depth prior to holidays or any temporary shutdowns.

Where the depth of planing designated in the Contract or directed by the Engineer is greater than 2 inches in the Contract, the Contractor shall square up the planing operation at the end of each workday or plane adjacent lanes including abutting shoulders within the same day for the length of that day's planing operation.

The Contractor will not be permitted to plane a portion of the width of a travel lane, ramp, loop or shoulder and leave it unpaved and open to traffic. Abutting shoulders may also be planed during single and multiple lane planing operations. Planing operations shall be planned and performed to maintain positive drainage according to Section 315.05(c) of the Specifications.

In the event an emergency or an unforeseen circumstance such as equipment failure or breakdown occurs during the Contractor's operations and such emergency or unforeseen circumstance within his control prevents the Contractor from squaring up the planed surface on adjacent lanes prior to a holiday or temporary shutdown, any additional signage, traffic control devices or temporary markings or markers required to protect the traveling public shall be the Contractor's responsibility and at his expense.

Where uneven pavement joints exist either transversely or longitudinally at the edges of travel lanes, the Contractor shall provide advance warning signage and traffic control devices to inform the traveling public according to the details provided in the Contract for the scope of operation he is performing. The cost for such advance warning signage and traffic control devices shall be included in the cost of other appropriate items

Where appropriate according to Contract requirements and site specific conditions, the existing asphalt concrete layers shall be planed to permit the transition of the top course of the asphalt concrete overlay according to the details of the ACOT-1 Standard. Any sub-courses termination may be notched into the existing pavement or blended with the next course of pavement.

**B. Performance Planing Only Limitations**:

When the Contractor elects to performance plane on roadways specified to be planed to a depth of 2 inches or less, the Contractor shall performance plane only that amount of pavement which can be paved back within the time allowance specified herein for completion of planing the roadway or portion of roadway. The Contractor is required to perform pavement surface testing as specified in Section 515.04 of the Specifications to verify the Contractor has achieved the acceptable surface texture specified in that Section prior to opening the performance planed surface to traffic. Additional traffic control devices and signage required for the extended pave back time allowance specified herein for performance planing operations versus the traffic control devices required for the pave back operations for regular pavement planing operations specified herein shall be at the Contractor's expense.

## III. ROADWAY CLASSIFICATION LIMITATIONS

The following restrictions, based on the type of roadway, shall apply:

### A. All Interstates and other Limited Access Roadways including Ramps and Loops posted at 55 Mph or Greater

#### 1. Regular planing and performance planing in multiple lanes

The Contractor shall plan, execute and maintain pavement planing operations to avoid trapping water on the roadway. On roadways with a combination of 3 or 4 lanes and shoulders (i.e. 2 travel lanes and 1 or 2 shoulders in one direction) where the travel lanes and shoulders will not be completely planed to drain prior to the start of paving operations, planing shall be performed so that water will not pond on the travel surface. When the Contract does not include the removal of the shoulder at the specific roadway planing location, the Contractor shall cut drainage outlets through the shoulder at locations the Engineer designates (excluding curb and gutter sections) for those portions of the planed roadway that are to be opened to traffic. The Contractor shall restore the shoulders to their original grades once paving operations are completed, unless otherwise directed by the Engineer. The cost for cutting and restoring roadway shoulders shall be included in the price bid for other items of work.

On roadways with a combination of 5 or more lanes and shoulders (i.e. 3 or more travel lanes and 2 shoulders in one direction, the extent to which the interior lanes shall be planed will be such that the planed portions can be repaved within the work-zone time limits unless provisions are made to mitigate the ponding of

water (i.e., milling adjacent lane(s) and shoulders or cutting drainage outlets through the shoulder).

Ramps and exits shall be planed in such a manner that an even longitudinal joint (elevation difference of greater than 1 inch) is not left for vehicles to cross within the posted speed limits in a “run on” situation. To prevent this, the Contractor can plane ramps and exits to the extent that the joint line between new and existing pavement crossed by traffic is traversed at an angle close to ninety (90) degrees per the ACOT-1 Standard for temporary transverse joints or can perform tapered planing along the ramp/exit longitudinal joint to provide a smooth transition for vehicles to cross, or can square up ramp or exit pavement with the adjacent mainline lane at the time of installation.

The following additional restrictions will apply to roadways where **regular pavement planing** is applicable:

- The Contractor will be limited in the case of regular pavement planing, whether in a single lane or multiple lane operation, to only that amount of pavement that can be paved back within 24 hours of completion of planing that roadway or portion of roadway.

- The Contractor shall pave all roadways, ramps and loops planed during the week before that weekend.

- On roadways with a combination of 4 or more lanes and shoulders (i.e. 2 or more travel lanes and 2 shoulders) in one direction, all travel lanes must be paved back before the weekend. Up to two thousand five hundred (2,500) feet of shoulder may be planed and left over the weekend provided the portion of planed shoulder left unpaved over the weekend is paved within 24 hours after the end of the weekend period.

The following additional restrictions will apply to roadways where **performance pavement planing** is planned by the Contractor:

- Performance planing may be performed in multiple lanes across the entire widths of the lanes up 4 miles of travel lane unless otherwise stated in the Contract. Performance planed travel lanes surfaces must be paved back within 96 hours from the end of the performance planing operation

- Where the Contractor decides to performance plane multiple lanes, the Contractor shall be responsible for furnishing and installing advance warning signage and traffic control devices to inform the traveling public according to the details provided in the Contract. Temporary pavement markings and markers used for lane demarcation on performance planed surfaces will be according to Section 704.04 of the Specifications and the *Special Provision for* ***SECTION 704—PAVEMENT MARKINGS AND MARKERS*** included in the Contract. The cost for such warning devices and advance signage required by multiple lane planing operations shall be included in the cost of other appropriate items unless otherwise specified in the Contract by a specific pay item(s) for separate payment.

**B. Non-Limited Access Roadways with an ADT of 10,000 or Greater (Traffic Group XV and above) and a Posted Speed Limit of 45 Mph or Greater**

**1. Regular planing and performance planing in multiple lanes**

The Contractor shall plan and procede with the pavement planing operation to avoid trapping water on the roadway. On roadways with a combination of 3 or 4 lanes and shoulders (i.e. 2 travel lanes and 1 or 2 shoulders) in one direction where the travel lanes and shoulders will not be completely planed prior to the start of paving operations, planing operations shall be performed so water will not pond on the travel surface. When the Contract does not include the removal of the shoulder, the Contractor shall cut drainage outlets through the shoulder at locations the Engineer designates, excluding curb and gutter sections, for those portions of the planed roadway that are to be opened to traffic. The Contractor shall restore the shoulders to their original grades once paving operations are completed, unless otherwise directed by the Engineer. The cost for cutting and restoring the roadway shoulder shall be included in the price bid for other items of work.

On roadways with a combination of 5 or more lanes and shoulders (i.e. 3 or more travel lanes and 2 shoulders in one direction), the extent of pavement planing on the interior lanes shall be such that the planed surface can be repaved within the timeframe of the work-zone time limits unless provisions are made to mitigate the ponding of water (i.e.planing adjacent lane(s) to mitigate the ponding of water).

The following additional restrictions will apply to roadways where **performance pavement planing** is planned by the Contractor:

- Performance planing may be performed in multiple lanes across the entire widths of the lanes up a total of 4 miles of travel lane unless otherwise stated in the Contract.

- Performance planed travel lane surfaces must be paved back within 10 days from the start of the performance planing operation.

- Where the Contractor decides to performance plane multiple lanes, the Contractor shall be responsible for furnishing and installing advance warning signage and traffic control devices to inform the traveling public according to the details provided in the Contract. The cost for such warning devices and advance signage required by multiple lane planing operations shall be included in the cost of other appropriate items unless otherwise specified in the Contract by a specific pay item(s) for separate payment. Temporary pavement markings required by such operations will be handled according to Section 704.04 and the *Special Provision for* ***SECTION 704—PAVEMENT MARKINGS AND MARKERS*** included in the Contract.

The following additional restrictions will apply to roadways where **regular pavement planing** is applicable:

- The Contractor will be limited whether in a single lane or multiple lane operation, to only that amount of pavement that can be paved back within 24 hours of completion of planing that roadway or portion of roadway.

- The Contractor shall pave all roadways that have been regular planed during the week before that weekend.

- On roadways with a combination of 4 or more lanes and shoulders (i.e. 2 or more travel lanes and 2 shoulders in one direction, all travel lanes must be paved back before the weekend. Up to two thousand five hundred (2,500) feet of shoulder may be planed and left over the weekend provided the

portion of planed shoulder left unpaved over the weekend is paved within 24 hours after the end of the weekend period.

### C. All Other Roadways

#### 1. Regular Pavement Planing (single or multiple lanes)

If the Contractor elects to perform regular pavement planing the Contractor will be permitted to leave up to two miles of travel lane open to the traveling public provided such planing (milling) is performed across the entire lane width. This same total length restriction will apply in cases where multiple-lane regular pavement planing is permitted in the Contract or allowed by the Engineer. The Contractor will be limited in the case of regular pavement planing, whether in a single lane or multiple lane operation, to only that amount of pavement that can be paved back within 96 hours of completion of planing that roadway or portion of roadway.

#### 2. Performance Pavement Planing

When the Contractor elects to performance plane roadways specified to be planed to a depth of 2 inches or less, the Contractor shall plane only the amount of pavement that can be paved back within 14 calendar days of completion of planing that roadway or portion of roadway. The Contractor is required to perform pavement surface testing as specified in Section 515.04 of the Specifications to verify the Contractor has achieved the acceptable surface texture prior to opening the performance planed surface to traffic. The additional traffic control devices and signage required for the 14 calendar day pave back operation allowance for performance planing operations shall be at the Contractor's expense.

Temporary pavement markings required by such operations will be handled according to Section 704.04 and the *Special Provision for* ***SECTION 704—PAVEMENT MARKINGS AND MARKERS*** included in the Contract.

Roadways on which the roadway edges (i.e. edge milling) are to be planed shall be paved back within 10 days from the completion of the planing operation.

## IV. MEASUREMENT AND PAYMENT

Measurement and payment will be according to Section 515.05 of the Specifications.

SP703-000100-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**MAST ARM HANGER ASSEMBLY STD SM-3 AND SMD-2**

May 25, 2016; Issued July 12, 2016

## I. Description

This work shall consist of furnishing and installing mast arm signal hanger assembly (Standard SM-3) and mast arm sign hanger assembly (Standard SMD-2) for new or relocated signals and signs on mast arms and replacing existing hanger assemblies.

## II. Definitions

The following terms are used as follows in this special provision:

1. **Mast Arm Hanger Assembly (Complete)**: An inclusive mast arm hanger assembly that consists of the main mount, swivel plate, mounting system, mounting tube, and miscellaneous hardware items.

2. **Mast Arm Hanger Assembly (Components)**: Main mount, swivel plate, mounting system and miscellaneous hardware items (washers, screws, bolts, or nuts).

3. **Main Mount**: The bracket component that mounts against the mast arm signal pole. Once installed, this component is fixed and is not adjusted.

4. **Swivel Plate**: The bracket component(s) that mate to the main mount. The swivel plate can be adjusted along multiple axis to allow the signal mounting tube to be positioned at different angular orientations. The mounting tube is connected to the swivel plate.

5. **Mounting System**: Stainless steel cables which connect the main mount and mast arm signal pole.

6. **Mounting Tube**: The bracket component that holds the signal head assembly, camera, or sign panel bracing to the swivel plate.

7. **Miscellaneous items**: Other components of the hanger assembly not listed above, including but not limited to: tie back, or tether clamps which fasten the cable to the mounting tube; mounting arms; cover plates; hardware (washers, screws, bolts, or nuts); caps; and seals.

8. **Special Tools**: Unique tools identified by a specific item or product number in the manufacturer's installation instructions

## III. Materials

As used below: XX, XXX or xx refers to stainless steel cable length, which shall be determined by the Contractor for the specific mast arm diameter at each installation location; YY or yy refers to the mounting tube length for sign panels, which shall be determined by the Contractor for the specific sign height at each location; ## refers to the channel width, which shall be determined by the Contractor for the specific sign width at each location.

1. **Mast Arm Signal Hanger Assembly (Components) for Relocation or Maintenance Replacement – Signals**

Mast arm hanger components (main mount, swivel plate, mounting system, and associated miscellaneous items) used for signal relocation or maintenance replacement of signal hanger assemblies shall be of the following or approved equal:

| Table 1: MAST ARM SIGNAL HANGER ASSEMBLY (COMPONENTS) FOR RELOCATION OR MAINTENANCE REPLACEMENT - SIGNALS | |
|---|---|
| **MANUFACTURER** | **MODEL** |
| Pelco Products, Inc. | Galaxy, Model AB-3055-XX-SS-PNC |
| Traffic Hardware & Design | CAN-BRAC, Model CBL-VUB-2CXX-9 |
| General Traffic Equipment Corp. | RM - MAC - XX |
| Cost Cast, Inc. | Cost Cast Item # 1816-A-CXX |
| Sky Bracket | SKYBRACKET, Model SS-SBCXX-SCK-VA |

2. **Mast Arm Signal Hanger Assembly (Complete ) - Signals**
   Complete Mast Arm Hanger Assemblies used for new signals, relocated signals or maintenance replacement of signal hanger assemblies shall be of the following or approved equal:

| Table 2: MAST ARM SIGNAL HANGER ASSEMBLY (COMPLETE) – SIGNALS (New Signals, Relocated Signals Or Maintenance Replacement) | |
|---|---|
| **1-SECTION HEAD HANGER ASSEMBLY (IN LINE)** | |
| **MANUFACTURER** | **MODEL** |
| Pelco Products, Inc. | Galaxy, Model AG-0125-1-XX-SS-PNC |
| Traffic Hardware & Design | CAN-BRAC, Model CBL-VUN1-T24-2Cyy-9 |
| General Traffic Equipment Corp. | RM-1000C-XX-1 |
| Cost Cast, Inc. | Cost Cast Item # 1816-G-CXX-24 |
| Sky Bracket | SKYBRACKET, Model SS-SBCXX-18-VA |
| **3-SECTION HEAD HANGER ASSEMBLY (IN LINE)** | |
| **MANUFACTURER** | **MODEL** |
| Pelco Products, Inc. | Galaxy, Model AG-0125-3-XX-SS-PNC |
| Traffic Hardware & Design | CAN-BRAC, Model CBL-VUN1-T46-2Cyy-9 |
| General Traffic Equipment Corp. | RM-1000C-xx-3 |
| Cost Cast, Inc. | Cost Cast Item # 1816-G-CXX-48 |
| Sky Bracket | SKYBRACKET, Model SS-SBCXX-46-VA |
| **4-SECTION HEAD HANGER ASSEMBLY (IN LINE)** | |
| **MANUFACTURER** | **MODEL** |
| Pelco Products, Inc. | Galaxy, Model AG-0125-4-XX-SS-PNC |
| Traffic Hardware & Design | CAN-BRAC, Model CBL-VUN1- T58-2Cyy-9 |
| General Traffic Equipment Corp. | RM-1000C-xx-4 |
| Cost Cast, Inc. | Cost Cast Item # 1816-G-CXX-60 |
| Sky Bracket | SKYBRACKET, Model SS-SBCXX-60-VA |
| **5-SECTION HEAD HANGER ASSEMBLY (CLUSTER)** | |
| **MANUFACTURER** | **MODEL** |
| Pelco Products, Inc. | Galaxy, Model AG-0138-XX-SS-PNC |
| Traffic Hardware & Design | CBL-VUN2-14-T37-2CXX-9 |
| General Traffic Equipment Corp. | RM-5C-5000C-xx |
| Cost Cast, Inc. | Cost Cast Item # 1816-G-CXX-5X |
| Sky Bracket | SKYBRACKET, Model SS-SBCXX-SCB-46-VA |

3. **Mast Arm Sign Hanger Assembly (Components) for Relocation or Maintenance Replacement – Signs**
   Mast Arm Hanger Assembly components (main mount, swivel plate, mounting system, and associated miscellanies items) used for sign relocation or maintenance replacement of sign hanger assemblies shall be of the following or approved equal:

| Table 3: MAST ARM SIGN HANGER ASSEMBLY (COMPONENTS) FOR RELOCATION OR MAINTENANCE REPLACEMENT - SIGNS | |
|---|---|
| **MANUFACTURER** | **MODEL** |
| Pelco Products, Inc. | Galaxy, Model AB-3055-XX-SS-PNC<br>1-Bracket per 16 Sq. Ft. of sign panel spaced per manufacturer's installation instructions |
| Traffic Hardware & Design | CBS-HU-Exx-2Cyy-3<br>1-Bracket per 20 Sq. Ft. of sign panel spaced per manufacturer's installation instructions |
| General Traffic Equipment Corp. | RM-MAC-XX<br>1-Bracket per 15 Sq. Ft. of sign panel spaced per manufacturer's installation instructions |
| Cost Cast, Inc. | Cost Cast Item # 1816-A-Cxx<br>1-Bracket per 16 Sq. Ft. of sign panel spaced per manufacturer's installation instructions |
| Sky Bracket | SKYBRACKET, Model SS-SBCXX-SCK-VA<br>1-Bracket per 13 Sq. Ft. of sign panel spaced per manufacturer's installation instructions |
| Xcessories Squared | PAX2PC30-XXX and PASCL316-XXXX<br>1-Bracket per 10 Sq. Ft. of sign panel spaced per manufacturer's installation instructions |

4. **Mast Arm Sign Hanger Assembly (Complete) - Signs**
   Complete Mast Arm Hanger Assemblies used for new signs, relocated signs or maintenance replacement of sign hanger assemblies shall be of the following or approved equal:

| Table 4: MAST ARM SIGN HANGER ASSEMBLY (COMPLETE) – SIGNS<br>(New Signs, Relocated Signs Or Maintenance Replacements) | |
|---|---|
| **MANUFACTURER** | **MODEL** |
| Pelco Products, Inc. | Galaxy, Model AG-0142-XX-XX-SS-PNC<br>Galaxy, Model AG-0144-XX-XX-SS-PNC<br>1-Bracket per 16 Sq. Ft. of sign panel spaced per manufacturer's installation instructions |
| Traffic Hardware & Design | CAN-BRAC, Model CBS-HU-Exx-2Cyy-3<br>1-Bracket per 20 Sq. Ft. of sign panel spaced per manufacturer's installation instructions |
| General Traffic Equipment Corp. | SMA - 3000 – XX<br>1-Bracket per 15 Sq. Ft. of sign panel spaced per manufacturer's installation instructions |
| Cost Cast, Inc. | Cost Cast Item # 1816-N-CXX-YY<br>1-Bracket per 16 Sq. Ft. of sign panel spaced per manufacturer's installation instructions |
| Sky Bracket | SKYBRACKET, Model SS-SBXX-SBK-XXTK-##-VA<br>1-Bracket per 13 Sq. Ft. of sign panel spaced per manufacturer's installation instructions |
| Xcessories Squared | PAX2PC30-XXX and PASCL316-XXXX<br>1-Bracket per 10 Sq. Ft. of sign panel spaced per manufacturer's installation instructions |

## IV. Procedures

All work shall be accomplished according to the manufacturer's installation instructions. Only the tools, special tools, and anti-seize lubricants specifically noted in the manufacturer's installation

instructions shall be used. If the Contractor deviates from the manufacturer's installation instructions, the Contractor shall provide documentation from the manufacturer authorizing such deviations, including the use of alternate tools.

If a bolt tightening sequence is not specified in the manufacturer installation instructions, bolts shall be tightened in an alternating pattern for even compression.

If a main mount with fully tightened bolts requires adjustment that necessitates loosening of the main mount bolts, the mounting system and associated hardware for the mounting system (washers, screws, bolts or nuts) shall be replaced at no additional cost to the Department.

1. **Tools**: If maximum torque values are provided in the manufacturer's installation instructions, a calibrated torque wrench shall be used to verify that torque has not been exceeded. The Contractor shall calibrate torque wrenches in accordance with torque wrench manufacturer recommendations at the interval recommended by the torque wrench manufacturer. The torque wrench calibration testing lab shall be ISO, or ANSI accredited for instrument calibration.

   If special tools are identified in the manufacturer's instructions as being either required or recommended for installation the Contractor shall furnish no less than one set of tools to the Engineer per ten mast arm hanger assemblies or portion thereof, unless otherwise specified in the contract documents.

2. **Packaging**: All required components of each hanger assembly, except the mounting tube, shall be packaged as one set. The mounting tube may be packaged separately. If special tools are required, or recommended, they may be packaged separately. Under no circumstances shall the parts from multiple assemblies be mixed.

3. **New Signal or Sign Installations**: A Mast Arm Hanger Assembly (Complete) shall be used - see Table 2 for signals and Table 4 for signs.

   The Mast Arm Hanger Assembly (Complete) may be attached to the mast arm and all bolts tightened to final tightness before lifting and placing the mast arm onto the signal pole (i.e. on the ground- attached to the mast arm prior to installation of the mast arm).

4. **Relocate Existing Mast Arm Hanger Assemblies for Signals or Signs**: Existing Mast Arm Hanger Assemblies (main mount, swivel plates, mounting systems and all associated miscellaneous items) that are in service before the commencement of any project shall not be relocated on the same mast arm or reused on a different mast arm.

   The initial relocation of each existing signal or sign from its location at commencement of the project (Location A) to a new location on a mast arm (Location B) may be accomplished using one of the following at the new location on a mast arm:

   a. A new Mast Arm Hanger Assembly (Complete) – see Table 2 for signals and Table 4 for signs or

   b. New Mast Arm Hanger Assembly (Components) – see Table 1 for signals and Table 3 for signs. Existing mounting tubes, cover plates, tie backs, and tether clamps may be reused if they are compatible with the new components;

   Subsequent relocations of the signal or sign from Location B to another location may be accomplished by the Contractor using one of the following at the new location on a mast arm:

   a. A new Mast Arm Hanger Assembly (Complete) – see Table 2 for signals and Table 4 for signs; or

b. New Mast Arm Hanger Assembly (Components) – see Table 1 for signals and Table 3 for signs. Existing mounting tubes, cover plates, tie backs, and tether clamps may be reused if they are compatible with the new components; or

c. New mounting system. The existing hanger assembly equipment installed for the initial relocation from Location A to Location B may be reused.

5. **Modify Existing Hanger Assembly**: Modifying an existing mast arm hanger assembly at the same location on a mast arm shall be accomplished in accordance with the following:

   New Mast Arm Hanger Assembly (Components) – see Table 1 for signals and Table 3 for signs. Existing mounting tubes, cover plates, tie backs and tether clamps may be reused if they are compatible with the new components;

6. **Remove Existing Hanger Assembly**: Removing and disposing of an existing hanger assembly or components shall be in accordance with Section 510 of the Specifications.

7. **Prosecution of Work**: The Contractor shall prosecute work in accordance with Section 703.03 of the Specifications.

   While performing this work, if the Contractor discovers any mechanical or electrical problems with the signals, or discovers any problems that require immediate repair, the Contractor shall log each problem by intersection and signal head and advise the Engineer immediately. The Engineer will instruct the Contractor how to proceed.

   The Contractor shall exercise caution during prosecution of work to prevent damage to any existing wiring, or signal component. If the Contractor damages any existing wiring, or signal equipment, repair and replacement shall be at no additional cost to the Department.

## V. Reporting

For each mast arm hanger assembly (Complete or Components) installed, the Contractor shall submit the attached Mast Arm Bracket Installation Report form to the Engineer. The form shall also be submitted to the Department's email hangerassemblies@vdot.virginia.gov.

Hard copy submission of the Mast Arm Bracket Installation Report to the Engineer shall not substitute for reporting to the required email address. The Mast Arm Bracket Installation Report shall be submitted within 7 business days of mast arm hanger assembly installation.

By submitting the report, the Contractor certifies that the mast arm hanger assembly installation was accomplished in strict conformance with these specifications.

Reporting will not be measured for separate payment but shall be considered incidental to the mast arm hanger assembly work.

## VI. Warranty

The Contractor shall furnish a manufacturer warranty for the Complete Mast Arm Hanger Assembly or installed components to cover defects for a minimum of three years from the date of installation. The warranty shall include providing replacements, within 10 calendar days of notification, for defective parts and equipment at no additional cost to the Department. When the warranty normally given by the manufacturer is longer than three years, the manufacturer's normal warranty shall be furnished.

## VII. Measurement and Payment

**Mast Arm (Type) Hanger Assembly (Standard)** will be measured in units of each for the standard and type specified to be paid for at the contract unit price per each. This price shall include furnishing and installing Mast Arm Hanger Assembly (Complete), including the main mount, swivel plate, mounting system, mounting tube, miscellaneous items, reporting, and special tools (when required).

**Remove Existing Traffic Signal Head Assembly** will be measured in units of each and will be paid for at the contract unit price per each. Signal head assembly is defined as one or more traffic signal head sections (vehicular or pedestrian) assembled as one unit. This price shall include disconnecting the signal head assembly from existing conductor cables, removing the signal head assembly and backplate, removing and disposing of hanger assembly, and removing all associated mounting equipment, hardware, and accessories. If the traffic signal head assembly is to be reinstalled, the price also shall include reconnecting signal cables. When designated in the contract for salvage or if salvage is directed by the Engineer, this price shall include storing, protecting, and delivering to a designated Department facility.

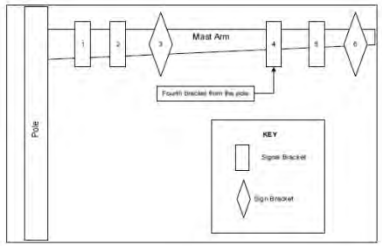
**Relocate Existing Mast Arm (Signal or Sign)** will be measured in units of each and will be paid for at the contract price per each. This price shall include removing and relocating an existing traffic sign, signal head, or pedestrian signal head from an existing to proposed location, disconnecting and reconnecting conductor cables, adjusting or relocating conductor cables, removing and disposing or salvaging the existing mast arm hanger assembly, installing a new Mast Arm Hanger Assembly (Complete) or installing new Mast Arm Hanger Assembly (Components) and relocating or replacing existing miscellaneous items.

When relocation of signals or signs is accomplished when maintenance of the traffic signal is the responsibility of the Contractor as specified in Section 512 for the items Modify Signal or Temporary Traffic Control Signal, relocating existing mast arm hanger assemblies for signals or signs will not be measured separately and the cost thereof shall be included in the contract unit price of Modify Signal or Temporary Traffic Control Signal.

**Modify Existing Mast Arm Hanger Assembly (Type)** will be measured in units of each and will be paid for at the contract price per each. This price shall include removing an existing traffic sign, signal head, or pedestrian signal head from the existing hanger, furnishing new hanger assembly components, disconnecting and reconnecting conductor cables, removing, salvaging, and disposing of existing mast arm hanger assembly components, installing new Mast Arm Hanger Assembly (Components) and reusing or replacing existing miscellaneous items.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Mast Arm (Type) Hanger Assembly (Standard) | Each |
| Remove Existing Traffic Signal Head Assembly | Each |
| Relocate Existing Mast Arm (Signal or Sign) | Each |
| Modify Existing Mast Arm Hanger Assembly (Type) | Each |

| Form TE-100, VDOT Mast Arm Bracket Installation Report July 2016 | | | VDOT MAST ARM BRACKET INSTALLATION REPORT | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Installation Completed | Contractor Name | Installer Name | **Bracket Location** (1 is closest to the pole. Include sign and signal head brackets. See sketch.)   | County/City | Project Number/CSC | Bracket Type (Signal or Sign) | Model Name and Number | Approach Direction (N, NE, E SE, S, SW, W, NW) | **Coordinates** (Enter to 6-decimal places, do not include "+", "-", "N", or "W" designations) | |
| | | | | | | | | | Latitude (Values should be between 36.5 and 39.5) | Longitude (Values should be between 75.3 and 83.7) |
| | | | | Examples | | | | | | |
| 1/2/2016 | ABC Contracting | Joe Jones | 4 | King George | | Signal | GTE RM-MAC-XX | W | 37.625415 | 79.548621 |
| 1/2/2016 | ABC Contracting | Joe Jones | 6 | King George | | Sign | GTE RM-MAC-XX | W | 37.625415 | 79.548621 |

Digital Form found at http://www.virginiadot.org/business/traffic_signal_brackets.asp

**SP704-000100-02**

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**SECTION 704—PAVEMENT MARKINGS AND MARKERS**

May 3, 2017

**SECTION 704—PAVEMENT MARKINGS AND MARKERS** of the Specifications is amended as follows:

**Section 704.02**(a) **Pavement Markings** is amended to add the following:

The sizes and shapes of symbols and characters shall match the size and shape specified in the Standard Drawings or elsewhere in the Contract. Hand-drawn or "stick" symbols or characters will not be allowed.

**Section 704.02**(e) **Flexible Temporary Pavement Markers (FTPMs)** is inserted as follows:

**Flexible Temporary Pavement Markers (FTPM's)** shall conform to Section 235 of the Specifications. All FTPM's shall be new product. FTPM's are suitable for use up to one year after the date of manufacture when stored in accordance with the manufacturer's recommendations.

The color of FTPM units and their reflective surfaces shall be the same color (white or yellow) as the temporary pavement markings they are being used in substitution for.

FTPM's shall consist of products from the Materials Division's Approved Products List No. 22. FTPM's shall include a removable material covering the reflective lens to protect the lens from being obscured or damaged during the paving operation.

**Section 704.03—Procedures** is amended by replacing the third and fourth paragraphs with the following:

The Contractor shall provide staking in the field that documents any changes in passing zones on undivided roads, exact placement of all aerial speed enforcement markings, and placement of railroad crossing markings. Any changes to these markings that are specified in the Contract shall be staked. The Contractor shall complete all staking and notify the Engineer at least 14 days prior to the scheduled start of resurfacing operations.

The Contractor shall reference this staking when installing temporary markings, and for the premarking to be done in advance of permanent marking installation. The stakes shall be removed at the conclusion of the project.

All existing markings shall be replaced with permanent markings of the same width, color, size, and location unless otherwise directed in the PM Series Standard Drawings, in the Contract, or by the Engineer. All existing markers shall be replaced with new markers with the same retroreflector colors (front and back) unless otherwise directed in the Contract or by the Engineer.

The Contractor shall sweep clear all surface-treated, slurry seal, and latex emulsion roadways prior to installation of permanent pavement markings. Any loose aggregate remaining on the surface shall be blown-out with an air compressor or other approved method.

**Section 704.03—Procedures** is amended by replacing the 13th paragraph with the following:

Non-truck mounted equipment shall be regulated to allow for calibration of the amount and type of material applied.

**Section 704.03(a)2 Type B markings** is amended to replace the third paragraph with the following:

Non-truck mounted equipment for application of thermoplastic material shall include an extrude die with a burner, temperature controller, agitator, and mechanical bead applicator to allow for the correct amount of material to be applied.

**Section 704.03(a)2e Patterned Preformed Tape (Type B, Class VI)** is amended to insert the following:

Only products on Materials Division Approved List 17 which are warranted by the manufacturer against failure resulting from improper installation and material defects when used on Latex Emulsion or other Surface Treatments shall be used on these applications, in conjunction with a low-VOC surface preparation primer adhesive.

The Contractor shall install Type B, Class VI markings on existing asphalt concrete roadway surfaces, hydraulic cement concrete surfaces, and existing or new surface treatment, slurry seal, and latex emulsion surfaces in accordance with the manufacturer's installation instructions for pavement surface preparation, sweeping, and installation techniques for non-embedded (adhesive) surface applications and splicing.

Prior to tape installation on new latex emulsion surfaces:

- The surface shall be swept clear of all loose aggregate immediately prior to spraying the surface preparation primer adhesive.

- The primer adhesive shall be sprayed uniformly at the correct thickness (shall not exceed the maximum thickness specified by the manufacturer), and cured in accordance with the manufacturer's installation instructions.

After application of the surface preparation primer adhesive, the tape shall be tamped to the road using a 200 pound minimum tamper cart and vehicle wheels. The Contractor shall ensure that the vehicle tires, if used, ride true down the length of the tape marking and in accordance with manufacturer instructions.

**Section 704.03**(d) **Pavement Markers** is amended to add the following:

Permanent markers shall not be installed until after the installation of the adjacent permanent line marking.

The Contractor may choose to substitute FTPM's in lieu of Type A-temporary paint or in lieu of Type D temporary pavement markings. The Contractor's plan for FTPM's shall be in accordance with the *Typical Plan for FTPM Placement* drawings included herein.

When FTPM's are used to simulate temporary edgelines, then FTPM's shall be spaced every 20 feet and shall match the color of the line markings being simulated.

FTPM's shall be installed at the same locations that permanent pavement markings will be installed.

For surface treatment, slurry seal or latex emulsion treatment operations, the appropriate FTPM's with protective covering shall be installed prior to placing the new treatment. The lens protective covering shall be kept in place during the final surface placement to protect the lens from being

obscured or damaged by the paving operation. Upon completion of surface treatment, slurry seal or latex emulsion treatment placement, the Contractor shall remove the protective covering from the reflective lens of the FTPM's prior to leaving the work site. Failure to remove such covering shall result in the non-payment for that portion type (skip or solid) of temporary pavement marking.

For plant mix operations, the appropriate FTPM's shall be installed on the newly-placed pavement after the pavement is thoroughly compacted and has cooled to the FTPM manufacturer's recommended temperature for installation.

The Contractor shall maintain the FTPM's until the permanent pavement markings are installed. Damaged or missing FTPM's shall be replaced within 24 hours of discovery at the Contractor's expense with new FTPM's of the same manufacturing type, color and model. No more than one FTPM may be damaged or missing out of every skip line simulated segment. No two consecutive FTPMs may be damaged or missing on a simulated solid line application, and no more than 30 percent of the FTPM's may be damaged or missing on any measured 100-foot segment of simulated solid line.

Once applied, FTPM's will be considered for a single use. If a FTPM requires replacement, it shall be properly disposed of and replaced with a new FTPM at no additional cost to the Department. FTPM's may remain in place, undamaged, after installation for up to 14 consecutive days. When FTPM's are applied prior to final surface placement (such as with surface treatment, slurry seal, or latex emulsion operations) this 14 -consecutive-day time limit shall begin at the time of actual installation of the FTPM's, not at the time of surface placement. The Engineer may approve an extension of the 14 days if all damaged FTPM's are replaced and the remaining FTPM's are maintained.

FTPM's shall be removed and properly disposed of when permanent pavement markings are installed. Used FTPM's removed from the pavement, including all containers, packaging, damaged FTPM's and all other miscellaneous items of waste, shall be appropriately disposed of in accordance with Section 106.04.

**Section 704.03**(d)1 **Snow-Plowable Raised Pavement Markers** is amended to insert the following:

All SRPMs on plant mix surfaces shall be installed within 30 calendar days after the end of the last workday (final surface) of continuous paving on that section of roadway.

All SRPMs on surface treatment, slurry seal, or latex emulsion surfaces shall be installed within 14 calendar days after the final markings are installed, unless a time extension is approved by the Engineer. Time extensions will be granted when weather conditions prohibit installation or other operations on the project would damage the markers. The time limit commences for a continuous section at the end of the last workday that the final surface is placed. For roads with more than two lanes, each direction will be considered a separate continuous section.

Replacement of existing retroreflector lenses shall be in accordance with the manufacturer's installation instructions. If the new retroreflectors are dirtied or damaged during installation they shall be replaced at no additional cost to the Department. Properly dispose of the existing retroreflectors in accordance with Section 106.04.

**Section 704.03**(f) **Maximum Allowable Time Limits for Unmarked Roads** is inserted as follows:

**Maximum Allowable Time Limits for Unmarked Roads**

Existing markings that are obscured, covered, or eradicated by resurfacing operations (including existing symbol and message markings where the need for temporary symbol or message markings has been identified in the Contract) shall be replaced with either temporary or

permanent markings within the time limits established in TableVII-4, unless otherwise approved by the Engineer.

If the Contractor begins the next lift within the time limits specified in Table VII-4 for a non-final surface, then the time limits shall be recalculated as starting at the end of the work day from the time of that next resurfacing operation.

The Engineer may allow the extension of the time limits by up to 12 hours for 10,000 ADT or greater roads, up to 24 hours for 9,999 to 3000 ADT roads, and up to 48 hours for less than 3000 ADT roads, provided that all of the following apply:

- The road is non-limited access.
- The road has a posted or statutory speed limit of 40 mph or below.
- All lanes are delineated by the milled surface or asphalt overlay.
- The road is on tangent alignment.
- "Unmarked Pavement Ahead" or "No Center Line" warning signs were properly installed in accordance with the VWAPM when the unmarked lane was opened to traffic.

For final surfaces, the Contractor shall determine if the permanent markings can be installed within these time limits, based on the installation requirements for that permanent marking material on that type of surface, and the weather conditions. If the permanent markings will not be installed within these time limits, then temporary markings shall be installed.

**Table VII-4: Time Limits for Unmarked Roads** is inserted as follows:

**Table VII-4: Time Limits for Unmarked Roads**

| Road Type | Maximum allowable duration for unmarked roads |
|---|---|
| Interstates and other freeways (limited access roads) posted at 55 MPH or greater (including interstate/freeway ramps)[1] | All lane line markings, at a minimum, shall be temporarily or permanently installed **before opening the lane to traffic**. If the latex emulsion surface has not cured enough to hold the temporary markings ( weathered-in texture ), then the Contractor shall apply the temporary paint before opening the lane to traffic and then, if necessary and when directed by the Engineer, shall refresh the temporary markings within 24 hours at VDOT expense. Contractor shall install FTPMs on top of all SRPMs in each lane and gore area with protective covering prior to latex placement in accordance with SP. For covering Cleaning and Inspecting Existing Raised Pavement Markers.<br><br>All other markings shall be temporarily or permanently installed within **24 hours** after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated. |
| Non-freeway roads with ADT of 10,000 or greater (Traffic Groups XV and above)[2,3,4] | All lane line and center line markings shall be temporarily or permanently installed within **24 hours** after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated. Application of temporary markings on surface treatment, slurry seal and latex emulsion shall be as soon as the surface has cured enough to hold the temporary markings. |
| Non-freeway roads with ADT between 3,000 and 9,999 (Traffic Groups XI through XIV) | All lane line and center line markings shall be temporarily or permanently installed within **48 hours** after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated. |

| | |
|---|---|
| Non-freeway roads with ADT between 600 and 2,999 (Traffic Groups VII - X)[5,6] | All lane line and center line markings shall be temporarily or permanently installed within **72 hours** after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated. |
| Non-freeway roads with ADT less than 600 (Traffic Groups I – VII) | Temporary markings are not required if all "Unmarked Pavement Ahead" or "No Center Line" warning signs were properly installed as per the VWAPM when the unmarked road was first opened to traffic. |

[1]For the purposes of this Special Provision, freeways shall be defined as any fully limited-access, divided roadway with two or more travel lanes in each direction and 55 mph or greater speed limit.

[2]If an approach to a signalized intersection has (a) two or more approach through lanes, (b) 45 mph or greater speed limit, (c) greater than 3000 ADT, and (d) all markings on the approach are obliterated, then all lane lines and centerlines within 250 feet of the location of the stop line location shall be temporarily or permanently marked within **24 hours** of opening the approach to traffic, unless a time extension is approved by the Engineer and "Unmarked Pavement Ahead" or "No Center Line" warning signs were properly installed as per the VWAPM when the unmarked approach was first opened to traffic.

[3]If the Contract Documents require temporary symbol/message markings or temporary edge line markings, those markings shall be temporarily or permanently marked within **72 hours** after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated on non-freeway roads with 10,000 or greater ADT, and **96 hours** on less than 10,000 ADT non-freeway roads, unless the Engineer approves a time extension.

[4]If the next resurfacing operation will obliterate the temporary markings within approximately **24 hours,** the Engineer may approve an extension of time for temporary marking installation if the posted/statutory limit is less than 45 mph, and all "Unmarked Pavement Ahead" or "No Center Line" warning signs were properly installed as per the VWAPM when the unmarked approach was fir st opened to traffic.

[5]On surface treatment roads with ADT between 1000 and 2999, if it is anticipated that the surface treatment will not be sufficiently cured to permit temporary paint installation within 72 hours, then the Engineer may direct the Contractor to either use yellow FTPMs to simulate the centerline, or to apply temporary pavement markings within 72 hours and then, if the Engineer determines it necessary, refresh those temporary pavement markings with a second application of Type A temporary paint at VDOT's expense.

[6]On curved portions of surface treatment roads with ADT between 600 and 999, if it is anticipated that the surface treatment will not be sufficiently cured to permit temporary paint installation within 72 hours, then the Engineer may direct the Contractor to use either yellow FTPMs to simulate the centerline on the curves, or to apply temporary pavement markings within 72 hours on the new surface and then, if the Engineer determines it necessary, refresh those temporary pavement markings with a second application of Type A temporary paint at VDOT's expense. Temporary markings may be omitted on tangent sections of roadway if all "Unmarked Pavement Ahead" or "No Center Line" signs were properly installed as per the VWAPM when the unmarked road was first opened to traffic, and if approved by the Engineer.

**Section 704.03**(g) **Temporary Pavement Markings** is inserted as follows:

**Temporary Pavement Markings**

Premarking, dotting or layout marking shall not be used as a substitute for temporary pavement marking.

Temporary linear, symbol, and message pavement markings specified in the Contract shall be installed at the same locations that the permanent pavement markings are to be installed, unless otherwise approved by the Engineer.

Type D-removable tape shall be installed and removed in accordance with manufacturer's installation instructions.

Type A temporary paint shall be installed in accordance with the manufacturer's installation instructions and as detailed in the following table:

| | Milled Surface | Intermediate Lifts or Final Surface |
|---|---|---|
| **Thickness** | 15 mils | 8 to 10 mils[1] |
| **Glass Bead Application Rate** | 6 lbs. of glass beads per gallon of material | 3 lbs. of glass beads per gallon of material for 8 to 10 mils and 6 lbs. per gallon for 11 to 15 mils |
| **Long Line Width** | Same width as the permanent markings | 75% of the permanent marking width |
| **Skip Line Pattern** | 10-foot line segments / 30-foot gaps (approx.) | 8-foot line segments / 32-foot gaps (approx.) |

[1]Type A paint at approximately 15 mils thickness with 6 lbs. of glass beads per gallon will be permitted for the temporary lane line markings provided that the Type A is worn down to no more than 10 mils thickness prior to permanent marking installation. The contractor shall assess how long the temporary lane line, center-line and edge line temporary markings will be in service and may increase the thickness based upon the duration and expected wear.

Temporary Type A pavement markings on final surfaces shall be arranged and spaced so that they will be completely covered by the subsequent installation of permanent pavement markings atop those temporary paint markings.

The following Temporary markings location and placement types shall comply with the following:

- Skip and solid lane line markings shall be required at all locations unless otherwise directed in the Contract.
- Centerline markings shall be required at all locations unless otherwise directed in the Contract. Temporary passing zone changes shall be at the same location as the permanent marking passing zone change locations.
- Edgelines shall only be required where specified in the Contract, subject to the surface reaching a condition to support the markings and the equipment. Temporary edgelines are not required when the shoulder surface is in a milled condition.
- Temporary stop lines, when required by the Contract, shall be 12 inches wide unless otherwise directed.
- Temporary crosswalks, when required by the Contract, shall be two parallel 6-inch white lines unless otherwise directed.

Temporary lane lines, centerlines, and edge lines may be marked with Type D removable tape, Type A-temporary paint, or FTPMs. All temporary symbol and message markings and other types of temporary markings may be marked with Type D-removable tape or Type A-temporary paint.

VTM-94 is not required for temporary pavement marking. However, if the VTM-94 moisture test is not performed, the Contractor shall document the approximate surface wetness on the Form C-85.

If the surface is visibly dry (does not have puddling or free-standing water present), the Contractor is responsible for installing and maintaining the temporary pavement markings. If the Contractor opts not to perform VTM-94 and the temporary markings applied to a visibly dry surface do not sufficiently adhere to the surface, temporary pavement markings shall be reapplied at no additional cost to the Department.

If the surface has puddling or free-standing water present, or if a VTM-94 moisture test result indicates that the condition of the surface is not suitable for temporary pavement marking application, the Engineer may direct the Contractor to install temporary pavement markings on the surface in order to avoid having traffic operate on an unmarked road. In such circumstances the Department may direct the Contractor to install one subsequent reapplication of the temporary markings once the surface has dried, if the previous installation did not satisfactorily

adhere to the road. In such circumstances the Contractor will be compensated at the Contract bid price for those temporary markings.

In order to quicken the paint drying process, the Contractor may spray an Engineer-approved drying agent into the traffic paint during installation in accordance with the manufacturer's installation instructions, at no additional cost to the Department.

The Contractor may employ approved methods of drying the pavement surface that will not damage the pavement. Methods that may damage the pavement, such as "torching" of the pavement, will not be allowed. Any drying of pavement will be at no extra cost to the Department.

While in place, temporary pavement markings sizes, shapes and retroreflectivity shall be maintained at adequate visibility and retroreflectivity, as defined in Section 512, until the permanent markings are installed. No additional application (refreshing) is required as long as the temporary markings continue to meet these requirements.

If Type D-removable tape fails the visual evaluation or is deficient in any other respect prior to the installation of permanent markings, the tape shall be removed and new Type D-removable tape, or Type A-temporary paint shall be reapplied, at no additional cost to the Department.

If Type A temporary paint does not meet the requirements of Section 512 prior to the installation of permanent markings, such temporary markings shall be refreshed by the application of a lighter application (applied so as to enhance visibility but not as to require eradication before application of permanent markings) of Type A-temporary markings at the Contractor's expense.

Permanent pavement markings shall not be installed atop Type A temporary markings if the paint is not fully dry or if the paint exceeds the maximum specified thickness in Table VII-3. If the temporary pavement markings are not located directly underneath the location where the permanent markings are to be installed, they shall be 100% eradicated in accordance with Section 512 prior to installation of permanent markings at no additional cost to the Department.

**Section 704.03**(h) **Time Limits for Permanent Pavement Marking Application** is inserted as follows:

**Time Limits for Permanent Pavement Marking Application**

All permanent linear, message, and symbol markings on Interstate and Limited Access Roadways posted at 55 MPH or greater, all other roadways with 10,000 ADT or greater with a posted or statutory speed limit of 45 mph or greater, shall be placed within the following time limits:

1. For Plant Mix operations:

    a. All Type B Class VI shall be inlaid the same day as the final surface is placed as specified herein.

    b. All other permanent markings shall be completed within 30 days after the end of the last workday of continuous paving on that section of roadway.

2. For Slurry Seal, Latex Emulsion, and Surface Treatment operations:

    The contractor shall evaluate the pavement surface between 14 and 18 days after the end of the last workday of continuous paving on that section of roadway. If that evaluation ascertains that the pavement surface meets the markings manufacturer's requirements for application of permanent markings, the texture is weathered-in on the edges, and the temporary marking is worn down to 10 mils or less, then the Engineer shall be notified that the surface meets the

markings manufacturer's specifications. The permanent markings shall be installed between 14 days and 30 days after the end of the last workday of continuous paving on that section of roadway.

On all other roadways (non-interstate and non-limited access roads with less than 10,000 ADT, or posted or statutory speed less than 45 MPH), all permanent linear and message or symbol markings shall be installed within 30 days on plant mix surfaces and between 30 and 45 days on surface treatment, slurry seal, and latex emulsion surfaces, after the end of the last workday of continuous paving on that section of roadway.

Permanent markings shall not be installed where pavement curing time or weather conditions prohibit installation, or where the pavement surface does not meet the markings manufacturer's requirements (e.g. the aggregate is not worn-in at the edges).

Any necessary refreshing or replacement of temporary pavement markings or FTPMs will not affect the allowable time limit for completion of permanent pavement marking installation.

**Section 704.04—Measurement and Payment** is amended to replace the first paragraph with the following:

**Pavement line markings** will be measured in linear feet and paid for at the contract linear foot price for the type, class and width specified. This price shall include furnishing and installing the pavement marking material, surface preparation, premarking, documentation and staking of existing markings, quality control tests, daily log, guarding devices, primer, adhesive, glass beads, and manufacturer's warranty.

**Section 704.04—Measurement and Payment** is amended to add the following:

The Schedule of Items may contain permanent pavement marking bid items designated as "Bonus" in addition to the regular permanent pavement marking bid items. This "Bonus" designation indicates an adjustment of 1.25 to be made to the regular Contract unit bid price for the designated item in accordance with Section 102.05 which is to be paid to the Contractor if the following conditions are met:

- **Plant Mix**: Pavement markings (not including Type B, Class VI) are correctly installed on Plant Mix surfaces within 14 days or less after the last day of paving.

- **Non-Plant Mix**: Pavement markings (not including Type B, Class VI) are correctly installed on Non-Plant Mix surfaces within 28 days or less after the last day of paving.

The Engineer will not consider an extension in the time limit for payment at the adjusted price due to weather or any other conditions that would prohibit installation of the permanent markings within the "Bonus" time frame.

**Temporary pavement line markings** will be measured in linear feet and paid for at the Contract linear foot price for the type, class, and width specified. This price shall include furnishing, installing, and maintaining the pavement marking materials; surface preparation, inspections, testing, daily log, and guarding devices; providing primer, adhesive, glass beads, and drying agents; and disposal, and removing removable markings when no longer required.

If temporary line markings require refreshing, reapplication, or replacement before the final surface or the permanent markings are installed, all cost for refreshing, reapplication, or replacement shall be at the Contractor's expense, unless the Contractor was directed by the Engineer to apply the temporary markings to a visibly wet surface or to an insufficiently cured latex emulsion, slurry seal, or surface treatment surface.

In the event the Contractor uses FTPM's in lieu of Type A-temporary paint to simulate a longitudinal line marking as allowed herein, the Contractor will be paid at the linear foot pay unit for the length of simulated line marking at the Type A-temporary paint unit price. That measurement shall represent all FTPM's required for that simulated line marking. This cost shall include furnishing, installing and maintaining the FTPM's, removable covers, surface preparation, quality control tests, daily log, guarding devices, removal, and disposal.

**Temporary pavement message (word) markings** will be measured in units of each and paid for at the contract each price for the character size, type, and class specified. This price shall include furnishing, installing, and maintaining the pavement marking materials; surface preparation, inspections, testing, daily log, and guarding devices; providing primer or adhesive, glass beads, and drying agents; and disposal, and removing removable markings when no longer required.

**Temporary pavement symbol markings** will be measured in units of each and paid for at the contract each price for the size, type, and class specified. This price shall include furnishing, installing, and maintaining the pavement marking materials; surface preparation, inspections, testing, daily log, and guarding devices; providing primer or adhesive, glass beads, and drying agents; and disposal, and removing removable markings when no longer required.

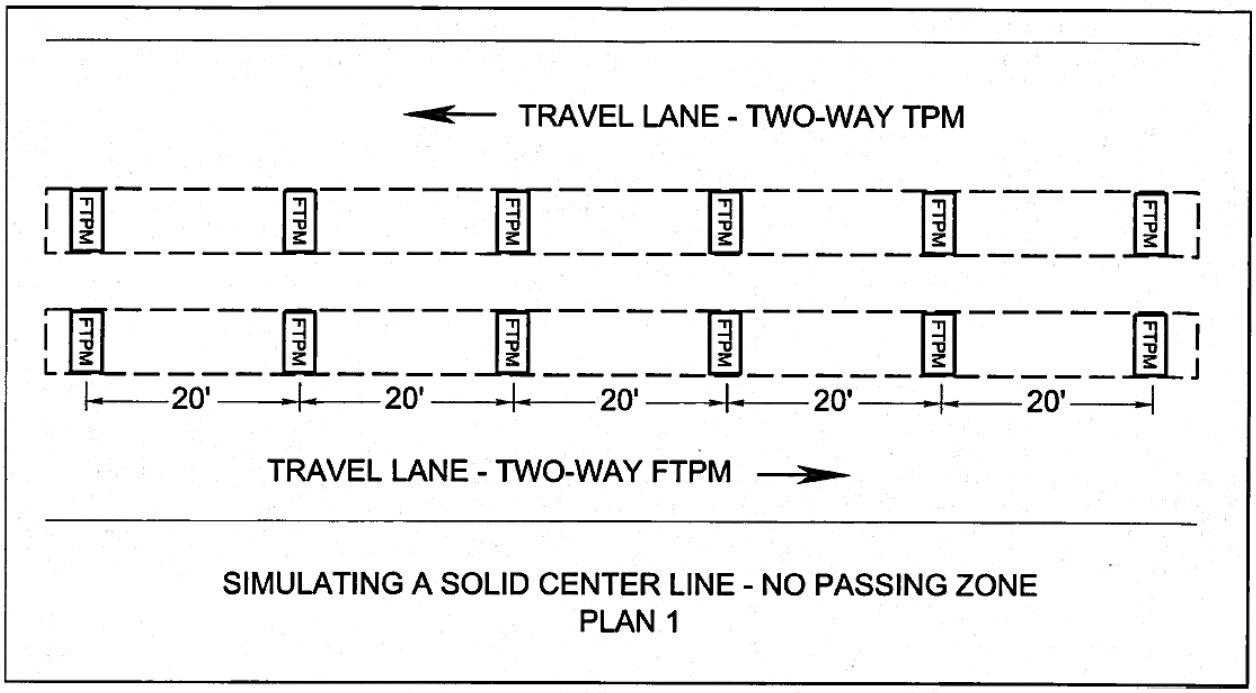
If temporary pavement line, message, or symbol markings require refreshing, reapplication, or replacement before the final surface or the permanent markings are installed, all cost for refreshing, reapplication, or replacement (including Maintenance of Traffic costs) shall be at the Contractor's expense unless the Contractor was directed by the Engineer to apply the temporary markings to a visibly wet surface or to an insufficiently cured latex emulsion, slurry seal, or surface treatment surface.

**Pavement Marker Retroreflector Replacement** will be measured in units of each and paid for at the contract each price for the type specified. This price shall include furnishing retroreflectors, removal and disposal of the existing retroreflector, cleaning of the existing casting, adhesive, installation of the new retroreflector, quality control tests, daily log, and manufacturer's warranty.

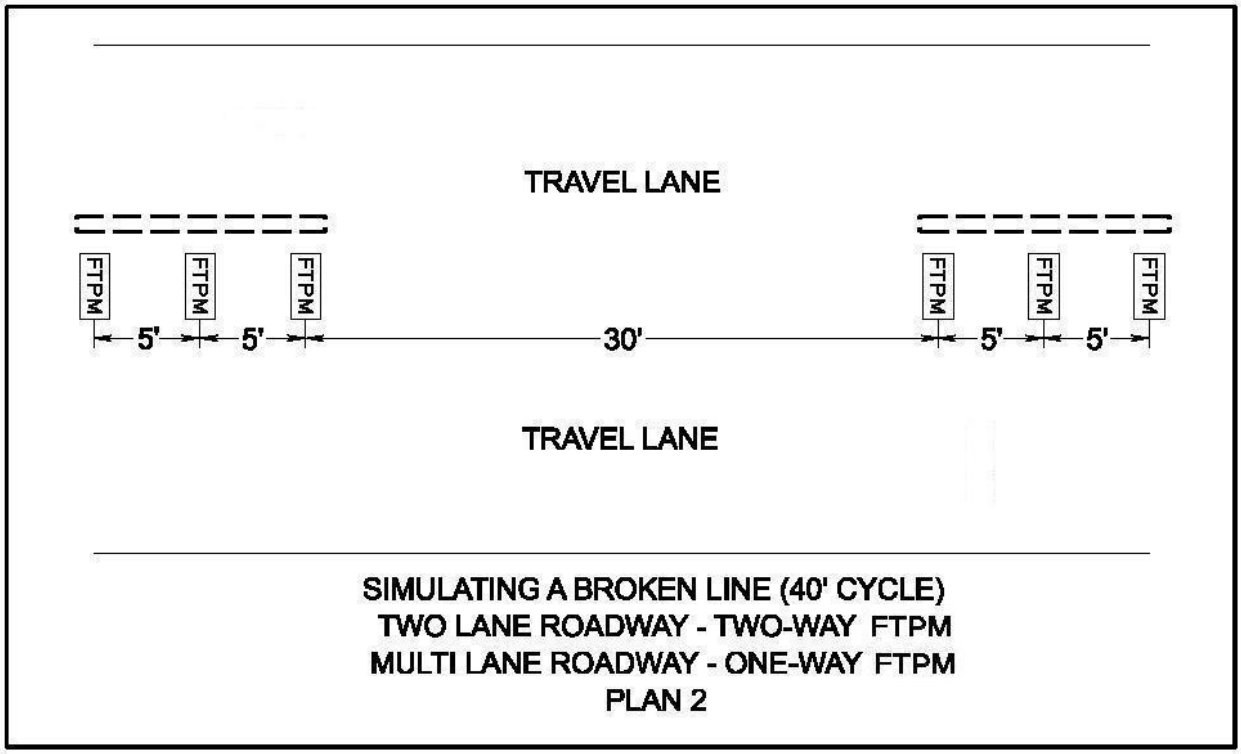
Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| (Type or class) Temporary pavement line marking (width) | Linear foot |
| Temporary pavement message (word) marking (size character, type or class material) | Each |
| Temporary pavement symbol marking (Symbol, Type or class material) | Each |
| Pavement marker retroreflector replacement (Type) | Each |

# TYPICAL PLAN FOR FTPM PLACEMENT




SIMULATING A SOLID CENTER LINE - NO PASSING ZONE
PLAN 1




SIMULATING A BROKEN LINE (40' CYCLE)
TWO LANE ROADWAY - TWO-WAY FTPM
MULTI LANE ROADWAY - ONE-WAY FTPM
PLAN 2

**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. No. 10 screenings may be used as Regular Backfill or bedding material in accordance with the Special Provision for Use of Number 10 Screenings.

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, bedding material, 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.

2-8-19 (SPCN)

**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. Number 10 screenings may be used as borrow material in accordance with the Special Provision for Use of Number 10 Screenings and will be paid for as borrow material.

**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. Number 10 screenings may be used as embankment in accordance with the Special Provision for Use of Number 10 Screenings and will be paid for as embankment.

(7-27-17) SPCN

Office Locations
Main Office: 107 Mark Green Drive, Suite 101, Winchester, VA 22601 Phone: (540) 667-2085 Fax: (540) 667-2086
Branch Office: 4101 Dominion Boulevard, Suite 100, Glen Allen, VA 23060 Phone: (804) 672-5678 Fax: (804) 672-5680
Rinker Design Associates, P.C.
Civil Engineering - Surveying - Environmental Transportation - Land Development - Right-of-Way Services

| REVISED | STATE | ROUTE | PROJECT | SHEET NO. |
|---|---|---|---|---|
| | VA. | 11 | U000-138-R04 P101, R201, C501 | 3 |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

PROJECT MANAGER Perry Eisenach, P.E. - City of Winchester (540) 667-2085
SURVEYED BY, DATE Sidney Thomas, L.S. - Rinker Design Associates (703) 368-7373, October 2014
DESIGN BY John A. Glometti, P.E. - Rinker Design Associates (703) 334-0060
SUBSURFACE UTILITY BY, DATE Matthew Bansiem - Mid Atlantic Utility Locating (703) 378-0100, August 2014

Utility Owners:

Water & Sewer:

City of Winchester
Contact: Drew Brady
Email: drew.brady@winchesterva.gov

Gas:

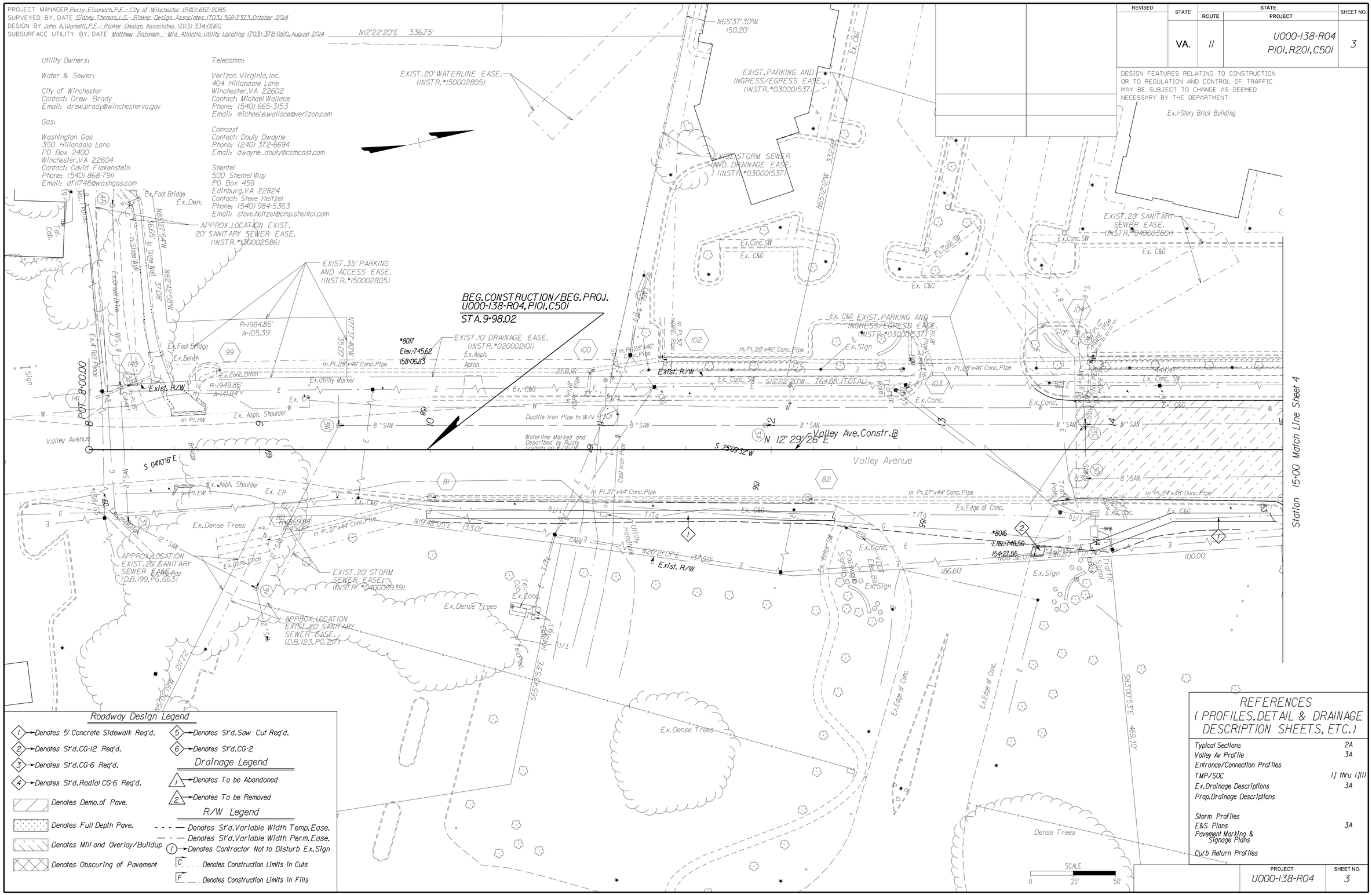
Washington Gas
350 Hillandale Lane
PO Box 2400
Winchester, VA 22604
Contact: David Flakensteln
Phone: (540) 868-7911
Email: df11748@washgas.com

Telecomm:

Verizon Virginia, Inc.
404 Hillandale Lane
Winchester, VA 22602
Contact: Michael Wallace
Phone: (540) 665-3153
Email: michael.e.wallace@verizon.com

Comcast
Contact: Douty Dwayne
Phone: (240) 372-6694
Email: dwayne_douty@comcast.com

Shentel
500 Shentel Way
PO Box 459
Edinburg, VA 22824
Contact: Steve Heltzel
Phone: (540) 984-5363
Email: steve.heltzel@emp.shentel.com




## Roadway Design Legend

- 1 → Denotes 5' Concrete Sidewalk Req'd.
- 2 → Denotes St'd.CG-12 Req'd.
- 3 → Denotes St'd.CG-6 Req'd.
- 4 → Denotes St'd.Radial CG-6 Req'd.
- Denotes Demo.of Pave.
- Denotes Full Depth Pave.
- Denotes Mill and Overlay/Buildup
- Denotes Obscuring of Pavement
- 5 → Denotes St'd.Saw Cut Req'd.
- 6 → Denotes St'd.CG-2

## Drainage Legend

- 1 → Denotes To be Abandoned
- 2 → Denotes To be Removed

## R/W Legend

- Denotes St'd.Variable Width Temp.Ease.
- Denotes St'd.Variable Width Perm.Ease.
- 1 → Denotes Contractor Not to Disturb Ex.Sign
- C Denotes Construction Limits in Cuts
- F Denotes Construction Limits in Fills

## REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

| | |
|---|---|
| Typical Sections | 2A |
| Valley Av Profile | 3A |
| Entrance/Connection Profiles | |
| TMP/SOC | 1J thru 1J(11) |
| Ex.Drainage Descriptions | 3A |
| Prop.Drainage Descriptions | |
| Storm Profiles | |
| E&S Plans | 3A |
| Pavement Marking & Signage Plans | |
| Curb Return Profiles | |

| PROJECT | SHEET NO. |
|---|---|
| U000-138-R04 | 3 |

R.W. PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND MAY NOT BE USED FOR CONSTRUCTION.

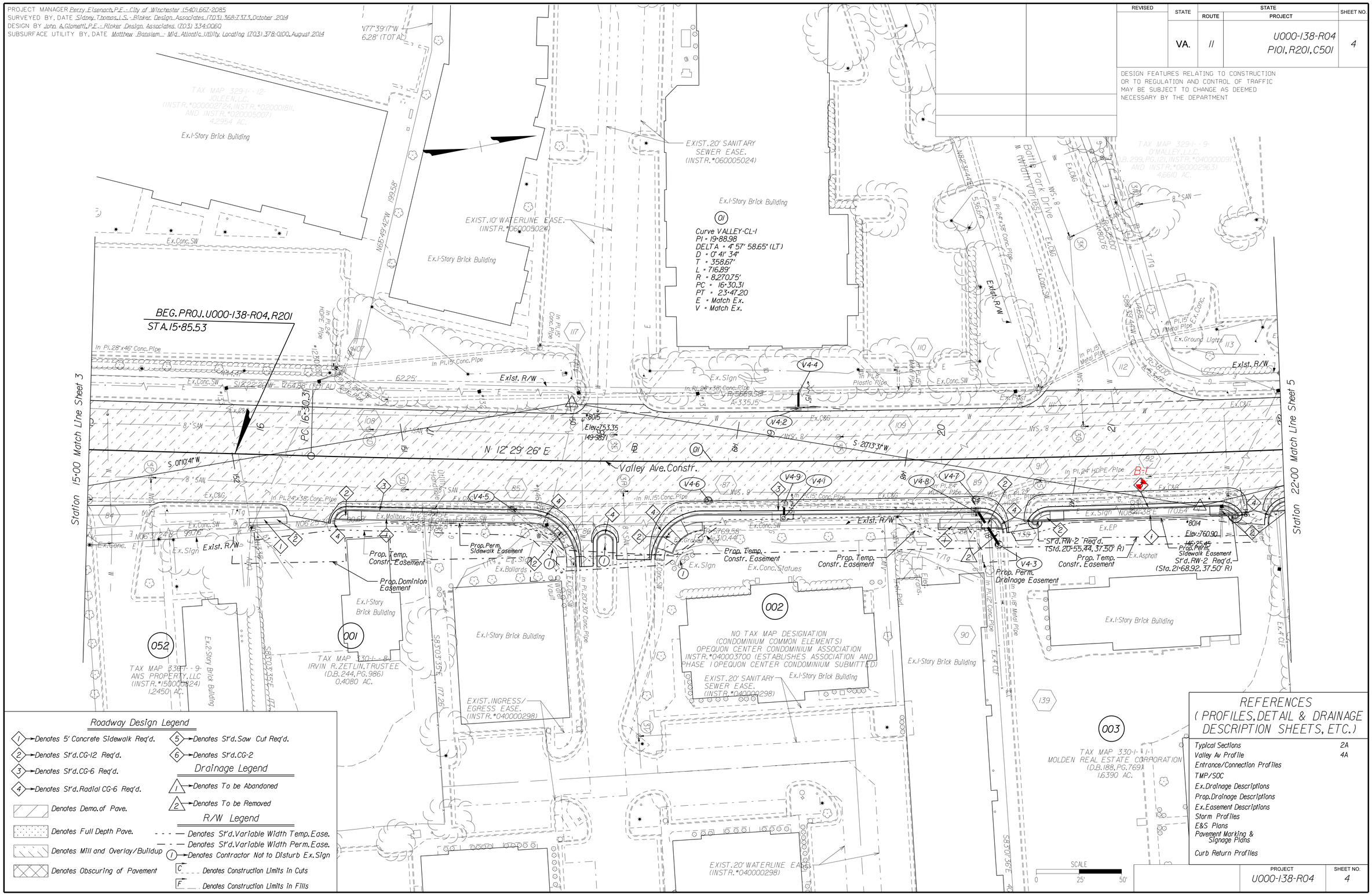
6/1/2017

Rinker Design Associates, P.C.
Civil Engineering - Surveying - Land Planning
Transportation - Environmental - Entertainment
Right-of-Way Services
Office Locations
Winchester, Virginia: 107 Mark Green Drive, Suite 100, 22602, Tel: (540) 667-2085, Fax: (540) 667-2086
Norfolk, VA 23502: 4525 Dominion Boulevard, Suite 100, 23502, Tel: (757) 455-6000, Fax: (757) 455-6020
Roanoke, VA 24017: 3312 Peters Creek Road, Suite 100, 24017, Tel: (540) 342-1818, Fax: (540) 342-1819

PROJECT MANAGER Perry Eisenach, P.E. - City of Winchester (540) 667-2085
SURVEYED BY, DATE Sidney Thomas, L.S. - Rinker Design Associates (703) 368-7373, October 2014
DESIGN BY John A. Glometti, P.E. - Rinker Design Associates (703) 334-0060
SUBSURFACE UTILITY BY, DATE Matthew Bansiem - Mid Atlantic Utility Locating (703) 378-0100, August 2014

| REVISED | STATE | STATE ROUTE | STATE PROJECT | SHEET NO. |
|---|---|---|---|---|
| | VA. | 11 | U000-138-R04 P101, R201, C501 | 4 |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT




## Roadway Design Legend

- 1 → Denotes 5' Concrete Sidewalk Req'd.
- 2 → Denotes St'd. CG-12 Req'd.
- 3 → Denotes St'd. CG-6 Req'd.
- 4 → Denotes St'd. Radial CG-6 Req'd.
- 5 → Denotes St'd. Saw Cut Req'd.
- 6 → Denotes St'd. CG-2
- Denotes Demo. of Pave.
- Denotes Full Depth Pave.
- Denotes Mill and Overlay/Buildup
- Denotes Obscuring of Pavement

## Drainage Legend

- 1 → Denotes To be Abandoned
- 2 → Denotes To be Removed

## R/W Legend

- Denotes St'd. Variable Width Temp. Ease.
- Denotes St'd. Variable Width Perm. Ease.
- (1) → Denotes Contractor Not to Disturb Ex. Sign
- C Denotes Construction Limits In Cuts
- F Denotes Construction Limits In Fills

## REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

| | |
|---|---|
| Typical Sections | 2A |
| Valley Av Profile | 4A |
| Entrance/Connection Profiles | |
| TMP/SOC | |
| Ex. Drainage Descriptions | |
| Prop. Drainage Descriptions | |
| Ex. Easement Descriptions | |
| Storm Profiles | |
| E&S Plans | |
| Pavement Marking & Signage Plans | |
| Curb Return Profiles | |

| PROJECT | SHEET NO. |
|---|---|
| U000-138-R04 | 4 |

R.W. PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND MAY NOT BE USED FOR CONSTRUCTION.

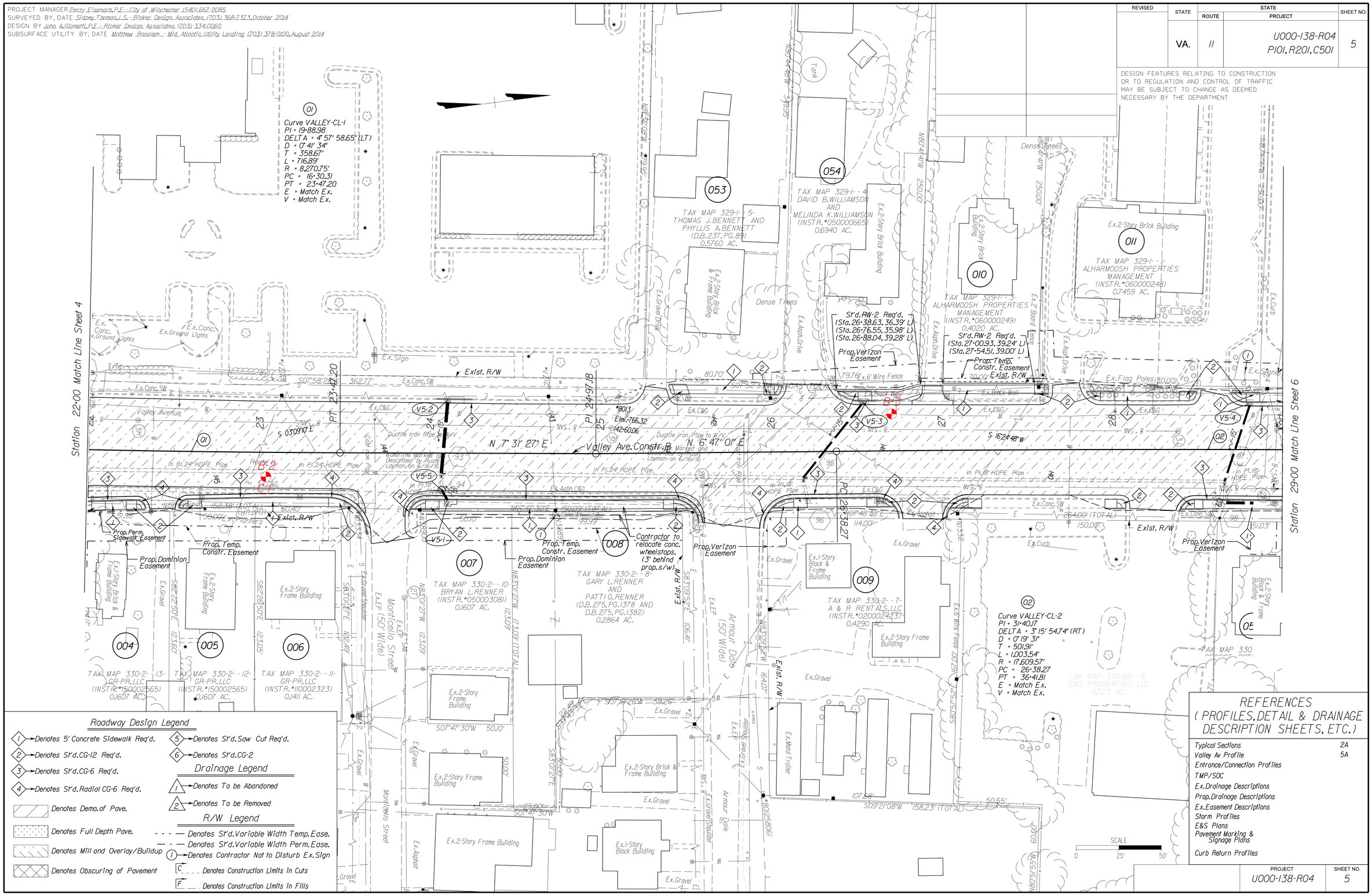
6/1/2017

Rinker Design Associates, P.C.
Civil Engineering • Surveying • Land Development
Transportation • Environmental
Right-of-Way Services
Office Locations
Main Office: 107 Mark Green Drive, Suite 101, Front Royal, VA 22630, Phone: (540) 635-9460, Fax: (540) 635-9461
Winchester Office: 107 Mark Green Drive, Suite 101, Front Royal, VA 22630, Phone: (540) 635-9460, Fax: (540) 635-9461
401 Dunsmore Boulevard, Suite 101, Stephens City, VA 22655, Phone: (540) 869-6000, Fax: (540) 869-6001

PROJECT MANAGER Perry Eisenach, P.E. - City of Winchester (540) 667-2085
SURVEYED BY, DATE Sidney Thomas, L.S. - Rinker Design Associates (703) 368-7373, October 2014
DESIGN BY John A. Glometti, P.E. - Rinker Design Associates (703) 334-0060
SUBSURFACE UTILITY BY, DATE Matthew Bansiem - Mid Atlantic Utility Locating (703) 378-0100, August 2014

| REVISED | STATE | ROUTE | PROJECT | SHEET NO. |
|---|---|---|---|---|
| | VA. | 11 | U000-138-R04 P101, R201, C501 | 5 |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT




## Roadway Design Legend

- 1 → Denotes 5' Concrete Sidewalk Req'd.
- 2 → Denotes St'd.CG-12 Req'd.
- 3 → Denotes St'd.CG-6 Req'd.
- 4 → Denotes St'd.Radial CG-6 Req'd.
- Denotes Demo. of Pave.
- Denotes Full Depth Pave.
- Denotes Mill and Overlay/Buildup
- Denotes Obscuring of Pavement
- 5 → Denotes St'd.Saw Cut Req'd.
- 6 → Denotes St'd.CG-2

## Drainage Legend

- 1 → Denotes To be Abandoned
- 2 → Denotes To be Removed

## R/W Legend

- Denotes St'd.Variable Width Temp.Ease.
- Denotes St'd.Variable Width Perm.Ease.
- (1) → Denotes Contractor Not to Disturb Ex.Sign
- C Denotes Construction Limits In Cuts
- F Denotes Construction Limits In Fills

## REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

| | |
|---|---|
| Typical Sections | 2A |
| Valley Av Profile | 5A |
| Entrance/Connection Profiles | |
| TMP/SOC | |
| Ex.Drainage Descriptions | |
| Prop.Drainage Descriptions | |
| Ex.Easement Descriptions | |
| Storm Profiles | |
| E&S Plans | |
| Pavement Marking & Signage Plans | |
| Curb Return Profiles | |

| PROJECT | SHEET NO. |
|---|---|
| U000-138-R04 | 5 |

R.W. PLANS

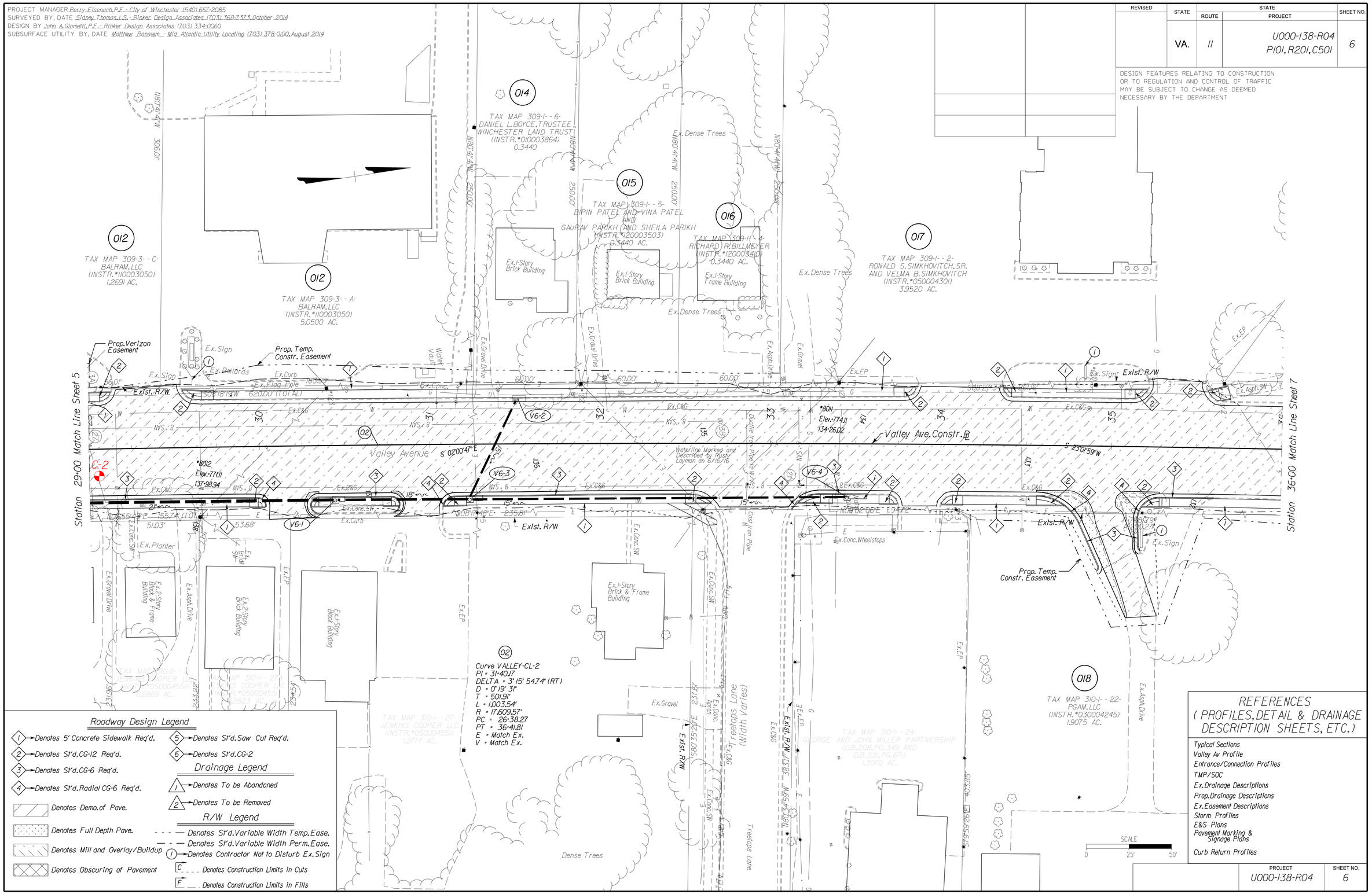
THESE PLANS ARE UNFINISHED AND UNAPPROVED AND MAY NOT BE USED FOR CONSTRUCTION.

Rinker Design Associates, P.C.
Civil Engineering - Surveying - Land Planning
Transportation - Environmental
Right-of-Way Services
Office Locations
Main Office: 107 Mark Green Drive, Suite 101, Winchester, VA 22602, Phone: (540) 667-2085, Fax: (540) 667-2086
Branch Office: 4101 Dominion Boulevard, Suite 100, Glen Allen, VA 23060, Phone: (804) 672-2000, Fax: (804) 672-2008
107 Mark Green Drive, Suite 101, Winchester, VA 22602, Phone: (540) 667-2085, Fax: (540) 667-2086

PROJECT MANAGER Perry Eisenach, P.E. - City of Winchester (540) 667-2085
SURVEYED BY, DATE Sidney Thomas, L.S. - Rinker Design Associates (703) 368-7373, October 2014
DESIGN BY John A. Glometti, P.E. - Rinker Design Associates (703) 334-0060
SUBSURFACE UTILITY BY, DATE Matthew Bansiem - Mid Atlantic Utility Locating (703) 378-0100, August 2014

| REVISED | STATE | STATE ROUTE | STATE PROJECT | SHEET NO. |
|---|---|---|---|---|
| | VA. | 11 | U000-138-R04 P101, R201, C501 | 6 |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT




## Roadway Design Legend

- 1 → Denotes 5' Concrete Sidewalk Req'd.
- 2 → Denotes St'd. CG-12 Req'd.
- 3 → Denotes St'd. CG-6 Req'd.
- 4 → Denotes St'd. Radial CG-6 Req'd.
- Denotes Demo. of Pave.
- Denotes Full Depth Pave.
- Denotes Mill and Overlay/Buildup
- Denotes Obscuring of Pavement
- 5 → Denotes St'd. Saw Cut Req'd.
- 6 → Denotes St'd. CG-2

## Drainage Legend

- 1 → Denotes To be Abandoned
- 2 → Denotes To be Removed

## R/W Legend

- Denotes St'd. Variable Width Temp. Ease.
- Denotes St'd. Variable Width Perm. Ease.
- (1) → Denotes Contractor Not to Disturb Ex. Sign
- C Denotes Construction Limits In Cuts
- F Denotes Construction Limits In Fills

## REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

- Typical Sections
- Valley Av Profile
- Entrance/Connection Profiles
- TMP/SOC
- Ex. Drainage Descriptions
- Prop. Drainage Descriptions
- Ex. Easement Descriptions
- Storm Profiles
- E&S Plans
- Pavement Marking & Signage Plans
- Curb Return Profiles

| PROJECT | SHEET NO. |
|---|---|
| U000-138-R04 | 6 |

R.W. PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND MAY NOT BE USED FOR CONSTRUCTION.

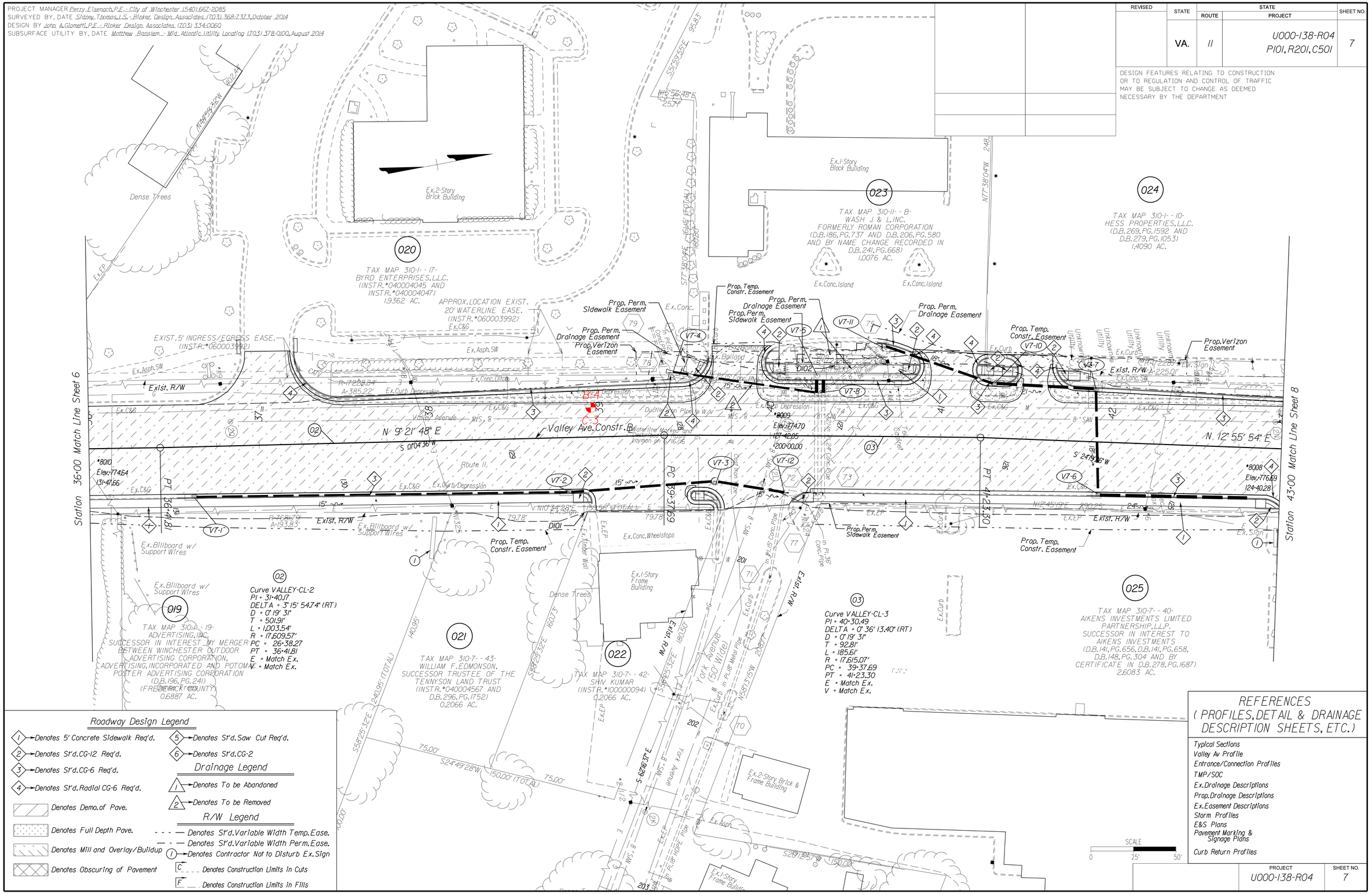
6/1/2017

Rinker Design Associates, P.C.
Civil Engineering - Surveying - Land Development
Transportation - Environmental
Right-of-Way Services
Office Locations
Main Office: 107 Mark Green Drive, Suite 106, Winchester, VA 22602, Phone: (540) 667-2085, Fax: (540) 667-2086
Branch Office: 4870 Dominion Boulevard, Suite 100, Glen Allen, VA 23060, Phone: (804) 673-2000, Fax: (804) 673-2006
Branch Office: 107 Mark Green Drive, Suite 106, Winchester, VA 22602, Phone: (540) 667-2085, Fax: (540) 667-2086

PROJECT MANAGER Perry Eisenach, P.E. - City of Winchester (540) 667-2085
SURVEYED BY, DATE Sidney Thomas, L.S. - Rinker Design Associates (703) 368-7373, October 2014
DESIGN BY John A. Glometti, P.E. - Rinker Design Associates (703) 334-0060
SUBSURFACE UTILITY BY, DATE Matthew Bansiem - Mid Atlantic Utility Locating (703) 378-0100, August 2014

| REVISED | STATE | STATE ROUTE | STATE PROJECT | SHEET NO. |
|---|---|---|---|---|
| | VA. | 11 | U000-138-R04 P101, R201, C501 | 7 |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT




## REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

- Typical Sections
- Valley Av Profile
- Entrance/Connection Profiles
- TMP/SOC
- Ex. Drainage Descriptions
- Prop. Drainage Descriptions
- Ex. Easement Descriptions
- Storm Profiles
- E&S Plans
- Pavement Marking & Signage Plans
- Curb Return Profiles

| PROJECT | SHEET NO. |
|---|---|
| U000-138-R04 | 7 |

R.W. PLANS

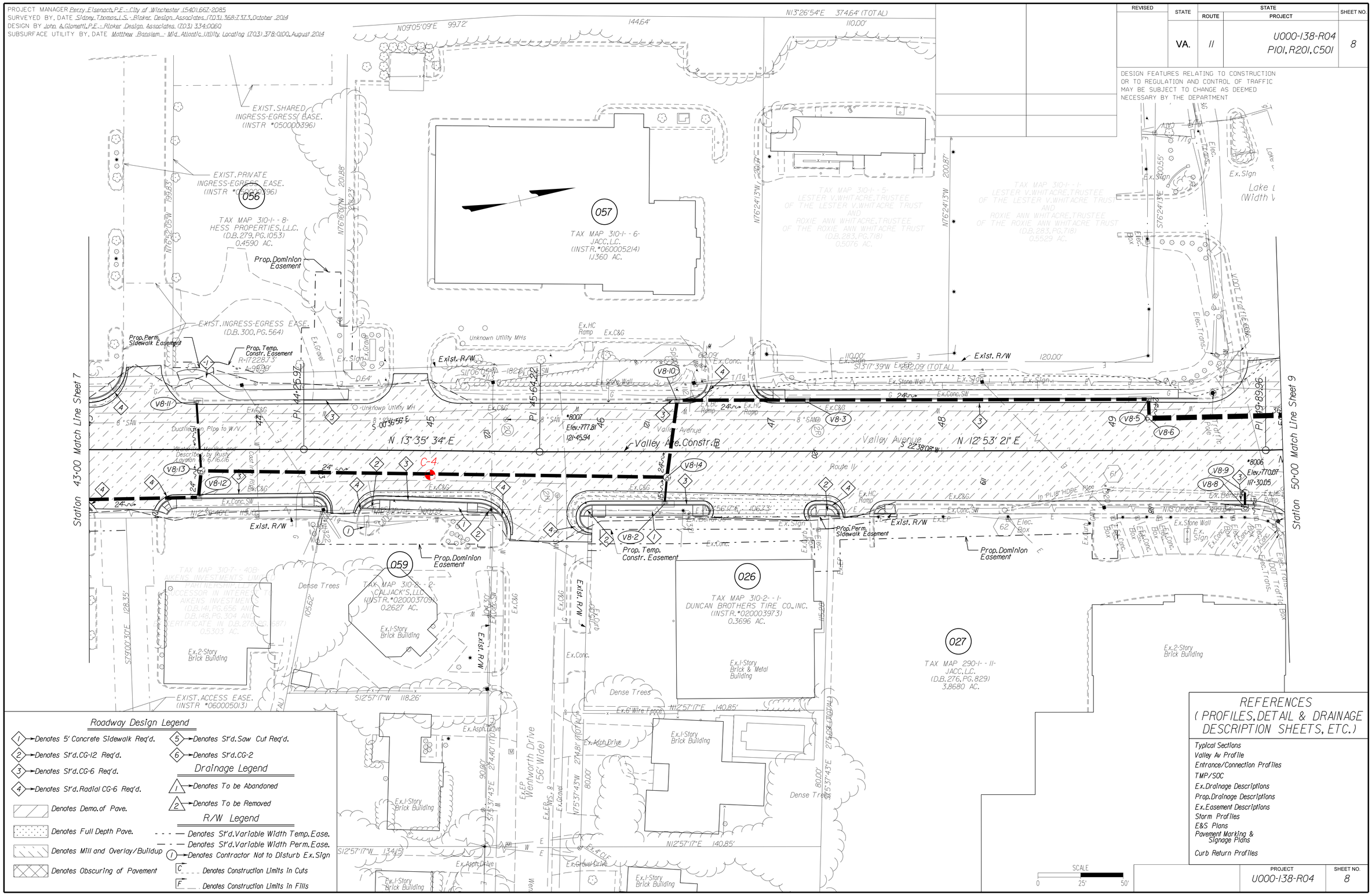
THESE PLANS ARE UNFINISHED AND UNAPPROVED AND MAY NOT BE USED FOR CONSTRUCTION.

6/1/2017

PROJECT MANAGER Perry Eisenach, P.E. - City of Winchester (540) 667-2085
SURVEYED BY, DATE Sidney Thomas, L.S. - Rinker Design Associates (703) 368-7373, October 2014
DESIGN BY John A. Glometti, P.E. - Rinker Design Associates (703) 334-0060
SUBSURFACE UTILITY BY, DATE Matthew Bansiem - Mid Atlantic Utility Locating (703) 378-0100, August 2014

| REVISED | STATE | STATE ROUTE | STATE PROJECT | SHEET NO. |
|---|---|---|---|---|
| | VA. | 11 | U000-138-R04 P101, R201, C501 | 8 |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT




## Roadway Design Legend

- 1 → Denotes 5' Concrete Sidewalk Req'd.
- 2 → Denotes St'd. CG-12 Req'd.
- 3 → Denotes St'd. CG-6 Req'd.
- 4 → Denotes St'd. Radial CG-6 Req'd.
- Denotes Demo. of Pave.
- Denotes Full Depth Pave.
- Denotes Mill and Overlay/Buildup
- Denotes Obscuring of Pavement
- 5 → Denotes St'd. Saw Cut Req'd.
- 6 → Denotes St'd. CG-2

## Drainage Legend

- 1 → Denotes To be Abandoned
- 2 → Denotes To be Removed

## R/W Legend

- Denotes St'd. Variable Width Temp. Ease.
- Denotes St'd. Variable Width Perm. Ease.
- 1 → Denotes Contractor Not to Disturb Ex. Sign
- C Denotes Construction Limits in Cuts
- F Denotes Construction Limits in Fills

## REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

- Typical Sections
- Valley Av Profile
- Entrance/Connection Profiles
- TMP/SOC
- Ex. Drainage Descriptions
- Prop. Drainage Descriptions
- Ex. Easement Descriptions
- Storm Profiles
- E&S Plans
- Pavement Marking & Signage Plans
- Curb Return Profiles

| PROJECT | SHEET NO. |
|---|---|
| U000-138-R04 | 8 |

R.W. PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND MAY NOT BE USED FOR CONSTRUCTION.

6/1/2017

Rinker Design Associates, P.C.
Civil Engineering - Surveying - Land Development
Transportation - Environmental - Right-of-Way Services
Office Locations
Corporate Headquarters: 207 Mark Green Drive, Suite 100, Winchester, VA 22601, Phone: (540) 667-2085, Fax: (540) 667-0471
Northern Virginia: 4670 Daniels Boulevard, Suite 100, Annandale, VA 22003, Phone: (703) 334-0060, Fax: (703) 813-0006
Shenandoah Valley: 207 Mark Green Drive, Suite 100, Winchester, VA 22601, Phone: (540) 667-2085, Fax: (540) 667-0471

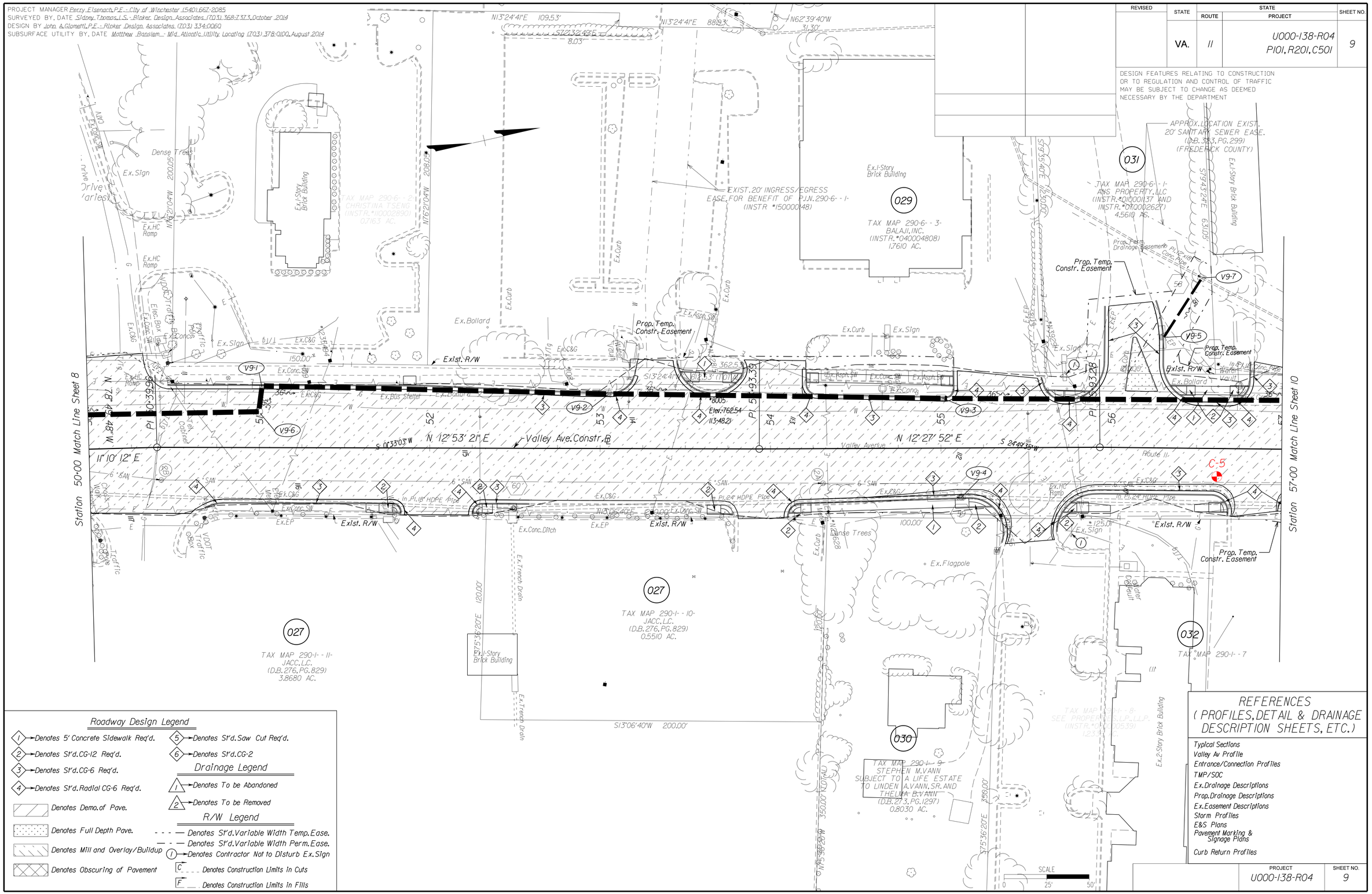
Rinker Design Associates, P.C.
Civil Engineering - Surveying - Environmental Transportation - Right-of-Way Services
Office Locations
Main Office: 107 Mark Green Drive, Suite 106, Winchester, VA 22602 Phone: (540) 667-2085 Fax: (540) 667-2086
Branch Office: 4101 Duncan Boulevard, Suite 100, Annandale, VA 22003 Phone: (703) 354-0300 Fax: (703) 813-0488
107 Mark Green Drive, Suite 106, Winchester, VA 22602 Phone: (540) 667-2085 Fax: (540) 667-2086

© 2017 RINKER DESIGN ASSOCIATES, P.C.

PROJECT MANAGER Perry Eisenach, P.E. - City of Winchester (540) 667-2085
SURVEYED BY, DATE Sidney Thomas, L.S. - Rinker Design Associates (703) 368-7373, October 2014
DESIGN BY John A. Glometti, P.E. - Rinker Design Associates (703) 334-0060
SUBSURFACE UTILITY BY, DATE Matthew Bansiem - Mid Atlantic Utility Locating (703) 378-0100, August 2014

| REVISED | STATE | STATE ROUTE | STATE PROJECT | SHEET NO. |
|---|---|---|---|---|
| | VA. | 11 | U000-138-R04 P101, R201, C501 | 9 |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT




## Roadway Design Legend

- (1) → Denotes 5' Concrete Sidewalk Req'd.
- (2) → Denotes St'd. CG-12 Req'd.
- (3) → Denotes St'd. CG-6 Req'd.
- (4) → Denotes St'd. Radial CG-6 Req'd.
- Denotes Demo. of Pave.
- Denotes Full Depth Pave.
- Denotes Mill and Overlay/Buildup
- Denotes Obscuring of Pavement
- (5) → Denotes St'd. Saw Cut Req'd.
- (6) → Denotes St'd. CG-2

## Drainage Legend

- (1) → Denotes To be Abandoned
- (2) → Denotes To be Removed

## R/W Legend

- Denotes St'd. Variable Width Temp. Ease.
- Denotes St'd. Variable Width Perm. Ease.
- (1) → Denotes Contractor Not to Disturb Ex. Sign
- C → Denotes Construction Limits in Cuts
- F → Denotes Construction Limits in Fills

## REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

- Typical Sections
- Valley Av Profile
- Entrance/Connection Profiles
- TMP/SOC
- Ex. Drainage Descriptions
- Prop. Drainage Descriptions
- Ex. Easement Descriptions
- Storm Profiles
- E&S Plans
- Pavement Marking & Signage Plans
- Curb Return Profiles

| PROJECT | SHEET NO. |
|---|---|
| U000-138-R04 | 9 |

R.W. PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND MAY NOT BE USED FOR CONSTRUCTION.

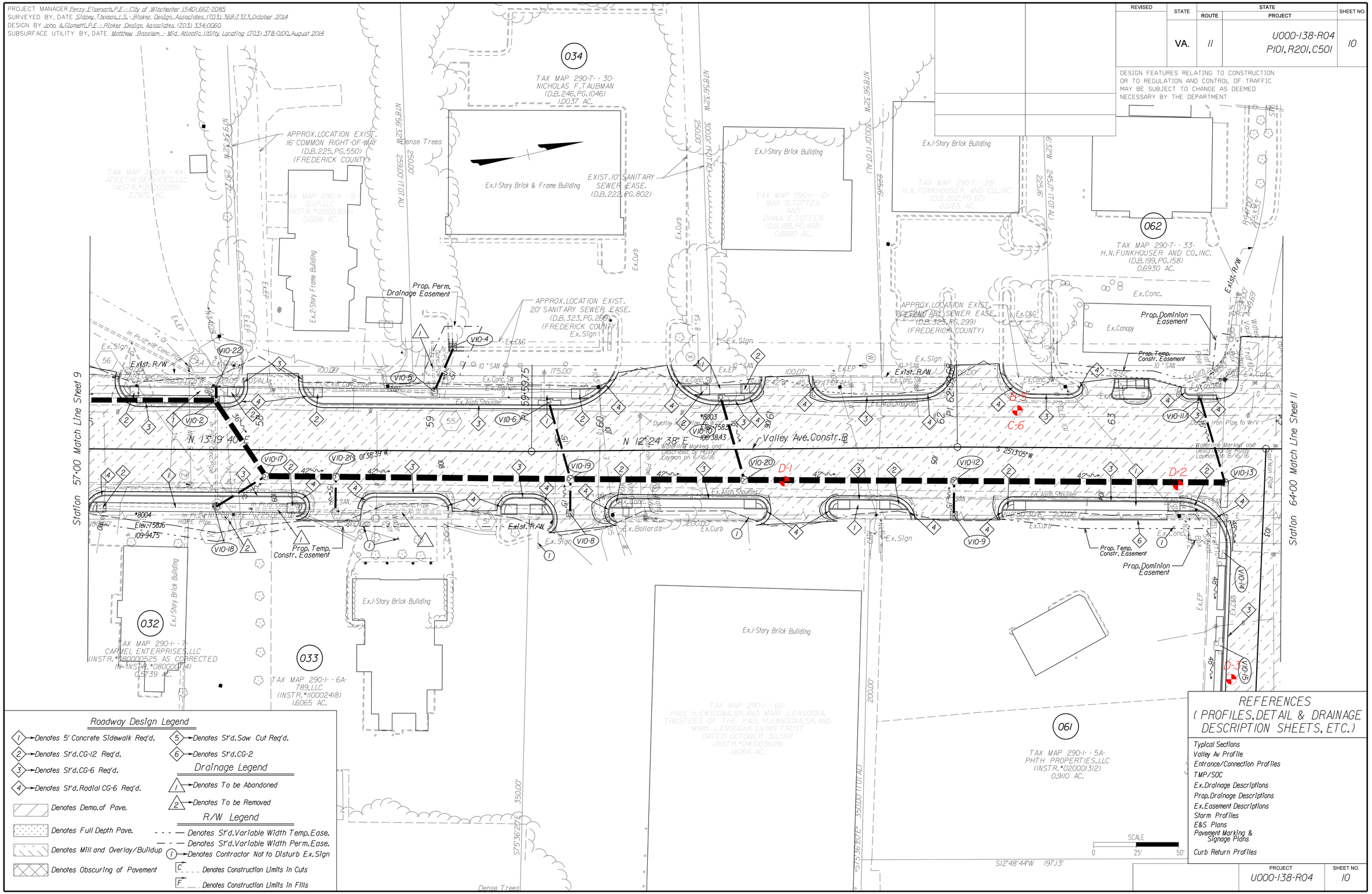
6/1/2017

Rinker Design Associates, P.C.
Civil Engineering - Surveying - Environmental Transportation - Right-of-Way Services
Office Locations
Winchester, VA 22601 Tel: (540) 667-2085 Fax: (540) 667-2086
Front Royal, VA 22630 Tel: (540) 635-5030 Fax: (540) 635-5033
Stephens City, VA 22655 Tel: (540) 869-2023 Fax: (540) 869-2025
Leesburg, VA 20176 Tel: (703) 443-0000 Fax: (703) 443-0001
Rockingham, NC 28379 Tel: (910) 997-8000 Fax: (910) 997-8001
Rinker Design Associates, P.C. 107 Mark Green Drive Suite 101 Sterling, VA 20167 Tel: (703) 444-7400 Fax: (703) 444-7411
RDA Project No. 03013

PROJECT MANAGER Perry Eisenach, P.E. - City of Winchester (540) 667-2085
SURVEYED BY, DATE Sidney Thomas, L.S. - Rinker Design Associates (703) 368-7373, October 2014
DESIGN BY John A. Glometti, P.E. - Rinker Design Associates (703) 334-0060
SUBSURFACE UTILITY BY, DATE Matthew Bansiem - Mid Atlantic Utility Locating (703) 378-0100, August 2014

| REVISED | STATE | STATE ROUTE | STATE PROJECT | SHEET NO. |
|---|---|---|---|---|
| | VA. | 11 | U000-138-R04 P101, R201, C501 | 10 |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT




## Roadway Design Legend

- 1 → Denotes 5' Concrete Sidewalk Req'd.
- 2 → Denotes St'd.CG-12 Req'd.
- 3 → Denotes St'd.CG-6 Req'd.
- 4 → Denotes St'd.Radial CG-6 Req'd.
- Denotes Demo.of Pave.
- Denotes Full Depth Pave.
- Denotes Mill and Overlay/Buildup
- Denotes Obscuring of Pavement
- 5 → Denotes St'd.Saw Cut Req'd.
- 6 → Denotes St'd.CG-2

## Drainage Legend

- 1 → Denotes To be Abandoned
- 2 → Denotes To be Removed

## R/W Legend

- Denotes St'd.Variable Width Temp.Ease.
- Denotes St'd.Variable Width Perm.Ease.
- 1 → Denotes Contractor Not to Disturb Ex.Sign
- C Denotes Construction Limits In Cuts
- F Denotes Construction Limits In Fills

## REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

- Typical Sections
- Valley Av Profile
- Entrance/Connection Profiles
- TMP/SOC
- Ex.Drainage Descriptions
- Prop.Drainage Descriptions
- Ex.Easement Descriptions
- Storm Profiles
- E&S Plans
- Pavement Marking & Signage Plans
- Curb Return Profiles

| PROJECT | SHEET NO. |
|---|---|
| U000-138-R04 | 10 |

R.W. PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND MAY NOT BE USED FOR CONSTRUCTION.

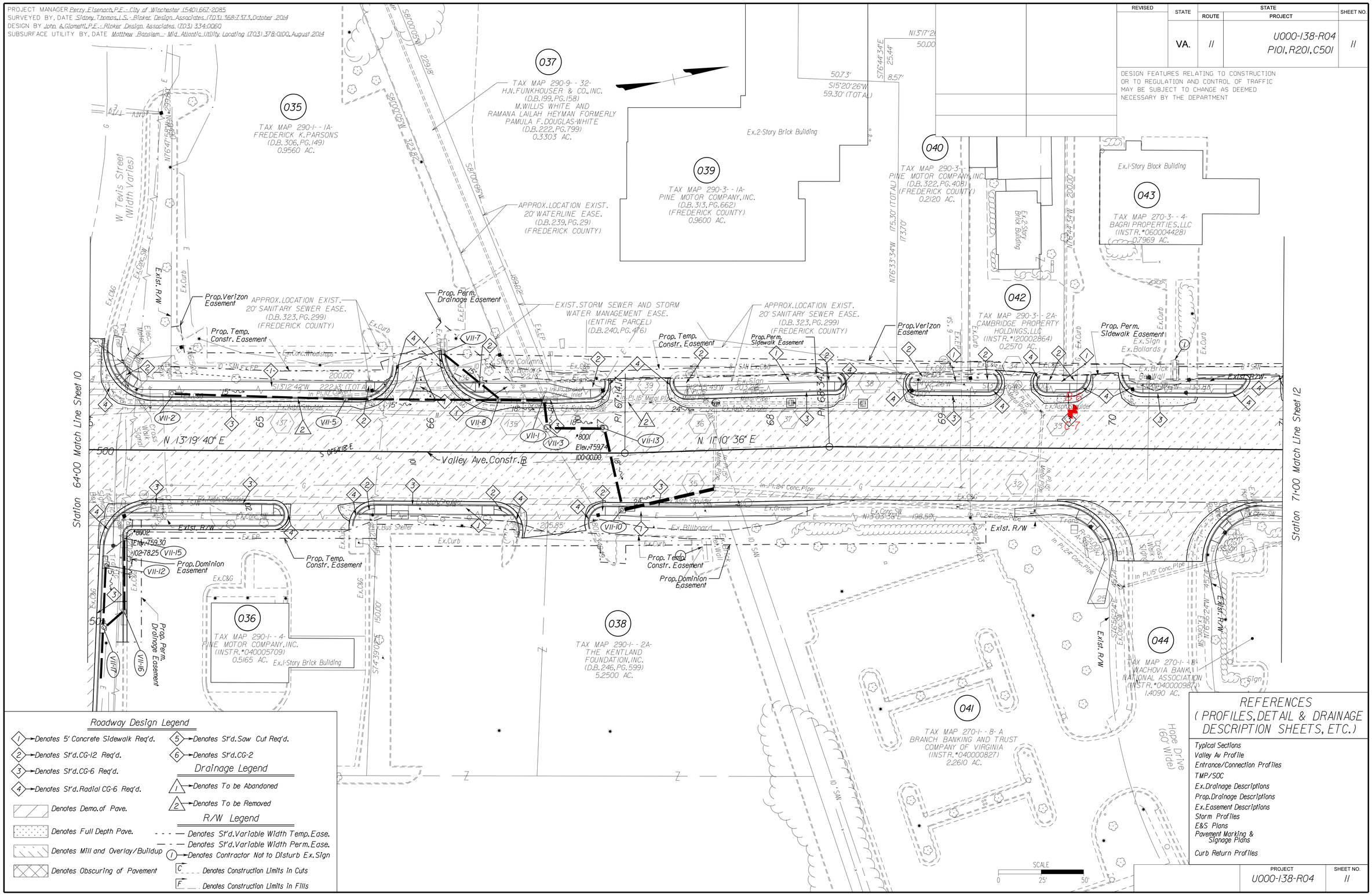
6/1/2017

Rinker Design Associates, P.C.
Civil Engineering - Surveying - Land Planning
Transportation - Environmental
Right-of-Way Services
Office Locations
Winchester (Headquarters) 107 Apple Grove Drive Suite 101, Winchester, VA 22601 Phone: (540) 667-2085 Fax: (540) 667-2086
Front Royal 1400 Shenandoah Avenue Suite 100, Front Royal, VA 22630 Phone: (540) 635-5030 Fax: (540) 635-5036
Harrisonburg 1400 Dayton Boulevard Suite 100, Harrisonburg, VA 22801 Phone: (540) 433-2601 Fax: (540) 433-6088

PROJECT MANAGER Perry Eisenach,P.E. - City of Winchester (540).667-2085
SURVEYED BY, DATE Sidney Thomas,L.S. - Rinker Design Associates (703).368-7373,October 2014
DESIGN BY John A.Glometti,P.E. - Rinker Design Associates (703) 334-0060
SUBSURFACE UTILITY BY, DATE Matthew Bansiem - Mid Atlantic Utility Locating (703) 378-0100,August 2014

| REVISED | STATE | STATE ROUTE | STATE PROJECT | SHEET NO. |
|---|---|---|---|---|
| | VA. | II | U000-138-R04 P101,R201,C501 | II |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT




## Roadway Design Legend

- 1 → Denotes 5' Concrete Sidewalk Req'd.
- 2 → Denotes St'd.CG-12 Req'd.
- 3 → Denotes St'd.CG-6 Req'd.
- 4 → Denotes St'd.Radial CG-6 Req'd.
- Denotes Demo.of Pave.
- Denotes Full Depth Pave.
- Denotes Mill and Overlay/Buildup
- Denotes Obscuring of Pavement
- 5 → Denotes St'd.Saw Cut Req'd.
- 6 → Denotes St'd.CG-2

## Drainage Legend

- 1 → Denotes To be Abandoned
- 2 → Denotes To be Removed

## R/W Legend

- Denotes St'd.Variable Width Temp.Ease.
- Denotes St'd.Variable Width Perm.Ease.
- (1) → Denotes Contractor Not to Disturb Ex.Sign
- C Denotes Construction Limits in Cuts
- F Denotes Construction Limits in Fills

## REFERENCES ( PROFILES,DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

- Typical Sections
- Valley Av Profile
- Entrance/Connection Profiles
- TMP/SOC
- Ex.Drainage Descriptions
- Prop.Drainage Descriptions
- Ex.Easement Descriptions
- Storm Profiles
- E&S Plans
- Pavement Marking & Signage Plans
- Curb Return Profiles

| PROJECT | SHEET NO. |
|---|---|
| U000-138-R04 | II |

R.W. PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND MAY NOT BE USED FOR CONSTRUCTION.

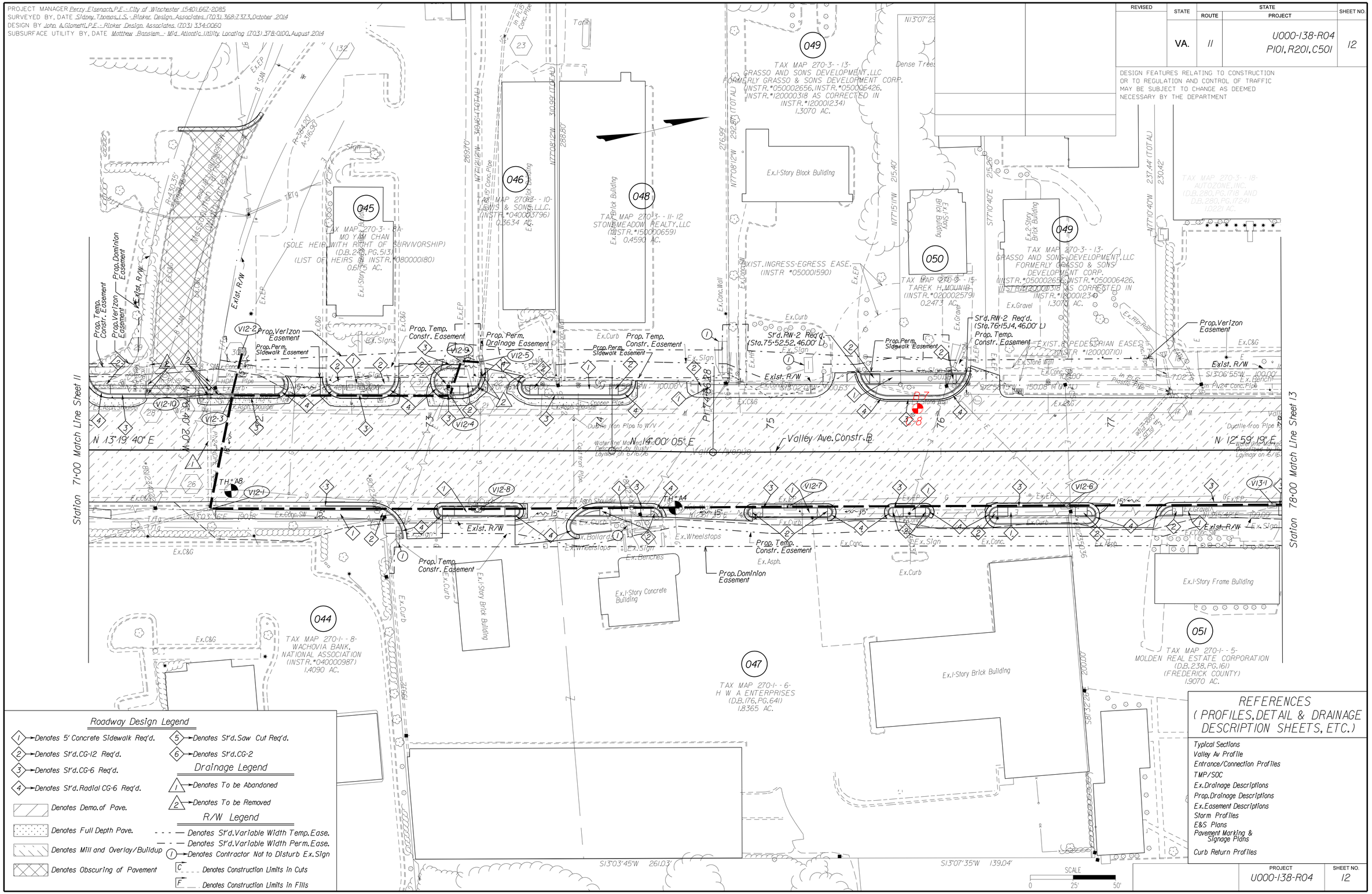
6/1/2017

Rinker Design Associates, P.C.
Civil Engineering - Surveying - Environmental
Transportation - Land Development
Right-of-Way Services
Office Locations
Main Office: 107 Mark Green Drive, Suite 106, Front Royal, VA 22630 Phone: (540) 635-5030 Fax: (540) 635-5031
107 Mark Green Drive, Suite 106, Front Royal, VA 22630 Phone: (540) 635-5030 Fax: (540) 635-5031
4101 Dominion Boulevard, Suite 100, Glen Allen, VA 23060 Phone: (804) 346-7911 Fax: (804) 346-8486
SHORT PIVOT, INC.

PROJECT MANAGER Perry Eisenach,P.E. - City of Winchester (540)667-2085
SURVEYED BY, DATE Sidney Thomas,L.S. - Rinker Design Associates (703) 368-7373,October 2014
DESIGN BY John A.Glometti,P.E. - Rinker Design Associates (703) 334-0060
SUBSURFACE UTILITY BY, DATE Matthew Bansiem - Mid Atlantic Utility Locating (703) 378-0100,August 2014

| REVISED | STATE | ROUTE | PROJECT | SHEET NO. |
|---|---|---|---|---|
| | VA. | 11 | U000-138-R04 P101,R201,C501 | 12 |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT




## Roadway Design Legend

- (1) → Denotes 5' Concrete Sidewalk Req'd.
- (2) → Denotes Std.CG-12 Req'd.
- (3) → Denotes Std.CG-6 Req'd.
- (4) → Denotes Std.Radial CG-6 Req'd.
- Denotes Demo. of Pave.
- Denotes Full Depth Pave.
- Denotes Mill and Overlay/Buildup
- Denotes Obscuring of Pavement
- (5) → Denotes Std.Saw Cut Req'd.
- (6) → Denotes Std.CG-2

## Drainage Legend

- (1) → Denotes To be Abandoned
- (2) → Denotes To be Removed

## R/W Legend

- Denotes Std.Variable Width Temp.Ease.
- Denotes Std.Variable Width Perm.Ease.
- (1) → Denotes Contractor Not to Disturb Ex.Sign
- C Denotes Construction Limits in Cuts
- F Denotes Construction Limits in Fills

## REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

- Typical Sections
- Valley Av Profile
- Entrance/Connection Profiles
- TMP/SOC
- Ex.Drainage Descriptions
- Prop.Drainage Descriptions
- Ex.Easement Descriptions
- Storm Profiles
- E&S Plans
- Pavement Marking & Signage Plans
- Curb Return Profiles

| PROJECT | SHEET NO. |
|---|---|
| U000-138-R04 | 12 |

R.W. PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND MAY NOT BE USED FOR CONSTRUCTION.

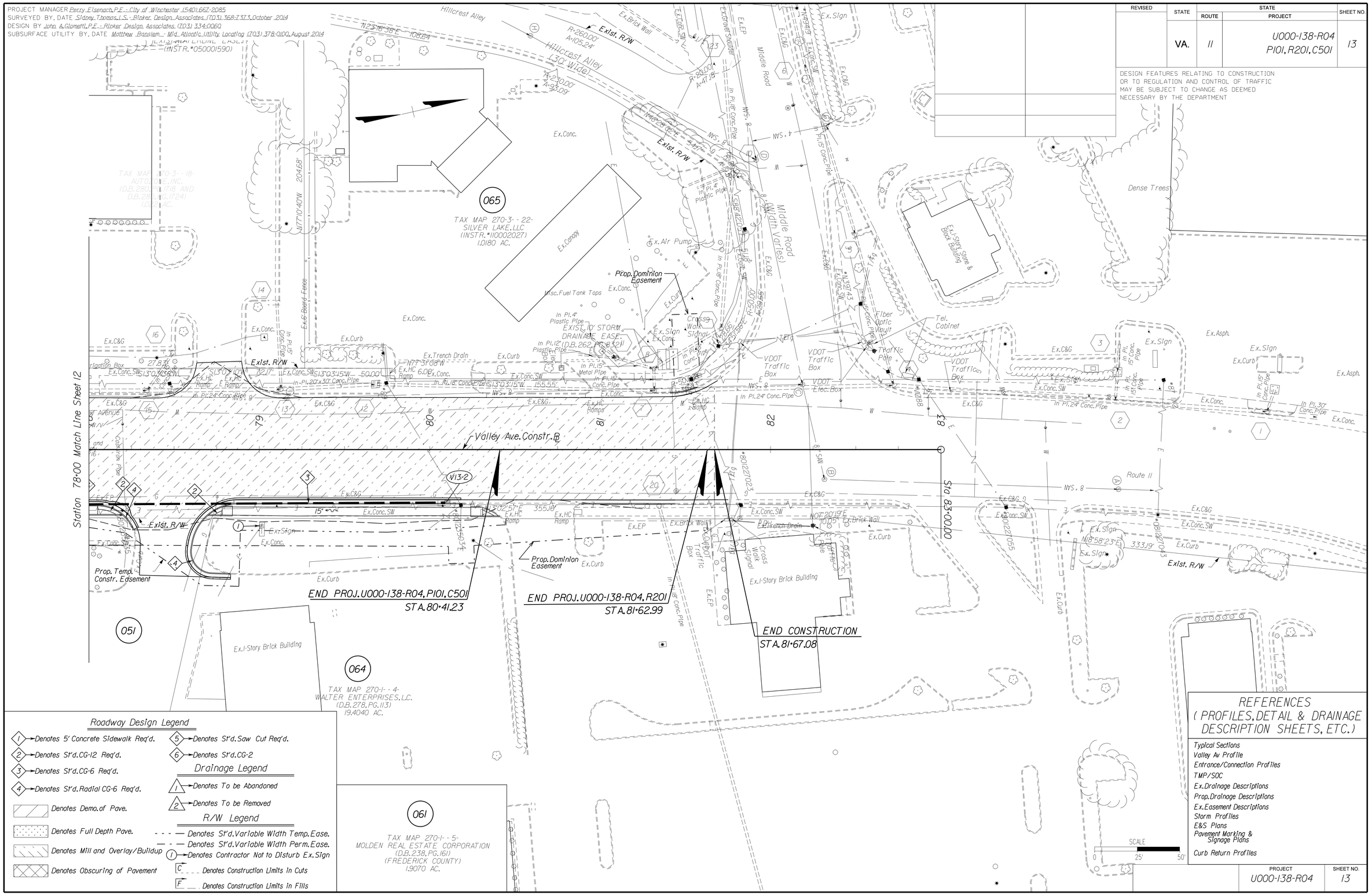
6/1/2017

Rinker Design Associates, P.C.
Civil Engineering - Surveying - Environmental
Transportation - Land Development - Right-of-Way Services
Office Locations
Main Office: 401 Mecklenburg Avenue, Front Royal, VA 22630 Tel: (540) 635-5030
Winchester Office: 107 Maple Grove Drive, Suite 100, Winchester, VA 22601 Tel: (540) 667-2085
Leesburg Office: 1651 Prince William Street, Suite 100, Leesburg, VA 20175 Tel: (703) 771-0440
Fax: (540) 635-5031

PROJECT MANAGER Perry Eisenach, P.E. - City of Winchester (540) 667-2085
SURVEYED BY, DATE Sidney Thomas, L.S. - Rinker Design Associates (703) 368-7373, October 2014
DESIGN BY John A. Glometti, P.E. - Rinker Design Associates (703) 334-0060
SUBSURFACE UTILITY BY, DATE Matthew Bansiem - Mid Atlantic Utility Locating (703) 378-0100, August 2014

| REVISED | STATE | STATE ROUTE | STATE PROJECT | SHEET NO. |
|---|---|---|---|---|
| | VA. | 11 | U000-138-R04 P101, R201, C501 | 13 |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT




## Roadway Design Legend

- 1 → Denotes 5' Concrete Sidewalk Req'd.
- 2 → Denotes St'd. CG-12 Req'd.
- 3 → Denotes St'd. CG-6 Req'd.
- 4 → Denotes St'd. Radial CG-6 Req'd.
- Denotes Demo. of Pave.
- Denotes Full Depth Pave.
- Denotes Mill and Overlay/Buildup
- Denotes Obscuring of Pavement
- 5 → Denotes St'd. Saw Cut Req'd.
- 6 → Denotes St'd. CG-2

## Drainage Legend

- 1 → Denotes To be Abandoned
- 2 → Denotes To be Removed

## R/W Legend

- Denotes St'd. Variable Width Temp. Ease.
- Denotes St'd. Variable Width Perm. Ease.
- (1) → Denotes Contractor Not to Disturb Ex. Sign
- C Denotes Construction Limits In Cuts
- F Denotes Construction Limits In Fills

## REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

- Typical Sections
- Valley Av Profile
- Entrance/Connection Profiles
- TMP/SOC
- Ex. Drainage Descriptions
- Prop. Drainage Descriptions
- Ex. Easement Descriptions
- Storm Profiles
- E&S Plans
- Pavement Marking & Signage Plans
- Curb Return Profiles

| PROJECT | SHEET NO. |
|---|---|
| U000-138-R04 | 13 |

R.W. PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND MAY NOT BE USED FOR CONSTRUCTION.

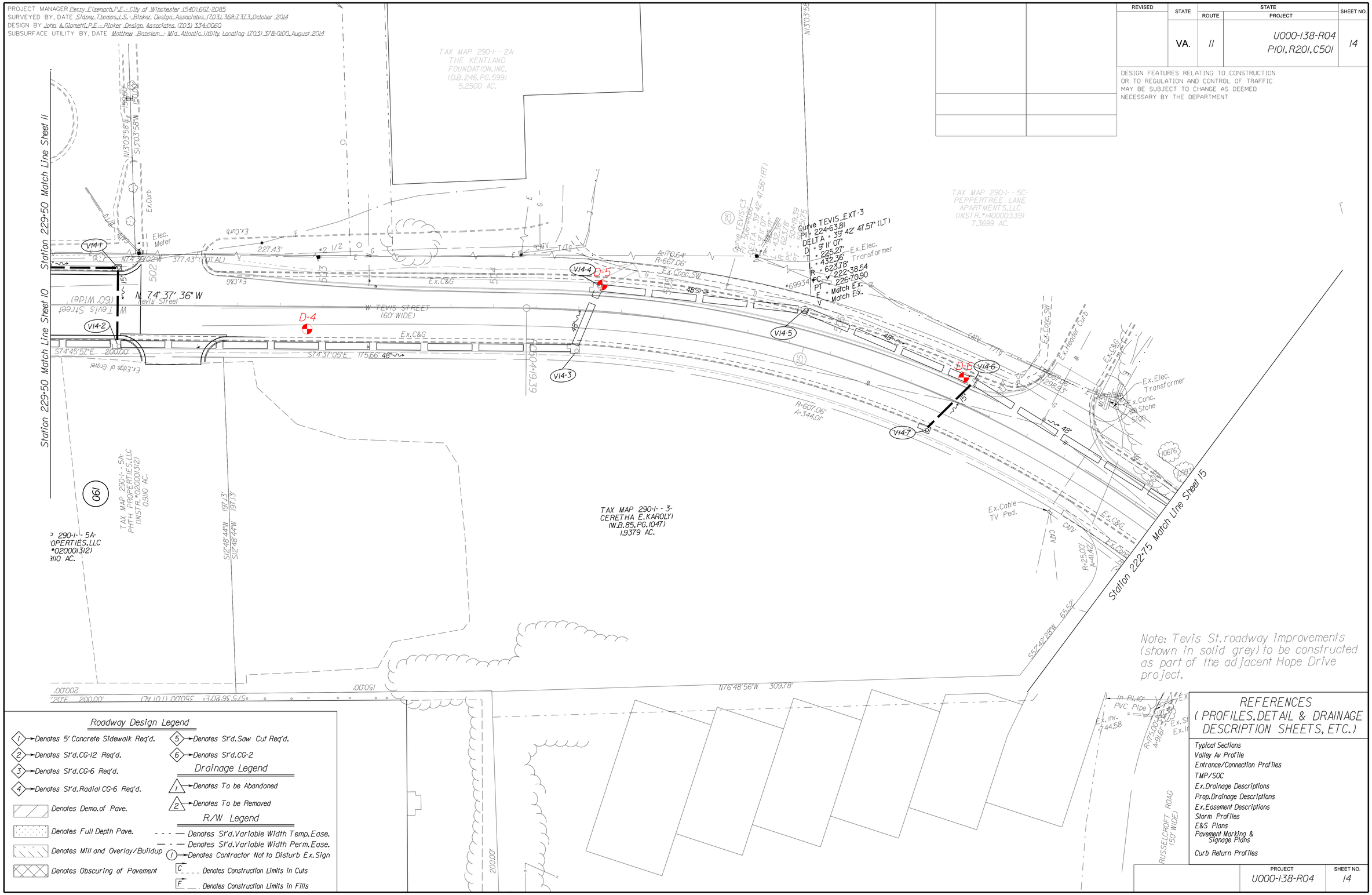
6/1/2017

Rinker Design Associates, P.C.
Civil Engineering - Surveying - Land Planning
Transportation - Environmental
Right-of-Way Services
Office Locations
Main Office: 107 Mark Green Drive, Suite 101, Winchester, VA 22602, Phone: (540) 667-2085, Fax: (540) 667-2085
Branch Office: 4101 Dominion Boulevard, Suite 100, Glen Allen, VA 23060, Phone: (804) 672-2085, Fax: (804) 672-2085
www.rda-rinker.com

PROJECT MANAGER Perry Eisenach, P.E. - City of Winchester (540) 667-2085
SURVEYED BY, DATE Sidney Thomas, L.S. - Rinker Design Associates (703) 368-7373, October 2014
DESIGN BY John A. Glometti, P.E. - Rinker Design Associates (703) 334-0060
SUBSURFACE UTILITY BY, DATE Matthew Bansiem - Mid Atlantic Utility Locating (703) 378-0100, August 2014

| REVISED | STATE | STATE ROUTE | STATE PROJECT | SHEET NO. |
|---|---|---|---|---|
| | VA. | II | U000-138-R04 P101, R201, C501 | 14 |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT




## Roadway Design Legend

- 1 → Denotes 5' Concrete Sidewalk Req'd.
- 2 → Denotes St'd.CG-12 Req'd.
- 3 → Denotes St'd.CG-6 Req'd.
- 4 → Denotes St'd.Radial CG-6 Req'd.
- 5 → Denotes St'd.Saw Cut Req'd.
- 6 → Denotes St'd.CG-2

Denotes Demo. of Pave.
Denotes Full Depth Pave.
Denotes Mill and Overlay/Buildup
Denotes Obscuring of Pavement

## Drainage Legend

- 1 → Denotes To be Abandoned
- 2 → Denotes To be Removed

## R/W Legend

- Denotes St'd.Variable Width Temp.Ease.
- Denotes St'd.Variable Width Perm.Ease.
- 1 → Denotes Contractor Not to Disturb Ex.Sign
- C → Denotes Construction Limits in Cuts
- F → Denotes Construction Limits in Fills

Note: Tevis St. roadway improvements (shown in solid grey) to be constructed as part of the adjacent Hope Drive project.

## REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

- Typical Sections
- Valley Av Profile
- Entrance/Connection Profiles
- TMP/SOC
- Ex.Drainage Descriptions
- Prop.Drainage Descriptions
- Ex.Easement Descriptions
- Storm Profiles
- E&S Plans
- Pavement Marking & Signage Plans
- Curb Return Profiles

| PROJECT | SHEET NO. |
|---|---|
| U000-138-R04 | 14 |

R.W. PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND MAY NOT BE USED FOR CONSTRUCTION.

6/1/2017

Office Locations
Corporate Headquarters: 401 Madison Avenue, Suite 100, Winchester, VA 22601, Phone: (540) 667-2085, Fax: (540) 667-2086
Fredericksburg Office: 4103 Dominion Boulevard, Suite 100, Glen Allen, VA 23060, Phone: (804) 672-5000, Fax: (804) 672-5001
Staunton Office: 407 Middle Street, Suite 101, Staunton, VA 24401, Phone: (540) 885-7207, Fax: (540) 885-7213

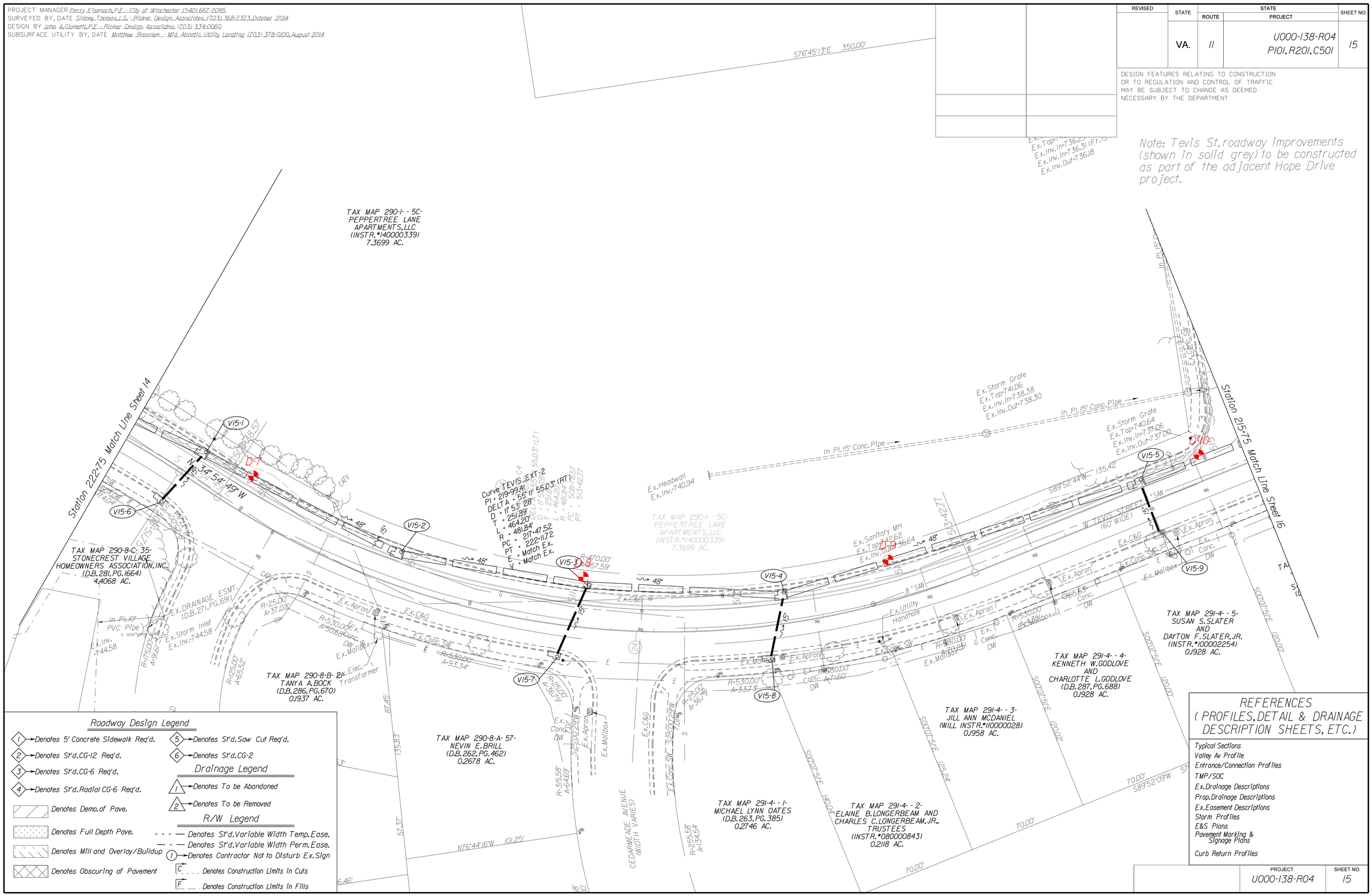
Rinker Design Associates, P.C.
Civil Engineering - Surveying - Land Planning
Transportation - Environmental
Right of Way Services

PROJECT MANAGER Perry Eisenach, P.E. - City of Winchester (540) 667-2085
SURVEYED BY, DATE Sidney Thomas, L.S. - Rinker Design Associates (703) 368-7373, October 2014
DESIGN BY John A. Giometti, P.E. - Rinker Design Associates (703) 334-0060
SUBSURFACE UTILITY BY, DATE Matthew Bansiem - Mid Atlantic Utility Locating (703) 378-0100, August 2014

| REVISED | STATE | STATE ROUTE | STATE PROJECT | SHEET NO. |
|---|---|---|---|---|
| | VA. | 11 | U000-138-R04 P101, R201, C501 | 15 |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Note: Tevis St. roadway improvements (shown in solid grey) to be constructed as part of the adjacent Hope Drive project.




REFERENCES
(PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

- Typical Sections
- Valley Av Profile
- Entrance/Connection Profiles
- TMP/SOC
- Ex. Drainage Descriptions
- Prop. Drainage Descriptions
- Ex. Easement Descriptions
- Storm Profiles
- E&S Plans
- Pavement Marking & Signage Plans
- Curb Return Profiles

| PROJECT | SHEET NO. |
|---|---|
| U000-138-R04 | 15 |

R.W. PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND MAY NOT BE USED FOR CONSTRUCTION.

6/1/2017

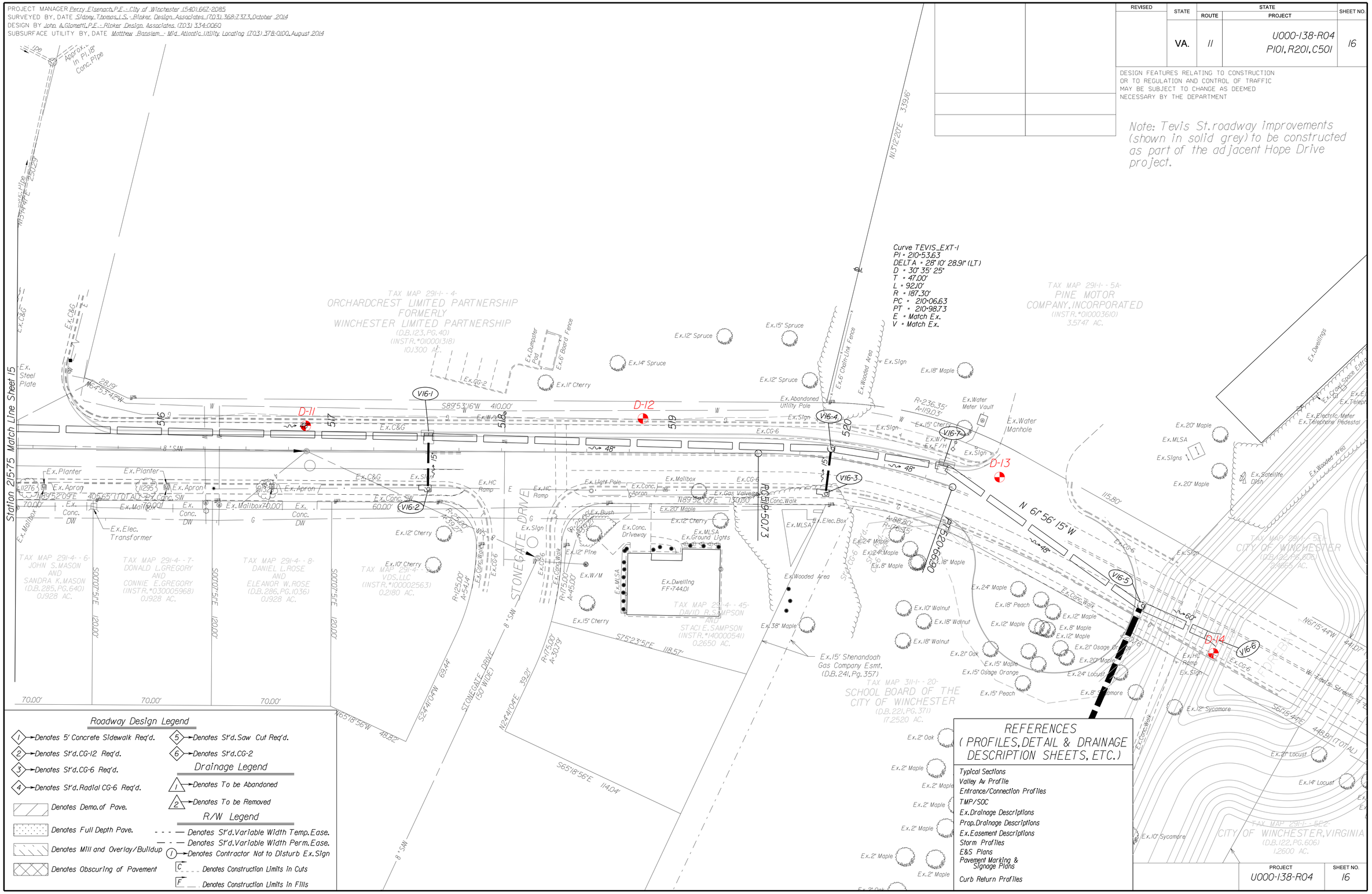
Rinker Design Associates, P.C.
Civil Engineering - Surveying - Landscape Architecture
Transportation - Environmental
Right-of-Way Services
Office Locations
Main Office
107 Mark Green Drive
Suite 100, VA 22630
Phone: (540) 667-2085
Fax: (540) 667-2089
107 Mark Green Drive
Suite 100, VA 22630
Phone: (540) 667-2085
Fax: (540) 667-2089
4070 Dominion Boulevard
Suite 100, VA 22980
Phone: (434) 293-9103
Fax: (434) 293-9104
www.rdaonline.com

PROJECT MANAGER Perry Eisenach, P.E. - City of Winchester (540).667-2085
SURVEYED BY, DATE Sidney Thomas, L.S. - Rinker Design Associates (703).368-7373, October 2014
DESIGN BY John A. Glometti, P.E. - Rinker Design Associates (703) 334-0060
SUBSURFACE UTILITY BY, DATE Matthew Bansiem - Mid Atlantic Utility Locating (703) 378-0100, August 2014

| REVISED | STATE | STATE ROUTE | STATE PROJECT | SHEET NO. |
|---|---|---|---|---|
| | VA. | 11 | U000-138-R04 P101, R201, C501 | 16 |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Note: Tevis St. roadway improvements (shown in solid grey) to be constructed as part of the adjacent Hope Drive project.




6/1/2017

R.W. PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND MAY NOT BE USED FOR CONSTRUCTION.

# APPENDIX B FIELD OPERATIONS

Table B1 - Summary of Pavement Core Information
Valley Avenue Improvements
Winchester, Virginia
DMY No. 01.02010.01

| Core Number | Station | Offset (feet) | Lane ID | AC Thickness (inches) | HCC Thickness (inches) | OGDL Thickness (inches) | CTA Thickness (inches) | GAB Thickness (inches) | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| **Valley Avenue** | | | | | | | | | |
| C-1 | 23+03.5 | R 14.8 | NB Right Lane | 6.0 | 0.0 | 0.0 | 0.0 | 8.0 | Same location as Boring B-2 |
| C-2 | 29+02.0 | R 16.2 | NB Right Lane | 6.0 | 0.0 | 0.0 | 0.0 | 5.0 | |
| C-3 | 38+94.7 | L 17.4 | SB Right Lane | 5.0 | 0.0 | 0.0 | 0.0 | 2.0 | Same location as Boring B-4 |
| C-4 | 45+00.0 | R 14.4 | NB Right Lane | 5.0 | 0.0 | 0.0 | 0.0 | 5.0 | |
| C-5 | 56+62.0 | R 16.2 | NB Right Lane | 4.0 | 0.0 | 0.0 | 0.0 | 6.0 | The core broke and separated horizontally into two sections. |
| C-6 | 62+44.6 | L 22.8 | SB Right Lane | 9.0 | 0.0 | 0.0 | 0.0 | 2.0 | Same location as Boring B-5 |
| C-7 | 69+76.6 | L 20.9 | SB Right Lane | 8.0 | 0.0 | 0.0 | 0.0 | 2.0 | Same location as Boring B-6 |
| C-8 | 75+86.2 | L 25.2 | SB Right Lane | 12.0 | 0.0 | 0.0 | 0.0 | 2.0 | Same location as Boring B-7. The core broke and separated horizontally into two sections. |
| B-1 | 21+15.5 | R 18.3 | NB Right Lane | 6.0 | 0.0 | 0.0 | 0.0 | 3.0 | No pavement core taken. Information from SPT boring. |
| B-3 | 26+69.3 | L 21.5 | SB Right Lane | 4.0 | 0.0 | 0.0 | 0.0 | 2.0 | No pavement core taken. Information from SPT boring. |
| D-01 | 61+08.2 | R 19.9 | NB Right Lane | 5.0 | 0.0 | 0.0 | 0.0 | 6.0 | No pavement core taken. Information from SPT boring. |
| D-02 | 63+39.3 | R 21.2 | NB Right Lane | 4.0 | 0.0 | 0.0 | 0.0 | 5.0 | No pavement core taken. Information from SPT boring. |
| **Tevis Street** | | | | | | | | | |
| D-03 | 229+54.5 | L 14.6 | EB Lane | 3.0 | 0.0 | 0.0 | 0.0 | 8.0 | No pavement core taken. Information from SPT boring. |
| D-04 | 228+00.0 | L 13.2 | EB Lane | 3.0 | 0.0 | 0.0 | 0.0 | 6.0 | No pavement core taken. Information from SPT boring. |
| D-05 | 226+25.7 | R 14.9 | WB Lane | 4.0 | 0.0 | 0.0 | 0.0 | 5.0 | No pavement core taken. Information from SPT boring. |
| D-06 | 224+11.7 | R 14.8 | WB Lane | 5.0 | 0.0 | 0.0 | 0.0 | 6.0 | No pavement core taken. Information from SPT boring. |
| D-07 | 222+00.0 | R 22.2 | WB Lane | 6.0 | 0.0 | 0.0 | 0.0 | 4.0 | No pavement core taken. Information from SPT boring. |
| D-10 | 216+00.0 | R 16.8 | WB Lane | 4.0 | 0.0 | 0.0 | 0.0 | 3.0 | No pavement core taken. Information from SPT boring. |
| D-11 | 214+05.2 | R 14.2 | WB Lane | 5.0 | 0.0 | 0.0 | 0.0 | 7.0 | No pavement core taken. Information from SPT boring. |
| D-12 | 212+07.0 | R 19.4 | WB Lane | 5.0 | 0.0 | 0.0 | 0.0 | 7.0 | No pavement core taken. Information from SPT boring. |
| D-13 | 210+00.0 | R 13.8 | WB Lane | 6.0 | 0.0 | 0.0 | 0.0 | 5.0 | No pavement core taken. Information from SPT boring. |
| D-14 | 208+40.0 | L 14.9 | EB Lane | 5.0 | 0.0 | 0.0 | 0.0 | 6.0 | No pavement core taken. Information from SPT boring. |

AC: Asphalt Concrete HCC: Hydraulic Cement Concrete OGDL: Open Graded Drainage Layer CTA: Cement Treated Aggregate GAB: Graded Aggregate Base

| | |
|---|---|
| PROJECT NAME: | Valley Avenue Improvements |
| PROJECT NO.: | 01.02010.01 |
| LOCATION: | Winchester, Virginia |
| CLIENT: | Rinker Design Associates (RDA) |

# PAVEMENT CORE PHOTOGRAPH LOG

Top

Bottom

Top

Bottom

| C-1 | | | C-2 | | |
|---|---|---|---|---|---|
| Valley Ave., Station 23+03.5, R 14.8, NB Right Lane (same location as B-2) | | | Valley Ave., Station 29+02.0, R 16.2, NB Right Lane | | |
| Asphalt Concrete = | 6.0 | inches | Asphalt Concrete = | 6.0 | inches |
| Portland Cement Concrete = | NA | inches | Portland Cement Concrete = | NA | inches |
| Cement-Treated Aggregate = | NA | inches | Cement-Treated Aggregate = | NA | inches |
| Soil Cement = | NA | inches | Soil Cement = | NA | inches |
| Open-Graded Drainage Layer = | NA | inches | Open-Graded Drainage Layer = | NA | inches |
| Aggregate Base = | 8.0 | inches | Aggregate Base = | 5.0 | inches |
| Soil Cement = | NA | inches | Soil Cement = | NA | inches |
| Asphalt Pavement Composition: | | | Asphalt Pavement Composition: | | |
| Surface Course = | NA | inches | Surface Course = | NA | inches |
| Intermediate Course = | NA | inches | Intermediate Course = | NA | inches |
| Base Course = | NA | inches | Base Course = | NA | inches |

| | |
|---|---|
| PROJECT NAME: | Valley Avenue Improvements |
| PROJECT NO.: | 01.02010.01 |
| LOCATION: | Winchester, Virginia |
| CLIENT: | Rinker Design Associates (RDA) |

# PAVEMENT CORE PHOTOGRAPH LOG

Top

Bottom

Top

Bottom

| C-3 | | | C-4 | | |
|---|---|---|---|---|---|
| Valley Ave., Station 38+94.7, L 17.4, SB Right Lane (same location as B-4) | | | Valley Ave., Station 45+00.0, R 14.4, NB Right Lane | | |
| Asphalt Concrete = | 5.0 | inches | Asphalt Concrete = | 5.0 | inches |
| Portland Cement Concrete = | NA | inches | Portland Cement Concrete = | NA | inches |
| Cement-Treated Aggregate = | NA | inches | Cement-Treated Aggregate = | NA | inches |
| Soil Cement = | NA | inches | Soil Cement = | NA | inches |
| Open-Graded Drainage Layer = | NA | inches | Open-Graded Drainage Layer = | NA | inches |
| Aggregate Base = | 2.0 | inches | Aggregate Base = | 5.0 | inches |
| Soil Cement = | NA | inches | Soil Cement = | NA | inches |
| Asphalt Pavement Composition: | | | Asphalt Pavement Composition: | | |
| Surface Course = | NA | inches | Surface Course = | NA | inches |
| Intermediate Course = | NA | inches | Intermediate Course = | NA | inches |
| Base Course = | NA | inches | Base Course = | NA | inches |

| | |
|---|---|
| PROJECT NAME: | Valley Avenue Improvements |
| PROJECT NO.: | 01.02010.01 |
| LOCATION: | Winchester, Virginia |
| CLIENT: | Rinker Design Associates (RDA) |

# PAVEMENT CORE PHOTOGRAPH LOG

Top

Bottom

Top

Bottom

| C-5 | | | C-6 | | |
|---|---|---|---|---|---|
| Valley Ave., Station 56+62.0, R 16.2, NB Right Lane | | | Valley Ave., Station 62+44.6, L 22.8, SB Right Lane (same location as B-5) | | |
| Asphalt Concrete = | 4.0 | inches | Asphalt Concrete = | 9.0 | inches |
| Portland Cement Concrete = | NA | inches | Portland Cement Concrete = | NA | inches |
| Cement-Treated Aggregate = | NA | inches | Cement-Treated Aggregate = | NA | inches |
| Soil Cement = | NA | inches | Soil Cement = | NA | inches |
| Open-Graded Drainage Layer = | NA | inches | Open-Graded Drainage Layer = | NA | inches |
| Aggregate Base = | 6.0 | inches | Aggregate Base = | 2.0 | inches |
| Soil Cement = | NA | inches | Soil Cement = | NA | inches |
| Asphalt Pavement Composition: | | | Asphalt Pavement Composition: | | |
| Surface Course = | NA | inches | Surface Course = | NA | inches |
| Intermediate Course = | NA | inches | Intermediate Course = | NA | inches |
| Base Course = | NA | inches | Base Course = | NA | inches |

| | |
|---|---|
| PROJECT NAME: | Valley Avenue Improvements |
| PROJECT NO.: | 01.02010.01 |
| LOCATION: | Winchester, Virginia |
| CLIENT: | Rinker Design Associates (RDA) |

# PAVEMENT CORE PHOTOGRAPH LOG

Top

Bottom

Top

Bottom

| C-7 | | | C-8 | | |
|---|---|---|---|---|---|
| Valley Ave., Station 69+76.6, L 20.9, SB Right Lane (same location as B-6) | | | Valley Ave., Station 75+86.2, L 25.2, SB Right Lane (same location as B-7) | | |
| Asphalt Concrete = | 8.0 | inches | Asphalt Concrete = | 12 | inches |
| Portland Cement Concrete = | NA | inches | Portland Cement Concrete = | NA | inches |
| Cement-Treated Aggregate = | NA | inches | Cement-Treated Aggregate = | NA | inches |
| Soil Cement = | NA | inches | Soil Cement = | NA | inches |
| Open-Graded Drainage Layer = | NA | inches | Open-Graded Drainage Layer = | NA | inches |
| Aggregate Base = | 2.0 | inches | Aggregate Base = | 2.0 | inches |
| Soil Cement = | NA | inches | Soil Cement = | NA | inches |
| Asphalt Pavement Composition: | | | Asphalt Pavement Composition: | | |
| Surface Course = | NA | inches | Surface Course = | NA | inches |
| Intermediate Course = | NA | inches | Intermediate Course = | NA | inches |
| Base Course = | NA | inches | Base Course = | NA | inches |

# REFERENCE NOTES FOR BORING LOGS

## I. Drilling and Sampling Symbols:

| | | | | | |
|---|---|---|---|---|---|
| SS | - | Split Spoon Sampler | RB | - | Rock Bit Drilling |
| ST | - | Shelby Tube Sampler | BS | - | Bulk Sample of Cuttings |
| RC | - | Rock Core; NX, BX, AX | PA | - | Power Auger (no sample) |
| PM | - | Pressuremeter | HSA | - | Hollow Stem Auger |
| DC | - | Dutch Cone Penetrometer | WS | - | Wash Sample |

Standard Penetration Test (SPT) resistance refers to the blows per foot (bpf) of a 140 lb hammer falling 30 inches on a 2 in. O.D. split-spoon sampler as specified in ASTM D-1586. The blow count is commonly referred to as the N-value.

## II. Correlation of Penetration Resistances to Soil Properties:

Relative Density of Cohesionless Soils

| SPT-N (bpf) | Relative Density |
|---|---|
| 0 – 3 | Very Loose |
| 4 – 9 | Loose |
| 10 – 29 | Medium Dense |
| 30 – 50 | Dense |
| >50 | Very Dense |

Consistency of Cohesive Soils

| SPT-N (bpf) | Consistency |
|---|---|
| 0 – 1 | Very Soft |
| 2 – 4 | Soft |
| 5 – 8 | Firm |
| 9 – 15 | Stiff |
| 16 – 30 | Very Stiff |
| 31 – 50 | Hard |
| >50 | Very Hard |

Weathered Rock (WR) may be defined as SPT-N values exceeding 60 bpf depending on site specific conditions. Refer carefully to boring logs.

Rock Fragments, gravel, cobbles, boulders, or debris may produce N-values that are not representative of actual soil properties.

## III. Unified Soil Classification Symbols:

GP – Poorly Graded Gravel
GW – Well Graded Gravel
GM – Silty Gravel
GC – Clayey Gravels
SP – Poorly Graded Sands
SW – Well Graded Sands
SM – Silty Sands
SC – Clayey Sands

ML – Low Plasticity Silts
MH – High Plasticity Silts
CL – Low Plasticity Clays
CH – High Plasticity Clays
OL – Low Plasticity Organics
OH – High Plasticity Organics
CL-ML – Dual Classification (Typical)

## IV. Laboratory Testing and Water Level Symbols:

| | |
|---|---|
| LL | - LIQUID LIMIT (%) |
| PI | - PLASTIC INDEX (%) |
| W | - MOISTURE CONTENT (%) |
| DD | - DRY DENSITY (PCF) |
| NP | - NON PLASTIC |
| -200 | - PERCENT PASSING NO. 200 SIEVE |
| PP | - POCKET PENETROMETER (TSF) |

Water Level at Time Drilling, or as Shown

Water Level at End of Drilling, or as Shown

Water Level After 24 Hours, or as Shown

# UNIFIED SOIL CLASSIFICATION SYSTEM

## UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS
(more than 50% of material is larger than No. 200 sieve size.)

| | | | |
|---|---|---|---|
| **GRAVELS** More than 50% of coarse fraction larger than No. 4 sieve size | Clean Gravels (Less than 5% fines) | | |
| | | GW | Well-graded gravels, gravel-sand mixtures, little or no fines |
| | | GP | Poorly-graded gravels, gravel-sand mixtures, little or no fines |
| | Gravels with fines (More than 12% fines) | | |
| | | GM | Silty gravels, gravel-sand-silt mixtures |
| | | GC | Clayey gravels, gravel-sand-clay mixtures |
| **SANDS** 50% or more of coarse fraction smaller than No. 4 sieve size | Clean Sands (Less than 5% fines) | | |
| | | SW | Well-graded sands, gravelly sands, little or no fines |
| | | SP | Poorly graded sands, gravelly sands, little or no fines |
| | Sands with fines (More than 12% fines) | | |
| | | SM | Silty sands, sand-silt mixtures |
| | | SC | Clayey sands, sand-clay mixtures |

FINE-GRAINED SOILS
(50% or more of material is smaller than No. 200 sieve size.)

| | | |
|---|---|---|
| **SILTS AND CLAYS** Liquid limit less than 50% | ML | Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity |
| | CL | Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays |
| | OL | Organic silts and organic silty clays of low plasticity |
| **SILTS AND CLAYS** Liquid limit 50% or greater | MH | Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts |
| | CH | Inorganic clays of high plasticity, fat clays |
| | OH | Organic clays of medium to high plasticity, organic silts |
| **HIGHLY ORGANIC SOILS** | PT | Peat and other highly organic soils |

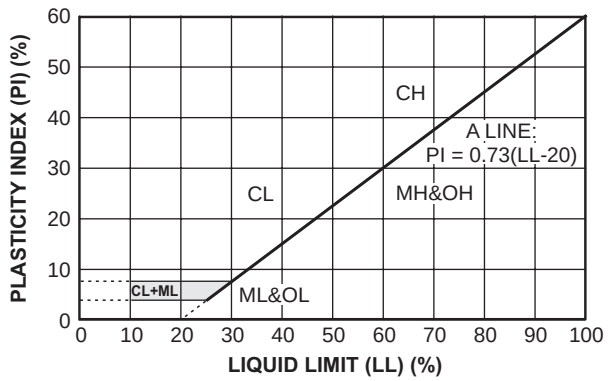
## LABORATORY CLASSIFICATION CRITERIA

| | | |
|---|---|---|
| GW | $C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3 | |
| GP | Not meeting all gradation requirements for GW | |
| GM | Atterberg limits below "A" line or P.I. less than 4 | Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols |
| GC | Atterberg limits above "A" line with P.I. greater than 7 | |
| SW | $C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3 | |
| SP | Not meeting all gradation requirements for GW | |
| SM | Atterberg limits below "A" line or P.I. less than 4 | Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols. |
| SC | Atterberg limits above "A" line with P.I. greater than 7 | |

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent ..... GW, GP, SW, SP
More than 12 percent ..... GM, GC, SM, SC
5 to 12 percent ..... Borderline cases requiring dual symbols

## PLASTICITY CHART



# MATERIAL AND SAMPLE SYMBOLS LIST

## Pavement/Soils

- ASPH- ASPHALT PVT
- GP - Poorly-graded Gravel
- MH - Elastic Silt
- SC - Clayey Sand
- CH - Fat Clay
- GP-GC
- MH/CH
- SM - Silty Sand
- CL - Lean Clay
- GP-GM
- MH/ML
- SP - Poorly-Graded Sand
- CL-ML
- GW - Well-Graded Gravel
- MH/SM
- SP-SC
- CONC- CONCRETE PVT
- GW-GC
- ML - Silt
- SP-SM
- FL -Fill
- GW-GM
- ML/CL
- SW - Well-Graded Sand
- GC - Clayey Gravel
- GM/GP
- ML/GM
- SW-SC
- GC-GM
- GM/ML
- ML/SM
- GM - Silty Gravel
- GM/SM
- SW-SM

## Sedimentary Rocks

- CGL - Conglomorate
- SE - Shell Bed
- CLST - Cherty Limestone
- SHL - Shale
- COL - Coal
- SLS - Siltstone
- MST Mudstone
- SST - Sandstone
- GWK - Graywacke
- SST-SHL - Interbedded Sandstone/Shale
- LST - Limestone
- SST-SLS - Interbedded Sandstone/Siltstone
- UCY - Underclay
- SHLS-Shaly Limestone
- SHDS Shaly Dolostone
- MSH Silty Shale
- CHK Chalk
- SSHL Sandy Shale

## Igneous Rocks

- AND - Andesite
- BST - Basalt
- DBS - Diabase
- DRT - Diorite
- GBR - Gabbro
- GRD - Granodiorite
- GRN Granite
- POR - Porphyry
- RHY - Rhyolite

## Metamorphic Rocks

- GGE - Gouge
- GNS - Gneiss
- MYL - Mylonite
- PHY - Phyllite
- SCH - Schist
- SLT - Slate

## Misc.

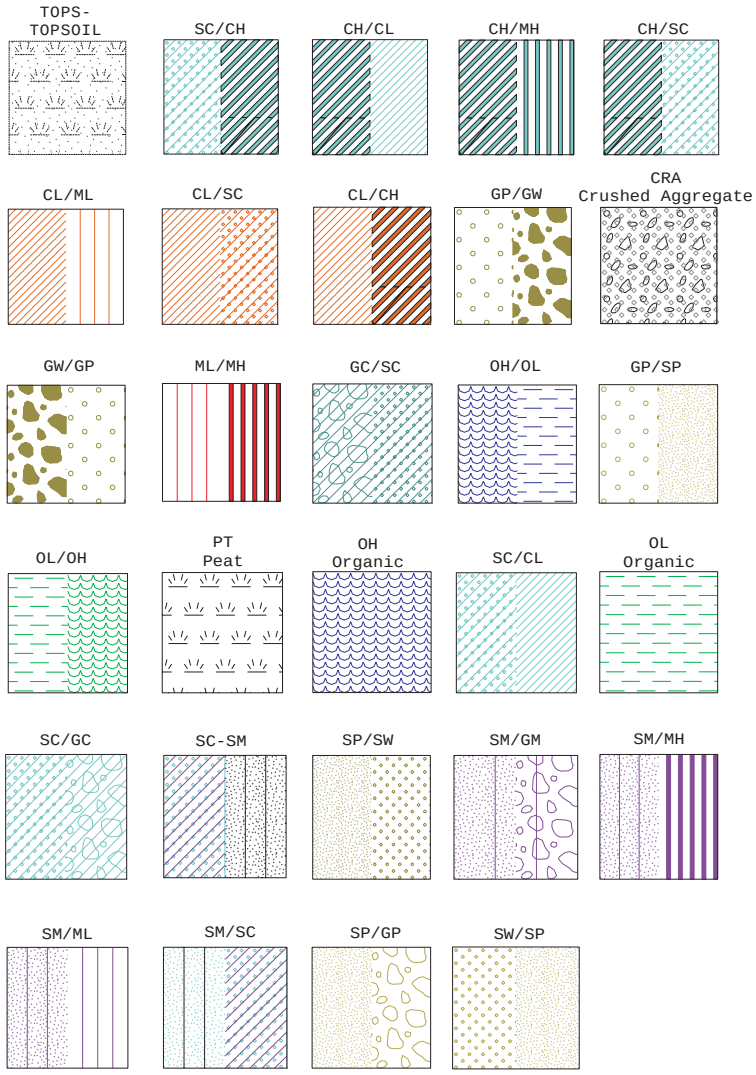
- CAV - Cavity
- HWR Highly Weathered Rock
- BRC - Breccia

## Sampling

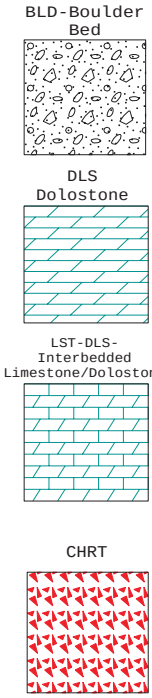
- SPT
- Core
- Auger
- Vane
- Undisturbed
- Grab
- No Recovery
- Other

# MATERIAL AND SAMPLE SYMBOLS LIST

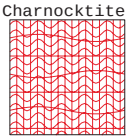
## Pavement/Soils




## Sedimentary Rocks



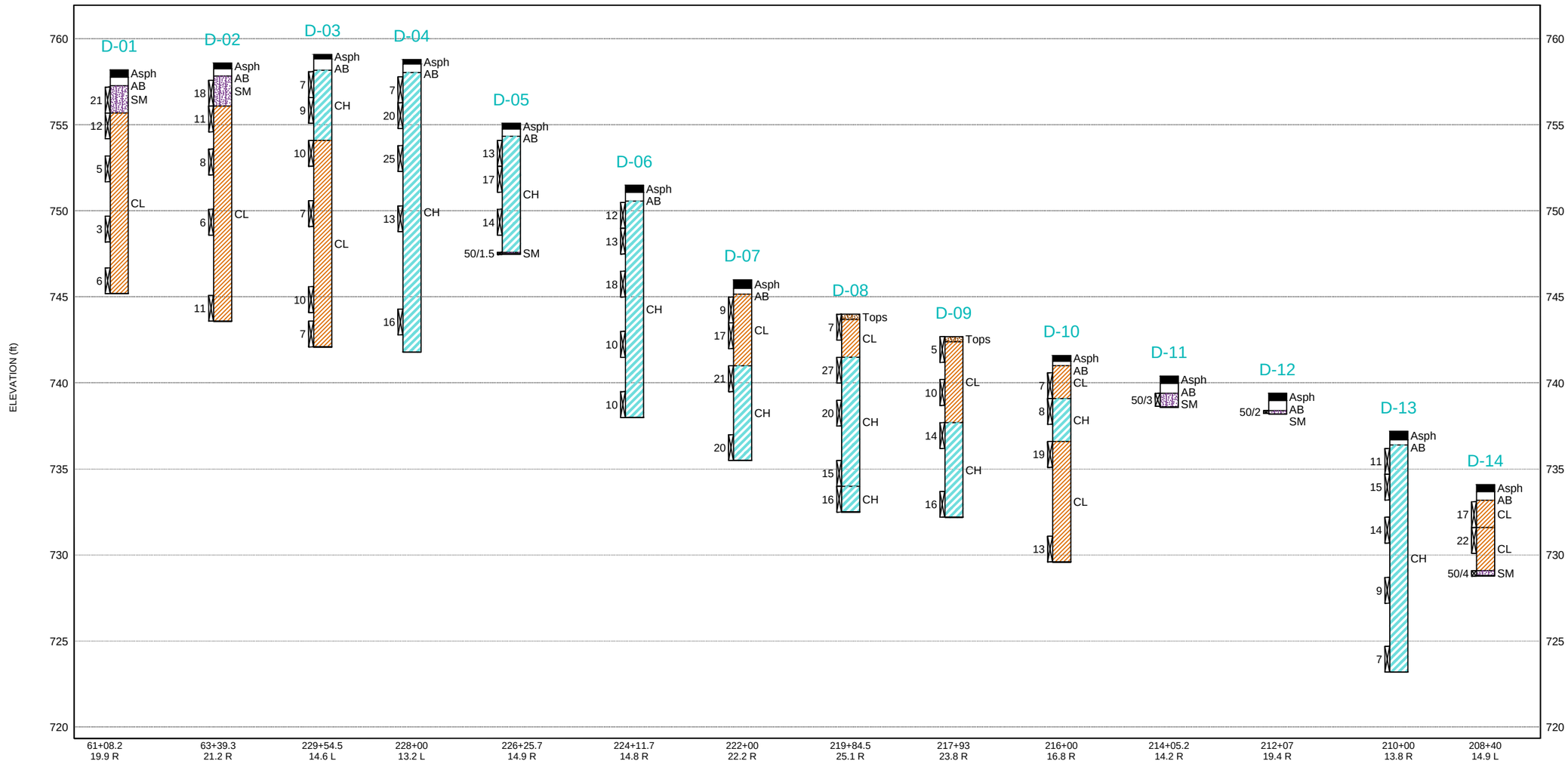

## Igneous Rocks




## Metamorphic Rocks

## Sampling

| FHWA REGION | STATE | FEDERAL AID ROUTE | FEDERAL AID PROJECT | STATE ROUTE | STATE PROJECT | SHEET NO. |
|---|---|---|---|---|---|---|
| 3 | VA. | | | | | 1 |




Notes:
See borehole logs for complete data
See Material and Sample Symbols List
For D-1 & D-2, stationing is in reference to Valley Avenue
For D-3 ~ D-14, stationing is in reference to Tevis Street

| No. | Description | Date |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Revisions

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

MATERIALS DIVISION

01.02010.01
Subsurface Profile for Storm Sewer

| Drilled: DMY | Date | Plan No. | Sheet No. |
|---|---|---|---|
| Logged: DMY | 5/22/17 | | 1 |
| Checked: MC | | | |

SPT_FENCE VALLEY AVE - VDOT.GPJ & 30.003.12.12.12 - 4/27/17

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** ROADWAY

**B-1**
**PAGE 1 OF 1**

STATION: 21+15.5 OFFSET: 18.3 R
LATITUDE: 39.144315° N LONGITUDE: 78.189548° W
SURFACE ELEVATION: 759.1 ft COORD. DATUM: NAD 83

Date(s) Drilled: 4/4/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Vazquez
Logger: V. Jha

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

**FIELD DATA** / **LAB DATA**

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) | FINES CONTENT -#200 (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 0.0 / 759.1<br>Asphalt=6 inches **Asph** | | | | |
| | | | | | | | | | | | 0.5 / 758.6<br>Aggregate Base=3 inches **AB** | | | 6.4 | |
| 2 | | 7, 14, 7, 6 | 67 | | 0.5 | | | | | | 0.75 / 758.35<br>*Fill*, Dark gray, fine to medium, SILTY SAND WITH GRAVEL FILL, medium dense, moist **SM** | | | | |
| | | 5, 5, 5, 8 | 50 | | 2.5 | | | | | | 2.5 / 756.6<br>*Residual*, Brown, FAT CLAY, firm to very hard, moist **CH** | 74 | 46 | 30.3 | 92.9 |
| 4 | 755 | 4, 4, 6, 7 | 67 | | 4.5 | | | | | | | | | 33.5 | |
| 6 | | 6, 6, 7, 10 | 100 | | 6.5 | | | | | | | | | 31.8 | |
| 8 | | 4, 4, 4, 6 | 100 | | 8.5 | | | | | | | | | 29.5 | |
| 10 | 750 | | | | 10.5 | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | |
| 14 | 745 | 50, 50, 15, 15 | 100 | | 13<br>15 | | | | | | SAME, contains rock fragments | | | 39.1 | |
| | | | | | | | | | | | 15.0 / 744.1<br>Boring Terminated | | | | |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 15 feet. Cave-in depth at 4 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**B-1**

SPT_LOGB:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17
Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** ROADWAY

**B-2**
**PAGE 1 OF 1**

STATION: 23+03.5 OFFSET: 14.8 R
LATITUDE: 39.144826° N LONGITUDE: 78.189459° W
SURFACE ELEVATION: 762.4 ft COORD. DATUM: NAD 83

Date(s) Drilled: 4/4/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Vazquez
Logger: V. Jha

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

**FIELD DATA** / **LAB DATA**

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) | FINES CONTENT -#200 (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 762 | | | | | | | | | | 0.0 / 762.4<br>Asphalt=6 inches **Asph** | | | | |
| 1.0 | | 4 | | | 0.75 | | | | | | | | | | |
| 1.5 | | 3 | | | | | | | | | 0.5 / 761.9<br>Aggregate Base=8 inches **AB** | | | | |
| 2.0 | | 3 | 59 | | | | | | | | 1.17 / 761.23<br>*Fill*, Brown and gray, GRAVELLY LEAN CLAY FILL, firm, moist **CL** | | | 20.9 | |
| 2.5 | 760 | 3 | | | 2.75 | | | | | | | | | | |
| 3.0 | | 4 | | | | | | | | | 3.0 / 759.4<br>*Residual*, Brown, LEAN CLAY, firm to stiff, moist **CL** | | | | |
| 3.5 | | 5 | 59 | | | | | | | | | 45 | 25 | 18.6 | 69.7 |
| 4.0 | | 6 | | | | | | | | | | | | | |
| 4.5 | 758 | 4 | | | 4.75 | | | | | | | | | | |
| 5.0 | | 3 | | | | | | | | | | | | | |
| 5.5 | | 3 | 75 | | | | | | | | | | | 28.1 | |
| 6.0 | | 4 | | | | | | | | | | | | | |
| 6.5 | 756 | 3 | | | 6.75 | | | | | | | | | | |
| 7.0 | | | | | | | | | | | 7.0 / 755.4<br>Boring Terminated | | | | |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 7 feet. Cave-in depth at 4 feet. Boring backfilled and patched with concrete upon completion. Bulk sample collected from 1 to 5 feet.

**PAGE 1 OF 1**
**B-2**

SPT_LOGB:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17

Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** ROADWAY

**B-3**
**PAGE 1 OF 1**

STATION: 26+69.3 OFFSET: 21.5 L
LATITUDE: 39.145838° N LONGITUDE: 78.189418° W
SURFACE ELEVATION: 768.4 ft COORD. DATUM: NAD 83

Date(s) Drilled: 4/4/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Vazquez
Logger: V. Jha

**GROUND WATER**
FIRST ENCOUNTERED AT 14.0 ft DEPTH
No long term measurements taken

**FIELD DATA** / **LAB DATA**

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) | FINES CONTENT -#200 (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 0.0 / 768.4<br>Asphalt=4 inches **Asph** | | | | |
| | | | | | | | | | | | 0.33 / 768.07<br>Aggregate Base=2 inches **AB** | 71 | 42 | 32.6 | 81.4 |
| | | | | | | | | | | | 0.5 / 767.9<br>*Residual*, Brown, FAT CLAY, trace gravel, firm to stiff, moist **CH** | | | | |
| 2 | | 3 3 5 | 83 | | 0.5 2 | | | | | | | | | | |
| 4 | 765 | 6 5 6 | 100 | | 2.5 4 | | | | | | | | | 37.7 | |
| 6 | | 5 5 6 | 100 | | 4.5 6 | | | | | | | | | 36.1 | |
| 8 | | 4 4 6 | 100 | | 6.5 8 | | | | | | | | | 37.3 | |
| 10 | 760 | 4 5 6 | 100 | | 8.5 10 | | | | | | | | | 37.0 | |
| 12 | | | | | | | | | | | | | | | |
| 14 | 755 | 2 2 1 | 100 | | 13.5 15 | | | | | | 13.5 / 754.9<br>*Residual*, Brown, LEAN CLAY, soft, moist **CL**<br>SAME, wet | | | 43.9 | |
| | | | | | | | | | | | 15.0 / 753.4<br>Boring Terminated | | | | |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 15 feet. Cave-in depth at 6 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**B-3**

SPT_LOGB:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17
Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** ROADWAY

**B-4**
**PAGE 1 OF 1**

STATION: 38+94.7 OFFSET: 17.4 L
LATITUDE: 39.149160° N LONGITUDE: 78.188745° W
SURFACE ELEVATION: 774.5 ft COORD. DATUM: NAD 83

## FIELD DATA

Date(s) Drilled: 4/4/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Vazquez
Logger: V. Jha

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

## LAB DATA

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) | FINES CONTENT -#200 (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 774 | 23 | | | 0.5 | | | | | | 0.0 / 774.5<br>Asphalt=5 inches **Asph** | | | | |
| 1.0 | | 12 | 45 | | | | | | | | 0.42 / 774.08<br>Aggregate Base=2 inches **AB** | 19 | 5 | 6.4 | 16.1 |
| 1.5 | | | | | | | | | | | | | | | |
| 2.0 | | 5 | | | 2 | | | | | | 0.58 / 773.92<br>*Fill*, Dark gray, SILTY, CLAYEY SAND WITH GRAVEL FILL, medium dense to dense, moist **SC-SM** | | | | |
| 2.5 | 772 | 9 | | | | | | | | | | | | | |
| 3.0 | | 12 | 55 | | | | | | | | | | | 3.9 | |
| 3.5 | | 7 | | | 3.5 | | | | | | | | | | |
| 4.0 | | | | | 4 | | | | | | | | | | |
| 4.5 | 770 | 8 | | | | | | | | | | | | | |
| 5.0 | | 12 | 55 | | | | | | | | | | | 1.3 | |
| 5.5 | | 23 | | | 5.5 | | | | | | | | | | |
| 6.0 | | | | | | | | | | | | | | | |
| 6.5 | 768 | | | | | | | | | | 6.5 / 768.0<br>Auger Refusal | | | | |

**REMARKS:** Rig Type: CME 45C.
Auger Refusal 6.5 feet. Boring backfilled and patched with concrete upon completion. Bulk sample collected from 1 to 5 feet.

**PAGE 1 OF 1**
**B-4**

SPT_LOGB:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17
Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** ROADWAY

**B-5**
**PAGE 1 OF 1**

STATION: 62+44.6 OFFSET: 22.8 L
LATITUDE: 39.155454° N LONGITUDE: 78.186911° W
SURFACE ELEVATION: 758.5 ft COORD. DATUM: NAD 83

Date(s) Drilled: 4/4/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Vazquez
Logger: V. Jha

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

**FIELD DATA** / **LAB DATA**

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 758 | | | | | | | | | | 0.0 / 758.5<br>Asphalt=9 inches **Asph** | | | |
| 1.0 | | 15 | | | 1 | | | | | | 0.75 / 757.75<br>Aggregate Base=2 inches **AB** | | | |
| 1.5 | | 9 | 55 | | | | | | | | | | | |
| 2.0 | | | | | | | | | | | 0.92 / 757.58<br>*Fill*, Dark gray, fine to medium, SILTY SAND FILL, trace gravel, medium dense, moist **SM** | | | 5.2 |
| 2.5 | 756 | 7 | | | 2.5 | | | | | | | | | |
| 3.0 | | 14 | | | | | | | | | | | | |
| 3.5 | | 12 | 67 | | | | | | | | 2.0 / 756.5<br>*Residual*, Brown, LEAN CLAY, firm to very stiff, moist **CL** | | | 33.8 |
| 4.0 | | 13 | | | 4 | | | | | | | | | |
| 4.5 | 754 | 8 | | | | | | | | | | | | |
| 5.0 | | 4 | 100 | | | | | | | | | | | 31.8 |
| 5.5 | | 4 | | | 5.5 | | | | | | | | | |
| 6.0 | | | | | 6 | | | | | | | | | |
| 6.5 | 752 | 4 | | | | | | | | | | | | |
| 7.0 | | 3 | 67 | | | | | | | | | | | 20.1 |
| 7.5 | | 3 | | | 7.5 | | | | | | | | | |
| 8.0 | | | | | | | | | | | 8.0 / 750.5<br>Boring Terminated | | | |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 8 feet. Cave-in depth at 5 feet. Boring backfilled and patched with concrete upon completion. Bulk sample collected from 1.1 to 5.1 feet.

**PAGE 1 OF 1**
**B-5**

SPT_LOG:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17

Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** ROADWAY

**B-6**
**PAGE 1 OF 1**

STATION: 69+76.6 OFFSET: 23.8 L
LATITUDE: 39.157411° N LONGITUDE: 78.186327° W
SURFACE ELEVATION: 761.3 ft COORD. DATUM: NAD 83

Date(s) Drilled: 4/4/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Vazquez
Logger: V. Jha

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

**FIELD DATA** / **LAB DATA**

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) | FINES CONTENT -#200 (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | | | | | | | | | | | 0.0 / 761.3<br>Asphalt=8 inches **Asph** | | | | |
| 1.0 | 760 | 23 | | | 1 | | | | | | 0.67 / 760.63<br>Aggregate Base=2 inches **AB** | | | | |
| 1.5 | | | | | | | | | | | | | | | |
| 2.0 | | 9 | 55 | | | | | | | | | | | 7.6 | |
| 2.5 | | | 7 | | 2.5 | | | | | | 0.83 / 760.47<br>*Fill*, Dark gray, fine to medium, POORLY-GRADED SAND FILL, trace gravel, medium dense, moist **SP** | | | | |
| 3.0 | | | | | | | | | | | | | | | |
| 3.5 | 758 | 3 | | | 3.5 | | | | | | 2.2 / 759.1<br>*Residual*, Brown, LEAN CLAY, firm to very stiff, moist **CL** | | | | |
| 4.0 | | 2 | 100 | | | | | | | | | 34 | 12 | 26.0 | 93.7 |
| 4.5 | | | 3 | | | | | | | | | | | | |
| 5.0 | | | | | 5 | | | | | | | | | | |
| 5.5 | 756 | 3 | | | | | | | | | | | | | |
| 6.0 | | 3 | 22 | | | | | | | | | | | 15.3 | |
| 6.5 | | | 4 | | 6.5 | | | | | | | | | | |
| 7.0 | | | | | | | | | | | | | | | |
| 7.5 | 754 | | | | | | | | | | | | | | |
| 8.0 | | | | | | | | | | | | | | | |
| 8.5 | | 2 | | | 8.5 | | | | | | 8.5 / 752.8<br>*Residual*, Brown, FAT CLAY, firm, moist **CH** | | | | |
| 9.0 | | | | | | | | | | | | | | | |
| 9.5 | 752 | 2 | 100 | | | | | | | | | | | 36.4 | |
| 10.0 | | | 3 | | 10 | | | | | | 10.0 / 751.3<br>Boring Terminated | | | | |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 10 feet. Cave-in depth at 6 feet. Boring backfilled and patched with concrete upon completion. Bulk sample collected from 1.1 to 5.1 feet.

**PAGE 1 OF 1**
**B-6**

SPT_LOGB:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17

Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** ROADWAY

**B-7**
**PAGE 1 OF 1**

STATION: 75+86.2 OFFSET: 28.1 L
LATITUDE: 39.159041° N LONGITUDE: 78.185833° W
SURFACE ELEVATION: 762.5 ft COORD. DATUM: NAD 83

Date(s) Drilled: 4/4/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Vazquez
Logger: V. Jha

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

**FIELD DATA** / **LAB DATA**

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 762 | | | | | | | | | | 0.0 / 762.5<br>Asphalt=12 inches **Asph** | | | |
| 1.0 | | | | | | | | | | | | | | |
| 1.5 | | 9 | | | 1.5 | | | | | | 1.0 / 761.5<br>Aggregate Base=2 inches **AB** | | | |
| 2.0 | | 4 | 55 | | | | | | | | 1.17 / 761.33<br>*Fill*, Dark gray, fine to medium, POORLY-GRADED SAND FILL, trace gravel, loose, moist **SP** | | | 11.0 |
| 2.5 | 760 | | | | | | | | | | | | | |
| 3.0 | | 5 | | | 3 | | | | | | 3.0 / 759.5<br>*Residual*, Brown and gray, LEAN CLAY, stiff to very hard, moist **CL** | | | |
| 3.5 | | 36 | | | 3.5 | | | | | | | | | |
| 4.0 | | 50/3 | 100 | | 4.25 | | | | | | 4.0 / 758.5<br>*IGM*, Gray, fine, SILTY SAND, very dense, moist **SM** | | | 23.6 |
| | | | | | | | | | | | 4.1 / 758.4<br>Auger Refusal | | | |

**REMARKS:** Rig Type: CME 45C.
Auger Refusal 4.1 feet. Cave-in depth at 3 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**B-7**

SPT_LOG:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17

Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** DRAINAGE PIPE

**D-01**
**PAGE 1 OF 1**

STATION: 61+08.2 OFFSET: 19.9 R
LATITUDE: 39.155063° N LONGITUDE: 78.186879° W
SURFACE ELEVATION: 758.2 ft COORD. DATUM: NAD 83

Date(s) Drilled: 4/3/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Vazquez
Logger: S. Ghany

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

**FIELD DATA** / **LAB DATA**

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 0.0 / 758.2<br>Asphalt=5 inches **Asph** | | | |
| | | 21 | | | 1 | | | | | | 0.42 / 757.78<br>Aggregate Base=6 inches **AB** | | | |
| 2 | | 17 | 55 | | | | | | | | 0.92 / 757.28<br>*Fill*, Gray, fine to medium, SILTY SAND WITH GRAVEL FILL, medium dense, moist **SM** | | | 3.3 |
| | | 4 | 4 | | 2.5 | | | | | | | | | |
| | 755 | 6 | 100 | | | | | | | | 2.5 / 755.7<br>*Residual*, Brown, LEAN CLAY WITH SAND, soft to stiff, moist **CL** | | | 29.4 |
| 4 | | 6 | | | 4 | | | | | | | | | |
| | | 3 | | | 5 | | | | | | | | | |
| 6 | | 2 | 100 | | | | | | | | | | | 34.7 |
| | | 3 | | | 6.5 | | | | | | | | | |
| 8 | 750 | | | | | | | | | | | | | |
| | | 2 | | | 8.5 | | | | | | | | | |
| | | 2 | 100 | | | | | | | | | | | 38.1 |
| 10 | | 1 | | | 10 | | | | | | | | | |
| | | | | | 11.5 | | | | | | | | | |
| 12 | | 2 | | | | | | | | | | | | |
| | | 3 | 100 | | | | | | | | | | | 30.0 |
| | | 3 | | | 13 | | | | | | | | | |
| | | | | | | | | | | | 13.0 / 745.2<br>Boring Terminated | | | |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 13 feet. Cave-in depth at 8 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**D-01**

SPT_LOG:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17

Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** DRAINAGE PIPE

**D-02**
**PAGE 1 OF 1**

STATION: 63+39.3 OFFSET: 21.2 R
LATITUDE: 39.155679° N LONGITUDE: 78.186685° W
SURFACE ELEVATION: 758.6 ft COORD. DATUM: NAD 83

Date(s) Drilled: 4/3/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Vazquez
Logger: S. Ghany

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

**FIELD DATA** / **LAB DATA**

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 0.0 / 758.6<br>Asphalt=4 inches **Asph** | | | |
| | | | | | | | | | | | 0.33 / 758.27<br>Aggregate Base=5 inches **AB** | | | |
| 2 | | 14 13 5 | 55 | | 1 2.5 | | | | | | 0.75 / 757.85<br>*Fill*, Gray, fine to medium, SILTY SAND WITH GRAVEL FILL, medium dense, moist **SM** | | | 5.0 |
| 4 | 755 | 5 5 6 | 78 | | 4 | | | | | | 2.5 / 756.1<br>*Residual*, Brown, LEAN CLAY WITH SAND, firm to stiff, moist **CL** | | | 24.7 |
| 6 | | 3 4 4 | 100 | | 5 6.5 | | | | | | | | | 32.0 |
| 8 | 750 | 2 3 3 | 100 | | 8.5 10 | | | | | | | | | 23.9 |
| 12 | | | | | | | | | | | | | | |
| 14 | 745 | 2 6 5 | 100 | | 13.5 15 | | | | | | | | | 28.5 |
| | | | | | | | | | | | 15.0 / 743.6<br>Boring Terminated | | | |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 15 feet. Cave-in depth at 9 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**D-02**

SPT_LOG:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17

Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** DRAINAGE PIPE

**D-03**
**PAGE 1 OF 1**

STATION: 229+54.5 OFFSET: 14.6 L
LATITUDE: 39.155691° N LONGITUDE: 78.186269° W
SURFACE ELEVATION: 759.1 ft COORD. DATUM: NAD 83

Date(s) Drilled: 3/30/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Pao
Logger: S. Ghany

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

**FIELD DATA** / **LAB DATA**

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) | FINES CONTENT -#200 (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 0.0 / 759.1<br>Asphalt=3 inches **Asph** | | | | |
| | | | | | 1 | | | | | | 0.25 / 758.85<br>Aggregate Base=8 inches **AB** | | | | |
| 2 | | 2 3 4 | 100 | | 2.5 | | | | | | 0.92 / 758.18<br>*Residual*, Brown, FAT CLAY WITH SAND, firm to stiff, moist **CH** | | | 29.1 | |
| 4 | 755 | 5 4 5 | 100 | | 4 | | | | | | | | | 35.1 | |
| 6 | | 5 5 5 | 100 | | 5<br>6.5 | | | | | | | 59 | 33 | 35.6 | 99.6 |
| 8 | | | | | 8.5 | | | | | | | | | | |
| 10 | 750 | 3 4 3 | 100 | | 10 | | | | | | | | | 35.5 | |
| 12 | | | | | | | | | | | | | | | |
| 14 | 745 | 5 5 5 | 100 | | 13.5<br>15 | | | | | | | | | 35.0 | |
| 16 | | 3 3 4 | 100 | | 15.5<br>17 | | | | | | | | | 32.5 | |
| | | | | | | | | | | | 17.0 / 742.1<br>Boring Terminated | | | | |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 17 feet. Cave-in depth at 9 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**D-03**

SPT_LOGB:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17
Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** DRAINAGE PIPE

**D-04**
**PAGE 1 OF 1**

STATION: 228+00 OFFSET: 13.2 L
LATITUDE: 39.155581° N LONGITUDE: 78.185741° W
SURFACE ELEVATION: 758.8 ft COORD. DATUM: NAD 83

Date(s) Drilled: 3/30/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Pao
Logger: S. Ghany

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

**FIELD DATA** / **LAB DATA**

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 0.0 / 758.8<br>Asphalt=3 inches **Asph** | | | |
| | | | | | | | | | | | 0.25 / 758.55<br>Aggregate Base=6 inches **AB** | | | |
| 2 | | 1 3 4 | 100 | | 1 2.5 | | | | | | 0.75 / 758.05<br>*Residual*, Brown, FAT CLAY WITH SAND, firm to very stiff, moist **CH** | | | 27.1 |
| 4 | 755 | 5 8 12 | 100 | | 4 | | | | | | | | | 31.0 |
| 6 | | 6 11 14 | 100 | | 5 6.5 | | | | | | | | | 33.8 |
| 8 | 750 | 4 5 8 | 100 | | 8.5 10 | | | | | | | | | 35.0 |
| 12 | | | | | | | | | | | | | | |
| 14 | 745 | 4 7 9 | 100 | | 14.5 16 | | | | | | | | | 31.9 |
| | | | | | | | | | | | 17.0 / 741.8<br>Boring Terminated | | | |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 17 feet. Cave-in depth at 8 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**D-04**



Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** DRAINAGE PIPE

**D-05**
**PAGE 1 OF 1**

STATION: 226+25.7 OFFSET: 14.9 R
LATITUDE: 39.155525° N LONGITUDE: 78.185128° W
SURFACE ELEVATION: 755.1 ft COORD. DATUM: NAD 83

Date(s) Drilled: 3/30/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Pao
Logger: S. Ghany

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

**FIELD DATA** / **LAB DATA**

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | | | | | | | | | | | 0.0 / 755.1<br>Asphalt=4 inches **Asph** | | | |
| 1.0 | 754 | 2 | | | 1 | | | | | | 0.33 / 754.77<br>Aggregate Base=5 inches **AB** | | | |
| 1.5 | | 5 | 83 | | | | | | | | | | | |
| 2.0 | | | | | | | | | | | 0.75 / 754.35<br>*Residual*, Brown, FAT CLAY WITH SAND, stiff to very stiff, moist **CH** | | | 30.0 |
| 2.5 | | 8 | | | 2.5 | | | | | | | | | |
| 3.0 | 752 | 6 | 67 | | | | | | | | SAME, trace gravel | | | |
| 3.5 | | 7 | | | | | | | | | | | | 26.9 |
| 4.0 | | 10 | | | 4 | | | | | | | | | |
| 4.5 | | | | | | | | | | | | | | |
| 5.0 | 750 | 5 | | | 5 | | | | | | | | | |
| 5.5 | | | | | | | | | | | | | | |
| 6.0 | | 6 | 100 | | | | | | | | | | | 32.0 |
| 6.5 | | 8 | | | 6.5 | | | | | | | | | |
| 7.0 | 748 | | | | | | | | | | | | | |
| 7.5 | | 50/1.5 | 31 | | 7.5<br>7.63 | | | | | | 7.5 / 747.6<br>*IGM*, Gray, fine, SILTY SAND, very dense, moist **SM** | | | |
| | | | | | | | | | | | 7.6 / 747.5<br>Auger Refusal | | | |

**REMARKS:** Rig Type: CME 45C.
Auger Refusal 7.6 feet. Cave-in depth at 4 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**D-05**

SPT_LOG:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17

Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** DRAINAGE PIPE

**D-06**
**PAGE 1 OF 1**

STATION: 224+11.7 OFFSET: 14.8 R
LATITUDE: 39.155229° N LONGITUDE: 78.184457° W
SURFACE ELEVATION: 751.5 ft COORD. DATUM: NAD 83

## FIELD DATA

Date(s) Drilled: 3/30/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Pao
Logger: S. Ghany

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

## LAB DATA

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 0.0 / 751.5<br>Asphalt=5 inches **Asph** | | | |
| | | | | | | | | | | | 0.42 / 751.08<br>Aggregate Base=6 inches **AB** | | | |
| 2 | 750 | 4 4 8 | 100 | | 1 2.5 | | | | | | 0.92 / 750.58<br>*Residual*, Brown, FAT CLAY WITH SAND, stiff to very stiff, moist<br>**CH** | | | 29.9 |
| 4 | | 6 6 7 | 100 | | 4 | | | | | | | | | 28.1 |
| 6 | 745 | 6 8 10 | 100 | | 5 6.5 | | | | | | | | | 35.0 |
| 8 | | 4 4 6 | 100 | | 8.5 10 | | | | | | | | | 33.5 |
| 12 | 740 | 5 5 5 | 100 | | 12 13.5 | | | | | | | | | 31.0 |
| | | | | | | | | | | | 13.5 / 738.0<br>Boring Terminated | | | |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 13.5 feet. Cave-in depth at 8.5 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**D-06**

SPT_LOG:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17

Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** DRAINAGE PIPE

**D-07**
**PAGE 1 OF 1**

STATION: 222+00 | OFFSET: 22.2 R
LATITUDE: 39.154796° N | LONGITUDE: 78.183935° W
SURFACE ELEVATION: 746.0 ft | COORD. DATUM: NAD 83

## FIELD DATA

Date(s) Drilled: 3/30/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Pao
Logger: S. Ghany

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

## LAB DATA

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 0.0 / 746.0<br>Asphalt=6 inches **Asph** | | | |
| | 745 | 5 | | | 1 | | | | | | 0.5 / 745.5<br>Aggregate Base=4 inches **AB** | | | |
| 2 | | 4 | 67 | | | | | | | | 0.83 / 745.17<br>*Residual*, Brown, SANDY LEAN CLAY, trace gravel, stiff to very stiff, moist **CL** | | | 18.8 |
| | | 6 | 5 | | 2.5 | | | | | | | | | |
| | | 8 | 100 | | | | | | | | | | | 17.3 |
| 4 | | 9 | | | 4 | | | | | | | | | |
| | | 6 | | | 5 | | | | | | 5.0 / 741.0<br>*Residual*, Brown, FAT CLAY, trace gravel, very stiff, moist **CH** | | | |
| 6 | 740 | 9 | 100 | | | | | | | | | | | 33.9 |
| | | 12 | | | 6.5 | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| | | 5 | | | 9 | | | | | | | | | |
| 10 | | 9 | 100 | | | | | | | | | | | 38.4 |
| | | 11 | | | 10.5 | | | | | | 10.5 / 735.5<br>Boring Terminated | | | |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 10.5 feet. Cave-in depth at 5.5 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**D-07**

SPT_LOG:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17

Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** DRAINAGE PIPE

**D-08**
**PAGE 1 OF 1**

STATION: 219+84.5 OFFSET: 25.1 R
LATITUDE: 39.154446° N LONGITUDE: 78.183381° W
SURFACE ELEVATION: 744.0 ft COORD. DATUM: NAD 83

Date(s) Drilled: 3/30/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Pao
Logger: S. Ghany

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

| DEPTH (ft) | ELEVATION (ft) | STANDARD PENETRATION TEST HAMMER BLOWS (SOIL) | SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | CORE RECOVERY (%) (ROCK) | ROCK QUALITY DESIGNATION | DIP ° STRATA | DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 3 4 | 83 | | 1.5 | | | | | | 0.0 / 744.0<br>Topsoil=4 inches **Tops**<br>0.3 / 743.7<br>*Residual*, Brown and gray, SANDY LEAN CLAY, trace gravel, contains trace roots, firm, moist **CL** | | | 15.7 |
| 2 | | 7 10 17 | 100 | | 2.5<br>4 | | | | | | 2.5 / 741.5<br>*Residual*, Brown and gray, LEAN CLAY WITH SAND, stiff to very stiff, moist **CH** | | | 32.3 |
| 4 | 740 | 6 9 11 | 100 | | 5<br>6.5 | | | | | | | | | 23.1 |
| 6 | | | | | | | | | | | | | | |
| 8 | | 4 6 9 | 100 | | 8.5<br>10 | | | | | | | | | 23.9 |
| 10 | 735 | 11 8 8 | 100 | | 11.5 | | | | | | 10.0 / 734.0<br>*Residual*, Brown, SANDY LEAN CLAY, very stiff, moist **CH**<br>11.5 / 732.5<br>Boring Terminated | | | 24.9 |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 11.5 feet. Cave-in depth at 6.5 feet. Boring backfilled upon completion.

**PAGE 1 OF 1**
**D-08**

SPT_LOG:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17
Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** DRAINAGE PIPE

**D-09**
**PAGE 1 OF 1**

STATION: 217+93 OFFSET: 23.8 R
LATITUDE: 39.154288° N LONGITUDE: 78.182783° W
SURFACE ELEVATION: 742.7 ft COORD. DATUM: NAD 83

Date(s) Drilled: 3/30/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Pao
Logger: S. Ghany

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

## FIELD DATA / LAB DATA

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 2 3 | 89 | | 1.5 | | | | | | 0.0 / 742.7<br>Topsoil=4 inches **Tops**<br>0.3 / 742.4<br>*Residual*, Dark brown, LEAN CLAY WITH SAND, contains trace roots, firm to stiff, moist **CL** | | | 21.5 |
| 2 | 740 | 3 4 6 | 100 | | 2.5<br>4 | | | | | | | | | 24.3 |
| 4 | | | | | | | | | | | | | | |
| 6 | | 3 6 8 | 100 | | 5<br>6.5 | | | | | | 5.0 / 737.7<br>*Residual*, Brown, FAT CLAY WITH SAND, trace gravel, stiff to very stiff, moist **CH** | | | 31.6 |
| 8 | 735 | | | | | | | | | | | | | |
| 10 | | 5 6 10 | 100 | | 9<br>10.5 | | | | | | SAME, Brown and gray<br>10.5 / 732.2<br>Boring Terminated | | | 29.5 |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 10.5 feet. Cave-in depth at 6 feet. Boring backfilled upon completion.

**PAGE 1 OF 1**
**D-09**

SPT_LOG:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17
Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** DRAINAGE PIPE

**D-10**
**PAGE 1 OF 1**

STATION: 216+00 OFFSET: 16.8 R
LATITUDE: 39.154258° N LONGITUDE: 78.182106° W
SURFACE ELEVATION: 741.6 ft COORD. DATUM: NAD 83

Date(s) Drilled: 4/4/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Vazquez
Logger: V. Jha

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LAB DATA: LIQUID LIMIT (LL) | LAB DATA: PLASTICITY INDEX (PI) | LAB DATA: MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 0.0 / 741.6<br>Asphalt=4 inches **Asph** | | | |
| | | | | | | | | | | | 0.33 / 741.27<br>Aggregate Base=3 inches **AB** | | | |
| 2 | 740 | 4 4 3 | 55 | | 1 | | | | | | 0.58 / 741.02<br>*Residual*, Brown and gray, LEAN CLAY, trace gravel, firm, moist **CL** | | | 17.0 |
| 4 | | 3 3 5 | 67 | | 2.5 4 | | | | | | 2.5 / 739.1<br>*Residual*, Brown, FAT CLAY, firm, moist **CH** | | | 32.5 |
| 6 | 735 | 3 5 14 | 100 | | 5 6.5 | | | | | | 5.0 / 736.6<br>*Residual*, Brown and gray, LEAN CLAY, stiff to very stiff, moist **CL** | | | 30.2 |
| 8 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 12 | 730 | 4 5 8 | 100 | | 10.5 12 | | | | | | 12.0 / 729.6<br>Boring Terminated | | | 30.8 |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 12 feet. Cave-in depth at 6 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**D-10**

SPT_LOG:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17

Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** DRAINAGE PIPE

**D-11**
**PAGE 1 OF 1**

STATION: 214+05.2 OFFSET: 14.2 R
LATITUDE: 39.154255° N LONGITUDE: 78.181420° W
SURFACE ELEVATION: 740.4 ft COORD. DATUM: NAD 83

Date(s) Drilled: 4/3/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Vazquez
Logger: S. Ghany

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

| FIELD DATA | | | | | | | | | | | LAB DATA | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SOIL | | | | ROCK | | | | | | | |
| | | | | | | | | DIP ° | | | | | |
| DEPTH (ft) | ELEVATION (ft) | STANDARD PENETRATION TEST HAMMER BLOWS | SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | CORE RECOVERY (%) | ROCK QUALITY DESIGNATION | STRATA | JOINTS | STRATA LEGEND | LIQUID LIMIT | PLASTICITY INDEX | MOISTURE CONTENT (%) |
| 0.2 | 740 | | | | | | | | | | | | |
| 0.4 | | | | | | | | | | | | | |
| 0.6 | | | | | | | | | | | | | |
| 0.8 | | | | | | | | | | | | | |
| 1.0 | | | | | | | | | | | | | |
| 1.2 | | 17 | | | 1 | | | | | | | | |
| 1.4 | 739 | 50/3 | 44 | | | | | | | | | | |
| 1.6 | | | | | 1.75 | | | | | | | | |
| 1.8 | | | | | | | | | | | | | |

**FIELD DESCRIPTION OF STRATA**

0.0 / 740.4
Asphalt=5 inches **Asph**

0.42 / 739.98
Aggregate Base=7 inches **AB**

1.0 / 739.4
*IGM*, Gray, fine, SILTY SAND, very dense, moist **SM**

1.8 / 738.6
Auger Refusal

**REMARKS:** Rig Type: CME 45C.
Auger Refusal 1.8 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**D-11**

SPT_LOG:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17

Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** DRAINAGE PIPE

**D-12**
**PAGE 1 OF 1**

STATION: 212+07 OFFSET: 19.4 R
LATITUDE: 39.154269° N LONGITUDE: 78.180722° W
SURFACE ELEVATION: 739.4 ft COORD. DATUM: NAD 83

Date(s) Drilled: 4/3/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Vazquez
Logger: S. Ghany

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

| FIELD DATA | | | | | | | | | | | LAB DATA | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SOIL | | | | ROCK | | | | | | | |
| | | | | | | | | DIP ° | | | | | |
| DEPTH (ft) | ELEVATION (ft) | STANDARD PENETRATION TEST HAMMER BLOWS | SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | CORE RECOVERY (%) | ROCK QUALITY DESIGNATION | STRATA | JOINTS | STRATA LEGEND | LIQUID LIMIT | PLASTICITY INDEX | MOISTURE CONTENT (%) |
| 0.2 | 739 | | | | | | | | | | | | |
| 0.4 | | | | | | | | | | | | | |
| 0.6 | | | | | | | | | | | | | |
| 0.8 | | | | | | | | | | | | | |
| 1.0 | | 50/2 | 100 | | 1 | | | | | | | | |
| 1.2 | | | | | 1.17 | | | | | | | | |

**FIELD DESCRIPTION OF STRATA**

0.0 / 739.4
Asphalt=5 inches **Asph**

0.42 / 738.98
Aggregate Base=7 inches **AB**

1.0 / 738.4
*IGM*, Gray, fine, SILTY SAND, very dense, moist **SM**

1.2 / 738.2
Auger Refusal

**REMARKS:** Rig Type: CME 45C.
Auger Refusal 1.2 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**D-12**

SPT_LOG:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17

Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** DRAINAGE PIPE

**D-13**
**PAGE 1 OF 1**

STATION: 210+00 OFFSET: 13.8 R
LATITUDE: 39.154177° N LONGITUDE: 78.179983° W
SURFACE ELEVATION: 737.2 ft COORD. DATUM: NAD 83

Date(s) Drilled: 4/3/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Vazquez
Logger: S. Ghany

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

**FIELD DATA** / **LAB DATA**

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 0.0 / 737.2<br>Asphalt=6 inches **Asph** | | | |
| | | | | | | | | | | | 0.5 / 736.7<br>Aggregate Base=5 inches **AB** | | | |
| 2 | 735 | 4 4 7 | 89 | | 1 | | | | | | 0.8 / 736.4<br>*Residual*, Brown and gray, FAT CLAY WITH SAND, trace gravel, firm to very stiff, moist **CH** | | | 35.3 |
| 4 | | 7 6 9 | 100 | | 2.5 | | | | | | | | | 35.6 |
| 6 | | 4 6 8 | 100 | | 4 5 6.5 | | | | | | | | | 36.3 |
| 8 | 730 | 3 4 5 | 100 | | 8.5 10 | | | | | | | | | 38.5 |
| 12 | 725 | 3 3 4 | 100 | | 12.5 14 | | | | | | | | | 48.9 |
| | | | | | | | | | | | 14.0 / 723.2<br>Boring Terminated | | | |

**REMARKS:** Rig Type: CME 45C.
Boring Terminated 14 feet. Cave-in depth at 8 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**D-13**

SPT_LOG:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17

Copyright 2017, Commonwealth of Virginia

Virginia Department of Transportation

**PROJECT #:** 01.02010.01
**LOCATION:** Winchester, Virginia
**STRUCTURE:** DRAINAGE PIPE

**D-14**
**PAGE 1 OF 1**

STATION: 208+40 OFFSET: 14.9 L
LATITUDE: 39.153895° N LONGITUDE: 78.179539° W
SURFACE ELEVATION: 734.1 ft COORD. DATUM: NAD 83

Date(s) Drilled: 4/3/17
Drilling Method(s): 2.25 in HSA
SPT Method: Automatic
Other Test(s):
Driller: D. Vazquez
Logger: S. Ghany

**GROUND WATER**
Ground water was not encountered during drilling
No long term measurements taken

**FIELD DATA** / **LAB DATA**

| DEPTH (ft) | ELEVATION (ft) | SOIL: STANDARD PENETRATION TEST HAMMER BLOWS | SOIL: SOIL RECOVERY (%) | SAMPLE LEGEND | SAMPLE INTERVAL | ROCK: CORE RECOVERY (%) | ROCK: ROCK QUALITY DESIGNATION | ROCK: DIP ° STRATA | ROCK: DIP ° JOINTS | STRATA LEGEND | FIELD DESCRIPTION OF STRATA | LIQUID LIMIT (LL) | PLASTICITY INDEX (PI) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | | | | | | | | | | | 0.0 / 734.1<br>Asphalt=5 inches **Asph** | | | |
| 1.0 | | 3 | | | 1 | | | | | | 0.42 / 733.68<br>Aggregate Base=6 inches **AB** | | | |
| 1.5 | | 10 | 28 | | | | | | | | | | | |
| 2.0 | 732 | | | | | | | | | | 0.92 / 733.18<br>*Fill*, Brown, LEAN CLAY WITH SAND FILL, trace gravel, contains Asphalt, very stiff, moist **CL** | | | 25.4 |
| 2.5 | | 7 | | | 2.5 | | | | | | | | | |
| 3.0 | | 9 | | | | | | | | | 2.5 / 731.6<br>*Residual*, Brown, LEAN CLAY WITH SAND, contains rock fragments, very stiff, moist **CL** | | | 27.4 |
| 3.5 | | 14 | 67 | | | | | | | | | | | |
| 4.0 | 730 | 8 | | | 4 | | | | | | | | | |
| 4.5 | | | | | | | | | | | | | | |
| 5.0 | | 50/4 | 100 | | 5<br>5.33 | | | | | | 5.0 / 729.1<br>*IGM*, Gray, fine, SILTY SAND, very dense, moist **SM** | | | |
| | | | | | | | | | | | 5.3 / 728.8<br>Auger Refusal | | | |

**REMARKS:** Rig Type: CME 45C.
Auger Refusal 5.3 feet. Cave-in depth at 4 feet. Boring backfilled and patched with concrete upon completion.

**PAGE 1 OF 1**
**D-14**

SPT_LOG:VALLEY AVE - VDOT.GPJ:8.30.003:121212:5/30/17

Copyright 2017, Commonwealth of Virginia