SECTION 01100 – SUMMARY OF THE WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS: Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Rickey Road Waterline Extension

1. Project Location: Southeast of Wytheville, VA along Rickey Road – VA Rt. 634 between Fort Chiswell, Virginia and Austinville, Virginia.

2. Owner: Wythe County, Virginia, Stephen D. Bear-County Administrator, 340 South 6th Street, Wytheville, VA 24382

B. Engineer Identification: The Contract Documents, dated November 2018 were prepared for this Project by Peed & Bortz, LLC, Civil and Environmental Engineers, 20 Midway Plaza Drive Ste. 100, Christiansburg, VA 24073.

C. The Work consists of installation of 8" water mains and associated appurtenances. The project location is southeast of Wytheville, Virginia.

D. Contractor will install a project sign at location to be coordinated with Owner and VDOT.

E. Contractor will obtain current versions of all required VDOT forms. Forms provided in the Contract Documents are for reference only.

1.3 CONTRACT

A. Project will be constructed under one contract.

1.4 WORK SEQUENCE

1. General: The Work will be constructed in one phase.

1.5 USE OF PREMISES

A. Unless easements or property delineations are shown on the plans, all work will be performed in existing right-of-way, within County property, or within easements procured by the Owner.

B. VDOT Land Use Permit: Contractor will be responsible for application for permit, paying for permit fee, and providing bond for the Land Use Permit.

1. Permit Fee and VDOT bond are as follows Fee: $300 Bond: $63,000

2. Contractor will be required to provide a traffic management plan in accordance with the latest version of the Virginia Work Area Protection Manual to VDOT as part of the LUP submittal.

3. All land use permit applicants will be required to provide at least one person verified by VDOT in basic work zone traffic control for all activities involving installation, maintenance or removal of work zone traffic control devices within state maintained right of way. An employee verified by VDOT in Intermediate Work Zone Traffic Control will be required to be on-site to provide supervision during work zone adjustments or changes to traffic control due to field conditions. These employees will provide evidence of these verifications upon request from VDOT personnel.
4. All work on VDOT right of way must be in accordance with VDOT requirements, which will take precedence if there is any conflict with the plans/specifications.
5. The Contractor will endeavor to keep the edge of the trench in any location no closer to the edge of pavement than the depth, or about 48", to prevent undermining the pavement. Waterline installed between the edge of pavement and the guardrail with less than 4' of clear space between the face of guardrail will require VDOT review of the trench and backfill VDOT roadways. VDOT (Pam Heath 276-591-6837) shall be contacted to inspect these installations prior to backfilling at which point Gravel Shoulder Backfill may be required by VDOT. Contractor is responsible for any and all measures required to protect and/or relocate buried underground electrical, phone, cable or other utilities. After marking by Miss Utility, Contractor will review constrained work areas prior to construction with the Engineer to determine if Gravel Shoulder Backfill is necessary. Contractor will review (with Engineer) other site constrained areas (ditches within 2' of EP with a backslope 1:1 or greater, less than 4' of shoulder between EP and ROW, etc,) prior to construction to determine if Gravel Shoulder Backfill is warranted. Contractor will contact the Engineer prior to installation of any Gravel Shoulder Backfill to be paid for under the contract unit prices.
6. Any pavement that is undermined or damaged shall be cut out and replaced in accordance with VDOT requirements within the LUP-OCPR. This detail also applies if any of the road crossings end up having to be open-cut instead of bored.
7. Any guardrail that is damaged, undermined, or loosened by construction activities shall be repaired or replaced in accordance with VDOT guardrail specifications.
8. All trenches on the right of way shall be backfilled in lifts and properly compacted in accordance with VDOT requirements. Compaction testing should be performed by an independent third-party testing agency, and the test reports will be required before the permit is completed and the bond is released.
9. There shall be no manholes or boxes, or any appurtenances installed in the ditchline or on the shoulder between the ditch and pavement. The top of any manholes or boxes installed on the shoulder of fill sections shall be approximately 2" below grade.
10. There shall be no fire hydrants or any other above grade appurtenances installed on the shoulder, in the ditchline, or within the clear zone as defined by the VDOT Road Design Manual, Appendix A-2. (See Table A-2-1 included in the Contract Documents.)
11. In general, the waterline shall be installed below or beyond the end of drainage pipes and structures. Waterline installed above the pipe, with a full section of waterline pipe to be centered on the cross pipe, will require VDOT review to inspect these crossings before installation, and prior to covering.
12. All crossings of VDOT asphalt paved roadways will be jack & bore or directional drilled. Contractor may not open-cut roadway without written authorization from VDOT and in compliance with VDOT permits.

C. The Contractor shall provide all water required for earthwork operations. Wythe County will supply potable water for pipeline testing and disinfection equal to two times the pipeline volume. All water in excess of this volume will be purchased by the Contractor from the County.

D. The Contractor will contact individual property owners when the work crosses their driveway or otherwise impacts the use of their property.

E. The Contractor will coordinate all open-cutting of roadways, with the County and adjacent property owners to allow for through traffic at all times. If through traffic cannot be maintained continuously, notify the County, Engineer, and effected property owners at least 48 hours in advance. Contractor will make

provisions to allow for through traffic as necessary. All roadways & access drives will be fully passable and the end of the workday.

F. Rural Development Mitigation Requirements: The work will be completed in compliance with the following requirements:

~~1. *Work within the floodplain will be accomplished in strict conformance with the Erosion and Sediment Control Regulations. This work will require a Virginia Marine Resources Commission Permit because this project will cross Reed Creek and Cripple Creek. All work will be in compliance with the VMRC permit.*~~

2. Plans and specifications will include a provision that if archaeological resources are encountered, work in the immediate area will be halted and the Department of Historic Resources contacted to provide guidance.
   a. Contractor will immediately cease work and notify the Engineer, Owner and DHR if archaeological resources are encountered.
3. If any cave entrances, pits active sinkholes, or springs are encountered during any phase of the project, the applicant will coordinate with the Virginia Karst Program at (540) 394-2552.
4. All permits must be obtained prior to the start of construction activities. Any recommendations from the Virginia Department of Game and Inland Fisheries (DGIF) relating to endangered/threatened species and their critical habitat as a result of the permitting process will be adopted and strictly adhered to prior to the start of construction.
5. Soil and erosion during construction could impact stream water quality and affect the Green Floater habitat. Due to the legal status of the Green Floater, coordination with DGIF will be carried out to ensure compliance with protected species legislation.
   a. Time of year restrictions: ~~*Contractor may not work in Venrick Run between March 15th and May 15th.*~~
6. To minimize air impacts, the contractor will be required to keep all disturbed areas moist and reestablish vegetation within 30 days after construction is complete. Construction activities must adhere to the following air pollution regulations: Fugitive Dust and Emission Control, 9 V AC 5-50-60 et seq., and Open Burning Restrictions, 9 V AC 5-40-5600 et seq.
7. To minimize noise impacts, construction activities will only be permitted during daylight hours.
8. To mitigate transportation system impacts, a VDOT permit will be secured allowing the project to be constructed within the VDOT rights-of-way. The contractor will be required to develop a traffic control plan and implement these measures during construction.

1.6 FUTURE WORK

A. Future Contract: No future contractors are anticipated at this time.

1.7 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "Master Format" numbering system.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred, as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

    a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.8 RECORD DRAWINGS

A. General: The Contractor will submit to the Engineer at the Final Completion inspection, record drawings of the project. Engineer will provide Contractor with one set of reproducible plan sheets upon request. The record drawings provided to the Engineer will be in a legible, reproducible format and show all revisions/changes to the plans made during construction, including horizontal and vertical location changes.

1. The Contractor will locate the following elements post construction:
    a. Water line horizontal alignment
        1) Locate straight alignment at intervals not to exceed 200 l.f.
        2) Locate alignment at all bends in excess of 8 degrees.
        3) Locate centerline of alignment on State Plane Coordinate system to +/- the diameter of the water line.
        4) Valves
        5) Fire Hydrants
        6) Meters
        7) Vaults
        8) Plugged or capped abandoned water lines
2. The Contractor will identify all depth changes which deviate from the plan drawings.

B. Contractor will provide a benchmark at the tank site consisting of a surveyed mark (chiseled concrete, nail in concrete, or other acceptable benchmark) with State Plane coordinates including elevation.

1.9 MATERIAL TESTING

A. Concrete testing: The Contractor will provide an approved testing agency to test concrete in accordance with the Specifications.

B. Earthwork and aggregate material testing: The Contractor will provide an approved testing agency to test earthwork and aggregate material in accordance with the Specifications.

1.10 SCHEDULE OF VALUES

A. Schedule of Values: The estimated unit prices from the Bid Form will serve as the schedule of values for each bid item citing estimated material quantities and the associated unit costs.

B. Water meters will be staked out by the inspector prior to installation. If, due to rock conditions agreed upon by the Contractor and Inspector, the service casing bore must be relocated from the design location, the Contractor will be responsible for installing service line within the ROW back to the design water meter location. Any additional service line will be paid for at the contract unit price.

C. Service Crossing of VDOT Roadways-Rock Conditions
1. Contractor will notify the Inspector if he believes that a service bore will not be able to be installed in the design location due to rock conditions.

~~2. Contractor will be required to attempt one Service Casing installation at the design location or a relocated location. Should this installation fail and the Contractor opts to utilize the successfully installed portion and complete the casing with the Service Casing Guaranteed Install, Contractor will be paid the Service Casing length successfully installed at the appropriate unit price. The remainder of the installation will be paid for at the Service Casing Guaranteed Install unit price.~~

~~3. Should the Contractor choose to not use the partially installed casing, Contractor will not be paid for the first failed attempt or any future failed attempts unless the Owner specifically directs the Contractor to make future casing install attempts.~~

~~a. All casing installed & utilized using directional drill methods or jack & bore will be paid for at the appropriate size Service Casing unit price.~~

~~b. All casing installed by open cut or with rock directional drill or rock jack & bore will be paid for at the appropriate Service Casing Guaranteed Install unit price. Inspector must concur and Engineer must be notified prior to Guaranteed Install casing construction.~~

~~c. If service is open cut, all milling, asphalt, stone backfill & asphalt patching will be paid for under the Service Casing Guaranteed Install unit price.~~

D. Casing and Conduits

1. Contractor may use larger casings and conduits than specified in the Contract Documents at no additional cost to the Owner. Owner will not be responsible for any additional cost for appurtenances required for upsized casings including spiders, spacers, end caps, additional construction area or any other material or labor required to properly complete the work. Contractor will notify Owner at least 48 hours prior to installing larger casings or conduits.

2. Contractor may extend casings and conduits beyond the specified plan design length at no additional cost to the Owner. If the Contractor believes the casing or conduit must be extended due to site conditions, Contractor will notify and must receive Owner and/or Engineer approval for extended casings prior to requesting payment for casing.

1.11 CONSTRUCTION STAKING

A. General: The Contractor will be responsible for providing all construction staking and all other surveying needs.

B. Benchmarks: The Engineer will assist the Contractor in laying out the waterline alignment in all locations adjacent to property lines/fencelines or roadway pavement. The Owner will provide adequate horizontal and vertical benchmarks at the tank site. The Contractor will be responsible for construction stakeout of the booster station within the ROW.

C. After Contractor stakes the work, Contractor, Engineer and Owner will field review the stakeout prior to construction. Contractor will provide at least 48 hours notice prior to field review.

D. After stakeout or prior to construction of water mains, Contractor will notify Engineer of all high points without air release valves or fire hydrants. Contractor will notify Engineer of such conditions prior to construction of the water main to allow for Engineer to decide if an air release valve or fire hydrant is required at suspect locations. No additional payment, beyond the unit cost of the item(s), will be paid if the Contractor must add such devices after water main installation if the Contractor does not notify the Engineer.

E. Contractor will stakeout and coordinate all fire hydrant locations with the Inspector and VDOT prior to installation.

1.12 EROSION CONTROL

A. General: The Contractor will be responsible for complying with all provisions of the erosion and sediment control narrative, erosion control permit, plans and notes including the construction, installation and maintenance of all mechanical and vegetative erosion and sediment control measures for the duration of the project. If unforeseen erosion or sediment problems arise during the construction, the Contractor will implement corrective measures acceptable to the Inspector or Engineer. Contractor will comply with the erosion control provisions of the contract documents, requirements of the local governing municipality (county, town and/or city), and the latest edition of the Virginia Erosion and Sediment Control Handbook.

B. Stabilization: MS-1 Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary Soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 30 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year. Gravel will be applied to all disturbed paved areas immediately following installation of pipeline.

C. Wythe County Erosion Control Permit: The Owner/Engineer will be responsible for applying for, paying for permit fee, and obtaining the permit based on the erosion control plan provided by the Engineer. The Contractor will be responsible for complying with the requirements of the Wythe County E&S permit.

~~D. VSMP Permit: The Owner will be responsible for applying for, paying for permit fee, and obtaining the VSMP permit based on the erosion control plan provided by the Engineer. The Contractor will be responsible for complying with the requirements of the VSMP permit which includes compliance with the Erosion and Sediment Control Narrative and installation and proper maintenance of E&S controls shown on the plans. The Contractor will be responsible for maintaining a copy of the VSMP permit at the job site.~~

~~E. Wythe County Building Permit: The Contractor will be responsible for applying for and obtaining the permit. Permit fee will be waived by the County. The Contractor will be responsible for complying with the requirements of the Wythe County Building permit.~~

1.13 PRESSURIZED PIPELINE TESTING AND RECONNECTIONS

A. General: The Owner will provide a volume of water equal to 2 times the volume of the line for pressure testing of each line and for disinfection of the water line. Any additional water required by the Contractor may be purchased from the Owner.

B. Contractor is responsible for installing (and properly abandoning) any additional taps, waterline, temporary piping, pumps, flushing appurtenances, de-chlorination of flushing water, etc., as required to property test and disinfect the water line.

C. Contractor will test all mains prior to installation of any service taps. All service taps will be made in the wet under pressure.

D. Contractor(s) is responsible for ensuring the condition of the water in the booster station and within the water lines is potable and ready for distribution when turned over to the Owner at Substantial Completion.

1.14 BLASTING

A. General: Blasting will be done in strict accordance with the most recent edition of the Virginia Statewide Fire Prevention Code (VR 394-01-6). The Contractor will adhere to the requirements of Wythe County, VDOT, and will notify the County prior to any blasting.

1.15 OSHA REQUIREMENTS

A. General: The Contractor will be responsible for performing all excavation, pipe installation and backfilling in accordance with the 1990 OSHA Excavation Standards 29 CFR Part 1926, Subpart P. The Contractor's responsibility also extends to providing a "Competent Person" as defined by the OSHA regulation referenced above on the job site.

1.16 TRAFFIC AND ROADWAYS

A. Contractor will comply with the most recent versions of VDOT form LUP-SP and VDOT form LUP-WZ Special Provisions.

B. This project includes extensive work in VDOT right-of-way. The contractor shall provide all necessary traffic control to ensure safety of the traveling public and in accordance with VDOT requirements.

C. No trench will be left open overnight or while otherwise unattended without permission by the Owner/Engineer. Any trench left open will be suitably protected with steel plating suitable for H-20 loading.

D. Bore pits will not be left overnight unless protected by steel plating or concrete barriers as acceptable to VDOT. Contractor will verify location and layout of steel plating and/or concrete barriers by VDOT prior to leaving the work area overnight.

1.17 BURNING

A. Contractor may burn brush provided contractor complies with all local, state and federal regulations. Contractor will obtain all permissions required to burn debris on private lands and restoration of area when complete. Burning debris and associated activities will be at no additional cost to the Owner. Contractor will obtain permission from the Wythe County Fire Marshall prior to any burning.

1.18 FENCING

A. Contractor will replace (in-kind or better) or repair all disturbed fencing. Fencing which is obviously unusable within the easement area will be removed and will not be replaced.

1.19 PRE-CONSTRUCTION AUDIO-VISUAL SURVEY

A. Prior to starting construction within two weeks of a work area, Contractor shall perform an audio-visual survey of the project site. Record shall be printed on new, high-resolution DVD or provided in digital form on a USB drive or memory card. Video display will show location, description of existing structures and landscaping, including time, date, address, and compass direction of travel and view. Footage shall be correlated to plan sheet stationing. Vulnerable, damaged, or deteriorated areas within the zone of influence will be shown. Travel speed shall be approximately 50 ft/min. with a minimum camera elevation of 5 feet over the work with a minimum 30-foot width showing construction area. Recording must be compatible with standard DVD or PC video players. Contractor shall provide copies to the Engineer

and Owner at the Pre-construction Conference and as construction progresses. Due to the duration of this project, if the Contractor opts to video portions of the project just prior to working in individual areas, the video of the existing conditions will be turned over to the Owner/Engineer no later than the payment application request for that portion of the work. Contractor shall provide a remake of any tape not to the Engineer's and Owner's satisfaction. The first partial payment request will not be processed until the first acceptable recording is provided by the Contractor.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01100

SECTION 01270 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for unit prices.

1.3 DEFINITIONS

A. Unit price is an amount proposed by bidders and stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

B. Measurement and Payment: The Bid in Section 5.01 of the Bid Form consists of Unit Price bid items. The general scope of work included in these bid items is included at the end of this Section.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A list of unit prices is included at the end of this Section.

E. Schedules: The bid has been divided into three schedules to subdivide project costs.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

A. Bid Items:

1. Mobilization: Mobilization will not be measured but will be considered as a lump sum payment limited to 3% of the original contract amount. Project sign shall be included in mobilization bid item.

2. Water and Service Line: Water and service lines will be measured in linear feet for each size and type installed. Measurement will be horizontally through all valves and fittings and will be paid for at the contract unit price per linear foot for each size of pipe specified and to the points noted on the plans. This price will include compensation for all labor, materials, tools, equipment, and incidentals necessary to complete this work in accordance with these specifications. This unit price also includes installing waterline and water services in casings and casing installation will be paid under a separate line item.

3. Fire Hydrant: Hydrants will be measured by the number and type of each installed and paid for at the contract unit price per each. This price will include hydrant, hydrant base elbow, and incidentals. In addition, the price will be full compensation for excavation, backfill with suitable material, compaction, connections, concrete blocking, tie rods, crushed stone drain, disposal of surplus or unsuitable materials, restoration of property, testing, and for furnishing all labor materials, tools, equipment and incidentals necessary to complete the work. All joint restraints on the branch side of the mainline tee to the hydrant will be considered incidental to this line item. Mainline tee, 6" or 8" gate valve and 6" pipe will be paid for under separate items.

4. Valves: Valve price shall include box & lid and will be measured by the number of each size installed and will be paid for at the contract unit price for each size specified. This price will be full compensation for furnishing all labor, materials, tools, equipment and incidentals necessary to complete the work.

5. Fittings: Pipe fittings, couplings, reducers, tees, elbows, plugs, crosses and similar connectors will be paid for per weight for standard ductile iron fittings as listed in AWWA C110. Fittings and connectors smaller than 4" diameter will not be paid for under this item but will be considered incidental to the pipe line item. The weight used for payment will be per the chart included at the end of this section. Contractor has the prerogative to utilize restrained joint or compact fittings at no additional compensation or increase in the contract price.

6. Joint Restraint: Joint restraints will be paid for per size per each as installed. Restraints installed on the branch run of a mainline tee will be considered incidental to the fire hydrant price and will not be paid for under this line item. This price shall be full compensation for furnishing all labor, materials, tools, equipment and incidentals necessary to complete the work.

7. Residential Meter: Residential Meter price will be measured and paid per each item installed and includes saddle at water main, corporation stop at water main, meter setter, meter, PRV, fittings, box, frame, and cover for a residential meter per the contract documents. This price will include compensation for all labor, materials, tools, equipment, unclassified excavation, and incidentals necessary to complete this work as shown on the plans and in accordance with these specifications. Water meter will be purchased by the contractor & installed by the Contractor.

8. Residential Meter Reconnection: Residential Meter Reconnection price will be measured and paid per each item to remove existing connection and connect meter to the newly installed water main per the contract documents. This item will include excavating existing saddle connection, removal of existing service connection, closing existing service tap/corp stop, proper abandonment of existing tap, relocation of existing service tubing to newly installed saddle connection, saddle and tap for newly installed water main and connection of service lateral tubing to newly installed tap. This price will include compensation for all labor, materials, tools, equipment, unclassified excavation, and incidentals necessary to complete this work as shown on the plans and in accordance with these specifications. If any service tubing is required for reconnection, service tubing will be paid for under a separate line item.

9. Leak Detection Meter: Leak detection meter pay item shall include two-2" saddles, meter box, meter box lid, 2-2" valves & boxes, PRV, meter, 2" pipe, piping connections, and miscellaneous appurtenances. All valves and piping from 8" water main to 8" water main will be considered part of the lump sum. This work shall be paid for as a lump sum bid item and shall include all labor, materials, tools, equipment, and incidentals, necessary to complete this work in accordance with these specifications

10. Air Release Valve: Air Release Valve price will be measured and paid per each type installed and shall include a vault or box with frame & cover. Price will include main line saddle, corp stop, any piping/nipples and ball valve under ARV unit. Copper service tubing from the corp stop to

the box will be included for the cut slope installation. This price will include compensation for all labor, materials, tools, equipment, unclassified excavation, and incidentals necessary to complete this work as shown on the plans and in accordance with these specifications.

11. Service Casing: Water service casing pipe will be measured and paid for per linear foot for size and at each location as installed. This unit price will include casing pipe installation, installation of carrier pipe within the casing, and other associated work items according to the drawing details. Carrier pipe will be paid under appropriate water line item. All Casing Pipe crossings will be bored and jacked, directionally drilled or otherwise bored such as to not disturb the pavement– no open cuts will be permitted under this unit price. This price will include compensation for all labor, materials, tools, equipment, insurance, permitting, flagmen, coordination costs, spacers, excavation and backfill of boring pits, and incidentals as required by VDOT necessary to complete the work in accordance with these specifications and VDOT requirements. Payment length of casing will extend 36" beyond the edge of pavement, back or curb, or outside of sidewalk unless otherwise specified on the plans. Contractor may use larger size casings or steel casings at no additional cost to the Owner. When a directional drill/bore fails due to rock or if failure is evident, Contractor will continue water main excavation at least 50' on both sides of service crossing location to determine if a suitable crossing location exists which would allow for a bore/directional drill. If a suitable location cannot be determined in conjunction with the Inspector and/or Engineer, Contractor will open cut the casing per VDOT LUP-OCPR detail. Contractor will request Owner, Engineer, & VDOT approval prior to open-cutting Rickey Road – State Rt. 634.

12. Gravel Driveway Crossing: Gravel Removal and Replacement will be measured and paid per linear foot of pipeline installed within gravel driveway or gravel roadway pavement. This price will include compensation for all labor, stone trench backfill, materials, tools, equipment, unclassified excavation, and incidentals necessary to complete this work as shown on the plans and in accordance with these specifications.

13. Gravel Backfill Within Shoulders: Gravel Backfill within Shoulders will be measured and paid per linear foot of pipe installed and shall include gravel, compaction, traffic control and any other incidentals required to properly install VDOT approved gravel mix backfill of the excavated trench area from springline of pipe to finished grade. This price will include compensation for all labor, materials, tools, equipment, unclassified excavation, disposal of excavated material, and incidentals necessary to complete this work as shown on the plans and in accordance with these specifications.

14. Check Dam: This item will be measured and paid for by each item as installed. This price will include compensation for all labor, materials, tools, equipment, excavation, backfill, compaction and incidentals necessary to complete this work in accordance with these specifications. Incidentals included with this line item are maintenance, removal and disposal of accumulated silt, and any other incidental as may be required to properly install and maintain this item.

15. Culvert Inlet Protection: This item will be measured and paid per each item as installed. This price will include compensation for all labor, materials, tools, equipment, excavation, backfill, compaction and incidentals necessary to complete this work in accordance with these specifications. Incidentals included with this line item are maintenance, removal and disposal of accumulated silt, and any other incidental as may be required to properly install and maintain this item.

16. Silt Fence: This item will be measured and paid per linear foot as installed. This price will include compensation for all labor, materials, tools, equipment, excavation, backfill, compaction and incidentals necessary to complete this work in accordance with these specifications. Incidentals included with this line item are trenching, maintenance of silt fence, removal and disposal of accumulated silt, and any other incidental as may be required to properly install and maintain this item. Additional silt fence required by Wythe County erosion control or VDOT due to the Contractor <u>not</u> complying with the contract documents will <u>not</u> be paid for by the Owner. Additional silt fence required by Wythe County erosion control or VDOT while the Contractor has complied with the contract documents will be paid for under this item.

17. Erosion Control (EC-2) matting: This item will be measured and paid per linear foot as installed per disturbed width to coincide with pipeline construction. This price will include compensation

for all labor, materials, tools, equipment, excavation, backfill, compaction and incidentals necessary to complete this work in accordance with these specifications and per VDOT standards.

B. Related Items:

1. Clearing and Grubbing: All necessary clearing and grubbing is to be considered incidental to the other items of work and no separate payment or additional compensation will be made.
2. Rock: Rock and its excavations will be considered subsidiary to the work and will not be measured for separate payment. No additional payment will be made for the excavation and disposal of rock.
3. Unsuitable Material: No additional payment will be made for unsuitable material excavation, disposal, or excavation & compaction of suitable material required to backfill unsuitable material excavations.
4. Pipe Select Backfill Material: Where necessary, select backfill material for pipe installation will be considered incidental to the work and will be obtained from approved sources to replace unsuitable backfill material encountered or materials excavated under paved areas including driveways. No additional payment or additional compensation will be made for this item.
5. Seeding: All necessary seeding, including fertilizer, lime, topsoil preparation, and mulch in accordance with the specifications, will be considered incidental to the other items of work and no separate payment or additional compensation will be made.
6. Protection of existing asphalt pavement: All measures and materials utilized by the Contractor to prevent damage to existing asphalt pavement will be considered incidental to the other items of work and no separate pavement or additional compensation will be made.
7. Erosion Control Measures: All erosion control measures not specified as payment line items will be considered incidental to the work and no additional payment will be made. Maintenance, repair, replacement of damage erosion control measures and removal of installed measures will be considered incidental to the work and no additional payment will be made.
8. Fencing: All fence repair or removal & construction will be considered incidental to the work and no separate payment or additional compensation will be made.
9. Traffic Control: All documentation, material, equipment, and labor required for proper traffic control per VDOT requirements will be considered incidental to the other items of work and no separate payment or additional compensation will be made.
10. Ditch repair: All equipment and labor required for the repair/re-establishment of rip-rap or grass lined ditches including residential driveway culverts will be considered incidental to the other items of work and no separate payment or additional compensation will be made.
11. VDOT Inspection: Any VDOT inspection fees will be considered incidental to the other items of work and no separate payment or additional compensation will be made.
12. Guardrail repair: Any repair/replacement or temporary dismantling of existing guardrail required will be considered incidental to the other items of work and no separate payment or additional compensation will be made.
13. Temporary utility pole shoring: Any temporary shoring of existing utility poles or any other coordination efforts/charges/fees with utility companies required will be considered incidental to the other items of work and no separate payment or additional compensation will be made.
14. Testing and Disinfection: All water line testing and disinfection is to be considered incidental to the other items of work and no separate payment or additional compensation will be made.
15. Record Drawings: Record Drawings will be considered part of the mobilization bid item, and will not be measured nor paid for separately.

3.2 PIPE FITTING WEIGHT SCHEDULE

1. Weights are in US pounds based on ductile iron, mechanical joint, minimum 250 psi fittings as listed in AWWA C110. Weights excludes glands, bolts, and gaskets.

Diameter	90° bend	45° bend	22 ½° bend	11 ¼° bend	Plug
12”	255	215	220	220	85
10”	190	155	160	160	65
8”	125	110	110	110	45
6”	85	75	75	75	25
4”	55	50	50	50	15

SIZE X	SIZE	CROSS	TEE	REDUCER
12”	12”	495	410	N/A
12”	10”	460	390	190
12”	8”	385	340	165
12”	6”	360	325	150
10”	10”	380	310	N/A
10”	8”	310	260	135
10”	6”	285	250	115
10”	4”	260	235	105
8”	8”	235	185	N/A
8”	6”	205	175	95
8”	4”	185	165	80
6”	6”	160	125	N/A
6”	4”	140	115	60

2. Any fitting not listed will be paid for at the listed weight in the “American Pipe Manual, 19th edition” or on approved product submittals.

END OF SECTION 01270

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included: The Contractor shall provide submittals for the Engineer's approval to show compliance with the specifications. Unacceptable submittals shall be revised and resubmitted as necessary until compliance with the specifications is achieved.

B. Related Section: Additional Sections of the Documents which are referenced in this Section include:

1. Section 00710 – General Conditions

1.2 QUALITY ASSURANCE

A. Coordination of Submittals: The Contractor shall be responsible for reviewing the Specifications to ensure that the items being submitted conform in all respects with the requirements. All submittals shall be provided to the Engineer at least 3 weeks prior to commencing work on the items being submitted.

B. Substitutions:

1. The Contractor is bound to the standards of quality established in the Contract Documents. Refer to Article 6 of the General Conditions regarding “Equals”.
2. The substitution of materials or equipment shall not be permitted unless the Engineer has given prior approval for the substitution in writing.
3. The Contractor shall certify that the proposed substitution has been determined to be equal or superior to the product specified. The proposed substitution shall be in complete compliance with the provisions in the Contract Documents.

PART 2 - PRODUCTS

2.1 SUBMITTALS

A. General: The Contractor shall comply with Article 6 of the General Conditions regarding “Submittals”.

B. Submissions: Submittals will be stamped by the Engineer in one of the following ways:

1. “Approved” – No exceptions are taken, subject to compliance with the Contract Documents.
2. “Approved as Corrected” – Minor corrections are noted and a resubmittal is not required, subject to compliance with the corrections and the Contract Documents.
3. “Not Approved” – The submittal material, method or system is totally rejected and does not meet the intent of the Specifications.
4. “Revise and Resubmit” – Revise prior to resubmittal is required.

C. Submission Procedure: The Contractor shall provide a minimum of 6 copies of each submittal to the Engineer for review. The Engineer will retain 1 copy, the Inspector receives 1 copy, the Owner receives 2 copies, and the Contractor receives the remaining copies.

2.2 SHOP DRAWINGS

A. Scale and Measurements: Shop drawings shall be to a scale sufficiently large to show all pertinent aspects of the item.

B. Review Comments: The Engineer will show all review comments on each copy of the submittal to be distributed as stated in Article 6 of the general conditions.

2.3 MANUFACTURER'S LITERATURE

A. General: The Contractor shall provide all manufacturers' data pertinent to the submittal, clearly showing which portions of the contents are being provided for review.

PART 3 - EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

A. Numbering: All submittals shall be consecutively numbered. Resubmittals shall cite the original submittal number for reference.

B. Transmittal: Each submittal shall be accompanied by a transmittal letter showing all the information required for identification and checking, including the appropriate Specification sections.

C. Submittal Log: The Contractor shall maintain a submittal log for the duration of the Work that indicates current status of all submittals. The submittal log shall be available to the Engineer at all times for the Engineer's review.

3.2 ENGINEER'S REVIEW

A. General: Review by the Engineer does not relieve the Contractor from responsibility for errors that may result from the submitted data.

B. Revisions: All revisions requested by the Engineer will be required. If the Contractor is considering any required revision to be changed, he shall notify the Engineer as provided in the General Conditions.

END OF SECTION 01330

SECTION 02230 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Protecting existing trees and shrubs to remain.
2. Removing existing trees.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing, and abandoning site utilities in place and removing site utilities.

B. Related Sections include the following:
1. Section "Earthwork" for soil materials, excavating, backfilling, and site grading.
2. Section "Lawns and Grasses" for finish grading including preparing and placing planting soil mixes and testing of topsoil material.

1.3 DEFINITIONS

A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.

B. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.4 MATERIAL OWNERSHIP

A. Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 COORDINATION WITH PROPERTY OWNER

A. Contractor will contact all property owners affected by clearing operations to determine if the property owner has a request for vegetation adjacent to easements not to be disturbed. Contractor will notify all property owners of trees or shrubs within the easement that are to be cleared as part of the construction.

B. Contractor will document and flag vegetation areas not to be disturbed.

1.6 SUBMITTALS

A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.
   1. Provide pictures and document areas of vegetation not to be disturbed.

1.7 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

   1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
   2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

B. Improvements on Property covered by easements: Authority for performing site clearing indicated on property covered by easements will be obtained by Owner.

   1. Do not proceed with work on adjoining property until directed by Engineer.

C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

D. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly flag trees and vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.

   1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TREE PROTECTION

A. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Engineer.
   1. Replace trees that cannot be repaired and restored to full-growth status, as determined by Engineer.

3.3 UTILITIES

A. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.

1. Arrange with utility companies to shut off indicated utilities.

2. Notify local fire department of work area, approximate work schedule, and all water mains & fire hydrants which may be impacted by utility work.
   a. Provide signage and/or provide cover to denote fire hydrants which are not usable by fire department. Coordinate signage and/or cover with local fire department.

B. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Engineer and Owner no less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Engineer's written permission.

C. Excavate for and remove underground utilities indicated to be removed.

D. Excavate and cap or otherwise enclose/encapsulate underground utilities to be abandoned in place. Abandon utilities in accordance with Virginia Department of Health and Virginia Department of Environmental Quality regulations.

E. Removal of underground utilities is included in Division 2 Sections covering site utilities.

3.4 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. Grind stumps and remove roots, obstructions, and debris extending to a depth of 18 inches below exposed subgrade.
3. Clear all trees and remove all stumps within the permanent utility easement.
4. Clear trees as necessary within temporary construction easement.

3.5 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.

3.6 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.

3.7 DISPOSAL

A. Topsoil: Respread topsoil along the waterline within the designated easement.

B. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 02230

SECTION 02300 - EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.2 REFERENCES

A. Virginia Department of Transportation (VDOT) publications:

1. Road and Bridge Specifications: latest edition.
2. Road and Bridge Standards: latest edition.

1.3 SUMMARY

A. This Section includes the following:

1. Base course for pavement repair.
2. Excavation and backfilling for utility installation.

B. Related Sections include the following:

1. Section “Unit Prices” for a schedule of unit prices..

1.4 UNIT PRICES

A. General: Section 01270 "Unit Prices” defines unit price bid items.

1.5 DEFINITIONS

A. Backfill: Soil materials used to fill an excavation.

1. Initial Backfill: Backfill placed above bedding beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Bedding Course: Layer placed over the excavated subgrade in a trench before laying pipe.

C. Excavation: Removal of material encountered above subgrade elevations.

1. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.

D. Fill: Soil materials used to raise existing grades.

E. Rock: Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material exceeding 1 cu. yd. for bulk excavation or 3/4 cu. yd. for trenches that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted. No additional compensation will be paid for rock excavation.

F. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

G. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

H. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.6 SUBMITTALS

A. Product Data: For the following:

1. Plastic Warning Tape

B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:

1. Classification according to ASTM D 2487 of each on-site or borrow soil material proposed for fill and backfill.
2. Laboratory compaction curve according to ASTM D 698 for each on-site or borrow soil material proposed for fill and backfill.
3. Field quality control testing for earthwork compaction.

C. Blasting plan approved by authorities having jurisdiction, for record purposes.

1.7 QUALITY ASSURANCE

A. Comply with applicable requirements of NFPA 495, "Explosive Materials Code."

B. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials testing, as documented according to ASTM D 3740 and ASTM E 548. The testing agency shall be approved by the Engineer prior to providing services.

1.8 PROJECT CONDITIONS

A. Existing Utilities: Do not damage existing utilities in the work areas.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: If any borrowed material is required for this project, it shall be obtained from offsite at the contractors' expense.

B. Satisfactory Soils: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, SM, CH, CL, MH, and ML or a combination of these group symbols; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: ASTM D 2487 soil classification groups GC, SC, OL, OH, and PT, or a combination of these group symbols.

1. Unsatisfactory soils also include satisfactory soils not maintained within 3 percent of optimum moisture content at time of compaction.

2. If undercutting material is required, the trench subgrade shall be established using VDOT #57 material. No additional payment will be provided for undercut excavation, removal of undercut, or backfill of trench to subgrade.

D. Backfill and Fill: Satisfactory soil materials.

E. Subbase: VDOT Standard 21-B aggregate. Refer to Virginia Department of Transportation: Road and Bridge Specifications, latest edition; for aggregate mix specifications.

F. Trench Bedding: VDOT #57 aggregate in rock conditions and initial trench backfill in soil conditions.

G. Initial Trench Backfill: Satisfactory soil materials free of rocks or gravel larger than 1-inch

H. Final Trench Backfill: Satisfactory soil materials

2.2 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities/casings, minimum 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; width may be reduced to 2 inches wide if copper tracing wire is installed with water mains and water services for tracing; colored as follows:

Blue: Water Systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect existing structures, utilities, fills, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.3 EXPLOSIVES

A. Explosives: Obtain written permission from authorities having jurisdiction before bringing explosives to project site or using explosives on Project site.

1. Do not damage adjacent structures, property, or site improvements or weaken the bearing capacity of rock subgrade when using explosives.

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials and obstructions.

B. Undercut Excavation: Excavation below subgrade elevation required to support bedding, piping, structures and backfill with VDOT #57 material. Excavate as necessary at no additional cost to the owner. Dispose of material offsite at location determined by the Contractor.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections. Do not disturb bottom of excavations intended for bearing surface.

3.6 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Unclassified Excavation: Excavation to trench subgrade regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions.

C. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.

D. Trench Bottom in Rock: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped bedding material.
2. Excavate trenches 6 inches deeper than pipe invert elevation required to allow for bedding material.

E. Trench Bottoms in Native Soil Material: Excavate trenches 4 inches deeper than bottom of pipe invert elevation to allow for initial backfill material. Hand excavate for bell of pipe.

F. Trench Protection: Furnish and install such sheathing, bracing, shoring and furnish necessary signs, barricades and temporary lighting as may be pertinent for the protection of the work, employees, the public, and to guard against contingencies which might give rise to delays in the work. Sheathing left in place shall be at the Contractor’s expense. Where trench wall sloping is necessary for safety or other reasons, the Engineer shall be notified to determine if additional strength pipe will be required. Responsibility for preservation of trench banks and other excavated spaces and the prevention of injury to any persons or property shall rest entirely with the Contractor. Trench construction and safety shall be governed by the Virginia Occupational Safety and Health Standards for the Construction Industry, 29 CFR 1926-Subpart P.

G. Open Trenches: No trench shall remain open overnight.

3.7 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavations under pavement, structures, or utility pipe as directed by Engineer. Lean concrete fill may be used when approved by the Engineer.

3.8 UTILITY TRENCH BACKFILL

A. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

B. Place and compact bedding course on all trench bottoms. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Bedding depths are shown on the drawings.

C. Hand place and compact initial backfill of subbase material, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit.

1. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.

D. Fill voids with approved initial backfill materials while shoring and bracing, and as sheeting is removed.

E. Place and compact final backfill of satisfactory soil material to final grade. Place backfill materials in layers not more than 12 inches in loose depth for material compacted by heavy compaction equipment.

F. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 698:

1. Under pavement and concrete, road shoulders, backfill trench with stone, scarify and compact each layer of backfill at 95 percent.
2. Under lawn compact each layer of backfill at 85 percent.
3. Back fill which cannot be compacted to requirements will be disposed of by the contractor, backfill trench with suitable material. Dispose and import backfill at no additional cost to the owner.
4. Under gravel areas compact each layer of backfill at 95 percent.

G. Coordinate backfilling with utilities testing.

H. Coordinate backfill compactive measures with VDOT and Inspector prior to commencing backfill operations.

I. Install detectable warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.9 FILL

A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.

B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

C. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under pavements, use compacted stone.
3. Under structures, use satisfactory soil material or engineered fill.

3.10 MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 3 percent of optimum moisture content.

1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 3 percent and is too wet to compact to specified dry unit weight.

B. All moisture control (aeration or watering) of material excavated for use as fill or backfill will be performed by the Contractor at no additional cost to the Owner.

3.11 COMPACTION OF BACKFILLS AND FILLS

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

B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 698:

1. Under pavements and structures, compact backfill and fill material at 95 percent of the maximum dry density. In addition, the uppermost 6 inches of the road subgrade shall be compacted to 100 percent of the maximum dry density at a moisture content greater than optimum.
2. Compact backfill and fill material in lawn areas at 85 percent of the maximum dry density.

3.12 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to direct water away from structures as shown on the drawings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn, Pasture, or Unpaved Areas: Plus or minus 1 inch (25 mm).
2. Structures: Plus or minus 1/2 inch (25 mm).
3. Pavements and Graveled Drives: Plus or minus 1/2 inch (13 mm).

3.13 SUBBASE COURSE

A. Under pavements, place subbase course on prepared subgrade according to VDOT Specifications Section 315.

3.14 FIELD QUALITY CONTROL

A. Testing Agency: Contractor will engage a qualified licensed independent geotechnical engineering testing agency to perform field quality control testing. The Engineer will approve or disapprove of the selected agency. If the agency is disapproved, the Contractor must select another agency until approved by the Engineer.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work complies with requirements.

C. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies (unless more frequent testing is required by VDOT within the VDOT ROW):

1. Pavement Areas: At subgrade and at each compacted fill and backfill layer, at least two tests for every 5,000 sq. ft. or less of paved area, with a minimum of two tests per lift.
2. Graded Structural Pad Areas: At subgrade and at each compacted fill and backfill layer, one test for every 200 sq. ft. or less of graded pad area. The Owner may require, at his discretion, less frequent testing.
3. Trench Backfill: At each compacted initial and final backfill layer.
   a. Within VDOT right-of-way: Provide at least one test for each 300 feet or less of trench length, but no fewer than two tests for water main installed between the edge of pavement and the ditchline (unless more stringent testing is required by VDOT). Provide at least one test for each 500 feet or less of trench length, but no fewer than two tests for water main installed outside of the ditchline (unless more stringent testing is required by VDOT).
   b. Within easements and non-VDOT property: Provide at least one test for each 500 feet or less of trench length, but no fewer than two tests.

D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.15 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.16 SEEDING

A. Grade lawn and grass areas to a smooth, even surface with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future. Remove trash debris, stones larger than 1-1/2 inches in any dimension, and other objects that may interfere with planting or maintenance operations.

B. Sow seed with a spreader or a seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in 2 directions at right angles to each other.

C. Sow seed at the rate shown on the drawings.

D. Protect seeded areas with slopes less than 1:6 against erosion by spreading straw mulch after completion of seeding operations. Spread uniformly at a minimum rate of 2 tons per acre to form a continuous blanket 1-1/2 inches loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.

E. Soil Amendments: Provide soil amendments in not less than the following quantities:

1. 2000 lbs. straw mulch/acre
2. 1000 lbs. 5-10-10 fertilizer/acre
3. 2 tons agricultural limestone/acre

F. Use a seed mix suitable for residential lawns.

3.17 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. The Contractor will dispose of all extra soil, unsuitable material and landfill materials such as posts, wire, trash, garbage, etc., off of the Owner's property.

END OF SECTION 02300

SECTION 02510 - WATER DISTRIBUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes piping and specialties for potable water system.

1.3 DEFINITIONS

A. The following are industry abbreviations for materials:

1. DI: Ductile Iron
2. HDPE: High Density Polyethylene
3. PE: Polyethylene
4. PVC: Polyvinylchloride

1.4 SYSTEM PERFORMANCE REQUIREMENTS

A. Maximum Working Pressures: The following are maximum pressure requirements not including surges pressure for piping and specialties, unless otherwise indicated:

1. Combined Potable-Water and Fire-Protection Water Service: **250 psig.**

1.5 SUBMITTALS

A. Product Data: For the following:

1. Pipe and fittings.
2. Mechanical Pipe restraint systems.
3. Valves and valve boxes.
4. Fire hydrants.
5. Air Release Valves
6. Meters and meter components
7. Casing pipe

B. Record Drawings: At Project closeout of installed water-service piping according to Section "Summary of the Work."

C. Test Reports: As specified in "Field Quality Control" Article in Part 3.

D. Purging and Disinfecting Reports: As specified in "Cleaning" Article in Part 3.

1.6 QUALITY ASSURANCE

A. Product Options: Drawings indicate size, profiles, and dimensional requirements of water-service piping specialties and are based on specific types and models indicated. Other manufacturers' products with equal performance characteristics may be considered unless noted otherwise in these specifications. Refer to Section "Submittal Procedures."

B. Comply with requirements of utility supplying water.

C. Comply with standards of authorities having jurisdiction for potable water-service piping. Include materials, installation, testing, and disinfection.

D. Comply with NSF 61, "Drinking Water System Components--Health Effects," for materials for potable water.

E. Provide listing/approval stamp, label, or other marking on piping and specialties made to specify standards.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Preparation for Transport: Prepare valves, including fire hydrants, according to the following:

1. Ensure that valves are dry and internally protected against rust and corrosion.
2. Protect valves against damage to threaded ends and flange faces.
3. Set valves in best position for handling. Set valves closed to prevent rattling.

B. During Storage: Use precautions for valves, including fire hydrants, according to the following:

1. Do not remove end protectors, unless necessary for inspection, then reinstall for storage.
2. Protect from weather. Store indoors and maintain temperature higher than ambient dew-point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.

C. Handling: Use sling to handle valves and fire hydrants whose size requires handling by crane or lift. Rig valves to avoid damage to exposed valve parts. Do not use hand-wheels or stems as lifting or rigging points.

D. Deliver piping with factory-applied end-caps. Maintain end-caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.

E. Protect stored piping from moisture and dirt and elevate above grade.

F. Protect flanges, fittings, and specialties from moisture and dirt.

G. Contractor will purchase and deliver the meters to the Owner.

1.8 PROJECT CONDITIONS

A. Perform site survey, research public utility records, and verify existing utility locations. Contact Wythe County Utility Department prior to construction.

B. Verify that water-service piping is installed in compliance with original design and referenced standards.

1.9 SEQUENCING AND SCHEDULING

A. Coordinate connections to water mains with the Wythe County Utility Department.

B. Coordinate with other utilities located within the Work Area.

C. Coordinate work within the public right-of-way with VDOT.

PART 2 - PRODUCTS

2.1 PIPES AND TUBES

A. General: Applications of the following pipe and tube materials are indicated in Part 3 "Piping Applications" Article.

B. PVC Pipe: PVC

1. Water Main pipe: PVC pipe shall be manufactured in accordance with specifications ASTM D2241 for smaller than 4-inch and AWWA C900 (or AWWA C909 for PVCO) for 4-inch and larger diameter. Joints should be push-on type with rubber rings conforming to ASTM D3139 and ASTM F477. Pipe shall be rated for a minimum working pressure of **250 psi.**

C. Service Line: Copper Tube ASTM B 88, Type “K” hard drawn for services. Pipe shall be rated for a minimum working pressure of **250 psi.**

D. Service Line: HDPE Tubing, CTS sizing, AWWA C901-08, PE 4710, minimum SODR 9. Pipe shall be rated for a minimum working pressure of **250 psi.**

1. Factory installed minimum 10 gauge insulated tracer wire integral to tubing per Endot Endotrace pipe or approved equal.

E. PE Casing: PE casing pipe shall conform to ASTM D 3035, minimum DR 17 or thickness as required to protect the carrier pipe at A16 loading at the installed depth of the casing, whichever is thicker.

1. PE tubing utilized as water service line casing will be minimum 1” larger diameter (nominal) then service tubing diameter.

2.2 PIPE AND TUBE FITTINGS

A. General: Applications of the following pipe and tube fitting materials are indicated in Part 3 "Piping Applications" Article.

B. Ductile-Iron, Mechanical Joint Fittings: AWWA C153 pressure ratings shall be a minimum of **350 psi** for fittings 12 inch and smaller and at least 250 psi for fittings 14 inch and larger. Include cement-mortar lining according to C104 and seal coat according to AWWA C104.

C. Service Line Fittings: Compression type conforming to ANSI B16.26 for copper tubing rated for a minimum **250 psi** working pressure. PVC fittings supplemented with restraint systems (as needed for 250 psi working pressure) for 2” PVC water lines. Stainless steel stiffeners required for all fittings, connections, and couplers with PE tubing.

D. Flexible Expansion Joints: Flexible expansion joints may be of either rubber or flexible metal tube construction.

1. Flexible rubber joints shall be flanged units fabricated from rubber reinforced with steel rings and synthetic fabric and formed with a single arch section to provide for lateral and longitudinal deflections. Units shall be rated for minimum 150 psi working pressure. Split steel retaining rings shall be utilized to protect the rubber flanges. Flanges shall be integrally attached and constructed of stainless steel. Retraining units (control rods) shall be provided with all flexible joints.
2. Flexible metal tube expansion joints shall have an internal flexible tube with braided metal exterior wrap and integral flange connections. Material shall be 304 stainless steel rated for minimum 150 psi working pressure.

2.3 JOINING MATERIALS

A. Ductile-Iron Piping: The following materials apply:

1. Push-on Joints: AWWA C111 rubber gaskets and lubricant.
2. Mechanical Joints: AWWA C111 mechanical joint retainer glands, high-strength steel bolts and nuts, and rubber gaskets. Mechanical joints will be used within casings.

B. HDPE Tubing: The following materials apply:

1. All Joints: Stainless steel inserts for all fittings, connections and couplings. Inserts will be manufacturer recommended size and type.

2.4 VALVES

A. Non-rising Stem, Resilient-Seated Gate Valves: AWWA C515, ductile-iron body and bonnet; with bronze or ductile-iron gate, resilient seats, bronze non-rising stem, and stem nut. Valve shall have O-ring seals and open counter-clockwise, ends shall be compatible with piping systems in which valves are installed. Valves shall be for at least 250 psi working pressure. Include interior coating according to AWWA C550, and mechanical-joint ends for buried installations and flanged in vaults and interior applications. Gate valves will be American Flow Control 2500 series, Mueller, Kennedy or approved equal gate valve with stainless steel stem.

B. Valve Boxes: Adjustable Cast-iron box of three-piece type, consisting of lid, two piece sliding extension, and base. Lettering "WATER" shall be embossed on the valve box lid in letters not less than 1 inch high. Base shall be proper type and size for the valve with which it was used. Barrel approximately 5 inches (125 mm) in diameter or larger as required to properly access valve stem, and adjustable cast-iron extension of length required for depth of bury of valve.

C. Air Release Valve: The air release valve shall be of the float operated, simple lever or compound lever design, and capable of automatically releasing accumulated air from a fluid system while the system is pressurized and operating. The air release valve shall be a combination valve featuring both air release and air vacuum abilities unless otherwise specified. An adjustable designed orifice button shall be used to seal the valve discharge port with drip-tight shut-off. The orifice diameter must be sized for use within a given operating pressure range to insure maximum air venting capacity. The float shall be of all stainless steel construction and guaranteed to withstand the designed system surge pressure without failure. Valve may be one of the following:
1. The body and the cover shall be cast iron or the valve internal parts shall be stainless steel and the Viton Buna-N® for water tight shut-off, Cla-Val Series 36 or approved equal.
2. The body and cover shall be made of high-strength composite materials, A.R.I D-040 or approved equal.

The valve shall be sized as follows:

Pipe Diameter (inches)	Pipeline Pressure (psi)	Inlet Size (inches)
8	250	1

D. Tapping Sleeve and Tapping Valve: Complete assembly, including tapping sleeve, tapping valve, and bolts and nuts and will be manufactured by American Flow Control, Mueller, or approved equal. Use sleeve and valve compatible with tapping machine.
   1. Tapping Sleeve: Grey cast iron (ASTM A126, Grade B) or ductile iron (ASTM A536, Grade 65-45-12), 2-piece bolted sleeve with flanged outlet for new branch connection. Sleeve may have mechanical-joint ends with rubber O-ring gaskets for sealing the side flanges. Include sleeve matching size and type of pipe material being tapped and of outlet flange required for branch connection.

E. Tapping Saddle: Saddles will be double strap (PVC or DIP) or hinge type (for PVC only), Ford FC202 or approved equal. Tapping of DIP main will require approved equal saddle.

2.5 WATER METERS

A. Residential Water Meters

   1. Meters through 2" meter will be Mueller 420 Series Composite with Hot Rod AMR or approved equal.
      a. 2" water meters will be Omni T2 meter with Hot Road AMR.
   2. Automated System-Meters will be provided with encoder register outputting and radio module compatible with Wythe County existing Hersey Hot Rod AMR system. Provide one lithium battery and provide mounting bracket for both pit and wall installations.
   3. Meters will be 5/8" x ¾" unless otherwise noted on the plans.
   4. Pressure reducing valves will be diaphragm type with adjustable outlet pressure from 25 to 75 psig. Valves will be Wilkins LU70, Watts or approved equal.

B. Meter Settings:

   1. Corporation Stop - ¾" unless otherwise noted with Mueller inlet threads (AWWA C800). Outlet will have compression couplings for connection to copper pipe.
   2. Meter Settings – Copper Setters will be dual check with key type inlet valve. As noted, tandem setters will be used for installation of pressure reducing valves. Setters will be **15"** in height with integral compression grip joints on both inlet and outlet for use with copper service lines. Setter will have inlet ball valve & outlet cascading dual check valve.
      a. Ford VBHH7x-15W-44-33-NL-G for standard setter 5/8 x ¾ to 1" or equal
      b. Ford TVBHH7x-15W-44-33-NL-G for tandem setter 5/8 x ¾ to 1"or equal
      c. Ford VBHH7x-15W-44-xx-NL-G for standard setter 1-1/2" to 2" with integral bypass pipe & valve built into setter, or equal,
   3. Meter Box – 18" diameter circular HPDE meter box for single setter, 24" diameter HDPE meter box for tandem setter or in-line PRV, and 36" diameter HDPE meter box for 2" meters. All boxes will be 24" deep and supported by minimum 8 bricks. Boxes will be ribbed for strength.
   4. Frame and cover – Cast iron frame and cover (Ford C32 or equal) with standard pentagon bolt and worm lock.
   5. Meter Setter Brace-PE or PVC of suitable length and diameter to brace the meter from twisting.

2.6 FIRE HYDRANTS

A. Fire hydrants shall be installed on 6 inches or larger lines only. Fire hydrant lead from the main will be DIP.

B. Hydrants will be traffic type with safety flange protection conforming to AWWA C502 latest edition and shall have not less than 6-inch diameter barrel, 5 1/4-inch minimum hydrant valve. Hydrant will be cast iron bodied with fully bronze mounted dry top capable of a working pressure of 250 psig. Hydrant shall have a 6-inch mechanical joint connection to the water main, two 2 1/2-inch hose outlets and one 4-1/2-inch pumper outlet and be so designed that if broken off, the hydrant will remain closed. Nipples will be bronze or non-corrosive metals with "National Standard" threads. Direction of opening shall be left (Counterclockwise) with 1 1/2-inch pentagon shape-operating nut, and nozzle thread shall be standard. The hydrant exterior above the ground line shall be shop painted with two coats per Owner designation. Hydrants shall be Kennedy K-81D or approved equal.

2.7 ANCHORAGES

A. Clamps, Straps, and Washers: ASTM A 506, steel.

B. Rods: ASTM A 575, steel.

C. Rod Couplings: ASTM A 197, malleable iron.

D. Bolts: ASTM A 307, steel.

E. Cast-Iron Washers: ASTM A 126, gray iron.

F. Concrete Reaction Backing: Portland cement concrete mix, 3000 psig (20.7 MPa).

1. Cement: ASTM C 150, Type I.
2. Fine Aggregate: ASTM C 33, sand.
3. Coarse Aggregate: ASTM C33, crushed gravel.
4. Water: Potable.
5. Sizes and Locations: See Drawings

G. In lieu of concrete anchorages, Contractor may install Grip Rings on 12" and smaller diameter lines as manufactured by Romac Industries and Mega-lug restraints for larger pipe.

H. Contractor may utilize restrained joint pipe in lieu of or to supplement other anchorage systems. No additional payment will be made by the Owner for use of restrained joint pipe or alternative anchorage systems. Contractor will provide documentation from manufacturer of adequacy of restrained joint pipe or alternative anchorages.

I. Restrained joint pipe, restrained joints, grip rings, mega-lugs, etc. will utilize a **250 psig** pressure (unless otherwise noted on the Contract Documents or approved by the Engineer in reduced pressure areas) with a **factor of safety of 1.5 to 1** for design of joint restraints. Main-line valves will be treated as dead-ends regarding restraint design.

1. Joint restraint lengths may be reduced due to reduced static and pump pressures in limited locations as coordinated with the Owner and Engineer.

2.8 MISCELLANEOUS DEVICES

PART 3 - EXECUTION

3.1 EARTHWORK

A. Refer to Division 2 Section "Earthwork" for excavation, trenching, and backfilling.

3.2 PIPING APPLICATIONS

A. Take all precautions necessary to ensure that pipe, valves, fittings, and other accessories are not damaged in unloading, handling, and placing in trench. Examine each piece of material just prior to installation to determine that no damage has occurred. Remove any damaged material from the site and replace with undamaged material.

B. Exercise care to keep foreign material and dirt from entering pipe during storage, handling, and placing in trench. Close ends of in-place pipe at the end of any work period to preclude the entry of animals and foreign material.

C. Bed pipe as specified in Section "Earthwork" or as shown on the drawings.

D. Do not lay pipe when trench bottom is muddy or frozen, or has standing water.

E. Use only those tools specifically intended for cutting the size and material and type pipe involved. Make cut such as to prevent damage to pipe or lining and to leave a smooth end at right angles to the axis of the pipe.

F. Install copper tracing wire with all plastic piping including service lines to meters. All tracing wire will be wrapped around valves and exposed within meter boxes & air release vaults and at grade for all valve covers.

G. Potable Water-Service Piping: Use the following:

1. 3/4- to 1 1/2-Inch NPS: Copper tube, Type K; copper fittings; and soldered joints with manufacturer recommended fittings and couplings.
2. 3/4- to 2-Inch NPS: HDPE tube, per AWWA C901-08 with manufacturer recommended stainless steel stiffeners for all connections, fittings and couplings. Use tracer wire (factory installed integral to pipe or separate wire wrapped around tube) for all plastic service tubing.
3. 2-inch NPS: PVC IPS Pressure pipe per ASTM D2241 per rated to the working pressure of the system.

H. Combined Potable-Water and Fire-Protection Water-System: Use the following:

1. 4-inch NPS and larger diameter: PVC push-on-joint pipe and ductile-iron mechanical-joint fittings.
2. 4-inch NPS and larger diameter: Within casings and when specified in the contract documents, ductile iron mechanical joint pipe and mechanical joint fittings.
3. 4-inch NPS and larger diameter: Under VDOT roadway pavement, within concrete cradles, and when specified in the contract documents, ductile iron mechanical joint pipe or push-on joint pipe and mechanical joint fittings.
4. 4-inch NPS and larger diameter: Ductile-iron flanged pipe within pump station and vaults with flanged fittings.

I. Casing: Use the following:

1. Steel, butt-weld joint pipe for all water mains 4” diameter and larger

a. Contractor may use larger diameter casings than shown on the plans at contractor's discretion and at no additional cost to the Owner. If restrained joint pipe system requires larger diameter casings, contractor will install larger diameter casing at no additional cost to the Owner.
b. Contractor may extend casings further than required in the Contract Documents at contractor's discretion and at no additional cost to the Owner.

2. PE/HDPE: Joints will not be permitted. All PE/HDPE pipe will be single pipe free of joints.

3.3 VALVE APPLICATIONS

A. Install gate valves unless otherwise noted.

B. Install concrete donut around all valves within grass or gravel areas. Donut not required when asphalt or concrete pavement is flush with valve box frame and cover.

C. Install valves below grade with operator nut. Install valves within structures or vaults with handwheel, or lever operators.

3.4 JOINT CONSTRUCTION

A. Ductile-Iron Piping, Gasketed Joints: According to AWWA C600.

1. Permissible deflection in push-on joint pipe shall not be greater than 2/3 of that listed in AWWA C600.

B. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

C. Copper Tubing, Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.

D. Steel casing - Steel pipe joints shall have butt weld connections. Welds for casing pipe will be continuous to prevent water seepage into the casing.

E. PE–Pipe joints are not permitted unless the length of the pipe exceeds the maximum manufactured length of pipe. Install couplers, fittings, and connections with stainless steel stiffeners for all joints.

3.5 PIPING SYSTEMS - COMMON REQUIREMENTS

A. General Locations and Arrangements: Drawings indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated, unless the Engineer approves deviations to layout.

B. Install piping at indicated depth. Where grades on the pressure line conflict with existing pipes or structures, lay pressure line to additional depth with a uniform vertical curve to provide proper clearance without the use of fittings. No additional payment to the contractor will be allowed for additional excavation. Provide allowance for expansion as directed by Engineer.

1. Typical waterline cover will be 36" with the contractor minimizing highs and low points on the waterline. Only under extraordinary circumstances and with special permission of the Owner shall water lines be deeper than 60 inches, or less than 36-inches deep.

2. Any deviation in excess of 12” depth variation at the high point of the pressurized system downstream of the booster station requires the written acceptance of the Engineer prior to construction.

C. Install components with pressure rating equal to or greater than system operating pressure.

3.6 PIPING INSTALLATION

A. Water-Main Connection: Remove existing fittings and connect to existing water mains with size and in location as indicated on the Drawings.

B. Install ductile-iron piping according to AWWA C600.

C. At all dead end lines install a valve and cap. Restrain cap using rods and clamps as approved by the Engineer.

D. Bury piping with depth of cover over top at least 36 inches and no more than 42 inches unless otherwise coordinated and approved by Owner or Engineer.

E. Service piping will be a single piece of contiguous pipe from the service tap to the meter yoke. No intermediate joints or couplings will be permitted unless granted by the Owner/Engineer with written permission.

F. Contractor may install tee/reducer combination in lieu of saddle tap for dry connections to smaller diameter pipe.

G. Gravel Backfill Within Shoulders: Gravel backfill within shoulders will be paid for at the appropriate unit price. Coordinate all gravel backfill with Inspector or Engineer prior to utilizing gravel backfill for the following situations:
1. Pipe centerline is closer than 36” to the edge of pavement of a VDOT roadway
2. VDOT roadway subgrade shows signs of undermining the pavement
3. Special circumstances agreed upon by the Inspector, Owner, and/or Engineer

3.7 ANCHORAGE INSTALLATION

A. Install anchorages for tees, plugs and caps, bends, crosses, valves, and hydrant branches. Include anchorages for the following piping systems:

1. Gasketed-Joint, Ductile-Iron, Potable-Water Piping: According to AWWA C600.

B. Apply full coat of asphalt or other acceptable corrosion-retarding material to surfaces of installed ferrous anchorage devices.

C. Provide manufacturer fabrication drawings sealed by a licensed engineer if restrained joint pipe is used in lieu of external anchorage. Main-line valves are to be treated as dead-ends regarding restrained joint pipe calculations.

3.8 VALVE INSTALLATION

A. General Application: Install valves in accordance with manufacturer's recommendations, AWWA C600, or applicable standards. Use mechanical-joint-end valves for 3-inch and larger for underground installations.

B. Install in-line valves and fire hydrant shutoff valves within the right-of-way behind the ditchline, behind the guardrail, or beyond the top of slope and/or outside of the clear zone per VDOT requirements when possible. Contractor will coordinate all valve locations with the Inspector and VDOT prior to installation.
   1. Contractor will be permitted to roll the alignment in order to install valves in locations suitable to VDOT and the Owner. Contractor will coordinate all alignment shifts with the Owner/Inspector prior to installing pipe and valves.

3.9 FIRE HYDRANT INSTALLATION

A. General: install each fire hydrant with a separate gate valve in the supply pipe, anchor with restrained joints, mega-lugs, rodding back to mainline tee and/or thrust blocks, and support in upright, vertical position. Contractor will provide manufacturer's documentation regarding acceptability of restrained joints, mega-lugs, and/or rodding if used in lieu of concrete thrust blocks. Fire hydrants shall be installed on 6 inches or larger lines only.

B. Install fire hydrants within the right-of-way behind the ditchline, behind the guardrail, or beyond the top of slope and/or outside of the clear zone per VDOT requirements. Contractor will coordinate all hydrant locations with the Inspector and VDOT prior to installation.

C. All fire hydrant leads will be ductile iron pipe from the mainline tee to the hydrant base.

D. AWWA-Type Fire Hydrants: Comply with AWWA M17.

E. High Ground Water Location: Relocate fire hydrants when excavation reveals high ground water or plug the hydrant drain hole if unable to relocate. Notify the Engineer in writing when hydrant drain holes are plugged.

F. Coordination with local fire department: Notify local fire departments of work area, approximate work schedule, and all water mains & fire hydrants which may be impacted by utility work.
   1. Provide signage and/or provide cover to denote fire hydrants which are not usable by fire department. Coordinate signage and/or cover with local fire department.

3.10 WATER METER INSTALLATION

A. General: Install all meter components including the meter.
   1. Notify Owner within 48 hours of installation of water meter.

B. Install meter bracing to extend to at least 2" outside of meter box to adequately brace meter from twisting.

C. Contractor will be responsible for coordination of the location and grade for water services with the Project Inspector. Contractor will determine required connection point and elevation to verify that service can be installed. Contractor will notify Engineer prior to laying water main if there is a conflict regarding service layout or location.

D. Install pressure reducing valves on all residential meters unless noted or otherwise instructed by Inspector. Prior to setting individual meters, Contractor will verify need for PRV with Engineer or Inspector.

E. Install stainless steel inserts within all fittings, couplings, and connections to main line and meters for HDPE tubing.

F. Contractor will be responsible for verifying meter setter is suitably aligned in order to easily install the meter with a gap of no more than ½" at the meter after gaskets are placed at the connection nuts. Contractor will be responsible for all remedial efforts (including full time inspection by the Owner) as may be required to correct defective alignments.

G. Extend service pigtail at least 36" outside of meter box on downstream side and cap. Do not crimp end of service pigtail.

H. Install bricks (minimum 8 unless otherwise specified in the plans) under water meter box

I. Backfill base of meter box with 21-A stone or other washed gravel. Do not cover setter joints with stone and joints will be visible from the box top.

3.11 FIELD QUALITY CONTROL

A. Notify Wythe County and the Engineer at least 48 hours in advance of the test date, and perform tests in presence of the Engineer.

B. Contractor is prohibited from making service taps prior to pressurized testing of the water main.

C. Wythe County will supply potable water for pipeline testing at no cost equal to two times the pipe volume. Master meters are to be installed and in service prior to filling and flushing the lines. Contractor will provide an estimated volume of water required for flushing, testing, and disinfection. All water in excess of this volume will be purchased by the Contractor from the Owner.

D. After the line has been back-filled and at least seven days after the last concrete reaction anchor has been poured, subject the line or any valved section of the line to a hydrostatic pressure test in accordance with AWWA C600, except as modified herein. Fill the system with water at a velocity of approximately 1 ft. per second while necessary measures are taken to eliminate all air. After the system has been filled, raise the pressure by pump to 1.5 times the working pressure or up to the rated pressure of the pipe, whichever is less. Test pressures shall be:

1. Not be less than 1.25 times the working pressure at the highest point along the test section
2. Not exceed thrust restraint pressure
3. Not vary by more than +/- 5 psi
4. Not exceed twice the rated pressure of the valves or hydrants when test includes closed gate valves
5. Shall be at least 250 psig as measured at the high point on the section of line under tests.

Measure pressure at the low point on the system compensating for gage elevation. Maintain this pressure for two hours. If pressure cannot be maintained, determine cause, repair, and repeat the test until successful.

E. A leakage test shall be conducted concurrently with the pressure test in accordance with AWWA C600, except as modified herein. Leakage shall be determined with a calibrated test meter, furnished by the Contractor. Leakage is defined as the quantity of water required to maintain a pressure within 5 psi of the specified test pressure, after air has been expelled and the pipe filled with water. Leakage shall not exceed the volumes listed in AWWA C600. If leakage exceeds that specified, find and repair the leaks and repeat the test until successful.

F. All visible leaks shall be repaired regardless of the amount of leakage.

G. Prepare reports for testing activities.

3.12 CLEANING

A. Disinfect and test water lines in accordance with AWWA Standard C651 and the following:

B. All water lines shall be disinfected prior to being in operation.

C. Prior to disinfection all water lines shall be flushed unless the tablet method of disinfection is used. All valves and hydrants shall be operated during this operation. Flushing velocities should not be less than 2.5 ft./sec.

D. Methods of Chlorine Application

1. Continuous feed method - Potable water shall be introduced into the pipeline at a constant flow rate. Chlorine shall be added at a constant rate of this flow so that the chlorine concentration in the water in the pipe is at least 50 mg/L. The chlorinated water shall remain in the pipeline at least 24 hours, after which, the chlorine concentration in the water shall be at least 10 mg/L. All valves and appurtenances shall be operated while the chlorinated water remains in the pipeline.

2. The velocity of the potable water in the pipeline shall be less than 1 ft./sec. The water shall then remain in contact with the pipe for 24 hours. All valves and appurtenances shall be operated while the chlorinated water is in the pipeline.

E. Final Flushing- After the required retention period, the heavily chlorinated water shall be flushed from the lines using potable water.

F. Testing - After the lines have been flushed at a velocity of no less than 3 fps (in accordance with AWWA 651-14), the water lines shall be tested. Samples shall be collected at 1200 feet intervals throughout the length of pipeline.

1. All chlorine residual determinations shall be made using only those methods approved by the Virginia Department of Health.

2. Water samples for bacteriological analysis must be collected at 1200 feet intervals throughout the length of pipeline and analyzed by a certified laboratory using one of the two options below (in accordance with AWWA 651-14):
   a. Option A: Two samples taken at least 16 hours apart. A minimum of two samples at least 16 hours apart shall be collected from each sampling location.
   b. Option B: Two samples taken at least 15 minutes apart after the pipeline has been disinfected and allowed to sit for a 16 hour rest period.

   The results of these samples must indicate no coliform contamination before the pipeline can be utilized as part of the waterworks. If contamination is indicated, then the disinfection procedures must be repeated.

3. Water samples will be collected from both connection points (or the connection point and termination point) of the main line. Water samples will be collected from each water main branch larger than 2” as well.

G. Maintain a copy of AWWA Standard C-651 on Project site during all disinfecting operations. An additional copy will be available for review in the office of the Wythe County Utility Department.

H. Prepare reports for purging and disinfecting activities.

3.13 SEPARATION OF WATER AND SEWER LINES

A. Waterlines shall normally be separated horizontally from sanitary sewer lines, manholes, and septic system drainfields by a distance of 10 feet measured edge-to edge.

B. Under unusual conditions when local conditions prevent a horizontal separation of 10 feet from sewer lines and manholes, the water line may be laid closer provided that the invert of the water main is 18 inches above the top of the sewer; the sewer constructed of AWWA approved and tested water pipe; and all manholes are of water tight construction tested in place. The sewer pipe shall be pressure tested in place without leakage prior to backfilling.

C. Waterlines crossing sewers shall be laid to provide at least 18 inches vertical separation between that the invert of the water main and the top of the sewer pipe.

D. Under unusual conditions when local conditions prevent an 18-inch vertical separation, the sewer line passing over or under water mains shall be constructed of AWWA approved water pipe. The sewer pipe shall be pressure tested in place without leakage prior to backfilling. Water lines passing under sewers shall in addition have an 18" vertical separation between the bottom of the sewer and the top of the water line; adequate structural support for the sewer to protect both utilities; and the water pipe be centered on the crossing point so the joints are equidistant and as far away as possible from the sewer.

E. The Engineer will review all unusual sewer and waterline crossing conditions. The crossing conditions will be constructed such that the Engineer can approve the condition.

3.14 PIPE IDENTIFICATION

A. General: To identify exposed piping, the different lines shall have contrasting colors. Pipes and valves shall be color coded in a manner that will permit ready identification of pipes at any location. Labeling of the identification of the pipe with or without an accompanying color code shall be considered as an acceptable substitute for the color scheme contained herein. Where color bands are utilized, the bands are to be one-inch wide and placed on 18 inch centers.

	Type	Color of Pipe
1.	Potable Water Line	Dark Blue

END OF SECTION 02510

SECTION 02741 - HOT-MIX ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.2 REFERENCES

A. Virginia Department of Transportation (VDOT) publications:

1. Road and Bridge Specifications: latest edition.
2. Road and Bridge Standards: latest edition.

1.3 SUMMARY

A. This Section includes the following:

1. Hot-mix asphalt paving.
2. Pavement-marking paint.

B. Related Sections include the following:

1. Division 2 Section "Earthwork" for aggregate subbase course and aggregate pavement shoulders.

1.4 SYSTEM DESCRIPTION

A. Provide hot-mix asphalt pavement according to the materials, placement procedure, workmanship, and other applicable requirements of the standard specifications of the VDOT Road and Bridge Specifications.

1.5 SUBMITTALS

A. Product Data: For each product specified. Include technical data and tested physical and performance properties.

1. Job-Mix Designs: Certification, by VDOT, of approval of each job mix proposed for the Work.
2. Paint Mix and Colors, provide samples to Owner.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer who has completed hot-mix asphalt paving similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

B. Manufacturer Qualifications: Engage a firm experienced in manufacturing hot-mix asphalt similar to that indicated for this Project and with a record of successful in-service performance.

1. Firm shall be a registered and approved paving mix manufacturer with VDOT.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.

B. Store pavement-marking materials in a clean, dry, protected location and within temperature range required by manufacturer. Protect stored materials from direct sunlight.

1.8 PROJECT CONDITIONS

A. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F for oil-based materials, 50 deg F for water-based materials, and not exceeding 95 deg F.

PART 2 - PRODUCTS

2.1 AGGREGATES

A. General: Use materials and gradations in accordance with VDOT specifications.

B. Coarse Aggregate: Use materials and gradations in accordance with VDOT Specification Sections 203 and 211.

C. Fine Aggregate: Use materials and gradations in accordance with VDOT Specification Sections 202 and 211. Material shall have a minimum sand equivalent of 30 when tested in accordance with the requirements of AASHTO T176.

D. Mineral Filler: Use materials and gradations in accordance with VDOT Specification Section 201.

2.2 ASPHALT MATERIALS

A. Asphalt Cement: Use materials in accordance with VDOT Specification Section 210.

B. Prime Coat: Asphalt emulsion prime conforming to VDOT Specification Section 210.

C. Water: Potable.

2.3 AUXILIARY MATERIALS

A. Pavement-Marking Paint: Match existing type and color of paint.

2.4 MIXES

A. Hot-Mix Asphalt: Provide dense, hot-laid, hot-mix asphalt plant mixes approved by VDOT and complying with the following requirements:

1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
2. Base Course: As indicated on the drawings.
3. Surface Course: As indicated on the drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that subgrade is dry and in suitable condition to support paving and imposed loads.

B. Proof-roll subbase using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.

C. Notify Engineer in writing of any unsatisfactory conditions. Do not begin paving installation until these conditions have been satisfactorily corrected.

3.2 SURFACE PREPARATION

A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Insure that prepared subgrade is ready to receive paving.

1. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.

B. Prime Coat: Apply per requirements of VDOT Specification Section 210.

3.3 HOT-MIX ASPHALT PLACING

A. General: Apply asphalt per VDOT specifications.

B. Machine place hot-mix asphalt mix on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness, when compacted.
1. Place hot-mix asphalt base course in number of lifts and thickness indicated per VDOT specifications.
2. Revise below to higher temperature if thin lifts in cool weather are likely. See National Asphalt Pavement Association (NAPA) recommendations.
3. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes, unless otherwise indicated.
4. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.4 JOINTS

A. Construct joints per VDOT Specification Section 315.

3.5 COMPACTION

A. General: Compact pavement per VDOT Specification Section 315.

B. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

C. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while still hot, with back of rake or smooth iron. Compact thoroughly using tamper or other satisfactory method.

D. Repairs: Remove paved areas that are defective or contaminated with foreign materials. Remove paving course over area affected and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

E. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

F. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.6 INSTALLATION TOLERANCES

A. General: Comply with tolerances per VDOT Specification Section 315.

3.7 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Engineer and Owner.

B. Allow paving to cure for 30 days before starting pavement marking.

C. Sweep and clean surface to eliminate loose material and dust.

D. Apply paint per VDOT Specification Section 704.

3.8 FIELD QUALITY CONTROL

A. Testing Agency: Contractor will engage a qualified independent testing agency to perform field inspections and tests and to prepare test reports.

1. Testing agency will conduct and interpret tests and state in each report whether tested Work complies with or deviates from specified requirements.

B. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected Work with specified requirements.

C. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.

D. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.

E. In-Place Density: Samples of uncompacted paving mixtures and compacted pavement will be secured by the Contractor's testing agency according to ASTM D 979 and at locations selected by the Engineer.

1. Reference laboratory density will be determined by averaging results from 4 samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D 1559, and compacted according to job-mix specifications.
2. Reference maximum theoretical density will be determined by averaging results from 4 samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.
3. In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.

a. One core sample will be taken for every 1000 sq. yd. (836 sq. m) or less of installed pavement, but in no case will fewer than 3 cores be taken.
b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.

F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

END OF SECTION 02741

SECTION 02930 - LAWNS AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.2 REFERENCES

A. Virginia Department of Conservation and Recreation-Division of Soil and Water Conservation

1. Virginia Erosion and Sediment Control Handbook (VESCH): latest edition.

1.3 SUMMARY

A. This Section includes the following:

1. Fine grading
2. Seeding disturbed areas.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Section "Earthwork" for excavation, filling, rough grading, and subsurface aggregate drainage and drainage backfill.

1.4 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Certification of grass seed from seed vendor for each grass-seed mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Seed: Deliver seed in original sealed, labeled, and undamaged containers.

1.6 COORDINATION AND SCHEDULING

A. Planting Season: Sow lawn seed during normal planting seasons for type of lawn work required. Correlate planting with specified maintenance periods to provide required maintenance from date of Substantial Completion. Work areas shall be re-seeded within 30 days after being disturbed. Temporary seeding shall be provided if seeding is required to stabilize disturbed areas outside of the normal planting season.

B. Weather Limitations: Proceed with planting only when existing and forecast weather conditions are suitable for work.

PART 2 - PRODUCTS

2.1 SEED

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

1. Seed Mixture: Provide seed of grass species and varieties, proportions by weight, and minimum percentages of purity, germination, and maximum percentage of weed seed as prescribed by VESCH unless otherwise indicated on the drawings

2.2 TOPSOIL

A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, 4 percent organic material minimum, free of stones 1 inch or larger in any dimension, and other extraneous materials harmful to plant growth.

1. Topsoil Source: Reuse surface soil stockpiled on the site. Verify suitability of surface soil to produce topsoil, meeting requirements and amend when necessary. Clean topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful to plant growth.

B. Respread or provide minimum 2” of topsoil in all disturbed easement areas. Respread or provide adequate topsoil for suitable vegetative stabilization within VDOT right-of-way.

2.3 SOIL AMENDMENTS

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

B. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea-form, phosphorous, and potassium in the following composition:

1. Composition: Nitrogen, phosphorous, and potassium in a 5-10-10 ratio.

C. Water: Suitable for watering lawns.

2.4 MULCHES

A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

B. Fiber Mulch: Biodegradable dyed-wood cellulose-fiber mulch, nontoxic, free of plant growth- or germination-inhibitors, with maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

A. Protect structures, utilities, pavements, and other facilities caused by planting operations.

B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 PLANTING SOIL PREPARATION

A. Limit subgrade preparation to areas that will be planted in the immediate future.

B. Loosen subgrade to a minimum depth of 4 inches. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter.

C. Spread topsoil over all areas to receive seeding at a minimum depth of 4”.

D. Spread planting soil mixture to depth required meeting thickness, grades, and elevations shown, after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen.

1. Place approximately 1/2 the thickness of planting soil mixture required. Work into top of loosened subgrade to create a transition layer and then place remainder of planting soil mixture.

E. Grade lawn and grass areas to a smooth, even surface with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future. Remove trash, debris, stones larger than 1-1/2 inches in any dimension, and other objects that may interfere with planting or maintenance operations.

F. Moisten prepared lawn areas before planting when soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

G. Restore prepared areas if eroded or otherwise disturbed after fine grading and before planting.

3.4 SEEDING NEW LAWNS

A. Sow seed with a spreader or a seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in 2 directions at right angles to each other.

1. Do not use wet seed or seed that is moldy or otherwise damaged in transit or storage.

B. Sow seed at the rate shown on the drawings.

C. Rake seed lightly into top 1/8 inch of topsoil, roll lightly, and water with fine spray.

D. Protect seeded areas with slopes less than 1:6 against erosion by spreading straw mulch after completion of seeding operations. Spread uniformly at a minimum rate of 2 tons per acre to form a continuous blanket 1-1/2 inches loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.

1. Anchor straw mulch by crimping into topsoil by suitable mechanical equipment.

3.5 HYDROSEEDING NEW LAWNS

A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogenous slurry suitable for hydraulic application.

1. Mix slurry with nonasphaltic tackifier.
2. Apply slurry uniformly to all areas to be seeded in a 1-step process. Apply mulch at the minimum rate of 1500 lb. per acre dry weight but not less than the rate required obtaining specified seed-sowing rate.

3.6 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto surface of roads, walks, or other paved areas.

B. Protect newly planted areas from traffic. Erect fences, barricades and warning signs at the Contractor's expense as necessary to prevent disturbance. Maintain barricades throughout maintenance period until lawn is established.

3.7 PLANTING SOIL AMENDMENTS SCHEDULE

A. Lawns: Provide soil amendments in not less than the following quantities:

1. 2000 lbs. straw mulch/acre
2. 1000 lbs. 5-10-10 fertilizer/acre
3. 2 tons agricultural limestone/acre

3.8 SEED MIXTURES SCHEDULE

A. Use the seed mix schedule shown in the latest version of the Virginia Erosion and Sediment Control Handbook (VESCH), Site Specific Seeding mixture for Permanent Seeding for the following region:
1. Appalachian Area

B. Seed Mix Selection: Use the following Seed mix for the designated use.
1. Minimum Care Lawn: All areas within or adjacent to residential yards including shoulders and ditches.
2. General Slope: (3:1 or less): All remaining areas which are not adjacent to residential yards.
3. Low Maintenance Slope (Steeper than 3:1): All remaining areas which are not adjacent to residential yards.

END OF SECTION 02930

APPENDIX A

EROSION CONTROL NARRATIVE

RICKEY ROAD WATERLINE EXTENSION
WYTHE COUNTY, VIRGINIA

ADDITIONAL PLAN INFORMATION

- EROSION AND SEDIMENT CONTROL NARRATIVE
- STORMWATER MANAGEMENT NARRATIVE
- SWPP ADDITIONAL INFORMATION

Prepared for
Wythe County, Virginia

November 2018

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EROSION AND SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION

The purpose of this plan is to construct underground water line extensions and a water booster station at three locations along Rickey Road – VA Rt. 634 southeast of Wytheville, Virginia. The installation of 1,600 lf utilities will be a linear disturbance of approximately 0.1 acres.

EXISTING SITE CONDITIONS

The construction area runs along existing roadways for the bulk of the project. The disturbed areas drain into roadside ditches and ultimately into Cripple Creek.

ADJACENT PROPERTY

The adjacent areas of the construction site are mostly roadways, rural residential development and undeveloped pastures.

OFF-SITE AREAS

Any off-site area disturbed by the contractor will have to be protected with any required erosion control measures. There are not off-site areas planned at this time.

SOILS

The soils of this site are of the Frederick, Timberville and Chiswell-Grose-Litz complex.

CRITICAL EROSION AREAS

The critical erosion areas will be those disturbed areas along the steep roadside ditches. When feasible, check dams will be installed within roadside ditches.

EROSION AND SEDIMENT CONTROL MEASURES

The purpose of the control measures will be to prevent sediment deposition off the roadside ditches. Unless otherwise indicated, all vegetative and structural erosion and sediment control practices shall be constructed and maintained according to minimum standards and specifications of the handbook. The minimum standards of the VESCR shall be adhered to unless otherwise waived or approved by a variance.

COMPLY WITH MINIMUM STANDARD 16 (MS-16) FROM VESCR

MS 16- Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:

a. No more than 500 linear feet of trench may be opened at one time.
b. Excavated material shall be placed on the uphill side of trenches.
c. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.
d. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
e. Restabilization shall be accomplished in accordance with these regulations.
f. Applicable safety regulations shall be complied with.

STRUCTURAL PRACTICES

1. Silt Fence Barrier– 3.05: Install silt fence downstream of disturbed areas if not in compliance with MS-16 or as required due to poor stabilization of surface.
2. Culvert Inlet Protection – 3.08: Install inlet protection at culverts as shown on the plan.
3. Check Dam – 3.20: Install rock check dams along drainage ditches as shown on the plan.
4. Erosion Control Matting (Treatment 1)– 3.36: Install matting in disturbed areas to ensure permanent vegetative stabilization. Install within ditches when flow line of the ditch is disturbed by construction.

VEGETATIVE PRACTICES

1. Topsoiling – 3.30: Topsoil shall be stripped from all the trench area and respread after backfill of the trench. Approval of the inspector will be required for the location of any stockpiles.
2. Temporary and Permanent Seeding – 3.31 & 3.32: Permanent or temporary seeding shall be applied to any denuded areas left dormant within 15 days of disturbance. Seed mix shall depend upon the recommendations of the VESC Handbook and the time of year.
3. Mulching – 3.35: Mulch shall be applied as required to all areas with grass seeding or landscape plantings.
4. Soil Stabilization Blankets and Matting– 3.36: Install matting as shown on steep slopes and to revegetate stream banks as labeled on the plans.

MANAGEMENT STRATEGIES

1. Construction will be sequenced so that grading operations can begin and end as quickly as possible.
2. Runoff from disturbed areas not stabilized per MS-16 will be directed into sediment traps, check dams, or through silt fence.
3. Temporary seeding or other stabilization will follow immediately after backfill of trench.
4. The job superintendent will be responsible for the installation and maintenance of all erosion and sediment control practices.
5. After achieving adequate stabilization, the select temporary E & S controls will be cleaned up and removed. The inspector will determine when measures may be removed.

CONSTRUCTION SCHEDULE

1. Install all temporary measures as practical.
2. Excavate trench, install pipe, and backfill trench.
3. Stabilize trench in accordance with MS-16.
4. Prepare stream crossings in accordance with USC.
5. Final grading and permanent stabilization.
6. All temporary E & S controls will remain in place until specified by the Engineer.

PERMANENT STABILIZATION

All areas disturbed by construction and not paved will be stabilized with permanent seeding as soon as final grading of each area is complete. Seeding mix will consist of seeds as required by standard 3.32. Mulch per standard 3.35 and Matting per standard 3.36 will be used to protect permanent seeding areas.

MAINTENANCE

All erosion and sediment control measures will be checked weekly and after each significant rainfall. The following areas will be checked in particular.

1. Stabilized areas will be checked weekly to ensure that the surface coating (grass seed, stone, asphalt) is sufficient to minimize erosion runoff.
2. The silt fence barrier will be checked regularly for undermining or deterioration of the fabric. Sediment shall be removed when the level of sediment deposition reaches half way to the top of the barrier.
3. The seeded areas will be checked regularly to ensure that a good stand of grass is maintained. Areas should be fertilized and re-seeded as necessary.

STORMWATER MANAGEMENT NARRATIVE

MS-19 REQUIREMENTS-STORM WATER QUANTITY

Since this plan does not include a significant increase in impervious area, there will be no runoff increase from pre-development to post development.

STORM WATER QUALITY REQUIREMENTS

Since this plan does not include any significant impervious area, there will be no stormwater quality management.

SWPP ADDITIONAL INFORMATION

CONTRACTOR WILL COMPLY WITH ALL THE PROVISIONS OF THE VSMP AND/OR SWPP PERMIT INCLUDING INSPECTION, MAINTENANCE, AND REPORTING REQUIREMENTS.

Possible additional pollution sources:
Vehicle fueling

Construction and Waste materials to be stored on-site
Pipe -no discharge associated
Bedding and base stone-protected with silt fence

Contractor may not discharge or waste materials into water bodies.

Structural erosion control methods and practices have been selected based on availability to the contractor, cost of construction & maintenance, and practical use in this particular application.

Contractors will comply with the following GM15-2003 Requirements for the waterline work:

Contractor will comply with the following requirements:

- The project is managed so that less than one (1) acre of land disturbance occurs on a daily basis;
- The disturbed land where work has been completed is adequately stabilized on a daily basis;
- The environment is protected from erosion and sedimentation damage associated with the land-disturbing activity
- The construction activity operator designs, installs, implements, and maintains pollution prevention measures to:
    - Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters;
    - Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on-site to precipitation and to stormwater;
    - Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures;
    - Prohibit the discharge of wastewater from the washout of concrete;
    - Prohibit the discharge of wastewater from the washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials; and
    - Prohibit the discharge of fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.
- **The project does not significantly alter the predevelopment runoff characteristics of the land surface after the completion of construction and final stabilization.**

APPENDIX B

VDOT LUP DOCUMENTS

August 1, 2016

Land Use Permit - LUP-UT
Utility installations

The installation of utilities on state maintained highway right-of-way is authorized under Sections **24VAC30-151-300** General Provisions Governing Utilities through 24VAC30-151-400 of the Land Use Permit Regulations
http://law.lis.virginia.gov/admincode/title24/agency30/chapter151/

Land Use Permit Required by Law

The General Rules and Regulations of the Commonwealth Transportation Board provide that no work of any nature shall be performed on any real property under the ownership, control, or jurisdiction of VDOT until written permission has been obtained from VDOT. Written permission is granted for the installation of private entrances on state maintained highway right-of-way through the issuance of a land use permit.

By issuing a permit, VDOT is giving permission only for whatever rights it has in the right-of-way; the permittee is responsible for obtaining permission from others who may also have an interest in the property.

The permittee will be civilly liable to the Commonwealth for expenses and damages incurred by VDOT as a result of violation of any of the rules and regulations of this chapter. Violators shall be guilty of a misdemeanor and, upon conviction, shall be punished as provided for in §**33.2-210** of the Code of Virginia.

Application Requirements

Application for a land use permit authorizing the installation of utilities on non-limited or limited access state maintained highways shall be made through the local district permit office where the activity is to take place.

The proposed installation shall accompany plan/sketches showing distances from edge of pavement, existing and proposed right-of-way line, depths below existing and proposed grades, depths below ditch line or underground drainage structures, or other features shall be shown. Any existing utilities within close proximity of the permittee's work shall be shown. Location of poles, guys, pedestals, relief valves, vent pipes, etc. shall be shown. Height of wires or cables above the crown of the roadway shall be shown.

Please note the company has to be registered with the State Corporation Commission and with Miss Utility.

Application, forms and general information regarding VDOT land use permitting for the installation of utility on state maintained highways right-of-way are included below.

24VAC30-151-710. Fees.

A. Single use permit. A nonrefundable application fee shall be charged to offset the cost of reviewing and processing the permit application and inspecting the project work, in accordance with the requirements below:

1. The application fee for a single permit is $100.
2. Additive costs shall be applied as indicated below.

Activity	Fee
Storm Sewer	$10 per 100 linear feet
Box Culvert or Bridge	$5 per linear foot of attachment
Drop Inlet	$10 per inlet
Pole Attachment	$10 per structure
Span Guy	$10 per crossing
Additive Guy and Anchor	$10 per guy and anchor
Underground Utility - Parallel	$10 per 100 linear feet

Activity	Fee
Overhead or Underground Crossing	$10 per crossing
Excavation Charge (including Test Bores and Emergency Opening)	$10 per opening

Surety Requirement

The permittee and/or their agent shall provide surety to guarantee the satisfactory performance of the activity authorized under the auspices of the land use permit issued for the initial installation. The surety shall be based on the estimated cost of work to be performed within the right-of-way and the amount shall be determined by the district administrator's designee. The surety may be in the form of a check, cash, irrevocable letter of credit, Corporate Surety, Resolution or bond. This surety will be refunded or released upon satisfactory completion of the initial installation and inspection by VDOT.

Cash Surety Refund

Applicants owing the Internal Revenue Service or the Commonwealth of Virginia may not receive a refund of the cash guarantee provided for the issuance of a VDOT land use permit unless the amount owed is less than the amount of cash guarantee provided. Applicants providing cash guarantee for the issuance of a VDOT land use permit must provide an executed copy of the Commonwealth of Virginia's Substitute Form W-9 to receive a refund of the cash guarantee provided for the issuance of a VDOT land use permit

Contact Information

A list of counties with their corresponding VDOT district offices and contact information may be obtained at the following VDOT web site: **http://www.virginiadot.org/about/districts.asp**

Land Use Permit Application (LUP-A)

APPLICATION is hereby made for permit as shown on the accompanying plan or sketch and as described below. Said activity(s) will be done under and in accordance with the rules and regulations of the Commonwealth Transportation Board of Virginia, in so far as said rules are applicable thereto and any agreement between the parties herein before referred to. Where applicable agreements may be attached and made a part of the permit assembly including any cost responsibilities covering work under permit. Applicant agrees to maintain work in a manner as approved upon its completion. Applicant also hereby agrees and is bound and held responsible to the owner for any and all damages to any other installations already in place as a result of work covered by resulting permit. Applicants to whom permits are issued shall at all times indemnify and save harmless the Commonwealth Transportation Board members of the Board, the Commonwealth and all Commonwealth employees, agents, and offices, from responsibility, damage, or liability arising from the exercise of the privileges granted in such permit to the extent allowed by law. In consideration of the issuance of a permit the applicant agrees to waive for itself, successors in interest or assigns any entitlements it may otherwise have or have hereafter under the Uniform Relocation and Assistant Act of 1972 as amended in event the Department or its successor, chooses to exercise its acknowledged right to demand or cause the removal of any or all fixtures, personality of whatever kind or description that may hereafter be located, should this application be approved.

Applicant information:

Driver's License or Tax ID No. _____ Contact Name _____

Owner Name _____ E-mail Address _____

Address _____ Telephone Number _____

City _____State _____Zip Code_____ Emergency Telephone Number _____

Fax Number _____

Agent information:

Driver's License or Tax ID No. _____ Contact Name _____

Owner Name _____ E-mail Address _____

Address _____ Telephone Number _____

City _____State _____Zip Code_____ Emergency Telephone Number _____

Fax Number _____

Permit Term Requested _____ Fees Enclosed $ _____ Check Number _____ Money Order _____

Estimated cost of work to be performed on VDOT Right of Way $_____

Surety Information:

Surety Posted by: ☐ Owner ☐ Agent ☐ County Resolution ☐ Waived

If cash/check surety is posted, please complete Commonwealth of Virginia's Substitute Form W-9.

Bonding Company Name _____ Bond # _____

Irrevocable Letter of Credit - Bank Name _____ Irrevocable Letter of Credit # _____

Surety paid by Check - Check Number _____

Amount of Surety $ _____ Obligation Amount $_____

Request permission to perform the following activity(s): _____

_____

_____

_____as per attached plans.

Location: ☐ County ☐ Town ☐ City of _____ Route No. _____ Street Name _____

Between Route No. _____ Street Name _____ and Route No._____ Street Name _____

Latitude _____ Longitude_____ Tax Map Number _____ Applicant Job No._____

Applicant shall provide proof of registration as an operator with the appropriate notification center in accordance as defined in §2.2-1151.1 of the Code of Virginia & must provide a notarized affidavit, stating that the utility owner has notified the commercial and residential developer, owner of commercial or multifamily real estate, or local government entities with a property interest in any parcel of land located adjacent to the property over which the land use is being requested, that application for the permit has been made.

☐ IF APPLICABLE, I AGREE TO PAY THE FULL SALARY AND EXPENSES OF A STATE ASSIGNED INSPECTOR IN CONJUNCTION WITH ACTIVITIES AUTHORIZED UNDER THE AUSPICES OF A VDOT LAND USE PERMIT.

By signing below, I acknowledge that I am fully cognizant of all the LUP-SPG requirements associated with the issuance of a VDOT Land Use Permit.

Signature of Applicant: _____ Title _____ Date _____

Signature of Agent: _____ Title _____ Date _____

All applicable items on this form must be completed to avoid delay in processing the issuance of a VDOT Land Use Permit.
Prepayment required with remittance payable to Virginia Department of Transportation.

VDOT USE ONLY

Receipt is hereby acknowledged for: CHECK No.: _____ MONEY ORDER No.: _____

In the Amount of $ _____ for PERMIT FEE $ _____ CASH SURETY $ _____

Authorized VDOT Signature: _____ Date: _____

*Agent mean: Applicant contractor's or a person or business authorized to act on another's behalf.

Land Use Permit
LUP-SPG
Special Provisions General
Permittee Agreement for Land Use Permit Issuance

Any of the following provisions that may apply, shall apply:

General Requirements

1) Permittee acceptance and use of a Virginia Department of Transportation (VDOT) land use permit is prima facie evidence that the permittee has read and is fully cognizant of all required permit provisions, applicable traffic control plans and associated construction standards to be employed. All applicants to whom permits are issued shall at all times indemnify and save harmless the Commonwealth Transportation Board, members of the Board, the Commonwealth, and all Commonwealth employees, agents, and officers, from responsibility, damage, or liability arising from the exercise of the privileges granted in such permit to the extent allowed by law including any sums ordered to be paid or expended by VDOT by any governmental entity as a fine, penalty or damages for any violation of any applicable environmental law, or to remediate any hazardous or other material, including illicit discharge into VDOT maintained storm sewer systems.

2) The permittee assumes full responsibility for any and all (downstream flooding, erosion, siltation, etc.) damages that may occur as a result of the work performed under this permit. Furthermore, the Department will in no way be responsible for any damage to the facility being placed as a result of future maintenance or construction activities performed by the Department.

3) The permittee agrees to move, remove, alter, or change any installation that interferes with the ultimate construction of the highway in alignment or grade at no cost to the Department unless otherwise stipulated and agreed to by the Department.

4) The permittee shall immediately correct any situation that may arise as a result of these activities that the district administrator's designee deems hazardous to the traveling public.

5) Any and all highway signs, right-of-way markers, etc., disturbed as a result of work performed under the auspices of a land use permit shall be accurately reset by the permittee immediately following the work in the vicinity of the disturbed facility. The services of a certified land surveyor with experience in route surveying may be required.

6) It shall be the permittee's responsibility to obtain any and all necessary permits that may be required by any other government agencies, i.e., U.S. Army Corp. of Engineers, Department of Environmental Quality, Department of Conservation and Recreation, etc.

7) A copy of the VDOT land use permit shall be maintained at the work site and made readily available for inspection when requested by authorized VDOT personnel.

8) The permittee shall notify the local district permit office at least 48 hours prior to commencement of any work requiring inspection and/or testing as stipulated in VDOT's Road and Bridge Standards (current edition) and VDOT's Road and Bridge Specifications (current edition). Failure to carry out this requirement may result in permit revocation.

9) The permittee or their agent must contact the VDOT Customer Service Center at 1-800-367-7623 a minimum of 48 hours prior to initiating any planned excavation within 1,000 feet of a signalized intersection and/or near VDOT ITS infrastructure. Excavation activities may proceed only after the VDOT regional utility location agent has notified the permittee that the utility marking has been completed. Additional information can be found at:
http://www.virginiadot.org/business/resources/IIM/TE-383_Request_for_Marking_VDOT_Utility_Location.pdf

Alternately, within all localities in the Northern Virginia Construction District, including the Counties of Arlington, Fairfax, Loudoun & Prince William, the Cities of Alexandria, Fairfax, Falls Church, Manassas and Manassas Park, and the Towns of Clifton, Dumfries, Hamilton, Haymarket, Herndon, Hillsboro, Leesburg, Lovettsville, Middleburg, Occoquan, Purcellville, Quantico, Round Hill and Vienna, and on Interstate 95 in the counties of Stafford, Spotsylvania and Caroline, the permittee may request VDOT regional utility marking at: **http://www.vdotutilitymarking.virginia.gov**

Failure to carry out this requirement may result in permit revocation.

10) The permittee shall to notify "Miss Utility" (or each operator of an underground utility where no notification center exists) of any planned excavation within state maintained right-of-way. This notification must be provided at least 48 hours (excluding weekends and holidays) in advance of commencing with any planned excavation within state maintained right-of-way. Failure to carry out this requirement may result in permit revocation.

11) It is the duty of the district administrator's designee to keep all roads maintained in a safe and travelable condition at all times. Therefore, any permit may be denied, revoked or suspended when in the opinion of the district administrator's designee, the safety, use or maintenance of the highway so requires.

12) The permittee shall at all times give strict attention to the safety and rights of the traveling public, their employees and themselves. VDOT reserves the right to stop work at any time due to safety problems and/or non-compliance with the terms of the permit. The Department may, at its discretion, complete any of the work covered in the permit or restore the right-of-way to the department's standards and invoice the permittee for the actual cost of such work. The permittee may be required to move, alter, change or remove from state maintained right-of-way, in a satisfactory manner, any installation made under this permit.

13) All work authorized under the auspices of a VDOT land use permit shall be subject to VDOT's direction and be in accordance with VDOT's Road and Bridge Standards (current edition) and VDOT's Road and Bridge Specifications (current edition).

14) Design changes, specified material changes and/or field changes from the approved plans shall be submitted to the appropriate district administrator's designee for review and approval prior to proceeding with the proposed changes. This submittal shall include written justification, supplemental documentation and/or engineering calculations that support the requested changes.

15) The permittee shall meet or exceed the existing pavement design and typical section when constructing pavement widening adjacent to an existing state maintained roadway. The proposed pavement design and typical section shall be approved by the district administrator's designee prior to commencing with any work within state maintained right-of-way. All pavement widening shall be in accordance with VDOT's Road and Bridge Standard 303.02.

16) Within the limits of a VDOT construction project it is the responsibility of the permit applicant to obtain the contractor's consent in writing prior to permit issuance. Information regarding current and/or planned VDOT construction and maintenance activities can be obtained at: **http://www.virginiaroads.org/**.

Insurance Requirements (excluding County, Town or City)

The permittee or their agent shall secure and maintain insurance to protect against liability for personal injury and property damage that may arise from the activities performed under the authority of a land use permit and from the operation of the permitted activity up to one million dollars ($ 1,000,000) each occurrence to protect the Board members and the Department's agents or employees; seventy-five thousand dollars ($75,000) each occurrence to protect the Board, the Department, or the Commonwealth in event of suit. Insurance must be obtained prior to start of the permitted work and shall remain valid through the permit completion date. VDOT staff may require a valid certificate or letter of insurance from the issuing insurance agent or agency prior to issuing the land use permit.

Traffic Control and Safety

1) The permittee shall at all times give strict attention to the safety and rights of the traveling public, their employees, and contractors. Any permit may be revoked or suspended when in the opinion of the district administrator's designee, the safety, use or maintenance of the highway so requires.

2) In accordance with the Virginia Department of Transportation (VDOT) Road and Bridge Specification, Special Provision 105.14, all activities performed under the auspices of a VDOT Land Use Permit involving the installation, maintenance and removal of work zone traffic control devices must have an individual on-site who, at a minimum, is accredited by VDOT in Basic Work Zone Traffic Control. The accredited person must have their VDOT Work Zone Traffic Control accreditation card in their possession while on-site.

3) The individual accredited in Basic Work Zone Traffic Control is responsible for the placement, maintenance and removal of work zone traffic control devices within the project limits in compliance with the permit requirements and conditions, the approved plans and specifications, the Virginia Work Area Protection Manual, and the Manual of Uniform Traffic Control Devices.

4) A person accredited by VDOT in Intermediate Work Zone Traffic Control must be on-site to provide supervision for adjustment to the approved layout of any standard Typical Traffic Control (TTC) layouts outlined in the Virginia Work Area Protection Manual.

5) All traffic control plans shall be prepared by a person verified by VDOT in Advanced Work Zone Traffic Control.

6) Individuals responsible for implementation of work zone traffic control measures shall provide evidence of their accreditation upon request from VDOT personnel.

7) The permittee shall be exempt from the requirements of Virginia Department of Transportation (VDOT) Road and Bridge Specification, Special Provision 105.14 if the authorized activity is not within the roadway (as defined in 24VAC30-151) of a state maintained highway.

8) Non-compliance with the requirements outlined in VDOT Road and Bridge Specification, Special Provision 105.14 may result in a stop work order and / or permit revocation.

9) All activities that require the disruption (stoppage) of traffic shall utilize VDOT certified flaggers. Flag persons shall be provided in sufficient number and locations as necessary for control and protection of vehicular and pedestrian traffic in accordance with the Virginia Work Area Protection Manual. All flaggers must have their certification card in their possession when performing flagging operations within state maintained right-of-way. Any flag person found not in possession of his/her certification card shall be removed from the flagging site and the district administrator's designee will suspend all permitted activities.

10) Any VDOT certified flag person found to be performing their duties improperly shall have their certification revoked.

11) All signs shall be in accordance with the current edition of the Manual of Uniform Traffic Control Devices (MUTCD).

12) The permittee shall immediately correct any situation that may arise as a result of these activities that the district administrator's designee deems hazardous to the traveling public.

13) During authorized activities, the permittee shall furnish all necessary signs, flag persons and other devices to provide for the protection of traffic and workers in accordance with the Virginia Work Area Protection Manual or as directed by the district administrator's designee.

14) Traffic shall not be blocked or detoured without permission, documented in writing or electronic communication, being granted by the district administrator's designee.

15) All lane or shoulder closures on highways in the Northern Virginia construction district classified as arterial or collector routes must be authorized, documented in writing or by electronic communication by the VDOT Transportation Operations Center (NRO/TOC).

16) The permittee shall notify the following appropriate VDOT Transportation Operations Center (TOC) 30 minutes prior to the installation of a lane closure or shoulder closure on non-limited access primary routes and within 30 minutes of removing the lane or shoulder closure:

- Eastern Region (757) 424-9920: All localities within the Hampton Roads construction district excluding Greenville County and Sussex County
- Northern Virginia (703) 877-3401: All localities within the NOVA construction district including Spotsylvania County and Stafford County
- Central Region (804) 796-4520: All localities within the Richmond construction district including Greenville County and Sussex County. All localities within the Fredericksburg district excluding Spotsylvania County and Stafford County
- SW Region (540) 375-0170: All localities within the Salem, Bristol, and Lynchburg construction districts
- NW Region (540) 332-9500: All localities within the Staunton and Culpeper construction districts

VIRGINIA WORK ZONE TRAFFIC CONTROL TRAINING OPTIONS

The following three options are available to receive Work Zone Traffic Control (WZTC) training based on an individual's job duties and responsibilities as required by the FHWA Final Rule on Work Zone Safety and Mobility and the Virginia Department of Transportation:

OPTION 1 – Have someone trained to become a qualified instructor in your company who can then instruct others , utilizing training material provided by VDOT. The following qualifications must be met in order to teach the VDOT Basic, Intermediate, or Advanced WZTC training courses:

- **Basic** – Be flagger certified either by VDOT or by the American Traffic Safety Services Association (ATSSA); possess two years of practical experience in Highway Design, Construction, Maintenance, or Traffic Operations; possess two years of documented experience in conducting training courses; and successfully complete the VDOT WZTC Intermediate or Advanced course or complete the ATSSA Virginia Intermediate/Traffic Control Supervisor (TCS) course.

- **Intermediate** - Be flagger certified either by VDOT or by ATSSA; possess two years of practical experience in Highway Design, Construction, Maintenance, or Traffic Operations; possess two years of documented experience in conducting training courses; complete and possess the ATSSA Virginia Intermediate/TCS certification.

- **Advanced** - Be flagger certified either by VDOT or by ATSSA; possess two years of practical experience in Highway Design, Construction, Maintenance, or Traffic Operations; possess two years of documented experience in conducting training courses; complete and possess the ATSSA Virginia Advanced Traffic Control Design Specialist (TCDS) certification or ATSSA Virginia Intermediate TCS certification.

To become an approved instructor, an application must be completed listing the above qualifications and sent to the chairman of VDOT's WZST committee at the following location:
http://www.virginiadot.org/business/resources/wztc/wztc_inst_app_form.pdf

Once a person has become an approved instructor, training material can be obtained from VDOT using the order form obtained from the following location (requires an approved instructor identification number):
http://www.virginiadot.org/business/resources/wztc/WZTC_order_form.pdf

OPTION 2 – Obtain the services of an approved instructor from VDOT's Approved WZTC Instructor List to teach the course or courses you need for your employees.

The Approved WZTC Instructor's List can be obtained at the following location:
http://www.virginiadot.org/business/resources/wztc/Approved_WZTC_Instructors.pdf

A list of Approved Providers of training can be obtained at the following location:
http://www.virginiadot.org/business/resources/wztc/wztc_training_sponsors.pdf

OPTION 3 – Send personnel to classes conducted by approved sources such as ATSSA Virginia or the Virginia Local Technical Assistance Program (LTAP).

Courses by ATSSA Virginia can be found at the following location:
http://atssa.com/cs/course_information/courses_by_state?state=56

Courses by the Virginia LTAP can be found at the following location:
http://ltap.cts.virginia.edu/2%20Page%20Calendar%20June%20-%20Sept%2009.pdf

Basic WZTC courses by the Virginia Rural Water Association can be found at the following location:
http://www.vrwa.org/ (See Training Schedule)

Training by the Virginia Transportation Construction Alliance (VTCA) can be found at the following location: **http://vtca.org/**

Visit the following site for additional information regarding Virginia's Work Zone Traffic Control training program:
http://www.virginiadot.org/business/trafficeng-WZS.asp

Authorized Hours and Days of Work

Normal hours for work under the authority of a VDOT land use permit are from 9:00 a.m. to 3:30 p.m. for all highways classified as arterial or collector. All highways classified as local roads will have unrestricted work hours and days.

The district administrator's designee may establish alternate time restrictions in normal working hours for single use permits.

The central office permit manager may establish alternate time restrictions in normal working hours for district-wide permits.

The classifications for all state maintained highways can be found at the following link:
http://www.virginiadot.org/projects/fxn_class/maps.asp

Emergency Repair

In the event of an emergency situation that requires immediate action to protect persons or property, work may proceed within the right-of-way without authorization from the district administrator's designee; however, the utility owner must contact the VDOT Emergency Operations Center as soon as reasonably possible but no later than 48 hours after the end of the emergency situation.

The utility owner must apply for a separate land use permit from the local district permit office for any emergency work performed on state maintained right-of-way when the following actions are proposed:

- Stopping or impeding highway travel in excess of 15 minutes, or,
- Accessing facilities within limited access right-of-way, or,
- Cutting the highway pavement or shoulders.

The district administrator's designee shall determine the applicable permit fee for emergency repair permits.

Holiday Restrictions

Permitted non-emergency work will not be allowed on arterial and collector highway classifications from noon on the preceding weekday through the following state observed holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. If the observed holiday falls on a Monday, the permit will not be valid from noon on the preceding Friday through noon on Tuesday.

Excavation

All excavation within state maintained rights-of-way shall comply with OSHA Technical Manual, Chapter 2, Title Excavation: Hazard Recognition in Trenching and Shoring. A professional engineer shall certify all shoring and/or trench boxes.

No excavated material is to be placed or tracked on the pavement without written permission from the District Administrator's designee. When so authorized, the pavement shall be satisfactorily cleaned by a VDOT approved method. No cleated (track-mounted) equipment is to be used on the pavement without properly protecting the pavement from damage.

Inspection and Restoration

1) Inspection and testing of all backfill and pavement sections shall be performed in accordance with all applicable sections of VDOT's Road and Bridge Specifications (current edition).

2) If during or before construction it is deemed necessary for the local district permit office to assign an inspector to the project, the permittee shall pay the Department an additional inspection fee in an amount that will cover the salary, expense allowance, and mileage allowance for the inspection(s) assigned by the Department for handling work covered by this permit. Said inspection fee shall be paid promptly each month on invoices rendered by the Department.

3) It shall be the decision of the district administrator's designee whether to assign an inspector to monitor the placement of all backfill and pavement restoration activities.

4) The absence of a VDOT inspector does not in any way relieve the permittee of their responsibility to perform the work in accordance with the approved plans, provisions of the attached permit, VDOT's Road and Bridge Standards (current edition) and VDOT's Road and Bridge Specifications (current edition).

5) The permittee shall be responsible for any settlement of all backfill or pavement restoration necessitated by authorized excavation activities for a period of two (2) years after the completion date of permit, and for the continuing maintenance of the facilities placed within the highway right-of-way. A one (1) year restoration warranty period may be considered, provided the permittee adheres to the following criteria:

- The permittee retains the services of a professional engineer (or certified technician under the direction of the professional engineer) to observe the placement of all backfill and pavement restoration.
- The professional engineer (or certified technician under the direction of the professional engineer) performs any required inspection and testing in accordance with all applicable sections of VDOT's Road and Bridge Specifications.
- The professional engineer submits all testing reports for review and approval, and provides written certification that all restoration procedures have been completed in accordance with all applicable sections of VDOT's Road and Bridge Specifications prior to completion of the work authorized by the permit.

6) Whenever existing pavement is permitted to be cut, not over one-half of the roadway width shall be disturbed at one time and the first open cut trench section shall be satisfactorily restored to allow for the passage of traffic prior to the second half of the roadway surface can be disturbed.

7) All crossing of existing pavement shall be bored, pushed or jacked an appropriate distance from the edge-of-pavement so as not to impede the normal flow of traffic or damage the existing pavement section. Existing pavement shall not be cut unless approved by the district administrator's designee and then only if justifiable circumstances prevail or proof is shown that a thorough attempt has been made to push, bore or jack.

8) Authorized daily trench excavation within pavement sections shall not exceed 500 feet in length.

9) Pavement restoration shall be in accordance with the attached VDOT LUP-OC Pavement Open Cut Special Provisions.

10) Where the pavement is disturbed or deemed weakened in its entirety or such portions as deemed desirable by the Department, the pavement shall be restored or replaced in a manner that is satisfactory to the district administrator's designee.

Environmental

1) In accordance with the Virginia Department of Transportation (VDOT) Road and Bridge Specification §**107.16**, all contractors performing regulated land disturbing activities within VDOT right-of-way must have at least one (1) employee that has successfully completed the VDOT Erosion & Sediment Control Contractor Certification training. This person shall be on site during all land disturbance activities and will be responsible for insuring compliance with all applicable local, state and federal erosion and sediment control regulations during land disturbance activities. This person must have their certification card with them while on the project site. The land use permit will be suspended if proof of certification cannot be provided. Regulated land disturbing activities are defined as those activities that disturb 2,500 square feet or greater in Tidewater, Virginia or 10,000 square feet or greater in all other areas of the State. The Department will require evidence of this certification with any land use permit application that involves utility and/or commercial right of way improvement. Improper installation, maintenance and removal of erosion and sediment control devices may result in revocation of VDOT Erosion & Sediment Control Contractor Certification.

2) The permittee is responsible for pursuing and obtaining any and all environmental permits which may be required to pursue the proposed activity prior to any work beginning within state maintained right-of-way.

3) In the event hazardous materials or underground storage tanks are encountered within state maintained right-of-way during authorized activities, the permittee shall suspend all work immediately then notify the local district permit office and other responsible parties, i.e., the local fire department, emergency services, Department of Environmental Quality, etc. The permittee is responsible for coordination and completion of all required remediation necessary to complete the permitted activities within the state maintained right-of-way. The permittee shall provide evidence of such compliance to the local district permit office prior to recommencement of permitted activities.

4) In the event cultural resources, archaeological, paleontological, and/or rare minerals are encountered within the right of way during authorized activities, the permittee shall suspend all work immediately then notify the local district permit office and the proper state authority charged with the responsibility for investigation and evaluation of such finds. The permittee will meet all necessary requirements for resolving any conflicts prior to continuing with the proposed activities within the state maintained right-of-way, and shall provide evidence of such compliance to the local district permit office.

5) Roadway drainage shall not be blocked or diverted. The shoulders, ditches, roadside, drainage facilities and pavement shall be kept in an operable condition satisfactory to the Department. Necessary precautions shall be taken by the permittee to insure against siltation of adjacent properties, streams, etc., in accordance with VDOT's current standards or as prescribed by the Department's Environmental Manual and the district administrator's designee.

Entrances

1. Plans for the proposed installation of entrance(s) to state maintained highway right-of-way shall be designed in accordance with the current edition of VDOT's Road and Bridge Standards, VDOT's Road and Bridge Specifications and per VDOT *Road Design Manual*, Appendix F located at **http://www.extranet.vdot.state.va.us/locdes/Electronic_Pubs/2005%20RDM/AppendF.pdf.**

2. VDOT's authority to regulate highway entrances is provided in §, §**33.2-240**, and §**33.2-241** of the Code of Virginia and its authority to make regulations concerning the use of highways generally is provided in §**33.2-210** of the Code of Virginia. Regulations regarding entrances are set forth in VDOT's regulations promulgated pursuant to §**33.2-245** of the Code of Virginia.

3. The permittee shall be responsible for the design and installation of a private entrance under the auspices of a VDOT land use permit however the permittee may request that VDOT forces install the private entrance at the permittee's expense.

4. Street connections, private entrances, and construction entrances shall be kept in satisfactory condition during all activities authorized under the auspices of a VDOT land use permit. Entrances shall not be blocked. Ample provisions must be made to provide safe ingress and egress to adjacent properties at all times. Entrances that are disturbed shall be restored to the satisfaction of the property owner and the district administrator's designee.

Utilities

1) Prior to any excavation, the permittee shall comply with the terms of **Title 56, Chapter 10.3** of the Underground Utility Damage Prevention Act and §**56-265.14** through §**56-265.20** of the Code of Virginia. This permit does not grant permission to grade on or near property of others, or, adjust or disturb in anyway existing utility poles or underground facilities within the permitted area. Permission to do so must be obtained from the impacted utility company and any expense involved shall be borne by the permittee. Any conflicts with existing utility facilities must be resolved between the permittee and the utility owner(s) involved.

2) All underground utility installations within limited access right-of-way shall have a minimum of 36 inches of cover. All underground utilities within non-limited access right-of-way will require a minimum of 36 inches of cover, except underground cables that provide telecommunications service shall be at a minimum of 30 inches of cover.

3) Where feasible, all aboveground installations (such as fire hydrants, telephone pedestals, markers, etc.) shall be located adjacent to the outside edge of the right-of-way line and in accordance with minimum clear zone requirements. All manhole covers, valve box, etc., shall be installed two inches below existing ground line and shall conform to existing contours.

4) No poles, guys, anchors, etc., are to be placed on state maintained right-of-way unless authorized under the auspices of a VDOT land use permit. At no time will any such facilities be allowed between the ditch line and the traveled roadway.

5) All overhead installations crossing non-limited access highways shall provide a minimum of 18 feet of vertical clearance or at a minimum height as established by the National Electric Safety Code, whichever is greater. All overhead utility installations within limited access right-of-way shall maintain a minimum of 21 feet of vertical clearance. The vertical clearance for all new overhead parallel installations within non-limited access rights-of-way shall be in compliance with standards as specified in the National Electric Safety Code.

Final Inspection and Completion of Permit

Upon completion of the work covered by this permit all disturbed areas outside of the roadway prism shall be restored to their original condition as found prior to starting such work.

Completion of this permit is contingent upon the permittee's completion of the authorized work in accordance with the approved plan and compliance with all governing bodies involved in the total completion of work on state maintained right-of-way.

Upon completion of the work under permit, the permittee shall provide notification, documented in writing or electronic communication, to the district administrator's designee requesting final inspection. This request shall include the permit number, county name, route number and name of the party or parties to whom the permit was issued.

The district administrator's designee shall promptly schedule an inspection of the work covered under the permit and advise the permittee of any necessary corrections.

Permit Revocation

At the discretion of the district administrator's designee, a land use permit may be revoked upon written finding that the permittee was not in compliance with all requirements contained herein and/or violated the terms of the permit, or any state and local laws and ordinances regulating activities within the right-of-way.

The district administrator's designee shall promptly schedule an inspection of the work covered under the permit and advise the permittee of any necessary corrections

Permittee Notice

The preceding provisions are intentionally condensed in format and should not be loosely interpreted by the permittee without consultation with the central office permit manager and affirmation from the **Land Use Permit Regulations**.

LAND USE PERMIT
LUP-OC
Open-Cut Pavement Restoration Requirements

Any of the following provisions that may apply, shall apply:

1. The permittee shall be responsible for the restoration of pavement on state maintained highways in accordance with all applicable sections of the VDOT Road and Bridge Specifications, VDOT Road and Bridge Standards and this document.

2. Whenever existing pavement is permitted to be cut, not over one-half of the roadway width shall be disturbed at one time and the first open cut trench section shall be satisfactorily restored to allow for the passage of traffic prior to the second half of the roadway surface can be disturbed.

3. All trench backfill material shall be Select Material Type I having a minimum CBR of 30 and free from any wood, decaying material, asphalt, concrete, ice, frost, large clods, stone or debris.

4. Trench backfill material shall be compacted to a minimum of 95% of the theoretical maximum density at optimum moisture content, as determine by VDOT testing procedures (VTM1), using mechanical tamping throughout the depth of the trench in 6-inch lifts to ensure that the adequate support is provided for the aggregate sub-base layer is adequately supported.

5. For roadways with a bituminous concrete asphalt pavement section the compacted trench backfill shall be capped with 10 inches (10”) of Type I, Size 21-A or 21-B aggregate compacted to 100% of the theoretical maximum density at optimum moisture content covering the entire trench width and a minimum six inch (6”) bench on each side of the excavated trench or as determined by the district administrator’s designee.

6. A bituminous concrete asphalt base course (BM-25) having a minimum thickness of six inches (6”), or matching the existing base course thickness, shall be placed over the benched aggregate sub-base to the bottom elevation of the existing asphalt concrete surface course.

7. All sides of the excavated trench shall be saw-cut trimmed to neat straight lines and a tack coat of RC-250 liquid asphalt applied at a rate of 0.1 gallon per square yard (or as determined by the district administrator’s designee) prior to placing the bituminous concrete asphalt base course (BM-25.0) and/or replacement of the bituminous concrete asphalt surface course (SM-9.5A or SM-9.5D).

8. The existing pavement surface course adjacent to the excavated trench shall be milled and repaved with bituminous concrete asphalt (SM-9.5A or SM-9.5D) having of a minimum thickness of 1-1/2 inches (1.5”). This operation shall cover the entire trench width and extend 12 inches (12”) beyond the edge of the trench on longitudinal open cuts and 25 feet (25’) beyond the trench centerline on perpendicular open cuts, or as determined by the district administrator’s designee.

9. Open cuts in surface treated roadway sections with an aggregate base course shall be replaced with the same layer(s) as roadway sections with a bituminous concrete asphalt pavement structure except the sub-base layer (Type I, Size 21-A or 21-B) may be reduced to six inches (6”) and the bituminous concrete asphalt base layer (BM-25.0) may be reduced to four inches (4”) while maintaining the required six inch (6”) bench on both sides of the excavated trench. The surface course restoration material and thickness shall match the existing surface.

10. Replacement of all bituminous concrete asphalt and surface treated courses shall be rolled with equipment having a manufacturer’s rating of ten (10) tons until the aggregate is keyed into the bitumen. Where rolling is not possible, a mechanical tamper shall be utilized.

11. Full depth aggregate stone may be placed in the trench daily up to maximum length of 500 feet, at which time either temporary or permanent pavement restoration procedures must be implemented.

12. Should the application of the bituminous concrete asphalt surface course be delayed due to adverse weather conditions, the contractor shall provide and maintain a temporary pavement section that is acceptable to the district administrator's designee until such time as the appropriate permanent pavement restoration can be achieved.

13. The permittee shall be responsible for any settlement in the backfill or pavement for a period of two (2) years after the completion date of permit and for the continuing maintenance of the facilities placed within the highway right-of-way.

14. A one-year restoration warranty period may be considered, provided the permittee adheres to the following criteria:

    - The permittee retains the services of a professional engineer (or certified technician under the direction of the professional engineer) to observe the placement of all fill embankments, pavement, and storm sewer and utility trench backfill.
    - The professional engineer (or certified technician under the direction of the professional engineer) performs any required inspection and testing in accordance with all applicable sections of VDOT's Road and Bridge Specifications.
    - The professional engineer submits all testing reports for review and approval, and provides written certification that all restoration procedures have been completed in accordance with all applicable sections of VDOT's Road and Bridge Specifications prior to completion of the work authorized by the permit.

15. The district administrator's designee may request and review the backfill compaction test results and/or authorize an inspector to monitor the trench backfill and compaction operations.

16. The use of steel plates to provide a temporary riding surface will not be allowed between November 1 and April 1. The use of steel plates between April 2 and October 31 shall be in accordance with VDOT standards and specifications.

17. Traffic shall be maintained at all times in accordance with the Virginia Work Area Protection Manual and a VDOT approved Maintenance of Traffic (MOT) plan.

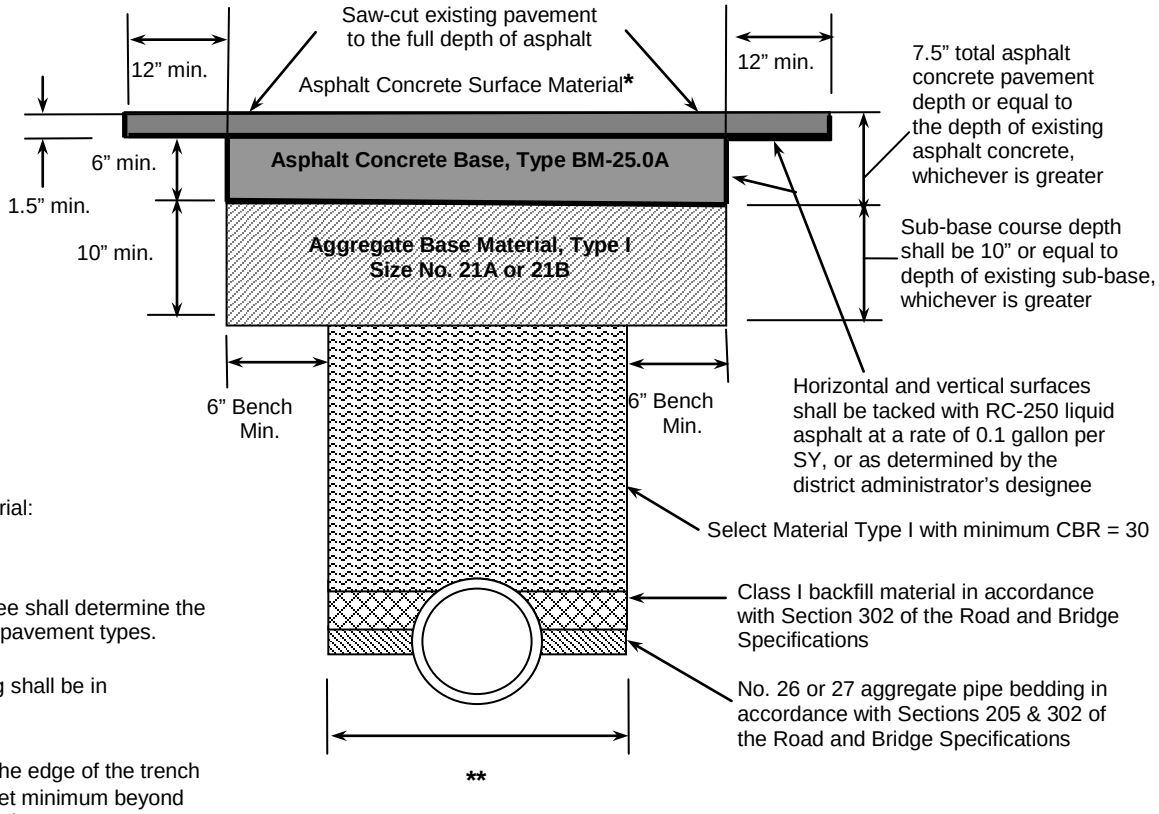
18. The permittee shall notify the district administrator's designee a minimum of 72 hours prior to initiating any pavement open cutting operations.

19. The trench to be backfilled shall be made as dry as practicable at the time of backfilling by pumping, bailing, draining, or other approved dewatering method.

20. All asphalt pavement restoration activities shall be in accordance with the Asphalt Pavement Restoration Detail for Open Cut Utility Installations contained herein.

LAND USE PERMIT
LUP-OC
Open-Cut Pavement Restoration Requirements

Asphalt Pavement Restoration Detail for Open Cut Utility Installations



NOTES:

* Asphalt Concrete Surface Material:
SM-9.5A for ADT < 10,000
SM-9.5D for ADT > 10,000

The district administrator's designee shall determine the restoration requirements for other pavement types.

** Trench width and pipe bedding shall be in accordance with VDOT Std. PB-1

*** 12 inches minimum beyond the edge of the trench on longitudinal open cuts, or 25 feet minimum beyond the trench centerline on perpendicular open cuts, or as determined by the district administrator's designee.

Date: August 27, 2014

LAND USE PERMIT
LUP-LC
Bank Irrevocable Letter of Credit

[Bank Letterhead]

LETTER OF CREDIT BANK AGREEMENT

Date: _____ APPLICANT NAME: _____
Issuing Bank: _____ Tax ID number or Driver's license Number: _____
Address: _____ Telephone Number: _____
City: _____ State_____ Zip Code_____ Address: _____
Amount: _____ City: _____ State _____ Zip Code _____
Expiration Date: _____

VIRGINIA DEPARTMENT OF TRANSPORTATION
Address: _____
City: _____ State _____ Zip Code _____

We hereby issue Irrevocable Letter of Credit number _____ in favor of the Virginia Department of Transportation (the Department) for the account of _____ in an amount not to exceed _____U.S. Dollars ($_____) available by sight draft on the above stated issuing bank accompanied by the documents specified below:

A certified statement signed by the Department's Permit Manager or their representative stating that_____ has not satisfactorily completed work pursuant to the permit issued to the permittee or his agent to perform the work as described on the face of the land use permit in the **County of** _____, Virginia.

A certified statement signed by the Department's Permit Manager or their representative stating that: "**This draw is for the explicit purpose of providing for completion or restoration of the right of way to the terms of the Land Use Permit Regulations and pursuant to the agreement of the permittee or their Agent to perform the work covered by permit to the satisfaction of the Department."** All drafts must bear the clause "Drawn under _____ Irrevocable Letter of Credit No. _____ dated _____ , 20_____." We hereby engage with drawers, endorsers and bona fide holders that all drafts drawn in compliance with the terms of this credit shall be duly honored upon presentation and delivery of this document. This Irrevocable Letter of Credit shall remain in full force and effect for a period of two (2) years from the date hereof and shall automatically renew itself from year to year for three (3) years, one (1) year periods thereafter unless and until the above issuing bank shall give ninety (90) days prior written notice to the department by CERTIFIED MAIL, RETURN RECEIPT REQUESTED, of its intent to terminate same at the expiration of said ninety-day period. During said ninety (90) days notice period, this Irrevocable Letter of Credit shall remain in full force and effect.

During the last thirty (30) days while this Irrevocable Letter of Credit is in force and effect after notice of termination has been given, the Department may draw up to the full amount of this Irrevocable Letter of Credit when accompanied by a document stating that _____ has failed to provide an acceptable substitute Irrevocable Letter of Credit or deposit in an escrow account, and further stating that **"The draw will be held by the Department for the sole purpose of providing for the completion or restoration of the right of way for work covered by the land use permit issued to _____ until such work is completed or restored to the Department's satisfaction**. **This Irrevocable Letter of Credit shall be terminated upon the Department's Permit Manager or their appointed representative giving written release stating that the terms of the permit have been completed and accepted by the Department."** Requests for the termination of this Irrevocable Letter of Credit should be addressed to the local Department office that issued the land use permit.

Except as otherwise expressly stated herein, this credit is subject to the Uniforms Customs & Practices for Documentary Credit (2007 Revision), International Chambers of Commerce Publication No. 600.

Attest: _____

_____
(Seal)

_____
Authorized Signature

_____
Type or Print Name

_____
Title

Land Use Permit Regulations
LUP-SB Surety Bond

BE KNOWN THAT WE as Principal, and_____, a corporation duly incorporated under the Laws of the State of _____, as Surety, are held and firmly bound unto the Commonwealth of Virginia in the full and just sum of _____ U.S. Dollars ($ _____), to be paid to the Commonwealth of Virginia to the payment whereof we hereby bind ourselves and our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents, sealed and dated this _____ day of _____ (month), 20_____ (year).

WHEREAS, The said Principal hereunder has been or will be granted permit(s) authorizing one or more of the following activities;(A) to move house property upon public highways of Virginia (B) to cut surface of the highways of Virginia, or to tunnel under such highways; (C) to install and/or erect and maintain telephone, electric power lines, water, sewer, gas or other utilities on, under or over such highways, bridges or tunnels;(D) to install an entrance or tie-in into a public roadway and/or grading upon the Right -of-way; or (E) for the following purposes: Explain below exact purpose(s) for which surety coverage is being obtained:

_____

_____

Work to be performed in the county, city or town of: _____

THEREFORE, The conditions of this obligation are such that if the said Principal shall in all respects comply with the terms and conditions of said permit(s), and fully meet and perform obligations thereunder in accordance with requirements for permits as set forth in the Land Use Permit Manual in effect at time of permit issuance, and shall satisfactorily complete the work permitted, and shall indemnify and save harmless the Commonwealth of Virginia against and from all loss, cost, expense damage or injury to highways and bridges and to persons and property lawfully on such highways, growing out of the granting of such permit(s) to said Principal, then this obligation be void, otherwise to be and remain in full force and virtue.

NOW, THEREFORE, It is expressly understood that this Bond may be canceled by the Surety at the expiration of sixty (60) days from the date which the Surety shall have lodged with the Commonwealth Transportation Commissioner or his designees written notice to so cancel. This provision, however, shall not operate to relieve, release or discharge the Surety from any liability already accrued, or which shall accrue, on permits issued before the expiration of the sixty-day period. **Bonds securing performance on specified active permit(s) may be canceled only upon satisfactory completion of permit(s), as determined by the Department Engineer**.

NOTE: Continuous Bond cannot be canceled unless facilities covered by the permit have been removed from the Right -of-way, or the principal has arranged for replacement surety protection. **ALL permit work covered under section (C) above shall be covered by a bond at all times.**

Said principal and surety, being properly authorized, have caused these presents to be executed and their seals affixed the day and year first above written.

Surety name _____
Bond number _____
Address_____
City _____ State _____ ZIP _____
Contact person _____
Telephone number _____
Attorney-in-Fact Name _____
Signature _____

Principal name _____
TAX ID # or DMV ID # _____
Address _____
City _____ State _____ ZIP _____
Contact person _____
Telephone number _____
Signature _____

POWER OF ATTORNEY AUTHORIZATION TO BE ATTACHED
Acknowledgement of Principal
Attorney-In-Fact
(Seal)
STATE OF _____ COUNTY / TOWN / CITY OF _____
I, the undersigned, a Notary Public in and for the County / Town / City aforesaid, in the State aforesaid, do certify that, _____whose name as Principal is signed to the foregoing writing bearing date this_____ day of _____ (month), 20_____ (year), personally appeared before me and acknowledged the same.
Given under my hand this day of _____ (month), 20____ (year)
My Commission expires: _____

_____
Notary Public
Affidavit and Acknowledgement of Surety
STATE OF _____ COUNTY/TOWN/CITY OF _____
I, the undersigned, a Notary Public in and for the County/Town/City aforesaid, in the State aforesaid do certify that, . (Name of Attorney in Fact) personally appeared before me and made oath that he is . (Title) of the (Name of Surety), that he is duly authorized to execute the foregoing bond by virtue of a certain power of attorney of said company; that said power of attorney has not been revoked; that the said company has complied with all the requirements of law regulating the admission of such companies to transact business in the State of Virginia; that the said company holds the certificate of the Commissioner of Insurance authorizing it to do business in the State of Virginia; that it has a paid-up cash capital of not less than $250,000; that the paid-up capital plus the surplus and undivided profits of said company is $; that the penalty of the foregoing bond is not in excess of ten percentum of said sum; that the said company is not by said bond incurring in the aggregate, on behalf or on account of the principal names in said bond, a liability for an amount lager than one-tenth of its paid-up capital, plus its surplus and undivided profits; that the said company is solvent and fully able to meet promptly all its obligations, and the said (Attorney in fact name) thereupon, in the name and on behalf of the said company, acknowledged the foregoing writing as its act and deed.
Given under my hand this _____ day of _____ (month), 20____ (year)
My Commission expires: _____

_____
Notary Public
Original to be filed with the Virginia Department of Transportation
Request for Land Use Permit Surety Bond Cancellation may be addressed to:
Virginia Department of Transportation

_____
_____

LAND USE PERMIT
RESOLUTION
August 26, 2014

[County, City or Town Letterhead]

"RESOLUTION"

WHEREAS, it becomes necessary from time to time for the *[County, City or Town]* of *[County, City or Town Name]* to obtain land use permits from the Virginia Department of Transportation to install, construct, maintain and operate certain public works and public utilities projects along, across over and upon highway systems of the Commonwealth of Virginia; and,

WHEREAS, expense, damage or injury may be sustained by the Commonwealth of Virginia growing out of granting to the *[County, City or Town]* of *[County, City or Town Name* by the Virginia Department of Transportation of said permits for the work aforesaid;

NOW, THEREFORE, BE IT RESOLVED by the *[County, City or Town] [Board of Supervisors, City or Town Council]* this *[Date]* day of *[Month]*, *[Year]*:

Section 1: That in accordance with the provisions of Section 24VAC30-151-720 of the Land Use Permit Regulations of the Virginia Department of Transportation, the *[County, City or Town]* of *[County, City or Town Name]* does hereby grant assurances to the Virginia Department of Transportation (VDOT) that it shall in all respects comply with all of the conditions of the permit or permits that have been, or will be, granted to the *[County, City or Town]* of *[County, City or Town Name]* and that said jurisdiction does hereby certify that it will carry liability insurance for personal injury and property damage that may arise from the work performed under permit and/or from the operation of the permitted activity as follows: up to one-million dollars ($1,000,000) each occurrence to protect the Commonwealth Transportation Board members and the Virginia Department of Transportation's agents or employees; seventy-five thousand dollars ($75,000) each occurrence to protect the Commonwealth Transportation Board, the Virginia Department of transportation or the Commonwealth of Virginia in the event of suit.

Section 2: That the County Administrator, City or Town Mayor, or their designee, be, and hereby is authorized to execute on behalf of the *[County, City or Town]* of *[County, City or Town Name]* all land use permits and related documents of the Virginia Department of Transportation.

Section 3: That this resolution shall be a continuing resolution and shall not be revoked unless and until sixty (60) days written notice of any proposed revocation be submitted to the Virginia Department of Transportation.

Section 4: That the *[County, City or Town]* of *[County, City or Town Name]* shall, if requested by the Virginia Department of Transportation, provide a letter that commits to using the surety provided by its contractor or to have the contractor execute a dual obligation rider that adds the Virginia Department of Transportation as an additional obligee to the surety bond provided to the locality, with either of these options guaranteeing the work performed within state maintained right-of-way under the terms of the land use permit for that purpose.

BE IT STILL FURTHER RESOLVED that the County Administrator, City or Town Mayor, or their designee, be, and hereby is authorized and directed to procure insurance required by Section 1 herein.

The foregoing Resolution was adopted by the [County Board of Supervisors, City or Town Council] at its regular meeting held on [Day, Month, Year] in [County, City or Town Name], Virginia.

[Authorized Signature]
[Printed Name & Title]
[County, City or Town Name]

LAND USE PERMIT
LUP-CSB
Corporate Surety Bond

[Company Letterhead]

CORPORATE SURETY BOND

KNOW ALL MEN BY THESE PRESENTS THAT_____ a public service corporation duly incorporated under the laws of the Commonwealth of Virginia, is held and firmly bound unto the Commonwealth of Virginia in the full and just sum of $_____, current money of the United States, to be paid to the said Commonwealth of Virginia, to the payment whereof _____ binds itself and its heirs, executors, administrators, and assigns, jointly and severally, firmly by these presents, sealed and dated this _____ day of_____ , _____.

WHEREAS, _____ has been or will be granted permits authorizing the following activities: (a) to cut the surface of the highways of the Commonwealth, or to tunnel under such highways, (b) to install and/or erect and maintain gas pipelines and appurtenant facilities on, under or over such highways, bridges, or tunnels.

NOW, THERFORE, The conditions of this obligation are such that, if _____ shall in all respects comply with the conditions of the permit or permits granted or to be granted and the requirements for permits, as set forth in the "Land Use Permit Regulations" in effect at time of issuing permit, and shall indemnify and save harmless the Commonwealth of Virginia against and from all loss, cost, expense, damage, or injury to highways and bridges and to persons and property lawfully on such highways, growing out of the granting of such permits to , _____ then this obligation to be void, otherwise to be and remain in full force and virtue.

This Surety Bond cannot be cancelled unless facilities covered by the permit have been removed from the right of way, or _____has arranged substitute surety protection.

IN WITNESS WHEREOF, _____ being properly authorized has caused these presents to be executed and its seal affixed the day and year first above written.

BY: _____

NAME: _____

TITLE: _____

Form **W-9**

Commonwealth of Virginia
Substitute W-9 Form

Revised July 2014

Request for Taxpayer Identification Number and Certification

Section 1 - Taxpayer Identification

☐ **Social Security Number (SSN)**

☐ **Employer Identification Number (EIN)**

— — — — — — — — — —

Please select the appropriate Taxpayer Identification Number (EIN or SSN) type and enter your 9 digit ID number . The EIN or SSN provided must match the name given on the "Legal Name" line to avoid backup withholding. If you do not have a Tax ID number, please reference "Specific Instructions - Section 1." If the account is in more than one name, provide the name of the individual who is recognized with the IRS as the responsible party.

Dunn & Bradstreet Universal Numbering System (DUNS) (see instructions)

— — — — — — — — — —

Legal Name:

Business Name:

Entity Type		**Entity Classification**		**Exemptions (see instructions)**
☐ Individual	☐ Corporation	☐ Professional Services	☐ Medical Services	Exempt payee code (if any):
☐ Sole Proprietorship	☐ S-Corporation	☐ Political Subdivision	☐ Legal Services	(from backup withholding)
☐ Partnership	☐ C-Corporation	☐ Real Estate Agent	☐ Joint Venture	_____
☐ Trust	☐ Disregarded Entity	☐ VA Local Government	☐ Tax Exempt Organization	Exemption from FATCA reporting code (if any):
☐ Estate	☐ Limited Liability Company	☐ Federal Government	☐ OTH Government	
☐ Government	☐ Partnership	☐ VA State Agency	☐ Other	_____
☐ Non-Profit	☐ Corporation			

Contact Information

Legal Address:	Name:	
	Email Address:	
City: State : Zip Code:	Business Phone:	
Remittance Address:	Fax Number:	
	Mobile Phone:	
City: State : Zip Code:	Alternate Phone:	

Section 2 - Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined later in general instructions), and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions: You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See instructions titled Certification

Printed Name:		
Authorized U.S. Signature:		Date:

LAND USE PERMIT
LUP-SPG
Special Provisions – General

VDOT Land Use Permit Required by Law

The General Rules and Regulations of the Commonwealth Transportation Board provide that no work of any nature shall be performed on any real property under the ownership, control, or jurisdiction of VDOT until written permission has been obtained from VDOT. Written permission is granted for the above-referenced activity through the issuance of a land use permit.

By issuing a permit, VDOT is giving permission only for whatever rights it has in the right-of-way; the permittee is responsible for obtaining permission from others who may also have an interest in the property.

The permittee will be civilly liable to the Commonwealth for expenses and damages incurred by VDOT as a result of violation of any of the rules and regulations of this chapter. Violators shall be guilty of a misdemeanor and, upon conviction, shall be punished as provided for in §33.2-210 of the Code of Virginia.

Application Requirements

Application shall be made for VDOT land use permits through the local district permit office where the activity is to take place.

Application forms and general information regarding VDOT land use permitting can be obtained by contacting the central office permit manager or at the following VDOT web site: http://www.virginiadot.org/business/bu-landUsePermits.asp

The applicant shall provide a notarized affidavit indicating compliance with the registration and notification requirements outlined in § 2.2-1151.1 of the Code of Virginia.

Permit Fees

The land use permit application shall include a check in an amount determined by the district administrator's designee based on the schedule found in 24VAC30-151-710 of the Land Use Permit Regulations.

Surety Requirement

A performance surety in the amount determined by the district administrator's designee is required to restore the right-of-way in the event of damage or default. This surety may be in the form of cash, check or surety bond LUP-SB, or LUP-LC irrevocable letter of credit.

Cash Surety Refund

Applicants owing the Internal Revenue Service or the Commonwealth of Virginia may not receive a refund of the cash guarantee provided for the issuance of a VDOT land use permit unless the amount owed is less than the amount of cash guarantee provided. Applicants providing cash guarantee for the issuance of a VDOT land use permit must provide an executed copy of the Commonwealth of Virginia's Substitute Form W-9 to receive a refund of the cash guarantee provided for the issuance of a VDOT land use permit.

Insurance Requirements (excluding County, Town or City)

The permittee or their agent shall secure and maintain insurance to protect against liability for personal injury and property damage that may arise from the activities performed under the authority of a land use permit and from the operation of the permitted activity up to one million dollars ($ 1,000,000) each occurrence to protect the Board members and the Department's agents or employees; seventy-five thousand dollars ($75,000) each occurrence to protect the Board, the Department, or the Commonwealth in event of suit. Insurance must be obtained prior to start of the permitted work and shall remain valid through the permit completion date. VDOT staff may require a valid certificate or letter of insurance from the issuing insurance agent or agency prior to issuing the land use permit.

Any of the following provisions that may apply, shall apply:

General Requirements

1) Permittee acceptance and use of a Virginia Department of Transportation (VDOT) land use permit is prima facie evidence that the permittee has read and is fully cognizant of all required permit provisions, applicable traffic control plans and associated construction standards to be employed. All applicants to whom permits are issued shall at all times indemnify and save harmless the

Commonwealth Transportation Board, members of the Board, the Commonwealth, and all Commonwealth employees, agents, and officers, from responsibility, damage, or liability arising from the exercise of the privileges granted in such permit to the extent allowed by law including any sums ordered to be paid or expended by VDOT by any governmental entity as a fine, penalty or damages for any violation of any applicable environmental law, or to remediate any hazardous or other material, including illicit discharge into VDOT maintained storm sewer systems.

2) The permittee assumes full responsibility for any and all (downstream flooding, erosion, siltation, etc.) damages that may occur as a result of the work performed under this permit. Furthermore, the Department will in no way be responsible for any damage to the facility being placed as a result of future maintenance or construction activities performed by the Department.

3) The permittee agrees to move, remove, alter, or change any installation that interferes with the ultimate construction of the highway in alignment or grade at no cost to the Department unless otherwise stipulated and agreed to by the Department.

4) The permittee shall immediately correct any situation that may arise as a result of these activities that the district administrator's designee deems hazardous to the traveling public.

5) Any and all highway signs, right-of-way markers, etc., disturbed as a result of work performed under the auspices of a land use permit shall be accurately reset by the permittee immediately following the work in the vicinity of the disturbed facility. The services of a certified land surveyor with experience in route surveying may be required.

6) It shall be the permittee's responsibility to obtain any and all necessary permits that may be required by any other government agencies, i.e., U.S. Army Corp. of Engineers, Department of Environmental Quality, Department of Conservation and Recreation, etc.

7) A copy of the VDOT land use permit shall be maintained at the work site and made readily available for inspection when requested by authorized VDOT personnel. District administrator's designee may request the permittee to install on site a project information sign to help the public and VDOT personnel identify activities in the right of way (see LUP-IS).

8) The permittee shall notify the local district permit office at least 48 hours prior to commencement of any work requiring inspection and/or testing as stipulated in VDOT's Road and Bridge Standards (current edition) and VDOT's Road and Bridge Specifications (current edition). Failure to carry out this requirement may result in permit revocation.

9) The permittee or their agent must contact the VDOT Customer Service Center at 1-800-367-7623 a minimum of 48 hours prior to initiating any planned excavation within 1,000 feet of a signalized intersection and/or near VDOT ITS infrastructure. Excavation activities may proceed only after the VDOT regional utility location agent has notified the permittee that the utility marking has been completed. Additional information can be found at: http://www.virginiadot.org/business/resources/IIM/TE-383_Request_for_Marking_VDOT_Utility_Location.pdf

   Alternately, within all localities in the Northern Virginia Construction District, including the Counties of Arlington, Fairfax, Loudoun & Prince William, the Cities of Alexandria, Fairfax, Falls Church, Manassas and Manassas Park, and the Towns of Clifton, Dumfries, Hamilton, Haymarket, Herndon, Hillsboro, Leesburg, Lovettsville, Middleburg, Occoquan, Purcellville, Quantico, Round Hill and Vienna, and on Interstate 95 in the counties of Stafford, Spotsylvania and Caroline, the permittee may request VDOT regional utility marking at: http://www.vdotutilitymarking.virginia.gov

10) The permittee shall to notify "Miss Utility" (or each operator of an underground utility where no notification center exists) of any planned excavation within state maintained right-of-way. This notification must be provided at least 48 hours (excluding weekends and holidays) in advance of commencing with any planned excavation within state maintained right-of-way. Failure to carry out this requirement may result in permit revocation.

11) It is the duty of the district administrator's designee to keep all roads maintained in a safe and travelable condition at all times. Therefore, any permit may be denied, revoked or suspended when in the opinion of the district administrator's designee, the safety, use or maintenance of the highway so requires.

12) The permittee shall at all times give strict attention to the safety and rights of the traveling public, their employees and themselves. VDOT reserves the right to stop work at anytime due to safety problems and/or non-compliance with the terms of the permit. The Department may, at its discretion, complete any of the work covered in the permit or restore the right-of-way to the department's standards and invoice the permittee for the actual cost of such work. The permittee may be required to move, alter, change or remove from state maintained right-of-way, in a satisfactory manner, any installation made under this permit.

13) All work authorized under the auspices of a VDOT land use permit shall be subject to VDOT's direction and be in accordance with VDOT's Road and Bridge Standards (current edition) and VDOT's Road and Bridge Specifications (current edition).

14) Design changes, specified material changes and/or field changes from the approved plans shall be submitted to the appropriate district administrator's designee for review and approval prior to proceeding with the proposed changes. This submittal shall include written justification, supplemental documentation and/or engineering calculations that support the requested changes.

15) The permittee shall meet or exceed the existing pavement design and typical section when constructing pavement widening adjacent to an existing state maintained roadway. The proposed pavement design and typical section shall be approved by the district administrator's designee prior to commencing with any work within state maintained right-of-way. All pavement widening shall be in accordance with VDOT's Road and Bridge Standard 303.02.

16) Within the limits of a VDOT construction project it is the responsibility of the permit applicant to obtain the contractor's consent in writing prior to permit issuance. Information regarding current and/or planned VDOT construction and maintenance activities can be obtained at: http://www.virginiaroads.org/.

Traffic Control and Safety

1) The permittee shall at all times give strict attention to the safety and rights of the traveling public, their employees, and contractors. Any permit may be revoked or suspended when in the opinion of the district administrator's designee, the safety, use or maintenance of the highway so requires.

2) In accordance with the Virginia Department of Transportation (VDOT) Road and Bridge Specification, Special Provision 105.14, all activities performed under the auspices of a VDOT Land Use Permit involving the installation, maintenance and removal of work zone traffic control devices must have an individual on-site who, at a minimum, is accredited by VDOT in Basic Work Zone Traffic Control. The accredited person must have their VDOT Work Zone Traffic Control accreditation card in their possession while on-site.

3) The individual accredited in Basic Work Zone Traffic Control is responsible for the placement, maintenance and removal of work zone traffic control devices within the project limits in compliance with the permit requirements and conditions, the approved plans and specifications, the Virginia Work Area Protection Manual, and the Manual of Uniform Traffic Control Devices.

4) A person accredited by VDOT in Intermediate Work Zone Traffic Control must be on-site to provide supervision for adjustment to the approved layout of any standard Typical Traffic Control (TTC) layouts outlined in the Virginia Work Area Protection Manual.

5) All traffic control plans shall be prepared by a person verified by VDOT in Advanced Work Zone Traffic Control.

6) Individuals responsible for implementation of work zone traffic control measures shall provide evidence of their accreditation upon request from VDOT personnel.

7) The permittee shall be exempt from the requirements of Virginia Department of Transportation (VDOT) Road and Bridge Specification, Special Provision 105.14 if the authorized activity is not within the roadway (as defined in 24VAC30-151) of a state maintained highway.
8) Non-compliance with the requirements outlined in VDOT Road and Bridge Specification, Special Provision 105.14 may result in a stop work order and / or permit revocation.

9) All activities that require the disruption (stoppage) of traffic shall utilize VDOT certified flaggers. Flag persons shall be provided in sufficient number and locations as necessary for control and protection of vehicular and pedestrian traffic in accordance with the Virginia Work Area Protection Manual. All flaggers must have their certification card in their possession when performing flagging operations within state maintained right-of-way. Any flag person found not in possession of his/her certification card shall be removed from the flagging site and the district administrator's designee will suspend all permitted activities.

10) Any VDOT certified flag person found to be performing their duties improperly shall have their certification revoked.

11) All signs shall be in accordance with the current edition of the Manual of Uniform Traffic Control Devices (MUTCD).

12) The permittee shall immediately correct any situation that may arise as a result of these activities that the district administrator's designee deems hazardous to the traveling public.

13) During authorized activities, the permittee shall furnish all necessary signs, flag persons and other devices to provide for the protection of traffic and workers in accordance with the Virginia Work Area Protection Manual or as directed by the district administrator's designee.

14) Traffic shall not be blocked or detoured without permission, documented in writing or electronic communication, being granted by the district administrator's designee.

15) All lane or shoulder closures on highways in the Northern Virginia construction district classified as arterial or collector routes must be authorized, documented in writing or by electronic communication by the VDOT Transportation Operations Center (NRO/TOC).

16) If directed by the district, requests for the implementation of temporary lane closures must be entered into the VDOT Lane Closure Advisory Management System (LCAMS) and VaTraffic a minimum of one (1) week prior to the planned execution of lane closure activities on state maintained highways. The permittee or their contractor(s) may enter their requests directly or provide written requests to the VDOT Regional Operations Center as follows:

- Lane closure requests in all the counties listed below are within the Northern Region and shall be sent to: nrolaneclosurerequests@vdot.virginia.gov.

  Counties: Arlington, Fairfax, Loudoun, Prince William, Spotsylvania, and Stafford

- Lane closure requests in all the counties listed below are within the Northwest Region and shall be sent to: StauntonTrafficManagementCenter@vdot.virginia.gov.

  Counties: Albemarle, Alleghany, Augusta, Bath, Clarke, Culpeper, Fauquier, Fluvanna, Frederick, Greene, Highland, Louisa, Madison, Orange Page, Rappahannock, Rockbridge, Rockingham, Shenandoah and Warren

- Lane closure requests in all the counties listed below are within the Southwest Region and shall be sent to: SalemSmartTrafficCenter@VDOT.Virginia.gov.

  Counties: Amherst, Appomattox, Bedford, Bland, Botetourt, Buchanan, Buckingham, Campbell, Carroll, Charlotte, Craig, Cumberland, Dickenson, Floyd, Franklin, Giles, Grayson, Halifax, Henry, Lee, Montgomery, Nelson, Patrick, Pittsylvania Prince Edward, Pulaski, Roanoke, Russell, Scott, Smyth, Tazewell, Washington, Wise, and Wythe.

- Lane closure requests in all the counties listed below are within the Eastern Region and shall be sent to: HamptonRoadsTOCControllers@VDOT.Virginia.gov.

  Counties: Accomack, Greensville, Isle of Wight, James City, Northampton, Southampton, Surry, Sussex and York

- Lane closure requests in all the counties listed below are within the Central Region and shall be sent to: RichmondDist.SmartTraffic@vdot.virginia.gov

  Counties: Amelia, Brunswick, Caroline, Charles City, Chesterfield, Dinwiddie, Essex, Gloucester, Goochland, Hanover, Henrico, King and Queen, King George, King William, Lancaster, Lunenburg, Mathews, Mecklenburg, Middlesex, New Kent, Northumberland, Nottoway, Powhatan, Prince George, Richmond, and Westmoreland

  Written requests for implementation of temporary lane closures must be submitted to the appropriate VDOT Regional Operations Center by close of business on the preceding Wednesday for the upcoming week's planned lane closures. All requests being directly input into LCAMS and VaTraffic must be entered no later than 2:00 pm on the preceding Thursday for the upcoming week's lane closure activities. Any conflicts with other roadway work must be resolved by close of business on Thursday the week prior to the scheduled lane closure activities with documented resolution sent to the VDOT point of contact provided by the regional traffic operation center LCAMS Administrator. Any requests received after these time limitations will not be approved and the proposed work within VDOT right of way requiring lane closures must be rescheduled.

  Lane closure requestors wanting direct access to LCAMS and VaTraffic must complete ITD-35E & ITD-36E forms and return to Ms. Carlene McWhirt at Carlene.McWhirt@VDOT.Virginia.gov. Online training is available for LCAMS and VaTraffic and VDOT can accommodate any additional training needs. Please contact Ms. McWhirt at (571) 350-2078 to schedule training.

VIRGINIA WORK ZONE TRAFFIC CONTROL TRAINING OPTIONS

The following three options are available to receive Work Zone Traffic Control (WZTC) training based on an individual's job duties and responsibilities as required by the FHWA Final Rule on Work Zone Safety and Mobility and the Virginia Department of Transportation:

OPTION 1 – Have someone trained to become a qualified instructor in your company who can then instruct others , utilizing training material provided by VDOT. The following qualifications must be met in order to teach the VDOT Basic, Intermediate, or Advanced WZTC training courses:

- Basic – Be flagger certified either by VDOT or by the American Traffic Safety Services Association (ATSSA); possess two years of practical experience in Highway Design, Construction, Maintenance, or Traffic Operations; possess two years of

documented experience in conducting training courses; and successfully complete the VDOT WZTC Intermediate or Advanced course or complete the ATSSA Virginia Intermediate/Traffic Control Supervisor (TCS) course.

- Intermediate - Be flagger certified either by VDOT or by ATSSA; possess two years of practical experience in Highway Design, Construction, Maintenance, or Traffic Operations; possess two years of documented experience in conducting training courses; complete and possess the ATSSA Virginia Intermediate/TCS certification.

- Advanced - Be flagger certified either by VDOT or by ATSSA; possess two years of practical experience in Highway Design, Construction, Maintenance, or Traffic Operations; possess two years of documented experience in conducting training courses; complete and possess the ATSSA Virginia Advanced Traffic Control Design Specialist (TCDS) certification or ATSSA Virginia Intermediate TCS certification.

To become an approved instructor, an application must be completed listing the above qualifications and sent to the chairman of VDOT's WZST committee at the following location:
http://www.virginiadot.org/business/resources/wztc/wztc_inst_app_form.pdf

Once a person has become an approved instructor, training material can be obtained from VDOT using the order form obtained from the following location (requires an approved instructor identification number):
http://www.virginiadot.org/business/resources/wztc/WZTC_order_form.pdf

OPTION 2 – Obtain the services of an approved instructor from VDOT's Approved WZTC Instructor List to teach the course or courses you need for your employees.

The Approved WZTC Instructor's List can be obtained at the following location:
http://www.virginiadot.org/business/resources/wztc/Approved_WZTC_Instructors.pdf

A list of Approved Providers of training can be obtained at the following location:
http://www.virginiadot.org/business/resources/wztc/wztc_training_sponsors.pdf

OPTION 3 – Send personnel to classes conducted by approved sources such as ATSSA Virginia or the Virginia Local Technical Assistance Program (LTAP).

Courses by ATSSA Virginia can be found at the following location:
http://atssa.com/cs/course_information/courses_by_state?state=56

Courses by the Virginia LTAP can be found at the following location:
http://ltap.cts.virginia.edu/2%20Page%20Calendar%20June%20-%20Sept%2009.pdf

Basic WZTC courses by the Virginia Rural Water Association can be found at the following location:
http://www.vrwa.org/ (See Training Schedule)

Training by the Virginia Transportation Construction Alliance (VTCA) can be found at the following location: http://vtca.org/

Visit the following site for additional information regarding Virginia's Work Zone Traffic Control training program:
http://www.virginiadot.org/business/trafficeng-WZS.asp

Authorized Hours and Days of Work

Normal hours for work under the authority of a VDOT land use permit are from 9:00 a.m. to 3:30 p.m. Monday through Friday for all highways classified as arterial or collector. All highways classified as local roads will have unrestricted work hours and days.
The district administrator's designee may establish alternate time restrictions in normal working hours for single use permits.

The central office permit manager may establish alternate time restrictions in normal working hours for district-wide permits.

The classifications for all state maintained highways can be found at the following link:
http://www.virginiadot.org/projects/fxn_class/maps.asp

Emergency Repair

In the event of an emergency situation that requires immediate action to protect persons or property, work may proceed within the right-of-way without authorization from the district administrator's designee; however, the utility owner must contact the VDOT Emergency Operations Center as soon as reasonably possible but no later than 48 hours after the end of the emergency situation.

The utility owner must apply for a separate land use permit from the local district permit office for any emergency work performed on state maintained right-of-way when the following actions are proposed:

- Stopping or impeding highway travel in excess of 15 minutes, or,
- Accessing facilities within limited access right-of-way, or,
- Cutting the highway pavement or shoulders.

The district administrator's designee shall determine the applicable permit fee for emergency repair permits.

Holiday Restrictions

Permitted non-emergency work will not be allowed on arterial and collector highway classifications from noon on the preceding weekday through the following state observed holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. If the observed holiday falls on a Monday, the permit will not be valid from noon on the preceding Friday through noon on Tuesday.

Excavation

All excavation within state maintained rights-of-way shall comply with OSHA Technical Manual, Chapter 2, Title Excavation: Hazard Recognition in Trenching and Shoring. A professional engineer shall certify all shoring and/or trench boxes.

No excavated material is to be placed or tracked on the pavement without written permission from the District Administrator's designee. When so authorized, the pavement shall be satisfactorily cleaned by a VDOT approved method. No cleated (track-mounted) equipment is to be used on the pavement without properly protecting the pavement from damage.

Trenchless Construction

Site specific geotechnical sub-surface investigation reports, compiled in accordance with the provisions of VDOT Materials Division Manual of Instructions, shall be submitted to the district administrator's designee if the following trenchless installation(s) are proposed:

- The proposed pipe diameter is 24-inches or greater, and;
- The proposed pipe cover is less than 3 times the pipe diameter, and;
- The AADT of roadway is greater than 25,000, or;
- The proposed pipe diameter is 60-inches or greater, or;
- Any situation where there is a significant risk identified.

Inspection and Restoration

1) Inspection and testing of all backfill and pavement sections shall be performed in accordance with all applicable sections of VDOT's Road and Bridge Specifications (current edition).

2) If during or before construction it is deemed necessary for the local district permit office to assign an inspector to the project, the permittee shall pay the Department an additional inspection fee in an amount that will cover the salary, expense allowance, and mileage allowance for the inspection(s) assigned by the Department for handling work covered by this permit. Said inspection fee shall be paid promptly each month on invoices rendered by the Department.

3) It shall be the decision of the district administrator's designee whether to assign an inspector to monitor the placement of all backfill and pavement restoration activities.

4) The absence of a VDOT inspector does not in any way relieve the permittee of their responsibility to perform the work in accordance with the approved plans, provisions of the attached permit, VDOT's Road and Bridge Standards (current edition) and VDOT's Road and Bridge Specifications (current edition).

5) The permittee shall be responsible for any settlement of all backfill or pavement restoration necessitated by authorized excavation activities for a period of two (2) years after the completion date of permit, and for the continuing maintenance of the facilities placed

within the highway right-of-way. A one (1) year restoration warranty period may be considered, provided the permittee adheres to the following criteria:

- The permittee retains the services of a professional engineer (or certified technician under the direction of the professional engineer) to observe the placement of all backfill and pavement restoration.
- The professional engineer (or certified technician under the direction of the professional engineer) performs any required inspection and testing in accordance with all applicable sections of VDOT's Road and Bridge Specifications.
- The professional engineer submits all testing reports for review and approval, and provides written certification that all restoration procedures have been completed in accordance with all applicable sections of VDOT's Road and Bridge Specifications prior to completion of the work authorized by the permit.

6) Whenever existing pavement is permitted to be cut, not over one-half of the roadway width shall be disturbed at one time and the first open cut trench section shall be satisfactorily restored to allow for the passage of traffic prior to the second half of the roadway surface can be disturbed.

7) All crossing of existing pavement shall be bored, pushed or jacked an appropriate distance from the edge-of-pavement so as not to impede the normal flow of traffic or damage the existing pavement section. Existing pavement shall not be cut unless approved by the district administrator's designee and then only if justifiable circumstances prevail or proof is shown that a thorough attempt has been made to push, bore or jack.

8) Authorized daily trench excavation within pavement sections shall not exceed 500 feet in length.

9) Pavement restoration shall be in accordance with the VDOT LUP-OC Pavement Open Cut Special Provisions. This document can also be found at: http://www.virginiadot.org/business/bu-landUsePermits.asp

10) Where the pavement is disturbed or deemed weakened in its entirety or such portions as deemed desirable by the Department, the pavement shall be restored or replaced in a manner that is satisfactory to the district administrator's designee.

Environmental

1) In accordance with the Virginia Department of Transportation (VDOT) Road and Bridge Specification §107.16, all contractors performing regulated land disturbing activities within VDOT right-of-way must have at least one (1) employee that has successfully completed the VDOT Erosion & Sediment Control Contractor Certification training. This person shall be on site during all land disturbance activities and will be responsible for insuring compliance with all applicable local, state and federal erosion and sediment control regulations during land disturbance activities. This person must have their certification card with them while on the project site. The land use permit will be suspended if proof of certification cannot be provided. Regulated land disturbing activities are defined as those activities that disturb 2,500 square feet or greater in Tidewater, Virginia or 10,000 square feet or greater in all other areas of the State. The Department will require evidence of this certification with any land use permit application that involves utility and/or commercial right of way improvement. Improper installation, maintenance and removal of erosion and sediment control devices may result in revocation of VDOT Erosion & Sediment Control Contractor Certification.

2) The permittee is responsible for pursuing and obtaining any and all environmental permits which may be required to pursue the proposed activity prior to any work beginning within state maintained right-of-way.

3) In the event hazardous materials or underground storage tanks are encountered within state maintained right-of-way during authorized activities, the permittee shall suspend all work immediately then notify the local district permit office and other responsible parties, i.e., the local fire department, emergency services, Department of Environmental Quality, etc. The permittee is responsible for coordination and completion of all required remediation necessary to complete the permitted activities within the state maintained right-of-way. The permittee shall provide evidence of such compliance to the local district permit office prior to recommencement of permitted activities.

4) In the event cultural resources, archaeological, paleontological, and/or rare minerals are encountered within the right of way during authorized activities, the permittee shall suspend all work immediately then notify the local district permit office and the proper state authority charged with the responsibility for investigation and evaluation of such finds. The permittee will meet all necessary requirements for resolving any conflicts prior to continuing with the proposed activities within the state maintained right-of-way, and shall provide evidence of such compliance to the local district permit office.

5) Roadway drainage shall not be blocked or diverted. The shoulders, ditches, roadside, drainage facilities and pavement shall be kept in an operable condition satisfactory to the Department. Necessary precautions shall be taken by the permittee to insure against siltation of adjacent properties, streams, etc., in accordance with VDOT's current standards or as prescribed by the Department's Environmental Manual and the district administrator's designee.

Entrances

1) VDOT's authority to regulate highway entrances is provided in §, §33.2-240, and §33.2-241 of the Code of Virginia and its authority to make regulations concerning the use of highways generally is provided in §33.2-210 of the Code of Virginia. Regulations regarding entrances are set forth in VDOT's regulations promulgated pursuant to §33.2-245 of the Code of Virginia.

2) The permittee shall be responsible for the design and installation of a private entrance under the auspices of a VDOT land use permit however the permittee may request that VDOT forces install the private entrance at the permittee's expense.

3) Street connections, private entrances, and construction entrances shall be kept in satisfactory condition during all activities authorized under the auspices of a VDOT land use permit. Entrances shall not be blocked. Ample provisions must be made to provide safe ingress and egress to adjacent properties at all times. Entrances that are disturbed shall be restored to the satisfaction of the property owner and the district administrator's designee.

Utilities

1) Prior to any excavation, the permittee shall comply with the terms of Title 56, Chapter 10.3 of the Underground Utility Damage Prevention Act and §56-265.14 through §56-265.20 of the Code of Virginia. This permit does not grant permission to grade on or near property of others, or, adjust or disturb in anyway existing utility poles or underground facilities within the permitted area. Permission to do so must be obtained from the impacted utility company and any expense involved shall be borne by the permittee. Any conflicts with existing utility facilities must be resolved between the permittee and the utility owner(s) involved.

2) All underground utility installations within limited access right-of-way shall have a minimum of 36 inches of cover. All underground utilities within non-limited access right-of-way will require a minimum of 36 inches of cover, except underground cables that provide telecommunications service shall be at a minimum of 30 inches of cover.

3) Where feasible, all aboveground installations (such as fire hydrants, telephone pedestals, markers, etc.) shall be located adjacent to the outside edge of the right-of-way line and in accordance with minimum clear zone requirements. All manhole covers, valve box, etc., shall be installed two inches below existing ground line and shall conform to existing contours.

4) No poles, guys, anchors, etc., are to be placed on state maintained right-of-way unless authorized under the auspices of a VDOT land use permit. At no time will any such facilities be allowed between the ditch line and the traveled roadway.

5) All overhead installations crossing non-limited access highways shall provide a minimum of 18 feet of vertical clearance or at a minimum height as established by the National Electric Safety Code, whichever is greater. All overhead utility installations within limited access right-of-way shall maintain a minimum of 21 feet of vertical clearance. The vertical clearance for all new overhead parallel installations within non-limited access rights-of-way shall be in compliance with standards as specified in the National Electric Safety Code.

Final Inspection and Completion of Permit

Upon completion of the work covered by this permit all disturbed areas outside of the roadway prism shall be restored to their original condition as found prior to starting such work.

Completion of this permit is contingent upon the permittee's completion of the authorized work in accordance with the approved plan and compliance with all governing bodies involved in the total completion of work on state maintained right-of-way.

Upon completion of the work under permit, the permittee shall provide notification, documented in writing or electronic communication, to the district administrator's designee requesting final inspection. This request shall include the permit number, county name, route number and name of the party or parties to whom the permit was issued.

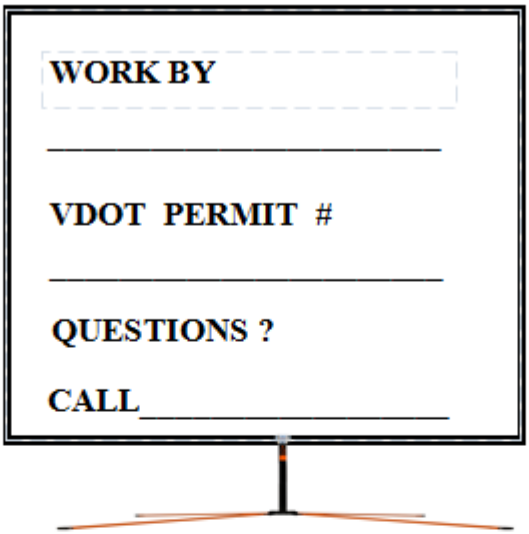
The district administrator's designee shall promptly schedule an inspection of the work covered under the permit and advise the permittee of any necessary corrections.

Permit Revocation

At the discretion of the district administrator's designee, a land use permit may be revoked upon written finding that the permittee was not in compliance with all requirements contained herein and/or violated the terms of the permit, or any state and local laws and ordinances regulating activities within the right-of-way. In addition VDOT may apply additional penalties in accordance with §33.2-1221.

Permittee Notice

The preceding provisions are intentionally condensed in format and should not be loosely interpreted by the permittee without consultation with the central office permit manager and affirmation from the Land Use Permit Regulations.



1. Sign must not be oriented facing traffic approaching from any direction
2. Sign must be non-reflective
3. Sign must use Times New Roman font and should not use MUTCD sign fonts (or Clearview)
4. Sign must not show any logos
5. Sign must not contain the contractor's name (unless the contractor is the permittee)
6. Sign must be installed outside clear zone within 50' of work area
7. Sign must remain on site until final restoration of right of way
8. For multiple work locations within subdivisions, at least one sign may be installed at the main work area
9. Sign must be at least 36"X36" and made of water-resistant material and firmly secured
10. Sign must be blue with white 3" lettering
11. Sign shall not be installed on existing VDOT sign posts and should not impede pedestrian mobility

LAND USE PERMIT
LUP-ESCCC
Erosion & Sediment Control Contractor Certification

March 10, 2016

In accordance with the Virginia Department of Transportation (VDOT) Road and Bridge Specification 107.14 (a), Special Provision 107D, all contractors performing regulated land disturbing activities within VDOT right-of-way must have an employee that has successfully completed the VDOT Erosion & Sediment Control Contractor Certification training. Regulated land disturbing activities are defined as those activities that disturb 2,500 square feet or greater in Tidewater, Virginia or 10,000 square feet or greater in all other areas of the State. The Department will require evidence of this certification with any Land Use Permit application that involves utility and/or commercial right-of-way improvement.

NON-COMPLIANCE MAY RESULT IN PERMIT SUSPENSION &/OR A STOP WORK ORDER

Applicant/Project Name: _____

Contractor: _____

District: _____ County: _____ Route Number: _____

Please select one of the following:

[ ] In accordance with the VDOT Road & Bridge Specification 107.14 (a), Special Provision 107D, I, _____, as representative for the permit applicant, acknowledge that the permittee must have an individual that has successfully completed the VDOT Erosion & Sediment Control Contractor Certification training on site during all land disturbance activities. This individual will be responsible for insuring compliance with all applicable local, state and federal erosion and sediment control regulations during land disturbance activities and will provide evidence of said certification upon request from VDOT personnel.

[ ] Land disturbance within VDOT right-of-way on this project is less than 2,500 or 10,000 square feet, whichever is applicable, and is therefore exempt from the Erosion & Sediment Control Contractor Certification requirements outlined in § 107.16(a) of the current VDOT Road & Bridge Specifications.

_____

Signature *Date*

THIS DOCUMENT MUST ACCOMPANY THE VDOT LAND USE PERMIT APPLICATION

NOTE: Training for the VDOT Erosion & Sediment Control Contractor Certification can be obtained from any of the sources listed under "Upcoming Courses" at: ***http//www.virginiadot.org/business/pr-essce-main.asp***

Commonwealth of Virginia
Department of Transportation
PERMIT 01/2011

LUP-ESCCC
LAND USE
Special Provision

VDOT Erosion & Sediment Control Contractor Certification

In accordance with the Virginia Department of Transportation (VDOT) Road and Bridge Specification § 107.14 (a), Special Provision 107D, all contractors performing regulated land disturbing activities within VDOT right-of-way must have an employee that has successfully completed the VDOT Erosion & Sediment Control Contractor Certification training. Regulated land disturbing activities are defined as those activities that disturb 2,500 square feet or greater in Tidewater, Virginia (as defined in § 10.1-2101 of the Code of Virginia) or 10,000 square feet or greater in all other areas of the State. The Department will require evidence of this certification with any Land Use Permit application that involves utility and/or commercial right of way improvement.

NON-COMPLIANCE MAY RESULT IN PERMIT SUSPENSION &/OR A STOP WORK ORDER

Applicant/Project Name:_____

Contractor:_____

Route Number:_____ **County:**_____

I, _____, as representative for the permit applicant, acknowledge that the permittee must have an individual that has successfully completed the VDOT Erosion & Sediment Control Contractor Certification training on site during all land disturbance activities. This individual will be responsible for insuring compliance with all applicable local, state and federal erosion and sediment control regulations during land disturbance activities and will provide evidence of said certification upon request from VDOT personnel.

_____ *Work on this project involves less than 2,500 square feet or 10,000 square feet of land disturbance activities, whichever is applicable, and therefore is exempt from this reguirement.*

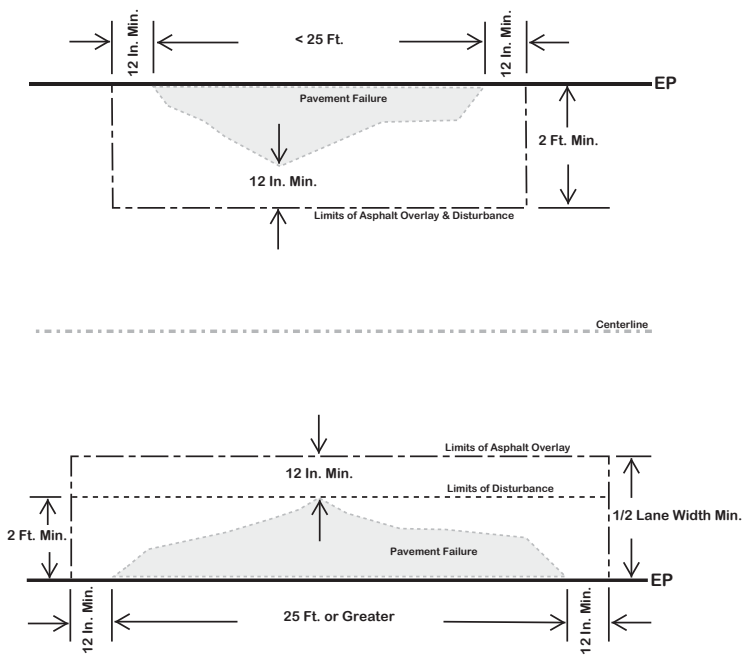
_____

Signature *Date*

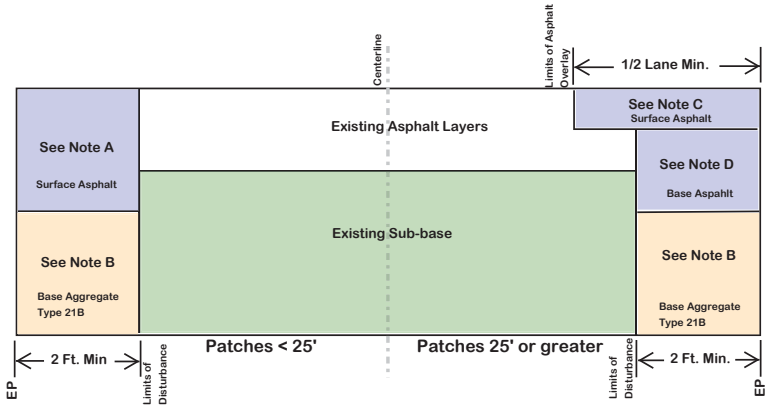
THIS DOCUMENT MUST ACCOMPANY THE VDOT LAND USE PERMIT APPLICATION

NOTE: Training for the VDOT Erosion & Sediment Control Contractor Certification can be obtained through the Virginia Transportation Construction Alliance at: htpp//www.vtca.org

PLAN VIEW (Not to Scale)



MINIMUM TYPICAL PAVEMENT SECTION (Not to Scale)



BRISTOL DISTRICT PLANNING & INVESTMENT MANAGEMENT DIVISION

Longitudinal Pavement Patching for Pavement Failures Resulting From Utility Installations in Roadway Shoulders

Effective 09 September 2015

GENERAL NOTES:

1: Sub-base preparation shall extend a minimum of 12 inches beyond the limits of disturbance (both length and width) for all patches, but in no case shall the width be less than 2 feet.

2: A liquid asphalt tack coat shall be applied to all saw-cut or milled edges of existing pavement prior to placing asphalt patches.

3: For asphalt patches less than 25 ft in length, the existing asphalt shall be saw-cut to provide a uniform pavement joint:
- a: The patch width shall be a minimum of 12 inches beyond the limits of disturbance, but in no case shall it be less than 2 feet.
- b: The patch length shall be a minimum of 12 inches beyond the limits of disturbance on each end.

4: For asphalt patches 25 ft in legnth or greater, the existing asphalt shall be saw-cut or milled to provide a uniform pavement joint:
- a: The patch width shall be a minimum of 12 inches beyond the limits of disturbance, but in no case shall it be less than one-half of the lane width.
- b: The patch length shall be a minimum of 12 inches beyond the limits of disturbance on each enad.

5: VDOT may modify the minimum typical pavement section given herein based on the type of roadway, the amount of pavement damage, and/or the existing pavement typical section.

6: Density requirements for sub-base material and asphalt concrete shall be in accordance with the current edition of the Virginia Department of Transportation Road & Bridge Specifications.

7: Any disturbed pavement markings shall be replaced immediately upon completion of the asphalt patching and shall be in accordance with the current editions of the Virginia Department of Transportation Road & Bridge Specifications and the Virginia Department of Transportation Road & Bridge Standards.

8: The amount of patching required shall be determined by VDOT personnel based upon a field inspection.

MINIMUM TYPICAL PAVEMENT SECTION NOTES:

Note A: Depth of asphalt patch shall a minimum of 1.5 times the depth of the existing asphalt layers, but in no case shall it be less than 3 inches. Asphalt shall be type SM12.5A or SM19.0A

Note B: The contractor shall excavate the disturbed area and re-compact with a minimum of 6 inches of Aggregate Type 21B

Note C: For patches 25 ft or greater in length, the contractor may elect to mill the existing surface asphalt to a depth no less than two inches and a width no less than one-half the lane width. However, should the contractor elect to to saw-cut and remove existing asphalt down to the sub-base, the sub-base must be prepared in accordance with Note B. Surface asphalt shall be Type SM12.5A or SM19.0A

Note D: For patches 25 ft or greater, the contractor shall place a minimum of 3 inches base mix asphalt Type BM25.0. The combined depth of the base asphalt and the surface asphalt shall be a minimum of 1.5 times the depth of the existing asphalt layers.

Proposed asphalt layers

Existing asphalt layers

Proposed sub-base layers

Existing sub-base layers

DESIGN SPEED	DESIGN ADT	FORESLOPES			BACKSLOPES		
		6:1 or Flatter	5:1 to 4:1	3:1	3:1	5:1 to 4:1	6:1 or Flatter
40 mph or less	Under 750[c]	7-10	7-10	[b]	7-10	7-10	7-10
	750-1500	10-12	12-14	[b]	12-14	12-14	12-14
	1500-6000	12-14	14-16	[b]	14-16	14-16	14-16
	Over 6000	14-16	16-18	[b]	16-18	16-18	16-18
45-50 mph	Under 750[c]	10-12	12-14	[b]	8-10	8-10	10-12
	750-1500	14-16	16-20	[b]	10-12	12-14	14-16
	1500-6000	16-18	20-26	[b]	12-14	14-16	16-18
	Over 6000	20-22	24-28	[b]	14-16	18-20	20-22
55 mph	Under 750[c]	12-14	14-18	[b]	8-10	10-12	10-12
	750-1500	16-18	20-24	[b]	10-12	14-16	16-18
	1500-6000	20-22	24-30	[b]	14-16	16-18	20-22
	Over 6000	22-24	26-32[a]	[b]	16-18	20-22	22-24
60 mph	Under 750[c]	16-18	20-24	[b]	10-12	12-14	14-16
	750-1500	20-24	26-32[a]	[b]	12-14	16-18	20-22
	1500-6000	26-30	32-40[a]	[b]	14-18	18-22	24-26
	Over 6000	30-32[a]	36-44[a]	[b]	20-22	24-26	26-28
65-70[d] mph	Under 750[c]	18-20	20-26	[b]	10-12	14-16	14-16
	750-1500	24-26	28-36[a]	[b]	12-16	18-20	20-22
	1500-6000	28-32[a]	34-42[a]	[b]	16-20	22-24	26-28
	Over 6000	30-34[a]	38-46[a]	[b]	22-24	26-30	28-30

Source: AASHTO Roadside Design Guide, Chapter 3.

TABLE A-2-1
CLEAR ZONE DISTANCES (IN FEET FROM EDGE OF DRIVING LANE)*

a. When a site specific investigation indicates a high probability of continuing crashes, or when such occurrences are indicated by crash history, the designer may provide clear zone distances greater than the clear zone shown in Table A-2-1. Clear zones may be limited to 30 feet for practicality and to provide a consistent roadway template if previous experience with similar projects or designs indicates satisfactory performance.

b. Because recovery is less likely on the unshielded, traversable 3:1 fill slopes, fixed objects should not be present in the vicinity of the toe of these slopes. Recovery of high speed vehicles that encroach beyond the edge of shoulder may be expected to occur beyond the toe of slope. Determination of the width of the recovery area at the toe of slope should take into consideration right of way availability, environmental concerns, economic factors, safety needs, and crash histories. Also, the distance between the edge of the travel lane and the beginning of the 3:1 slope should influence the recovery area provided at the toe of slope. While the application may be limited by several factors, the fill slope parameters which may enter into determining a maximum desirable recovery area are illustrated in FIGURE A-2-4. A 10 foot recovery area at the toe of slope should be provided for all traversable, non recoverable fill slopes.

c. For roadways with low volumes it may not be practical to apply even the minimum values found in Table A-2-1. Refer to Chapter 12 for additional considerations for low volume roadways and Chapter 10 for additional guidance for urban applications in AASHTO Roadside Design Guide.

d. When design speeds are greater than the values provided, the designer may provide clear zone distances greater than those shown in Table A-2-1.

* Rev. 1/12

LAND USE PERMIT
LUP-WZTCC
Work Zone Traffic Control Certification
August 27, 2014

VDOT Work Zone Traffic Control Certification

In accordance with the Virginia Department of Transportation (VDOT) Road and Bridge Specification, Special Provision 105.14, beginning July 1, 2009, all activities performed under the auspices of a VDOT Land Use Permit involving the installation, maintenance and removal of work zone traffic control devices must have at least one (1) person on-site who, at a minimum, is accredited by VDOT in Basic Work Zone Traffic Control. The person accredited by VDOT in Basic Work Zone Traffic Control may install, maintain and remove work zones that are in accordance with the Virginia Work Area Protection Manual and/or a work zone that has been preapproved by VDOT. A person accredited by VDOT in Intermediate Work Zone Traffic Control must be on-site to provide supervision during work zone adjustments or changes to traffic control due to field conditions. These persons must have their accreditation card with them while on the project site.

NON-COMPLIANCE MAY RESULT IN PERMIT SUSPENSION &/OR A STOP WORK ORDER

Applicant: _____

Project Name: _____

District: _____ **County:** _____ **Route Number:** _____

Please select one of the following:

[ ] In accordance with the Virginia Department of Transportation (VDOT) Road and Bridge Specification, Special Provision 105.14, I, _____, state that I will have at least one (1) person that is accredited by VDOT in Basic Work Zone Traffic Control who will be responsible for the placement, maintenance and removal of work zone traffic control devices within the project limits in compliance with the permit requirements and conditions, the approved plans, specifications, the Virginia Work Area Protection Manual and the Manual of Uniform Traffic Control Devices. A person accredited by VDOT in Intermediate Work Zone Traffic Control will be on-site to provide supervision during work zone adjustments or changes to traffic control due to field conditions. These persons will provide evidence of their accreditation upon request from VDOT personnel.

[ ] In accordance with the Virginia Department of Transportation (VDOT) Road and Bridge Specification, Special Provision 105.14, the requested activity does not involve the installation, maintenance and removal of work zone traffic control devices and therefore is exempt from the Basic Work Zone Traffic Control requirement.

_____ *Signature*

Date

THIS DOCUMENT MUST ACCOMPANY THE VDOT LAND USE PERMIT APPLICATION

VIRGINIA WORK ZONE TRAFFIC CONTROL TRAINING OPTIONS

The following three options are available to receive Work Zone Traffic Control (WZTC) training based on an individual's job duties and responsibilities as required by the FHWA Final Rule on Work Zone Safety and Mobility and the Virginia Department of Transportation:

OPTION 1 – Have someone trained to become a qualified instructor in your company who can then instruct others , utilizing training material provided by VDOT. The following qualifications must be met in order to teach the VDOT Basic, Intermediate, or Advanced WZTC training courses:

- **Basic** – Be flagger certified either by VDOT or by the American Traffic Safety Services Association (ATSSA); posses two years of practical experience in Highway Design, Construction, Maintenance, or Traffic Operations; posses two years of documented experience in conducting training courses; and successfully complete the VDOT WZTC Intermediate or Advanced course or complete the ATSSA Virginia Intermediate/Traffic Control Supervisor (TCS) course.

- **Intermediate** - Be flagger certified either by VDOT or by ATSSA; posses two years of practical experience in Highway Design, Construction, Maintenance, or Traffic Operations; posses two years of documented experience in conducting training courses; complete and posses the ATSSA Virginia Intermediate/TCS certification.

- **Advanced** - Be flagger certified either by VDOT or by ATSSA; posses two years of practical experience in Highway Design, Construction, Maintenance, or Traffic Operations; posses two years of documented experience in conducting training courses; complete and posses the ATSSA Virginia Advanced Traffic Control Design Specialist (TCDS) certification or ATSSA Virginia Intermediate TCS certification.

To become an approved instructor, an application must be completed listing the above qualifications and sent to the chairman of VDOT's WZST committee at the following location:
http://www.virginiadot.org/business/resources/wztc/wztc_inst_app_form.pdf

Once a person has become an approved instructor, training material can be obtained from VDOT using the order form obtained from the following location (requires an approved instructor identification number):
http://www.virginiadot.org/business/resources/wztc/WZTC_order_form.pdf

OPTION 2 – Obtain the services of an approved instructor from VDOT's Approved WZTC Instructor List to teach the course or courses you need for your employees.

The Approved WZTC Instructor's List can be obtained at the following location:
http://www.virginiadot.org/business/resources/wztc/Approved_WZTC_Instructors.pdf

A list of Approved Providers of training can be obtained at the following location:
http://www.virginiadot.org/business/resources/wztc/wztc_training_sponsors.pdf

OPTION 3 – Send personnel to classes conducted by approved sources such as ATSSA Virginia or the Virginia Local Technical Assistance Program (LTAP).

Courses by ATSSA Virginia can be found at the following location:
http://atssa.com/cs/course_information/courses_by_state?state=56

Courses by the Virginia LTAP can be found at the following location:
http://ltap.cts.virginia.edu/2%20Page%20Calendar%20June%20-%20Sept%2009.pdf

Basic WZTC courses by the Virginia Rural Water Association can be found at the following location:
http://www.vrwa.org/ (See Training Schedule)

Training by the Virginia Transportation Construction Alliance (VTCA) can be found at the following location: **http://vtca.org/**

Visit the following site for additional information regarding Virginia's Work Zone Traffic Control training program:
http://www.virginiadot.org/business/trafficeng-WZS.asp