

4.1 GENERAL CONSTRUCTION STANDARDS

4.1.01 Work Within VDOT Roads

- A. A permit from VDOT is required for any work within any VDOT right-of-way. The contractor is responsible for obtaining the necessary VDOT permit(s) and shall always comply with all provisions of the permit(s).

4.1.02 Coordination

- A. Phases of the construction which involve the temporary interruption of essential services shall be scheduled in consultation with Utility Provider(s), Property Owners, affected Utility Users, and the Department, and shall not be of longer duration than absolutely necessary to accomplish the purpose for such interruptions. Liaison in this matter shall be required before beginning any work. The Contractor shall notify the Department not less than 48 hours in advance of commencing work.
- B. The Contractor shall give not less than 48 hours' notice in advance of the time and date of making any connections to the existing water or sewer system. The Department may disapprove the proposed time and date of any and all connections. In such cases, the Inspector will coordinate with the Contractor to determine a suitable time and date for the work.
- C. The Contractor shall not operate any valves on the County system or make connections to existing sewer and/or water lines before proper notification is made to the County so that inspection of this work can be made.
- D. The Contractor shall be responsible for planning, designing, obtaining, and/or implementing all temporary services, utilities, connections, temporary piping, site access and other provisions needed to maintain continuous operation of the utility.

4.1.03 Work Outside Regular Hours

- A. If the Contractor desires to perform work outside the regular hours or on Saturday, he shall request permission to work 48 hours in advance to allow arrangements to be made for proper inspection. The County may refuse the Contractor permission to work if proper notice is not given or for other just cause. Reasonable efforts shall be made by the Contractor to avoid undue noise during the night and on Sundays if it is necessary to work at such times. Under normal circumstances the Contractor will not be permitted to work on Sundays or County holidays.

- B. The County has sole authority to allow the Contractor to work outside normal working hours in the interest of public safety or convenience. Normal working hours are defined as 8:00 A.M. to 5:00 P.M., Monday through Friday.

4.1.04 Use of Water

- A. No water shall be drawn from any County facility for testing or other purposes until suitable arrangements have been made with the Inspector.

4.1.05 Conflicts

- A. Should any requirements of these Specifications conflict with requirements of a governmental or private authority having jurisdiction, then to the extent of such conflict, and only to such extent, these Specifications shall be superseded.

4.1.06 Safety

- A. The Contractor shall accept sole responsibility for work area safety. The County shall not be responsible for the Contractor's safety precautions or for the means, methods, techniques, sequences, or procedures required for the Contractor to perform his work; such precautions include but are not limited to shoring, scaffolding, underpinning, temporary retainment of excavation and any erection methods and temporary bracing.

4.1.07 Existing Structures

- A. The location of existing sewers, water, gas pipes, conduits, and other structures across or along the line of the proposed work are not necessarily shown on the plans, and if shown, the location, depth and dimensions of such structures may only be approximately correct. The Contractor shall have a working pipe locator on site at all times.
- B. The Contractor shall dig any and all necessary test holes for the purpose of locating existing underground structures. Such excavation shall not be undertaken without 48 hours prior notice to the County or owner of the existing facility.
- C. The Contractor shall be liable for all damage done to any structure or property arising through his negligence or carelessness. He shall take care of and maintain all underground, overhead, or surface utilities encountered in the performance of the work.

- D. Prior to commencing work, the Contractor shall contact Virginia 811 (formerly “Miss Utility”) for assistance in locating existing underground utilities.
- E. The Contractor shall observe all precautions with respect to fire and shall avoid indiscriminate or unnecessary mutilation or cutting of trees within and outside of project work areas and/or easements. Any damage to property not in the work area or easements will be the Contractor's responsibility.

4.1.08 Routine Inspections

- A. The Inspector is authorized to inspect all work done and materials furnished. In case of any dispute arising between the Contractor and the Inspector as to materials furnished or the manner of performing the work, the Inspector will have the authority to reject material or suspend work until the issue can be referred to the Director for Final Determination.
- B. Department personnel and their authorized representatives shall have access at all times to all parts of the work for purposes of observing and/or performing inspections of water and sewer construction.

4.1.09 Final Inspection

- A. Before Final Inspection of the work, the Contractor shall clean up the work site(s), including all rights of ways and easements and shall restore these areas as closely as possible to original condition. All unnecessary machinery, tools, surplus material, temporary buildings, and other structures shall be removed from the project site.

4.1.10 Notification to Property Owners

- A. The Contractor shall properly notify in writing all owners of property which may be affected by the work a minimum of two (2) weeks prior to the start of any construction (including staking and land clearing).

4.1.11 Connections to Existing Water and Sewer Systems

- A. All water line tie-ins to an existing distribution system, including vertical and horizontal relocations, shall be coordinated with the Inspector. Typically, tie-ins shall be scheduled to start Tuesday through Thursday between 9:00 a.m. and 12:00 p.m. Tie-ins may be scheduled outside these time periods upon written request by the Contractor, and approval by the Department.

- B. Tie-ins to water mains and sewer force mains will not be allowed two workdays before, and two workdays after, Thanksgiving and Christmas. Tie-ins may be restricted at other times at the discretion of the Director.
- C. The Inspector will determine the suitability of proposed tie-in dates/times and will coordinate a mutually acceptable schedule with the Contractor.
- D. In the interest of public safety and/or customer service the County may require the Contractor to perform tie-ins to existing systems at times other than those listed.
- E. No portion of any water or sewer system may be shut down for purposes of making a tie-in of new construction without express written permission from the Director. When a shutdown is permitted, the Contractor shall prepare a specific plan for the tie-in which minimizes shutdown time(s) and which includes a detailed scope of work and a list of all tasks to be performed to accomplish the tie-in. The plan must be submitted to the Department for review and must be approved by the Director prior to scheduling the tie-in. Sufficient personnel, equipment, and materials, including backups for key pieces of equipment and materials, shall be on-site prior to the shutdown. Where applicable, excavation and preassembling of fittings shall be performed. If, in the opinion of the Inspector, sufficient resources are not available, or the Contractor is otherwise not properly prepared to perform the work, the shutdown and tie-in will be postponed and rescheduled.
- F. The Contractor shall adhere to the VOSH Asbestos Construction Standard, Part 1926.1101 for work on pipe containing asbestos material. Tie-ins to asbestos cement pipe shall be made to rough barrel pipe. Tie-ins to the machined section of asbestos cement pipe will not be permitted. Where asbestos cement pipe couplings have been removed, the machined end of the pipe shall be removed. Abandonment, removal, and/or disposal of asbestos cement pipe shall be per State and Federal requirements.
- G. Tie-ins involving fittings shall include provisions for temporary blocking until concrete thrust-blocking has cured.
- H. All pipe and fittings used for a tie-in to the water system shall be swabbed with a 1% chlorine solution prior to connection.
- I. Before a tie-in may commence, all valves needed for the operation, including fire hydrant valves, shall be readily accessible. The Contractor and the Inspector shall verify that all "Normally Open" valves are fully open, and all "Normally Closed" valves are fully closed, prior to commencing. Immediately following a tie-in involving a shutdown, the Contractor and Inspector shall verify that all valves have been returned to

their normal positions. Fire hydrants in or near the work area shall be checked to ensure water is available and each hydrant is in working order.

4.1.12 Field Engineering

A. Grades, Lines and Levels

1. The Design Engineer shall establish baseline and control points. From these points, the Contractor shall furnish all necessary personnel and equipment to establish line and grade as required for the work.
2. The Contractor shall be responsible for the preservation of all stakes and marks established by the Design Engineer.
3. In addition to certifying the as-built information for utilities the Design Engineer shall certify that all streets, including curb and gutter, are to the correct finish grade prior to acceptance of utility construction by the County.
4. With written approval from the Director, Field Engineering may be performed by a Professional Engineer other than the Design Engineer.

4.1.13 Project Meetings

- A. A preconstruction meeting with the Inspector and the Contractor shall be scheduled before beginning any work.
- B. The Inspector shall be invited to all progress meetings held during construction of the project.

4.1.14 Construction Schedule

A. Construction Schedules

1. Contractor shall submit a detailed construction schedule prior to the preconstruction conference. The Construction schedule shall be reviewed at the monthly progress meeting and updated as required.

4.1.15 Submittals/Shop Drawings

- A. Prior to the preconstruction meeting, required Shop Drawings, and Working Drawings as needed, shall be submitted to the Department for all materials and equipment to be furnished and installed as part of the project. Construction shall not commence until all Shop Drawings have

been reviewed by the Department and received “No Exceptions Taken” status.

- B. Working Drawings consist of such detailed drawings as may reasonably be required for successful completion of the project and which are not included on the Plans. These may include anchor bolts, centering and form work, masonry, layout diagrams, flanged pipe spool drawings, etc.
- C. If deviations, discrepancies, or conflicts are discovered between any Shop Drawing or Working Drawing and the Plans or these Specifications, either prior to or after concurrence has been received, the Plans and these Standards shall control and shall be followed.
- D. No materials shall be used in the work which do not comply with the accepted Shop Drawings.
- E. After a Shop Drawing for an item has been accepted, no change in brand or manufacturer will be permitted unless satisfactory written evidence is presented to and approved by the Department.
- F. Shop Drawings shall include manufacturer’s installation instructions and long and short term storage requirements.
- G. Submission of shop drawings shall comply with the following requirements:
 - 1. The shop drawings shall be clearly marked and submitted sufficiently in advance of the work which they cover to afford ample time for checking, correcting, and rechecking if necessary.
 - 2. Before submitting, the Contractor shall check all shop drawings, including those submitted by subcontractors, for accuracy and to ascertain that all work contiguous with and having bearing on other work shown on the shop drawings is accurately drawn..
 - 3. At the time of submission, Shop Drawings shall bear the Contractor's stamp of approval as evidence that such drawings and details have been checked by the Contractor. The submission of shop drawings (in either the original submission or when resubmitted with corrections) constitutes evidence that the Contractor has checked all information therein, and that he accepts and is willing to perform the work, as shown, in a workmanlike manner and in accordance with the best standard practices.
 - 4. The Contractor's approval stamp shall contain the following statement:

"The equipment and material shown and marked in this submittal is that proposed to be incorporated into this Project, and has been checked for and is in compliance with the Plans and the Standards and Specifications of the Goochland County Department of Public Utilities.

Checked By: _____ Date: _____

5. The person signing the stamp must be designated in writing by the Contractor as having that authority. The signature shall be handwritten in ink. Stamped signatures are not acceptable.
6. The acceptance of Shop Drawings by the Department shall not relieve the Contractor from responsibility for errors and/or omissions of any sort on shop drawings or schedules.

H. Department Action:

1. Review of Shop Drawings and other submittals is only for conformance with the design concept of the project. Markings or comments do not relieve the Contractor from compliance with the Plans and these Specifications nor do they allow departure therefrom. The Contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes, for technique of assembly, for coordination of the work with all trades, and for performing this work in compliance with the Plans and Specifications.
2. Following review of Shop Drawings, each drawing shall receive one of the following designations:
 - a. No Exceptions Taken - Final Unrestricted Release: Work may proceed, provided it complies with Contract Documents, when submittal is returned with the following marking.
 - b. Revise and Resubmit - Returned for Re-submittal: Do not proceed with work. Revise submittal in accordance with notations thereon, and resubmit without delay to obtain a different action marking. Do not allow submittals with the following marking (or unmarked submittals where a marking is required) to be used in connection with performance of the work.
 - c. Rejected - Product submitted does not comply with Contract Documents. Resubmit for product complying with the

requirements of the Contract Documents. Do not allow submittals with the following marking to be used in connection with performance of the work.

4.1.16 Deviation from Plans

- A. There shall be no deviation from the plans, profiles, cross-sections, and specifications in any particular except on written consent of the Director. If any unapproved deviation occurs on the part of the Contractor or any Subcontractor, the error shall be corrected in a manner satisfactory to the Department.
- B. If unforeseen conditions arise during Construction, the Contractor shall notify the Inspector and Engineer. Any proposed deviations from the Plans shall be submitted to the County for review and approval prior to execution.

4.1.17 Temporary Facilities and Controls

- A. **Temporary Electricity:** The Contractor shall provide electric power for construction purposes. The Contractor shall acquire all required permits for such installation.
- B. **Temporary Sanitary Facilities:** The Contractor shall provide and maintain in a neat and sanitary condition such accommodations for the use of his employees to comply with all governing laws and regulations.

4.1.18 Materials and Equipment

- A. **Quality:** Material and equipment incorporated into the work shall be new and unused and:
 - 1. Conform to applicable specifications and standards.
 - 2. Comply with size, make, type, and quality specified or as specifically approved in writing by the Director.
 - 3. **Manufactured and fabricated products:**
 - a. Design, fabricate and assemble in accord with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard size and gages, to be interchangeable.
 - c. Two or more items of the same kind shall be identical, by the

- same manufacturer.
- d. Products shall be suitable for service conditions.
 - e. Equipment capacities, sizes, and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
4. Do not use material or equipment for any purpose other than that for which it is designed or specified.
 5. Except as specifically indicated or specified, materials and equipment removed from existing facilities shall not be used in the completed work.
 6. For material and equipment specifically indicated or specified to be reused in the work:
 - a. Use special care in removal, handling, storage, and reinstallation, to assure proper function in the completed work.
 - b. Arrange for transportation, storage and handling of products which require off-site storage, restoration, or renovation. Pay all costs for such work.
 - c. Even if approved for reuse, no broken or unserviceable item shall be reused. In such instances, the item shall be replaced with a new, functionally equivalent, item.
 7. For all materials and equipment designated to be turned over to the County, the Contractor shall remove all items carefully, clean them, and transport them to an area on site or a storage facility designated by the Department. All sewer service materials or equipment shall be disinfected before turning over to the County.
 8. Manufacturer's Instructions
 - a. All installation of work shall comply with manufacturer's written instructions. Prior to installation, the Contractor shall obtain and distribute copies of such instructions to all parties involved in the installation, including two copies to the Inspector.
 - b. Handle, install, connect, clean, condition, and adjust products in strict accordance with such instructions and in

conformity with manufacturer's requirements.

- c. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by the manufacturer.

B. Transportation and Handling:

1. Arrange deliveries of products in accordance with construction schedules, and coordinate to avoid conflict with work and conditions at the site.
 - a. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - b. Immediately upon delivery, inspect shipments to assure compliance with requirements and approved submittals, and products are properly protected and undamaged.
2. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

C. Storage and Protections:

1. Store products in accordance with manufacturer's long and short term requirements with seals and labels intact and legible.
 - a. Store products subject to damage by the elements in weather tight enclosures.
 - b. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
2. Exterior Storage.
 - a. Store fabricated products above the ground on blocking skids. Prevent soiling and staining.
 - b. Cover products which are subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.
 - c. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.

- d. Protect all products from sunlight when required by the manufacturer.
3. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration.
4. Protection After Installation: Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove when no longer needed.

4.1.19 Warranties and Guarantees

- A. The Contractor shall provide Warranties and Guarantees on all materials, equipment, workmanship, installations, labor, and operation items provided and/or installed by the Contractor or any of its subcontractors and/or suppliers. Warranties and Guarantees shall be for a period of one year from the date of Final Acceptance of the project.
- B. Guarantee: The Contractor warrants the equipment and/or materials delivered and installed as part of the project are free from defects in design, material or workmanship, and damage caused prior to final inspection.
- C. Prompt Repair: The Contractor shall promptly repair or replace all defective or damaged items installed as part of the project.
- D. County's Option: In the event of equipment and/or materials failure, during such time or in such a location that immediate repairs are mandatory, the Contractor shall respond promptly, regardless of time. If the Contractor is not available, County personnel or other contractors secured by the County, will conduct repairs. The Contractor shall then reimburse the County for parts and labor and/or other contractors' costs necessary to correct deficiencies during the warranty period.

END OF SECTION 4.1