

CHAPTER 7

SITE-UTILITY SYSTEMS

SECTION 701 GENERAL

701.1 Scope. This chapter shall govern the administration, design, construction, and inspection for a system of privately owned water and/or sewer mains located on private property.

701.1.1 WSSC Inspections. WSSC shall inspect all projects wherein the plans were signed and approved by WSSC on or after July 1, 2011. The inspections shall be conducted in accordance with the protocols outlined in this Chapter and as noted on the approved plans. Inspection Fees will be collected when the Site-Utility Permit is issued.

701.1.2 Third-Party Inspections. For projects where the plans are approved on or before June 30, 2011, inspections shall be conducted by the designated Third-Party Engineer in accordance with the protocols outlined within this Chapter and as noted on the approved plans.

701.1.2.1 Sunset on Third-Party Inspections Program. For projects that were approved in accordance with 701.1.2, but where work has not commenced by December 31, 2011, the projects will be converted to WSSC Inspected projects. Accordingly, the applicant must resubmit the project plans to WSSC for updates to the plan notations and re-approval. Additionally, the applicant must submit a re-review fee to WSSC, and after approval inspections of the project will be conducted in accordance with the protocols outlined in this Chapter and as noted on the re-approved plans.

701.1.2.2 Required Notification. In order to be recognized as a Third-Party Inspection project where work has commenced before the sunset of December 31, 2011, the site-utility contractor *and* the designated third-party engineer shall both *notify WSSC* using the following protocols: 1.) the contractor shall phone-in according to General Note #4 on the approved plan; 2.) the engineer shall notify the code official in writing and specify the starting date.

701.2 Qualification. Water service piping 4-inches in diameter or larger, sewer piping 6-inches in diameter or larger, and any non-residential pressure sewer system, shall be designed and submitted through the site-utility (*on-site*) system process described herein.

701.2.1 Smaller Diameter Systems. Water service piping 3-inches in diameter or smaller, and sewer piping 4-inches in diameter or smaller shall not be governed by this Chapter as a site-utility system design, except as cited in Section 701.2.2. A WSSC plumbing permit shall govern the review, installation and inspection of these systems.

701.2.2 Mixed Systems. When *either* the building water service or the building sewer qualify as a site-utility system based on pipe size as cited in Section 701.2, the entire system shall be designed, approved, and constructed as a site-utility system in accordance with requirements cited in this Chapter.

701.2.3 Minor Site-Utility Systems (*Formerly Waived On-Site Systems*). At the discretion of the code official, site-utility system designs of less complexity and/or length may be waived from going through the detailed site-utility document review process as outlined in this chapter, and may be designated as a "minor" site-utility system as opposed to a "standard" site-utility system. However, the following requirements must be met in order for a system to qualify as a minor site-utility system:

701.2.3.1 Copies of the site plan shall be submitted in accordance with established submittal requirements, including the WSSC submittal checklist.

701.2.3.2 The developed piping length to the building, measured from property line or edge of right-of-way, for both water and sewer shall not exceed 80-feet each.

701.2.3.3 Installation and testing shall conform with requirements cited in Section 705 of this Chapter; and shall be performed and inspected under a WSSC Plumbing permit.

701.3 Outside Meter Requirement. In general, all site-utility systems, both standard and minor, greater than 80-feet in developed length, shall be served by an outside meter. Subject to approval by the site-utility code official, systems less than 80-feet in developed length may be served by an inside meter. See Chapter 6, Installation of Commission Meters, for requirements relating to meter vaults and meter settings.

SECTION 702 DESIGN

702.1 Design Engineer. A State of Maryland Registered Professional Engineer (engineer) shall be responsible for the design of a site-utility system, and shall review plans and other documents *prior to* their submission to WSSC. Final documents submitted for WSSC approval shall have each sheet stamped, signed and dated by the engineer. The engineer is not be required to, nor prohibited from being, the engineer designated to oversee the installation process, where applicable.

702.2 Design Basis. The design engineer shall base the design on sound engineering protocols in conjunction with the following available guidelines:

702.2.1 WSSC Site-Utility Design Checklist;

702.2.2 WSSC Plumbing & Fuel Gas Code;

702.2.3 WSSC Pipeline Design Manual;

702.2.4 WSSC Standard Details; and

702.2.5 WSSC General Conditions and Standard Specifications.

702.3 Documentation

702.3.1 Owner's Declaration.

702.3.1.1 WSSC Inspections. The owner shall designate in writing, a State of Maryland Registered Professional Engineer who shall be responsible for producing and submitting as-built plans at the owner's expense.

702.3.1.2 Third-Party Inspections. The owner shall designate in writing, a State of Maryland Registered Professional Engineer for general oversight of the installation process, both for standard site-utility systems. The letter must include the engineer's responsibilities as follows:

- 702.3.1.2.1** Verification that materials meet WSSC standards;
- 702.3.1.2.2** Oversight of all aspects of installation;
- 702.3.1.2.3** Witness and report all testing;
- 702.3.1.2.4** Produce required as-built plans; and
- 702.3.1.2.5** Provide overall final certification letter.

702.3.2 Construction Plans. Construction drawings or plans shall be formatted in accordance with the current WSSC Site-Utility Water and Sewer System Design Checklist. Plan size shall be 24 x 36 inches.

702.3.3 Other Required Documents. In addition to construction documents, release of the site-utility permit shall be contingent on submission of other required documents including but not be limited to the following:

- 702.3.3.1** Private and Public (WSSC) easements/rights-of-way;
- 702.3.3.2** Required covenants;
- 702.3.3.3** Shared water/sewer agreements;
- 702.3.3.4** Recordation where applicable; and
- 702.3.3.5** Supervised sprinkler agreement where applicable.

702.4 Design Coordination with the Building Water Distribution and the Building Drain.

702.4.1 Water. The site-utility water service shall terminate within 5-feet of building wall/foundation. This termination point may either be 5' outside of the foundation or at the "first flange" no greater than one foot inside of the building.

702.4.2 Sewer. The site-utility sewer shall terminate within 5-feet outside of the building wall/foundation.

702.5 Manhole Required. Building sewers, 6 inches and larger, and greater than 80 feet in length, shall have a manhole within 100 feet of the junction with the building drain; at each change in direction or slope; and at intervals not to exceed 400 feet.

702.6 Design Expiration. Approved Plans are valid for a period of 18 months. Approval can be extended for one additional 18-month period if the applicable re-review fee is submitted and the hydraulic and quantitative WSSC water and sewer capacities remain available.

SECTION 703 PERMITS

703.1 Site-Utility Permit. The owner or the owner's designee shall secure a WSSC site-utility permit prior to construction of the site-utility system.

703.1.1 Permit Expiration. A Site-Utility Permit expires with the expiration of the approved plans. In accordance with Section 702.6 of this chapter, a Site-Utility Permit can be extended, along with the approved plans, for one additional 18-month period, if the requirements of 702.6 are met.

703.2 Minor Site-Utility Permit. A WSSC registered Master Plumber shall obtain a WSSC plumbing permit *prior to* construction of the minor site-utility system.

703.3 Service Connection Permit. A Service Connection Permit must be obtained *prior to* a Site-Utility Permit, when a site-utility system is contingent upon a new service connection.

SECTION 704 INSTALLATION

704.1 Qualified Contractor. All work necessary to install a site-utility system shall be completed by a utility contractor (contractor) approved by the Commission, *or* by a WSSC-licensed Master Plumber (contractor).

704.2 Oversight. In accordance with Sections 701.1.1 and 701.1.2 of this Chapter, either the WSSC or the designated third-party engineer shall provide complete oversight of the installation process for standard site-utility systems.

704.3 Materials. The WSSC or the designated third-party engineer shall validate that all materials comply with Commission standards and this Code.

704.4 Supervision. In accordance with Sections 701.1.1 and 701.1.2 of this Chapter, general supervision of the pipeline installation and related appurtenances, inspection over the work,

project milestones, and decisions shall be completed by the WSSC or the designated third-party engineer. Components of inspection shall include but is not limited to the following:

704.4.1 Open trench inspections, unless otherwise indicated on the approved plan;

704.4.2 Alignment and sizing in accordance with approved construction documents;

704.4.3 Installation, including bedding, in accordance with manufacturer's specifications and the WSSC General Conditions and Standard Specifications;

704.4.4 Uniform slope of sewer pipelines; and

704.4.5 Backfill with care and with suitable fill material.

704.5 Deviation. Minor changes to alignment and elevation are permissible for unforeseen field conditions, but the following protocols must be adhered to:

704.5.1 For WSSC Inspected projects, WSSC personnel will determine whether the scope of deviation is permissible to proceed and be documented through the as built process versus deviations that will require redesign and revised plan approval.

704.5.2 For Third-Party Inspected projects, the designated engineer will manage deviations according to the following:

704.5.2.1 The engineer shall report and record such changes as part of the required as-built drawings.

704.5.2.2 When such changes either effect the site-utility system integrity, conflict with the design and/or intent of the approved drawings, lack compliance with design standards or this Code, the engineer shall obtain approval from the site-utility code official prior to installation.

704.6 Exception. For minor site-utility projects: installation; oversight; materials validation; and inspection shall follow protocols established for water and sewer inspections performed under a WSSC plumbing permit, in accordance with Sections 107.4.1.1 through 107.4.1.2 of this Code.

SECTION 705 WATER QUALITY AND TESTING

705.1 Equipment. The contractor shall furnish and operate all testing equipment.

705.2 Coordination. The contractor shall coordinate and schedule all testing, and ensure that the designated engineer, WSSC Systems Inspector, or WSSC Plumbing Inspector as applicable is present during testing.

705.3 Water Quality

705.3.1 Chlorination. Water system piping exceeding 50-feet in developed length shall be chlorinated during installation. After installation, the system shall be flushed to lower

chlorine residual, prior to water sampling. Water system piping 50-feet or less in developed length shall be thoroughly flushed upon connection to the Commission's system; chlorinating and sampling shall *not* be required on these systems.

705.3.2 Water Samples. Where piping has been chlorinated, water samples shall be taken from the end of the longest run within the system and from laterals exceeding 50-feet in developed length.

705.3.3 Accredited Laboratory. Water quality testing shall be performed and reported by a State of Maryland accredited laboratory.

705.3.4 Reports. Water quality test reports must contain the following information:

705.3.4.1 WSSC site-utility or minor site-utility permit number;

705.3.4.2 Acceptable chlorine residual;

705.3.4.3 Absence of bacteria; and

705.3.4.4 The following statement: *“This sample meets federal standards for drinking water and is safe for human consumption”*.

705.4 Water Main Testing. All standard site-utility water systems and minor site-utility water systems shall be hydrostatically tested. The minimum test pressure shall be 200 psig, unless a greater pressure is designated on the approved construction documents, for a duration of 2-hours.

705.5 Gravity Sewer Testing

705.5.1 Pressure Test. All site-utility and minor site-utility sewer systems greater than 50-feet in developed length shall be pressure tested with air at 4 psig for a duration of 5-minutes, and shall show no sign of leakage.

705.5.2 Mandrel Test. All site-utility and minor site-utility sewer systems 6-inches and larger and that incorporate 1 or more manholes, shall have a mandrel pulled through each segment greater than 50-feet in developed length to disclose any defect, distortion or misalignment of the pipe.

705.6 Pressure Sewer. All pressure sewer piping shall be hydrostatically tested. The minimum test pressure shall be 100 psig for a duration of 2-hours.

705.7 Engineer's or WSSC's Responsibility

705.7.1 Validation. In accordance with Sections 701.1.1 and 701.1.2 of this Chapter, the Third-Party engineer or WSSC Systems Inspector shall validate that all testing protocols comply with this Code and the General Site-Utility Water and Sewer Notes shown on the approved construction documents.

705.7.2 Witness Tests. The Third-Party Engineer or WSSC must witness all required testing. Tests that fail shall have piping corrected and be re-tested until the test is passed satisfactorily.

705.7.3 Reporting. The Third-Party Engineer shall report all test results to the WSSC site-utility code official for third-party inspected projects. WSSC personnel shall record all test results for WSSC inspected projects.

705.7.4 Exception. For minor site-utility projects, The WSSC plumbing inspector shall witness all required tests for water and sewer installations performed under a WSSC plumbing permit. At his or her discretion, the plumbing inspector may accept a third-party engineer's test report for water line testing.

SECTION 706 HOOK-UP AND ACTIVATION

706.1 Connection to Commission Mains.

706.1.1 Standard Site-Utility Systems. The contractor shall connect the site-utility system to the Commission's system only after the following conditions have been met:

706.1.1.1 The Commission's system and service connection shall have been deemed released for hook-up.

706.1.1.2 The engineer or WSSC, as applicable, shall have witnessed the installation and testing of the site-utility system, and shall have completed and submitted and/or recorded all required reports.

706.1.1.3 The engineer or WSSC, as applicable, must be present to witness the final connection to the Commission's system.

706.1.2 Minor Site-Utility Systems. A WSSC registered Master Plumber shall connect the minor site-utility system to the Commission's system *only* after the Commission's system has been released for service and the minor site-utility system has been inspected and approved by the WSSC plumbing inspector.

706.2 Connection to Building Piping. *Only* a WSSC-licensed master plumber shall connect a building's water and drainage systems to the site-utility systems. A site-utility contractor shall *not* connect to a building's plumbing systems. *Prior to connection,* the site-utility system shall be *released* as FINALED or "for connection only" by the site-utility code official. If released "for connection only", the system may not be activated until it is *released* as FINALED.

706.2.1 Water. The plumber shall connect the water distribution system to the termination of the site-utility water service. In accordance with the approved Site-Utility plan, the connection for the termination point shall be either five (5) feet outside or at the "first flange" within one (1) foot inside the building.

706.2.2 Sewer. The plumber shall connect the building drain to the site-utility sewer within five (5)-feet *outside* of the building wall/foundation.

SECTION 707

AS-BUILT DRAWINGS AND FINAL APPROVALS

707.1 General. Final approval of the standard site-utility system permit shall be contingent upon complete documentation by the engineer in accordance with Sections 707.2 & 707.3 of this Chapter and full release of the Commission's systems. Final approval of a minor site-utility system shall be made by the WSSC Plumbing Inspector.

707.2 As-Built Drawings. The engineer shall provide two (2) copies of the as-built drawings to the site-utility code official for third-party inspected projects or to the WSSC systems inspector for WSSC inspected projects. As-built drawings shall include all deviations from the original approved plan for *both* the plan view and the profiles. Required notes shall include elevations of and shall indicate ties for all bends, valves, cleanouts, appurtenances, and similar buried items.

707.3 Engineer's Certification. For third-party inspected projects, the engineer shall provide a Final overall certification letter addressing the following:

707.3.1 Determination that all the materials installed comply with Commission Standards and this Code;

707.3.2 Confirmation that the engineer provided general oversight for the installation of all pipelines, structures, and appurtenances.

707.3.3 Confirmation that the engineer witnessed and properly reported all requisite tests.

707.3.4 The site-utility system is in overall compliance with the as-built plan, Commission standards and this Code.

707.4 Commission Systems Release. FINAL APPROVAL of the site-utility system shall be contingent upon *full release* of the Commission service connection(s). *Substantial completion* of the applicable WSSC permit shall be required *prior to* the site-utility permit being closed. Specifically, service connections shall be part of a WSSC Service Connection Permit (SCP), System Extension Permit (SEP), or Relocations and Major Systems (RMS) contract.

707.5 Final Approval. Only WSSC personnel shall have authority to approve as "final" the completion of both Third-Party and WSSC inspected Site-Utility Permits. Finalization and release of a Site-Utility Permit is required prior to final plumbing approval of WSSC plumbing permits.

End of Chapter 7

107.2.1.11 ~~Third Party Certification,~~ Standard and Minor Site- Utility ~~Work~~Systems. Standard and minor site-utility systems shall be installed by a WSSC approved utility contractor or by a WSSC-registered Master Plumber. ~~Work~~These systems shall be inspected ~~and certified~~ ~~by a State of Maryland registered professional engineer~~ in accordance with procedures outlined in Chapter 7.

107.5 Standard and Minor Site Utility Systems. Standard and minor site-utility systems shall be installed by ~~a~~ WSSC approved utility contractor *or* by a WSSC-registered Master Plumber. ~~Inspection of t~~These systems shall be ~~performed by a professional engineer registered in the State of Maryland.~~ See in accordance with procedures outlined in Chapter 7.