

# DESIGN AND CONSTRUCTION STANDARDS

2017



# **DESIGN STANDARDS**

# **Table of Contents**

#### Section 1. General Provisions

1.00 General

1.01 Quality of Materials

1.02 Inspections

1.03 Clearing & Grubbing

1.04 Earthwork

1.05 Maintenance of Traffic

1.06 Concrete

1.07 Plantings or Structures within District Utility Easements

1.08 License Requirements

1.09 OSHA Standards

1.10 Safety and Health Hazards

1.11 Geodetic Monuments

1.12 Failure to Respond

#### Section 2. Water Distribution Specifications

2.00 Water Distribution Pipe

2.01 Fire Hydrants

2.02 Valves and Appurtenances

2.03 Water Service Taps

2.04 Clearance between Water Mains, Sanitary and Storm Sewers

2.05 Backflow Prevention and Cross Connection

2.06 Testing and Inspection

2.07 Fire Protection during Construction

2.08 Irrigation Systems

# Section 3. Design Detail Drawings

W-1 Standard Water Main Trench Detail

W-2 Gate Valve Assembly

W-3 Tapping Sleeve & Valve Assembly

W-4 Standard Fire Hydrant Installation Detail

W-5 Slip-Type Valve Box

W-5A Slip-Type Valve Box

W-6 Concrete Trust Blocking

W-7 Thrust Collar Detail

W-8 Vertical Bends

W-9 Combination Air/Vacuum Relief Valve Assembly

W-10 Programmable Blowoff Assembly

W-11 2" Blowoff Assembly

W-12 6" Blowoff Assembly

W-13 3/4" or 1" Typical Residential Service Connection

W-14 Valve Box Protector Ring

W-15 Standard Gang Meter Assembly

W-16 3/4" and 1" Water Meter Box Detail

- W-17 1 1/2-2"Typical Service Connection
- W-18 3/4" 2" Reduced Pressure Backflow Preventer
- W-19 Water from Hydrants Tanker Detail
- W-20 Bore and Jack Details
- W-21 Directional Bore Details
- W-22 Mechanical Joint Tapping Sleeve and Valve

# Section 4. Approval Process Water Extensions

- 4.00 Preliminary Plan Approval
- 4.01 Design of Water System
- 4.02 Submission of Application, plans, Specifications, Engineer's Report
- 4.03 Plan Review by District
- 4.04 Submission to NCDENR of Application, Plans, Specifications, Engineer's Report
- 4.05 Acquire the Permit
- 4.06 North Carolina One Call Center
- 4.07 Pre- Construction Meeting
- 4.08 Construction
- 4.09 Field Changes
- 4.10 On-site Field Inspection
- 4.11 Pressure Testing
- 4.12 Flushing
- 4.13 Disinfection
- 4.14 Final Inspection
- 4.15 Request for Final Documents
- 4.16 As-Built Record Drawings & Engineer's Certification
- 4.17 Final Certifications
- 4.18 Warranty Period
- 4.19 Final Inspection & End of Warranty Period

# Section 5. Approval Process Sewer Extensions

- 5.00 Preliminary Plan Approval
- 5.01 Design of Sewer System
- 5.02 Submission to District of Application, Plans, Specifications, Engineer's Report
- 5.03 Downstream Sewer, WWTF Capacity, and Flow Tracking/Acceptance
- 5.04 Plan Review by District
- 5.05 Plan Revisions
- 5.06 Submission to NCDENR of Application, Plans, Specifications, Engineer's Report
- 5.07 Acquire the Permit
- 5.08 North Carolina One Call Center
- 5.09 Pre-Construction Meeting
- 5.10 Construction
- 5.11 Field Changes
- 5.12 On-Site Field Inspection
- 5.13 Pressure Testing
- 5.14 Mandrel Testing & Video Camera Examinations
- 5.15 Final Inspection
- 5.16 Request for Final Documents
- 5.17 As-Built Record Drawings & Engineer's Certification
- 5.18 Final Certifications
- 5.19 Warranty Period
- 5.20 Final Inspection & End of Warranty Period