

NORTH CAROLINA**AGREEMENT FOR GOODS AND/OR SERVICES****CHATHAM COUNTY**

THIS AGREEMENT FOR GOODS AND/OR SERVICES (this "Agreement"), made and entered into this 19th day of November, 2024 by Chatham County, a corporate and body politic of the State of North Carolina (the "County") and Hunter Contracting LLC (the "Contractor"). Either the County or the Contractor may be referred to herein as a "Party" or collectively as the "Parties."

WHEREAS, the Contractor has agreed to provide goods and/or services as hereinafter set forth in a professional manner in accordance with the standards of Contractor's business or industry, and

WHEREAS, the County wishes to enter into an Agreement with Contractor to provide the goods and/or services specified in Appendix 1, Scope of Work, attached hereto and incorporated herein by reference and made an integral part of this Agreement.

NOW THEREFORE, in consideration of the premises and mutual agreement described below, the Parties agree as follows:

1. **Term of Agreement:** The term of this Agreement shall commence on January 1, 2025, and end on December 1, 2025, unless terminated hereinafter set forth.
2. **Scope of Service:** The Contractor shall provide to the County the goods and/or service (the "Services") set forth in the "Scope of Work" attached hereto as Appendix 1.
3. **Compensation:** As compensation for the Services to be provided by the County, the County shall pay the Contractor the sum of \$726,651.41, payable within thirty (30) days from receipt of proper invoice and proper documentation that the goods/services have been delivered or provided in accordance with this Agreement or as otherwise set forth in Appendix 1.
4. **Insurance:** Contractor shall maintain insurance policies as shown in Appendix 2 for the entire term of this Agreement as well as any subsequent amendments.

All insurance policies shall be issued by companies authorized to do business under the laws of the State of North Carolina and shall be rated not less than "A" by A.M. Best and Company. Contractors shall furnish Certificates of Insurance to the County, *naming the County as an additional insured*, prior to the commencement of Services. The certificates shall clearly indicate that Contractor has obtained insurance of the type, amount, and classifications as required for strict compliance with this paragraph and that no material change or cancellation of the insurance shall be effective without thirty (30) days prior written notice to the County. Compliance with the foregoing requirements shall not relieve Contractor from any liability or obligations under this Agreement.

The County requires all that all contractors carry workers' compensation insurance. The County recognizes that contractors with fewer than three employees are not statutorily required to carry said insurance. The County reserves the right to waive the requirement to carry workers' compensation insurance on a case-by-case basis. If the contractor's status changes during the term of an agreement and worker's compensation insurance becomes statutorily required, the contractor must provide proof of said coverage to the County.

5. **Confidentiality:** All proprietary data and information, if any, furnished to Contractor by the County shall be regarded as confidential, shall remain the sole property of the County and shall be held in confidence and safekeeping by Contractor for the sole use of the County and Contractor under the terms of this Agreement. Contractor agrees that its officers, employees, and agents will not disclose to any person, firm, or entity other than the County or its designated legal counsel, accountants, or practice management consultants any confidential information about the County. Contractor agrees to carry out its obligations to the County in compliance with all privacy and security regulations required by law.

6. Intellectual Property Owned by Contractor: This Agreement is subject to the North Carolina public records law and may be released upon request. Not all "Trade Secrets" will qualify as protected under N.C.G.S. §132-1.2 and 66-152.
7. Status of Parties: Nothing contained in this Agreement shall be construed as establishing a partnership or joint venture relationship between Contractor and the County. Contractor and its employees and representatives are independent contractors, solely responsible for its or their performance under this Agreement and shall have no legal authority to bind the County.
8. Assignment and Subcontracting: Neither this Agreement nor any rights or obligations hereunder shall be subcontracted, assigned, or delegated by Contractor without prior written consent of the County, which consent may be withheld in the County's sole discretion.
9. Binding Effect: This Agreement shall be binding upon the Parties hereto, their heirs, administrators, executors, successors and assigns, if such assignment has been approved by the County.
10. Notices: Any notice or other communication required or permitted under this Agreement shall be in writing and shall be deemed to have been given on the date delivered personally or deposited in the United States Postal Service, certified mail, return receipt requested, with adequate postage affixed, address as follows:

Chatham County
Attn: County Manager
Post Office Box 1809
Pittsboro, North Carolina
919.542.8200

Hunter Contracting LLC
Attn: Hunter Flaughner
40 Trillium Place
Chapel Hill, North Carolina 27517
919-624-4638
Hunter@Huntercontractingllc@gmail.com

11. Governing Law: This Agreement and the rights and obligations to the Parties hereunder shall be construed and governed by the laws of the State of North Carolina, and the venue for any proceedings arising hereunder shall be in the state court of appropriate jurisdiction located in Chatham County, North Carolina.
12. Modifications: This Agreement may be amended or modified only by the mutual written consent of the Parties. A modification is not enforceable against the County unless it is signed by the County Manager or other duly authorized official.
13. Entire Agreement: This Agreement contains the entire agreement between the Parties pertaining to the subject matter of this Agreement. With respect to that subject matter, there are no promises, agreements, conditions, inducements, warranties or understandings, written or oral expressed or implied, between the Parties, other than as set forth or referenced in this Agreement.
14. Waiver: A waiver of any provision of this Agreement must be in writing, designated as such, and signed by the Party against whom enforcement of the waiver is sought. The waiver of a breach of any provisions of this Agreement shall not operate or be construed as waiver of subsequent or other breach thereof.
15. Termination: This Agreement may be terminated as follows:
 - a. Cause: If the services provided by Contractor under this Agreement are not performed as specified herein, this Agreement may be terminated by the County for cause. Grounds for termination for cause shall include, but not be limited to, the following:
 - i. Failure to respond to reasonable requests from the County to provide the Services covered by this Agreement.
 - ii. Failure to properly recycle any electronic equipment as specified in Article 9, Chapter 130A of the North Carolina General Statute, or failure to comply with any statutory requirement included in the formal bid request, as provided in the bid packet, which bid packet is incorporated herein by reference.

- iii. Failure to maintain the insurance required by this Agreement.
- iv. Charging rates or fees in excess of those permitted under this Agreement.
- v. Inefficient, or unsafe practices in providing Services.
- vi. The material breach of any provision of this Agreement.

b. **Convenience:** The County reserves the right to terminate this Agreement upon thirty (30) days prior written notice to Contractor for any reason deemed by the County to serve the public interest. This termination for convenience will not be made when termination is authorized under any other provision of this Agreement. In the event of such termination, the County shall pay the Contractor its costs directly attributable to those Services received by the County prior to termination that meet the requirements of this Agreement. Provided however, that no costs will be paid to the Contractor that are recoverable in the Contractor's normal course of doing business. The County is not liable for the loss of any profits anticipated to be made hereunder, nor for any special, consequential, or similar damage.

16. **Annual Appropriations and Funding:** This Agreement is subject to the annual appropriation of funds by the Chatham County Board of Commissioners. Notwithstanding any provision herein to the contrary, in the event that funds are not appropriated for this Agreement, the County shall be entitled to immediately terminate this Agreement, without penalty or liability, except the payment for all Services satisfactorily provided under this Agreement up to and through the Contractor's receipt of notice of termination.
17. **Indemnity:** Contractor agrees to indemnify and hold harmless, the County, its officers, agents, servants, and employees from an all claims, actions, lawsuits, losses, damages, expenses, judgments or liabilities of any kind whatsoever (including without limitation, cost of defense and attorney fees) suffered by the County and proximately caused by an act or omission of Contractor, its subcontractors, agents, or employees.
18. **State and Federal Requirements:** By signing this Agreement, Contractor certifies that (*if applicable*) Contractor, and any of Contractor's subcontractor are in compliance with State and Federal laws, including any divestment list by the NC State Treasurer, and Federal or State debarment or suspension lists. The County Terms and Conditions are incorporated herein, made an integral part of this Agreement, and may be found at the County's web site: <https://www.chathamcountync.gov/government/departments-programs-a-h/finance/forms>. A hard copy of the Terms and Conditions is available upon request.
19. **Controlling Document:** In the event of any conflict between this Agreement and any document, instrument, or other agreement prepared or provided by Contractor (including, without limitation, Contractor's purchase orders, invoices and warranties), the terms of this Agreement shall control.
20. **Contract Additions:** The County reserves the right to add additional work to be performed under this Agreement, thereby increasing the estimated quantities of work as shown in the Bid Form of the Proposal. Payment for additional work will be based on Unit Prices submitted under Bid Form Section. Before starting work, the Contractor will be required to furnish a 100% Performance Bond and 100% Payment Bond covering each additional to the Agreement and bear all expenses in connection with said bond. The maximum total increase in cost will not exceed 100% of the cost of the original bid amount as based on the estimated quantities in the Bid Form of the Proposal. Any additions to this Agreement shall be subject to all the terms and conditions of the Agreement.
21. **Liquidated Damages:** If the project remains incomplete after the established date of Final Completion, the liquidated damages retained by the County shall be \$500.00 per calendar day.

IN WITNESS WHEREOF, the Parties have executed this Agreement in their official capacities with legal authority to do so.

CHATHAM COUNTY

By: _____
Dan LaMontagne, County Manager

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

Roy Lynch, Finance Director

CONTRACTOR

By: _____
Name: _____
Title: _____

APPENDIX 1

SCOPE OF WORK: Replace various fire hydrants and hydrant valves within the County.

PROJECT NAME: Fire Hydrant Replacement Services

SCOPE OF SERVICES: Replace fire hydrants and hydrant valves. See Appendix 3 for itemized quantities and technical specifications.

TOTAL COMPENSATION: \$726,651.41

COMPLETION DATE: December 1, 2025

APPENDIX 2

INSURANCE REQUIREMENTS

Worker's Compensation
Statutory Limits

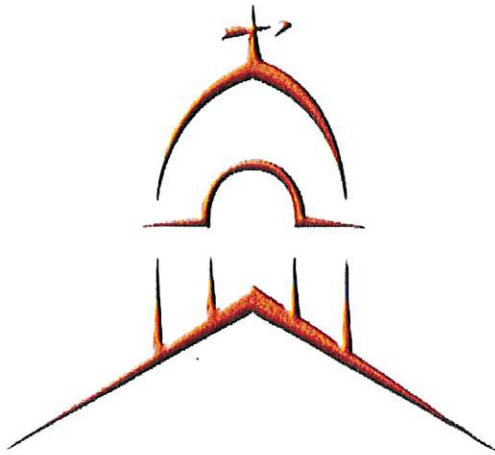
Automobile Liability
\$250,000 bodily injury per person
\$100,000 property damage

General / Professional Liability
\$ 100,000 bodily injury per person
\$ 500,000 bodily injury per occurrence
\$ 100,000 property damage

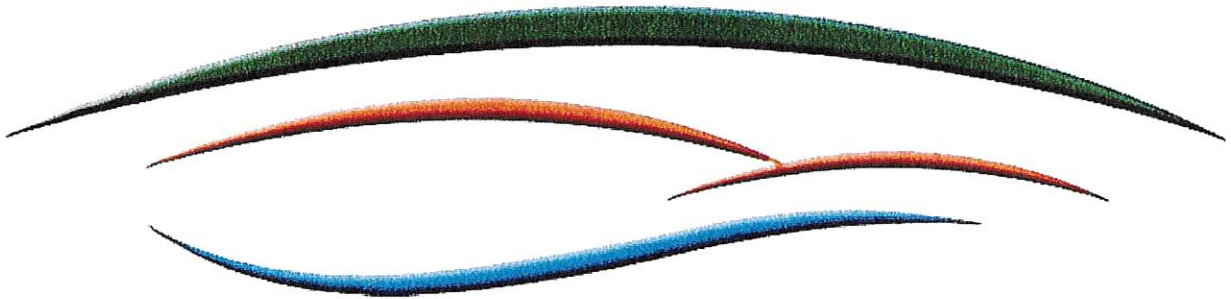
APPENDIX 3

SCOPE OF SERVICES

Item No.	Item Description	Unit
1	Hydrant Assembly Installation - Restraint Joint (Including Barrel and Elbow, Not including branch pipe & gate valve)	EA
2	Remove Existing Hydrant Assembly & Associated Work	EA
3	6" Gate Valve & Box	EA
4	6" DIP Branch Pipe - Restraint Joint	LF
5	Extensions Greater Than 42" Base Height	VF
6	Adjust Existing Hydrant Valve Box	EA
7	Replace Hydrant Valve Box	EA
8	Concrete Valve Box Collars	EA
9	6" DIP Fittings (bends if needed) - Restraint Joint	EA
10	6" Tapping Sleeve w/6" Valve	EA
11	8"x6" Tapping Sleeve w/6" Valve	EA
12	12"x6" Tapping Sleeve w/6" Valve	EA
13	Asphalt Pavement Installation	TN
14	Concrete Curb and Gutter Installation	LF
15	4" Thick Concrete Sidewalk Installation	SY
16	6" Thick Concrete Sidewalk Installation	SY
17	6" Concrete Driveway Installation	SY
18	Remove and Dispose of Existing Concrete	SY
19	Remove and Dispose of Existing Asphalt	SY
20	Remove and Dispose of Existing Curb & Gutter	LF
21	Crushed Gravel #67 Stone for Trench Bedding	TN
22	Aggregate Base Course Stone	TN
23	Imported Select Dirt Fill	CY
24	Traffic Control	LS
25	Disposal of Excess Dirt	CY
26	Imported Clean Topsoil	CY
27	Grass Sod	SY
28	Grass Seed and Mulch	SY
29	16"x6" Tapping Sleeve w/6" Valve (ADDENDUM No.1)	EA
30	Triple Shredded Mulch (ADDENDUM No.1)	CY



CHATHAM COUNTY
NORTH CAROLINA



TECHNICAL SPECIFICATIONS

CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
WATER DISTRIBUTION SYSTEM
TECHNICAL SPECIFICATIONS

1. GENERAL

1.1. REQUIREMENTS

1.1.1. The foreman of the contracting crew must speak fluent English.

1.2. LEAD FREE

1.2.1. In accordance with the amended Safe Drinking Water Act for Reduction of Lead in Drinking Water, all products with a wetted surface in contact with potable water shall have the "NL" designation for "no-lead" and shall be lead free, as defined in the rule. Nothing in these specifications shall be construed to supersede this requirement.

1.3. CORROSION CONTROL

1.3.1. No mild carbon steel fasteners, bolts (i.e., ASTM A307), or harnessing shall be permitted for underground service on water system components. All fasteners, bolts, and harnessing, and rodding shall be 316 stainless steel.

1.4. UNDERGROUND LOCATION

1.4.1. In accordance with the Underground Utility Safety and Damage Prevention Act, all underground facilities shall be provided with tracer wire in accordance with paragraph 3.6 (this includes services and mains).

1.5. SUBMITTALS

1.5.1. Format: Contractor shall submit one (1) paper copy and one (1) electronic copy of any all submittals. All electronic files shall be provided in portable document format (PDF) to the County, unless otherwise approved or requested by the County.

1.5.2. Required Submittals: Contractor shall furnish shop drawings and material specification sheets of all material and items to be installed or delivered. Additionally, submit the results of the bacteriological tests and pressure tests to the County.

1.6. DELIVERY, STORAGE, AND HANDLING

1.6.1. Delivery and Storage

Inspect materials delivered to site for damage. Unload and store with minimum handling. Store materials on site in enclosures or under protective covering. Store plastic piping, jointing materials and rubber gaskets under cover out of direct sunlight. Do not store materials directly on the ground. Keep inside of pipes, fittings, valves and hydrants free of dirt and debris.

1.6.2. Handling

Handle pipe, fittings, valves, hydrants, and other accessories in a manner to ensure delivery to the trench in sound undamaged condition. Take special care to avoid injury to

coatings and linings on pipe and fittings; make repairs if coatings or linings are damaged. Do not place any other material or pipe inside a pipe or fitting after the coating has been applied. Carry, do not drag pipe to the trench. Use of pinch bars and tongs for aligning or turning pipe will be permitted only on the bare ends of the pipe. The interior of pipe and accessories shall be thoroughly cleaned of foreign matter before being lowered into the trench and shall be kept clean during laying operations by plugging or other approved method. Before installation, the pipe shall be inspected for defects. Material found to be defective before or after laying shall be replaced with sound material without additional expense to the Government. Store rubber gaskets that are not to be installed immediately, under cover out of direct sunlight.

2. PRODUCTS

2.1. WATER MAIN MATERIALS

2.1.1. *Ductile Iron Pipe* shall conform to ANSI/AWWA C150/A21.50, ANSI/AWWA C151/A21.51, 350 psi, with asphalt coating and cement mortar lining as indicated below, unless otherwise shown or specified.

2.1.1.1. Joints shall be push-on, mechanical, or restrained conforming to ANSI/AWWA C111/A21.11. Joints for driveway bores shall have factory restrained joints. Field applied restrained joints are not acceptable for driveway bores on this project.

2.1.1.2. Fittings and specials for mechanical joint pipe shall conform to C153/A21.53 (Compact).

2.1.1.3. Linings for pipe and fittings shall be standard thickness cement-mortar in accordance with ANSI/AWWA C104/A21.4.

2.1.1.4. Outside Coating: The outside coating shall be a minimum of 1 mil bituminous paint according to ANSI/AWWA C151/A21.51 Section 51-8.1.

2.1.2. *Polyvinyl chloride (PVC) pipe:*

2.1.2.1. Water Mains 4-inch through 12-inch: Pipe, AWWA C900, shall be plain end or gasket bell end, Pressure Class 235 (DR 18) with cast-iron-pipe-equivalent OD, unless specific design pressure dictate a higher pressure rating.

2.1.2.2. Water Mains 14-inch through 36-inch: AWWA C905.

2.1.2.3. Joints and Jointing Material: Joints for pipe shall be push-on joints, ASTM D3139. Joints between pipe and metal fittings, valves, and other accessories shall be push-on joints ASTM D3139, or compression-type joints/mechanical joints, ASTM D3139 and AWWA C111/A21.11. Provide each joint connection with an elastomeric gasket

suitable for the bell or coupling with which it is to be used. Gaskets for push-on joints for pipe, ASTM F477. Gaskets for push-on joints and compression-type joints/mechanical joints for joint connections between pipe and metal fittings, valves, and other accessories, AWWA C111/A21.11, respectively, for push-on joints and mechanical joints.

2.1.3. *High density polyethylene (HDPE) pipe:*

2.1.3.1. Water Mains 4-inch through 63-inch: Pipe, tubing, and heat-fusion fittings shall conform to AWWA C906, minimum DR 11.

2.1.4. *Pipe Locator Wire:* Pipe locator wire shall be installed on all main lines as per Section 3.6.

2.2. MECHANICAL JOINT DUCTILE IRON FITTINGS AND SPECIALS:

Fittings and specials shall be ANSI/AWWA C153/A21.53 (Compact) with joint meeting ANSI/AWWA C111/A21.1. Ductile iron fittings and specials shall be cement-mortar lined (standard thickness) in accordance with ANSI/AWWA C104/A21.4 with outside asphaltic coating.

2.3. MECHANICAL JOINT RESTRAINT GLAND:

2.3.1. Mechanical joint restraint shall be incorporated in the design of the follower gland and shall include a restraining mechanism which, when actuated, imparts multiple wedging action against the pipe, increasing its resistance as the pressure increases. Flexibility of the joint shall be maintained after burial.

2.3.2. Glands shall be manufactured of ductile iron conforming to ASTM A536-80. Restraining devices shall be of ductile iron heat treated to a minimum hardness of 370 BHN. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI/AWWA A21.11 and ANSI/AWWA C153/A21.53 of latest revision. Twist-off nuts shall be used to insure proper actuating of the restraining devices. Any nuts, bolts, and rodding required shall be 316 stainless steel.

2.3.3. The Mechanical joint restraint device shall have a working pressure of at least 150 psi with a minimum safety factor of 3:1.

2.3.4. Restraint glands shall be "Megalug" as manufactured by EBAA Iron, Inc., or "Camlok" as manufactured by Smith-Blair, Inc. Rodding shall be situation specific (with stainless steel rods and nuts). EBAA Iron, Inc. products are listed below as a base and reference for equivalent products by Smith-Blair, Inc. or equal:

2.3.4.1. Ductile iron pipe applications

"Megalug Series 1100" mechanical joint
"Megalug Series 1700" push joint

2.3.4.2. PVC pipe applications

3-48inch DI mechanical joint fittings: "Megalug Series 2000PV"

C-900 push joints: "Megalug Series 1600"

C-905 push joints: "Megalug Series 2800"

ASTM D2241, IPS, SDR 21 push joints: "Megalug Series 6500"

2.4. PACKING MATERIALS AND JOINTS:

No contaminated material or any material capable of supporting prolific growth of micro-organisms shall be used for sealing joints. The lubricant used in the installation of sealing gaskets shall be suitable for use in potable water and shall conform to AWWA C111/A21-11. It shall be delivered to the job in enclosed containers and shall be kept clean. If proven contaminated soil conditions exist, Nitrile, Neoprene, or other special gaskets may be required by Chatham County.

2.5. VALVES

2.5.1. *Gate Valves:* Gate valves 4-inch and larger shall conform to AWWA C-509, resilient seated type with non-rising stem. Gate valves shall have ductile iron body, bonnet, and wedge with 250 pressure rating. Valves shall be fully ported. Valves 14-inch and larger shall have gear operator. Valves shall have 2-inch operating nut, open left (CCW), and shall have triple O-ring seals. Valve ends shall be mechanical joint, unless otherwise shown or specified. Fusion bonded coating shall comply with ANSI/AWWA C550. Wedge shall be rubber encapsulated with 100% leak tight closure. Valves shall bear NSF-61 approval. Valves shall be manufactured by Mueller, American Darling or Clow Corporation or approved equal. 2-inch gate valves shall meet above specification with threaded or mechanical joint ends as required.

2.5.2. *Valve Boxes:* Valve boxes shall be cast iron screw adjustment type with flared base. The word "WATER" shall be cast in the cover. The boxes shall be of such length as will be adapted, without full extension, to the depth of cover required over the pipe at the valve location. Boxes shall be installed over each gate valve, unless otherwise shown or specified. Valve boxes shall conform to ASTM A48 "Grey Iron Castings" Class 30B or approved equal.

2.5.3. *Valve Box Concrete Collars:* Valve boxes in unpaved areas shall be installed with pre-cast concrete collars.

2.5.4. *Tapping Sleeves And Valves:* With the exception of the valve ends and other

modifications necessary for tapping service, tapping valves shall conform to AWWA C509. Each tapping valve shall be provided with a flanged inlet and designed, faced, and drilled for attachment to the outlet flange of the tapping sleeve; with an outlet end provided with a tapping flange for attachment of a standard drilling machine; and also with a mechanical joint type bell and for connection of the branch main. Tapping sleeves shall be rated for 250 psi (12-inches and smaller) of the flanged outlet type designed for attachment to the flanged inlet end of the tapping valve. Body, straps, studs, bolts, and outlet flange shall be stamped 316 stainless steel. All welds shall be fully passivated for corrosion resistance. Outlet gaskets shall be Buna-N and 360-degree full gasket shall be gridded virgin SBR compounded for water service per ASTM D2000. Tapping sleeves shall be Ford Meter Box "Style FAST" or equal.

2.5.5. *Pressure Reducing Valves:* Pressure reducing valves shall maintain a constant downstream pressure regardless of fluctuations in demand. Valves shall be suitable for 200 psi operating pressure on the inlet side, with outlet pressure set for 75psi. The valves shall be of the hydraulically-operated, pilot controlled, globe or angle type, and may be actuated either by diaphragm or piston. The pilot control shall be the diaphragm-operated, adjustable, spring-loaded type, designed to permit flow when controlling pressure exceeds the spring setting. Ends shall be flanged. Valve bodies shall be bronze, cast iron or cast steel with bronze trim. Valve stem shall be stainless steel. Valve discs and diaphragms shall be synthetic rubber. Valve seats shall be bronze. Pilot controls shall be bronze with stainless steel working parts. The valve shall be as manufactured by APCO, CLA-VAL, and Mueller or approved equal.

2.5.6. *Vacuum and Air Relief Valves:* Combination air release valves shall be installed at high points in the water main as indicated by the plans in order to release air in the main as the main is filling and allow air to enter the system when draining or subject to negative pressure. Combination air release valves shall be manufactured to meet or exceed the requirements of **ANSI/AWWA C512**, latest revision.

The valves shall be 2" NPT screwed or ANSI Class 125 flanged inlet connection and shall be cast iron body, top and inlet flange (where required), stainless steel float and trim with buna-n seat. Valves, which operate the pressure plunger via a single lever and fulcrum, will not be acceptable. A protectop shall be supplied to prevent debris from entering the outlet of the valve. The valves shall be Crispin (Model UL20), A.R.I. (Model D-050), Apco (No. 200A), Cla-Val (33A), or an approved equal.

2.6. FIRE HYDRANTS:

Hydrant valves shall open left. Hydrants shall be iron body, fully bronze mounted, dry barrel type with breakaway flange and stem coupling conforming to AWWA C502, with valve opening not less than 4.5-inches in diameter. Hydrants shall have a 6-inch mechanical joint connection on the inlet end. The hydrants shall have two (2) 2-1/2" hose nozzles with caps, and one (1) 4-1/2" pumper nozzle and cap. The nozzles shall have American National Standard fire hose coupling threads. Working parts shall be bronze. Hydrants shall be

manufactured by American Darling (MK 73), Mueller (Super Centurion 250), CLOW (Medallion), or Kennedy (Guardian K-81D).

2.7. WATER SERVICE LINE MATERIALS:

Pipe shall be polyethylene (PE) tubing, SDR 9, 200 psi, conforming to ASTM D2737/AWWA C901. No joint shall be installed between the main service tap and the meter stop. In proven contaminated soil conditions, copper (Type K) services may be required, ASTM B88.

2.7.1. *Service Saddles:* Saddles on ductile iron pipe shall be wide band brass body with stainless steel strap, Ford Style 202BSD for Iron Pipe, or approved equal. Saddles on PVC pipe shall be brass with dual stainless steel straps designed for use on PVC (and comply with AWWA and Uni-Bell stipulations for PVC) pipe providing full circle support without cracking or distorting the pipe, Ford Style 202BSD for PVC, or approved equal. Size of tap shall match that of the service line.

2.7.2. *Corporation Stop:* Corporation stops shall comply with AWWA C800. Connection stop shall have compression nut and gasket service line connections. Size of corporation stop shall match that of service line. Corporation stop shall be manufactured by Ford Meter Box Company (Model F1001 Ballcorp) or approved equal. Stainless steel insert stiffeners shall be used on all compression fittings.

2.7.3. *Curb Stop:* Curb stop shall be Ford Meter Box Company (Model B66-XXX-NL), or approved equal.

2.7.4. *Pipe Locator Wire:* Pipe locator wire shall be installed on all service lines as per Section 3.6.

2.7.5. *Water Meter Boxes:* Boxes shall be cast iron or plastic with cover complete with lifting lug and a metal read lid. Cast iron boxes conforming to ASTM A48, Class 30B, meeting H20 Loading Standards, shall be used in traffic areas. Single meter box shall be Model D1200-DICIR as manufactured by DFW/HPI or approved equal. Dual service line boxes shall be jumbo heavy duty boxes with solid lid and shall be Model D1500-DICIR as manufactured by DFW/HPI or approved equal.

3. EXECUTION

3.1. GENERAL:

Install ductile iron pipe in strict conformance with AWWA C600. Install PVC pipe in strict conformance of AWWA C605. Minimum depth of bury above the top of pipe shall be 36 inches unless ductile iron pipe is used. Install other plastic pipe in conformance with ASTM D2774 and recommended practices of the manufacturer.

3.2. PIPING BENEATH RAILROAD RIGHT-OF-WAY:

Piping passing under the right-of-way of a commercial railroad shall conform to the specifications for pipelines conveying nonflammable substances in Chapter 1, Part 5 of the AREMA Eng Man, except for casing pipe, provide ductile-iron pipe in lieu of cast-iron pipe. Ductile-iron pipe shall conform to and have strength computed in accordance with ASTM A 746.

3.3. CUTTING OF PIPE:

Cut pipe in a neat and workmanlike manner without damage to the pipe or its lining.

3.4. PIPE SEPARATIONS:

The following minimum pipe separations will be maintained:

3.4.1. *Parallel to Sanitary Sewer Piping*

3.4.1.1. Normal Conditions: Water Piping shall be laid at least **10 feet** horizontally from a sewer, sewer manhole, or force main whenever possible. Distance shall be measured edge to edge.

3.4.1.2. Unusual Conditions: When local conditions prevent a horizontal separation of **10 feet**, water piping may be laid closer to a sewer, sewer manhole, or force main provided: Bottom of the water piping shall be at least 18 inches above the top of the sewer piping. Where this vertical separation cannot be obtained, water and sewer piping shall be constructed of AWWA-approved ferrous material, pressure tested in place without leakage prior to backfilling. Sewer manhole shall be watertight construction and tested in place.

3.4.2. *Crossing Sanitary Sewer Piping*

3.4.2.1. Normal Conditions: Water Piping shall cross above sewer piping and shall be laid to provide a separation of at least 18-inches between the bottom of the water piping and the top of the sewer piping.

3.4.2.2. Unusual Conditions: When local conditions prevent normal conditions described above, installation shall adhere to all of the following conditions:

3.4.2.2.1. Water Over Sewer (less than 18-inch separation): Both water and sewer piping shall be constructed of AWWA approved ductile iron pipe, with joints that are equivalent to water main standards, with the pipes center such that the joints are equidistant apart. Only full lengths of pipe (18-foot minimum) shall be used in this scenario.

3.4.2.2.2. Water Under Sewer (regardless of separation): Both water and sewer piping shall be constructed of AWWA approved ductile iron pipe, with joints that are equivalent to water main standards, with the pipes center such that the joints are equidistant apart. Only full lengths of pipe (18-foot minimum) shall be used in this scenario. Additionally, adequate structural support for sewer piping to prevent excessive deflection of joints and settling over water piping.

3.4.3. *Sanitary Sewer Manholes:*

No water piping shall pass through or come in contact with any part of a sewer manhole.

3.4.4. *Drain-Fields and Spray-Fields:*

No water piping shall be laid less than 25 feet horizontally from any portion of a wastewater or septic drainfield or spray-field.

3.5. JOINT DEFLECTION:

Maximum joint deflection shall meet requirements of AWWA C600 or AWWA Manual of Practice M23.

3.6. PIPE LOCATOR WIRE:

A 10 gauge insulated copper wire shall be run continuously along the pipe and shall be securely taped to the water line and all service laterals. All splices in the wire shall be made by use of an underground rated, watertight, and approved splice connector. No twisting of wire ends is permitted. The locator wire shall not be wrapped around the pipe, flanges, bells, valves, or other appurtenances. The locator wire shall be accessible above ground at one thousand feet (1,000') intervals and shall be protected by a cast iron box with cover marked "water" with a concrete collar. At valve boxes, the wire shall be brought up on the outside of the box and folded under lid.

3.7. JOINTING OF PIPE

3.7.1. *Keeping Pipe Clean And Dry:* Precautions shall be taken to protect pipe interiors, fittings and valves against contamination. Pipe delivered for construction shall be strung so as to minimize entrance of foreign material.

3.7.2. When pipe laying is not in progress, for example, at the close of the day's work, all openings in the pipeline shall be closed by water-tight plugs. Joints of all pipe in the trench shall be completed before work is stopped. If water accumulates in the trench, the plugs shall remain in place until the trench is dry. It is recommended that only the amount of pipe to be installed that day be strung out.

3.7.3. Delay in placement of delivered pipe invites contamination. The more closely the rate of delivery is correlated to the rate of pipe laying, the less this delay. If the dirt will not be removed by the flushing operation in the opinion of the Engineer, the interior of the pipe shall be cleaned and swabbed as necessary, with a five (5%) percent hypochlorite disinfecting solution.

3.7.4. *Ductile-Iron Pipe* shall be installed in accordance with AWWA C600, modified as necessary by the recommendations of the manufacturer.

3.7.5. *PVC Pipe* shall be installed in accordance with AWWA Manual of Practice M23,

modified as necessary by the recommendations of the manufacturer.

3.7.6. *Connections*

3.7.6.1. Connections between different types of pipe and accessories shall be made with transition fittings approved by the Owner's Representative.

3.7.6.2. When joining C-900/905 PVC pipe to ductile iron pipe the bevel of the spigot should be made to look like the bevel of the product to which it is being joined. Make a ductile iron pipe bevel longer than that which is normally supplied on a ductile iron spigot, and make a PVC pipe bevel shorter than that which is normally supplied on a PVC pipe spigot. Use pipe beveled at the factory as a guide.

3.7.6.3. The depth of insertion of the assembly should be adjusted to reflect the assembly mark found at the spigot end of the pipe bell used. Adjust the assembly mark to be shorter on a PVC spigot; and adjust the assembly mark to be longer on a ductile iron spigot.

3.7.7. *Service Laterals:* Service laterals shall consist of a tapping saddle, corporation stop and a length of PE pipe with no joint installed between the main service tap and the service stop. Service laterals shall be installed perpendicular to the water main. Contractor shall install all material per the detail allowing for meter installation at a later date by Chatham County personnel. Tracing wire shall be installed as per Section 3.6.

3.8. SETTING OF VALVES, VALVE BOXES, AND FIRE HYDRANTS

3.8.1. Install where shown or directed and set plumb on a brick foundation. Valve boxes shall be centered on the valves. Boxes shall be installed over each outside gate valve. Where feasible, valves shall be located outside the area of roads and streets. Earth fill shall be carefully tamped around each valve box to a distance of 4 feet on all sides of the box, or to the undisturbed trench face if less than 4 feet.

3.8.2. After delivery, valves shall be drained to prevent freezing and shall have the interiors cleaned of all foreign matter before installation. Valves shall be fully opened and fully closed to insure that all parts are in working condition.

3.9. RESTRAINING AND BLOCKING

The plugs, caps, tees and bends deflecting 11-1/4 degrees or more either vertically or horizontally on water lines 6 inches in diameter or larger shall be provided with thrust blocking or "Megalug" or Camlok retainer gland at each joint, installed per manufacturer's requirements. Blocking shall be placed between solid ground and the fitting to be anchored. Unless otherwise indicated or directed, the base and thrust bearing sides of the thrust blocks shall be poured directly against undisturbed earth. The sides of thrust blocks not subject to thrust may be poured

against forms. The area of bearing shall be as shown on the plans or as directed. Blocking shall be placed so that the fitting joints will be accessible for repair. Rods and clamps shall be stainless steel.

3.10. FIRE HYDRANTS: Locate and install as shown on the drawings. Each hydrant shall be connected to the main with a 6-inch branch line. Hydrants shall be set plumb with the pumper nozzle facing the roadway and with the center of the lowest outlet not less than 18 inches above the finished surrounding grade and the operating nut not more than 48 inches above the finished surrounding grade. The hydrant shall be set in a bed of crushed rock, which shall surround the barrel at least 12 inches in all directions. Hydrants shall be restrained with stainless steel tie rods extending from the main line tee to the hydrant, or by combination of tie rods and blocking or by "Megalug" retainer glands at each joint per manufacturer's requirements. Hydrant valves shall be located at the main as close to the tee or tap as possible.

3.11. HYDROSTATIC TESTING

Where any section of a water line is provided with concrete thrust blocking, the hydrostatic test shall not be made until at least 5 days after installation of the concrete thrust blocking unless otherwise approved. The method proposed for disposal of wastewater from hydrostatic tests and disinfection shall be submitted to the Owner's representative prior to performing hydrostatic tests. Use clean potable water for all testing of lines. Hydrostatic testing shall be conducted on all water mains and service lines in accordance with the applicable specified standard, except for the special testing requirements given in the paragraph entitled "Special Testing Requirements."

3.11.1. *Ductile Iron Mains*: Test ductile-iron water mains and water service lines in accordance with the requirements of AWWA C600 for hydrostatic testing. The amount of leakage on ductile-iron pipelines with mechanical-joints or push-on joints shall not exceed the amounts given in AWWA C600; no leakage will be allowed at joints made by any other method.

3.11.2. *PVC Mains*: Test PVC plastic water mains and water service lines made with PVC plastic water main pipe in accordance with the requirements of AWWA C605 for pressure and leakage tests. The amount of leakage on pipelines made of PVC plastic water main pipe shall not exceed the amounts given in AWWA C605, except that at joints made with sleeve-type mechanical couplings, no leakage will be allowed.

3.11.3. *Water Service Lines*: Test water service lines in accordance with applicable requirements of AWWA C600 for hydrostatic testing. No leakage will be allowed at copper pipe joints copper tubing joints (soldered, compression type, brazed) plastic pipe joints flanged joints and screwed joints.

3.11.4. *Special Testing Requirements*: For pressure test, use a hydrostatic pressure 50 psi greater than the maximum working pressure of the system, except that for those portions of the

system having pipe size larger than 2 inches in diameter, hydrostatic test pressure shall be not less than 200 psi. Hold this pressure for not less than 2 hours. Prior to the pressure test, fill that portion of the pipeline being tested with water for a soaking period of not less than 24 hours. For leakage test, use a hydrostatic pressure not less than the maximum working pressure of the system. Leakage test may be performed at the same time and at the same test pressure as the pressure test.

3.12. DISINFECTION

3.12.1. Each unit of constructed water main shall be disinfected with chlorine upon successful completion of the hydrostatic test. The disinfection procedure shall be performed in strict conformance with the Chatham County Procedures for Disinfecting Water Mains, as outlined below.

3.12.2. The Contractor shall be responsible for furnishing and installing all required chlorine injection and monitoring ports at no additional cost to the Chatham County.

3.12.3. The mains will in no case be accepted by the Chatham County for public use until Chatham County approves the mains as having been properly disinfected.

3.12.4. *Disinfecting Water Mains*

3.12.4.1. Prior to disinfection, obtain Engineer approval of the proposed method for disposal of waste water from disinfection procedures.

3.12.4.2. Disinfect new water piping and existing water piping affected by Contractor's operations in accordance with AWWA C651, for the Continuous Feed Method, along with Section .1003 of The Rules Governing Public Water Systems.

3.12.4.3. Fill piping systems with solution containing minimum of 50 parts per million of available chlorine and allow solution to stand for minimum of 24 hours. Chlorine concentration after 24 hours must be at least 10 parts per million.

3.12.4.4. Flush solution from the systems with domestic water until maximum residual chlorine content is within the range of 0.2 and 0.5 parts per million, or the residual chlorine content of domestic water supply. Obtain at least two consecutive satisfactory bacteriological samples from new water piping, analyze by a state-approved certified laboratory, and submit the results prior to the new water piping being placed into service.

END OF SECTION