

**Project Material Submittal Checklist for WATER**

Note: In compliance with the reduction of lead in Drinking Water Act, any product designed for dispensing potable water shall meet both the NSF 61 and NSF 372 test standards via third-party testing and certification.

Item	Acceptable Manufacturers/Product	Minimum Specifications for Alternative Manufacturers
PVC Pipe	Diamond Plastics/ C900 JM Eagle/Blue Brute Northern Pipe Products/C900 Vinyltech/C900 North American Pipe/C900	AWWA C-900, DR-14, Sizes 4"-12"
Ductile Iron Pipe	American Cast Iron/Fast-Tite, Flex-Ring Joint McWane Ductile/ Tyton US Pipe/Tyton Joint Griffin Pipe/Tyton Joint	AWWA C-151, Class 52, Sizes 16"-24"
Ductile Iron Fittings	Tyler Union Star Pipe Products SIP Industries	Compact: AWWA C153 (12" and smaller) Full: AWWA C110 Flange Joint (16" and larger) Mechanical: AWWA C110
Mechanical Joint Restraints	Star Pipe Products/StarGrip 3000,3100 Star Pipe/StarGrip 4000,4100 EBAA Iron/Megalug 1100 EBAA Iron/Megalug 2000PV Ford Meter Box/Uni-Flange 1400 Ford Meter Box/Uni-Flange 1500	Compact: AWWA C153 Full: AWWA C115 Flange Joint Mechanical: AWWA C110 ASTM A536 Grade 65-45-12 Ductile Iron ASTM F1674 Std. Test Mtd. For Joint Rest. Products (PVC)
Mechanical Joint Restraints within casing	ROMAC Industries Series 600 (4"-12") Sigma PV-Lok (4"-12")	
Gate Valve Box	Tyler Union/6850 Bass & Hays/2436S East Jordan Iron Works/8550	ASTM A48 Class 30B Minimum 3 piece (top, extension, base) screw-type (for adjustment)
Casing Pipe Spacers	Raci / HDPE APS/SS18, SS12 CCI Pipeline/CSS8, CSS12 PSI/S8, S12	Stainless Steel: For bores longer than 150 L.F. 12" wide band, 2" wide runner T-304 Tow-Piece Band (14 gauge min. thickness) T-304 Riser (10 gauge min. thickness) PVC Liner T-304 Fastener Hardware For bores equal or less than 150 L.F.: HDPE ISO 9002 Certified
Water Service Tapping Saddle	Mueller/BR2B Ford Meter Box/202B	Brass, Double Strap with CC Threads ("Compression", "grip joint" or "quick joint" fittings are not allowed)
Gate Valves 2" - 12"	Mueller/A-2360 MJxMJ, MJxFL US Pipe/A-USPO MJxMJ, MJxFL M&H Valve/4067 MJxMJ, MJxFL Clow/2639, 2640 MJxMJ, MJxFL	AWWA C509 Resilient-Seated Gate Valves Non-Rising Stem Dual O-Ring Stem Seal Interior/Exterior Poxo Coating conforms to AWWA C550 Operating Nut Opens Left 2" Square Operating Nut
Air and Vacuum Release Valves		AWWA C512 Air-Release, Air/Vacuum, & Combination 3" & Smaller: Standard Iron Thread Inlet Connection 4" & Larger: Flanged Inlet Connection, Class 250 Internal Metal Parts: Stainless Steel, Bronze, or Brass 316 Stainless Steel Flange Connection Hardware
Pipe Joints		PVC Pipe - ASTM F477 Elastomeric Seals PVC Pipe - ASTM D3139 Joints for Plastic Pressure Pipe Ductile Iron Pipe - AWWA C111 Rubber Gasketed Joints
Steel Encasement		ASTM A53 Grade B Carbon Steel 16" encasement and larger: 1/2" thickness Smaller than 16" encasement: 3/8" thickness

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Gate Valves 14"-24"	Mueller/A-2361 MJxMJ US Pipe/A-USP1 MJxMJ M&H Valve/Large RW MJxMJ Clow/2638 MJxMJ American Flow Control/2500 MJxMJ	AWWA C515 Resilient-Seated Gate Valves Non-Rising Stem Dual O-Ring Stem Seal Interior/Exterior Poxo Coating conforms to AWWA C550 Operating Nut Opens Left 2" Square Operating Nut Stainless Steel Joint Fasteners (Type 304 or 316) Gear Operator for Gate Valves 20" or larger
Fire Hydrant	Mueller/Super Centurion A-423 US Pipe/Metropolitan M-94 US Pipe/Sentinel 250	AWWA C502 Dry-Barrel Fire Hydrants 1 1/4" Operating Nut 4 1/2" Pumper Nozzle Two 2 1/2" Hose Nozzles Breakaway Saftely Flange 5 1/4" Main Valve Opening Main Valve - Compression Seal Paint Color: Public - Silver (Blue if off transmissision line) Private - Red
Corporation Valves	Mueller/P15008N, P25008N (for 1" Line) Ford Meter Box/F1000NL, FB1000NL(for 1" Line) Mueller/E25009N (for 2" Line) Ford Meter Box/FBNL1000NL (for 2" Line)	1": Brass, CC Inlet Threads & Pack Joint Fitting Ball Type, NSF 372 compliant 2": Brass, CC Inlet Threads & Pack Joint Fitting Ball type, NSF 372 compliant ("Compression", "grip joint" or "quick joint" fittings are not allowed)
Angle Meter Valves - 1" & 2" Service Lines	Mueller/P24258N (for 1" Line) Ford Meter Box/BA43NL (for 1" Line) Mueller/P24276N (for 2" Line) Ford Meter Box/BFA43NL (for 2" Line)	Brass, Angle Meter with Pack Jointing & Lock Wing Ball type, NSF 372 compliant ("Compression", "grip joint" or "quick joint" fittings are not allowed)
Water Meter Boxes	3/4": Bass & Hays/548A 1": Bass & Hays/548A 1 1/2" & 2": Bass & Hays/55A	
Service Line Tubing		1": Type K Copper Tubing, NSF 372 Compliant 2": AWWA C901 HDPE Tubing
Exterior Pipe Coating 16" or larger/ at Fittings		Ductile Iron Pipe: AWWA C105 Polyethylene Encasement Linear: 8mil; Cross-Linked: 4mil At Fittings: 8-mil linear (Stipulates virgin PE material for both & labeled.)
Interior Pipe Lining 16" or larger		Ductile Iron Pipe: AWWA C104 Mortar Lining
Flanged Pipe 3" or larger Water Meter or Fire-Rated Master Meter		Ductile Iron Pipe - AWWA C115 Flanged Ductile Iron Pipe Heavy Hex Bolts & Nuts - Zinc, Cadmium or Flouropolymer Coated

**Project Material Submittal Checklist for SANITARY SEWER**

The following items are acceptable materials to the City for the purpose of public wastewater infrastructure construction. It is not intended to be an exhaustive list but to show the specific manufactured items produced by the most common manufacturers the City sees. Items not on this list may be submitted and accepted, provided they meet the same minimum specifications as the items listed below.

Item	Acceptable Manufacturers/Product	Minimum Specifications
Gravity Pipe (4"-15")	Diamond Plastics/SDR-26, SDR-35 JM Eagle/Ring-Tite SDR-26, SDR-35 Northern Pipe Products/SDR-26, SDR-35 North American Eagle/SDR-26, SDR-35	PVC ASTM D3034 SDR-35 PVC ASTM D3034 SDR-26
Gravity Pipe (>15")	Diamond Plastics/F679 JM Eagle/Ring-Tite F679 North American Eagle/F679	PVC ASTM F679 PS46 PVC ASTM F679 PS115
PVC Pressure Pipe (4"-12")	Diamond Plastics/IPS SDR-26 JM Eagle/IPS Ring-Tite SDR-26 Vinyltech Green Pipe/C900 North American Eagle/IPS SDR-26	ASTM D2241 or C900
PVC Pressure Pipe (>12")	Diamond Plastics/C905 JM Eagle/Big Blue North American Eagle/C905	AWWA C905, DR-25
Ductile Iron Pipe	American Cast Iron/Fast-Tite McWane Ductile/Tyton, Fastite US Pipe/Tyton Joint Griffin Pipe/ H2SewerSafe	AWWA C151
Ductile Iron Fittings (Compact)	Tyler Union/AWWA C153 Star Pipe Products/AWWA C153 SIP Industries/AWWA C153	AWWA C153 Compact Fittings Mechanical Joint
Ductile Iron Fittings (Full)	Tyler Union/AWWA C110 Star Pipe Products/AWWA C110 SIP Industries/AWWA C110	AWWA C110 Mechanical Joint Flange Joint Fittings
PVC Fittings (Gravity)	Plastic Trends/SDR-35, SDR-26 Multi Fittings/SDR-35, SDR-26 GPK/SDR-35, SDR-26	ASTM D3034 (4"-15")  ASTM F679 (>15")
Pressure Pipe Joints		PVC Pipe: ASTM F477 Elastomeric Seals PVC Pipe: ASTM D3139 Joints for Plastic Pressure Pipe Ductile Iron Pipe: AWWA C111 Rubber-Gasketed Joints
Gravity Pipe Joints	Plastic Trends/SDR-35, SDR-26 Multi Fittings/SDR-35, SDR-26 GPK/SDR-35, SDR-26	PVC: ASTM F477 Elastomeric Seals PVC: ASTM D3212 Joints for Plastic Sewer Pipe
Casing Pipe Spacers	RACI/HDPE APS/Stainless Steel, SSI18, SSI12 CCI Pipeline/Stainless Steel, CSS8, CSS12 PSI/Stainless Steel, S8, S12	
Manhole Frame & Cover	East Jordan Iron Works/V1420, 1480A East Jordan Iron Works/V1420, 1480 Lid 2	Pick Slots, outside floodplain, 30" clear opening Pick Slots, inside floodplain, 30" clear opening (The 1480 Lid 2 manhole cover is the only one allowed for watertight conditions) Cast Iron Cover ASTM A48 Class 35B minimum 360 lb minimum weight requirement - cover & frame 30" nominal cover diameter Cover marked "Sanitary Sewer" Pick Slots (not holes)

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Item	Acceptable Manufacturers/Product	Minimum Specifications
Flexible Pipe Adaptor (pipe to pipe) Assemblies	Fernco/ASTM C1173 Mission/ASTM C1173 Indiana Seal Shear Guard/ASTM C1173	ASTM C1173 Flexible Transition Couplings ASTM D5926 PVC Gaskets for Sanitary Sewer Systems Coupling Support
Manhole Concrete Mix Design		4,200 PSI @ 28 days 25% maximum fly ash in lieu of cement allowed ASTM C94
Flexible Tap Saddles	Fernco/TSW-4, TSW-6 NDS/ 4Y/C, 6Y/C	PVC Series 300 stainless steel clamps
Exterior Pipe & Fitting Coating		Ductile Iron Pipe: AWWA C105 Polyethylene Encasement
Interior Pipe & Fitting Lining	Protecto 401 Ceramic Epoxy	Ductile Iron Pipe: Protecto 401 Cermic Epoxy or approved equivalent
Resilient Connectors (manhole to pipe)		ASTM C923
Mainline Cleanout Castings	Bass & Hays/BH339	Cast Iron ASTM A48Class 35B minimum
Air & Vacuum Release Valves (force mains)		AWWA C512 Air Release, Air/Vacuum, and Combination Air Valves 3" & Smaller: Standard Iron Thread Inlet Connection 4" & Larger: Flanged Inlet Connection, Class 250 Internal Metal Parts-Stainless Steel, Bronze or Brass 316 Stainless Steel Flange Connection Hardware Designed for Sewer Application Backwash Assembly
Steel Encasement		
Prefab Sewer Manholes Lining	Fuquay, Inc. SpectraShield Liner Systems	

**Project Material Submittal Checklist for PAVING**

The following items are acceptable materials to the City for the purpose of public paving infrastructure construction. It is not intended to be an exhaustive list but to show the specific manufactured items produced by the most common manufacturers the City sees. Items not on this list may be submitted and accepted, provided they meet the same minimum specifications as the items listed below.

Item	Acceptable Manufacturers/Product	Minimum Specifications
Paving Concrete Mix Design		4,000 p.s.i. machine poured @ 28 days 4,500 p.s.i. hand poured @ 28 days 25% maximum fly ash in lieu of cement allowed ACI-318, ACI-301, ASTM C94 Sidewalk Concrete: 3,000 p.s.i @ 28 days
Sidewalk Reinforcement	Fibermesh 150 PSI Fiberstrand F	1.5" lengths 1.5 lb/CY application rate ASTM C1116/C1116M
Water Reducing Admixture		ASTM C 494C C494M
Air Entraining Admixture		ASTM C260, AASHTO M154, CRD-C 13
Aggregate Analysis		ASTM #467 ASTM #57 TXDot 2 ASTM C-33- TXDOT 421 ASTM C-94 & ACI 211
Curing Compound		ASTM C309 white pigmented curing compound
Barrier Free Ramp Pavers	Pavestone	Truncated dome terra cotta color ASTM C936, C-33

**Project Material Submittal Checklist for DRAINAGE**

The following items are acceptable materials to the City for the purpose of public drainage infrastructure construction. It is not intended to be an exhaustive list but to show the specific manufactured items produced by the most common manufacturers the City sees. Items not on this list may be submitted and accepted, provided they meet the same minimum specifications as the items listed below.

Item	Acceptable Manufacturers/Product	Minimum Specifications
Reinforced Concrete Pipe	Johnson Pipe	Reinforced Concrete ASTM C76 Class III if at least 2 ft cover Class IV if less than 2 ft cover
Aluminized Steel Pipe (18" - 48")	Contech	Aluminized Steel Type II Spiral Rib, Corrugated Metal ASTM A760 AASHTO M36. Embedment shall include crushed stone at least 12" above crown
Couplings		Aluminized Steel: Aluminized Steel Locking Coupling Bands
Pipe Joints		RCP: ASTM C443 Rubber Gasketed Joints or ASTM C990 Preformed Flexible Joint Sealants Aluminized Steel: Rubber Gasketed Bell & Spigot
Cast in Place Concrete Manholes Junction Boxes, & Inlets		3,000 psi Class A Concrete - NCTCOG Item 702.3.4.2 Reinforcing Steel - Refer to City of Denton Details
Manhole/Junction Box Frame & Cover		Cast Iron Cover ASTM A48 Class 30 B minimum 400 lb weight requirement - cover & frame 24" nominal cover diameter Cover marked "Storm Sewer" Pick Slots (not holes)
Inlet Frame & Cover	Bass & Hays/ #226L	Cast Iron Cover ASTM A48 Class 30 B minimum Cover Marked "Storm Sewer" Lockable