

SECTION 02610
PIPE AND FITTINGS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. This section covers the manufacture, transportation, and storage of pipe, pipe joints, and fittings for sanitary sewer pipelines and service lines.
- B. Use only pipe, fittings, and adapters approved by the Engineering Services Division of the Little Rock Wastewater.
- C. Use bends, tees, plugs, wyes, or other approved fittings constructed from the same material as the pipe in which they are installed. Use only standard, approved fittings.

1.02 RELATED WORK

- A. Section 02605 - Manholes
- B. Section 02730 - Sanitary Sewer Pipelines
- C. Section 02732 - Sanitary Sewer Service Lines
- D. Section 02734 - Inspection and Testing of Sanitary Sewer Pipelines, Manholes, and Service Lines

1.03 SUBMITTALS

- A. Use of materials other than those specifically listed below is prohibited.
- B. Submit the manufacturer's certificate that the pipe meets with these Specification requirements including material testing requirements to the Engineer of Record.

1.04 REFERENCES

ASTM A74	ASTM C 564	ASTM A 746	ASTM F794
ASTM D3034	ASTM D 3915	ASTM D 3212	ASTM F 1803
ASTM D 1784	ASTM F 949	ASTM D 2000	ASTM A 536
ASTM C 443	ANSI A 21.51	AWWA C104	AWWA C150
AWWA C111	AWWA C606	AWWA C105	

PART 2 - PRODUCTS

2.01 PROHIBITED PIPE MATERIALS

- A. The following materials are specifically forbidden for use either in city sewers or service lines:
1. Asphalt impregnated fiber tube pipe.
 2. Concrete pipe.
 3. Open profile PVC pipe as defined in ASTM F794 less than 24" in diameter.
 4. "No Hub" cast iron soil pipe or other non bell and spigot pipe.
 5. Corrugated Metal Pipe

2.02 SERVICE LINES

- A. Service lines are four (4) inches in diameter or larger.
- B. Furnish one of the following:
1. Cast iron soil pipe: per ASTM A 74 - Bell and Spigot pipe with rubber gaskets, ASTM C 564. Joints: push on equipped with a rubber gasket.
 2. Ductile iron pipe: per ANSI A 21.51 with joints same as water main pipe.
 3. Ductile Iron pipe: per ASTM A 746 with push on, rubber gasket joints.
 4. Polyvinyl chloride (PVC) pipe for service lines shall be SDR 21, 200 psi and shall be bedded as required for larger PVC pipe.
 5. Polyethylene pipe SDR 17 or thicker.

2.03 DUCTILE IRON PIPE FOR GRAVITY MAINS

- A. Minimum wall thickness: Thickness Class 50 or 51 according to ANSI/AWWA-C150/A 21.50: Thickness Design of Ductile Iron Pipe
- B. Gravity Sanitary Sewer ASTM A 746: Ductile Iron Pipe Gravity Sewer Pipe
- C. Cement lining (Double Thickness): ANSA/AWWA C 104/A 21.4: Cement Mortar Lining for Gray and Ductile Iron Pipe.
- D. Joint connections, pipe and fittings:
 - 1. Push on and mechanical rubber gasket joints: ANSI/AWWA C111/A21.11.
 - 2. Flanged: ANSI/AWWA C115/A21.15, ANSI B16.1.
 - 3. Grooved and shouldered ANSI/AWWA C606.
- E. Corrosion Control
 - 1. Polyethylene wrap in tube or sheet form conforming to the requirements of ANSI/AWWA C105/A21.5.

2.04 POLYVINYL CHLORIDE (PVC) GRAVITY SEWER PIPE (Solid Wall)

- A. Pipe eight (8) inches in diameter and larger: conform to ASTM D 3034 and D 3915. Minimum standard dimension ratio (SDR) shall be thirty five (SDR35).
- B. Pipe six (6) inches in diameter: conform to ASTM D 3034. Minimum standard dimension ratio (SDR) shall be twenty six (SDR26).
- C. Joint connections: push on, elastomeric gasket type conforming to ASTM D 3212.

2.05 POLYVINYL CHLORIDE (PVC) GRAVITY SEWER PIPE REPAIR COUPLINGS

- A. Use PVC repair couplings instead of flexible rubber coupling when connecting two PVC pipes.
- B. Install repair couplings in accordance with manufacturer's recommendations.

2.06 PVC LARGE DIAMETER (24" & LARGER) CLOSED PROFILE GRAVITY SEWER PIPE

- A. PVC closed profile pipe and fittings shall be manufactured in accordance with requirements of ASTM F794, latest edition and ASTM F1803, latest edition.
- B. PVC closed profile wall pipe shall be made from a compound meeting the requirements of cell classification 123464A as defined by ASTM D1784.
- C. Maximum long term deflection is five percent. Lag factor to be 1.5 and soil modulus of 500 psi. Factor of safety to be 2.5.
- D. Minimum stiffness factor to be 46 psi.
- E. Manufactured by Lamson Vylon, or equal. All large diameter closed profile wall gravity sewer pipe must be approved by the Little Rock Wastewater prior to being installed.

2.07 PVC LARGE DIAMETER (24" & LARGER) DUAL WALL CORRUGATED PROFILE GRAVITY SEWER PIPE

- A. PVC dual wall corrugated profile pipe and fittings shall be manufactured in accordance with requirements of ASTM F794, latest edition and ASTM F949, latest edition
- B. PVC dual wall corrugated profile wall pipe shall be made from a compound meeting the requirements of cell classification 12454 as defined by ASTM D1784.
- C. Maximum long term deflection is five percent. Lag factor to be 1.5 and soil modulus of 500 psi. Factor of safety to be 2.5.
- D. Minimum stiffness factor to be 46 psi.
- E. Manufactured by Contech, or equal. All large diameter open profile wall gravity sewer pipe must be approved by the Little Rock Wastewater prior to being installed.

2.08 CENTRIFUGALLY CAST FIBERGLASS GRAVITY SEWER PIPE

- A. Pipe shall conform to all requirements of ASTM 3262 for fiberglass pipe.
- B. Pipe stiffness shall meet or exceed manufacturer's recommendations. Minimum pipe stiffness shall be 46 psi.
- C. Manufactured by Hobas USA, Inc. or equal.

2.09 REINFORCED COUPLINGS

- A. Materials: Chemical resistant rubber. Reinforced Adjustable Repair Couplings shall be Mission Flex-Seal or equal.
- B. Coupling shall be made of stainless steel utilizing a nut and bolt clamp design and an "O" ring seal under the sealing clamp band..
- C. Dimensions: Inside diameter to fit the outside diameter of the different pipe materials being connected: take care that proper alignment is maintained and the spacing between pipes does not exceed 1/2 inch as shown in the Standard Details.
- D. Any other Coupling other than specified above must be approved by the Little Rock Wastewater prior to use.

2.10 SERVICE SADDLES

- A. A composite saddle using a Virgin SBR compound gasket (ASTM D-2000 3 BA715) and a ductile iron saddle casting (ASTM A 536 Grade 65-44-12) as shown in the Standard Details.
- B. A compression fit three piece service connection consisting of an ASTM D-3034 PVC hub, a Stainless Steel band, and a rubber sleeve conforming to ASTM C-443. Refer to the Standard Details.
- C. All saddles other than those shown above shall be approved by the Little Rock Wastewater prior to installation.

2.11 SERVICE WYES

- A. The wye material and joint type must match that of the mainline pipe.
- B. Wyes shall terminate in a bell suitable for connection of a 4 inch service line pipe as specified herein.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Sanitary Sewer Pipelines: Refer to Section 02730
- B. Sanitary Sewer Service Lines: Refer to Section 02732

END OF SECTION 02610