

## **SECTION 15121**

### **POLYVINYL CHLORIDE (PVC) PIPE** **(Contractor Furnished)**

#### **PART 1: GENERAL**

##### **1.01 SECTION INCLUDES**

PVC pressure pipe and fabricated fittings in nominal sizes 4 inches through 12 inches with cast iron pipe equivalent outside diameters. Under special conditions 2" PVC may be specified in which case it shall meet NSF 61 and satisfy a 200 psi pressure rating.

##### **1.02 SUBMITTALS**

Submit manufacturer's product data, installation instructions and certification for all materials to be furnished in accordance with Specification Section 1300. Submit classification and gradation test results for embedment and pipe backfill material.

##### **1.03 REFERENCES**

Refer to current ASTM & AWWA Standards:

###### **A. ASTM – American Society for Testing and Materials**

- 1 A536: Standard Specification for Ductile Iron Castings.
- 2 D2241: Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
- 3 D2855: Standard Practice for Making Solvent Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.

###### **B AWWA – American Water Works Association**

- 1 Standard C605: Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water
- 2 Standard C900: Polyvinyl Chloride (PVC) Pressure Pipe, and Fabricated Fittings, 4 In. Through 48 In. (100 mm Through 1200 mm), for Water Transmission and Distribution.
- 3 M23: PVC Pipe - Design and Installation.

#### **PART 2: PRODUCTS**

Research has documented that certain pipe materials (such as polyvinyl chloride, polyethylene, and polybutylene) and certain elastomers (such as those used in gasket material) may be subject to permeation by lower-molecular weight organic solvents or petroleum products. Products supplied under this Specification Section assume that petroleum products or organic solvents will not be encountered. If during the course of pipeline installation the Contractor identifies, or suspects the presence of petroleum products or any unknown chemical substance, notify the Engineer immediately. Stop

installing piping in the area of suspected contamination until direction is provided by the Engineer.

## **2.01 PIPE MATERIALS**

Materials to be furnished by the Owner are included in Section 01011 Specifications Special Conditions and Section 01000.1.03. PVC Pipe 4 inch through 12 inch shall meet AWWA Standard C900 DR14 with outside diameter dimensions of cast iron pipe. The PVC compounds shall be treated or certified suitable for potable water products by the National Sanitation Foundation (NSF) Testing Laboratory (NSF Standard No. 61). When 2" PVC is provided it shall meet NSF 61 and satisfy a 200 psi pressure rating.

## **2.02 MANUFACTURERS**

- A. PW Eagle, Inc.  
1550 Valley River Drive  
Eugene, Oregon 97401  
(541) 343-0200  
[www.pwpipe.com](http://www.pwpipe.com)
- B. J-M Manufacturing Company, Inc.  
9 Peach Tree Hill Road  
Livingston, NJ 07039  
(973) 535-1633  
[www.jmm.com](http://www.jmm.com)
- C. North American Pipe Co. d/b/a (NAPCO Pipe and fittings)  
(**Certa-Lok C-900 4"-12"**) (**2" "Yellowmine" pipe**)-restrained joint pipe  
2801 Post Oak Blvd., Suite 600  
Houston, TX 77056  
(713) 840-7473  
[www.northamericanpipe.com](http://www.northamericanpipe.com)
- D. National Pipe & Plastics  
3421 Old Vestal Road  
Vestal, NY 13850  
(800) 836-4350  
[www.nationalpipe.com](http://www.nationalpipe.com)
- E. Vinylplex Inc. d/b/a Sanderson Pipe  
1800 Atkinson Ave.  
Pittsburg, KS 66762  
(620) 231-8290, (877) 779-7473  
[www.vinylplex.com](http://www.vinylplex.com)  
875 International Blvd.  
Clarksville, TN 37040  
(931) 221-4800  
[www.sandersonpipe.com](http://www.sandersonpipe.com)

- F. Pipelife Jetstream, Inc.  
1700 S Lincoln St,  
Siloam Springs, AR 72761  
(479) 524-5151  
[info@pipelife-jetstream.com](mailto:info@pipelife-jetstream.com)

## 2.03 RECEIVING, HANDLING AND STORAGE

- A. Inspect pipe and appurtenances for defects prior to installation in the trench. Set aside and clearly mark defective, damaged or unsound material and hold material for inspection by the Owner or Engineer.
- B. Load and unload all materials in accordance with the manufacturer's recommendations and in such a manner as to prevent damage. Do not drop pipe and accessories or handle them in a rough manner.
- C. Provide safe storage for all materials. Cover stored pipe that will be exposed to sunlight for periods longer than 6 months. Cover with canvas or other opaque material with provision for adequate air circulation. PVC pipe shall not be stored close to heat sources, such as heaters, boilers, steam lines, or engine exhaust.

## **PART 3: EXECUTION**

### **3.01 INSTALLATION**

Follow the provisions of Specification Section 15000 and 02210 in addition to the following requirements:

- A. Remove all dirt and foreign matter from pipe before lowering it into the trench. Do not place debris, hand tools, clothing or other materials in the pipe. Keep pipe clean during and after laying.
- B. Lay pipe with the bell end pointing in the direction of work progress. Do not roll, drop or dump pipe or appurtenances into the trench.
- C. Assemble push-on joints in accordance with the pipe manufacturer's recommendations. Assemble mechanical joints in accordance with the fitting manufacturer's recommendations. Insertion of a Ductile Iron (DI) spigot into a PVC bell is prohibited.
- D. Cut pipe with pipe saws, circular saws, handsaws, or similar equipment. Provide a smooth end at a right angle to the longitudinal axis of the pipe. Deburr, bevel, and re-mark insertion line on spigot ends. Match factory bevel length and angle for field bevels. When connecting to certain shallow depth bells, such as those on some cast iron fittings and valves, cut off the factory bevel and prepare a deburred, square cut end with a slight outer bevel.
- E. Clean the sealing surface of the spigot end, the pipe bell, the coupler or fitting, and the elastomeric gaskets immediately before assembly. Do not remove factory installed gaskets for cleaning. Keep the joint free of dirt, sand, grit,

grease or any foreign material. Apply approved lubricant when assembling gasketed joints in accordance with the pipe manufacturer's requirements. The use of improper lubricants can damage gaskets. Excessive lubricant use can make disinfection more difficult and cause taste and odor problems when the line is placed in service.

- F. Good pipe alignment is essential for proper joint assembly. Align the spigot to the bell and insert the spigot into the bell until it contacts the gasket uniformly. Do not swing or "stab" the joint; that is, do not suspend the pipe and swing it into the bell. The spigot end of the pipe is marked by the manufacturer to indicate the proper depth of insertion. Avoid metal to plastic contact with the pushing the pipe home (use wood or other material to cushion moving the pipe. Neither deflection or bending of PVC pipe joints are permitted.
- G. Assemble pipe using the following types of joints:
  - 1. Gasketed bell joint – Integral with the pipe or fitting
  - 2. Gasketed coupling – A double gasketed coupling
  - 3. Mechanical joint – Any of the several joint designs that have gaskets and bolts manufactured in accordance with AWWA standards.
- H. Tracer Wire
  - 1. Place tracer wire in accordance with Specification 02558.
- I. Pressure testing of PVC SDR 14 pipe shall not exceed 200 psi.
- J. PVC pipe fittings shall employ ductile iron pipe fittings per specifications 15105 and 15106. See detail drawings for transitions between different pipe materials. When shown on the contract drawings or with written approval from the Owner's Engineer special fittings shall meet the requirements of Section 15131.2.04.
- K. Gaskets The gaskets shall be as provided or recommended by the manufacturer and satisfy AWWA standard C111 in all respects. As noted in the products section of this specification, some gasket materials are prone to permeation of certain hydrocarbons which may exist in the soil (**PART 2: PRODUCTS**) as listed above. Under these conditions and at the Engineer's discretion require contractor to provide FKM (Viton, Flourel) gasket material in areas of concern.

### **3.02 SERVICE CONNECTIONS**

- A. Install service connections in accordance with AWWA Standard C605 and the manufacturer's recommendations using the following methods:

Install service connections in accordance with AWWA Standard C605 and the manufacturer's recommendations using the following methods:

- 1. Tapping is only permitted through the use of service clamps or saddles.

2. Using injection molded couplings with threaded outlets.
3. Tapping with large service connections through appropriately sized tapping sleeves and valves.
4. Direct tapping of 1 inch and smaller service connections is not permitted. Use service saddles only for AWWA Standard C900 pipe, for nominal pipe sizes 4 inch through 48 inch. Corporation stops shall be threaded and conform to AWWA Standard C800.

**END OF SECTION**