



Construction Specification VA-745 Plastic Pipe

1. SCOPE

The work consists of furnishing and installing plastic pipe and the necessary fittings specified herein or as shown on the construction drawings.

2. MATERIALS

Poly Vinyl Chloride (PVC) Pipe	
PVC Plastic Pipe - Schedules 40, 80, 120	ASTM D1785
PVC Plastic Pipe Fittings, Schedule 40	ASTM D2466
PVC Pressure Rated Pipe - SDR Series 4-inch through 12-inch Diameter	AWWA C900 ASTM D2241
PVC Pressure Rated Pipe - SDR Series 14-inch through 48-inch Diameter	AWWA C905
PVC Plastic Drain, Waste, and Vent Pipe and Fittings	ASTM D2665
Joints for IPS PVC Pipe Using Solvent Weld Cement	ASTM D2672
ABS and PVC Composite Sewer Pipe	ASTM D2680
Type PSM PVC Sewer Pipe and Fittings	ASTM D3034
PVC Large-Diameter Gravity Sewer Pipe and Fittings	ASTM F679
PVC Smooth-Wall Underdrain Systems for Highway, Airport, and Similar Drainage	ASTM F758
PVC Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter	ASTM F794
PVC Corrugated Sewer Pipe with a Smooth Interior and Fittings	ASTM F949
Polyethylene (PE) and High Density Polyethylene (HDPE) Plastic Pipe	
12 to 60-inch Annular Corrugated Profile-Wall PE Pipe and Fittings	ASTM F2306
2 to 60-inch Annular Corrugated Profile Wall Polyethylene (PE) Pipe And Fittings for Land Drainage Applications	ASTM F2648
PE (SIDR-PR) Based on Controlled Inside Diameter	ASTM D2239
PE (DR-PR) Based on Controlled Outside Diameter	ASTM D3035
3 to 6-inch Corrugated PE Pipe and Fittings	ASTM F405
3 to 24-inch Corrugated PE Pipe and Fittings	ASTM F667
10 to 120-inch Corrugated PE Profile Wall Sewer and Drain Pipe	ASTM F894
3 to 10-inch Corrugated PE Pipe	AASHTO M252
12 to 60-inch Corrugated PE Pipe	AASHTO M294
PE Plastic Pipe and Fittings	ASTM D3350
PE Plastic Pipe (DR-PR) Based on Outside Diameter	ASTM F714
Heat Fusion Joining of Polyolefin Pipe and Fittings	ASTM D2657
PE Plastic Tubing	ASTM D2737
Acrylonitrile-Butadiene-Styrene (ABS) Pipe	
ABS Plastic pipe, Schedules 40 and 80	ASTM D1527
ABS and PVC Composite Sewer Pipe	ASTM D2680

Fittings and Joints

Where pressure pipe is specified, fittings will have a design capacity equal to or exceeding that specified for the pipe to which it is attached. Fittings will be cast iron, steel, one-piece injection molded plastic fitting, or fabricated from plastic pipe and one-piece injection molded plastic fittings.

Where nonpressure pipe is specified, the fittings will be of the same or similar materials as the pipe and will provide the same durability and strength as the pipe.

Joints may be bell and spigot type with elastomeric gaskets, coupling type with elastomeric gasket on each end, or solvent cemented. When a lubricant is required to facilitate joint assembly, it will be a type having no detrimental effect on the gasket or pipe material.

Mechanical joints (split couplings and snap couplings) may be used when joining PE pipe and fittings with nonpressure flow and a free draining sand or gravel bedding material. Elastomeric-sealed mechanical joints will be used when joining PE pipe and fittings under pressure flow or where seepage cannot be tolerated.

Pipe joints will conform to the details shown on the construction drawings and specified herein.

Pipe will be installed and joined in accordance with the manufacturer's recommendations, except as otherwise specified.

3. HANDLING AND STORAGE

Pipe will be delivered to the job site and handled by means which provide adequate support to the pipe and does not subject it to undue stresses or damage. When handling and placing plastic pipe, care will be taken to prevent impact blows, abrasion damage, and gouging or cutting (by metal surfaces or rocks). All special handling requirements of the manufacturer will be strictly observed. Special care will be taken to avoid impact when the pipe must be handled at temperatures of 40°F (4.4°C) or less.

Pipe will be stored on a relatively flat surface so that the barrels are evenly supported. Unless the pipe is specifically coated to withstand exposure to ultraviolet radiation, it will be covered with an opaque material when stored outdoors for a period of 15 days or longer.

4. LAYING AND BEDDING THE PIPE

Plastic pipe conduits and fittings will be installed as shown on the construction drawings and specified herein. The pipe will be laid so that there is no reversal of grade between joints, unless otherwise shown on the construction drawings. The pipe will be placed with the bell end upstream, unless otherwise specified. The pipe will be carefully placed on the bedding or into the pipe trench.

Care will be taken to prevent distortion and damage during hot (over 90°F) or cold weather (under 40°F). After the pipe has been assembled in the trench, it will be allowed to reach ground temperature before backfilling to prevent pull out of joints due to thermal contraction.

The pipe ends and the couplings will be free of foreign material when assembled. During the placement of the pipe, each open end of the pipeline will be closed off by a suitable cover or plug at the end of work on the pipeline each day and until work resumes or installation is complete.

Perforated pipe will be laid with the perforations down and oriented symmetrically about the vertical centerline. Perforations will be clear of any obstructions when the pipe is laid.

Pipe will be firmly and uniformly supported throughout the entire length. Bell-holes will be made in the bedding under bells or couplings and other fittings to prevent the pipe from being supported by fittings.

1. Earth Bedding. When bedding is specified, the pipe will be firmly and uniformly bedded in a shaped bedding groove that closely conforms to the bottom of the pipe for a depth equal to a minimum of 1 inch or 5 percent of the diameter of the pipe, whichever is greater. The bedding material will be free of rocks or stones greater than 3 inch diameter.
2. Sand or Gravel Bedding, or Drain Fill. When sand or gravel bedding is specified, the pipe will be firmly and uniformly placed on a sand or gravel bed. Sand or gravel fill will be carefully placed and compacted as specified herein and as shown on the construction drawings.

In areas with heavy loads or excessive rocks, the pipe will be sleeved as shown on the construction drawings.

5. BACKFILL

The pipe will be held down during backfilling to the top of the pipe to prevent its being lifted from its original placement.

Backfill will be compacted to the degree required to prevent settlement of the backfill material after construction.

The water content of cohesive backfill material will be such that, kneaded in the hand, the soil will form a ball which does not readily separate. For non-cohesive sand and gravel backfill material, water content is not a concern for thin lifts.

Specific Site Requirements