

SECTION 33 05 06 POLYETHYLENE PIPE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Polyethylene pipe, couplings, fittings and joint materials.
- B. Related work includes but is not limited to,
 - 1. Excavation, Section 31 23 16.
 - 2. Trench backfill, Section 33 05 20 .

1.2 REFERENCES

- A. AASHTO M 252: Standard Specification for Corrugated Polyethylene Drainage Pipe.
- B. AASHTO M-294: Standard Specification for Corrugated Polyethylene Drainage Pipe 300-1200 mm Diameter.
- C. AASHTO MP7-97: Standard specification for Corrugated Polyethylene Pipe – 1350 and 1500 mm Diameter.
- D. ASME B1.1: Unified Inch Screw Threads (UN and UNR Thread Form), Supplement.
- E. ASTM A 307: Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
- F. ASTM D 2239: Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Controlled Inside Diameter.
- G. ASTM D 2321: Standard Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe.
- H. ASTM D 2657: Standard Recommended Practice for Heat Joining of Thermoplastic Pipe and Fittings.
- I. ASTM D 2774: Standard Recommended Practice for Underground Installation of Thermoplastic Pressure Piping.
- J. ASTM D 3261: Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.
- K. ASTM D 3350: Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
- L. ASTM F 477: Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- M. ASTM F 1055: Standard Specification for Elect fusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing.

1.3 DEFINITIONS

- A. Standard Dimension Ratio (SDR): Average diameter of pipe divided by the minimum wall thickness. The diameter may be either inside or outside measurement depending upon which standard is referenced.
- B. Code Designation: A rating system by the Plastic Pipe Institute for smooth wall polyethylene pipe materials. The designation PE 3408 designates the type of plastic pipe (PE), the grade (34), and the hydrostatic design stress measured in units of 100 psi (08)

at 23 deg C.

PART 2 PRODUCTS

2.1 SMOOTH WALL PIPE SYSTEMS

- A. Material: PE 3408 per ASTM D 2239 with a minimum cell classification of 345434C per ASTM D 3350.
- B. Pipe: Smooth wall inside and out with an SDR or working pressure rating indicated or accepted by ENGINEER. Exterior markings as follows.
 - 1. ASTM Standard Number.
 - 2. Pipe Size.
 - 3. Class and profile number.
 - 4. Production code.
 - 5. Standard dimension ratio.
- C. Fittings:
 - 1. Resin same as pipe.
 - 2. Working pressure same or greater than pipe.
- D. Joints:
 - 1. Thermally welded butt fusion, ASTM D 3261.
 - 2. Flanged, ASTM D 2657.
 - 3. Ultra high molecular weight electro-fusion tape with a polyethylene coupler meeting ASTM F 1055 requirements.

2.2 CORRUGATED WALL PIPE SYSTEMS

- A. Material: Polyethylene, ASTM D 3350 with a cell class as required in AASHTO M 252, AASHTO M 294 or AASHTO MP7-97
- B. Pipe: Type S or D unless specified otherwise. Corrugations may be either annular or helical.

Type Description

C	Circular pipe with a corrugated surface inside and out.
CP	Type C pipe with perforations
S	Circular pipe with an outer corrugated wall and a smooth inter wall
SP	Type S pipe with perforations
D	Circular pipe with a corrugated wall sandwiched between a smooth outer wall and a smooth inner wall.

- C. Fittings:
 - 1. Blow molded with cell class 335420C, ASTM D 3350.
 - 2. Rotational molded with cell class 213320C, ASTM D 3350.
 - 3. Shop or field remanufactured of the same material as the pipe
- D. Joints:
 - 1. Bell and spigot with gaskets, ASTM F 477. Foam type weather stripping not allowed.
 - 2. Split corrugated couplings with plastic or stainless steel ties and leak resistant neoprene gasket.

2.3 NUTS AND BOLTS

- A. Carbon steel machined heavy hex heads, Class 2 fit, ASTM A 307; Grade B, threads, ASME B1.1.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install pipe as per manufacturer's instructions, ASTM D 2321 or ASTM D 2774.
- B. Water distribution and transmission, Section 33 12 19.
- C. Tape wrap steel materials for protection against corrosion after piping installation.

END OF SECTION