

DIVISION III

CONSTRUCTION SPECIFICATIONS

PART 309A – HIGH DENSITY POLYETHYLENE (HDPE) PIPE, WATER SERVICE

- 309A.1 When HDPE pipe is delivered to the jobsite it shall not be exposed to sunlight for more than three weeks. HDPE pipe exposed to sunlight for more than three weeks shall be covered with an opaque protective covering. The pipe shall be left stacked and no more pipe than can be installed in one day shall be strung along the jobsite.
- 309A.2 Pipe and fittings shall be joined by one of the following types of thermal fusion per the Manufacturer's recommended procedures: Butt fusion, Saddle fusion or Socket fusion. Butt fusions performed between pipe ends or pipe ends and fitting outlets shall be within the following allowable wall mismatches:
- 309A.2.1 Two DR difference between pipe and fitting diameters 6" and smaller.
- 309A.2.2 One DR difference for above a 6" and through 18".
- 309A.2.3 No difference for diameters above 18".

The difference in DR is determined from the following DR values: 7.3, 9, and 11.

- 309A.3 Polyethylene pipe and fittings may be joined together or to other materials through the use of electrofusion fittings, flange adapters with back-up rings, mechanical couplings designed for connecting polyethylene pipe and fittings to itself or to another material, or MJ adapters. The Manufacturer of the joining device shall be consulted for proper installation procedures.
- 309A.4 Polyethylene pipe and fittings joined together through the use of a hydraulically operated heat butt fusion machine, shall utilize a data recording device per ASTM F3124 – STANDARD PRACTICE FOR DATA RECORDING THE PROCEDURE USED TO PRODUCE HEAT BUTT FUSION JOINTS IN PLASTIC PIPING SYSTEMS OR FITTINGS. Each HDPE joint shall be traceable to the fusion operator and equipment. Electrofusion reports of each weld shall be appropriately identified and provided to City of Tulsa Inspector. The reports shall include, as a minimum, the fusion date, time, ambient temperature, fitting type and size, user ID, and the manufacturer of the part.
- 309A.5 The Contractor shall be responsible for ensuring all personnel operating heat fusion equipment are qualified Heat Fusion Equipment Operators in accordance with ASTM F3190-16 – STANDARD PRACTICE FOR HEAT FUSION EQUIPMENT (HFE) OPERATOR QUALIFICATION ON POLYETHYLENE (PE) AND POLYAMIDE (PA) PIPE AND FITTINGS. All polyethylene joints shall be thermally butt fused by an HFE Operator. The HFE Operators Card shall be submitted at the Pre-Construction Conference and provided at the request of the Engineer. Certification by a distributor shall not be an acceptable substitute.

309A.6

PAYMENT: Payment for this item shall be made at the unit price bid per linear foot of pipe of the type specified in the Proposal and placed as shown on the Drawings. Total footage shall be the actual horizontal measurement along the centerline of the pipe. No additional payment shall be made for vertical pipe or fittings or specials included as pipe, or for concrete blocking. Payment for any HDPE pipe designated "restrained joint" shall include cost of all components to restrain joints of pipe.

PART 310A – LOCATOR WIRE AND DETECTABLE MARKING TAPE FOR HDPE

- 310A.1 A Number 8 bare copper conductor wire or Number 12 copper-clad steel (CCS) wire, 21% conductivity, for the purpose of locating HDPE pipe shall be buried along the top of the pipe, and connected at each end to a fire hydrant by Cadweld Brazing just above the ground.
- 310A.2 Detectable Mylar marking tape for location of HDPE water pipe shall be required in all areas where HDPE water pipe is buried. Detectable Mylar marking tape shall be 2” wide, Blue in color with a continuous black lettered imprint stating “Caution: Water Line Below”. Tape shall be equal to Lineguard Tape III as manufactures by Lineguard, Inc. of Wheaton, Illinois.
- 310A.3 Detectable Mylar Tape shall be buried above HDPE water lines at a depth of 18-inches below the surface.
- 310A.4 Payment for tape and wire shall be included with unit price payment for HDPE pipe.

PART 311 – TAPPING OF PVC PIPE FOR SERVICE CONNECTIONS

- 311.1 Standard water service connections shall be made by using side fusion or electro fusion saddles per standard drawings. The saddles shall be provided with factory installed female threaded insert Brass Alloy C360 AWWA C 800 for standard corporation stop threads. Bushings must match the corporation stops. Direct tapping of HDPE water pipe will not be allowed.

PART 312A – FITTINGS (HDPE)

312A.1 The work under this item shall include all of the requirements specified under the item of pipe, in that “pipe” is understood to also mean ‘bends”, tees, sleeves, outlet assemblies, and other specified fittings.” All HDPE fittings shall be rated at the same pressure of the connecting pipe. Derated fittings shall not be permitted.

312A.2 **PAYMENT:** Payment for this item at the unit price bid per fitting, of the type specified in the Proposal, and placed as shown on the drawings. Only fittings specifically noted in the Proposal are included in this item. No additional payment shall be made for excavation, backfilling, or concrete blocking.

Payment for any fittings designated as “restrained”: shall include cost of all components to restrain joints of fittings.

DATE: February 16, 2017
TO: Paul Zachary, Engineering Services Department Director
FROM: Henry Som de Cerff, Design Manager *HS*
SUBJECT: Standards and Specifications for Division II and III

The Specification Review Committee recommends and asks the Engineering Services Department Director to approve the following:

1. Modify Material Specifications & Sections 203, 207, 307, 301, 310 and 325
2. Modify Standard Details 304, 311, 501, 501A, 502, 502A, and 503-510
3. Add Material Specifications & Sections 207A, 309A, 310A, 311A and 312A
4. Add Standard Details 316-321
5. Delete Standard Detail 301, 303 and 305

Please call me at (918) 596-7355 if you have any questions.

Thank you.

APPROVED:



Paul Zachary, Director

4/5/17

Date

Cc: Engineering Services Department Specification Review Committee