

CORRUGATED HIGH DENSITY POLYETHYLENE PIPE

City of Wichita Standard Specifications, Section 804.2, add the following.

Storm Water Pipe:

Corrugated High Density Polyethylene Pipe -

MATERIAL

Corrugated High Density Polyethylene (HDPE) pipe for storm water shall conform to ASTM F2306 and AASHTO M294, or the latest revisions thereof, and shall be Type S or Type SP (Perforated – only when specified) only. All HDPE pipe joints shall consist of integral bell and spigot with rubber gasket that meets specification requirements of ASTM F477. Bell shall span over three (3) spigot corrugations. All joints shall be soil tight, per ASTM F2306, paragraph 6.6.3.1, and AASHTO M294.

SIZE

HDPE pipe shall have an I.D. equivalent to the pipe size specified by the project plans. **The maximum allowable inside diameter for HDPE pipe shall be thirty (30").**

CONNECTIONS AND FITTINGS

Fittings/connections will only be allowed in repair situations, and as approved by the City's Construction Engineer. No fittings will be allowed between dissimilar materials. Connection to an existing pipe, regardless of the existing pipe material, shall be by means of a structure, to be designed into the project. All fittings to be used for HDPE to HDPE connections shall not reduce or impair the overall integrity or function of the pipeline and shall meet the requirements of AASHTO M294 and ASTM F2306. Fittings may be either molded or fabricated, and shall be soil tight. Common corrugated fittings include in-line joint fittings such as couplers and reducers, and branch assembly fittings such as bends, tees, wyes and end caps. Only fittings supplied or recommended by the manufacturer, and as approved by the Construction Engineer, shall be used. The cost of such fittings, adapters, and connections shall be considered subsidiary to the HDPE pipe bid item, and will not be bid or paid for separately.

ALLOWABLE USE

HDPE pipe placement within the street right-of-way, including under pavement, shall only be permissible for roadways that carry less than 3,000 vehicles per day.

The last run of pipe to an end section, headwall, ditch or other such facility must be concrete. HDPE pipe shall always terminate at a manhole or other type structure, and no exposed pipe will be permitted. The use of HDPE pipe as a road or driveway culvert will only be allowed as approved by the City Engineer's office.

INSTALLATION

Pipe bedding shall be improved Type 1 or Type 2 per Section 801.2 and 801.5 (Flexible Pipe) of the Standard Specifications, with the following modification. Improved bedding shall be placed a minimum of six inches (6") under the barrel of the pipe to twelve inches (12") above the pipe, or to within two feet (2') of final

grade, whichever is higher.

There is to be a minimum of thirty-six inches (36") of cover above the top of pipe, as measured from the top of curb in street right-of-way, and from proposed ground level in side and back lot easements.

The minimum trench width shall be 1-½ times the pipe diameter plus twelve inches (12").

Installation of HDPE pipe shall be by methods approved by the Construction Engineer, and per the manufacturer's recommendation. Methods other than approved shall not be allowed. Any installation of HDPE pipe by methods that are not approved, shall be removed and reinstalled at the expense of the Contractor.

TESTING

The contractor shall televise and mandrel the HDPE pipe thirty (30) days after construction. Any barrel deflection of the pipe (reduction of the barrel base inside diameter) greater than 5% will require the reinstallation or replacement of the pipe by the contractor. Any penetration of the pipe that is encountered during televising will also be reinstalled or replaced by the contractor, at no additional cost to the project. Repairs will be made per the manufacturer's recommendation and as approved by the Construction Engineer. The cost of all testing shall be considered subsidiary to the HDPE pipe bid item, and will not be bid or paid for separately.

Mandrel testing shall be completed per City of Wichita Standard Specifications. Televising of HDPE pipe shall be per the following.

HDPE Storm Sewer Pipe – Televising Specifications

All HDPE storm sewer pipe being televised by private companies shall conform to the following set of standards:

Videos may be submitted by Compact Disc (CD) or DVD. CD's and DVD's shall be of high quality and clarity.

Videos and written logs shall be clearly labeled with project name, project number and clear reference to the location of storm sewer work.

The camera operator shall provide an audio description to clearly identify the segment being televised. They shall locate the line being televised from the closest north-south street and east-west street. Beginning and Ending structures shall be called out using the stationing and line number references as shown on the construction plans.

Televising will begin at the center of the upstream manhole and will run continuously to the center of the downstream manhole. The center of the upstream manhole shall be set at 0 ft and the video shall show the complete footage of each line. Any breaks or discontinuities in the video recording will

result in the video being rejected and a new and complete video will need to be submitted.

Approximately one inch simulated flow shall be added to show flow grade.

Camera shall be pulled in the same direction as the flow, unless approved in writing by the City Engineer's office.

Camera travel must be slow enough that the reviewer can easily have three seconds to view the entire circumference of the pipe before the camera passes by any location.

Contractor shall identify on the video and on the written log, each feature observed. Any special features shall be identified by station, left or right. The operator shall pause the camera at each feature such that it will be clearly visible on the screen for review, and pan/tilt/rotate the camera head to obtain a clear view of the entire outside perimeter of the pipe.

For any potential defect, such as a gapped joint, the camera shall stop, pan/tilt/rotate and observe the entire defect. This means left, right and top shall be clearly visible for review.

The camera operator will provide an audio description of every feature viewed.

If a cleaner head is pulled ahead of the camera, it shall not be operated unless it is necessary to lower the flow level to view taps, risers and other features. When a cleaner head is used in front of camera it shall be positioned no closer than three feet to the camera. If necessary to pressurize the cleaner nozzle to view a defect or connection while the camera is stationary, the simulated flow level must be re-established prior to the televising continuing after the pressure is removed from nozzle. If the nozzle must be pressurized for a length of pipe where the camera is not stationary, after the nozzle pressure is off, the camera must be returned to the starting point where the cleaner was pressurized and travel through the same area with simulated flow.

The Project Construction Engineer shall be notified in advance when the televising is to take place (specification requires televising to be completed a minimum of thirty days after completion of the project), and the video and written logs shall be submitted to the Construction Engineer's office within one week of completion.