SECTION 31 23 23

PIPELAYING

PART 1 GENERAL

1.1 SCOPE

A. Section includes the Work necessary to install water, sewer, and storm drainage piping and appurtenances.

1.2 RELATED WORK

A. Trenching, backfill and compacting is specified in Section 31 23 33.

1.3 QUALITY ASSURANCE

A. Provide workmen with skill to ensure embedment of pipe.

B. Methods of Testing
   1. The moisture density relations of materials shall be determined in the laboratory in accordance with AASHTO T-99 or T-180, as specified.
   2. Field density of backfill shall be determined in accordance with ASTM D2922.

1.4 PUBLIC WORK

A. Comply with the City of Centerton, AR, standard water and sewer specifications for public water and sewer lines. If conflict should be found between this section and city standards for Public Utilities, city standards shall be the priority. It shall be the Contractor's responsibility to obtain city standard water and sewer specifications and comply with the minimum requirements.

PART 2 PRODUCTS

2.1 EMBEDMENT

A. Class I material consists of manufactured angular, granular material, 1/4 to 1-1/2 inches (6 to 40 mm) in size.

B. Class II material consists of coarse sands and gravel with maximum particle size of 1-1/2 inches (40 mm), including variously graded sands and gravels containing small percentage of fines, generally granular and non-cohesive, either wet or dry. Soil types GW, GP, SW, and SP are included in this class.

   GW-Well graded gravels and gravel-sand mixtures, little or no fines, 50 percent or more retained on a No.4 sieve, more than 95 percent retained on a No. 200 sieve.

GP-Poorly graded gravels and gravel-sand mixtures, little or no fines. 50 percent or more retained on a No. 4 sieve. More than 95 percent retained on a No. 200 sieve. Clean.

SW-Well-graded sands and gravelly sands, little or no fines. More than 50 percent passes a No.4 sieve. More than 95 percent retained on a No. 200 sieve. Clean.

SP-Poorly graded sands and gravelly sands, little or no fines. More than 50 percent passes a No.4 sieve. More than 95 percent retained on a No.4 sieve. Clean.

2.2 BACKFILL

A. Select materials are defined as good earth, sand, or gravel and shall be free from rocks larger than 1-1/2 inches in diameter or hard lumpy materials. Select materials require hand placement and consolidation.

B. Protection cover shall be defined as backfill from the top of the pipe to a point 12 inches above the top of the pipe and shall consist of select material as defined in paragraph 2.1A.

C. Backfill over the protection cover shall be free from cinders, ashes, refuse, vegetable, or organic material, boulders, rocks or stones having dimension greater than 6 inches, frozen soil, or other material that in the opinion of the Engineer is unsuitable.

PART 3 EXECUTION

A. Examine the pipe and appurtenances for compliance with specifications.

B. Reject pipe and appurtenances not in compliance with specifications.

C. Remove foreign matter from pipe and appurtenances before lowering into excavated area.

D. Pipe bedding
   1. For PVC pipe and fittings, place 6-inch minimum of Class I or Class II material between excavated trench bottom or stabilized trench bottom and bottom of pipe or fitting as embedment. Embedment material shall be tamped by hand or approved mechanical methods so as to provide a uniform and continuous bearing support for the pipe at every point along the pipe barrel. Class I material shall be used for haunching to the spring line of the pipe, and to 6 inches over the top of the pipe. Embedment shall be compacted to a standard proctor density of 85 percent as defined in AASHTO T-99.
   2. For iron pipe and appurtenances, place 4 inch minimum of Class I or Class II material between excavated trench bottom or stabilized trench bottom and bottom of pipe or appurtenance. Embedment material shall be tamped by hand or approved mechanical methods so as to provide a uniform and continuous bearing support for the pipe at every point along the pipe barrel. Class I material shall be used for haunching to the spring line of the pipe, and to 6 inches over the top of the pipe. Embedment shall be compacted to a standard proctor density of 85 percent as defined in AASHTO T-99.

E. Place pipe and appurtenance to planned line and elevation.
   1. Place gravity waste water pipe from low end to high end with pipe bells facing upstream.
   2. Place potable water pipe with bells facing the direction of laying.
   3. Cover open end of laid pipe to prevent rodents and debris from entering pipe.

F. For iron pipe, place Class I material 6 inch maximum layers, compacted to 85 percent maximum density standard proctor, to top of pipe. Ensure that Class I material is compacted against haunch area of pipe.

G. Pipe Covering: Place protection material to a minimum 12 inch depth over top of pipe and fittings. Place in 6 inch maximum layers, compacted to 85 percent standard proctor density.

H. See Section 31 23 33 for remainder of backfill requirements.

I. Existing Utility Crossing: Expose all utilities located between two manholes a minimum of 24 hours before the downstream manhole is constructed. Wherever possible, sewer will be adjusted to provide necessary clearance.

END OF SECTION