

3.25 BEDDING, BACKFILL, AND COMPACTION

All bedding and backfill areas shall be subject to compaction testing by nuclear or standard methods according to the latest applicable ASTM Specifications D6938 for compaction and D698 for standard proctor.

The trench bedding shall be undercut a minimum of 6 inches below the grade line of the pipe and uniformly backfilled with bedding material to the grade-line of pipe. After the pipe has been installed on top of the first layer of bedding material, the haunching area shall be backfilled with bedding material up to the "spring-line" (halfway) on the pipe. The bedding material shall be "shovel-sliced" or hand tamped around and under the haunches of the pipe to assure adequate and uniform support along the bottom of the pipe. Care shall be taken to prevent dislodging and misalignment of the pipe and to provide adequate bell hole for the pipe. Bedding Material shall be installed to a minimum of 6-inches above the top of the pipe and a minimum of 12-inches on both sides of the pipe. Sand may be used if approved by the Engineer.

After the trench bedding is installed, the trench shall then be initially backfilled with suitable material which shall consist of approved excavation material, granular material, or as otherwise specified by the Engineer. Sand may be used if approved by the Engineer. Care shall be taken in placing initial backfill over the crown of the pipe to avoid damage to the pipe. At least 36 inches of appropriate back fill shall be placed over the top of the pipe before the trench before the trench is compacted in a manner approved by the Engineer. The initial backfill shall be compacted by suitable and approved compaction methods in a manner approved by the Engineer to at least 95 percent Standard Proctor Density, or as otherwise specified.

The final backfill shall be placed in 8-inch lifts and compacted by suitable and approved compaction methods in a manner approved by the Engineer to at least 95 percent Standard Proctor Density, or as otherwise specified. Excess material not required for final backfilling shall be removed by the Contractor or otherwise disposed of as ordered by the Engineer. In final backfill areas below pavement, the Engineer may direct the Contractor to use native material a specified distance below the pavement elevation to ensure a consistent material is utilized under the pavement section.

If the material encountered in the trench excavations is unsuitable to be used as initial or final backfill material, it shall be replaced with other suitable material available at the project site or with granular material, as approved by the Engineer. Material for all stages of backfilling are to be free of rock, frozen materials, and hard clay. The Engineer may take random compaction tests of the backfill material. If any of these tests indicate that the material has not been compacted to the required density, the Contractor shall recompact said material at no additional cost to the Owner, and the Engineer shall then have the right to take additional compaction tests to assure that this or other material is compacted to the proper density without any additional cost to the Owner.

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