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Standard Recommended Practice for INSTALLING BITUMINIZED FIBER DRAIN AND SEWER PIPE¹

This standard is issued under the fixed designation D 2316; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This recommended practice describes the installation of bituminized fiber drain and sewer pipe conforming to the requirements of Specification D 1861 or D 1862, in either stable or unstable soils. The purpose is to secure, through proper installation, the maximum service performance of the pipe. Installation below the normal water table is not recommended.

1.2 *This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Applicable Documents

2.1 ASTM Standards:

D 1861 Specification for Homogeneous Bituminized Fiber Drain and Sewer Pipe²

D 1862 Specification for Laminated-Wall Bituminized Fiber Drain and Sewer Pipe²

D 2487 Classification of Soils for Engineering Purposes³

D 3356 Specification for Fittings for Bituminized Fiber Drain and Sewer Pipe²

3. Preparation of Trench (see Fig. 1)

3.1 The object is to provide a trench bottom of uniform firmness to receive the bedding material. Minimum recommended depth is 760 mm (30 in.). It is recommended that the excavation be carried to a minimum depth of 150 mm (6 in.) below the finished pipe grade. If the excavation reveals large stones above trench grade, remove the stones. If the trench is excavated more

than 150 mm (6 in.) below trench grade, for example, in crossing oversize excavation for foundations or septic tanks, etc., bring it back to trench grade with well-compacted layers of select material. Select (stable) material includes coarse angular sand, gravel, pea stone, crushed stone, crushed slag, crushed shell, and crushed coral, or coarse-grained soils as described in Classification D 2487, Fig. 1, Soils Classification Chart. The particles should not exceed approximately 25 mm (1 in.) in size. Select material should be free from frozen earth, large hard clods, large stones, vegetable matter, or other debris.

3.2 On-site materials should be used for bedding and encasing only when tests indicate that these on-site materials are of comparable stability to those materials listed in 3.1.

3.3 The width of the trench should be sufficient to afford ample room for laying and jointing the pipe. Owing to the simplicity of the jointing process for bituminized fiber pipe, the trench width at the level of the top of the pipe need not exceed 460 mm (18 in.).

4. Bedding the Pipe (see Fig. 1)

4.1 Place select material on the trench bottom, bringing the level slightly above the finished grade. Work the bedding sufficiently to eliminate all voids and compact well to a minimum of 150 mm (6 in.). Compaction by foot-tamping is sufficient.

¹ This recommended practice is under the jurisdiction of ASTM Committee D-8 on Roofing, Waterproofing, and Bituminous Materials and is the direct responsibility of Subcommittee D08.16 on Bituminized Fiber Pipe.

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² Annual Book of ASTM Standards, Vol 04.04.

³ Annual Book of ASTM Standards, Vol 04.08.



5. Laying the Pipe

5.1 Use only undamaged pipe in the installation. Clean the interior of the pipe of any trash or dirt that may be present, and wipe clean all machine-tapered joints just before jointing. Do not use jointing substance or lubricant on the tapered surfaces of the joint. Do not place the pipe on blocks, large stones, or other hard objects to establish grade. Use only select bedding material.

5.2 If there is surface water in the trench, start laying at the street or septic tank, and proceed in the upstream direction to the building drain. If the trench is dry, laying may proceed in either direction.

5.3 Connect the line to the street sewer and the building drain by appropriate adapters manufactured for this purpose and conforming to the requirements of Specification D 3356.

5.4 When the adapter has been connected to the street sewer or building drain, insert the first length of pipe with a coupling on the opposite end. Place a block of wood against the coupling to protect it against damage while driving. Never place the block against the tapered end of the pipe. A medium-weight hammer (approximately 1.8 kg (4 lb)) should be used to drive the coupling and pipe until they are firmly seated.

5.5 Follow with a second length of pipe and a coupling, and proceed as before. Continue until the final connection has been made. In laying, work the lengths of pipe into the bedding until they are at finished pipe grade.

5.6 If special lengths of pipe are required, the pipe should be cut to length with a coarse-toothed saw. Wetting the saw with cool water will prevent the saw from clogging. If the cut pipe is to be connected to a coupling or a fitting with a machine-cut taper, use a taper-cutting tool available from the manufacturer of the pipe to cut a new taper on the square-cut end of the pipe. Under

no circumstances should a hatchet or other cutting tool be used to chip or file a taper on the end of the pipe. Fittings should be assembled in the same manner as couplings.

6. Encasing the Pipe (see Fig. 1)

6.1 Use select material (see 3.1) and backfill in layers up to a level 150 to 200 mm (6 to 8 in.) above the top of the pipe, paying particular attention to compaction of the sidefill.

6.2 Place the first layer of select material to a level slightly above the middle of the pipe. Compact it, working uniformly on both sides of the pipe in order not to displace the pipe. Compaction by foot-tamping is sufficient. If completely granular material is used for this part of the fill, place it carefully to prevent voids.

6.3 Carry the remaining backfill of select material to a level when compacted of 150 to 200 mm (6 to 8 in.) above the top of the pipe. Compaction by foot-tamping is sufficient.

7. Backfilling the Trench (see Fig. 1)

7.1 The backfill, extending to the surface of the ground, may be placed by any desired method other than puddling. The fill may be on-site material, but should not contain stones larger than 100 mm (4 in.) in their greatest dimension, chunks of concrete, bricks, frozen earth, vegetable matter, pieces of wood, or other debris.

8. Supporting Strength of the Pipe

8.1 Bituminized fiber drain and sewer pipe, installed in accordance with this recommended practice, should perform indefinitely in a satisfactory manner with insignificant deflection. The supporting strength of the installed pipe is much greater than laboratory crushing tests indicate, since the pipe is installed with lateral support furnished by select side fill (see Annex A1).