Designation: D 3839 – 02$^{\epsilon 1}$

An American National Standard

Standard Guide for Underground Installation of "Fiberglass" (Glass-FiberReinforced Thermosetting-Resin) Pipe[1]

This standard is issued under the fixed designation D 3839; 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.

This standard has been approved for use by agencies of the Department of Defense.

ϵ[1] NOTE—Table 3 was editorially revised in November 2003.

1. Scope

1.1 This practice establishes procedures for the burial of pressure and nonpressure "fiberglass" (glass-fiber-reinforced thermosetting-resin) pipe in many typically encountered soil conditions. Included are recommendations for trenching, placing pipe, joining pipe, placing and compacting backfill, and monitoring deflection levels. Guidance for installation of fiberglass pipe in subaqueous conditions is not included.

1.2 Product standards for fiberglass pipe encompass a wide range of product variables. Diameters range from 1 in. to 12 ft (25 mm to 3600 mm) and pipe stiffness range from 9 to over 72 psi (60 to 500 kPa) with internal pressure ratings up to several thousand pound-force per square inch. This standard does not purport to consider all of the possible combinations of pipe, soil types, and natural ground conditions that may occur. The recommendations in this practice may need to be modified or expanded to meet the needs of some installation conditions. In particular, fiberglass pipe with diameters of a few inches are generally so stiff that they are frequently installed in accordance with different guidelines. Consult with the pipe manufacturer for guidance on which practices are applicable to these particular pipes.

1.3 The scope of this practice excludes product-performance criteria such as a minimum pipe stiffness, maximum service deflection, or long-term strength. Such parameters may be contained in product standards or design specifications, or both, for fiberglass pipe. It is incumbent upon the specified product manufacturer or project engineer to verify and ensure that the pipe specified for an intended application, when installed in accordance with procedures outlined in this practice, will provide a long-term, satisfactory performance in accordance with criteria established for that application.

NOTE 1—There is no similar or equivalent ISO standard.

NOTE 2—A discussion of the importance of deflection and a presentation of a simplified method to approximate field deflections are given in AWWA Manual of Practice M45 Fiberglass Pipe Design.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 8 Terminology Relating to Materials for Roads and Pavements[2]

D 653 Terminology Relating to Soil, Rock, and Contained Fluids[3]

D 698 Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft (600 kN-m/m))[3]

D 883 Terminology Relating to Plastics[4]

D 1556 Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method[3]

D 1557 Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56 000 ft-lbf/ft (2 700 kN-m/m))[3]

D 2167 Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method[3]

D 2216 Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock[3]

D 2321 Practice for Underground Installation of Flexible Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications[5]

D 2487 Classification of Soils for Engineering Purposes[5]

D 2488 Practice for Description of Soils (Visual-Manual Procedure)[3]

[1] This practice is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.23 on Reinforced Plastic Piping Systems and Chemical Equipment.

Current edition approved Dec. 10, 2002. Published July 2003. Originally published as D 3839 – 79. Last previous edition D 3839 – 94a.

[2] *Annual Book of ASTM Standards*, Vol 04.03.

[3] *Annual Book of ASTM Standards*, Vol 04.08.

[4] *Annual Book of ASTM Standards*, Vol 08.01.

[5] *Annual Book of ASTM Standards*, Vol 08.04.

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