



Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installations¹

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1. Scope

1.1 This practice covers the installation of precast concrete pipe intended to be used for the conveyance of sewage, industrial wastes, and storm water and for the construction of culverts.

1.2 This practice does not have a metric companion, therefore see IEEE/ASTM SI 10 for conversion purposes.

1.3 *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:

C 822 Terminology Relating to Concrete Pipe and Related Products²

C 1417 Specification for Manufacture of Reinforced Concrete Sewer, Storm Drain, and Culvert Pipe for Direct Design²

D 698 Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³))³

D 1557 Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³))³

D 2487 Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)³

D 2488 Practice for Description and Identification of Soils (Visual-Manual Procedure)³

IEEE/ASTM SI 10 Standard for Use of the International System of Units (SI): The Modern Metric System⁴

2.2 AASHTO Standards:⁵

Standard Specifications for Highway Bridges

T 99 The Moisture-Density Relations of Soils Using a 5.5 lb (2.5 kg) Rammer and a 12-in. (305 mm) Drop

T 180 The Moisture-Density Relations of Soils Using a 10 lb (4.54 kg) Rammer and an 18-in. (457 mm) Drop

2.3 ASCE Standards:⁶

ASCE 15 Standard Practice for the Direct Design of Buried Precast Reinforced Concrete Pipe Using Standard Installations (SIDD)

3. Terminology

3.1 For definitions of terms relating to concrete pipe, see Terminology C 822.

3.2 For terminology related to soil classifications, see Practice D 2487 and Practice D 2488.

3.3 For terminology and definitions of terms relating to structural design, see ASCE 15.

3.4 Fig. 1 illustrates the definitions and limits of the terms: foundation, subgrade, bedding, outer bedding, middle bedding, haunch, lower side, backfill or overfill, invert, crown, spring-line, top of pipe, and bottom of pipe as used in this practice.

4. Significance and Use

4.1 This practice is useful as a reference by an owner and the owner's engineer in preparing project specifications.

5. Notations

D_i = inside diameter of pipe, in.

D_o = outside diameter of pipe, in.

H = design height of earth above top of pipe, ft.

w = unit weight of soil, lb/ft³.

6. Standard Installations

6.1 The precast concrete pipe/soil system shall be constructed to conform to the requirements of Figs. 2 and 3 and Tables 1 and 2 as designated on the plans.

7. Excavation

7.1 When ledge rock, compacted rocky, or other unyielding foundation material is encountered under the middle third of the pipe outside diameter, it shall be removed at least to the

¹ This practice is under the jurisdiction of ASTM Committee C13 on Concrete Pipe and is the direct responsibility of Subcommittee C13.05 on Least Cost Analysis.

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² Annual Book of ASTM Standards, Vol 04.05.

³ Annual Book of ASTM Standards, Vol 04.08.

⁴ Annual Book of ASTM Standards, Vol 14.02.

⁵ Available from American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street, NW, Suite 249, Washington, DC 20001.

⁶ Available from American Society of Civil Engineers (ASCE), 1801 Alexander Bell Drive, Reston, VA 20191-4400.