



Standard Specification  
for

Materials for Embankments and Subgrades

AASHTO DESIGNATION: M 57-80 (1996)

1. SCOPE

1.1 This specification covers materials for use in the construction of embankments and subgrades.

1.2 The values stated in SI units are to be regarded as the standard.

2. DEFINITIONS

2.1 Definitions of these materials are given in Standard Definitions of Terms Relating to Subgrade, Soil-Aggregate, and Fill Materials (AASHTO M 146).

3. GENERAL REQUIREMENTS

3.1 Materials shall be free from detrimental quantities of organic material, such as leaves, grass, roots, and sewage.

3.2 Materials obtained from cuts or borrow areas shall conform to one of the following requirements:

NOTE 1—See Standard Recommended Practice for the Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes (AASHTO M 145).

3.2.1 *In Embankments*—Materials classified in the A-1, A-2-4, A-2-5, or A-3 groups as in AASHTO M 145 shall be used when available and shall be compacted to the depth specified to not less than 95 percent of the maximum density per AASHTO T 99. If material of this character is not available and materials from the A-2-6, A-2-7, A-4, A-5, A-6, or A-7 groups must be used, special attention should be given to the design and construction of the embankment. Materials from these groups shall be compacted to not less than 95 percent of the maximum density and within two percentage points of the optimum moisture content per AASHTO T 99.

3.2.2 *In subgrades*—Materials classified in the A-1, A-2-4, A-2-5, or A-3 groups as shown in AASHTO M 145 shall be used when available and shall be compacted to the depth specified to not less than 95 percent of the maximum density per AASHTO T 99. Materials in the A-2-6, A-2-7, A-4, A-5, A-6, or A-7 groups may be used if compacted to the depth specified to not less than 95 percent of the maximum density and within two percentage points of the optimum moisture content per AASHTO T 99.

3.3 Local shale may be used in embankment or subgrade construction if the condition of existing pavements and embankments indicate satisfactory results. Appropriate special specifications shall be prepared for such material.

4. DENSITY REQUIREMENTS

4.1 Density percentage requirements may be specified in terms of AASHTO T 180, provided the resultant density and optimum moisture content are comparable with AASHTO T 99 under the above conditions.

5. METHODS OF TESTING

5.1 Methods of testing materials for embankments and subgrades shall be in accordance with the standard methods of the American Association of State Highway and Transportation Officials (see table entitled "AASHTO Standard Methods").

NOTE 2—Either Method T 88 or T 11 and T 27 will be used to determine the particle size distribution as a basis for classification.

AASHTO Standard Methods

Soil preparation (dry method) .....	T 87
Soil preparation (wet method) .....	T 146
Material passing 0.075-mm (No. 200) sieve .....	T 11
Sieve analysis .....	T 27
Mechanical analysis of soils .....	T 88
Liquid limit .....	T 89
Plastic limit .....	T 90
Moisture—density relationship [4.54-kg (10-lb) hammer] .....	T 180
Moisture—density relationship [2.5-kg (5.5-lb) hammer] .....	T 99
Density of soil in place .....	T 191, T 204, T 205, T 233, and T 238
Moisture in place by nuclear methods .....	T 239
Coarse particle correction .....	T 224