METHODS OF SAMPLING AND TESTING
MT 412-18
TOPSOIL SAMPLING, SAMPLE PREPARATION, AND TESTING

1 Scope

1.1 This procedure of sampling and testing topsoil applies to: 1) topsoil imported from another source (other than the project), and; 2) topsoil intended for use in planting lawns, shrubs, trees or other particular plants (landscaping soil).

1.2 Topsoil that has been stripped and is stockpiled on the project site for later placement on median areas, outer separation areas, and side slopes of roadway areas (i.e., salvaging and placing) does not need to be tested.

2 Referenced Documents

AASHTO
R 90 Sampling Aggregate Products
T 88 Particle Size Analysis of Soils
T 267 Determination of Organic Content in Soils by Loss on Ignition

MT Materials Manual
MT 232 Soil Corrosion Test

3 Sampling Procedures

3.1 Samples shall be obtained from each type of soil (homogeneous area). Soil types may be identified from visual appearance or presence of vegetative growth.

3.1.1 Samples of sub-soils may also be taken from borings in conjunction with a subsurface investigation.

3.1.2 Samples from stockpiles or from loaded transports may be taken in accordance with procedures outlined in AASHTO R 90.

3.2 Samples from the layer of soil proposed for use as topsoil shall be labeled “topsoil”. Samples from the layer of soil over which the topsoil is to be placed shall be labeled “subsoil.”

3.3 A sample shall be a composite of material from three sampling sites. The sampling sites shall represent similar soils. The sample shall be taken in the following manner.

3.3.1 Dig a v-shaped hole through the thickness of the layer of soil being sampled (if a surface sample) and remove a ½ inch thick slice of soil from one side of it.

3.3.2 Trim off from each side of the slice all but a thin ribbon of soil down the center of the spade face and place in a clean bucket.

3.3.3 Repeat Sections 3.3.1 and 3.3.2 two more times.

3.3.4 Mix thoroughly and keep two pounds (2 lbs) for testing.

3.4 Identify the samples by number and the location from which they were taken. Observations concerning the apparent ability of the soil to support plant growth such as the presence or absence of usual or unusual vegetative types, swamps, rock, salt encrustations, etc., should be noted and recorded with the identification data.

4 Sample Preparation

4.1 Air dry the samples. Remove larger stones by hand and sieve the remainder of the samples through a 10 mesh (2 mm) sieve.

4.2 Weigh the material retained on the 10 mesh sieve. Determine the percent by weight and record on the form accompanying the sample(s). This material is considered gravel.

4.3 Submit the minus 10 mesh fraction to the Helena Materials Lab for soils testing.

5 Testing Procedures

5.1 Conductivity – Test topsoil in accordance with MT 232.

5.2 Soil pH – Test topsoil in accordance with MT 232.

5.3 Organic Matter – Test topsoil in accordance with AASHTO T 267.

5.4 Gradation – Test topsoil in accordance with AASHTO T 88.