1311 STRENGTH PARAMETERS OF SOILS BY TRIAXIAL COMPRESSION

AASHTO Designation T 296

1311.1 SCOPE

This method covers the determination of the strength parameters of soils by triaxial compression testing. Mn/DOT is presently, primarily using the consolidated undrained test in the triaxial machine.

This test is run by the Foundations Unit of the Central Lab in accordance with the AASHTO procedure.

1311.2 GENERAL DESCRIPTION

The consolidated undrained triaxial compression test is a test that uses three identical soil samples, in which each is confined using different confining pressures. The samples are sheared to failure. A cohesion and friction angle are obtained and are the shear strength value of the soil. The middle confining pressure simulates the insitu earth pressure. Pore water pressure readings are measured during the test and are used in determining the effective stress results of friction angle and cohesion.

1312 FIELD CLASSIFICATION OF SOILS

1312.1 GENERAL

Classifying soils in the field, as utilized by the soils auger crews, can best be accomplished by an experienced technician familiar with certain general characteristics of soils.

1312.2 CHARACTERISTICS of SOILS

A. Texture of the Soil - Feel and observe the sample for consistency and compactness; to feel whether soil is smooth, gritty or velvety, as to whether it is clay, sand or silt loam.

B. Color of the soil - Basic colors are brown, black, gray and white. Colors can be light or dark plus various shades.

C. Moisture Content of the Soil - Soil can range from a dry to a saturated condition.

D. Ribboning of the Soil - The length of the ribbon, at its optimum moisture content, can be used to approximate clay content.

E. Seams in the Soil - Observe any seams or layers in the soil sample indicating a change in type of soil.

F. Visual Observation - To observe soil texture using the naked eye as related to test results.

G. Odor of the Soil - Some organic soils will have a definite odor.

The above list is not all-inclusive and is presented only as partial guide to the type of characteristics field personnel should be aware of when classifying soils.

1313 SOIL FERTILITY

1313.1 SCOPE

This is a series of tests run in or through the Central Lab.

Soil fertility tests are run on soils to determine acceptability for topsoil and planting soil. The type of tests run are gradation, pH and organic content, phosphorus, potassium and soluble salts in the Mn/DOT Central Lab.

Some tests on compost materials are run at the University of Minnesota.

1314 SPECIFIC GRAVITY OF SOILS

AASHTO Designation T 100

This is a Central Lab, Soils Lab procedure performed in accordance with the AASHTO procedure.

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