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# HDOT TM 2-00

## Standard Test Method for Determining the Loose Density of Sand

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### 1. Scope:

1.1 This test method covers the preparation and determination of the loose density of sand for use with Hawaii Test Method, HDOT TM 1, "Density of Soil In-Place by the Sand-Cone Method".

### 2. Apparatus:

2.1 Density Apparatus - The density apparatus is described in Hawaii Test Method, HDOT TM 1. The complete apparatus shall consist of the plastic Cone Assembly, Plastic Cylinder and Metal Base Plate. (See Figure 1A.)

2.2 Volume Measure - The volume measure shall be a cylindrical mold 15 centimeters (6 inches) in diameter and 15 centimeters (6 inches) in height with known volume.

2.3 Balance - A balance of at least 20 kg (44 pounds) capacity having an accuracy of 5 g (0.01 lb.).

2.4 Sand - Any clean, dry, free flowing uncemented sand having few, if any, particles passing the 75  $\mu\text{m}$  (No. 200) sieve or retained on the 1.18 mm (No. 16) sieve.

2.5 Miscellaneous Apparatus and Supplies - Smooth glass plate approximately 20 cm (8 inches) by 20 cm (8 inches), wax, syringe, thermometer, etc.

### 3. Procedure:

3.1 Determination of the Volume of the Lower Cone with the Base Plate (See Figure 1B).

3.1.1 Close the valve and attach the base plate to the lower cone by using wax. (See Note 1).

**NOTE 1:** It may be necessary to warm the base plate to keep the wax from hardening too quickly. Only the minimum amount of wax necessary to make the apparatus water tight shall be used and any excess shall be removed.

3.1.2 Apply petroleum jelly to the bottom of the base plate and weigh the prepared cone assembly with base plate, and the glass plate.

3.1.3 Fill the lower cone with water to just below the rim of the base plate. (Be sure valve is closed). Position the glass plate over the base plate leaving about a 3.25 mm

