Unconfined Compression Test

1. Extrude a Shelby tube sample to a length of about 6.5 inches.
   Lay the specimen into the bottom half of the trimming cradle so that the specimen extends beyond both ends of the cradle by about the same amount. Place the cradle top half over the specimen and fully close the cradle.

2. CAREFULLY trim the ends of the specimen flush with the ends of the cradle with the wire saw. You may need to keep light finger pressure against the soil being removed to prevent it from falling off and tearing part of the specimen away from the end.

3. Remove the specimen from the cradle and measure the average length.

4. Position the specimen on the bottom platen of the loading machine and center it under the top platen.

5. Advance the bottom platen so the top of the specimen contacts the top platen. There should be 1 to 5 pounds of compressive force on the specimen.

6. Position the axial deformation transducer, LDT. Tare the LDT and load cell signal conditioner readouts.

7. Set up GenTest program to take readings for every 3 seconds

8. Start GenTest and move the loading switch to Up at the same time.

9. Watch the computer monitor. Stop loading when the load vs. deflection curve heads in a descending direction OR the specimen deformation reaches 15% of the original specimen height, whichever occurs first.

10. Release the load and remove sample from machine.

11. Prepare the sample for moisture determination.

ASSUMPTIONS:

1. \( \Delta V = 0 \).

2. Sample remains cylindrical.

   \[ H \times A = (H - d) \times A' \]

   \[ A' = H \Delta / (H - d) = A / (1 - d/H) = A / (1 - \varepsilon) \]

   Where \( \varepsilon = d/H \) = axial strain.

DATA REDUCTION

1. Plot axial stress-strain curve.

2. Find maximum axial stress (unconfined compressive strength \( = q_u \)).