



Simple Infiltration Test

Purpose

This test will help determine whether an infiltration type stormwater practice can be installed in a proposed location. This simplified test is intended for use with smaller, more residential scale infiltration practices. For larger projects and for projects in highly urbanized locations, this test can provide a preliminary understanding of soil conditions, but a more in depth soil investigation is essential at such sites before design and construction.

Timing

Tests should not be conducted in the rain or within 24 hours of significant rainfall (>0.5 inches) or when the temperature is below freezing. Preferred testing time is between end of March and June, the presumed wet season here in the Northeast.

Tools

Shovel, tarp, yardstick ruler, watch or clock, clipboard, pen, field data sheet. You will also need to make sure you have a source of water, either a hose that can reach the hole that you dig or enough buckets of water so that you can properly conduct this test.

Procedure

1. Dig a hole a minimum of 2 feet in diameter and 1 to 2 feet deep. As you dig, put excavated dirt on tarp to avoid spread of dirt on nearby sidewalk, lawn, or driveway. If the hole fills with water on its own, *choose a new location*.
2. Take a handful of soil from the bottom of the hole and determine the type and texture of the soil through a "ribbon test," following steps from the *Vermont Rain Garden Manual* shown at right. Record results on the field data sheet. If soil is clay, *choose a new location*.
3. Fill the hole with water to moisten the soil, being careful to avoid splashing, which could erode the sides of the hole.
4. Allow the hole to drain completely. If it does not drain completely, *choose a new location*.
5. Place a yard stick in the hole and fill the hole with water a second time. Note the water level and time. After 30 minutes, check the water level again and note the new water level. Multiply the change in water level by 2 to get the number of inches of infiltration in one hour. Record the depth on the field data form.

1. Grab a handful of moist soil and roll it into a ball in your hand.
2. Place the ball of soil between your thumb and the side of your forefinger and gently push the soil forward with your thumb, squeezing it upwards to form a ribbon about ¼" thick.
3. Try to keep the ribbon uniform thickness and width. Repeat the motion to lengthen the ribbon until it breaks under its own weight. Measure the ribbon and evaluate below:



The ribbon formed here depicts a clay soil because it is greater than 1.5" in length.

SAND: Soil does not form a ribbon at all.
SILT: A weak ribbon < 1.5" is formed before breaking.
CLAY: A ribbon > 1.5" is formed.

Prepared by Pioneer Valley Planning Commission
in consultation with Mike Dietz, Connecticut NEMO Program Director
(portions adapted from: City of Seattle Stormwater Manual, PA Stormwater BMP Manual, Prince George's County Bioretention Manual, NH DEP Soak up the Rain guidance, VT Rain Garden Manual)



Field Data Sheet
Simple infiltration test

Location: _____

Person(s) conducting test: _____

Date: _____

Time: _____

Starting water level in hole: _____ inches

Ending water level after 30 minutes: _____ inches

Difference: _____ inches

Difference multiplied by 2: _____ inches per hour

Soil Type (check one)	Infiltration Rate (check one)
<input type="checkbox"/> No ribbon will form = Sand	<input type="checkbox"/> ≥ 1 inch per hour (test indicates that good location for infiltration type stormwater practice)
<input type="checkbox"/> Weak ribbon <1.5" = Silt	<input type="checkbox"/> < 1 inch per hour (if less than 1 inch per hour, choose a different location)
<input type="checkbox"/> >1.5" = Clay	