How to Complete a Simple Soil Infiltration Test

What you will need:

- Shovel, post hole digger, or auger
- Water
- Metal measuring tape or ruler
- Paper and pen for recording information
- Hand trowel or small shovel

What to do:

1. In the location where you plan to install your rain garden, infiltration trench, or dry well, dig a hole 6-18 inches wide and at least 12 inches deep. If you know how deep the bottom of your rain garden or infiltration trench will be, make your hole that deep if possible. Looking down and into the hole, it should look roughly circular.

2. If the sides of the hole look smooth, use a hand trowel to roughen the soil a bit and remove any loose soil from the hole.

3. Fill the hole with water.

4. If the water in the hole disappears within 10 minutes, you can complete the infiltration test immediately. If water is still present in the hole at the end of 10 minutes, leave the water in the hole overnight and return the next day.

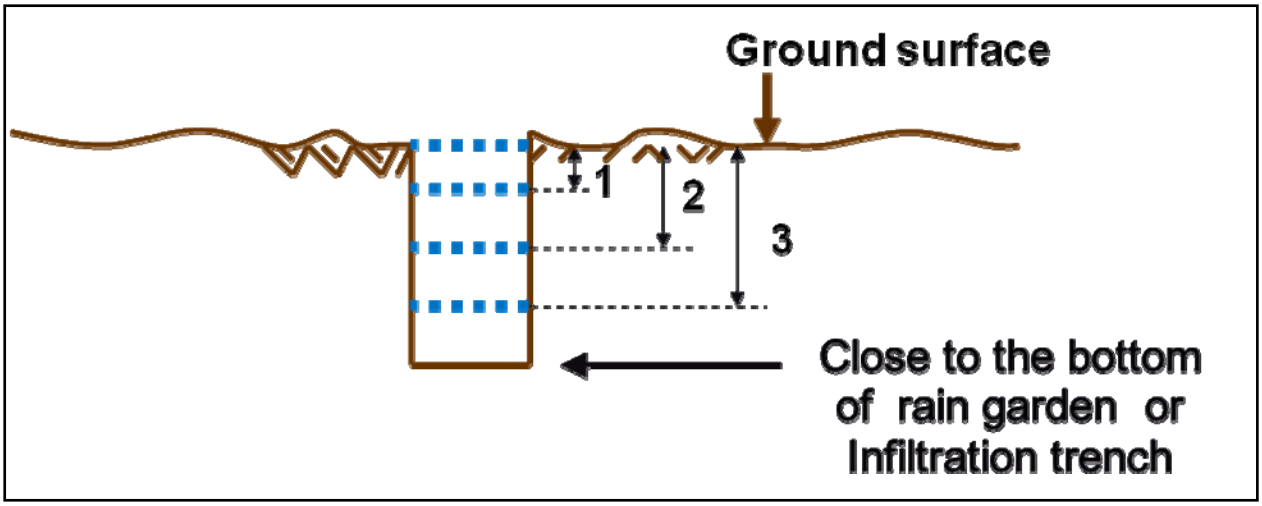
5. The next day, refill the hole with water and record the time.

6. Every 10 minutes for 1 hour, measure the water level to the nearest one quarter inch and record the information. If the water is not draining very quickly, you can take the measurements at 20 minute intervals for 2 hours or 30 minute intervals for 3 hours. Regardless of which time intervals you use, make at least six measurements.

7. To calculate infiltration, divide the drop in water level by the total time it took the water to infiltrate into the soil **in hours**. Make sure you convert your minutes to hours! To get hours, divide your time in minutes by 60.

In the photo to the right, the test hole has been dug and filled with water. Once the water drains, the hole will be re-filled with water and the drainage rate will be measured.

Photo credit: City of Lincoln, Nebraska
http://lincoln.ne.gov/city/pworks/watrshed/educate/garden/howto/resident/index.htm



Graphic courtesy of the Northern Virginia Soil and Water Conservation District

EXAMPLE: In the drawing above, the water had completely drained by the fourth measurement, at about 40 minutes. First, convert 40 minutes to hours: 40 minutes/60 minutes=0.67 hours. Then, calculate the infiltration rate: 12 inches/0.67 hour = ~18 inches/hour.

What does your result mean?

If your infiltration rate is greater than 0.5 inches/hour, your soil infiltration is more than adequate. Build yourself a rain garden, infiltration trench, dry well, etc.

If your infiltration rate is 0.5 inches/hour or less, you can still build a rain garden, infiltration trench or dry well, but you will need an under-drain.