



Rain Garden

INFILTRATION TEST GUIDE

phillywatersheds.org/raincheck

An infiltration test can help you determine whether the soil on your property is suitable for certain types of stormwater management such as a rain garden. An infiltration test measures how quickly water can soak in and flow through the soil.

Tools and Materials List

- 6" PVC coupling*
- Hand sledge
- Wood board or block
- Plastic wrap
- Ruler
- Water
- Stopwatch or timer
- Pen and paper

* *An empty 3 pound coffee can may be used in place of a 6" PVC coupling by cleaning out the inside of the coffee can and cutting the bottom off.*

Instructions

1. **Prepare the container** by holding a ruler against the inside of the PVC coupling. Using a permanent marker, mark the coupling three inches from the bottom and another four inches from the bottom.
2. **Clear the area** of brush and debris. The infiltration test is recommended to be performed at the proposed depth of the rain garden (typically 6 or 12 inches).



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Instructions (continued)

3. **Drive the container into the soil** by placing the container on the cleared soil surface at the proposed depth (typically 6 to 12 inches below existing ground surface) and laying the wooden board over the top of the coupling. Strike the board with the hand sledge until the coupling is driven into the ground to the three-inch mark.

Note:

If the soil contains rocks and the coupling cannot be driven to the appropriate depth, try another location. If this is not possible, drive the coupling into the soil until it hits rocks.



4. **Add clean water** to the coupling up to the four-inch mark. As soon as the water has been poured, begin the stop watch.

5. **Record the amount of time** (in minutes) it takes for the 1 inch of water to infiltrate the soil. Stop timing when all of the water has drained and the surface is just glistening.



If the surface is uneven inside the ring, count the time until half of the surface is exposed and just glistening.

5. **Repeat the infiltration test** using the same coupling and location at a minimum of two more times consecutively. Repeat steps 4 and 5 by pouring an additional inch of water to infiltrate into the soil.

Record the number of minutes elapsed for each additional infiltration measurement.

If all of the infiltration tests produce similar results, this result is likely an accurate estimate of the saturated infiltration rate.

Results

If the soil infiltrates water under 1 hour, your soil is suitable for a rain garden. If it takes over an hour for one inch of water to infiltrate the soil, then your site is not appropriate for stormwater management as it will not allow for natural infiltration. Additional soil amendments such as sand, engineered soil, or compost may be added to your soil to improve infiltration rates and are often recommended for rain garden construction. Please consult Philadelphia Water Department's Residential Rain Garden Design Guidelines for additional information.

