

Infiltration Steps



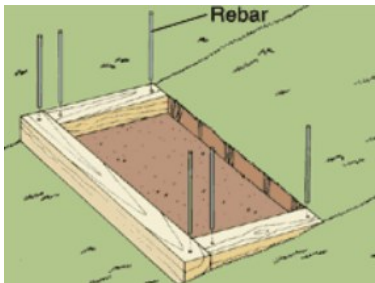
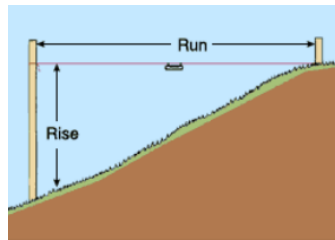
What are infiltration steps?

Infiltration steps are designed to slow down and infiltrate runoff on moderate slopes that don't have lots of large rocks or roots.

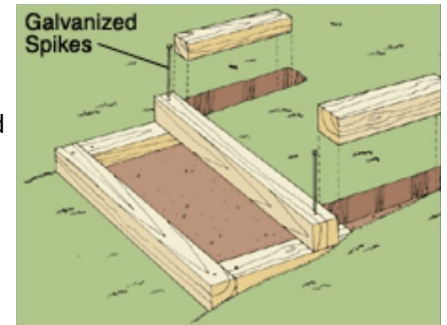


Installation

1. Determine number of steps needed by dividing the total rise of the hill by 6 (for 6" high steps/lumber) and rounding up. Then, divide the run by the number of steps calculated to determine each step depth. A comfortable step depth should be at least 15".
2. Determine step width (width must be less than 4' within shoreland zones, **refer to the latest local and state permits to verify requirements**), and stake out location of steps.
3. Starting at the bottom, dig a trench for the riser lumber and two trenches for the side lumber (if used). Side lumber needs to be 6" longer than the step depth to overlap (i.e. 21" if step depth is calculated at 15"). Infiltration steps may not need side lumber if the surrounding land is higher and the riser can be extended **into** the banks so water will not go around the steps. Drill $\frac{1}{2}$ " diameter holes 6" from the ends of each lumber. Position and level the step. Drive $\frac{1}{2}$ " diameter by 18" long rebar through the holes until flush so the lumber is anchored into the ground.



4. (Continued) Remove all soil behind/within this step until it is roughly level with the bottom of the lumber and dispose of this excavated soil in a place where it will not wash into adjacent water resources.
5. To build the next step, measure from the front of the first riser to locate the second riser. Dig trenches for the second riser and sides. Set the riser in place with the ends resting on the side lumber below. Drill a pilot hole about 5" into the riser and attach it to the side lumber below it with 12" galvanized spikes. Set the side lumber in the same as the previous step. Excavate soil within the step and repeat process to top of the hill. For the top step, cut the side lumber 6" shorter than the ones on the lower steps.
6. Complete the steps by lining the inside of each step with non-woven geotextile fabric, making sure the fabric is long enough to extend up the sides of the lumbers. Then backfill each step with $\frac{3}{4}$ " crushed stone or pea stone until it is about 1" below the top of the lumber. Small paving stones can be set into crushed stone to provide a smooth surface for bare feet as long as ample crushed stone is exposed to allow infiltration.
7. Stabilize bare soil adjacent to the steps with native plants and/or erosion control mix.



Materials

- Pressure treated lumber (6" x 6")
- Steel rebar (½" diameter, 18" long)
- ¾" crushed stone
- Non-woven geotextile fabric
- 12" galvanized spikes

Maintenance

- Replace rotten lumber as needed.
- Remove leaves from steps in the fall to prevent clogging.
- If steps fill with sediment, remove and wash or replace stone.
- Manually remove any vegetation growing in the steps.

Place one small paving stone or stepping stone on top of each crushed stone step for a smooth surface for bare feet as long as ample crushed stone is exposed to allow infiltration.

Retrofitting Existing Steps

Many existing steps can be retrofitted to become infiltration steps

Installation

1. Remove several inches of soil from behind each step, disposing soil away from areas in which it can wash into nearby water resources.
2. Line the bottom and side of the excavated area with non-woven geotextile fabric and backfill with ¾" crushed stone or pea stone.
3. If timbers are not firmly secured, drill ½" diameter holes, 6" from the end of each timber. Drive ½" diameter, 18" long steel rebar through the holes with a sledge hammer.

