

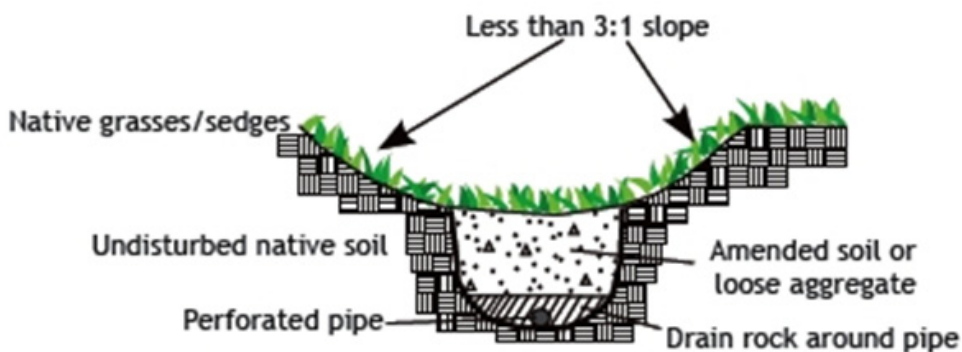
## GREEN STORMWATER INFRASTRUCTURE (GSI) FACT SHEET BEST MANAGEMENT PRACTICE

# Infiltration Trench

### WHAT IS IT?

Infiltration trenches are shallow open channels lined with dense vegetation that promote filtration and infiltration of stormwater runoff from impervious surfaces. Due to flexibility in size and shape, infiltration trenches are particularly well suited for accepting first flush runoff from sidewalks, parking lots, roads, and rooftops.

### CRITICAL COMPONENTS



- Inlet - sheetflow through a vegetated buffer strip or concentrated flow into a sediment forebay
- Media - stone, aggregate, sand or amended soil (3 to 6 feet deep)
- Observation well (optional) - 2-4" diameter PVC running from bottom of trench to surface, installed every 50 feet
- Outlet - infiltrative parent material or underdrain

### APPROPRIATE USE AND CONSTRAINTS

A major advantage of infiltration trenches as a BMP is their channel shaped, linear form which allows them to be installed beside existing impervious areas like parking lots, roads, sidewalks, and driveways. While infiltration trenches can be implemented for a variety of sites, individual trenches generally cannot accept runoff from more than 5 acres of impervious surface. They should be designed to completely infiltrate stormwater in 24-48 hours to prevent mosquito breeding. Infiltration trenches are not well-suited for hotspots like gas stations, chemical storage areas, and brownfields unless designed specifically for that purpose.

### BENEFITS

**Stormwater Volume Reduction:**  
Moderate

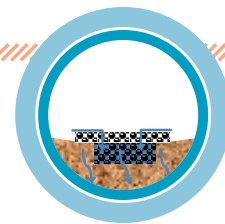
**Stormwater Treatment:**  
Moderate

Factsheet prepared by the Vermont Green Infrastructure Initiative, a program of the Watershed Management Division of the VT Department of Environmental Conservation (<http://watershedmanagement.vt.gov/>).



# GREEN STORMWATER INFRASTRUCTURE (GSI) FACT SHEET

## BEST MANAGEMENT PRACTICE: INFILTRATION TRENCH



### COSTS

Construction:

\$20-\$30/cubic foot

Annual Maintenance:

\$0.39/cubic foot of water quality volume treated

### MAINTENANCE

During construction, infiltration trenches should be kept off-line to prevent conveyance of sediment from earth-moving activities to surface waters.

After construction, establishing a dense vegetated cover on the margins of the trench to provide adequate filtration of first-flush sediments is required. Once the vegetated buffers are established, seasonal mowing is necessary to maintain aesthetics and safety. Infiltration trenches will maintain functionality further into winter if they are de-watered before the arrival of freezing temperatures. Quarterly checks of observation wells (if present) are necessary to ensure proper rate of infiltration and to track sediment accumulation within the BMP.

### ADDITIONAL CONSIDERATIONS

Infiltration trenches provide moderate levels of stormwater volume reduction and filtration of sediment. They do not provide much treatment when underdrained. In areas with large sediment loads, infiltration trenches can clog if pretreatment is inadequate. Like other BMPs that promote infiltration, they work best on soil types with high permeability. Like all BMPs, they can be connected to other BMPs (like bioretention cells) to provide additional functionality.



INFILTRATION TRENCH IN A MONTEPELIER PARKING LOT



ROADSIDE INFILTRATION TRENCH

### REFERENCES

City of Lancaster, Pennsylvania. 2011. City of Lancaster Green Infrastructure Plan Appendix A: Green Infrastructure Technology Fact Sheets. <http://www.dcnr.state.pa.us>

Minnesota Pollution Control Agency. 2005. Minnesota Stormwater Manual Chapter 12: Best Management Practice Details. <http://www.pca.state.mn.us>

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