

# Pipe Slope Drain



## What are they?

Pipe slope drains are flexible pipes that direct flow from an upslope dike or berm past a disturbed slope. The runoff that flows in the pipe can either be offsite “clean” runoff or sediment-laden flow from an active construction area. Piping flow past the unstabilized slope eliminates the potential for erosion. Pipe slope drains can provide a relatively inexpensive solution to the problem of protecting steep slopes.

## Techniques

The basic technique to installing pipe slope drains is relatively simple. A plastic pipe is installed at the “low spot” of a berm or dike. This runoff then flows through the pipe past the disturbed slope. If off-site runoff flows through the pipe, it can be diverted to the stormwater conveyance system or even to a stream, depending on the upslope land use. If, on the other hand, sediment laden runoff from a disturbed upslope portion of the construction site flows through the pipe, it should be directed to a sediment basin or trap for further treatment.

## Limitations and challenges

The major limitation to the use of pipe slope drains is drainage area. Each 30” pipe can only handle the runoff from a five acre drainage area. When runoff from construction activity is carried in the pipe, a downslope sediment trap or basin may be required. In some cases, especially on small construction sites, it may be difficult to locate this device without disturbing construction activity.

## Innovations and improvements

One adaptation to the pipe slope drain system is the use of a flexible pipe with a small diameter connected to gutter pipes of newly built houses or townhouses. Concentrated flow from rooftops is diverted past newly seeded or unstabilized lawn to a stabilized area downhill (often the street), lowering the potential for erosion. Unlike runoff from construction sites, runoff from rooftops can be piped directly to the street or to a catch basin inlet. These pipe drains do not require berms, dikes or a settling device.

# Fast Facts - Pipe slope drains

Approximate Cost: \$5 - \$6 per linear foot

Effectiveness	Low	Mod	High
Erosion/Sediment Control		X	
Long-Term Pollutant Reduction	X		
Habitat/Stream Protection	X		

Ease of Application	Difficult	Average	Easy
Installation		X	
Maintenance		X	

## Limitations

Very small sites

Sites with no room for a basin or trap below the disturbed slope



Left: Pipe slope drain on very steep slope.



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[cleanwatermn.org/MS4toolkit](http://cleanwatermn.org/MS4toolkit)



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