

Water Runs Downhill: Managing Runoff on Steep Slopes



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Why Are Steep Slopes Important?

Green hills with steep slopes contribute to the natural beauty of the Finger Lakes region. However, when intense rain falls on these hills, water rushes down the slopes and causes flash flooding, washouts, and water pollution. Although some amount of flooding and erosion is natural, there are ways to reduce the costly damage to property and roads.

When rain falls on natural slopes covered by healthy vegetation, the plants and soil absorb and slow down some of this water. However, development on steep slopes often disrupts these natural functions and results in more runoff, faster runoff, and less protection for the soil. Concentrated high energy flow causes erosion, washouts, and landslides. Increased peak flows cause flood damage to homes and property. In most cases, homeowners insurance policies do not cover damage due to flooding, landslides, or other “earth movement events.” The quality of streams and lakes is impaired by the soil and debris that washes off the hillsides. Damage to roads is costly for the entire community.

Development on slopes with a grade of 15% or greater should be avoided, if possible, to limit soil loss, erosion, excessive stormwater runoff and the degradation of surface water. On slopes greater than 25%, no development, re-grading, or stripping of vegetation should even be considered.

(Source: New York State Stormwater Management Design Manual, January 2015;

<https://www.dec.ny.gov/chemical/29072.html>.)

No Adverse Impact is the principle that it is not ok to make changes to your land that adversely impact others by causing erosion, flooding, or water quality impairment.

Developing on steep slopes can cause a myriad of issues. As slopes become steeper, runoff becomes more erosive and stabilizing a slope becomes more challenging. This guide outlines strategies for managing the energy of rain and snow melt and thus reducing the potential for damage. The objective of these techniques can be summarized as: Slow it down. Spread it out. Soak it in.

Steep slopes present challenges because of the difficulties of stabilizing steep soils and safely managing runoff.



USDA Natural Resources Conservation Service



Sustainable Keuka Lake Municipal Handbook



Mecklenburg Fire Department