



United States
Department of
Agriculture

Soil
Conservation
Service

Columbia,
Missouri



Urban Conservation Tips

Controlling Construction Site Erosion



Description

Erosion and sedimentation go hand-in-hand. Both are costly enemies to developers and to the community. Erosion removes topsoil and creates gullies, greatly increasing the cost of establishing grass.

Sediment that leaves a construction site fills road ditches, clogs culverts and storm sewers and pollutes lakes and streams. It is much more expensive to remove sediment from these areas than to prevent sediment from leaving a construction site. The following information provides practical methods for controlling erosion and trapping sediment on construction sites. Select the methods that are appropriate for your site. Then incorporate those methods into an erosion and sediment control plan.

Application

The longer an area is allowed to remain bare of vegetation, the more severe and cumulative the effects of erosion and sedimentation become. Therefore it is desirable to keep the period between grading and vegetative establishment as short as possible. The following vegetative and non-vegetative methods are used to protect soil from erosion.

Vegetative Soil Cover

Vegetative methods are the least expensive means of erosion control. Establishing grass or other vegetation protects soil from the impact of falling raindrops and helps hold the soil in place.

Temporary and permanent vegetative covers may be used.

Temporary seedings provide quick cover to control erosion before the final grading and landscaping of a lot. It also is used when permanent seeding is not desired or when it is not the right time of the year to establish the desired permanent vegetation. Wheat and rye are common, temporary cover crops. They are seeded at a rate of 150 pounds per acre, or about four pounds per 1,000 square feet.

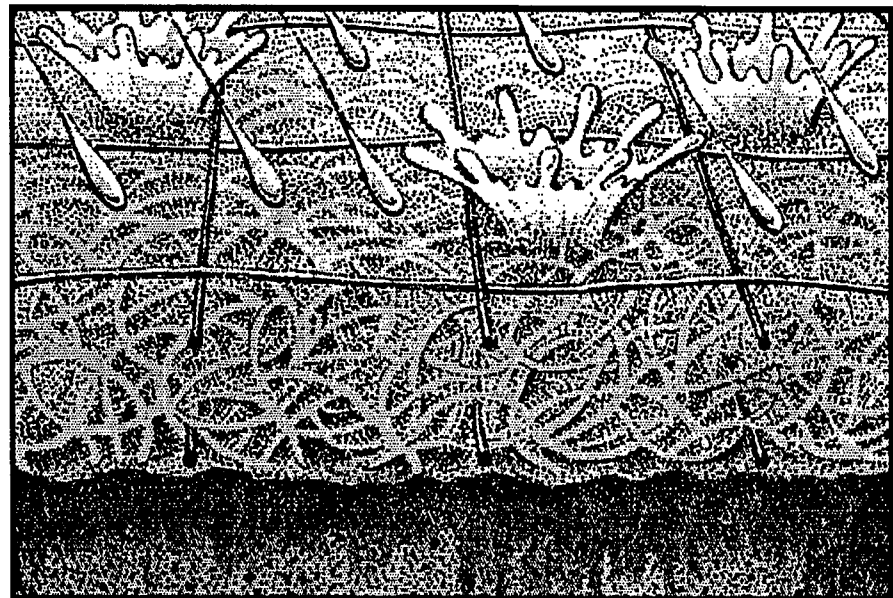
Establishing permanent vegetation may include seeding grass or other species, putting down sod or planting trees and shrubs. Success requires careful species selection, proper seedbed preparation and follow-up care.

Non-vegetative Soil Cover

Non-vegetative soil cover methods include using various mulches and a wide variety of manufactured soil erosion-control blankets. The primary purpose of mulch is to protect the soil from the impact of falling raindrops, and to provide an environment conducive to plant growth. Mulch helps plants grow by retaining moisture and by shading soil from the sun.

Mulch also is used when an area is seeded with vegetation. In those cases, the seed is spread first. Then mulch is applied. Straw is the most commonly used mulch because it is widely available and is relatively inexpensive. Hay, wood

(over)



Mulch and erosion control blankets, like the one above, protect the soil from the impact of raindrops and aid plant growth.

chips, wood shavings, shredded bark, jute fibers, coconut fibers and shredded newsprint also have proven successful as mulches.

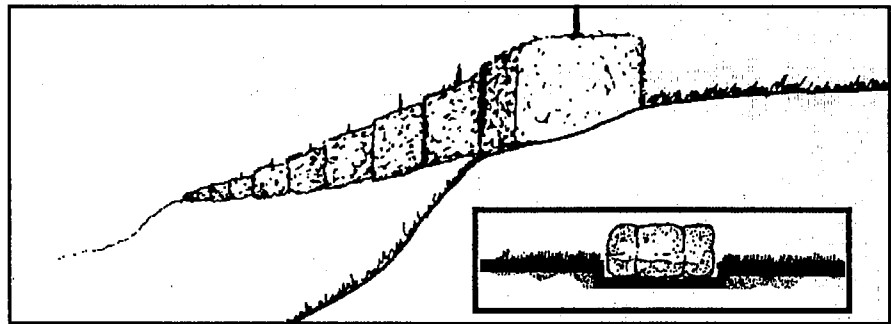
Straw mulch should be applied uniformly over an area at a rate of about two tons per acre, or two bales per 1,000 square feet. On large areas, the straw can be distributed with a mechanical mulch blower. In some communities, these blowers can be rented from the local soil and water conservation district for a nominal fee.

Some degree of "tacking" usually is required to attach the mulch to the surface to prevent straw from blowing away or washing down the hill. Tacking is done by spraying the surface with a commercially available tacking agent or by disking lightly with a straight disk, an implement pulled behind a tractor with disk-shaped blades aligned parallel to the direction of travel.

Erosion control blankets are used where steep hills or storm water runoff make it difficult to keep conventional straw mulch in place. These blankets consist of a natural or synthetic fiber material that is sandwiched between a permanent or degradable netting. Strips of the blanket material are unrolled down the hill and anchored into the soil on the uphill side. In all cases, success with erosion control blankets requires strict adherence to the manufacturer's installation instructions.

Runoff Control

Erosion from construction sites results from uncontrolled water that detaches soil particles and carries them away. These problems can be alleviated by controlling the flow of water by using diversions, waterways and underground drains. Information sheets that outline those procedures are available from your



Straw bales can be used to trap sediment around construction sites. The insert shows how the bales should be embedded.

local Soil Conservation Service office.

Sediment Control

The two most common methods for preventing sediment from leaving a construction site are sediment filters and sediment basins. Keep in mind, however, that it always is better to prevent erosion from occurring than to catch the sediment it causes.

Sediment filters, commonly called silt fences, are used around the perimeters of construction sites and around inlets to storm sewers to remove sediment from the surface water leaving the construction sites. One of the most effective products available consists of a reinforced mesh fabric attached to wooden stakes. The stakes are driven into the ground to form a fence-like barrier. The lower edge of the mesh fabric is placed in a trench so that it is at least six inches below the ground. Soil is packed around the bottom of the fence to keep water from running under the fabric. These filters take up little space, and are effective when properly installed.

Straw bales also are used around the perimeters of construction sites to trap sediment. The effectiveness of this method often is reduced because of improper installation. Like silt fences, straw bales must be set in trenches and anchored with stakes to keep surface water from running around or under the

barriers.

Grass filter strips sometimes are grown around the perimeters of construction sites where space and time for establishment permit them. The size of the grass filter strips should be proportional to the drainage areas. While not as effective as silt fences, grass filter strips filter sediment from low-velocity storm water flow, especially when used in conjunction with other erosion-reducing measures. The grass strips work only with evenly dispersed flows of water. They will not work in ditches or areas where water flows rapidly.

Where To Get Help

Keeping soil on construction sites is vastly cheaper than cleaning up the sediment caused by soil erosion. When sediment is allowed to run off construction sites, the community bears the burden and expense of cleaning up the choked storm sewers, ditches, lakes and streams. The methods covered here have proven to be cost effective in the communities where they have been used.

For more information about erosion control methods and sediment pollution control methods for construction sites, contact your local Soil Conservation Service office. It is listed in the telephone directory under "U.S. Government, Department of Agriculture."