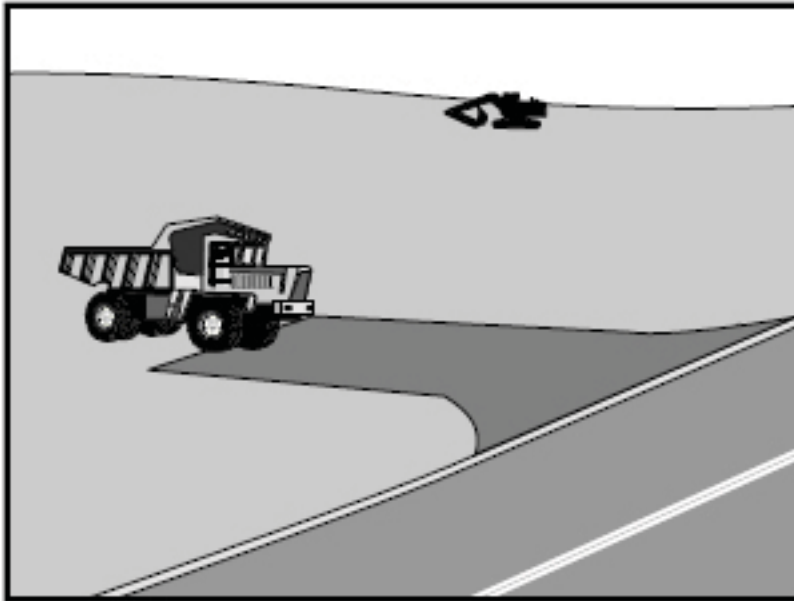


Soil Roughening



© 2006 CASQA Stormwater Best Management Practices - Construction

Soil roughening is a temporary erosion control strategy that is often used concurrently with grading. It involves the creation of horizontal grooves and the stair stepping of slopes through the use of contour furrows. Surfaces are left in a roughened condition and not finely graded. Soil roughening moderately increases infiltration rates, reduces runoff velocities, and provides minor sediment trapping.

Usage

- avoid using contour furrows in areas where mowing is to be conducted
- recommended for rocky surfaces
- aids in the establishment of vegetative cover by providing a surface area that allows seeds to take hold and grow
- stair-stepping slopes using contour intervals results in each step catching material that is eroded from upslope

Benefits

- performed easily and is appropriate for many slopes
- facilitates seed germination in hot, dry weather because the grooves on the soil surface provide areas of cooler microclimates and increased soil moisture retention
- provides a level area in which vegetation may become more easily established
- can reduce erosion by up to 80%

Limitations

- only a temporary measure and must be used in conjunction with other surface stabilization techniques if effective stormwater controls are to be established
- is only effective for gentle rain events; heavy rain events will wash out soil roughening and the surface will have to be re-roughened
- does not control dust

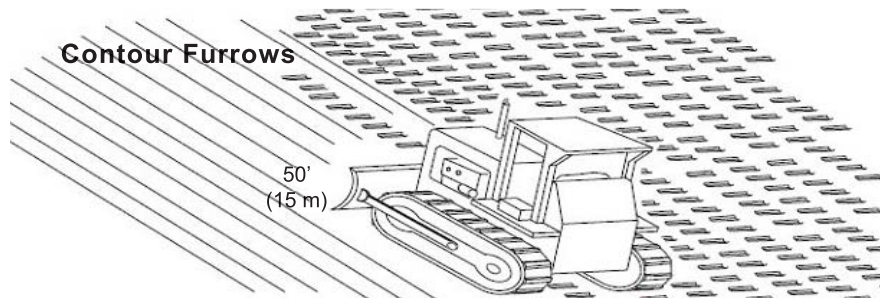
Estimated Cost

Cost of heavy equipment (no materials)

Alternatives

- Geotextiles (p. 2-6)
- Hydroseeding (p. 2-8)
- Mulching (p. 2-10)
- Seeding (p. 2-14)
- Sodding (p. 2-18)

Notes:



Grooves will catch seed, fertilizer, mulch, and rainfall; grooves will decrease runoff.

Courtesy of: Washington State Department of Ecology. 2001

Installation Tips

There are 4 soil roughening techniques: grooving, tracking, soil roughening for areas to be mowed, and soil roughening for areas not to be mowed. This fact sheet concentrates on grooving:

- utilizes machinery such as tillers, diskers, spring harrows, or the teeth on a front end loader bucket to gouge grooves in the soil surface
- run grooves across the slope and follow contour lines
- space grooves no more than 15 in apart and at least 3 in deep

Regardless of the technique, the following recommendations are applicable whenever soil roughening is utilized:

- roughen slopes with a horizontal to vertical ratio of 3:1 ft prior to seeding
- avoid soil compaction, as this will impede the establishment of vegetation and increase stormwater runoff velocities
- perform as soon as possible following the removal of vegetation and grading activities
- roughen surface areas following grading to promote establishment of vegetational cover
- seed and sod areas that are roughened as quickly as possible

Maintenance

- inspect area after every rain event, as roughened slopes are prone to erosion
- necessary to fill, regrade, re-rough, and reseed rills or gullies
- utilize proper dust control techniques

Vendors

Not Applicable

References

Begin, Lisa. Stormwater Authority, LLC. 2005. Best Management Practices for Stormwater Control.

USEPA. 2004. Development Document for Final Action for Effluent Guidelines and Standards for the Construction and Development Category. USEPA, Washington, D.C.

Washington State Department of Ecology. 2001. Stormwater Management Manual for Western Washington.