



Natural Resources Conservation Service
CONSERVATION PRACTICE STANDARD

LAND SMOOTHING

Code 466

(Ac.)

DEFINITION

Land smoothing is removing irregularities on the land surface.

PURPOSE

Land smoothing improves surface drainage, provides for more uniform cultivation, and improves equipment operation and efficiency.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to land areas where depressions, mounds, old terraces, turn-rows, and other surface irregularities interfere with the application of needed soil and water conservation and management practices.

Land smoothing is limited to land areas having adequate soil depth or where topsoil can be salvaged and replaced.

Land smoothing does not apply to the regular maintenance on irrigated land or on land that has been modified using practice standards Precision Land Forming (462) or Irrigation Land Leveling (464).

CRITERIA

The extent of rough grading required and tolerances of the finished smoothing job must be in keeping with the requirements of the planned cropping system.

Construction operations are to be carried out in such a manner that erosion and air and water pollution are minimized.

Smooth irregularities to the degree required for the planned use.

The land to be smoothed will be cleared of vegetative matter and trash.

Adequate field investigation and survey shall be made to determine the following:

- ***Location and limits of the land smoothing operation.***
- ***Soil depth limitations; soil borings may be necessary.***

- ***Location of appurtenant structures and control measures to be installed in conjunction with the land smoothing operations; i.e. erosion and sediment control and conservation practices.***

Depth of cuts shall be controlled to minimize exposure of subsoil and parent material.

The length and degree of finished slopes shall be suited to the final land use and particular soil type.

When smoothed land is not immediately planted to crops and no further construction activity will occur, vegetation shall be established in accordance with WV Conservation Practice Standard Critical Area Planting (342) or Forage and Biomass Planting (512).

CONSIDERATIONS

Where possible, the ground surface should be plowed or disked prior to smoothing.

Consider the effects on the water budget, especially on volumes and rates of runoff, infiltration, and evaporation.

Effect on erosion and the movement of sediment and soluble substances attached to sediment carried by runoff should be minimized.

Potential for earth moving to uncover or redistribute toxic materials, such as saline soils should be addressed.

Consider the effects on wetland hydrology and/or wetland wildlife habitat.

Address potential impacts to existing utilities by locating and avoiding all utilities.

Consider the effects on soil loss due to increased wind erosion potential and subsequent deposition.

Ensure that cultural resources, inventory and assessment have been completed prior to movement of soil.

PLANS AND SPECIFICATIONS

Plans and specifications for land smoothing must be in keeping with this standard and must describe the requirements for applying the practice to achieve its intended purpose. Plans and specifications must include construction plans, drawings, job sheets or other similar documents. These documents must specify the requirements for installing the practice.

Specifications may be developed from NEH, Part 642, Specifications for Construction Contracts, WV 700 series specifications or other materials, as appropriate.

OPERATION AND MAINTENANCE

An Operation and Maintenance (O&M) plan must be prepared for and reviewed with the landowner or operator. Actions must be carried out to insure that this practice functions as intended. Such action must include performing maintenance when needed to insure that surface irregularities are maintained at the degree of smoothness required. The plan must specify that the treated areas and associated practices are inspected annually and after significant storm events to identify repair and maintenance needs.

Use the CPS 466 Land Smoothing Operation and Maintenance plan.

REFERENCES

U.S. Department of Agriculture, Natural Resources Conservation Service, 2009. Engineering Field Handbook, Chapter 1. Surveying. National Engineering Handbook, Part 650.01, Washington, DC.

U.S. Department of Agriculture, Natural Resources Conservation Service, 1990. Engineering Field Handbook, Chapter 4. Elementary Soils Engineering. National Engineering Handbook, Part 650.04, Washington, DC.

U.S. Department of Agriculture, Natural Resources Conservation Service, 1961. Irrigation Land Leveling. Section 15, Chapter 12. National Engineering Handbook, Part 623.12. Washington, DC.