

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

LAND SMOOTHING

(Ac.)

CODE 466

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.

The degree of smoothing shall be adequate to meet the objectives of the practice. The smoothed surface shall have sufficient slope (minimum 0.05 percent, but preferably 0.10 percent) to drain into outlets.

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 depth of soil removal shall be limited to that necessary for filling minor irregularities (usually not over 3 inches deep) with no extensive areas of unproductive subsoil exposed.

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

Follow all Federal, state and local statutes and regulations concerning underground utilities, cultural resources and threatened and endangered species.

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.

Consider establishing temporary cover by use of practice standard Cover Crop (340),

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.

Land Smoothing Specifications.

Construction operations shall be carried out in such a manner that erosion and air and water pollution are minimized and held within legal limits.

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

Irregularities shall be smoothed to the degree required for the planned use and the requirements of subsequent tillage, floating, or planting to be performed.

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.

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.