

**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).

The smoothing of agricultural lands to improve surface drainage must be for the purpose of proper land use under the following conditions:

- The soils to be smoothed shall be of such capability as to provide good permanent cropland after drainage
- The land to be smoothed must have an outlet, based on the degree of drainage required by the crops to be grown, to adequately provide for the removal of drainage water
- A collection ditch system must be located or planned in accordance with Surface

Drainage, Field Ditch (607) when necessary for proper functioning of the system

- The land shall be protected from erosion due to storm runoff

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.

On depressional land, only sufficient soil shall be moved to fill in minor depressions varying in depth up to approximately 0.5 foot and to remove small ridges and humps.

Adequate soil investigations shall be made to determine the depth of topsoil. If there is infertile subsoil, excavate 6 inches and replace with topsoil.

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.

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.

NRCS, IA

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Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service [State Office](#) or visit the [Field Office Technical Guide](#).

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.

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.

The following list of Construction Specifications is intended as a guide to selecting the appropriate specifications for each specific project. The list includes most, but may not contain all, of the specifications that are needed for a specific project:

- IA-1 Site Preparation
- IA-3 Structure Removal
- IA-5 Pollution Control
- IA-11 Removal of Water
- IA-21 Excavation
- IA-23 Earthfill

IA-26 Topsoiling

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.