

LAND RECONSTRUCTION, ABANDONED MINED LAND (acre)STANDARDDefinition

Restoring land and water areas adversely affected by past mining practices and increasing the productivity of the areas for a beneficial use.

Purpose

To stabilize mined areas so that they can be used to support desirable vegetation; reduce erosion and sedimentation; enhance water quality or quantity; maintain and improve the visual quality of the landscape; and protect public health, safety, and general welfare.

Conditions Where Practice Applies

Abandoned mined land that degrades the quality of the environment, prevents or interferes with the beneficial use of land or water resources, or endangers the health or safety of individuals.

Planning Considerations

1. With use of a detailed soil investigation, evaluate the properties of the soil, including geologic and hydrogeologic values; the quantity and quality of water; and the potential of related resources to determine their suitability for use in reconstruction operations.
2. Consider suitability of the reclaimed land for its intended use.
3. Consider measures for placement of soils or spoil materials; location of access roads; potential for water disposal and impoundments; measures to enhance visual resources; provisions for controlling erosion and sedimentation; practices for eliminating public health or safety hazards.

SPECIFICATIONSA. General

Specifications listed below apply only to the reconstruction, grading, and reshaping of land disturbed or adversely affected by past mining of all minerals and commodities. They do not include practices for erosion control or revegetation of disturbed areas. Refer to Section III-A-9 of the Technical Guide to determine practices needed.

LAND RECONSTRUCTION, ABANDONED MINED LAND (Continued)B. Site Preparation

Unsuitable soil material must be removed and buried so that it does not adversely affect water quality or plant growth. Boulders, other rocks, and similar materials shall be buried or otherwise placed where they do not interfere with water disposal practices, stabilization operations, and the planned use of the land. These materials must be disposed of in a manner that minimizes the potential for seepage that can pollute surface and ground water. Toxic materials must be buried to a depth below the root zone or suitable kinds and amounts of soil amendments must be added.

C. Removal and Placement of Material for Final Cover

An effort should be made to reconstruct the soil with materials available on the site. If feasible, soil material suited to plant growth shall be salvaged, stockpiled, and protected for use as final cover material. Vegetation that can be saved shall be properly identified and protected. Temporary seeding, mulching, water disposal, and similar measures to help control erosion should be used as necessary.

The reconstructed soil must meet the requirements for the specified land use as shown on Table 1, page 5, on at least 80 percent of the area. The rest of the area must be in such condition that it can be stabilized.

The salvaged material and other suitable materials must be spread over the graded areas to the depth specified in the reclamation plan. The final slope must permit application of needed conservation and management practices to control soil losses to permissible levels. If settlement is likely to interfere with the planned use of the land, surface drainage, or water disposal, allowance must be made for the expected settlement during final grading.

Overhanging rocks and walls that are to be covered shall be sloped one-half to one before the soil is placed against the wall, unless a flatter slope is needed for stability. Unless otherwise specified, fill material shall be spread in successive layers not more than two feet thick.

D. Nutrients and Soil Amendments

After the cover material has been spread on the disturbed areas, nutrients and soil amendments shall be applied according to the needs determined by soil tests.

E. Restoration of Borrow Areas

If cover material is taken from an area outside the site, the borrow area must be graded and reshaped to insure proper drainage and must be revegetated to control erosion.

If the cover material is taken from adjacent farmland, the topsoil from the area must be stockpiled separately and then replaced after the land is restored to its intended purpose.

If the borrow area is prime farmland or land of statewide importance, the surface layer and subsoil (or the B and C horizons if applicable) must be removed and stockpiled separately by horizon and then replaced on the borrow area in natural sequence. The combined thickness of the replaced layers should be sufficient to restore the original soil productivity. In no case will any land be destroyed or left unprotected as a result of borrowing soil materials to reclaim mined land.

F. Protective Measures in Areas with Highwalls

Provisions must be made to reduce potential safety hazards and erosion and water pollution problems in areas with highwalls. Protective measures must be applied to reduce the detrimental effects of landslides and other unstable conditions. Treatment may include fencing.

G. Visual Resources

The appearance of the reclaimed site must be in accord with standards for maintaining and improving the visual quality of the landscape and must be compatible with the adjacent landscape. Areas of high public visibility or those offering direct or indirect human benefits shall be evaluated and considered in landscape resource management planning and design. Spoil piles and borrow areas should be shaped to blend with the adjacent landscape.

H. Maintenance

A plan shall be prepared that provides specific details concerning maintenance and operation of conservation practices identified in the reclamation plan. The maintenance and operation plan should specify procedures for filling areas where settlement may adversely affect drainage and land use; promptly repairing and revegetating bare spots and eroded areas; adding soil amendments to soils that cannot support adequate vegetation or replacing them with suitable soil material; maintaining access roads; keeping drainage structures and channels clean and functional; applying fertilizer and lime; controlling weeds; using proper grazing practices; and controlling traffic by vehicles.

TABLE 1 - MINIMUM STANDARDS OF SOIL RECLAMATION FOR VARIOUS LAND USES

Soil Properties	Planned Land Use							
	Cropland	Hayland (Tame)	Pastureland	Rangeland	Woodland	Commercial Recreation Land	Noncommercial Recreation Land	Wildlife Land
Maximum Slope (percent):				40	40	15	50 ^{1/2}	50 ^{1/2}
Medium textured material	9	9	9					
Fine textured material	6	6	6					
Coarse textured material	6	6	6					
Minimum depth of root zone (inches) ^{2/}	48	48	24	18	18	24	18	12
Minimum available water capacity in root zone (inches) ^{2/}	4.0	4.0	2.5	2.0	2.0	2.5	2.0	1.0
Minimum depth to seasonal high water table (inches)	30	30	18	12	18	24	12	NA
Range in Reaction (pH) in root zone ^{4/}	4.5-8.4	4.5-8.4	4.0-9.0	4.0-9.0	4.5-8.4	4.5-9.0	4.5-9.0	4.5-9.0
Maximum rock fragments >3" in surface layer (wt. pct.) ^{5/}	10	10	10	30	50	15	75	75

1/ Must achieve slope stability.

2/ Depths shown may or may not provide sufficient available water capacity in the root zone for plant growth depending on the texture of the soil materials.

3/ Maximum root zone depth assumed to be 48 inches.

4/ pH of acid surface layers is to be adjusted by incorporation of lime to levels required for satisfactory growth of vegetation required for the land use. Soils with sodium absorption ratio (SAR) above 12 may need treatment. The amount in either case is determined by soil tests.

5/ Shale materials and other coarse fragments that weather rapidly may be a higher percentage by weight.

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