



FEMA

RECOVERY POLICY - RP9524.2

I. TITLE: **Landslides and Slope Failures**

II. DATE: May 23, 2006

III. PURPOSE:

To update the policy by which the Federal Emergency Management Agency (FEMA) determines the eligibility of funding for the repair of public and private nonprofit facilities affected by landslides and slope failures. This policy provides criteria to determine the eligibility of work to stabilize slopes that fail during an event that resulted in a Presidentially-declared emergency or major disaster. Stabilization is required to provide emergency protective measures or to repair or protect otherwise eligible facilities such as roads, bridges, or buildings.

IV. SCOPE AND AUDIENCE:

This policy applies to all emergencies and major disasters declared on or after the publication date of this document.

V. AUTHORITY:

This policy is written in accordance with the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121-5206 (Stafford Act) and 44 CFR Part 206.

VI. BACKGROUND:

In March 1984, FEMA issued a policy memorandum entitled *Landslide Policy Relating to Public Facilities*. The policy was updated in November 1995, and issued again in August 1999, as part of the 9500 series of policies. Subsequent disasters have revealed a need to provide additional clarification regarding the eligibility of work associated with providing emergency protective measures and making permanent repairs to eligible facilities that have been damaged or are threatened by landslides or slope failures.

VII. POLICY:

This policy addresses the eligibility of work required to stabilize a failed slope authorized under Section 403, *Essential Assistance*; Section 406, *Repair, Replacement, and Restoration of Damaged Facilities*; Section 407, *Debris Removal* and Section 502, *Federal Emergency Assistance* of the Stafford Act.



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A. Terms Used in this Policy

- *Landslide* describes a wide variety of processes that result in the downward and outward movement of slope-forming materials including rock, soil, artificial fill, or a combination of these.
- A *slope failure* is ground movement of relatively limited extent (tens of feet high and up to several hundred feet long) that transports earthen debris downhill by sliding, rolling, falling, or slumping. Slope failures can involve rock falls and/or debris flow (a mixture of soil, rocks, and vegetation), that deposit material at the base of a slope, or a slip-out where a portion of a facility failed and falls to a descending slope. Slope failures can occur in either natural ground or man-made fill, such as a highway embankment or canyon fill.
- *Natural Ground* is unimproved earthen material existing at its original location of formation or deposition, which has not been reworked, mechanically altered, constructed, or improved. Natural ground by itself does not constitute an eligible facility; however, it may constitute part of the integral ground supporting the facility. (See Figures 1 and 2.)
- *Integral Ground* is improved and/or natural ground upon which a facility is located and which is essential to the support, structural integrity, and utility of an eligible facility. As such, integral ground is eligible for FEMA assistance. (See Figures 1 and 2.)
- A *facility* is a publicly or privately owned building, works, system or equipment, built or manufactured, or an improved or maintained natural feature. Land used for agricultural purposes is not a facility.
- *Immediate threat* is defined in 44 CFR §206.221(c) as the threat of additional damage or destruction from an event with a 20% chance of occurrence.

B. Section 403, Essential Assistance and Section 502, Emergency Assistance

1. Pursuant to 44 CFR §206.225, FEMA may provide cost-effective emergency protective measures to eliminate or lessen an immediate threat to life, public health and safety, and to eliminate or lessen an immediate threat of additional damage to improved public or private property.
2. The Regional Director may authorize funding for post-disaster site inspections and limited geotechnical investigations to determine if the disaster created an unsafe condition that poses an immediate threat to life or improved property.



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3. Emergency protective measures to stabilize slopes damaged by a disaster may be eligible work. However, the work must be the least costly option and limited to measures that eliminate an immediate threat to life, public health and safety, or a threat of significant additional damage to improved public or private property as defined in 44 CFR §206.225(a)(3). Note: Emergency work must be completed within six months of the declaration. Examples of eligible emergency protective measures might include but are not limited to:

- a. Temporary drainage measures;
- b. Temporary ground protection to better stabilize the mass (e.g., riprap, sheeting);
- c. Partial excavation at the head of a sliding mass to reduce driving force;
- d. Backfilling or buttressing at the toe of a sliding mass (e.g., gabions, rock toes, cribwalls, binwalls, soldier pile walls);
- e. Installation of barriers to redirect the debris flow; and
- f. Temporary relocation of facilities' function, when cost-effective.

4. Emergency protective measures are deemed cost-effective when the value of the facility at risk exceeds or is greater than protective measure being taken. The preferred protective measure is the least costly option necessary to alleviate the threat and is consistent with sound engineering practice that will protect the public and improved property from the threat of additional damage from a landslide or slope failure.

C. Section 407, Debris Removal

1. Pursuant to 44 CFR §206.224, removal of debris resulting from landslides and slope failures is eligible work when necessary to eliminate immediate threats to life, public health and safety or significant additional damage to improved public or private property, or to ensure the economic recovery of the affected community.

2. Removal of debris flow from public rights-of-way is eligible work, as is removal of debris flow from private property when it poses an immediate threat as described in C(1) above (applicant must demonstrate legal responsibility to remove debris from private property).



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D. Section 406, Repair, Restoration, and Replacement of Damaged Facilities

1. Eligible Work. Section 406 of the Stafford Act and 44 CFR Subpart H authorize the permanent repair, restoration, or replacement of public facilities as defined in 44 CFR §206.221(h) and of eligible private nonprofit facilities as defined in 44 CFR §206.221(e). Since natural slopes or hillsides do not meet the definition of eligible facilities in the Act or the regulations, the restoration or repair of landslides and slope failure is not eligible for permanent work assistance.

2. Determining the Scope of Work

a. FEMA will not fund work to stabilize a slope or restore ground that is not integral to the support of an eligible facility.

b. The Regional Director may authorize post-disaster site inspections and geotechnical investigations to determine the stability of the site. If restoration of a failed slope is necessary to repair an eligible facility, the following site stability determination is required:

(1) **If the site is stable**, the cost to repair or restore the facility on its original site, including restoration of the integral ground, is eligible work.

(2) **If the site is NOT stable and:**

(a) **The instability was caused by the disaster** (i.e., there is no history of instability), the site is eligible for FEMA assistance, provided the work to stabilize the site is cost-effective.

(b) **The instability was NOT caused by the disaster** (i.e., there is evidence of historical instability), the cost to stabilize the site is the responsibility of the applicant.

3. Alternate Projects. If the repair, restoration, or replacement of a facility is not feasible due to soil instability, a State or local-government applicant may request an alternate project; such alternate project will be 90 percent of the federal share of the approved federal estimate of eligible costs. If eligible private nonprofit organizations elect to request an alternate project, funding will be at 75 percent of the federal share. Approval for an alternate project must be in accordance with 44 CFR §206.203(d)(2). (See Figure 3 for an example.)



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VIII. ORIGINATING OFFICE: Recovery Division (Public Assistance Branch)

IX. SUPERSESSION: This policy supersedes all previous policy and guidance on this subject.

X REVIEW DATE: Three years from date of publication.

David Garratt
Acting Director of Recovery
Federal Emergency Management Agency



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Attachment A

FIGURE 1

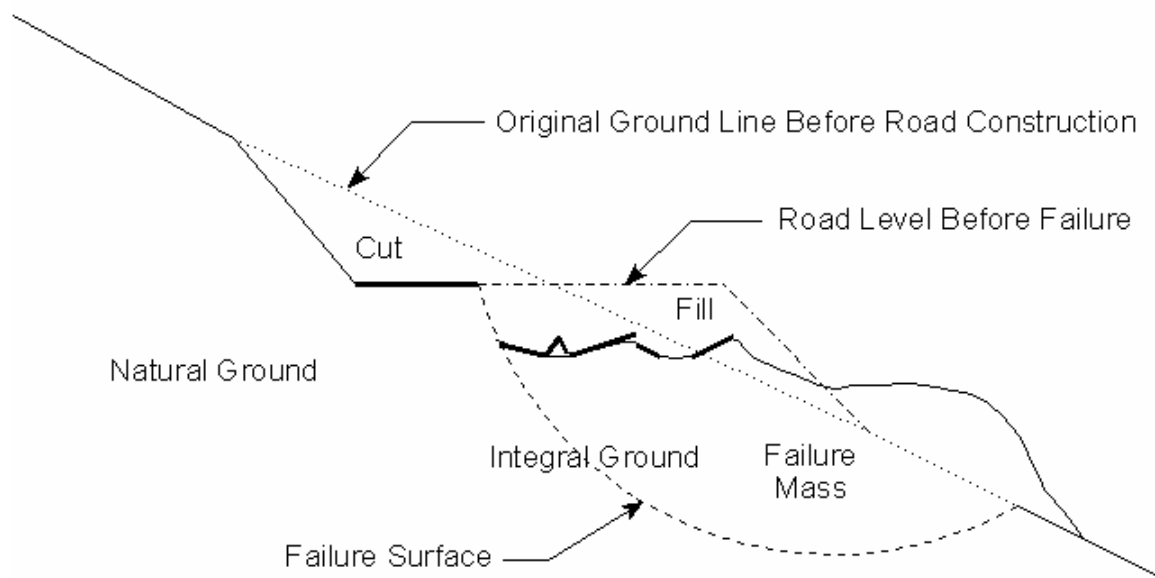


Figure 1: Slope failure in a typical cut-and-fill road section, illustrating the failure mass and the concept of integral ground beneath the facility. Restoration of integral ground in this case would constitute an eligible component of work required to repair the road, and would involve excavation slightly beyond the limits of the failure surface.



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Attachment B

FIGURE 2

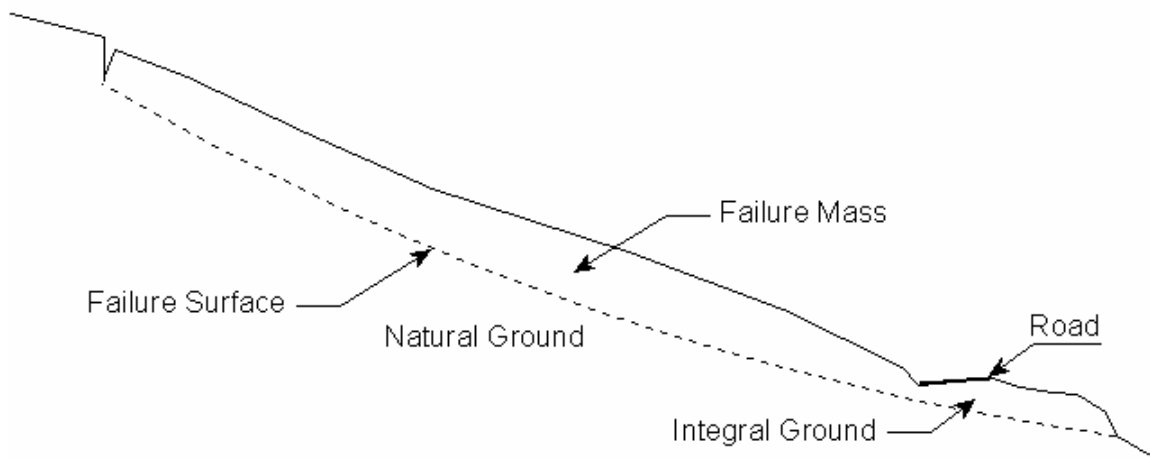


Figure 2: Failure of a large lateral extent of natural ground. While the failure mass threatens or otherwise impacts an eligible facility (the road) that portion of the natural ground integral to the support of the facility is small relative to the total failure mass of natural ground. Restoration of the large area natural ground along the failed slope would not constitute an eligible component of work.



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Attachment C

FIGURE 3

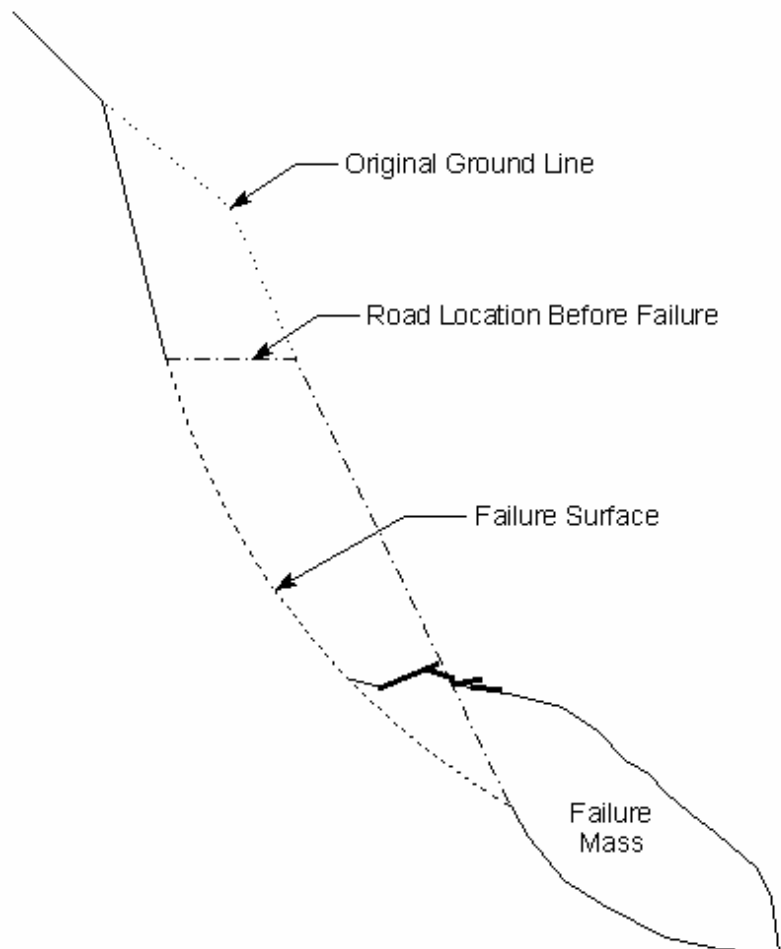


Figure 3: Failure of a slope along a road constructed by excavating into a hillside. In this case it may be more cost-effective to pursue other options under the Public Assistance Program.