

## **Guidance for Implementing 44 CFR 60.3(e)(7)**

### **Floodplain Management Branch**

#### **Federal Insurance and Mitigation Administration, FEMA**

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The following is FEMA guidance concerning the NFIP requirement at 44 CFR 60.3(e)(7), which prohibits man-made alterations of sand dunes and mangrove stands within V, V1-30, and VE which would increase potential flood damages. This guidance is specific to activities involving the man-made alteration of sand dunes. This guidance is not intended for the evaluation of man-made alterations to mangrove stands even though some of the considerations presented herein may apply.

The presumption is that most alterations will reduce the sand dunes' ability to withstand erosion and ultimately increase flood damages due to over-wash or penetration of storm surge into areas previously protected by that sand dune. The burden of proof is on the permit applicant to demonstrate, utilizing a qualified coastal engineer or coastal geologist with experience in coastal processes that the proposed alteration of the sand dune results in any increase in flood damages.

Proper implementation of the requirement at 44 CFR 60.3(e)(7) by NFIP communities should result in very few alterations to sand dunes located entirely within Zones V, VE, V1-30. The presumption that most types of alterations of a sand dune will increase flood damages is not unreasonable or inconsistent with the intent of 44 CFR 60.3(e)(7). Current NFIP criteria do not require that this criterion be applied to those portions of sand dunes outside V, VE, V1-30 Zones. However, communities are encouraged to provide similar protection to all sand dunes which provide flood protection.

Communities may issue a permit for an alteration of a dune only if the evidence including, but not limited to an analysis and calculations, presented by the applicant from the coastal engineer or coastal geologist, indicate that the alteration will not increase flood damages. In addition, the community must review the proposed development application to assure that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including, but not limited to, section 404 of the Clean Water Act (33 USC § 344) and consultations or incidental take permits required under sections 7 and 10 of the Endangered Species Act (16 USC §§ 1536 and 1539).

Examples of the types of alterations that communities should be aware of include:

1. The Excavation and Removal of Sand. The excavation and removal of any portion of a sand dune will likely render the dune more susceptible to erosion and increase the potential damages to structures behind that dune and should not be permitted.

2. Earthmoving Activity with No Removal of Sand. Any earthmoving activity on a sand dune, even if there is no net loss of sand, can potentially damage the structural integrity of the dune and make it more susceptible to erosion. The practice of removing a sand dune during development and relocating or rebuilding the sand dune after construction is completed should not be permitted.
3. Removal of Vegetation. Removing vegetation from the sand dune will likely make the sand dune more susceptible to erosion. In addition, loss of vegetation hinders the sand dune's ability to regenerate itself by trapping wind-blown sand. Thus removal of vegetation should be avoided.
4. Cutting of Vegetation. Communities avoid the cutting of natural vegetation in most circumstances since vegetation traps wind-blown sand and helps maintain and strengthen the sand dune. The cutting of natural vegetation should be evaluated on a case-by-case basis. Also note that the types of vegetation on sand dunes vary depending on location. Some species of vegetation are tolerant to cutting while others are not. In some areas the ability of the vegetation to trap wind-blown sand is critical to maintaining the sand dune while in others it may be less critical. Care should be taken in ensuring any revegetation is done with native plant.
5. Placing Additional Sand on or in Front of a Sand Dune. The addition of sand onto or in front of a sand dune, whether it's part of a properly engineered, monitored and maintained beach nourishment program or not, may not increase flood damages, provided that no vegetation on the sand dune is adversely affected. While these activities may increase the ability of the sand dune to withstand erosion, care needs to be taken in planning and designing the placement of additional sand and allowing this activity to occur.
6. Revegetation and Installation of Snow Fences. These activities may not increase flood damages since they generally increase the ability of the sand dune to withstand erosion. Care should be taken so as not to negatively impact natural processes.
7. Installation of Bulkheads or Placing of Rip-Rap. The placement of these items in the sand dune is presumed to increase sand dunes' susceptibility to erosion. If these actions are not properly engineered and performed in conjunction with a properly engineered, monitored and maintained beach nourishment program, they can accelerate erosion at the site and in adjacent locations rather than protect the sand dune as they may have been intended to do.

In any case where the proposed alteration is presumed to increase flood damages, the community should place the burden of proof on the permit applicant. The applicant should be required to demonstrate, through, but not limited to, an analysis and calculations performed by a qualified coastal engineer or coastal geologist that, as a result of the proposed dune alteration, the ability of the dune to provide protection during the base flood event, more or less frequent flood events, and/or multiple events occurring consecutively over a period of several years would be no less than if the alteration had not occurred.