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# Emergency Berms on Beaches

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# In The Beginning...

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- Replacement of Sand on Natural Beaches is not eligible (44 CFR 206.226)
- Emergency work necessary to eliminate an “immediate” hazard which threatens additional damage to “improved property” may be eligible
- An “immediate” threat is one that can be expected to occur within 5 years (44 CFR 206.221)



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# In The Beginning...

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- Emergency repairs may be made to protective facilities
- Eligible repair work is limited to that necessary to protect against a 5-year event or return to pre-disaster levels
- Placement of sand on a beach to protect improved property from waves and flooding may be eligible



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# In The Beginning...

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- November 2004 memo
- For beaches... construction of a small sand berm
- Only to protect improved property from immediate threats
- Not intended to be permanent



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# Basis of an Emergency Berm

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- Hallermeier and Rhodes (1988)
  - Median erosion for a 5-year storm = 6 CY / FT
  - The emergency berm should have unit volume of 6 CY / FT above the 5 year storm tide
- OR
- The unit volume of sand that existed prior to the event



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# Issue

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- Do we want to place 6 CY / FT from Cape Cod to South Padre Island?
- What does our guidance say?



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# PAPPG Guidance (v3.1)

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- “If a natural or engineered beach has eroded to a point where a 5-year flood could damage improved property, cost-effective emergency protective measures on the beach that protect against damage from that flood are eligible.”



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# Issue



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# Flooding on Beaches

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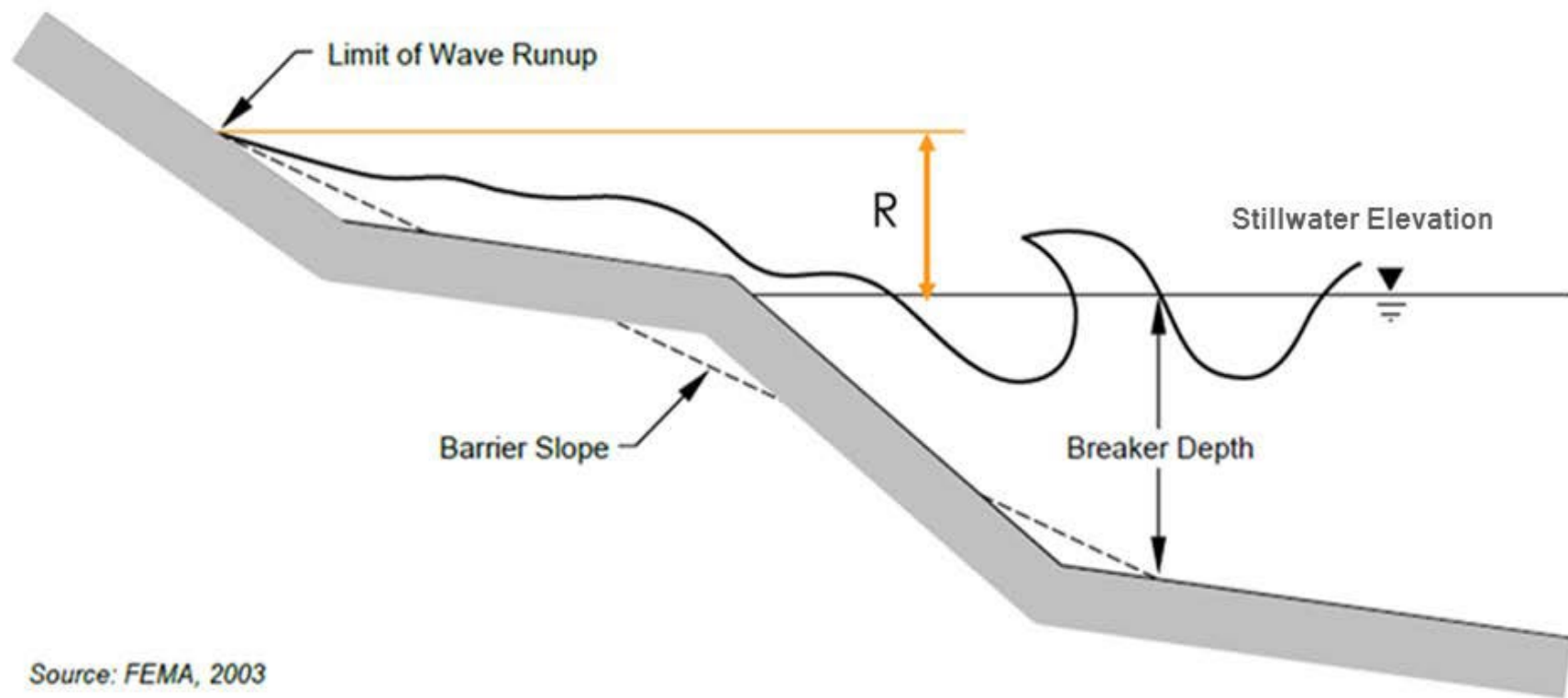
- What is a 5-year flood on the beach?
  - Guidance for Flood Risk Analysis and Mapping: Coastal Wave Runup and Overtopping (FEMA, 2018)
  - Wave overtopping occurs when the shore barrier's crest elevation is lower than the wave runup elevation
  - Runup elevation is equal to Stillwater Elevation plus wave runup



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# Flooding on Beaches



Source: FEMA, 2003



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# PAPPG Guidance (v4)

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- “If a natural or engineered beach has eroded to a point where a 5-year flood could damage improved property, cost-effective emergency protective measures on the beach that protect against damage from that flood are eligible.” (Public Assistance Program and Policy Guide, v4, p. 137)
  - Applicable to natural or engineered beaches
  - Could damage improved property
  - Must be cost-effective



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# PAPPG Guidance (v4)

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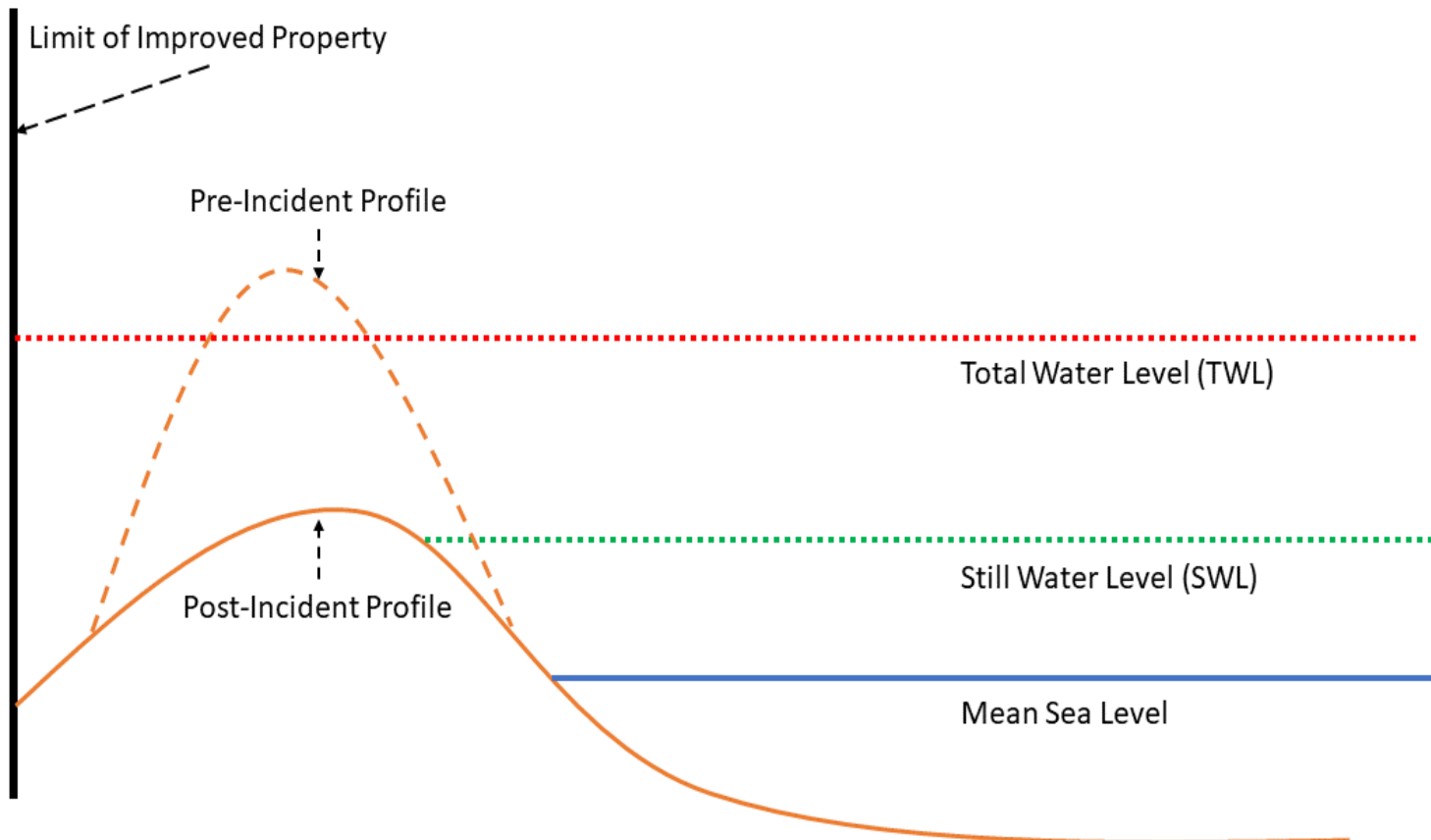
- “...the Applicant must demonstrate that the stillwater level plus wave runup elevation... for a 5-year storm exceeds the post-incident elevation of the primary dune.”
  - “The 5-year Stillwater Level (SWL) is equal to the... (surge) resulting from a 5-year storm, plus wave setup and... tide.”
  - “The 5-year Total Water Level (TWL) is equal to the elevation of the wave runup predicted for a 5-year storm plus the SWL.”



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# PAPPG Guidance (v4)



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# Key Points

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- Improved property must be in danger of flooding from a 5-year storm
- Applicable to natural or engineered beaches
- Must be cost-effective
- The deadline for Emergency Work is 6 months from the declaration date.



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# Questions?

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Visual 1.4

