U.S. Department of Homeland Security
Region X
130 228th Street SW
Bothell, WA 98021-9796

FEMA

January 11, 2012

FAQ: Vegetation on Levees for FEMA Mapping

As part of the NFIP, the Federal Emergency Management Administration (FEMA) requires a levee to meet the requirements outlined in Title 44 of the *Code of Federal Regulations* (CFR) 65.10. For local flood-damage-reduction systems within the NFIP, 44 CFR 65.10 outlines the code regulations that safeguard the public health and safety in all NFIP communities. FEMA is responsible for the identification and mapping of special flood hazard areas as defined in 44 CFR 65.10. Per the CFR, FEMA will only recognize those systems that meet, and continue to meet, minimum design, operations, and maintenance standards that are consistent with the level of protection sought through the comprehensive flood plain management criteria established by 44 CFR 60.3. The incoming data supporting that a levee system complies with the structural requirements of 44 CFR 65.10 must be certified by a registered Professional Engineer (P.E.), licensed by their respective states, or by a Federal agency with responsibility for levee design. In addition, Procedure Memorandum 63, published by FEMA on September 2, 2010, requires any submittal for FEMA accreditation to adequately address all applicable Federal, State, and local laws, regulations and requirements, including, but not limited to, Federal and local floodplain management laws, environmental laws, and permit requirements. Only submittals that provide adequate information on compliance with these laws, regulations and requirements will continued to be processed.

New levees or modification of levees will require a floodplain development permit and will be required to demonstrate compliance to the NFIP participating community with the ESA at the time of permitting. A newly accredited or existing rehabilitated levee within the SFHA typically requires a Letter of Map Revision in order to accurately reflect the risk associated with the flooding. If the levee is located in a hydraulic reach that contains a floodway, a Conditional Letter of Map Revision (CLOMR) must be obtained prior to the issuance of a floodplain development permit from the community if there is an increase in the Base Flood Elevation (BFE). If there is no floodway in the hydraulic reach of the levee, an analysis must be performed to determine if the BFE would increase by more than 1.0 ft. If the BFE increases are 1.0 ft or higher, a CLOMR must be obtained prior to the issuance of a floodplain development permit. On August 18, 2010, FEMA published Procedure Memorandum (PM) 64, which requires any CLOMR to demonstrate compliance with the ESA as determined by the National Marine Fisheries Service and/or the U.S. Fish and Wildlife Service (as applicable).

Element 5(D) of the NFIP Puget Sound Biological Opinion issued by NMFS on September 22, 2008 provides the guidance below on features that will ensure a new levee is compliant with the ESA:

- the natural channel migration pattern remains intact (or if presently confined, is allowed to expand to its natural pattern),
- bioengineering methods are used to stabilize the banks,
- large wood is incorporated into the levee setback area,

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- riparian vegetation is enhanced where allowing such vegetation would not interfere with a levee's ability to meet the standards set out in 44 CFR 65.10, and
- no change occurs to upstream and downstream flood levels, volumes and velocities

FEMA recognizes that riparian vegetation can provide many benefits such as ground cover protecting slopes from rain-induced surface erosion and strategic plantings for aesthetics. Vegetation in the floodway provides habitat and protection for fish and wildlife species. Riparian habitat provides complexity to the river system to help juveniles forage for food, and gain refuge from high velocity floodwaters. In addition vegetation may even reduce velocities in river systems allowing fish to exert less energy as they move upstream.

Levee sponsors may provide certification from a registered professional engineer or the United States Army Corps of Engineers (USACE) as part of their accreditation package to meet 44 CFR 65.10. Levees that are enrolled in the CORPS' PL84-99 program may be required to meet the USACE policy on vegetation which, in most cases, requires that all vegetation be removed unless a variance is obtained. Communities and levee owners may seek a variance from the USACE vegetation policy where doing so would not interfere with a levee's ability to meet the requirements of 44 C.F.R. 65.10. See ER 500-1-1, Section 5-22 for additional information. More information regarding the PL84-99 can be found on the USACE website at: https://eportal.usace.army.mil/sites/ENGLink/FCCE/default.aspx. There is additional helpful guidance on the CORPS website, including ER 1110-2-1205, which provides guidance for incorporating environmental considerations in the planning, engineering, design, and construction of flood control channels, levees, and associated structures, and Engineering Manual (EM) 1110-2-301, which provides guidance on where to place vegetation to avoid detrimental effects and maintain reliability.

FEMA Region X has been a part of a levee vegetation workgroup that USACE – Seattle District has pulled together to find ways to develop a matrix that helps communities and levee owners develop a variance package that meets these standards. Included in this workgroup are members from NOAA Fisheries, USFWS, WADFW, WADOE, Puget Sound Partnership, Muckleshoot Tribe, King County and USACE.