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June 18, 2015

Ms. Fay Rubin
Project Manager
Earth Systems Research Center
Eight College Road
University of New Hampshire
Durham, NH 03824

Re: Re: Re: Summary of Additional Data Required to Support an Appeal of Preliminary Flood Insurance Rate Map (FIRM) number 33015CO432F in the Town of Rye, NH (dated March 5, 2015).

Dear Ms. Rubin:

The Woods Hole Group is providing this Response to Comment letter to address the May 21, 2015 letter from FEMA, on behalf of Craig Musselman, Chairperson of the Town of Rye Board of Selectman, providing comments and requesting additional data related to the March 5, 2015 Preliminary FIRM Appeal for the Town of Rye in Rockingham Country, New Hampshire. Specific responses to the comments are as follows:

Comment 1: *Assumption of 1 foot of scour at the toe of the structure. Please provide supporting data to verify the assumption of a 1 foot scour depth. Examples of such data could be field investigation, historical data, survey and/or as-built drawings of the structure detailing the depth of the toe. Please submit supporting data as described.*

Response: Scour methodology has been revised as explained in this section. The FEMA Atlantic Ocean and Gulf of Mexico Guidelines (2007) and the Coastal Engineering Manual have been reviewed extensively throughout this process and there are no accepted methodologies in either document to account for scour at vertical sea walls when the total water surface elevation (TWL), the combined 1% storm surge and wave setup, is below the base of the wall where the foreshore slope intersects the wall. If there is no water depth at the base of the wall then there is no depth-limited wave. Therefore, the scour depth cannot be computed directly, and an alternate methodology was employed based upon coastal engineering judgment.

The most conservative assumption for estimating the scour depth at the base of a seawall is to assume that the scour occurs to the base of the toe of the seawall, which is the absolute bottom of the seawall buried below the sand; however, bottom of the toe is not documented for this structure. Therefore, assuming that the base of the toe of the seawall is deep enough that the maximum scour occurs and results in the corresponding maximum theoretical wave runup where the runup is greater than 3-ft over the crest of the structure. Based on Section D.2.11.2.1 and Table D.2.8-6 of the FEMA Atlantic Ocean and Gulf of Mexico Guidelines (2007), when the potential runup 3 feet or greater above the barrier crest, the runup depth is capped at 3-ft over the barrier crest and a VE Zone 30-ft splash zone is mapped landward from the barrier (seawall) crest. This VE splash zone transitions into an AO Depth 3-ft Zone at 30-ft from the seawall and continues landward. This is the most conservative assumption for either a vertical wall (intact) or sloped structure (failed) case related to potential scour and runup.

Comment 2: *The use of sloping revetment methodology to model a vertical seawall. In regards to the above mentioned vertical structure and scour, the methodology for modeling vertical structures, as outlined in the FEMA Atlantic Ocean and Gulf of Mexico Guidelines should be used. Please submit corrected calculations following the FEMA Guideline or detailed justification utilizing other appropriate methodologies.*

Response: Method has been revised. See response to Comment #1.

Comment 3: *Delineation of the proposed AO Zone depth of 1 foot mapped to the footprint of FEMA's AO zone depth of 3 feet. The extent of the AO Zone is dependent upon the depth of the modeled AO Zone and will need to be delineated landward of the Primary Frontal Dune (PFD) and the surrounding topography. Therefore, the proposed AO Zone should be modified, in accordance with the reduced AO zone depth or supplemental data should be supplied to support mapping the AO depth of 1 foot to the extent of the AO 3 feet's footprint. Please provide correction or justification to the AO zone.*

Response: Mapping has been revised based on the revised analysis. A 30-ft VE Splash Zone (El. 13 ft) is mapped from the crest of the seawall followed by an AO Depth 3-ft Zone based on Table D.2.8-6 of FEMA 2007 Guidelines. Since the AO 3-ft depth zone matches mapping from the 2014 preliminary maps, the original extent and landward boundary of the AO is retained. The LiMWA has been moved to the landward edge of the VE Splash Zone at the boundary with the AO 3-ft depth Zone. Note that this maps assumes that the PFD has been removed as explained in the original Appeal (please see original Appeal for documentation related to the PFD). Please see Figure 1 for revised FIRM mapping and associated GIS files enclosed in the attached CD.

If there are any questions in regards to the responses to the comments or there is need for additional data, please feel free to contact myself, Mitchell Buck, via phone (508-495-6210) or email (mbuck@whgrp.com).

Sincerely,

Mitchell Buck, P.E.
Coastal Engineer
Woods Hole Group
81 Technology Park Drive
East Falmouth, MA 02536

MAB/cam

Enclosures: as stated

cc: John Grace, CFM, FEMA Region I
Craig Musselman, Town of Rye
Marilyn Hilliard, FEMA Region 1
Jennifer Gilbert, CFM, New Hampshire Office of Energy and Planning
Edward O'Meara, Homeowner
Peter Rowell, Town of Rye
Michael Magnant, Town of Rye
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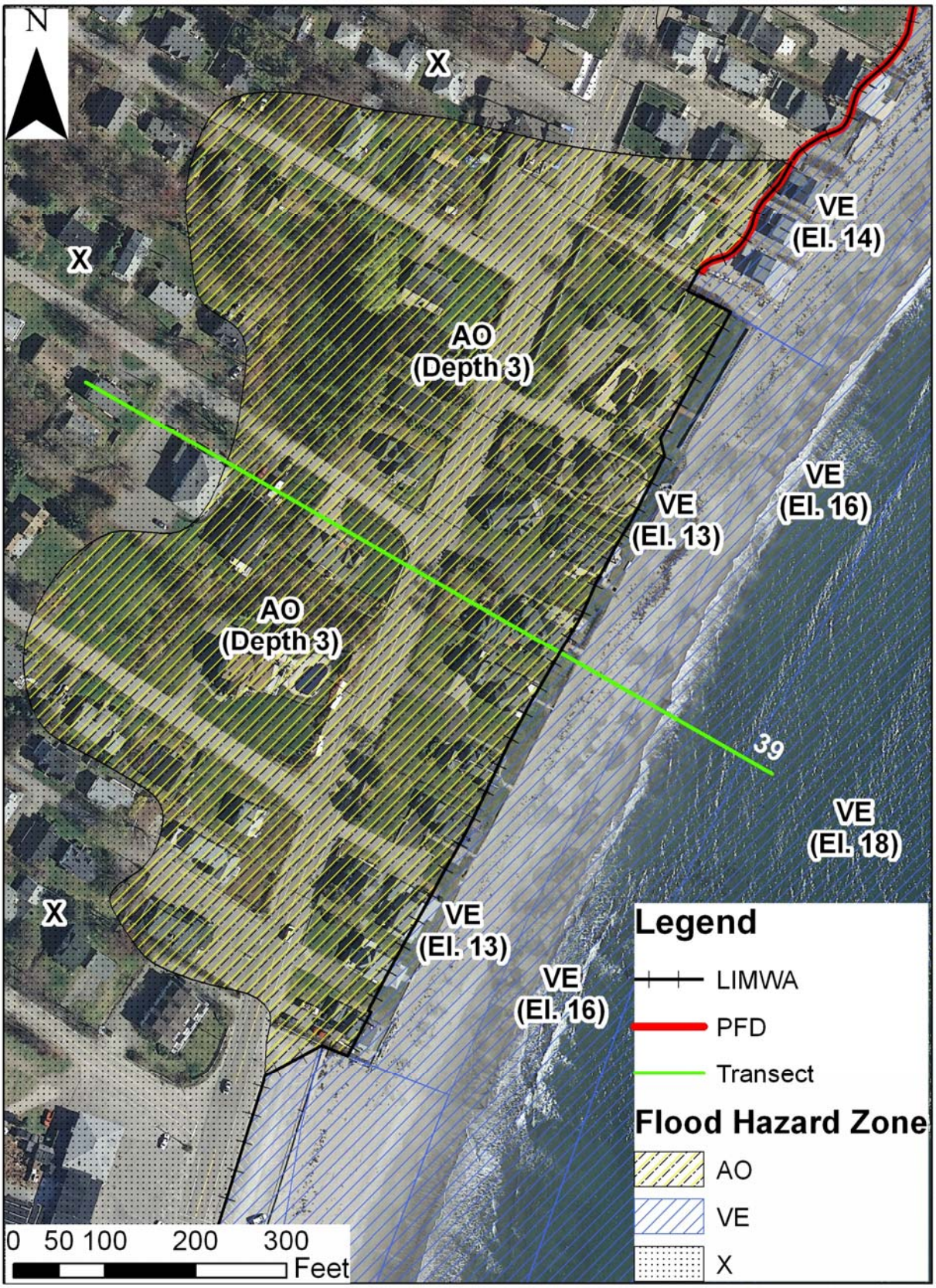

Figure 1. Revised Flood Mapping for Transect TR-39 on FEMA FIRM 33015C0432F.

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