U.S. Department of Homeland Security
FEMA Region I
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FEMA

TO: Fay Rubin, University of New Hampshire
FROM: John Grace, FEMA Region I
DATE: March 27, 2013
RE: Response to New Hampshire Wave Setup Incorporation
CTP #EMB-2010-CA-0916

John Grace
Digitally signed by John Grace
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Date: 2013.03.27 12:06:59 -04'00'

The following are the Region's responses to the resolutions proposed in the attached spreadsheet named NH Wave Setup Resolution, which you sent to me via email on March 21, 2013.

Sheltered area between New Castle and Portsmouth

The Region approves of mapping this area with the 1% SWEL of 8.36ft NAVD88. We would also like reiterate that this area should match the work in the adjacent York County to provide a smooth transition at the New Hampshire border with Maine.

Little Harbor

The Region approves the resolution to carry the wave setup of 2.84 ft over the breakwater and into the bay and map the SWEL with the addition of the wave setup. The total elevation of 11.2 ft will be carried inland and will be the base flood elevation for overland analysis. Wave setup will be removed at the bridge on Pioneer Rd south of transect 14.

Wallis Sands Beach

The Region approves of carrying wave setup inland with no reduction for as long as the elevations in the area will allow.

Rye Harbor

The Region approves of decaying the wave setup in the area overwater between the breakwater and the shoreline.

Hampton – North Beach along Ocean Boulevard at transect 67

The Region approves of the proposed methodology of carrying wave setup of 11.3 ft landward up to the middle of Ocean Boulevard.

Hampton Harbor Inlet

The Region has already approved removing wave setup at the inlet and mapping a VE zone break elevation parallel to the bridge.

New Hampshire Wave setup Incorporation	
Areas of Concern	*Resolution*
Sheltered area between New Castle and Porthsmouth	Wave setup of the magnitue generated from breaking ocean waves on the open coast would not reach this sheltered area. Two elevated bridges connect the embayment to the Piscataqua River on the north, and Little Harbour to the south - neither of the areas is exposed to ocean waves. Increased water level due to local wind wave breaking would exist but to compute its magnitue limited fetch analysis or a 2D wave model would be necessary. Such options are outside the current SOW. HWM's from the Blizzard of '78 do not indicate a signifant setup component in this area. The 1% boundary in this reagion will be mapped at the 1% SWEL of 8.36ft NAVD88.
Little Harbour - Tr 11, 12, 14	Wave setup of 2.84ft computed on the seaward side of Little Harbour's breakwater will be carried in the bay and 1% boundary mapped at 8.36+2.84ft (1%SWEL+wave setup) NAVD88. Inclusion of the wave setup is supported by the low breakwater elevation of approx 5-6ft NAVD88, about 3 ft lower than the 1% SWEL. The total elevation of 11.2ft will be carried inland and it will be the base flood elevation for overland analysis at Tr 11, 12 and 14. Wave setup will be fully removed south of Tr 14 at the bridge on Pioneer Rd just west of its intersection with Ocean Boulevard in New Castle, and at the Wentworth bridge, in the area between Tr 11 and 12.
Wallis Sands Beach - Tr 23	Wave setup of 3.35ft NAVD88 will be carried inland - with no reduction - for about 1700ft to reach area of high ground.
Rye Harbour - Tr 35	Wave setup of 3.1ft NAVD88 will be decayed in the area overwater between the breakwater and the shoreline. The breakwater with an average elevation of 10-11ft is sufficient to dissipate the wave setup through the protected embayment. The total water elevation seaward of the breakwater is 11.46ft and will transition to a value of 8.36ft (1%SWEL) at the shoreline.
Hampton - North Beach Along Ocean Boulevard -Tr 67	At the location of Tr 67 the road is slightly lower than at the adjacent transects and has a maximum elevation that reaches 11.57ft. At this transect the Total Water Elevation is of 8.36ft+3.26ft = 11.62ft NAVD88. The road and TWL are virtually identical at this low point in the road. Wave setup of 11.3ft will be carried landward up to the middle of Ocean Boulevard.
Hampton Harbour Inlet	Wave setup will be removed at the inlet and mapped with a zone break parallel to the bridge on Route 1A