U.S. Department of Homeland Security
FEMA Region I
99 High Street
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FEMA

Exhibit
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October 17, 2017

Diane Ifkovic
National Flood Insurance Program Coordinator
Connecticut Department of Energy &
Environmental Preservation
79 Elm Street
Hartford, CT 06106-5127

Dana Conover
Public Assistance Coordinator
Connecticut Department of Emergency
Services & Public Protection
25 Sigourney Street
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*Re FEMA-4087-DR – Town of Fairfield – PA-ID 001-26620-00 – Project Worksheet 680 – Restoration of Penfield Pavilion – Violation of the Minimum Floodplain Management Criteria at 44 C.F.R. § 60.3 and Technical Bulletin 5*

Dear Ms. Ifkovic and Mr. Conover:

The purpose of this letter is to respond to your joint request for technical assistance concerning whether the unapproved scope of work completed by the Town of Fairfield ("Town") to restore the Penfield Pavilion under Project Worksheet #680 complied with the minimum floodplain management criteria set forth in 44 C.F.R. pt. 60 and Technical Bulletin 5. As detailed in this letter, I have concluded that the Town has not demonstrated compliance with the minimum floodplain management criteria when completing its restorative work on the Pavilion. The Federal Emergency Management Agency ("FEMA"), in light of these violations, is providing the Town with 60 days to provide any additional information before taking any enforcement actions under the National Flood Insurance Program ("NFIP") and issuing a Public Assistance determination for this project.

## I. BACKGROUND

The Penfield Pavilion, owned and operated by the Town, was a 16,756 square foot single story, wood/steel frame structure. Hurricane Sandy damaged the Penfield Pavilion from October 29 to November 9, 2012, and the Town applied through the Connecticut Department of Emergency Services and Public Protection ("Grantee") under the Public Assistance grant for major disaster declaration FEMA-4087-DR for financial assistance to restore this damage. FEMA originally awarded PW #680 on December 17, 2015, with total estimated project costs of $4,340,054.11.

The approved scope of work under PW #680 was the replacement of the Penfield

Pavilion as a result of flood damage caused by Hurricane Sandy. Following the award, the Grantee later requested a change in the scope of work in April 2016 that involved repair instead of replacement, a scope of work already commenced by the Town without prior FEMA approval.[1] The Grantee later informed FEMA during a phone call on May 12, 2016, that there would be changes and additions to the scope change and asked for FEMA to put the scope change request on hold until it provided additional information. Before submitting the final scope change request, the Grantee and the Connecticut Department of Energy & Environmental Preservation ("CTDEEP") transmitted a joint letter to the Regional Office concerning Project Worksheet 680 on June 1, 2016, that requested technical assistance.[2]

In the technical assistance request letter, the Grantee and CTDEEP explained that the Town decided to repair the Pavilion instead of replacing it, commencing construction on February 29, 2016, without an official change to the original scope of work. They also expressed concern that the revised scope of work may not comply with the minimum requirements of the NFIP, although the Town asserted that the building construction plans complied with NFIP requirements. Because of the disagreement, the Grantee and CTDEEP requested that FEMA review the design plans for NFIP compliance "in order that the PA SOW be re-written accurately so that there are no reimbursement issues upon project completion."[3] They stated that the goal of this review was to "assure all parties of the compliance with the NFIP regulations and to avoid any potential eligibility and reimbursement concerns upon completion of the PA project."[4] The letter included the current design plans for the Penfield Pavilion.

The Grantee later provided a revised scope change request on June 30, 2016, which superseded the previous request dated April 29, 2016.[5] The scope change request called for repairing the Pavilion rather than replacing it, citing cost savings as a motive for the change. The Grantee provided a letter from the NFIP/CRS Coordinator from the Town that stated that the requested, revised scope complied with the requirements of the NFIP and met the guidance provided in FEMA Technical Bulletin #5.[6] In that letter, the NFIP/CRS Coordinator stated that the "lowest horizontal structural member will be at or

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[1] Letter from Dana Conover, Public Assistance Coordinator, State of Connecticut to Paul F. Ford, Acting Regional Administrator, FEMA Region I *re: Revision to Change in Scope of Work request: The Town of Fairfield DR-4087-CT PW-680 (Penfield Pavilion)* (Apr. 29, 2016).

[2] Letter to Richard Nicklas, Floodplain Management and Insurance Branch Chief, FEMA Region I from Dana Conover, Public Assistance Coordinator, CTDESPP/DEMHS and Diane Ifkovic, State NFIP Coordinator, CTDEEP *re: NFIP Technical Review Request – Penfield Pavilion, 323 Fairfield Beach Road, Fairfield, Connecticut* (June 1, 2016).

[3] *Id.* at 2.

[4] *Id.*

[5] Letter from Dana Conover, Public Assistance Coordinator, State of Connecticut to Paul F. Ford, Acting Regional Administrator, FEMA Region I *re: Revision to Change in Scope of Work request: The Town of Fairfield DR-4087-CT pW-680 (Penfield Pavilion)* (June 30, 2016).

[6] Letter from James R. Wendt, AICP, Assistant Planning Director, NFIP/CRS Coordinator, Town of Fairfield, to Dana Conover, Public Assistance Coordinator, Connecticut Division of Emergency Management & Homeland Security *re: Penfield Pavilion, 323 Fairfield Beach Road, Fairfield, CT* (June 28, 2016).

above the base flood elevation with the required open pier foundation to allow the passage of flood waters" and there is a "breakaway wall design certified by a respected professional engineer with substantial experience in V-Zone construction." This proposed scope was subject to a public hearing and "was approved by the Town Plan and Zoning Commission on June 9, 2015."

FEMA responded to the Grantee's and CTDEEP's request for technical assistance in a letter dated August 9, 2016.[7] In the letter, FEMA explained that there were concerns that the scope of work being pursued by the Town may not comply with the Fairfield Zoning Regulations and 44 C.F.R. § 9.11(d), which incorporate the NFIP requirements. FEMA, in light of these and other issues, placed a financial hold on Project Worksheet #680 and informed the Grantee and Town that it would be issuing a formal request for information ("RFI") to obtain more information before making any final determinations. FEMA made very clear to the Town that continuing work on the Penfield Pavilion without waiting for FEMA approval might result in the total de-obligation of project funds. The Town, notwithstanding this warning, moved forward to complete construction.

FEMA sent a RFI to the Town and Grantee on or about September 30, 2016.[8] In the RFI, FEMA identified and requested information pertaining to various issues. One of these issues was whether the Town's proposed design complied with the minimum requirements of 44 C.F.R. § 60.3(e) and, by necessary implication, the Fairfield Zoning Regulations and 44 C.F.R. § 9.11(d). The Town responded to the RFI in a letter dated October 28, 2016,[9] that the Grantee forwarded to FEMA along with its own letter on that same date.[10] The Town asserted that its change of scope request comported with the minimum floodplain management requirements of the NFIP and provided several documents supporting its position. This included the building plans for the Penfield Pavilion and a letter from a professional engineer which stated that the plans for the Pavilion project conformed to the NFIP, Town of Fairfield Zoning Regulations, the State

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[7] Letter from Robert Grimley, Disaster Recovery Manager, FEMA Region I and Richard Nicklas, Branch Chief, Floodplain Management and Insurance, FEMA Region I to Diane Iflovic, National Flood Insurance Program Coordinator, Connecticut Department of Energy & Environmental Protection and Dana Conover, Public Assistance Coordinator, Connecticut Department of Emergency Services & Public Protection *re: FEMA-4087-DR – Town of Fairfield – PA-ID 001-26620-00 – Project Worksheet 680 – Restoration of Penfield Pavilion – Potential Violation of Minimum Requirements of the National Flood Insurance Program and Failure to Comply with the Terms and Conditions of the Public Assistance Project Award* (Aug. 9, 2016).

[8] Letter from G. Fred Vanderschmidt, Deputy Director Recovery Division, FEMA Region I to Dana Conover, Public Assistance Coordinator, Connecticut Division of Emergency Management & Homeland Security and Joseph Michelangelo, Director of Public Works, Town of Fairfield *re: The Town of Fairfield DR-4087-CT PW-680 (Penfield Pavilion)- Change in Scope of Work – Request for Information* (Sep. 30, 2016).

[9] Letter from Michael C. Tetreau, First Selectman, Town of Fairfield to G. Fred Vanderschmidt, FEMA Region I *re: Your Letter of September 30, 2016 re FEMA-4087-DR – Project Worksheet 680 – Restoration of Penfield Pavilion – Change in Scope of Work – Request for Information* (Oct. 28, 2016).

[10] Letter from Dana Conover, Public Assistance Coordinator, Connecticut Division of Emergency Management & Homeland Security to G. Fred Vanderschmidt, Deputy Director Recovery Division, FEMA Region I *re: Request for Information, The Town of Fairfield, DR-4087-CT PW 680 (Penfield Pavilion)* (Oct. 28, 2016).

of Connecticut Building Code and the standard ASCE 24 Flood Resistant Design and Construction.[11]

## II. DISCUSSION

### A. Overview of Applicable Regulation and Implementing Guidance

The Town is a participating community in the NFIP and has adopted Zoning Regulations that meet the minimum requirements of 44 C.F.R. pt. 60.[12] The NFIP regulation at 44 C.F.R. § 60.3 includes minimum building design criteria that apply to new construction, repair of substantially damaged buildings, and substantial improvement of existing buildings in special flood hazard areas. The requirements under this regulation are different depending on whether FEMA has provided base flood elevations for various types of flood zones in the community, designated the regulatory floodway on the Flood Insurance Rate Map ("FIRM"), and identified the coastal high hazard areas on the FIRM. The current FIRM for the Town of Fairfield establishes that the Penfield Pavilion is in the VE Zone, which is the coastal high hazard area.

The Fairfield Zoning Regulations, in turn, require that buildings and structures in flood prone areas as delineated on a FIRM "shall conform" to the standards set forth in Section 32 (entitled "Flood Protection") and incorporate the requirements of 44 C.F.R. § 60.3 at Section 32.5 of the Fairfield Zoning Regulations. The primary requirement implicated by the Penfield Pavilion project is 44 C.F.R. § 60.3(e)(5), which provides, in relevant part, that "substantial improvements" within the VE Zone on the community's FIRM must:

> [H]ave the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood lattice-work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system.[13]

For the requirements of 44 C.F.R. § 60.3(e)(5) to apply, there must be a "substantial improvement" of a structure. The regulation at 44 C.F.R. § 59.1 defines "substantial improvement" as "any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the 'start of construction' of the improvement. ..." Based on

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[11] Letter from Kevin H. Chamberlain, DeStefano & Chamberlain, Inc. to Joseph Michelangelo, Director of Public Works, Town of Fairfield *re: Restoration of Penfield Pavilion – 323 Fairfield Beach Road, CT FEMA-4087-DR-Town of Fairfield-PA-ID 001-26620-00 / PW 680* (Oct. 25, 2016).

[12] Town of Fairfield, *Zoning Regulations* (undated) (accessed at http://www.fairfieldct.org/filestorage/10726/11028/12429/12431/Zoning_Regulations.pdf)

[13] 44 C.F.R. § 60.3(e)(5).

the information available, FEMA has concluded that the restoration of the Pavilion was a substantial improvement, triggering the requirements of 44 C.F.R. § 60.3(e)(5).[14]

FEMA has promulgated Technical Bulletin 5 to provide specific guidance concerning the free-of-obstruction requirements in V Zones under 44 C.F.R. § 60.3(e) as well as the general requirement for construction that will minimize flood damage potential as it applies to V Zone construction.[15] Technical Bulletin 5 explains that the NFIP requires that all new and substantially improved structures in V Zones be elevated to or above the base flood elevation ("BFE"), on open foundations (pilings, columns, or piers, and, sometimes, shear walls) that allow floodwaters and waves to pass beneath the elevated structures.[16] The NFIP further requires that the "area beneath these elevated structures remain free of any obstructions that would prevent the free flow of coastal floodwaters and waves during a base flood event."[17] FEMA has instituted these requirements under the NFIP to "minimize the transfer of flood forces to the building foundation and to preclude the deflection or redirection of flood forces that could damage the elevated building or neighboring buildings.[18]

Technical Bulletin 5 provides specific guidance regarding various common building elements that may significantly affect the free passage of flood flow and waves under elevated buildings, several of which are directly at issue in the Penfield Pavilion. First, it states that grade beams that are placed with their upper surfaces flush with or below the natural grade are not considered obstructions and are allowed under the NFIP.[19] However, grade beams placed above natural grade and below the BFE are prohibited obstructions under both 44 C.F.R. § 60.3(e)(5) and Technical Bulletin 5. This is because, among other things, the beams would be subject to hydrodynamic forces from wave action that would increase the horizontal load on a structure's foundations and would also potentially cause debris and water to shoot up and impact the bottom of the structure.

Second, although obstructions such as fill are generally prohibited, Technical Bulletin 5 states that minor grading and the placement of minor quantities of fill are allowed, but only for landscaping, drainage under and around buildings, and support of parking slabs, pool decks, patios, walkways, and similar site elements.[20] It is "generally

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[14] FEMA's original estimate to repair the Pavilion as detailed in Part A of the Cost Estimating Format was $2,090,442.85 (which excluded costs of contingencies and other factors) and the most recent appraised value of the pavilion in 2015 was $1,781,900.[14] This means that the cost to repair the pavilion appears to be well beyond 50% of the market value of the structure. The Applicant stated in response to the RFI that it did not conduct its own substantial improvement calculation. *See* Letter from Michael C. Tetreau, *supra* note 9, Appendix A.

[15] FEMA Technical Bulletin 5, *Free-of-Obstruction Requirements for Buildings Located in Coastal High Hazard Areas in Accordance with the National Flood Insurance Program* (Aug. 2008).

[16] *Id.* at 1.

[17] *Id.*

[18] *Id.*

[19] *Id.* at 13.

[20] FEMA Technical Bulletin 5, *supra* note 15, at 21-24.

unreasonable" to expect that the addition of 1 to 2 feet of site-compatible, nonstructural fill in a V zone would "lead to adverse effects" on buildings, so that the placement of up to 2 feet of fill under or around an elevated building can be assumed to be acceptable. In the case where additional fill height is proposed for a site, Technical Bulletin 5 states that the proposed final grade should be compared to local topography. If the proposed final fill configuration is similar to grades and slopes in the immediate vicinity, a detailed analysis of the effects on flood flow and waves need not be required. If more than 2 feet of fill is proposed and the proposed fill configuration exceeds local grade heights and variations, an analysis must be performed.

**B. The Use of Major Quantities of Fill Has Created Impermissible Obstructions Below the Lowest Floor of the Pavilion in Violation of 44 C.F.R. § 60.3(e)(5)**

The first issue presented is whether the amount of fill used by the Town exceeded those "minor quantities" of nonstructural fill allowed in VE Zone so as to create an impermissible obstruction. In making this determination for the Penfield Pavilion, the central issue is establishing the elevation of the existing grade before Hurricane Sandy. This is because FEMA will allow the Town to first restore material lost by wave action during a storm and, after that material is replaced to pre-disaster levels, will then evaluate whether the additional fill placed on the site is a minor quantity of nonstructural fill or, alternatively, a major quantity of fill that creates a prohibited obstruction in violation of 44 C.F.R. § 60.3(e)(5) and Technical Bulletin 5.

The Town provided the following response to questions posed by FEMA in the RFI concerning the natural grade elevation of the project site and the basis/source for determining the natural grade elevation of the project site:

> "The natural grade of the site is the dune topography that once existed between Long Island Sound and Fairfield Beach Road before the site was first built on in the early 1900s, then disturbed by demolition and new construction in the 2000s, and finally scoured by Hurricanes Irene and Sandy in 2011 and 2012.
>
> The dune crest elevation varies from el. 10.0' to 12.0' NAVD across the Town-owned property, which stretches from Rickard's Beach to the Durrell Pavilion. The building straddles the dune. The average grade around the perimeter of the building is 11.0' NAVD, and under the building it is 10.8' NAVD. Under the West Wing of the building, concrete grade beams were used, driven by the logistics of moving the building onto the new foundation.
>
> The top of the grade beams are set at elevation 10.7' NAVD, which is at or below the reestablished natural grade. At no point is any grade beam above grade.

> Site transects taken to the east and west of the subject building were used to reestablish the natural topography under and around the building."[21]

This information, however, did not cite to any specific source of data to establish the pre-existing natural grade of the unimproved dune before Hurricane Sandy. Without this data, it is unclear how taking site transects to the east and west of the Pavilion would reestablish the natural topography of the project site if the Town had no source data upon which to rely. As such, the Town has not provided sufficient data to support its own conclusion of the pre-disaster natural grade elevation.

I have concluded that the most recent and credible data available to determine the pre-existing natural grade of the site before Hurricane Sandy was LiDAR data from 2006 and, based on this data, have concluded that the pre-existing natural grade of the project site was 8.0' NAVD. **Enclosure 1** to this letter depicts the contour lines of the elevations in and around the site of the pavilion using this 2006 data.[22] As it relates to the amount of fill placed on the site, the design plans in **Enclosure 2**[23] show that the Town used up to 2.5 feet of fill to bring the project site back to its pre-disaster natural grade of 8' NAVD, but then used approximately 3-4 feet of fill to bring the site up to the increased elevation of 11.0-12.0' NAVD to complete the project.

FEMA generally considers the placement of up to 2 feet of fill under or around an elevated building to be acceptable; however, in this case, the Town has used up to 4 feet of fill beyond the natural grade when restoring the pavilion. In the case where over 2 feet of fill height is used for a site, the proposed final grade must be compared to local topography. FEMA has compared the 2006 LiDAR data with the Penfield Pavilion depicted in the design plans (**Enclosure 2**) and concluded that the final fill configuration is not similar to grades and slopes in the immediate vicinity of the Pavilion.[24] The Town, furthermore, did not provide any analysis as to whether the fill would not divert water to adjacent properties and would not cause damage to the underside of the Pavilion during flood events. Therefore, FEMA has concluded that the Town's placement of up to 4 additional feet of fill to reach an elevation of 11.0-12.0' NAVD exceeds that permissible under 44 C.F.R. § 60.3(e)(5) and Technical Bulletin 5 and has created a prohibited obstruction. Such an obstruction was also created through the placement of the retaining walls above the natural grade and below the BFE.[25]

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[21] Letter from Michael C. Tetreau, *supra* note 9, at Appendix A; *see also* Letter from Kevin H. Chamberlain, P.E., DeStefano & Chamberlain Inc. to Joseph Michelangelo, P.E., Director of Public Works, Town of Fairfield *re: Restoration of Penfield Pavilion – 323 Fairfield Beach Road, Fairfield, CT FEMA-4087-DR-Town of Fairfield-PA-ID 001-26620-00 / PW 680*, at 1 (Oct. 25, 2016) (which is included as Exhibit 2 to the Letter from Michael C. Tetreau).

[22] *See* FEMA, Penfield Pavilion – Fairfield CT (**Enclosure 1**).

[23] DeStefano & Chamberlain, Inc., Penfield Pavilion, Site Sections, SP400 (June 21, 2016) (**Enclosure 2**).

[24] *See* FEMA, Penfield Pavilion – Fairfield CT (**Enclosure 3**) (note: this is an expanded view from **Enclosure 1**).

[25] *See* Picture of the Penfield Pavilion (**Enclosure 4**) (which shows both retaining walls).

### C. The Placement of a Grade Beam Above the Natural Grade Has Created an Impermissible Obstruction Below the Lowest Floor of the Pavilion in Violation of 44 C.F.R. § 60.3(e)(5)

The second issue presented is whether the Town has created an impermissible obstruction by placing the horizontal grade beam above the natural grade and below the BFE. FEMA has determined that the pre-existing natural grade of the site before Hurricane Sandy was 8.0' NAVD and that the BFE of the site is 13.0' NAVD. The design plans show that the Town has placed the grade beam at an elevation of 10.7' NAVD, which is above the pre-disaster natural grade and below the BFE. As grade beams used to tie together foundation piles or columns to provide additional lateral support are considered obstructions if placed with their upper surfaces above the natural grade and below the BFE, the Town has created a prohibited obstruction pursuant to 44 C.F.R. § 60.3(e)(5) and Technical Bulletin 5.

## III. CONCLUSION

I have concluded that the pre-existing natural grade of the project site before Hurricane Sandy was 8.0' NAVD and the BFE is 13.0' NAVD. Based on this conclusion, a review of the pavilion design plans, and a site inspection, I have determined that the Town has violated the minimum floodplain management criteria under 44 C.F.R. § 60.3(e)(5) and Technical Bulletin 5 by creating impermissible obstructions. These obstructions included the installation of major quantities of fill under and around the pavilion; constructing new retaining walls that create an obstruction; and constructing the foundation of the pavilion with a horizontal grade beam above the natural grade and below the BFE.

Before moving forward with any potential enforcement action under the NFIP[26] concerning this project, I am providing the Town and Grantee with 60 days to provide any additional information in regards to these determinations, which may include more current and credible data to establish the natural grade before Hurricane Sandy; an analysis as to whether the major quantities of fill would not divert water to adjacent properties and would not cause damage to the underside of the Pavilion structure during flood events; and/or corrective actions that the Town will take to address the violations. I am available during these 60 days for any discussions that the Applicant, Grantee, and CTDEEP may wish to have.

In addition to making my determination following the expiration of the 60 days for the purposes of the NFIP, the Disaster Recovery Manager will be moving forward with a Public Assistance determination for Project Worksheet #680. I note that, in addition to the potential violations of 44 C.F.R. § 60.3 and Technical Bulletin 5, there could be other potential impediments to the eligibility of this project. For example, the Town did not

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[26] *See* 44 C.F.R. § 59.24.

obtain prior FEMA approval for pursuing a change in the scope of work, did not obtain the necessary FEMA environmental and historic preservation review before moving forward with the change, and has not yet received a consistency determination from CTDEEP.

Sincerely,

Richard Nicklas
Branch Chief
Floodplain Management and Insurance
FEMA Region I

cc: Michael C. Tetreau, First Selectman, Town of Fairfield, Office of the First Selectman, 725 Old Post Road, Fairfield, Connecticut 06824 mtetreau@town.fairfield.ct.us

Enclosures

(1) FEMA, Penfield Pavilion – Fairfield CT
(2) DeStefano & Chamberlain, Inc., Penfield Pavilion, Site Sections, SP400 (June 21, 2016)
(3) FEMA, Penfield Pavilion – Fairfield CT
(4) Picture of the Restored Penfield Pavilion