

## Andrew McCullough

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**From:** Kevin Worden <kevinw@engineeringventures.com>  
**Sent:** Thursday, September 29, 2022 12:25 PM  
**To:** Andrew McCullough; John Hemmelgarn  
**Cc:** James Hoepker  
**Subject:** FW: Richmond Zoning Regulations review  
**Attachments:** Addendum 1 to Town Center Design Services RFQ with attachments.pdf; Richmond Parking.pdf

Andrew and John,

See below for the flood mitigation summary for the Richmond Town building. Based on the summary of requirements, we recommend the following flood mitigation approach, assuming the improvements to the building will be deemed Substantial Improvement.

### Original Building:

The basement is below the 311.3 BFE (base flood elevation). For Substantial Improvement the only apparent viable option is to wet flood proof the basement (the other options include raising the lowest floor above the BFE or dry flood proofing... both are not feasible). Wet flood proofing will most likely include pop up pressure valve/vents in the basement slab and flood vents in the basement windows. The challenge with the basement window flood vents is that the finish grade at the windows is above the BFE. We have some ideas.

### Post Office:

The mechanical chase is below the 311.3 BFE and should be filled in (dry or wet flood proofing are likely not feasible). The mapping we have show a few different floor elevations for the post office. All elevations are above the 311.3 BFE, but just barely. Step one is to have a surveyor confirm the Post Office FFE. If the floor is more than 1ft above the BFE then no additional work should be required. If the Post Office FFE is less than 1ft above the BFE, then dry flood proofing is likely required to an elevation 2ft above the BFE... this would include flood gates at door and window openings and a review of the exterior wall system.

A review of the Richmond flood regulations with excerpted relevant portions below. In summary:

1. Base Flood Elevation (BFE) is roughly 311.3.
2. Button survey: Post office as 312.11 and 311.86, Second floor as 317.88 (no basement elevation listed)
3. Rabideau siteplan: Post office as 312.43, basement as 308.19, first floor 318.16, second floor 332.34
4. Also, post office has a crawl space that will likely be considered "lowest floor" of that building and require floodproofing.
5. Improvements will likely be considered Substantial... unless building is deemed a Historic Structure (see below).
6. Substantial improvement requires one of the following:
  - i. The Lowest Floor elevated to a minimum of one foot above the Base Flood Elevation; or ***(not feasible unless basement is filled and post office is removed?)***
  - ii. Be dry flood proofed at least two feet above the Base Flood Elevation; or ***(requires dry flood-proofing to elevation 313.3, which is likely not feasible)***
  - iii. If solely used for parking of vehicles, storage, be wet flood proofed as per 6.8.16 d) 2. ***(need to determine if these uses and wet flood proofing is feasible)***

See attached exhibits.

Richmond zoning regulations:

<https://www.richmondvt.gov/fileadmin/files/Archive/2014/03/Richmond-Zoning-Regulations-May-20221.pdf>

Richmond zoning regulations excerpts:

## 6.8 Flood Hazard Overlay District

**Historic Structure** - any Structure that is: (a) listed individually in the National Register of Historic Places (a listing maintained by the Department of the Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register; (b) certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district; (c) individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or (d) individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either: (i) by an approved state program as determined by the Secretary of the Interior or (ii) directly by the Secretary of the Interior in states without approved programs.

**Improvement, Substantial** - any reconstruction, rehabilitation, addition, or other improvement of a Structure, after the Effective Date of adoption, the cost of which, cumulatively exceeds 50 percent of the market value of the Structure before the Start of Construction of the improvement, or which results in an expansion of greater than 25% of the existing Gross Floor Area, whichever is less. This term includes Structures which have incurred Substantial Damage, regardless of the actual repair work performed. The term does not, however, include (a) any project for improvement of a Structure to correct existing Violations of state or local health, sanitary, or safety code specification which have been identified by the state or local code enforcement official and which are the minimum necessary to assure safe conditions or (b) any alteration of a Historic Structure, provided that the alteration will not preclude the Structure's continued designation as a Historic Structure.

**Basement** – any area of the building having its floor elevation below ground level on all sides

**Lowest Floor** - the Lowest Floor of the lowest enclosed area, including Basement or Walkout-on-grade Basement.

**New Construction** – For the purposes of determining insurance rates, Structures for which the “Start of Construction” commenced on or after the effective date of the original Flood Insurance Rate Maps for the Town of Richmond [dated January 5, 1982], including any subsequent improvements to such Structures. For Floodplain management purposes, New Construction means Structures for which the Start of Construction commenced on or after June 21, 1982 (the date of Richmond's first adopted “Flood Hazard Area Development Standards”) and includes any subsequent improvements to such Structures.

**6.8.6 Flood Hazard Overlay District Jurisdictional Determination Process** The purpose of the Flood Hazard Overlay District jurisdictional determination process is to establish whether a given area on a property shall be subject to the jurisdiction of Section 6.8. a) General Review – The process for establishing jurisdiction for the Flood Hazard Overlay District begins with a review by the Administrative Officer regarding the locations of any parcel proposed for Development to assess whether the area (measured horizontally) is within the FEMA Special Flood Hazard Area as defined in Section 6.8.5.a). Any area within the FEMA Special Flood Hazard Area is subject to the Flood Hazard Overlay District regulations. The Flood Hazard Overlay District jurisdictional determination shall be made by the Administrative Officer prior to any action taken on an application for proposed Development for any parcel.

**6.8.7 Substantial Improvement Determinations** When a proposal for development within the Special Flood Hazard Area is reviewed, the Administrative Officer shall make a Substantial Improvement determination. Such determinations, shall be used to determine the appropriate development standards for additions, improvements, rehabilitation, repair and rebuilding of an existing structure. In making such a determination the Administrative Officer may require: a) An

estimate of the market value of structure from one of the following sources: 1. An independent appraisal by a professional appraiser 2. Property values used for tax assessment purposes with an adjustment recommended by the tax appraiser to reflect current market conditions; 3. The value of buildings taken from NFIP claims data; b) A cost estimate provided by a qualified contractor, Professional Engineer or Licensed Architect. The cost estimate shall include a detailed accounting of the proposed improvements, additions, reconstruction or rehabilitation work, repairs or associated construction and development. A Substantial Improvement determination can be appealed by an applicant to the Development Review Board. The DRB shall hear the appeal in accordance with Section 5.2.3 and Section 8.5.

**6.8.9 Required Permits in Flood Hazard Overlay District** If any portion of proposed development is within the FEMA Special Flood Hazard Area, the entire development is considered to be within the FEMA Special Flood Hazard Area. Except for exempt activities, per Section 6.8.10, a Zoning Permit is required from the Administrative Officer for all Development in all areas within the Flood Hazard Overlay District. Development that requires a conditional use approval, change or expansion of non-conforming structures or use approval, or a variance from the DRB under Section 6.8 must have such approvals prior to the issuance of a Zoning Permit by the Administrative Officer. Any Development subject to municipal jurisdiction in the Flood Hazard Overlay District shall meet the development standards in Section 6.8.16. See Section 6.8.17.c) regarding state and federal permits. Uses and activities within the Special Flood Hazard Overlay District, as listed in Figure 6.8-1 are subject to the following permit requirements. Please refer the underlying District requirements to determine which additional requirement may apply.

X – Prohibited, development not allowed within the FHOD

ü - Exempt, not subject to FHOD review,

P – Permitted use, subject to FHOD review by Administrative Official

CU – Conditional Use, subject to FHOD review by Development Review Board

#### **6.8.16 Development Standards**

f) All existing non-residential Structures to be substantially improved or replaced, and all additions to nonresidential structures shall:

1. Be reasonably safe from flooding;

2. Have either:

i. The Lowest Floor elevated to a minimum of one foot above the Base Flood Elevation; or

ii. Be dry flood proofed at least two feet above the Base Flood Elevation; or

iii. If solely used for parking of vehicles, storage, be wet flood proofed as per 6.8.16 d) 2.

3. Have structural designs, specifications, and plans prepared and certified by a registered professional engineer or architect. Designs and proposed methods of construction shall be in accordance with accepted standards of practice for meeting all FEMA Flood proofing and elevation provisions.

#### **6.8.16 d) 2**

2. Wet flood proofed and designed to automatically equalize hydrostatic Flood forces on exterior walls by allowing for the entry and exit of Floodwaters. Such designs must be certified by a registered professional engineer or architect, and meet or exceed the following minimum criteria:

i. A minimum of two openings on two walls having a total net area of not less than one square inch for every square foot of enclosed area subject to Flooding shall be provided.

ii. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of Floodwaters.

#### **6.8.16**

v) Within the Floodway development shall: 1. Not result in any increase in Flood levels (0.0 feet) during the occurrence of the Base Flood, this will be demonstrated by the submission of a No Rise Certification; 2. Not increase any risk to surrounding properties, facilities, or Structures from erosion or Flooding. 3. Allow for public utilities to be placed underground, and the No Rise analyses waived, where a registered professional engineer certifies that there will be no change in grade and the utilities will be adequately protected from scour.

Let's discuss approach when you get a chance.

Best,

**Kevin Worden PE**

Vice-President

Cell (802) 343-5445

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