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**GRAFTON**  
Massachusetts

Natalia Alward <alwardn@graffton-ma.gov>

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**41 Church & 14 West Streets - Brigati Village, LLC - Multi-Family Dwellings  
in RMF Zone**

1 message

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vellod@hotmail.com via Town of Grafton MA <cmsmailer@civicplus.com> Mon, Mar 25, 2019 at 5:16 PM  
Reply-To: "vellod@hotmail.com" <cmsmailer@civicplus.com>  
To: planningdept@graffton-ma.gov

RECEIVED

Planning Board Public Comment Form  
Submitted from the Town of Grafton website on Monday, March 25, 2019 - 5:16pm

MAR 25 2019

Submitted on Monday, March 25, 2019 - 5:16pm  
Submitted by user: Anonymous  
Submitted values are:

PLANNING BOARD  
GRAFTON, MA

Select a Project: 41 Church & 14 West Streets - Brigati Village, LLC -  
Multi-Family Dwellings in RMF Zone

First Name: Daniel

Last Name: Vellone

Email Address: vellod@hotmail.com

Street Address: 51 Church Street

City: Grafton

State: Massachusetts

Public Comment Disclaimer: I have read and understand the Public Comment  
Disclaimer.

Comments:

25 March 2019

EXHIBIT 14

Daniel A. Vellone, M.S., PG, CPG  
Certified Professional Geologist  
51 Church Street  
Grafton, MA 01519

Grafton Planning Board  
Town of Grafton  
Grafton Memorial Municipal Center  
30 Providence Road  
Grafton, MA 01519  
Attention: Mr. Robert Hassinger, Chair

RE: SP 2019-2 / SPA  
Brigati Village LLC Special Permit/Site Plan Approval  
Proposed Construction of a 57-Unit Multi-Family Residential Development  
41 Church Street & 14 West Street  
Grafton, MA

In advance of the Public Hearing on Monday 25 March 2019, commencing at 7:30  
p.m. in Conference Room A at the Grafton Memorial Municipal Center, and any  
subsequent hearings regarding the above reference application for special  
permit and site plan approval, it is respectfully requested that the Board  
give consideration to the following concerns outlined below.



Disclosure:

I am contacting the Board in my capacity as owner and occupant of 51 Church Street, Churchill Condominium II (Deed Book 8501 Page 62, Parcel Id: 110/074.0-0101-0214.0) as shown on drawing sheet C1.02, "Existing Conditions Plan" submitted as Exhibit 4 – Site Plans. However, for the purposes of complete and full disclosure, I am employed as a geologist for the United States Department of Agriculture, Natural Resources Conservation Service (NRCS) serving all of the Commonwealth of Massachusetts (and northeast region encompassing the New England states and New York State), as well as adjunct faculty at Worcester State University in the Department of Earth, Environment & Physics. The following comments submitted are not provided in any official capacity.

Exhibit 1 – Application:

As part of application No. SP2019-0/SPA, Exhibit 1F, is a letter prepared by WDA Design Group (WDA) dated 08 February 2019 for the above reference project. In that letter, WDA indicates "...test borings were drilled and observed this week by Northeast Geotechnical, Inc. for the purposes of evaluating the stability of soil for a proposed cut slope in the area. The results of their work will be provided to the Board under separate cover" (letter page 3 of 9, PDF packet page 9 of 15).

As of today's date, and in anticipation of the Board meeting later this evening, the results of the test borings and any subsequent reporting by WDA or Northeast Geotechnical, Inc. has not been uploaded to the Town of Grafton Planning Department website for public inspection. It was my expectation that this information should have been made available for public inspection in advance of the Board meeting, as indicated in the 08 February 2019 letter and corresponding application for site plan approval. As a local resident and with Churchill Condominium III immediately abutting the proposed development, it is respectfully requested that this information be made available for public inspection prior to the approval of the above reference application for special permit and site plan approval.

Exhibit 2 – Surface Report: Earthworks Volume:

The "surface report" earthworks volume report prepared by WDA Design Group (WDA) dated 09 February 2019 has been prepared for the roadway surface excavations only, as noted in the Project Name file path shown in the document header. This earthworks volume report does not appear to account for the excavation and removal of overburden soil materials from the proposed foundation preparation for the various Brigati Village units. Based upon a cursory review of Drawing Sheet C3.02 – Grading and Drainage Plan, it appears that foundation excavations on the order of about 10 feet are proposed. Additionally, deep excavations may also be anticipated to construct the sewer manholes (SMH), detailed as Section A-A on Drawing Sheet C5.02 – Details, and associated utilities.

It is unclear from the special permit and site plan approval application how these excavations will be facilitated if shallow bedrock is to be encountered. As noted above, as of today's date, and in anticipation of the Board meeting later this evening, the results of the test borings and any subsequent reporting by WDA or Northeast Geotechnical, Inc. has not been uploaded to the Town of Grafton Planning Department website for public inspection. It would have been my expectation that this information should have been made available for public inspection in advance of the Board meeting, as indicated in the 08 February 2019 letter and corresponding

application for site plan approval. It is unclear from the site development plans submitted if bedrock removal is anticipated, and if the use of hydraulic hammers or mechanical breakers (also called hoe-rams, or mounted impact hammers) or rock removal by blasting is proposed as part of the planned site development. As a local resident and with Churchill Condominium III immediately abutting the proposed development, it is respectfully requested that this information be made available for public inspection prior to the approval of the above reference application for special permit and site plan approval. Further, if rock removal by hydraulic hammers, mechanical breakers, or blasting is proposed, it is respectfully requested that the Board require advance submission of an engineering plan outlining the proposed rock removal/excavation methods, anticipated vibrations and air overpressures, impacts to abutting properties and mitigation measures.

#### Exhibit 4 – Site Plans:

Drawing Sheet C3.01 – Erosion & Sediment Control Plan. On the referenced figure, there is a temporary sediment basin shown west of Sediment Basin-2, located at the southwest corner of the proposed site development. The referenced figure illustrates that a diversion channel will be constructed to divert construction-related surface water flow to the south, toward the common driveway and principal unit access for Churchill Condominium III, II and I, located south of UP22 along Church Street.

There are concerns with surface water runoff management during construction resulting from possible storm events and the potential for erosion, deposition of sediment and uncontrolled discharge of stormwater impacting the common access driveway for the residents of 45, 47, 49, 51, 53 and 55 Church Street. It is respectfully requested that the Board ensure that these concerns are adequately addressed prior to the approval of the above reference application for special permit and site plan to eliminate the potential impacts to abutting neighbors.

Drawing Sheet C3.02 – Grading and Drainage Plan. On the referenced figure, there is a permanent riprap plunge pool shown southwest of the sediment forebay, located at the southwest corner of the proposed site development. The referenced figure illustrates that a riprap swale will be constructed to divert surface water flow from storm events to the south, toward the common driveway and principal unit access for Churchill Condominium III, II and I, located south of UP22 along Church Street.

There are concerns with long-term surface water runoff management resulting from possible storm events and the potential for erosion, deposition of sediment and uncontrolled discharge of stormwater impacting the common access driveway for the residents of 45, 47, 49, 51, 53 and 55 Church Street. It is respectfully requested that the Board ensure that these concerns are adequately addressed prior to the approval of the above reference application for special permit and site plan to eliminate the potential impacts to abutting neighbors.

#### Discussion:

It is anticipated that the proposed site development, and abutting properties (inclusive of Churchill Condominium III, II and I) are underlain by the Neoproterozoic metasedimentary Westboro Formation (Zw), which is heterogeneous and variably interlayered or bedded, but contains quartz-rich chlorite-muscovite-quartz phyllite and schist and calc-silicate phyllite and schist, as mapped by Greg Walsh et al (2011) of the U.S. Geological Survey at

1:24,000 scale. Structurally, this part of Grafton is shown to be bound to the south by the Blackstone Valley Fault, to the west by the Blood Bluff Fault and to the east by the Fisherville Pond Fault.

In a 2007 U.S. Geological Survey publication, it is noted that felsic (light-colored) crystalline bedrock may have the highest concentrations of <sup>222</sup>Radon. This crystalline bedrock includes rock types such as the quartz-rich chlorite-muscovite-quartz phyllite and schist and calc-silicate phyllite and schist of the Westboro Formation. Additionally, it is noted the co-occurrence of radon (Rn) with uranium (U), as interpreted from bedrock lithology and aeroradioactivity, and the potential for oxidizing conditions to solubilize uranium from source. Walsh et al (2011) describes the Westboro Formation as locally rusty-weathering (oxidizing). Further, this region of Central Massachusetts (Worcester County) is mapped within an EPA Zone 1 radon area (from USGS Open-file Report 93-292-A), and the 1:17,000 scale MassDEP projected bedrock water quality map for Grafton (2011) for uranium probability indicates that the area has a 4.8% to 13.0% probability of exceeding the public drinking water standard for uranium.

While the principal concern is not related to water quality impacts, the MassDEP map and additional information is illustrative of the potential for the co-occurrence of radon (Rn) with uranium (U), and the potential for increases in stormwater discharges to solubilize uranium from source as a result of proposed subsurface detentions. One principal concern is that any potential disturbance to the underlying bedrock may enhance natural fractures along foliation planes formed along the preferential alignment of platy minerals inherent to the metasedimentary fabric of the bedrock formation. The potential for nearby fracture enhancement resulting from mechanically-induced stresses in the bedrock during rock removal could result in enhancing flow path potential for naturally occurring uranium and radon. Additionally, the potential for bedrock fracture enhancement could cause the widening of existing crack apertures, or create new potential groundwater flow paths leading to the oxidation of minerals along joint surfaces and solubilize uranium and/or transport radon from source rock.

Additionally, it is widely accepted that ground vibration amplitudes produced by hydraulic breakers (if employed), are generally rated in a similar manner to impact pile drivers. Ground vibrations produced by other construction equipment has been documented in literature prepared by the Federal Transit Administration (2006). Since the site development plans indicate general earthwork construction equipment will be employed as part of the site development (example: see Drawing Sheet C5.01, slope tracking detail) it is respectfully requested that the Board request the consideration of transient construction-induced impacts to historic structures and older residential structures along Church Street and West Street, within the vicinity of the proposed development.

Thank you in advance for this opportunity to provide public comment. It was my intent to submit comment sooner than this evening; however, I had been expecting to see the additional geologic and geotechnical information made available in advance as previously indicated. In absence of this information made available for public inspection, I respectfully request that the Board defer consideration of the above reference application for special permit and site plan approval until the noted matters may be further addressed.

Respectfully submitted,

Daniel A. Vellone, M.S., PG, CPG  
Certified Professional Geologist

51 Church Street  
Grafton, MA 01519

