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October 20, 2014

Ms. Allison Steinfeld
Planning Director
Town of Brookline
333 Washington Street
Brookline, MA 02445

Re: BETA'S October 15, 2014 Response to Abutter's Stormwater Management and Traffic Concerns

Dear Ms. Steinfeld:

I am writing to respond to BETA's October 15, 2014, letter in which it attempts to rebut many of the abutters' concerns surrounding the proposed development previously brought to the town's attention. Responses to some of BETA's conclusions are below:

- ***BETA Conclusion: The methodology to determine high groundwater elevations is within generally acceptable practice.***

BETA's conclusion is misleading, as the generally acceptable practice standard as outlined by BETA was, in fact, not followed. As BETA stated, "Identifying redox features is MassDEP's primary recommended method for determining seasonal high groundwater elevations. If redox features are not present, measured groundwater elevations must be adjusted using nearby groundwater wells monitored by UCGS."

In this case, Stantec failed to follow the DEP recommendations, as it did not attempt to identify redox features. Instead, it adjusted elevations by using groundwater well data. Moreover, BETA fails to identify the well site, data reviewed, years of data reviewed and the well's proximity to the project.

The use of redox features, as noted in the studies prepared by Michael Frimpter, should be used to determine the seasonal high groundwater elevations.

- ***BETA Conclusion: The project will not solve all existing flooding issues however abutting properties will not be adversely impacted by storm water runoff from this project.***

It is beyond dispute that this project will create significant amounts of additional runoff as previously brought to the ZBA's attention and supported by calculations prepared by Stantec. What is being questioned is whether the proposed methods to store the additional runoff will ensure that the amount of run-off that escapes the boundaries of the project in the post-developed condition is less than in the current pre-developed condition. As outlined in my prior letter, there are significant errors in the current design that need to be addressed. Significantly, the storage capacity of the porous pavement assumed in the calculations has no relation to what was shown on the design plans. In addition, the storage tanks near the proposed tower will lose significant capacity to store runoff during storm events happening in close proximity of each other. The bio-retention basin capacity could be severely reduced if proper groundwater elevations are not determined. Storm tank failures, due to failures to properly install, maintain or simply due to the poor quality of the materials, could lead to drastic flooding issues for the abutters.

BETA provided a sketch to demonstrate how the porous pavement would help reduce storm water runoff. The detail provided has no relation to the details provided by Stantec so it is unclear if BETA is redesigning the porous pavement for Stantec or if they are not familiar with the details Stantec developed. BETA has assumed that ledge will be removed to 4' below the porous pavement reservoir structure. The current plans only show the excavation to be 2' below the reservoir structure and also show check dams that will reduce storage capacity. Furthermore, BETA assumed that the porous pavement was being designed to meet University of New Hampshire standards, which it is not. If actual ledge removal was provided that met the UNH, Stantec and BETA assumptions, the resulting ledge removal would be 2 to 3 times what CHR has suggested.

The bottom line is there is no consistency between the Applicant, Designer and Peer Reviewer. This lack of coordination should be a major red flag, as it strongly underscores that the necessary time and effort needed to do a thorough and comprehensive peer review have not been allocated to this critical issue.

- ***BETA Conclusion: The proposed [StormTank] system will need to be installed according to the manufacturer's specifications.***

BETA dismisses concerns with the failure rate of the StormTank system by stating that after a brief investigation, they were unable to find “information on the failure rate.” BETA does not address, however, whether the system is a proven technology. When presenting alternative systems, such as StormTanks, as part of complex drainage mitigation system it is incumbent on the designer to prove the system works.

- ***BETA Conclusion: If properly installed and maintained the failure rate for porous pavement is substantially less than 75%.***

Other than citing the fact that over the last fifteen years there have been many studies completed and advancement with respect to porous pavement, BETA fails to provide any statistics related to the reliability of porous pavement or to quantify “substantially less than 75%.”

The EPA Fact Sheet lists five reasons as to why porous pavement fails and this project currently fails to address the majority of them:

1. *Poor Design:* There are several inconsistencies that Stantec failed to address or correct including:
 - a. Failure to adequately identify and show the limits of ledge on the contract drawings.
 - b. Explaining how check dams could be carved into the ledge.
 - c. Properly entering the appropriate storage volumes into the HydroCAD model.
 - d. Failure to identify and mitigate potential utility conflicts.
2. *Inadequate Construction Techniques:*
 - a. When choosing a contractor, the general engineering rule of thumb to demonstrate that a contractor has had adequate experience is to have at least three contractors provide examples of five similar projects it has done in the past five years. The use of porous pavements in Massachusetts since the EPA report has been extremely limited. Agencies such as MassDOT prohibit its use entirely on their projects. In fact, it is doubtful that there is one project in the entire Commonwealth that has used porous pavement in the manner that Stantec has proposed. It is seriously doubtful that ANY Massachusetts contractor could meet the “5 in 5” standard.
3. Soils with low permeability:

- a. You cannot have a lower permeability than ledge, which is essentially zero. In other words, one can assume that porous pavement should not be used over ledge.
4. *Heavy vehicular traffic:*
 - a. Based on current traffic conditions at Hancock Village, it is expected that the traffic for this parking area will be reasonably high.
5. *Resurfacing with nonporous pavement materials:*
 - a. Due to the limited area where this porous pavement is being used, it is reasonable to assume that in the future it may be “forgotten” that this pavement requires special attention. For instance, a portion of the Asheville Road driveway was recently seal coated and if a seal coat were applied to the porous pavement it would completely nullify the storage capacity of the system.

As noted by BETA, the University of New Hampshire is a leading expert in porous pavement and has issued a Fact Sheet. The No. 1 *Design Criteria* is:

- Soil Permeability is Recommended Between 0.25-3.0 Inches Per Hour

As noted above, ledge has a permeability rate of 0 inches/hour. Furthermore, the University of New Hampshire Fact Sheet makes recommendations for a recommended typical cross-section of porous pavement. The porous pavement details in the plans prepared by Stantec do not match these recommendations. This is a clear indication that both the designer and peer reviewer are not familiar with the design and construction of porous pavement.

- ***BETA Conclusion: The project has adequately addressed pedestrians, bicycles and vehicular safety on Independence Drive.***

BETA concludes that the project addresses Independence Drive concerns but dismisses pedestrian safety on VFW Parkway as “beyond the scope of this project.” It does not make sense that pedestrian safety on Independence Drive is addressed but VFW Parkway concerns are ignored. There will clearly be an increase in pedestrian trips across VFW Parkway generated by this project due to the increased number of residents and reduction in usable green space. Accordingly, safety issues on VFW Parkway should be within the scope of the project.

In a July 19, 2014, press release from DCR entitled *Traffic and Pedestrian Safety Improvements along William J. Day Boulevard in South Boston*, DCR Commissioner Jack Murray is quoted as stating “Public Safety is our agency’s highest priority.” It is astounding that neither Stantec, Chestnut Hill Realty, the Town of Brookline nor the ZBA have put the safety of residents at the same level. Safety of pedestrians should be a greater concern than the economic viability of this project.

- ***BETA Conclusion: The project has adequately addressed safety and operational concerns on the proposed site circulation roadway system and Beverly Street (sic) will be able to handle the additional site generated trips.***

First, the example previously given of a dangerous roadway condition was not on Beverly Road, but was on Gerry and Sherman Roads within Hancock Village. BETA fails to address that issue. Furthermore, the conditions on Beverly Road were not adequately addressed. BETA states that CHR has analyzed Beverly Road and determined that the “the proposed site related trip generated” is small. However, it is my understanding that traffic was never studied when Beverly Road functions as a one-way street. In the winter, from approximately December through March, Beverly Road becomes a one-way street during pickup and drop-off, starting at Zanthus and ending at Grove (Independence) St. This is coordinated through the Brookline Police Department for public safety.

- ***BETA Conclusion: The project has adequately addressed Traffic and Parking Issues.***

BETA dismisses the traffic and parking concerns by stating that the traffic and parking design meets “industry standards.” However, industry standards may not be sufficient to address real-life situations such as speeding, double parking and overflow parking on neighboring streets (which frequently occur). Moreover, BETA should clarify which industry standards they are citing and the level of Stantec’s compliance (e.g., is it meeting the minimum standards?).

- ***BETA Conclusion: Due to the small site related vehicle trips that will use the South Street/VFW Parkway Intersection, the scope of the study does not need to include this intersection in assessing additional traffic impacts.***

BETA concludes that the South Street/VFW Parkway intersection does not need to be included as part of the traffic study. However, BETA’s conclusion contradict its own statements made at the September 15, 2014, public hearing. As transcribed in the meeting minutes (page 43), Ms. Netter asks, “what can be done, if anything to increase the likelihood of approval for access onto VFW over and above emergency access?” BETA appears to respond that the signals on VFW Parkway are critical no matter how few cars are being added and that this is information that DCR needs to determine if a curb cut for the project would be appropriate.

As outlined above, there are many concerns about the responses given by BETA and they simply have not addressed the key issues associated with this project. If you have any questions, please do not hesitate to contact me. Thank you.

Sincerely,

A handwritten signature in blue ink that reads "William M. Varrell III". The signature is written in a cursive style with a distinct "III" at the end.

William M. Varrell, III, P.E., LEED AP

cc: Jesse Geller, Esq., Chairman, Brookline Zoning Board of Appeals