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**BY ELECTRONIC MAIL: mmorelli@brooklinema.gov
AND BY FIRST CLASS MAIL**

Brookline Zoning Board of Appeals
Brookline Town Hall
333 Washington Street
Brookline, MA 02445

Re: Application for Comprehensive Permit – 134-138 Babcock Street, Brookline
General Engineering Peer Review for Proposed Project Construction

Dear Members of the Board:

Noblin & Associates, LLC (Noblin) has been requested by Hill Law, attorneys representing residents of Stedman Street in Brookline, to review the preliminary site design plans, storm-water report and foundation engineering report that have been filed by the developer of the proposed Chapter 40B development at 134-138 Babcock Street, Brookline. Our peer review is limited to structural and related geotechnical engineering concerns with the peer review comments, inclusive of the following documents per the direction of Hill Law:

- Foundation Engineering Report Babcock Place, Brookline, MA, dated November 09, 2017, as prepared by McPhail Associates, LLC, of Cambridge, MA; inclusive of geotechnical data.
- Preliminary design site plans, dated November 17, 2017, as prepared by Cube 3 Architecture, Lawrence, MA. (16 pages), reviewed for general information only.
- Storm-water Management Design and Runoff Calculations Report, dated November 15, 2017 as prepared by Schofield Brothers, LLC.

Based upon our initial peer review of the above noted documents, we submit the following questions and comments for the Board's consideration:

1. Will a demolition design and plan be prepared to remove the existing structure(s) and foundations? The geotechnical report includes recommendations for removal of existing foundations.

2. Will hazardous materials evaluation, sampling, testing and potential abatement be performed prior to demolition?
3. Has the under-slab drainage system below the new building garage slab been designed yet? A specific plan with drain and piping layout, slopes, sub-base, filter fabrics, etc. need to be shown. The design will need to be sensitive of the potential for periodically perched groundwater due to the alluvial deposit on site. Since a gravity under-slab drainage system is anticipated, will a back-up pumped system be introduced?
4. The existing building located at the north of the new building, is proposed to remain in place. Will a pre-condition survey be performed for this building? It appears that this building may be supported upon stone foundation, and should be looked at prior to adjacent building demolition, prior and during construction, and then after completion of construction. We suggest video and photographic documentation, including hand written defecting and potentially placement of crack gage monitoring as required for adjacent buildings to remain. The site plans should be updated to show complete existing building footprints to scale.
5. Soil borings were reportedly performed in late October of 2017. The geotechnical engineer should provide anticipated groundwater elevation rise/fluctuations for the Spring seasons, as we would expect the groundwater to be a bit higher in the Spring season. How will the potential for periodically perched groundwater be affected in the Spring season?
6. As the geotechnical engineer notes, "it is possible that groundwater may become periodically perched at shallow depths on the surface of the relatively impervious alluvial deposit during precipitation events". (Page 4 of geotechnical report). We are curious how this perched water may affect adjacent structures, with potential for leaking into their foundations/basements?
7. Fill is recommended to be removed from the site at building support/foundation locations. The depth of fill is anticipated to be 5 ft. below grade. Full time monitoring by the geotechnical engineer is recommended and should be performed to review this concern.
8. The geotechnical report, (Page 6) recommends a polyethylene vapor barrier be placed below the slab. We suggest that a 15 mil, Grade "A", polyolefin vapor barrier system be considered, due to the proposed under-slab drain system. We note that both perimeter and under-slab drainage systems are recommended to protect the below ground area against groundwater intrusion. With only a gravity drainage system used, does the geotechnical engineer recommend a pumped back-up for under-slab and perimeter drainage due to potential for perched ground-water? How about under-slab and perimeter foundation wall water-proofing rather than damp-proofing? How about requirements for structural slab to resist buoyancy or uplift? Please clarify the extent of perched ground-water potential.

9. Have the storm drains been evaluated in their capability to resist surcharge or overloading? We understand that the perimeter and under-slab drains will empty into the storm drain systems after treatment.
10. We note that the under-slab drains are only recommended to be underlain with filter fabric. We suggest a perimeter filter fabric outer wrap, outset of the crushed stone surround around the pipes.
11. Has the project design team evaluated the existing building foundations, and specified their complete removal within the new building footprint?
12. The geotechnical report (Page 8) indicates: "The bottom of the proposed recharge system is anticipated to be into the glacial outwash deposit; however, if the alluvial deposit extends to a greater depth in the proposed locations, a lower permeability should be used for the alluvial deposit". The Storm-water management design report (Page 4) states soil drain properties based upon the NRCS soil maps. We recommend that this review include the specific concerns of the geotechnical engineering report, with in-situ and site-specific concerns inclusive of the alluvial deposit layer. This alluvial deposit layer may present poor drainage characteristics.
13. As stated above, Standard 3 (Recharge to Ground-water) of the Storm-water Management Design report should be looked at with site specific soil permeability. There does not seem to be a mention of the alluvial deposit layer, with only comparison to USDA area soil classifications.

We look forward to commenting further on this project as its design evolves.

Sincerely,
Noblin & Associates, LLC



David A. Morand, P.E., SECB, AEER
President