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September 10, 2019

Ref: 10865.03

Barney Heath, Director
City of Newton Planning & Development
1000 Commonwealth Avenue
Room 202, Newton, Massachusetts

Re: Riverside Station Redevelopment – Peer Review Response to Stormwater Comments

Dear Mr. Heath,

On behalf of the applicant, MD 399 Grove Owner, LLC, Ramirez Concord, C & BH Normandy Riverside, LLC, VHB offers the following responses and acknowledgements in response to the peer review letter from Horsley Witten Group, Inc. (HW) dated July 30, 2019 for the above referenced project. For clarity the original comments have been provided in regular text and *VHB's responses are in italics.*

Water Supply

HW recommends investigating water harvesting for irrigation as well as for grey water in commercial toilets.

The Applicant will investigate the feasibility of water harvesting for irrigation and other water reuse. If the Client Applicant determines that these practices are feasible, the proposed model will be updated to reflect any changes.

Stormwater Management

HW conducted a brief review of the Stormwater Report dated April 2019 and noted the following:

- Subsurface system P101:
    - Proposed to be at 19.7 feet below existing surface, below Building 9 garage. Confirm Estimated Seasonal High Ground Water (ESHGW) beneath entire system.

      Additional geotechnical investigations will be performed by the geotechnical engineer, Sanborn Head as required by the MassDEP Stormwater Management Regulations. Estimated Seasonal High Ground Water (ESHGW) will be confirmed at that time. Based on preliminary borings conducted by Haley & Aldrich in 2009, water was encountered at a depth of 22.5' below existing grade in one boring proximate to the recharge system. VHB will provide the results of the more recent geotechnical investigation as well as any corresponding changes to the Stormwater

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Management System to HW for review. VHB has also met with the manufacturer to evaluate options including consideration of a shallower system.

- Provide an explanation for how routine maintenance will occur and what happens if the system fails.

  Subsurface system P101 is located beneath the Building 9 garage such that when maintenance is required, the system will be accessed through the at-grade parking in the drive aisle of the garage. The first level of the garage has additional vertical clearance to accommodate construction equipment. Please note that while this location may present certain logistical challenges, it was selected to enhance the overall project aesthetics and provide more robust planting throughout the development. In addition, this area presented soil characteristics that were more conducive to groundwater recharge (higher permeability) than other areas on-site.

  Again, we are coordinating with the system manufacturer to determine the most effective system configuration and maintenance options.

- Provide details of foundation support of Building 9 in relation to infiltration system.

  The foundation support for subsurface system P101 is preliminary and will be further advanced by the structural engineer. The zone of influence of the proposed footings has been investigated to reduce the potential impact to the subsurface system. Further details will be provided as the structural engineering design progresses.

- Additional test pits will be required within 25 feet of the proposed infiltration systems.

  Acknowledged. As previously noted in the comment above regarding ESHGW, further test pits will be conducted by Sanborn Head, the geotechnical engineer. VHB will confirm the design of the infiltration systems at that time.

- City of Newton Engineering Department expects that the stormwater management will be evaluated with the assumption that the existing site is 100% permeable and target 0% increase of runoff for design storm events up to a 100-year 24-hour storm.

  The stormwater management system has been designed such that there is a reduction of runoff for design storm events up to a 100-year 24-hour storm for both design points in accordance with the The City of Newton Requirements for On-Site Drainage (Stormwater Management) and MassDEP Stormwater Guidelines. As discussed in our recent meeting, we look forward to the opportunity to discuss this request with the City of Newton officials.

- BMP sizing calculations for P102 are missing several values.

  VHB has updated the Proposed Conditions HydroCAD model. The chamber volume for subsurface system P102 has been provided, and the values have been updated. An updated BMP sizing spreadsheet has been provided as an attachment.

HydroCAD model:

- Why are roofs listed as unconnected?

  "Unconnected impervious" is a default description in HydroCAD. The description has been updated in the HydroCAD report to clarify that the rooftops are connected to the stormwater management systems.

- 100-year rainfall value between existing and proposed is not the same.

  We concur. the rainfall data within the Existing HydroCAD model has been updated to 8.78 inches for the 100-year storm as required by the City of Newton Requirements for On-Site Drainage.

- For existing conditions, used "fair" surface conditions for grass and woods. For proposed conditions used "good" for grass. Recommend using good for existing and proposed grass and wood areas.

  The existing and proposed HydroCAD models have been updated, noting "good" conditions for wooded areas in both models.

  The existing condition of the grass at the edge conditions of the site is in "fair" condition with some areas of dry and bare spots. Lawn areas in proposed conditions will be freshly loamed and seeded, and regularly maintained improving the condition of the grass. As such, the curve number in the Proposed HydroCAD model reflects lawn in 'good' condition.

- Under existing conditions, the MBTA Storage Yard has a Curve Number (CN) of 93, under proposed conditions the same area has a CN of 88. It appears that the existing and proposed MBTA Storage Yard should be the same.

  The discrepancy between the CN of the gravel road within the MBTA Storage Yard has been updated to reflect the same CN under existing and proposed conditions. Additionally, a portion of the existing MBTA Storage Yard (Subcatchment 11) is being redeveloped for the construction of Building 1 and the associated drive aisle that connects the existing storage yard. This area is being treated in the proposed drainage system and is designated as part of Subcatchment 1S under the proposed conditions.

- Minimum time of concentration (Tc) under existing is 5 minutes, under proposed it is 6 minutes. The minimum Tc values should be the same for both models.

  Acknowledged. The minimum time of concentration for proposed conditions has been updated to match the 5-minute minimum Tc under existing conditions.

- Would be helpful if the units of the areas are consistent between existing and proposed, either square feet (sf) or acres.

  Acknowledged. The existing conditions model has been updated to provide areas in acres, consistent with the proposed model.

The updated Stormwater Management Calculations noted herein will be provided with the revised Civil and Landscape Design Drawings to reflect the reduced program recently presented to the City Council.

Please do not hesitate to call if you would like to discuss.

Sincerely,

Vanasse Hangen Brustlin, Inc.

Richard S. Hollworth, PE

Principal
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