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May 29, 2024

Mr. Tobin Shulman, Chair  
Zoning Board of Appeals  
Town of Stoneham  
35 Central Street  
Stoneham, MA 02180

Via: E-Mail to [tobin.shulman@gmail.com](mailto:tobin.shulman@gmail.com)  
[msagarino@stoneham-ma.gov](mailto:msagarino@stoneham-ma.gov)

Re: **Comprehensive Engineering Review  
The Residences at Spot Pond  
5 Woodland Road  
Stoneham, MA**

Dear Mr. Shulman:

McKenzie Engineering Group, Inc. (MEG) has reviewed the proposed Residences at Spot Pond Comprehensive Permit Application for conformance with the Stoneham Zoning Bylaw (ZBL), the Stormwater Management Rules and Regulations, Massachusetts Department of Housing and Community Development Comprehensive Permit Regulations (760 CMR 56.00), Massachusetts Department of Protection (MassDEP) Stormwater Management Standards, and sound engineering practices.

The following documentation was received and served as the basis for our final review:

- Plans entitled "The Residences at Spot Pond, 5 Woodland Road, Map 27, Lots 3, 3CM & 6, Stoneham, MA," prepared by Allen and Major Associates, Inc., dated November 16, 2023, revised May 29, 2024 (Site Plans).
- The stormwater management report entitled "Drainage Report – The Residences at Spot Pond, 5 Woodland Road, Map 27, Lots 3, 3CM & 6, Stoneham, MA," prepared by Allen and Major Associates, Inc., dated September 8, 2023, revised May 29, 2024 (Drainage Report).
- Allen and Major Associates, Inc. response letter dated May 29, 2024.

MEG offers the following updated comments regarding the documentation of the proposed site plan. Most of our comments have been satisfactorily addressed. The text in **red bold font** provides our comments regarding the Applicants' response to our emails in *blue*.

**McKenzie Engineering Group, Inc. Emailed Comments – May 23, 2024**

1. Check the primary 15” outlet pipe. Sheet C-105A calls for a 24” pipe.

*A&M Response: The UIS-1 outlet pipe diameter on Sheet 105A has been revised to 15”.*

**MEG Response: Comment satisfied.**

2. Check the primary 18” outlet pipe. Sheet C-105A calls for a 24” pipe.

*A&M Response: The UIS-1 outlet pipe diameter on Sheet 105A has been revised to 18”.*

**MEG Response: Comment satisfied.**

3. Per the Stormwater Handbook, the most restrictive soil should be used for the Rawls Rate, which would be TP-104 Fine Sandy Loam with a Rawls Rate of 1.02 in/hr., not 2.41 in/hr. Note prior HydroCAD analysis used a Rawls rate of 1.02 in/hr.

*A&M Response: Per consultation with the peer reviewer, it was determined that a weighted average would be utilized for the Rawl’s rate corresponding to UIS-2. Approximately 70% of the UIS-2 footprint is located within sandy soils, or within the footprint of the existing hospital building, and it is anticipated that granular material will be utilized for the portions of the drainage system located within the hospital footprint. The weighted average calcs for the Rawl’s rate are included in the MassDEP standard calculations in the Appendix of the drainage report revised through May 29, 2024. A weighted Rawl’s infiltration rate of 1.99 inches/per was utilized in the HydroCAD calculations. Note #9 has been added to Sheet C-105A indicating that suitable granular fill shall be utilized beneath UIS-2 where proposed within the existing hospital building footprint.*

**MEG Response: Comment satisfied.**

4. The required volume should be the total volume for all impervious areas (6,293 CF) from page 1, plus a capture adjustment (see Volume 3, chapter 1, page 28 of the Stormwater Handbook). There is more than enough recharge volume. However, the calculations should be updated.

*A&M Response: The recharge capture adjustment calculations are included in the MassDEP standard calculations in the Appendix of the drainage report revised through May 29, 2024, indicating that sufficient recharge volume is provided for the project with the capture adjustment ratio.*

**MEG Response: Comment satisfied.**

5. The required volume should be 25,171 CF, not 22,828 CF (the last cell value of 2,323 CF was omitted). The water quality provided is 24,226 CF; therefore, Standard 4 has not been met.

*A&M Response: The water quality volume calculations have been revised accordingly and indicate that sufficient water quality volume has been provided for the project.*

**MEG Response: Comment satisfied.**

6. Review DMH-3(WQU) against sheet C-105B.

*A&M Response: DMH-3(WQU) rim and invert elevations have been rectified with Sheet C-105B in the updated plan set, revised through May 29, 2024.*

**MEG Response: Comment satisfied.**

7. The closed-pipe system discharges into the drainage system on Woodland Road, which is agreed to be under DCR jurisdiction. DCR projects are subject to Federal Environmental Protection Agency (EPA) municipal storm sewer system (MS4) General Permit Requirements. While this Project is not a DCR project or a project on DCR property, runoff from the Site eventually discharges into Spot Pond, located within a DCR priority watershed. Therefore, MEG suggests that 90% TSS and 60% total phosphorous removal rates should be obtained. The calculations provided demonstrate greater than 90% TSS removal rates. 60% total phosphorus removal can be achieved once the Water Quality calculations are revised, as the required Water Quality Volume is based on 1 inch.

*A&M Response: The 60% phosphorous removal requirement has been met by retaining the 1" water quality volume on-site. Additionally, the Town of Stoneham phosphorous removal requirements for a redevelopment project, which requires retaining 0.8" of the total post-construction impervious area on-site, have been met. See the MassDEP Standard calculations in the Appendix of the revised drainage report dated May 29, 2024. Finally, a phosphorus reduction curve exhibit from the EPA NPDES Massachusetts MS4 General Permit, Attachment 3 to Appendix F, Table 3-7 – for 1.02 in/hr infiltration trench Long-Term Phosphorus Load Reduction Curve has been included in the Appendix of the drainage report revised through May 29, 2024, indicating that 92.1% of phosphorus is reduced for infiltration systems retaining the 1" water quality volume. It is A&M's opinion that these robust measures shall satisfy the phosphorus removal and water quality volume requirements for the project.*

**MEG Response: Comment satisfied.**

We thank you for the opportunity to assist the Stoneham Zoning Board of Appeals with the engineering review of this Project. Should you have any questions, please do not hesitate to contact me.

Very truly yours,

MCKENZIE ENGINEERING GROUP, INC.

Susan B. Spratt, P.E.  
Project Manager

Bradley C. McKenzie, P.E.  
President

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