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March 23, 2022

Ms. Jacki Byerley, Planner
Andover Planning Board
Town Office
36 Bartlett Street
Andover, MA 01810

Re: Initial Stormwater Peer Review
Special Permit Application Major Non-Residential Project
3000 Minuteman Road
Andover, MA

Dear Ms. Byerley and Board Members:

The Horsley Witten Group, Inc. (HW) is pleased to provide the Andover Planning Board with this letter report summarizing our initial peer review of the stormwater management for the proposed project at 3000 Minuteman Road in Andover, Massachusetts.

The plans were prepared for Alexandria Real Estate Equities, Inc. (Applicant) by Symmes, Maini & McKee Associates (SMMA) and dated January 26, 2022. The Applicant is proposing the development of a 43.6-acre parcel which currently consist of four buildings and an amenity building. The project includes renovating and expanding the 86,000 square foot (sf) Building 1 with a 100,000 sf Building 1A addition, reconfiguring the parking lot, and improving the stormwater infrastructure. The proposed project also includes expanding the parking lot over a pervious area which currently contains solar panels.

HW has reviewed the stormwater management design for compliance with Andover's Stormwater Management and Erosion Control Bylaw and Regulations and the MassDEP Stormwater Standards. The proposed project includes work within Riverfront Area of the Merrimack River and therefore is within the jurisdiction of the Andover Conservation Commission.

HW received the following documents and plans:

- Plumbing Engineering Calculations, prepared by Genesis dated February 7, 2022 (2 pages).
- Application for Special Permit for Major Non-Residential Project (Building 1, Lot 1), 3000 Minuteman Road, prepared by prepared by SMMA, dated January 26, 2022 (3 pages);
- Application for Special Permit for Reduction in Parking Spaces for (Lot 1, Building 1, 3000 Minuteman Road, Andover, MA) prepared by prepared by SMMA, dated January 26, 2022 (4 pages).
- Special Permit Application, 3000 Minuteman Road, Andover, Massachusetts, prepared by SMMA, dated January 26, 2022 (114 pages).
- Application for Special Permit for Major Non-Residential Project Building 3, Lot 2 3000

Minuteman Road, prepared by prepared by SMMA, dated January 26, 2022 (4 pages).

- Building 3 Parking Allocation Plan, prepared by SMMA (1 page).
- Phase 1 Utility Assessment for 3000 Minuteman Road, prepared by prepared by SMMA, dated January 23, 2022 (2 page).
- Traffic Impact Assessment for 3000 Minuteman Road – Phase I Redevelopment, prepared by Vanasse & Associates, Inc, dated January 25, 2022 (40 pages).
- Plan Set B3 for 3000 Minuteman Road, prepared by SMMA, dated January 26, 2022 (3 pages).
- Plan Set B1 for 3000 Minuteman Road, prepared by SMMA, dated January 26, 2022, which includes:

o Cover Sheet	G-001
o Existing Conditions Plan	C-101
o Site Preparation Plan	C-111
o Layout & Materials Plan	C-121
o Grading & Utilities Plan	C-131
o Details I	C-501
o Details II	C-502
o Details III	C-503
o Details IV	C-504
o Details V	C-505
o Landscape Plan	L-101
o Photometric Plan	EC-101
o Exterior Elevations	
o B1 Floor Plans	

Stormwater Review

HW has reviewed the documents listed above and has the following comments concerning the stormwater management design in accordance with the Massachusetts Stormwater Handbook (MSH) dated February 2008, and the Town of Andover Stormwater Management and Erosion Control Bylaw and Regulations amended May 11, 2021 (Stormwater Bylaw).

In accordance with Section VI. B. of the Andover Stormwater Bylaw, the Stormwater Management Permit and Narrative provided by an Applicant shall contain sufficient information to verify compliance with the local Stormwater Bylaw and the MassDEP Stormwater Management Handbook (MSH). Below are comments relating to the standards as presented in the MSH. Where the more stringent requirements of the Andover Stormwater Regulations are applicable those comments are included.

The proposed site improvements are considered a mix of new and redevelopment. The new impervious area is required to comply with the MSH fully while the redevelopment area is required to comply with MassDEP Stormwater Management Standards 2, 3, and 4 only to the

maximum extent practicable and the pretreatment requirements of Standards 4, 5, and 6 only to the maximum extent practicable. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

1. *Standard 1 states that no new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

    a. The existing site discharges stormwater to three separate design points of analysis (DP):

        a. DP-1: The stormwater from the developed site is piped towards a 48-inch outfall into the Merrimack River at the northern edge of the site.

        b. DP-2: Onsite area that sheet flows offsite towards the west. The area associated with this design point is primarily undeveloped.

        c. DP-3: Onsite area that sheet flows offsite towards the east. The area associated with this design point is primarily undeveloped.

    Under proposed conditions the Applicant has provided stormwater practices to collect, manage, treat, and recharge the stormwater within the developed areas of the site. The peak flow rates that continue to discharge towards the design points have been reduced under proposed conditions. It appears that there are no new untreated discharges to critical areas as a result of the project.

    The Applicant appears to comply with Standard 1.

2. *Standard 2 requires that post-development runoff does not exceed pre-development runoff off-site.*

    a. The Applicant has provided a proposed Grading & Utilities Plan. It appears there are three existing structures that are not tied into the proposed drainage system along the west side of the northern parking area. These catch basins were previously tied into the existing drainage system in the outer access road. HW recommends that the Applicant provide additional information clarifying where these catch basins will be directed.

    b. The Applicant has labeled the outlet elevations for each subsurface system on the Grading & Utilities Plan. HW recommends that the Applicant include the bottom of stone, bottom of chamber and top of stone for each subsurface system on the Subsurface Perforated Pipe System detail, found on Sheet C-502.

    c. The Applicant has proposed 0.6 acres of porous pavement and 0.3 acres of porous pavers. The details provided on Sheet C-503 indicate that 6-inches to 8-inches of reservoir stone will be provided beneath the porous surfaces. HW recommends that the Applicant model the reservoirs as ponds and utilize a curve number of 98 for the porous surfaces. If the stone reservoirs have adequate separation to groundwater the recharge volume provided can be included in the calculations required for compliance with Standard 3 and Standard 4.

    d. The Applicant has submitted the HydroCAD model for the proposed project, there appear to be a few inconsistencies between the model and the plan. HW has noted the following:

i. The HydroCAD model for System 1-3 (Detention) indicates an outlet control structure with a 3.0' long sharp-crested weir at elevation 69.10. HW was not able to confirm this information on the Grading & Utilities Plan or the Detail Sheets. HW recommends that the Applicant revisit the design and revise the plans or the calculations for consistency. Furthermore, it appears that the detail callout for OCS 2-1 on Sheet C-131 is referencing incorrectly.

ii. The Subsurface Perforated Pipe System detail notes 6" stone bedding and 6" of stone cover. The HydroCAD for System 1-3 (Detention) indicates the stone bedding at elevation 66.00 and the chamber elevation at 66.00. The chamber elevation on the plan is noted at 67.00. HW recommends that the Applicant revisit the design and revise the plans or the calculations for consistency.

3. *Standard 3 requires that the annual recharge from post-development shall approximate annual recharge from pre-development conditions.*

   a. It does not appear that the Applicant has conducted stormwater test pits to adequately document soil types and depth to groundwater within the vicinity of the subsurface systems. HW recommends that the Applicant conduct test pits within the foot[print of each proposed subsurface system.

   b. The Applicant has provided recharge calculations stating that the design has adequate storage space below the outlet orifices. HW recommends providing the HydroCAD stage storage tables for each subsurface system to confirm the available storage provided.

   c. The Applicant has increased the impervious area of paved parking and roofs by approximately 1.9 acres. The Applicant has proposed 0.9 acres as porous pavement or porous pavers, for a total increase of 2.8 acres of impervious area. In accordance with Volume 3, Chapter 1, Page 15 of the MSH porous pavement is considered to be impervious for purposes of calculating the Required Recharge and Required Water Quality Volumes. HW recommends that the Applicant revise the calculations provided in Appendix 3.2 using the 2.8 acres of additional impervious area.

   d. The Applicant has stated due to high groundwater on the site, there are portions of the site where stormwater cannot be recharged. The Applicant states that based on geotechnical findings, the seasonal high groundwater onsite is 3-4 feet below the ground surface and therefore is providing recharge only to the maximum extent practicable. HW recommends providing the geotechnical information regarding the groundwater findings.

4. *Standard 4 requires that the stormwater system be designed to remove 80% Total Suspended Solids (TSS) and to treat 1.0-inch of volume from the impervious area for water quality.*

   a. The Applicant has provided water quality calculations for the water quality flow rate provided by each WQU. It appears that the area being treated by WQU 2-1 has a total area of 3.15 acres. This area is comprised of the adjacent loading areas and half of the existing roof runoff. It is noted that the roof runoff would be clean. However, the additional runoff from the roof increases the flow rate through the WQU. HW recommends reviewing all the WQU calculations to confirm they are consistent with the areas that are flowing to them to confirm they can handle the pass-through flow while maintaining their efficiency. HW recommends revising WQU 2-1 calculations and any

others as necessary.

5. *Standard 5 is related to projects with a Land Use of Higher Potential Pollutant Loads (LUHPPL).*

   a. The Applicant has provided a Traffic Impact Assessment prepared by Vanasse and Associates. The proposed redevelopment will increase traffic on the site and based on the additional trips calculated in the traffic impact assessment it appears this project would be considered a LUHPPL as it exceeds 1,000 vehicle trips per day. Therefore, Standard 5 is applicable.

      The Applicant has provided 80% TSS removal onsite including 44% pretreatment based on the treatment trains provided and water quality separators.

      The Applicant appears to comply with Standard 5.

6. *Standard 6 is related to projects with stormwater discharging into a critical area, a Zone II, or an Interim Wellhead Protection Area of a public water supply.*

   a. The site does not discharge to a critical area, therefore Standard 6 is not applicable.

7. *Standard 7 is related to projects considered Redevelopment. A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.*

   a. The proposed project is considered a mix of new and redevelopment, therefore Standard 7 is applicable for a large portion of the site. HW recommends that the Applicant clearly document how it is improving existing conditions. Furthermore, HW suggestions that the Applicant document where the existing solar panels will be relocated to. The Applicant may consider relocating the panels to the new roof or as canopies in the new parking lot.

8. *Standard 8 requires a plan to control construction related impacts including erosion, sedimentation, or other pollutant sources.*

   a. Item 1 of the Stormwater Management Notes on Sheet C-111, states that the contractor shall, protect the existing storm drains as necessary for discharge of stormwater runoff prior to completion of new trunk line in Essex Street. HW recommends that this sequencing extends into post construction and permanent stabilization.

   b. Under the General Erosion Control Notes on Sheet C-111

      i. Item 3 refers to erosion control measures to stay in place until groundcover is established, HW recommends using the term permanent stabilization, instead of until groundcover is established.

      ii. Item 5 refers to Lexington Conservation Commission, replace with Andover.

      iii. Item 7 states to stabilize stockpiles and exposed soil in areas where construction activities will cease for 21 days. HW recommends changing this to 14 days per the Andover Stormwater Regulations.

iv. Item 9 notes that detention basins and forebays may be used as temporary sedimentation basins throughout construction and shall be periodically cleaned during construction. HW recommends more detail is provided on the means of periodical cleaning of these structures, to ensure proper long-term functionality, as well as the sequencing of temporary to permanent status of the detention basins and forebays as it relates to the construction phase.

c. HW recommends that key dimensions of the temporary construction entrances be shown on the Site Preparation Plan.

d. HW recommends proposed stockpiling areas with stabilization measures on the Site Preparation Plan.

e. HW recommends that the Applicant include details for each stormwater practice noted in the narrative, such as temporary swales and sedimentation basins, vegetative slope stabilization, and straw bales.

f. HW recommends that the locations of critical areas for erosion potential are delineated on the Site Preparation Plan as required in the Andover Stormwater Regulations.

g. HW recommends that the location of temporary and permanent seeding, vegetative controls, and other temporary and final stabilization measures are delineated on the Site Preparation Plan or clarify where this is information has been provided.

9. *Standard 9 requires a Long-Term Operation and Maintenance (O&M) Plan be provided.*

The Applicant has provided a Stormwater Operation and Maintenance (O&M) Plan, which includes instructions for maintenance of stormwater control measures, an O&M budget, and an O&M checklist. HW has the following comments regarding the O&M Plan:

a. The O&M Plan does not list name(s) and address(es) of responsible parties but notes that the applicant/owner shall designate a supervisor who shall assume responsibility after a CoC has been issued. The Plan also states that the applicant/owner is financially responsible for operation and maintenance, however no name/address is provided.

b. HW recommends including an estimated O&M budget within the O&M Plan.

c. Per Andover Stormwater Regulations Section VI.C.1.b.7, HW recommends including a simple sketch indicating where the stormwater practices to be maintained are located for the entire complex.

d. HW recommends that the sample log provided reflect the requirements of the Andover Stormwater Regulations, and the submittal is in the form of an annual report to the Planning Board to be issued by September 1, including:

i. Descriptions of the condition of the stormwater practices,

ii. Descriptions of maintenance performed,

iii. Signature of the responsible party,

iv. Signature of the Professional Engineer, where applicable and,

v. Receipts showing payment for maintenance performed.

e. The Andover Stormwater Regulations require scheduling and construction sequences be included in the Stormwater Narrative. HW recommends that the Applicant provide more details including a narrative of the construction sequence/phasing of the project, including both operation and maintenance for structural and non-structural measures, interim grading, and material stockpiling areas.

10. Standard 10 requires an Illicit Discharge Compliance Statement to be provided.

a. The Applicant has stated there are no known illicit discharges onsite. HW recommends that the Applicant provide a signed Illicit Discharge Compliance Statement as part of the Report.

Additional Comments per Andover Stormwater Regulations:

11. Section IX (Andover Stormwater Regulations - Design Criteria)

a. C - Pretreatment: The Applicant must size all pretreatment practices (deep sump catch basins) to accommodate one-years' worth of sediment and debris using the calculation provided in Andover's regulations. HW recommends that the Applicant provide the required calculation.

12. Other Comments:

a. Pipe calculations – HW recommends that the Applicant providing pipe sizing calculations to confirm that the sizing of the closed drainage pipe system proposed can manage a 25-year storm event.

b. HW recommends that the Applicant address any additional comments provided by the Planning Board or Department of Public works in relation to the project in addition to this letter.

Conclusions

HW recommends that the Planning Board require the Applicant to provide a written response to address these comments as part of the permitting review process. The Applicant is advised that provision of these comments does not relieve him/her of the responsibility to comply with all Town of Andover Codes and By-Laws, Commonwealth of Massachusetts laws, and federal regulations as applicable to this project. Please contact Janet Bernardo at 857-263-8193 or at jbernardo@horsleywitten.com if you have any questions regarding these comments.

Sincerely,

HORSLEY WITTEN GROUP, INC.

Janet Carter Bernardo, P.E.
Associate Principal

Steve Stanish, P.E.
Senior Engineer

CC: Andover Conservation Commission