

Horsley Witten Group

Sustainable Environmental Solutions

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August 26, 2021

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

Re: Stormwater Peer Review
140 Haverhill Street
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 review of the stormwater management for the proposed development at 140 Haverhill Street in Andover, Massachusetts. We understand that the project involves the redevelopment of a 7.2-acre parcel. Medico 140, LLC (Applicant) is proposing to divide the parcel into two lots and construct a three story 39,000 square foot (sf) building on one lot and a 9,100 sf building on the second lot. The project includes an access driveway, associated parking spaces, utility infrastructure, and stormwater management improvements. The Applicant intends to utilize the existing stormwater infrastructure, install a hydrodynamic separator, and two subsurface detention basins. We understand that the Planning Board is seeking assistance in evaluating the stormwater management design for compliance with Andover's Stormwater Management and Erosion Control Bylaw and Regulations and the MassDEP Stormwater Standards. The proposed work is within the buffer zone of a wetland resource area and therefore the project will be under the jurisdiction of the Andover Conservation Commission.

HW received the following documents and plans related to the proposed redevelopment:

- Cover Letter, Major Non-Residential Project and Parking Reduction Special Permit Applications, 140 Haverhill Street, Andover, Massachusetts, prepared by Ranger Engineering Group, Inc., dated July 21, 2021 (1 page).
- Design Discussion Presentation, 140 Haverhill Street, Andover, Massachusetts, prepared by Margulies Perruzzi, dated July 21, 2021 (20 pages).
- Design Narrative, 140 Haverhill Street, Andover, Massachusetts, undated (5 pages).
- Application for Special Permit for Major Non-Residential Project for 140 Haverhill Street, Andover, Massachusetts, prepared by Bohler, undated (9 pages).
- Stormwater Management Report for 140 Haverhill Street, Andover, Massachusetts, prepared by Ranger Engineering Group, Inc., dated June 21, 2021 (144 pages).
- Traffic Assessment Memorandum, 140 Haverhill Street, Andover, Massachusetts, prepared by Bayside Engineering, dated June 7, 2021 (28 pages).

- Photometric Plan for 140 Haverhill Street, Andover, Massachusetts, prepared by RAB, dated June 3, 2021 (3 pages).
- Lighting Fixtures Cut Sheet, prepared by RAB, undated (8 pages).
- Proposed Site Plan Documents for 140 Haverhill Street, Andover, Massachusetts, prepared by Ranger Engineering Group, Inc., dated July 9, 2021, which includes:
 - Cover Sheet Sheet CS0001
 - Notes and Legend Sheet CS0002
 - Existing Conditions Plan Sheet CS0201
 - Form A Plan Sheet CS0202
 - Demolition Plan Sheet CS0501
 - Layout and Materials Plan Sheet CS1001
 - Grading and Drainage Plan Sheet CS1501
 - Utility Plan Sheet CS1701
 - Sewer and Drainage Profiles Sheet CS3501
 - Site Details Sheet CS6001
 - Utility Details Sheet CS6002
 - Drainage Details Sheet CS6003
 - Erosion and Sediment Control Plan Sheet CS8001
 - Erosion and Sediment Control Details Sheet CS8501
 - Landscape Plan Sheet L1

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. 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 redevelopment and therefore are 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 proposed development will modify the existing stormwater drainage network to include subsurface detention chambers and structures to improve water quality (deep sump catch basin and hydrodynamic separator). The existing outfalls will not be altered, nor are any new outfalls proposed. HW recommends that the Applicant confirm that the existing outfalls are not causing erosion in the wetland resource areas.
2. *Standard 2 requires that post-development runoff does not exceed pre-development runoff off-site.*
 - a. The Applicant has provided Pre- and Post-Development Drainage Plans in the Stormwater Management Report (SMR). While HW follows the written descriptions of the proposed subcatchment areas, the plans do not appear to graphically show the different subcatchment areas. HW recommends that the Applicant revise the Drainage Plans for clarity.
 - b. Section VIII of the SMR states that the 10-year precipitation depth is 5.10 inches. However, the NOAA Precipitation Frequency Table and the HydroCAD model indicate that the depth for this location is 5.00 inches. HW recommends that the Applicant clarify the precipitation depth associated with the 10-year storm event.
 - c. The Applicant has provided a HydroCAD analysis to demonstrate that post-development runoff rates and volumes do not exceed those of pre-development conditions. HW has the following comments regarding the HydroCAD analysis:
 - i. It appears that the existing and proposed land coverage areas were not calculated directly from the plans. HW recommends that the Applicant confirm that the land areas are accurate.
 - ii. The HydroCAD model includes 13,000 sf and 3,600 sf for proposed roof area. However, based on the plans, Building 1 has an impervious area of 13,000 sf (39,000 GSF/3 floors) and Building 2 has an impervious area of 4,590 sf (9,180 GSF/2 floors). HW recommends that the Applicant revise the calculation accordingly.
 - iii. The Applicant has indicated time of concentration as 6 minutes (direct entry) for all existing and proposed subcatchments. HW agrees with this assumption.
 - iv. On the plans and in the HydroCAD model, Pond 5P shows a top of chamber elevation of 83.83. It appears that the surface elevation above this chamber system ranges from approximately 90-94 feet, resulting in cover ranging from 6.17-10.17 feet. Per the StormTech requirements, the maximum cover on a SC-310 chamber is 8 feet. HW recommends that the Applicant revisit the elevations of this chamber system to meet cover requirements.
3. *Standard 3 requires that the annual recharge from post-development shall approximate annual recharge from pre-development conditions.*
 - a. The Applicant has stated that test pits were not performed due to site layout. However,

based on both aerial imagery and the plans, it appears that there is sufficient space in the lawn to complete preliminary test pits to confirm the estimated seasonal high ground water elevation (ESHGW) within or near the footprint of the detention systems. In addition, Section VI.B.1.f.2 of the Andover Stormwater Regulations requires an accurate determination of groundwater. HW recommends that the Applicant perform the required test pits.

- b. The Applicant has designed the underground chambers as a detention system, so no groundwater recharge is provided. As the project is considered redevelopment, this is reasonable. However, the Applicant has not conducted test pits to confirm the ESHGW beneath the detention systems. HW recommends that test pits are conducted beneath the systems and if it is determined that the detention systems are located within the water table impermeable liners are added around the subsurface systems. The concern is that groundwater will enter the system and the available storage modeled will be reduced.
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 stated that the project achieves 81% TSS removal via deep sump catch basins and a hydrodynamic separator located just before the stormwater system discharges into the wetland. HW has the following comments on this calculation:
 - i. The Applicant has not provided a detail or manufacturer information for the hydrodynamic separator. HW recommends that the Applicant provide a detail, manufacturer information, and manufacturing calculations to take credit for the TSS removal.
 - ii. It appears that all new catch basins will have deep sumps. It is not clear which existing catch basins will be replaced with deep sump catch basins. HW recommends that any existing catch basin that is not a deep sump be replaced and that the plans are clarified and the TSS calculations are updated if applicable.
 - iii. CB 5 and the subsequent DMH do not include a hydrodynamic separator before discharge to the wetland. This is not required under Standard 7 (redevelopment), but HW recommends updating the TSS calculations to include a separate calculation for this area. If feasible HW encourages the Applicant to provide water quality measures at all discharge points and provide justification to the Planning Board if it is not possible.
5. *Standard 5 is related to projects with a Land Use of Higher Potential Pollutant Loads (LUHPPL).*
- a. The Applicant has noted that the proposed project is not considered a LUHPPL. The traffic assessment memo prepared by Bayside Engineering notes that daily trips would be reduced from 896 trips per day (existing) to 112 trips per day (proposed). Therefore Standard 5 is not applicable.

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 redevelopment, therefore Standard 7 is applicable. Once the Applicant has addressed the other stormwater comments in this letter and raised by the Town it appears that the Applicant complies with Standard 7 and is improving existing conditions.
8. *Standard 8 requires a plan to control construction related impacts including erosion, sedimentation or other pollutant sources.*
 - a. The Applicant has provided a Soil Erosion & Sediment Control Plan as well as a long-term pollution prevention plan. The Applicant has noted that a Stormwater Pollution Prevention Plan (SWPPP) is also included, but HW was unable to locate and review the SWPPP. The Planning Board may choose to require receipt of the SWPPP as a condition of approval.
9. *Standard 9 requires a Long-Term Operation and Maintenance (O&M) Plan be provided.*
 - a. 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 log. HW has the following comments in relation to the O&M Plan provided by the Applicant:
 - i. Per MSH Volume 2, Chapter 2, HW recommends that the O&M Plan be revised to require catch basin inspection and maintenance four times per year.
 - ii. HW recommends that the Applicant include a simple sketch with the O&M Plan that clearly labels the various stormwater practices to be inspected.
 - iii. The Applicant refers to infiltration basins in the O&M Plan. As no infiltration basins are proposed, HW recommends clarifying as to whether this refers to the existing wetland areas, or something else.
 - iv. Per Andover Stormwater Regulations Section VI.C.1.b.5, HW recommends that the Applicant provide a copy of the O&M Plan signed by the owner of the site.
10. *Standard 10 requires an Illicit Discharge Compliance Statement to be provided.*
 - a. The Applicant has stated that there are no known or suspected illicit discharges. HW recommends that the Applicant provide an Illicit Discharge Compliance Statement signed by the property owner prior to any land disturbance.

11. *Andover Stormwater Regulations Additional Comments*

a. Section IX (Design Criteria)

- i. 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.
- ii. D – Pollutant Removal: As a redevelopment project, the design is required to remove 80% of TSS and 50% of Total Phosphorus (TP). The Applicant has not provided evidence of the hydrodynamic separator's removal rate, nor does it appear that the site achieves 80% TSS removal for all outfalls. See comments under Standard 4 for more. Furthermore, the Applicant has not calculated phosphorus removal rates. HW recommends demonstrating sufficient TP removal.

Conclusions

HW recommends that the Planning Board require the Applicant 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 jbernarado@horsleywitten.com if you have any questions regarding these comments.

Sincerely,

HORSLEY WITTEN GROUP, INC.



Janet Carter Bernardo, P.E.
Associate Principal



Eliza Hoffman, E.I.T.
Design Engineer