

# Horsley Witten Group

*Sustainable Environmental Solutions*

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September 16, 2024

Mr. Robert Douglas, Director of Conservation  
Ms. Jacki Byerley, Planner  
Andover Planning Board  
Town Office  
36 Bartlett Street  
Andover, MA 01810

Re: 2<sup>nd</sup> Stormwater Peer Review  
Amendment for 140 Haverhill Street  
Andover, MA  
MassDEP File No. 090-1383

Dear Board Members:

The Horsley Witten Group, Inc. (HW) is pleased to provide the Andover Conservation Commission and the Andover Planning Board with this letter report summarizing our second review of the revised stormwater management for the proposed development at 140 Haverhill Street in Andover, Massachusetts. HW reviewed the original application in 2021. The proposed design has recently been revised and the Applicant is requesting an amendment to the previous approvals received in 2021 from the Conservation Commission and the Planning Board.

The project involves the redevelopment of a 7.2-acre parcel. Medico 140, LLC (Applicant) is now proposing to combine the two parcels into one lot and construct one three-story 19,600 square foot (sf) building instead of two buildings on two lots. The project includes reusing two access driveways, reconfiguring the parking lots, upgrading the utility infrastructure, and improving stormwater management. The Applicant intends to utilize the existing stormwater infrastructure pipes, add new and replace existing catch basins with deep sump catch basins, and install two jellyfish treatment systems. The proposed work is within the buffer zone of three wetland resource areas and therefore the project is under the jurisdiction of the Andover Conservation Commission.

HW received the following additional documents and plans in response to our peer review letter dated August 19, 2024, associated with the amended design:

- Letter to Andover Conservation Commission, prepared by Ranger Engineering Group, dated September 5, 2024 (15 pages);
- Tarp Field Test Performance Monitoring of a Jellyfish Filter JF4-2-1, prepared by University of Florida, dated November 1, 2011 (84 pages);
- Stormwater Management Report for 140 Haverhill Street, Andover, Massachusetts, prepared by Ranger Engineering Group, Inc., revised September 9, 2024 (113 pages); and
- Site Plan, 140 Haverhill Street, Andover, Massachusetts, prepared by Ranger Engineering Group, Inc., revised August 23, 2024, 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
○ Construction Phasing Plan	Sheet CS0501
○ Layout and Materials Plan	Sheet CS1001
○ Grading and Drainage Plan	Sheet CS1501
○ Utility Plan	Sheet CS1701
○ Turning Plan	Sheet CS2701
○ Sewer and Drainage Profiles	Sheet CS3501
○ Sewer and Drainage Profiles	Sheet CS3502
○ Site Details	Sheet CS6001
○ Utility Details	Sheet CS6002
○ Drainage Details	Sheet CS6003
○ Drainage Details	Sheet CS6004
○ Erosion and Sediment Control Plan	Sheet CS8001
○ Erosion and Sediment Control Details	Sheet CS8501
○ Landscape and Lighting Plan	Sheet L-1

### **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.

The comments below correlate to our review letter dated August 19, 2024. Follow up comments are provided in **bold font**.

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. Under existing conditions, the developed site manages the stormwater via a closed drainage network that is piped to one of the three onsite wetland resource areas. The small resource area on the east side of the site, delineated by wetland flags WF-1A through WF-4A, is piped to the central Bordering Vegetated Wetland (BVW), marked by flags WF-1B through WF-27B, via a 24-inch reinforced concrete pipe (RCP). The central BVW is piped to the larger BVW in the west and north corners of the site, delineated by wetland flags WF-1C through WF-34C, via an 18-inch RCP. There are six existing outfalls into one of the three resource areas.

**September 16, 2024: HW has no further comment.**

- b. The proposed development will modify the existing stormwater drainage network to include a subsurface detention chamber, new deep sump catch basins, and two jellyfish structures to improve water quality. Three of the existing outfalls will be eliminated and one new outfall is proposed. Under proposed conditions there will be four outfalls.

**September 16, 2024: HW has no further comment.**

- c. The Applicant has revised the outlet configuration at the edge of the central BVW. Under existing conditions there is an 18-inch RCP that discharges near wetland flag WF-11B at elevation 82.15. There is a second 18-inch RCP that discharges near flag WF-12B at elevation 81.40. The Applicant has revised the design to remove both pipes and install a new 18-inch HDPE pipe with a head wall at elevation 82.15. This reconfiguration is identical to the approved 2021 design, creating a buffer zone disturbance of 660 square feet (sf) and a temporary BVW alteration of 340 sf.

**September 16, 2024: HW has no further comment.**

- d. The Applicant has proposed adding riprap to the existing 18-inch RCP that outlets from the central BVW between WF18B and WF19B. The cleaning of debris at the outlet and adding the riprap will create a wetland disturbance of 275 sf and a buffer zone disturbance of 525 sf. This disturbance is identical to the approved 2021 design.

**September 16, 2024: HW has no further comment.**

- e. As previously approved in 2021, the Applicant appears to comply with Standard 1.

**September 16, 2024: HW has no further comment.**

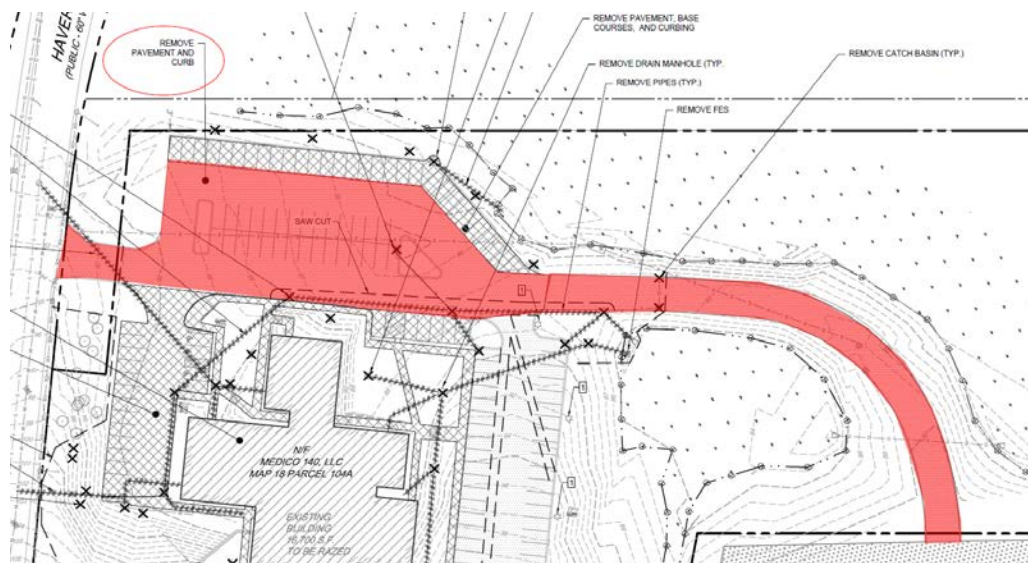
2. *Standard 2 requires that post-development runoff does not exceed pre-development runoff off-site.*

- a. The narrative in the Drainage Report is not consistent with the proposed amended design. HW recommends that the Applicant revise the narrative to avoid confusion.

**September 16, 2024: The Applicant has revised the narrative under Section V. Proposed Conditions as suggested. The narrative under Section X. Stormwater Management Standards, specifically Standards 2 and 7 has not been updated.**

- b. It appears that the existing driveway on the north side of the parcel will be removed in accordance with the Demolition Plan. It is not obvious if this driveway will be repaved or replaced with loam and seed. HW recommends that the Applicant clarify the proposed plans for the northern driveway. If the driveway is removed credit for the reduction of impervious surfaces can be accounted for.

**September 16, 2024: The Applicant has stated that the area where the parking lot pavement is being removed is replaced with topsoil. HW was questioning the access driveway on the north side of the site. The Demolition Plan calls out to remove the pavement and curb for this driveway as highlighted in red in the image below. No further direction was obvious in the plan set. HW recommends that the Applicant clarify the proposed plans for the northern driveway.**



- c. HW recommends that the Applicant provide the closed drainage system sizing calculations to confirm the network is adequately sized.

**September 16, 2024: The Applicant has stated that the closed drainage pipe calculations were included as an attachment. The response letter HW received included a figure for the catch basin drainage areas, and a calculation of the sediment sump calculations as well as the water quality calculations. HW did not receive the closed drainage system calculations as requested. HW notes that the slope listed on the plans between CB 6 and DMH 5 does not appear accurate. HW recommends that the Applicant provide the closed drainage system sizing calculations to confirm the pipes are adequately sized and confirm the slope listed on the plans.**

- d. The Applicant has revised the plans and eliminated one of the previously approved buildings and one of the previously approved subsurface detention systems. HW has the following comments regarding the amended plans.
  - i. It appears that CB 7 and CB 8 are proposed to be replaced. HW recommends that the Applicant confirm that the associated pipes will remain. HW further

recommends that the Applicant confirm that DMH 5 includes the connection of the existing pipes if they are to remain.

**September 16, 2024: The Applicant has noted that the pipe between CB 7 and CB 8 will remain. HW has no further comment.**

- ii. HW recommends that the Applicant match the crowns of the pipes at a manhole instead of the inverts whenever feasible. For example, DMH 5 calls out an 18-inch inlet and an 18-inch outlet at elevation 82.60. The 12-inch inlet is also set at elevation 82.60. If feasible the 12-inch inlet should be raised 6 inches. DMH 3 and DMH 4 have similar configurations, if feasible the smaller inlet pipes should be raised at least 6 inches higher than the 18-inch outlet.

**September 16, 2024: The Applicant has adjusted the pipe inverts where feasible. No further comment.**

- iii. Proposed catch basin 4 appears to be placed over the existing sewer main. HW recommends that the Applicant clarify that the proposed catch basin is to replace the existing catch basin in the same location.

**September 16, 2024: The Applicant has relocated CB 4 to avoid the sewer main. No further comment.**

- iv. There is an existing catch basin with a rim of 112.57 on High Street. The catch basin has an existing outfall onto the project site. HW recommends that the Applicant clarify the proposed grading at the outfall from this catch basin.

**September 16, 2024: The Applicant has proposed a swale at the outfall of the High Street catch basin. No further comment.**

- v. HW recommends that the Applicant clarify the limit of clearing around the site. The leader on the north side is not pointing to another specific.

**September 16, 2024: The Applicant has eliminated the erroneous leader. HW recommends that the limit of work as well as the property boundaries be clearly shown on all the plans of the set.**

- vi. There is an existing drainpipe around CB 9 that is noted to remain on the Demolition Plan but is not connected to anything on the Grading and Drainage Plan.

**September 16, 2024: The Applicant has clarified that the pipe in question will be removed. No further comment.**

- vii. There is a proposed retaining wall called out on the Grading and Drainage Plan that appears to have been removed. In the area of this call out are several spot grades that do not appear to be accurate. HW recommends that the Applicant review the proposed grading for the amended conditions.

**September 16, 2024: The Applicant has removed the erroneous callouts as suggested. No further comment.**

viii. The callout for Pond 5P is still on the Grading and Drainage Plan.

**September 16, 2024: The Applicant has removed the erroneous call out as suggested. No further comment.**

ix. HW recommends that the Applicant confirm that DMH 5 can adequately accommodate the four pipes connected into it.

**September 16, 2024: The Applicant has increased the size of DMH 5 as suggested. HW has no further comment.**

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

a. The Applicant has conducted test pits and documented that the ground water elevation is shallow, and recharge is not feasible. It appears that the Applicant has reduced the impervious area from 93,800 sf to 89,556 sf. A reduction of 4,244 sf providing a slight increase in recharge.

**September 16, 2024: HW has no further comment.**

b. The Applicant has designed the underground chambers as a detention system, so no groundwater recharge is provided. The bottom of the chambers is set at elevation 85.0, the top is set at elevation 88.0 and groundwater in the area based on TP2 and TP3 is approximately 87.2. The Applicant has added an impermeable liner to prevent groundwater from entering the chamber system. HW recommends that the Applicant also confirm that buoyance will not be an issue for this system.

**September 16, 2024: The Applicant has provided buoyance calculations. HW is concerned that buoyance may still be an issue. ADS has issued a Technical Note, TN 6.50 Thermoplastic Liners for Detention Systems. The document states that “ADS recommends against installing lined chamber systems below groundwater. Although the total weight of a chamber system generally exceeds the buoyant force, a limiting stability condition may result when the buoyant pressure exceeds the resistance pressure directly under the chamber. This could result in a heave of the bedding under the chamber leading to instability.”** HW recommends that the Applicant consider installing an underdrain system as recommended by ADS or propose a different type of subsurface system where buoyance is not an issue.

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 91% TSS removal via deep sump catch basins and the Jellyfish water quality device located just before the stormwater system discharges into the wetlands. HW recommends that the Applicant provide a third-party review to demonstrate that the 89% TSS credit noted for the Jellyfish filter is appropriate.

**September 16, 2024: The Applicant has provided the requested third-party documentation listing 89% TSS removal for the Jellyfish Filter. HW notes that the Jellyfish Filter requires specific long-term maintenance to maintain the removal**

**capacity. The Town of Andover may choose to require receipt of the annual maintenance of the Jellyfish Filter as a condition of approval.**

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. Therefore Standard 5 is not applicable.

**September 16, 2024: HW has no further comment.**

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.

**September 16, 2024: HW has no further comment.**

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. It appears that the Applicant complies with Standard 7 and is improving existing water quality conditions.

**September 16, 2024: HW has no further comment.**

- b. HW notes that the Applicant has stated that Standard 7 is not applicable. However, HW considered this a misleading statement. The Applicant has reduced impervious cover by 4,244 sf. It will decrease the peak flows slightly while increasing the peak volumes slightly. The Applicant has not provided additional recharge measures but as a redevelopment it is required to provide recharge only to the maximum extent practicable.

**September 16, 2024: HW has no further comment.**

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. HW notes that the erosion controls measures shown are close to the wetland resource areas and it appears that they could be pulled back to the edge of the northern access drive in most areas. HW recommends that the Applicant review the location of the erosion control barrier and adjust to be as far from the resource areas as possible.

**September 16, 2024: The Applicant has adjusted the location of the erosion control barriers as suggested. It appears that one of the leaders is calling out a setback line and not the erosion control (EC) line type. If the pavement on the northern driveway is proposed to be removed the Applicant will need to extend the erosion control barriers along the edge of the driveway.**

- b. HW recommends that the Applicant list a size of 12 to 18-inches on the compost sediment sock detail.

**September 16, 2024: The Applicant has stated that the detail has been revised. However, it does not appear that the Silt Fence Barrier Detail on Sheet CS8501 has been updated with a callout for the size of the compost sock. HW recommends that the Applicant list a size of 12 to 18-inches on the compost sediment sock detail.**

- c. The Erosion and Sediment Control Plan includes a call out for a silt fence and an erosion control blanket that are not associated with specific line types. HW recommends that the Applicant clarify where these erosion control measures are proposed.

**September 16, 2024: The Applicant has added callouts for clarification as suggested. HW has no further comment.**

- d. The Applicant has previously provided a Stormwater Pollution Prevention Plan (SWPPP). The Planning Board and /or Conservation Commission may choose to require receipt of the final SWPPP signed by the contractor as a condition of approval.

**September 16, 2024: Suggested 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. The Applicant has included a simple sketch with the O&M Plan. However, the subsurface detention system and the flared end sections have not been labeled.

**September 16, 2024: The Applicant has updated the figure as suggested.**

- ii. HW recommends that the Applicant locate the inspection ports for the subsurface detention system on the Grading and Drainage Plan.

**September 16, 2024: The Applicant has added the inspection ports as suggested.**

- iii. HW recommends that the Applicant include the manufacturer's O&M directives for the Jellyfish filters and confirm that the Owner is aware of its responsibilities.

**September 16, 2024: The Long-Term Pollution Prevention Plan includes a note for the Jellyfish Filter. The Jellyfish manual has not been attached at this time.**

- 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 property owner.

**September 16, 2024: The Applicant has provided a signed copy of the O&M Plan. HW notes that the O&M Plan should be a standalone document with the Jellyfish Filter directives attached as well as the Stormtech chamber long term maintenance directives. The Town may choose to make receipt**

**of the final O&M Plan with all appendices attached as a Condition of Approval.**

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

- a. The Applicant has provided a signed Illicit Discharge Compliance Statement.

**September 16, 2024: HW has no further comment.**

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.

**September 16, 2024: The Applicant has provided the sediment calculations as suggested. HW has no further comment.**

- 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 Jellyfish removal rate. Furthermore, the Applicant has not calculated phosphorus removal rates. HW recommends that the Applicant demonstrate that the proposed design will provide sufficient TP removal.

**September 16, 2024: The Applicant has provided the requested third-party documentation listing 59% TP removal for the Jellyfish Filter. HW notes that the Jellyfish Filter requires specific long-term maintenance to maintain the removal capacity. The Town of Andover may choose to require receipt of the annual maintenance of the Jellyfish Filter as a condition of approval.**

**Conclusions**

HW recommends that the Conservation and Planning Board require the Applicant to address the remaining outstanding comments as part of the amendment 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](mailto:jbernardo@horsleywitten.com) if you have any questions regarding these comments.

Sincerely,

HORSLEY WITTEN GROUP, INC.



Janet Carter Bernardo, P.E.  
Principal