

Letter of Response

March 4, 2026
Via Electronic Mail

Andover Conservation Commission
Town of Andover
36 Bartlet Street
Andover, MA 01810

**RE: Response to Peer Review Comments
100 Old River Road
Andover, MA 01810
Bohler Project # MAB250074.00**

Dear Andover Conservation Commission,

Please allow this letter to serve as our formal response to your letter dated February 19th, 2026, regarding the *Initial Peer Review of the Stormwater Design* prepared by Horsley Witten Group, Inc. ('HW') for the above referenced project. For your reference, the comments provided by HW that warrant a response are shown in standard font type and Bohler responses are shown below in **bold** font type. Responses to invasive species management related comments are addressed separately by Goddard Consulting in another letter.

STORMWATER REVIEW COMMENTS:

1. Standard 1: No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly or cause erosion in wetlands or waters of the Commonwealth.
 - c. The Applicant has provided riprap sizing calculations in Appendix F of the Drainage Report and a Rip Rap Apron and Scour Hole Detail on Sheet C-902 of the plan set. It does not appear that the Applicant is causing erosion in a wetland. However, all four outfalls are within the 25-foot no disturb zone to the resource area.

Bohler Response: The 25-Foot Buffer Zone, as outlined within the Town of Andover Wetlands Protection Regulations, is defined as a Vegetative Buffer Zone where "There shall be no removal of vegetation, excavation or filling within 25 feet" of jurisdictional resource areas, going on to state "except as permitted with an Order of Conditions for a limited project, wetland crossing or water dependent structure. Under 310 CMR 9.12(1), and the Andover Wetlands Protection Bylaw Regulations, outfalls for the conveyance of stormwater are classified as a water-dependent structure and are permissible within the 25-Foot Vegetative Buffer Zone. As outlined by HW, the proposed outfalls have been designed so as not to result in erosion or scouring. As the existing stormwater outfalls are also located within the 25-Foot Vegetative Buffer Zone, the stormwater design maintains existing drainage patterns.

2. Standard 2: Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.
 - a. HW has reviewed the Pre-Development and Post-Development Drainage Maps and calculations. HW noted that the Post-Development HydroCAD model includes 1.217 acres of wood, yet the Pre-Development HydroCAD model did not include any woods. HW recommends that the Applicant revisit the Pre-Development and Post-Development land

- uses and revise the model as necessary or provide an explanation as to the discrepancy in land uses between the Pre-Development and Post-Development calculations.
- b. The Applicant has calculated the runoff for both the Pre-Development HydroCAD model and the Post-Development HydroCAD model, assuming that all the soils are Hydrologic Soil Group (HSG) C. However, the NCRS Soil Resource Report indicates that the soils have been classified as HSG A and HSG D. HW recommends that the Applicant justify its use of HSG C or revise the calculations using HSG A and HSG D soils.
 - c. HW notes that the Applicant has used a Direct Entry of 6 minutes for the time of concentration (Tc) values for the two existing subcatchment areas. HW agrees that a Tc of 6 minutes for subcatchment area EX1 is reasonable. However, we recommend that the Applicant confirm there are no longer flow paths within the 6.5 acres of subcatchment area EX2.
 - d. The Applicant included two copies of the Pre-Development HydroCAD models in the Drainage Report, one of which was in Appendix E: Proposed Conditions Hydrologic Analysis. To avoid confusion HW recommends that the second copy be removed.
 - e. On Page 4 of the Drainage Report under the Proposed Watersheds and Design Point Information section, it is written that DP1 and DP2 both receive stormwater from PR-1a. It appears that under proposed conditions DP2 receives stormwater from PR-2a through PR-2F. HW recommends that the Applicant correct this typographic error to avoid confusion.
 - f. The Applicant has provided NOAA Atlas 14 rainfall data as per the Andover Stormwater Management and Erosion Control Regulations Section IX.E.6. HW agrees with the rainfall data used.
 - g. HW notes that the HydroCAD model has listed the Primary Device for Pond 2P to be a 24-inch culvert. The Plans call out an 18-inch culvert. HW recommends that the Applicant revise the plans or the HydroCAD model for consistency.
 - h. HW notes that the elevations of the stone and chambers for Subsurface Infiltration System 3aP are not the same between the HydroCAD model and the plans. HW recommends that the Applicant revise the plans or the HydroCAD model for consistency.

Bohler Response:

- a. **The pre- and post-development maps and HydroCAD have been updated to include the woods in the existing model.**
 - b. **Based on soil test pits conducted across the proposed area of development and based on lab sieve analysis of soil samples, the observed soils on site are consistent with HSG C, and as such, the site specific soil analysis has been utilized as a more accurate representation when compared to the available GIS information. Please refer to the supplemental documentation attached to this letter.**
 - c. **The time of concentration has been updated based on the existing conditions where the pervious area behind the existing building overland flows directly to the design point.**
 - d. **The extra copy has been removed.**
 - e. **The typo has been resolved.**
 - f. **No response needed.**
 - g. **The plan has been revised to show the 24" pipe at the outfall.**
 - h. **The plan has been revised with the corrected pond elevations.**
3. Standard 3 requires that the annual recharge from post-development shall approximate annual recharge from pre-development conditions.
- a. Under existing conditions, the parcel includes 4.61 acres of impervious cover. In proposed conditions the Applicant will increase the impervious cover to 5.536 acres. It appears that the Applicant is providing adequate recharge for the total proposed impervious area though the

- calculations provided are for the increased cover only. The proposed project is a mix of new and redevelopment. The Applicant has stated it is complying with the requirements for new development. Therefore, it should be providing recharge for the total proposed impervious cover. HW recommends that the Applicant revise the calculations provided in Appendix F.
- b. HW notes that the depth factor used in the recharge calculation is based on HSG C soils. HW recommends that the Applicant either provide an explanation as to why HSG C soils have been used as opposed to HSG A and HSG D soils or revise the calculations using HSG A and HSG D soils as applicable.
 - c. HW could not confirm the recharge volume with the information provided. We recommend that the Applicant provides the stage storage printouts from the HydroCAD model to confirm the volumes listed for the six infiltration basins.
 - d. The Drainage Report includes five blank Form 11, Section C pages that appear to be associated with the test pits located on the Site Plan in Appendix C of the Drainage Report. HW recommends that the Applicant includes the test pit data for the completed test pits.

Bohler Response:

- a. **Per the MassDEP Stormwater Handbook, the recharge requirement is only for the increase in impervious area. The calculations previously provided show that the required recharge for the increase in impervious area is met.**
 - b. **Refer to response 2.b.**
 - c. **Stage/Storage tables for all ponds are provided in the attached supplemental documentation.**
 - d. **The Form 11s are provided in the attached supplemental documentation with the correctly filled out information.**
- 4 Standard 4 requires that the stormwater system be designed to remove 80% Total Suspended Solids (TSS) and to treat 1-inch of volume from the impervious area for water quality. The Town of Andover requires stormwater management systems to remove TSS at a rate of 90% and Total Phosphorus (TP) at a rate of 60% for new projects and 80% and 50%, respectively for redevelopment projects.
- a. Per the Andover Stormwater Regulations Section IX.D, 90% of total suspended solids (TSS) and 60% of total phosphorous (TP) are required to be removed for New Development Sites. The Applicant's calculations in Appendix F confirm the sufficient removal of TSS and TP for all best management practices (BMPs) except WQI-2 across the site. Within the Massachusetts Stormwater Handbook, Volume 3, Chapter 1, criteria to identify a discharge as De Minimis are outlined. HW was able to verify that all the criteria are met. HW suggests that the weighted TSS and TP removal calculations be done specifically for DP1 in addition to the site wide TSS and TP removal calculations, as it is a requirement that the outlets with additional controls must outlet to the same water body as the outlet with less controls.
 - b. The Applicant has provided two Contech CDS water quality units. HW suggests that the Applicant provides documentation from a third party that confirms the percentage of TSS removal provided.
 - c. Based on a review of the provided documents, it appears that the site is indirectly discharging to a tributary of the Merrimack River, which is identified as an impaired water body. HW recommends that the Applicant refer to the Andover Stormwater Management and Erosion Control Regulations, Section IX.D.2, and document if the Merrimack River is subject to a TMDL.

Bohler Response:

- a. **An additional area weighted calculation for DP1 has been provided in addition to the site wide analysis.**

- controls to be included in a SWPPP in the Drainage Report. The SWPPP should include source control and pollution prevention measures, stormwater practices to address erosion and sedimentation, stabilization measures, and procedures for operating and maintaining the proposed stormwater practices. The plan should also identify the parties responsible for implementing the plan. The Applicant has stated a SWPPP will be provided to the Conservation Commission for review prior to land disturbance. The Commission may choose to require receipt of a final signed SWPPP a minimum of 14 days prior to land disturbance as a Special Condition.
- b. The Applicant has provided a Soil Erosion and Sediment Control Plan as well as Erosion and Sediment Control Notes and Details. However, it is unclear what some of the line types on the Plan represent. HW recommends that the Applicant includes a legend to clarify the various line types, as well as the size of the compost filter sock. It is also unclear which trees will be protected, where the concrete waste management area will be located, and where the straw bale barrier will be used. HW recommends that the Applicant review and revise the Soil Erosion and Sediment Control Plan as needed.

Bohler Response:

- a. **Understood.**
 - b. **The Soil Erosion and Sediment Control Plan has been updated to provide additional information as requested. The perimeter controls have been simplified to show the silt fence more clearly. The concrete washout areas have been added, and the straw bale barrier is for the washout area. The size of the compost filter sock has been added to the detail. Additionally, the existing trees to remain have been added to the plan.**
9. Standard 9 requires a Long-Term Operation and Maintenance (O & M) Plan to be provided.
 - a. In Appendix G of the Drainage Report, the Applicant has provided a Stormwater O&M Plan and a Long-Term Pollution Prevention Plan. The O&M Plan has included the parties responsible, clear descriptions of how to maintain the various stormwater practices, the frequency of inspections, a budget, and a maintenance log. HW recommends that the Applicant provides a simple sketch of the locations of the stormwater practices within the O&M plan and descriptions of the various stormwater practices, so that the property owner understands what to expect.
 - b. HW recommend that the Applicant includes the snow storage locations on the O&M Plan. The Conservation Commission may choose to request "No Snow" signage, to avoid snow being deposited into the resource area.

Bohler Response:

- a. **A BMP map is provided in the supplemental documentation.**
 - b. **Snow Storage areas are also shown on the BMP map.**
10. Standard 10 requires an Illicit Discharge Compliance Statement be provided.
 - a. The Applicant has provided an unsigned Illicit Discharge Compliance Statement. The Conservation Commission may choose to require receipt of a signed Illicit Discharge Compliance State as a Special Condition within the Order of Conditions.

Bohler Response:

- a. **A signed Illicit Discharge Statement is included in the supplemental documentation.**

Additional Stormwater Review Comments:

11. Within the Construction Details, Sheet C-901, details are provided for precast concrete catch basins with double grates. It is unclear which catch basins within the Grading Plans are proposed to have double grates. HW recommends that the Applicant clarify where the double grate catch basins should be installed.

Bohler Response: Double grated catch basins are not currently proposed, and the detail has been removed from the set.

12. Within the Construction Details, Sheet C-902, a Bioretention Cell detail is included but no elevation information is provided. HW recommends that the Applicant provides the elevation information within the Bioretention Cell detail.

Bohler Response: Elevations have been added to the Bioretention Cell detail.

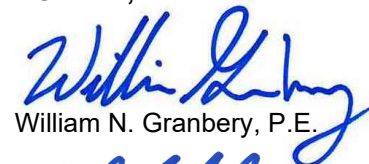
13. HW suggests that north arrows be added to the Pre-Development Drainage Area Map and the Post-Development Drainage Area Map.

Bohler Response: North arrows have been added to the Pre- and Post- Development Drainage Maps.

Upon your review of the above, please do not hesitate to contact me directly with any questions.

Sincerely,

BOHLER, LLC



William N. Granbery, P.E.



Zachary L. Richards, P.E.