

November 30, 2021

55 Walkers Brook Drive, Suite 100, Reading, MA 01867
Tel: 978.532.1900

Mr. Ross Povenmire
Office of the Conservation Commission
Town of Boxford
7A Spofford Road
Boxford, Massachusetts 01921

Re: **Response to engineering review comments
Spofford Pond School
Boxford, Massachusetts**

Dear Mr. Povenmire:

We are in receipt of technical review comments from a third party peer reviewer for this project. These comments were provided pursuant to our application for a Notice of Intent that is presently being considered by the conservation commission. We have received the following:

- A stormwater engineering review letter from Roux Associates, Inc. to the Office of the Conservation Commission, dated November 18, 2021

Our submission materials have been revised as described below to address each review comment and are included with the submission of this letter. The review comments from the documents referenced above have been reproduced below, followed by our response to each comment.

Review comments from Roux Associates, November 18, 2021:

1. For documentation purposes, provided below is a list of items that Roux identified as key revisions after broadly comparing the elements of the prior design documents with the Revised Documents.
 - The proposed increase in impervious surface has been reduced (by approximately 3,000 square feet). (i.e., the proposed improvements in the Revised Documents now have a smaller increase in impermeable surfaces than the Original Documents). Note that Roux was unable to readily determine where the 3,000-square foot reduction in impervious area occurred on the Site.
 - A stormwater filtering bioretention pond/rain garden ("2P"), formerly proposed to be located to the south of the SP School, was eliminated and the stormwater flows it previously serviced are now directed to a subsurface detention system (Stormtech SC-740, "4P").
 - The materials for the subsurface detention system ("4P") beneath the converted gravel parking area, to the northeast of the building, were changed from Stormtech MC-3500 to Stormtech SC- 740 (the SC-740 series are smaller chambers than the MC-3500) and the extent of 4P was increased.
 - A former rain garden to the east of the building was replaced with a sediment forebay ("3P") which accepts sheet flows from approximately 1 acre of impervious parking lot on the east side of the building.

Response: Acknowledged.

2. For sites with activities that are not otherwise explicitly defined as having Land Uses with Higher Potential Pollutant Loads (LUHPPLs), such as gasoline stations, vehicle washing, or fleet storage areas, the apparent common criterium for defining if a site qualifies as a LUHPPL is generally the presence of parking lots with high-intensity-use. Parking lots with high-intensity-uses are generally referenced as those with "1,000 vehicle trips per day or more" in the *Massachusetts Stormwater Handbook*. Assuming

this redevelopment project will not otherwise be classified as a LUHPPL, Roux accepts the response by W&S with respect to the intended use of deep hooded catch basins for petroleum removal purposes.

Response: Acknowledged.

3. The Revised Stormwater Report (under the Standard 1 section) indicates the total impervious area will increase by approximately 9,945 square feet, but a comparison of the pre-development and post-development "Ground Covers (all nodes)" tables in the HydroCAD® ("HydroCAD" report indicates the total impervious area increase is approximately 7,639 square feet. Recommend the Designer address this discrepancy if the total increase in impervious surface is the larger number not in the HydroCAD report.

Response: The stormwater report has been revised to match the impervious area cited in the HydroCAD report.

4. For Sediment Forebay (3P):
 - o Details shown on C507 of the Revised Drawings depict a 40 MIL polyvinyl liner being placed above the drainage stone and perforated underdrain. As a filtering BMP, the liner should be shown below the drainage stone and perforated underdrain. Recommend the Designer revise the detail.

Response: The referenced detail has been revised as suggested.

- o The Sediment Forebay collects runoff from approximately 1 acre of parking lot. As there are no other capture systems (i.e., catch basins) servicing the same area, the Sediment Forebay will likely receive sediment from the entire acre (which will presumably include winter sanding activities). Recommend the Designer demonstrate the sediment capacity of the forebay and verify maintenance activities specified in the O&M plan are set at appropriate intervals.

Response: The sediment forebay was designed to meet the storage capacity required by the Massachusetts Stormwater Handbook (See Section E of the Stormwater Report for the Pretreatment Volume Calculation). The Operations & Maintenance Plan has also been updated to provide additional maintenance measures for the sediment forebay. Additionally, in light of comments discussed at the hearing on 11/18, we have changed the outlet structure of this forebay to be a deep sump hooded catch basin so as to provide for petroleum protection for stormwater leaving the forebay.

5. For the subsurface detention system ("4P"), the Revised Drawings specify the outfall baffle invert for OCS-1 as Elev. 128.39 and the invert for the chamber manifold connections as Elev. 128.27. This slight vertical separation (0.12 feet, or less than 2 inches) is a small tolerance with respect to constructability and could result in stormwater flows by-passing the detention chambers and proceeding directly to the outfall (the wetland). This possibility of bypassing occurring is further compounded with the installation of OCS-1 on the same distribution pipe for the chamber inlet manifold. Recommend the Designer review/modify the discharge design of 4P to ensure there is not short-circuiting of flow.

Response: Plans have been revised to disconnect the manifold from OCS-1. This will prevent any possibility of short-circuiting of the system.

6. The Illicit Discharge Compliance Statement (Attachment I) included with the Stormwater Report does not make a statement that no illicit discharges exist nor document efforts to investigate illicit discharges. Roux recommends the project proponent provide a signed statement which states there are no illicit discharges that meets the requirements outlined in the MA SW Handbook.

Response: The illicit discharge compliance statement has been revised to include an appropriate statement to satisfy this request. The applicant will provide this document with signature.

7. With respect to the above recommendation, a sanitary sewer line is shown (Sheet No. C133) crossing the SC-740 (4P) detention system. Recommend Designer evaluate whether these design elements present a conflict or may interfere with detention system functionality.

Response: We have reviewed this condition and it appears that the existing sewer will fit beneath the stormwater detention system without conflict or interference with system functionality.

8. Recommend the Designer demonstrate the area of the outfall from 4P (i.e., the rock size and thickness associated with the plunge pool) and drainage channel to the wetlands will be stable under storm conditions.

Response: We have provided supplemental calculations for stone sizing at this outfall. Furthermore, in light of comments expressed at the hearing on 11/18, we have added a more robust system of channel protection to the design.

We trust that our responses have adequately addressed the comments provided by Roux Associates. We look forward to answering any questions that you may have.

Sincerely,

WESTON & SAMPSON ENGINEERS, INC.



James I. Pearson
Technical Specialist