

M1529-002
December 1, 2021

Rick Taintor, AICP
Community Planning Consultant
Town of Durham

Re: **Mill Plaza Redevelopment**
Response to Planning Consultant's Review dated October 27th, 2021

Dear Mr. Taintor,

This letter is in response to comments from the "Stormwater Peer Review – Revised Site Plan" letter from Horsley Witten Group dated October 27th, 2021.

The following are responses (in **bold**) to the comments (in *italics*) from the review letter:

- 1. The proposed development maintains peak rate attenuation and runoff volumes and continues to satisfy New Hampshire and Town of Durham requirements. HW has compiled the tables on the following page summarizing the revised peak runoff rates for pre- and post-development conditions as well as the peak volumes for predevelopment conditions, the approved May 2020 design, and the modified October 2021 design.*

Peak Rate of Stormwater Discharge in Cubic Feet per Second (CFS)

Storm	Pre-Development	May 2020 Post-Development	October 2021 Post-Development
1-inch	3.34	2.09	2.29
2-year	24.93	8.67	9.22
10-year	40.69	24.02	29.44
25-year	52.99	41.30	48.82
50-year	64.44	54.41	62.31

Peak Volume of Stormwater Discharge in Acre-feet (af)

<u>Storm</u>	<u>Pre-Development</u>	<u>May 2020 Post-Development</u>	<u>October 2021 Post-Development</u>
<u>1-inch</u>	<u>0.280</u>	<u>0.363</u>	<u>0.359</u>
<u>2-year</u>	<u>2.066</u>	<u>2.167</u>	<u>2.138</u>
<u>10-year</u>	<u>3.459</u>	<u>3.552</u>	<u>3.519</u>
<u>25-year</u>	<u>4.577</u>	<u>4.663</u>	<u>4.629</u>
<u>50-year</u>	<u>5.632</u>	<u>5.712</u>	<u>5.679</u>

HW notes that the post-development rates generally increased from the previous (May 2020) design iteration, while total runoff volumes decreased. During the 25-year storm event the site discharges 7 cfs higher peak flow rates into College Brook than the previous design iteration. Most of this flow rate increase appears to be from the decreased footprint and storage volume of the Underground Detention Basin, with a larger weir and overflow control structure controlling outflow from the Detention Basin. HW recommends that the Applicant confirm that the statement above is accurate.

The above statement is accurate. The weir width in POS-3 was updated in the HydroCAD model to match the required size of a manhole with a 36" outlet pipe.

- The updated site design shifts the drive aisle on the southern edge of the proposed development approximately 30 feet towards the proposed buildings. As a result, most proposed parking spaces are located outside of the 75-foot upland wetland protection buffer. 372 total parking spaces are proposed, a net decrease of 196 parking spaces from the previous (May 2020) design iteration. No further action needed.

We would like to clarify that all proposed parking spaces are located outside of the 75-foot upland wetland protection buffer.

- The overall limit of disturbance has increased by approximately 16,000 square feet (sf), the majority of which appears to relate to grading in proximity to College Brook. HW recommends that the Applicant justify this increase in disturbance.

The overall limit of work has increased from the May 2020 plans in order to include the wetland buffer restoration work shown on Sheet C-702.

- HW calculates a slope of 1 vertical to 2.25 horizontal (1:2.25) in the area above Proposed Building C2. A maximum slope of 1:3 maximum is considered best practice and typically requires slope stabilization. HW recommends that the Applicant consider reducing the slope in this area and confirm the riprap channel proposed provides adequate protection for the steep slope.

This area has been reviewed and the proposed slopes and riprap channel are adequate.

5. *The provided stormwater calculations include eight (8) post-development drainage areas which appear to correlate to the updated drainage design. No further action needed.*

No comment.

6. *HW notes that the riprap aprons at points of discharge appear to be adequate. For the riprap calculations, the incoming flow discharging to the constructed gravel wetland decreased, but the slope of the contributing 12-inch pipe and overall inflow into the gravel wetland has increased. HW recommends that the Applicant confirm this calculation is accurate.*

Confirmed, the rip-rap apron sizing has been determined based on the updated stormwater flows.

7. *The overall rain garden footprint appears to have increased slightly from the previous design iteration with no change to storage depths. However, the HydroCAD model indicates nearly double the storage volume for the rain garden at the peak elevation from the previous design. HW recommends that the Applicant confirm this storage volume is accurate.*

The storage volume in the rain garden has been verified.

8. *The elevation callout for the rain garden on Sheet C102 indicates that the bottom of the rain garden basin is at elevation 31.5, while the provided detail and HydroCAD model indicates 32.5. HW recommends that the Applicant confirm the intended design elevations.*

Sheet C-103 incorrectly shows a bottom pond elevation of 31.50' at the rain garden. The correct bottom pond elevation is 32.50', as calculated in the HydroCAD model. Sheet C-103 has been updated.

9. *HW notes that the footprint and storage volume of the constructed gravel wetland has increased slightly from the previous design iteration. The constructed gravel wetland receives slightly more flow and still maintains peak rate attenuation. No further action needed.*

No comment.

10. *HW notes that the overall footprint of the underground detention basin has decreased, and the available storage volume has decreased by 33% (12,000 cf), which appears to be a result of the reduced paving and disturbance area below Proposed Buildings B and C2. In addition, the overflow weir at the overflow control structure has been updated from a 4-foot-long weir to a 6-foot-long weir, resulting in a higher release rate from the detention basin. The proposed detention basin appears adequate, as it still provides peak rate attenuation and runoff volume reduction. HW recommends that the Applicant confirm the above information is accurate, otherwise no further action required.*

The above statement is accurate. The weir width in POS-3 was updated in the HydroCAD model to match the required size of a manhole with a 36" outlet pipe.

If you have any questions or need any additional information, please do not hesitate to call me at 603-433-8818 or email me at jmpersechino@tighebond.com.

Very truly yours,

TIGHE & BOND, INC.



Joseph Persechino, PE
Vice President