ALTUS ENGINEERING, INC.

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

February 22, 2021

Michael Behrendt, Town Planner
Town of Durham
8 Newmarket Road
Durham, New Hampshire 03824

Re: Third-Party Review
Toomerfs, LLC
Map 5, Lots 1-9, 1-10, 1-15 and 1-16
19 and 21 Main Street
Durham, NH
Altus Project 5166

Transmitted via email to: mbehrendt@ci.durham.nh.us

Dear Mr. Behrendt,

At the request of the Planning Board, Altus Engineering, Inc. (Altus) has completed an independent engineering review of the Toomerfs, LLC (Applicant) project at 19 and 21 Main Street in Durham, NH prepared by MJS Engineering, P.C. of Newmarket, NH (Designer). Altus prepared this report based on the following plans and documents received by this office via email on January 28, 2021:

- A set of plans entitled "Site Plan for Toomerfs, LLC" revised through February 2, 2021;
- "Town of Durham Stormwater Management Plan" revised January, 2021.

The applicant is proposing to construct two parking lots and other improvements over four parcels of land totaling 3.26 acres. The lots currently host several multi-unit houses and apartment buildings and associated parking areas along Main Street. The rear portion of the land to the south is wooded with a single pocket of wetland. With the exception of a small section along Main Street, the site drains to the south towards College Brook. The proposal includes a subsurface drainage system comprised of catch basins, drain manholes and a Stormtech subsurface treatment and detention system.

Altus has tailored our review to grading and drainage-related aspects of the design and its compliance with applicable Town and State regulations and standard engineering practice.

In general, we find that the design approach is reasonable and consistent with what we would expect for a site of this type. The drainage system should provide the reduction in peak rates of runoff required by the Site Plan Regulations and meet NHDES water quality standards. That said, there are a number of minor issues that should be addressed prior to final site plan approval. After review of the above documents, Altus submits the following comments for the Town's consideration:

1. From the grading on Sheet C-102, it appears that the ADA parking stalls exceed the required minimum slope. The designer should address this with spot grades where applicable.

2. Two 8" drain basins are called for on Sheet C-102 on the west side of the entrance driveway. We are unable to find a detail for these structures in the plan set and suggest one be added.

3. One of these 8" drain basins is shown in conflict with underground utility services. We suggest that the UGE line be rerouted outside of the proposed stone retaining wall to avoid the basin.

4. Sheet C-102 shows two longitudinal islands running the length of the parking lot intended to provide surface drainage as well as space for landscaping. These islands are almost completely curbed with curb breaks appearing at intervals to allow runoff to escape to the swale on the interior of the island. The curb may be unnecessary from a stormwater standpoint and even problematic during snow removal operations where a plow will be apt to catch at the breaks. We suggest that the Designer review the need for curbing here.

5. As shown on Sheet C-102, there are no curb breaks where the longitudinal islands meet the landscape islands at the south end of the parking rows. This will result in a triangular area of ponded water up to 6" deep in four locations in the parking lot. We suggest that the Designer add curb breaks in the corners or remove the curb entirely.

6. An outlet protection apron is shown on Sheet C-102. The Designer should include a level spreader at the downstream end of the apron to ensure that runoff is not concentrated and an appropriate detail added to the plan set.

7. Sheet C-502 shows a Stabilized Construction Entrance Detail but we are unable to locate where this BMP is intended to be used. The Design should specify an appropriate location.

8. This Retaining Wall Detail shown on Sheet C-503 calls out a "78" Recon block used as traffic barrier moment slab," but it is unclear if this is to be a continuous subterranean platform along the entire length of the wall. If so, the Designer should provide for some method to handle potential groundwater where the vertical wall meets the horizontal moment slab as well as at the wall foundation.

9. Aside from the pavement selects, the fill material behind the wall is unspecified. The Designer should specify the bulk fill material.

10. The retaining wall detail should also specify that a complete structural wall design stamped by a NH-licensed professional engineer be provided by the contractor prior to construction.

11. The north edges of the landscape islands may create a ponding/freezing situation if not properly graded to direct runoff towards the drive aisles. The Designer should include spot grades or at least flow arrows in these locations to provide direction to the contractor.

12. The Drain Manhole DMH-100 Detail shown on Sheet C-504 calls for a trash rack on the outlet weir wall. Given that this structure is downstream of the Stormtech system isolator row and catch basins with sumps and grease hoods, there is little chance of debris impacting this structure. The Designer may want to consider removing it.

13. The drainage analysis indicates that the Stormtech system will allow exfiltration. Given that this system is to be located in fill, the Designer should specify the fill material below the field in order the ensure that the system functions as designed.

14. Sections 1.1.1 and 1.1.5 of the Drainage Analysis both show a table indicating a comparison between pre- and post-development peak rates of runoff (Table 1.0 and 1.3 which is indicated to be a reprint of Table 1.0 respectively). However, the values shown do not match. The Designer should verify the correct pre- and post- peak rates.

15. The Drainage Analysis does not analyze the 8" drain basins discussed above. These should be included in the post-development drainage model to assess their functionality.

16. Table 1.5 of the Drainage Analysis shows a Water Quality Volume (WQV) of 3,230 cf that is required to be infiltrated per Section 15.5.2(i) of the Site Plan Regulations. The Designer has arrived at this by using the NHDES BMP General Calculations Worksheet for WQV and WQF. However, the Town regulation is not a mirror image of the NH Stormwater Manual and its intent is to calculate and infiltrate a Groundwater Recharge Volume (GRV) which requires a slightly different methodology. Semantics aside, we believe that this is not calculated correctly as shown and that the WQV (or GRV) should be 2,156 cf. Given that the design provides 5,310 cf of storage for infiltration, this system as designed meets the regulation, but the calculations should be verified.

17. The total areas shown in the pre- and post- drainage models do not match. Although the difference is only 785 sf, we suggest that the designer correct this issue.

18. The post-development drainage calculations of the Stormtech system utilize exfiltration as an outlet based on a very conservative rate of 3.3 in/hr x 0.25 but indicate that the groundwater is at elevation 48.67' which is above existing grade over half the field. The Designer should evaluate a test pit within the limits of the system to ascertain the seasonal high-water table elevation and infiltration rate of the native soil or provide justification for the value used in the analysis.

19. The outlet configuration shown in post- Pond MC45 (Stormtech) shows 18" and 12" outlet pipes. This does not match the configuration shown on Sheets C-102 and C-505 or the Drain Manhole DMH-100 Detail shown on Sheet C-504. The Designer should adjust the model and/or plans so that they match.

20. Sheet C3.3.1 of the Drainage Analysis does not show the limits of existing pavement. This should be included to aid in comparison between this plan and Sheet C3.3.2.

21. The Inspection and Maintenance Plan contained in the Drainage Analysis does not list catch basins or manholes as items requiring inspection or maintenance in the initial table but goes on to discuss them later in the document. These should be included in the table.

We look forward to presenting our findings at the March 10 Planning Board hearing. Should the Applicant or the Planning Board desire, Altus is available to meet with them, the Designer, or anyone else to further discuss this review and/or any additional review criteria.

Please feel free to contact us should you need any additional information.

Sincerely,

ALTUS ENGINEERING, INC.

Erik Saari
Vice President

Eric D. Weinrieb, PE
President

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