

Memorandum:

To: Juliet Hodge, Director of Land Use & Planning
From: Steve Masalin, Public Works Director/Town Engineer *sm*
Date: August 10, 2022
Re: 79 Vinegar Hill Road (Appl. PZ #22-8SUB)

I have reviewed the plans and stormwater management report for the subject application. I have the following comments.

1. Engineering Report, Detention Basin: Drainage Ordinance (Town Ordinance #300-017) Part 3, Section 2, Para B, Detention Basin Structural Design, specifies preference for complete evacuation of a detention basin within 12 hours of the end of the rainfall event. Under "Stormwater Management," the proposed basin is stated to be "designed to slowly drain empty after each storm." Under Water Quality, it is intimated that standing water would be present "for 24 – 48 hours." The applicant should define the duration of standing water more specifically and cite rationale for exceeding the 12-hour preferred limit, which will be taken under further consideration.
 2. Plans
 - a. Sheet 11 of 15
 - 1) The pipe between CB's 5 and 6 is not labeled. It should be 22' – 15" HDPE, in accordance with the storm sewer system design drainage system table (Engineering Report, pg 9).
 - 2) The in/out invert shown for CB 4 in the plan view is 286.50, but in the elevation view 285.40. In the context of the elevations of the system, it should either be removed from the plan view (as for other CB's) or changed to match.
 - 3) The pipe between CB's 3 and 4 is 18" diameter. But 15" pipe is used downstream from CB 4 all the way to the outlet at the detention pond. Adequacy of 15" pipe cannot be determined, since the drainage system table (page 9) does not properly include the new pipe segments shown on the plans, as follows:
 - 272' HDPE from CB 4 to Manhole (1?)
 - 125' HDPE from Manhole (1?) to Manhole (2?)
 - 110' HDPE from Manhole (2?) to Outlet.
- By way of context, the pipe leaving CB 4 is presently identified in the table as 18" diameter.

- 4) The elevation view for CB's 3, 4, and 4A does not properly depict the two pipes (60' and 192') that terminate in this area. Specifically, the 192' pipe should be shown in partial view passing behind the 60' pipe on its way to CB 3.
- 5) Detention Basin: The elevations associated with this basin are unclear in some sections, particularly with respect to the top rim and service road (note the E/NE segment and the 270' gradeline). The 268.50 spillway elevation is also in question, and there is no detail for the service road on Sheet 5 of 15 as noted. See further comments below regarding the engineering report.

b. Sheet 14 of 15, D-Box Outlet Detail

- 1) The basin bottom elevation of 274 does not coincide with sheet 11.
- 2) An invert elevation should be given for the 6" outlet pipe.

3. Engineering Report

- a. Sheet 8, Gutter Flow Analysis: For the record, the flow widths for CB 1, 4A, 5, and 5A exceed the stipulations of the Drainage Ordinance. This had been previously accepted as a reasonable exception.
- b. Sheet 9, Storm Sewer System Design: The pipe between CB's 5 and 5A is shown as 22' with a stormwater time in pipe of 0.09 accordingly. This pipe is actually 90' long (plans, sheet 11). The table should be corrected. If necessary, the model should be run again to confirm/revise related collective design features (e.g., time of concentration, peak flows).
- c. Detention Basin HydroCAD Calculation Sheets: An invert elevation of 268.75' is cited for the outlet device (pages 13, 15, 17, 19). This is above the 266' basin bottom invert, which would leave nearly 3' of standing water to infiltrate. This would not seem to allow for timely evacuation of the basin. Also, the 268.75' elevation is 0.25' above the modified rip-rap spillway shown at 268.50' on sheet 11 of the plans (an elevation that was questioned above).

Additionally, the outlet device is described as a 15' x 6' broad-crested rectangular weir. A 100' extended underdrain is shown on sheet 11 of the plans, which appears to serve as the outlet device.