



Planning & Development
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Memo

Date: January 9, 2019 Updated 2-21-19
To: Planning Board
From: Michael G. Livingston, Town Engineer/Planner
Re: Four Seasons Farm Subdivision – Tax Map 77, Lot 17-3
Stormwater Management Review

Background:

An existing parcel (Lot 17-3, 12.54 acres) with an existing house is proposed to be subdivided which involves the construction of a 600 foot private street and four new dwelling units with associated driveways and utilities.

Materials Submitted for Four Seasons Farm Subdivision: Revised

- Sheet 2: Grading and utility plan
- Sheet 3: Roadway Plan and Profile
- Sheet 4: Shared driveway Plan & Profile
- Sheet 5: Site Details – Erosion Control, Drainage
- Sheet 6: Site Details – Drainage, Road, Utilities

Stormwater Management Plan dated Dec. 4, 2018 by Lewis Chamberlain, PE of ATTAR Engineering, Inc. Revised 2-5-19

- Plan of Stormwater: Existing Conditions
- Plan of Stormwater: Developed Conditions

Analysis:

General Review Comments:

- HydroCAD software utilized for modelling – good
- Current rainfall intensity values applied – good
- Pre and Post drainage basin areas are the same – good
- Detailed Pre and Post drainage schematics provided – good
- Narrative needs to include description of downstream water supply (Spiller’s irrigation pond) as not to be affected. Done
- Off-site and on-site drainage basins included – good
- Project is proposed to develop an area of 0.99 acres of impervious area which is only 0.01 acres or 4,300 SF below the MDEP Stormwater Permit threshold of 1.00 acres. A detailed area summary of new impervious area is needed. HydroCAD area listing

summary indicates 1.227 acres of new impervious area. HydroCAD areas OK, conservative. Area table needed, see recommended.

- Analysis points for Pre vs Post comparisons are good
- The summary statement states no significant increase in peak flow rates but a table is needed for comparison as depicted on the Developed Conditions Plan. Done

Pre-Development Review Comments:

- Drainage basin limits appear to be accurately depicted
- Flow paths appear accurately depicted and modelled
- Model of Reach 1 (existing brook) well modelled

Post-Development Review Comments:

- Multiple basins created through proposed grading, well modelled
- Flow paths also well modelled
- Multiple ponds proposed and modelled. Ponds 2 and 3 need a secondary outlet/overflow specified due to peak elevation being less than 1 foot to top of pond berm elevation. Pond secondary outlets provided except for Pond #2 which is OK due to over a foot freeboard at the 25 yr. peak elevation and the driveway to Unit 2 could act as an overflow spillway. All ponds now have suitable freeboard.
- Catch basin/ DMH ponds have several issues to be addressed:
 - Are they catch basins or drain manholes? Done
 - Rim elevations not provided Done
 - Peak elevations appear to be set at the rim elevations, structures need to be modelled with incremental storage to determine if capacities exceeded. DMH's modelled as ponds. DMH #1 peak elevation only 0.35 below rim. The peak elevation of Pond 11P is 153.42 and in combination with surcharging of DMH #1 will create flooding over the westerly property line. The outlet pipe of DMH #1 needs to be larger and possibly the outlet pipe from Pond 11P also. This may impact DMH's #2 and #3 and Pond #2.
 - 2R at 0.73' flow depth (25 year) and 3R at 0.83' flow depth (25 year). Outlet of CB Pond #1 (also a 15" pipe) is probably exceeding capacity. CB Ponds #2 and #3 also at or exceed capacity and may surcharge into Ponds 1, 2, and 5 (see warnings on page 16 of HydroCAD report). Some surcharging is modelled but appears insignificant. Addressing the previous comment may affect though.
- P3 (Detention Pond #2) has a berm top at 53.5 and a peak elevation of 53.13 (25 year). A top elevation of 54.0 with a secondary outlet (overflow) is needed. Done, secondary outlet not needed, see above.
- Detention Ponds #1, #2 and #3 need to be clearly labelled on sheets 2 and 4 and cross sections on Sheet 6 referenced. Done
- Detention Pond #2 outlets to a level spreader and wooded buffer. Good additional treatment and reduction to flow. Typical detail on Sheet 5 doesn't appear to apply. Site specific detail should be added to Sheet 6 and referenced on Sheet 4 or Sheet 5 detail modified. Detail added, but elevation information needs to be specified. See possible note for field verification. Grading and stone depicted on Sht. 4 needs revision.

****Post- Development comments must be addressed prior to determining if the project meets Town requirements.**