



Planning & Development
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Memo

Date: January 9, 2019 Updated 2-21-19 Updated 3-8-19

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 Revised 3-5-19

- 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 Revised 3-6-19

- 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. Proposed Note 30 OK

- 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. Revised culvert size and HydroCad results alleviate surcharging in DMH#1. The peak elevation of Pond 11P has been lowered 0.09' but may still create ponding onto the abutting property. Ground elevations to be confirmed. Other DMH's and Pond #2 OK.
 - 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. OK
- 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. Done