

# CHRISTOPHER P. STATILE, P.A.

PROFESSIONAL ENGINEERS & PLANNERS  
CONSULTING ENGINEERS

CPSTATILE@AOL.COM

3 FIR COURT  
OAKLAND, NJ 07430  
(201) 337-7470  
FAX: (201) 337-7599

NEW YORK, NY

June 10, 2022

## Memo

**To:** Chris Kok, PP, Wayne Township Planner

**From:** Christopher P. Statile, P.E., Design Consultant

**Regarding:** Block 3103, Lots 16 & 19  
Avalonbay Communities, Inc. Site Plan Application - Drainage Review

We have received site plans revised to May 31, 2022 and an April 4, 2022 response memo from the site engineers addressing the many review comments. As part of that response letter, our drainage comments were addressed.

The applicant do not have any subsurface investigation reports to base their stormwater designs on, but used publicly available regional soils information. The field soil tests have recently been undertaken and the results of same are pending. The design of stormwater management must be revised based on the new information.

1. The Barbour development site north of Barbour Pond Drive is increasing in Impervious Coverage from 2.76 acres to 7.6 acres. The southerly site is retaining about 2.8 acres of impervious surfaces.

Provisions for groundwater recharged must be presented. Annual groundwater recharge for land development under both the pre- and post-developed (or existing and proposed) site conditions should be estimated using the Annual Recharge worksheet in the NJGRS. Designated Urban Redevelopment sites are exempted.

*The applicant agree to address this comment under a revised design.*

2. The “Stormwater Collection System Calculations” summary in the drainage report is missing information on a portion of the proposed storm drainage (we had notified the designer but not received additional information). Absent the missing data, we cannot make a full assessment of the drainage plans.

*The applicant agree to address this comment under a revised design.*

3. The above *partial* summary indicates that 11 out of 15 inlets proposed have runoff areas exceeding 5,000SF in contravention to Section 134-72.4 “Drainage” in the Land Development ordinances. Additional drains can be provided to meet compliance or a design waiver is required.

*The applicant seeks a waiver. We only recommend that this waiver be issued when the applicant’s engineer can provide inlet capacity computations to show adequate collection given roadway profile slope and cross-slopes for each inlet.*

4. Routing for the roof drains (parking deck and townhouses) are not shown, so it cannot be determined if this runoff is being controlled.

The drainage from the *open roof* of the parking deck has to be treated and detained similar to the other impervious areas of the proposed site.

*The applicant agree to address this comment when architectural plans are prepared. We should be provided with these drawings to ensure that the collection systems can adequately handle proposed flows.*

If the floors of the parking deck are to be power washed or cleaned annually with solvents or detergents, these have to be collected and treated as sanitary sewerage, not as stormwater. Or, if the Township does not permit the collection of this runoff into the sanitary sewer system, the applicant/owner will have to make provisions for collection and proper disposal of same.

*The parking deck lower floors are to be connected to the sanitary sewer system. The open roof parking is to be connected to the stormwater management devices. Therefore, cleaning of the open floors has to include a capture system since solvents and detergents will harm sand filter vegetation.*

5. The proposed storm drains are HDPE plastic pipe versus reinforce concrete pipe per Section 134-72.4 “Drainage.”

*A design waiver is required. We have no objection so long as there is adequate soils/pavement cover over the pipes to support vehicle/truck loading.*

6. The pipe between Inlets 37 to 38 to 37 slopes less than 0.5% per Section 134-72.4 “Drainage.” A. Either the pipe has to be increased in slope, or a design waiver is required.

*The applicant agree to address this comment under a revised design.*

7. Runoff from a portion of the north- most parking area is not be treated before discharge. This can be amended via a re-routing of stormwater to Inlet #22 which runs to the detention basin #1.

*The applicant agree to address this comment under a revised design.*

8. The designer uses the 1975 Passaic County Soils Map to identify the underlying soils designating the area as “Pits, Sand and Gravel” (PHG) with a poor Hydrological Soil Group Designation of “D” rather than using actual soils data from test pits. Group “D” would presume that ongoing soil mining activities are occurring on the site which they are obviously not. The sites were long ago restored and mature trees are found. Soil Maps are to be used only as a starting point/guide in design as their accuracy is very limited and incomplete. The information presented on the USGS 1955 Quad Map (revised 1981) indicates the project area ground surface as being disturbed presumably due to soil mining or development activities, although we have no historic information on this.

Therefore actual soils data is required via field test pits taken to at least 5 ft. below the bottom of the sand filters, given the magnitude of development and its reliance on the filters/detention systems. Provisions for groundwater recharge must be provided.

*The applicant agree to address this comment under a revised design after soil test pits are analyzed. We should receive this information to review.*

9. The existing storm drain outlet pipe in Barbour Pond is clogged and restricting flow based on our inspection. The riprap channel protection should be repaired due to scour.

*The applicant agree to address this comment under a revised design.*

10. The depth of detained water in the four sand filter basins varies from 1.5 ft. to 3.2 ft. for the 2-year, “Water Quality Storm” in contravention to the requirements of the BMP Manual. The basins must be enlarged to reduce this depth to 1 ft. for proper functionality.

*The applicant agree to address this comment under a revised design.*

11. The lowest orifice openings in the outlet control structures were set 0.5 ft. above the basin bottoms. The outlets should be lowered to the elevation of the basin bottom to avoid the potential for detention latency which could become a health hazard.

*The applicant agree to address this comment under a revised design.*

12. The “soil planting bed” must be increased in thickness to 24 inches from 12 inches per the BMP Manual. This enhances surface vegetative growth as shown on the Landscape Plan.

The BMP Manual requires that the entering runoff to the water quality basins be evenly distributed. Currently they are shown as point discharges subjecting the soil bottom to scour based on outlet velocities listed in the Drainage Report. The designs must be changed.

*The applicant agree to address this comment under a revised design.*

13. The filter fabric surrounding the Soil Bed should be reduced in height to the sand layer to allow vegetation to come into the basins. The fabric creates a barrier.

*The applicant agree to address this comment under a revised design.*

14. The Outlet Control Structure footings in each basin should be increased from 6” thick to 12” thick for sustainability. The trash rack must be removable for cleaning, and be locked to prevent illicit entry.

*The applicant agree to address this comment under a revised design.*

15. Runoff to Inlets #37&38 must be checked to include all off-tract overland flow from the adjacent property.

*The applicant agree to address this comment under a revised design.*

On receipt of additional information, we will continue our review. Feel free to contact us with any questions.

c: Daniel Dougherty, PE, Dynamic Engineering  
CPS/mr  
Wayne