

July 20, 2026

Lisa Smith, Secretary
Mendham Borough Joint Land Use Board
2 West Main Street
Mendham, New Jersey 07945

Re: 80-88 West Main, LLC Preliminary & Final Site Plan Application
Stormwater Management Report Review
Block 1801, Lot 5
80-88 West Main Street
Project No. 26MDP103

Dear Lisa:

The above referenced application requests amended site plan and subdivision approval for the previously approved inclusionary development project on lot 5 in block 1801 along West Main Street. The following plans and documentation have been submitted in support of the application:

1. Cover letter, dated March 3, 2026, prepared by Michael P. Castore, Esq.
2. Land Use Board Application, dated February 26, 2026
3. Ecological Impact Statement, dated February 12, 2026, prepared by Eric Keller, PE, PP, LEED AP
4. Stormwater Management Report, dated February 12, 2026, prepared by Eric Keller, PE, PP, LEED AP
5. Preliminary and Final Major Site Plans, consisting of 28 sheets, dated February 12, 2026, prepared by Eric Keller, PE, PP, LEED AP

A review of these documents results in the following comments related to the stormwater management design for the Board's consideration:

1. The detail for the above ground basin outlet structure detail indicates they will be 2' deep by 4' wide. Consideration to making the structures 4'x4' to help facilitate access for maintenance should be considered.
2. The time of concentration (Tc) for P-DA-1C Roof used direct entry for the Tc. Tc calculations need to be provided and used for each drainage area.
3. The Tc sheet flow combined segments for P-DA-1B-Per exceeds the 100' maximum allowable limit.
4. The Tc sheet flow segment for P-DA-5-Bypass exceeds the McCuen-Spiess limitation (58.9' maximum limit versus 100' used in the analysis).
5. A 3-minute time interval (dt) was used for the analysis. A 1-minute time interval should be used for the analysis.



6. The analysis utilizes a Gravel CN of 96 for the existing drainage areas (X-DA-4 IMP and X-DA-5 IMP) where a CN of 85 should be used (HSG B). Unless surface infiltration testing has been conducted demonstrating the use of a higher CN is warranted, the CN should be revised.
7. Additional soil testing taken during the wet season should be provided in the easterly corner of Bioretention Basin I (infiltrates) to confirm hydraulic conductivity and the depth to ESHGWT.
8. Measured infiltration rates were provided in the summary of infiltration test results, however, all of the testing information that went into calculating the measured infiltration rates must be provided in accordance with Chapter 12 of the NJDEP BMP Manual. This information should be added to the report.
9. Bioretention basin I assumes free discharge. The proposed 18" diameter outlet pipe connects into an existing 15" CPP storm sewer system. An analysis of the downstream pipe system (terminus unknown) should be provided to demonstrate the downstream system has capacity to convey the design flows through it without impacting the outlet pipe capacity.
10. A large portion of existing drainage area #3 is not tributary to the analysis point. The existing drainage boundaries should be revised to reflect only the portion of the existing areas tributary to the point of analysis are being used.
11. POA #3 is taken downstream of the point of discharge from Basin I. Additional information should be provided demonstrating the bypass areas being analyzed to this point are tributary to the POA #3. Based on the existing topography and proposed grading, a significant portion of the bypass areas do not appear to be tributary to the analysis point. Based on the offsite topography (20' contour interval), it appears the majority of X-DA-3 drains onto adjoining Lot 5.01 towards the northwest and West Main Street, while the remainder of X-DA-3, including the existing parking lot (generally where Basin I discharges to in the post developed condition) drains towards the south. It appears additional analysis points need to be provided.
12. It is noted Basin I discharges into an existing downstream storm sewer system. The existing drainage area to this system should be included in the analysis to demonstrate there is no increase in runoff to this existing pipe conveyance system.
13. POA#2 is taken towards the northeasterly corner of the site. While it appears a portion of the site generally flows to West Main Street, the drainage area and subsequent analysis points should be broken down to where onsite runoff crosses the property lines. Based on the Existing Drainage Area Map, analysis points should be taken at the four adjoining property lines where they intersect with the sideline of the subject tract (common property line between lot 16 and lot 10, lot 10 and lot 9, lot 9 and lot 8, lot 8 and lot 7). It is noted that based on the existing topography, there is no direct runoff from the site onto adjoining lots 7 and 8; any site runoff that drains to these properties, would first cross onto adjoining lot 9; therefore, it is not clear how proposed site runoff to these two properties can be mitigated to meet the standards. The upper portion of drainage area #2 appears to discharge towards Linden Lane across lots 9 and 10 versus drainage to where the analysis point has been taken.
14. The majority of the existing drainage area within POA#5 is not tributary to the point of analysis. It appears at least two additional analysis points should be provided, in addition to



the analysis point selected, to better model site runoff to the adjoining property. Based on the topography shown on the Existing Drainage Area Map, there appears to be a ridge (594 contour below the Chapel and 1 story building) that directs the upper part of X-DA-5 to the east onto adjoining lot 16. In addition, based on the existing contours/topography, and the existing basketball court, the highpoint below the basketball court (572 contour) directs existing site runoff to adjoining Lot 16 approximately 240' north of the current analysis point. The runoff from this portion of the site should be modeled separately, and in addition to the POA-5 point of analysis currently depicted on the existing drainage area map at the property corner.

15. It should be demonstrated that the proposed grading for Basin C will not adversely affect the existing drainage system on adjoining lot 6. Based on the grading, there appears to be a depression/swale along part of the property line, where runoff is being picked up in the depression from the existing storm sewer system that generally runs parallel to the property line.
16. The shallow concentrated segments for X-DA-5 do not appear to be consistent with Figure 15-4 and Table 15-3 from Part 630 NEH Chapter 15. The Kv used for the 352 and 116 foot segments appear to be based on grassed waterways (there is no separate shallow concentrated flow, unpaved condition in Figure 15-4 or Table 15-3), where the coverage consists of forest/woods, and or lawn areas. It is also not clear what the Kv for the first segment (111') was based on (coverage is forest/woods).
17. There appears to be a longer Tc flow path for X-DA-1-pervious than is depicted on the Existing Drainage Area Map. An additional flow path should be checked taken from the upper corner of the drainage area above the site driveway and compared to the Tc that has been provided to ensure the most hydraulically distant path is being utilized.
18. Additional comments relative to the existing Tc's (except as noted above, individual Tc's have not been checked) are deferred. The Tc's should be consistent with Part 630 NEH Chapter 15 (as referenced within the Tc comment for X-DA-5).
19. The Tc flow path for P-DA-2 was not found on the Proposed Drainage Area Map. The flow path should be shown.
20. The slope for the Tc sheet flow segment for P-DA-4J Per appears to be steeper (approximately 10% based on the grading plan) versus 2% used in the calculations. Also, it appears a segment of the pipe flow, 121 linear feet at 0.0030 ft/ft (see Tc for P-DA-4J Imp) was missing from the Tc calculation.
21. Details for inlets #100-#102 (located in front of Building #23) should be provided. Based on the proposed grading, it appears the area depicted in front of Building #23, analyzed as being tributary to Basin J, drains to area P-DA-4K. Revise as necessary.
22. The Applicant should confirm drainage boundaries/patterns and Tc flow paths are consistent between the proposed grading plans and the proposed drainage area map.
23. The Engineer should provide testimony on the constructability of underground infiltration Basin K. The basin footprint is located within a wooded area approximately 3' from the adjoining property line and excavation depths in excess of 10 to feet 15 can be expected to



construct the basin. Will the construction of the basin require any disturbance and or tree removal on the adjoining property?

24. Details for the underground infiltration basins (F and K) including the Stormbloc chambers being used should be provided on the plans and a manufacturer spec sheet included in the report appendix. The stage storage analysis indicates the systems have 95% (Basin K) and 96% (Basin F) void space.
25. The detail for Basin F indicates a 15" diameter outlet pipe while the routing utilized an 18" diameter outlet pipe. The details/plans and calculations should be consistent.
26. The basin flood test conducted within test pit #209 is above the level of infiltration of Basin F. An additional basin flood test below the level of infiltration should be provided. Comparing the drainage plan and the soil test location plan in the report, the basin footprint was expanded on the drainage plan and an additional test pit with hydraulic conductivity testing is required on the near end (street side) of the basin.
27. The depth of the test pits within the footprint of Basin K are too shallow to confirm the 2' minimum separation to ESHGWT is being met, and no testing was provided within the footprint on either end of the basin (equidistant testing locations are required). Additional test pits with hydraulic conductivity testing are required to confirm design assumptions. The testing needs to be done during the wet season to confirm ESHGWT.
28. The location of all soil testing should be provided on the drainage plans (this is partially shown but it does not appear the supplemental testing has been depicted).
29. The report indicates Bioretention Basin A is an infiltration basin while the plans depict underdrains in the basin. Clarification is required.
30. The report indicates Bioretention Basin C is an under-drained basin while the plans do not depict underdrains. Clarification is required.
31. The top of the weir wall elevation should be provided within the underground outlet structure detail.
32. The emergency spillway detail indicates it is for Basin A, B2, C and E. There are a number of surface basins that have constructed emergency spillways that are not referenced on the detail (surface basins shown on the grading/drainage plans include Basins A, B, C, H, I, J, M, N, P, R). Clarification is required. Additionally, Basin B2 should be revised to Basin B.
33. An emergency spillway analysis needs to be provided for all the surface basins (appears provided for basins A, B, C, H and I only).
34. It is not clear how the emergency spillway storm is being mitigated within surface basin G.
35. The crest elevation of the emergency spillway for Basin J, and the length of the spillway for basin M, should be provided on the plans.
36. Top of berm width and freeboard in accordance with RSIS/NJ Dam Safety needs to be demonstrated for all surface basins.
37. The emergency spillway analysis for Basin C indicated the basin is not a dam. The grading plan indicates a crest emergency spillway elevation of 563.9' and the proposed toe of slope at approximately 548, which exceeds the 5' maximum height typically used as the height for which a basin would be classified as a dam. (Similar for Basins N and P).



38. The constructability of Basins I and J being constructed within the property limits should be confirmed.
39. The inflow drainage area to Basin K on the westerly side of building 26 will bypass the basin based on the proposed grading. Revise accordingly.
40. The grading in front of building #26 appears to be flat and or back pitched towards the building foundation. The Engineer should confirm positive drainage away from all building foundations meet code requirements.
41. The grading in front of building #24 appears to direct surface runoff to the street (within PDA-5M) while the drainage area map indicates this area is tributary to P-DA-4K. Based on the proposed grading the proposed pipe system located along the front of the building will not collect the area depicted on the drainage area map as being tributary to it. The grading and drainage area map should be consistent with each other. Note that additional grading and drainage area map review for consistency is deferred. The engineer should confirm consistency.
42. A water quality calculation (comparison between existing and proposed conditions) should be provided for POA#3 demonstrating the total suspended solids being removed meets the standards. There is a portion of the proposed driveway on the downslope side of Basin I that is not being treated. It is noted there is an existing parking lot that will be removed in this general area. The Engineer should confirm the existing water quality treatment for this parking lot as part of the comparison calculation.
43. The roof drainage boundaries that bypass the MTD's should be broken out on the proposed drainage area map. For example, it is not clear how the P-DA-4K Roof (Bypass MTD) relates to the P-DA-4K IMP area on the drainage area map (the routing diagram indicates they are separate drainage areas while they appear to be depicted as part of the P-DA-4K area on the drainage area map).
44. Bioretention Basin B appears to exceed the 2.5-acre maximum inflow drainage area limit for small scale bioretention basins.
45. The full flow capacity of the proposed 24" diameter pipe from storm manhole #81 to reconstructed inlet #82 (located in West Main Street) per the conveyance calculations is 12.82 cfs. The combined peak outflow from bioretention Basins A, B and C is 21.2 cfs for the 100-year future storm event. The capacity of the existing 15" diameter cross drain that reconstructed inlet #82 drains to is even less (approximately 8.9 cfs based on the plan slope). A separate analysis point should be provided at inlet #82 to ensure runoff to inlet #82 is not being increased as a result of the development from what exists.
46. The note above the conveyance calculations "Conduit Flex Table: Combined Pipe/Node Report" in the appendix of the report indicates "100-Year Design Storm (To Be Completed)". Additional review of the conveyance calculations is deferred until the above comments are addressed and the 100-year design storm is completed in the report. It is noted the calculations should include submergence for any pipes that discharge into the stormwater management basins/bmp's, with a determination on how the submergence is being calculated.



47. The drainage plan depicts the storm sewer system from MH#209 to HW#211 being constructed along the berm for bioretention basin M. It is recommended the storm sewer be relocated outside the basin/berm limits.
48. The 100-year future peak elevation within bioretention Basin A is above the grate elevation at inlet 78 (the trench drain located at the entrance driveway to the site (trench drain 184) grate elevation was not shown but appears it would also be surcharged).
49. A trench drain detail should be provided.
50. The quantity routing calculations include an area area/node for GI-MTD 1C, but it is not clear if/where this MTD is being proposed.
51. N.J.A.C. 7:8-5.2(l) indicates "If there is more than one drainage area, the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at N.J.A.C. 7:8-5.4, 5.5, and 5.6 shall be met in each drainage area, unless the runoff from the drainage areas converge onsite and no adverse environmental impact would occur as a result of compliance with any one or more of the individual standards being determined utilizing a weighted average of the results achieved for that individual standard across the affected drainage areas." The sub drainage areas do not converge onsite as has been analyzed in the two analysis points that have been analyzed. The analysis should be further divided to reflect where the site runoff leaves the site.
52. It is noted the onsite post developed impervious areas within POA-4 and POA-5 combines to approximately 5.7 acres where the groundwater recharge spreadsheet indicates 5.2 impervious acres. Open space totaled approximately 6.2 acres (versus 6.61 acres in the spreadsheet). The proposed quantities in the spreadsheet should be consistent with the proposed quantities in the quantity calculations. Similarly, the spreadsheet indicates 2 acres of existing impervious within the POA4 and POA-5 areas, while the quantity analysis utilized 1.71 acres of impervious area and 0.06 acres of gravel. Open space in the spreadsheet was 6.68 acres while 6.97 acres open space was used in the quantity analysis. The areas in the spreadsheet should be consistent with the areas used in the quantity analysis.
53. A calculation should be provided on how the effective depth is calculated for infiltration basin I within the groundwater recharge spreadsheet. The analysis used 16.8 inches while the low level outlet is set 12" above the basin floor.
54. The Aimp for Basin I and Basin K is not correct. The Aimp for Basin B assumes the 100% impervious runoff from the area tributary to Basin F. Basin F should be analyzed separately from Basin B and the Aimp for Basin B reduced accordingly. The Aimp needs to be based on the impervious area that drains directly to each BMP.
55. The footprint used in the groundwater recharge analysis for Basin K is not consistent with the surface area used in the quantity analysis.
56. The groundwater spreadsheet analyzes Basin I as if it were within POA 4 and POA 5 where it is in POA 3. Basin I should be included in the recharge comparison for POA and excluded from the other POA areas.
57. Additional comments relative to groundwater recharge is deferred.



58. The hydraulic conductivity testing for infiltration Basin N is above the level of infiltration and was not taken within the most hydraulically restrictive layer below the basin. Soil testing in accordance with Chapter 12 of the NJDEP BMP Manual, needs to be provided.
59. The geotechnical report should include whether any mottling was encountered in the test pits.
60. The test pits indicate groundwater was not encountered, but the testing was done outside the wet season. Additional testing needs to be done during the wet season to confirm separation to ESHGWT is being achieved. Alternatively, the NRCS web soil survey can be used to determine the depth to ESHGWT. The soil survey indicates the onsite soils are mapped as Gladstone soils which have a depth to water table greater than 80 inches. Therefore, 80 inches would be assumed as the depth to the water table. It appears the minimum separation to ESHGWT is not being met, (2' separation is not being achieved in infiltrating bioretention Basin A, N, (only basins checked) and 1' of separation is not achieved in under-drained bio-retention Basin C (only basin checked). Additional information/testing needs to be provided demonstrating minimum separation to groundwater levels are being met for each proposed basin.
61. Hydraulic conductivity testing was above the level of infiltration of Basin A. Deeper testing in the most hydraulically restrictive layer below the level of infiltration needs to be provided in accordance with Chapter 12 of the NJDEP Manual.
62. Only one hydraulic conductivity test was done in proximity to bioretention Basin B (located approximately 10' off the basin footprint edge). Additional hydraulic conductivity testing within the footprint of Basin B, in accordance with Chapter 12 of the NJDEP BMP Manual, needs to be provided. Based on the surface infiltration area of the basin, it appears a total of three test pits with hydraulic conductivity testing, spread equidistantly from each other, is required.
63. Review of the groundwater mounding analysis is deferred.
64. Pages 16 and 17 of the report indicate basins located in partial fill condition will use K5 sand to make up the grade difference. Details for the basins being constructed in fill should be provided on the plans.
65. The test pits prepared by M&Z Engineering (Test pits 101-107) should include the date the testing was done, soil color, using the Munsell system of classification which includes an alpha-numeric symbol together with a descriptive color name; Estimated soil textural class, using the USDA system of classification; Estimated volume percentage of coarse fragment, if present; Abundance, size and contrast of mottles, if present; Soil structural class (soil profile pits only); and Soil consistence. Existing ground elevation and proposed basin floor and bottom of soil bed should be added in accordance with Chapter 12 of the NJDEP BMP Manual. Same with the test pits prepared by GTA where information is missing.
66. Test pits 101-103 located within the footprint of Basin C (?) prepared by M&Z Engineering (separate from test pits 101, 102 within the footprint of Basin 1A prepared by GTA) should be provided on the plan. Same with test pits 104 through 107.



67. Additional comments relative to the soil test pits and hydraulic conductivity testing is deferred.
68. An onsite analysis point should be provided at the downstream edge of the manmade pond to confirm runoff is not being increased to it as a result of the development.
69. A Stormwater Management System Operations and Maintenance Manual needs to be provided. Once approved, the Manual will need to be recorded with the property deed. This can be provided as a condition of any approval granted by the Board.

I trust the above comments are useful in the Board's consideration of the application.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Paul W. Ferriero', with a long horizontal flourish extending to the right.

Paul W. Ferriero, PE, CME
Borough Engineer

cc: Board members
Thomas Germinario, Esq.
Jessica Caldwell, PP/AICP