Trinkaus Engineering, LLC
114 Hunters Ridge Road
Southbury, Connecticut 06488
203-264-4558 (office)
+1-203-525-5153 (mobile)
E-mail: strinkaus@earthlink.net
http://www.trinkausengineering.com

September 27, 2025

Mr. Robert Klee, Chairman
Woodbridge Town Plan and Zoning Commission
11 Meetinghouse Lane
Woodbridge, Connecticut 06525

RE: 804 Fountain Street
Woodbridge, Connecticut

Dear Mr. Klee and Members of the Town Plan and Zoning Commission,

At the request of Woodbridge Land Trust and Woodbridge Park Association, I have reviewed the most recent plans submitted by the applicant for the above-referenced project. Specifically, I reviewed the following documents and have the following comments.

Plans and documents Reviewed:

1. Site plans by Solli Engineering (27 sheets) of 8/18/25
2. Site Engineering Report of March 21, 2024
3. Town of Woodbridge Zoning Regulations, Section 5.7 Stormwater Management

Executive Summary:

A. The stormwater management system will not adequately reduce non-point source pollutant loads which will result in increased pollutant loads being discharged to the downgradient wetland system. Increased pollutant loads including suspended sediments, nitrogen, phosphorous, metals and hydrocarbons will be discharged to the off-site wetland system, where over time, these pollutant loads will adversely affect the water quality in the wetland area which is an adverse physical impact. Because of this impact, the application should be evaluated by the Inland Wetlands Commission.
B. The design of the stormwater management system does not comply with the CT DEEP 2024 Storm Water Quality Manual. As proposed, there will be no reduction in runoff volume as it has not been demonstrated that any infiltration will occur in the two underground detention systems.
C. There are many aspects of the erosion control plan that are not in compliance with the CT DEEP 2024 Guidelines for Soil Erosion and Sediment Control. Because of the inadequacy of the erosion control plan, there will be discharges of turbid runoff during the active construction period.

Site Plans:
Sheet 2.11:

1. The central parking area and the driveway on the south side of the building are shown to be permeable pavers. Based upon the extent of excavation, the permeable pavers are not an appropriate stormwater management system and would be considered to be "green washing" which is where LID practices are shown to be green, but in reality, are not.
2. Electric charging spaces are shown adjacent to the sidewalk in front of the building. Will the installation of the actual chargers' impact pedestrian access on the sidewalk?

Sheet 2.21

3. Based upon the proposed grading of the permeable paver system on the south side of the building, this system will be located between eight (8) feet and forty-seven (47) feet below grade and will be located in bedrock which is not a condition suitable for infiltration. TP-6 encountered bedrock at 36" and TP-17 encountered bedrock at 66". Permeable paver systems are to be in Class A or Class B soils and must provide a minimum of 36" vertical separation to bedrock which is not met in this case.
4. In the case of the permeable pavers in the central parking area, the proposed finish grades are all below the depth of bedrock based upon TP-1, TP-11, and TP-13, thus the same issue cited in comment #3 above is also applicable here. Both permeable paver system designs violate the requirements found the CT DEEP 2024 Storm Water Quality Manual "2024 Manual".
5. The only water quality treatment provided for the site consists of catch basins, and online hydrodynamic separators. These systems will not provide adequate treatment of the runoff to meet the requirements found in the 2024 Manual. This will result in the discharge of increase non-point source pollutant loads to the off-site wetland system.
6. Test pit #10 and #15 are in the vicinity of the underground detention system off both ends of the system. No test pits have been done in the actual area of the system, so the soils under the proposed underground detention system are unknown.
7. Ledge was encountered at an elevation of 280.5' (TP-20) and an elevation of 279.5'(TP-15). According to the plan, the bottom of the stone layer will be set at 281.5' which is less than two (2) feet above the ledge (refusal). This design does not comply with the requirement of the 2024 Manual to provide a 36" vertical separation from the bottom of the system to seasonal groundwater or bedrock. The design does not comply with this requirement.
8. The bottom of the underground detention system is nineteen (19) feet below the proposed grade. Only two inspection ports are shown, but no diameter of the inspection ports have been provided. The inspection ports are only located over the end unit at the inlet and outlet of the underground detention system. There are no provisions for maintenance of the system. All stormwater systems must be able to be maintained and as proposed, this underground detention system cannot be maintained, which will lead to premature failure. It is impossible for anyone to enter the underground detention system to perform maintenance.
9. There is a second underground detention system on the driveway just about Fountain Road. This will result in the discharge of increased pollutant loads being discharged to the off-site wetland system.

10. A note on this sheet states that it is up to the contractor to ensure that the ADA spaces do not exceed 2% in any direction. This is the responsibility of the designer, not the contractor.
11. How will runoff due to rain or snow on cars be handled in the under building parking area?
12. A retaining wall is shown along the left-hand side of the access driveway. No top and bottom wall elevations have been provided.
13. The smaller underground detentions system is located approximately twelve feet above the modular block retaining wall. It is not sound engineering practice to locate an underground detention system above a modular block retaining wall as the stored runoff creates hydrostatic pressure on the retaining wall.
14. How will groundwater behind the lower retaining wall be handled?
15. There is no water quality treatment for the runoff which is directed to this smaller underground detention system.
16. The riprap apron at the end of the pipe does not appear to have been sized for the twenty-five-year discharge rate which is required per the CT DEEP 2024 Guidelines for Soil Erosion and Sediment Control.
17. The slope below the main parking area going toward the access driveway is eighteen (18) feet in height. A review bench is required by the 2024 CT DEEP Guidelines for Soil Erosion and Sediment Control for any slope which is greater than fifteen feet in height. If a reverse bench is not provided, the slope must be designed by a Geotechnical Engineer licensed in the State of Connecticut.
18. The slope above the northwest corner of the driveway as the building is also in violation of the Erosion Guidelines.
19. There are no provisions for controlling runoff from the slope above the upper ledge cut.
20. It has not been demonstrated that the requirements of the 2024 DEEP Manual to reduce pollutant loads for Total Suspended Solids (TSS), Total Phosphorous (TP), and Total Nitrogen (TN) have been met by the design.
21. A hydrodynamic separator is proposed to treat the runoff. It appears to be in an online configuration which significantly reduces the ability of the hydrodynamic separator to reduce non-point source pollutant loads.
22. The only stormwater treatment devices are standard catch basins with a 48” sump with hooded outlet and an online hydrodynamic separator. These systems will only remove the following percentages of non-point source pollutant loads:
    a. Catch Basins with 24” deep sumps:
        i. Total Suspended Solids = 9%
        ii. Total Petroleum Hydrocarbons = 0%
        iii. Metals = 0%
        iv. Phosphorous = 6%
        v. Nitrogen = 0%
    b. Online Hydrodynamic Separators:
        i. Total Suspended Solids = 29%
        ii. Total Petroleum Hydrocarbons = 42%
        iii. Metals = 26%
        iv. Phosphorous = 0%
        v. Nitrogen = 0%

23. The 2024 CT DEEP Storm Water Quality Manual requires the following percent reductions of certain non-point source pollutants for new developments:
    c. Total Suspended Solids = 90%
    d. Total Phosphorous = 60%
    e. Total Nitrogen = 40%
24. Based upon the removal efficiencies stated in comment #20 above, the design will not achieve the CT DEEP requirements in comment #21.
25. This site plan is all directly connected impervious areas which are not being adequately being treated. This plan as proposed is in violation of the Town of Woodbridge MS4 permit as there is inadequate treatment of the runoff and no infiltration of the runoff.
26. There are no provisions for snow storage on the site. If snow is to be stockpiled on the site, it must be in a location where it will drain to the stormwater management system.
27. It is stated that 74,200 cubic yards of material will be cut from the site. It is assumed that most of the volume will be blasted rock. When rock is blasted, the volume of the material can increase up to three times the actual volume of the rock in place. This means that the volume of the material to be removed from the site will be higher than what is stated on the plan.

Sheet 2.31:

28. The Phase I construction sequence is specific to this site as it discusses septic systems, which are not proposed on the site.
29. It is proposed to install the construction entrance prior to the clearing of the site. How will this be accomplished with no environmental impact?
30. It is stated that perimeter erosion control measures will be installed to tree clearing. How will these measures, particularly siltation fences, be damaged by falling trees?
31. According to the narrative the entire area within the limit of disturbance will be stripped of soil at one time.
32. The narrative does not discuss the removal of rock on the site which will be substantial. Will the removed rock be crushed and stockpiled on site?
33. How will dust during the blasting operations be handled?
34. There are only singular perimeter erosion control measures proposed. This is insufficient to control the runoff from the site when the soil is stripped and will result in the discharge of turbid runoff to the off-site wetland system.
35. The diversion swale to the sediment trap does not cover the entire area which is to be disturbed.

Sheet 2.32:

36. There are no provisions for handling surface and shallow groundwater above the large rock cut and regraded slope on the site. Water running across these areas will cause erosion of the disturbed soil areas.
37. Portions of the siltation fence barrier in Phase II are shown perpendicular to contours which will cause concentrated flow to occur along the face of the silt fence which creates a higher potential of overwhelming the downgradient erosion control barrier.
38. There is a note on the plan stating that the wetlands shall be protected during the construction period. As the wetlands are not located on this site, how will the applicant protect them?

Sheet 2.33: No comment on this sheet.

Sheet 2.41:

39. The use of staked haybale installed adjacent and downhill of the siltation fence barrier is not an effective perimeter barrier due the fact that is the siltation fails, then so does the staked haybale.
40. The detail of the staked haybales does not show the bottom of the haybale set into the ground.

Sheet 2.51: No comment on this sheet.

Sheet 2.61: No comment on this sheet.

Sheet 2.62: No comment on this sheet.

Sheet 2.71: No comment on this sheet.

Sheet 2.80 to Sheet 2.85: No comment on these sheets.

Sheet 3.01:

41. The details of the pervious pavers is not appropriate for this site as the paver system will be in bedrock and not soil. A three (3) feet vertical separation between the bottom of the gravel layer and bedrock must be provided.
42. This system will not provide any reduction in non-point source pollutant loads as there is only gravel under the pavers.
43. Additionally, there will be no loss of runoff volume as the system in located in bedrock which will not infiltrate.

Sheet 3.02:

44. There are no calculations for the dimensions of the riprap apron as required by the 2024 Guidelines.

Sheet 3.03:

45. A detail for an Oil Water Separator is shown on this sheet, but no oil/water separators are shown on the site plan.
46. The detail for the outlet structure calls out an orifice with a diameter of 1" which will be set three (3) feet above the bottom of the crushed stone layer. A 1" orifice is highly prone to clogging and there are no provisions as to how this orifice will be prevented from clogging.
47. As no infiltration tests have been done at or below the bottom of the stormwater system, the storage volume below the 1" orifice will not be available for storage, so the system is likely undersized.
48. The detail on this sheet conflicts with the detail on the prior sheet. Which one is correct?

Sheet 3.04: No comment on this sheet.

Sheet 3.05: No comment on this sheet.

Sheet 3.06:

49. The detail for the catch basin shoe does not show the hooded outlet and also conflicts with the detail on sheet 3.02.

Sheet TT-1:

50. The turning movement plan for the fire truck does not show the vehicle movement to the northwest end of the building and how it will leave the site.

Sheet ISD-1: No comment on this sheet.

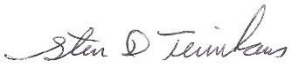
Engineering Report:

51. It is stated that stormwater quality will be enhanced by using underground filtration system. No evidence has been provided that this system will provide any water quality benefit.
52. It is stated on page 4 that it will take approximately 1,970 truckloads to remove the 66,200 cubic yards of rock and/or soil from the site. This is incorrect. A typical tri-axle dump truck has a capacity of 17 cubic yards, so it would take 3,894 truckloads to remove the material. This is almost double what is stated in this report.
53. It is stated on page 9 that the underground infiltration systems will treat, attenuate and allow infiltration of the stormwater from this project. No evidence has been provided to support this statement.
54. It is further stated on page 9 that the channel protection volume will be met. This statement is not correct as the applicant has not proven that any infiltration will occur.
55. The applicant is using an infiltration rate of 0.52”/hour in the hydrologic model for the large and small underground detention systems. No field infiltration tests have been done by the applicant to support this value. Without infiltration, the claimed peak rate reductions are invalid. Additionally, the claimed compliance with the Channel Protection Volume is also invalid.
56. The outlet pipe for the smaller detention system is located 4.77’above the bottom of the crushed stone layer which is under the detention system. With no infiltration, the storage below the outlet invert at 273.1’ will always be full of water and thus not available which is the condition in the larger system.
57. The Water Quality Volume has been calculated along with the Water Quality Flow Rate, which is used to size hydrodynamic separators or similar systems. It has not been demonstrated that the water quality volume is being treated to reduce non-point source pollutant loads. Simply holding the water quality volume in a treatment system does NOT equate to providing treatment.
58. The Retain-it systems do require periodic maintenance, but as the bottom chamber is located approximately 19’ below grade, it has not been explained by the applicant how maintenance will be performed on these systems.

Please contact my office if you have any questions concerning this information.

Respectfully submitted,

Trinkaus Engineering, LLC



Steven D. Trinkaus, PE