ALP Engineering
& Landscape Architecture, PLLC

September 2, 2021

Nick Lee, Chair and Members of the Inland Wetlands Commission
Town of Wilton / Town Hall
238 Danbury Road
Wilton, CT 06897

Re: 141 Danbury Road
Wilton, CT

Third Party Review of Stormwater Management Plan

Dear Mr. Lee and Members of the Commission:

As requested by Michael Conklin, Director of Environmental Affairs, we have reviewed the documents that were provided for the above-named project that were submitted by the Applicant/Owner, FDSPIN 141 DR, LLC, in support of a Wilton Inland Wetlands Application for a Significant Regulated Activity.

The purpose of this report is to provide a third-party peer review of the development site and the submitted documents to determine if the submitted stormwater management plan addresses the potential impacts to the Norwalk River, neighboring properties and the public street.

This letter provides our preliminary comments on the stormwater management plan for the project.

General Comments and Recommendations:

1) The Engineering Report provides information on the results of soil borings which were conducted in 1992. With regard to this testing, we recommend that the developer provide the IWC with a map showing the location of the borings. Furthermore, we recommend that there be at least two percolation tests performed in the footprint of each of the four stormwater management practices being proposed (two areas of permeable pavement and two chamber fields). This information is needed at this time,

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rather than prior to the completion of construction documents, in order to assess how well the proposed stormwater management practices will function, and whether site design changes will be needed. We recommend that the percolation test hole be dug so that the bottom of the percolation test hole is at least one (1) foot below the elevation of the bottom of the practice.

2) The Soil Survey of the State of Connecticut notes two soils types on the property, Rippowam fine sandy loam and Urban Land. Rippowam soils are nearly level and occur in flood plains. Urban Land soils are "so variable that an on-site investigation is required to determine the suitability of the proposed use". Hence, the need for on-site soils testing. The Rippowam soils in the USDA mapping extend from the Norwalk River to about two-thirds of the distance along the northern property line. The prior development of the subject property has resulted in the modification of the soil profile of what likely was Rippowam soils into what is now classified as Urban Land. The Soils Survey notes that Rippowam fine sandy loam features a depth to a seasonal water table of 0 to 18", and that this shallow depth to the water table can occur in all parts of the year. It can also be greater than 6 feet during all months of the year. The concern here is that the proposed stormwater management practices will function as intended *only if the groundwater table is at least 3 feet below the bottom of the practice* as per the Connecticut Stormwater Quality Manual. If precipitation events during a season result in a high seasonal water table, then the proposed stormwater management practices will not function as intended since they or the soils below the practices would be saturated with water. Given that Rippowam fine sandy loam soils are subject to this high seasonal water table and it can occur throughout the year, it calls into question the ability of these practices to provide the peak rate attenuation and water quality improvement, and contribute to additional flooding in the Norwalk River.

3) We question the Tc flow path in the Existing Condition Watershed Map. Flow paths do not run perpendicular to the contour for EX-WS-01. For EX-SW-02, the sheet flow segment of flow, which is calculated to be 130 feet, appears to be much shorter before its conversion to shallow concentrated flow. Furthermore, using a sheet flow length of over 100 feet in the modeling methodology is not permitted unless the flow is across a planar segment of pavement. The effect of modeling of excessive and incorrect sheet flow lengths will be to increase the time of concentration with the resultant decrease in the peak rates of runoff. Using the shorter lengths of sheet flow will result in more accurate time of concentration calculation, and a higher existing condition peak rate of runoff.

4) We also question the Tc flow path in Figure WM-01, Proposed Watershed Map and Tc Flow Path. Please provide a full size sheet of the Existing and Proposed Watershed Maps showing the existing and future condition site grading, respectively, for review.

5) Given that the Northern Porous Pavement facility will be placed where the grade drops over 2 feet (from a surface elevation of just over 146 feet to just under 144 feet), and for the Southern Porous Pavement Facility the grade drop is proposed to be about 3.7 feet (from just over 146 feet to 142.3 feet), show on the plans the locations where the compacted clay and silt berms will be placed in the plans, or indicate that the porous pavement sections will be benched and a berm placed at each drop in the bench to promote infiltration. The water quality volume calculations and the porous pavement section detail need to take into account the grade change across the porous pavement facilities.

6) Show the locations of the proposed 6" underdrains within the ASTM No. 2 Stone Reservoir Course on the Stormwater Management Plan. Where will the runoff from these underdrains be conveyed. Show the location of the discharge of these underdrain pipes on the Stormwater Management Plan.

7) Provide a section through the Northern and Southern Porous Pavement Facilities which show the location of the drainage pipes from Infiltration System No. 1 and No. 2 through the systems. Will these drainage pipes from the infiltration systems impact the perforated underdrain pipes?

8) The western ends of the Northern and Southern Porous Pavement Facilities are very close to the mapped Rippowam fine sandy loam soils. Provide information that will demonstrate that these porous pavement facilities will not be impacted by a high seasonal groundwater table which would reduce the volume available for peak rate attenuation and prevent the treatment of the water quality volume since treatment of runoff pollutants is dependent on providing at least 3 feet of unsaturated soil below the bottom of the No. 2 stone reservoir course.

9) The flow path for CB-01 and CB-01A do not appear to correctly represent the actual sheet flow and shallow concentrated flow segments, and need to be revised. Flow paths do not run perpendicular to the contour for EX-WS-01. For EX-SW-02, the sheet flow segment of flow, which is calculated to be 130 feet, appears to be much shorter before its conversion to shallow concentrated flow. Furthermore, using a sheet flow

length of over 100 feet in the modeling methodology is not permitted unless the flow is across a planar segment of pavement.

10) The Engineering Report Stage/Storage Table for the North and South Infiltration Systems provide storage of runoff commencing at elevation 141.0 feet yet the details on sheet C-606 show a stone base elevation of 142.0 feet. This needs to be rectified to be consistent. Show on the section through the infiltration systems the inflow pipes into the chambers.

11) Provide pipe flow calculations to demonstrate that the proposed storm drainage system will be able to convey the anticipated flows. For one example, the rip rap apron discharge in Appendix I is designed to convey a flow of 9.14 cubic feet per second. However, the Hydrograph Return Period Recap for the Total Site Combined flows shows a peak rate of flow of 10.69 cubic feet per second for the 25-year storm and 17.35 cfs for the 100-year storm, in excess of the design flow.

If you should have any questions or comments regarding our assessment of the submitted plans and report, please feel free to contact us at (475) 215-5343.

Sincerely,

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Principal

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