

# kratzert, jones & associates, inc.

CIVIL ENGINEERS • LAND SURVEYORS • SITE PLANNERS

1755 MERIDEN-WATERBURY ROAD, BOX 337, MILLDALE, CONNECTICUT 06467-0337

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AN EQUAL OPPORTUNITY EMPLOYER - M - F

To: Mr. Don Nolte, Engineering Operations Manager  
Town of Cheshire  
84 South Main Street  
Cheshire, CT 06410

Re: Whispering Oaks application, 648 Wallingford Road

Date: July 19, 2021

The following responses in **bold** below are in response to comments in a letter dated June 10, 2021 for the above referenced application.

1. One soil test pit was conducted near the area of the proposed stormwater basin and revealed that the bottom of the proposed basin at elevation 305.2 is below the elevation of observed mottling therefore we expect it to be into the existing seasonally high groundwater. We recommend that it be a condition of approval that the construction of the stormwater basin be reviewed with town staff to determine if any design modifications are required based on field conditions at the time of construction. Available volume of storage for stormwater attenuation must only be included above groundwater elevation.

**Test pit #7 is at approximate elevation 306.8 with mottling (27-inch depth) at approximate elevation 304.5 and groundwater (40-inch depth) at approximate elevation 303.5. The modeled stormwater conditions should be appropriate and the applicant agrees to staff review and field modifications at the time of construction based upon conditions observed.**

2. Individual roof infiltration systems shall also be installed above observed mottling/groundwater elevations. The majority of the soil testing confirms general suitability, however, it is recommended that the proposed roof infiltration locations be reviewed by town staff during construction to confirm the suitability of the existing conditions.

**Agreed.**

3. Verify the proposed height of the sediment forebay riprap filter berm. There is a discrepancy between the detail and the water quality calculations. It appears that the sediment forebay is intended to be a permanent pool below the groundwater elevation determined by test pit #7. It is recommended that the hydraulic gradeline be reviewed for the proposed storm drainage pipe systems using the 10 year stormwater basin elevation as tailwater to ensure adequate clearance from structure grates.

**The intent of the rip rap filter berm is to allow for filtered drainage down to the general basin bottom elevation. The length of the rip rap filter berm has been increased to allow for better seepage area through the filter berm.**

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4. Please clarify what drainage area is included in the submitted Water Quality Volume (WQV) calculation. There are two areas of the site which do not drain to the stormwater basin, WQV calculations and associated treatment were not provided for these areas. Verify the volume that is available for treatment as submitted as the volume within the basin above the outlet pipe would not be appropriate for treatment.

**The attached WQV calculations separate the buiding and pavement imperviuos areas. The groundwater recharger units are to be increased to 8 units per location with 28 homes having the roof collection system. This will provide 6,944 cf of water quality volume exceeding the recommended volume of 6,820 cf.**

**For the pavement areas, the sediment forebay has been increased. An additional rip-rap filter berm is to be installed prior to the outlet to provide a depth of 9-inch to provide the water quality volume protected from the outlet pipe. The minimal paved areas not directed to the stormwater will have long sheet flow over grass filter strips for water quality protection.**

5. It appears that additional area will now drain to Wallingford Road and the existing pitch of the roadway in the area of the westernmost proposed access drive is very flat. We recommend that it be a condition of approval that the construction of the proposed intersection with Wallingford Road be reviewed with town staff during construction to determine if any design modifications are required to ensure that adequate flow be maintained in the north gutter of the roadway to theexisting catch basins to prevent any ponding of water.

**Sheet D-4 shows the detailed intersection grading plan with more than a 1-percent grade to the existing gutterline of Wallingford Road. Two catch basins have also been added to reduce surace flow to the gutterline.**

6. Please revise the location of the proposed tree between units 21 and 23 to allow access to the basin.

**The plans have been revised to eliminate the proposed tree at the basin access between units #16 and #18 (previous 21 and 23).**

7. A note should be added to the plans to ensure that the proposed grading in the rear of units 36, 38 and 40 continues to allow the off-site property to drain toward the subject parcel. A note should also be added along the eastern property line for the area in the rear of units #10, 12, 14 and 16 to ensure that this area is graded to direct stormwater flow to the north and south rather than toward this property line.

**Grading arrows and proposed swales are shown behind units #28, #29 and #30 (previous 36, 38 and 40) as well as behind units #9, #11, #13 and #15 (previous 10, 12, 14 and 16).**

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8. A note should be added to the plans to provide appropriate discharge of the footing drains and to prevent flow from directing toward the property lines.

**Grading Notes #16 and #17 on sheet G-1 grading plan are shown to address.**

**GROUNDWATER RECHARGE CALCULATIONS (GRv):**

$$GRv = (P) (D) (I) / 12$$

**P =** 1 90% Rainfall Event (in)

**D =** 0.25 Recharge Factor - Primarily Type C soils

**I =** 3.53 Impervious Area (acres)

**GRv =** 0.0735 Groundwater Recharge volume (ac-ft)

3,203 Groundwater Recharge volume (cf)

**PROPOSED:** 6,944 28 Homes with 8 SC-310 chambers per home at 31.0 cf per chamber

**WATER QUALITY CALCULATIONS (WQv):**

$$WQv = (1") (I) / 12$$

**I =** 1.88 Building Impervious Area (acres)

**WQv =** 0.1566 Water Quality volume (ac-ft)

6,820 Water Quality volume (cf)

**PROPOSED:** 6,944 Groundwater Recharge Units calculated above

**6,944 TOTAL**

**I =** 2.11 Pavement Impervious Area (acres)

**WQv =** 0.1762 Water Quality volume (ac-ft)

7,674 Water Quality volume (cf)

**PROPOSED:** 2,035 Sediment Forebay with bottom area of 362 sf at elevation 303.2' to top area of 1266 sf at elevation 305.7' (filter berm top)

1,132 Micro-Pool with bottom area of 485 sf at elevation 303.7' to top area of 1024 sf at elevation 305.2' (basin bottom)

5,041 Stormwater Basin with bottom area of 5,849 sf at elevation 305.2' and 9-inch depth of outlet rip-rap filter berm

**8,208 TOTAL**