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State of NJ Certificate of Authorization No. 276726

DRAINAGE CALCULATION FOR

CUTLER RESIDENCE

BLOCK 84.05, LOT 7

74 PINE TERRACE

BOROUGH OF DEMAREST

BERGEN COUNTY, NEW JERSEY

PROJ. NO. 23-2346

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Professional Engineer and Planner
August 18 , 2023

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FEB 08 2024

BY:MG.....

SEEPAGE PITS:

74 PINE TERRACE

BLOCK 84.05, LOT 7

BOROUGH OF DEMAERST

BERGEN COUNTY, NEW JERSEY

SEEPAGE PIT

Seepage pit storage: 1530 Gallons Peerless Concrete Products or approved or equal.

Pit:

$$1530 \text{ Gal} / 7.48 \text{ Ga./Cu. ft.} = 204.54 * 2 = 409.08 \text{ Cu. ft.}$$

Stone:

$$29 \times 16 \times 5.75 = 2668 \text{ cu.ft.}$$

$$\text{The outside diameter of Pit} = \frac{\pi}{4} * (10 \text{ ft.})^2 * 3 \text{ ft} = 235.62 * 2 = 471.24 \text{ Cu. ft.}$$

$$\text{Using 40 \% Void Ratio: } (2668 \text{ Cu. ft} - 471.24 \text{ Cu.ft.}) * (40\%) = 878.7 \text{ Cu. ft.}$$

$$\text{Therefore Total: Pit Storage} = 409.08 \text{ Cu. ft.}$$

$$\text{Stone Storage} = 878.70 \text{ Cu. ft.}$$

$$\underline{\text{Percolation}} = \text{Not consider}$$

$$\text{Total} = 1,287.78 \text{ Cu. ft.}$$

Stormwater Management Calculation:

Design Storm 100 year over 1 hour period = 3.00 inches/hour

AREA:

$$\text{Impervious Area} = 5155.18 \text{ sq.ft} = 0.118 \text{ ac}$$

$$C = 0.99$$

Volume of runoff:

$$Q = C * I * A$$

$$= (0.99) * 3 \frac{\text{inches}}{\text{hour}} * 0.118 = 0.35 \frac{\text{ft}^3}{\text{sec}}$$

$$\text{Volume in 1 hr} = 0.35 \frac{\text{ft}^3}{\text{sec}} * \frac{3600 \text{ sec}}{1 \text{ hr}} = 1,260 \text{ft}^3$$

Summary

Using Two (2)-1530 Gallons of pit with stone volume is **1,287.78 cu. ft** > **1,260 Cu. ft** volume required.