

MEMORANDUM

TO: Ashley Neale, Board Secretary
FROM: Sean Savage, P.E.
SUBJECT: Bioretention Basin Permeability Memo

DATE: June 14, 2023
PROJECT NO.: 19-720
PROJECT NAME: 1 Sunset Avenue

Per the Township of Verona Engineer's review letter dated June 6, 2023, below are the calculations for the estimated drain time of the soil bed and subsoil of the proposed Bioretention Basin in accordance with Chapter 9.7 of the NJDEP BMP manual.

Basin C

Volume of Runoff (WQ storm): 0.007 af (304.92 cf)
Infiltration Area (sf): 2,145 sf
Permeability rate (in/hr): 1 in./hr.

$$\text{Infiltration Rate} = \frac{(2,156 \text{ sf})(1 \text{ in./hr})}{(12 \text{ in./hr})} = 179.67 \text{ cf/hr}$$

$$\text{Drain Time} = \frac{(304.92 \text{ cf})}{(179.67 \text{ cf/hr})} = 1.69 \text{ hours}$$

Since 1.69 hours is less than the allowable maximum drain time of 72 hours, the small-scale bioretention system meets the drain time requirements.