

STORMWATER MANAGEMENT REPORT NARRATIVE

79 Hill Street – Lot 11

July 12, 2023

Revised: July 18, 2023

I. Executive Summary

The applicant, Paul Daniels, is proposing to develop the parcel located at 79 Hill Street (Lot 11). This includes the construction of a new single-family dwelling, driveway and patio as well as a new septic system, utilities and stormwater management system. The proposed project will create approximately 10,217 square feet of new impervious area on the site. The parcel is shown on Assessor's Map 68 as a portion of Lot 14 and is located within the Outlying Residential & Agricultural (IRA) Zoning District.

II. Existing Site Description

The development parcel is situated at 79 Hill Street (Lot 11) and has an aggregate land area of 1.95 acres. The property is currently undeveloped and consists of wooded and lawn areas. Soil conditions are sandy loams and fine sandy loams on top of gravelly sandy loams, which were confirmed through soil testing in the vicinity of the proposed septic system. The surface runoff from the project area flows from the northeastern side of the site to the southwestern side of the site. There are no one site wetland resource areas or associated 100' buffer zones.

According to the USDA Soils Conservation Services Soil Resource Report, soils in the area of the proposed work are classified as Paxton fine sandy loam (306B) classified as Hydrologic Soil Group "C", and Woodbridge fine sandy loam (310B) classified as Hydrologic Soil Group "C/D". The site is located within the Topsfield, MA Map of Areas of Severe Soil Limitations and is shown as an area considered to be severe-slow perc. Percolation rates from testing on September 1, 2022 in the area of the proposed septic system measured 27 minutes per inch.

The site is shown to be in a Zone "X" (area determined to be outside the 0.2% chance floodplain) on the FEMA Federal Insurance Rate Maps (FIRM) #25009C0402F, dated July 3, 2012. The parcel is not mapped within a Natural Heritage estimated habitat of rare wildlife, certified vernal pool, or priority habitat of rare species.

III. Proposed Site Description

The proposed project will include the construction of a new house, patio, paved driveway, a septic system, and the installation of utilities. The dwelling will be served by the municipal water distribution system located in Hill Street. As previously stated, the project will create approximately 10,217 square feet of new impervious surfaces. Approximately 75,500 square feet of the lot will be disturbed as a result of the proposed development. The project falls under the jurisdiction of the Town of Topsfield Stormwater and Erosion Control Regulations.

IV. Stormwater Best Management Practices

- **Trench Drain:** A portion of the proposed paved driveway will be directed to a trench drain located along the western edge of the driveway. Stormwater will be collected in the drain and will direct runoff through a sediment trap (with 4' sump section and hooded outlet pipe) to a subsurface recharge system on the southern side of the lot.

- **Deep Sump Hooded Catch Basin:** A portion of the proposed paved driveway will be directed to a catch basin located at a low spot off the southern edge of the driveway. The catch basin will have a 4' sump section and hood over the outlet pipe. Stormwater will be collected in the basin and will direct runoff to a subsurface recharge system on the southern side of the lot.
- **Subsurface Recharge Systems:** Two 2-unit Cultec 330XLHD recharge systems will be placed in fill areas in the southern portion of the property. Runoff from the proposed driveway and dwelling roof will be directed to these systems. The recharge systems will provide the required groundwater recharge volume for the site. The applicable calculations are provided on the Stormwater Management Plan.

The proposed stormwater management system is designed to provide sufficient storage for the groundwater recharge volume based on proposed impervious coverage. This approach has previously been approved as an acceptable method for stormwater management for single-family house lots in Topsfield. The project consists of the construction of a single-family dwelling, which is considered to be exempt from the requirements of the Massachusetts DEP Stormwater Management Policy and Stormwater Standards. Since it is considered exempt the requirements that consider the 2, 10, and 100-year 24 hour storm events do not apply to the project.

Areas not flowing to the stormwater BMPs will directed overland across at least 100' of pervious ground cover prior to discharging offsite. The estimated seasonal high water table (E.S.H.W.T.) used to design the stormwater management system is conservatively assumed to be 21" (based on test pit TP 16-7). Soil testing in the vicinity of the septic field showed this to be the shallowest observed E.S.H.W.T.

V. Erosion and Sedimentation Control

To manage the on-site sedimentation control during construction a proposed silt sock shall be placed along the downstream limit of work for the driveway, dwelling, septic system and associated site grading (see Stormwater Management Plan for location) prior to the commencement of construction activity. The integrity of the erosion control barrier will be maintained by periodic inspection and replacement as necessary. The erosion control barrier will remain in place until all the disturbed areas have been paved or loamed and seeded and vegetation has been established. Construction stockpile areas will be provided in locations determined by the site contractor upstream of the erosion control barrier. Operations and Maintenance Plans for the construction phase (Construction Period Pollution Prevention Plan) and long-term operation (Long Term Stormwater Best Management Practices Operation and Maintenance Plan) of the site have been included with this letter.