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ENGINEERING: *PLANNING*
DESIGN
PERMITTING

SEPTIC SYSTEM DESIGN
SITE PLANNING and DESIGN
SUBDIVISION DESIGN

Preliminary Stormwater Summary

Prepared For:
Garden Life LLC
Lizette and Tim Sliter

On property located at:
431 Shaker Street
Tax Map 111, Lot 15
New London, New Hampshire

October 10, 2023

Blakeman Engineering, Inc. (BEI) has been retained to prepare plans and analysis for stormwater management of the work that is ongoing at the above-noted property. This work is in support of operations for the owners company (Garden Life LLC) and has included the conversion of existing woodlands to field/pasture area, plant and product storage, staging/parking and similar low-impact uses. It was determined subsequent to this work being completed that a NHDES (NH Dept of Environmental Services) Alteration of Terrain (AOT) approval is necessary and BEI will be preparing that. The intent of this preliminary summary is to provide a brief overview of initial findings and of the AOT process.

> *Property Description:* The Sliter property totals approximately 22.2 acres with road frontages on Shaker Street and Mountain Road (westerly and southerly sides of property, respectively). The easterly side of the property is bounded by a relatively wide stonewall, certain sections being 3-4' wide. There is approximately 18.2 acres in a Conservation Easement and 4 acres for house and yard. Most of the property is pretty gently sloping in a general northerly to southeasterly direction. The property in 2016, when it was purchased by the Sliter's, was primarily wooded along with the house and lawn/yard. Presently, the property outside of the house site, is a mix of woodland, orchard and field with the southeasterly corner containing parking and storage area that supports the owners company.

A pre-application meeting with NH DES, held this past summer, confirmed that an application should be filed with them. The AOT application/permitting includes an intensive analysis comparing conditions pre- and post-development (Note: the term 'development' essentially covers any work disturbing the ground surface). The land disturbance threshold triggering the need for an AOT permit is 100,000 SF (about 2 ¼ acres) and the conversion of forest-to-field is counted towards that number. Therefor the pre-development conditions reach back to when the property was purchased by the Sliter's which places the baseline for stormwater analysis at the time when work started and land disturbance begun.

I've reviewed site conditions several times over this past summer. My focus up to this point has been from the field area northeast of the owner's house to the stonewall boundary between their property and abutting properties east, and southerly along this wall to Mountain Road. The field areas are presently well-established. There is an approved driveway from Mountain Road extending several hundred feet into the property to the area used for staging & parking, material storage and the stockpiling of excess loam and stones left over from the field conversion. The loam stockpile at that time appeared to be fully stabilized with vegetation and I did not observe any erosion or rills coming off the sides of it.

<u>*AOT Drainage Analysis:*</u> The drainage analysis divides the property into sub-areas that drain towards discharge points along the property boundary that can be evaluated for the pre- and post-development conditions. While the conversion from woodland to field will generally have a slight impact on storm flows, the drainage off of impervious surfaces tend to have a greater impact and can require a more thoughtful approach to managing the water. There also typically needs to be a treatment component to the water management from certain impervious surfaces. Practices such as bioretention, more commonly known as rain gardens, can often be used to manage peak water flows while also providing water quality treatment. Impervious surfaces such as building roofs are generally regarded as less of a treatment concern and can be managed with practices such as roof-line (drip-edge) infiltration trenches. These practices are all quite site-specific and looked at very closely during the AOT review.

Furthermore, while the specifying of certain BMPs is central to managing stormwater, AOT permitting also requires the development of an Inspection & Maintenance Manual for these same practices to ensure that they are properly managed over time and continue to function as designed. All these measures get designed and installed in accordance with the "*New Hampshire Stormwater Management Manual*", Volumes 2 and 3, December, 2008, as may be revised.

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Following the pre-application meeting with NH DES, we began the process of pulling together some of the supplementary documents that will be required for the application. Amongst other things this included a datacheck through NH Natural Heritage Bureau for known occurrences of threatened and/or endangered species. Their finding was that they currently have no recorded occurrences for sensitive species near the project area.

Also, as noted above, I have been on-site reviewing site conditions at various times over this past summer checking for problem areas on which I could offer specific remedial recommendations. I found no obvious areas where I felt stormwater was causing negative impact along the boundary adjacent to the stockpiles and storage areas. I did observe one area where concentrated storm flow created a short, eroded gulley above the stonewall and towards the adjacent Lot 111/008 (Tim and Diane Center). This was in an area where the Sliter property appeared to historically drain towards and my assumption is that erosion occurred here after the field was created and prior to vegetation being established. This would have been when the ground surface was in its most vulnerable condition and appears to have been fixed to the neighbors satisfaction. This spot will also be utilized as an Evaluation Point for the pre/post drainage analysis.

One other location to be utilized as an Evaluation Point for the drainage analysis is near the southeasterly terminus of the stonewall (the boundary wall between Sliter and Poliseno) at Mountain Road. This appears to be a small wetland straddling the stonewall near Mountain Road. This too appears to be a location where water has historically crossed between the two properties but does not appear to have a defined channel crossing the stonewall.

Respectfully Submitted,
Blakeman Engineering, Inc.

Peter J. Blakeman

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LICENSED
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