CMA ENGINEERS

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January 11, 2022

Barrington Planning Board
Attention: John Huckins and Barbara Irvine
P.O. Box 660
333 Calef Highway
Barrington, NH 03825

Re: Meadowbrook Village Conservation Subdivision Review #2
44 Meadowbrook Drive
Map 270, Lot 2 & 3, Tax Map 273 Lot 49
Owner: 21 Boylston Street, LLC
CMA # 1205 Task 7

Dear Members of the Barrington Planning Board:

At the Town's request, and in accordance with Task Order 7 of our engineering services agreement, CMA Engineers reviewed materials supporting the development of a proposed 11-unit conservation subdivision off Meadowbrook Drive in Barrington. At the request of the Town, CMA Engineers focused the review on the site drainage and stormwater management.

Background

The proposed site plan was presented to the Barrington Planning Board by Jones and Beach Engineers, LLC on behalf of 21 Boylston Street, LLC. The proposed development is accessed off existing Meadowbrook Drive via a 690-foot cul-de-sac. The project is a conservation subdivision consisting of eleven building lots (one unit is existing). Individual water supply wells and septic systems are proposed for each lot. For fire suppression, the applicant proposes a cistern installation at the center of the cul-de-sac.

On December 9, 2021, we submitted a review comments letter to the Board for consideration. Subsequently, Jones and Beach modified the plan set, dated December 23, 2021, they submitted it for review on January 5, 2022. This is our second review for the project, and it focuses on the modified plan.

The modified/amended project design maintains a relatively simple stormwater management system. Components of the system include grass-lined swales and a piped roadway culvert crossing to collect and transmit stormwater to two parallel vegetated treatment swales that flow into a detention basin. The

applicant is proposing a drainage easement for the vegetated treatment swales, detention basin, and outlet structure.

The applicant is proposing to install portions of the drainage pipe, detention basin, and associated riprap within wetland buffers, but there are no impacts to wetlands themselves. The applicant has applied for a special permit for construction in the wetland buffer, and the proposed use is an allowable use. For this evaluation, we reviewed the following information:

1. *Response Letter dated January 5, 2022*
2. *Plan set dated August 23, 2021, revised December 23, 2021 (20 sheets)*
3. *Drainage Analysis Erosion and Sediment Control Plan August 19, 2021, Revised December 23, 2021*

We have reviewed the submitted drawing set and drainage analysis for conformance with the Town of Barrington, NH Site Plan Review Regulations, which reference guidance documents that have been superseded by the New Hampshire Stormwater Manual including Best Management Practices (BMP), which in turn reference the NHDES Administrative Rule Chapter Env-Wq 1500 Alteration of Terrain (AoT) Regulations. While this project may not require an NHDES AoT permit, the performance standards of the Stormwater Manual have been assumed to apply based on current applicable practices for land development.

Review of Drainage Analysis

The drainage design uses grass-lined swales along the roadway, with a roadway crossing culvert pipe to convey runoff to a vegetated treatment swale that discharges stormwater into a detention basin. The detention basin has a discharge pipe that outlets to a riprap swale.

The proposed drainage system utilizes elements of BMPs to hydraulically limit peak post-development flows to below pre-development levels. The current NHDES Stormwater Manual also requires stormwater treatment by BMP installations. The applicant is now proposing that the parallel vegetated treatment swales be used for treatment. In concept, the application has merit and should be workable. However, there are no calculations provided that demonstrate how the vegetated treatment swales provide treatment as a BMP; this information should be provided.

In addition, there are no inlet controls shown that direct stormwater evenly to both treatment swales. Without inlet controls, it is likely that the swales may not receive equal amounts of stormwater and inlet capacity may be affected by construction. We suggest the applicant consider adding a forebay that is stabilized with fabric and riprap to provide elevation control for splitting the flow evenly to each swale. In addition, we reiterate the following minor comment on the Drainage Analysis and Sediment Control Plan:

1. Detention Basin #1 Detail on Sheet D3 shows the HDPE pipe out located below the bottom of the pond schematically (the invert elevation of 176.00 for the pipe and pond bottom is correct).

Should you have any questions, please do not hesitate to contact us.

Sincerely yours,

CMA ENGINEERS, INC.

Jodie Bray Strickland, P.E.
Senior Project Engineer

William A. Straub, P.E.
Principal

cc Barry Gier, P.E.