



February 1, 2023

Vanessa Price, Town Planner
P.O. Box 660
4 Signature Drive
Barrington, NH 03825

**Re: Bending Brook Residential Development Review #2
Mallego Road
Map 239, Lots 34 & 35
Owner: Paul Guptill
CMA # 1205 Task 23**

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Dear Vanessa:

At the Town's request, and in accordance with Task Order 23 of our engineering services agreement, CMA Engineers reviewed materials supporting the development of a 17-unit conservation residential subdivision on Mallego Road.

BACKGROUND

The proposed residential subdivision plan was presented to the Barrington Planning Board by Beals Associates, PLLC on behalf of Paul Guptill. The project includes 17 single-family home lots and 26.7 acres of open space. Site access is via a proposed roadway from Mallego Road; however, two of the lots have their frontage on Mallego Road and are accessed via private drives from Mallego Road. Individual water supply wells and septic systems are proposed for each lot. There is a proposed cistern for fire suppression. The site is in the Village District.

There are wetlands on site, and there are no proposed wetland impacts. Stormwater treatment includes drainage swales and closed piping that discharge to sediment forebays and a bioretention pond. There are also proposed piping and drainage structures to allow for future Town tie-ins to the stormwater system.

For this evaluation, we reviewed the following materials:

- 1) Engineering response letter dated January 17, 2023.
- 2) Stamped Test Pit Logs dated 7/29/22, 9/21/22 and 11/21/22.
- 3) Filtration Practice Design Criteria worksheet.
- 4) Subdivision Waiver Request – roadway length and maximum road grade for first 100'.
- 5) Plan set entitled Bending Brook Residential Development, Tax Map 239, Lots 75, Mallego Road, Prepared by Beals Associates, PLLC last revised January 17, 2023.
- 6) Stormwater Management and Sediment Erosion Control Plan, prepared by Beals Associates, PLLC, dated November 14, 2022 revised January 17, 2023.
- 7) Watershed plans prepared by Beals Associates, PLLC, dated November 2022.

We reviewed the submitted information listed above for conformance with the Town of Barrington, NH Site Plan Review Regulations, which reference guidance documents that have been superseded by the New

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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.

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ZONING REGULATIONS

Article 6. Conservation Subdivision

- 6.2.6 On the Subdivision Plan, the 100-ft perimeter buffer is shown; however, it does not appear the two lots accessed off Mallego Road meet this requirement. Please address. **The applicant submitted an ZBA variance application.**
- 6.3.5 The applicant shall provide details of the Homeowner's Association. **The applicant is proposing to submit HOA documents as a condition of approval. Is this acceptable to the Board?**

SUBDIVISION REGULATIONS

Article 10. Conservation Subdivisions

10.6. Ownership and Maintenance of Common Facilities and Open Space

The applicant should provide the Town with information regarding the proposed Homeowner's Association in accordance with the Ordinances. **The applicant is proposing to submit this as a condition of approval. Is this acceptable to the Board?**

Article 12. Road Design & Construction Standards

12.2.1 Road Design Standards

Roads located in the Village District should incorporate additional features such as trees, planting strips, buffer vegetation, buffers/pathways, etc. in accordance with Figure 4C. Some of these features are not proposed. **The applicant states that the developed portion of the site is far away from the existing road and very low in elevation and will not be seen and that they are providing a recreation trail for snowmobile club and parking for access to the open space and the brook. The applicant has also provided a 4' shoulder on each side of the roadway that meets walkway requirements. There are proposed trees (2 per lot) but there are no proposed plant strips. Are the proposed trees acceptable to the Board in lieu of plant strips? (We understand that the Town is not requiring sidewalks on this project).**

The length of roadway to the cul-de-sac is under 1000 ft feet and meets the Town ordinance requirements. The applicant has applied for a waiver, but none is needed.

12.8 Road Construction Standards

12.8.2 Pavement

On sheet 20, Typical Cross Section Detail, the pavement mix design and installation shall meet the requirements of this section. Update detail accordingly. **The detail is missing information with respect to number of gyrations, minimum binder content, temperature, tack coat, etc. that should be shown to confirm conformance with Town regulations. The Town's pavement regulation is not a standard NHDOT Superpave pavement design.**

12.8.4 Loaming and Seeding

Slopes and ditches require the use of erosion control matting; however, none is shown in the details and notes. Erosion control matting should be added to all slopes to ensure slope stability.

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- 12.8.7 For the underdrain pipe, the depth of cover on the Typical Cross Section and Underdrain Details are in conflict. The Typical Cross Section should specify a depth of cover equal to 3.5 ft to match the Underdrain Trench Detail.
- 12.8.13 Data Requirements**
- 12.8.13(2)(d) All centerline data should be shown. **The applicant provided horizontal curve data but did not include tangent bearing and lengths.**
- 12.8.13(2)(f)(g)(h) Roadway cross sections should be provided. **Roadway cross sections have been provided. Underdrain and other underground utilities should be shown in the appropriate cross sections.**
- 12.8.13(2)(q) Provide utility locations. **The applicant did not provide the location of underground utilities or shown them in the Typical Cross Section but states these are subject to Utility company review. Is this acceptable to the Board?**
- 12.8.13(2)(s) Provide a detailed engineer's estimate of construction cost. **The applicant indicates that a construction estimate will be provided as a condition of approval. Is this acceptable to the board?**
- 12.8.13(2)(t) Provide a notarized letter fixing the legal responsibility for maintenance of the streets. **The applicant states that this item will be discussed with the Board.**
- 12.8.13(2)(v) Provide general notes for inspections. **A note on inspections has been added to the plan set, but the Applicant should be aware that a pre-construction meeting will be held to review procedures, identify responsibilities, and discuss town requirements.**

Article 14. Utility Design Standards

14.1 Utility Structures

Can you provide the location of underground utilities? An installation detail is provided, but their location relative to the roadway is not shown. Do utility companies require easements for their facilities (i.e. transformers)? **This comment was not addressed.**

14.2 Utility Easements

All easements dedicating rights to the Town of Barrington shall be not less than 25 ft wide, have satisfactory access, and be shown on the plans. **Easements should be shown, labeled, and dimensioned.**

Article 15. Subsurface Sewage System Design Standards

Each lot in the subdivision shall include a subsurface sewage disposal system. The plan set should show a 4,000 square foot leaching system reserve area and system details that comply with State/Town regulations. **The test pit symbol and leaching system reserve areas hatching should be included in the legend.**

Article 17. Landscaping, Recreation and Open Space Standards

17.1. Landscape Objectives

- 17.1.2. Street trees are required for roads constructed without shade in the summer. Trees shall be planted on both sides of the road at a spacing of 30 to 40 feet, have a caliper of at least 3 inches at a point 6 inches above the root ball, and be a hardwood species. **The applicant proposes planting 1 to 2 trees per lot outside of the right-of-way. Are the proposed trees acceptable to the Board in lieu of plant strips?**

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STORMWATER MANAGEMENT & SEDIMENT AND EROSION CONTROL PLAN:

We have the following comments that relate to the stormwater management plan:

1. The Stormwater Management Plan describes that a future tie-in by the Town is anticipated and provides structures and piping for this tie-in; however, it is not clear that the additional stormwater flows associated with the tie-in are accounted for in the stormwater model. Applicant should coordinate with Town's project engineer for additional flow information. **The applicant states that estimated flows have been used for the sizing of the pond and piping but it is not clear if/how the Mallego Road stormwater is included in the drainage model, and in particular the 24-in drainage pipe sizing. Please provide a basis for the pipe size. We note the bioretention basin appears to have adequate capacity to account for the Mallego Road stormwater.**
2. The eastern/western sediment forebays should be sized/constructed to include the Mallego Road stormwater, but we understand this information has been unavailable. Recently, the Town tasked us with determining the watershed area and percent impervious for its inclusion in the NHDES's Filtration Practice Design Criteria worksheet to size the sediment forebays. We will have this information to you soon. Additionally, a worksheet should be provided for the eastern sediment forebay for its sizing. Once updated, both sediment forebays should be updated and dimensioned on the plans.
3. An Alteration of Terrain Permit is required for this project and should be provided to the Town. **The applicant states this will be provided to the Town.**
4. The proposed drainage system to be accepted by the Town includes pipes with a design slope of 15 percent. **The applicant has provided confirmation from the pipe manufacturer that this slope, and the resulting flow velocities, is satisfactory. The applicant states that the actual velocities are unknown until the design is finalized by the Town engineer.** In addition, if high water velocities, how does this affect the receiving manhole structure? **The applicant has not addressed this question.**
5. The zoning requirements should be removed from the watershed plans.

PLAN SET:

1. Title Sheet
 - a. In the Sheet Index, the title of Sheet #19 is Highway Access Plan. Please update.
2. Sheet 12 -- Overall Site Plan
 - a. Correct spelling in Note 9.
 - b. We understand the applicant is presenting an updated plan showing the recreation trail (not shown), snowmobile trail (shown), and a trail to be removed (not shown). The plan should be updated with this information.
 - c. If the updated Proposed Relocated Rec. Trail shown in the current plan is only for snowmobiles, it should be designated as such.
3. Sheet 13 and 14 -- Site Plan
 - a. We understand the applicant is presenting an updated plan showing the recreation trail (not shown), snowmobile trail (shown), and a trail to be removed (not shown). The plan should be updated with this information.
 - b. If the updated Proposed Relocated Rec. Trail shown in the current plan is only for snowmobiles, it should be designated as such.
4. Sheet 15 -- Plan & Profile -- P1

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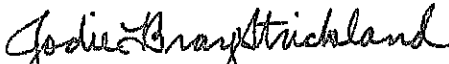
- a. Subdivision Regulations Section 12.7-Intersection Design Standards, Table 2, requires the first 100 ft of the roadway to have a 2% max slope, but the vertical curve starts at STA 0+75, so this requirement is not met. **The applicant states that the Planning Board desired to keep the 8% grade away from the horizontal curve and that there is an adequate platform provided. The applicant has requested a waiver from this standard, and this is a reasonable request.**
 - b. In the profile view, the underdrain depth shown should be updated to match the 3.5 ft of cover shown in the detail.
5. Sheet 16 - Plan & Profile – P2
- a. There is a discrepancy between the culvert locations shown in plan view when compared to the profile view. Please update.
 - b. Culverts should be labeled on the profile (culv 3, culv 4).
 - c. The roadway profile has a sag vertical curve with a low point at Sta 8+83. How is stormwater being collected, and removed for the roadway, to prevent ponding? **The applicant states that since there is no curbing, run-off simply drains into the roadway swale. The applicant should address conditions when there are snowbanks from plowing block runoff from getting into the swale. Typically, drop inlets would be installed to discharge ponded directly to the swale.**
6. Sheet 17- Plan & Profile P3
- a. Bioretention Basin Details.
 - i. Are both the Bioretention Pond Profile Detail and Bioretention Section necessary? If so, they should match.
 - ii. What are the dimensions of the sediment forebays?
 - b. The slope, size and material of the drainage pipes should be shown on the profile.
 - c. The rim and invert elevations for the drainage structures should be shown on the profile.
 - d. We reiterate our previous comment that DMH #5 should be a catch basin with a sump, so it can capture and treat roadway stormwater. We believe that this should be determined during this phase of the project not during the Town's roadway upgrade as described by the applicant.
 - e. See comment on Regulation 14.2 – Utility Easements
7. Sheet 17- Plan & Profile P4
- a. The slope, size and material of the drainage pipes should be shown on the profile.
 - b. The rim and invert elevations for the drainage structures should be shown on the profile.
 - c. We reiterate our previous comment that DMH #9 should be a catch basin with a sump, so it can capture and treat roadway stormwater. We believe that this should be determined during this phase of the project not during the Town's roadway upgrade as described b by the applicant.
 - d. See comment on Regulation 14.2.– Utility Easements
8. Sheet 19- Highway Access Plan HI
- a. The sheet title does not match the sheet index on the Title Sheet. Please correct.
 - b. There are leaders at the roadway entrance that indicate vegetation to be cut back for a safe sight distance of "350 ft both sides" (right side of roadway) and 400 ft (left side of roadway). Please clarify.
9. Sheet 20 – Construction Details D1
- a. Deciduous Tree Planting Detail
 - i. The detail should include the proposed tree species and dimension the tree to show compliance with the 3-in DBH at 6 inches above the root ball regulation requirement.
 - b. Typical Cross Section Detail

- i. The right-of-way should be dimensioned on the Typical Cross Section.
 - ii. See pavement comment for Regulation 12.8.2.
10. Sheet 23 and 24– Road Cross Sections
- a. The underdrain and underground utilities should be included in the cross sections.

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



Josh Bouchard, P.E.
Project Manager

Cc: Christian Smith, P.E., Beals Associates

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