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June 14, 2022

Hopedale Planning Board
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**Subject: Hopedale Ridge
Overdale Parkway
Definitive Subdivision Plan Review**

Dear Planning Board Members:

We received the following documents on March 18, 2022:

- Plans entitled Hopedale Ridge, A Definitive Subdivision Plan on Overdale Parkway in Hopedale, MA 01747 dated February 11, 2022, prepared by Allen Engineering & Associates, Inc. for Black Brook Realty Corp., Ricardo Lima, and Hopedale Select Board. (8 sheets)
- Document entitled Drainage Analysis for "Hopedale Ridge", 10 Lot Subdivision in Hopedale, MA 01747 dated February 11, 2022, prepared by Allen Engineering & Associates, Inc. for Ricardo Lima, Black Brook Realty, and the Town of Hopedale.
- Correspondence with attachments from Allen Engineering & Associates, Inc. to Hopedale Planning Board dated February 11, 2020 (sic), Re: Hopedale Ridge – Definitive Subdivision.

Graves Engineering, Inc. (GEI) has been requested to review the plans and supporting materials for compliance with Sections 8 and 13 of the Zoning By-Laws, Town of Hopedale, Massachusetts, dated August 24, 2014, the Rules and Regulations Governing the Subdivision of Land, Planning Board, Hopedale, Massachusetts dated May 1976, the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook and standard engineering practices. GEI was authorized to proceed with this review on May 19, 2022. As part of this review, GEI performed a reconnaissance site visit on June 7, 2022.

Our comments follow:

Zoning By-Law

1. GEI has no issues relative to compliance with the Zoning By-Laws except as noted in the following comment.
2. The parking spaces for the proposed 12-space parking lot scale to 9 ft. x 18 ft (the dimensions are not currently specified). Per the by-law, the minimum standard dimensions are 9 ft. x 19 ft. (§8.1.a & §8.1.b)

Subdivision Rules and Regulations

3. The plans propose private septic systems for each lot instead of sanitary sewer lines in the public way. The results of percolation tests and water table information need to be provided. (§III.C.2.o)

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WASTEWATER | STORMWATER | WATER | SITE DEVELOPMENT | SURVEYING

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4. The plans propose a roadway width of 20 feet instead of 30 feet. The existing roadway width in the vicinity of the project is approximately 20 feet. Considering the width of the existing roadway, GEI does not have an issue with the proposed width of 20 feet. GEI defers further consideration of the pavement width, if any, to the Planning Board. (§IV.A.2)
5. The plans propose overhead electrical wires as an extension of the existing overhead wires on Overdale Parkway instead of underground utilities. In GEI's opinion, it would be prudent to provide underground electrical and communications utilities rather than overhead utilities. GEI defers to the Planning Board regarding this matter. (§IV.F)
6. The plans do not currently propose fire hydrants or fire cisterns. It is GEI's understanding that Overdale Parkway does not currently have a water main or fire hydrants, and the Hopedale Fire Department has reviewed the plans and stated it has no issues regarding public safety. GEI defers further consideration of this matter, if any, to the Planning Board. (§IV.J)
7. GEI understands the proposed compacted 1" thickness of top course bituminous asphalt is per the regulations. Nevertheless, GEI recommends a minimum thickness of 1.25" for ease of construction and durability. (§V.B.5)
8. The plans need to include proposed trees along the roadway. Trees can't be planted in the right-of-way where a roadside swale is proposed. Consideration could be given planting trees outside the right-of-way in the temporary construction easement wherever existing trees are removed. For example, Sheet G-1 shows earth cuts on Lots 3, 4, 5 and 6, and earth fills on Lots 9 and 10 that will require tree removal. (§V.G)
9. The plans do not propose any street lighting. Consideration should be given to providing a streetlight at the cul-de-sac adjacent to the parking area. (§V.H.4)

Hydrology & Stormwater Management Review

10. GEI reviewed the hydrology computations and found them to be in order except as noted in the two following comments.
11. The modeling of Subcatchment 8S (shown as Subcatchment 9S on the Proposed Drainage Plan) needs to be reviewed by the design engineer. GEI estimated the total area of this subcatchment to be approximately 67,000 square feet but the subcatchment was modeled as having 42,282 square feet. Also, the Proposed Drainage Plan will have to be updated to be consistent with the hydrology model relative to Subcatchments 8 and 9.
12. The modeling of the infiltration basin's outlet control structure needs to be revised for the following reasons:
 - a. The 8" diameter opening was modeled in the horizontal plane instead of the vertical plane.
 - b. The grate at the top of the structure (at elevation 495.00) was modeled twice.
 - c. The grate at the top of the structure was modeled in the vertical plan instead of the horizontal plane.
 - d. The top of the outlet control structure is proposed to be elevation 495.00. The top slab of a drainage structure such as this is typically 8" thick, so the bottom of the top slab will be elevation 494.3+/- . Approximately half of the 12" diameter orifices proposed at elevation 493.75 will be blocked by the top slab.

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13. Compliance with the MassDEP Stormwater Handbook is reasonable except as noted in the five following comments.
14. In the infiltration basin, there needs to be at least one (1) foot of freeboard as measured from the 100-year peak water surface to the top of the impoundment. As modeled in the hydrology computations, there will only be 0.31 feet of freeboard.
15. The infiltration basin needs to have an emergency spillway.
16. Information on Sheet G-1 of the plans shows the infiltration basin's outlet pipe to have a slope of 0.083 (although in the hydrology computations the pipe was modeled with a slope of 0.735). The pipe slope is too steep and will result in excessive water velocities. The slope of the pipe needs to be reduced such that the water velocity will not exceed 10 feet per second.
17. Access to the infiltration basin on Lot 10 is proposed along the side of a 3H:1V (33%) slope; the access is too steep and will not be usable by maintenance equipment. Grading on the access way needs to result in a cross slope no greater than 4%.
18. For adequate total suspended solids (TSS) removal, the Concrete Drop Inlet construction detail on Sheet D-1 needs to be revised to provide a four-foot-deep sump instead of a two-foot deep sump.

General Engineering Comments

19. GEI understands the proposed 12-space parking lot will serve as public parking for visitors to the adjacent Hopedale Parklands. If so, the parking lot requires accessible parking in accordance with the Massachusetts Architectural Access Board.
20. On Sheet G-1, the pipe information (slope, length) for the proposed drainage system should be included.
21. A construction detail for the surface treatment and gravel base of the proposed 12-space parking lot needs to be included in the plans
22. A construction detail for the proposed concrete headwalls needs to be included in the plans.
23. On Sheet G-1, the proposed limit of clearing currently passes through the proposed infiltration basin and needs to be revised.

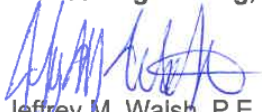
General Comments

24. On Sheet L-1, the professional land surveyor's statement needs to reference the Town of Hopedale instead of the Town of Upton.
25. Sheet G-1 shows the infiltration basin extending onto Lot 9. Sheet L-1 needs to be revised to include the proposed grading, drainage, and access easement on Lot 9.

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We trust this letter addresses your review requirements. Feel free to contact this office if you have any questions or comments.

Very truly yours,
Graves Engineering, Inc.



Jeffrey M. Walsh, P.E.
Principal

cc: Mark E. Allen, P.E.; Allen Engineering & Associates, Inc.