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PLANNING BOARD
GRAFTON, MA

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July 19, 2016

Joseph Laydon
Town Planner
Grafton Municipal Center
30 Providence Road
Grafton, MA 01519

Subject: **Estates at Bull Meadow, Appaloosa Drive**
Definitive Plan Review

Dear Joe:

We received the following documents in our office June 13, 2016:

- Correspondence from McCarty Engineering, Inc. to Town of Grafton Planning Board dated June 10, 2016, re: Definitive Subdivision, Estates at Bull Meadow.
- Plans entitled Definitive Conventional Subdivision Plans; Estates at Bull Meadow; North Grafton, Massachusetts dated June 10, 2016, prepared by McCarty Engineering, Inc. (25 sheets)
- Bound Document entitled Drainage Report: Estates at Bull Meadow Definitive Subdivision, North Grafton, Massachusetts dated June 10, 2016, prepared by McCarty Engineering, Inc.
- Waiver Request Form for Estates at Bull Meadow-Definitive Subdivision dated June 10, 2016.
- Definitive Plan Application Packet-Grafton Planning Board dated June 10, 2016.
- Environmental & Community Impact Analysis-Estates at Bull Meadow.
- Forms 11 – Soil Suitability Assessment for On-Site Sewage Disposal, Massachusetts Department of Environmental Protection.

Graves Engineering, Inc. (GEI) has been requested to review and comment on the plans' conformance with applicable "Rules and Regulations Governing the Subdivision of Land; Grafton, Massachusetts" revised through April 27, 2009; "Grafton Zoning By-Law" amended through October 14, 2013 and standard engineering practice.

Our comments follow:

Subdivision Rules & Regulations (SR&R)

1. Although the boundary of the development was drawn on the plans, it is difficult to distinguish the boundary from other interior and exterior lot lines. The boundary should be a heavier line type. (§3.3.3.1)

2. A north point needs to be shown on Sheet 6 and for the three viewports on Sheet 18. (§3.3.3.6)

3. Notice of any and all decisions, special permits (e.g.: Major Residential Special Permit), etc. must be identified on the plans, including Worcester District Registry of Deeds book and page numbers. (§3.3.3.13)

4. The species of proposed street trees were not identified in the plans. (§3.3.3.20)

5. The profile for Paddock Ridge Drive shows fill greater than 6 feet between stations 12+75 and 14+60. We understand a waiver request was submitted and will be reviewed by the Planning Board. (§4.1.2.1.b)

6. The minimum K requirement for vertical curves was not met at station 12+24 (proposed sag curve with K=27) and at station 13+81 (proposed crest curve with K=6). (§4.1.5.3)

7. Street lights were not shown on the plans. (§4.7.6)

8. The three hydrants proposed along Paddock Ridge Drive between Carriage House Lane and Bridle Ridge Drive are proposed at spacing greater than the required maximum of 500 running feet. If not already done, the Planning Board may wish to solicit comments from the Fire Department and Grafton Water District relative to hydrant locations. (§4.7.7.1)

9. Granite curb inlets are required for the catch basins. (§4.7.8.3)

10. Sheet 22 proposes a reinforced concrete bound; however, granite bounds are required. The bound material and dimensions need to be revised. Additionally, on Sheet 5 two bounds are missing at the eastern drain easement. (§4.8.1)

11. Concrete sidewalk needs to be shown across driveways. (§4.9.1)

12. The proposed 10-foot wide trail access easement shown between Lots 11 and 12 does not meet the minimum required width of 20 feet. Also, the easement was labeled as a drain easement on Sheet 5. (§4.11.4)

13. A waiver was requested to allow less than the required four feet of cover over the drain line at two locations. The proposed cover is at least 2.5 feet. We don't have an issue with the waiver request as long as Class V reinforced concrete pipe is used along Carriage House Lane between DMH 6 and Infiltration Basin 1. The other location is a cross-country drain line; Class III pipe (which is commonly used) would not be unreasonable at this location. (§5.4.2.2)

14. Retaining walls are proposed within the Paddock Ridge Drive right-of-way between stations 12+50± and 14+45± and a waiver was requested. We understand that the Town of Grafton requires retaining walls to be outside the rights-of-way. (Schedule E, Standard Cross Section Minor Street B)

15. The "Bituminous Concrete Pavement Detail" on Sheet 22 needs to be revised to be consistent with the "Minor Street B Standard Cross-Section" construction detail on Sheet

23 and with Grafton Subdivision Rules and Regulations. The total pavement thickness is incorrect and the gravel base needs to consist of one 12" lift of gravel.

Zoning By-Law

16. Lot 6 has a frontage of 139.98 feet which does not meet the minimum 140-foot requirement. (§3.2.3.2)

Stormwater Management & Hydrology Review

17. Access to Infiltration Basins 1 and 2 needs to be revised. The minimum top-of-berm berm width needs to be ten feet and the access grade can't exceed 20%. The tops of the berms are proposed to be approximately seven feet wide and the grade at Infiltration Basin 2 is approximately 33% (3H:1V).

18. Calculations must be provided to demonstrate the infiltration forebay size in Infiltration Basins 1 and 2 comply with DEP Stormwater Management Guidelines.

19. The two infiltration basins will only have approximately 0.8 feet of freeboard as measured between the 100-year peak water surface elevation and the top of the berms; at least one foot of freeboard needs to be provided.

20. The plans should clearly show that the sides of the riprap spillways and down-gradient aprons are to also be lined with riprap in order to avoid erosion along the spillways' edges.

21. The riprap spillway elevations need to be labeled at Infiltration Basins 1 and 2.

22. Soil testing has not yet been performed at Infiltration Basin 2 to demonstrate compliance with MassDEP's required two-foot offset to seasonal high groundwater. Based upon the soil testing data that was submitted (for fifteen building lots and Infiltration Basin 1), the proposed elevation for Infiltration Basin 2 does not appear to be unreasonable. Nevertheless, soil testing will have to be performed at infiltration Basin 2.

23. The Area 2A label on the Existing Conditions Watershed Plan should be removed. This label applies to the proposed conditions.

24. There is an unlabeled area shown on the Proposed Conditions Watershed Plan in front of Subcatchment Lot 13.

25. It is necessary to provide appropriately-sized riprap aprons at drainage system discharge points. Additionally, supporting calculations relative to the apron dimensions and riprap stone size must be submitted.

26. Sheet 10 refers to an infiltration basin while Sheet 12 refers to the same structure as a detention basin. The labels on the plans should be consistent and should follow MassDEP nomenclature.

General Engineering Comments

27. On Sheet 21, the floor fill in the precast drain manhole construction detail needs to have a channel as opposed to being a planar surface.

28. Guardrails and pedestrian barriers (e.g. chain link fences) need to be provided at the tops of the retaining walls.

General Comments

29. We understand that the Planning Board or its staff will review any impact reports.

30. We understand that the Grafton Water District will review the proposed water utility infrastructure.

31. We are not aware if a meeting has occurred with Town staff/departments to address the configuration of the existing Appaloosa Drive cul-de-sac. At issue is whether the cul-de-sac should remain as is, be configured with an island or reconfigured as a through road. (MRSP 2014-8, Condition C3)

32. The cover sheet specifies the site as being in zoning district R4. This should be corrected to R40.

33. It is recommended for clarity that the existing conditions plans (Sheets 1 and 2) be revised so the underlying gray existing conditions lines are black.

34. The layout plan identifies roads by road name while the profile plans identify roads with a letter. Road identification should be consistent.

35. Prior to plan endorsement, all sheets of the plan set, including the cover sheet, must include the statement "See Sheet ___ for Planning Board Conditions of Approval", and the conditions must be inscribed on said sheet.

36. The design engineer should be aware that the town has local wetland regulations and stormwater regulations that are administered by the Conservation Commission. GEI has not reviewed the submittal for compliance with those regulations.

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.
Vice President

Cc: Brian Marchetti, P.E., McCarty Engineering, Inc.