



Civil Engineers

EXHIBIT 20
Received 10/11/16

RECEIVED

OCT 11 2016

PLANNING BOARD
GRAFTON, MA

October 11, 2016

Ms. Maria Mast
Conservation Agent
Grafton Municipal Center
30 Providence Road
Grafton, MA 01519

**RE: Estates at Bull Meadow
Response to Peer Review Comments**

Dear Maria:

McCarty Engineering Inc. (MEI) is in receipt of a review letter dated August 18, 2016 prepared by Graves Engineering, Inc. relative to the Bull Meadow Estates proposed subdivision off Appaloosa Drive. They have offered comments to the Board on conformance with the Town of Grafton Wetland Bylaw, Regulations Governing Stormwater Management, the Massachusetts Stormwater Handbook and standard engineering practice.

For ease of review, the Graves Comment is shown below with MEI's response provided below it in italic font.

The comments received are as follows:

Regulations for the Administration of the Wetland Bylaw

1. The locations of wells on abutting properties were not shown on the plans. (§V.B.3(e))

Response: The location of wells on the closest abutting properties to Lots 5, 6 and 1 have been added to the plans.

2. On Sheet 10 of the plans, the horizontal layout of the replication area is shown but no proposed topographic information was provided and the replication area is located partially outside the limits of the existing conditions topographic survey. (§V. B.5(b) & §V. C.1(a))

Response: A detailed Wetland Crossing and Replication Area Plan, Sheet 21 has been added to the plan set.

3. The top of the berm at the two infiltration basins is only seven feet wide whereas the minimum width must be either ten feet or twelve feet, depending upon whether the berm is to be used for access. (§V. B.5(h)(2))

Response: The drainage design has been revised to meet the minimum top of berm widths and required access grades at Infiltration Basins 1-4.

4. Fences have not been proposed at the two infiltration basins. (§V. B.5(h)(3))

Response: Split rail fences with gates have been added to Infiltration Basins 1,3 and 4.

5. Eighty percent total suspended solids (TSS) removal will not be achieved prior to the stormwater leaving the forebays and entering the infiltration basins. With 25% TSS removal from the catch basins and another 25% from the forebays , only 44% TSS removal will be achieved when stormwater enters the infiltration basins. (§V. B.5(h)(10))

Response: Water quality units have been added to the treatment trains resulting in excess of 80% TSS removal prior to the stormwater runoff entering the infiltration BMP's.

6. Retaining walls are proposed within the Paddock Ridge Drive right-of-way between stations 12+50± and 14+45± and a waiver from the Subdivision Rules & Regulations 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). Furthermore, there needs to be sufficient room on the road shoulders to allow for proposed or future utilities, guard rails, fences, ancillary wall construction materials (e.g. geogrids, if used) and sufficient grass area for the temporary storage of snow. The allocated width at this crossing does not appear to be adequate as currently proposed. (§V.C.2)

Response: A waiver is being requested from the dimensional requirements of, Standard Cross Section Minor Street B, in order to minimize the amount of wetland impact resulting from the crossing. The current design includes a 42 foot roadway corridor divided between a 26 foot roadway and 16 total feet of shoulder. It is our opinion that this is more than adequate to allow for utilities, guard rails, fences, wall construction materials and temporary storage of snow. Our current design depicts a 5.5' shoulder on the south side of the road and a 10.5 foot shoulder on the north side of the road which accommodates a sidewalk. This shoulder width can be divided in any way the Town and its peer reviewer sees fit if the current layout does not meet their satisfaction.

Regulations Governing Stormwater Management

7. Erosion control barriers need to be provided along the base of the roadway fill slopes between Bridle Ridge Drive and Lots 5 and 6. (§7.B.2.c)

Response: Erosion Control Barriers have been added along the base of roadway fill slopes between Bridle Ridge Drive and Lots 5 and 6.

Stormwater Management & Hydrology Review

8. 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).

Response: The drainage design has been revised to meet the minimum top of berm widths and required access grades at Infiltration Basins 1-4.

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

Response: Sediment forebay sizing calculations have been provided for Proposed Infiltration Basins 1-4.

10. 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.

Response: Greater than 1 foot of freeboard is now provided at the Infiltration basins.

11. 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.

Response: The Emergency Spillway Detail shows the limit of riprap required in the infiltration basins.

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

Response: Riprap spillway elevations have been labeled at Infiltration Basins 1-4.

13. 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.

Response: Soil Testing will be performed once Planning and Conservation accept the proposed design.

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

Response: The Existing Conditions Watershed Plan has been revised.

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

Response: The Proposed Conditions Watershed Plan has been revised. There is no longer an unlabeled watershed area.

16. 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.

Response: Rip Rap apron sizing calculations have been provided in the drainage analysis.

17. 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.

Response: The plans reflect Infiltration basins.

General Engineering Comments

18. 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.

Response: The drain manhole detail has been revised accordingly.

General Comments

19. 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.

Response: Sheets 1 and 2 has been revised so the underlying gray is now black and more visible.

20. 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.

Response: The boundary has been adjusted to be more visible on the plans.

We trust that the responses provided above satisfactorily address the comments raised by Graves Engineering, Inc. We will prepare a revised set of Conventional and Flexible Plans and forward them to the Town for review.

Please feel free to contact me with any questions.

Sincerely,



Brian Marchetti, PE

Estates at Bull Meadow
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Vice President

CC: Project File
Gordon Lewis-Bull Meadow LLC.
Applicant
Jeff Walsh, PE - Graves Engineering, Inc.

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