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Planning Board
Grafton, MA



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October 19, 2020

Grafton Planning Board
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**Subject: The Ridings, 88 Adams Road
Definitive Plan Review**

Exhibit 5

Dear Planning Board Members:

We received the following documents on August 7, 2020:

- Correspondence from Thompson-Liston Associates, Inc. to Grafton Conservation Commission dated August 7, 2020 re: The Ridings Flexible Plan Definitive Subdivision, Land at 88 Adams Road, Grafton, Massachusetts.
- Plans entitled The Ridings, Flexible Plan Definitive Subdivision in Grafton, Massachusetts dated October 9, 2018 and last revised July 15, 2020, prepared by Thompson-Liston Associates, Inc. for Steven Venincasa. (41 sheets)
- Plan entitled The Ridings, Predevelopment Drainage Area Plan in Grafton, Massachusetts dated October 9, 2018 and last revised July 15, 2020, prepared by Thompson-Liston Associates, Inc. for Steven Venincasa. (1 sheet)
- Plan entitled The Ridings, Postdevelopment Drainage Area Plan in Grafton, Massachusetts dated October 9, 2018 and last revised July 15, 2020, prepared by Thompson-Liston Associates, Inc. for Steven Venincasa. (1 sheet)
- Bound document entitled Drainage Report for The Ridings dated October 9, 2018 and last revised July 15, 2020, prepared by Thompson-Liston Associates, Inc.
- Bound calculations entitled Drainage Structure Computations, The Ridings dated July 15, 2020, prepared by Thompson-Liston, Associates, Inc.

We also received the following documents on September 3, 2020:

- Correspondence from Thompson-Liston Associates, Inc. to the Grafton Town Planner dated September 3, 2020 re: Definitive Subdivision filing for The Ridings Adams Road, Grafton, Massachusetts.
- Plans entitled The Ridings, Flexible Plan Definitive Subdivision in Grafton, Massachusetts dated October 9, 2018 and last revised September 2, 2020, prepared by Thompson-Liston Associates, Inc. for Steven Venincasa. (41 sheets)

Graves Engineering, Inc. (GEI) has been requested to review and comment on the plans' and supporting documents' conformance with applicable "Grafton Zoning By-Law" amended through October 19, 2015; "Rules and Regulations Governing the Subdivision of Land, Grafton, Massachusetts" revised through April 27, 2009; Massachusetts Department of Environmental

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Protection (MassDEP) Stormwater Management Handbook and standard engineering practices. The comments below pertain to the latest version of the above-referenced documents.

This letter is a follow-up to our previous review letter dated March 8, 2019. For clarity, comments from our previous letter are *italicized* and our comments to the design engineer's responses are depicted in **bold**. Previous comment numbering has been maintained.

Our comments follow:

Subdivision Rules & Regulations

1. *The north point needs to be specified if it is true, magnetic or grid. (§3.3.3.6)*
Acknowledged. On Sheet L1, the north arrow is specified as Massachusetts Turnpike Grid.

2. *Bounds were only proposed along the rights-of-way. The plans must be revised to also include bounds at all angle points along the easements, access routes and open space areas and at points where easement lines and property lines intersect. These bounds must be granite and a construction detail should also be added. (§3.3.3.10 & §4.8.1)*

Per Sheet 1 of the plans, the applicant is requesting a waiver to allow iron rods instead of granite monuments at all property line bends (where the proposed lots meet the open space) of the open space parcels, and the plans were revised to show iron rods at these locations. The plans do not propose bounds or iron rods to mark the open space at the perimeter of the subdivision; the plans do show existing drill holes at some perimeter locations, which are (appropriately) to be retained. GEI defers to the Planning Board whether the perimeter points also need to have bounds or iron rods installed where drill holes are not present, and GEI understands that the Planning Board will address the waiver request.

A construction detail for the granite bounds was provided on Sheet D2; the construction detail shows the top of the bounds to be six inches above the ground surface, which is acceptable for wooded areas. However, the top of the bounds need to be installed flush with the ground surface at grassed areas and the construction detail needs to be revised accordingly.

3. *Unless approved otherwise by the Planning Board, GEI understands that each plan sheet must be sequentially numbered (i.e. 1 of 35, 2 of 35, etc.). (§3.3.3.3)*

Acknowledged. The plan sheets have number sequentially 1 through 41.

4. *Each plan sheet must have space for Planning Board action. (§3.3.3.3)*

Acknowledged. Each sheet has been revised and space is provided for the Planning Board.

5. *GEI understands the Planning Board will address waiver requests. Nevertheless, relative to the waiver request to allow sloped granite edging, the town typically requires vertical granite curb at intersection radii. (§4.2.1)*

The design engineer's response indicated that "the subdivision rules would allow vertical granite cubing at the intersection radii and cape cod berm otherwise." This statement is inconsistent with the Subdivision Rules and Regulations (SR&R). The SR&R require vertical granite curb at intersections, along roads where the grade

exceeds 2% and at curves with a radius of less than 250 feet (§4.2.1.2a, b & c). Cape Cod berm is allowed wherever vertical granite curb is not required; only Liberty Circle, which will have a 2% grade, would qualify for Cape Cod Berm.

6. *Except for the hydrology calculations, no documentation was submitted to demonstrate compliance with the MassDEP Stormwater Handbook and Stormwater Standards. (§4.7.8)*
GEI reviewed the stormwater management documents that were provided with the Conservation Commission application. GEI is addressing stormwater management review in its letter to the Commission, which is being copied to the Planning Board.
7. *Rational Method pipe sizing calculations need to be submitted. (§4.7.8.1)*
Acknowledged. Ration method calculations have been provided and are in order.
8. *The plans need to be revised such that catch basins (granite inlet stones are required) are not located at or adjacent to driveway openings. For example, catch basins conflict with the driveways of Lot 9 and Lot 25. (§4.7.8.3)*
The plans have been revised to relocate catch basins outside of driveway openings. However, the catch basin adjacent to the Lot EC8 driveway will be too close to the driveway to allow for a granite inlet stone and end treatment on the curb. The catch basin and driveway need to be separated more.
9. *On Sheet D-1, the specifications or manufacturer/model number of the catch basin frames/grates and the manhole rims/covers need to be coordinated with GEI or the Grafton Highway Department. (§5.4.1.1)*
Acknowledged. The details for catch basin frames/grates and the manhole rims/covers have been revised to state to coordinate with the “Grafton DPW”.
10. *All pipes must be reinforced concrete pipes (RCP). The 12”-diameter HDPE pipes proposed for the outlet of the stormwater basin on Lot 21 need to be revised to be RCP. (§5.4.2.1)*
Acknowledged. Sheet G5 has been revised to show that RCP is to be used at the outlet of the stormwater basin.

Zoning By-Law

11. *The open space access easement across Lot 20 is only twenty (20) feet wide. The plans show a proposed trail that runs through this easement; all trail easements must be twenty-five (25) feet wide unless in the opinion of the Planning Board sufficient buffering is provided. (§4.10.2)*
Acknowledged. The trail easement across Lot EC12 fka Lot 20 has been revised to be twenty-five (25) feet wide as shown on Sheet G5.
12. *GEI has no issues relative to compliance with Grafton Zoning By-Laws except as noted below in the following comment.*
No further comment.
13. *Grading for the development of Lots 23 and 24 extends into the Common Land adjacent to Lots 23 and 24. GEI defers to the Planning Board whether grading for lot development can occur on adjacent Common Land. (§5.3.11.b)*
The engineer responded that if needed, the applicant will just extend the lots to encompass the grading as they exceed the open space requirement. Again, GEI defers to the Planning Please whether the grading for lot development can occur of adjacent

Common Land. Please refer to Sheets 24 and 25 to see the grading of the lots, now labeled "EC11", "EC13" and "EC15".

14. *The site is listed on Sheet E1 as being located in the R4 zoning district, this is assumed to be a typographical error and should be corrected to R40.*
No revisions were made.

Hydrology & MassDEP Stormwater Management

15. *GEI reviewed the hydrology computations and found them to be in order except as noted in the following three comments.*
GEI reviewed the hydrology computations and found them to be in order.
16. *The hydrology computations need to evaluate pre- versus post-development peak runoff rates for the flow path to the northwest from Lots 35 – 39.*
Acknowledged. The hydrology computations have been revised to analyze Lots LC9-LC1, fka Lots 35-39, respectively. This is the area tributary to Adams Road. The computations show a slight decrease in peak rates of runoff.
17. *The lines between subcatchment 16 and 23 need to be delineated. There are two red lines between lots 18 through 20 and the swale that have a different linetype than the other subcatchment boundaries.*
Acknowledged. The drainage maps have been revised to the hydrologic divide is on the back of the Lots EC8, EC10 and EC12, fka lots 18, 19 and 20, respectively.
18. *The slope of the sheet flow for subcatchment 16 is approximately 6% opposed to the modeled 3%. Furthermore, no path for Tc was displayed on the post-development drainage area plan.*
Acknowledged. The hydrology computations have been revised to model the slope at 6% and the Tc path is shown on the post-development drainage area plan.
19. *As noted in Comment #6, except for the hydrology calculations, no documentation was submitted to demonstrate compliance with the MassDEP Stormwater Handbook and Stormwater Standards.*
GEI reviewed the stormwater management documents that were provided with the Conservation Commission application. GEI is addressing stormwater management review in its letter to the Commission, which is being copied to the Planning Board.
20. *Proposed grading of the drainage easement on Lots 21 and 22 needs to allow for unimpeded access to the stormwater basin that complies with the MassDEP Stormwater Handbook. The steep slope in the easement will impede access.*
Acknowledged. The slope has been revised to roughly 10H:1V on Lots EC14 and EC15 fka Lots 21 and 22, respectively.
21. *The proposed detention basin off Olive Circle should be listed as an infiltration basin. Exfiltration is utilized as an outlet device in the basin within the HydroCAD calculations which makes the basin an infiltration basin in terms of MassDEP Stormwater Handbook.*
Acknowledged. The plans have been revised to show the stormwater basin off of Liberty Circle fka Olive Circle to be an infiltration basin.

General Engineering

22. To better channelize passenger vehicle movements and to minimize the potential for drivers to encroach into the opposing lane during turning maneuvers, the intersection curb radii within the project should be no greater than 30 feet. Curb radii of approximately 45 feet were proposed.

The engineer responded that this curb radii is to accommodate the Fire Department vehicles. Other subdivisions in Grafton typically have a curb radius of 25 to 30 feet. GEI still stands by its original comment and recommends that the plans be revised unless the Fire Department specifically requests a 45-foot radius.

23. On Sheet D-1, the "Precast Catchbasin" construction detail needs to include a hood at the catch basin's outlet and the depth of the sump needs to be revised from three feet to four feet. **Acknowledged. The detail has been revised to include a hood and the sump has been revised to four feet deep.**

24. Sheet D-1 includes a "Typical Drop Manhole" construction detail that is typically used for sanitary sewer but not drainage. The wye, elbow and vertical "down pipe" are not necessary for a drainage system; the construction detail should be deleted.

Acknowledged. The construction detail for the "Typical Drop Manhole" has been removed from Sheet D-1.

25. Pertinent elevations need to be provided for the open-bottom box culvert.

Acknowledged. The pertinent elevations have been provided on Sheet D-1.

26. On Sheet P-1, DMH 9+90 is shown as having an invert out at an elevation of 433.30, which is believed to be a typographical error. This needs to be rechecked.

Acknowledged. The typographical error has been revised to show the invert out for DMH 9+90 to be at elevation 441.90 feet.

27. The scale on pre and post-development drainage needs to be corrected; the scale of 1" = 120' is incorrect.

Acknowledged. The pre- and post-development drainage area plans have been revised to 1" = 160' feet.

General Comments

28. Sheet G-1 shows the proposed tree line going through the stormwater basin off Randolph Circle and across the basin's berm. This needs to be revised to go around the basin.

Acknowledged. The proposed tree line has been revised to go around the stormwater basin off Empire Circle fka Randolph Circle.

29. Sheet G-1 contains a typographical error regarding the inlet invert elevations of the 15" HDPE outlet pipes; the pipes are referred to as 12" instead of 15".

Acknowledged. Sheet G-1 has been revised to refer to the outlet pipes as 15" and the pipe material was revised from HDPE to reinforced concrete.

30. Whereas a Notice of Intent has not been filed yet with the Conservation Commission, GEI has not reviewed the project for compliance with the Grafton Stormwater Regulations or the Grafton Wetland Regulations.

GEI has reviewed the project for compliance with the Grafton Stormwater Regulations and the Grafton Wetland Regulations. Comments regarding these topics can be found under separate cover to the Conservation Commission, which is being copied to the Planning Board.

Additional Comments, October 19, 2020

- 31. The plans now show fences to be located around the perimeter of the stormwater basins. The plans need to identify the locations and size of the gates. For example, on Sheet G5, a gate needs to be provided along the access easement for the stormwater basin off Empire Circle.**
- 32. The scale labels (1" = 40') and scale bars on Sheets 17 and 18 need to be revised to 1" = 60' scale label (1" = 40') and scale bar on Sheet 21 needs to be revised to 1" = 50'.**

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: Grafton Conservation Commission
James Tetreault, P.E., Thompson-Liston Associates, Inc.