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November 20, 2020

**RECEIVED**

Grafton Planning Board  
30 Providence Road  
Grafton, MA 01519

**November 20, 2020**

**Planning Board**  
Grafton, MA

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gravesengineering.com

**Subject: 11 Wheeler Road  
Definitive Plan Review**

# Exhibit 13

Dear Planning Board Members:

We received the following documents on October 29, 2020:

- Plans entitled Flexible Development – Definitive Plan, 11 Wheeler Road, Grafton, Massachusetts dated August 20, 2020, prepared by Andrews Survey & Engineering, Inc. for Stanley & Lisa McGriff. (15 sheets)
- Bound document entitled Stormwater Management Report and Operations & Maintenance Plan, “Stillwater Estates,” 11 Wheeler Road, Grafton, MA dated August 21, 2020, prepared by Andrews Survey & Engineering, Inc. for Stanley & Lisa McGriff.
- Bound document entitled Flexible Development – Definitive Subdivision, Stillwater Estates, 11 Wheeler Road, Grafton, MA dated September 9, 2020, prepared by Andrews Survey & Engineering, Inc. for Stanley W & Lisa A McGriff.
- Plans entitled Pre- and Post-Development Drainage, Flexible Development Definitive Plan, 11 Wheeler Road, Grafton, MA 01536 dated August 21, 2020, prepared by Andrews Survey & Engineering, Inc. for Stanley & Lisa McGriff. (2 sheets)

We also referred to the following document:

- Plans entitled Preliminary Flexible Development Plan, 11 Wheeler Road dated April 23, 2019 and last revised July 29, 2019, prepared by Andrews Survey & Engineering, Inc. for Stanley W. & Lisa A. McGriff. (4 sheets)

Graves Engineering, Inc. (GEI) has been requested to review and comment on the plans' and supporting documents' conformance with the “Rules and Regulations Governing the Subdivision of Land, Grafton, Massachusetts” revised through April 27, 2009; applicable “Grafton Zoning By-Law” amended through October 15, 2018; Massachusetts Department of Environmental Protection (MassDEP) Stormwater Management Handbook and standard engineering practices. As part of our preliminary plan review GEI visited the site on July 5, 2019.

**Our comments follow:**

### Subdivision Rules & Regulations

1. Each plan sheet must be sequentially numbered (i.e. 1 of 35, 2 of 35, etc.). (§3.3.3.3)

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2. For the horizontal layout, the plans need to cite the bearing system from a referenced plan, true north or magnetic north. (§3.3.3.6)
3. On Sheet C4, there is an inconsistency between the plan sheet and an inset for the northwestern corner of the common land. It appears that the bearing system on the definitive plans was revised after the preliminary plans were prepared. The inset utilizes the same bearing that was shown on the preliminary plans that were last revised July 29, 2020. The information in the inset needs to be consistent with the rest of the definitive plans. (§3.3.3.9)
4. 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. (§3.3.3.10 & §4.8.1)
5. On Sheet C8, additional (every twenty-five feet) existing and proposed elevations need to be provided for the vertical curve between stations 0+73.76 and 2+28.18. (§3.3.3.16(b))
6. There are two benchmarks shown on the post-development drainage map that need to be included on the Definitive Plans. (§3.3.3.16(d))
7. GEI defers to the Planning Board whether the Landscape Plan (Tree Plan) needs to be prepared by a certified arborist. (§3.3.3.20)
8. On Sheet C8, the K-value used for the sag vertical curve needs to be no less than 35. (§4.1.5.3)
9. The electrical/cable/television utility lines cross underneath the sidewalk at station 3+80+/- and then extend under the road. These utility lines need to be two feet outside the back edge of the sidewalk. (§4.7.1.3)
10. On Sheet C11.1, the "Concrete Sidewalk" and the "Proposed Road Cross-Section" construction details need to be revised to propose a four-inch thick concrete sidewalk per MHD Section 701. (§5.5)
11. On Sheet C11.1, the "Concrete Bound Detail" needs to be revised to require granite bounds. Also, per current practice in Grafton, bounds in wooded areas (e.g. open space bounds) only need to extend 6" to 9" above the ground surface instead of 3'-6" as cited in Note 2 of the construction detail. (§5.11.3)
12. The design engineer will need to consult with Grafton DPW relative to the type of street light luminaire, mast arm and pole. The "Pole Light" construction detail on Sheet C11.4 does not appear to be consistent GEI's understanding of street light requirements. (§5.13)
13. Per the dimensions on the standard cross section and GEI's understanding of Grafton Water District requirements, the water main must be under the shoulder of the road instead of under the pavement. (Standard Cross Section, Minor Street C)

#### **Zoning By-Law**

14. GEI has no issues relative to compliance with Grafton Zoning By-Laws excepted as noted in the following comment.

15. The site is located in the Water Supply Protection Overlay District. The plans propose only an infiltration basin for groundwater recharge. Greater groundwater recharge could be achieved by capturing and recharging roof runoff where site conditions allow. (§7.5.D)

### **Hydrology & MassDEP Stormwater Management**

16. GEI reviewed the hydrology computations and found them to be in order except as noted in the following comment.
17. In the post-development HydroCAD computations, Subcatchment SC11 needs to include the paved driveways for Lots 5 and 6.
18. Compliance with the MassDEP Stormwater Standards and Handbook is reasonable except as noted in the following two comments.
19. Access to the stormwater basin is proposed down a 3H:1V (33%) slope. For access to a stormwater basin, the slope must not exceed 20%.
20. For Standard #3, the recharge calculations incorrectly compare the required infiltration volume to the volume of water that could be impounded in the stormwater basin. The required infiltration volume must be compared with the volume of water impounded below the lowest outlet orifice (Static Method) or compliance must be demonstrated by one of the two Dynamic Methods.
21. For Standard #4, the total suspended solids (TSS) calculations took credit for 25% TSS removal at the catch basins and another 25% credit at the sediment forebay. The 80% removal rate for the infiltration basin requires "adequate pre-treatment", which is provided at the catch basins or the forebay. For the record, the credit for TSS removal at either the catch basins or the forebay needs to be deleted. Nevertheless, the overall system will achieve 80% TSS removal as required by MassDEP.

### **General Engineering**

22. On Sheet C6, the sidewalk ends at Lot 4's driveway. Terminal ends of a sidewalk must be located outside of a driveway and must consist of a handicap accessible ramp.

### **General Comments**

23. For the benefit of the contractor, there should be a note on the plans stating that the vertical granite curb inlets need to be placed at all catch basins, perhaps the note could be on Sheet C11.1.
24. GEI did not review for compliance with the Grafton Wetland Regulations nor the Grafton Stormwater Regulations. The design engineer should be cognizant of these local regulations (e.g. rainfall amounts, TSS removal prior to discharging to an infiltration BMP).
25. GEI understands that the sewer infrastructure will be reviewed by the Grafton Sewer Department and the water infrastructure will be reviewed by the Grafton Water District.

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: Kristen LaBrie; Andrews Survey & Engineering, Inc.  
Stanley McGriff