

# COPY



100 GROVE ST. | WORCESTER, MA 01605

March 26, 2020

Grafton Planning Board  
Grafton Municipal Center  
30 Providence Road  
Grafton, MA 01519

## Exhibit 8

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gravesengineering.com

**Subject: Abby Woods  
Definitive Plan Review**

**RECEIVED**

*By Planning Board at 1:43 pm, Mar 26, 2020*

Dear Planning Board Members:

We received the following documents in our office February 25, 2020:

- Plans entitled Abby Woods, A Definitive Subdivision in North Grafton, Massachusetts, Conventional-Development dated February 11, 2020, prepared by HS&T Group, Inc. for Central Massachusetts Home Builders, LLC. (13 sheets)
- Bound document entitled Hydrology & Stormwater Management Report, Abby Woods, Definitive Subdivision dated February 11, 2020, prepared by HS&T Group for Massachusetts Home Builders LLC.

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 21, 2019; "Rules and Regulations Governing the Subdivision of Land, Grafton, Massachusetts" revised through April 27, 2009; Massachusetts Department of Environmental Protection (MassDEP) Stormwater Management Handbook and standard engineering practices.

### **Our comments follow:**

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

1. GEI has no issues relative to compliance with the Town of Grafton Zoning By-Law.

#### **Rules and Regulations Governing the Subdivision of Land**

2. The notes in the other sheets' title block regarding the decision for the Major Residential Special Permit need to be included on Sheet 1. (§3.3.3.14)
3. The plans need to be clear that catch basins are required to have curb inlets. The plan view on Sheet 8 needs to show the granite curbing extending beyond catch basins CB 1 and CB2 enough to accommodate a curb inlet and a transition stone, and on Sheet 9 the "Catch Basin Detail" or the "Municipal Standard Catch Basin Frame & Grate" construction detail needs to specify that a curb inlet (which requires a three-flange frame) is required. (§4.7.8.3)
4. On Sheet 10 the "Drain Manhole Detail" needs to be revised to include an invert channel constructed of concrete or sewer brick. (§5.4.1.6)

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### **Hydrology & Stormwater Management Review**

5. GEI reviewed the hydrology computations and found them to be in order relative to definitive plan review by the Planning Board.
6. Compliance with the MassDEP Stormwater Standards and Handbook is in order except as noted in the three following comments.
7. The rip rap calculations need to be revised to incorporate the new (higher) flow rates.
8. We are concerned about whether the STC450i is suitable for the proposed tributary areas that are larger than those modeled in the supporting documents. Larger areas can produce higher runoff flow rates that could re-suspend accumulated sediments. The TSS removal rates in the supporting documents were based upon one acre of tributary area that is 100% impervious. Although the actual impervious areas are smaller (0.40 and 0.45 acres), the actual tributary areas are much larger (3.66 acres and 5.55 acres). The supporting documents need to be revised to include the entire tributary area. If it is found that larger treatment units are required then the plans will have to be revised accordingly.
9. Each lot is proposed to have a Cultec system for roof runoff. However, the Cultec details on Sheet 9 are generic instead of being project-specific. A detail needs to be prepared that clearly shows the contractor the Cultec system required for each building lot. (One detail is sufficient if the same configuration is proposed for each of the ten lots.) Required information includes the number of Cultec chambers, and overall system dimensions (footprint).

### **General Engineering Comments**

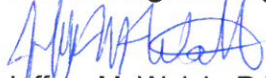
10. At DMH5, the pipe invert elevation drop of 0.10 feet needs to be increased to accommodate the change in pipe diameter from 12" to 18". The drop needs to be 0.5 feet to match pipe crowns. As an alternative to the 0.5-foot drop, the design engineer could consider matching the 8/10 height of the two pipe sizes, but the invert elevation difference would still be greater than the proposed 0.10 feet.
11. On Sheet 3, the bearings of the access and drain easement lines (four lines) that run parallel to the lot line between Lots 3 and 4 must be revised to be consistent with the bearings of the lot lines. The easement lines were drawn parallel to the lot lines but the bearings of the easement lines are substantially different than the bearings of the lot lines.
12. Sheet 2 shows a snow easement that is in conflict with the driveway of Lot 5 (see Sheet 6 for driveway location). This easement needs to be eliminated and replaced with the snow easement shown on Sheet 3 at the property line between Lots 5 and 6. Also, on Sheet 3 the label for the snow easement needs to be revised from "50' x 10'" to "50' x 15".

### **General Comments**

13. Grafton Wetlands Regulations and Grafton Stormwater Regulations have additional design requirements. The Applicant should be cognizant of these 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.  
Principal

cc: Lesley Wilson, HS&T Group, Inc.