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January 7, 2016

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

**PLANNING BOARD
GRAFTON, MA**

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**Subject: Grafton Hill – Clearview Street
Modified Definitive Subdivision Plan Review**

Dear Joe:

We received the following document on November 23, 2015 via e-mail:

- Correspondence from Connorstone Engineering, Inc. to Grafton Planning Board dated November 23, 2015.

We received the following documents in our office November 25, 2015:

- Plans entitled Modified Definitive Subdivision Plan of Grafton Hill in Grafton, MA (Plans of Land) dated September 30, 2015 and revised November 23, 2015, prepared by Connorstone Consulting Civil Engineers and Land Surveyors for Westerly Side Grafton LLC. (5 sheets)
- Plans entitled Modified Definitive Subdivision Plan of Grafton Hill in Grafton, MA (Construction Plans) dated September 30, 2015 and revised November 23, 2015, prepared by Connorstone Consulting Civil Engineers and Land Surveyors for Westerly Side Grafton LLC. (11 sheets)

We received the following document on December 10, 2015 via e-mail:

- Draft correspondence from Connorstone Engineering, Inc. to Grafton Planning Board dated December 8, 2015.

We received the following document on December 23, 2015 via e-mail:

- Plan entitled Street Light Locations, Grafton Hill, North Street, Grafton, MA dated December 15, 2015, prepared by Connorstone Consulting Civil Engineers and Land Surveyors. (1 sheet)

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; Massachusetts Department of Environmental Protection (MADEP) Stormwater Management Policy and standard engineering practice on behalf of the Planning Board. GEI has also been requested to review and comment on the documents' conformance with applicable Conservation Commission "Regulations Governing Stormwater Management" dated May 2013 on behalf of the Conservation Commission. As part of our initial review, GEI visited the site entrance on November 4, 2015.

This letter is a follow-up to our previous review letter dated November 5, 2015. For clarity, comments from our previous letter are *italicized* and our comments to the Applicant's responses are depicted in **bold**. Previous comment numbering has been maintained.

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Our comments follow:

Subdivision Rules and Regulations

1. *The location and ownership of abutting properties within 500 feet of the boundaries of the land, including those across from North Street, must be provided. (§3.3.3.4)*
The design engineer replied that the locations and ownerships have been shown. However, we couldn't find on the plans where the ownership of the abutting properties located on the east side of North Street had been identified.
2. *An index sheet or key of the plan set must be provided. (§3.3.3.5)*
Acknowledged. An index sheet was added to the plans of land set.
3. *The location, names and present widths of streets within 600 feet of the subdivision must be shown on the plan set. Old Westboro Road was not shown on the plan set. (§3.3.3.11)*
Acknowledged. The Locus Map on the index sheet was revised.
4. *The words "Deeds of Easements to be recorded herewith" were not included on the appropriate plans. Also, Sheets 9 through 11 of the Construction Details do not have suitable space to record the action of the Board. (§3.3.3.15)*
Acknowledged. The words "Deeds of Easements to be recorded herewith" were added below the signature block on Sheets 2 through 5 of the plans of land and signature blocks were added to Sheets 9 through 11 of the construction plans.
5. *The regulations require that elevations be based on the National Geodetic Vertical Datum of 1929. The datum used for the project is based on the 1988 N.A.V.D. We don't have an issue with the use of 1988 N.A.V.D. but we defer to the Board whether this is acceptable. (§3.3.3.16.d)*
No further comment.
6. *Clearview Road intersects upon itself (Station 11+00±) thus requiring a level landing with a maximum slope of 3% for at least 100 feet from the intersection. The slope in this east-west section of Clearview Road ranges from 6% to 8%. (§4.1.5.6)*
A waiver has been requested, with the applicant's position that grading impacts and land disturbance are being minimized. We understand that the plans propose modifications to a previously-approved definitive plan. We understand that waiver requests will be addressed by the Planning Board.
7. *On Sheets 2 and 3 (of the Topographic Plan), the subdrain was shown to be located within the roadway instead of under the edge of the shoulder as shown on the "Typical Cross-Section" construction detail on Sheet 9. Sheets 2 and 3 need to show the subdrains under the road shoulders. (§4.7.8.6)*
Acknowledged. The plans were revised. During construction, minor adjustment to the subdrain location in the left shoulder may be required to avoid the water main.
8. *Street lights are not proposed. It is our understanding that street lights are required. (§5.13)*
Acknowledged. A plan showing the street light locations was submitted. The locations are in conformance with the Subdivision Rules and Regulations. We understand that the applicant is in the process of obtaining approval of the final count and locations of street lights from the Board of Selectmen and the Department of Public Works.

Hydrology & Stormwater Management Review

9. *GEI reviewed the hydrology computations and found them to be in order.*
No further comment.

10. *Compliance with MADEP's Stormwater Standards is reasonable.*
No further comment.
11. *The Outlet Structure Detail (on Sheet 11 of the Construction Detail) shows a 4" orifice at invert elevation 405.0. In the hydrology calculations this orifice has an invert of 404.0. The elevations on the plans must be consistent with the hydrology calculations.*
Acknowledged. Sheet 11 was revised.

Regulations Governing Stormwater Management

12. *The plans do not show the locations to be used for storage of materials, wastes and soil as required by the regulations. (§7.B.2.f)*
Acknowledged. Sheet 3 was revised to show a storage area on Lot 8, with the final location subject to adjustment (within certain parameters) during construction.

General Engineering Comments

13. *While the lots have the requisite frontage and area, the shapes of the lots and the inclusion of "Exclusive Use Common Area Easements" are unusual. We defer further consideration to the Planning Board since these issues are beyond the scope of an engineering peer review.*
No further comment.
14. *Our interpretation of the "Exclusive Use Common Area Easements" is that the owners of the affected lots would have the right to access the exclusive use common areas. As proposed, these "Exclusive Use Common Area Easements" are generally to be accessed from the rear of the lots (there is also an easement on Lot 7 that could provide access to the northern Exclusive Use Common Area Easement from Clearview Street). Our concern is that certain lot owners may find physical access to the easements and/or the remaining portion of their lot difficult or even impossible. For example, in order for the owner of Lot 22 to access the remaining portion of their lot or the larger portion of the "Exclusive Use Common Area Easement" then they would have to pass across Lot 21 using a five-foot wide easement, across Lot 20 using a ten-foot wide easement, across Lot 19 using a fifteen-foot wide easement, etc. These easements seem to be too narrow to provide reasonable means of access.*
No further comment.
15. *The following details were not provided: concrete sidewalk detail, proposed monument detail, cleanout detail, and external drop manhole detail.*
Acknowledged. The plans were revised to include these construction details. An internal drop sewer manhole construction detail was submitted in lieu of an external drop manhole detail. We assume that this change was made as result of the design engineer's consultation with the Grafton Sewer Department.
16. *On Sheet 4 (of the Topographic Plan), there is a note about the location of the temporary sediment basin. The note also references a detail for the temporary sediment basin, however this detail was not included within the plans.*
Acknowledged. The construction detail had been provided on Sheet 11.
17. *Reference was made to installing septic systems on Sheet 5 - Note 15 under the General Sequencing Plan and on Page 4 of the Stormwater Pollution Prevention Plan (under Note 15 - Section 2.1 General Sequencing Plan). The plans propose that Town sewer will service this subdivision, therefore these notes appear to be typographic errors.*
Acknowledged. The note about septic systems was deleted from Sheet 5.

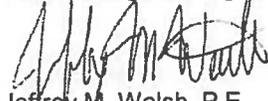
18. *On Sheet 8 (of the Sewer Plan and Profile), the profile view of the sewer manhole at Sta. 8+65 lists the rim elevation at 410.5. According to the profile view the rim elevation should be approximately 433 feet. The rim elevation label should be revised.*
Acknowledged. Sheet 8 was revised.
19. *The Precast Concrete Drop Inlet detail on Sheet 9 of the Construction Details references "Deerfoot Road", this appears to be a typographic error. Also this detail refers to "Drop Inlet #3" this appears to be a typo.*
Acknowledged. Sheet 9 was revised.
20. *The plans show two wheelchair ramps (Sta. 10+60±), however they are not called out anywhere on the plan set. All wheelchair ramp locations should be labeled.*
Acknowledged. Sheets 2 and 3 were revised.

General Comments

21. *Throughout the plans and Stormwater Report the project is referred to as varying names (Grafton Hill, Clearview Street, Clearview Drive, Clearview Road, etc.) The project's name should be consistent throughout the Stormwater Report and the documents.*
Acknowledged. The project name is "Grafton Hill."
22. *GEI has not reviewed the plans with respect to the sewer design. We understand that the Grafton Sewer Commission will review the subdivision's sewer design.*
No further comment.
23. *GEI has not reviewed the plans with respect to the water main design. We understand that the Grafton Water District will review the subdivision's water design.*
No further comment.

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: Grafton Conservation Commission
Vito Colonna, Connorstone Consulting Civil Engineers and Land Surveyors