

# **SCHNEIDER, DAVIGNON & LEONE, INC.**

PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS

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September 10, 2019

Town of Fairhaven  
Planning Board  
40 Center Street  
Fairhaven, MA 02719

Attn: Paul Foley, Town Planner

**Re: Peer Review #1 - Reply**

Proposed 16-Lot Definitive Subdivision Plan  
Applicant/Developer: Robert Roderiques  
Site Address: Hiller Avenue & Timothy Street  
Assessors Lots #71 and #71A on Map #28C

Dear Mr. Foley,

Schneider, Davignon & Leone, Inc. acting as agent for Mr. Roderiques hereby submits the following responses to a memo prepared by GCG Associates, Inc. dated 7-12-19.

The following replies are the sequentially numbered items as outlined in said memorandum:

1. This is a single family residential definitive subdivision new development project on a vacant parcel Assessors Map 28C, Lot 71 consists of 15.08 acres (Tax record). The project is required to meet the Town of Fairhaven Subdivision Regulations, Stormwater Management standards.

***The Assessors records are not correct. The property survey has been determined by a Registered Land Surveyor to have total lot area of 10.85 Acres +/- Said figure has been added to sheets no. 1 and no. 2.***

2. 194-4 (A)(1)(b) – this development requires a Land Disturbance Permit with the Fairhaven Board of Public Works.

***The BPW was required to submit a by-law for approval by Town Meeting by June 30, 2019. After speaking with Vincent Furtado, BPW Director, no such application currently exists. Mr. Furtado informed that we simply have to obtain Planning Board and Conservation Commission permits to proceed and that since the by-law was predicted on the Planning Board Erosion Control Criteria, no further action would be required.***

3. This project requires an US-EPA National Pollutant Discharge Elimination System (NPDES) permit and associated Stormwater Pollutant Prevention Plan (SWPPP) filing.

***Said permit has been submitted to the EPA.***

4. 322-14(C) (6 & 11)- Mete and bound, lot closures calculations for the proposed Right of Ways, Easements, and Lots should be submitted to show meeting Zoning requirements.

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*The Zoning information was already shown on the cover sheet (upper right corner), specifically the Zoning District and its applicable requirements. Sheets no. 2 and no. 3 depict all of the calculated lot & street areas with metes and bounds as determined by a Registered Land Surveyor.*

5. 322-14(C)(7) - The plan should show or reference all WRP, NHESP boundary and location of the Firm boundary and regulated zone or district.

*All wetland resource areas are depicted on the plans and the site does not fall within a Flood Zone. The F.I.R.M. information has been added to the Cover Sheet (below zoning information).*

6. 322-14(C)(12) – Street numbers should be shown enclosed in squares, when available.

*House numbers will not be assigned by the Town of Fairhaven Assessors/Building Dept. until such time as Building Permit Applications are submitted to the Building Dept.*

7. 322-14(C)(15) – At least two permanent concrete or granite monuments must be placed on site and shown in the plans prior to construction. Vertical Benchmarks (TBM) may be provided.

*A note has been added to sheet no. 2 relative to the installation of two permanent markers to be installed prior to construction. Benchmarks have been added to the plans.*

8. 322-14(C)(18) – proposed street trees and existing trees to be retained should be shown on the plan. The typical roadway cross- section details call for street trees 40 feet over center. Tree locations should be shown on the plan.

*The proposed street tree locations have been added to sheets no. 5 and no. 6 together with the limits of clearing. The Town Planner has not directed this office as to which trees should be retained as required by Section 322-14 (c)(18).*

9. 322-14(C)(19) – Existing utility pole and overhead wires should be shown on the plan, Existing water and sewer main size and material should be shown upstream and downstream manholes and invert(s) should be provided to determine flow direction and capacity.

*The existing utility poles closest to the two proposed roadways and their respective overhead wires have been added to the plans. The existing water main types and sizes and the sewer main sizes, slopes and directions have been shown. However please note that the type of the sewer pipe located in Hiller Avenue is unknown to the Sewer Dept.*

10. 322-14(D)(1) – An environment impact analysis is required for all subdivisions over 10 acres.

*See attached Report by LEC Environmental Consultants, Inc.*

11. 322-14(D)(7) – Construction cost estimate is required.

*See attached Construction cost estimate provided by the Developer who will be installing the roadway and infrastructure. Robert Rodriques is the owner of Fairhaven Excavation a local excavation company with decades of experience performing said type of construction and is more qualified to provide said estimate than this engineering firm. It is my opinion that the Fairhaven BPW would/could confirm his qualifications.*

12. 322-14(D)(8) – Street- lighting should be shown on the plan.

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*This office agrees that the regulations require a lighting plan. However, it is the Applicant's position that the Planning Board historically has never required that a street lighting plan be implemented other than that provided by Eversource on utility poles installed. The Applicant has proposed underground electric as required by the regulations but is open to also installing utility poles with street lights and therefore defers to the Planning Board for this decision.*

13. 322-14(D)(9) – Additional erosion control should be installed along the east property line, along of 21 Timothy Street; in front of the wet-flags #7 to #15; #17 to easterly property line, along easterly property to wet-flags #24; in front of wet-flags #29 to #39 and along the easterly property line and along the south side of lots 4 and 5.

*The plans have been revised per the above suggestion.*

14. 322-16(A)(11) – the proposed Lot 14 and Parcel B appear to consist reserve strip along the proposed hammerhead roadway off Timothy Street. Planning Board approval is required, GCG recommends widening the proposed right-of-way to meet the abutting properties.

*With all due respect to the recommendation, the proposed Roadway Layout complies with the Subdivision Rules and Regulations. The Applicant respectfully declines to provide a layout that is not required.*

15. 322-16(B) - a 75 feet leveling area not to exceed 3% slope is required at the new intersection.

*The plans have been revised to provide said leveling area less than 3%.*

16. 322-16(B) – The proposed hammerhead at the end of Hiller Avenue is intended to service Lots 11, 12 and 13. However, the overall dead- end street from Paul Street intersection to the hammerhead services two additional existing lots plus the 10 new lots created within this subdivision. In the situation of traffic blocking the proposed 10 lots roadway, emergency would have to utilizes the hammerhead to turn around. The Board may consider requiring a full cul – de-sac at the end of Hiller Avenue.

*The proposed hammerhead servicing the 3-lots complies with the Subdivision Rules and Regulations. The existing portion of Hiller Avenue which would now service five homes also complies with the width of pavement required for five lots and the additional ten lots.*

17. Massachusetts Storm Water Handbook (MSH) Vol. 2, Ch. 2 Pg. 88. – requires infiltration basin to provides minimum of 50 feet setback from any surface water of the commonwealth. (Applies for Ponds A & B). Existing buildings for #21 and #23 Timothy Street should be located on the plan to proof the proposed infiltration basin meets the 100 feet upslope setback requirements.

*The location of the existing homes located on Timothy Street have been provided together with contours which depict that they are located upgradient of the detention pond.*

*Please refer to Stormwater Management Comment no. 2 on page 9 regarding the 50 foot setback requirement.*

18. MSH Vol. 2, Pg. 91. – requires 15 feet wide access around the entire basin perimeter, (applies to Pond A & B). GCG recommends a minimum of 10 feet wide top bench.

*The design of the detention ponds complies with the Fairhaven Subdivision Rules and Regulations. Additionally, the requirement of slopes to be at 4:1 allow for easy access for machinery to enter the*

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*ponds along the significant frontage of their respective roadways. Therefore, it is the position of the Applicant that adequate access into the pond's for future maintenance has been provided.*

19. Hammerhead radius should be called out on the plan.

*All radii have been added to the plans.*

20. 322-16(A)(7) - requires roadway center line coincide with Right-of-Way, the proposed hammerhead at the end of Hiller Avenue has approximately 5 feet center line offset at the 10 lots roadway intersection. The Hiller Avenue east bound travel lane is placed head on with a new hammerhead opposite traffic, which creates dangerous conflict and shall be revised. Taper should be provided for reducing pavement width per AASHTO.

*The plans have been revised to address this comment.*

21. The plan proposed fill along the north, east and south sides of Map 28C Lot 79 (20 Hiller Avenue). The proposed grading appears to trap surface runoff along the east portion of Lot 79, there is a proposed 12-inch culvert at the easterly lot corner. Additional contours should be provided within Lot 79 to assure existing surface drains toward the easterly lot corner. Additional contours should be provided within Lot 79 southerly property line needs to be set lower than elevation 36 to release surface runoff. Detail drainage study should be performed to assure water does not backup onto Lot 79. Based on the site photos provided by the Town, which showing the existing open channel carries much higher volume and flow than the 10- inch diameter discharge pipe capacity. The drainage study should analysis the upstream watershed area and size the drainage system to handle the less frequency storm and assure the water does not backup to Lot 79. The Board may consider requiring a drainage and/or slope easement from the abutter.

*Additional contours have been added and a drainage study has been performed. The study has resulted in no change to the proposed 15" drain but a change in the invert of the outfall pipe. The driveway and associated fill have been revised to eliminate the need for a retaining wall. Additional changes in grades have been provided to address the concerns of the ponding of water. Finally, the existing 10" RCP located in the Hiller Avenue will now be replaced with a 12" RCP.*

22. The proposed Lot 13 driveway culvert outlet is located 2 feet away from Lot 12 westerly lot line, an easement should be provided. GCG recommends rotating the culvert and place the outlet toward wet-flags #10 & #11.

*The plans have been revised per the recommendation. Due to the relocation no easement is needed.*

23. The proposed grading along Map 28C Lot 78 easterly property line needs clarification. The plan calls for a Redi-Rock drainage headwall, top wall elevation 42.7, bottoms elevation 38.2. This drainage headwall appeared to be a 140-foot retaining wall, there is also a (18" wide) drainage trench proposed between the Redi Rock wall and Lot 78 property line with 6" ADS perforated pipe, laid level with invert a 38.8, (which is above the bottom of the wall at 38.2). Please provide 18" wide drainage trench cross-section detail.

*A x-sectional detail has been provided on sheet no.11 to clarify the proposed layout. Additionally, the Redi-Rock wall has been relocated further away from the lot line to eliminate the need for an easement. Finally, additional contours have been added to further illustrate the existing conditions, specifically that no ponding will occur.*



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24. There are two retaining walls located within the proposed right-of-way, both walls are partially in the private property, one (Lot 13) without a benefit of an easement. Once approved and through street acceptance, the walls will become the Town's responsibility. GCG recommends the applicant to provide additional easement to cover the wall in Lot 13. However, the Board does have the authority to require retaining wall to be installed in private property and become the property owner's responsibility. Guardrail should be installed along the 4.5 feet tall retaining wall next to Lot #78. Guardrail may also be required in front of Lot 79 depends on grading and relocating roadway to meet ROW center line.

*The driveway for lot #13 has been relocated easterly to eliminate the need for the retaining wall and all concerns outlined. The retaining wall along lot #78 is only 3 feet high (see attached x-sectional detail) and has a sidewalk between said structure and the paved roadway, therefore no guardrail is warranted. A safety fence has been added along the top of the wall.*

25. 322-26 (F)(7)- Storm drains shall have at least 24 inches of cover. The catch basins and drain manhole at the Hiller Avenue/New roadways intersection have less than 2 feet cover. Reinforced concrete Class IV pipe should be specified if having less than forty-eight-inch cover within a street right-of-way.

*The "Typical Storm Drain Trench X-Section" on Sheet no. 10 now specifies Class IV pipe.*

26. The existing water main size on Paul Street, Timothy Street and Hiller Avenue should be called out on the plan. The section of water main on Hiller Avenue services only Lot 79, the main may not meet the minimum requirements. The applicant should be responsible to upgrade this section of main to 8" CLDI as necessary. All new water main should have a minimum size of 8" diameter.

*All water main types and sizes have been shown. The BPW Water Dept has reviewed the plans and are not requiring any offsite upgrades.*

27. Existing Hydrant(s) near the new development should be shown on the plan. Additional hydrant may be required to improve the existing system to meet the maximum 500 feet spacing requirements. Water pressure tests on Paul Street and Timothy Street should be performed to ensure enough pressure to support the development.

*The approximate locations of the nearest hydrants located on Timothy Street and Hiller Avenue and their respective distances to the proposed roadways are now shown. The distances between the existing and proposed hydrants are less than 500 feet. Therefore, no additional hydrants are required. The BPW Water Dept. is not requiring the Applicant to provide water pressure tests.*

28. The proposed water main on Hiller Avenue and the new roads will create an approximately 1000 feet of dead-end water system. GCG recommends looping the system back to Paul Street or Timothy Street.

*The Applicant respectfully declines to provide said loop because it is not a requirement by the Planning Board Subdivision Rules and Regulations or any BPW - Water Department Regulation. Per the Fairhaven BPW - Water Dept. the existing water mains in Hiller Ave and Timothy Street are 6" AC installed circa 1945 (date of subdivision plans). It is our opinion that to improve water pressure and quality the Town should upgrade all water mains in the abutting neighborhood with 8" Class 52 Ductile Iron including looping Timothy Street to Arsene Street.*

29. Additional contours and spot grades should be provided at the Pond A outlet trap rock swale. The top of trap rock next to the east property line should be at elevation 35.9, see detention pond

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details sheet 11 of 11. However, the existing contour at the property line is at elevation 34.2. Similar situation is at the Pond B outfall location proposed contours and spot grades should be added.

*Additional contours and detail information have been added as suggested.*

30. Lot #79 driveway location should be field located, due to the proximity of the proposed catch basin and steep grading in front of the lot.

*The driveway has been field located by this office and added to the plan.*

31. The two drain lines crossing at the easterly Hiller Avenue Hammerhead does not have sufficient separation, (approximately 0.15' separation as shown, 18" recommended.)

*The proposed by-pass pipe has been lowered and the outfall pipe from the catch has been raised to create 7.3" of clearance. The existing drainage outfall at the existing end of pavement limits what can be achieved.*

32. Drainage manhole with various size pipes should match crown elevation.

*The outfall pipe (D-9) has been lowered as much as is practical and increased in size to 24" to improve the hydraulic grade line.*

33. All sewer lines within the street Right-of-Way should be 8" diameter minimum per MDEP.

*The plans have been updated to provide a minimum 8" diameter.*

34. The proposed sewer connection manhole at the end of Hiller Avenue has less than 4' of cover. The existing sewer pipe size should be called out on the plan, and upgraded to 8" diameter as necessary, sewer pipe with less than 4' of cover should be insulated.

*The existing pavement in the area (before and after) the existing sewer manhole is proposed to be regraded at a higher elevation. The existing sewer manhole rim will be changed from elevation 38.89 to elevation 40.35 resulting in a 4.15 Foot dimension from invert to finish grade. The BPW Sewer Dept. has reviewed the plans and are not requiring an insulation of the pipes.*

35. Proposed drainpipe near Lot 79 driveway not labeled, (10' at 1.0% slope).

*The information has been added.*

36. Sewer manhole interior channel should have minimum of 0.1 feet drop.

*The notation has been added to the SMH detail on sheet no. 10.*

37. Drop Sewer Manhole details should be included, internal or external drop should be specified per Fairhaven DPW's approval. If internal drop is required, SMH diameter should be upgraded to accommodate the hard wares.

*A detail has been provided for an external drop on sheet no. 10.*

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38. Subdivision Regulations - Appendix A (C)(2)(K) - forebay minimum depth should be 4 feet and sized to accommodate 0.25 inches/imperious area. Access path should be provided per 322-26 (D).

*The forebays have been revised to be 4 feet deep and sized to accommodate 0.25 inches / imperious area. The plans comply with section 322-26 (D) which requires that the drainage parcels have a minimum 20-foot right-of-way to the roadway. Parcel A and Parcel B contain 172.21 and 315.90 feet of frontage respectively (> 20 ft.) along the actual roadway.*

39. There is a proposed drainpipe at the corner of Lots 1 & 2 labeled "D21", please clarify. Intention of the existing stone wall should be called out on the plan. Proposed contour 40 should be removed from this location.

*Please refer to "Drainage Pipe Lengths & Slopes" list on sheet no. 8 for "D-21". Notations have been added depicting stone walls which shall remain along the property lines of lots #1- #4 and contour 40 has been removed.*

40. Grading at the southerly lot #3 corner and rear of lot #4 needs clarification. Proposed contour 43 tied to existing contour 42.

*The grading has been clarified.*

41. Proposed cul-de-sac landscape island is different from the Appendix C - Street Design Drawing, C-13. The proposed pavement width is uniform at 24 feet wide. The applicant should request a waiver.

*It is the opinion of this office that the ellipse-type design as shown in Appendix C would be difficult to construct as shown. The proposed design exceeds the minimum roadway width requirement therefore a waiver is not required. The Fairhaven Highway Dept. has requested that the landscape island be omitted and paved for plowing purposes. If the Planning Board decides that said request would be more appropriate the Applicant would agree to said change.*

42. Sewer pipe connection to the SMH on Timothy Street should be labeled. Sewer main within the street ROW should be 8" diameter minimum, verify existing SMH condition is suitable for the proposed drop inlet installation.

*The sewer main in Timothy Street is 24" diameter per plans of record from the Sewer Dept. A detail has been provided for an exterior drop inlet. The Sewer Dept has reviewed the plans and has not outlined any concerns relative to this connection.*

43. Sewer and water services per each lot should be shown on the plan, with minimum of 10 feet horizontal separation. Sewer cleanout should be specified at the property line. A 2" sewer force main is proposed to service Lot #11.

*All sewer and water services together with water shutoffs and sewer cleanouts have been added to the plans including a typical 10 ft separation dimension.*

44. 322-16(8) - Profile should show the 75 feet leveling area. Sewer within street ROW should be 8" diameter minimum. Sewer manhole inverts channel should have a minimum of 0.1' drop.

*All profile views have been updated to show the 75-foot leveling areas. All sewer pipe is specified to be 8" diameter and a notation has been added to the sewer manhole detail to provide 0.1-foot drop on*

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*sheet no. 10. Additionally, the sewer pipes shown in the roadway profile views have been updated to properly depict the 0.1-foot drop.*

45. The proposed drop inlet in front of Lot 79 is located on the grass shoulder and abuts proposed asphalt berm. This structure should be substituted with a standard deep sump catch basin. Is there a reason for the drop inlet at the corner of Lot 10, it seems like that a standard catch basin would fit in front of the berm.

*This was looked at again and a standard catch basin does not work for this location.*

46. All proposed sidewalk should meet ADA requirements, wheelchair ramps should be required.

*Wheelchair ramps have been provided including a detail on sheet no. 9.*

47. Catch basin and drop inlet trap should have a sealed cover top.

*The specification on the catch basin detail sheet no. 10 has been updated.*

48. Show 18" wide drainage trench with 6" perforated pipe detail.

*A x-sectional detail has been added to sheet no. 11.*

49. Add wheelchair ramp detail.

*A detail has been added to sheet no. 9.*

50. Add sewer drop manhole detail.

*A sewer drop manhole detail has been added to sheet no. 10.*

51. Add drainage swale detail.

*A x-sectional detail of the proposed grass drainage swales has been added to sheet no. 11.*

52. The proposed roof drain Cultec Chamber units is classified as Underground Injection Control (UIC) Class V Well. There are 10 feet setback requirements to the property line and building foundation, 50 feet setback from BVW, and other requirements. Chambers should be equipped with cleanout/inspection port. Location of the chamber should be shown on the plan.

*A cleanout/inspection port has been added to the profile detail on sheet no. 10 and the locations of all chamber systems have been added to the plans. All chamber systems meet the 10-foot property line and foundation setbacks together with the 50-foot wetland setbacks.*

53. Operation and Maintenance Plan - Sediment Forebay requires monthly inspection and cleaned four times per year; Grass swale should be mowed to keep grass height not shorter than 3" to 4", Grass height should not excess 6"; Catch basin should be inspected and cleaned four times per year or depth of deposit is greater or equal to 1/2 of the sump; Plunge Pool and Level Spreader should be included in the O&M plan. All sediment deposit should be disposed in accordance to the Federal, State and Local regulations. The party responsible for the O&M should be identified on the plan with a signature block.



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*The O & M Plan on sheet no. 10 has been updated per the above. Said updated O & M Plan has also been incorporated into the Stormwater Report. The developer will provide a signature on a separate O & M document as required by the Planning Board.*

54. O&M sample log and estimated annual operation budget should be included.

*The O & M sample log has been included in the revised stormwater management report and the Developer will provide the Fairhaven BPW-Highway Superintendent with an estimated annual operation budget for his review and approval.*

55. Anti-seep collar should be installed around the basin outlet pipe. Forebay should be 4' deep.

*Said collar detail has been added to sheet no. 11 and the forebay has been revised as required.*

56. Is there any reason to replace the detention basin bottom material with sand below the seasonal high groundwater?

*The design proposes to excavate to the Sand and Gravel Strata to maximize groundwater recharge during the dry months (June-October).*

57. The 10' separation between water and sewer mains should also be called out on the Northerly and Easterly Roadways cross-section.

*Said dimension has been added to sheet no. 11.*

## **STORMWATER MANAGEMENT REPORT COMMENTS:**

1. There is approximately 65 feet of the new roadway and sidewalk 23' wide post-development impervious area (0.034+/- acres, please verify sub-catchment Pond B area?) drains directly to Timothy Street, where does not have any drainage system, and most likely flows onto abutter's property. A pre-development and post-development analysis point should be added at the Timothy Street intersection.

*Paved runoff chutes and grass swales have been added to capture the first 65 feet of new roadway and sidewalk onsite. The drainage report has been updated accordingly.*

2. The two proposed detention basins are located within the 50 feet setback to any water of commonwealth. Existing houses within the required setback of the basin should be shown to verify setback requirements. (100' downslope and 10' upslope.)

*The design of both detention ponds, including setbacks to wetlands, complies with the Fairhaven Planning Board Subdivision Rules and Regulations. The ponds have been sized to meet items numbered 38 and 53 together with stormwater items numbered 3, 4, 6, 7, 8 and 10 - in compliance with the Subdivision Rules and Regulations. In order to comply with number 7 above, specifically providing adequate volume to infiltrate the first flush (=1.25 inches), infiltration is required within the detention pond.*

*It is important to note that the Stormwater Design complies with the DEP stormwater Management Standards aimed at encouraging recharge and preventing Stormwater discharges from causing or contribution to the pollution of the surface waters and Groundwaters of the Commonwealth. In 1997, MassDEP published the Mass Stormwater Handbook as Guidance to Stormwater Policy. The 50-foot*

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*setback is suggested in the handbook for an infiltration basin to a wetland. However, if said setback is not required for a detention basin with no infiltration component, then the bottom and sidewalls of the ponds would be presumed to be impervious. This is supported by Appendix A (C)(2)(J)(4) as outlined in No. 3 and No. 4 below. They require that said surfaces be modelled as impervious. Therefore, it is our position the detention pond modification which now provides a 50-foot setback between the infiltration component within the pond to the wetland complies with the suggested setback requirement outlines in the DEP Stormwater Handbook.*

3. Appendix A (C)(2)(J)(2) - requires infiltration area be located in areas with a NRCS HSG (Hydrologic Soil Group) 'A', 'B', or 'C'. The easterly half of detention pond A is in "D" soil. Appendix A (C)(2)(J)(4) - the basin structure surface should be modelled as impervious. The report used the basin bottom area as impervious only

*The basin bottom has been modelled as impervious and no credit has been taken in the drainage analysis for the infiltration area located in mapped D soil.*

4. Appendix A (C)(2)(J)(4) - the basin structure surface should be modelled as impervious. The report used the basin bottom area as impervious only.

*The side slopes have now been modelled as impervious.*

5. The site consists majority of HSG "C" and "D" soil groups per soil report. The drainage studies were based on HSG 'C' soil. However, the exfiltration rate used on the calculations was based on 2.41 inches per hour, (HSG 'A') soil. GCG recommends using group 'C' soil exfiltration rate for modeling, the soil group used to determine the CN number should be consistent with the exfiltration rate for the same soil group.

*The analysis has been revised using 1.02 inches per hour which is reflective of the soil evaluations which depict sand and gravel and loamy sand material.*

6. Appendix A (C)(2)(K) - Forebay sizing and volume (0.25 inches per impervious acre of contributing drainage required) calculations should be included. Forebay should be 4' deep minimum.

*The forebays have been revised to meet the 4-foot depth. Forebay sizing and volume calculations have been provided to show compliance with the 0.25 inches per impervious acre requirement.*

7. Appendix A(C)(4)(c)[3] - requires Adequate volume to infiltration the first flush of runoff. 322-4 (First Flush = 1.25").

*The calculations show that this has been met.*

8. Appendix A (C)(4)(C) - 198-33 - Definition - First Flush - "In residential areas, the % impervious area is obtained from the TR-55 table Runoff Curve Number for Urban Areas, Residential District by Average Lot Size."

*The calculations have been updated per the above recommendation.*

9. Basin draw down calculation exfiltration rate should be based on HSG 'C'. Draw down time shall not excess 72 hours.

*The calculations show that the draw down will not exceed 72 hours.*

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10. Water quality volume calculations to treat 1.25" of the impervious area. 198- 31.1(A)(1)(b).

*The calculations have been provided as requested.*

11. Emergency spillway and sizing calculations should be provided.

*Said calculations have been provided.*

12. Operation and Maintenance Plan shall be included in the Stormwater Management report for responsible party's signature.

*The O & M Plan has been revised and included in the Stormwater Management Report with a signature page.*

13. An illicit Discharge Compliance Statement should be provided by the applicant in the report.

*Said statement has been provided in the Stormwater Management Report.*

14. Portion of the impervious (roofs, driveway, and section of roadway) area runoff does not drain to the two detention basins, Therefore, calculations are required to show basin inflow meets the 65% rule (MSH Vol. 3, Ch.1, Pg. 27) and basin storage volume sized per requirements.

*Said calculations have been provided to show compliance with this requirement. Under proposed conditions, the impervious cover is 1.80 acres. 1.44 acres (80% of the site's impervious cover) is directed to proposed BMPs. This exceeds the minimum 65% of the site's impervious cover be directed to the BMPs intended to infiltrate the Required Recharge Volume.*

15. Detention basin outlet should be placed furthest away from inlet/forebay to avoid short circuit. Emergency spill way should be sized without basin outlet(s) without overtopping the earth berm. Top of berm should have a minimum of 10' wide bench with maintenance access path.

*The outlet control structure for Pond B has been relocated to the opposite side of the pond. The emergency spillway has been analyzed without the basin outlet as requested. The access to both ponds is provided directly from the shoulders of the roadways down the slope at 4:1. Therefore an access road around the ponds is not needed, nor required by the Subdivision Rules and Regulations nor requested by the Fairhaven Highway Dept.*

16. Culverts should be sized incorporated with tail water (Dynamic) routing to make sure runoff does not back up to the private property.

*Said calculations have been provided.*

17. The Town had provided site photos of the existing 10" RCP outfall and open channel flow during heavy rainstorm. Upstream watershed should be analysis to size the appropriate drainage system.

*The upstream watershed has been analyzed and the proposed increase from a 10" diameter pipe to a 15" diameter pipe for the by-pass system has been found to be adequate. Additionally, the plan now proposes to remove and replace 135 feet of 10" RCP with 12" RCP located in Hiller Avenue.*

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18. The proposed detention basins do not meet the MDEP setback requirements and should be relocated. The relocated basin design needs to meet 198-31.1. A.1.a.1 and 2 with the with no increase of peak flow and volume.

***The Detention Ponds comply with the Fairhaven Planning Board Subdivision Rules and Regulations and comply with Section 198-31.1 A. 1.a. 1 and 2.***

19. The proposed roof drain chamber system shown on the detail plan is not shown on the site plan and calculations were not included.

***The roof runoff system which is shown in the details has been added to the plan view and the calculations have been included in the Stormwater Report.***

20. The Storm Drain Design Worksheet shown DMH numbered. GCG recommends proposed CBs, DMHs and SMHs be numbers on the plan. The worksheet should include the off-site runoff flows to the existing 10" RCP at the end of Hiller Avenue. The worksheet is based on Rational Method design and not accounting tail water and pipe entrance restriction. All critical culvert should be checked with dynastic routing to assure no negative impact to the abutters.

***All DMH's, CB's, & SMH's have been numbered on the plan as suggested. All critical culverts have been analyzed as requested.***

If you have any questions or require additional information, please call me at (508) 758-7866 (ext. 203).

Sincerely,  
Schneider, Davignon, & Leone, Inc.



David M. Davignon, P.E.

cc: File 3072  
Robert Roderiques  
Attorney J.P. Mathieu