

SCHNEIDER, DAVIGNON & LEONE, INC.

PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS

MATTHEW C. LEONE, P.L.S.



DAVID M. DAVIGNON, P.E.

JAY MCKINNON, E.I.T.

January 13, 2020

REVISED: November 28, 2022

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

Attn: Paul Foley, Town Planner

Re: Peer Review #3 - 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 12-30-19.

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

1. ***Resolved***
2. ***No Reply Required***
3. 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. The applicant should provide all necessary data to assist the Board to determine the existing surrounding municipal infrastructure is sufficient and/or capable of handling the additional volume. (322-18 C.) All available information has been provided. The applicant should identify the existing sewer pipe material and conditions in Hiller Avenue. The pipe is approximately 165' in length and services no more than two dwellings. This is a multimillion-dollar development connecting to an unknown pipe. The applicant should investigate the conditions and capacity of the existing sewer main.***

The Sewer Dept. has reviewed the proposed subdivision under a preliminary and definitive process and has no issues with the proposed connection to the municipal sewer main relative to the existing conditions or available capacity.

It should be noted that the reason sewer and water mains exist at the bottom of Hiller Avenue where no houses exist is because both mains were originally installed circa 1946 to accommodate extensive future development (see attached).

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4. *Resolved*
5. *No Reply Required*
6. *No Reply Required*
7. *Resolved*
8. *Resolved*
9. *Resolved*

DEP HAS APPROVED THE STORMWATER SYSTEM THROUGH THE ISSUANCE OF A SUPERSEDING ORDER OF CONDITIONS.

10. MSH Vol. 2, Ch. 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 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. The 15 feet wide access path was required by the DEP MSH. And a ten-foot wide bench at a slope of 0% shall surround any permanent pool in addition to the required 4H:1V side slope, which is required under 322-Appendix A (C)(2)(g)(2). The proposed top of berm is only 4' wide and is not suitable for DPW maintenance crew, who requires hauling equipment to site. The plans have been revised to provide a 10' wide access path around the perimeter of the outside of the ponds to provide access for maintenance of the outside of the berms. The inside has adequate access from the roadways.* MSH requires the area at the top of the basin must provide unimpeded vehicle access around the entire basin perimeter. And 322-Appendix A (C)(2)(g)(2) also requires "A ten-foot wide bench at a slope of 0% shall surround any permanent pool". Both State and Local regulations require the wide access/bench on top of earth berm to avoid breach of the embankment and assure any trees and woody vegetation will be removed on the access path. Roots are considered safety hazard associated with earthen berms for water impoundment. The basins as shown do not have room to provide the required ten feet wide bench around the pond perimeter. As proposed, it provided reasonable maintenance access. GCG recommends to re-grade the steep 4H:1V section to 15% to 18%. However, Fairhaven DPW will be the future operator for public drainage facility after street acceptance and should review and approve the system. GCG recommends the applicant to request a waiver for 322-Appendix A (C)(2)(g)(2). However, MassDEP could reject the design by Supersede Order of Conditions for their 15' wide access path requirements.

Per phone conversation with GCG on 1-06-20, the transition from the roadways to the lower grades of the proposed maintenance access paths around both Ponds A and B have been regraded to decrease the areas which were sloped at 4H:1V- as much as practical.

DEP HAS APPROVED THE STORMWATER SYSTEM THROUGH THE ISSUANCE OF A SUPERSEDING ORDER OF CONDITIONS.

11. 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,

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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. The proposed contour along 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.*** The revised stormwater management report shown that there are 5.4 acres of offsite watershed drains to the existing single drop inlet at the Hiller Avenue and Paul Street intersection. The peak flows are 6.70 cfs, 11.18 cfs, 14.33 cfs, 19.30 cfs for the 2-year, 10-year, 25-year and 100-year storm events, respectively. The existing drop inlet does not have the capacity to handle a 2-year storm event. Currently excessive/by-pass runoff flows toward the end of Hiller Avenue and overland flows to wetland area. The proposed Hiller Avenue extension pitches toward to the low point at new streets' intersection. This layout is blocking existing drainage runoff overflow path and potentially spill over onto Lots 78 and 79. This would become a liability issue. The applicant needs to design the drainage system to handle the existing flow and new flows generated by this development without flooding the abutters. Due to this new finding, please provide catch basin inlet capacity calculations per 198-31.1(C)(2)(n)[3], including the existing drop inlet at the Hiller Avenue and Paul Street intersection. The offsite flow would require a minimum of 21" RCP to handle the 19.30 cfs and appropriate inlet(s) to collect the flow. This is an existing issue and not causing by this development. However, the Board has the authority to require off-site improvements under Section 322-18 C. *The offsite area has been further analyzed and determined to be 4.94 acres. Said area drains into six (6) existing catch basins (not a single basin) located along Hiller Avenue. Refer to Existing Conditions Basin Map for existing catch basin locations (ECB 1 - ECB 6). The analysis proves that this concern has been addressed with the further plan revisions which include incorporating double grates at catch basins #1 and #1A and increasing the pipe sizes of the proposed by-pass system. The latest calculations shown peak runoff at the Hiller Avenue 10" RCP for the 25-year and 100-year storm events were calculated as 14.11 cfs and 17.40 cfs, respectively. The proposed 15" replacement RCP has a full capacity of 6.79 cfs. Therefore, a large amount of runoff will be left behind and flows toward to the proposed double catch basin #1. Please provide inlet capacity calculations for the drainage system. Some ponding is expected and allowed during the less frequent storm events per 322-26. F. (3). Runoff shall be controlled and retained within the right-of-right for up to 100-year storm event. The three proposed 24" pipes from DMH-1 to DMH-2 to DMH-3 to outfall do not have the capacity to carry the 100-year storm flow. Calculations should be provided to show surcharge would stay within the right-of-way during 100-year storm event.*

Per phone conversation with GCG on 1-06-20, the proposal is to remove the existing 10" RCP within Hiller Avenue and replace it with 46 ft. of 15" RCP which will discharge into a 50 ft. long drainage ditch to capture the 100-yr. storm event offsite runoff flows prior to preventing said runoff from reaching the double grate catch basin. Said ditch will discharge into a 24" RCP (a.k.a) the By-Pass System.

THE NEW CONCEPT WAS THE PEER REVIEWER'S SUGGESTION TO RESOLVE THE POTENTIAL ISSUE.

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12. 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, bottom elevation 38.2. This drainage headwall appears 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 at 38.8, (which is above the bottom of wall at 28.2). Please provide 18" wide drainage trench cross-section detail to clarify the intend), there is no discharge connection for the 6" ADS pipe, if it is used as infiltration trench, a minimum of 10 feet setback from the property line is required. All these works are located within a foot along Lot 78 property line. Encroachment is expected and GCG recommends a drainage or slope easement should be provided. Furthermore, two culverts were proposed within the 140 feet wall, the southerly culvert invert at the northeast lot #1 corner is proposed at 39.4, and the northerly culvert near the Hiller Avenue and proposed roadways intersection invert is at 38.70. There is no proposed grading shown along Lot 78 property line. Additional grading or berm is needed to ensure the runoff flows into the southerly culvert and not onto Lot 78. The plan as shown will pond water along the lot line. ***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. The proposed retaining wall and stone/pipe trench is located approximately 3' from the property line. And there appears to be existing trees along lot 78 property line. The proposed pea stone covered stone trench would require frequent maintenance. It is impractical to expect the DPW crew to access the narrow strip between the Redi-Rock wall and property line to maintain the trench to prevent flooding the private property. The proposed retaining wall is located within the right-of-way and become the Town's responsibility after street acceptance. 322-16 B. - Street design standards table calls for maximum Shoulder Slope 3:1, and the face of the proposed retaining wall would have a slope of close to 0:1, a waiver should be required for the retaining wall. The stone leaching trench has been replaced with a precast concrete trench drain to minimize and simplify maintenance. The proposed retaining wall has been incorporated into the drainage system to function as a headwall to collect offsite stormwater from lot #79. Typically, headwalls incorporated for stormwater collection and transport do not require waivers because structurally they are considered equivalent to side slopes. The proposed retaining wall with 130 feet long trench grate drainage system is located within the 5 feet wide shoulder area, where would not be accessible by vehicle due to the retaining wall with railing. Maintenance would require manual removal of the grate and cleaning. This 130 foot wall is a retaining wall and will be a future liability for the Town. It is the intent of 322-16 B. to require a 3:1 maximum shoulder slope to preclude walls within the right-of-way. The proposed wall and drainage system would become the DPW's responsibility after street acceptance and should be reviewed and approved by the Board of Public Works. An alternative would be widening the Nolan's Way and entrance and relocate the roadway westward away from Lot 78. (Similar to the proposed Colin's Drive and Timothy Street intersection.)***

On Thursday, January 9, 2020 the Applicant discussed the subject headwall with Mr. Charboneau, Town Highway Surveyor. Mr. Charboneau stated that he had no issue with any future maintenance of the trench grate or retaining wall. He indicated that he would prefer that only 1 sidewalk be constructed within Nolan's Way. If the sidewalk along the westerly side was eliminated a portion of the retaining wall could be eliminated and the height of the retaining wall could be significantly reduced for that portion which remains.

The Applicant defers to the Planning Board relative to the number of sidewalks that would be sufficient.

13. *No Reply Required*

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14. 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. The required 24 inches of cover at the intersection needs to be addressed. The typical "storm drain trench x- sectional detail provides a note for pipes with less than 2 ft. of cover to be encased in 6" of concrete.* The proposed concrete encasement would work on the roadway shoulder or cross-country area. The drainpipes at the Nolan's Way/Hiller Avenue intersection have approximately 13" of cover over the top of concrete pipe, with the proposed 6" concrete encasement, top of the concrete would be 3" below the binder pavement and is not suitable for frost heaves actions in New England's winter conditions. GCG recommends two feet of pipe cover (pavement over gravel) within the roadway area; the proposed drainpipe D4 interferes drainpipe D7 at their crossing, top of 24" (D4) RCP elevation is 37.17 and bottom of 12" (D7) RCP crossing elevation is 36.99; There are discrepancy with the pipe schedules shown on sheets 8 & 9. (e.g. D11, D12 and D16; D3 should be 12" RCP.) Pipe schedule tables should match with the Storm Drain Design Worksheet.

Pipe labelled as D- 8 has been relocated easterly to a new (additional) DMH located uphill. Pipe D-8 has been broken into two pipes labelled as D8-1 and D8-2. Pipe D8-1 is located within the shoulder of the road and pipe D8-2 now crosses the roadway with 20" of cover. Additionally, the 12" RCP from Catch Basin #1A also now has 20" of cover.

15. 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. Approximately 800 linear feet of proposed 8" Class 52 Ductile Iron water main are extended from the existing 200' section of 6" AC water on Hiller Avenue, there is no indication of the water main size and material. BPW-water also requested main piping all class 52 Ductile Iron. GCG recommends replacing the existing 6" AC water main on Hiller Avenue with 8" DI new main. All new water mains have been specified to be 8" ductile iron pipe. The Fairhaven water department is not requesting any upgrades to offsite pipes. GCG recommends to replace the existing 6" diameter AC water main with 8" ductile iron pipe to the Paul Street extension.**

On Thursday, January 9, 2020 the Applicant discussed the project with Mr. Furtado from the Water Dept. Mr. Furtado is only requiring that all pipes within the development be 8" ductile iron. He is not requesting any offsite improvements.

16. 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. The applicant is responsible to prove that the proposed water main extensions have sufficient hydrant flow to meet current Fire Code. Therefore, flow tests should be performed at the connection locations and analysis the hydrant flow with the development. The BPW Water Dept. is not requiring**

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the Applicant to provide water pressure tests. The Town would be liable for approving a water main without knowing it can meet the water demand and fire flow requirements. GCG does not recommend approval without proving the proposed water main will meet all codes.

Mr. Furtado from the Water Dept. has indicated to the Applicant that the water pressure in the existing mains are adequate for an extension into the proposed development as shown.

17. 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. The BPW – Water also requested to loop Timothy to Hiller instead of Dead Ends. GCG recommends that the new water system be looped back to Timothy Street. Existing utilities improvements are regulated under Section 322-18 C. which stated that "...The Planning Board shall disapprove of a subdivision plan where, in the opinion of the Planning Board, the existing surrounding municipal infrastructure (e.g. street width and construction, sanitary sewer, public water, etc.) is insufficient and/or incapable of handling the volume (e.g. traffic, sewage, stormwater, etc.) anticipated, by the Planning Board, to be generated by the project. Planning Board may accept or require off-site improvements to mitigate any of these impacts." This regulation is current and allows the Board to accept or require offsite improvements. The previous rebuttal provided by the Applicant and this office above stands. On the September 10, 2019 the reply letter to Board of Public Works Comments prepared by SDL stated BPW-Water- Comments dated 6-19-19, Item 2. "Loop Timothy to Hiller instead of Dead Ends." Responded: "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." Section 322-18C. stated that the Town is not responsible for off-site improvements to support a new project. GCG recommends the new water main be looped from Paul Street to Timothy Street. The existing AC water mains are old but functional. GCG recommends the applicant to test and prove that the existing water main on Paul Street and Timothy Street have the capacity to support this project.**

In a perfect world it would be ideal to provide the looping as recommended. However, that would require placing the water main partially under driveways or landscape/lawn areas of multiple house lots together with a 20 ft. wide easement for future maintenance. The fact of the matter is that the Timothy Street subdivision could have been separated from the plans and submitted before or after. Under said scenario the looping of the water mains would not be in the discussion. On Thursday, January 9, 2020 the Applicant discussed the above comments with Mr. Furtado of the Water Dept. Mr. Furtado understands the Applicants position stated above and as a result will not oppose the project as proposed.

18. *Resolved*

19. *Resolved*

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20. 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 basin has been raised to create 7.3" of clearance. The existing drainage outfall at the existing end of pavement limits what can be achieved. GCG recommends encasing the pipes with concrete. A note has been added to the Typical Storm Drain X-sectional detail requiring said pipes to be encased in concrete. The two pipes shown in this iteration are in conflict at the crossing. The 12" pipe (D7) bottom of pipe at crossing is 36.99 and the 24" pipe (D4) top of pipe elevation at 37.20. Please revise.**

An additional DMH has been provided at the intersection of the subject pipes to allow the 12" pipe to bypass through the DMH above the 30" by-pass pipe.

21. *Resolved- see reply to Item No. 14 (Duplicate Comment)*

22. *No Reply Required*

23. *No Reply Required*

24. 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. SMH Vol. 2 Ch.2 Pg.72. recommends conveyance drainage channel to use side slope of 3:1 or flatter to prevent side slope erosion. The proposed drainage channel between lots # and #4 has a side slope of 2:1. The side slopes of said swale located at the property line of lots #3 and #4 has been modified to provide a 3:1 slope. The applicant has proposed recharge trench between Lots 1 & 2 and Lots 3 & 4. These two infiltration trenches have outlet pipe invert at the bottom of the stone and do not retain any storage volume for recharge. GCG recommends to re-model these two swales as conveyance swale and remove any exfiltration and storage credit. The infiltration trench as modeled would require additional soil test pits and meet the ESHGW separation requirements.**

The proposed stone has been removed from the two swales and they have been changed to conveyance swales only.

25. *Resolved – see Reply to Item No. 11 (Duplicate Comment)*

26. *Resolved - SEE REPLY TO ITEM NO. 11 (DUPLICATE COMMENT)*

27. Show 18" wide drainage trench with 6" perforated pipe detail. **A x-sectional detail has been added to sheet no. 11. The proposed drainage trench would be impractical for the Town to maintain. There is tree line along the property line with four feet width between proposed retaining wall (which requires a waiver) and private property. Furthermore, 322 Appendix A (C)(3)(b) underground infiltration practices is not allow. (The HydroCAD calculations modelled this trench with infiltration). All wheelchair ramps have been relocated in compliance with the statement above including the placement of an additional ramp for the Hiller Avenue extension. A metal grate over runoff chute has been detailed at the northeast Colin's Drive & Timothy Street intersection. Details should be provided to prove ADA compliance.**

The specification has been provided for an ADA compliant surface tile mounted onto a steel plate.

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28. *No Reply Required*

29. *Resolved*

30. *Resolved*

31. *Resolved*

32. **RESOLVED**

33. Is there any reason to replace the detention basin bottom material with sand below the seasonal high ground water? **The design proposes to excavate to the Sand and Gravel Strata to maximize groundwater recharge during the dry months (June-October). This practice would affect the exfiltration function during the wet season and is not recommended. The proposed infiltration basin does not meet MassDEP setback requirements. See additional stormwater management comments below. The detention pond detail has been revised to limit the proposed excavation and replacement with C-33 sand to the maximum seasonal high groundwater or 2 ft. below the bottom of the ponds. The proposed sand layer is used to provide the required 2' separation to seasonal high ground water and should not count any storage credit. (bottom of the storage should be 2' above the ESHGW). The proposed rubber liner should be replaced with a 12" thick clay barrier to prevent loam material sliding off rubber liners surface.**

The 2' of sand has been removed as storage in the stormwater model and the rubber liner has been changed to a 12" thick clay barrier.

DEP HAS APPROVED THE STORMWATER SYSTEM THROUGH THE ISSUANCE OF A SUPERSEDING ORDER OF CONDITIONS.

34. *The proposed drainage swale along Map 28C Lot #77 should have a berm along the abutter's property line to prevent spillover onto private property, channel should be sized with freeboard per Vol. 2, Ch.2, Pg. 71. The roadway surface runoff flows through the paved runoff chute to the level spreader does not meet the treatment requirements. Not addressed.*

Trap rock check dams have been added to both swales per the suggestion of GCG.

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. The HydroCAD report shows Pond C1: Culvert 1 with a 20' long x 20' breadth Broad-Created Rectangular Weir at elevation 39.70. There is no Weir shown on the plan set. Culvert 1 and Culvert 2 have peak elevation at 40.92 during the 100-year storm event the peak water elevation is higher than the Timothy Street intersection grade and onto the abutter's lot (Map 28c Lot 70). This area has been re-evaluated and corrected to address the concern. Culvert 2 – the two 18" RCP pipe slopes do not match with HydroCAD calculations. Culvert 1 peak elevation during 25-year and 100-**

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year storm event are above the Timothy Street intersection grade. i.e. Flooding occurs.

Revisions to pipe inverts and slopes have been made to address this concern.

2. *Resolved – see reply to Item No. 1 above (Duplicate comment)*

DEP HAS APPROVED THE STORMWATER SYSTEM THROUGH THE ISSUANCE OF A SUPERSEDING ORDER OF CONDITIONS.

3. *Resolved – SEE REPLY TO ITEM NO. 2 ABOVE (DUPLICATE COMMENT)*

DEP HAS APPROVED THE STORMWATER SYSTEM THROUGH THE ISSUANCE OF A SUPERSEDING ORDER OF CONDITIONS.

4. *Resolved*

5. *Resolved*

6. *Resolved*

7. *Resolved*

8. *Resolved*

9. Emergency spill way and sizing calculations should be provided. ***Said calculations have been provided.*** *Spillway calculations should be based on "brimful" conditions per SMH Vol.2, Ch.2, Pg.91. (i.e. pond volume filled to specified storm event.) The spillway calculations have been provided to the 100-yr storm event.* The spillway calculations for the two ponds were based on 5' long x 11' breadth (Pond A) and 5' long x 12' breadth (Pond B) broad- crested rectangular weir with pond storage. The calculations should be based on the 100-year storm event inflow pass through the weir, (without any other outlet and no storage, assuming outlets malfunctioned, and pond filled with water) per MDEP. Furthermore, the spillways cross-section on sheet 11 of 11 shown 4' long only. Please recalculate spillway length and revise details accordingly.

The detail sheets have been revised to reflect the 5 ft. wide spillways outlined in the stormwater report.

DEP HAS APPROVED THE STORMWATER SYSTEM THROUGH THE ISSUANCE OF A SUPERSEDING ORDER OF CONDITIONS.

10. *Resolved*

11. *No Reply Required.*

12. *Resolved*

13. *No Reply Required – See Reply to Item No. 10 (Duplicate Comment)*

14. *Resolved*

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15. *No Reply Required – See Reply to Item No. 11 (Duplicate Comment)*

DEP HAS APPROVED THE STORMWATER SYSTEM THROUGH THE ISSUANCE OF A SUPERSEDING ORDER OF CONDITIONS.

ALSO: PERMANENT POOLS (IE: WET BASINS) ARE NOT PROPOSED!

16. *No Reply Required*

17. *No Reply Required – REFER TO REPLY TO NO. 11 ON PAGE 3*

18. *Resolved*

DEP HAS APPROVED THE STORMWATER SYSTEM THROUGH THE ISSUANCE OF A SUPERSEDING ORDER OF CONDITIONS.

19. *No Reply Required*

20. *Resolved*

21. *Sealed covers on traps have been added.*

Additional Comments: Plan sheet 10 of 11 – Precast concrete catch basins #1 & #1A should be equipped with sealed cover on trap for oil/hydrocarbon separation.

22. **The roof chamber calculations should be based on 7.5 effective length with 1.87 c.f. per ft storage volume (per Cultec)**

The calculations provided reflect 1.78 c.f. per ft. of storage volume < 1.87 c.f. The revised calculations have utilized the 1.87 c.f. per ft. storage volume.

Storage Volume Calculations:

The pre-development HydroCAD report shown 1.178 ac impervious area (Existing – Page 2) And the post-development report shown 3.350 ac impervious area. (Propose – Page 3).

Net increase impervious area due to new development = 2.172 ac. MDEP

- MSH requirements:

Recharge Volume = 2.172 ac x 43,560 s.f. x 0.35 in/12 in/ft (agreed HSG 'B' soil) = 2,760 c.f. WQV =

2.172 ac x 43,560 s.f. x 0.5 in/12 in/ft (0.5" rule) = 3,942 c.f.

Provided.

Recharge volume: 14 roof drain systems = 256 c.f. x 14 =	3,584 c.f
Lot 9	119 c.f
Lot 12	243 c.f.

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Sub-total = 3,946 c.f.

65% Rule – total impervious area= 2.172 ac (MSH Vol.3 Ch.1 Pg. 27) Impervious area to Pond A = 0.5 ac (Basin A) + 0.18 ac (Pond A) = 0.68 ac Impervious area to Pond B = 0.19 ac

Roof (14 units) = 0.5 ac

Lot 12 = 0.03 ac

Lot 9 = 0.03 ac

1.43 ac (68.5% > 65%) OK

65% Adjustment Ratio = $2.172/1.43=1.52$ (MSH Vol.3 Ch.1 Pg. 28)

Require Recharge Volume = $2,760 \text{ c.f.} \times 1.52 = 4,195 \text{ c.f.}$

Pond A (El. 36.50-37.50) 3,024 c.f.

Pond B (El. 37.50-38.50) 621 c.f.

Total = 11,537 c.f. > 4,195 c.f. OK

WQV: Pond A and Pond B 3,645 c.f. < 3,942 c.f. Not comply

Local Regulations: water Quality - First Flush (1.25")

Parcel area = 10.85 ac

First Flush Volume: $10.85 \text{ ac} \times 43,560 \text{ s.f.} \times 0.3$ (30% impervious for 1/3 AC lot, TR55) $\times 1.25 \text{ in}/12 \text{ in}/\text{ft}$
= 14,770 c.f. (Infiltration volume within infiltration basin, Appendix-A - C.4.c[2])

Water Quality (First Flush) volume: Residential roof runoff are considered clean water per MSH and no treatments required. The chamber systems are located within the private property and maintained by the property owners. Pond A & Pond B storage volume below the outlet invert has been pre- treated by deep sump hooded catch basin and sediment forebay. The combined volume = 11,537 c.f. which is below the required 14,770 c.f. Not comply.

(This is a rough calculation check based on the report data. There may be some discrepancy with the computer modeling with minor exfiltration function.)

*Storage Volume Calculations Reply:
See attached.*

Summary:

The proposed infiltration basin does not meet the MDEP setback (50' from any surface water of commonwealth) requirements. Forebay and Infiltration basin sizing should be based on 322-26 requirements. The two existing lots #78 and #79 are being filled along their property line and relied on a culvert at each lot to release the surface runoff, pipe entrance conditions should be accounted for and the head water should be retained within the street ROW or within an drainage easement. *The offsite*

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drainage analysis discovered a major deficiency at the Hiller Avenue existing drainage system. The proposed development will create a low point at the proposed Nolan's Way intersection. Drainage design should be sized to handle the existing off- site flow and new development flow to eliminate potentially flooding/overflow onto to abutting properties. The proposed detention basin does not meet SMH and Subdivision Regulation requirements. Additional BMP facilities/volume is needed to provide the First Flush treatment requirements. Based on GCG's rough volume calculations check. The proposed WQV BMPs are substantially under sized for the Fairhaven Stormwater Management requirements for Water Quality - First Flush (1.25") treatment. And minor deficiency for the State WQV requirements, which could be easily fix. However, the First Flush treatment volume would require additional area to satisfy the requirements. This is a local Subdivision Regulations - Appendix A. Stormwater Management Systems and is outside the MDEP jurisdiction.

The proposed roof runoff recharge systems have been increased in size to meet the recommended recharge volume by GCG Associates. Additionally, per discussions with GCG the calculations have been adjusted to comply with the required WQ First Flush Volume for 7.85 acres.

DEP HAS APPROVED THE STORMWATER SYSTEM THROUGH THE ISSUANCE OF A SUPERSEDING ORDER OF CONDITIONS.

Conclusion:

The most recently revised plans have addressed the both BPW and GCG Associates comments, therefore the Applicant respectfully requests that the Planning Board approved the project as presented.

DEP HAS APPROVED THE STORMWATER SYSTEM THROUGH THE ISSUANCE OF A SUPERSEDING ORDER OF CONDITIONS.

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

Sincerely,
Schneider, Davignon, & Leone, Inc.

A handwritten signature in blue ink that reads "David M. Davignon".

David M. Davignon, P.E.

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

Stormwater Summary – 01/10/20

Scotcut Neck Woods, Fairhaven, MA

MADEP – MSH Requirements:

Recharge Volume = 1.91 ac x (43560 sf/1 ac) x 0.35 in/12 in/ft = 2,426.65 cf
WQV = 1.91 ac x 43,560 sf x 0.50 in/12 x 0.50-inches = 3,466.65 cf

Recharge Volume: 14 roof drain systems = 4,618 cf
 Roof drain system (Lot 9) = 275 cf
 Roof drain system (Lot 12) = 135 cf
 Total roof drain systems = 5,028 cf



65% Rule – Total impervious area = 1.91 ac (MSH Vol. 3 Ch. 1 Page 27) – based on polyline in AutoCAD
Impervious area to Pond A = 0.50 ac (Basin A) + 0.18 ac (Pond A) = 0.68 ac
Impervious area to Pond B = 0.19 ac
Roof (14 units) = 0.50 ac
Roof Lot 12 = 0.03 ac
Roof Lot 9 = 0.03 ac
Swale = 0.03 ac
Culvert 1 (Swale) = 0.05 ac
TOTAL= 1.51 acres

65% Adjustment ratio = 1.91 acres / 1.51 acres = 1.26
Required Recharge Volume = 2,426.65 x 1.26 = 3,057.58 cf

Pond A (El. 36.5 – 37.95) = 4,766 cf
Pond B (El. 37.5 – 38.9) = 989 cf
Total infiltration ponds = 5,755 cf

Total volume within roof drain systems and infiltration ponds = 5,028 cf + 5,755 = 10,783 cf

10,783 cf provided > 3,057.58 cf required recharge volume

WQV: Pond A and Pond B 5,755 cf provided > 3,466.65 cf required water quality

Local Regulations: water quality – first flush (1.25-inches):

Parcel Area = 10.85 acres
Wetlands = 3.00 acres
Remaining Area = 7.85 acres

First flush volume: 7.85 acres x 43,560 sf x 0.3 (30% Impervious for 1/3 acres lot, TR-55) x (1.25 in/12 inches) = 10,686 cf (infiltration volume within infiltration basin, Appendix A-C.4.c[2])
Water quality (first flush) volume: Residential roof runoff area (0.56 acres) considered clean water per MSH and no treatment required. The chamber systems are located within the private property and maintained by the property owners. Pond A & Pond B storage volume below the outlet invert has been pre-treated by deep sump hooded catch basins and sediment forebay. The first flush volume = 10,783 cf provided > 10,686 cf required.

Showing the nature of the improvement.

PLAN 1A

BOOK NO. 36 PAGE 32

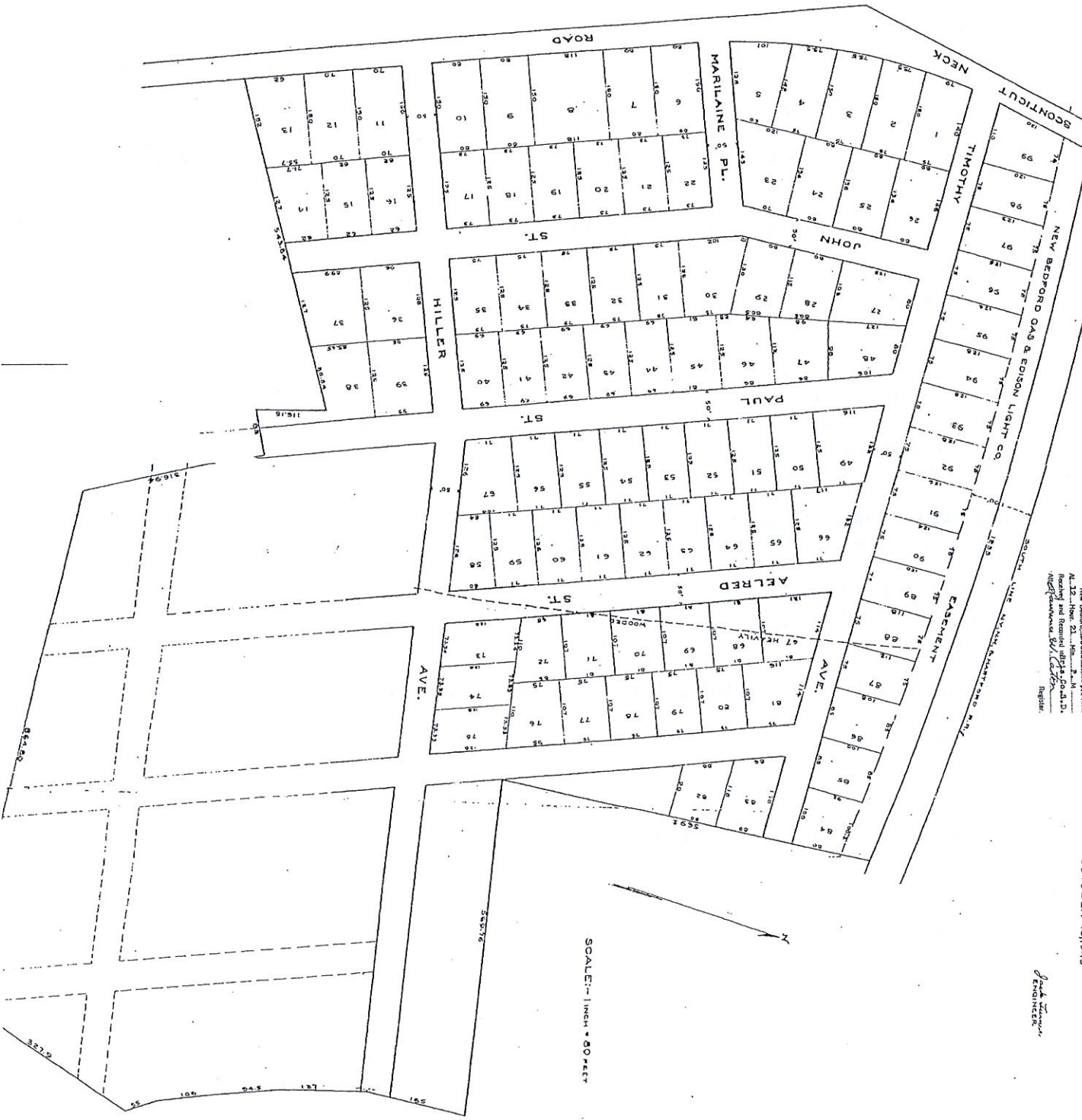
LOWNEY VILLAGE

SCONTICUT NECK, FAIRHAVEN

OCTOBER 10, 1945

Commonwealth of Massachusetts
Register of Deeds, October 10, 1945, p. 156, l. 1.
Filed for Record at 11:45 A.M.
Recorded and Returned at 1:45 P.M.
Notary Public, Fairhaven, Massachusetts.
Register.

John W. Brown
ENGINEER



SCALE: 1 INCH = 80 FEET