



October 8, 2020

Ms. Susan Sarni
Executive Health Officer
210 Central Street
Hingham, MA 02043

RE: Proposed Septic System - Follow up #2
10 Martins Cove Lane, Hingham, MA 02043

Dear Ms. Sarni:

CHA is in receipt of the Chessia Consulting Services, LLC second comments letter related to the above-referenced site, dated September 29, 2020. We have prepared this response, including the enclosed plans to address the received comments. We understand that this project would be placed on the Board of Health's Agenda in the upcoming weeks. Original comments are listed below in standard text, followed by our responses in *bold italic text*.

General Comments:

- 1- The Response indicates that an ANR plan has been filed and that no property transfer is proposed at this time. I defer to the Board regarding whether a Title 5 inspection of the existing property is required.

CHA Response: No additional response needed. The project does not trigger a Title 5 inspection. We refer the Board to our earlier response to comments letter to Ms. Sarni dated September 15, 2020.

- 2- The Response indicates that floor plans will be submitted as part of the Building Permit process.

No additional response needed.

- 3- A test pit is at the garage but not the cellar floor. The floor of the basement potentially could be impacted by ledge and the design includes an underdrain system. Since a Variance is requested assuming the foundation would require ledge removal, additional testing is not required.

No additional response needed.

- 4- The Response indicates that a site plan submittal and associated review will be required.

No additional response needed.

Variance Requests from Town of Hingham Board of Health Supplemental Rules and Regulations for the Disposal of Sanitary Sewage

The Response indicates that the submittal was received prior to the latest revisions in the Regulations. Since the specific Variances requested did not change between versions and the

Applicant has submitted a new Application for a Variance/Divergence request under the current numbering system, the current numbering system has been used.

No additional response needed.

The design is based on the highest seasonal groundwater in Test Pit 10, which is in the reserve area, although the difference at the primary area is approximately 6 inches. The plans include a breakout barrier around the system and a slope of 3:1 outside the five foot over dig required. The Board should review the variance request.

No additional response needed.

The revised submittal request a Variance from Section VII M for construction in fill where there is not sufficient natural separation from high groundwater. The Applicant proposes to meet the environmental standards of the Regulations by removing unsuitable soil, primarily top soil and subsoil (A and B layers) and installing Title 5 sand. The elevation of the land would be raised by approximately 4 to 5 feet at the proposed primary system location.

No additional response needed.

The design is based on the highest seasonal groundwater in Test Pit 10, which is in the reserve area although the difference at the primary area is approximately 6 inches. The plans include a breakout barrier around the system and a slope of 3:1 outside the five foot over dig required. *The Board should review the variance request.*

CHA Response: The request for variance will be discussed with the Board of Health at the Public Hearing. No additional response needed.

Section VII P: A Variance has been requested from this requirement. It is likely that the construction of the house foundation would encounter ledge and although the presence of ledge does not necessarily indicate groundwater based on site specific condition, it is considered an impervious layer and water would tend to be at the elevation of the ledge; therefore, it was recommended to request the Variance consistent with the Board's requirement to do so on other similar sites.

It is proposed to provide a subdrain system under the basement slab. The foundation detail also includes an unspecified optional waterproofing to be applied to the foundation with a "sheet drain" product against the wall. Based on data provided by Ms. Sarni regarding previous similar applications, this is a new product that should be vetted by the Board. Alternatively, the design could be revised to indicate currently accepted waterproofing designs.

CHA Response: After discussion with Ms. Sarni and Mr. Chessia, it was indicated to CHA that Tuff-N-Dri foundation drain system had been previously approved by the Board of Health. The proposed sheet drain by Sitedrain™ is equivalent to the Tuff-N-Dri system. However, at the request of Mr. Chessia, Tuff-N-Dri drain system is now proposed. Refer to Detail # 8 on Sheet C-602 of the site plans for additional information.

Town of Hingham Board of Health Supplemental Rules and Regulations for the Disposal of Sanitary Sewage Section V Application Requirements:

- A. A copy of the Application has been provided.

No response required.

- B. A copy of check for the fee has been submitted.

No response required.

- C. It is assumed that the fee for review has been submitted.

No response required.

- D. The Board should request confirmation that notifications have been sent before the public hearing. It is my understanding that the public hearing could be delayed due to Covid-19 issues.
The public hearing is still pending.

No response required.

- E. The status of Conservation Commission review is not known at this time. *A Negative Determination of Applicability has been issued by the Conservation Commission regarding this project.*

No response required.

- F. A will serve letter from Aquarion has not been included in the submittal data provided as required. *Satisfied, a Will Serve letter has been provided in the submittal.*

No response required.

- G. The lot is located in a constructed subdivision that was built many decades ago. To implement the project, it is proposed to submit an ANR plan to make an interior lot line change between #6 and #10 Martin's Cove Lane. *The Response indicates that the ANR has been filed and approved by the Planning Board.*

No response required.

- H. A lot line change is proposed, this requirement would apply. The Board may require an inspection of the existing system at #6 Martin's Cove Lane. *The Response indicates that this Regulation does not apply. As noted, the Board may require an inspection of the existing system at their discretion.*

CHA Response: No additional response needed. The project does not trigger a Title 5 inspection. We refer the Board to our earlier response to comments letter to Ms. Sarni dated September 15, 2020.

- I. Not applicable, the Application is for a conventional system, and a variance from Section VII J is requested (I note that the Application data lists the incorrect Section of the Regulations.)

CHA Response: This comment has been addressed in our response to comments letter dated September 15, 2020.

- J. Soil testing data summaries have been provided on the Plans. I have not received the complete soil evaluation forms. *Satisfied, complete soil evaluations were included in the revised submittal.*

No response required.

- K. The Plans do not include ties to the test pits. It appears that the test pit locations were surveyed. Testing was performed in November of 2019 and was witnessed by Chessia Consulting Services on behalf of the Town and are still valid. *The test pits were surveyed and should be accurately indicated. The plans do not have ties but this may not be a requirement as the locations were field surveyed location. I defer this issue to the Board.*

CHA Response: We have indicated previously that the test pit locations were field surveyed by a Professional Land Surveyor (Hoyt Land Surveying). As requested, additional ties have been added to the Site Plans Sheet C-003.

- L. It is unclear if three sets of plans were submitted. The plans provided have the appropriate stamps, dates, scale, etc.

No response required.

- 1) Lot data and ownership are listed on the plan as required.

No response required.

- 2) There is an Existing Conditions plan prepared by a Professional Land Surveyor that includes the required data.

No response required.

- 3) The plan indicates the location of the street sideline, and both existing and proposed buildings and driveways and parking areas as required.

No response required.

- 4) No setback dimensions are indicated as required. *Building setbacks are indicated as required.*

No response required.

- 5) Finish floor elevations for the building, cellar slab and garage slab are indicated. The elevation of the top of the foundation should be added to the plans. *Satisfied.*

No response required.

6) The existing street centerline grade at the lot's frontage is indicated by contours.

No response required.

7) I recommend that the plans include overall dimensions of the system on Sheet C-201, including the location of the breakout barrier and any other pertinent features. *Satisfied.*

No response required.

8) Test pit locations are indicated as required,

No response required.

9) This Section requires specific data for test pit logs. Much but not all of the data is on the plans (Sheet C-003) the full soil evaluation logs data was not provided to Chessia Consulting Services. A benchmark is listed on the plans and is based on NAVD. I note that current standards use NAVD of 88. *Complete forms were provided in the submittal.*

No response required.

10) Elevations are listed on the logs on the plans as required.

No response required.

11) A profile of the system is included on the plan as required.

No response required.

12) A cross-section of the SAS has been provided. Specific details of the septic tanks, distribution box and infiltration chambers have also been included on the plans.

No response required.

13) The plan includes contours and spot grades. Some additional spot grades at building corners may be required and there appears to be an inconsistent contour (EL 13) between the driveway and system. Grades should be clarified at the walkway to the building as well. *Satisfied.*

No response required.

14) Design calculations have been provided. It is proposed to construct a three-bedroom dwelling. It is proposed to use ARC LP infiltrator units, which are approved by DEP for General Use. *The calculations are complete.*

No response required.

15) Not applicable a plant is not proposed.

No response required.

- 16) There is an existing storm drain within 100 feet of the reserve area that is indicated on the plans. No new piped drainage is proposed for the property although a shallow swale is proposed along the proposed property line change to the south of the system. The swale is approximately 21 feet from the edge of the reserve area. *There is no longer a swale along the property line.*

No response required.

- 17) Wetlands are indicated on the plans. It is unclear if the wetlands have been verified by the Conservation Commission. Based on the plans there are coastal wetlands and a flood zone within the site. The system is located outside of the 100-foot wetland buffer zone as indicated. *Satisfied, a Negative Determination of Applicability has been issued by the Conservation Commission regarding this project.*

No response required.

- 18) The Plan indicates two irrigations wells in the vicinity (within 500 feet). The proposed water service to the lot is indicated on the plans.

No response required.

- 19) The existing system for #6 Martin's Cove Lane has been indicated on the plans but not #9, which also abuts the lot. This system should be indicated on the plans as required. *The Response indicates that no plans are available for #9 Martin's Cove Lane. The system is over 74 feet from the property line.*

No response required.

- 20) A benchmark is located on the plan, a catch basin rim in Martin's Cove Lane.

No response required.

- 21) The plan includes a north arrow as required.

No response required.

- 22) The plans indicate underground water (proposed) and a proposed line for electric, cable, and telephone that is listed as underground. These utilities are not indicated as actually connecting to an existing utility, they just extend into the roadway. I recommend that the tie in points be determined. *Satisfied, existing utilities are indicated in the Roadway.*

No response required.

- 23) The plans indicate an existing easement along the easterly lot line. I note that a portion of the storm sewer pipe is on the subject lot not within the easement according to the plan.

No response required.

24) The submittal does not include the required nitrogen loading analysis. *The Response indicates that since the project was filed prior to the current Regulations this aspect of the Regulations should not apply.*

No response required.

25) This Section references Title 5 requirements that are in addition to the Supplemental Rules and Regulations. Refer to comments below.

No response required.

M. through Q no comment required.

No response required.

Section VI Permit Restrictions:

No engineering comment required.

No response required.

Section VII Design Requirements:

A. The use is a single-family three-bedroom house. The Board may require floor plans to confirm the design sizing. The Response indicates that the Applicant will provide floor plans as part of the Building Permit application.

No response required.

B. The system is on the same lot as required although it is proposed to add a portion of land from #6 Martin's Cove Lane to the locus.

No response required.

C. No components of the system are over 200 feet from the proposed structure.

No response required.

D. A well for water supply is not proposed, this is not applicable.

No response required.

E. The plans indicate that the system is over 100 feet from the wetlands. It is unclear if the wetlands have been verified by the Conservation Commission. *Satisfied, the Conservation Commission has verified the wetlands.*

No response required.

F. Setback requirements:

- 1) The lot is not near a public water supply well or surface water supply.

No response required.

- 2) There are no known potable wells near the system. A review of the Aquarion water service list indicates that all lots in the area are connected to Aquarion water.

No response required.

- 3) The plans appear to comply with non-potable well setbacks. There are two irrigation wells indicated on Sheet C-101. The irrigation wells are over 100 feet from the leaching area. I note that the scale is incorrect on Sheet C-101, it appears to be a 1"=50' versus the listed 1"=80' scale listed. *The scale has been corrected.*

No response required.

- 4) The lot is not near a surface water supply or tributary.

No response required.

- 5) The lot is not near a protected water body. I am not aware of any other specific nitrogen sensitive areas that the Board has identified near the locus.

No response required.

- 6) The system is not within 25 feet of a drain that is higher than the system.

No response required.

- 7) The system could be considered within 50 feet of a surface drain that is lower in elevation than the proposed system if the swale to the south side is considered a drain. There is no piped flow to the area it is designed to pitch to the west and is partially graded as a swale. The Board should review this aspect of the plan. *The swale has been eliminated.*

No response required.

- 8) The site is not proximate to a surface water supply or tributary.

No response required.

- 9) The site is not proximate to a protected water body listed in the Regulations.

No response required.

G. The lot is partially below the mean high-water mark (MHW). Based on the Plans there is 69,085 square feet of land with the area above MHW prior to the addition of the small strip on the south side. Assuming this is the applicable land area the lot would be adequately sized for five bedrooms (110 gpd/bedroom). A three-bedroom dwelling is proposed.

No response required.

H. The site is not identified as within a Zone II or area dependent on private wells, this Section would not be applicable.

No response required.

I. Not applicable, this Section references nitrogen reduction technologies.

No response required.

J. A Variance has been requested from this requirement (although the Application lists it as Section VI 12). The maximum groundwater is 30 inches below grade, and the removal of unsuitable soil, with replacement with sand, is proposed. Refer to comments under “Variance Requests from Town of Hingham Board of Health Supplemental Rules and Regulations for the Disposal of Sanitary Sewage”. Refer to comments under “Variance Requests from Town of Hingham Board of Health Supplemental Rules and Regulations for the Disposal of Sanitary Sewage”.

No response required.

K. Not applicable the proposed system would be considered a bed system not trenches.

No response required.

L. A reserve area has been provided in a separate area from the primary system. The system size is consistent with requirements.

No response required.

M. It is proposed to construct the system in fill. There is not sufficient depth of naturally occurring pervious material above the maximum groundwater elevation. A Variance would be required from this requirement. A variance has been requested, refer to comments under “Variance Requests from Town of Hingham Board of Health Supplemental Rules and Regulations for the Disposal of Sanitary Sewage”.

No response required.

1) The soils are pervious at the proposed primary and reserve system locations but there is not sufficient depth to groundwater. The design would not comply with this requirement. As noted a variance has been requested.

No response required.

- 2) This refers to fill placement. There should be a note on the plans relative to compaction. *Satisfied.*

No response required.

- 3) This section references inspection. The plan should include notes requiring inspections, etc. as noted in this Section. *Satisfied.*

No response required.

- N. It is not proposed to utilize the system in the summer only, this requirement would not apply.

No response required.

- O. It is not proposed to install a greywater system, this requirement would not apply.

No response required.

- P. No soil testing has been performed at the location of the cellar of the proposed building. There is one at the proposed garage area, but I recommend that test pits be excavated at the highest existing natural grade within the building footprint. The area proposed for the building has ledge proximate to the area and there may need to be a variance to install the dwelling as proposed if ledge is encountered within 18 inches of the proposed basement slab elevation. There is an existing garage with a slab floor at elevation 17 +/- the proposed cellar elevation is 14.7. *A Variance has been requested refer to comments under "Variance Requests from Town of Hingham Board of Health Supplemental Rules and Regulations for the Disposal of Sanitary Sewage".*

No response required.

- Q. I recommend that the plans identify grades at the pavement where the driveway would access Martin's Cove Lane to confirm runoff directions. Additional spot grades at the building would be desirable. *As designed runoff from the roadway would flow down the driveway and a grade break may be desirable at the property line. Spot grades at building corners have been provided.*

CHA Response: A Grade break has been included in the design as requested. Refer to the enclosed site plans for additional information.

- R. One septic tank cover would be set to finish grade, this requirement would be met.

No response required.

- S. No vent, excepting the building plumbing stack is proposed.

No response required.

- T. The leaching system proposed does not require stone. This Section would not apply.

No response required.

U. No tees or wyes are proposed in the leaching area.

No response required.

V. The collection system is 4-inch Schedule 40 PVC as required.

No response required.

W. The septic tank appears to comply with requirements. There is an inconsistency in the width of the tank between the plan and end views. It appears that the end view is incorrect. I recommend notes be added to the details specifying Title 5 requirements for construction. *Satisfied.*

No response required.

X. I recommend that the plans include a note requiring the construction of the septic system prior to the construction of the building as required. *Satisfied.*

No response required.

Title 5 Requirements

I have only listed the specific Section where data should be provided

15.221(12)(q) There should be a note requiring magnetic identification tape over components of the system. *Satisfied.*

No response required.

I recommend that the Plan include specifications for the Septic Tank and Distribution Box as listed in 15.226 and 15.232 of Title 5. *Satisfied.*

No response required.

We appreciate your time and consideration. We trust that this response, along with the enclosed plans and documents, adequately address your comments, and we ask for your support and approval of this Application. Should you have any questions, please don't hesitate to contact me at 781-982-5436.

Sincerely,
CHA Consulting, Inc.



Hazem Dani, PE
Project Engineer