GRADY CONSULTING, L.L.C.
Registered Professional Civil Engineers & Land Surveyors

October 14, 2021

Duxbury Board of Health
Town Hall
878 Tremont Street
Duxbury, MA 02332

RE: 0 Keene St, Parcel 014-011-006 – Septic System & Drainage Design Response to Comments

On behalf of the applicant we hereby submit responses to comments received on September 14, 2021. The plans and applications were reviewed by Pat Brennan, PE from Amory Engineers, PC, in a letter dated September 14, 2021. We utilized Amory Engineers' review letter outline and have provided our responses in **bold** and Amory Engineers in *italics.*

AMORY ENGINEERS, P.C.
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September 14, 2021

Duxbury Board of Health
Town Hall
878 Tremont Street
Duxbury, MA 02332

Subject: 0 Keene Street, Parcel 014-011-006 – Septic System & Drainage Design

Dear Board Members:

This is to advise that we have reviewed the Site Plan (2 sheets), Stormwater Management Design Calculations and transmittal letter with attachments, all dated August 26, 2021, preparedby Grady Consulting, LLC, for the proposed dwelling and septic system at the subject location. The purpose of our review has been to evaluate conformance with 310 CMR 15 - The State Environmental Code (Title 5) and the Town of Duxbury Supplementary Rules & Regulations tothe State Environmental Code (R&R).

The site is located off the north corner of Keene and Summer Streets (Route 53). It is within the Residential Compatibility (RC) zoning district. The property is not within the Aquifer Protection Overlay District (APOD) nor is it within a FEMA flood zone. The proposed septic system is designed for a three bedroom dwelling and town water is proposed to serve the dwelling from a connection to the existing water main in Keene Street. There are bordering vegetated wetlands located on and adjacent to the lot and their associated buffer zones encompass most of the lot.

The stormwater design includes a pair of concrete drywells for roof runoff and a rain garden which would take overflow from the drywells. The septic system would include a 1,500 gallon

tank, distribution box and a 35-ft. long by 12.4-ft. wide GeoMat leaching field. The GeoMat leaching system is a MassDEP approved alternative subsurface soil absorption system. We note that the MassDEP approval, Condition 9 allows the system to be installed within five feet of a cellar wall and the proposed system is about six feet off the cellar wall.

The Applicant is requesting one variance from R&R Section 1.10(1)(a) which requires the soil absorption system (SAS) to be a minimum of 150 feet from wetlands. The proposed SAS is 88.3 feet from the wetlands but it is located the furthest distance from the wetlands that it can be on this lot. It is also located on the opposite side of the dwelling from the nearest wetland.

Comments:

1. *The Stormwater Management Design Calculations indicate that there will be no increasein stormwater runoff from the lot under proposed conditions for the 2-, 10- and 25-year storm events as required by R&R Section 1.15(1)(a). However, we note the following:*

   a. *The HydroCAD model includes a swale that is supposed to convey runoff from the driveway to the rain garden. However, based on the proposed grading it appears thatrunoff would flow around the rain garden rather than into it. The model should be revised to reflect this.*
      - **The plan has been updated to reflect the grading for the proposed swale**

   b. *The HydroCAD model has six inches of crushed stone below the concrete drywells but the detail on Sheet 2 shows one foot of stone. This should be consistent.*
      - **The detail in the plan has been corrected to reflect the HydroCAD model.**

2. *In accordance with the Septic System Application Checklist, the following is required:*
   a. *Floor plans should be submitted.*
      - **Floor plans have been added to Sheet 2**

   b. *The proposed driveway and house are shown on the plan but any walks or other impervious areas should also be shown if proposed*
      - **All other impervious areas have been added to the plan.**

   c. *Rick Grady's soil evaluator certification number should be include under Septic Note 3.*
      - **The certification number has been added to Septic Note 3**

   d. *The effluent tee filter on the outlet from the septic tank should be specified to have a support leg.*
      - **The detail has been modified to include this requirement**

3. *The GeoMat SAS design calculations indicate that the design flow provided will be 507 gallons per day.*
   - **No response required**

4. *The future homeowner will need to be educated on the GeoMAT SAS requirements, particularly that there can be no impervious surface above the SAS and no planting within five feet of the SAS.*
   - **No response required**

5. *The Subsurface Sewage Disposal System profile on Sheet 2 shows a foundation drain. There should not be a foundation drain on the side of the house that the SAS is on.*
    - **A note has been added to the plan indicating no foundation drain on the side of the septic system.**

6. *The total lot area should be listed on the plan.*
    - **The total lot area has been added to the plan**

7. *To avoid confusion, Town of Duxbury Checklist Notes 4 and 7 should indicate that there are wetlands within 150 feet of the system and a variance is required. Same comment for Note 6 on Sheet I and Septic Note 9 on Sheet 2.*
    - **The following note has been added to Checklist note 4, note 6 on sheet 1, and septic note 9 on sheet 2:**
        - **"A VARIANCE IS REQUIRED DUE TO THE SEPTIC SYSTEM'S LOCATION BEING LESS THAN 150 FT FROM THE BORDERING VEGETATED WETLAND. NO OTHER STREAMS, SURFACE & SUBSURFACE DRAINS, NOR WETLANDS EXIST WITHIN 150 FEET OF THE PROPOSED SYSTEM."**
    - **The following note has been added Checklist note 7 on sheet 1**
        - **"A VARIANCE IS REQUIRED DUE TO THE SEPTIC SYSTEM'S LOCATION BEING LESS THAN 150 FT FROM THE BORDERING VEGETATED WETLAND. NO OTHER VARIANCES FROM TITLE 5 OR DUXBURY RULES AND REGULATIONS ARE REQUIRED FOR THE PROPOSED SYSTEM."**

Enclosed please find the following:

1. 8 sets of the Site Plan dated Auust 26, 2021, with the latest revision on October 14, 2021.
2. 8 copies of the response letter dated October 14, 2021.

If you have any questions please do not hesitate to call.

Sincerely,

GRADY CONSULTING, L.L.C.

Gabriel A. Padilla
Project Engineer

Enc.

Cc: John Baldwin
P.O. Box 1071
Duxbury, MA 02331

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