

**REQUEST FOR APPROVAL FROM BOARD OF HEALTH**  
**DECISION NEEDED BY August 4, 2023**

STREET ADDRESS: 1000 Tremont St **(IN A ZONE II)**

CURRENT BEDROOMS: 4      DSCP REQUESTED BEDROOMS: 6

PARCEL #: 107-909-023

CURRENT OWNER: Dean and Siobhan Hansen

MOVE: To **Grant/Deny** use of Micro Fast Unit to increase flows in a Zone II wellhead protection area. Under 310CMR 15.217 an increase in allowable nutrient loading per acre may be allowed with the use of a technology approved for enhanced nutrient removal pursuant to either the piloting, provisional or general use certification provisions in 310 CMR 115.281 through 15.288.

This lot consists of 46,367sf of land is located in a Zone II wellhead protection area which allows one (1) bedroom per 10000 sf of property. Proposed use of the micro fast system allows for an increase from four to six bedrooms on this size lot.

**COMMENTS:**

This lot has 46,367 square feet. The applicant is seeking to increase the number of bedrooms with the use of a FAST system.

**CONDITIONS:** Under Certification for General Use Approval Department of Environmental Protection dated March 20,2015 ( See attached)

**Conditions Applicable to the System Owner**

1. The System owner shall at all times have the System properly operated and maintained by a Company approved Operator in accordance with this Certification, the designer's operation and maintenance requirements and the Company's approved procedures.
2. The System is certified only in connection with the discharge of sanitary wastewater from facilities with a design flow of less than 2000 gpd. Any non-sanitary wastewater generated and/or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.
3. The System Owner shall provide access to the site for the System Operator to perform inspections, maintenance, repairs, responding to alarm events, field testing, and sampling as may be required by the Approval.

**Operation and Monitoring Requirements**

4. System effluent total nitrogen (TN) concentrations shall not exceed 19 or 25 mg/L and effluent pH shall not be less than 6.0 or more than 9.0. Field test observations of dissolved oxygen (DO) shall equal or exceed 2 mg/L and for Turbidity shall be equal

or less than 40 NTU.

5. All samples shall be taken at a flowing discharge point, i.e. distribution box, pipe entering a pump chamber or other Department approved location from the treatment unit.

6. Inspection, operation and maintenance (O&M), sampling, and field testing of the System required by the Approval shall be performed by a Company approved Operator who has been certified at a minimum of Grade Level 4 (four) by the Board of Registration of Operators of Wastewater Treatment Facilities, in accordance with Massachusetts regulations 257 CMR 2.00, and is an approved Title 5 System Inspector in accordance with 310 CMR 15.340.

7. Prior to commencement of construction of the System, the System Owner shall provide to the local approving authority a copy of a signed O&M Agreement that meets the requirements of paragraph IV (8).

8. The System Owner shall maintain, at all times, an O&M Agreement with a qualified System Operator approved by the Company. The Agreement shall be at least for one year and include the following provisions:

- a) The name of a System Operator who is an approved System Inspector in accordance with 310 CMR 15.340 and who meets any additional qualification requirements specified in the Approval;
- b) The System Operator must inspect the Alternative System as required by paragraph IV (9) and (12);
- c) The System Operator shall be responsible for submitting the monitoring results to the System Owner in accordance with paragraph IV (13) and to the local approving authority in accordance with paragraph IV (14); and
- d) In the case of a System failure, an equipment failure, alarm event, components not functioning as designed, or violations of the Approval, procedures and responsibilities of the System Operator and System Owner shall be clearly defined for corrective measures to be taken immediately. The System Operator shall agree to provide written notification within five days, describing corrective measures taken, to the System Owner and the local board of health.

9. The System Owner shall comply with the following monitoring requirements if the System is subject to a TN concentration limit in accordance with paragraph II (4):

a) Year-round installations shall be inspected and have effluent sampled for at least the TN parameter quarterly for the first year, then a minimum of twice/year thereafter, at least 5 months apart and with at least one sample taken between December 1 and March 1 of each year. Field testing shall be completed per paragraph IV (11) below, and as determined necessary by the System Operator. See DEP Field Testing Protocol at <http://www.mass.gov/dep/water/laws/policies.htm#t5pols>. Wastewater flow shall be recorded at each inspection, see 'Flow Metering' paragraph IV (10).

b) Seasonal installations shall be inspected and have effluent sampled for at least the TN parameter a minimum of twice/year. At least one sample must be taken 30 to 60 days after each seasonal occupancy begins. A second sample must be taken no less than 2 months after the first sample. Field testing shall be completed per paragraph IV (11) below, and as determined necessary by the System Operator.

Wastewater flow shall be recorded at each inspection, see 'Flow Metering' paragraph IV (10).

c) Systems in operation prior to issuance of this Approval, which have received approval of sampling reduction from the Department may continue with that System monitoring frequency.

Properties occupied at least 6 months per year are considered year-round properties.

Properties occupied less than 6 months per year are considered seasonal properties.

TN is measured as the total of TKN (Total Kjeldhal Nitrogen), NO<sub>3</sub>-N (Nitrate nitrogen) and NO<sub>2</sub>-N (Nitrite nitrogen).

10. Flow Metering: Reporting of residential System water use is not required, however it is recommended the Operator record water meter readings if available at all inspections, or otherwise estimate System flow, to assist in addressing possible operational problems or issues. Flow measurement when recorded shall be based on:

a) actual metering data of wastewater flow to the System or actual water meter data of flow to fixtures that discharge to the wastewater system; or

b) actual water meter data for the total facility with either actual meter data or estimated flows for non-wastewater usage subtracted from the total facility water usage. If estimating the wastewater portion of metered water usage, the System Operator shall provide a best estimate of wastewater discharged to the System with the method of estimating, such as pump run times, occupancy rates, adjustment due to seasonal outdoor watering use, etc.; or

c) for Systems installed under a prior Approval that did not include a wastewater flow data reporting requirement, if no flow meters are available, the System Operator shall provide a best estimate of wastewater discharged to the System with the method of estimating, such pump run times, occupancy rate, etc.

11. Field Testing: Temperature, turbidity, pH and DO shall be measured and recorded in the field whenever the effluent is sampled for TN. See applicable sections of the Department's Field Testing Protocol at <http://www.mass.gov/dep/water/laws/policies.htm#t5pols>.

12. At a minimum, the System Operator shall inspect the System:

a) quarterly for the first year then two times per year thereafter;

b) in accordance with the approved O&M manual, the Designer's operation and maintenance requirements, and the requirements of the local approving authority; and

c) any time there is an alarm event, equipment failure, or system failure.

#### Recordkeeping and Reporting

13. Within 60 days of any site visit, the System Operator shall submit an O&M report and inspection checklist to the System Owner and the Company. It is recommended the System Owner and Company maintain copies of these items for possible Department audit. The O&M report shall include, at a minimum:

a) for a System failing, any corrective actions taken;

b) wastewater analyses, wastewater flow data, field testing results and inspection checklists;

c) any violations of the Approval;

- d) any determinations that the System or its components are not functioning as designed or in accordance with the Company specifications; and
- e) any other corrective actions taken or recommended.

14. By February 15th of each year the System Owner or the System Operator if designated by the owner, shall submit to the local approving authority all monitoring results with all O&M reports and inspection checklists completed by the System Operator during the previous 12 months

15. Upon determining that the System has failed, as defined in 310 CMR 15.303, the System Operator shall notify the System Owner immediately.

16. Upon determining that the System has failed, as defined in 310 CMR 15.303, the System Owner and the System Operator shall be responsible for the notification of the local approving authority within 24 hours of such determination.

17. The System Owner shall notify the Approving Authority and the Company in writing within seven days of any cancellation, expiration or any other change in the terms and/or conditions of the O&M Agreement required by Paragraph IV (8).

18. Violations of the TN concentration in the System effluent shall not constitute a failure of the System for the purposes of 24-hour notification or 5-day written reporting as required in Paragraphs IV (16) and (8).

19. The System owner shall provide a copy of this Approval, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to the proposed new owner.

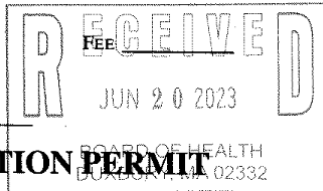
20. The System owner shall furnish the Department any information that the Department requests regarding the System, within 21 days of the date of receipt of that request.

21. Prior to issuance of a Certificate of Compliance of the System, and after recording and/or registering the Notice required by 310 CMR15.287(10), the System Owner shall provide to the Local Approving Authority a copy of: (i) a certified Registry copy of the Notice bearing the book and page/or document number; and (ii) if the property is unregistered land, a Registry copy of the System Owner's deed to the property, bearing a marginal reference on the System Owner's deed to the property. The Notice to be recorded shall be in the form of the Notice provided by the Department.

22. Prior to signing any agreement to transfer any or all interest in the property served by the System, or any portion of the property, including any possessory interest, the System Owner shall provide written notice of all conditions contained in the Approval to the transferee(s). Any and all instruments of transfer and any leases or rental agreements shall include as an exhibit attached thereto and made a part of thereof a copy of the Approval for the System. The System Owner shall send a copy of such written notification(s) to the Local Approving Authority within 10 days of giving such notice to the transferee(s).

No. \_\_\_\_\_

THE COMMONWEALTH OF MASSACHUSETTS  
BOARD OF HEALTH



*\$230.00*

Town OF Duxbury

APPLICATION FOR DISPOSAL SYSTEM CONSTRUCTION PERMIT

Application for a Permit to Construct ( ) Repair ( ) Upgrade ( ) Abandon ( ) -  Complete System  Individual Components

<u>1000 Tremont St</u> Location	<u>Dean Hansen</u> Owner's Name
<u>107</u> Map/Parcel #	<u>1000 Tremont St Duxbury</u> Address
<u>909-023</u> Lot #	<u>617-834-0075</u> Telephone #
<u>Duxbury Construction LLC</u> Installer's Name	<u>Freeman Boynton III</u> Designer's Name
<u>P.O. Box 2517 Duxbury</u> Address	<u>P.O. Box 2517 Duxbury</u> Address
<u>781-934-0000</u> Telephone #	<u>781-934-0000</u> Telephone #

*1/4 40388*

Type of Building: S.F.D. Lot Size 46,367 Sq. feet  
Dwelling — No. of Bedrooms 4 Garbage Grinder NO  
Other — Type of Building \_\_\_\_\_ No. of persons \_\_\_\_\_ Showers ( ), Cafeteria ( )  
Other fixtures \_\_\_\_\_

Design Flow (min. required) 440 gpd Calculated design flow 660 gpd Design flow provided 664.70 gpd  
Plan: Date 4-5-23 Number of sheets 1 Revision Date \_\_\_\_\_  
Title \_\_\_\_\_

Description of Soil(s) See Soil logs  
Soil Evaluator Form No. \_\_\_\_\_ Name of Soil Evaluator Freeman Boynton III Date of Evaluation 4-3-23

DESCRIPTION OF REPAIRS OR ALTERATIONS Install 1500 gallon 2 compartment tank, micro test unit, b-box and connect to 21.17 x 17.78 leaking trench using 36-acc 36 chamber and 6 comp logs

The undersigned agrees to install the above described Individual Sewage Disposal System in accordance with the provisions of TITLE 5 and further agrees not to place the system in operation until a Certificate of Compliance has been issued by the Board of Health.

Signed [Signature] Date 6.20.23

Inspections \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

FORM 1 - APPLICATION FOR DSCP DEP APPROVED FORM 5/96

No. \_\_\_\_\_

THE COMMONWEALTH OF MASSACHUSETTS  
Duxbury BOARD OF HEALTH

FEE \_\_\_\_\_

CERTIFICATE OF COMPLIANCE

Description of Work:  Individual Component(s)  Complete System

The undersigned hereby certify that the Sewage Disposal System; Constructed () Repaired ( ), Upgraded () Abandoned ( )

by: Duxbury Construction LLC  
at 1000 Tremont St

has been installed in accordance with the provisions of 310 CMR 15.00 (Title 5) and the approved design plans/as-built plans relating to application No. \_\_\_\_\_ dated \_\_\_\_\_ Approved Design Flow \_\_\_\_\_ (gpd)

Installer Duxbury Construction LLC

Designer: Freeman Boynton III Inspector \_\_\_\_\_ Date \_\_\_\_\_

The issuance of this certificate shall not be construed as a guarantee that the system will function as designed.

FORM 3 - CERTIFICATE OF COMPLIANCE DEP APPROVED FORM 5/96

No. \_\_\_\_\_

THE COMMONWEALTH OF MASSACHUSETTS  
Duxbury BOARD OF HEALTH

FEE \_\_\_\_\_

DISPOSAL SYSTEM CONSTRUCTION PERMIT

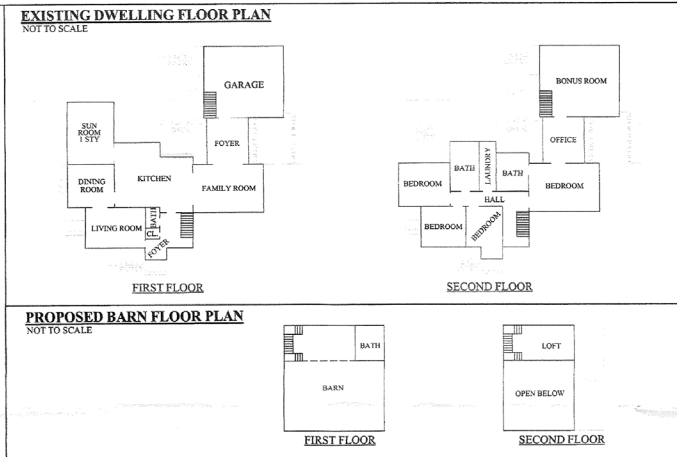
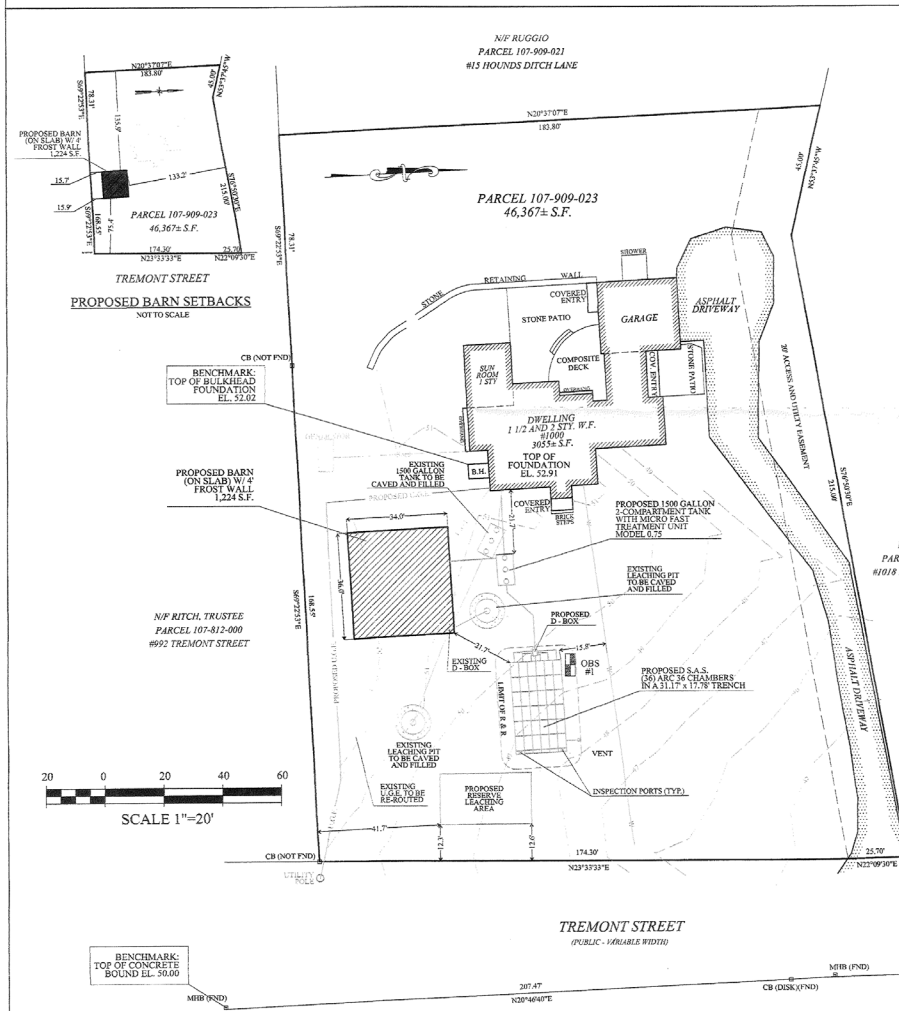
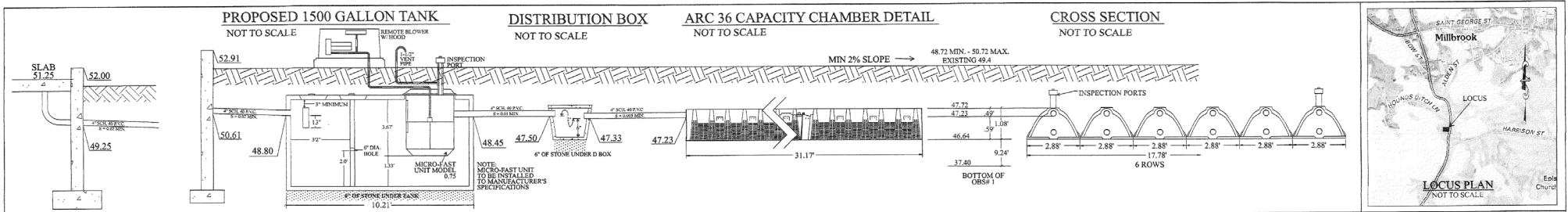
Permission is hereby granted to Construct () Repair ( ) Upgrade () Abandon ( ) an individual sewage disposal system at 1000 Tremont St as described

in the application for Disposal System Construction Permit No. \_\_\_\_\_, dated \_\_\_\_\_

Provided: Construction shall be completed within three years of the date of this permit. All local conditions must be met.

Date \_\_\_\_\_ Board of Health \_\_\_\_\_

FORM 2 - DSCP DEP APPROVED FORM 5/96



**DIMENSIONAL REQUIREMENTS: ZONE RC**

ITEM	REQUIRED	PROPOSED
MINIMUM LOT AREA	40,000 S.F.	N/A
MINIMUM LOT FRONTAGE	200 FT.	N/A
MINIMUM FRONT YARD	25 FT.	71.4 FT.
MINIMUM SIDE YARD	15 FT.	15.7 FT.
MINIMUM REAR YARD	15 FT.	155.9 FT.

**GENERAL NOTES:**

ADDRESS: 1000 TREMONT STREET  
 OWNER: DEAN B. HANSEN AND SIOBHAN E. HANSEN  
 REFERENCE: BOOK 1580 PAGE 232  
 ASSESSOR'S PARCEL NO.: 107-909-023  
 LOT AREA: 46,367± S.F.

EXISTING BUILDING COVERAGE: 3,055± S.F. / 6.6%

PROPOSED BUILDING COVERAGE: 4,278± S.F. / 9.2%

NET CHANGE: -1,224 S.F. / -2.6%

**S. ROBERT PHINNEY, PLS**  
 21 ACORN STREET  
 MIDDLEBOROUGH, MASSACHUSETTS

I CERTIFY THAT THE BUILDING LOCATED AS SHOWN ON THIS PLAN IS DERIVED FROM AN ON THE GROUND SURVEY BY DUXBURY CONSTRUCTION PERSONNEL.

THE DWELLING IS NOT LOCATED IN A FLOOD ZONE AS SHOWN ON F.I.R.M. MAP 2502C0237L DATED JULY 6, 2021.

THIS PLAN AND ACCOMPANYING CERTIFICATIONS DO NOT CONSTITUTE A CERTIFICATION OF TITLE TO THE PROPERTY DISPLAYED HEREON. THE OWNER OF THE LOCUS AND ABUTTING PROPERTIES ARE SHOWN ACCORDING TO CURRENT ASSESSOR'S RECORDS.

**ALTERNATIVE TECHNOLOGY**

THE USE OF A MICRO FAST UNIT IS IN ACCORDANCE WITH THE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S CERTIFICATION FOR GENERAL USE PURSUANT TO TITLE 5, 310 CMR 15.000 TRANSMITTAL NUMBER 232361 TITLED "FAST (NITROGEN REDUCING) LESS THAN 2,000 GPD BY BIO MICROBICS, INC. GENERAL USE APPROVAL" DATED 3/20/2015.

THIS LOT IS LOCATED IN A ZONE II WELL HEAD PROTECTION AREA, WITH 46,367 S.F. OF LAND ALLOWING UP TO 4 BEDROOMS' WORTH OF NITROGEN LOADING, USING A RATE OF ONE BEDROOM @ 110 G.P.D. PER 10,000 SF

WE PROPOSE THE USE OF THE MICRO FAST SYSTEM WHICH ALLOWS FOR AN INCREASE FROM FOUR BEDROOMS @ 440 G.P.D. TO SIX BEDROOMS @ 660 G.P.D. FOR THIS LOT

MICRO FAST UNIT MODEL 0.75 ALLOWS FOR INCREASED FLOW OF UP TO 750 GPD PER ACRE

**WATER SUPPLY LOCATIONS LIST**

PARCEL NUMBER	STREET ADDRESS	SUPPLY TYPE
107-909-023	1000 TREMONT STREET	TOWN WATER
107-003-001	987 TREMONT STREET	TOWN WATER
107-003-006	1011 TREMONT STREET	TOWN WATER
107-003-009	999 TREMONT STREET	TOWN WATER
107-011-000	1018 TREMONT STREET	TOWN WATER
107-812-000	902 TREMONT STREET	TOWN WATER
107-909-021	15 HOUNDS DITCH LANE	TOWN WATER

**DESIGN CALCULATIONS**

EXISTING BEDROOMS	4	6 @ 110 G.P.D. = 660 G.P.D.
PROPOSED BEDROOMS	6	
NUMBER OF ROWS	6	
NUMBER OF UNITS PER ROW	6	
NUMBER OF CHAMBERS	36	
DEPTH BELOW INVERT	0.59	
LENGTH OF BED	31.17	
WIDTH OF BED	1.78	
TOTAL CHAMBER LENGTH	54.92	
LYAR	0.74	
SOFT MIN.	892	
SOFT. PER X25253 @ 4.8	897.70	
CAPACITY TOTAL	664.30	

**GENERAL NOTES**

ALL LOCATIONS OF UTILITY LINES SHOWN ARE AS MARKED BY D.E.S. AND ARE TO BE VERIFIED BY INSTALLER PRIOR TO CONSTRUCTION.

THERE ARE NO KNOWN WETLANDS WITHIN THE PROPOSED LEACHING FACILITY UNLESS SHOWN.

THERE ARE NO KNOWN POTABLE WELLS WITHIN THE PROPOSED LEACHING FACILITY.

THERE ARE NO KNOWN IRRIGATION WELLS WITHIN THE PROPOSED LEACHING FACILITY.

THIS PROPERTY DOES FALL WITHIN A ZONE II OF A WELLHEAD PROTECTION AREA.

THIS PROPERTY DOES NOT FALL WITHIN A ZONE II OF A WELLHEAD PROTECTION AREA.

THIS DESIGN DOES NOT INCORPORATE VARIANCES TO TITLE 5 310 CMR 15.000 DUXBURY SUPPLEMENTAL REGULATIONS.

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH TITLE 5 AND DUXBURY SUPPLEMENTAL REGULATIONS.

ALL SYSTEM COMPONENTS SHALL BE MARKED WITH "W" WARRIES

**IN-LINE ELEVATIONS**

INVERT @ HSE	PROPOSED	AS-BUILT
DNV INTO TANK	48.80	48.41
DNV OUT OF TANK	48.45	48.06
DNV INTO D-BOX	47.50	47.50
DNV OUT OF D-BOX	47.33	47.33
DNV INTO ARC 36	47.23	47.23
BOTTOM OF ARC 36	46.64	46.64
SEPARATION PROVIDED	9.24	9.24
WATER TABLE	NONE ENCOUNTERED	
BOTTOM OF OBS HOLE	37.40	

**SURVEY INFORMATION**

SEPTIC SYSTEM LOCATION COMPILED FROM:  
 MASSACHUSETTS TILES OFFICIAL INSPECTION PERFORMED BY DUXBURY CONSTRUCTION  
 DATED 10/27/2023  
 ON FILE AT DUXBURY TOWN HALL  
 PLAN TO BE USED FOR INSTALLATION OF SEPTIC SYSTEM

BENCHMARK: TOP OF BULKHEAD FOUNDATION EL. 52.02 (ASSUMED)

**SOIL LOGS**

DATE	OBSERVED BY	WITNESSED BY
4/3/2023	FREEMAN BOYNTON III SOIL EVALUATOR	TRACY MAYO BOARD OF HEALTH

**SOIL LOGS**

ELEV.	OBS. HOLE #1	DEPTH
48.4	A SANDY LOAM 10YR.12	0"
48.4	B LOAMY SAND 10YR.4.6	12"
47.0	C1 SANDY LOAM 10YR.5.6	29"
45.4	C2 FINE SAND 10YR.6.4	48"
37.4	NO GROUND WATER ENCOUNTERED PER ACRE < 4 MINS. DRAIN	76"

ADDITIONAL OBSERVATION HELD & PERFORMED AT BOARD OF HEALTH DUXBURY, MA 02330

**REMOVE AND REPLACE**

ALL UNSUITABLE MATERIALS ARE TO BE REMOVED FOR A DISTANCE OF 5' IN ALL DIRECTIONS AROUND PROPOSED LEACHING FACILITY AND RE-PLACED WITH CLEAN SAND AS REQUIRED BY 310 CMR 15.35(4)

**PROPOSED SEPTIC SYSTEM REPAIR IN DUXBURY**

FOR: DEAN & SIOBHAN HANSEN  
 1000 TREMONT STREET

DATE: APRIL 5, 2023

**DUXBURY CONSTRUCTION, LLC.**  
 P.O. BOX 2514 DUXBURY MASSACHUSETTS 781 934 0000