LETTER OF TRANSMITTAL

JC ENGINEERING
2854 Cranberry Highway
East Wareham, MA 02538

Telephone: 508-273-0377
Facsimile: 508-273-0367

RECEIVED
NOV 06 2023
Bourne Health Department
24 Perry Avenue
Buzzards Bay, MA 02532

TO: Town of Bourne
Board of Health
24 Perry Avenue
Buzzards Bay, MA 02532

DATE: 11/06/23 JOB NO. 7277
RE: LUA and Local Variance
10 Sunny Lane
Bourne, MA 02532

WE ARE SENDING YOU: X Enclosed ___ Under separate cover via X the following:

X Report X Plans ___ Brochures ___ Shop Drawings

___ Specifications ___ Copy of Letter ___ Change Order ___ Contract Documents

Enclosed, please find 6 copies of a BOH Variance Request application for 10 Sunny Lane, including a check in the amount of $375 for the permit and variance request fees.

THESE ARE TRANSMITTED as checked below:

X For Approval ___ Resubmit ___ Copies for Approval

___ For Your Use ___ Approved as Noted ___ Copies for Distribution

X As Requested ___ Returned ___ Approved as Submitted

___ Returned ___ For Review and Comment ___ For Your Information

REMARKS Please feel free to contact the office with any questions.

COPY TO: File

SIGNED:

Samuel Iamele, EIT, CSE

No. _____ FEE _____

COMMONWEALTH OF MASSACHUSETTS

Board of Health, Bourne, *MA.*

APPLICATION FOR DISPOSAL SYSTEM CONSTRUCTION PERMIT

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

Location 10 Sunny Lane	Owner's Name Dennis Lee
Map/Parcel# 26.1	Address 332 Bolivar Street, Canton, MA 02021
Lot# 139	Telephone#
Installer's Name	Designer's Name JC Engineering Inc
Address	Address 2854 Cranberry Hwy, E. Wareham, MA 02538
Telephone#	Telephone# 508-273-0377

Type of Building Single Family Dwelling Lot Size 8,632 sq. ft.

Dwelling - No. of Bedrooms Three (3) Garbage grinder ( )

Other - Type of Building _____ No. of persons _____ Showers ( ), Cafeteria ( )

Other Fixtures _____

Design Flow (min. required) 110/bed gpd Calculated design flow 330 Design flow provided 344.2 gpd

Plan: Date 10-17-23 Number of sheets 1 Revision Date _____

Title Proposed Septic System Upgrade

Description of Soil(s) See Plan

Soil Evaluator Form No. _____ Name of Soil Evaluator Peter McEntee Date of Evaluation 6-26-23

DESCRIPTION OF REPAIRS OR ALTERATIONS Install 1,500 gallon septic tank w/ Microfast insert, 1,000 gallon pump chamber, D-box, and (3) 500 gallon leaching chambers w/ surrounding stone

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

Signed _____ Date _____

Inspections _____

No. _____ FEE _____

COMMONWEALTH OF MASSACHUSETTS

Board of Health, _____, *MA.*

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: _____

at _____

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 _____

Designer: _____ Inspector: _____ Date: _____

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

No. _____ FEE _____

COMMONWEALTH OF MASSACHUSETTS

Board of Health, _____, *MA.*

DISPOSAL SYSTEM CONSTRUCTION PERMIT

Permission is hereby granted to; Construct( ) Repair( ) Upgrade( ) Abandon( ) an individual sewage disposal system at _____ 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.

Form 1255 Rev. 5/96 A.M. Sulkin Co. Charlestown, MA

Date _____ Board of Health _____

JC ENGINEERING, Inc.

Civil & Environmental Engineering

2854 Cranberry Highway
East Wareham, Massachusetts 02538
Ph. 508-273-0377 – Fax 508-273-0367

November 6, 2023

Town of Bourne
Board of Health
24 Perry Avenue
Buzzards Bay, MA 02532

RE: Local Upgrade Approval and Variance Requests at 10 Sunny Lane, Bourne, MA

Dear Members of the Board,

Please find enclosed a sewage disposal design drawing entitled "Proposed Septic System Upgrade at 10 Sunny Lane, Bourne, MA" dated October 17, 2023 for your review and approval. This project involves the installation of a septic system using an innovative/alternative treatment (Mircrofast Unit) within the buffer zone of a saltmarsh and coastal bank. The proposed septic system will replace an existing cesspool that will be abandoned. Due to site constraints, we are requesting the following variances from the Town of Bourne Regulations:

1. A 21.8' variance (150.0' – 128.2') for the setback from the leaching facility to the edge of the wetlands.
2. A 150.0' variance (150.0' – 0.0') for the setback from the leaching facility to the top of coastal bank.

Also, in accordance with 310 CMR 15.401 - 15.405, the following local upgrade approval is requested from 310 CMR 15.227(5):

1. A 0.90' waiver (1.0' - 0.10') for the maximum separation between seasonal high groundwater and the inlet pipe in the pump chamber.

We appreciate your time and consideration on this matter. Please contact me if you have any questions or concerns.

Sincerely,

Samuel J. Iamele, EIT, CSE
Project Engineer

Bourne Board of Health
Application for Septic Variance or Waiver Requests

In accordance with the established procedures of the Bourne Board of Health, this application is for septic variances and waivers which have not been approved administratively and require approval at a public meeting. Please use the following application form for guidance on how to apply for variances and waivers which serve new construction, changes in use, increases in flow, or repairs and upgrades to on-site sewage disposal systems with design flows of less than 10,000 gallons/ day.

1. Facility Name and Address:

Owner's Name
Dennis Lee

Facility's Street Address
10 Sunny Lane, Bourne, MA 02532

Owner's Telephone Number
781-308-1310

Owner's E-mail Address
dlee88@verizon.net

Owner's Mailing Address
332 Bolivar Street, Canton, MA 02021

2. Applicant or Preparer's Name and Address (if different from above):

Preparer's Name
Samuel J. Iamele, EIT, CSE

Company
JC Engineering, Inc.

Telephone Number
508-273-0377

E-mail Address
siamele@jceng.org

Mailing Address
2854 Cranberry Highway, E. Wareham, MA 02538

3. Type of Facility (check all that apply):

☑ Residential ☐ Commercial ☐ Institutional ☐ School ☐ Industrial ☐ Mixed Use

4. Describe Facility (i.e. single-family dwelling, 45 seat restaurant): Existing Two Bedroom, Single Family Dwelling

5. Type of System Proposed (check all that apply): ☐ Conventional Title 5 ☑ I/A System

☐ Pumped System ☐ Gravity System ☐ Pressure Dosed ☐ Tight Tank ☐ Other

6. Describe the existing and proposed septic system components: Existing single cesspool. Proposed 1500 gallon septic tank with microfast insert, 1000 gallon pump chamber, distribution box, (3) 500 gallon leaching chambers with surrounding stone

7. Design Flow per 310 CMR 15.203 (in gallons/ day):

	EXISTING	PROPOSED
Design flow of system:		330 GPD
Total design flow of facility: *(if more than one system on subject property)*		330 GPD

8. Enclose a **letter of request for variances/waivers** which makes reference to the specific provisions of Title 5 and/ or the Board Bourne of Health Regulations for which a variance is sought. Please use this opportunity to demonstrate compliance with 310 CMR 15.410, and to justify the relevant facts and circumstances of the individual case. Note that with regard to variances for new construction, enforcement of the provision from which a variance is sought must be shown to deprive the applicant of substantially all beneficial use of the subject property in order to be manifestly unjust. Be sure to explain why full compliance with the applicable regulations is not feasible, and how a level of environmental protection that is at least equivalent to that provided under Title 5 and the Board of Health Regulations can be achieved without strict application of said regulations.

9. In order for this Application to be deemed complete, it must be accompanied by the following:

- ☑ $125 filing fee + any other applicable permit application fees paid to the Town of Bourne.
- ☑ Application for a Disposal System Construction Permit (may be filled out by installer).
- ☑ Six copies of Letter of Request describing nature of variances.
- ☑ Six sets of complete engineered plans and specifications, one with original stamp of design engineer; plus, one electronic copy. All variances/ waivers must also be listed on the plans per 310 CMR 15.220(4).
- ☑ Six sets of floor plans, existing and proposed.
- ☑ Six copies of Nitrogen Loading Calculation Worksheet **required for all applications.*
- ☐ If abutter notification is required, one of each of the following must be submitted:
  - A copy of the certified list of abutters from the Assessor's Department.
  - Sample letter for abutter notification postmarked 10 days prior to meeting date.
  - Proof of certified mailing (receipts) meeting requirements of 310 CMR 15.405(2).
- ☑ Proposals for installation of Innovative/Alternative septic systems must be accompanied by:
  - A copy of the Certification for Use including technology specific conditions.
  - Draft disclosure notice for the I/A technology to be recorded in the deed.
- ☐ Hydrogeologic data may be required for new leaching facilities proposed within 100ft of a wetland/watercourse.
- ☐ Percentage of Increase Worksheet may be required for waivers or increases in flow.

10. Certification:

"I certify under penalty of law that this document and all attachments, to the best of my knowledge and belief, are true, accurate, and complete. I am aware that there may be significant consequences for submitting false information, including, but not limited to, penalties or fine and/or imprisonment for deliberate violations."

Facility Owner's Signature _____ Date _____

Print Name _____

Signature of Preparer  Date 11-6-23

Print Name Samuel J. Iamele, EIT CSE

NOTICE OF ALTERNATIVE SEWAGE DISPOSAL SYSTEM

M.G.L. c. 21A, § 13 and 310 CMR 15.0287(10)

ADDRESS OF PROPERTY SERVED BY ALTERNATIVE SYSTEM:
10 Sunny Lane, Bourne, MA 02532

TITLE REFERENCE FOR PROPERTY SERVED BY ALTERNATIVE SYSTEM:

☒ Deed recorded with the Barnstable County Registry of Deeds in Book 35954, Page 282
☐ Certificate of Title No. _____ issued by the Land Registration Office of the Barnstable County Registry of Deeds
☐ Source of title other than by deed

_____

NAME(S) OF OWNER OF PROPERTY SERVED BY ALTERNATIVE SYSTEM:

Dennis Lee

OWNER(S) MAILING ADDRESS:

332 Bolivar Street, Canton, MA 02021

WHEREAS, Section 15.280 of Title 5 of the State Environmental Code ("Approval of Alternative Systems"), provides for the Massachusetts Department of Environmental Protection (the "Department") to approve or certify, as appropriate, all proposals to construct, upgrade or replace on-site sewage disposal systems using alternative systems;

WHEREAS, owners and/or operators of approved or certified alternative systems are subject to general conditions, as specified in Section 15.287 of Title 5 of the State Environmental Code, 310 CMR 15.287, and may be subject to special conditions, as specified in the Department's approvals or certifications; such general and special conditions potentially including, without limitation, requirements relating to the use of trained operators, periodic inspections, maintenance, sampling, reporting and/or recordkeeping;

WHEREAS, the owners and/or operators this alternative system acknowledges and agrees to comply with the provisions of all of the Bourne Board of Health Alternative Septic System Regulations and any other conditions for the existence of the system;

WHEREAS, Section 15.287(10) of Title 5 of the State Environmental Code, 310 CMR 15.287(10), requires that "prior to obtaining a Certificate of Compliance for installation of a new or upgraded system, the system owner shall record in the chain of title for the property served by the alternative system in the Registry of Deeds and/or Land Registration Office, as applicable, a Notice disclosing both the existence of the alternative on-site system and the Department's approval of the system. The system owner shall also provide evidence of such recording to the Bourne Board of Health [;]" and

WHEREAS, the Property is served by an alternative sewage disposal system.

NOW, THEREFORE, Notice of an alternative sewage disposal system is hereby given for the above- referenced Property, as follows:

1. Existence. An alternative system has been installed as a new or upgraded alternative sewage disposal system, on or adjacent to the Property, and serves the Property. The trade name and model number(s) of the alternative system are as follows:

Trade name of technology: FAST Treatment Systems

Manufacturer Name: Bio-Microbics, Inc.

Model number(s): MicroFAST 0.5 Unit

A copy of the Department of Environmental Protection's Approval/Certification is available online at the Department's website:
https://www.mass.gov/guides/title-5-innovativealternative-technology-approval-letters

2. Approval/Certification. On December 29, 2010, revised March 20, 2015, the Department, pursuant to its authority under the section of Title 5 as specified below, approved or certified the technology used in the above referenced alternative system, under MassDEP Transmittal Number X232831.

[Check one of the following, as applicable:]

- ☐ Approved for remedial use under 310 CMR 15.284
- ☐ Approved for piloting under 310 CMR 15.285
- ☐ Provisionally approved under 310 CMR 15.286
- ☒ Certified for general use under 310 CMR 15.288

This Notice of Alternative Sewage Disposal System must be submitted to the Bourne Board of Health

WITNESS the execution hereof under seal this _____ day of _____, 2023.

_____
Dennis Lee

_____

_____, ss _____, 2023

Then personally appeared the above-named Dennis Lee proved to me through satisfactory evidence of identification, which was a driver's license, to be the person whose name is signed on the preceding document and acknowledged to me that he/she signed it voluntarily for its stated purpose.

_____
Notary Public:
My commission expires:

Approved and Accepted By:

_____ Date: _____
Terri A. Guarino, R.S.
Health Director
Town of Bourne

Town of Bourne - Water Resources Nitrogen Loading and Mitigation Worksheet

See Cape Cod Commission Technical Bulletin 91-001 for further details:
https://capecodcommission.org/resource-library/file/?url=/dept/commission/team/Website_Resources/regulatory/NitrogenLoadTechbulletin.pdf

Facility Address: 10 Sunny Lane
Preparer's Name: JC Engineering Inc
Date:
Watershed:

Project Nitrogen Load — ***Proposed Wastewater*** — ***New Construction/ Increases in Flow, Raze & Rebuild, or Repairs/ Upgrades*** — ***Existing Conditions***

1. Project Title-5 wastewater flows: 330.0 gpd (a)
Actual wastewater flows: 175.0 * (b)
Average wastewater flows: 252.5 gpd (a)+(b) ÷2= (A)
* Actual water use flows per unit in Bourne

Calculate (A') through (P') as w/ (A) through (P):
Title-5 wastewater flows: 220.0 gpd
Actual wastewater flows: 175.0 *
Avg. wastewater flows: 197.5 gpd (A')

Place √ in applicable box:

Yes	No		Yes	No	
	X	Will the project be connected to sewer ?		X	Is existing development on sewer ? (If 'Yes', then go to line 2.)
	X	Is project Title-5 wastewater flow 10,000 gpd or greater ?			

Place √ in applicable box and multiply unsewered wastewater flow by applicable conversion factor:

	Standard Title-5 System (35-ppm-N)	x 0.048359		Standard Title-5 System
	DEP-approved I/A System (25-ppm-N)	x 0.034542		DEP-approved I/A System (commercial)
X	DEP-approved I/A System (19-ppm-N)	x 0.026252	Type of system:	DEP-approved I/A System (residential)
	DEP-approved Enhanced I/A (12-ppm-N)	x 0.016580		DEP-approved enhanced I/A

Wastewater nitrogen load (**Title-5 flows**) = 8.66 kg-N/yr (B) — 10.64 kg-N/yr (B')
Wastewater nitrogen load (**Actual flows**) = 4.59 kg-N/yr (C) — 8.46 kg-N/yr (C') wastewater offsets

Stormwater Runoff

Town of Bourne — Recharge rate for Bourne (inches; for natural areas from Technical Bulletin 91-001): : 21 (RECH)

Project site area: 0.198 acres (D) — Project site area: 0.198 acres (D)
Project site wetland area: 0.000 acres (E) — Project site wetland area: 0.000 acres (E)
Project site upland area: 0.198 acres (F) — Project site upland area: 0.198 acres (F)
Pervious unpaved upland: 0.173 acres (G) — Pervious unpaved upland: 0.173 acres (G')
0 % using LID — Paved area: 218 s.f. (H) — Paved area: 218 s.f. (H')
Factor may be adjusted for employment of LID → x 1.4158E-04
LID = low impact development = 0.03086531 kg-N/yr (I) — Paving runoff offset: 0.0309 kg-N/yr (I')
Roof area: 864 s.f. (J) — Roof area: 864 s.f. (J')
x 7.0792E-05
= 0.0612 kg-N/yr (K) — Roof runoff offset: 0.0612 kg-N/yr (K')

Fertilizer

Previous unpaved upland - roof area =
Managed turf/ lawn area 3,373 s.f. — Managed Turf/ lawn area: 3,373 s.f.
x 3.4019E-04
= 1.147 kg-N/yr (L) — Fertilizer offset: 1.147 kg-N/yr (L')

Total Nitrogen Load

Total project nitrogen load (**Title-5 flows**): 9.90 kg-N/yr (M)= (B)+(I)+(K)+(L) — Existing nitrogen load (Title-5 flows): 11.88 kg-N/yr (M')
Total project nitrogen load (**Actual flows**): 5.83 kg-N/yr (N)= (C)+(I)+(K)+(L) — Existing nitrogen load (Actual flows): 9.70 kg-N/yr (N')
Nitrogen load per acre (**Average**): 39.74 kg-N/yr/acre (O)= (M)+(N) ÷2 ÷(D) — Nitrogen offset per acre: 54.50 kg-N/yr/acre (O')

Proposed Nitrogen Loading Concentration

Project nitrogen loading concentration (**Title-5 flows**): 10.63 ppm-N (P)= $\frac{(M)}{(a)\times 723.76 + (G)\times(RECH)\times 9.7286 + (H)\times 10,594 + (K)\times 0.75}$

Project nitrogen loading concentration (**Actual flows**): 8.13 ppm-N (Q)= $\frac{(N)}{(b)\times 723.76 + (G)\times(RECH)\times 9.7286 + (H)\times 10,594 + (K)\times 0.75}$

Project nitrogen loading concentration (**Average**): **9.38** ppm-N (R)= (P)+(Q) ÷2

Existing nitrogen loading concentrations:
Title-5 flows: 15.23 ppm-N (P')
Actual flows: 13.52 ppm-N (Q')
Average: **14.37** ppm-N (R')

next page -->

Resource/ Impact Based Criteria

Marine Water Recharge Areas / Coastal Embayments

Yes	No		
	X	2.	Is the project located in any of the following watersheds: **Buttermilk Bay Basins, Phinneys Harbor / Back River / Eel Pond, Pocasset River Basin, Pocasset Harbor / Hen Cove / Red Brook Harbor, Megansett / Squeteague Harbors** ?** *(If 'No', then go to line 3.)*

Name of Watershed (*from Regional Policy Plan Data Viewer*):

Critical Nitrogen-loading limit** : 0.000 kg-N/year/acre (S)

	X	Does project's nitrogen load **(O)** exceed the existing load **(O')** AND the critical nitrogen load **(S)** ? *(If 'No', then go to line 3.)*

Excess project nitrogen load to be mitigated: kg-N/yr (T)= LESSER OF **(O)-(S) x(F)** AND **(O)-(O') x(F)**

*** When a nitrogen-loading limit has been determined through either a Total Maximum Daily Load (TMDL), a Massachusetts Estuaries Project-accepted technical report, or specified by a Commission-approved comprehensive wastewater management plan pursuant to Objective WR3, or if impaired water quality has been documented for the receiving coastal waters, the nitrogen loading limit shall be 0 kg-N/yr per acre pursuant to Objective WR3.*

Groundwater Quality

Yes	No		
	X	3.	Does the project's nitrogen loading concentration in groundwater **(R)** exceed the greater of **5 ppm** *or* the existing concentration **(R')** ? ***(If 'Yes' , the project will need to provide an alternative strategy for meeting these thresholds by using another worksheet)***

Potential Public Water Supply Areas

Yes	No		
	X	4.	Is project in a Potential Public Water Supply Area (PPWSA) ? *(If 'No', then go to line 5.)*
			Does the project's nitrogen loading concentration **(R)** exceed the greater of **1 ppm** *or* the existing concentration **(R')** ? ***(If 'Yes', the project must provide an alternative strategy for meeting Objective WR1)***
			Does the project use, treat, generate, store or dispose of hazardous materials in excess of the greater of a) household quantities or b) existing quantities ? ***(If 'Yes', the project must provide an alternative strategy for meeting Objective WR1)***

Wellhead Protection Areas

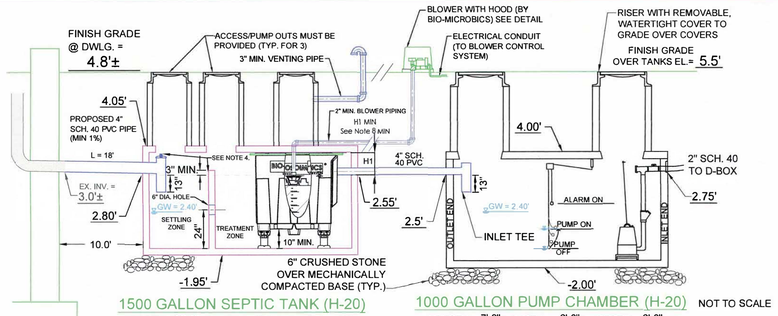
Yes	No		
	X	5.	Is project in a Wellhead Protection Area (WHPA) ?
	X		Does the project's nitrogen loading concentration **(R)** exceed the greater of **5 ppm** *or* the existing concentration **(R')** ? ***(If 'Yes' , the project must provide an alternative strategy for meeting Objective WR1)***
	X		Does the project use, treat, generate, store or dispose of hazardous materials in excess of the greater of a) household quantities or b) existing quantities ? ***(If 'Yes', the project must provide an alternative strategy for meeting Objective WR1)***

Fresh Water Recharge Areas

Yes	No		
X		6.	Is project wastewater disposed of within 300 feet of a stream or fresh surface water body? *(If 'No', then go to line 7.)*
	X		Is the project located in a freshwater recharge area (FWRA) hydraulically upgradient of a stream or fresh surface water body? ***(If 'Yes', the project must provide an alternative strategy for meeting Objective WR2)***

Other Potential Impacts

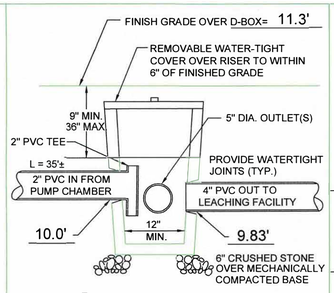
Yes	No		
	X	7.	Will the project withdraw more than 20,000 gallons of water per day ? ***(If 'Yes', then the project must provide documentation demonstrating that there will not be significant impacts to water levels, surface waters and wetlands)***
		8.	***The project must demonstrate compliance with Objective WR4, including use of Low Impact Development to mitigate impacts of stormwater runoff and O & M plans for maintaining stormwater infrastructure and landscaping.***



BOTH TANKS SHALL BE WATERPROOF, WATERTIGHT AND BE INSTALLED ON A LEVEL STABLE BASE

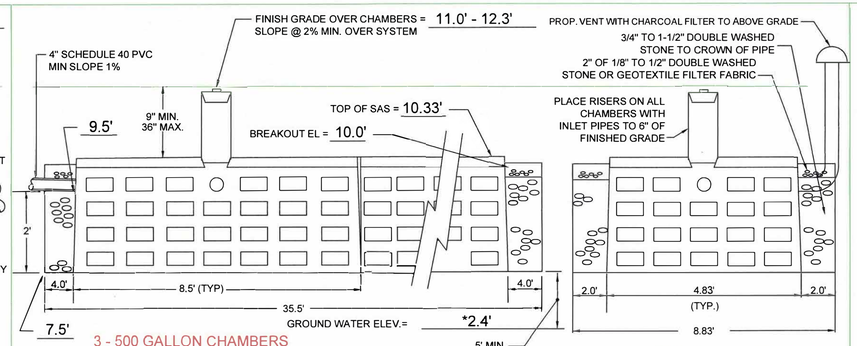
DIMENSION AS PER
ACME PRECAST CO, INC.
FALMOUTH, MA
(508) 548-9607

1500 GALLON LOW PROFILE INTERNAL MOUNT (H-20) "FAST TANK" W/ MICROFAST 0.5 & 1000 GALLON MONOLITHIC PUMP CHAMBER (H-20)



5 OUTLET DISTRIBUTION BOX TO BE INSTALLED ON A LEVEL STABLE BASE. FIRST TWO FEET OF OUTLET PIPES TO BE LAID LEVEL.

CROSS SECTION VIEW
DISTRIBUTION BOX DETAIL
NOT TO SCALE



3 - 500 GALLON CHAMBERS
TYPICAL CHAMBER PROFILE

CHAMBER END VIEW

CHAMBER DETAILS
NOT TO SCALE

*MONITORING WELL USED TO LOG GROUNDWATER ELEVATIONS OVER LUNAR TIDAL CYCLE. HIGHEST ELEVATION OBSERVED WAS 2.4'.

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL SYSTEM COMPONENTS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH TITLE 5 OF THE STATE ENVIRONMENTAL CODE AND ANY APPLICABLE LOCAL RULES.
2. ANY CHANGES TO THIS PLAN MUST BE APPROVED BY THE BOARD OF HEALTH AND THE DESIGN ENGINEER.
3. 4" SCHEDULE 40 PVC PIPE WITH WATER TIGHT JOINTS SHALL BE USED IN DISPOSAL SYSTEM UNLESS OTHERWISE NOTED.
4. TO PREVENT BREAKOUT, THE PROPOSED FINISH GRADE SHALL NOT BE LESS THAN ELEVATION = 10.0' FOR A DISTANCE OF 15' AROUND THE PERIMETER OF THE SAS. UNLESS A 40 MIL GEOMEMBRANE LINER IS PLACE AT LEAST FIVE FEET FROM S.A.S. AND THE TOP OF THE LINER IS NOT LESS THAN THE BREAKOUT ELEVATION.
5. SLOPE ALL SOLID PIPE AT 1.0% MINIMUM.
6. THIS SYSTEM IS NOT DESIGNED FOR A GARBAGE DISPOSAL.
7. LOCAL BOARD OF HEALTH AND DESIGN ENGINEER TO BE NOTIFIED PRIOR TO BACK FILLING WHEN SYSTEM IS NEARLY COMPLETE AND READY FOR INSPECTION. SYSTEM IS NOT TO BE BACK FILLED WITHOUT FIRST OBTAINING APPROVAL FROM BOARD OF HEALTH AND DESIGN ENGINEER.
8. ELEVATIONS BASED ON ACTUAL DATUM OF 10.46' N.A.V.D. 88 OBTAINED ON A NAIL SET IN A STUMP AS SHOWN ON PLAN.
9. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION THROUGH DIG-SAFE AT LEAST 72 HOURS PRIOR TO COMMENCING WORK ON SITE AT 1-888-DIG-SAFE AND ANY OTHER APPLICABLE AGENCIES. REPORT ANY DISCREPANCIES TO THE DESIGN ENGINEER.
10. ALL JOINTS WHERE PIPE ENTERS AND EXITS CONCRETE STRUCTURES SHALL BE MADE WATERTIGHT.
11. NO DETERMINATION HAS BEEN MADE AS TO COMPLIANCE WITH DEEDED OR ZONING REGULATIONS. OWNER/APPLICANT IS TO OBTAIN SUCH DETERMINATION FROM APPROPRIATE AUTHORITY.
12. ALL SEPTIC SYSTEM COMPONENTS SHALL WITHSTAND H-10 LOADING UNLESS LOCATED UNDER PAVEMENT, DRIVES OR TRAVELED WAYS IN WHICH CASE THEY SHALL WITHSTAND H-20 LOADING.
13. DOUBLE WASHED CRUSHED STONE SHALL BE FREE OF ALL DIRT, DUST AND FINES.
14. WHERE REQUIRED, CONTRACTOR SHALL REMOVE ALL LOAM, SUBSOIL AND UNSUITABLE MATERIAL IN AREA BENEATH AND FOR 5 FT. ON ALL SIDES OF LEACHING FACILITY. REPLACE ALL UNSUITABLE MATERIAL WITH CLEAN COARSE SAND FREE FROM CLAY, FINES OR OTHER UNSUITABLE MATERIAL IN ACCORDANCE WITH 310 CMR 15.255(3).
15. CONTRACTOR SHALL NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES FOUND IN SITE CONDITIONS FROM THOSE SHOWN PRIOR TO CONTINUATION OF WORK.
16. PROPOSED PROJECT IS LOCATED WITHIN:
    ASSESSORS MAP # 26.1 LOT # 139
    FLOOD ZONE AE (EL.15) AS SHOWN ON PANEL # 25001C0501J
17. OWNER OF RECORD: DENNIS LEE
    ADDRESS: 332 BOLIVAR STREET, CANTON, MA 02021
18. DEED REFERENCE: DEED BOOK: 35954, PAGE: 282
    PLAN REFERENCE: PLAN BOOK 356, PAGE: 31
19. PROPERTY LINE INFORMATION IS ONLY APPROXIMATE. THIS PLAN IS TO BE USED ONLY FOR SEPTIC SYSTEM UPGRADE. JC ENGINEERING WILL NOT ASSUME ANY LIABILITY FOR USES OF THIS PLAN OTHER THAN IT'S INTENDED PURPOSE.
20. IN ACCORDANCE WITH 310 CMR 15.401-15.405, THE FOLLOWING LOCAL UPGRADE APPROVAL IS REQUESTED FROM 310 CMR 15.227(5):
    (1.) A 0.90' WAIVER (1.0' - 0.10') FOR THE MAXIMUM SEPARATION BETWEEN SEASONAL HIGH GROUNDWATER AND THE INLET PIPE IN THE PUMP CHAMBER.

MICROFAST NOTES

(1) BLOWER PIPING TO FAST® MAY NOT EXCEED 100 FT [30.5M] TOTAL LENGTH AND USE 4 ELBOWS MAXIMUM. FOR DISTANCES GREATER THAN 100 FT [30.5M] - CONSULT FACTORY. BLOWER MUST BE LOCATED ABOVE FLOOD/STANDING WATER LEVELS ON A CONCRETE BASE.

(2) VENT TO BE LOCATED ABOVE FINISH GRADE OR HIGHER TO AVOID V2 SQ IN. OF OPEN INFILTRATION. CAP WITH VENT GRATE WITH AT LEAST SURFACE AREA. SECURE WITH STAINLESS STEEL SCREWS (SEE SHEET 3 OF 3 FAST DETAILS.)
OR
RUN VENT TO DESIRED LOCATION AND COVER OPENING WITH VENT V2 SQ IN. OF OPEN SURFACE AREA. SECURE WITH GRATE WITH AT LEAST STAINLESS STEEL SCREWS. VENT PIPING MUST NOT ALLOW EXCESS MOISTURE BUILD UP OR BACK PRESSURE.

(3) ALL APPURTENANCES TO FAST® (E.G. TANK PUMP OUTS, ETC.) MUST CONFORM TO ALL COUNTRY, STATE, PROVINCE, AND LOCAL PLUMBING AND ELECTRICAL CODES. THE BLOWER CONTROL SYSTEM IS PROVIDED BY BIO-MICROBICS, INC.

(4) EITHER THE INFLUENT PIPE TEE SHALL BE FITTED WITH A PIPE CAP OR THE BAFFLE SEPARATING THE TWO ZONES SHALL BE EXTENDED TO THE TOP OF THE TANK IF CHOOSING TO USE THE PIPE CAP; DRILL A 1/4" [0.6CM] VENT HOLE IN THE CAP AND THE BAFFLE SHALL BE AT LEAST 3"[8] HIGHER THAN THE WATER LEVEL AS SHOWN ON THE DRAWING.

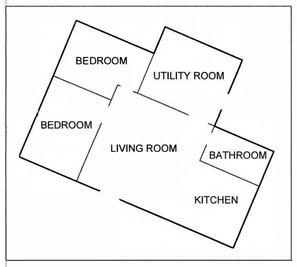
(5) ALL INSPECTION, VIEWING AND PUMP OUT PORTS MUST BE SECURED TO PREVENT ACCIDENTAL OR UNAUTHORIZED ACCESS

(6) TANK, ANCHORS, PIPING, CONDUIT, BLOWER HOUSING PAD AND VENTS ARE PROVIDED BY OTHERS.

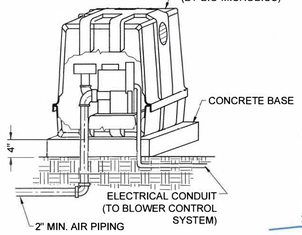
(7) ALL PIPING AND ANCILLARY EQUIPMENT INSTALLED AFTER FAST® MUST NOT IMPEDE OR RESTRICT FREE FLOW OF EFFLUENT.

(8) H1 MIN HEIGHT MAY BE REDUCED, CONSULT FACTORY AND REFERENCE "SHORT-FASTMODULE-PROCEDURE.PDF."

(9) STANDARD HEIGHT OF INTERNAL MOUNT MICROFAST UNIT MAY BE SHORTENED TO ALLOW PLACEMENT IN A LOW PROFILE "FAST TANK" AS SUPPLIED BY ACME PRECAST CO., INC. OR APPROVED EQUAL. REFER TO BIOMICROBICS FOR MODIFYING THE MICROFAST UNIT. MAXIMUM REDUCTION IN HEIGHT ABOVE WATER LINE FOR MODEL 0.5 IS 9 INCHES.



EXISTING FLOOR PLAN
NOT TO SCALE



BLOWER DETAIL
NOT TO SCALE

NOTES:

1. MAGNETIC MARKING TAPE SHALL BE PLACED ALONG THE TOP EDGE OF EACH SYSTEM COMPONENT.
2. ENTIRE PARCEL IS NOT LOCATED WITHIN A DEP APPROVED ZONE II.
3. ENTIRE PARCEL IS NOT LOCATED WITHIN THE BUZZARDS BAY WATER RESOURCE DISTRICT.
4. THE COASTAL BANK SHOWN ON THIS PLAN WAS DELINEATED BASED ON THE STANDARDS UNDER MA DEP DWW POLICY 92-1 (ISSUED: MARCH 3, 1992).
5. NEW ENGLAND CONSERVATION SEED MIX AVAILABLE FROM NEW ENGLAND WETLAND PLANTS, INC., SOUTH HADLEY, MA 413-548-8000

LOCAL VARIANCE REQUEST

THE FOLLOWING LOCAL VARIANCE IS REQUESTED FROM THE TOWN OF BOURNE BOARD OF HEALTH 150 FOOT SETBACK REGULATION:

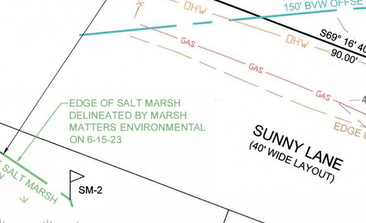
(1). A 21.8' VARIANCE (150.0' - 128.2') FOR THE SETBACK FROM THE LEACHING FACILITY TO THE EDGE OF THE SALT MARSH.

(2). A 150' VARIANCE (150.0' - 0') FOR THE SETBACK FROM THE LEACHING FACILITY TO THE TOP OF COASTAL BANK.

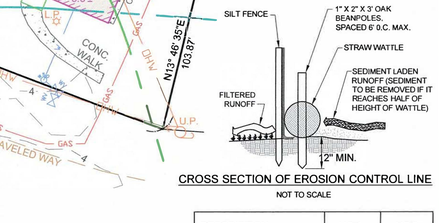
BUOYANCY CALCULATIONS

SEPTIC TANK — HIGH GROUNDWATER EL.= 2.40' BOTTOM OF SEPTIC TANK EL. = -1.95'
WATER DISPLACED = (2.40' - (-1.95')) x 11.5' x 6.0' = 300.15 C.F.
WEIGHT OF DISPLACED WATER = 300.15 C.F. x 62.4 LB/C.F. = 18,729 LBS.
WEIGHT OF SEPTIC TANK = 25,000 LBS. 25,000 > 18,729 LBS. (ACCEPTABLE)

PUMP CHAMBER — HIGH GROUNDWATER EL.= 2.40' BOTTOM OF PUMP CHAMBER EL. = -2.00'
WATER DISPLACED = (2.40' - (-2.00')) x 7.67' x 6.0' = 202.49 C.F.
WEIGHT OF DISPLACED WATER = 202.49 C.F. x 62.4 LB/C.F. = 12,635 LBS.
WEIGHT OF CHAMBER = 16,500 LBS. 16,500 LBS. > 12,635 LBS. (ACCEPTABLE)



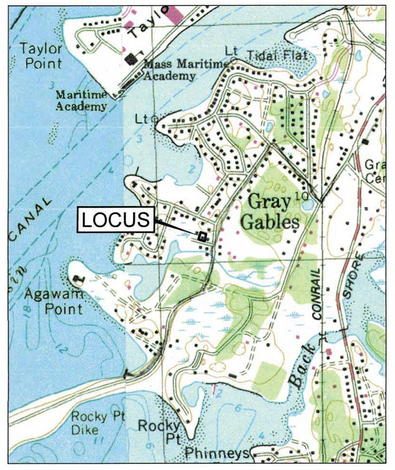
CROSS SECTION OF DEWATERING SEDIMENT TRAP
NOT TO SCALE



1,500 GALLON SEPTIC TANK W/ MICROFAST INSERT (MODEL 0.5)
NOT TO SCALE

SITE PLAN
SCALE: 1" = 15'

DESCRIPTION	HC 1	HC 2
TANK COVER IN (1)	14.7'	35.0'
TANK COVER MIDDLE (2)	13.6'	32.9'
PUMP COVER IN (3)	13.9'	24.8'
PUMP COVER OUT (4)	16.7'	21.2'
CORNER STONE (5)	46.5'	45.9'
CORNER STONE (6)	55.1'	54.5'
CORNER STONE (7)	70.7'	61.9'
CORNER STONE (8)	64.2'	49.7'

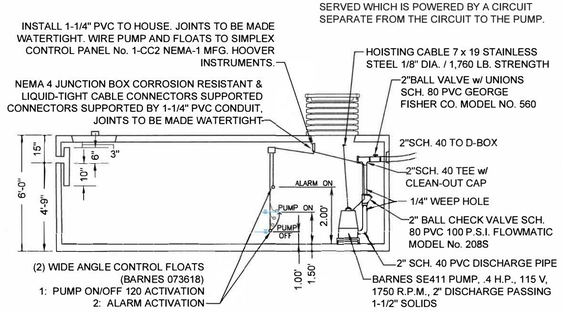


LOCUS PLAN
SCALE: 1" = 1000'

TEST PIT DATA

INSPECTOR: Kaitlyn Shea
SOIL EVALUATOR: Peter McEntee
DATE: June 26, 2023
TEST PIT #: 1
ELEV TOP = 10.5'
ELEV WATER = 1.83'
PERC RATE = < 5 MIN/IN
DEPTH OF PERC = 80"-98"
TEXTURAL CLASS: 1

NOTE: PUMP MUST BE EQUIPPED WITH A HIGH LEVEL ALARM LOCATED IN THE BUILDING SERVED WHICH IS POWERED BY A CIRCUIT SEPARATE FROM THE CIRCUIT TO THE PUMP.



1000 GALLON MONOLITHIC PUMP CHAMBER (H-20)

DESIGN DATA

NUMBER OF BEDROOMS (EXISTING) 2
NUMBER OF BEDROOMS (DESIGN) 3 (MIN. PER TITLE)
DESIGN FLOW 110 GAL/DAY/BEDROOM
TOTAL DESIGN FLOW 330 GAL/DAY
DESIGN FLOW X 200 % = 660 GAL/DAY

USE PROPOSED 1500 - GALLON SEPTIC TANK WITH MICROFAST INSERT

DOSING & STORAGE REQUIREMENTS

DESIGN FLOW: 330 GPD
DOSING REQUIRED: 3 CYCLE / DAY
330 GPD/4 = 110 GAL/CYCLE
DISTANCE REQ'D BETWEEN PUMP FLOATS:
110 GAL/CYCLE ÷ 250 GAL/FT = 0.44 FT/CYCLE
(USE 0.5' TO PROVIDE FOR BACKFLOW)
STORAGE REQ'D ABOVE WORKING LEVEL: 330 GAL.
STORAGE PROV'D ABOVE WORKING LEVEL: 500 GAL.

INSTALL 3 - 500 GALLON CHAMBERS W/ STONE

SIDEWALL CAPACITY
(LENGTH + WIDTH) (2 SIDES) (2' HIGH) (.74 GPD/S.F.) = GAL/DAY
(33.5' + 8.83') (2) (2') (.74 GPD/ S.F.) = 125.3 GAL/DAY

BOTTOM CAPACITY
(LENGTH x WIDTH) (.74 GPD/S.F.) = GAL/DAY
(33.5' x 8.83') (.74 GPD/S.F.) = 218.9 GAL/DAY

TOTALS:
TOTAL NUMBER OF CHAMBERS 3
TOTAL LEACHING AREA 465.1 SQ.FT.
TOTAL LEACHING CAPACITY 344.2 GAL./DAY

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING WATERLINE
- EXISTING OVERHEAD UTILITIES
- EXISTING GAS LINE
- TEST PIT LOCATION
- PROPOSED 1500 GALLON LOW PROFILE SEPTIC TANK WITH MICROFAST INSERT (H-20)
- PROPOSED 1000 GALLON MONO. PUMP CHAMBER (H-20)
- PROPOSED 4" SOLID SCHEDULE 40 PVC PIPE
- PROPOSED 2" SOLID SCHEDULE 40 PVC PIPE
- PROPOSED DISTRIBUTION BOX
- PROPOSED 500 GALLON LEACHING CHAMBER

REV.	DATE	BY	APP'D.	DESCRIPTION

PROPOSED SEPTIC SYSTEM UPGRADE

PREPARED FOR:
DENNIS LEE

LOCATED AT
10 SUNNY LANE
BOURNE, MA 02532

SCALE: 1 INCH = 15 FT. DATE: OCTOBER 17, 2023
0 7.5 15 30 60 FEET

PREPARED BY:
JC ENGINEERING, INC.
2854 CRANBERRY HIGHWAY
EAST WAREHAM, MA 02538
508.273.0377

COMMONWEALTH OF MASSACHUSETTS
JOHN L. CHURCHILL JR.
CIVIL
NO. 41807
REGISTERED PROFESSIONAL ENGINEER

Drawn By: SJI | Designed By: SJI | Checked By: JLC | JOB No. 7277