

**MAIN OFFICE:**  
49 Herring Pond Road  
Buzzards Bay, MA 02532  
TEL: (508) 833-0070  
FAX: (508) 833-2282



**NANTUCKET OFFICE:**  
19 Old South Road  
Nantucket, MA 02554  
TEL: (508) 325-0044  
[www.brackeneng.com](http://www.brackeneng.com)

July 26, 2023

**RECEIVED**

By Bourne Health Department at 11:43 am, Jul 27, 2023

**Hand Delivery & Email** [tguarino@townofbourne.com]

Bourne Board of Health  
Terri Guarino, RS, CHO  
24 Perry Avenue  
Bourne, MA 02532

**RE: Bourne Board of Health Variance – Proposed Septic Upgrade  
457 Circuit Avenue (Map 47.1 Parcel 7)**

Dear Members of the Board:

On behalf of the owners/applicants, Bryan and Kelly Stenberg, please accept this letter as a request for the following variances from the Town of Bourne Health Regulations for a proposed septic installation at the above referenced property. We request the following *Local Variances*:

- **A 47' local variance is requested from the BOURNE BOARD OF HEALTH Regulations for a 103' setback from a proposed soil absorption system to the top of a Coastal Bank.**
- **A 7' local variance is requested from the BOURNE BOARD OF HEALTH Regulations for a 143' setback from a proposed soil absorption system to Mean High Water.**

The proposed project includes the raze and rebuild of an existing single-family dwelling and Title V septic upgrade. The proposed septic system is an Innovative/Alternative (I/A) septic system, consisting of a MicroFAST 0.5 Unit, and a Presby Enviro-Septic soil absorption system. The I/A system will replace an existing 1,000-gallon septic tank and 1,000-gallon leach pit. The employment of I/A technology results in a benefit to the environment by reducing the nitrogen loading from 16.54 ppm to 9.94 ppm or 39%.

Bracken Engineering, Inc. is requesting that the Bourne Board of Health deviate from the goal of full compliance by allowing the *Local Variances* requested above. The above *Local Variances* requests are being made because of the relatively small lot and its proximity to adjacent resource areas. The design provides the best treatment within the borders of the lot and confines of the existing resource areas.

Thank you for your time and consideration on this matter. We look forward to reviewing this project with the Board of Health at the August 23<sup>rd</sup> Public Hearing. Should you have any questions regarding this project or require any further information please contact the undersigned at either 508-833-0070 or [zac@brackeneng.com](mailto:zac@brackeneng.com)  
Sincerely,

**BRACKEN ENGINEERING, INC.**

A handwritten signature in black ink, appearing to read 'Zachary L. Basinski', written over a horizontal line.

Zachary L. Basinski, P.E., CFM  
Senior Project Manager

A handwritten signature in black ink, appearing to read 'Jason P. Heyer', written over a horizontal line.

Jason P. Heyer, CFM  
Project Designer



# 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

Bryan D. Stenberg and Kelly F. Stenberg

### Facility's Street Address

457 Circuit Avenue (Map 47.1 Parcel 7)

### Owner's Telephone Number

908-310-0935 (Kelly)

### Owner's E-mail Address

kellystenberg@me.com

### Owner's Mailing Address

5 Crooked Meadow Lane, Hingham, MA 02043

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

### Preparer's Name

Zachary L. Basinski, PE, CFM

### Company

Bracken Engineering, Inc.

### Telephone Number

508-833-0070 Ext 303

### E-mail Address

zac@brackeneng.com

### Mailing Address

49 Herring Pond Road, Buzzards Bay, MA 02532

## 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): \_\_\_\_\_

Single-family dwelling, 4 bedrooms

## 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: PROPOSED:  
1,500 gallon MicroFast 0.5 septic tank, blower unit and d-box  
SAS consisting of Presby Enviro-Septic Wastewater Treatment System 504 SF area x 2' Deep

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

110 GPD	EXISTING	PROPOSED
Design flow of system:	440	440
Total design flow of facility: <i>(if more than one system on subject property)</i>	440	440


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:

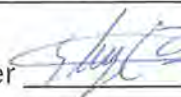
- \$125 filing fee + any other applicable permit application fees paid to the Town of Bourne.
- Application for a Disposal System Construction Permit (may be filled out by installer).
- Six copies of Letter of Request describing nature of variances.
- Six sets of complete engineered plans and specifications, 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  BRACKEN ENGINEERING, INC Date 7/26/23

Print Name Zachary L. Basinski, PE, CFM | Bracken Engineering, Inc. - as AGENT

Signature of Preparer  BRACKEN ENGINEERING, INC Date 7/26/23

Print Name Zachary L. Basinski, PE, CFM | Bracken Engineering, Inc.



# 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](https://capecodcommission.org/resource-library/file/?url=/dept/commission/team/Website_Resources/regulatory/NitrogenLoadTechbulletin.pdf)

Facility Address: 457 Circuit Avenue  
Preparer's Name: Bracken Engineering, Inc.  
Date: 5/24/2023  
Watershed: Red Brook Harbor

**Project Nitrogen Load**

**Proposed Wastewater**

1. Project Title-5 wastewater flows:  gpd (a)  
 Actual wastewater flows:  \* (b)  
 Average wastewater flows:  gpd (a)+(b) ÷ 2= (A)

\* Title-5 flows prescribed by TB91-001 for commercial uses

Place  in applicable box:

Yes  No Will the project be connected to sewer ?  
 Yes  No Is project Title-5 wastewater flow 10,000 gpd or greater ?

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

<input type="checkbox"/>	Standard Title-5 System (35-ppm-N)	x	0.048359	} Type of system: <input type="text" value="MicroFast &amp; Presby EnviroTech"/>
<input type="checkbox"/>	DEP-approved I/A System (25-ppm-N)	x	0.034542	
<input checked="" type="checkbox"/>	DEP-approved I/A System (19-ppm-N)	x	0.026252	
<input type="checkbox"/>	DEP-approved Enhanced I/A (12-ppm-N)	x	0.016580	

Wastewater nitrogen load (Title-5 flows) =  kg-N/yr (B)  
 Wastewater nitrogen load (Actual flows) =  kg-N/yr (C)

**Existing Conditions**

Calculate (A') through (P') as w/ (A) through (P):

Title-5 wastewater flows:  gpd  
 Actual wastewater flows:  \*  
 Avg. wastewater flows:  gpd (A')

Place  in applicable box:

Yes  No Is existing development on sewer ?  
 (If 'Yes', then go to line 2.)

Standard Title-5 System  
 DEP-approved I/A System (commercial)  
 DEP-approved I/A System (residential)  
 DEP-approved enhanced I/A

kg-N/yr (B')  
 kg-N/yr (C')  
 wastewater offsets

**Stormwater Runoff**

Town of Bourne

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

Project site area:  acres (D)  
 Project site wetland area:  acres (E)  
 Project site upland area:  acres (F)  
 Pervious unpaved upland:  acres (G)

% using LID Paved area:  s.f. (H)  
 Factor may be adjusted for employment of LID → x 1.4158E-04 =  kg-N/yr (I)  
 LID = low impact development

Roof area:  s.f. (J)  
 x 7.0792E-05 =  kg-N/yr (K)

Project site area:  acres (D)  
 Project site wetland area:  acres (E)  
 Project site upland area:  acres (F)  
 Pervious unpaved upland:  acres (G')

Paved area:  s.f. (H')

Paving runoff offset:  kg-N/yr (I')

Roof area:  s.f. (J')

Roof runoff offset:  kg-N/yr (K')

**Fertilizer**

Previous unpaved upland - roof area =  
 Managed turf/ lawn area  s.f.  
 x 3.4019E-04 =  kg-N/yr (L)

Managed Turf/ lawn area:  s.f.  
 Fertilizer offset:  kg-N/yr (L')



# 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](https://capecodcommission.org/resource-library/file?url=/dept/commission/team/Website_Resources/regulatory/NitrogenLoadTechbulletin.pdf)

Facility Address: 457 Circuit Avenue  
Preparer's Name: Bracken Engineering, Inc.  
Date: 5/24/2023  
Watershed: Red Brook Harbor

<b>Total Nitrogen Load</b>			
Total project nitrogen load (Title-5 flows):	13.65	kg-N/yr	(M)= (B)+(I)+(K)+(L)
Total project nitrogen load (Actual flows):	6.70	kg-N/yr	(N)= (C)+(I)+(K)+(L)
Nitrogen load per acre (Average):	51.79	kg-N/yr/acre	(O)= (M)+(N) ÷2 +(F)
		Existing nitrogen load (Title-5 flows):	23.34
		Existing nitrogen load (Actual flows):	10.52
		Nitrogen offset per acre:	86.19
<b>Proposed Nitrogen Loading Concentration</b>			
Project nitrogen loading concentration (Title-5 flows):	11.61	ppm-N	(P)= $\frac{(M)}{(a)+723.76 + (G)x(RECH)+9.7286 + (H)+10,594 + (K)+0.75}$
Project nitrogen loading concentration (Actual flows):	8.27	ppm-N	(Q)= $\frac{(N)}{(b)+723.76 + (G)x(RECH)+9.7286 + (H)+10,594 + (K)+0.75}$
Project nitrogen loading concentration (Average):	9.94	ppm-N	(R)= (P)+(Q) ÷2
		<b>Existing nitrogen loading concentrations:</b>	
		Title-5 flows	19.97
		Actual flows	13.11
		Average	16.54

## Resource/ Impact Based Criteria

### Marine Water Recharge Areas / Coastal Embayments

2.  Yes  No 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): RED BROOK HARBOR

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

Yes  No 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

3.  Yes  No 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

4.  Yes  No Is project in a Potential Public Water Supply Area (PPWSA) ?  
(If 'No', then go to line 5.)



## 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](https://capecodcommission.org/resource-library/file/?url=/dept/commission/team/Website_Resources/regulatory/NitrogenLoadTechbulletin.pdf)

Facility Address: 457 Circuit Avenue  
Preparer's Name: Bracken Engineering, Inc.  
Date: 5/24/2023  
Watershed: Red Brook Harbor

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

5.   Is project in a Wellhead Protection Area (WHPA) ?

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)*

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

6.   Is project wastewater disposed of within 300 feet of a stream or fresh surface water body?  
*(If 'No', then go to line 7.)*

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

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.**



**TOWN OF BOURNE**  
**Board of Assessors**  
24 Perry Avenue  
Buzzards Bay, MA 02532  
(508) 759-0600 Ext. 1510



Michael Leitzel, Chairperson  
Ellen Doyle Sullivan, Clerk  
Donna Barakauskas, Member

Rui Pereira, MAA  
Director of Assessing

July 25, 2023

Bryan & Kelly Stenberg  
c/o Bracken Engineering, Inc.  
49 Herring Pond Rd.  
Buzzards Bay, MA 02532

Re: Abutters List for Map 47.1 Parcel 7  
Property address: 457 Circuit Avenue

As required by the Bourne Board of Health, pursuant with section 310 CMR 15.411(1), this is to certify that the attached list of names and addresses constitutes all of the parties in interest as shown on the most recent tax list of the Town of Bourne.

Abutting properties are: Map 47.1 Parcels 3, 4, 6, 8, 12, 13 & 20.

Your filing fee of \$25.00 has been received by the Bourne Assessor's Office.

**Please be advised that this abutters list is only good for 30 days from the date on this letter. Expired abutters list can be recertified for an additional filing fee.**

See enclosed for abutters mailing addresses.

Board of Assessors

*Ellen Doyle Sullivan -  
Donna Barakauskas  
Michael Leitzel*

Extract:  
Database:  
Filter:  
Sort:

ABUTTERS LIST  
LIVE  
Key IN 10150,10151,10153,10155,10160,10161,10168

Report #24: Owner Listing Report  
Fiscal Year 2024

Bourne MA

Key	Parcel ID	Owner	Location	LCI/Ci	Bk-Pa(Cert) /DI	Mailing Street	Mailing City	ST	Zip Cd/County
10150	47.1-3-0	ROY MARTHA W & MICHAEL P ROY	41 PEQUOT AVE	N 1010	30754/256 9/11/2017	720 COUNTY ROAD	POCASSET	MA	02559
10151	47.1-4-0	WETHERELL STEVEN & JUDITH CURRY	37 PEQUOT AVE	N 1010	30269/171 1/31/2017	309 WEST ST	MIDDLETOWN	CT	06457
10153	47.1-6-0	PRATT JOAN M & CHRISTOPHER T TRS JM PRATT REV LIV TRUST	32 KENNEBEC AVE	N 1010	33977/195 4/5/2021	73 TAYLOR AVE	DEDHAM	MA	02026
10155	47.1-8-0	MCCARTHY JOHN E & NANCY A TRS NANCY A MCCARTHY FAMILY TR	455 CIRCUIT AVE	N 1010	25487/286 6/3/2011	PO BOX 3083	POCASSET	MA	02559
10160	47.1-12-0	STENBERG BRYAN D & KELLY F	0 CIRCUIT AVE	N 1320	18112/97 1/9/2004	5 CROOKED MEADOW LANE	HINGHAM	MA	02043
10161	47.1-13-0	PRATT JOAN M & CHRISTOPHER T TRS JM PRATT REV LIV TRUST	0 CIRCUIT AVE	N 1320	33977/195 4/5/2021	73 TAYLOR AVE	DEDHAM	MA	02026
10168	47.1-20-0	PRATT JOAN M & CHRISTOPHER T TRS JM PRATT REV LIV TRUST	463 CIRCUIT AVE	N 1320	33977/195 4/5/2021	73 TAYLOR AVE	DEDHAM	MA	02026

Applicant

Duplicate

Duplicate

Total Records

7



**MAIN OFFICE:**  
49 Herring Pond Road  
Buzzards Bay, MA 02532  
TEL: (508) 833-0070  
FAX: (508) 833-2282



**NANTUCKET OFFICE:**  
19 Old South Road  
Nantucket, MA 02554  
TEL: (508) 325-0044  
[www.brackeneng.com](http://www.brackeneng.com)

July 26, 2023

**CERTIFIED MAIL**

RE : Notice of Public Hearing

Dear Abutter:

In accordance with the Bourne Board of Health Regulations you are hereby notified that **Bryan and Kelly Stenberg** have requested a hearing before the Bourne Board of Health for relief from the Bourne Board of Health Regulations for the installation of an upgraded septic system utilizing Innovative/Alternative technologies. The location of the property for which approval is sought is **457 Circuit Avenue (Map 47.1, Parcel 7), Pocasset** where you are listed as an abutter. At said hearing the Board will discuss and possibly vote on the following *Local Variances*:

- **A 47' local variance is requested from the BOURNE BOARD OF HEALTH Regulations for a 103' setback from a proposed soil absorption system to the top of a Coastal Bank.**
- **A 7' local variance is requested from the BOURNE BOARD OF HEALTH Regulations for a 143' setback from a proposed soil absorption system to Mean High Water.**

This hearing is **tentatively** scheduled for Wednesday, August 23<sup>rd</sup> at **5:30 p.m.** in Conference Room #2 at the Bourne Veteran's Memorial Community Building, 239 Main Street, Buzzards Bay. ***Please confirm the date, time and location of the meeting with the Town, in case of any changes.*** Information regarding the hearing may be available for your review one week prior to the meeting by contacting the Bourne Health Department at 508-759-0600, Ext. 1513, Monday through Friday from 8:30 a.m. until 4:30 p.m.

Meeting agendas are posted on the Town of Bourne website, [www.townofbourne.com/health](http://www.townofbourne.com/health) no less than 48 hours in advance of the hearing. Should you have any questions or concerns, please do not hesitate to contact the undersigned at [zac@brackeneng.com](mailto:zac@brackeneng.com) or the Bourne Health Department at 508-759-0600, Ext. 1513.

Sincerely,

**BRACKEN ENGINEERING INC.**

A handwritten signature in black ink, appearing to read 'Zachary L. Basinski', is written over a horizontal line.

Zachary L. Basinski, PE, CFM  
Senior Project Manager  
Agent for the Applicant

7022 2410 0003 3888 8880

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Return Receipt Fee: \$ 3.55  
Total Postage & Fees: \$ 8.53



MARTHA W. ROY &  
MICHAEL P. ROY  
720 COUNTY ROAD  
POCASSET, MA 02559

457 CIRCUIT AVE., BOURNE - BOH

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Total Postage & Fees: \$ 8.53



STEVEN WETHERELL &  
JUDITH CURRY  
309 WEST STREET  
MIDDLETOWN, CT 06457

457 CIRCUIT AVE., BOURNE - BOH

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Total Postage & Fees: \$ 8.53



Joan M. & Christopher T. Pratt, TRS  
JM PRATT REV LIV TRUST  
73 TAYLOR AVENUE  
DEDHAM, MA 02026

457 CIRCUIT AVE., BOURNE - BOH

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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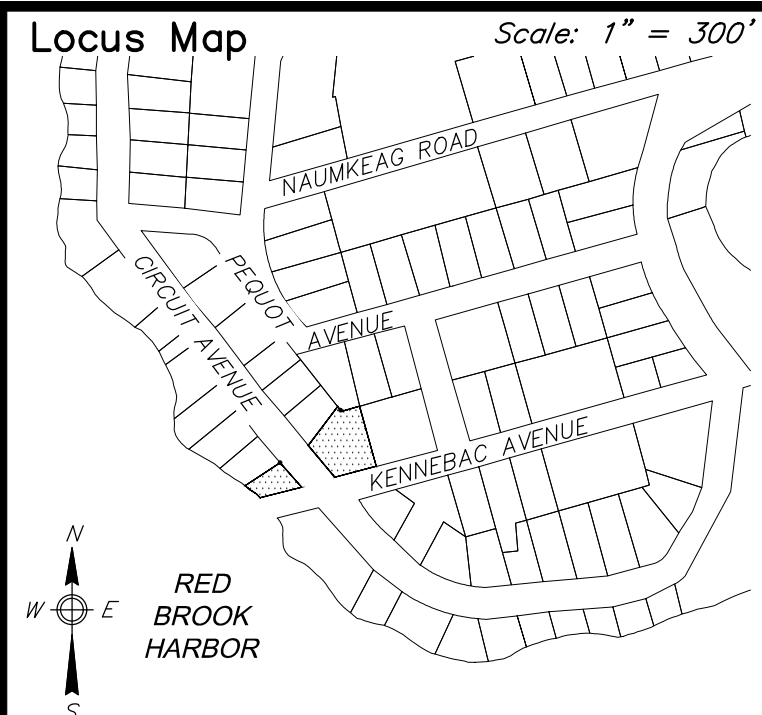
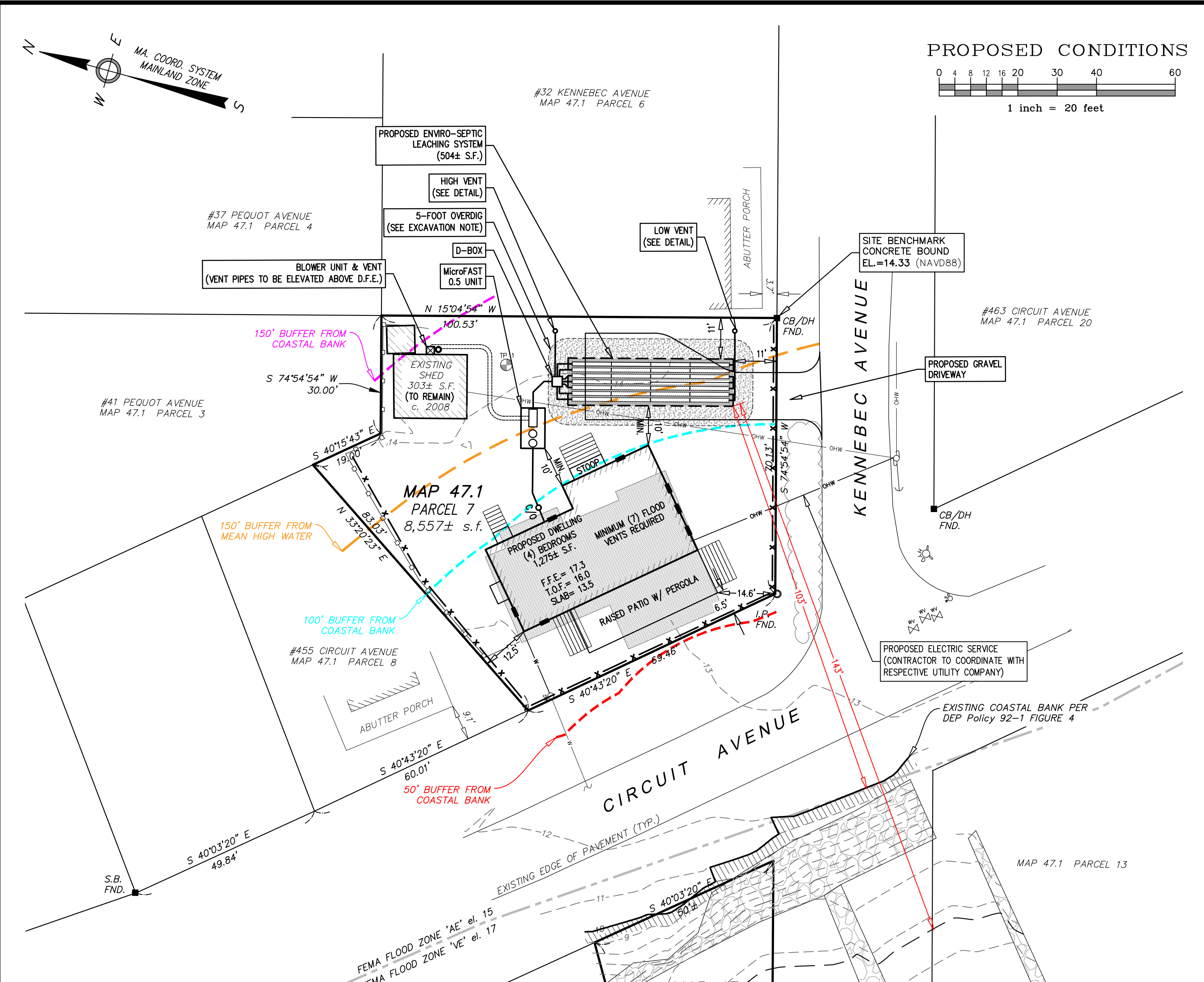
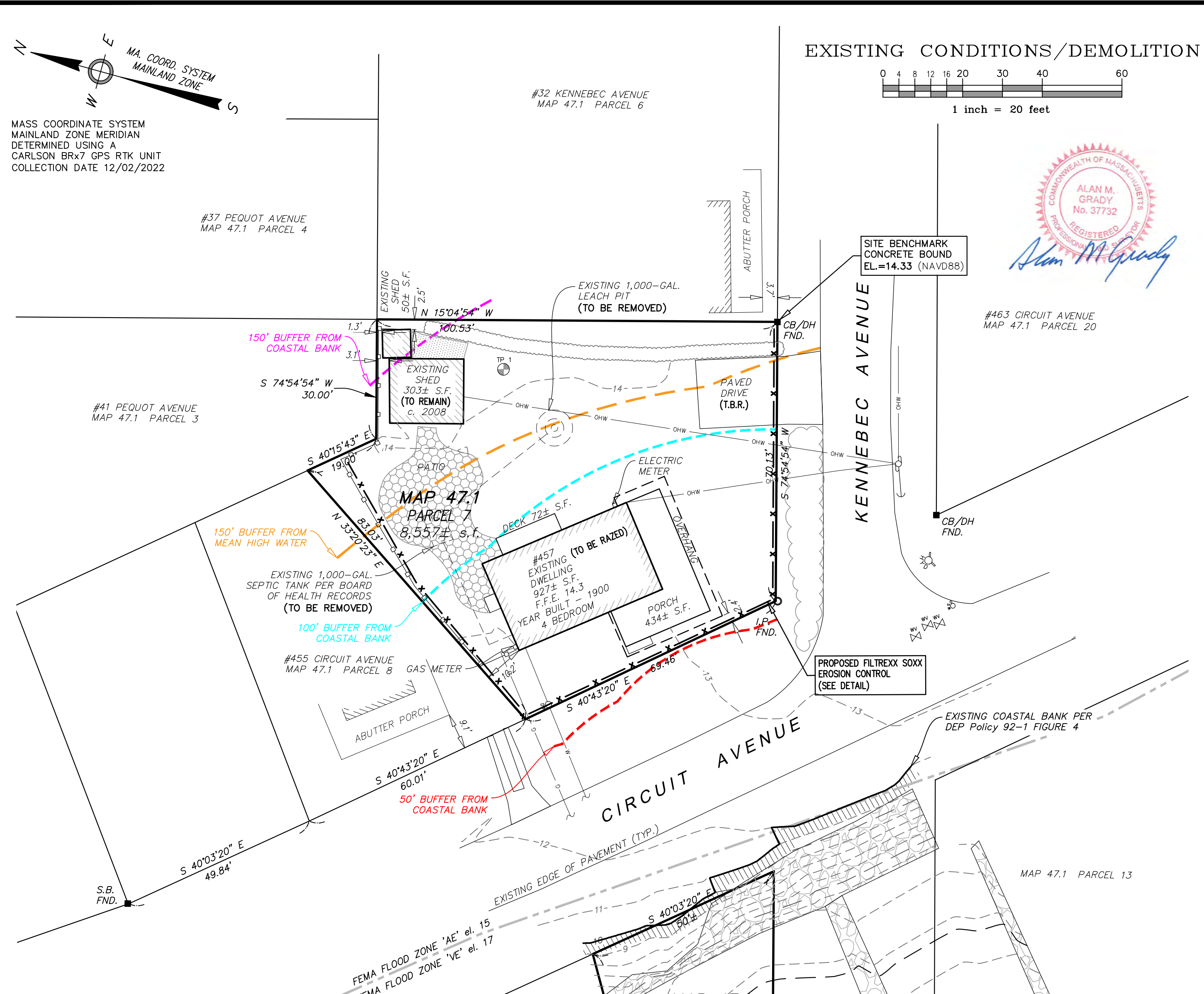
Postage: \$ .63  
Certified Fee: \$ 4.35  
Return Receipt Fee: \$ 3.55  
Total Postage & Fees: \$ 8.53



John E. & Nancy A McCarthy Trs  
NANCY A MCCARTHY FAMILY TR  
P.O. BOX 3083  
POCASSET, MA 02559-3083

457 CIRCUIT AVE., BOURNE - BOH

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



### ZONING REQUIREMENTS

ZONE: R-40

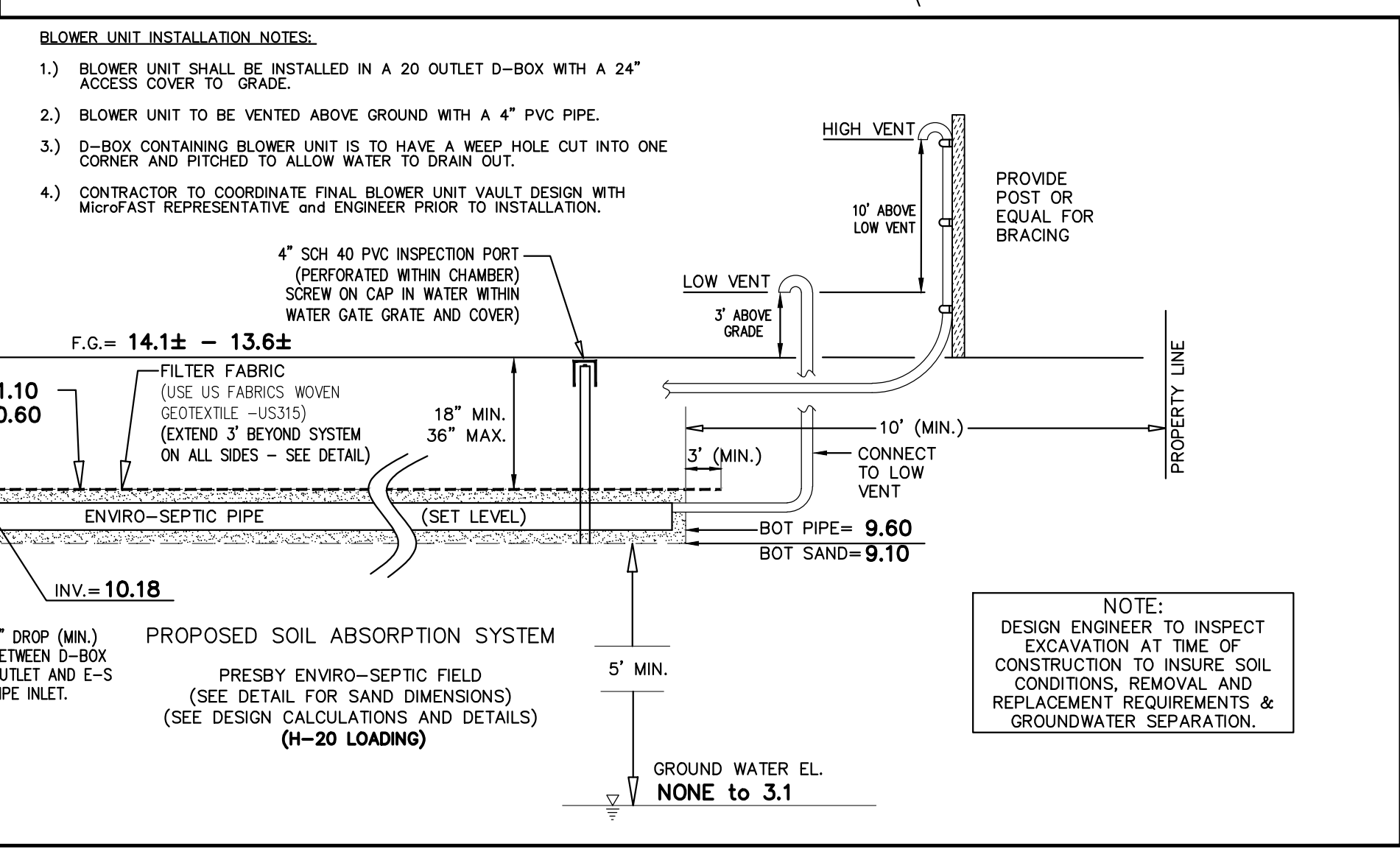
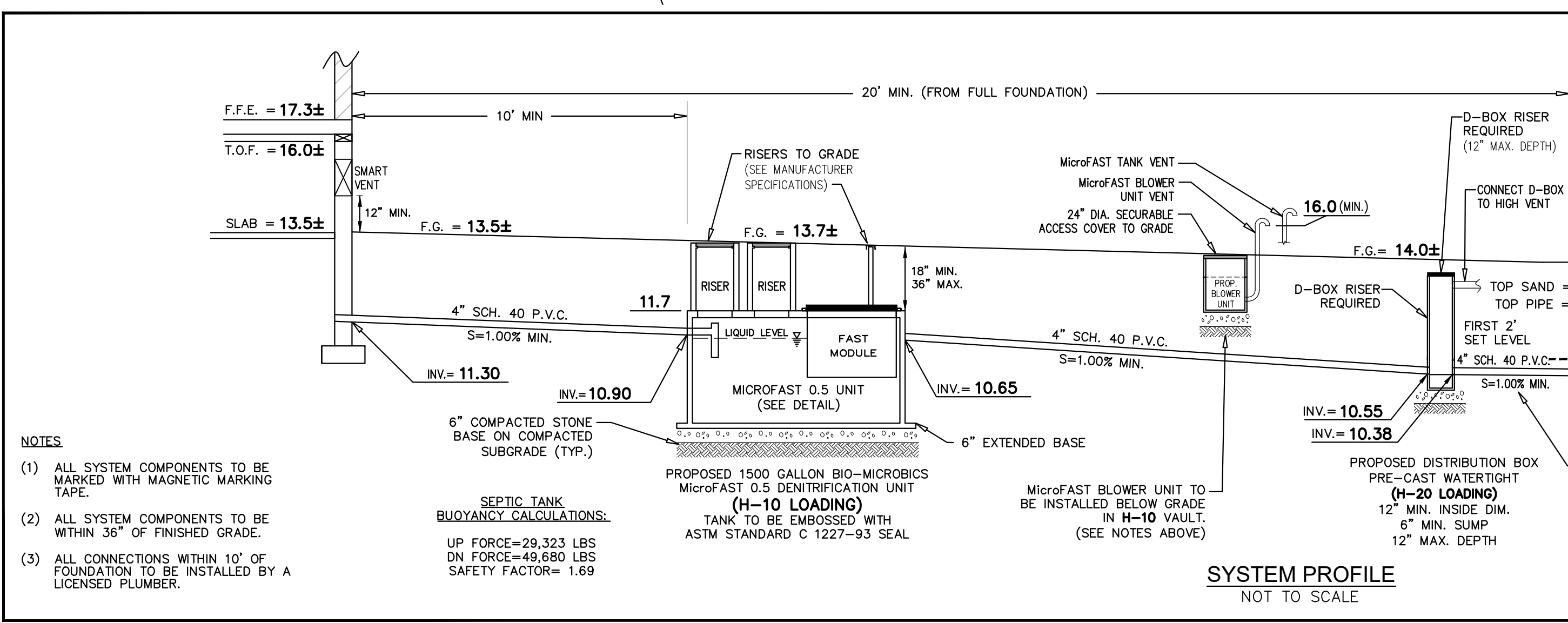
PRE-EXISTING NON-CONFORMING LOTS IN BOURNE ZONING BY LAWS.

ZONE: R-40	REQUIRED	EXISTING	PROPOSED
LOT AREA:	40,000 s.f.	11,554± s.f. (a)	11,554± s.f. (a)
FRONTAGE:	125'	SEE PLAN	SEE PLAN
FRONT YARD:	6.4'(d)	2.4'	6.5'
SIDE YARD:	12'	2.5'	12.5'
REAR YARD:	12'	NA	NA
LOT COVERAGE:	24%	17.1%	17.8%
GROSS FLOOR AREA:	(2,772 s.f.)	(2,099 s.f.)	(2,088 s.f.)
BUILDING HEIGHT:	(2,941 s.f.)	(2,598 s.f.)	(2,598 s.f.)
	31'(MAX)(b)	25.3'	33.3'(c)

Notes:  
 (a) LOT AREA INCLUDES PARCELS 7 & 12  
 (b) INCREASE ALLOWABLE BY 5 FEET FOR ROOF ELEMENTS HAVING A SLOPE OF 4' OR MORE PER FOOT  
 (c) BUILDING HEIGHT BASED ON AN AVERAGE EXISTING GRADE OF 13.24'  
 (d) FRONT YARD SETBACK BASED UPON SETBACK AVERAGING, PER BOURNE ZONING BYLAW SECTION 2500 INTENSITY OF USE SCHEDULE FOOTNOTE.

### VARIANCE REQUESTS

- A 47' LOCAL VARIANCE IS REQUESTED FROM THE BOURNE BOARD OF HEALTH REGULATIONS FOR A 103' SETBACK FROM A PROPOSED SOIL ABSORPTION SYSTEM TO THE TOP OF A COASTAL BANK.
- A 7' LOCAL VARIANCE IS REQUESTED FROM THE BOURNE BOARD OF HEALTH REGULATIONS FOR A 143' SETBACK FROM A PROPOSED SOIL ABSORPTION SYSTEM TO MEAN HIGH WATER.



### DESIGN CALCULATIONS

SOIL TEXTURAL CLASS: CLASS I  
 PERC. RATE: <2 MPI  
 NO. OF BEDROOMS: 4  
 DESIGN FLOW REQUIRED: 440 GPD  
 SEPTIC TANK REQUIRED: 1,500 GALLONS  
 SEPTIC TANK PROVIDED: MicroFAST 0.5 Unit

LEACHING SYSTEM:  
 ENVIRO-SEPTIC WASTEWATER TREATMENT SYSTEM AREA REQUIRED: 400 S.F. AREA x 2' DEEP SYSTEM

PRESBY ENVIRO-SEPTIC WASTEWATER TREATMENT SYSTEM PROVIDED:  
 504 S.F. AREA x 2' DEEP SYSTEM (SEE DETAIL FOR FIELD DIMENSIONS)

EFFECTIVE LEACHING: (BASED ON REMEDIAL USE APPROVAL)  
 ENVIRO-SEPTIC PIPE REQUIRED: 70 L.F. PER 110 GAL/DAY  
 440 GPD = 280 L.F. REQUIRED E.S. PIPE

ENVIRO-SEPTIC PIPE PROVIDED:  
 1 SECTION WITH 7 LINES OF 40' LENGTH EACH  
 TOTAL LENGTH = (7 x 40') = 280 L.F.  
 280 L.F. = 280 L.F. (MIN. REQUIRED E.S. PIPE)  
 LINES SPACED 1.5' CENTER

- ### Notes
- BENCHMARK: ELEVATION = 14.33 (NAVD88) CONCRETE BOUND
  - ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO TITLE 5 AND THE TOWN OF BOURNE BOARD OF HEALTH REGULATIONS.
  - ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED.
  - NO FIELD MODIFICATION TO THE SYSTEM SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE DESIGN ENGINEER AND BOARD OF HEALTH.
  - ALL JOINTS AND COVERS TO BE WATERTIGHT.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ANY EXISTING UTILITIES.
  - A CERTIFICATE OF COMPLIANCE MUST BE OBTAINED PRIOR TO BACKFILLING SYSTEM.
  - OWNER: BRYAN D. STENBERG, KELLY F. STENBERG, 5 CROOKED MEADOW LANE, HINGHAM, MA 02043
  - DEED REFERENCE: Deed Bk: 18112 Pg: 97
  - PLAN REFERENCE: Plan Bk: 28 Pg: 1 (L015 333 & 334)
  - THE DESIGN IS INTENDED TO MEET TITLE 5 AND OTHER APPLICABLE REQUIREMENTS. THIS PLAN DOES NOT GUARANTEE THAT THE SYSTEM WILL BE INSTALLED AS DESIGNED, NOR DOES THIS PLAN GUARANTEE THE OPERATION OF THE SYSTEM.
  - THIS SYSTEM IS NOT DESIGNED NOR INTENDED FOR USE WITH A GARBAGE GRINDER.
  - THE SYSTEM OWNER SHALL BE RESPONSIBLE TO PUMP THE SEPTIC TANK AT LEAST ONCE EVERY THREE YEARS.
  - LOCUS DOES NOT FALL WITHIN A ZONE II WELLHEAD PROTECTION AREA OR BOURNE WATER RESOURCE DISTRICT.
  - LOCUS DOES NOT FALL WITHIN AN NHESP ESTIMATED HABITAT OF RARE WILDLIFE AND PRIORITY HABITAT OF RARE SPECIES.
  - LOCUS DOES FALL WITHIN A SPECIAL FLOOD HAZARD ZONE "AE" (EL. 15) AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP No. 25001C-0492-J, dated 7/16/2014.
  - CONTRACTOR TO REFER TO ALL MANUFACTURER'S REQUIREMENTS AND SPECIFICATIONS FOR INSTALLATION OF THE MICROFAST UNIT AND PRESBY ENVIRO-SEPTIC SYSTEM.
  - RECORD PROPERTY OWNER IS TO FILE A NOTICE OF DEED RESTRICTION AT THE BARNSTABLE COUNTY REGISTRY OF DEEDS PRIOR TO THE INSTALLATION OF THE SYSTEM, INDICATING THE USE OF AN INNOVATIVE/ALTERNATIVE SEPTIC SYSTEM ON THE PROPERTY.
  - HOMEOWNER IS TO ESTABLISH AN OPERATION & MAINTENANCE PLAN WITH A COMPANY CERTIFIED SYSTEM OPERATOR FOR THE MICROFAST UNIT. ALL SYSTEM TESTING, MONITORING & REPORTING IS TO BE CONDUCTED IN ACCORDANCE TO THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) REMEDIAL USE PERMITS.
  - CONTRACTOR TO COORDINATE PLACEMENT OF ALL ALARM/CONTROL PANELS WITH THE HOMEOWNER & SYSTEM MANUFACTURERS PRIOR TO INSTALLATION.
  - CONTRACTOR TO COORDINATE FINAL LOCATION OF MicroFAST BLOWER UNIT AND VENT WITH OWNER.
  - CONTRACTOR TO COORDINATE FINAL LOCATIONS OF HIGH AND LOW VENTS WITH OWNER AND ENGINEER.
  - PROPOSED FOUNDATION TO BE EQUIPPED WITH A MINIMUM OF (7) SMART VENT FLOOD VENTS TO BE INSTALLED WITHIN 1-FOOT OF FINAL GRADE.

Prepared By:

## BRACKEN ENGINEERING, INC.

49 HERRING POND ROAD BUZZARDS BAY, MA 02532 (tel) 508.833.0070 (fax) 508.833.2282

19 OLD SOUTH ROAD NANTUCKET, MA 02554 (tel) 508.325.0044 (www.brackeng.com)

### PROPOSED SITE PLAN IN BOURNE, MASSACHUSETTS

Prepared For:

## BRYAN STENBERG KELLY STENBERG

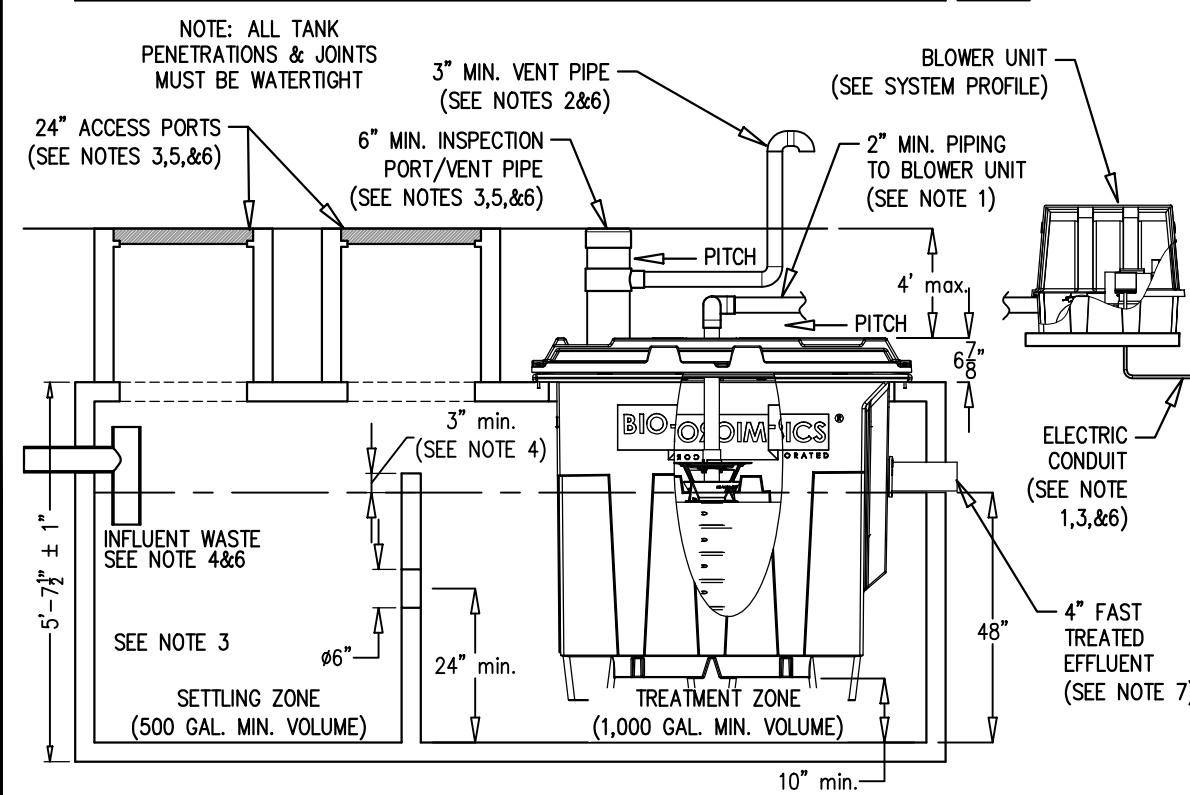
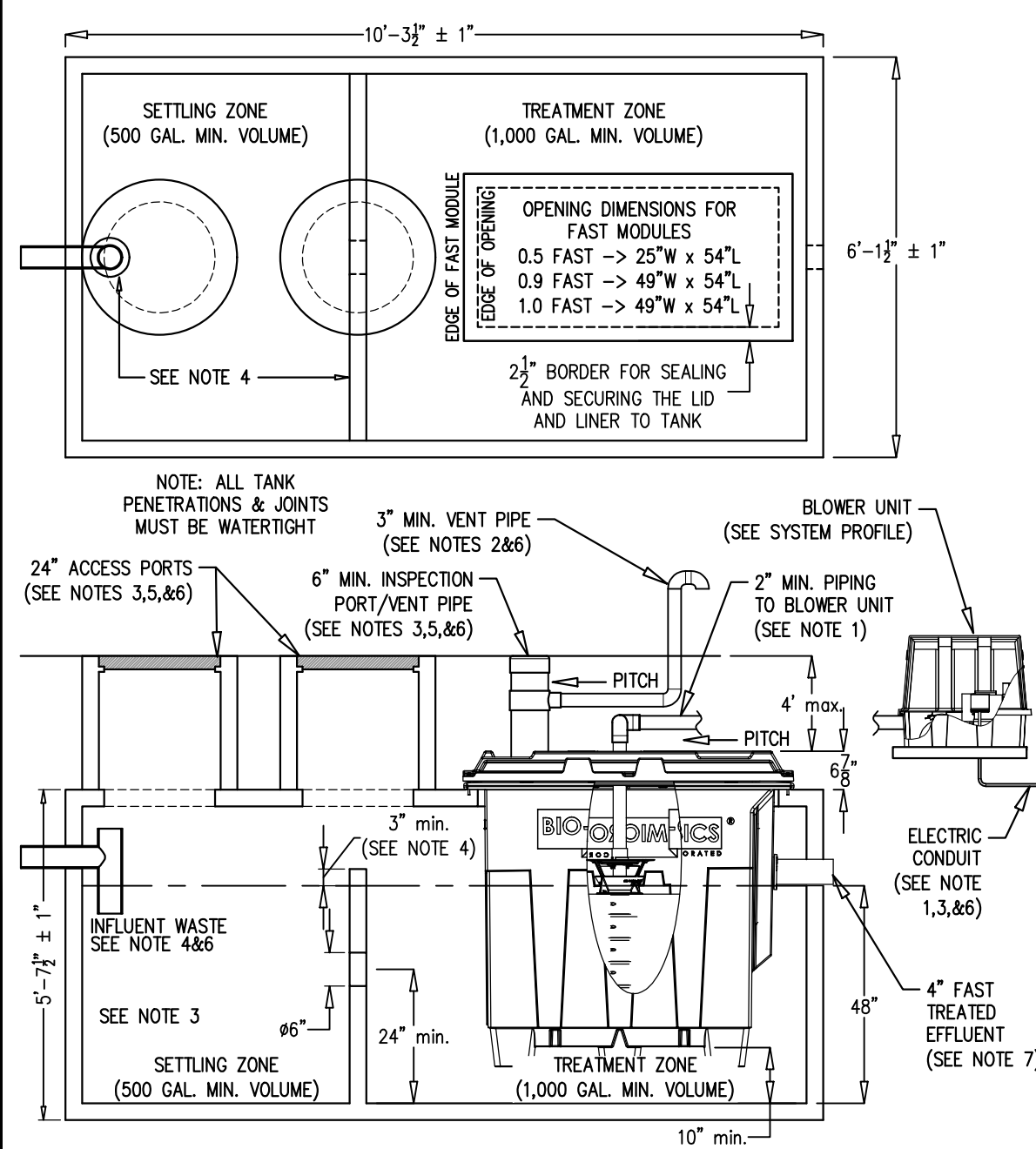
#457 CIRCUIT AVENUE MAP 47.1 PARCEL 7

Date: MAY 31, 2023 Drawn: JPH/BE Checked: ZLB/AMG Sheet: 1 of 2

**MicroFAST 0.5 FAST UNIT**



- MicroFAST Notes:**
- Blower piping to FASTs may not exceed 100FT total length and use a maximum of 4 elbows. For distances greater than 100FT - consult factory. Blower must be located above flood/standing water levels on a concrete base 24" x 18" x 2" minimum or underground as shown in system profile. Blower and vent piping to pitch back toward tank.
  - Vent to be located above finish grade or higher to avoid infiltration. Cap with vent grate w/at least 7.1 sq in. open surface area. Secure with stainless steel screws or Run vent to desired location and cover opening with vent grate w/at least 7.1sq in. of open surface area. Secure with stainless steel screws. Vent piping must not allow excess moisture build up or back pressure.
  - All appearances to FASTs (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.
  - 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, then the baffle shall be at least 3" higher than the water level as shown on the drawing.
  - All inspection, viewing and pump out ports must be secured to prevent accidental or unauthorized access.
  - Tank, anchors, piping, conduit, blower housing pad and vents are provided by others.
  - All piping and ancillary equipment installed after FASTs must not impede or restrict free flow of effluent.
  - No more than 3 FT of fill may be placed over unit lid. (see system profile for tank depth).



**SOIL LOGS**

TP NO.	1
GRD. EL.	14.1
GW. EL.	NONE TO 3.1
0'	14.1
0/A	LOAMY SAND
10YR	3/2
12'	13.1
B	LOAMY SAND
10YR	5/8
32'	11.4
C1	LOAMY-COARSE SAND
2.5Y	5/6
60'	9.1
C2	MEDIUM SAND
2.5Y	6/3
132'	3.1
	NO MOTTLES
	NO WATER

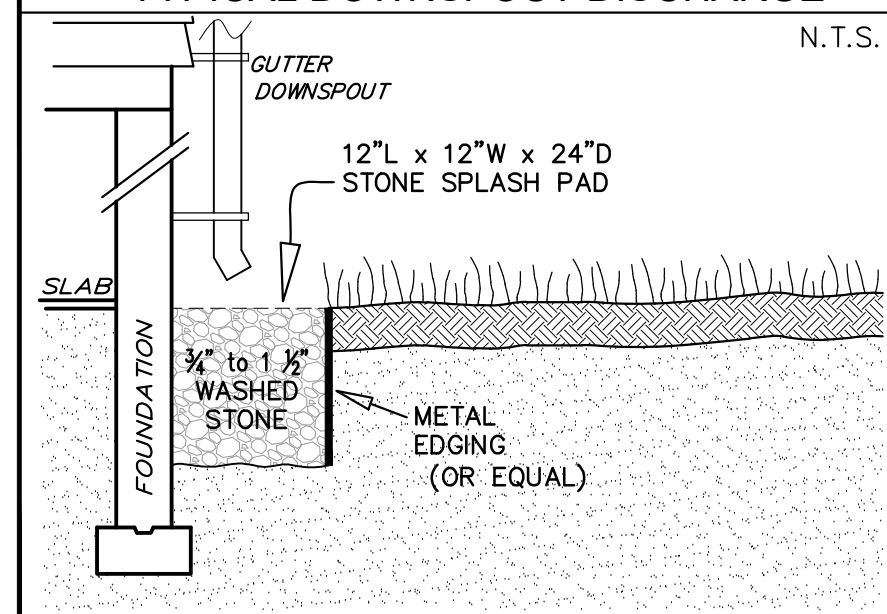
DATE PERFORMED: MAY 2, 2023  
 SOIL EVALUATOR: RYAN M. MAXWELL - S.E. #13538  
 WITNESSED BY: T. GUJARINO, HEALTH AGENT  
 PERC. RATE: <2 MINUTES/INCH  
 SOIL CLASS: CLASS I  
 MAX. GROUND WATER ELEV.: NONE TO 3.1  
 METHOD OF DETERMINATION: NO MOTTLES NO WATER

(SEE SOIL REPORT FOR MORE DETAILED DESCRIPTION)

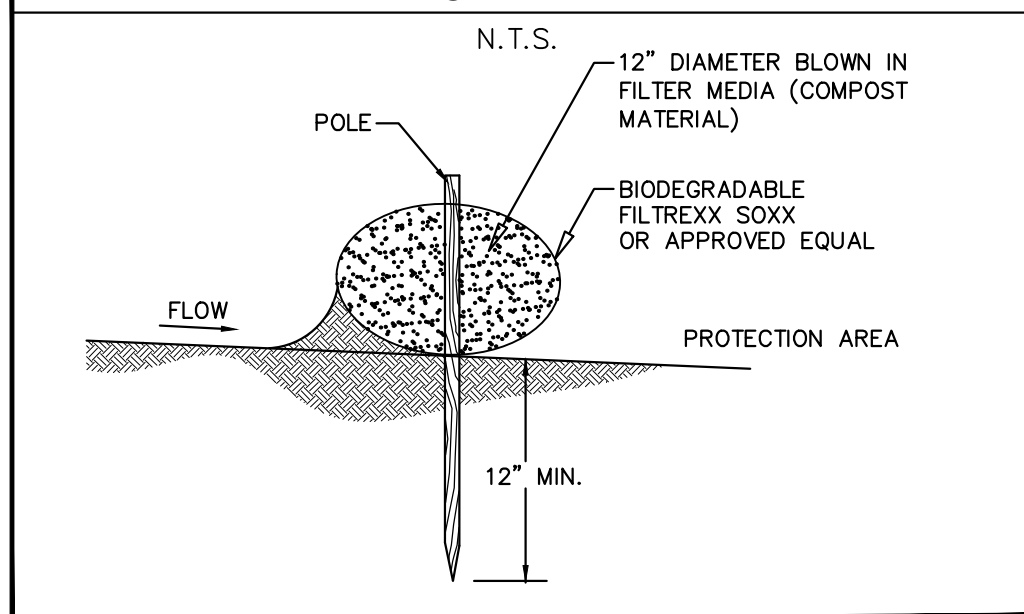
**EXCAVATION NOTE**

THIS SYSTEM REQUIRES THE EXCAVATION OF ALL SPOILED SOIL WITHIN 5' OF THE SOIL ABSORPTION SYSTEM. SOIL SHALL BE EXCAVATED TO THE EXISTING C2 MEDIUM SAND LAYER. APPROXIMATELY 60" ENGINEER TO CONFIRM SOIL DEPTH PRIOR TO INSTALLATION. THE EXCAVATION SHALL BE INSPECTED BY THE DESIGN ENGINEER PRIOR TO BACKFILLING. SOIL IS TO BE REPLACED WITH SAND CONFORMING TO 310 CMR SECTION 15.255. CONSTRUCTION IN FILL. CONTRACTOR IS RESPONSIBLE TO PROVIDE ENGINEER WITH SAND SAMPLE FOR SIEVE ANALYSIS.

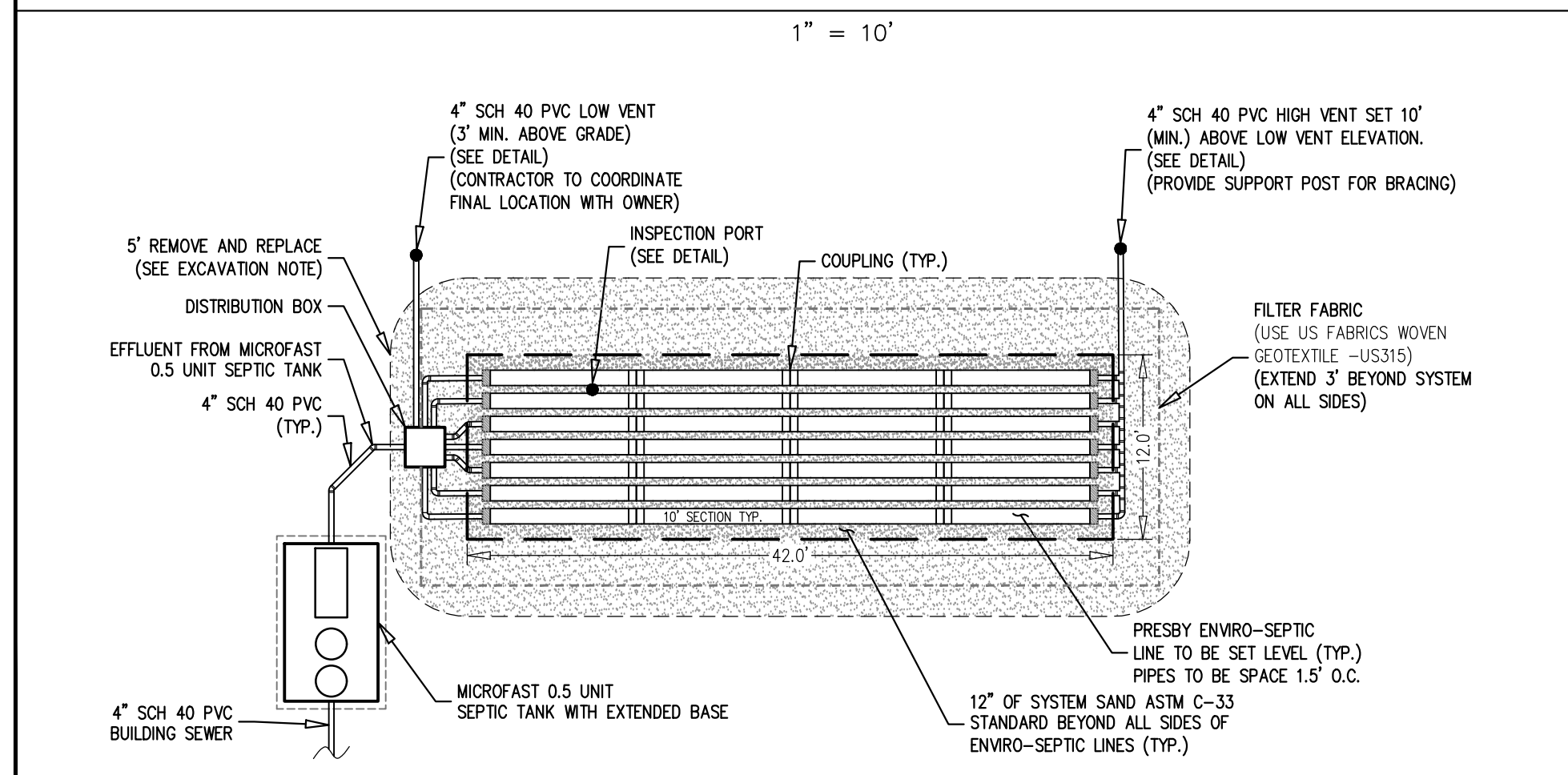
**TYPICAL DOWNSPOUT DISCHARGE**



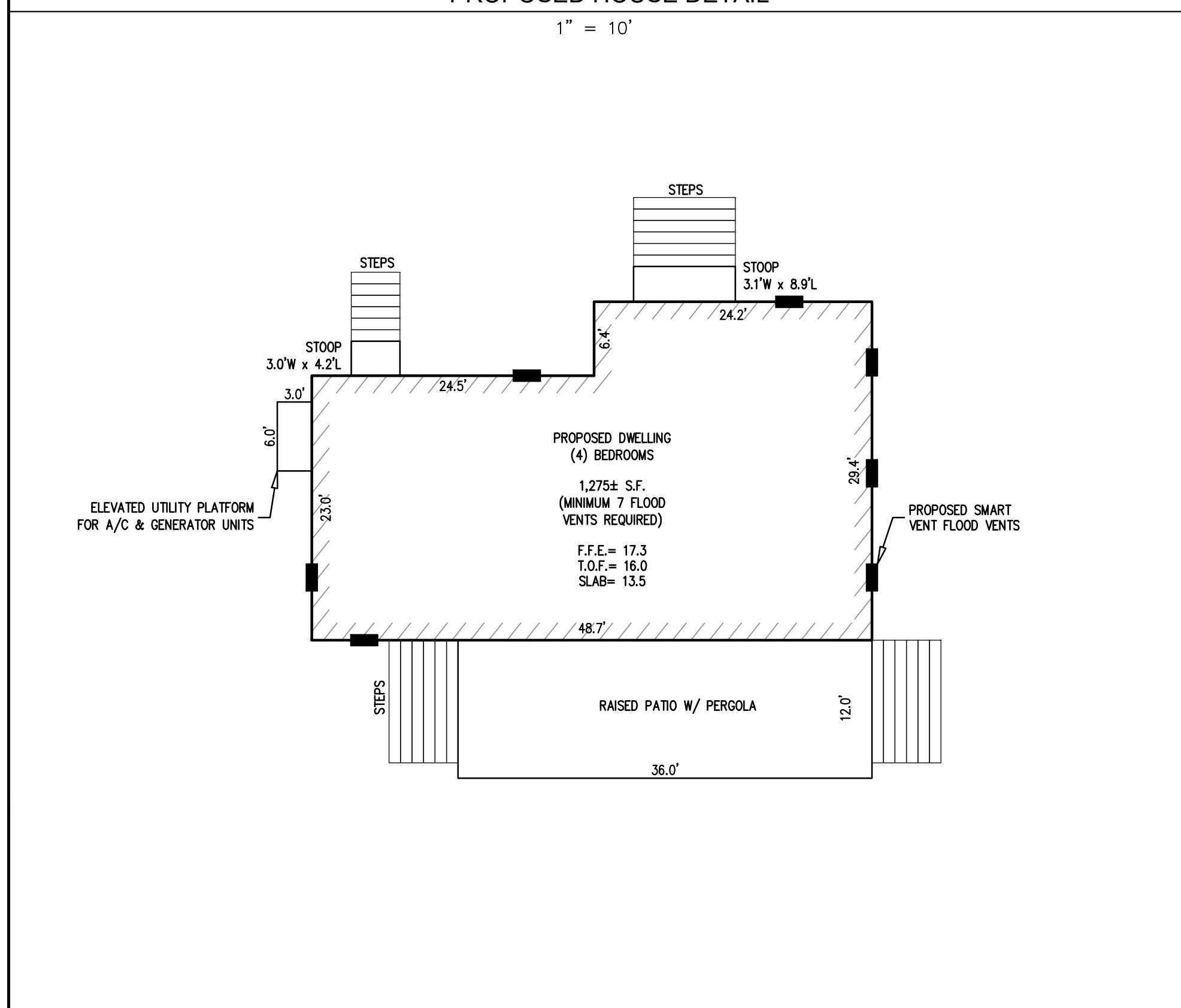
**FILTREXX SOXX BARRIER DETAIL**



**PRESBY ENVIRO-SEPTIC LEACHING SYSTEM DETAIL**



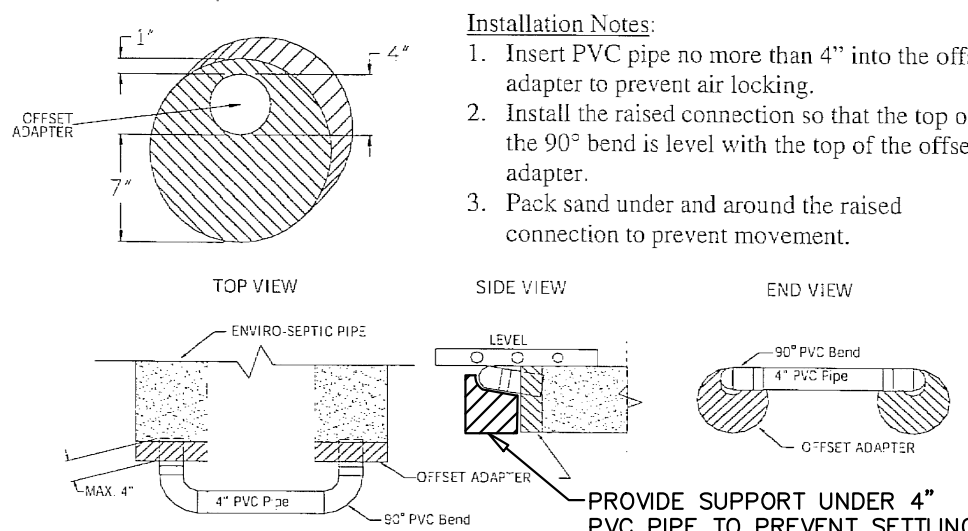
**PROPOSED HOUSE DETAIL**



**OFFSET ADAPTER WITH ENVIRO-SEPTIC PIPE RAISED CONNECTION DETAIL**

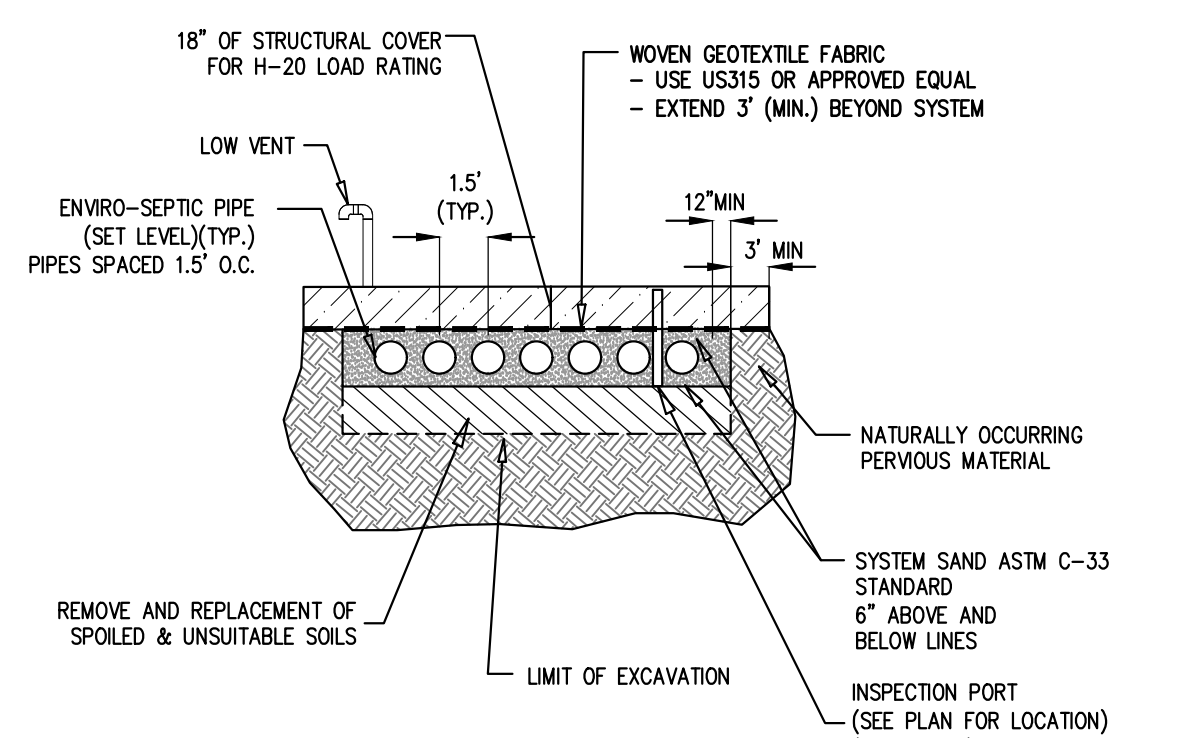
N.T.S.

Raised connections consist of offset adapters, 4" PVC sewer and drain pipe, and 90° elbows. Use raised connections to connect lines of Enviro-Septic® pipe. They enable greater liquid storage capacity and increase the bacterial surfaces being developed. Here are some diagrams along with installation notes.



**TYPICAL ENVIRO-SEPTIC IN-GROUND LEVEL SECTION**

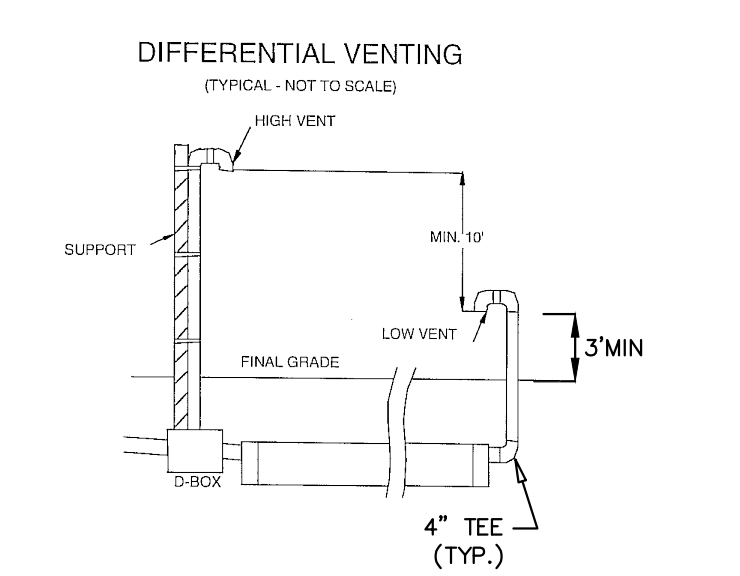
N.T.S.



**DIFFERENTIAL VENTING DETAIL**

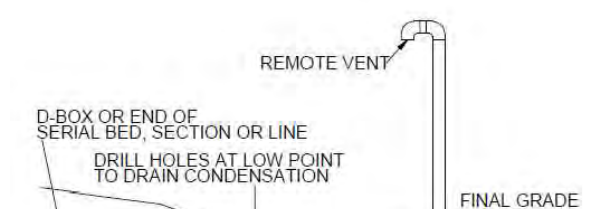
N.T.S.

THIS DIAGRAM SHOWS A HIGH VENT INSTALLED IN A D-BOX. THIS CONFIGURATION IS REQUIRED IN PUMPED SYSTEMS OR WHEN OTHER RESTRICTIONS OR VENTS ARE INSTALLED BETWEEN THE LOW VENT AND THE ROOF VENT, SUCH AS A MicroFAST UNIT.



**REMOTE VENT PIPING DETAIL**

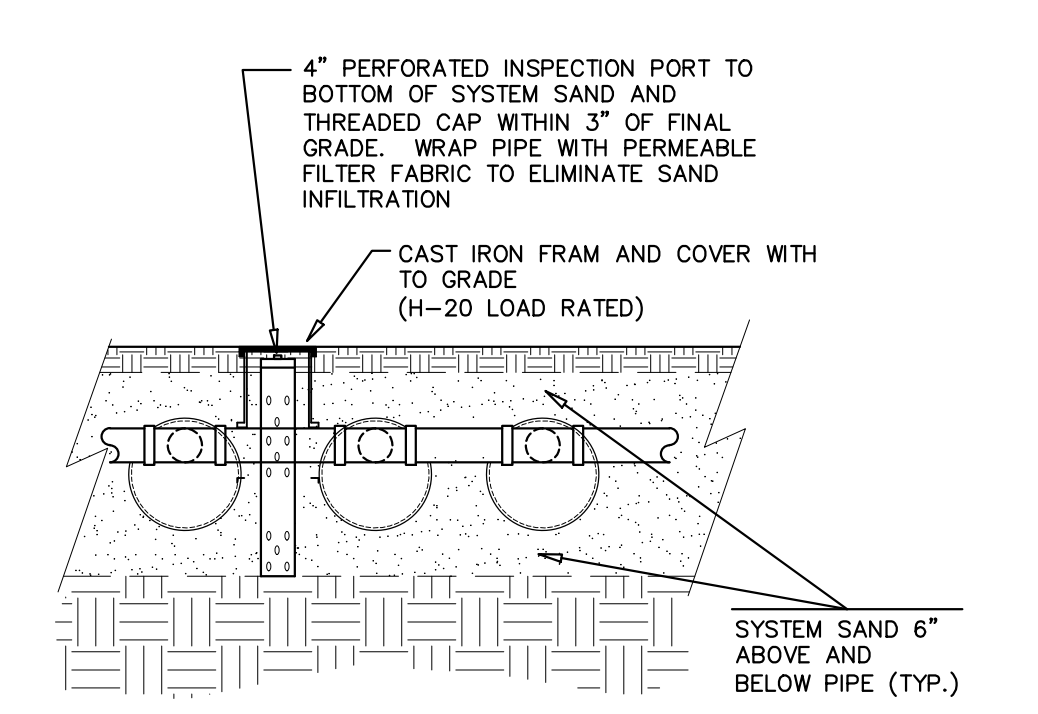
N.T.S.



REMOTE VENT PIPING SHOULD SLOPE DOWNWARD TOWARD THE SYSTEM TO PREVENT MOISTURE FROM COLLECTING IN THE PIPING AND BLOCKING AIR PASSAGE. IF SITE CONDITIONS DO NOT ALLOW THE PIPE TO THE VENT TO SLOPE BACK TOWARD THE SYSTEM, THE LOW POINT OF THE CONNECTING PIPE SHOULD BE DRILLED TO ALLOW DRAINAGE PROVIDED THAT THE CONNECTING PIPE INVERT IS ABOVE THE HIGHEST POINT OF THE D-BOX AND ALL OF THE ES LINES.

**INSPECTION PORT DETAIL**

N.T.S.



Prepared By:  
**BRACKEN ENGINEERING, INC.**  
 49 HERRING POND ROAD BUZZARDS BAY, MA 02532  
 19 OLD SOUTH ROAD NANTUCKET, MA 02554  
 (tel) 508.833.0070 (tel) 508.325.0044  
 (fax) 508.833.2282 (www.brackeneng.com)

**PROPOSED SITE PLAN IN BOURNE, MASSACHUSETTS**  
 Prepared For:  
**BRYAN STENBERG KELLY STENBERG**  
 #457 CIRCUIT AVENUE  
 MAP 47.1 PARCEL 7

No.	Date	Revision Description	By
1	7/25/23	NO CHANGES	JPH

Date: MAY 31, 2023 Drawn: JPH/BE Checked: ZLB/AMG Sheet: 2 of 2

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

FEE \$250.00

COMMONWEALTH OF MASSACHUSETTS

Board of Health, BOURNE, MA.

APPLICATION FOR DISPOSAL SYSTEM CONSTRUCTION PERMIT

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

Table with 2 columns: Location, Map/Parcel#, Lot#, Installer's Name, Address, Telephone# and Owner's Name, Address, Telephone#, Designer's Name, Address, Telephone#.

Type of Building Single-family dwelling Lot Size 8,557+/- sq. ft. Dwelling - No. of Bedrooms 4 Garbage grinder ( ) Other - Type of Building No. of persons Showers ( ), Cafeteria ( ) Design Flow (min. required) 110 gpd Calculated design flow 440 GPD Design flow provided 440 gpd Plan: Date MAY 31, 2023 Number of sheets 2 Revision Date Title PROPOSED SITE PLAN IN BOURNE, MA Description of Soil(s) See Plan for full description Soil Evaluator Form No. T5 forms 11 & 12 Name of Soil Evaluator Ryan M. Maxwell, SE Date of Evaluation 5/2/2023

DESCRIPTION OF REPAIRS OR ALTERATIONS Installation of a new 1,500 gallon MicroFast 0.5 septic tank (H-10), blower and SAS to consist of a proposed Presby-Enviro-Septic drip dispersal field (H-20) 280 LF of tubing space 1.5' center.

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.

**GENERAL NOTES:**

**WORK**  
 A. 1.1 OWNERS agree that said plans are conceptual and provisional only and may be subject to approval of execution by a General Contractor, Engineer, other professionals and/or subject to approval and permits by OWNERS local city/town agencies. OWNER understands that Plans are subject to change as work progresses and Designs by SPB is not liable for pre-existing, unknown or unanticipated issues related to construction and/or execution of the Plans. Designs by SPB is not liable for any cost related to such matters and/or changes to execution of Plans or construction.

1.2 OWNERS further understand that Designs by SPB is a design specialist and is not a registered architect. OWNERS agree to have all Plans reviewed and approved by OWNER or its agent or general contractor or construction contractor prior to performance of construction. Designs by SPB shall not be liable for costs should the scope of work, construction or Plans require changes, revisions, or amendments. Designs by SPB strongly recommends that Plans used by OWNERS in conjunction with professionals, including but not limited to, licensed construction professionals, general contractor, and engineer. Should OWNERS fail to use Plans in conjunction with the recommended professionals, OWNER understands and assumes all risk regarding the execution of such Plans.

**CHANGE ORDERS**  
 2.1 All changes and deviations in the Plans, including cost, credit or debt, must be set forth in a Change Order agreed upon and signed by the OWNERS and Designs by SPB (hereinafter called "Change Order"). A Change Order concerning any portion of the Plan must be in advance of the performance of that specific portion of the work and at the OWNERS expense, if any, shall be paid at the time the Change Order is signed by all parties.  
 2.2 OWNERS understand that additional expenses may be incurred in excess of the amount of the estimated original cost due to hidden or unknown contingencies, changes, permits, or the like that may occur during the process, preparation and/or performance of construction. In the event that such hidden, unknown contingencies or changes shall arise requiring revised Plans or design changes, Designs by SPB and OWNERS shall execute a Change Order with respect to the same in advance of the performance of work by Designs by SPB.

REFER TO 2015 IRC & 9TH EDITION MASSACHUSETTS CODE



**RIGHT ELEVATION**

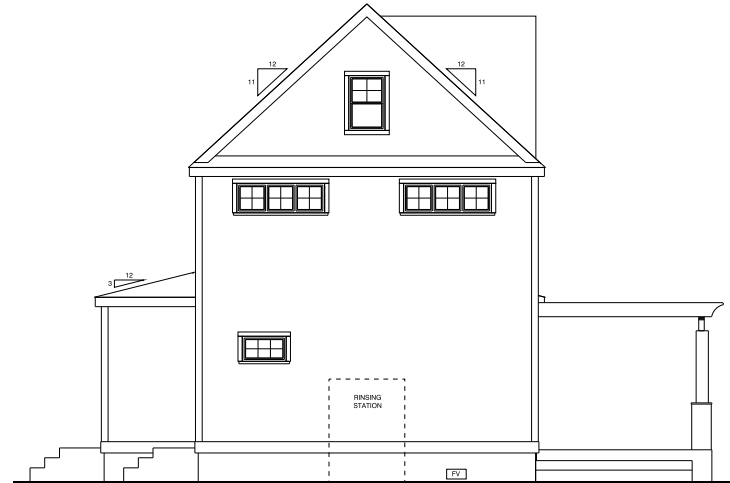


**REAR ELEVATION**

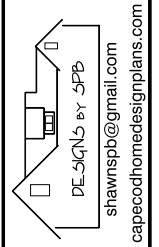


**FRONT ELEVATION**

NOTE: ALL TYPE/ SIZE OF SIDING, TRIM, & EXTERIOR DETAILS TO BE VERIFIED BY HOMEOWNER/CONTRACTOR



**LEFT ELEVATION**

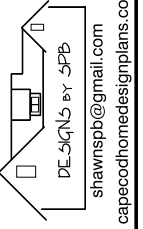
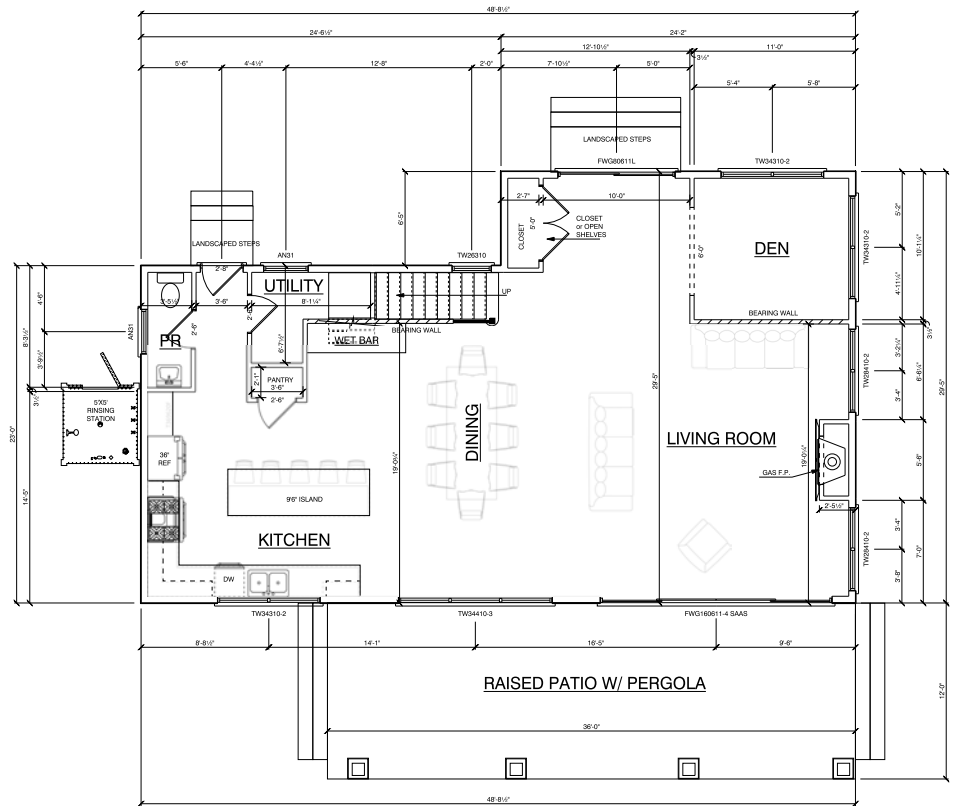
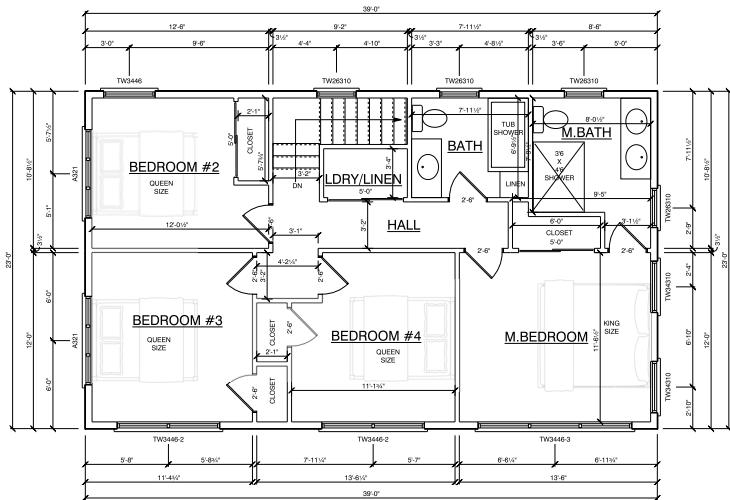


DESIGNS by SPB  
 RESIDENTIAL COMMERCIAL  
 DESIGN & CONSULTING  
 POCASSET, MA.  
 (508) 495-2881

CUSTOM HOME DESIGN  
 STENBERG RESIDENCE  
 457 CIRCUIT AVE.  
 POCASSET, MA

PLAN DATE: 4-4-2023  
 DRAWN BY: SPB  
 REVISIONS:  
 SCALE: 1/4" = 1'-0"  
 UNLESS NOTED





DE-SIGNS BY SPB  
RESIDENTIAL/COMMERCIAL  
DESIGN & CONSULTING  
POCASSET, MA.  
(508)495-2881

CUSTOM HOME DESIGN  
STENBERG RESIDENCE  
457 CIRCUIT AVE.  
POCASSET, MA



PLAN DATE: 4-4-2023

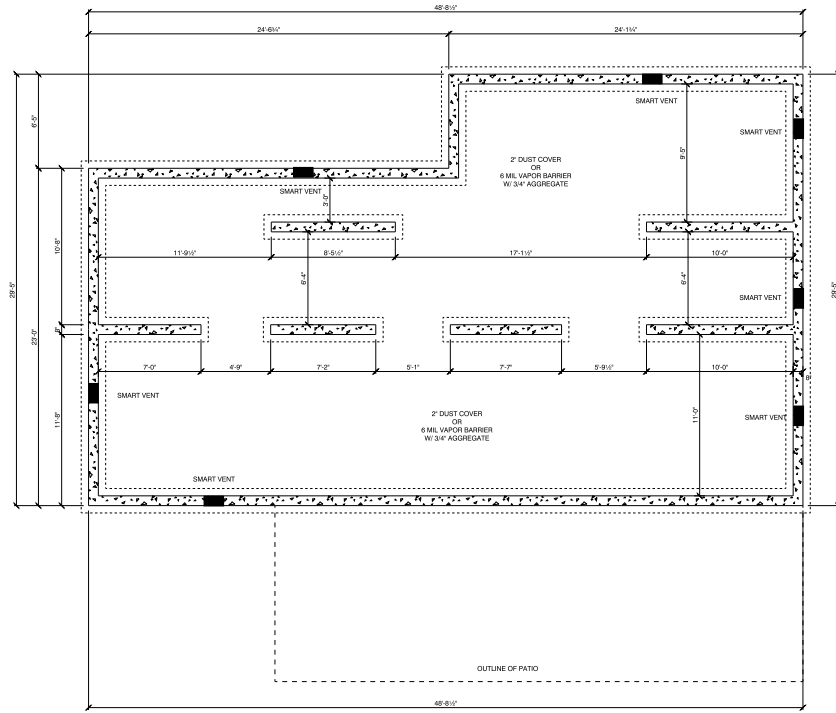
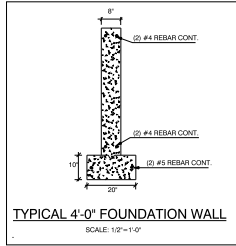
DRAWN BY: SPB

REVISIONS:

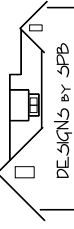
SCALE: 1/4"=1'-0"  
UNLESS NOTED

A2

 = 18' X 8' SMART VENT - 200 SQ. FT. COVERAGE  
 = 8' X 4' BELOW GRADE CONCRETE WALL W/10'X20' CONT. CONC. FOOTING  
 FIELD VERIFY FOUNDATION HEIGHT  
 ANCHOR BOLTS TO BE 3/8" AT 21" MAX. SPACING. BOLT EMBEDMENT TO BE 7" MINIMUM. WASHERS TO BE 3/32X1/4" THICK. BOLTS TO BE 6" FROM END OF PLATES



**FOUNDATION PLAN**

  
 DE SIGNS BY SPB  
 shawnspb@gmail.com  
 capecodhomedesignplans.com

DE SIGNS BY SPB  
 RESIDENTIAL/COMMERCIAL  
 DESIGN & CONSULTING  
 POCASSET, MA.  
 (508)495-2881

CUSTOM HOME DESIGN  
 STENBERG RESIDENCE  
 457 CIRCUIT AVE.  
 POCASSET, MA

PLAN DATE: 4-4-2023

DRAWN BY: SPB

REVISIONS:

SCALE: 1/4" = 1'-0"  
UNLESS NOTED

**S1**



**NOTICE OF ALTERNATIVE SEWAGE DISPOSAL SYSTEM**  
M.G.L. c. 21A, § 13 and 310 CMR 15.287(10)

**ADDRESS OF PROPERTY SERVED BY ALTERNATIVE SYSTEM:**

**457 Circuit Avenue, Bourne, MA**

**TITLE REFERENCE FOR PROPERTY SERVED BY ALTERNATIVE SYSTEM**

Deed recorded with the **Barnstable** Registry of Deeds in **Book 18112, Page 97**

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

**Bryan D. Stenberg & Kelly F. Stenberg**

**OWNER(S) MAILING ADDRESS: 5 Crooked Meadow Lane, Hingham, MA 02043**

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 System #1.** 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:

<b>Trade name of technology:</b>	<i>MicroFAST®</i>
<b>Manufacturer Name:</b>	Bio-Microbics, Inc.
<b>Model number(s):</b>	MicroFAST 0.5 Unit

**2. Approval/Certification.** On 12/29/2010, revised 3/20/2015, 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.

- Certified for general use under 310 CMR 15.288

**3. Existence System #2.** 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:** Presby Enviro-Septic® Leaching System

**Manufacturer Name:** Presby-Environmental, Inc.

**4. Approval/Certification.** Revised September 26, 2014, modified October 30, 2019, Modified March 15, 2022 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 21-CLM-000073-APP.

- Approved for remedial use under 310 CMR 15.284

A copy of the Department of Environmental Protection's Approval/Certification is available online at the Department's website:

<https://www.mass.gov/guides/approved-title-5-innovativealternative-technologies>

*\*\*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, made by the above-named Alternative System Owner.

---

**Bryan D. Stenberg**

COMMONWEALTH OF MASSACHUSETTS

Barnstable, ss

On this \_\_\_\_\_ day of \_\_\_\_\_, 2023, before me, the undersigned notary public, personally appeared \_\_\_\_\_, proved to me through satisfactory evidence of identification, which were \_\_\_\_\_, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

---

(official signature and seal of notary)

WITNESS the execution hereof under seal this \_\_\_\_ day of \_\_\_\_\_, 2023, made by the above-named Alternative System Owner.

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**Kelly F. Stenberg**

COMMONWEALTH OF MASSACHUSETTS

\_\_\_\_\_, ss

On this \_\_\_\_\_ day of \_\_\_\_\_, 2023, before me, the undersigned notary public, personally appeared \_\_\_\_\_, proved to me through satisfactory evidence of identification, which were \_\_\_\_\_, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

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(official signature and seal of notary)

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Approved and Accepted By:

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Agent of the Board of Health  
Health Department  
Town of Bourne



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker  
Governor

Karyn E. Polito  
Lieutenant Governor

Matthew A. Beaton  
Secretary

Martin Suuberg  
Commissioner

### **CERTIFICATION FOR GENERAL USE**

Pursuant to Title 5, 310 CMR 15.000

#### **Name and Address of Applicant:**

Bio-Microbics, Inc.  
8450 Cole Parkway  
Shawnee, KS 66227

#### **Trade name of technology and models:**

FAST Treatment Systems with Nitrogen Reduction including models *MicroFAST® 0.5, 0.75, 0.9, 1.5, 3.0, 4.5, 9.0*, *HighStrengthFAST® 1.0, 1.5, 3.0, 4.5, 9.0* and *NitriFAST® 0.5, 0.75, 1.0, 1.5, 3.0, 4.5, 9.0* (all hereinafter the "System") for facilities with design flows less than 2,000 gallons per day (GPD). Schematic drawings illustrating the models and an Inspection Checklist are part of this Certification.

Transmittal Number: X232831  
Date of Issuance: December 29, 2010, revised March 20, 2015

#### **Authority for Issuance:**

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection (hereinafter "the Department") hereby issues this General Use Approval to: Bio-Microbics, Inc., 8450 Cole Parkway, Shawnee, KS 66227 (hereinafter "the Company"), approving the above referenced FAST technology (hereinafter "the Technology" or "System") for use in the Commonwealth of Massachusetts subject to the conditions herein. Sale and use of the Technology are subject to compliance by the Company, the Designer, the System Installer, the Operator, and the System Owner with the terms and conditions herein. Any noncompliance with the terms or conditions of this Certification constitutes a violation of 310 CMR 15.000.

\_\_\_\_\_  
David Ferris, Director  
Wastewater Management Program  
Bureau of Water Resources

March 20, 2015  
Date

#### **I. Purpose**

This information is available in alternate format. Call Michelle Waters-Ekanem, Diversity Director, at 617-292-5751. TTY# MassRelay Service 1-800-439-2370  
MassDEP Website: [www.mass.gov/dep](http://www.mass.gov/dep)

Printed on Recycled Paper

1. Subject to the conditions of this Approval and any other local requirements, the purpose of this Approval is to allow the use of the System in Massachusetts on a General Use basis. With the necessary permits and approvals required by 310 CMR 15.000, this Certification authorizes the installation and use of the System in Massachusetts.
2. The System may be installed for residential facilities with design flow less than 2,000 GPD where a system in compliance with 310 CMR 15.000 exists on-site or could be built and for which a site evaluation in compliance with 310 CMR 15.000 has been approved by the local approving authority; or by the Department if Department approval is required by 310 CMR 15.000. This Approval allows for the use of the System as an equivalent alternative technology in accordance with 310 CMR 15.202 on facilities for nitrogen reduction in a Department designated nitrogen sensitive or limited area as defined in 310 CMR 15.214 and 15.215.

Non-residential facilities are not allowed under this approval. Non-residential facilities include properties with businesses and/or commercial establishments.

3. The technology shall meet or exceed the following effluent discharge requirements:
  - Effluent Total Nitrogen (TN) concentration of 19 mg/L (for 660 gallons per day per acre -gpda- loading) or 25 mg/L (for 550 gpda loading).
  - Effluent pH range shall be 6.0 to 9.0.
  - The System is approved for use at facilities with a maximum design flow less than 2,000 GPD.
4. The System Owner or the designated System Operator (or 'Operator') has responsibility for oversight and sampling of the System if the property served was allowed to increase the discharge rate per acre above 440 gpda in an area subject to Nitrogen Loading Limitations.

The System Owner will be required to repair, replace, modify or take any other action as required by the Department or the local approving authority, if the Department or the local approving authority determines that the System is not capable of meeting the required reduction in nitrogen in the effluent.

The Company is responsible for the approved technology as described below.

## **II. General Description of the Technology and Design Standards**

1. The tank containing the FAST® insert is installed between the building sewer and the soil absorption system (SAS). The SAS shall be designed and constructed in accordance with 310 CMR 15.100 - 15.279 and subject to the provisions of this Certification.
2. Technology Description - The FAST® system is an aerobic wastewater treatment system that utilizes a completely submerged fixed film process to treat organics and nitrify, and a passive recycle system for denitrification. Each model contains submerged media specific to the application. Microorganisms grow on the media and remove soluble contaminants from the wastewater, utilizing them as a source of energy for growth and production of new microorganisms. The FAST® system insert consists of a liner around the media and an airlift to provide aeration and mixing within the confines of the liner. The area outside the liner in the septic tank remains anoxic for denitrification and a passive recirculation system

moves the aerated wastewater to the outside of the liner to obtain denitrification. The aeration and circulation inside the liner are provided by a blower that pumps air into a draft tube that extends down the center of the media. Treated effluent passes out of the aerobic zone of the treatment plant through a pipe connected directly to a baffled quiescent area in the liner. Final effluent is discharged to a soil absorption system. Specific model considerations are as follows:

- The MicroFAST® 0.5, 0.75 and 0.9, HighStrengthFAST® 1.0 and NitriFAST® 0.5, 0.75 and 0.9 are installed in the second compartment of a two-compartment tank with a total liquid capacity of at least 1,500 gallons constructed in accordance with 310 CMR 15.226.
  - The MicroFAST®, HighStrengthFAST® and NitriFAST® 1.5 are installed in the second compartment of a two compartment 3000-gallon tank constructed in accordance with 310 CMR 15.226.
  - The MicroFAST®, HighStrengthFAST® and NitriFAST® 3.0 is installed in a separate tank constructed in accordance with 310 CMR 15.226 and located between a standard Title 5 septic tank, designed in accordance with 310 CMR 15.223 and 15.224, and the soil adsorption system (SAS). In this larger system, an additional recycle pump may be needed to send nitrified effluent back to the septic tank for added denitrification. Consult the Company for proper layout.
  - The NitriFAST® models can also be used for additional nitrification in series after the MicroFAST® models or HighStrengthFAST® models. In this configuration the tanks used for the NitriFAST® shall be constructed in accordance with 310 CMR 15.226 and meet the minimum dimensions and volumes required by the Company.
  - Flow equalization may also be employed prior to the FAST® system depending on the type of facility. Consult Company for proper layout.
3. All access ports and manhole covers shall be readily removable, of durable material and installed and maintained at grade to allow for maintenance of the System. No structures shall be located directly upon or above the access locations which could interfere with performance, access, inspection, pumping, or repair. Sufficient access for infrequent maintenance of the System treatment media and all other treatment works shall be evaluated, and addressed in the System design if necessary, by the designer. System control panel(s) including alarms shall be mounted in a location accessible to the operator of the System.

4. Wastewater Loading and Effluent Concentration Design Standards

For new residential construction in an area subject to the Nitrogen Loading Limitations of 310 CMR 15.214, and the facility does not meet with the Nitrogen Loading Limitations pursuant to the aggregation provisions of 310 CMR 15.216, an increase in calculated nitrogen loading per acre is allowed for facilities with design flow less than 2000 gpd with limitations as follows:

- The design flow shall not exceed 660 gallons per day per acre (gpda) and the total nitrogen (TN) concentration in the effluent shall not exceed 19 milligrams per liter (mg/L); or

- The design flow shall not exceed 550 gallons per day per acre (gpda) and the total nitrogen (TN) concentration in the effluent shall not exceed 25 milligrams per liter (mg/L).
- 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).

### **III. General Conditions**

1. The provisions of 310 CMR 15.000 is applicable to the use and operation of this System, the System owner and the Company, except those that specifically have been varied by the terms of this Certification.
2. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any required sample analysis shall be conducted by an independent U.S. EPA or DEP approved testing laboratory, or a DEP approved independent university laboratory, unless otherwise provided in the Department's written approval. It shall be a violation of this Certification to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
3. The facility served by the System and the System itself, shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
4. In accordance with applicable law, the Department and the local approving authority may require the System owner to cease operation of the system and/or to take any other action as it deems necessary to protect public health, safety, welfare or the environment.
5. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sanitary sewer system. Accordingly, no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless as allowed by 310 CMR 15.004.
6. Design, installation, and use of the System shall be in strict conformance with the Company's DEP approved plans and specifications and 310 CMR 15.000, subject to this Certification.

### **IV. 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 as 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).

**V. Conditions Applicable to the Company**

1. The Company shall notify the Director of the Wastewater Management Program at least 30 days in advance of the proposed transfer of ownership of the technology for which this Certification is issued. Said notification shall include the name and address of the proposed new owner and a written agreement between the existing and proposed new owner containing a specific date for transfer of ownership, responsibility, coverage and liability between them. All provisions of this Certification applicable to the Company shall be applicable to successors and assigns of the Company, unless the Department determines otherwise.
2. The Company shall develop maintain and update as necessary the following: minimum installation requirements; an operating manual, including information on substances that should not be discharged to the System; a maintenance checklist; and a recommended schedule for maintenance of the System consistent with the Department's requirements essential to consistent successful performance of the installed Systems.
3. The Company shall institute and maintain a program of operator training and continuing education. The Company shall maintain and annually update, and make available the list of qualified operators by February 15th and make the list known to local approving authorities, the Department and to users of the technology.
4. The Company shall furnish the Department any information that the Department requests regarding the System, within 21 days of the date of receipt of that request.
5. The Company shall include copies of this Certification and the procedures described in Section V (3) with each System that is sold. In any contract executed by the Company for distribution or re-sale of the System, the Company shall require the distributor or re-seller to provide each purchaser of the System with copies of this Certification and the procedures described in Section V (3).

6. A copy of the wastewater analyses, wastewater flow data, field testing results, and System Operator O&M reports and inspection checklists from each installed System shall be maintained by the Company or its designee for possible Department audit.
7. If the Company wishes to continue this Certification after its expiration date, the Company shall apply for and obtain a renewal of this Certification. The Company shall submit a renewal application at least 180 days before the expiration date of this Certification, unless written permission for a later date has been granted in writing by the Department. This Certification shall continue in force until the Department has acted on the renewal application.

## **VI. Conditions Applicable to the System Designer**

1. Upon submission of an application for a DSCP, the Designer shall provide to the local approving authority:
  - a) a certification, signed by the owner of record for the property to be served by the System, stating that the property owner:
    - i) has been provided a copy of the Approval, the Owner's Manual, and the Operation and Maintenance Manual, if applicable, and the Owner agrees to comply with all terms and conditions;
    - ii) has been informed of all the owner's costs associated with the operation including, when applicable: power consumption, maintenance, sampling, recordkeeping, reporting, and equipment replacement;
    - iii) understands the requirement for a service contract;
    - iv) agrees to fulfill his responsibilities to provide a Deed Notice as required by 310 CMR 15.287(10) and the Approval;
    - v) agrees to fulfill his responsibilities to provide written notification of the Approval to any new owner, as required by 310 CMR 15.287(5);
    - vi) if the design does not provide for the use of garbage grinders, the restriction is understood and accepted;
    - vii) if the design is for an upgrade of failed or nonconforming system, the System Owner has been provided a copy of the evaluation of the existing system;
    - viii) whether or not covered by a warranty, the System Owner understands the requirement to repair, replace, modify or take any other action as required by the Department or the local approving authority, if the Department or the local approving authority determines that the Alternative System is not capable of meeting the performance standards; and
  - b) a certification, signed by the Designer that the design conforms to the Approval with Conditions and 310 CMR 15.000.

## **VII. Reporting**

1. All notices and documents required to be submitted to the Department by this Certification shall be submitted to:

Director  
Wastewater Management Program  
Department of Environmental Protection,  
One Winter Street - 5th floor  
Boston, Massachusetts 02108

**VIII. Rights of the Department**

1. The Department may suspend, modify or revoke this Certification for cause, including, but not limited to, non-compliance with the terms of this Certification, non-payment of the annual compliance assurance fee, for obtaining the Certification by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Certification, or as necessary for the protection of public health, safety, welfare or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Certification and/or the System against the owner or operator of the System and/or the Company.

Transmittal: X232831 (formerly W101238)



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

# Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker  
Governor

Karyn E. Polito  
Lieutenant Governor

Kathleen A. Theoharides  
Secretary

Martin Suuberg  
Commissioner

## **MODIFIED CERTIFICATION FOR REMEDIAL USE**

Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

Presby Environmental, Inc.  
143 Airport Road  
Whitefield, NH 03598

Trade name of technology and model: **Presby Enviro-Septic® Leaching System** (Hereinafter called the “System”). The “Massachusetts Enviro-Septic® Wastewater Treatment System Quick Reference Guide” including schematic drawings of typical Systems, a technology checklist, and a System Installation Form are part of this Certification.

Transmittal Number: 21-CLM-000073-APP  
Date of Issuance: Revised September 26, 2013, Modified October 30, 2019,  
Modified March 15, 2022

### **Authority for Issuance**

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental, Protection hereby issues this Certification to: Presby Environmental, Inc., 143 Airport Road, Whitefield, NH 03598 (hereinafter “the Company”), approving the System described herein for General Use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on compliance by the Company and the System owner with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Certification constitutes a violation of 310 CMR 15.000.

/s/ Marybeth Chubb  
Marybeth Chubb, Section Chief  
Wastewater Management Program  
Bureau of Resource Protection

March 15, 2022  
Date

## **Technology Description**

The System is an alternative subsurface Soil Absorption System (SAS) that replaces a conventional SAS designed in accordance with 310 CMR 15.000. The System consists of an 11 5/8-inch diameter corrugated, high-density plastic pipe with a 9.5-inch interior diameter and a standard length per unit of 10 feet. The pipe is perforated with eight holes equally distributed around its inner circumference at each corrugation. Each hole has a plastic skimmer extending inwards. The exterior of the pipe has ridges on the peak of each corrugation and is wrapped with two layers of fabric material. The inner layer is a thick layer of coarse, randomly oriented polypropylene fibers. The outer fabric layer is a non-woven geotextile polypropylene. The System includes required connectors designed to connect pipe units together. The System also includes sand surrounding the pipe units, specified as concrete sand meeting the ASTM C-33 specification, also called System Sand. The System Sand must be placed with a minimum of (6") six inches below, (3") three inches above and (6") six inches to the sides of the pipe units.

## **Conditions of Approval**

The term "System" refers to the Alternative Soil Absorption System in combination with the other components of an on-site treatment and disposal system that may be required to serve a facility in accordance with 310 CMR 15.000.

The term "Approval" refers to the technology-specific Special Conditions, the Standard Conditions for General and Remedial Use Approval of Alternative Soil Absorption Systems (the 'Standard Conditions'), the General Conditions of 310 CMR 15.287, and any Attachments.

For Alternative Soil Absorption Systems that have been issued Remedial Use Approval for the installation of Systems to serve facilities where the site meets the requirements for new construction, the Department authorizes reduction in the effective leaching area (310 CMR 15.242), subject to the applicable portions of the Standard Conditions, and subject to the below Special Conditions applicable to this Alternative Technology.

## **Special Conditions**

1. The System is an approved Patented Sand Filter System for use as an Alternative Soil Absorption System. In addition to the Special Conditions contained in this Approval, the System shall comply all *Standard Conditions for Alternative Soil Absorption Systems* found here: <https://www.mass.gov/doc/standard-conditions-for-alternative-soil-absorption-systems-with-general-use-certification> except where stated otherwise in these Special Conditions.
2. This Approval applies to the installation of a System for the upgrade or replacement of an existing failed or nonconforming system, provided that the facility meets the

siting requirements for upgrades, as provided in II(7) and II(9) of the Standard Conditions. For the upgrade or replacement of an existing failed or nonconforming system, all installed Systems shall also comply with the Notice requirement of paragraph II(23) and the transferee notification requirements of paragraph IV(1) of the Standard Conditions. The proposed use of the System shall also comply with any other Standard Conditions which pertain wholly or in part to upgrades of existing systems.

3. Alternative Design Standards – Provided that the Designer demonstrates that the impact of the proposed Alternative System has been considered and the design requirements of 310 CMR 15.000 have been varied to the least degree necessary so as allow for both the best feasible upgrade within the borders of the lot and the least degree effect on public health, safety, welfare and the environment, the local approving authority may allow any combination of the following alternative design standards without the need for granting a variance under 310 CMR 15.400 or obtaining Department approval:
  - a) If a reduction in the depth of groundwater required by 310 CMR 15.212 is necessary, the depth to groundwater may be reduced by up to 2 feet, resulting in a minimum separation distance of two feet in soils with a recorded percolation rate of more than two minutes per inch and three feet in soils with a recorded percolation rate of two minutes or less per inch, measured from the bottom of the soil absorption system to the high groundwater elevation, only if;
    - i. An approved Soil Evaluator who is a member or agent of the local Approving Authority determines the high groundwater elevation;
    - ii. No reduction is granted under LUA for setbacks from public or private wells, bordering vegetated wetlands, surface waters, salts marshes, coastal banks, certified vernal pools, water supply lines, surface waters supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries, is allowed; and
    - iii. In accordance with 310 CMR 15.212(2), for systems with a design flow of 2,000 gpd or greater, the separation to high groundwater as required by 310 CMR 15.212(1) shall be calculated after adding the effect of groundwater mounding to the high groundwater elevation as determined pursuant to 310 CMR 15.103(3).
  - b) If a reduction in depth of naturally occurring pervious material layer is necessary, a proposed reduction of up to 2 feet may be allowed in the four feet of naturally pervious material layer required by 310 CMR 15.240(1) provided that it has been demonstrated that no greater depth in naturally occurring pervious material can be met anywhere on the site.
4. In no case, shall the reductions in the effective leaching area, depth to groundwater, and depth of naturally occurring pervious material allowed under this Approval be



made less stringent. Any reductions in the effective leaching area, depth to groundwater, and depth of naturally occurring pervious material allowed under this Approval shall not be combined with any reduction that may be allowed the procedures of Local Upgrade Approval or the variance procedures of 310 CMR 15.401-413. The Local Approving Authority may vary other design requirements under the LUA provisions of 310 CMR 15.405 or under the variance procedures of 310 CMR 15.411.

5. The System shall only be installed in bed or field configuration, as described in 310 CMR 15.252. The System shall not be installed in trench configuration and no sidewall area shall be considered in the total effective leaching area provided. The effective leaching area shall be the bottom area only (length times width) of the sand bed.
6. Systems shall be installed with differential venting for aeration and inspection access at end of each run of pipe, section or serial bed and whenever the System is installed under impervious surfaces.
7. System does not require a five foot over dig as indicated at 310 CMR 15.255(5).
8. Serial distribution laterals shall be limited to no more than 500 gpd with each lateral a maximum of 100 feet, and must be laid level. Multi-level systems shall not be allowed.
9. The Enviro-Septic proprietary product (ES) will be sized at a minimum of seventy (70) linear feet per bedroom (lf/br) and will not exceed 100 feet in length.
10. System component material specifications for the pipe, plastic components, fabric and sand shall comply with the specifications identified in the initial Enviro-Septic I/A technology approval.
11. Prior approval from the Department for any change from these specifications shall be requested in writing.
12. Any changes to the approved plans must receive prior Local Approving Authority (LAA) approval. Before a Certificate of Compliance can be issued by the LAA the System Designer must include any changes to the approved plan into the as-built plans.
13. Design, installation and operation shall be in strict conformance with the Company's DEP approved plans and specifications of Enviro-Septic Wastewater Treatment System Massachusetts Design and Installation Manual Copyright September 2019, Presby Environmental, Inc., 310 CMR 15.000 and this Approval.