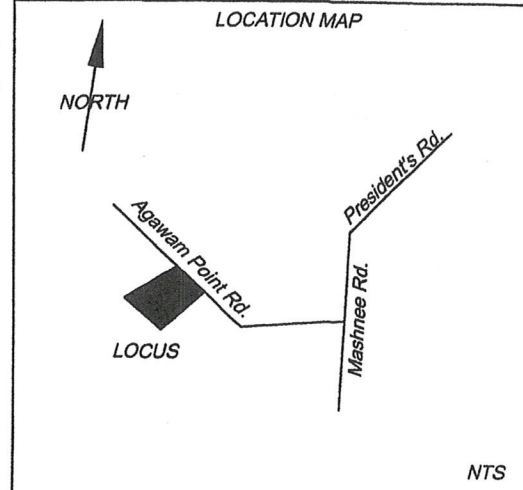
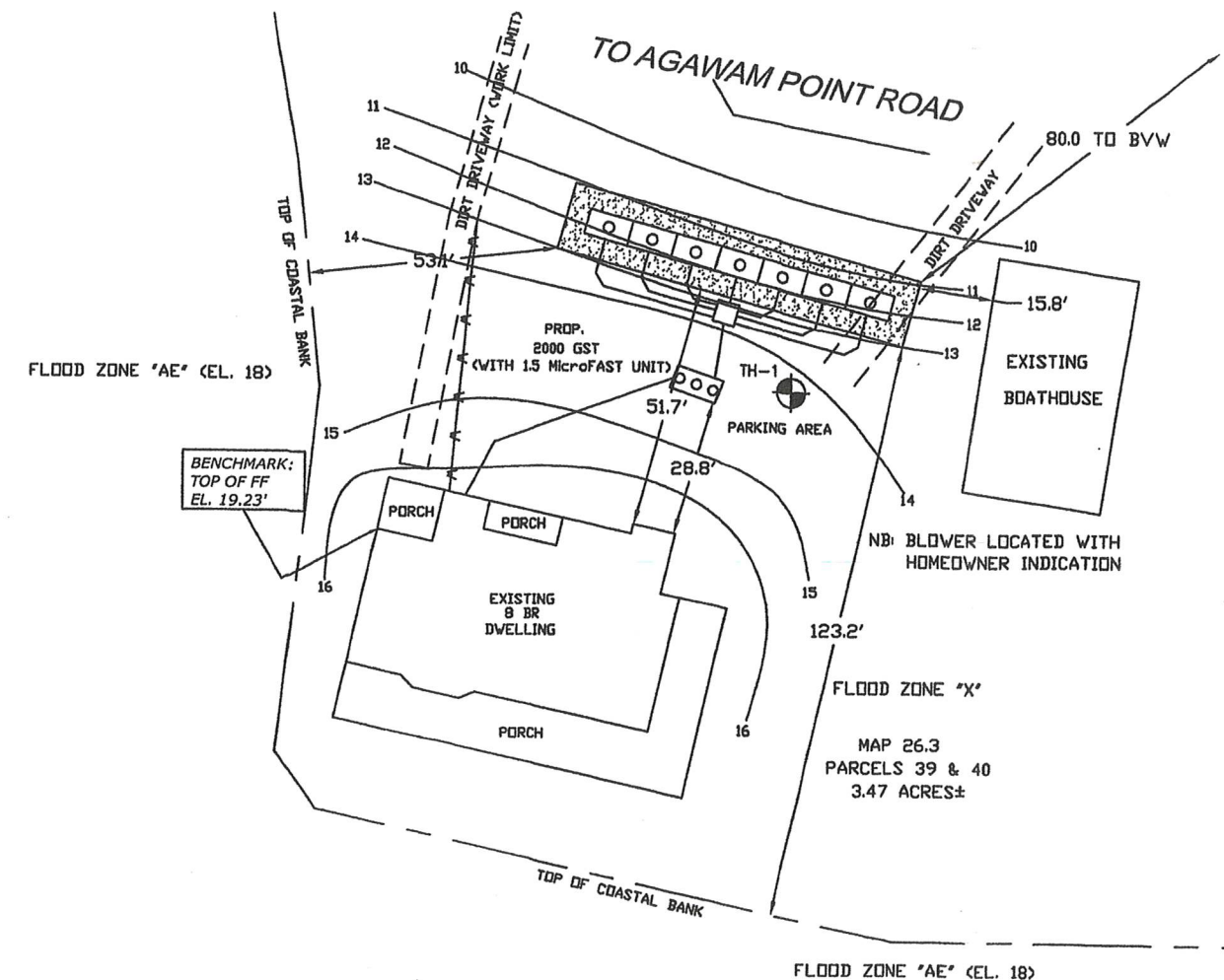
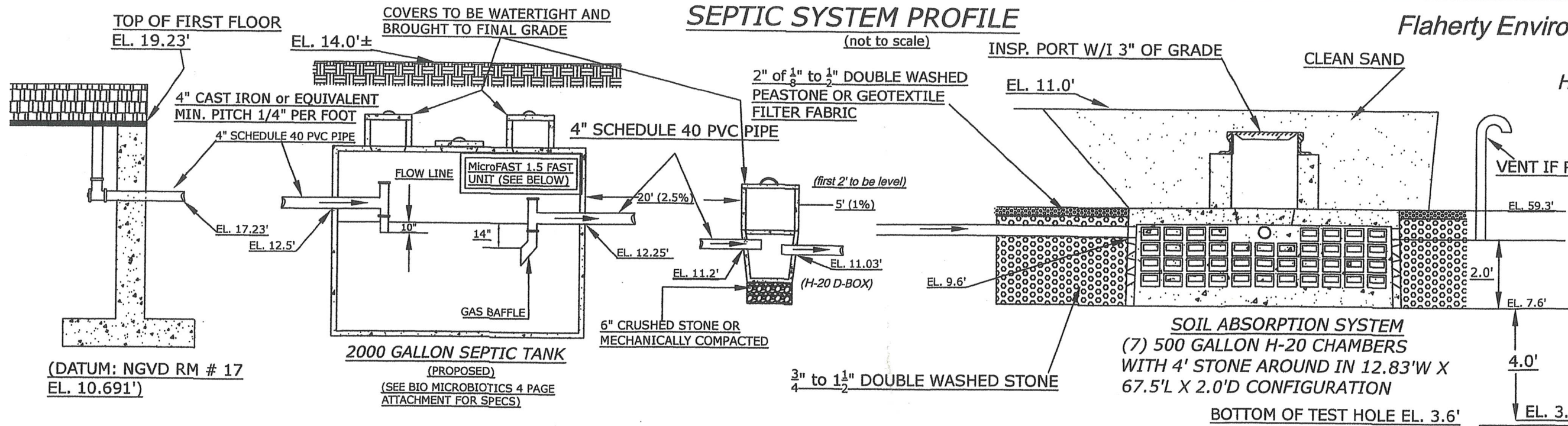


SEPTIC SYSTEM PROFILE

(not to scale)

Flaherty Environmental Services

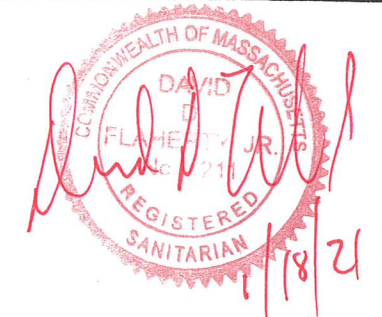
P.O. Box 331
Harwich, MA 02645
774.994.1166



RECEIVED

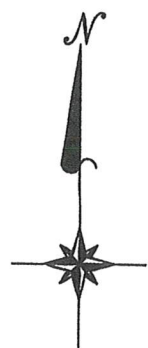
FEB 26 2021

Bourne Health Department
24 Perry Avenue
Buzards Bay MA 02532



DATE: 1/18/2021

REVISED:



SCALE: 1" = 40'

REF: VH ASSOC. PLAN DATED 9/18/2000

LEGEND

-G-G-G-G-	GAS LINE
-W-W-W-W-	WATER LINE
-E-E-E-E-	EXIST. ELECTRIC
---	99 EXIST. CONTOURS
- - - -	99 PROP. CONTOURS
-o-o-o-o-	EXIST. FENCE

SITE AND SEWAGE PLAN FOR
DONE RIGHT SEPTIC, INC./
PAUL BUSHUEFF
9 AGAWAM POINT ROAD
BOURNE, MA

GENERAL NOTES

1. ALL PRECAST COMPONENTS TO BE H-10 RATED UNLESS OTHERWISE SPECIFIED. DISTRIBUTION BOX(ES) AND ANY COMPONENTS WITH ANY ANTICIPATED VEHICULAR TRAFFIC TO BE H-20 RATED.
2. THE DESIGN OF THIS SYSTEM DOES NOT ALLOW FOR THE USE OF A GARBAGE GRINDER.
3. MUNICIPAL WATER IS AVAILABLE.
4. ALL CONSTRUCTION TO CONFORM WITH 310 CMR 15.000 AND ALL OTHER APPLICABLE LOCAL, STATE AND FEDERAL CODES AND REGULATIONS.
5. INSTALLER/CONTRACTOR TO REVIEW & VERIFY ALL ELEVATIONS AND DETAILS AND REPORT ANY DISCREPANCIES TO DESIGNER PRIOR TO CONSTRUCTION OR ASSUME ALL RESPONSIBILITY.
6. INSTALLER/ CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SAFE WORK AREA, VERIFYING ALL UTILITIES AND NOTIFYING "DIG SAFE" (1-888-344-7233) 72 HOURS PRIOR TO CONSTRUCTION.
7. ANY CHANGES TO OR DEVIATIONS FROM THIS PLAN MUST BE APPROVED IN WRITING BY FLAHERTY ENVIRONMENTAL SERVICES AND LOCAL BOARD OF HEALTH.
8. FINISH COVER OVER COMPONENTS IS NOT TO EXCEED 3' PER 310 CMR 15.000 UNLESS SHOWN PER PLAN.
9. ALL ABANDONED SEPTIC SYSTEM COMPONENTS TO BE PUMPED DRY AND FILLED WITH CLEAN SAND OR REMOVED AND REPLACED WITH CLEAN SAND.
10. ALL COMPONENTS TO BE PROVIDED WITH WATERTIGHT ACCESS PORTS WITHIN 6" OF FINISH GRADE.
11. ALL SEPTIC TANKS, DISTRIBUTION BOXES AND PIPING TO BE INSTALLED WATERTIGHT.
12. NO KNOWN WETLANDS OR WELLS (OTHER THAN SHOWN) WITHIN 150 FEET OF PROPOSED LEACHING.
13. THIS IS NOT A CERTIFIED PLOT PLAN AND UNDER NO CIRCUMSTANCES IS THIS PLAN TO BE USED FOR ZONING OR BUILDING PURPOSES.
14. LOT IS SHOWN AS ASSESSOR'S MAP 26.3 LOT 39.
15. LOCUS PROPERTY IS NOT LOCATED WITHIN AN AQUIFER PROTECTION DISTRICT (ZONE II).

DESIGN CALCULATIONS

NUMBER OF ACTUAL BEDROOMS 8

GARBAGE DISPOSAL UNIT NO

TOTAL ESTIMATED FLOW
(110 GAL/BR/DAY X 8 BR) 880 GAL./DAY

REQUIRED SEPTIC TANK CAPACITY 1760 GAL.

SIZE OF SEPTIC TANK 2000 GAL. (PROPOSED)
MicroFAST 1.5 to installed in tank

SOIL CLASSIFICATION 1

DESIGN PERCOLATION RATE < 2 MIN./INCH

EFFLUENT LOADING RATE 0.74 GAL./DAY/FT²

LEACHING AREA
 (2) x (67.5' + 13.0')(2') = 322 SF
 67.5' x 13.0' = 877 SF
 1199 SF x 0.74 = 887 GPD

USE (7) 500 GALLON H-20 CHAMBERS WITH 4' STONE AS DIAGRAMMED IN A 67.5' X 13.0' X 2' CONFIGURATION

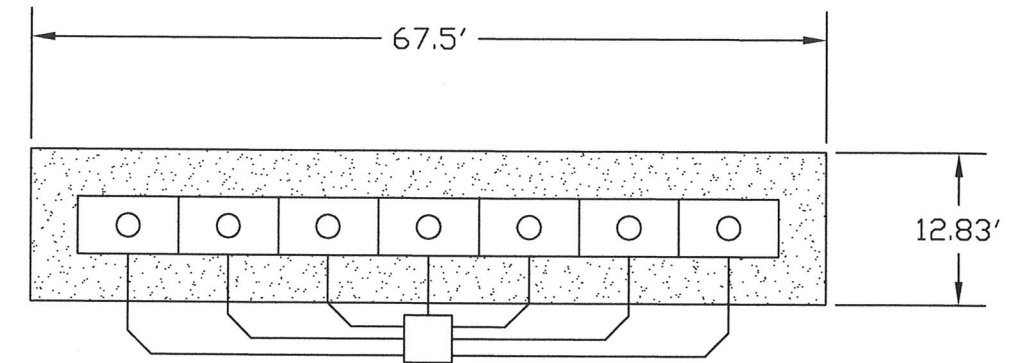
RESERVE LEACHING CAPACITY N/A

THIS DESIGN IS FOR THE MAIN HOUSE ONLY

SYSTEM DETAIL

Flaherty Environmental Services

P. O. Box 331
Harwich, MA 02645
774.994.1166



(NTS)

SOIL EVALUATION

TEST HOLE #2
 Evaluator: Cindy Coffin, RS
 BOH Witness: Bousefield Sanitary Services
 Date: April 25, 2000

TH-1 ELEV. 14.3'

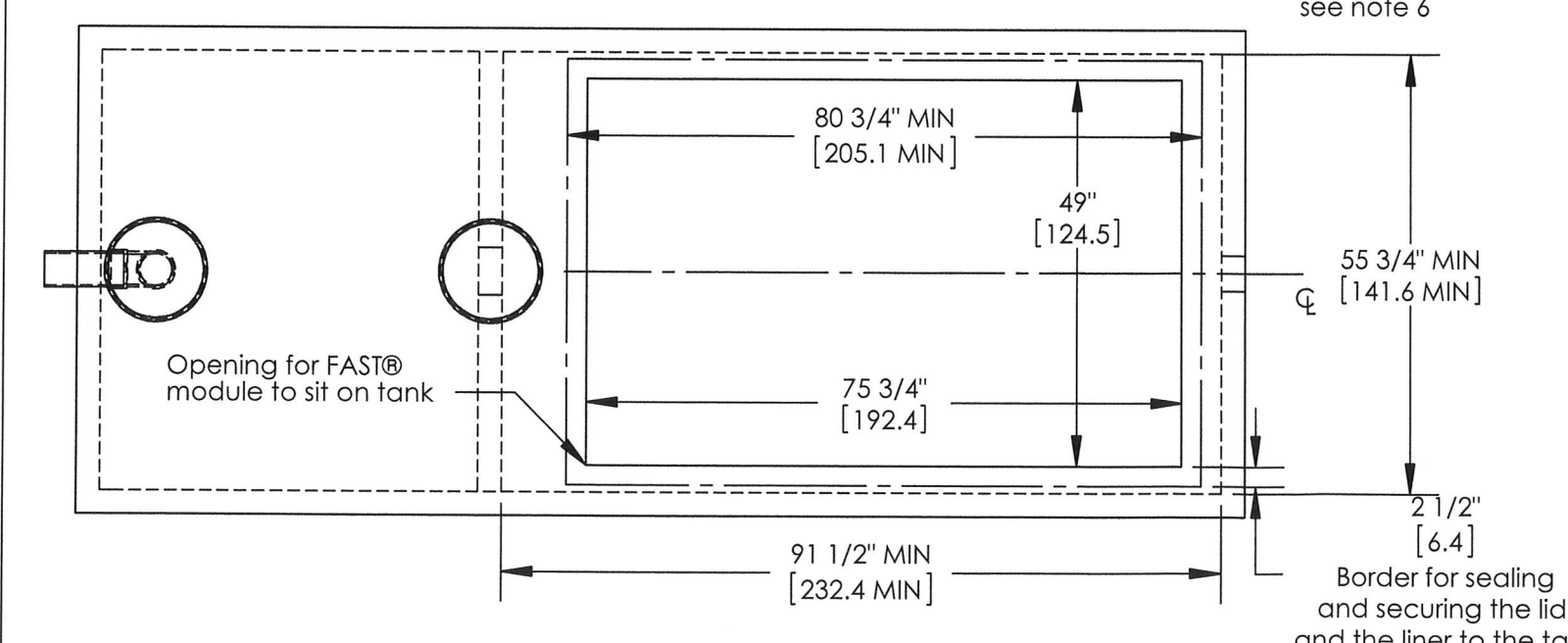
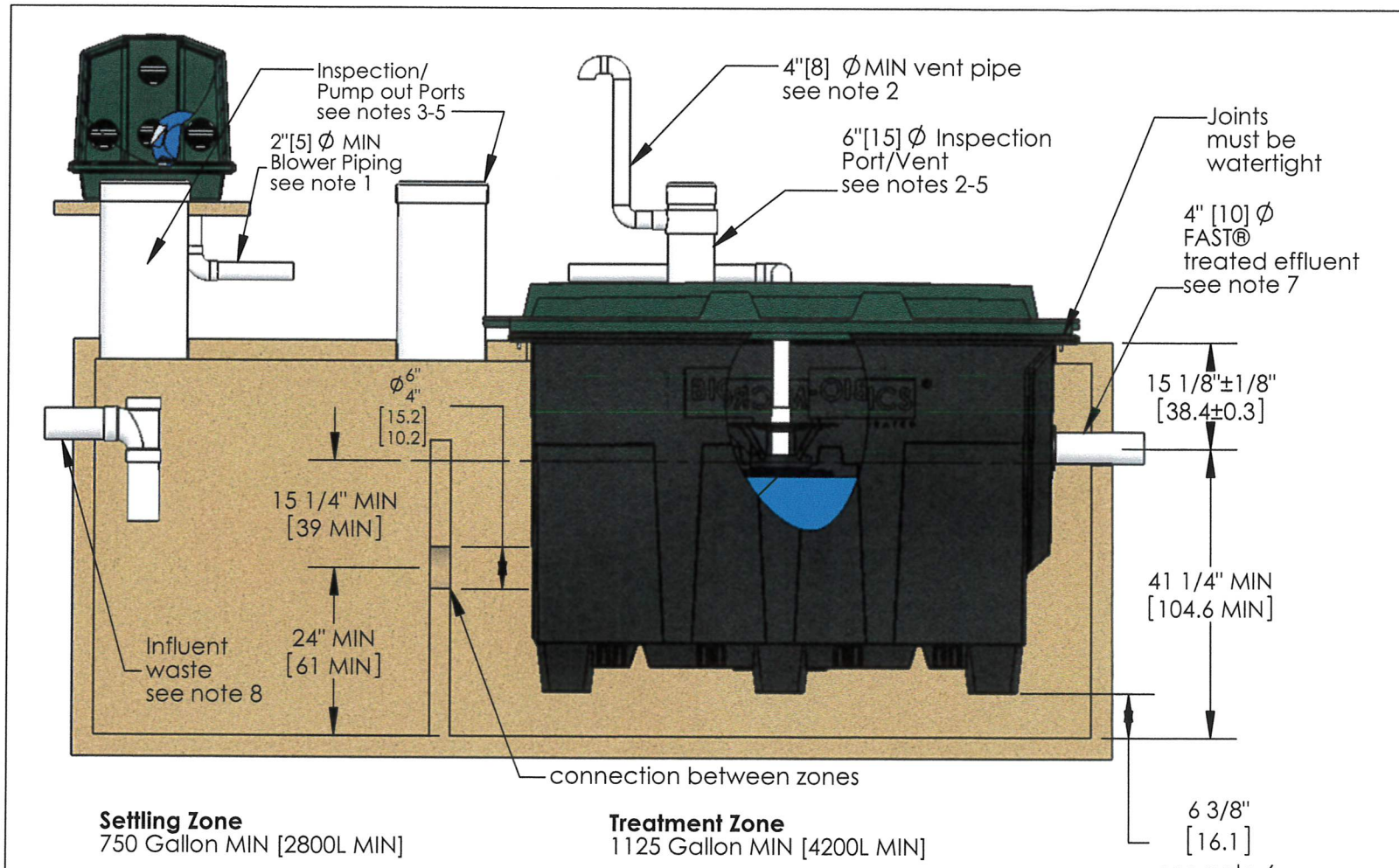
0" - 11"	A	LS
11" - 20"	B	LS
20" - 74"	C1	MCS w/ GRAVEL
74" - 128"	C	MS

G.W. ELEV. N/A
 BOTTOM TH-1 ELEV. 3.6'



Contractor and homeowner to follow all guidelines as set forth by 310 CMR 15.000 and Town of Bourne Board of Health policies and regulations pertaining to Innovative and Alternative septic systems.

**SITE AND SEWAGE PLAN FOR
 DONE RIGHT SEPTIC, INC./
 PAUL BUSHUEFF
 9 AGAWAM POINT ROAD
 BOURNE, MA**



- NOTES**
1. Airline piping to FAST® may not exceed 100 FT [30m] total length and have a maximum of 4 elbows in the piping system. For distances greater than 100 FT [30m] consult factory. Blower must be located above flood levels on a concrete base 42" X 28" X 2" [105 X 70 X 5cm] min.
 2. Vent to desired location and cover opening with a vent grate with at least 9 sq in. [58 sq. cm] open surface area. Secure with stainless steel screws. Vent piping must not allow condensate build up or create back pressure. Vent must be above finished grade or higher (see sheet 4 of 4).
 3. All appurtenances to FAST® (e.g. tanks, access ports, electrical, etc.) must conform to all applicable country, state, province, and local plumbing and electrical codes. Pump out access shall be adequate to thoroughly clean out both zones.
 4. All inspection, viewing and pump out ports must be secured to prevent accidental or unauthorized access.
 5. Tank, piping, conduit, etc. are provided by others. Blower control system by Bio-Microbics, Inc. See Installation Manual.
 6. If less than the specified minimums are considered necessary, consult factory for guidance.
 7. All piping and ancillary equipment installed after FAST must not impede or restrict free flow of effluent.
 8. The tank(s) shall be designed to prevent air passage between the settling zone/tank and the treatment zone and preventing an air lock. Examples include a baffle wall sealed to the lid, and treatment zone inlet line with a pipe cap. Consult factory for guidance.
 9. Installations using a FAST® system lid are capable of withstanding AASHTO H-10 equivalent loads. Any installation in which a FAST lid is buried deeper than 3 feet, or where additional loading conditions may occur, a professional engineer should be consulted. FAST® with feet option should be considered. Refer to Installation Manual for more details.
 10. Specialized treatment levels may require specific features to be incorporated into the design. Consult factory for guidance.

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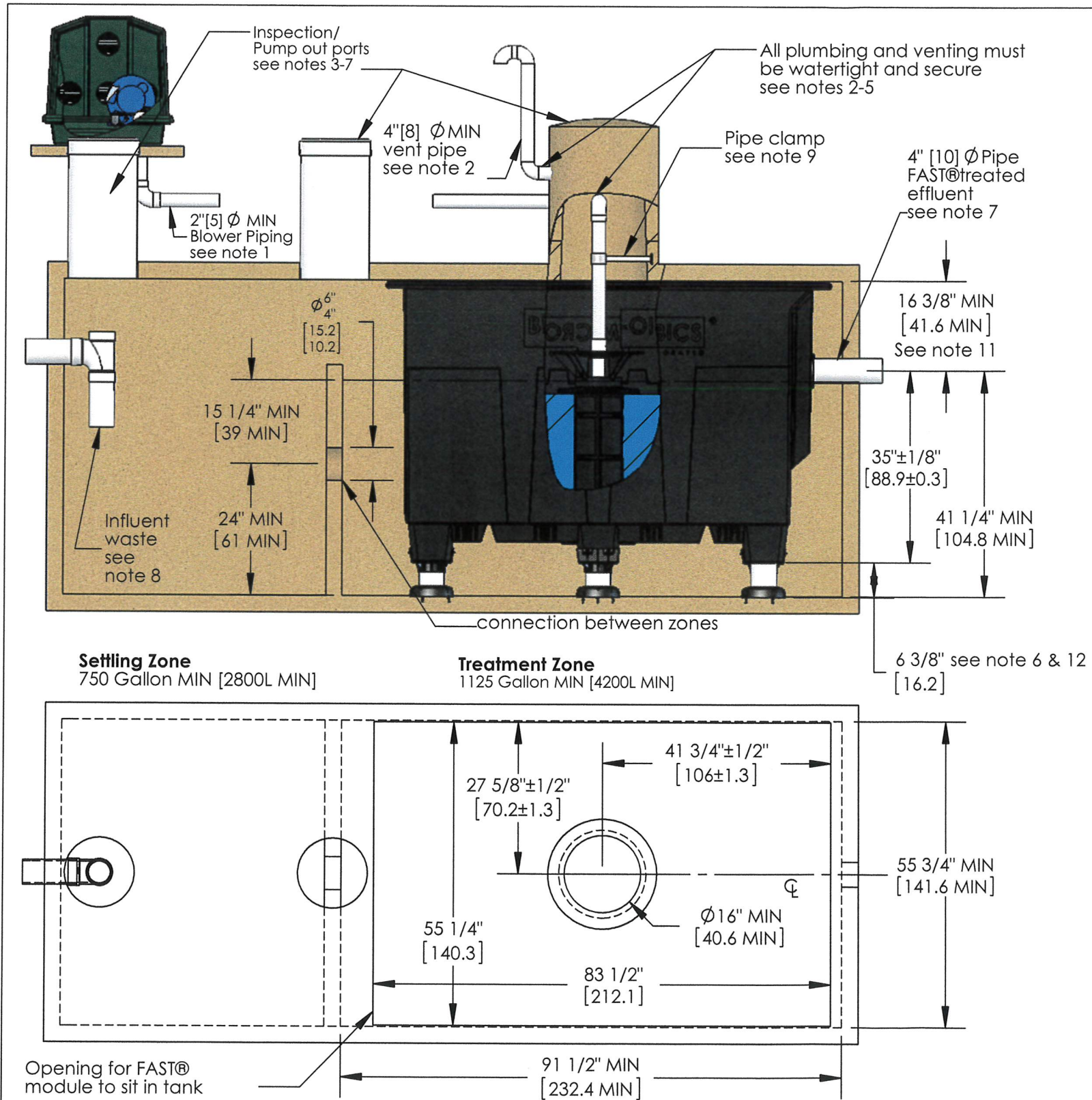
BIO-MICROBICS © 2014

DO NOT SCALE
UNLESS NOTED
DIMENSIONS
ARE IN INCHES
[CENTIMETERS]
TOLERANCES
± 0.02 IN/IN
[± 0.05 CM/CM]



MicroFAST 1.50 FAST Unit

WEIGHT	lb	SIZE	DRAWING NUMBER	SHEET 1 OF 4
NAME	DATE	A	MicroFAST® 1.50 with lid	
DRAWN	CTC	12/18/2006		
CHECKED	PF	9/18/2013	REVISED 9/18/2013 REV. INI-03-M	



NOTES

1. Airline piping to FAST@ may not exceed 100 FT [30m] total length and have a maximum of 4 elbows in the piping system. For distances greater than 100 FT [30m] consult factory. Blower must be located above flood levels on a concrete base 42" X 28" X 2" [105 X 70 X 5cm] min.
2. Vent to desired location and cover opening with a vent grate with at least 9 sq in. [60 sq. cm] open surface area. Secure with stainless steel screws. Vent piping must not allow condensate build up or create back pressure. Vent must be above finished grade or higher (see sheet 4 of 4).
3. All appurtenances to FAST@ (e.g. tanks, access ports, electrical, etc.) must conform to all applicable country, state, province, and local plumbing and electrical codes. Pump out access shall be adequate to thoroughly clean out both zones.
4. All inspection, viewing and pump out ports must be secured to prevent accidental or unauthorized access.
5. Tank, piping, conduit, etc. are provided by others. Blower control system by Bio-Microbics, Inc. See Installation Manual.
6. If less than the specified minimums are considered necessary, consult factory for guidance.
7. All piping and ancillary equipment installed after FAST must not impede or restrict free flow of effluent.
8. The tank(s) shall be designed to prevent air passage between the settling zone/tank and the treatment zone and preventing an air lock. Examples include a baffle wall sealed to the lid or treatment zone inlet line with a pipe cap. Consult factory for guidance.
9. The air supply line into the FAST@ unit must be secured to prevent vibration induced damage. The air supply line should be secured with a non-corrosive clamp every 2' min [60 cm]. See alternate air supply option on sheet 4 of 4.
10. Specialized treatment levels may require specific features to be incorporated into the design. Consult factory for guidance.
11. Min. height may be reduced, consult factor and reference "Low Profile Module Procedure.pdf"
12. Refer to sheet 4 of 4 for leg extensions requirements.

DO NOT SCALE
UNLESS NOTED
DIMENSIONS
ARE IN INCHES
[CENTIMETERS]
TOLERANCES
 \pm 0.02 IN/IN
[\pm 0.05 CM/CM]



MicroFAST 1.50 FAST Unit

WEIGHT		lb	SIZE	DRAWING NUMBER		SHEET 2 OF 4
NAME		DATE	A	MicroFAST@ 1.50 with feet		
DRAWN	CTC	12/18/2006				
CHECKED	PF	9/18/2013		REVISED 9/18/2013	REV. INI-03-M	

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Specifications for MicroFAST 1.50 Wastewater Treatment System

1. GENERAL

The contractor shall furnish and install (1) MicroFAST®1.50 treatment system as manufactured by Bio-Microbics, Inc. The treatment system shall be complete with all needed equipment as shown on the drawings and specified herein.

The principal items of equipment shall include FAST® system insert, leg extensions, or lid, blower assembly, blower controls and alarms. All other items will be provided by others. The MicroFAST 1.50 unit shall be situated within a 1125 gallon [4200 L] minimum compartment as shown on the drawings. Suggested maximum settling zone is (1)X the daily flow. Tank must provide adequate pump out access and conform to local, state, and all other applicable codes. The contractor shall coordinate the proper fabrication of the tank between the tank and FAST system suppliers as well as the installation of the FAST unit, and delivery to the job site.

2. OPERATING CONDITIONS

The MicroFAST 1.50 treatment system shall be capable of treating the wastewater produced by typical family activities (bath, laundry, kitchen, etc.) ranging from (6) six to (21) twenty-one people and not to exceed 1500 US Gallons per day (5600 LPD) provided the waste contains nothing that will interfere with biological treatment. The FAST system is a biological treatment system not meant for non-biodegradable or industrial wastewater.

3. MEDIA

The FAST media shall be manufactured of rigid PVC, polyethylene, or polypropylene and it shall be supported by the polyethylene insert. The media shall be fixed in position and contain no moving or wearing parts and shall not corrode. The media shall be designed and installed to ensure that sloughed solids descend through the media to the bottom of the septic tank.

4. BLOWER

The MicroFAST 1.50 unit shall come equipped with a regenerative type blower capable of delivering 20-45 CFM [38-85 m3/hr]. The blower assembly shall include an inlet filter with metal filter element. The blower shall be mounted outside the tank on a contractor supplied concrete base. Blower piping to the tank shall use non-corrosive material (PVC, Galvanized, or Stainless Steel). Do not run galvanized pipe inside the treatment tank. Refer to Installation Manual for further details.

5. REMOTE MOUNTED BLOWER

The blower must not set in standing water and its elevation must be higher than the normal flood level. A two-piece, rectangular housing shall be provided. The discharge air line from the blower to the MicroFAST System, shall be provided and installed by the contractor.

6. ELECTRICAL

The electrical source should be within 150 feet [45 meters] of the blower, consult local codes for longer wiring distances. All wiring must conform to all applicable codes(IEC, NEC, etc.). Wiring distances must prevent significant voltage loss. Input power on 60Hz electrical systems 110/220VAC, 1Ø, 5/2.5 FLA, on 50 Hz electrical systems 220VAC, 1Ø, 5.7 FLA. Other voltages and phase are also available. Actual power consumption varies with site conditions. All conduit and wiring shall be supplied by contractor.

7. CONTROLS

The control panel provides power to the blower with an alarm system consisting of a visual and audible alarm capable of signaling blower circuit failure and high water conditions. The control panel is equipped with SFR® (Sequencing Fixed Reactor) timed control feature. A manual silence button is included.

8. INSTALLATION AND OPERATING INSTRUCTIONS

All work must be done in accordance with local codes and regulations. Installation of the FAST 1.5 shall be done in accordance with the written instructions provided by the manufacturer. Manuals shall be furnished, which will include a description of system installation, operation, and maintenance procedures.

9. FLOW AND DOSING

FAST systems have been successfully designed, tested and certified receiving gravity, demand-based influent flow. When influent flow is controlled by pump or other means to help with highly variable flow conditions, then multiple dosing events should be used to maximize performance. The flow rate shall not exceed 7.8 gpm (28 Lpm) with a maximum hourly flow not to exceed 10% of the design daily flow (150 gph (570 LPH)).

10. WARRANTY

Bio-Microbics, Inc. warrants all new residential FAST® models (MicroFAST® 0.50, 0.625, 0.75, 0.90, and 1.5) against defects in materials and workmanship for a period of two years after installation or three years from date of shipment which ever occurs first. All other FAST® system models are warranted for a period of one year after installation or eighteen months from date of shipment, whichever occurs first. All are subject to the following terms and conditions below:


During the warranty period, if any part is defective or fails to perform as specified when operating at design conditions, and if the equipment has been installed and is being operated and maintained in accordance with the written instructions provided by Bio-Microbics, Inc., Bio-Microbics, Inc. will repair or replace at its discretion such defective parts free of charge. Defective parts must be returned by owner to Bio-Microbics, Inc.'s factory postage paid, if so requested. The cost of labor and all other expenses resulting from replacement of the defective parts and from installation of parts furnished under this warranty and regular maintenance items such as filters or bulbs shall be borne by the owner. This warranty does not cover general system misuse, aerator components which have been damaged by flooding or any components that have been disassembled by unauthorized persons, improperly installed or damaged due to altered or improper wiring or overload protection. This warranty applies only to the treatment plant and does not include any of the structure wiring, plumbing, drainage, septic tank or disposal system. Bio-Microbics, Inc. reserves the right to revise, change or modify the construction and/or design of the FAST system, or any component part or parts thereof, without incurring any obligation to make such changes or modifications in present equipment. Bio-Microbics, Inc. is not responsible for consequential or incidental damages of any nature resulting from such things as, but not limited to, defect in design, material, or workmanship, or delays in delivery, replacements or repairs.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED. BIO-MICROBICS SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

NO REPRESENTATIVE OR PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTY OR TO ASSUME FOR BIO-MICROBICS, INC., ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF ITS PRODUCTS. Contact your local distributor for parts and service.

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DO NOT SCALE		 <p>BETTER WATER. BETTER WORLD®</p> <p>MicroFAST 1.50 FAST Unit</p>		
UNLESS NOTED DIMENSIONS ARE IN INCHES [CENTIMETERS] TOLERANCES ± 0.02 IN/IN [± 0.05 CM/CM]				
WEIGHT	lb	SIZE	DRAWING NUMBER	SHEET 3 OF 4
		A	MicroFAST® 1.50 Specifications	
DRAWN	12/18/2006	CHECKED	PF 9/18/2013	
		REVISED	9/18/2013	

Minimum leg extension assembly see note 1-4

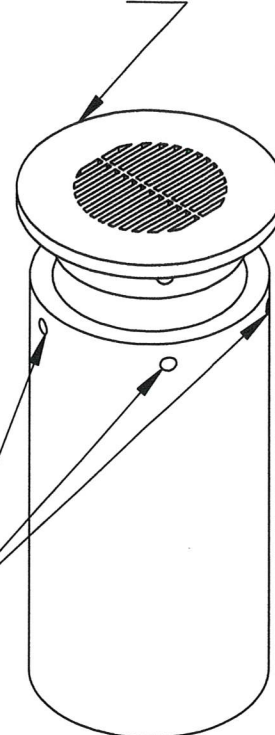


DETAIL SCALE 1 : 5

2 screws per side included

FAST® Lid Vent Option

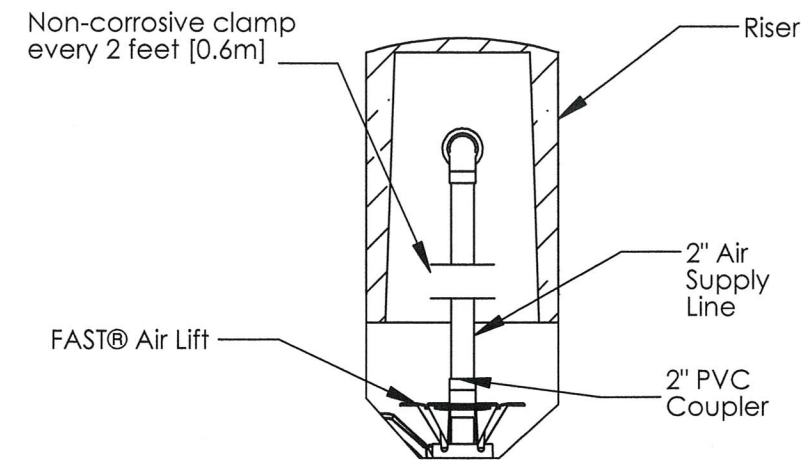
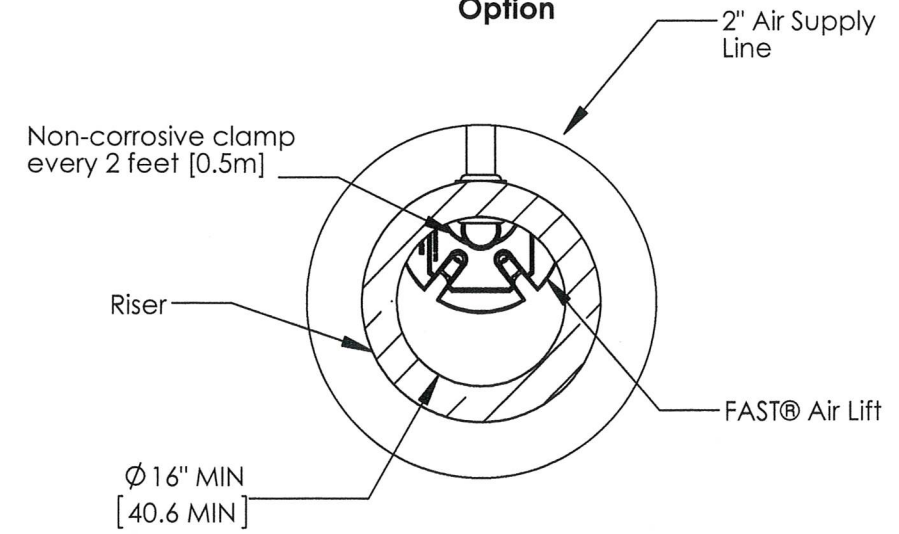
NDS 6" Grate MIN 9 SQ in [60 Sq cm] of open surface area.



DETAIL SCALE 1 : 4

Fasten with non-corrosive screws

Alternate Air Supply Option



Notes

1. Secure leg extension to the FAST® unit by placing two screws on each side of the leg extension (4 screws per foot are included).
2. Cut 4" schd. 40 PVC pipe (not included) to obtain the desired height. Minimum pipe length of 6 1/8" [15.56cm] will provide minimum clearance of 10". For heights greater than 18" [45.7cm] use schd. 80 PVC pipe (not included). Consult factory for extending leg beyond 36" [90cm].
3. Anchor the leg extensions to the tank with non-corrosive hardware (not included) at the provided mounting points.
4. If less than the specified minimums are considered necessary, consult factory for guidance.
5. The air supply line into the FAST® unit must be secured to prevent vibration induced damage. The air supply line should be secured with a non-corrosive clamp every 2ft [0.6m] minimum.
6. Tank, anchors, piping conduit, blower, housing pad and vents are provided by others.

DO NOT SCALE
UNLESS NOTED
DIMENSIONS
ARE IN INCHES
[CENTIMETERS]
TOLERANCES
± 0.02 IN/IN
[± 0.05 CM/CM]



MicroFAST 1.50 FAST Unit

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WEIGHT	lb	SIZE	DRAWING NUMBER	SHEET 4 OF 4
NAME	DATE	A	MicroFAST® 1.50 Details	
DRAWN	CTC	12/18/2006	REVISED 9/18/2013	
CHECKED	PF	9/18/2013	REV. INI-09-X	