LAYOUT 6/17/08 INSP 4 _____

INSP 2 6/18/08 INSP 5 _____

INSP 3 6/19/08 INSP 6 _____

ISSUE DATE: 6/17/2008

PERMIT-MICROFAST 0.5

SEPTIC SYSTEM

P 528981

APPROVAL DATE: 6/24/08 Logged Into Permit Manager A 528875

TAX ID # 05-342902

ON-SITE SEWAGE DISPOSAL SYSTEM
HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH

Hatfields Equipment IS PERMITTED TO INSTALL ☒ ALTER ☐

ADDRESS: Annapolis Junction, MD PHONE NUMBER: 301-854-6172

SUBDIVISION _____ LOT _____

ADDRESS: 4713 Linthicum Road PROPERTY OWNER: Warren Bell

MICROFAST 0.5 CAPACITY (GALLONS): 1500 **Top Seamed Two Compartment Tank**

PUMP CHAMBER CAPACITY (GALLONS): 500 **Top Seamed Tank**

High water alarm on separate circuit in the house

LOCATION:	Install trench as shown on the approved permit plan. Trench to be 2' wide, inlet at 5' below original grade, bottom max depth 14' below original grade, effective area begins at 9' below original grade. 9' of stone below dosing lateral.
NOTES:	A test of the pump system, alarms and blower is required. Laterals must be inspected before they are installed. Existing system must be abandoned. System is sized for a maximum of three bedrooms.

Note: This repair is a low pressure dosing system with aerobic pretreatment.

PLANS APPROVED: K. Wolfe/ B. Baker DATE: 6/17/2008

NOTES: PERMIT VOID AFTER 2 YEARS
CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION INSPECTION FOR ALL INSTALLATIONS
WATERTIGHT SEPTIC TANKS REQUIRED
ALL PARTS OF SEPTIC SYSTEM SHALL BE 100 FEET FROM ANY WATER WELL UNLESS SPECIFICALLY AUTHORIZED
MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS UNLESS SPECIFICALLY AUTHORIZED
CONTRACTOR RESPONSIBLE FOR COMPLIANCE WITH APPLICABLE REGULATIONS, GUIDELINES AND THE TERMS OF THIS PERMIT

NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM
PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT
ALL 410-313-1771 FOR INSPECTION OF SEPTIC SYSTEM

NOT TO SCALE

See As-Built Drawing On Separate Sheet

TRENCH/DRAINFIELD DATA

WIDTH	INLET	BOTTOM
2'	4.5-5'	14'

NUMBER OF TRENCHES 1

TOTAL LENGTH 101'

ABSORPTION AREA 505

DISTRIBUTION BOX LEVEL N/A

DISTRIBUTION BOX BAFFLE N/A

DISTRIBUTION BOX PORT N/A

SEPTIC TANK DATA

MICROFAST 0.5 LEVEL Yes

CAPACITY 1500 GAL

SEAM LOC Top

2-Comp. TANK LID DEPTH 2.5'-3.5'

Turned Back-wards BAFFLES Front + 2 Middle

BAFFLE FILTER No

MANHOLE LOC Middle

6" PORT LOC Front, Middle + Rear

WATERTIGHT TEST No

BLOWER TEST O.K.

BLOWER ALARM TEST O.K.

PUMP TANK LEVEL Yes

CAPACITY 500 GAL

SEAM LOC Top

TANK LID DEPTH 4'

BAFFLES No

MANHOLE LOC Middle

6" PORT LOC None

WATERTIGHT TEST No

PUMP TEST O.K.

PUMP ALARM TEST O.K.

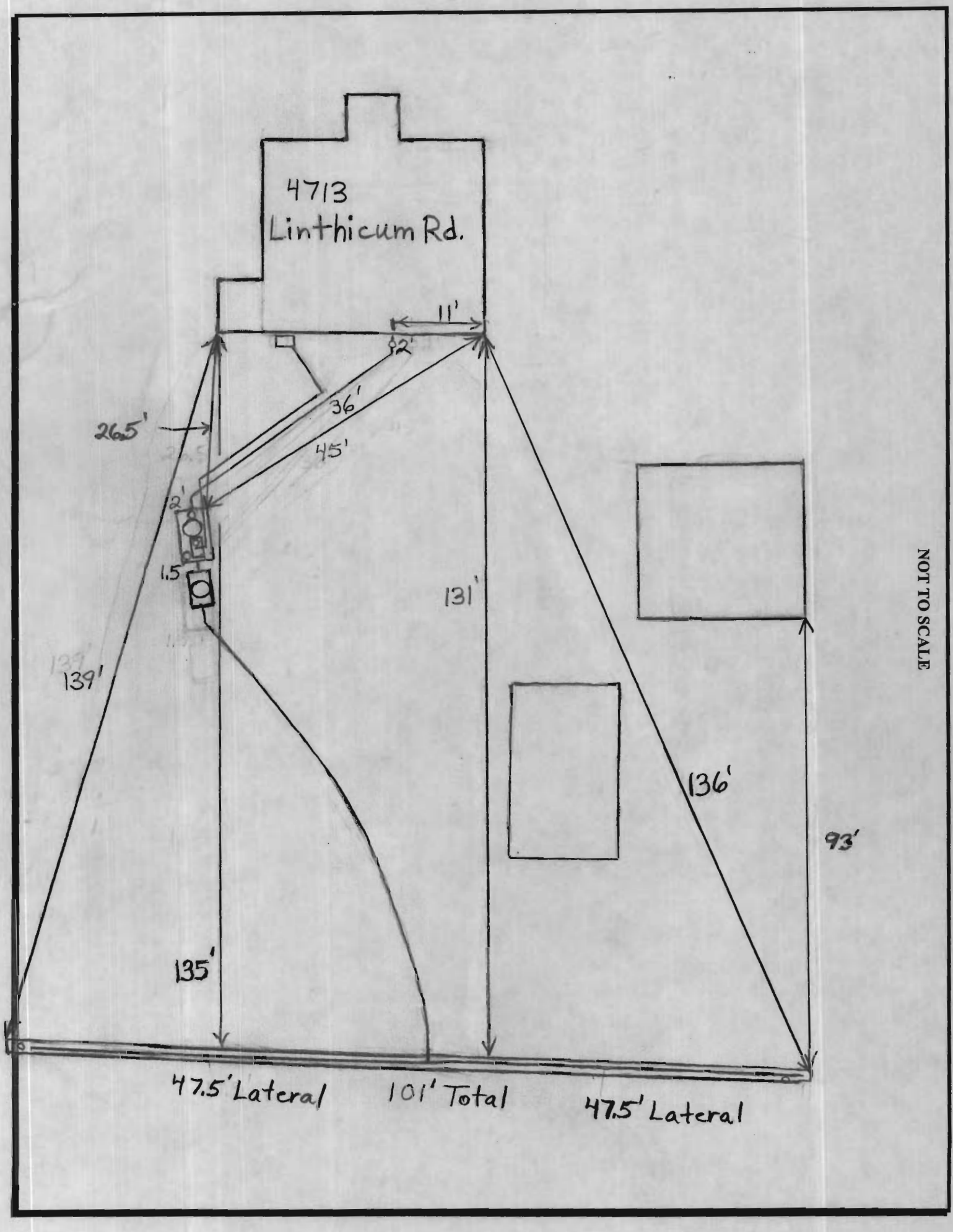
PRE-CONSTRUCTION:

6/17/08 Trench location painted at highest area in back yard. Locate tanks >100' from

INSTALLATION: well. BB

6/18/08 Tanks set. House and blower connections made. Started on trench. Tanks ~ 1' too deep. Contractor must cut down grade. BB 6/19/08 Still need to check blower, blower alarm, pump, pump alarm and final grade around tanks. Freemire still needs to inspect fast unit. BB 6/24/08 Everything working. K Hatfield said that Freemire has given system initial inspection and approval. BB

FINAL INSPECTOR B. Baker DATE OF APPROVAL 6/24/08


4713
Linthicum Rd.
11'
92'
36'
45'
265'
2'
1.5
131'
139'
136'
93'
135'
47.5' Lateral
101' Total
47.5' Lateral
NOT TO SCALE

Appt Made 4/4/08 for 4/10/08 10am

Fee Paid $
Receipt #P

SEPTIC SYSTEM REPAIR / UPGRADE / EVALUATION REQUEST

Please fill out this form completely and check off the reason for the request:

Date requested: _____

Reason for Request

Failing System (includes surface discharge or inadequate treatment zone) ✓

Has the contractor verified through excavation/pumping evaluation, that there are no pipe blockages?

In support of a building permit. Type of building addition: _____

*System relocation for proposed addition for setback compliance _____

*Verification of adequate system capacity per COMAR 26.04.02.02D (4) _____

To replace collapsed septic tank or upgrade tank capacity _____

To replace collapsed drywell _____

****

Septic Contractor: Hatfields Equipment

Contractor's Address: 8154 Brock Bridge Rd
Annapolis Junction MD

Contractor's Phone #: 301 854-6172

Property Address: 4713 Linthicum Rd

Property (Subdivision) & Lot # _____

Owner's Name: Warren Bell

Is public sewer available/nearby: N/A

Names of Any Previous Owners: _____

Year House Built: 018

# of Existing Bedrooms: _____

# of Bedrooms after completion of addition: _____

Has this request been discussed previously with a Sanitarian, who? _____

If public sewer is close, further research will be performed to verify availability and possible hook up to public sewer.

A Sanitarian will be in contact within three business days depending upon the urgency of the situation to coordinate the scheduling of the repair /upgrade/evaluation. No inspection will be performed without fee collection at the office.

Environmental Sanitarian tentatively assigned _____

FAX TO 410-313-2648

MARYLAND DEPARTMENT OF THE ENVIRONMENT
MDE 1800 Washington Boulevard • Baltimore MD 21230
410-537-3000 • 1-800-633-6101

Martin O'Malley
Governor

Anthony G. Brown
Lieutenant Governor

Shari T. Wilson
Secretary

Robert M. Summers, Ph.D.
Deputy Secretary

June 3, 2008

Warren Bell
4851 Ten Oaks Road
Dayton, MD 21036

RE: Tax Map 28, Grid 08, Parcel 39

Dear Mr. Bell:

Your bid package for the Bay Restoration Fund (BRF) Onsite Sewage Disposal System (OSDS) Program has been approved for the use of funds totaling not more than $12,530. The accepted bid amount is for the installation of a BioMicrobics MicroFAST .5 by Hatfields Equipment for your property located at 4713 Linthicum Road, Dayton, MD and shown on Tax Map 28, Parcel 39. You may choose to deviate from the selected unit, however the grant award for acceptable reimbursable expenses may not exceed $12,530. All grants awarded through the Maryland Department of the Environment (MDE) are reimbursable. This means that all work done prior to this letter cannot be considered for reimbursement. In order to be eligible for reimbursement you must sign and record a copy in the land records of Howard County the Agreement and Easement for Installation of Best Available Technology Systems with Bay Restoration Funds. You must provide MDE with the following:

- The contractor's invoice. This invoice should include everything quoted in the bid. All expenditures greater than the bid amount will not be covered.
- A copy of the installation inspection performed by the Howard County Environmental Health program.
- A signed statement from the BAT Manufacturer that the unit was installed to their specific installation instructions.
- A signed statement that all work completed has met your satisfaction.
- A completed State Grant or Loan Payment Disbursement Request Form
- A copy of the Agreement and Easement for Installation of Best Available Technology Systems with Bay Restoration that shows that it has been recorded in the land records of Howard County.

All submitted documentation would be reviewed for compliance. Once all documentation is submitted, you will receive a payment directly from the State Comptroller's office.

The Maryland Department of the Environment thanks you for participating in this important program. If you have any further questions, please feel free to contact me at 410-537-3678 or 1-800-633-6101 ext 3678 or email at jboris@mde.state.md.us.

Sincerely,

John Boris

John A. Boris, Jr., R.S.
Bay Restoration Fund Project Manager

Enclosure

cc: Jay Prager
Howard County Health Department
Jag Khuman, WQFA
Hatfields Equipment ✓

AGREEMENT AND EASEMENT FOR INSTALLATION OF BEST AVAILABLE TECHNOLOGY SYSTEMS WITH BAY RESTORATION FUNDS.

032

THIS AGREEMENT is made this 2nd day of June, among Mr. Warren Bell, hereinafter referred to as "Owner," the Howard County Health Department hereinafter collectively referred to as the "County," and the Department of the Environment, hereinafter referred to as the "Department."

WHEREAS, Owner owns a tract of land located on 4713 Linthicum Road, Dayton, MD, in the 5th Election District of Howard County, Maryland, and the deed to same is recorded among the Land Records of Howard County, Maryland, in Ellicott City and in Liber 1127 Folio 146.

N/C

WHEREAS, the Bay Restoration Fund (BRF) may provide a grant for the cost attributable to upgrading an onsite sewage disposal system to the Best Available Technology (BAT) for the removal of nitrogen.

WHEREAS, the BRF may also provide a grant for the cost difference between a traditional onsite sewage disposal system and a system that utilizes the BAT for the removal of nitrogen.

WHEREAS, Owner understands that participation in the Bay Restoration Fund is voluntary.

NOW, THEREFORE, the parties hereto agree as follows:

A. Owner hereby grants to the Department and the County the right to enter upon the property at any reasonable time for access to the system to make periodic inspections and the Owner agrees to provide any information and data requested and needed by the Department to develop accurate and thorough test results.

B. Owner acknowledges and agrees that a manufacturer-approved installer will install the BAT system.

C. Owner acknowledges and agrees the manufacturer will provide for Operation and Maintenance of the BAT for a period of 5 years as a condition of sale of the BAT. After the 5 year period the Operation and Maintenance contract can be further extended at the behest of the property owner. The Department and County encourage the property owner to continuously maintain an Operation and Maintenance contract during the lifetime of the system.

D. Owner acknowledges and agrees that the manufacturer appointed Operation and Maintenance provider will have access to the BAT system at all times.

E. Owner acknowledges and agrees that the manufacturer or manufacturers designee will have access to sample the effluent of the BAT system. Owner acknowledges and agrees that the proposed installation of a BAT system funded by the BRF is voluntary. Owner agrees that there shall be no liability on the part of the County or Department to Owner if this BAT system fails, and that the County and the Department do not warrant or guarantee that the BAT system will adequately or properly function.

F. Owner acknowledges and agrees that neither the County nor the Department nor any of its agents or employees, either officially or individually, underwrites the operation of any system approved by them.

G. The Owner will devote such care and effort to the maintenance of the BAT system so that any malfunction is not the result of poor maintenance, faulty operation, or neglect.

H. The Department and/or County agree to grant $ 12,530.00 toward the cost of installation of the BAT System, and financial responsibility is limited to this amount. Owner will present to the County at least 3 proposals from manufacturer and County certified system installers demonstrating the total cost of installation. Operating costs will be at the Owner's expense.

I. The Owner acknowledges that the BRF grant can only be used for that portion of the OSDS attributable to (BAT) for the removal of nitrogen.

J. Owner acknowledges in the event the total project cost is greater than $25,000 the proposal will have to be approved by the Maryland State Board of Public Works.

K. The Owner agrees to contact both the Water Management Administration, On-Site Systems Division of the Wastewater Permits Program and the County at least forty-eight (48) hours prior to system installation, so that the Department has the opportunity to be present at the time of installation or thereafter for inspection.

L. The Owner must install BAT system according to the manufacturer recommended plans and specifications approved by the Department.

M. The Owner agrees and acknowledges that if installation deviates substantially from the approved plans or changes such that performance of the system is compromised or reduced, BRF funding will not be provided.

N. This agreement shall run with the land and binds the Owner, his heirs, successors, assigns except that the provisions of paragraph A, C, D and E shall be binding for a period of 5 years only after installation of the system and occupation of the home. Owner further agrees that he shall inform in writing any purchaser or lessee of the property that the system may require maintenance or other attention. The Owner agrees to record this agreement in the land records of Howard County.

O. This agreement shall not be construed to limit any authority of the Department to protect the public health, safety or comfort or to issue any other orders to take any other action that is now or may hereafter be within its authority.

P. This agreement may be voided at the discretion of the Department if the system construction is not completed within six (6) months of the effective date of this agreement.

Q. This agreement contains the entire agreement and understanding between the County and the Owner and the Department. There are no additional terms other than as contained in this agreement. This agreement may not be modified except in writing signed by each of the parties or by their authorized representatives.

R. The laws of the State of Maryland govern the provisions of all transactions pursuant to this agreement.

IN WITNESS WHEREOF, the parties have signed and sealed this agreement on the date indicated above.

DATE: 6/12/08

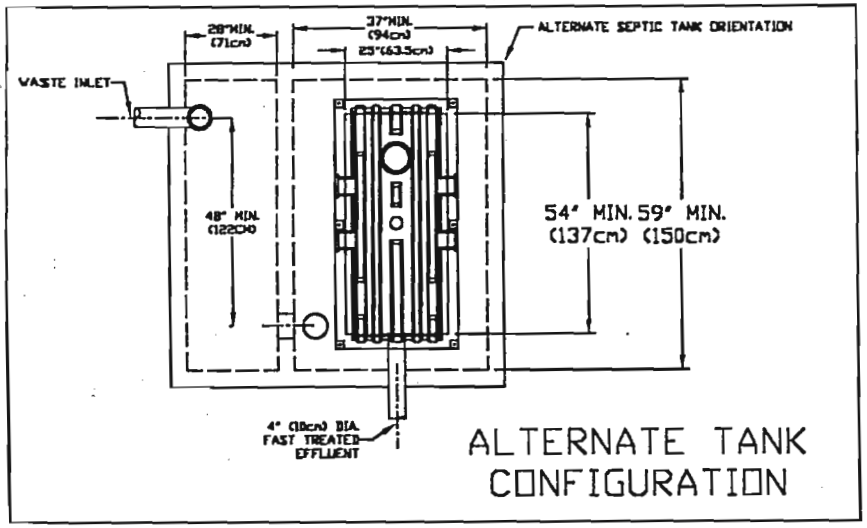
/ Warren A. Bell
Owner WARREN A. BELL

DATE: 6/2/08

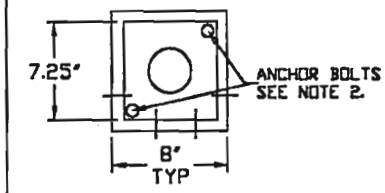
Jay Prager, Deputy Program Manager
Wastewater Permits Program
Maryland Department of the Environment

DATE: 6/[redacted]/2008

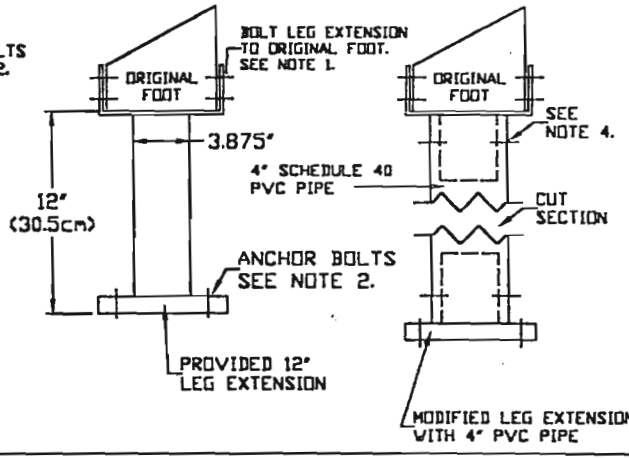
Brian Baker R.S.
Howard County Health Department



ALTERNATE TANK CONFIGURATION

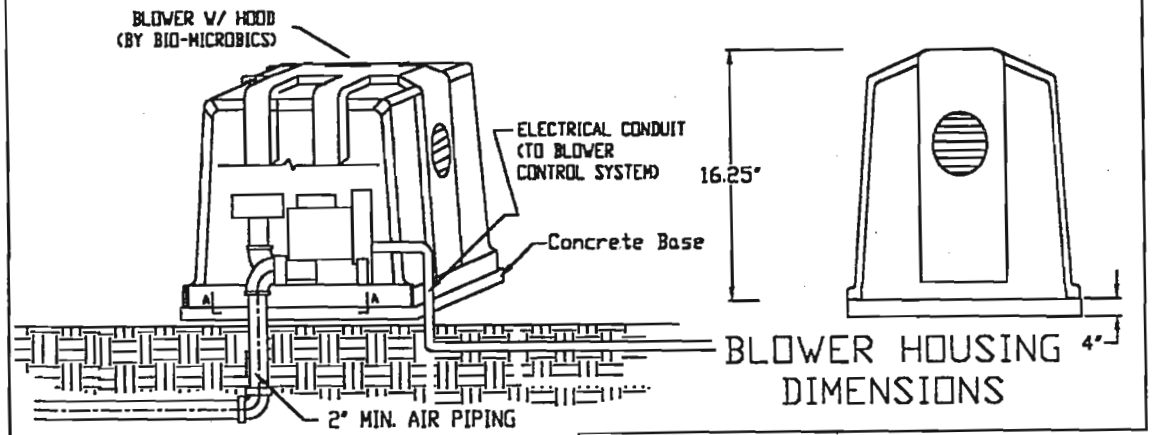


PLAN VIEW



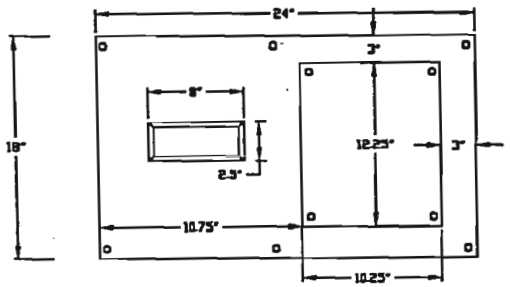
LEG EXTENSION

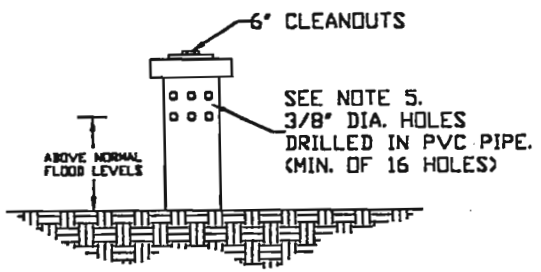
SEE NOTE 3.



BLOWER HOUSING DIMENSIONS

Base Dimensions
Section A-A





VENTING OPTION

NOTES

1. SECURE ORIGINAL 7" X 7" FOOT TO LEG EXTENSION BY PLACING TWO (2) SCREWS IN EACH SIDE OF THE LEG EXTENSION. EIGHT (8) SCREWS PER FOOT ARE INCLUDED AND SHOULD BE USED ON EACH OF THE FOUR (4) CORNER LEG EXTENSIONS.
2. ANCHOR THE LEG EXTENSIONS (4 CORNER LEGS ONLY) TO THE BASE OF THE TANK. PLACE BOLTS AT OPPOSITE CORNERS OF THE LEG EXTENSION BASE.
3. TO ELONGATE FOOT PAST THE PROVIDED 12", CUT THE 3.9" LEG EXTENSION IN THE CENTER INTO TWO SEPARATE PIECES. THEN CUT A SCH 40 PVC PIPE TO THE DESIRED LENGTH AND SLIP THE PIPE OVER THE TOP AND BOTTOM CUT SECTIONS OF THE LEG EXTENSIONS.
4. ATTACH PIPES WITH STAINLESS STEEL SCREWS.
5. ACCESS PORTS MAY BE USED AS VENT. CAP PIPES WITH 6" PVC CLEANOUT. DRILL 8-12 HOLES IN 6" PIPE JUST BELOW THE PVC CAP OR IN THE CAP.

Date 7-25-01

BIO-MICROBICS INCORPORATED

MicroFAST 0.5
Additional Views

Drawn by SMF

Specifications For MicroFAST 0.5 Wastewater Treatment System

1. GENERAL
The contractor shall furnish and install (1) MicroFAST 0.5 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, insert lid (or leg extensions if that option is chosen), blower assembly, blower controls and alarms. The MicroFAST 0.5 unit shall be situated within a 800 Gallon (3028 L) minimum tank, as shown on the plans. Tank(s) must conform to local, state, and all other applicable codes. The contractor shall provide coordination between the FAST system and tank supplier with regard to fabrication of the tank, installation of the FAST unit and delivery to the job site.

2. OPERATING CONDITIONS
The MicroFAST 0.5 treatment system shall be capable of treating the wastewater produced by typical family activities (bath, laundry, kitchen, etc.) ranging from (1) one to (8) eight persons and up to 500 US Gallons per day (1893 LPD).

3. MEDIA
The FAST media shall be manufactured of rigid PVC or polyethylene and it shall be supported by the polyethylene insert. The media shall be of such a design that bacterial growth is uniform over all media surfaces. 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 immediately descend through the media to the bottom of the septic tank.

4. BLOWER
The MicroFAST 0.5 unit shall come equipped with a regenerative type blower capable of delivering 11-25 CFM. The blower assembly shall include an inlet filter with metal filter element.

5. REMOTE MOUNTED BLOWER
The blower shall be mounted remote, up to 100 feet (30.5 M) maximum, from the MicroFAST unit on a contractor supplied concrete base. The blower elevation must be higher than the normal flood level. A one-piece, rectangular housing shall be provided with tamper-proof screws. The discharge air line from the blower to the MicroFAST shall be provided and installed by the contractor.

6. ELECTRICAL
The treatment system shall be designed to operate on standard current. The input power required for the blower is 115/230 Volts, Single Phase, 60/50 Hertz, 3.8/1.9 Full Load Amps (Locked Rotor Amps are 18.6/9.3). All conduit and wiring between the electrical control panel, the power supply, and the blower shall be furnished and installed by the contractor.

7. ALARMS
The alarm system shall consist of a visual and audible alarm to indicate failure of the blower. The alarm shall be located as shown on the plans. A manual silence switch is included.

8. INSTALLATION AND OPERATING INSTRUCTIONS
Installation of the MicroFAST 0.5 shall be done in accordance with the written instructions provided by the manufacturer. Operation manuals shall be furnished which will include a description of installation, operation, and system maintenance procedures. There shall be a separate manual for the installer, service provider, and owner, tailored to each.

9. WARRANTY
The manufacturer of the MicroFAST 0.5 treatment system shall warrant for three years from the date of shipment or two years form the date of start-up, whichever occurs first, that the equipment they provide will be free from defects in material and workmanship.

In the event a mechanical component fails to perform as specified or is proven defective in service during the warranty period, the manufacturer shall repair or replace such defective parts. (Cost of labor on repair/replacement is not covered under this warranty.) The replacement or repair of those items normally consumed in service such as air filter, etc., shall be considered as part of routine maintenance and upkeep.

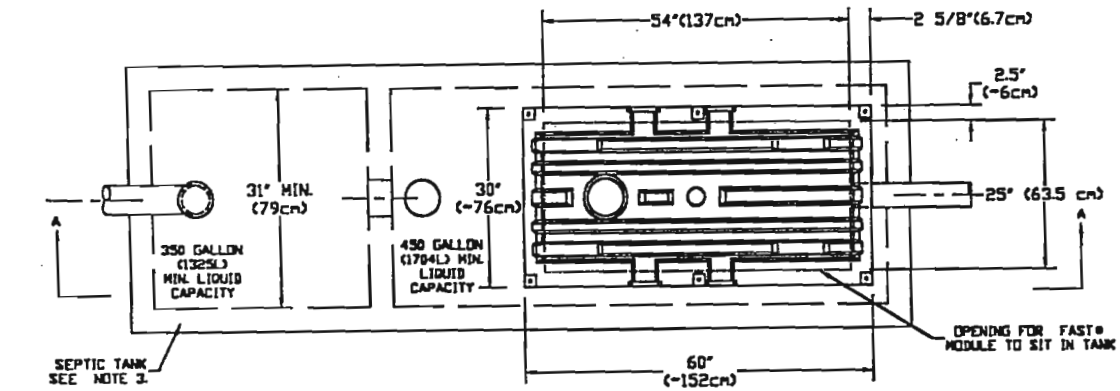
It is not intended that the manufacturer assume responsibility for contingent liabilities or consequential damages of any nature resulting from defects in design, material or workmanship, or delays in delivery, replacement, or otherwise.

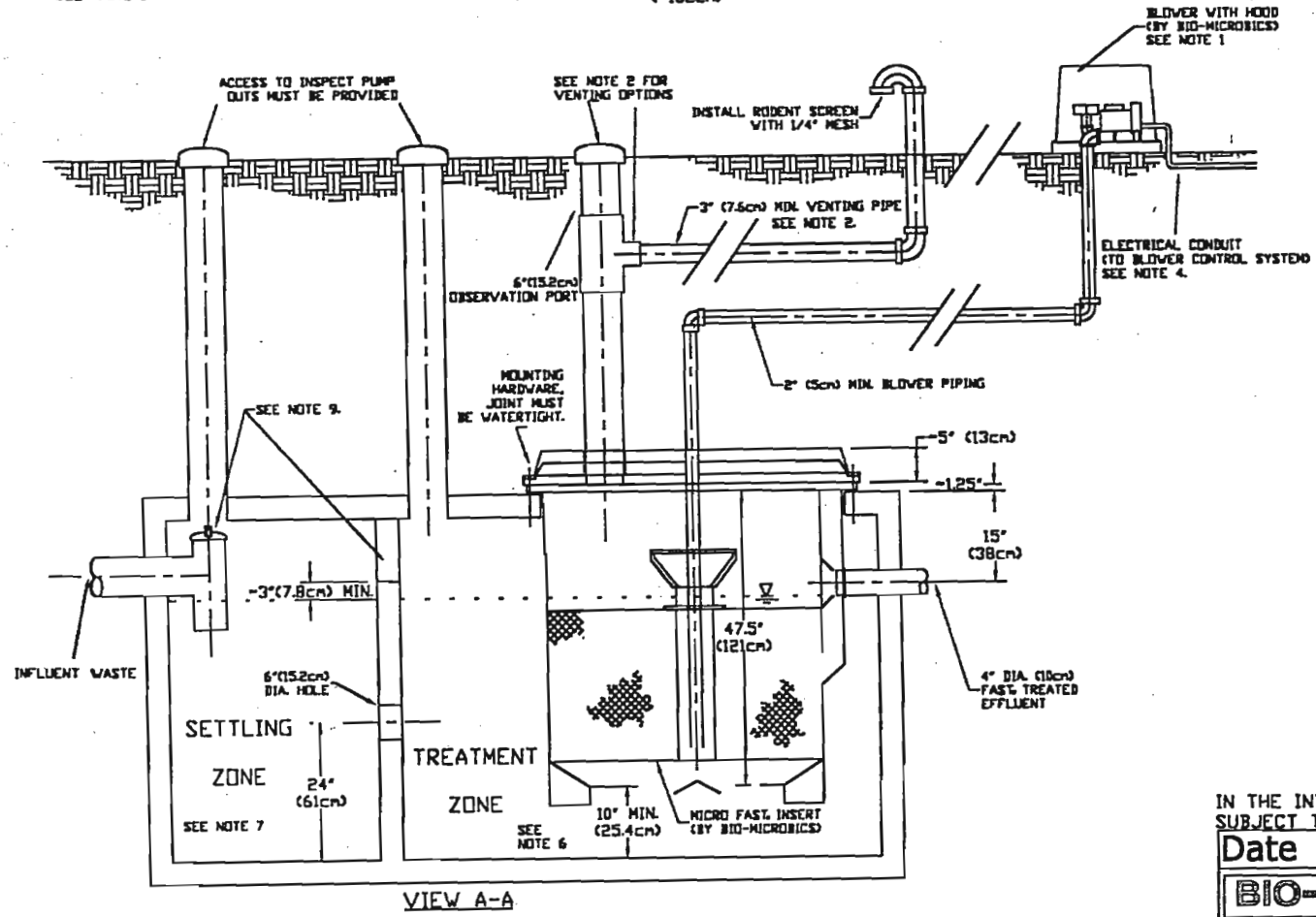
Date 7-24-01

BIO-MICROBICS INCORPORATED

MicroFAST 0.5 Specifications

by SMF





VIEW A-A

NOTES

1. BLOWER MUST BE WITHIN 100 FEET (30.5M) OF FAST UNIT AND USE A MAXIMUM OF 4 ELBOWS IN THE PIPING SYSTEM(@100FT). FOR DISTANCES GREATER THAN 100 FEET-- CONSULT FACTORY. BLOWER BASE MUST BE LOCATED ABOVE NORMAL FLOOD LEVELS.

2. RUN VENT TO DESIRED LOCATION AND COVER OPENING WITH 1/4" MESH RODENT SCREEN.

OR:

CAP PIPES WITH 6" CLEANOUT. DRILL A MINIMUM OF 16 HOLES (3/8"DIA.) IN 6" PIPE JUST UNDER PVC PIPE PIPE CAP. SEE ADDITIONAL VIEWS DRAWING.

NOTE: ODORS MAY BE PRESENT--SEE MANUAL.

3. ALL APPURTENANCES TO THE FAST (e.g. SEPTIC TANK, PUMPOUTS, ETC.) MUST CONFORM TO ALL COUNTRY, STATE, PROVINCE, AND LOCAL CODES.

4. BLOWER CONTROL SYSTEM BY BIO-MICROBICS, INC.

5. COPYRIGHT (C) 2001, BIO-MICROBICS, INC.

6. MUST INCREASE TANK SIZE BY 20% IF MINIMUM OF 10 INCHES IS USED BETWEEN THE UNIT AND THE BASE OF THE TANK. CONSULT FACTORY FOR APPROVAL.

7. THE PRIMARY COMPARTMENT MAY BE A SEPARATE TANK.

8. FOUR LEG EXTENSIONS MAY BE USED TO STAND UNIT IN TANK ELIMINATING THE NEED FOR LID. SEE ADDITIONAL VIEWS AND REFER TO INSTALLATION MANUAL FOR MORE DETAILS.

9. EITHER PLACE A PIPE CAP ON THE TOP OF THE INFLUENT PIPE TEE, OR EXTEND THE BAFFLE SEPARATING THE TWO ZONES ALL THE WAY TO THE TOP OF THE CONCRETE TANK. IF USING THE PIPE CAP, THE BAFFLE MUST EXTEND PAST THE WATER LEVEL 3" MIN. AS SHOWN ON THE DRAWING.

IN THE INTEREST OF TECHNOLOGICAL PROGRESS, ALL PRODUCTS ARE SUBJECT TO DESIGN AND/OR MATERIAL CHANGE WITHOUT NOTICE.

Date 7-06-01

BIO-MICROBICS INCORPORATED

MicroFAST®
0.5

n by SMF

Drywell Calculation

Drywells

Gallons per day (GPD)
÷ Application rate
÷ Circumference $2\pi r$
= Vertical ft. of drywell reqd

150 gpd = 1 bedroom

application rate = $\frac{\text{gal per bedrooms}}{\text{ft}^2 \text{ of trench}}$

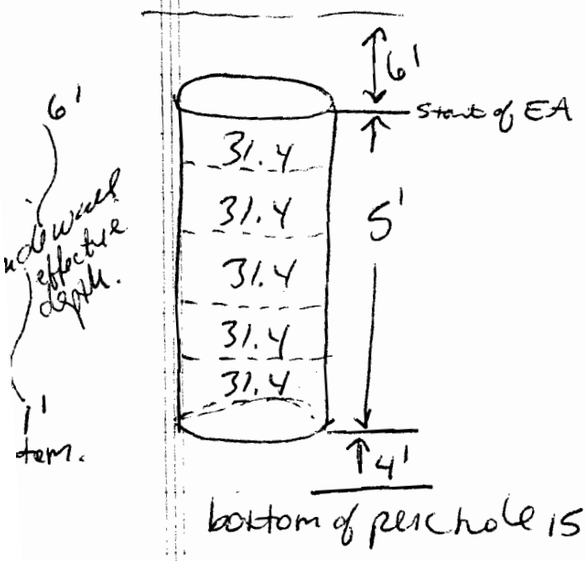
$150 \times 4 = 600$ gpd.

$\frac{150}{180} = 0.83$ application rate

10' diameter drywell = $2\pi 5 = 31.4$ linear ft

$\frac{600}{0.83} = 723 \text{ ft}^2$

$\frac{723}{31.4} = (23)$ vertical feet



= need 5 drywells if you only have 5' of EA sidewall per drywell.

Drywells are spaced 3 X diameter