

Elevated Sand Mound

Applicants Name:	<u>PA Game Commission</u>	Application # :	<u>Z152597</u>
Site Location:	<u>9552 Hartstown Road</u>	Municipality:	<u>N. Shenango Twp. Crawford Co.</u>
	<u>Hartstown, PA 16131</u>	Applicant's Phone # :	<u>717-787-4250</u>
Attention:	<u>Matthew Spotts</u>	Email:	<u>matspotts@pa.gov</u>
Designer's Name:	<u>Joseph L. Micsky</u>	Designer's Phone # :	<u>(724) 456-7200</u>
Date of Design:	<u>4/11/2023</u>	Sewage Enforcement Officer:	<u>M. Klink #03275</u>

Site Evaluation

Limiting Zone	<u>40</u>	In.	Avg. Perc. Rate	<u>25.7</u>	Minutes/Inch
Absorption Area	<u>600</u>	Sq.Ft.	Slope of Absorption Area	<u>2.0</u>	%
Number of Bedrooms	<u>N/A</u>		Flow Rate	<u>400</u>	Gallons/Day

Septic Tank Configuration

Number of Septic Tanks	<u>1</u>		Minimum Tank Capacity	<u>1000</u>	Gallons
# of Tank Compartments	<u>2</u>		Effluent Filter	<u>1</u>	

Elevated Sand Mound Bed Configuration

Slope	<u>2</u>	%	Absorption Area	<u>600</u>	Sq.Ft.
Bed Width	<u>10.34</u>	Ft.	Bed Length	<u>58.00</u>	Ft.
# of Laterals	<u>4</u>		Total # of Holes in Laterals	<u>18</u>	
Length of Left Laterals	<u>27</u>	Ft.	Length of Right Laterals	<u>21</u>	Ft.
Min. Depth of Sand	<u>12</u>	In.	Min. Depth of Gravel	<u>12</u>	
Gravel Beneath Laterals	<u>8.5</u>	In.	Gravel Covering Laterals	<u>2.0</u>	In.
Min. Depth of Soil Cover	<u>12</u>	in.			

Bed Dosing Pump

	<u>Hole Dia.</u>		<u># Holes</u>		<u>G.P.M./Hole</u>		<u>G.P.M. Thru Bed</u>
	<u>1/4</u>	In.	<u>18</u>	X	<u>1.28</u>	=	<u>23.04</u>
Delivery Line Dia.	<u>1.5</u>	In.				Delivery Line Length	<u>100.00</u> Ft.
Manifold Dia.	<u>1.5</u>	In.	<u>Equiv. Lgth.</u>			Manifold Length	<u>6.00</u> Ft.
Disconnect Coupling	<u>1</u>	X	<u>1.05</u> Ft. =			Equivalent Length of Pipe	<u>1.05</u> Ft.
Couplings/Bells	<u>6</u>	X	<u>1.05</u> Ft. =			Equivalent Length of Pipe	<u>6.30</u> Ft.
90 Degree Ells	<u>3</u>	X	<u>4.73</u> Ft. =			Equivalent Length of Pipe	<u>14.19</u> Ft.
45 Degree Ells	<u>1</u>	X	<u>2.01</u> Ft. =			Equivalent Length of Pipe	<u>2.01</u> Ft.
Tees	<u>1</u>	X	<u>8.62</u> Ft. =			Equivalent Length of Pipe	<u>8.62</u> Ft.
Total Length of Pipe	<u>138.17</u>	X	Friction Loss/100Ft.	<u>3.43</u>	Divided by 100 =	<u>4.74</u>	Ft.
					Elevation Change	<u>8.75</u>	Ft.
					Min. Head at Highest Lateral	<u>3.00</u>	Ft.
					TOTAL HEAD	<u>16.49</u>	Ft.
Delivery Line Length	<u>100.00</u>	Ft. X	<u>0.09</u> Gal. =	<u>9.00</u>	Gallons in Delivery Line		
Manifold Length	<u>6.00</u>	Ft. X	<u>0.09</u> Gal. =	<u>0.54</u>	Gallons in Manifold		
Total Lateral Length	<u>96.00</u>	Ft. X	<u>0.09</u> Gal. =	<u>8.64</u>	Gallons in Laterals		
			<u>5</u> X	<u>18.18</u>	Gallons =	<u>90.90</u>	Gal.
					DOSE TO BED	<u>100.00</u>	Gal.
Dose Tank Volume	<u>500</u>	Gallons					
Capacity of Pump	<u>45</u>	G.P.M. @	<u>16.49</u>	Ft. of Head			
Make of Pump	<u>Liberty</u>		<u>Model #</u>	<u>280</u>			

Site Elevations

Sewer at Building	<u>1091.00</u>	Ft.	Septic Tank Inlet	<u>1089.00</u>	Ft.
Bed Dosing Tank Inlet	<u>1088.50</u>	Ft.	Bed Dosing Tank Pump	<u>1085.25</u>	Ft.
Manifold	<u>1094.00</u>	Ft.			

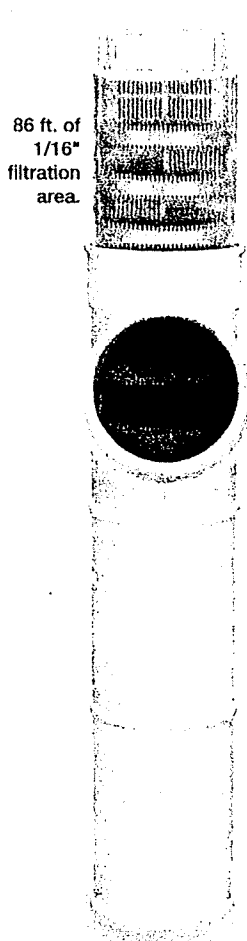


ELEVATIONS
 A = 1091.0 Ft.
 B = 1089.0 Ft.
 C = 1088.5 Ft.
 D = 1094.0 Ft.

PA Game Commission
 9552 Hartstown Rd
 Hartstown, PA 16131
 N, Shenango Twp.
 Crawford County



Tuf-Tite® Effluent Filters.



86 ft. of
1/16"
filtration
area.

EF-4

800 gpd

NSF. ANSI/NSF Standard 46

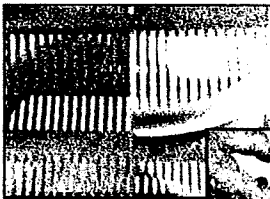
4" Sch. 40 & SDR-35

NSF. 800 GPD ANSI/NSF Standard 46

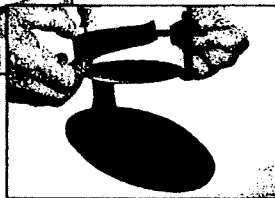
TB-4 T-Baffle™

NSF. ANSI/NSF Standard 46 COMPONENT

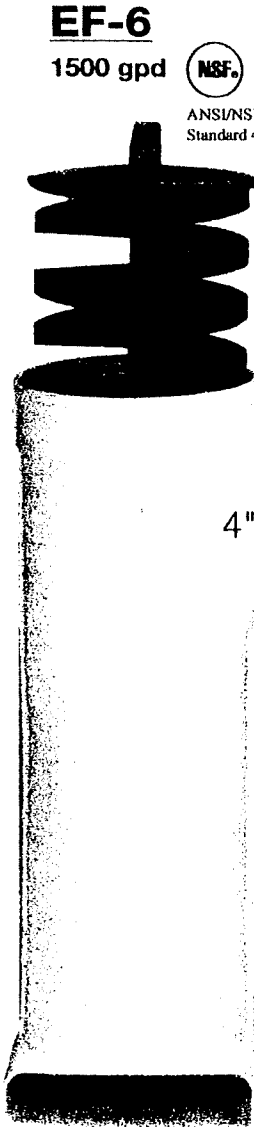
Patent Numbers
6,319,403; D 431,629; other
pats. pending.



Rear of EF-4 filter - close-up.



Optional Gas Baffle for EF-4 for extended filter life.



EF-6

1500 gpd

NSF. ANSI/NSF Standard 46

244 ft. of
1/16"
filtration
area.

4" Sch. 40 & SDR-35

NSF. 1500 GPD ANSI/NSF Standard 46

TB-6 T-Baffle™

NSF. ANSI/NSF Standard 46 COMPONENT

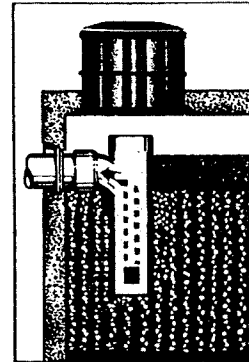
Molded-in Gas/Solids Deflector

EF-4 NSF. ANSI/NSF Standard 46
EF-6 NSF. ANSI/NSF Standard 46

TB-4 NSF. ANSI/NSF Standard 46
TB-6 NSF. ANSI/NSF Standard 46

Tough Problem

Solids entering the septic field significantly reduce the life of the field, resulting in premature failure of the entire system.



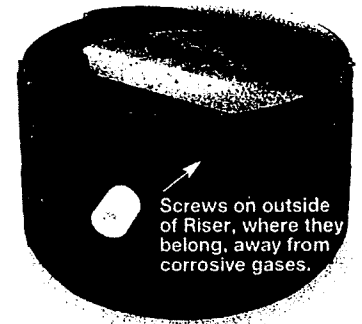
TUF-TITE Solution

The EF-4 Effluent Filter, filters solids down to 1/16", increasing the life of your septic system.



Molded-in lid gasket.

No fighting with flimsy foam rubber gaskets. Assures a watertight seal every time.

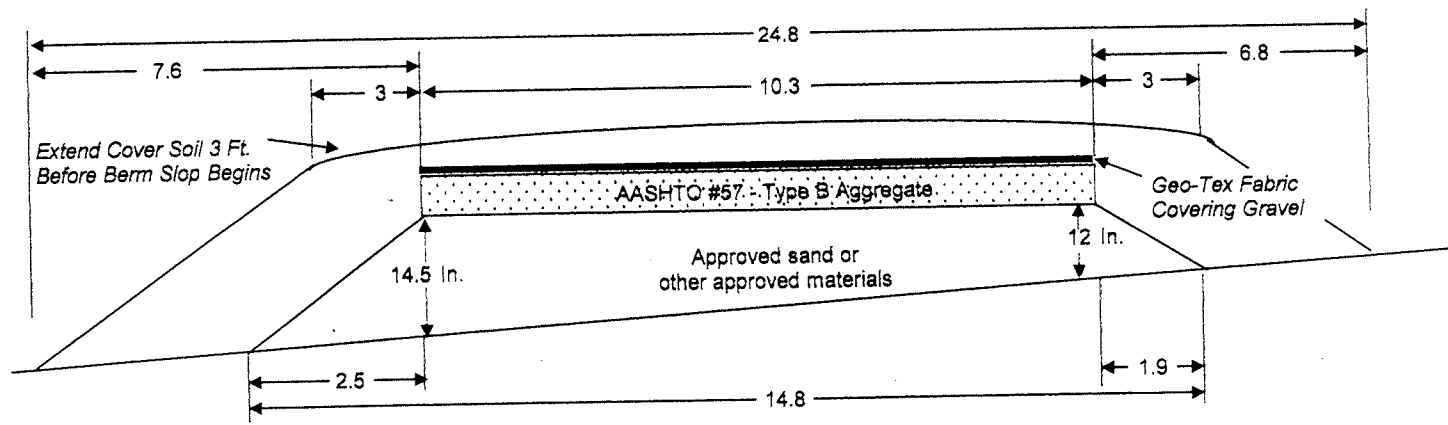
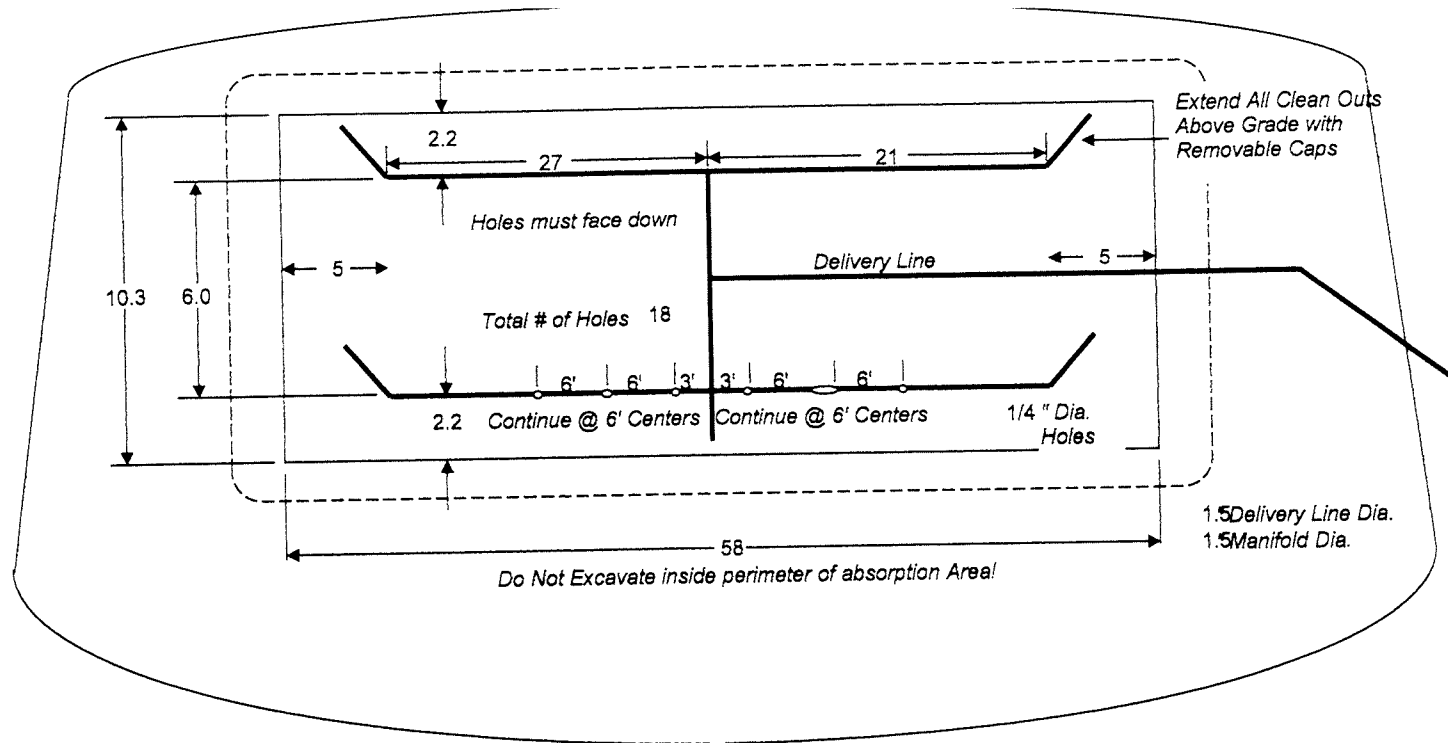


Screws on outside of Riser, where they belong, away from corrosive gases.

Every filter needs a Riser

for easy cleaning and inspection. Stackable, interlocking Risers make filter maintenance easy. Available in 12", 16", 20", and 24" diameters.

SLOPE



ABSORPTION AREA MUST BE CHISELED PLOWED BEFORE INSTALLATION PROCESS BEGINS (Including Berm Area)

SLOPE = 2.0 %
 ABSORPTION AREA = 600 SQ. FT.

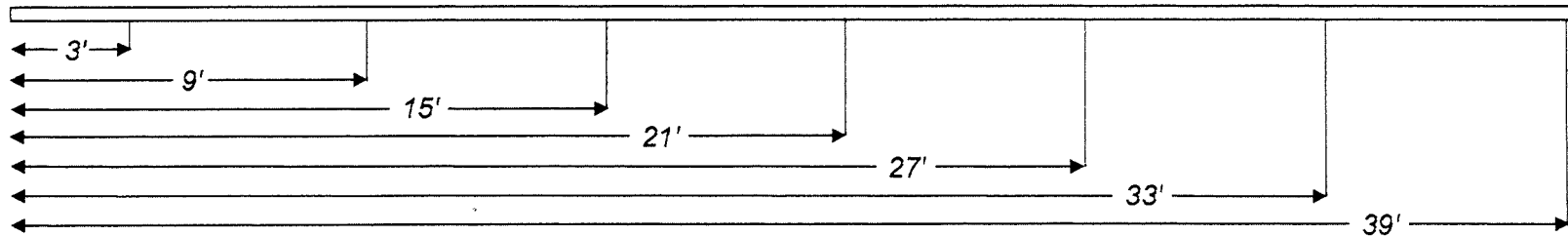
Aggregate Slope	2 : 1	Minimum Aggregate Depth	12	In.
Sand Slope	2 : 1	Minimum Sand Depth	12	In.
Berm Slope	2 : 1	Minimum Cover Soil Depth	12	In.

Lateral Construction Diagram

Extend all clean outs above grade with removable caps.
Recommend 1.5" - 90 Deg. PVC Electrical Conduit Sweep Ells.
(PVC Electrical conduit is UV resistant.)
1.5" Threaded cleanout plug, pressure fitting.

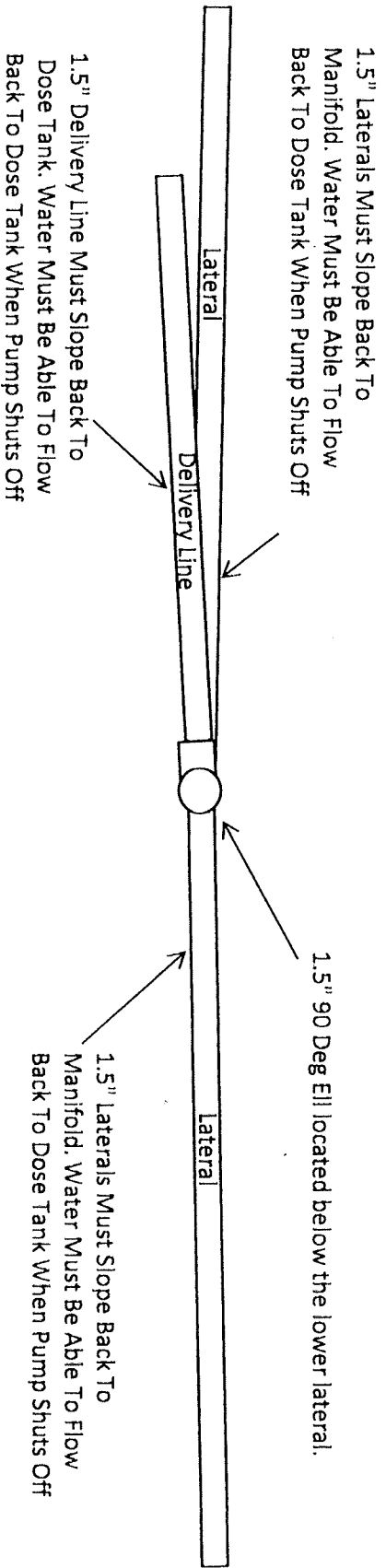
Connect to manifold here

Locations of 1/4" diameter drilled holes unless otherwise noted.
Observe 6' spacing. All holes must point down in the 6 o'clock position.
See design page for specific lengths of laterals and diameter of holes.

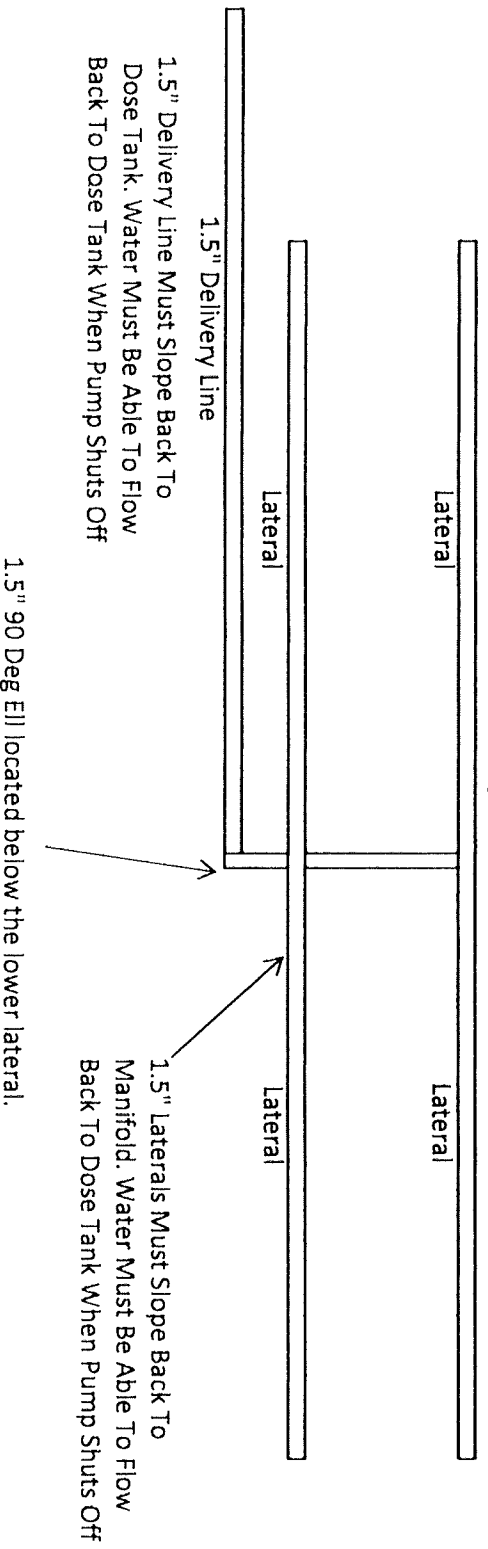


The use of "Sim Tech orifice shields" is strongly recommended for each individual hole, this is to prevent the holes from being obstructed by a piece of gravel. It also promotes better distribution of the effluent.

Delivery Line to Manifold Connection (End View)



Delivery Line to Manifold Connection (Top View)



Construction Notes

Elevated Sand Mound

Sewer Line Installation

- A. Minimum Schedule 40 - 3" PVC Sewer Line will exit the building.
- B. A Clean Out Tee will be installed immediately after exiting the building.
- C. No 90 Degree Ells are permitted in the sewer line.
- D. A minimum slope of 1/8" per foot must be maintained throughout the Sewer Line.
- E. A maximum slope of 1/4" per foot must be maintained in the 10ft. leading to a tank Inlet.

Septic Tank / Dose Tank Installation

- A. Bottom of Tank holes leveled with 4" of # 8 Pea Gravel.
- B. Inlet and Outlet Holes must be sealed water tight. (Preferably Cast-In Gaskets)
- C. Risers & Lids installed must be water tight, with lids designed to prevent unwanted entry.
- D. All Risers & Lids must be extended to ground surface for ease of access.

Dose Pump Installation

- A. Pump Intake must be minimum of 6" above the floor of the Dose Tank.
- B. A union fitting must be within 12" of the ground surface, to allow for easy removal of pump.
- C. Wire Connections must be made in a water tight junction box.
(Preferably outside the riser and above ground)
- D. Follow all applicable electrical codes.
- E. Follow all pump manufacturer requirements to maintain factory warranty.

Elevated Sand Mound Bed Installation

(A Field Soil Moisture test must be completed, before installation begins to determine if job site is dry enough for installation procedure .)

- A. Do not compact the absorption area, or down slope area below the absorption area in any way.
- B. No Construction Equipment is permitted within absorption area.
- C. Absorption area must be chiseled plowed, including berm area before construction begins.
- D. Install DEP approved Sand & Aggregate according to detailed drawing found in this design.
- E. Install Laterals & Manifold according to detailed drawing found in this design.
with the end 1/4" lateral holes drilled into the the 45 deg fitting of the cleanout.
- F. Laterals, Manifold, and Delivery Line must be adjusted so effluent will return to Dosing Tank when dose is complete.
- G. Top of gravel must be covered with Geo-Tex fabric to prevent cover soil infiltration.
- H. Berm material must be lightly compacted using tracked equipment as berm is built.
- I. 12" of Minimum cover required on top of Geo-Tex fabric and shaped as to shed water off the top of the bed.
- J. Uphill side of bed shall be graded to divert surface water around the bed.
- K. Finish grade and seed to prevent erosion.

Reference materials available:

Department of Environmental Protection - 25 PA Code Chapter 73
www.dep.state.pa.us