Big Horn County Land Planning
P.O. Box 29, 417 Murphy Street, Basin, WY 82410
Phone: 307-568-2424 | Fax: 307-568-2461
E-mail: planner@bighorncountywy.gov

Rec. By: _____
Date: _____
Receipt #: _____
Ref. #: SEP

SEPTIC PERMIT APPLICATION (2 pages) Fee: $150.00

A septic permit application is required for any new construction/install, replacement or repair of a small wastewater treatment facility within unincorporated areas of Big Horn County. **Submission of this form does not constitute permission to proceed with construction.** A septic permit must be issued by Big Horn County Land Planning before activity can commence. Additional documentation/permits may be required.

APPLICANT INFORMATION:

Applicant Name: _____

Mailing Address: _____

City, State, & Zip: _____

Phone (Daytime): _____

PROPERTY INFORMATION:

Property Owner: _____

Property Address: _____

Property Identification #: _____

Directions to property: _____

_____

_____

LEGAL DESCRIPTION (Attach Legal Deed):

Township: _____ Range: _____ Section: _____ Lot/Tract No. _____

Subdivision Name (if applicable*): _____

*Please refer to any covenants that may apply to development within a platted subdivision.

FACILITY WILL SERVE:

☐ Single Family Home ☐ Multi-Family Home/Duplex/Apartment Building

☐ Commercial (type) _____

SMALL WASTEWATER FACILITY DESCRIPTION:

☐ New Construction ☐ Modification/Repair ☐ Replacement

Who created the design of the proposed facility? _____

Who will be installing/repairing/replacing the facility? _____

CONTRACTOR INFORMATION:

Name: _____

Address: _____

Phone: _____

SUPPORTING DOCUMENTATION TO BE SUBMITTED:

- Completed "DESIGN INSTRUCTIONS AND WORKSHEETS" attached.
- FOR ALL PROPOSALS, SUBMIT DETAILED SITE PLAN, DRAWN TO SCALE, SHOWING THE FOLLOWING:
  - Sketch of the proposed development activity area
  - Boundary lines of subject property and those in the immediate vicinity
  - Location of existing improvements: driveways, roads, culverts, bridges, buildings, wells, septic systems, etc.
  - All wells and septic systems within 500 feet of the property
  - Location of physical features in the vicinity: ponds, swales, streams, irrigation ditches, etc.

SIGN HERE: The information presented in this application is true and correct to my knowledge. I understand that presenting incorrect information may result in my application being returned. *I certify that the above-described facility has been submitted in accordance with local, county and state statutes as required. Said facility shall be constructed as authorized under the provisions specified in the Wyoming Department of Environmental Quality, Water Quality Division, Rules and Regulations, Chapter 25. I authorize representatives from the Department of Environmental Quality/Water Quality Division or Big Horn County, during working hours, to have access to and inspect the installed facilities prior to backfilling. Further, I understand that all residences and businesses require a physical address and I may be required to pay a fee to obtain a county-assigned address for structures related to this application.*

_____ _____

Applicant's Signature Date

BELOW - For office use only

- Are past septic installation records on file for this parcel/site? ☐ YES ☐ NO
  - If yes, what year was the information filed? _____
- Is DEQ review needed? ☐ YES ☐ NO
  - If yes, reason: _____
  - DEQ response: _____
- Permit issued? ☐ YES ☐ NO
  - If yes, permit number issued: _____ Date issued: _____
  - If no, reason: _____

DESIGN INSTRUCTIONS and WORKSHEETS for a LESS than 2000 Gallons Per Day GRAVITY SEPTIC SYSTEM utilizing a LEACHFIELD	For Office Use Only

A. General Information.

1. Name of Facility: _____ _____

2. Location: County_____

   1/4 Section _____, Section _____, Township _____N, Range _____W

3. Subdivision or Tract: a) Name _____ *

   b) Lot # _____, c) Block # _____, d) Date Platted or Approved _____ ____ *

   e) Attach legal description of property (from Sales Contract or Deed)

4. Is the proposed facility in compliance with a county approved subdivision or plat? Yes ____, No ____. *

5. Is the proposed facility located within an area covered by an approved water quality management plan? Yes ____, No ____. * (if No - skip to 7.)

6. a. Is the proposed facility consistent with an approved water quality management plan? Yes ____, No ____. * (if Yes - skip to 7.)

   b. If not, has a temporary exemption been approved? Yes ____, No ____. *

7. Is the proposed facility in conflict with an approved well-head protection program or source water protection program? Yes ____, No ____. *

* Note: Your local county planning office or the appropriate DEQ District Office for your county can assist you with information relating to items 3, 4, 5, 6, and 7.

B. Site Information.

1. Lot Size: 330 ft. by 660 ft., Area: ____sf, or 5 acres

2. Water Supply: ____ community, or X private well

3. Ground Slope (at location of leachfield): 2 ft./ 100 ft., or ____ %

4. Soil Description: sand/loam/clay mixture

5. Percolation Rate in minutes per inch (mpi) as determined from *Percolation Test Procedure attachment.* (The actual percolation test data must be submitted with the application)

   a. **If 3 to 5 holes were tested**, the slowest rate (largest number) was 14 mpi

   b. **If 6 or more holes were tested**, the average percolation rate was _____mpi

   c. **If the percolation rate is less than 1 mpi or greater than 60 mpi**, this site is unsuitable for a typical leachfield. Please contact the nearest DEQ district office or your local small wastewater program administrator for assistance.

6. The seasonally high groundwater level is 6 1/2 feet below the ground surface.

   How and where was this determined? Describe what you did & found

   The depth to the seasonally high groundwater level(the highest level during the year - not just the level when you check the well or backhoe cut) can be determined by monitoring the water level during the period of high groundwater with either a shallow well or backhoe cut. Also, a trained soils person(such as a geologist, engineer, sanitarian, or similar) can detect "mottling" in the soil which indicates where high groundwater levels have been historically. A backhoe cut is required for this analysis. The depth of water in an in-service well is not always reliable and should not be used. Sometimes a detailed well drillers log can be used to make a reasonable estimate.

   Who determined this? Dave Adams/ engineer, Date 10-15-99

7. The depth to bedrock or an impermeable soil layer (perk rate greater than 60 mpi) is more than 12 feet below the ground surface. (If the depth to bedrock is greater then 12 feet, the exact depth is not necessary - answer: more than 12 ft.)

   How was this determined?

   by looking at drilling logs of my water well drilled in May 1999

   Who determined this and qualifications? Max Jones/well driller

8. Complete the blank *Site Plan detail sheet* included herein.

B. Site Information.

1. Lot Size: _____ ft. by _____ ft., Area: _____sf, or _____ acres

2. Water Supply: ____ community, or ____ private well

3. Ground Slope (at location of leachfield): _____ ft./ 100 ft., or _____ %

4. Soil Description: _____

5. Percolation Rate in minutes per inch (mpi) as determined from *Percolation Test Procedure attachment.* (The actual percolation test data must be submitted with the application)

   a. **If 3 to 5 holes were tested**, the slowest rate (largest number) was _____mpi

   b. **If 6 or more holes were tested**, the average percolation rate was _____mpi

   c. **If the percolation rate is less than 1 mpi or greater than 60 mpi**, this site is unsuitable for a typical leachfield. Please contact the nearest DEQ district office or your local small wastewater program administrator for assistance.

6. The seasonally high groundwater level is _____ feet below the ground surface.

   How and where was this determined?

   _____

   _____

   _____

   Who determined this? _____, Date _____

7. The depth to bedrock or an impermeable soil layer (perk rate greater than 60 mpi) is _____ feet below the ground surface. (If the depth to bedrock is greater then 12 feet, the exact depth is not necessary - answer: more than 12 ft.)

   How was this determined?

   _____

   _____

   _____

   Who determined this and qualifications? _____

8. Complete the blank *Site Plan detail sheet* included herein.

C. Septic Tank Information.

1. Tank size: 1000 gallons, 1 compartment_____, or 2 compartment X

2. Manufacturer: The Concrete Company, Model 1000 gallon

3. Supplier: "Big R" Store, Phone # 555-1234

4. *Standard Septic Tank detail sheet* must be completed.

D. Absorption system (leachfield) size calculations.

1. Design wastewater volume (circle a, b, or c - and complete that section):

   a. Permanent Structure: 150 gpd/bedroom x 3 bedrooms = 450 gpd

   b. Mobile home: 1 or 2 bdrms = 350, 3 bdrms = 500, 4 bdrms = 650gpd (circle one)

   c. Non-residential design loads (show calculations as appropriate)

   Office building with 20 employees maximum at 30 gallons / person / day = 600 gallons per day

2. The absorption system loading rate is: 0.54 gpd/sf.

   (The loading rate is determined from your percolation rate and the "Loading Rate Table", Appendix PT, in the *Percolation Test Procedure attachment.*)

3. The minimum required infiltrative surface area is calculated as follows:

Wastewater volume (D.1.) =	450 gpd	833 sf	
Loading rate (D.2.) =	0.54 gpd/sf		

C. Septic Tank Information.

1. Tank size: _____ gallons, 1 compartment_____, or 2 compartment_____

2. Manufacturer: _____, Model _____

3. Supplier: _____, Phone # _____

4. *Standard Septic Tank detail sheet* must be completed.

D. Absorption system (leachfield) size calculations.

1. Design wastewater volume (circle a, b, or c - and complete that section):

   a. Permanent Structure: 150 gpd/bedroom x _____ bedrooms = _____gpd

   b. Mobile home: 1 or 2 bdrms = 350, 3 bdrms = 500, 4 bdrms = 650gpd (circle one)

   c. Non-residential design loads (show calculations as appropriate)

   _____

   _____

   _____

2. The absorption system loading rate is: **0.**_____ gpd/sf.

   (The loading rate is determined from your percolation rate and the "Loading Rate Table", Appendix PT, in the *Percolation Test Procedure attachment*)

3. The minimum required infiltrative surface area is calculated as follows:

$$\frac{\text{Wastewater volume (D.1.)}}{\text{Loading rate (D.2.)}} = \frac{\_\_\_\_\_\ \text{gpd}}{\text{gpd/sf}} = \_\_\_\_\_\ \text{sf}$$

E. Absorption system layout (Leachfield):

1. Type of system: (check one)

Rock and perforated pipe **Trench**	X	complete part E.2.
Rock and perforated pipe **Bed**	_____	complete part E.3.
Chamber Trench system	_____	complete part E.4.
Chamber Bed system	_____	complete part E.5.

2. Trench Design for Washed Rock and Perforated Pipe: (Distinct trenches with at least 3 feet of undisturbed soil between trenches)

a. Minimum infiltrative surface area required = 833 sf from D.3.

Choose your trench dimensions:

b. Total depth = 42 inches

c. Width = 24 inches

d. Depth below bottom of pipe = 6 inches (6" minimum)

Calculate minimum length of trench needed:

e. Square feet per linear foot =

(side [E.2.d.] + bottom [E.2.c.] + side [E.2.d.]) / 12 = 3 sf / foot

f. Total minimum trench length = E.2.a. / E.2.e. = 278 linear feet

g. Trench layout - (check one) Depending on the total minimum trench length required (E.2.f.); choose one of the following:

_____	1 single trench	see *Single Trench Pipe Leachfield detail sheet*
_____	2 trenches	see *Two Trench Pipe Leachfield detail sheet*
X	4 trenches	see *Four Trench Pipe Leachfield detail sheet*
_____	Multiple trenches (requires "D" Box)	see *Multiple Trench Pipe Leachfield detail sheet*

3. Bed Design for Washed Rock and Perforated Pipe: (one continuous excavation - no distinct trenches)

a. Minimum infiltrative surface area required = 833 sf from D.3.

Choose your bed dimensions (must always be more than the minimum area required.)

b. Width 20 ft. Length 45 ft. = Total square feet 900 sf.

c. Bed layout: Complete *Bed Type Pipe Leachfield detail sheet*

E. Absorption system layout (Leachfield):

1. Type of system: (check one)

Rock and perforated pipe **Trench** _____	complete part E.2.
Rock and perforated pipe **Bed** _____	complete part E.3.
Chamber Trench system _____	complete part E.4.
Chamber Bed system _____	complete part E.5.

2. Trench Design for Washed Rock and Perforated Pipe: (Distinct trenches with at least 3 feet of undisturbed soil between trenches)

a. Minimum infiltrative surface area required = _____ sf from D.3.

Choose your trench dimensions:

b. Total depth = _____ inches

c. Width = _____ inches

d. Depth below bottom of pipe = _____ inches (6" minimum)

Calculate minimum length of trench needed:

e. Square feet per linear foot =

(side [E.2.d.] + bottom [E.2.c.] + side [E.2.d.]) / 12 = _____ sf / foot

f. Total minimum trench length = E.2.a. / E.2.e. = _____ linear feet

g. Trench layout - (check one) Depending on the total minimum trench length required (E.2.f.); choose one of the following:

_____	1 single trench	see *Single Trench Pipe Leachfield detail sheet*
_____	2 trenches	see *Two Trench Pipe Leachfield detail sheet*
_____	4 trenches	see *Four Trench Pipe Leachfield detail sheet*
_____	Multiple trenches (requires "D" Box)	see *Multiple Trench Pipe Leachfield detail sheet*

3. Bed Design for Washed Rock and Perforated Pipe: (one continuous excavation - no distinct trenches)

a. Minimum infiltrative surface area required = _____ sf from D.3.

Choose your bed dimensions (must always be more than the minimum area required.)

b. Width _____ ft. Length _____ ft. = Total square feet _____ sf.

c. Bed layout: Complete *Bed Type Pipe Leachfield detail sheet*

4. Trench Design for Chamber Leachfied Systems: (Distinct trenches with at least 3 feet of undisturbed soil between trenches)

a. Minimum infiltrative surface area required = 833 sf from D.3.

b. Choose your make and model of leachfield Chamber:

Manufacturer Infiltrator, Model EQ 36

Width 18 inches, Height 12 inches, Length 8' 5" feet & inches

c. Equivalent area per unit = 42.0 (See *Chamber Systems attachment*)

d. Minimum number of units required is:

(Minimum area [E.4.a.] / Equivalent unit area [E.4.c.]) =
(833 / 42.0) = 20 units [round up]

e. Number of units to be used = 20 (same or more than E.4.d.)

f. Trench layout - Depending on the number of units to be used, choose one of the following:

_____	1 single trench:	see *Single Trench Chambered Leachfield detail sheet*
_____	2 trenches	see *Two Trench Chambered Leachfield detail sheet*
X	4 trenches	see *Four Trench Chambered Leachfield detail sheet*
_____	Multiple trenches (requires "D" Box):	see *Multiple Trench Chambered Leachfield detail sheet*

5. Bed Design for Chamber Leachfield Systems: (one continuous excavation - no distinct trenches)

a. Minimum infiltrative surface area required = 833 sf from D.3.

b. Choose your make and model of leachfield Chamber:

Manufacturer Infiltrator, Model Standard

Width 34 inches, Height 12 inches, Length 6' 3" feet & inches

c. Equivalent bed area per unit = 35.4 (See *Chamber Systems attachment*)

d. Minimum number of units required is:

(Minimum area [E.5.a.] / Equivalent unit area [E.5.c.]) =
(833 / 35.4) = 24 units [round up]

e. Number of units to be used = 28 (same or more than E.5.d.)

f. Bed layout: Complete *Bed Type Chambered Leachfield detail sheet*

4. Trench Design for Chamber Leachfied Systems: (Distinct trenches with at least 3 feet of undisturbed soil between trenches)

a. Minimum infiltrative surface area required = _____ sf from D.3.

b. Choose your make and model of leachfield Chamber:

Manufacturer_____, Model_____

Width _____ inches, Height _____ inches, Length _____ feet & inches

c. Equivalent area per unit = _____ (See *Chamber Systems Attachment*)

d. Minimum number of units required is:

(Minimum area [E.4.a.] / Equivalent unit area [E.4.c.]) =
(_____/_____) = _____units [round up]

e. Number of units to be used = _____ (same or more than E.4.d.)

f. Trench layout - Depending on the number of units to be used, choose one of the following:

_____	1 single trench	see *Single Trench Chambered Leachfield detail sheet*
_____	2 trenches	see *Two Trench Chambered Leachfield detail sheet*
_____	4 trenches	see *Four Trench Chambered Leachfield detail sheet*
_____	Multiple trenches (requires "D" Box)	see *Multiple Trench Chambered Leachfield detail sheet*

5. Bed Design for Chamber Leachfield Systems: (one continuous excavation - no distinct trenches)

a. Minimum infiltrative surface area required = _____ sf from D.3.

b. Choose your make and model of leachfield Chamber:

Manufacturer _____, Model _____

Width _____ inches, Height _____ inches, Length _____ feet & inches

c. Equivalent bed area per unit = _____ (See *Chamber Systems Attachment*)

d. Minimum number of units required is:

(Minimum area [E.5.a.] / Equivalent unit area [E.5.c.]) =
(_____/_____) = _____units [round up]

e. Number of units to be used = _____ (same or more than E.5.d.)

f. Bed layout: Complete *Bed Type Chambered Leachfield detail sheet*

F. *Site Plan and detail sheets:*

A site plan sheet (site sketch) of your property showing the septic system and leachfield layout along with detail sheets which are appropriate for your specific system must be completed and submitted with these worksheets. Sheets which do not apply to your system need not be submitted. Empty boxes will appear throughout the plan and detail sheets. These boxes require that you fill in information and/or dimensions that apply to your specific design. Much, but not all, of this information can be obtained from the blanks you have just filled out throughout the worksheets. Please select and complete the appropriate sheets for your system.

G. Installer Information:

Agent or Contractor's Name: Mike Plumber

Business Name (if applicable): ABC Backhoe

Mailing Address: Street Address Or

PO Box

City, State Zip

Phone number: (307) 555-9876

H. General Comments:

Such as unusual site conditions or physical limitations, special requests, or any other pertinent information not previously explained in the worksheets.

Include whatever unusual site conditions, problems, special circumstances, or other site restrictions that you feel are relevant to this particular project.

/pjb
00814ex.doc

F. Site Plan and detail sheets:

A site plan sheet (site sketch) of your property showing the septic system and leachfield layout along with detail sheets which are appropriate for your specific system must be completed and submitted with these worksheets. Sheets which do not apply to your system need not be submitted. Empty boxes will appear throughout the plan and detail sheets. These boxes require that you fill in information and/or dimensions that apply to your specific design. Much, but not all, of this information can be obtained from the blanks you have just filled out throughout the worksheets. Please select and complete the appropriate sheets for your system.

G. Installer Information:

Agent or Contractor's Name: _____

Business Name (if applicable): _____

Mailing Address: _____

_____

_____

Phone number: _____

H. General Comments:

Such as unusual site conditions or physical limitations, special requests, or any other pertinent information not previously explained in the worksheets.

_____

_____

_____

_____

_____

_____

/pjb
00814.doc

PERCOLATION TEST PROCEDURE
INSTRUCTIONS

General Information - Complete the general information areas of sections 1., 2., and 3. at the top of the data sheet.

Location of Percolation Test Holes - The percolation(perc) test holes shall be spaced uniformly over the proposed soil absorption (leach field) site. **A minimum of three(3) test holes are required.** More than 3 can be used if desired.

Test Hole Preparation - Test holes that are 4 to 12 inches in diameter shall be dug or bored to the proposed depth of the leach field(typical depths are 30 to 42 inches). The side walls shall be vertical anda natural soil surface (one which is not smeared from digging) shall be exposed by scraping the sides and bottom of the test hole with a sharp pointed instrument. Any loose material shall be removed from the test hole and several inches of coarse sand or gravel placed in the bottom of the test hole in order to prevent scouring and sealing before the water is poured in.

Presoaking - **PRESOAKING IS ABSOLUTELY REQUIRED** in order to get valid percolation test results. The purpose of presoaking is to have the water conditions in the soil reach a stable condition similar to that which exists during continual wastewater application in a leach field. The minimum time of presoaking varies with soil type and soil conditions, but must be sufficiently long so that the water seeps away at a steady rate. The following presoaking instructions are usually sufficient to establish the proper soil moisture conditions.

a. Sandy or loose soils - Fill the test hole to within several inches of the top and allow it to seep away. Fill the hole a 2nd and 3rd time and let the water seep away. If the water continues to all seep away in ten(10) minutes or less, this indicates that the soil is excessively permeable and the site is unsuitable for a standard subsurface disposal system. In this case, the special requirements of Chapter 11, Section 36(d) shall be followed. If water remains after 10 minutes, then further presoaking is necessary before taking any measurements. Refer to the next section for further presoaking instructions.

b. Other suitable soils - If the soil is suitable for a standard subsurface leach field, then the test holes should be presoaked for at least 4 hours. Maintain at least 12 inches of water in the test holes for at least 4 hours, then allow the soil to swell for 12 hours (overnight is good) before starting the actual perc test measurements.

Perc Rate Measurements - Start the test by filling each test hole with approximately 12 to 18 inches of water. Let the soil rehydrate for about 15 minutes and then refill to 12 to 18 inches deep. Next, decide on a time interval for your test. Time intervals of 10 or 15 minutes are typical. Once decided, the **time interval must remain constant** throughout the test so that it can be determined when the water level drop rate has stabilized. Measure the initial water level (from a fixed reference point such as a flat board across the top of the hole) in each hole and record on the "Start" line in the test data table. To continue, record the actual water level in each hole at the end of each successive time interval. After each water level measurement, calculate the water level drop from the previous measurement and record in the test data table. Continue the test until the water level drop rate (right half of each column) has stabilized; ie. - 3 consecutive equal drop rates within 1/8 inch of each other. Please note that some test holes may take longer than others to stabilize. The test should be continued at each test hole until each drop rate stabilizes. Also please note, a minimum of 6 inches of water should be maintained in the test hole. If the level drops below 6 inches, some additional water should be added between time intervals. Before you use the test data sheet, **make several extra blank copies before you start** in case the tests take more than 10 intervals to stabilize or if you intend to use more than 3 test holes.

Perc Rate Calculation - After the water level drop rates have stabilized in all of the test holes, transfer the last water level drop measurement to the final drop row in the data table. To calculate the perc rate for each test hole, divide the time interval by the final drop. This is the perc rate in minutes per inch(mpi). Depending on how many test holes were used, determine the design percolation rate using either 3a or 3b at the bottom of the percolation test results data sheet.

An Example Test Data Sheet is provided on the back of these instructions to demonstrate how to record the data.

PERCOLATION TEST RESULTS

1. Performed by: Mike Plumber Test Date(s): 6-23 & 6-24, 99

   Credentials or Status of Tester: Contractor / installer

   (Owner, contractor, installer, engineer, geologist, sanitarian, soil scientist, or other)

2. The **time interval (ti)** between water level measurements was: 10 minutes.

3. **TEST DATA**: The test holes were **PRESOAKED** for: ____ hours, or X overnight

Test Hole # is:	1	2	3
Hole depth (inches) =	34 "	38 "	37 "

Interval Number	Elapsed Time	Water Level / Drop	Water Level / Drop	Water Level / Drop
Start =	0 min	17"		
		1 1/4		
1	10	18 1/4		
		1		
2	20	19 1/4		
		3/4		
3	30	20		
		5/8		
4	40	20 5/8		
		Refill		
5	50	15		
		1/2		
6	60	15 1/2		
	3/8			
7	70	15 7/8		
		1/2		
8	80	16 3/8		

Water level drop between intervals

The actual water level below the top of the test hole

Refill hole if needed and Re-measure actual water level

Continue test until 3 consecutive "drops" are the same to within 1/8 inch total variation

Final Drop (NOT Total) =	1/2"	____	____

Perc rate(mpi) is:

[**ti** / Final Drop] = 10 / ½ = 20.0 mpi ____ ____

a. If **6 or more holes** were tested, the **average perc rate** was: NA mpi, or

b. If **3 to 5 holes** were tested, the **slowest perc rate** (largest number) was: 20.0 mpi

PERCOLATION TEST RESULTS

1. Performed by: _____ Test Date(s): _____

   Credentials or Status of Tester: _____

   (Owner, contractor, installer, engineer, geologist, sanitarian, soil scientist, or other)

2. The **time interval (ti)** between water level measurements was: _____ minutes.

3. **TEST DATA**: The test holes were **PRESOAKED** for: _____ hours, or ___ overnight.

Test Hole # is: ____ ____ ____

Hole depth (inches) = _____

Interval Number	Elapsed Time	Water Level / Drop		Water Level / Drop		Water Level / Drop	
Start =	0 min	____		____		____	
			____		____		____
1	____	____		____		____	
			____		____		____
2	____	____		____		____	
			____		____		____
3	____	____		____		____	
			____		____		____
4	____	____		____		____	
			____		____		____
5	____	____		____		____	
			____		____		____
6	____	____		____		____	
			____		____		____
7	____	____		____		____	
			____		____		____
8	____	____		____		____	
			____		____		____
9	____	____		____		____	
			____		____		____
10	____	____		____		____	
Final Drop **(NOT Total)** =			____		____		____

Perc rate(mpi) is:
[**ti** / Final Drop] = _____ _____ _____

a. If **6 or more holes** were tested, the **average perc rate** was: _____mpi, or

b. If **3 to 5 holes** were tested, the **slowest perc rate** (largest number) was: _____ mpi.

LOADING RATE TABLE

Percolation Rate (minutes per inch)	Loading Rate	Percolation Rate (minutes per inch)	Loading Rate
	Cannot use	31	0.39
Less than 1 mpi	this generic	32	0.385
	package *	33	0.38
		34	0.375
1 to 5 mpi	0.80	35	0.37
6	0.75	36	0.365
7	0.71	37	0.36
8	0.68	38	0.357
9	0.65	39	0.353
10	0.62	40	0.35
11	0.60	41	0.347
12	0.58	42	0.343
13	0.56	43	0.34
14	0.54	44	0.337
15	0.52	45	0.333
16	0.505	46	0.33
17	0.49	47	0.327
18	0.48	48	0.325
19	0.47	49	0.323
20	0.46	50	0.32
21	0.45	51	0.318
22	0.44	52	0.316
23	0.435	53	0.314
24	0.43	54	0.312
25	0.42	55	0.31
26	0.415	56	0.308
27	0.41	57	0.306
28	0.405	58	0.304
29	0.40	59	0.302
30	0.395	60	0.30
		More than 60 mpi	Cannot use this generic Package *

* Note - If the perc rate for your site is less than 1 mpi or greater than 60 mpi, you cannot use this generic application package. You must hire a Wyoming Registered Professional Engineer and submit an application customized for your specific site conditions.

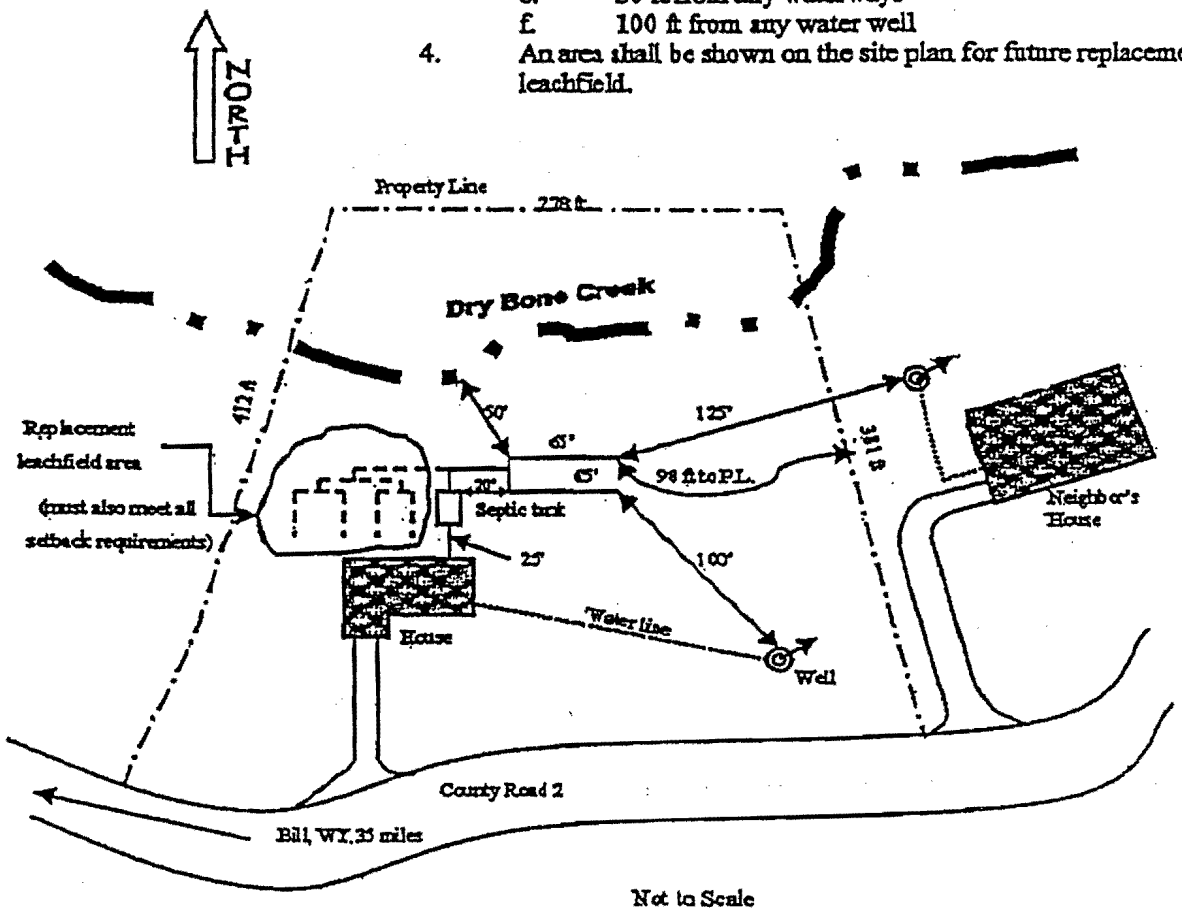
DETAIL SHEETS

SITE PLAN

Details that should be shown on a site plan:

1. The site plan shall show the location of property lines, all buildings, all wells within 200 feet, septic tank, leachfield, water lines, streams and surface water bodies.
2. The septic tanks shall have the following minimum separation distances:
   a. 5 ft from any dwelling
   b. 10 ft from adjoining property lines
   c. 25 ft from potable water lines
   d. 50 ft from any water well
   e. 50 ft from any waterways
3. The leachfield shall have the following minimum separation distances:
   a. 10 ft from the septic tank
   b. 10 ft from any building
   c. 10 ft from adjoining property lines
   d. 25 ft from potable water lines
   e. 50 ft from any waterways
   f. 100 ft from any water well
4. An area shall be shown on the site plan for future replacement of the leachfield.

Every site plan should have a North arrow



Not to Scale

EXAMPLE

SITE PLAN

Standard Septic Tank

Manufacturer: *Poured-in-Place by Owner* Model: _____

Rated Size: *1050* gallons One Compartment *X*, or Two Compartments ____

Is this septic tank on the Wyoming DEQ Approved Septic Tank List? if YES ____ — STOP HERE! if NO *X* — CONTINUE!

The requirements listed below and shown on the illustration apply to any tank used or site-built.

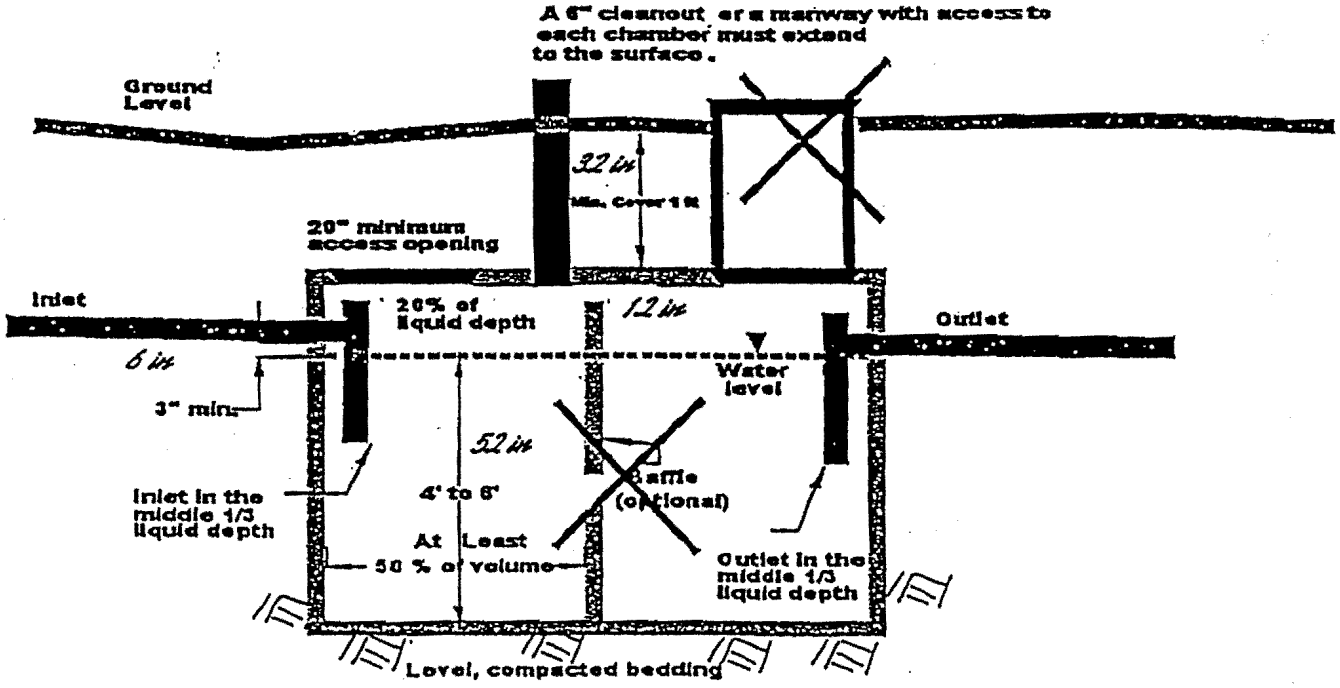
1. All small wastewater systems using a septic tank must have a minimum operating capacity of 1000 gallons. Additional capacity of 250 gallons per bedroom is required for each bedroom past four. Either one or two tanks may be used to meet this requirement.
2. The septic tank must be constructed of durable material not subject to rapid corrosion or decay and must be structurally sound and watertight. Steel tanks are not allowed.
3. Single compartment tanks shall have a minimum length to width ratio of 2:1.
4. Two compartment tanks shall have at least 50% of the volume in the first compartment.
5. Each compartment of the tank shall have an access opening with a minimum dimension of 20 inches in the least direction. Both inlet and outlet devices shall be accessible.
6. Clean-outs extending from each compartment to the surface with a minimum diameter of 6 inches must be provided. The access openings may be extended to the ground surface by use of a manway in lieu of a clean-out riser. All openings must be capped.

Material: *Concrete* (such as concrete, polyethylene, etc.)

Inside dimensions in *Inches*
Length *97* Width *48* Height *64* Liquid Depth *52* Air Space *12*

Operating Capacity = (Length * Width * Liquid Depth) / 231 = *1050* gallons

Please complete the cross-section drawing below:



EXAMPLE

Standard Septic Tank

Manufacturer: _____ Model: _____

Rated Size: _____ gallons One Compartment _____, or Two Compartments _____

Is this septic tank on the Wyoming DEQ Approved Septic Tank List? if YES _____ — **STOP HERE!** if NO _____ — **CONTINUE!**

The requirements listed below and shown on the illustration apply to any tank used or site-built.

7. All small wastewater systems using a septic tank must have a minimum operating capacity of 1000 gallons. Additional capacity of 250 gallons per bedroom is required for each bedroom past four. Either one or two tanks may be used to meet this requirement.
8. The septic tank must be constructed of durable material not subject to rapid corrosion or decay and must be structurally sound and watertight. Steel tanks are not allowed.
9. Single compartment tanks shall have a minimum length to width ratio of 2:1.
10. Two compartment tanks shall have at least 50% of the volume in the first compartment.
11. Each compartment of the tank shall have an access opening with a minimum dimension of 20 inches in the least direction. Both inlet and outlet devices shall be accessible.
12. Clean-outs extending from each compartment to the surface with a minimum diameter of 6 inches must be provided. The access openings may be extended to the ground surface by use of a manway in lieu of a clean-out riser. All openings must be capped.

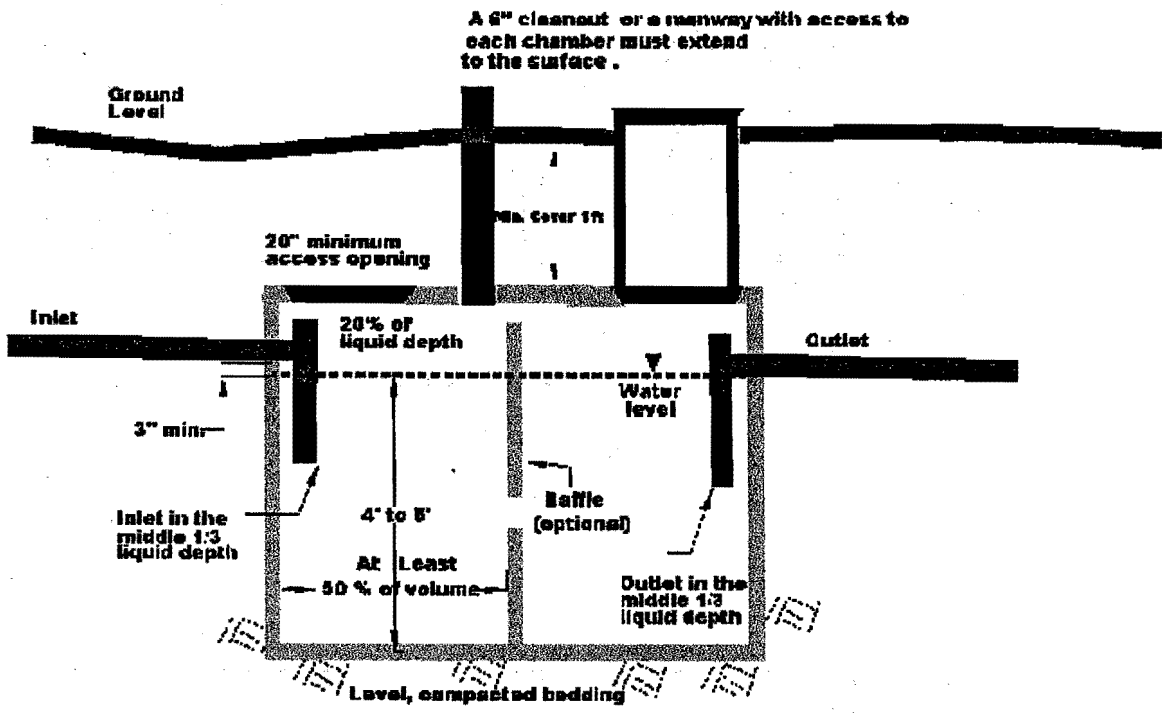
Material: _____ (such as concrete, polyethylene, etc.)

Inside dimensions in *Inches*

Length_____ Width_____ Height_____ Liquid Depth_____ Air Space_____

Operating Capacity = (Length * Width * Liquid Depth) / 231 = _____ gallons

Please complete the cross-section drawing below:

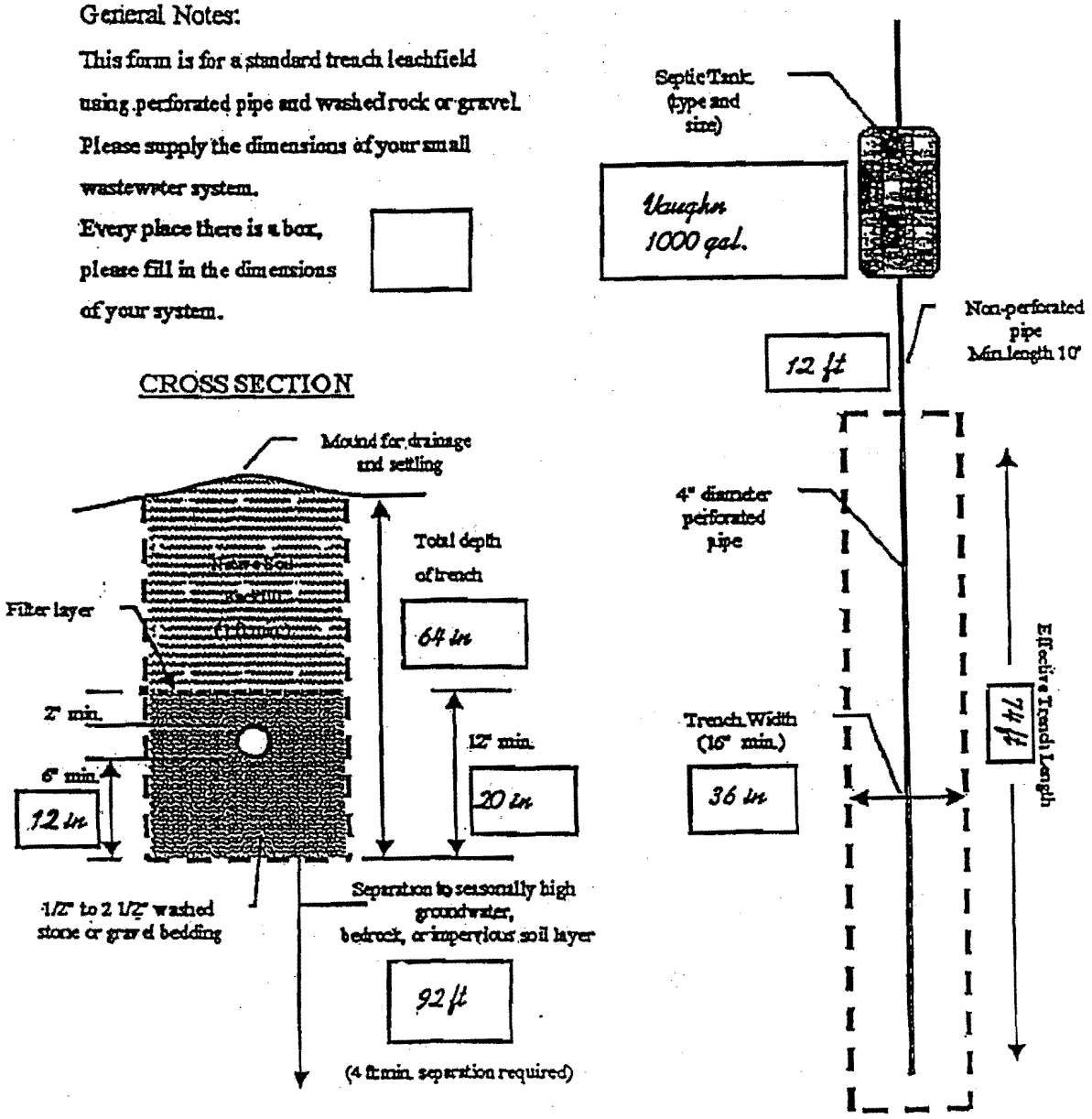


Single Trench Pipe Leachfield:

General Notes:

This form is for a standard treach leachfield using perforated pipe and washed rock or gravel. Please supply the dimensions of your small wastewater system.

Every place there is a box, please fill in the dimensions of your system.



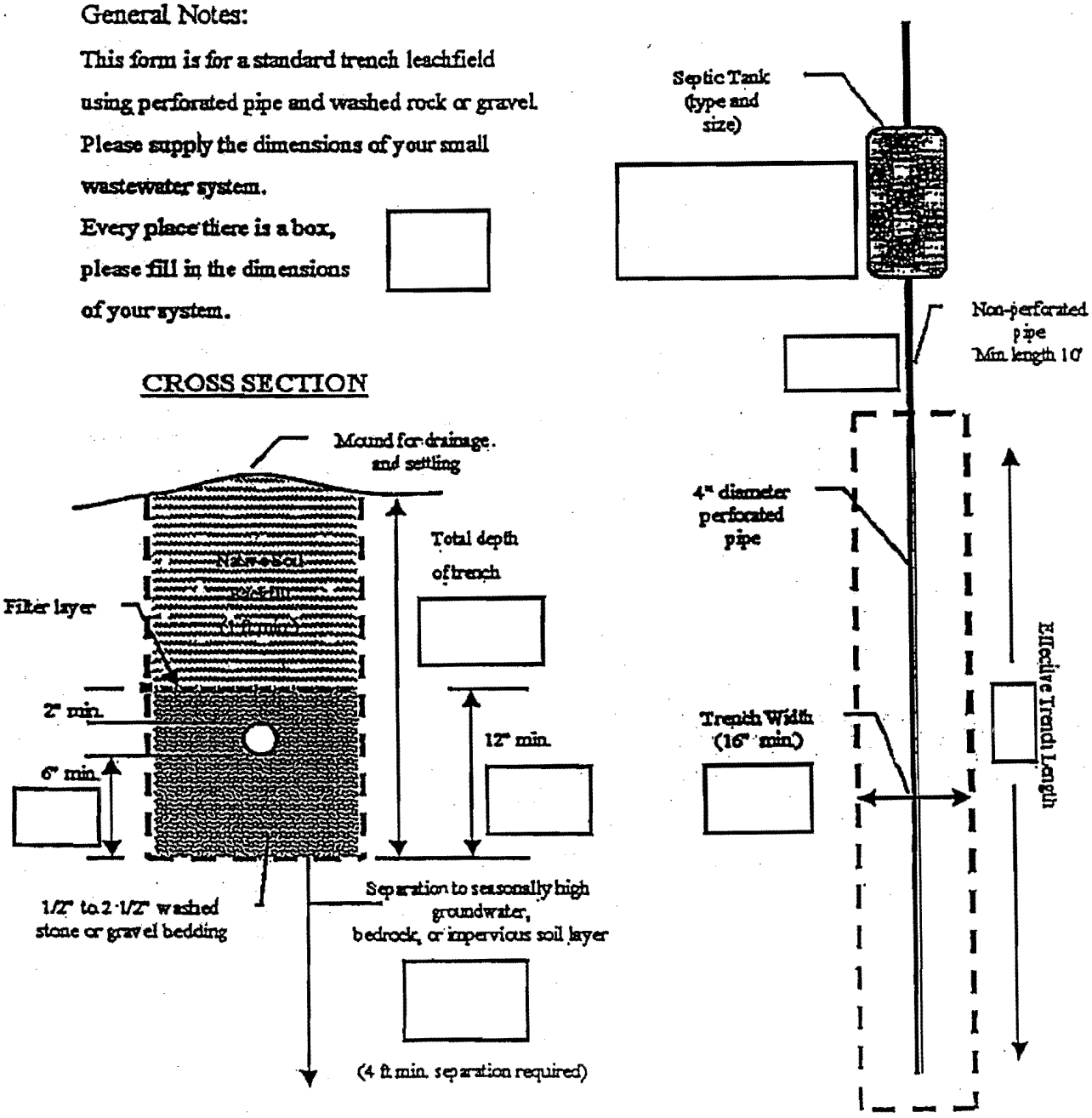
EXAMPLE

Single Trench Pipe Leachfield:

General Notes:

This form is for a standard trench leachfield using perforated pipe and washed rock or gravel. Please supply the dimensions of your small wastewater system.

Every place there is a box, please fill in the dimensions of your system.

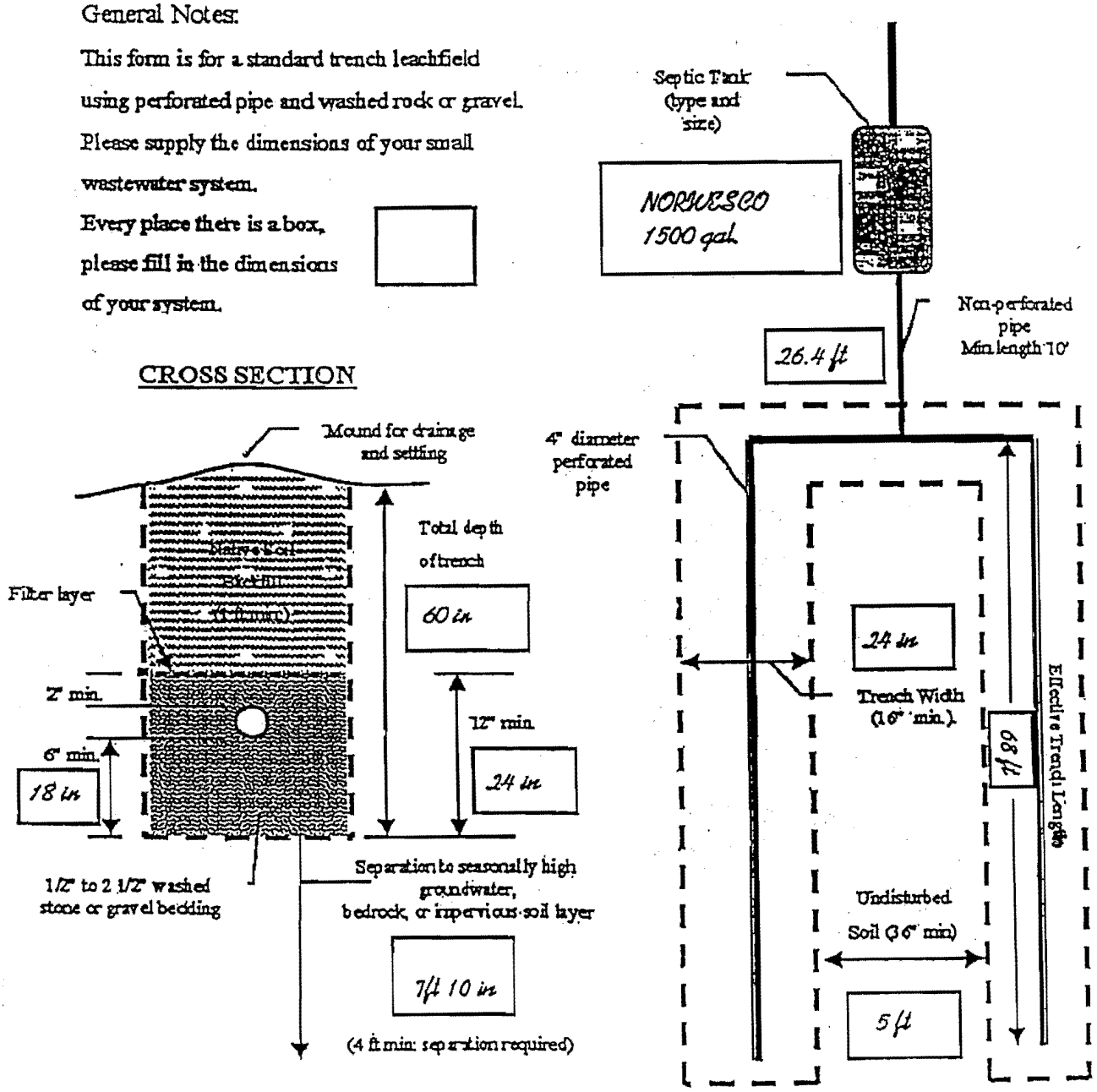


Two Trench Pipe Leachfield

General Notes:

This form is for a standard trench leachfield using perforated pipe and washed rock or gravel. Please supply the dimensions of your small wastewater system.

Every place there is a box, please fill in the dimensions of your system.



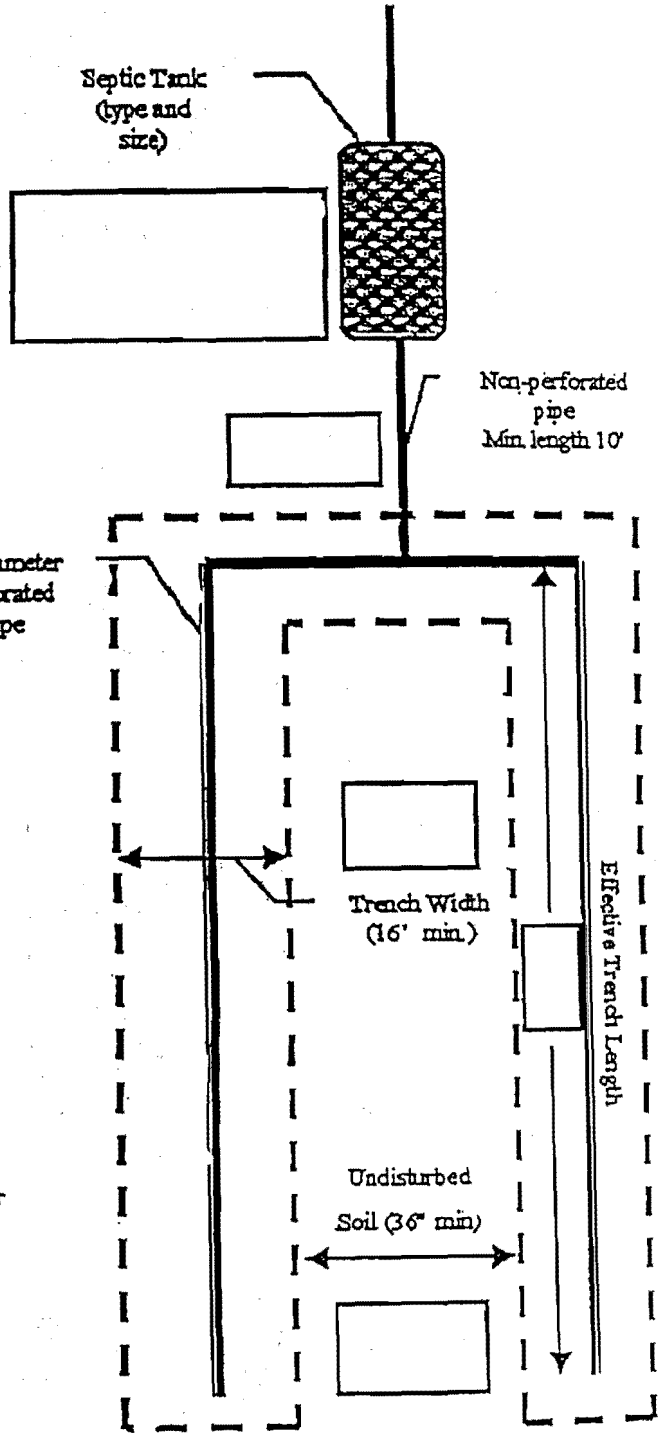
EXAMPLE

Two Trench Pipe Leachfield

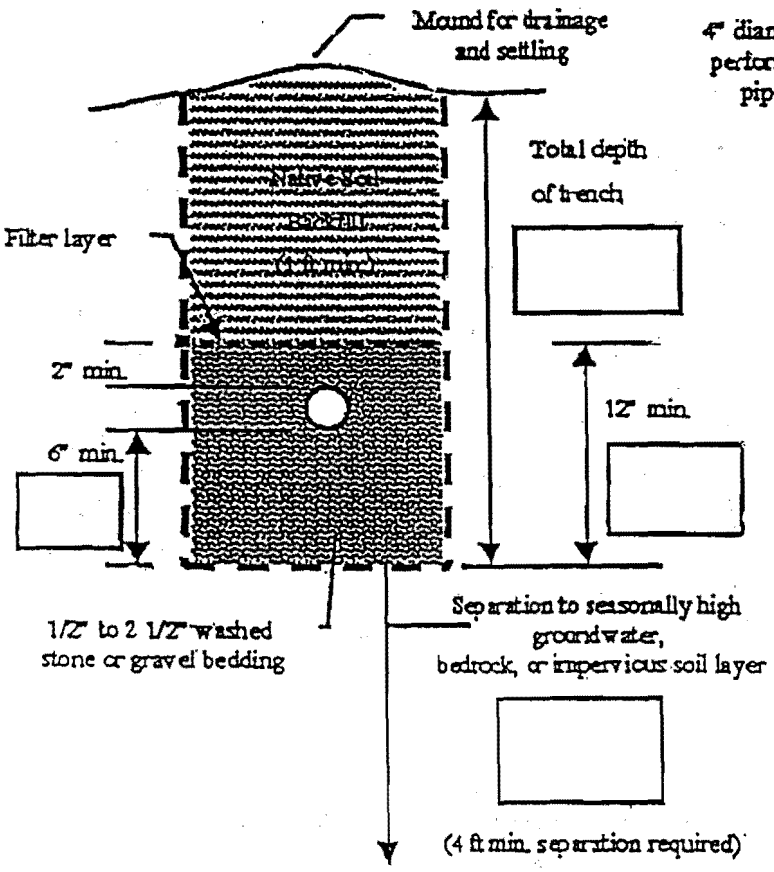
General Notes:

This form is for a standard trench leachfield using perforated pipe and washed rock or gravel. Please supply the dimensions of your small wastewater system.

Every place there is a box, please fill in the dimensions of your system.

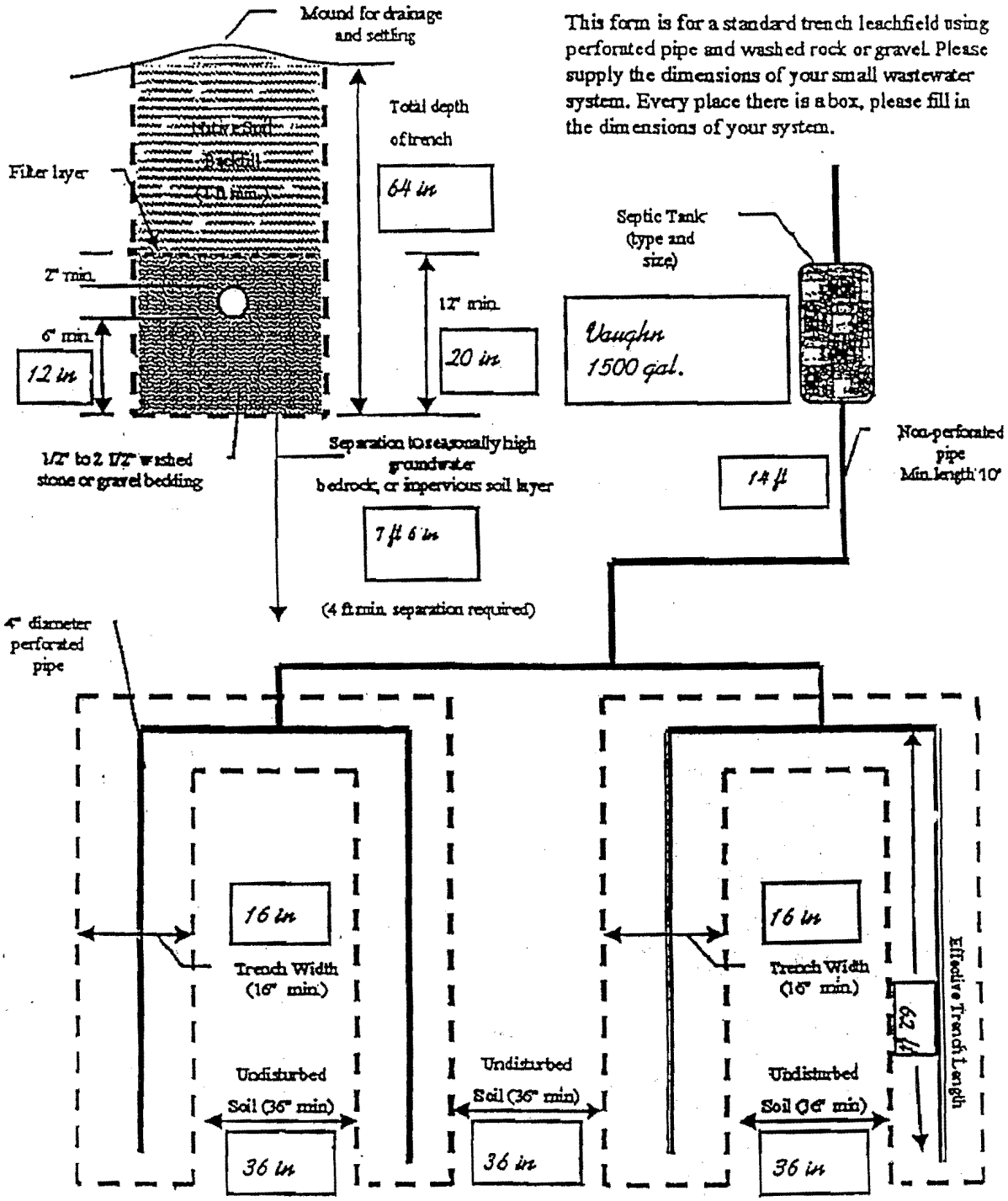


CROSS SECTION



Four Trench Pipe Leachfield

CROSS SECTION

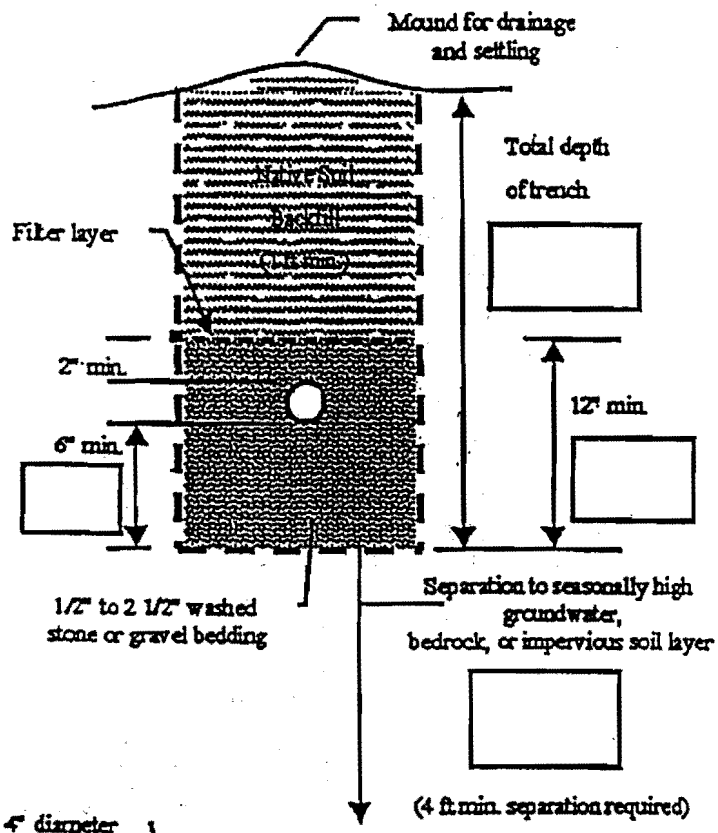


This form is for a standard trench leachfield using perforated pipe and washed rock or gravel. Please supply the dimensions of your small wastewater system. Every place there is a box, please fill in the dimensions of your system.

EXAMPLE

Four Trench Pipe Leachfield

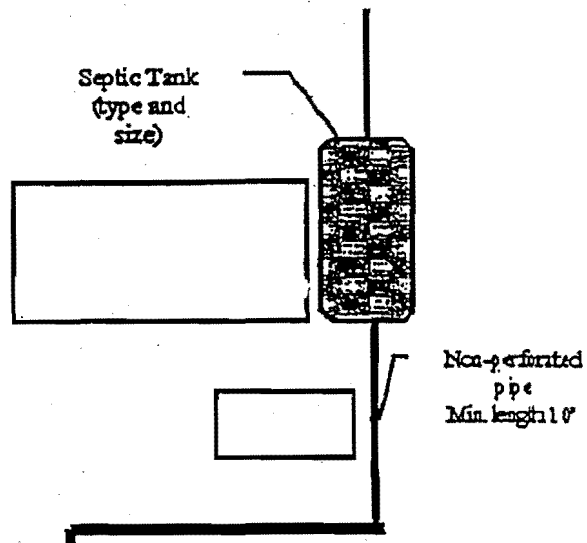
CROSS SECTION

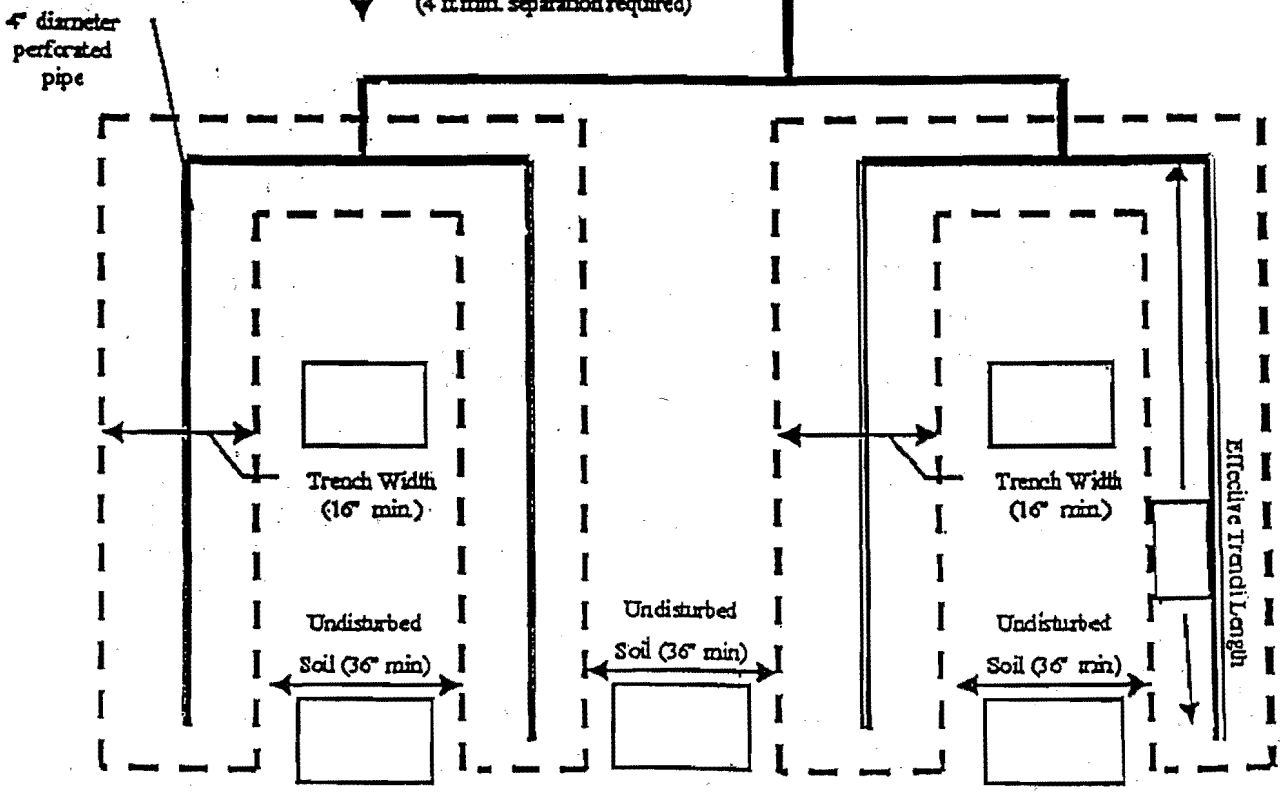


Four Equal Parallel Trenches

Recommended Max. Length = 75 feet

This form is for a standard trench leachfield using perforated pipe and washed rock or gravel. Please supply the dimensions of your small wastewater system. Every place there is a box, please fill in the dimensions of your system.

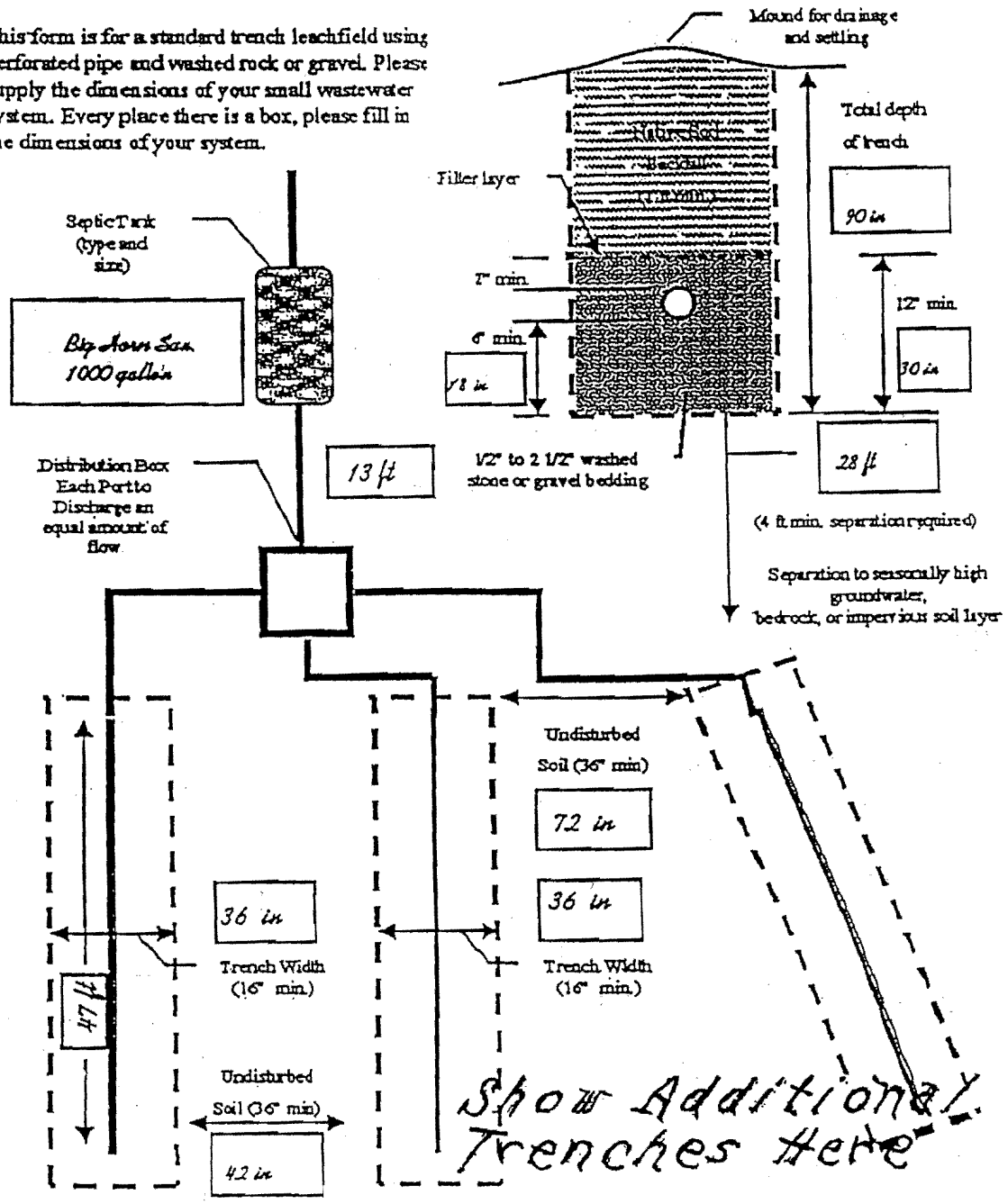




Multiple Trench Pipe Leachfield

Multiple Equal Trenches with Distribution Box

This form is for a standard trench leachfield using perforated pipe and washed rock or gravel. Please supply the dimensions of your small wastewater system. Every place there is a box, please fill in the dimensions of your system.

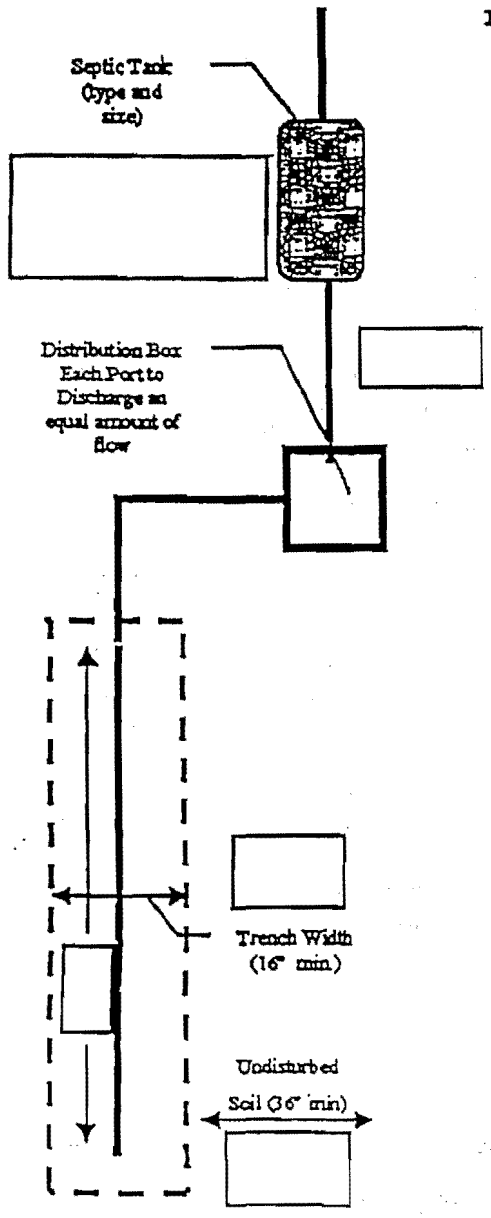


EXAMPLE

Multiple Trench Pipe Leachfield

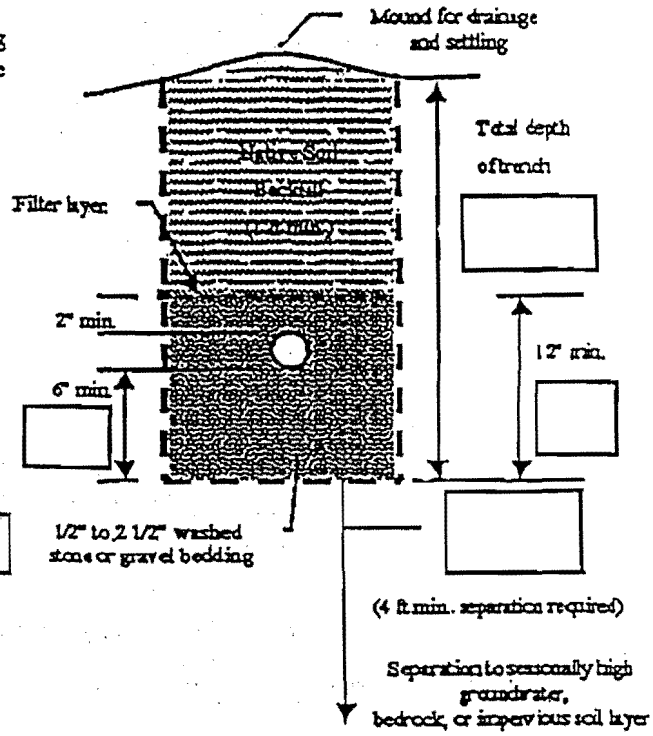
Multiple Equal Trenches with Distribution Box

This form is for a standard trench leachfield using perforated pipe and washed rock or gravel. Please supply the dimensions of your small wastewater system. Every place there is a box, please fill in the dimensions of your system.



SHOW ADDITIONAL TRENCHES HERE

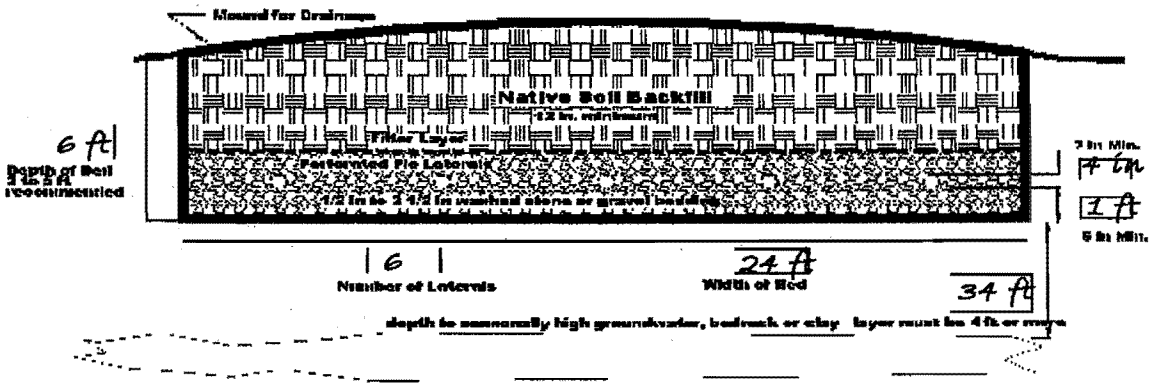
CROSS SECTION

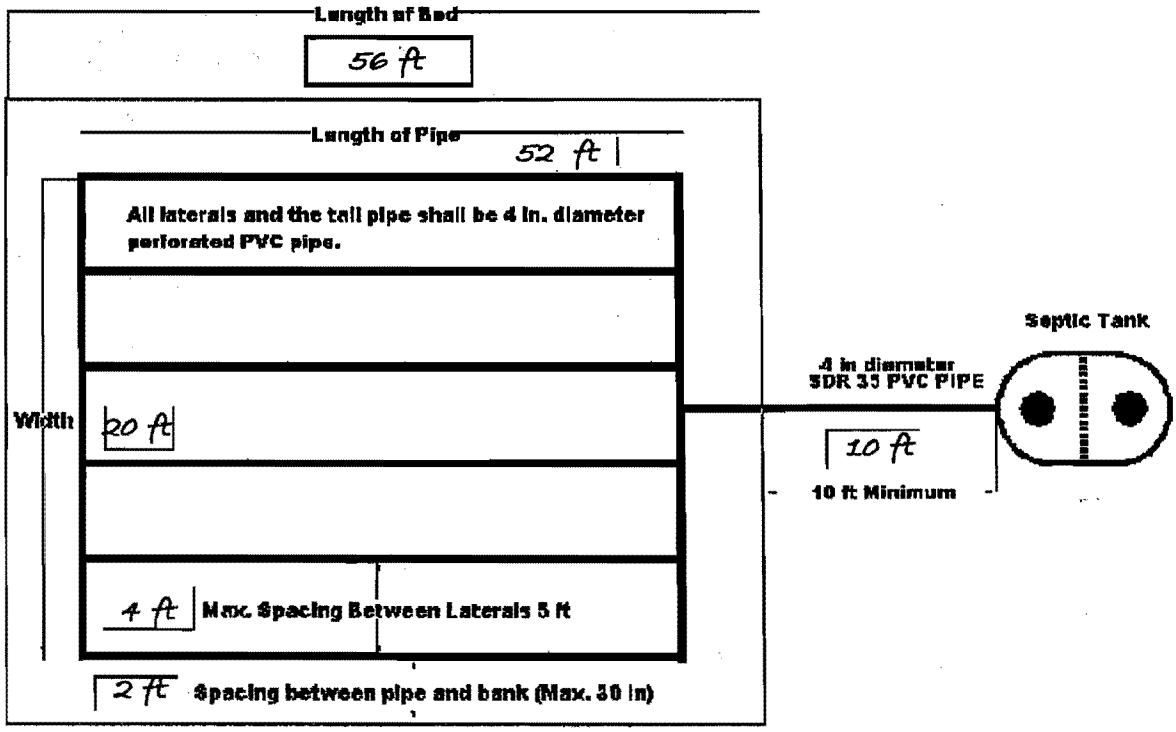


Bed Type Pipe Leachfield

Rectangular Bed

This worksheet is for a bed type leachfield using perforated pipe. Where boxes appear please supply the dimensions of your leachfield.



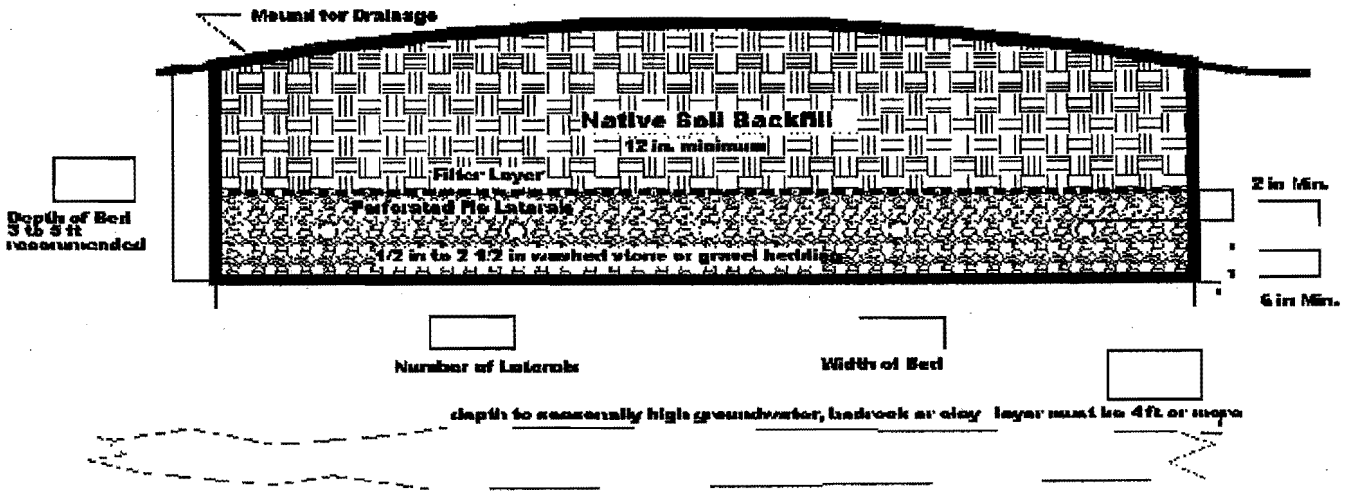


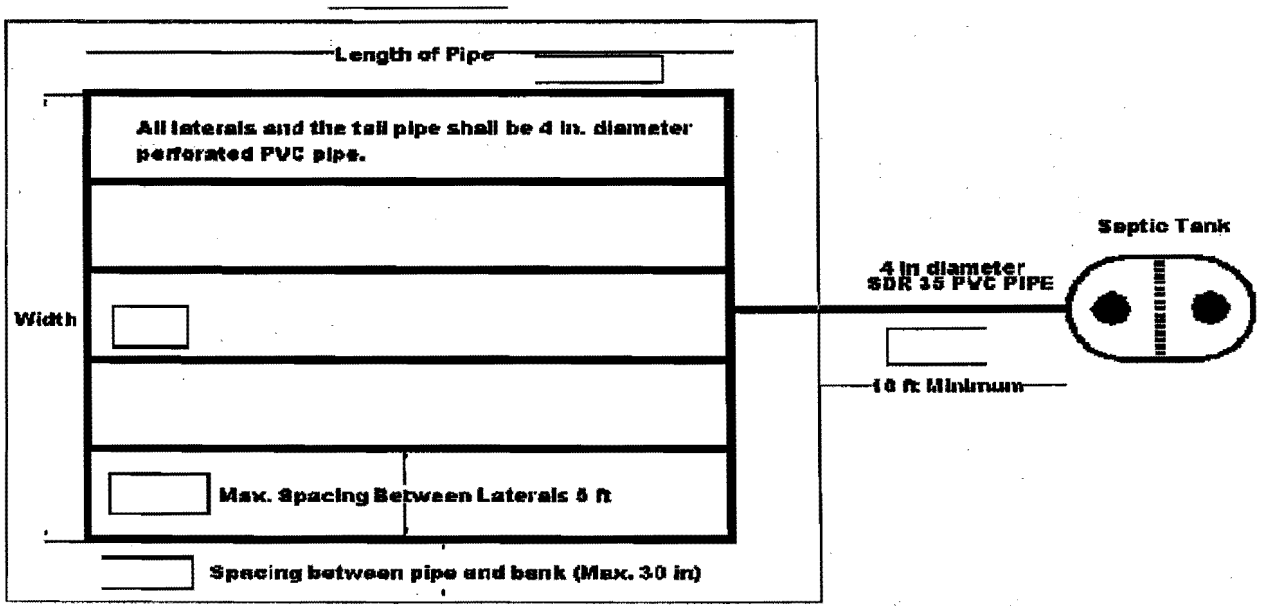
EXAMPLE

Bed Type Pipe Leachfield

Rectangular Bed

This worksheet is for a bed type leachfield using perforated pipe. Where boxes appear please supply the dimensions of your leachfield.





Single Trench Chambered Leachfield

This worksheet is for a trench type Leachfield using chamber units. Where boxes appear please supply the dimensions of your leachfield.

☐ **Type of Chamber:**

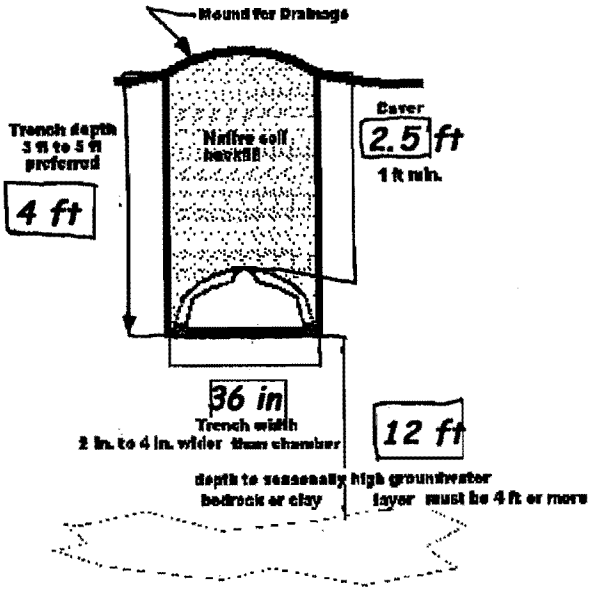
Brand HANCOR

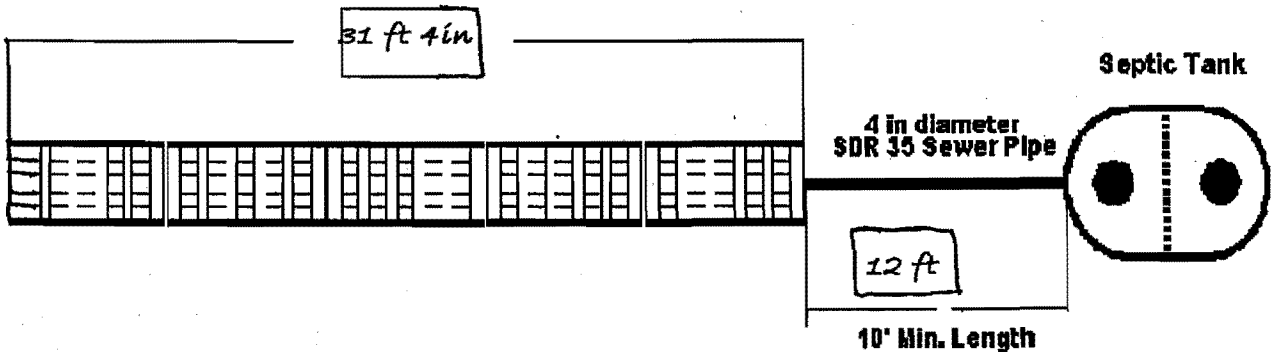
Model High Cap. Unit

Dimensions: Length 6.25 ft

Width 34 in **Height** 17.5 in

Number of Sections Req'd five
(From Section E.4)





EXAMPLE

Single Trench Chambered Leachfield

This worksheet is for a trench type Leachfield using chamber units. Where boxes appear please supply the dimensions of your leachfield.

Type of Chamber:

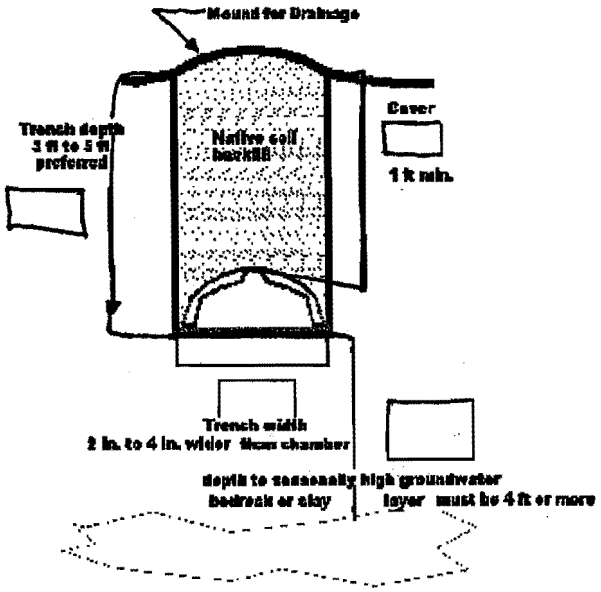
Brand _____

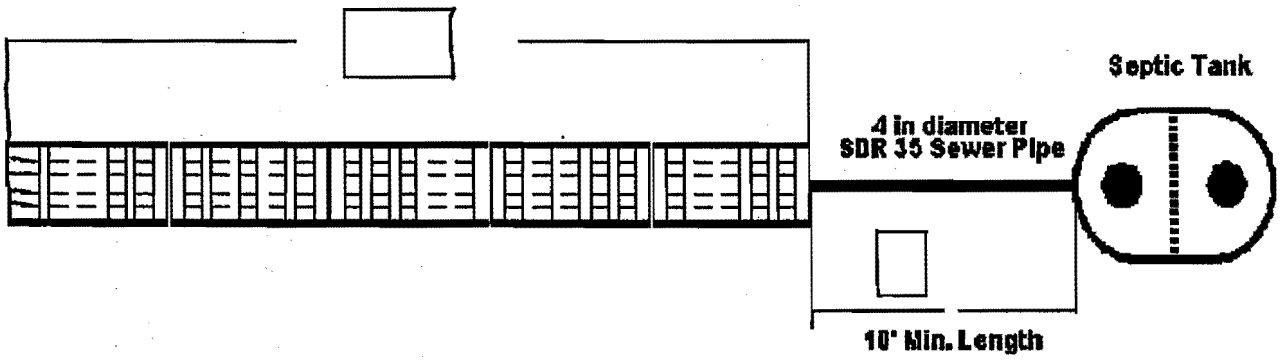
Model _____

Dimensions: Length _____

Width _____ **Height** _____

Number of Sections Req'd _____
(From Section E.4)





Two Trench Chambered Leachfield

This worksheet is for a trench type leachfield using chamber units. Where boxes appear please supply the dimensions of your leachfield.

☐ **Type of Chamber:**

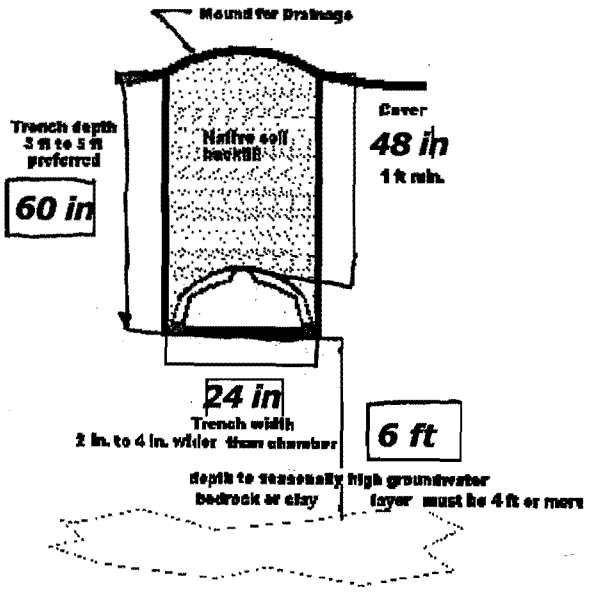
Brand Infiltrator

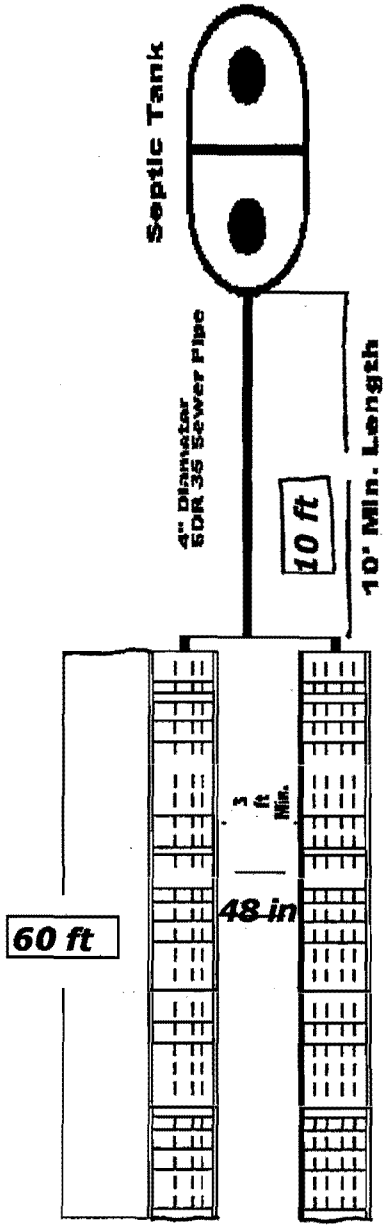
Model Equalizer 36

Dimensions: Length 8.44 ft

Width 18 in **Height** 12 in

Number of Sections Req'd 14
(From Section E.4)





EXAMPLE

Two Trench Chambered Leachfield

This worksheet is for a trench type leachfield using chamber units. Where boxes appear please supply the dimensions of your leachfield.

☐ **Type of Chamber:**

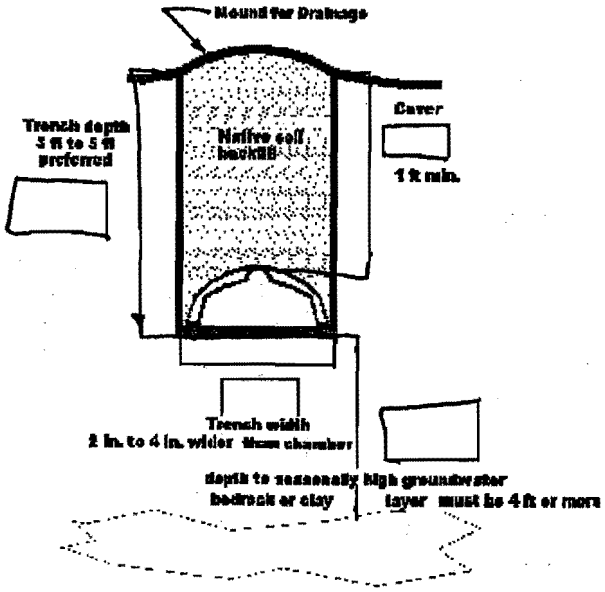
Brand _____

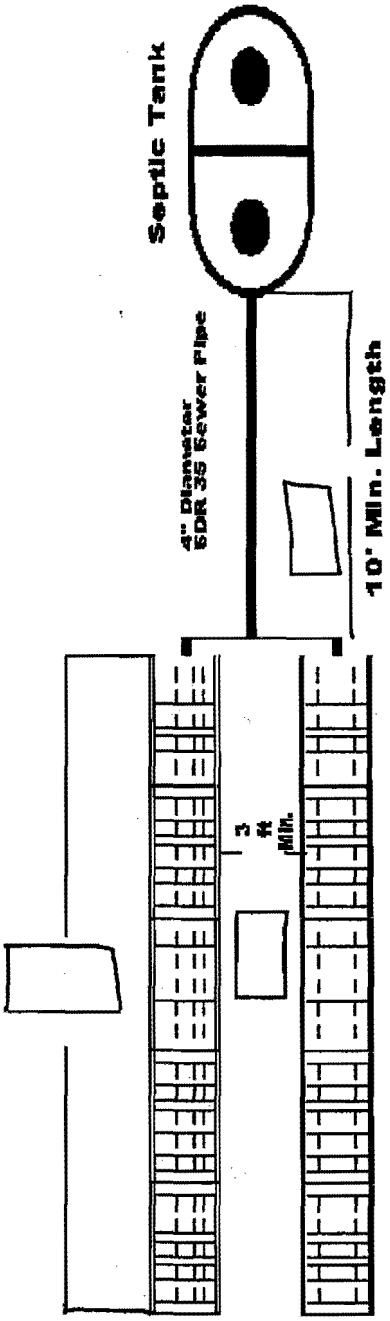
Model _____

Dimensions: Length _____

Width _____ **Height** _____

Number of Sections Req'd _____
(From Section E.4)





Four Trench Chambered Leachfield

Four Equal Length Trenches

This worksheet is for a trench type Leachfield using chamber units. Where boxes appear please supply the dimensions of your leachfield.

Type of Chamber:

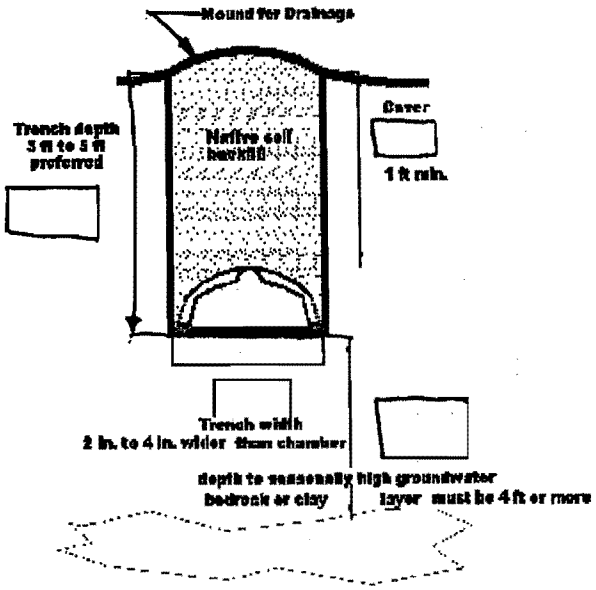
Brand Biodiffuser

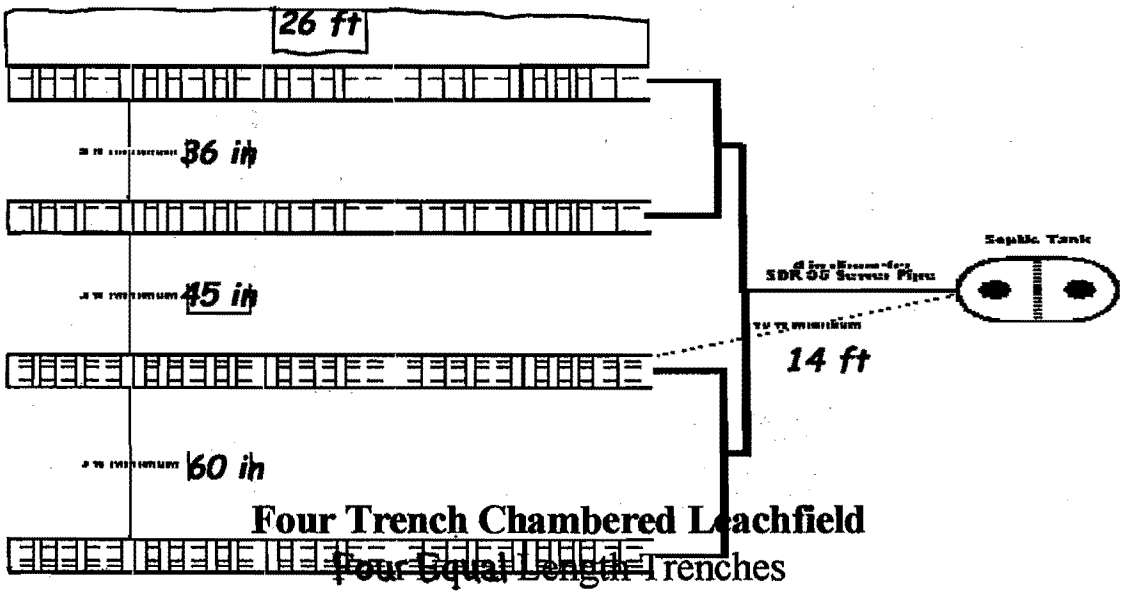
Model low Profile Unit

Dimensions: Length 6 ft 4 in

Width 34 in **Height** 11 in

Number of Sections Req'd 16
(From Section E.4)





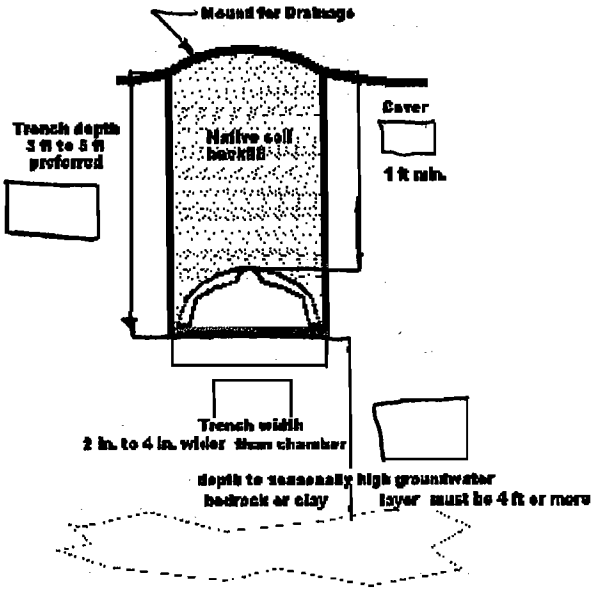
Four Trench Chambered Leachfield
Four Equal Length Trenches

EXAMPLE

Four Trench Chambered Leachfield

Four Equal Length Trenches

This worksheet is for a trench type Leachfield using chamber units. Where boxes appear please supply the dimensions of your leachfield.



Type of Chamber:

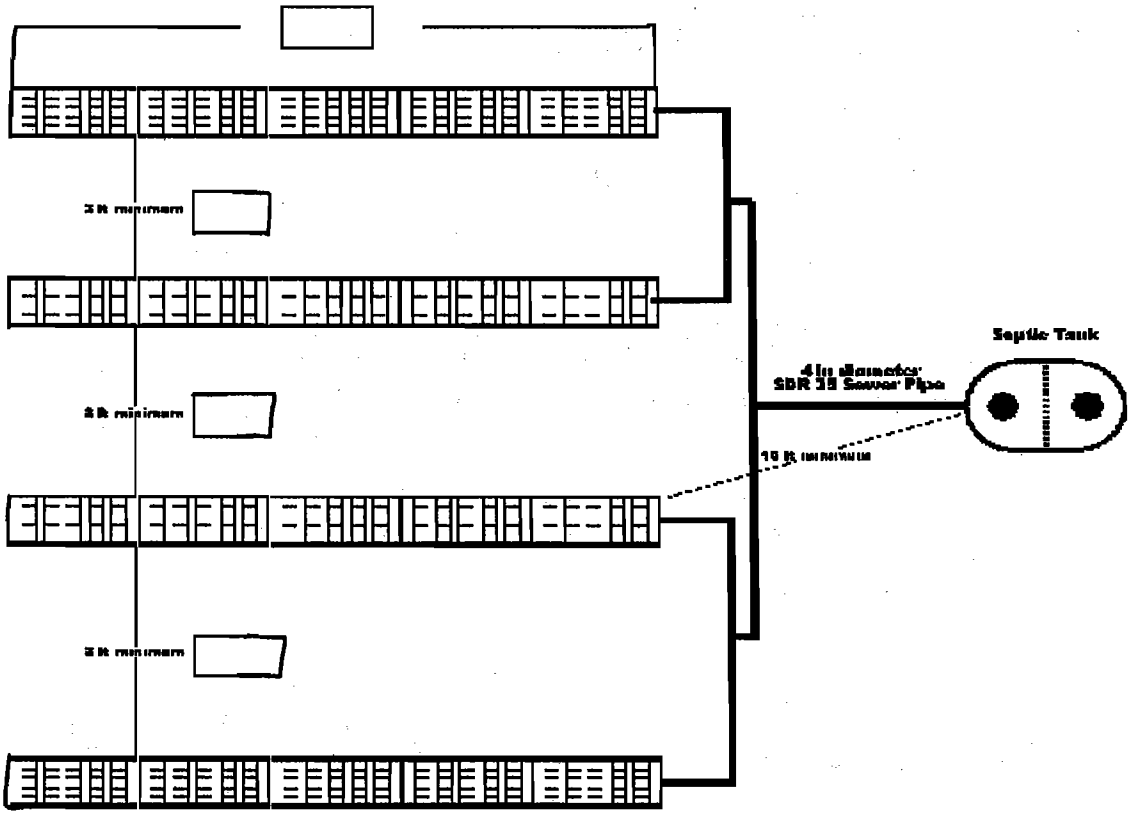
Brand _____

Model _____

Dimensions: Length _____

Width _____ **Height** _____

Number of Sections Req'd _____
(From Section E.4)



FOUR EQUAL LENGTH TRENCHES

Multiple Trench Chambered Leachfield

Many Equal Length Trenches

This worksheet is for a trench type Leachfield using chamber units. Where boxes appear please supply the dimensions of your leachfield.

Type of Chamber:

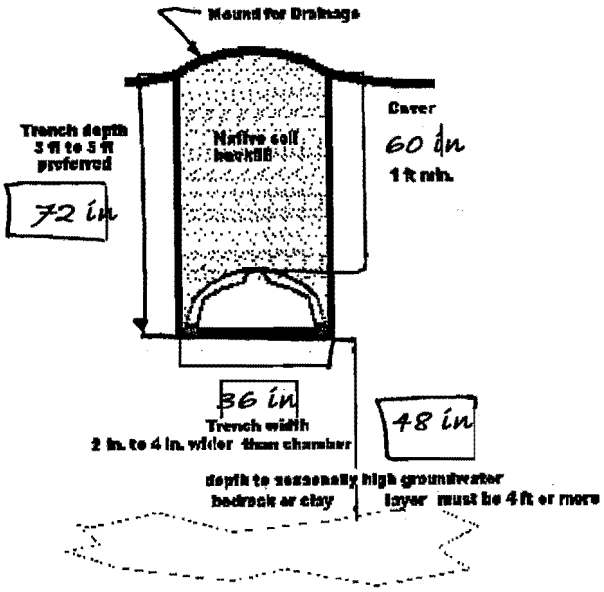
Brand *Infiltrator*

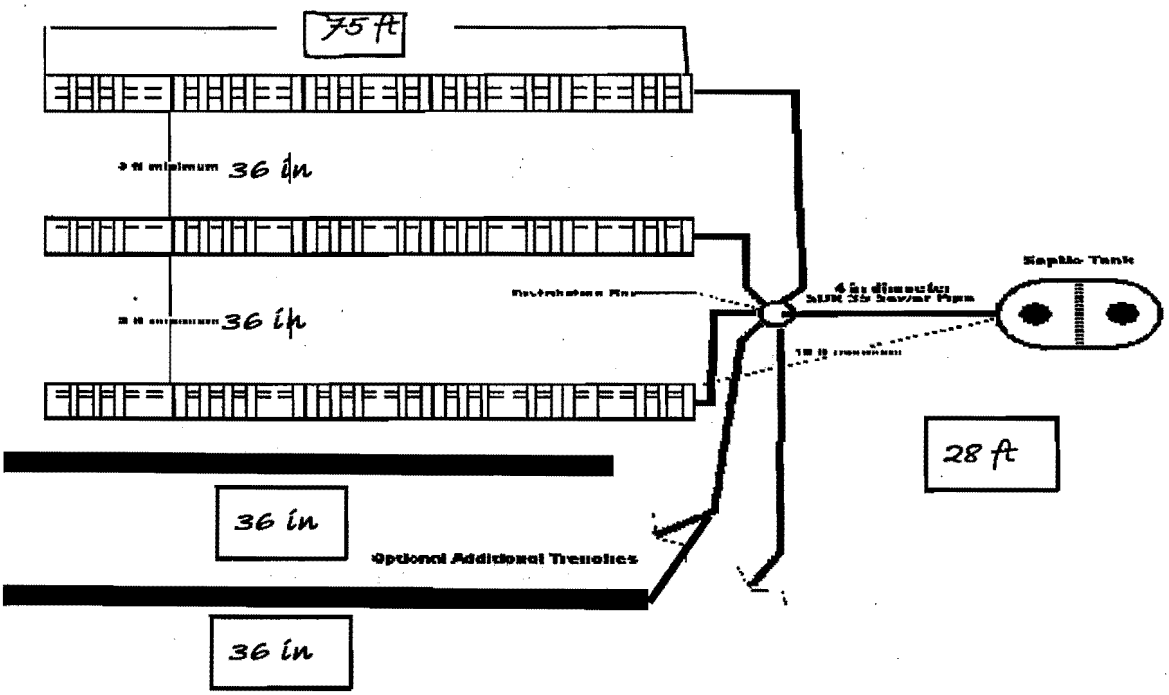
Model *Standard*

Dimensions: Length *6ft 3 in*

Width *34 in* **Height** *12 in*

Number of Sections Req'd *60*
(From Section E.4)





EXAMPLE

Multiple Trench Chambered Leachfield

Many Equal Length Trenches

This worksheet is for a trench type Leachfield using chamber units. Where boxes appear please supply the dimensions of your leachfield.

Type of Chamber:

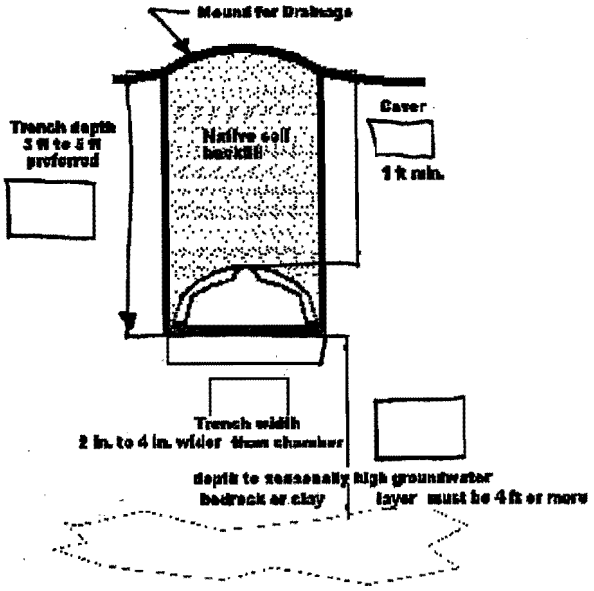
Brand _____

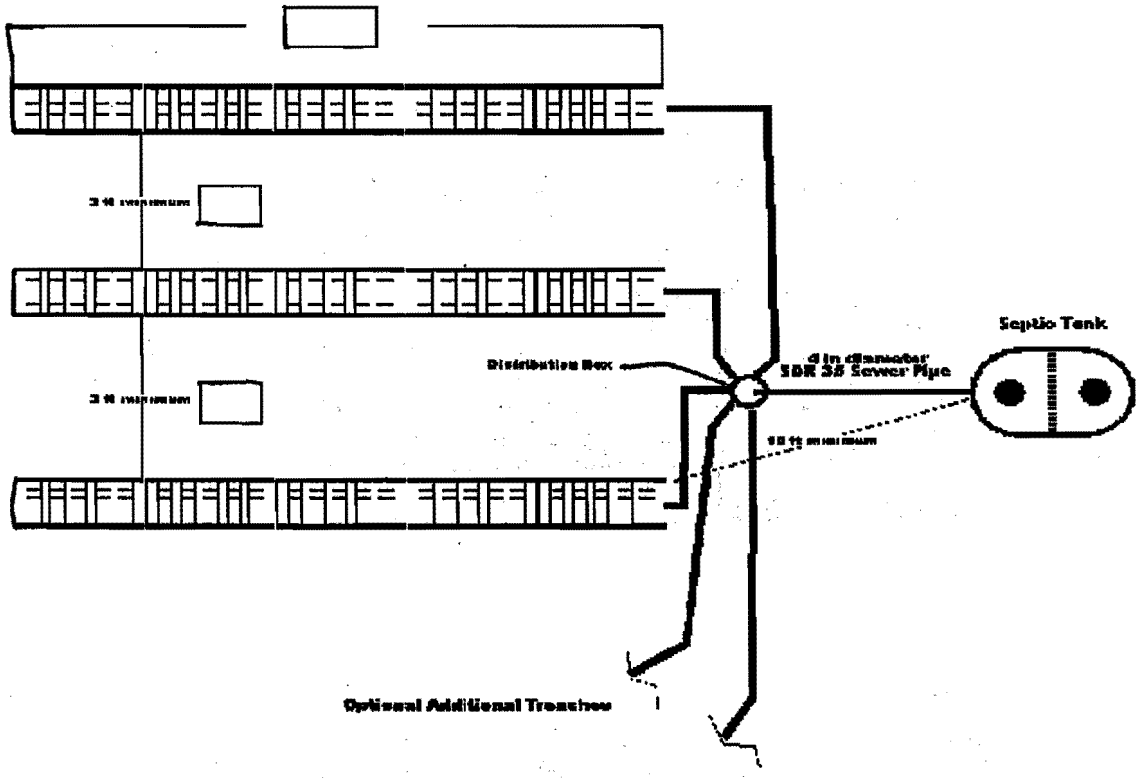
Model _____

Dimensions: Length _____

Width _____ **Height** _____

Number of Sections Req'd _____
(From Section E.4)





Bed Type Chambered Leachfield

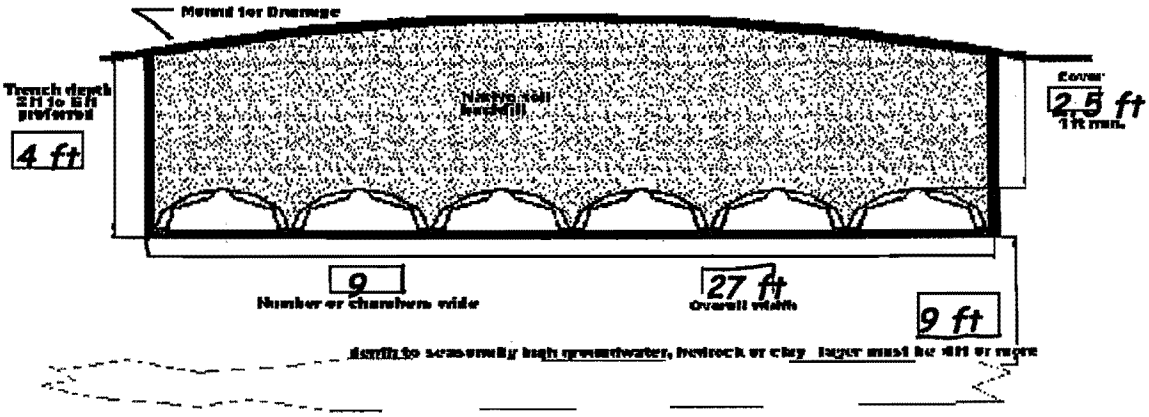
Rectangular Bed

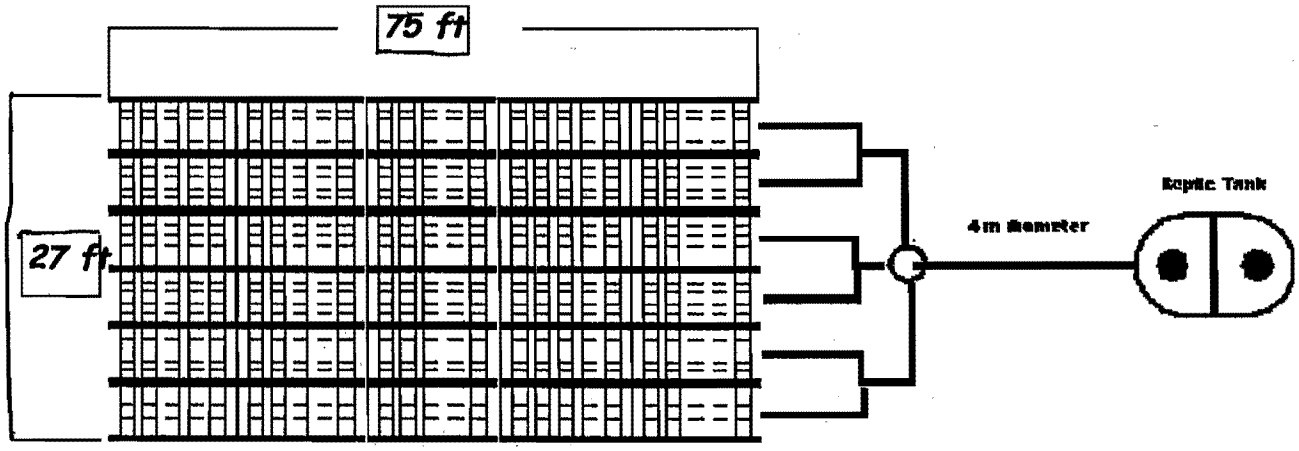
This worksheet is for a bed type leachfield using chamber units. Where boxes appear please supply the dimensions of your leachfield.

Type of Chamber: Brand HANCOR **Model** High Cap. Unit

Dimensions: Length 6.25 ft **Width** 34 in **Height** 17.5 in

Number of Sections Req'd 108
(From Section E.5)





EXAMPLE

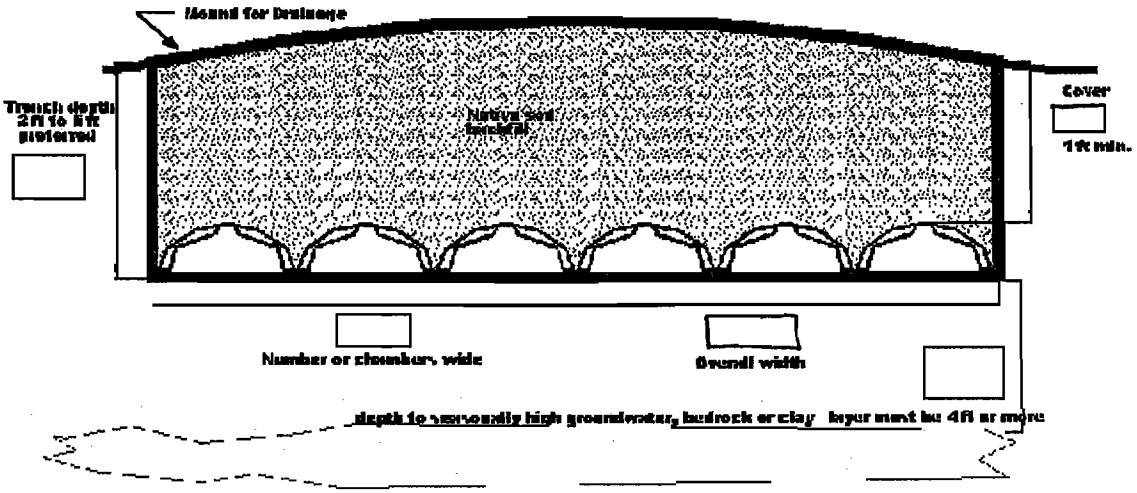
Bed Type Chambered Leachfield
Rectangular Bed

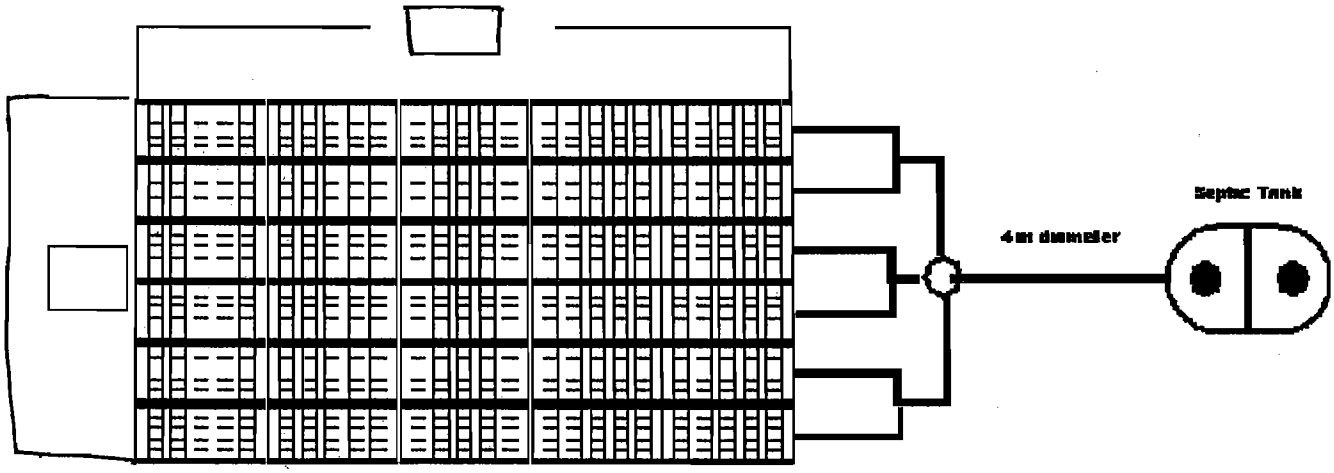
This worksheet is for a bed type leachfield using chamber units. Where boxes appear please supply the dimensions of your leachfield.

Type of Chamber: Brand _____ **Model** _____

Dimensions: Length _____ **Width** _____ **Height** _____

Number of Sections Req'd _____
(From Section E.5)





ATTACHMENTS

Septic Tanks Approved for Use in Wyoming

Updated March 3, 2008 (Next Update September 1, 2008)

"A - List"

The following septic tanks are in compliance with the minimum standards and requirements for septic tanks for use in Wyoming as specified in Chapter 11, Section 39 of the Water Quality Rules and Regulations (WQR&R), or can easily be brought into compliance by meeting some simple additional conditions, as noted, for some of the tanks.

Please Note - Individual Counties that have been delegated primacy for the small wastewater program may have stricter standards. If you reside in a delegated county, please confirm with your County Small Wastewater Program that the tank you intend to use is acceptable in your county.
The following link lists the county contacts:

http://deq.state.wy.us/wqd/www/Permitting/Pages/SMWW/Delegated.asp

Septic Tank Clean-Out Riser Requirement - Either a 6-inch diameter clean-out riser or the manway from each compartment of the septic tank must be extended to the ground surface from all septic tanks.

Suppliers by Wyoming City or Town

Casper:
- A.J. Vollmar, WYO Septic Tanks – Casper, WY: 1000 gal single compartment only

Cheyenne:
- Vaughn Concrete Products - Cheyenne, Wyoming: 1500 & 2000 gallon single compartment and 1000, 1250, 1500, & 2000 gallon two compartment tanks.

Cody:
- Cody Precast & Septic Service - Cody, WY: 1500 gallon two compartment only. **Use of Low Profile models must be justified. (See B-List)**

Evanston:
- Ellingford Brothers, Inc. - Evanston, Wyoming: 1000 gallon two compartment only.

Fairview:
- Thomas Concrete Products – Fairview, Wyoming: 1000 gallon standard single compartment, and 1500 gallon AMCOR two compartment concrete tanks. **Note -** *BIO-MICROBICS®* systems can be attached on top of the 1500 gal vault

Gillette:
- **ICM -** Intermountain Construction & Materials – Gillette, WY: 1250gal single compartment concrete tank.
  ** This manufacturer was formerly known as: *Wyoming Materials & Improvement*

Mills:
- American Plumbing and Heating - Mills, Wyoming: 1000gal single compartment

Powell:
- Big Horn Precast – Powell, WY: 1000, 1250, & 2000gal two compartment only. **Use of Low Profile models(1000SH & 1500gal) must be justified. (B-List)**

Riverton:

- Wind River Ready Mix - Riverton, WY: 1000 gal standard single & two compartment only. **Use of Low Profile models must be justified. (See B-List)**

Rock Springs:

- Rock Springs Block Co. – Rock Springs, WY: 1000gal single compartment concrete

Sheridan:

- Skyline Concrete Products – Sheridan, Wyoming: 1000, 1250, & 1500 gallon single compartment tanks.

Torrington:

- G & L Concrete, Inc. – Torrington, WY: 1000 gallon single compartment only.

** This manufacturer was formerly known as: *Will Young's Cement & Gravel*

Wheatland:

- Platte County Concrete & Stone - Wheatland, Wyoming: 1000 gallon single compartment **Model "A" only**. 1000 gallon **Model "B" NOT Approved.**

Out of State Suppliers by State

Colorado:

- Copeland Concrete – Rifle, Colorado: two compartment only, Models C.M. 1250gal, 2000gal, & 2500 gallon sizes.
  Use of Low Profile models must be justified. (see B-List)
- Colorado Precast Concrete – Loveland, CO: 1000 gal "Round" two compartment and 1250, 1500, & 2000 gal Rectangular two compartment only concrete tanks
  Use of Low Profile RMI polyethylene tanks must be justified. (see B-List)

Iowa:

- Ace Roto-Mold, Den Hartog Industries, Hospers, Iowa: polyethylene septic tanks; 1250, 1500 gal single compartment, & 1000, 1250, 1500 gal two compartment sizes
  - These tanks may be sold at a variety of hardware and farm supply stores.

Minnesota:

- Norwesco - St. Bonifacius, Minnesota: Polyethylene septic tanks - must follow manufacturer's instructions and precautions regarding filling tank with water during burial and immediately after pumping. 1000, 1250, and 1500 gallon tanks are approved in both single compartment and two compartment models.
  - These tanks may be sold at a variety of hardware and farm supply stores.

Montana:

- Billings Precast Enterprises - Billings, Montana: 1000 & 1500gal two compartment
- J & R Precast Concrete - Three Forks, Montana: **Vault Toilets** - 2 models only, the "B" Model and the "Cascade" Model.
- Kanta Products Inc. - Three Forks, Montana: 1000 gallon two compartment only.
- Montana Terrazzo Company – Billings, Montana: 1000, 1100, 1500, & 2000gal two compartment only tanks.

** This manufacturer was formerly known as: *Billings Tile and Terrazzo*

Nebraska:

- Panhandle Concrete Products, Inc. - Scottsbluff, Nebraska: 1000, 1250, 1500, and 2000 gallon two compartment only tanks.
- Snyder Industries, Inc. – Lincoln, Nebraska: 1050, 1250, and 1500 gallon Ribbed "NuConSept" polyethylene two compartment tanks, and 1500 gallon single compartment tank. **Use of Low Profile models must be justified. (see B-List)**

South Dakota:

- Boom Concrete - Newell, South Dakota: 1000 & 1500 gal single compartment, and 1500 gallon two compartment tanks.
- J&D Precast, Inc. – Rapid City, SD: 1000 gal single compartment, and 1250 & 1500 gal two compartment concrete tanks only. **Other models and sizes NOT Approved.**

Utah:

- DURA-CRETE, Inc. - Salt Lake City, Utah: 1000, 1250, 1750, and 2500 gal single compartment concrete tanks

Septic Tanks NOT Meeting Minimum Standards and Requirements for Automatic Use in Wyoming

Updated March 3, 2008 (Next Update September 1, 2008)

but

Use may be approved on an individual basis when justified by conditions

"B - List" : Low Profile Tanks

The following septic tanks do not meet the standard 48" of minimum liquid depth as specified in Chapter 11, Section 39 of the Water Quality Rules and Regulations. However, these tanks will be considered on an individual case basis provided that a reasonable justification is given.

The septic tanks listed below are all less than the required 48" minimum liquid depth. The tanks listed below have been approved on the basis that each tank provides at least 36" of liquid depth and has two compartments.

Septic Tank Clean-Out Riser Requirement - either a 6-inch diameter clean-out riser or the manway from each compartment of the septic tank must be extended to the ground surface from all septic tanks.

- Big Horn Precast – Powell, WY: 1000SH and 1500 gal Low Profile two compartment

- Cody Precast & Septic Service - Cody, Wyoming: 1000gal Low Profile two compartment

- Colorado Precast Concrete - Loveland , Colorado: They supply RMI Tanks. (see below)

- Copeland Concrete, Inc. – Rifle, Colorado: 1000 & 1500 gal Low Profile two compartment

- FRALO Plastech Manufacturing, LLC – Syracuse, New York:
  ** This company is now known as "Roth Global Plastics, Inc.

- RMI Tanks - Denver, Colorado: Rotationally molded polyethylene septic tanks – must follow manufacturer's instructions and precautions regarding filling tank with water during burial and immediately after pumping. 1250 gallon two compartment.

- Roth Global Plastics, Inc. – Syracuse, New York: 1060, 1250, and 1500 gallon two compartment "Septech™" Brand HDPE tanks.
  ** This company was formerly known as "FRALO" Plastech Manufacturing

- Snyder Industries, Inc. – Lincoln, Nebraska: 1050, 1250, and 1500 gallon Low Profile "NuConSept Plus" model polyethylene two compartment only tanks.

- Wind River Ready Mix - Riverton, WY: 1000 gal "Norwalk" Low Profile two compartment

CHAMBER SYSTEMS

Last Updated: 03-12-2008, by RLE

DRAFT Equivalent Areas

As allowed by DEQ Water Quality Division Policy # 13.41.2, dated November 21, 1994, gravelless leachfield chambers get double infiltrative surface area credit for the bottom area of the chamber. This is allowed because research indicates that chambers provide an optimum infiltrative surface by eliminating the 50% stone masking associated with conventional systems utilizing stone in the leach field. Since these types of chambers are manufactured units with fixed dimensions, an equivalent infiltrative surface area can be pre-calculated for any make and model of chamber. In a trench configuration, the equivalent area is equal to 2 * (width + effective side wall height) * unit length. In a bed configuration the side wall is not counted, so the equivalent area is equal to 2 * width * unit length. The following table shows the equivalent areas of several types and models of these units for both bed and trench applications:

Make and Model	Nominal Dimensions (length*width*height)	**EQUIVALENT AREA: in a** Bed Layout	Trench Layout
INFILTRATOR brand:			
Original/Standard Unit	6.25ft * 34in * 12in	35.4 sf	40.0 sf / unit
High Capacity Chamber	6.25ft * 34in * 16in	35.4 sf	45.0 sf
Equalizer 24 (EQ24)	8.42ft * 15in * 11in	21.0 sf	30.0 sf
Equalizer 36 (EQ36)	8.42ft * 22in * 13.5in	30.0 sf	42.0 sf
Standard Sidewinder	6.25ft * 34in * 12in	35.4 sf	40.0 sf
High Capacity Sidewinder	6.25ft * 34in * 16in	35.4 sf	45.0 sf
Quick4 Standard	4.42ft * 34in * 12in	22.5 sf	26.5 sf / unit
Quick4 High Capacity	4.42ft * 34in * 16in	22.5 sf	30.3 sf
Quick4 Standard End Cap Pairs (inlet & back end):		**7.0 square feet / pair**	
Quick4 "EQ24"	4.42ft * 16in * 11in	10.6 sf	14.6 sf
Quick4 "EQ36"	4.42ft * 22in * 12in	14.6 sf	18.5 sf
HANCOR EnviroChamber brand:			
Standard Unit	6.25ft * 34in * 12in	35.4 sf	42.0 sf / unit
High Capacity Unit	6.25ft * 34in * 17.5in	35.4 sf	48.0 sf
Pro Standard Unit	6.33ft * 34in * 11in	35.8 sf	42.0 sf
Pro High Capacity	6.33ft * 34in * 14in	35.8 sf	45.0 sf
Pro 15" Narrow Chamber	7.25ft * 15in * 12in	18.0 sf	26.0 sf
Pro 22" Narrow Chamber	7.25ft * 22in * 12in	26.5 sf	35.0 sf
Pro ARC Standard Unit	5.0 ft * 34.5in * 13in	28.7 sf	34.7 sf
BIODIFFUSER brand:			
Standard Unit (11" tall)	6.33ft * 34in * 11in	35.8 sf	42.0 sf / unit
14" Tall High Capacity Unit	6.33ft * 34in * 14in	35.8 sf	45.0 sf
16" Tall High Capacity Unit	6.33ft * 34in * 16in	35.8 sf	47.5 sf
Bio 2 Chamber	7.25ft * 15in * 12in	18.0 sf	26.0 sf
Bio 3 Chamber	7.25ft * 22in * 12in	26.5 sf	35.0 sf
ARC 24 Unit	5.58ft * 22.5in * 12in	18.7 sf	23.9 sf
ARC 36	5.25ft * 34.5in * 13in	28.7 sf	34.7 sf
ARC 36HC	5.25ft * 34.5in * 16in	28.7 sf	37.7 sf