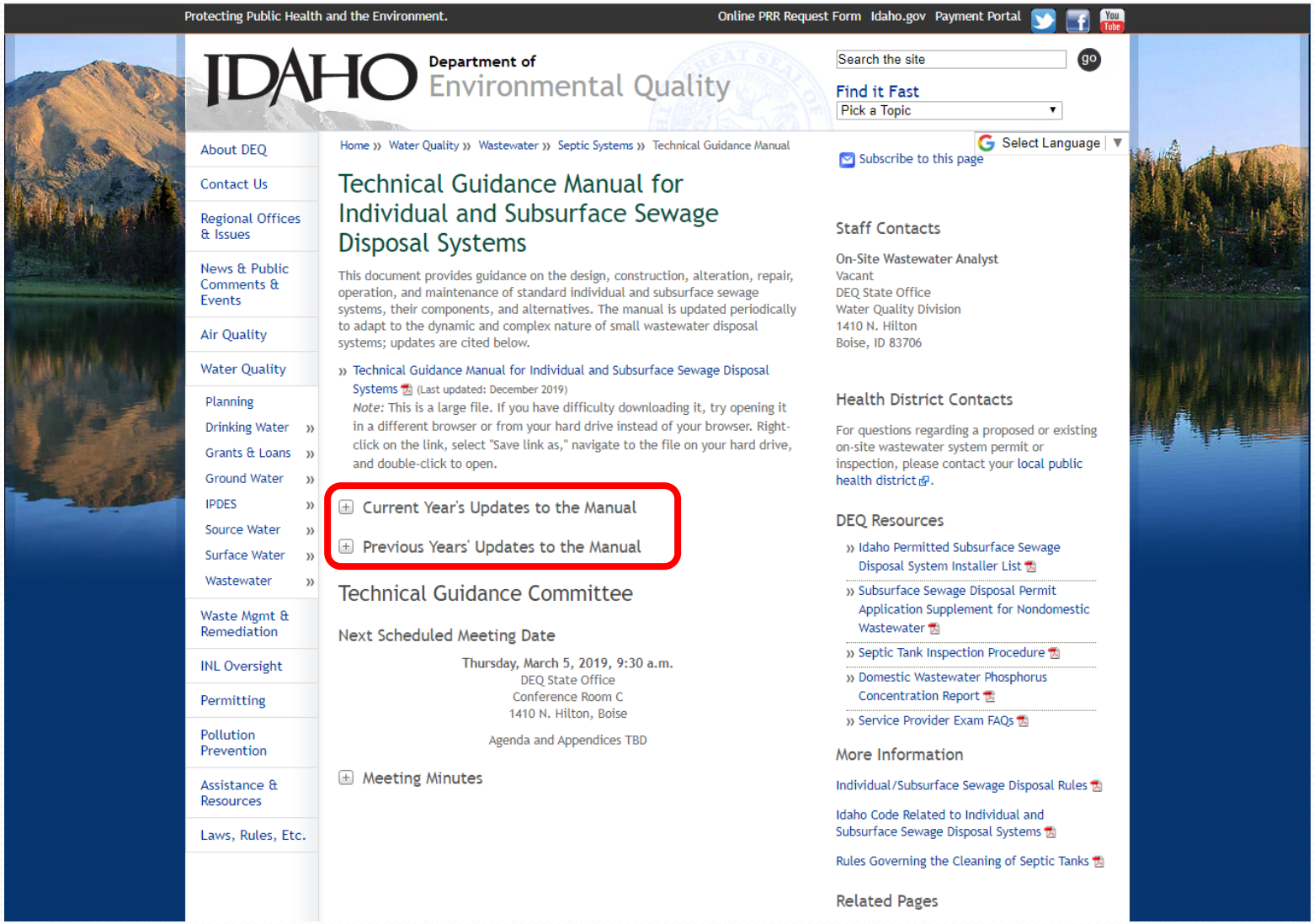
Public Health
Idaho North Central District

Complex Septic System Installer Training Class

Public Health – Idaho North Central District

www.idahopublichealth.com

Updates to the Technical Guidance Manual



Complex Systems and Licensing

- Any system currently listed in the TGM.
- Public works contractors may install any central or municipal system while under the supervision of PE licensed in Idaho.

Complex Systems Not Requiring an Engineer

- ETPS
- Pump-to-gravity pressure distribution
- Two-cell infiltrative system
- Remediation components
- Proprietary wastewater treatment systems*

Complex Systems Requiring an Engineer

- At-grade soil absorption system
- Drip distribution system
- Evapotranspiration and evapotranspiration/infiltrative system
- Experimental systems
- Pressurized grey water systems
- Pressurized in-trench sand filter
- Individual lagoon
- Intermittent sand filter
- Large soil absorption systems
- Pressure distribution systems
- Public systems*
- Recirculating gravel filter
- Sand mound
- Subsurface flow constructed wetland

Operation & Maintenance

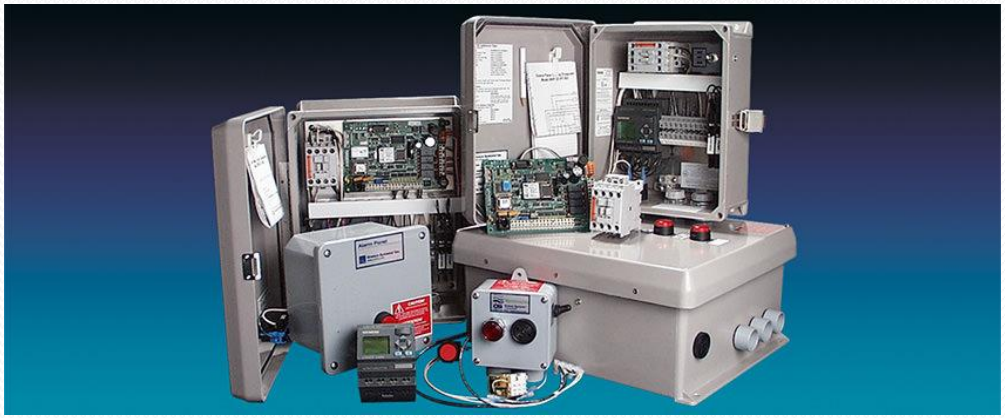
- O&M of complex sewage disposal systems not designed by an engineer is generally found in the TGM or in the design manual provided by the product manufacture.
- All systems designed by an engineer must submit an operations and maintenance manual with the application.
- Some systems require O&M be performed by a service provider, with annual reporting.

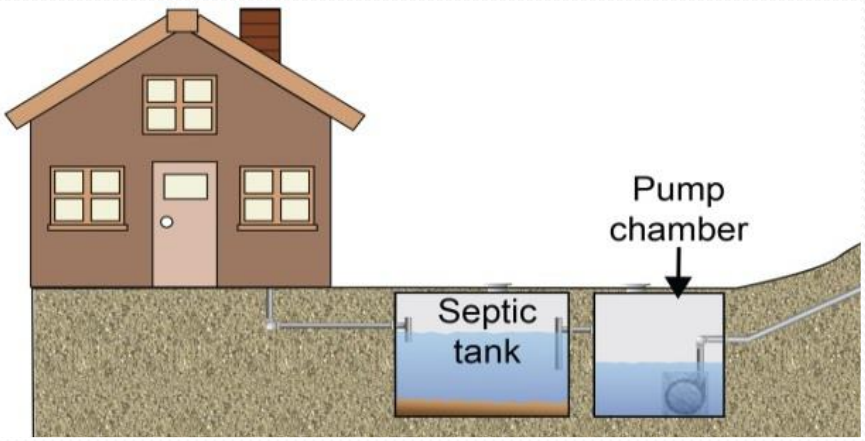
Certified Service Providers

- O&M required by certified service provider for:
  - ETPS
  - Recirculating gravel filters
- Manufacturer-specific training documentation
- $15,000 bond
- Exam ≥70%
- Annual reports
- Refresher Training

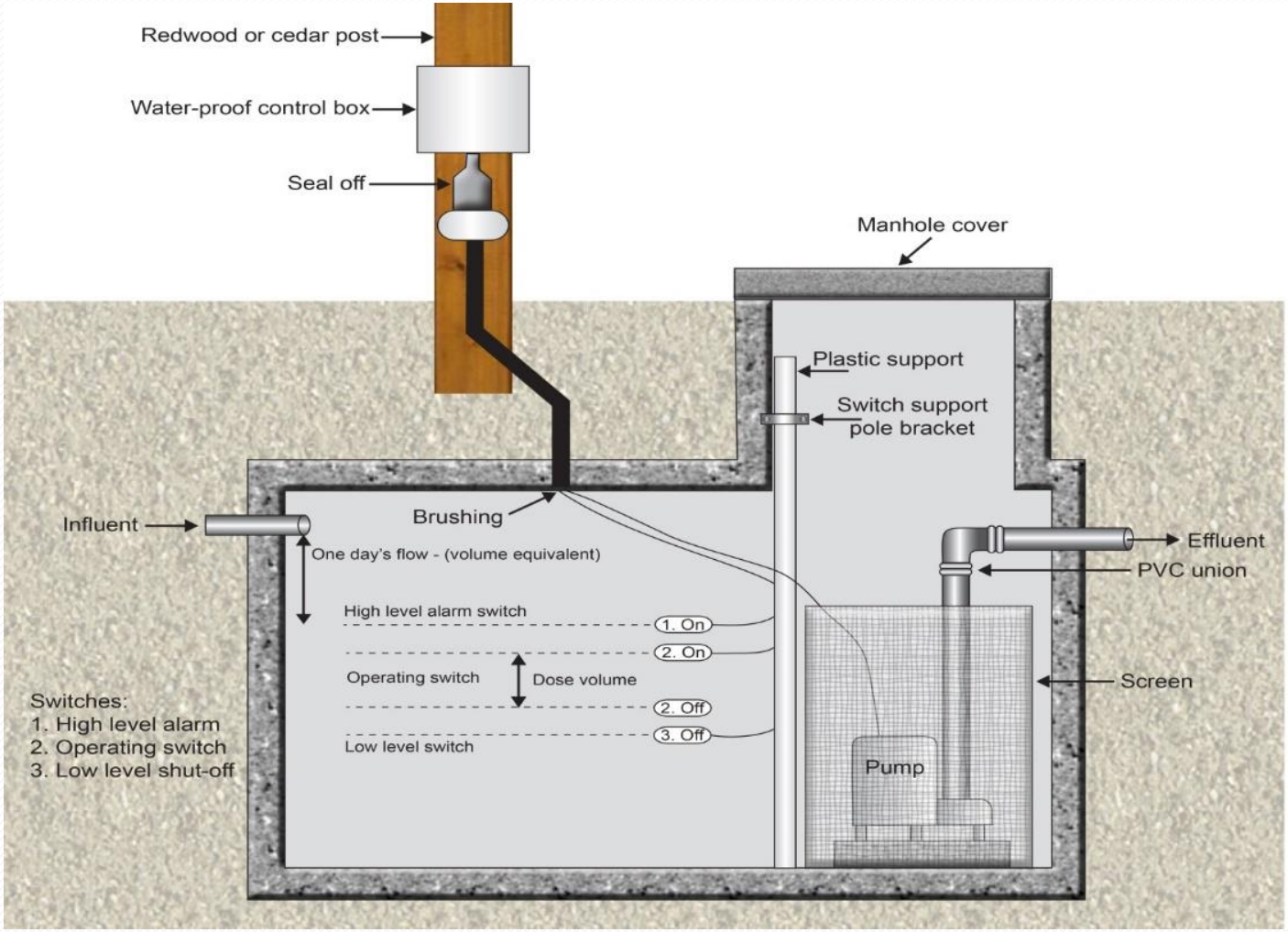
Service Provider Responsibilities

Pumping Sewage





Dosing Chambers



Dosing Chambers

More on Pumping

Table 4-18. Gallons per foot of pipe length.

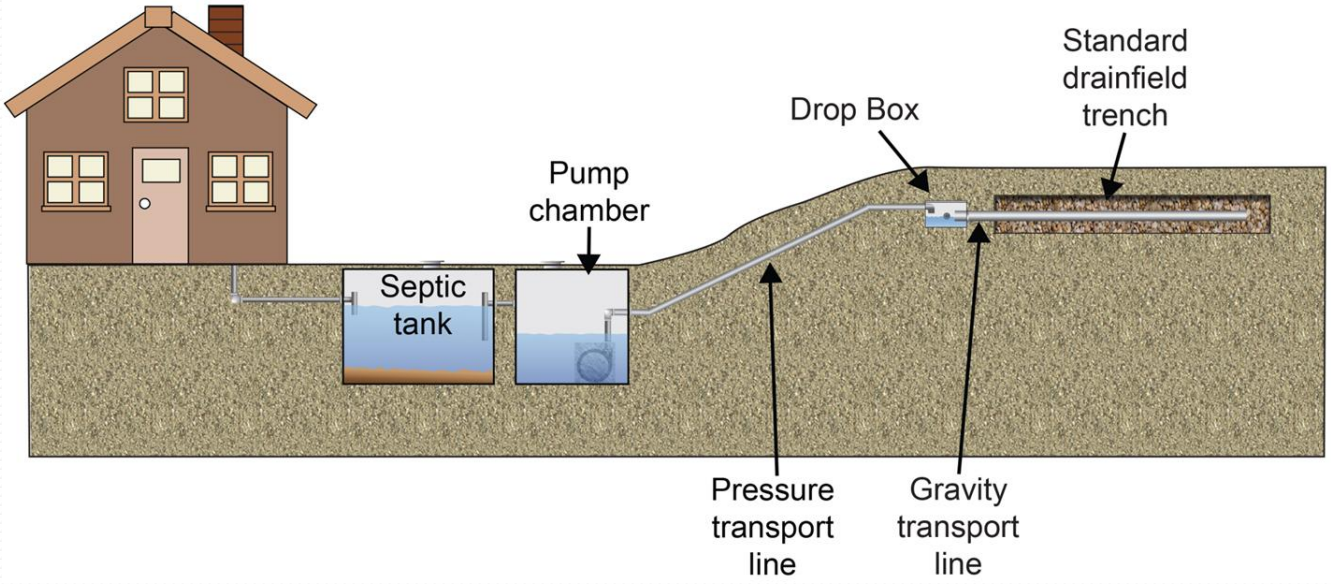
Diameter (inches)	Schedule 40	Class 200	Class 160	Class 125
1	0.045	0.058	0.058	—
1.25	0.078	0.092	0.096	0.098
1.5	0.105	0.120	0.125	0.130
2	0.175	0.189	0.196	0.204
3	0.385	0.417	0.417	0.435
4	0.667	0.667	0.714	0.714
6	1.429	1.429	1.429	1.667

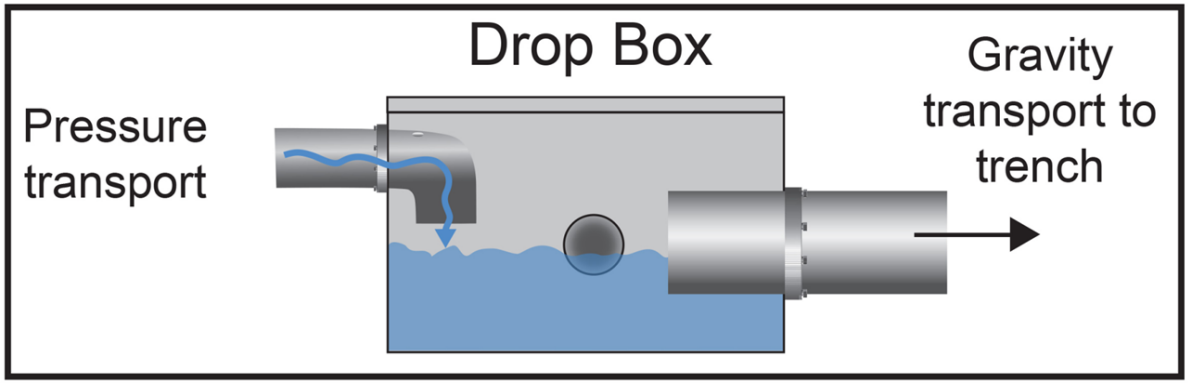
Table 5-13. Pipe materials for specified uses.

Pipe Material and Specification[a,b]		Function			
		Tank to Dosing Chamber	Tanks to Drainfield[c,d]	Gravity Drainfield[c,d]	Pressure Distribution System
ABS Sch. 40[e]	ASTM D2661	X	X	X	X
	ASTM F628	X	X	X	X
PVC Sch. 40	ASTM F891-10	X	X	X	X
PVC	ASTM D3034[f]	X	X	X	
	ASTM D2729			X	
	ASTM D2241	X	X	X	X
	AWWA C900	X	X	X	X
	ASTM D2665	X	X	X	
	ASTM D1785	X	X	X	X
PE	AWWA C906	X	X	X	X
	ASTM F810[g]		X	X	
	ASTM F667[h]			X	

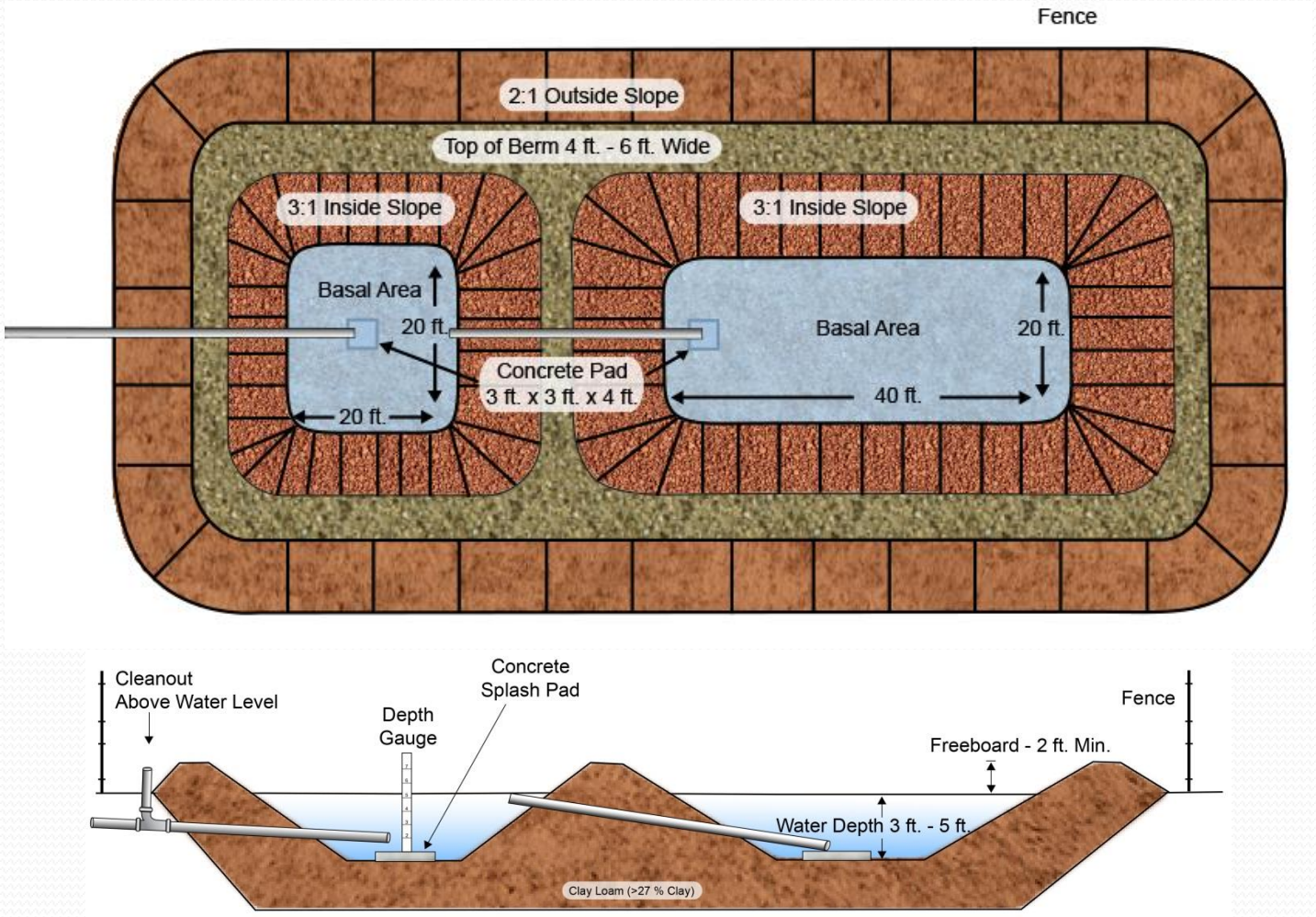

BABY WIPES BOX SAYS "FLUSHABLE"
maury
THIS $5000 BILL FOR SEPTIC REPAIRS INDICATES THAT WAS A LIE
mematic.net

Pump-to-Gravity Distribution



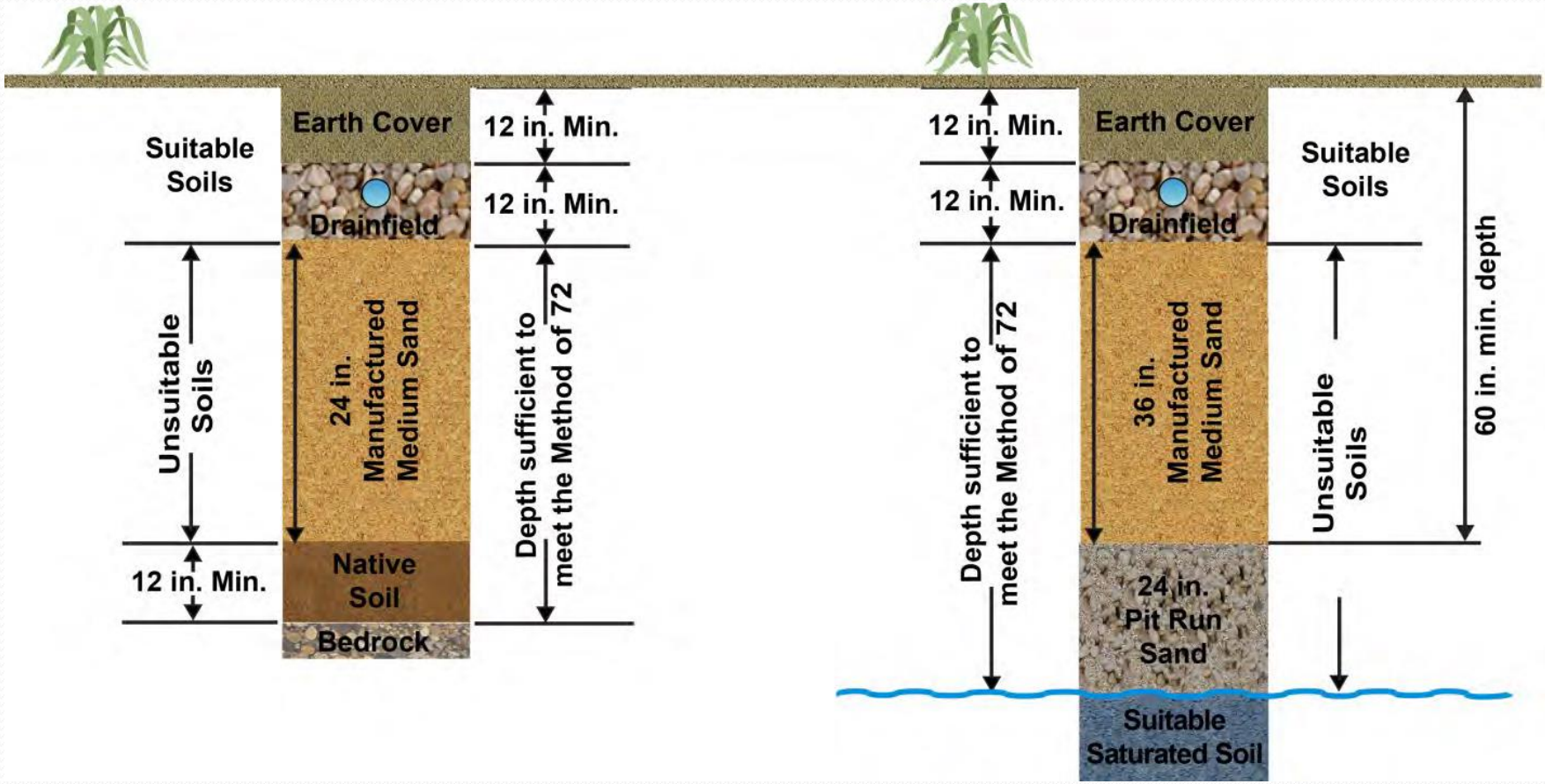


Two-Cell Infiltrative System

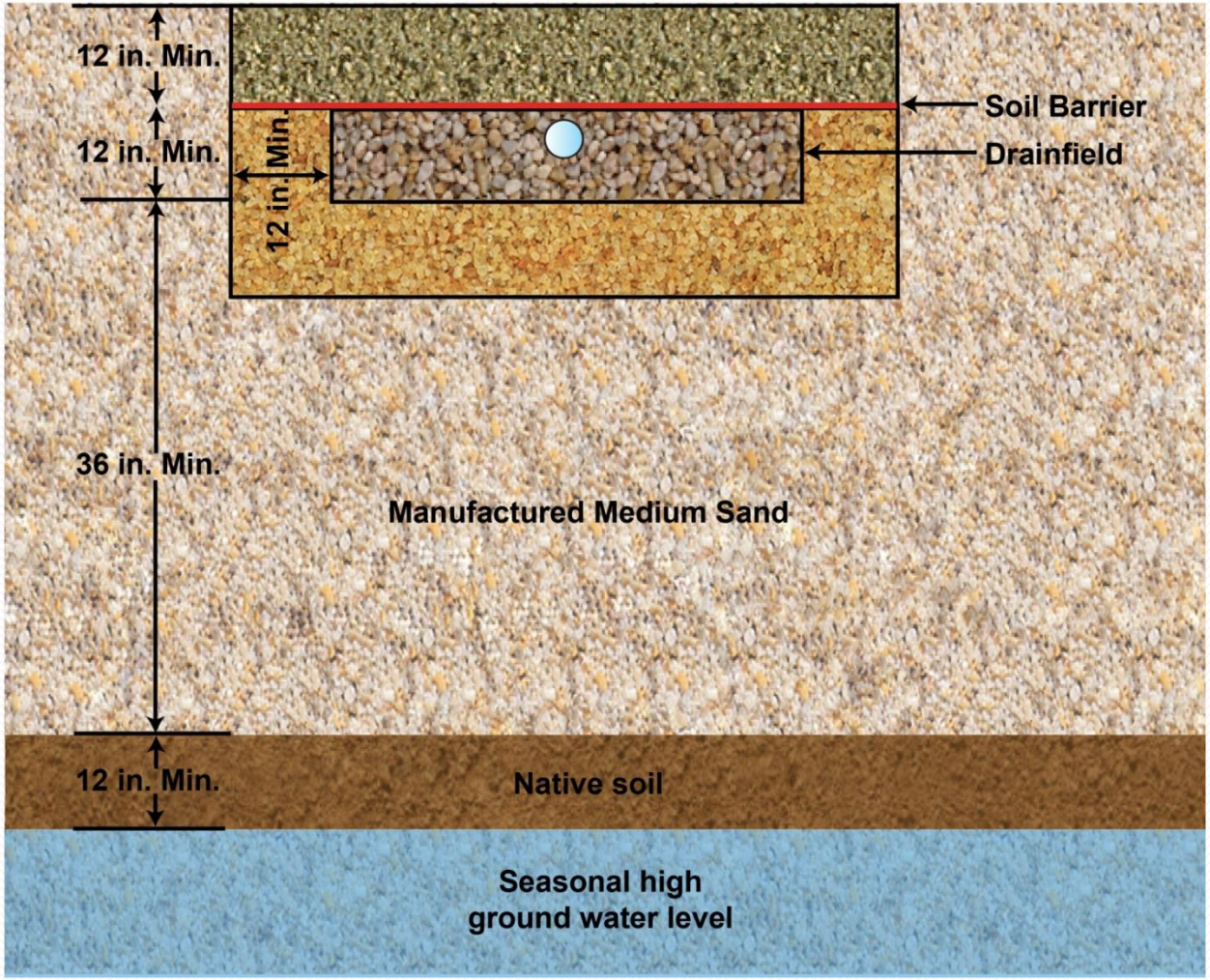


Two-Cell Infiltrative System

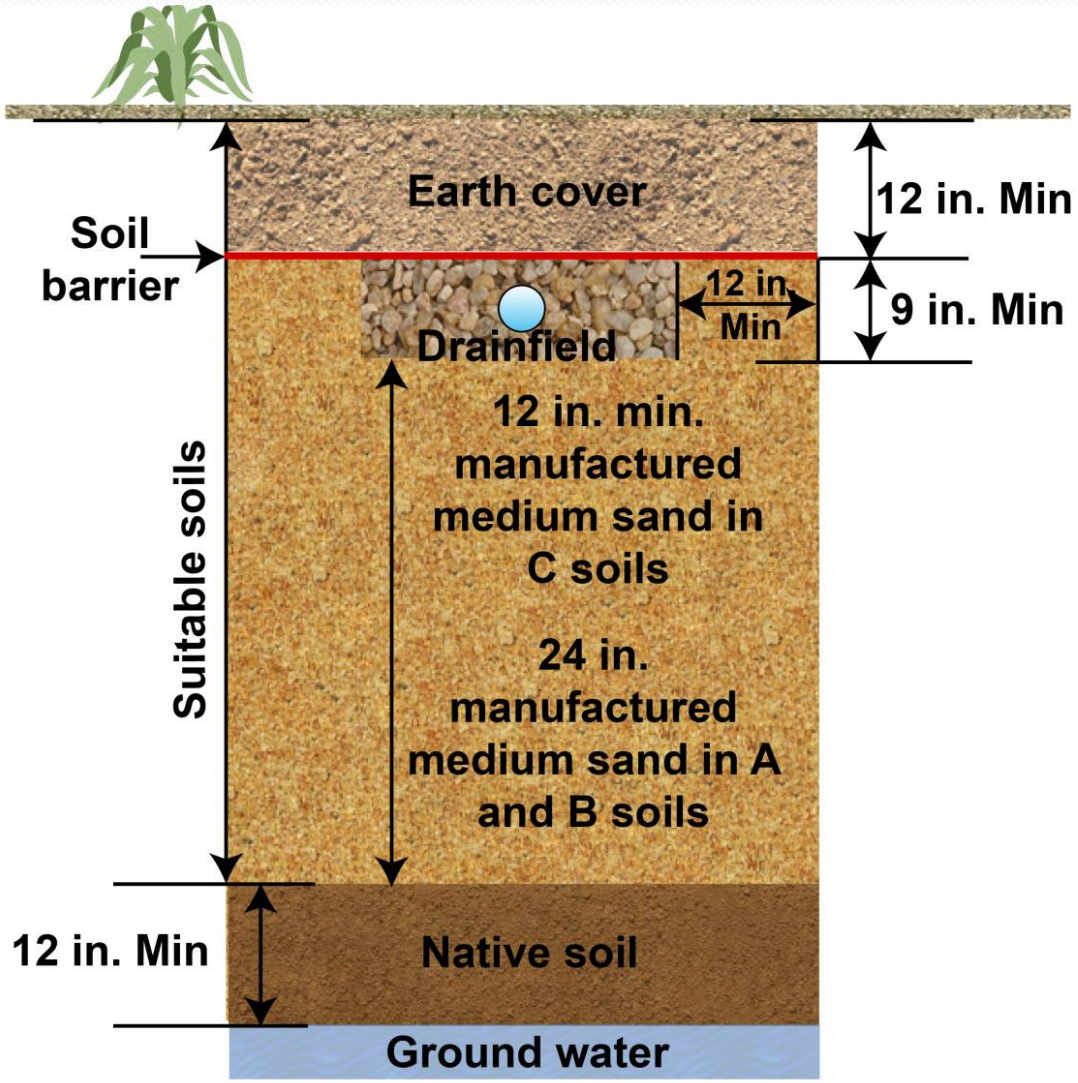
Pressurized In-trench Sand Filter



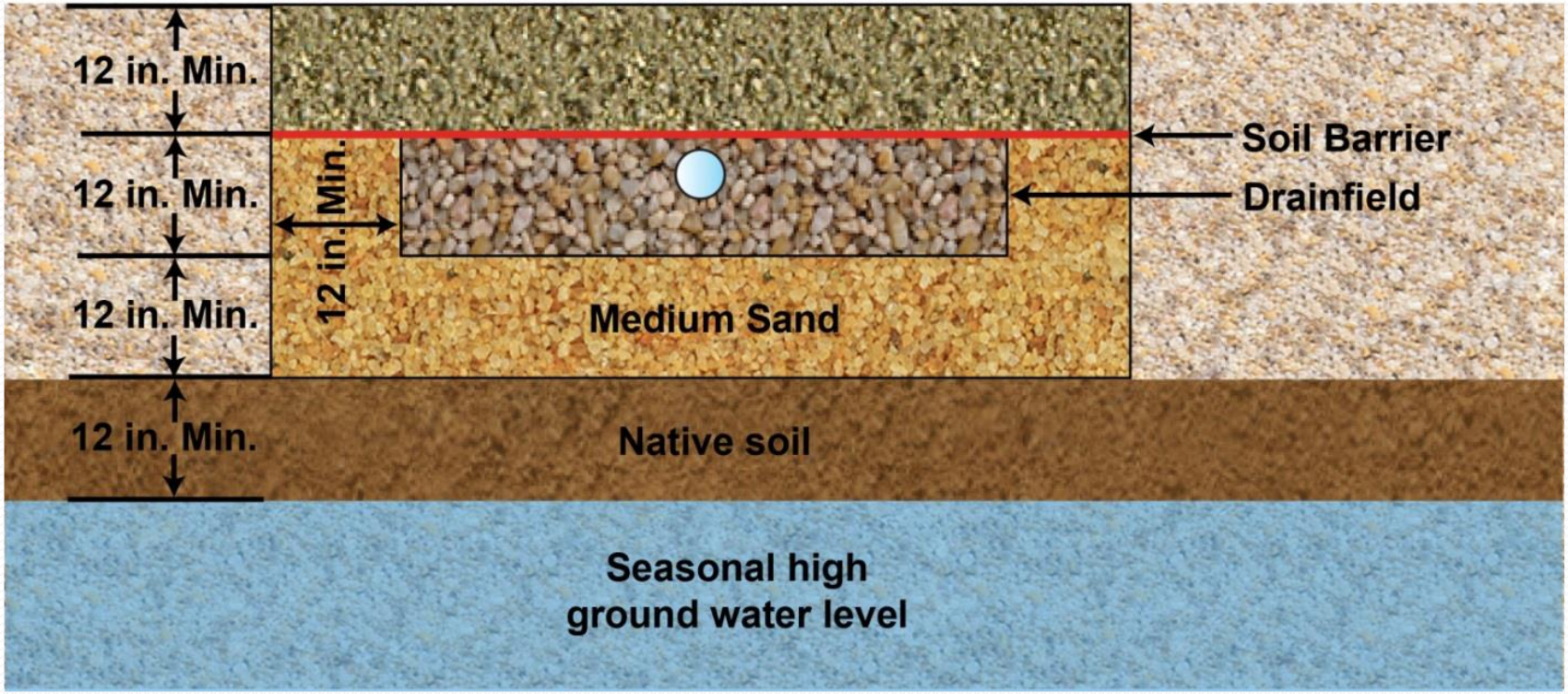
Enveloped In-trench Sand Filter

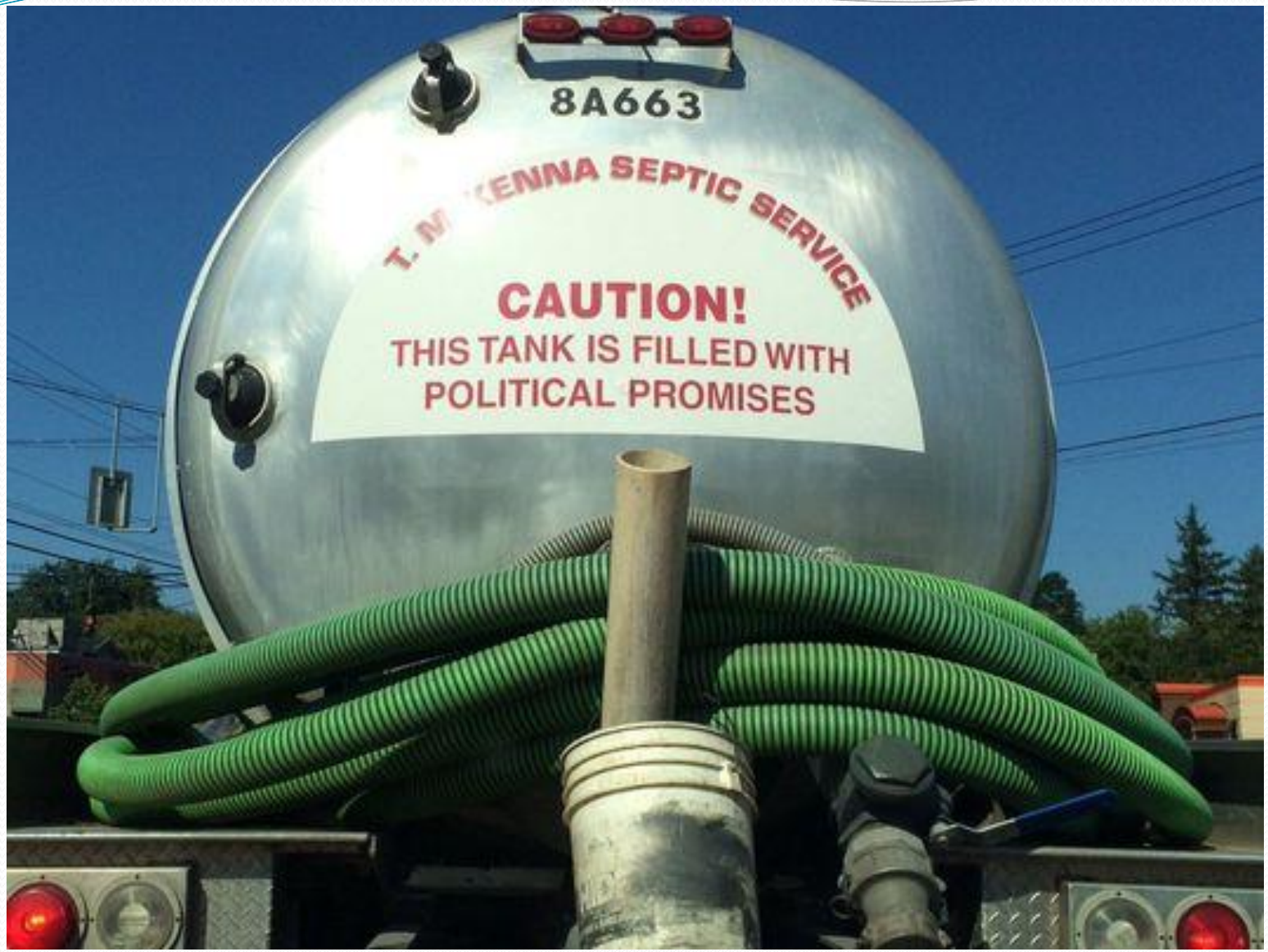


Pressurized Enveloped In-trench Sand Filter

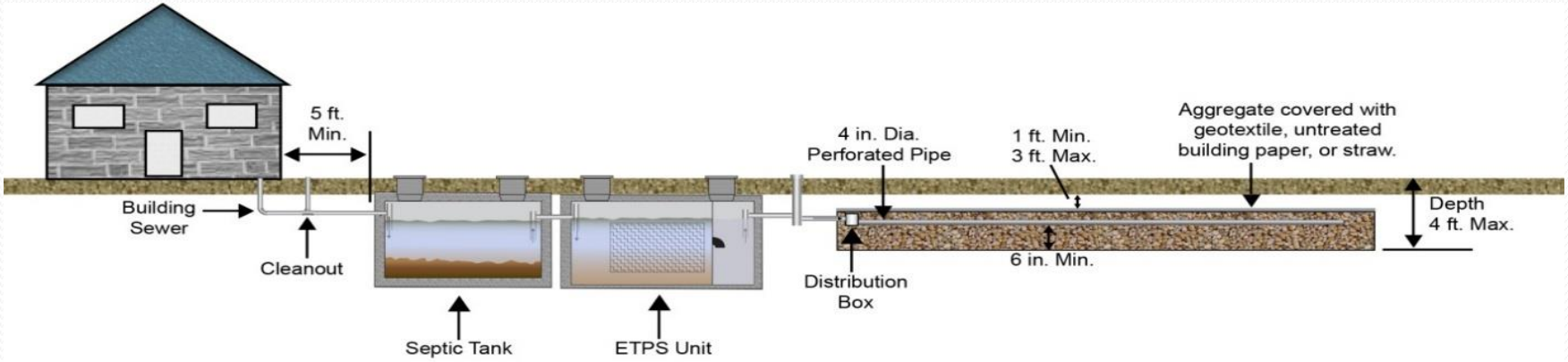


Pretreated Enveloped In-trench Sand Filter

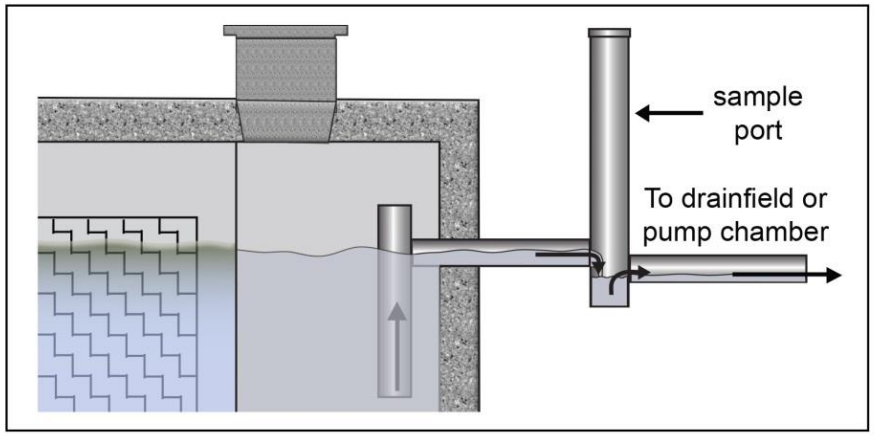



8A663
T. M KENNA SEPTIC SERVICE
CAUTION!
THIS TANK IS FILLED WITH
POLITICAL PROMISES

Extended Treatment Package Systems



Limiting Layer	Flow < 2,500 GPD
	All Soil Types
Impermeable layer	2
Fractured rock or very porous layer	1
Normal high ground water	1
Seasonal high ground water	1



Common ETPS in Idaho

(1,935 installed as of 2017)

Jet™ Wastewater Treatment Solutions
Founded on Innovation. Anchored by Service.

BIO MICROBICS

NAYADIC® WASTEWATER TREATMENT SYSTEMS

SeptiTech®

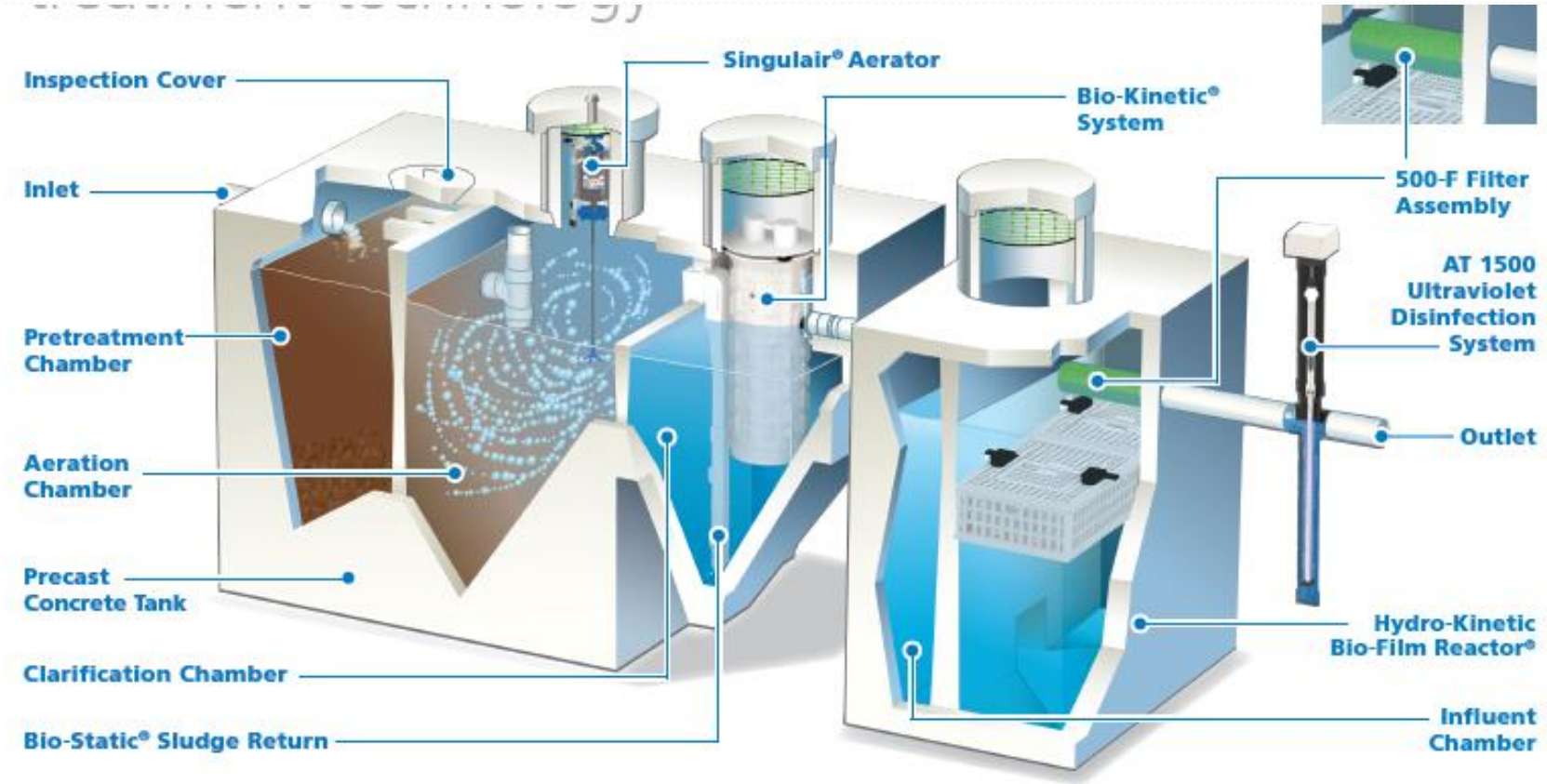
Orenco® SYSTEMS

norweco®

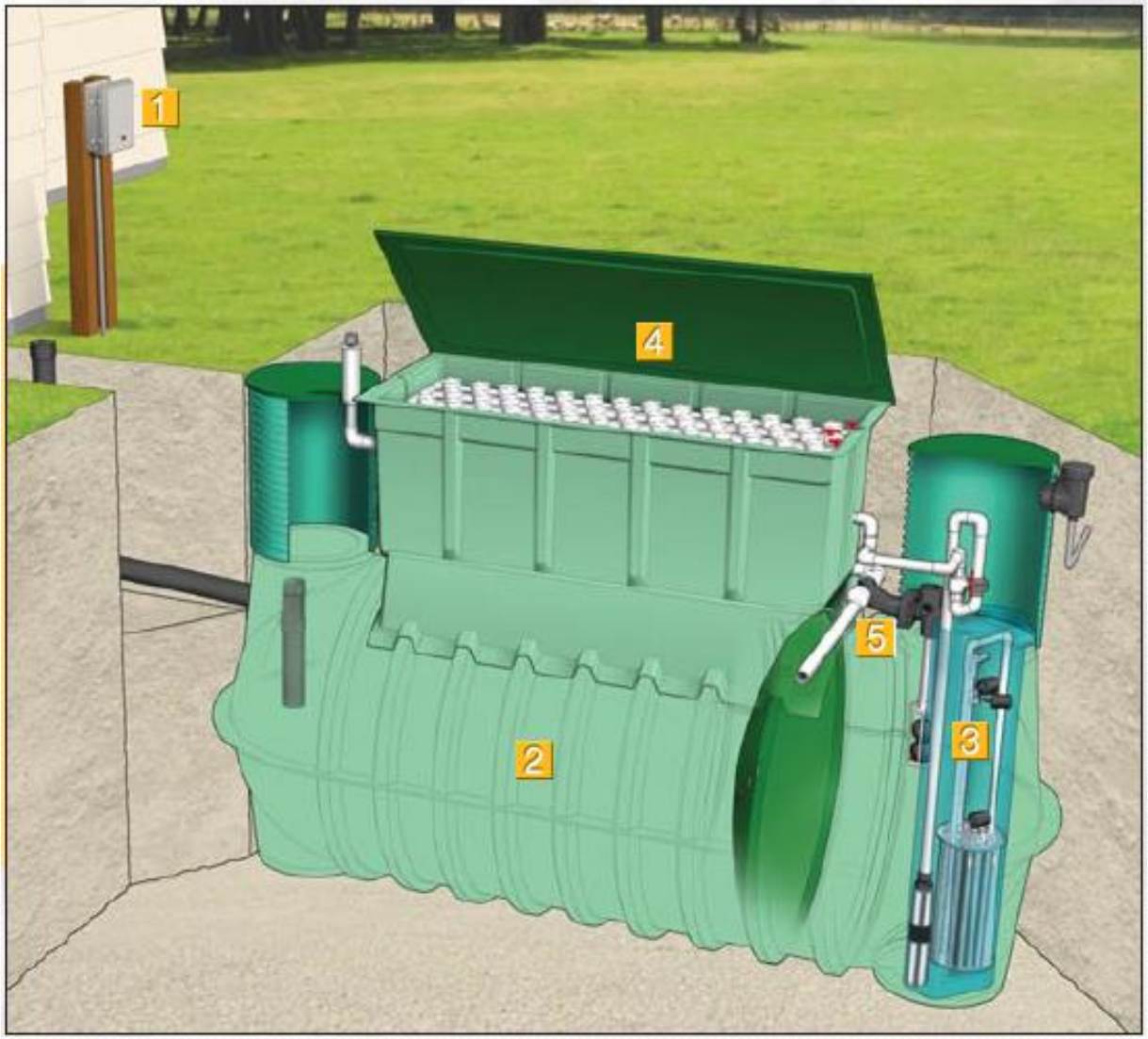
PENTAIR

DELTA ENVIRONMENTAL®

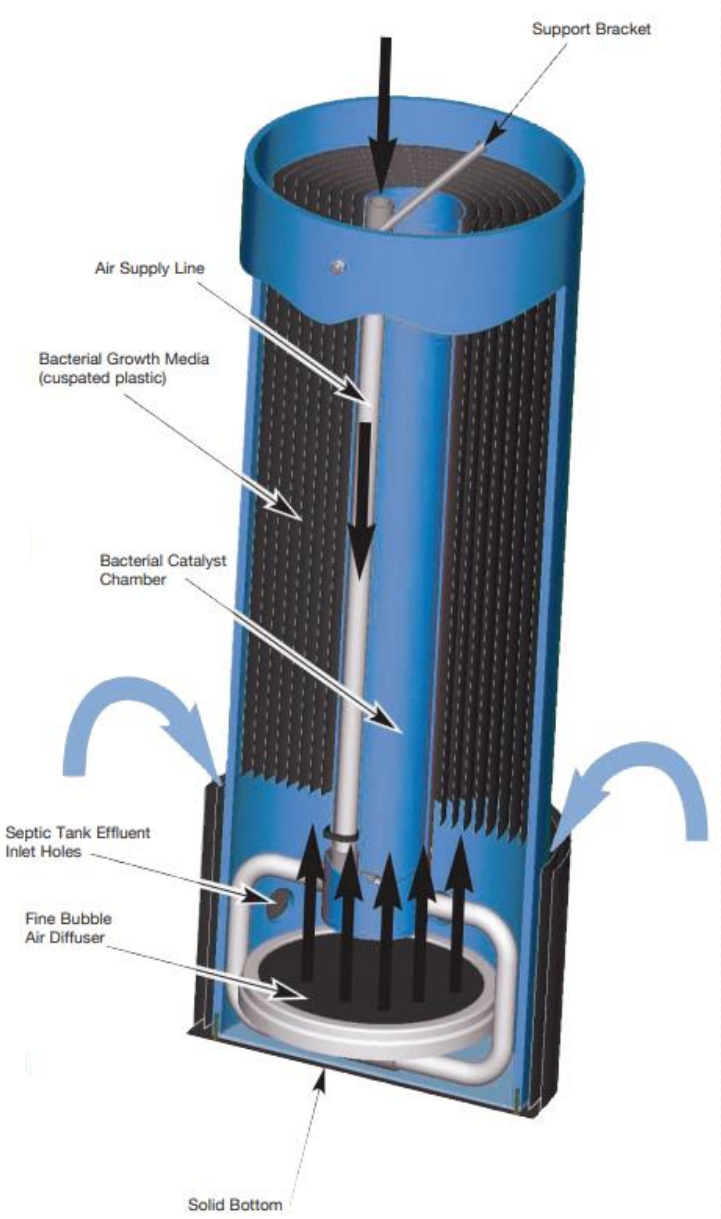
ETPS Examples

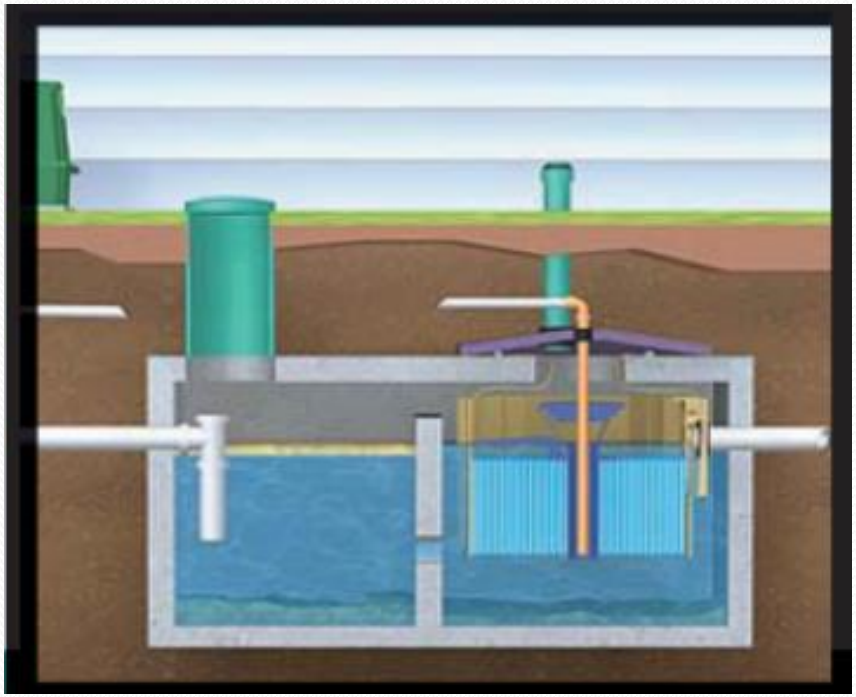


ETPS Examples



Remediation Components





Engineered Systems

A Note on Engineers

- The engineer must be licensed as a P.E. in Idaho.
- Familiar with wastewater.
- The engineer is responsible for submitting an as-built and O&M at the completion of the project.
- Availability of engineers.

Pressure Distribution System

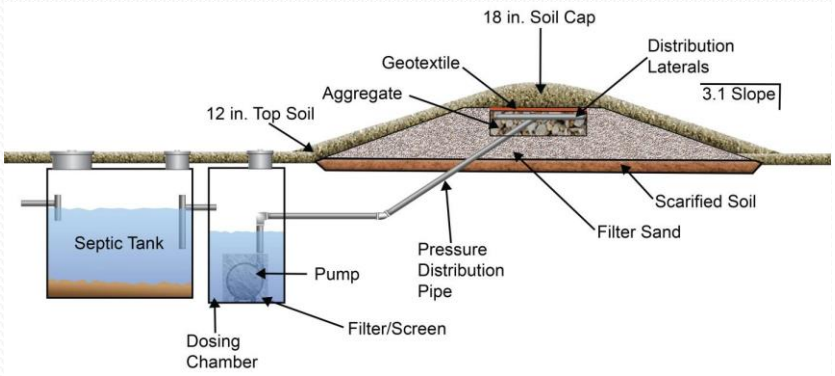
Pressure Distribution System

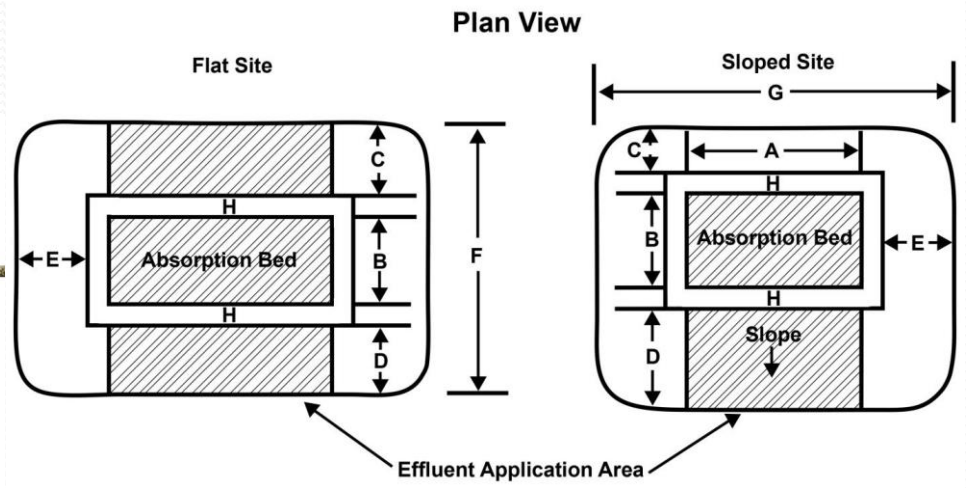
Number of Bedrooms	1	2	3	4	5	6
Gallons per day	**150**	**200**	**250**	**300**	**350**	**400**
			Total Trench Lengths (feet)			
Soil Group A-1 total feet	125	167	208	250	292	333
3-ft wide trench	42	56	69	83	97	111
2.5-ft wide trench	50	67	83	100	117	133
2-ft wide trench	63	83	104	125	146	167
Soil Group A-2a total feet	150	200	250	300	350	400
3-ft wide trench	50	67	83	100	117	133
2.5-ft wide trench	60	80	100	120	140	160
2-ft wide trench	75	100	125	150	175	200
Soil Group A-2b total feet	200	267	333	400	467	533
3-ft wide trench	67	89	111	133	156	178
2.5-ft wide trench	80	107	133	160	187	213
2-ft wide trench	100	133	167	200	233	267
Soil Group B-1 total feet	250	333	417	500	583	667
3-ft wide trench	83	111	139	167	194	222
2.5-ft wide trench	100	133	167	200	233	267
2-ft wide trench	125	167	208	250	292	333
Soil Group B-2 total feet	333	444	556	667	778	889
3-ft wide trench	111	148	185	222	259	296
2.5-ft wide trench	133	178	222	267	311	356
2-ft wide trench	167	222	278	333	389	444
Soil Group C-1 total feet	500	667	833	1,000	1,167	1,333
3-ft wide trench	167	222	278	333	389	444
2.5-ft wide trench	200	267	333	400	467	534
2-ft wide trench	250	333	417	500	548	667
Soil Group C-2 total feet	750	1,000	1,250	1,500	1,750	2,000
3-ft wide trench	250	333	417	500	a	a
2.5-ft wide trench	300	400	500	600	a	a
2-ft wide trench	375	500	625	750	a	a

a. Exceeds 1,500 square feet of total trench area. Use an alternative system to reduce the installed square footage of

Sand Mound Systems

- Pressurized distribution is required
- Setback reductions
- Maximum slopes of 20% for A and B soils 12% for C-1 and 6% for C-2
- Sludge in septic tank should be checked annually and pumped at 40%

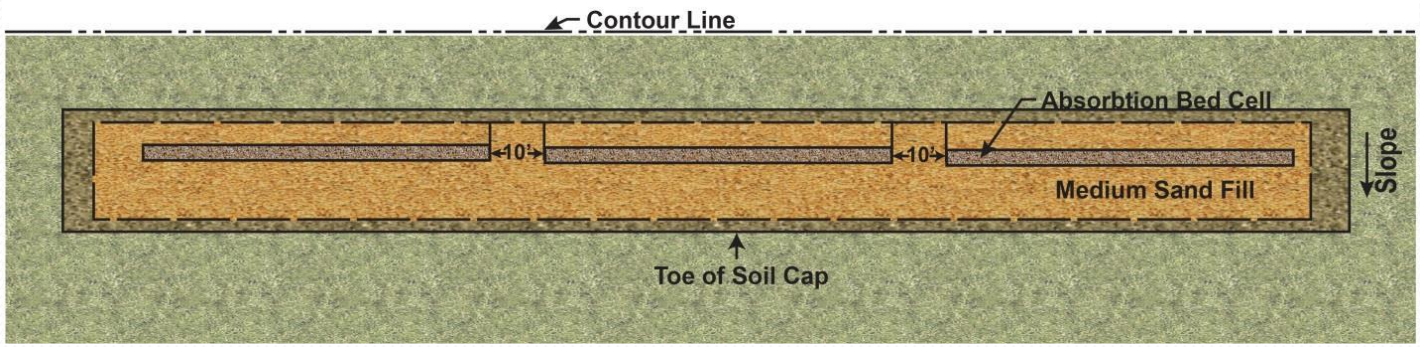




TGM Section 4.24

Sand Mound Systems

- Cells should be as long and narrow as possible
- Vegetation must be removed, the entire area scarified, then plowed 6 to 8 inches deep before sand is placed.



TGM Section 4.24


THIS TOWN NEEDS
A NEW SEWAGE SYSTEM
BUT ALL THE DOCTORS
ARE OPPOSED TO IT
THEY'RE ALL
ANTI-SEPTIC

Pressurized Grey Water Systems

- Grey water plumbing systems must be approved by the Idaho Division of Building Safety
- The number of occupants is used to determine daily flow

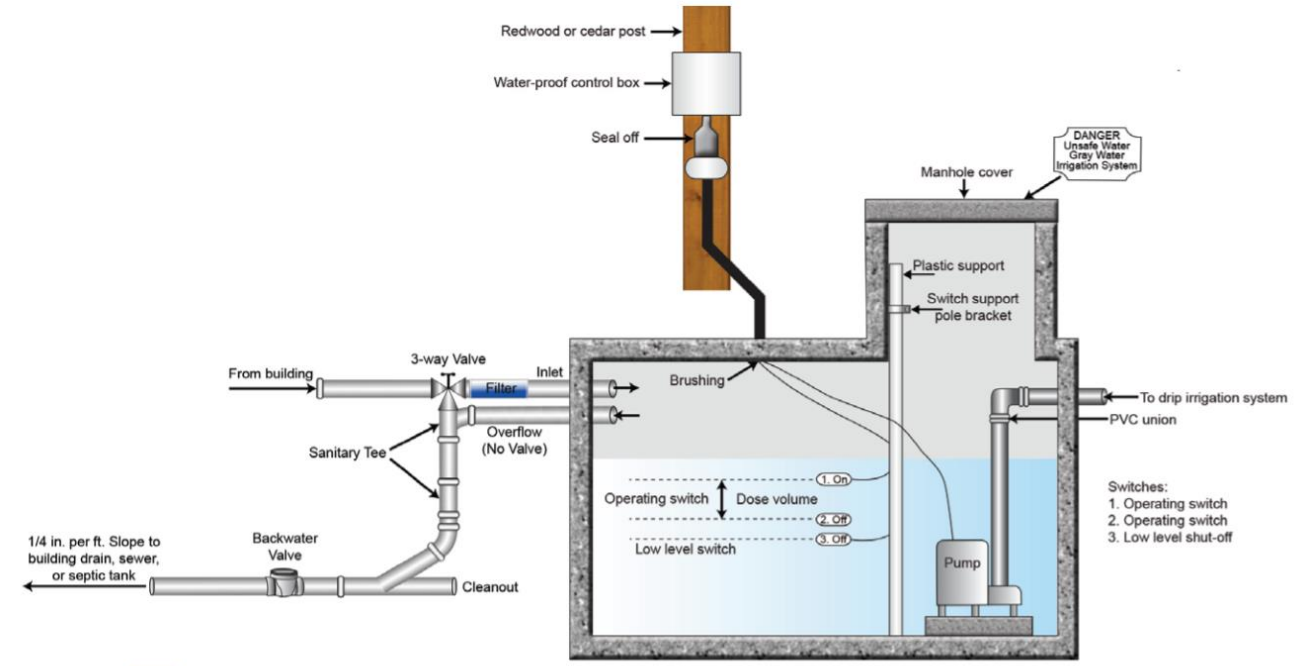


Figure 4-19. Gray water system (single-tank pumped).

Individual Lagoon

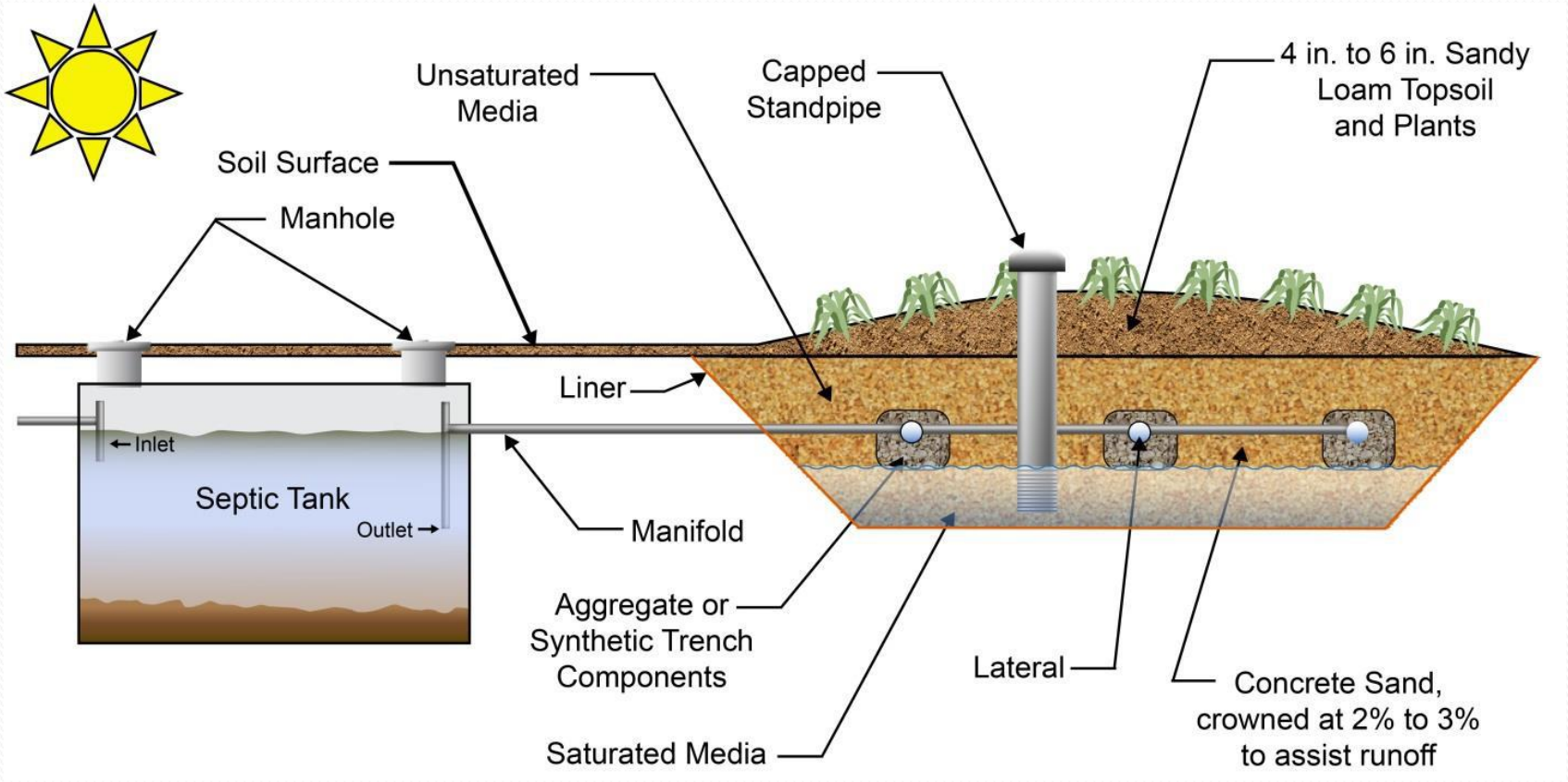
- 200’ setback to property line
- Site slope may not exceed 12%
- Not to be placed in areas that freeze for more than 3 months
  - Or where precipitation is greater than evaporation
- 10 acre minimum lot size, variance required from 5 acre to 10
- Lagoon area must be compacted
- Area must be fenced

Individual Lagoon

Individual Lagoon

Individual Lagoon

Evapotranspiration & ET/Infiltrative Systems



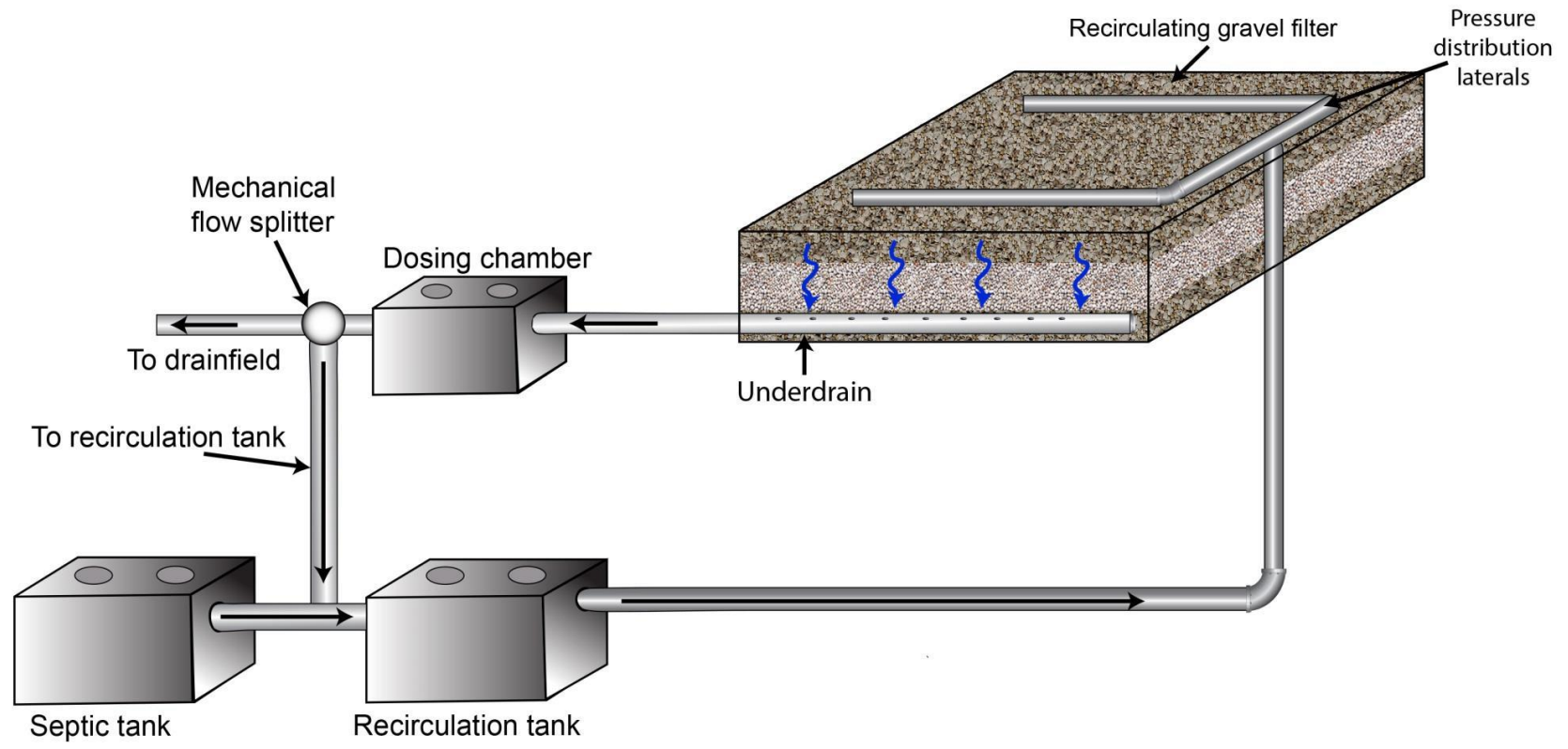
TGM Section 4.6

Evapotranspiration ET/Infiltrative Systems

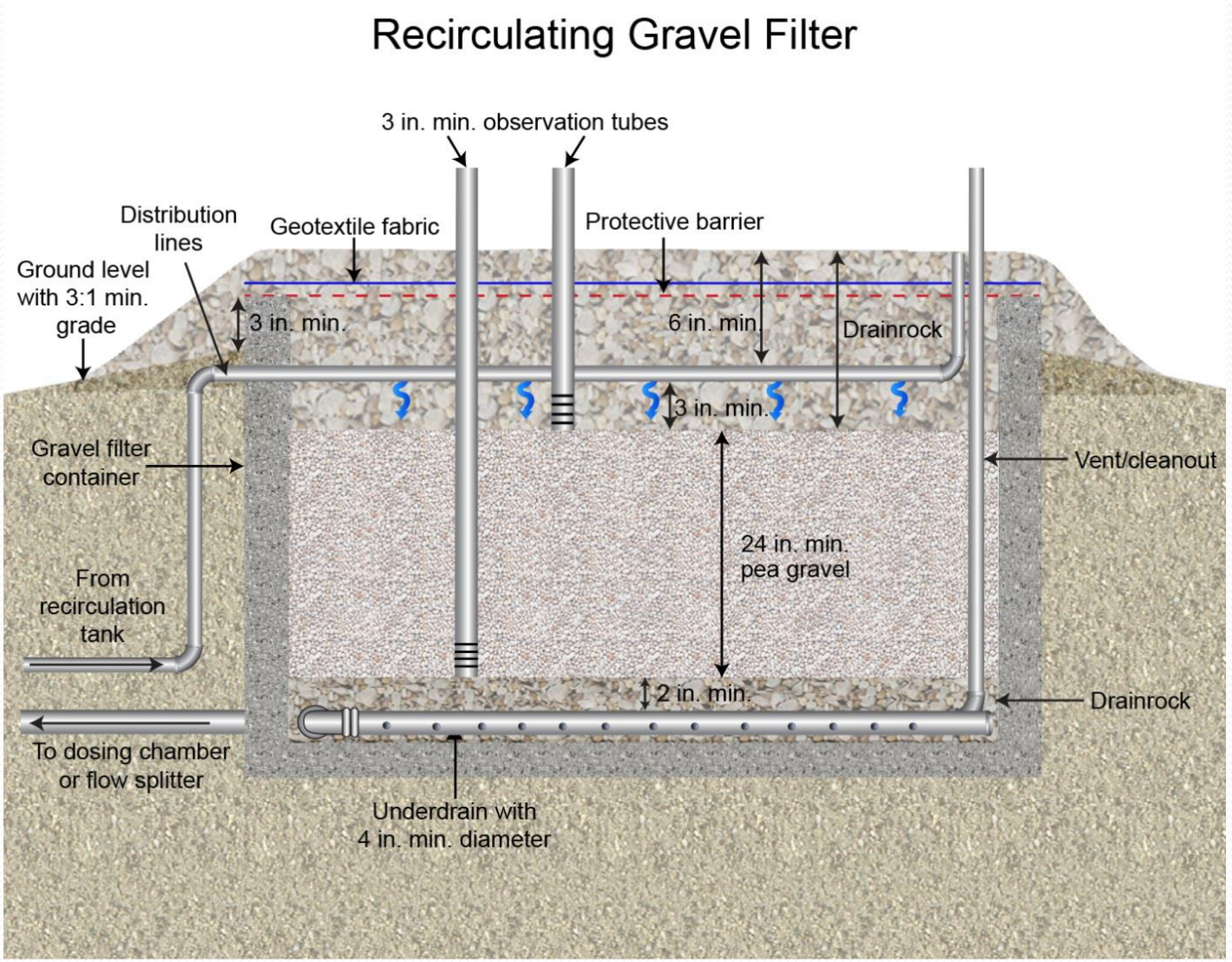
- Seasonal ground water must not come within 6” of liner
- 100’ setback to wells and surface water
- Site must not be subject to flooding
- High water alarm and standpipes are required
- Distribution laterals must be wrapped with geotextile fabric

- The ETI system are similar to ET just put in C type soils with no liner, or a clay based liner.

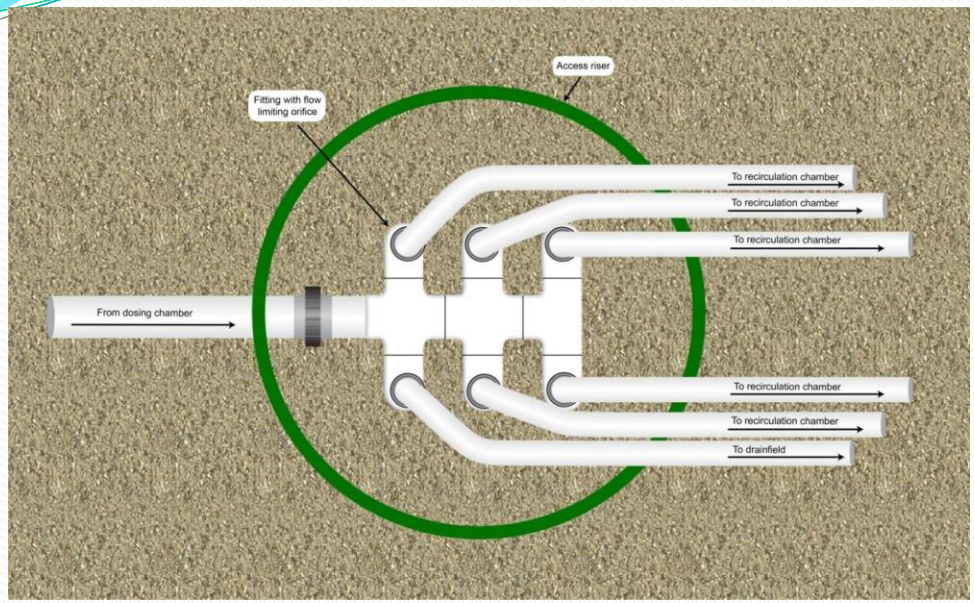
Recirculating Gravel Filter



Recirculating Gravel Filter

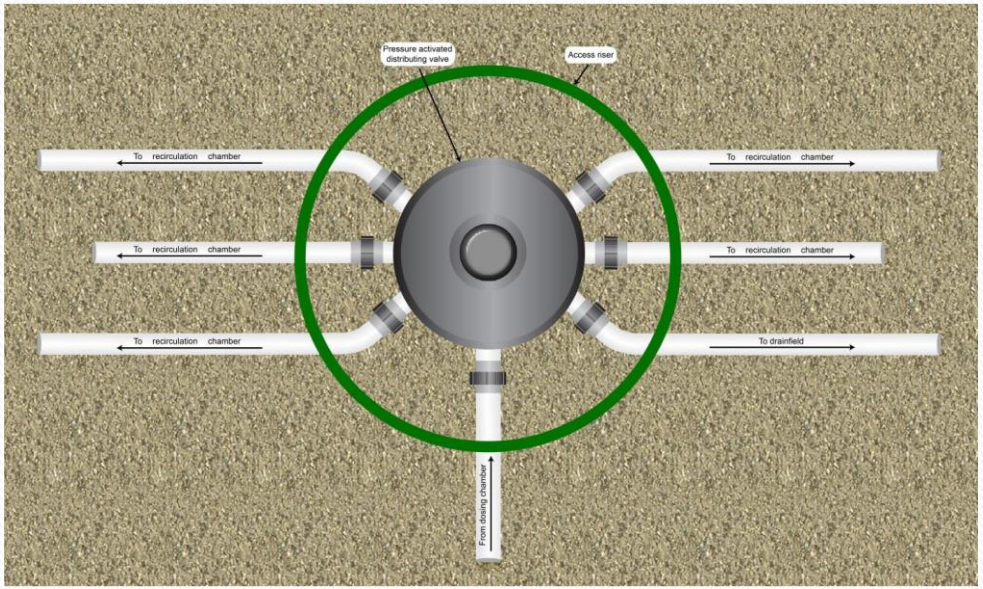


Recirculating Gravel Filter

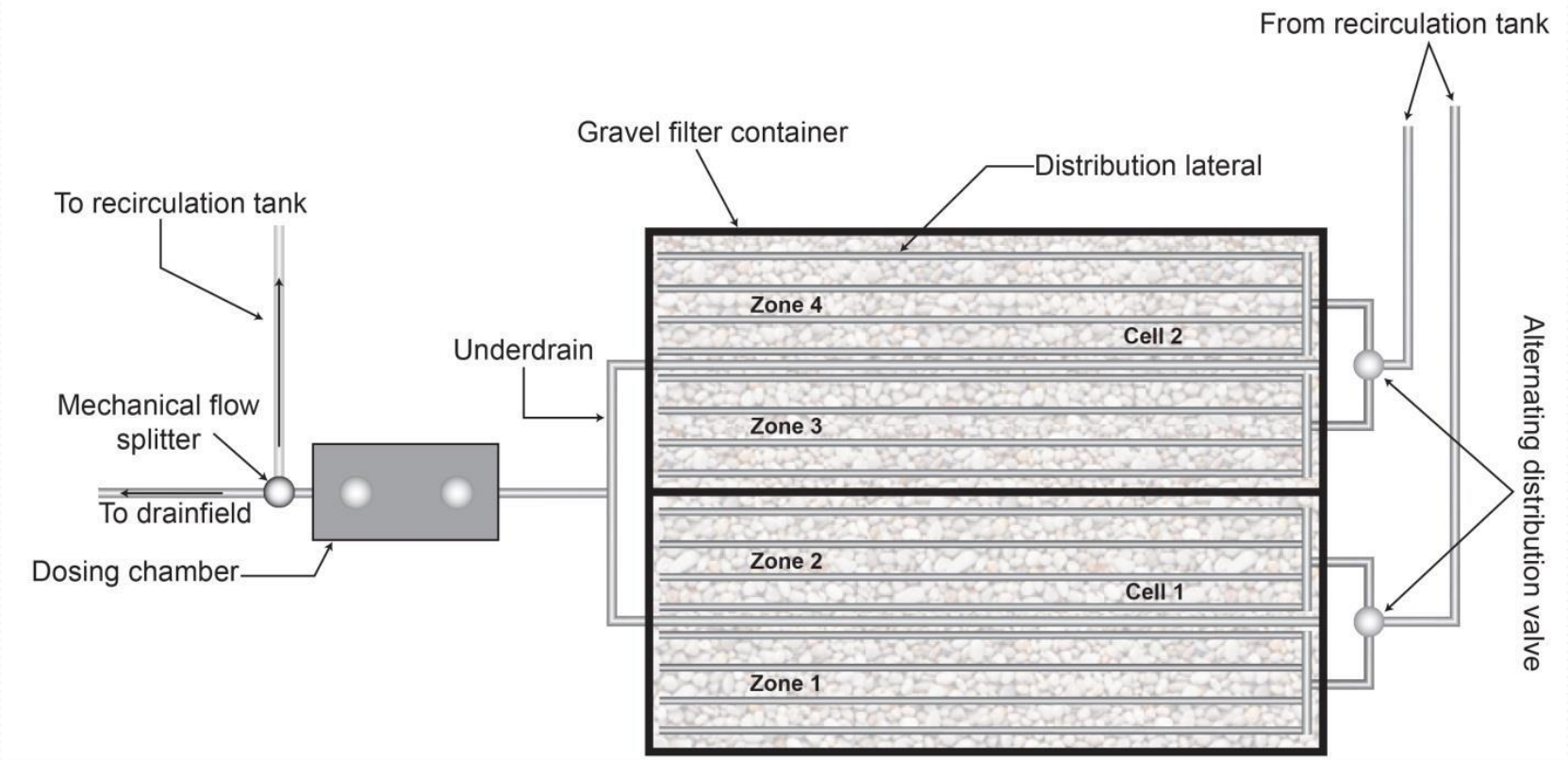


Gravity flow splitter

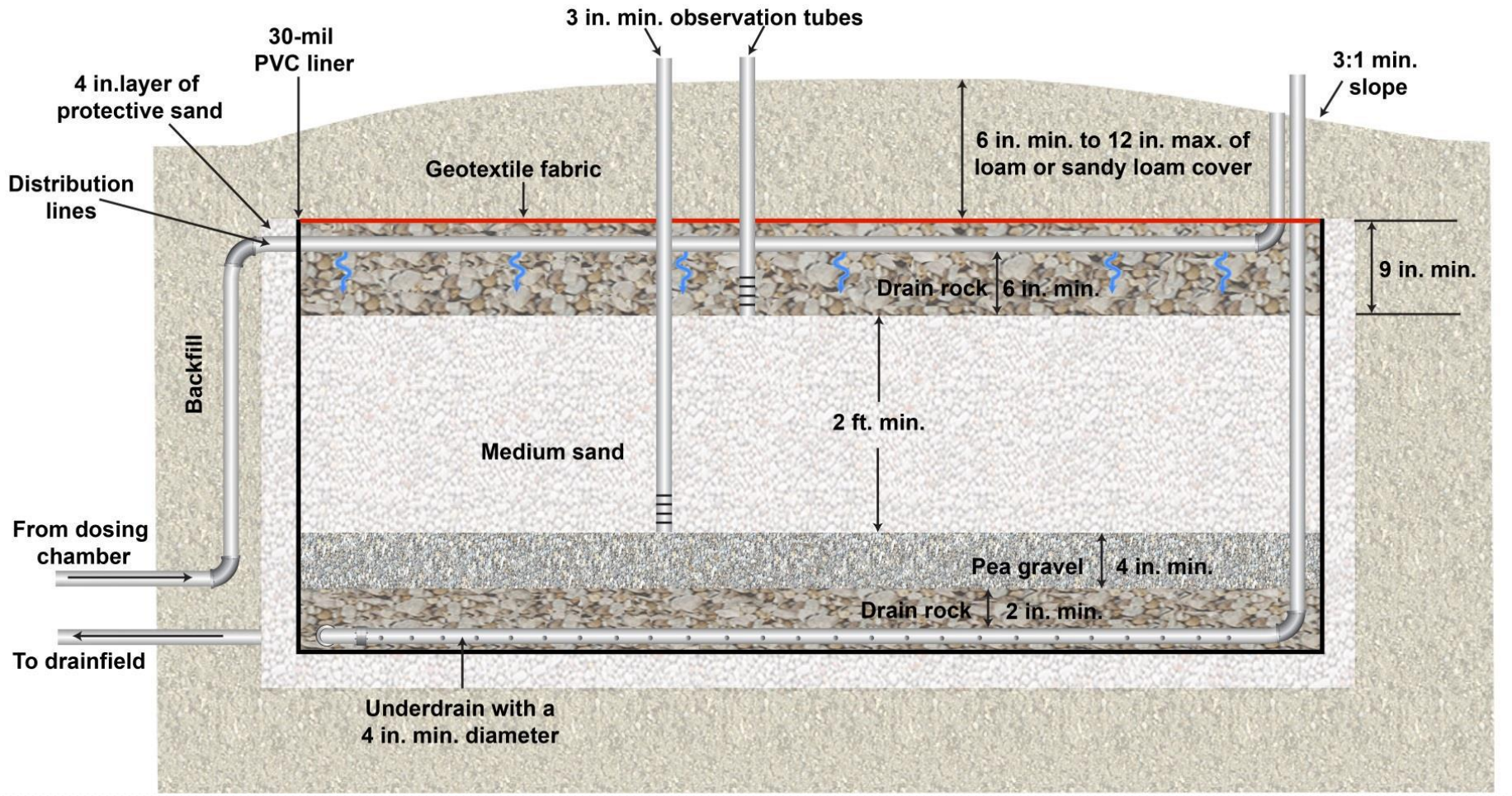
Pressurized splitter valve



Recirculating Gravel Filter

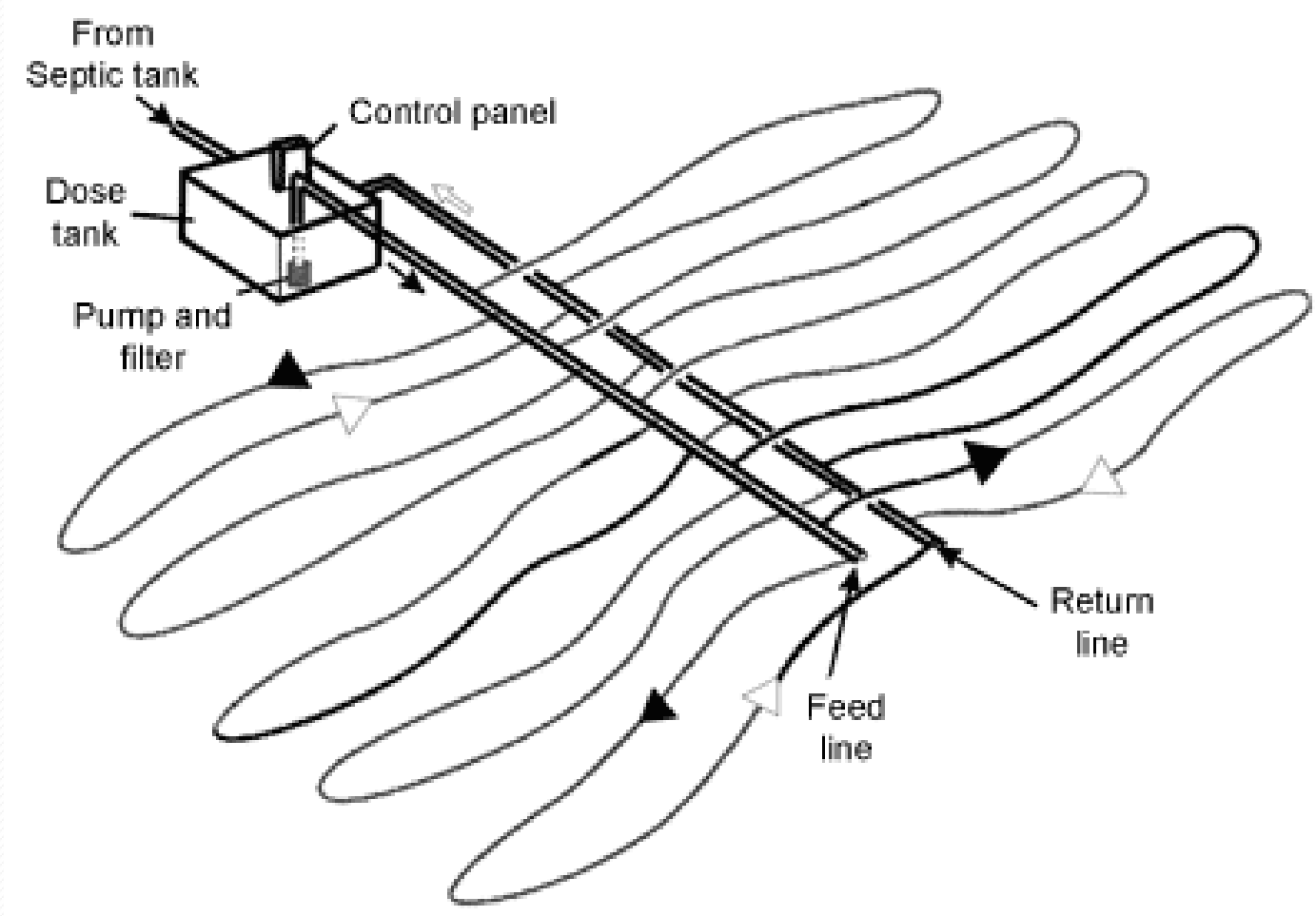


Intermittent Sand Filter

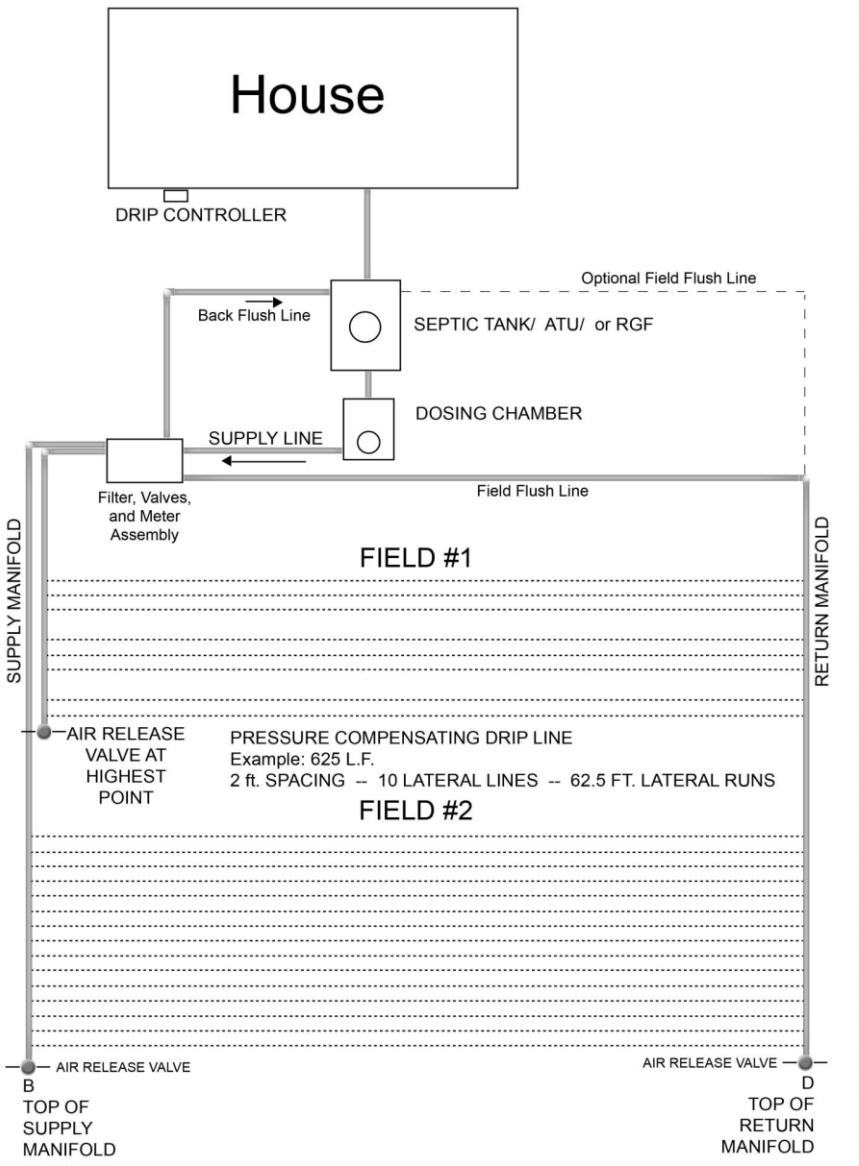


Drip Distribution System

Drip Distribution System



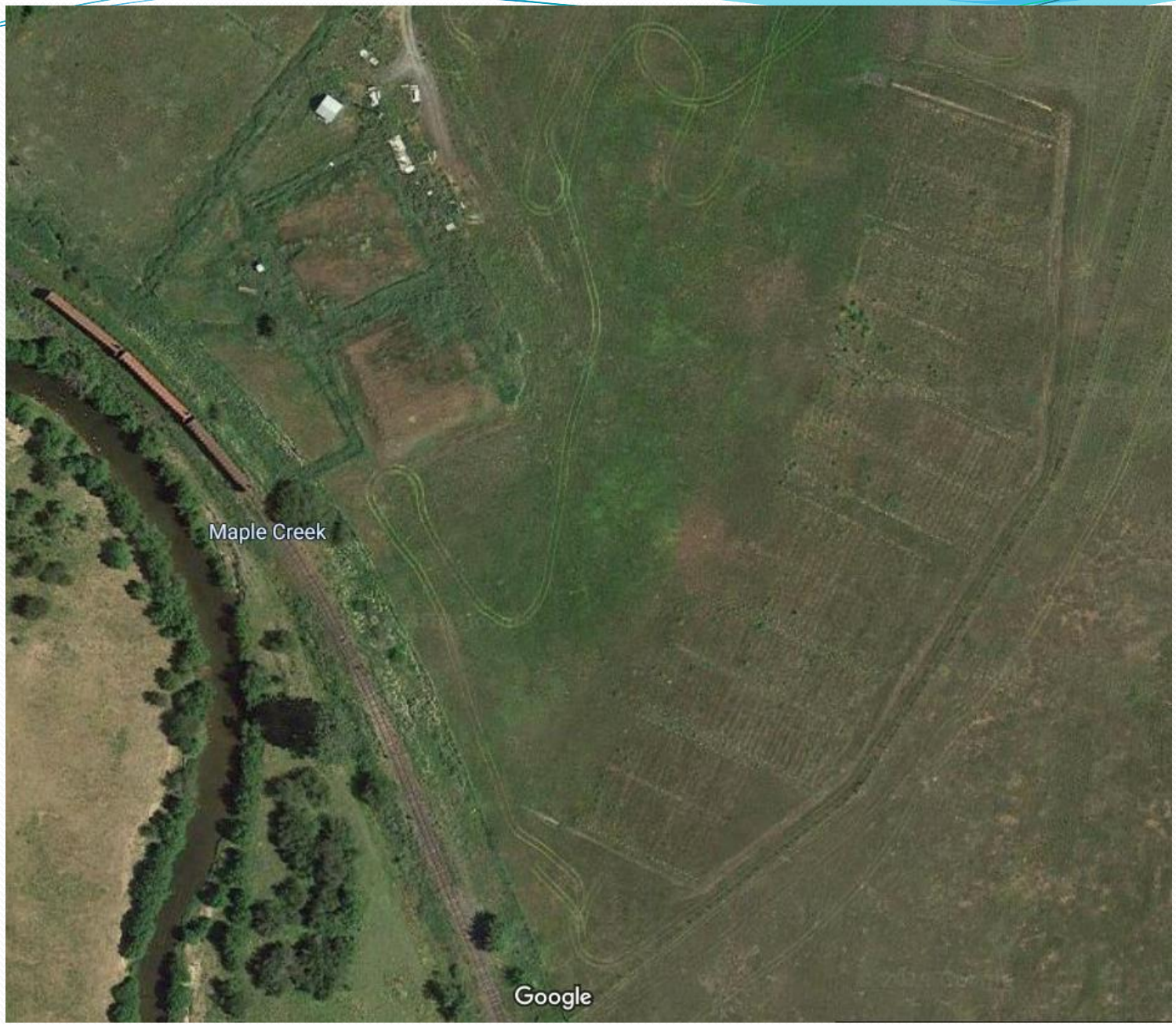
Drip Distribution System



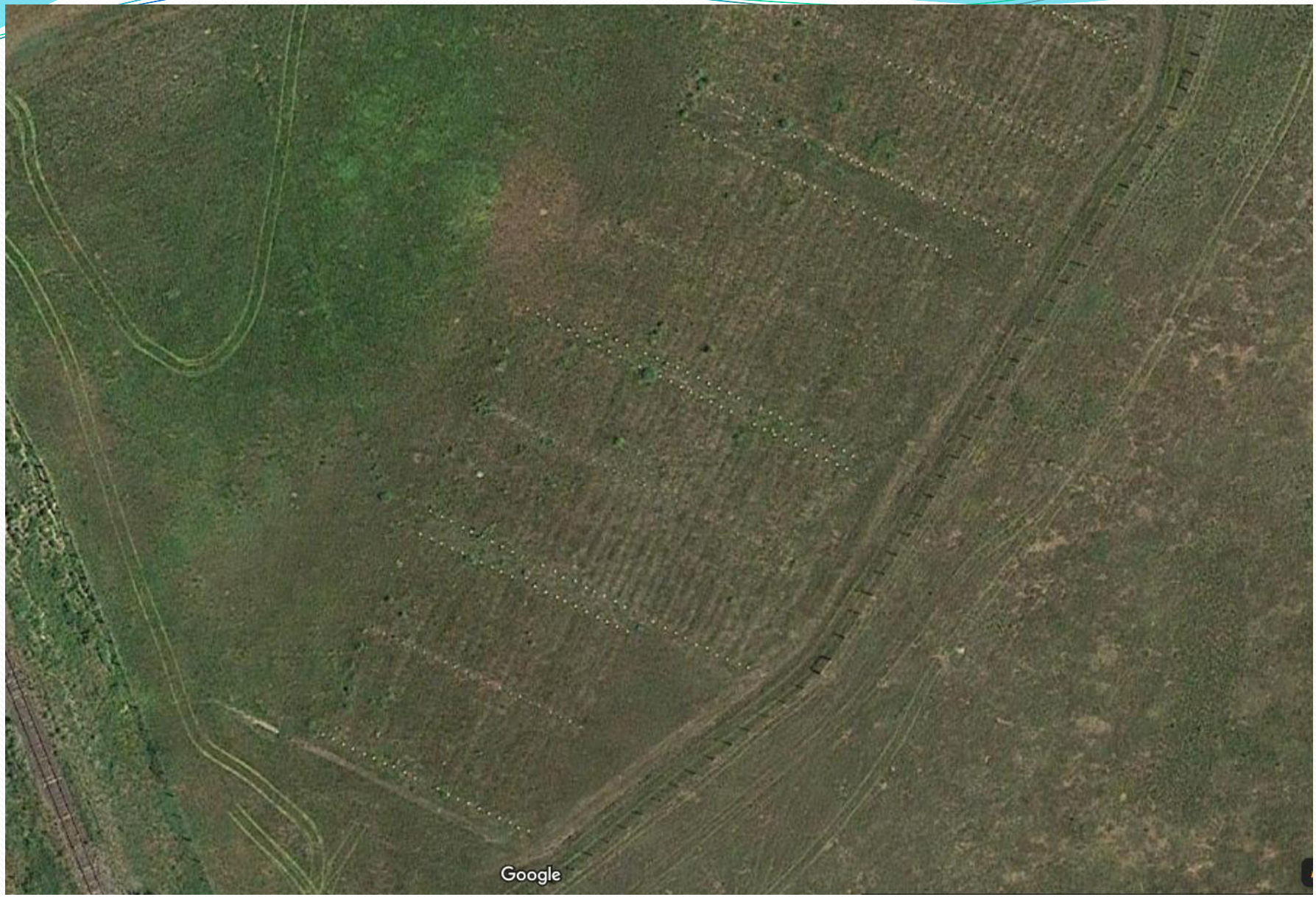
Large Soil Absorption System

- 2,500 -10,000 GPD.
- Two complete systems constructed with reserve area.
- Design engineer will create an O&M manual.
- Monitoring is required, with an annual report to be filed by January 31 each year

LSAS



LSAS

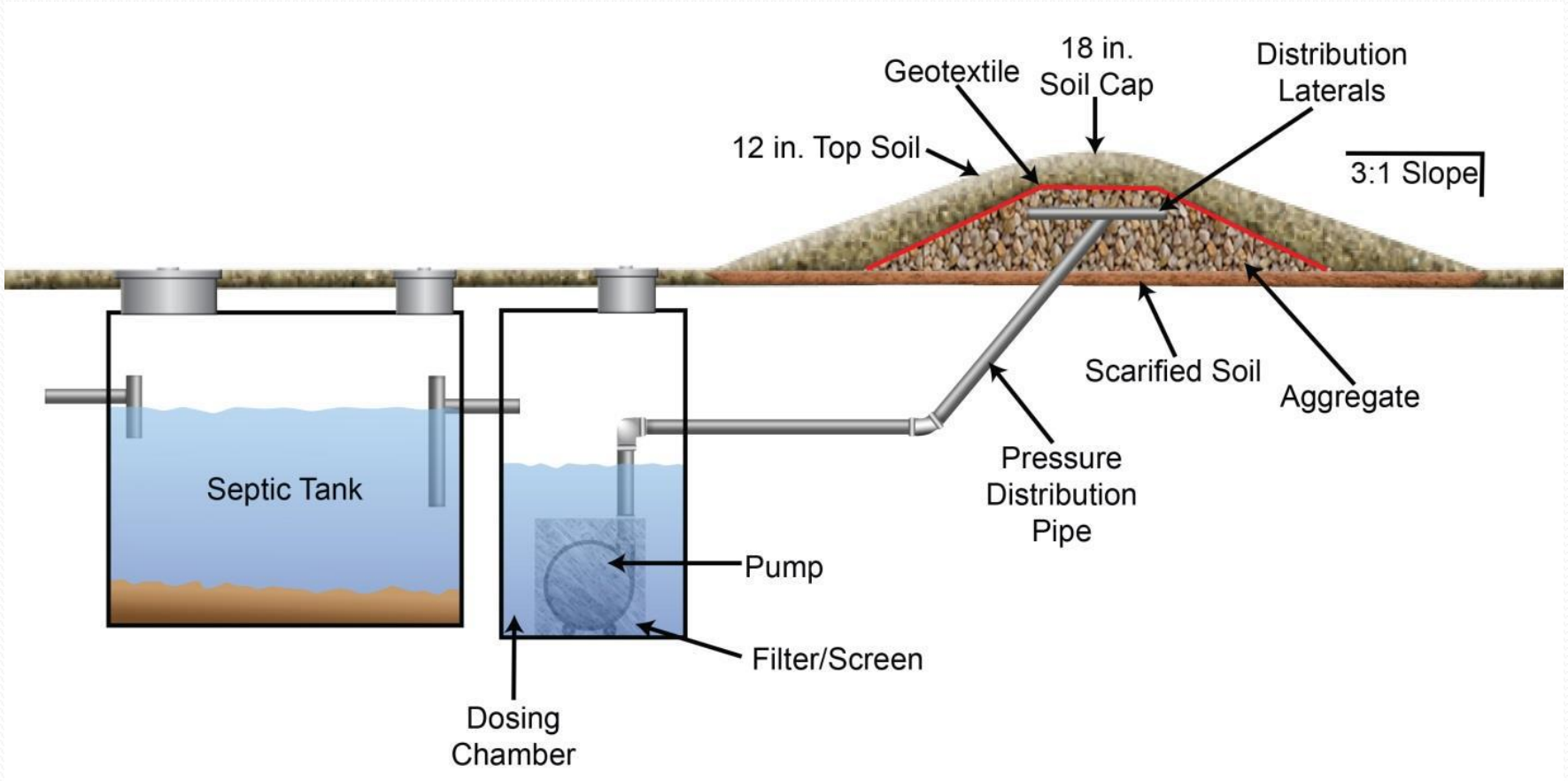


LSAS

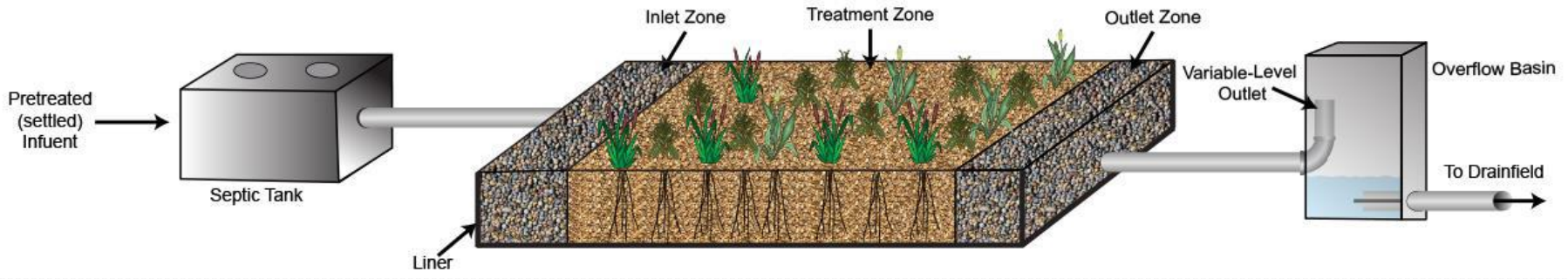
TABLE -- EFFECTIVE SOIL DEPTHS			
Site Conditions	**Design**	**Soil**	**Group**
Limiting Layer	**A**	**B**	**C**
Impermeable Layer	8	8	8
Fractured Bedrock, Fissured Bedrock or Extremely Permeable Material	12	8	6
Normal High Groundwater Level	12	8	6
Seasonal High Groundwater Level	2	2	2

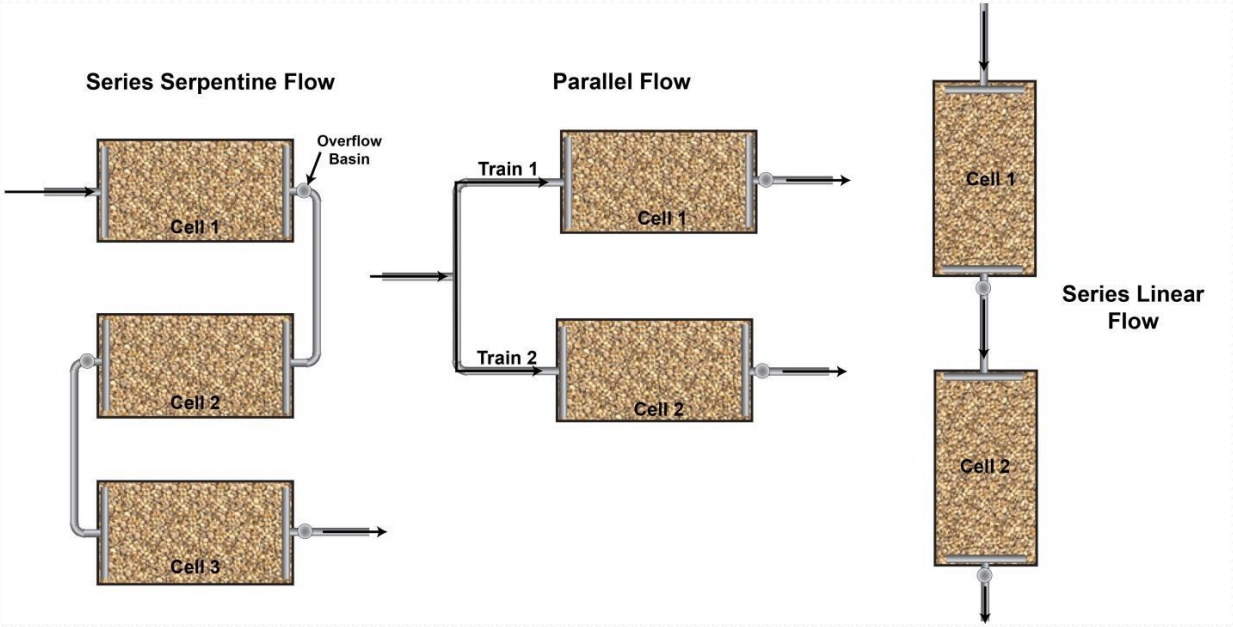
TABLE -- SEPARATION DISTANCES			
Feature of Interest	**Design**	**Soil**	**Group**
	A	**B**	**C**
All Domestic Water Supplies			
Sewage Volume - 2,500-5,000 GPD	250	200	150
Sewage Volume - 5,000-10,000 GPD	300	250	200
Property Lines			
Sewage Volume - 2,500-5,000 GPD	50	50	50
Sewage Volume - 5,000-10,000 GPD	75	75	75
Building Foundations - Basements			
Sewage Volume - 2,500-5,000 GPD	50	50	50
Sewage Volume - 5,000-10,000 GPD	75	75	75
Downslope Cut or Scarp			
Impermeable Layer - Below Base	100	50	50
Separation Distance - Between Modules	12	12	12

At-Grade Soil Absorption System

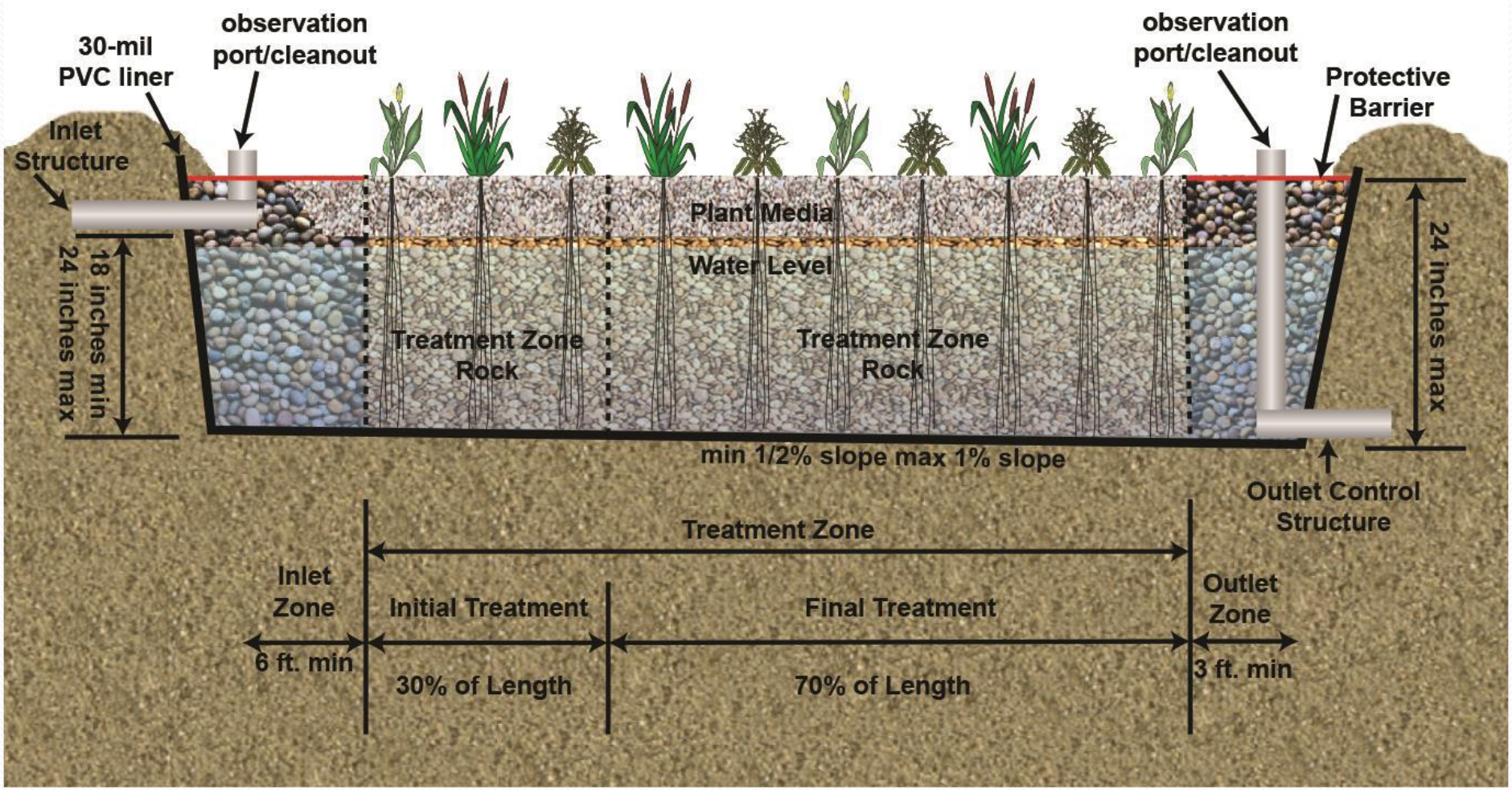


Subsurface Flow Constructed Wetlands





Subsurface Flow Constructed Wetlands



Experimental Systems

- Site must be suitable for a standard or alternative system
- A variance is required
- Operations and Maintenance Manual must be provided with the application. This manual must be approved before a permit will be issued.
- Approval is at the discretion of DEQ

Experimental Systems

Proprietary Wastewater Treatment Systems

eljen CORPORATION

PEI

Presby Environmental, Inc.
An Infiltrator Water Technologies Company

INFILTRATOR®
systems inc.

Lowridge On Site Technologies, LLC.

Proprietary Wastewater Treatment Systems

Proprietary Wastewater Treatment Systems

Proprietary Wastewater Treatment Systems

Questions?