Title: Mississippi State Department of Health

Part 15: Division of On-site Wastewater

Subpart 77: On-site Wastewater Regulations

Rule 5.1.1 **Definitions:**

1. Air Space – the space required between the lid of a septic tank and the bottom of the outlet pipe for the capture of gases generated by the anaerobic bacteria. Vent pipes within the facility or residence plumbing remove these gases from the septic tank.

2. Anaerobic – a process that utilizes bacteria that grow only without free dissolved oxygen. They obtain oxygen from breaking down complex organic substances

3. Filter – a device used to remove solids from the effluent of a septic tank.

4. Access Opening – a resealable opening in the treatment unit that allows for inspection maintenance and entry if necessary.

5. Septic Tank – Water-tight, covered receptacle for treatment of sewage; receives the discharge of sewage from a building, separates settleable and floating solids from the liquid, digest organic matter by anaerobic bacterial action, stores digested solids through a period of detention, allows clarified liquids to discharge for additional treatment and final dispersal, and attenuates flows.

6. Synthetic Fiber Reinforcement – Synthetic fibers of polypropylene or polypropylene/polyethylene blend used in place of welded wire or other accepted reinforcing materials for the purpose of providing structural integrity to concrete.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.1.2 **General:** Septic tanks shall be constructed from concrete, fiberglass or polyethylene. The septic tank size is based on the number of bedrooms or twice the daily flow for nonresidential application.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.1.3 **Location:**

1. Septic tanks shall not be located in depressed areas where surface water will accumulate. This water may enter the septic tank causing it to flood.

2. The area over the septic tank shall not be used for vehicular traffic or vehicular parking.

3. The septic tank must be installed according to the following minimum distances:

   a. foundation five (5) feet

   b. property lines ten (10) feet

   c. potable water supplies and all private wells fifty (50) feet

4. Septic tanks shall not be located under dwellings or other structures.

5. Where all or part of the Individual On-site Wastewater Disposal System is proposed to be installed on property other than the owner's, an easement in perpetuity shall be legally recorded in the proper county. The easement shall be of sufficient area to permit access, construction and maintenance of the Individual On-site Wastewater Disposal System.

6. Easements or right-of-way areas for utilities, surface or subsurface drainage, roads, streets, ponds or lakes shall not be used as available space for location of Individual On-site Wastewater Disposal Systems.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.1.4 **Design:** All septic tanks (prefabricated concrete, steel, fiberglass or polyethylene) must be designed according to minimum standards as follows:

1. General

   a. The septic tank shall be watertight, structurally sound and not subject to excessive corrosion or decay. The outlet of the septic tank should be placed so as not to be located below the Seasonal High Water Table.

   b. The minimum hydraulic detention time of the septic tank must be two days (48 hours) based on daily sewage flows. In no case shall the septic tank have a minimum effective liquid capacity of less than seven hundred fifty (750) gallons.

   c. All tanks manufactured in two (2) sections must have an interlocking type joint. Tanks manufactured in two sections must be sealed and joined with an approved sealant such as butyl rubber or other approved pliable sealant that is waterproof, corrosion-resistant and is warranted by the manufacturer for sealing concrete septic tanks.

   d. The use of metal tanks, drums, barrels or pipes is prohibited for use with Individual On-site Wastewater Disposal Systems.

e. All septic tanks with a capacity of greater than fifteen hundred (1,500) gallons shall be deemed structurally sound by a licensed Professional Engineer via stamped letter.

2. Tank Dimensions

d. The inside length of a rectangular septic tank shall be a minimum of 1.5 times the width. The minimum inside width of a septic tank shall not be less than 3.5 feet.

e. The minimum liquid depth of all septic tanks shall be thirty (30) inches.

f. A minimum air space of seventeen (17) percent of the liquid depth must be provided.

5. Tank Inlet and Outlet

d. The inlet and outlet of the septic tank must be large enough to accommodate a four (4) inch schedule forty (40) pipe and be equipped with a sanitary tee or baffle.

e. The inlet and outlet pipes must extend a minimum of three (3) feet onto undisturbed soil before entering and after exiting the septic tank.

f. The inlet invert shall enter the septic tank a minimum of two (2) inches above the liquid level of the tank. The inlet tee or baffle shall be provided to divert the incoming sewage downward and extend a minimum of six (6) inches below the liquid level of the tank.

g. The outlet tee or baffle shall extend eighteen (18) inches below the liquid depth of the tank.

6. Baffle Walls and Two Compartment Tanks

d. The first compartment shall be between sixty (60) and sixty-seven (67) percent of the total capacity of the tank.

e. The baffle forming the two (2) compartments shall have an opening four (4) to six (6) inches wide, located in the center of the baffle and at fifty (50) percent of the liquid depth of the tank.

f. If the tank is to be made of concrete, the baffle wall shall be constructed of concrete and be structurally sound. This shall be interpreted as a minimum of three thousand (3000) pound concrete containing six (6) inch by six (6) inch number ten (10) concrete wire and having a minimum thickness of two and one-half inches.

e. Baffle walls shall be securely and permanently fastened to the septic tank. All fasteners shall be of sound and durable material not subject to corrosion or decay.

5. Access Openings

a. A resealable opening above each tee and baffle must be provided in each tank top. These openings provide for cleaning or rodding out of the inlet or outlet pipe and access for pumping.

b. Openings covering the inlet and outlet shall be accessible and visible at finished grade once the septic tank is covered.

c. Rectangular openings shall be a minimum of fifteen (15) inches by fifteen (15) inches as measured from the bottom side of the lid of the septic tank.

d. Circular openings shall be a minimum diameter of seventeen (17) inches as measured from the bottom side of the lid of the septic tank.

e. All concrete covers, access openings and slabs must have a handle of 3/8 inch steel rebar or other corrosive resistant material of the size necessary to facilitate the removal of the cover, opening or slab.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.1.5 **Effluent Filters:** Effluent filters shall meet the following criteria:

3. The filter shall retain all partials greater than one-eight (1/8) inch in size.

7. The assembly shall perform as a conventional tank outlet, meeting the requirements of Rule 5.1.4.3, when the filter is removed.

9. The filter must be designed to handle the flow of the system it is to serve and not result in excessive maintenance. For a single family dwelling, maintenance is considered “excessive” when the filter requires service or cleaning more than one (1) time per year. Service shall be performed each time the tank is pumped, and in accordance with manufacturer’s specifications.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.1.6 **Minimum Standards for Septic Tank Construction**

1. General

a. All septic tanks manufactured for sale in the state of Mississippi shall bear an imprint identifying the manufacturer, the serial number assigned to the manufacturer's plans and specifications approved by the department, the liquid or working capacity of the tank and be marked with the date of manufacture. These imprints and markings must be visible at the time of inspection by the Department.

b. All openings and lids shall be capable of being sealed in a way that will prevent entrance of surface water and groundwater.

c. Tank openings shall be securely fastened or sealed to prevent unwarranted access to the contents of the tanks vandal, tamper and child resistant. Acceptable protection of openings may include, but is not limited to:

i. A padlock

ii. An “O” ring with twist lock cover requiring special tools for removal

iii. Covers weighing sixty-five (65) pounds or more, net weight

iv. Stainless steel or other corrosion resistant fasteners for fiberglass or polyethylene lids.

2. Prefabricated Concrete Septic Tank

a. A minimum twenty-eight (28) -day concrete compressive strength of three thousand (3,000) pounds per square inch must be used in the construction of the septic tank. The concrete must achieve a minimum compressive strength of two thousand five hundred (2,500) pounds per square inch before removal of the tank for the manufactured site. It shall be the responsibility of the manufacturer to certify that this condition has been met before shipment. Accelerated curing in the mold by use of propane gas or other fuels is prohibited, except by accepted methods and upon approval of the department.

c. Lids, walls and bottom thickness must be a minimum of three (3) inches. The bottom and walls must be a monolithic pour.

3. Fiberglass and Polyethylene Septic Tanks

b. Not less than thirty (30) percent of the total weight of the tank shall be fiberglass reinforcement. Fiberglass tanks with an effective liquid capacity of not over one thousand five hundred (1500) gallons shall have a minimum wall thickness of 1/4 inch. However, a wall thickness of not less than 3/16 inch will be allowed in small isolated areas of a tank.

d. Tanks shall be constructed so that all parts of the tank meet the following mechanical requirements.

i. Ultimate tensile strength - minimum twelve thousand (12,000) PSI when tested in accordance with ASTM D 638-89, Standard Method of Test for Tensile Properties of Plastics.

ii. Flexural strength - minimum nineteen thousand (19,000) PSI when tested in accordance with D 790-86, Standard Method of Test for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

iii. Flexural modules of elasticity - minimum eight hundred thousand (800,000) PSI when tested in accordance with ASTM D 790-86 , Standard Method of Test for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

e. A test report from an independent testing laboratory is required to substantiate that individual tank design and material formulations meet the requirements of Rule 5.1.6.3.d.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.1.7 **Minimum Standards for Concrete Reinforcement:**

1. Tanks Reinforced with Welded Steel Concrete Wire

a. The reinforcing wire shall be a minimum number ten (10) gauge six (6) inch on centers. The reinforcing wire shall be lapped a minimum of six (6) inches.

b. Lids for prefabricated septic tanks shall have one (1) 3/8 inch steel reinforcing rod per foot of length and width.

2. Tanks Reinforced with Synthetic Structural Fibers

a. Manufacturer of synthetic structural fibers shall provide certification showing fibers meet the requirements of outlined in this section.

b. Synthetic fibers shall be monofilament and made of a polypropylene or polypropylene/polyethylene blend in accordance with ASTM C 116, Section 4.1.3, Part III.

e. Synthetic structural fibers shall produce concrete with a minimum average residual strength of one hundred fifty (150) psi when tested in accordance with ASTM C 1399.

f. Fiber dosage rate shall be a minimum of 3 lb/yd3 of concrete.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.1.8 **Maintenance:** The septic tank should be pumped at a frequency depending on the wastewater flow. The recommended pumping cycle is three (3) to five (5) years, but pumping should not occur until the settleable solids have reached a depth of 1/3 the septic tank liquid depth. This can be determined by "sticking" the tank.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.1.9 Septic Tank Sizing: The effective liquid capacity of septic tanks for dwellings shall be based on the number of bedrooms proposed or anticipated as shown in the table below:

Sizing

Number of Bedrooms	**Number of Occupants**	**Minimum Effective Liquid Capacity (gallons) without baffle or effluent filter**	**Minimum Effective Liquid Capacity (gallons) with baffle or effluent filter**
2 or less	4 or less	750	750
3	6	900	900
4	8	1200	1000
5	10	1500	1250
6	12	1800	1500

For each additional bedroom add 260 gallons
For each additional occupant over 2 per bedroom add 130 gallons
For a nonresidential application, the septic tank will be sized at twice the estimated daily flow

SOURCE: Miss Code Ann. §41-67-3

Subchapter 2. ADVANCED TREATMENT SYSTEMS

Rule 5.2.1. **General:**

1. All advanced treatment systems installed in the state of Mississippi shall be in compliance with the current revision of the *National Sanitation Foundation/American National Standard Insitute International Standard 40 or 245* testing protocol, hereby incorporated into regulation by reference and shall be certified by an approved third party certification program. The Division will maintain a current listing of registered and certified manufacturers. The current list will be made available by the Department.

2. The department shall only approve individual advanced treatment systems that have no discharge of wastewater off the property of the generator.

3. All advanced treatment systems must be installed according to the Certified Manufacturer's specifications by a factory-trained installer that is an authorized representative of the manufacturer.

4. The use of metal tanks, drums, barrels, or pipes is prohibited for use with Individual On-site Wastewater Disposal Systems.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.2.2. **Definitions:**

1. Aerator – a mechanical device that provides dissolved oxygen to an Advanced Treatment System.

2. Advanced Treatment System – treatment component that utilizes oxygen to degrade or decompose wastewater.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.2.3 **Location:**

1. Advanced treatment systems shall be installed level on undisturbed soil. If leveling or elevation change is necessary, the advanced treatment system must be placed on a bed of sand.

2. It is recommended the outlet of the advanced treatment system should be placed so as not to be below the Seasonal High Water Table.

3. An advanced treatment system should not be located in an area that collects surface water. This water may enter the advanced treatment system causing a failure by flooding. This flooding will cause the effluent to be discharged before it is properly treated.

4. The advanced treatment system must be installed according to the following minimum distances:

    a. foundations five (5) feet

    b. property lines ten (10) feet

    c. potable water supplies and all private wells fifty (50) feet

5. The area over the advanced treatment system shall not be used for vehicular traffic or vehicular parking.

6. Advanced treatment systems shall not be located under dwellings or other structures.

7. Where all or part of the Individual On-site Wastewater Disposal System is proposed to be installed on property other than the owner's, an easement in perpetuity shall be legally recorded in the proper county. The easement shall be of sufficient area to permit access, construction and maintenance of the Individual On-site Wastewater Disposal System.

8. Easements or right-of-way areas for utilities, surface or subsurface drainage, roads, streets, ponds or lakes shall not be used as available space for location of Individual On-site Wastewater Disposal Systems.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.2.4 **Inlet and Outlet:**

1. The inlet and outlet must be schedule forty (40) pipe four (4) inches in diameter. A three (3) inch house sewer stubout, when used, shall be connected to the four (4) inch pipe from the septic tank inlet using manufactured fittings designed for that purpose.

2. The inlet and outlet pipe (schedule 40 four (4) inch) must extend a minimum of three (3) feet onto undisturbed soil before entering and after exiting the advanced treatment system.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.2.5 **Maintenance:**

1. All advanced treatment systems should be pumped at a frequency based on the wastewater volume generated by the residence or establishment. The pumping cycle will depend on the level of the sludge in the advanced treatment system. The sludge should not be allowed to accumulate more than the recommended depth specified by the manufacturer of the advanced treatment system. If the sludge is allowed to discharge, a clogging problem may occur if any additional treatment or disposal system is used in conjunction with the advanced treatment system.

2. All advanced treatment systems shall be maintained and inspected as required by the Certified Manufacturer.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.2.6. **Aerators:** The type of aerator used with the advanced treatment system is mandated by the manufacturer. The maintenance of the aerator is outlined in the manual provided by the Certified Manufacturer or his authorized representative.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.2.7 **Sizing**

Number of Bedrooms	**Minimum Capacity (gallons per day)**
2 or less	400
3	400
4	520
5	650
6	780

For each additional bedroom add 130 gallons
For each additional occupant over 2 per bedroom add 65 gallons
For a nonresidential application, use the estimated daily flow

SOURCE: Miss Code Ann. §41-67-3

Table II – **SIZING – AGGREGATE (Gravel, Crushed Stone, Tire Chips, or other approved media)**
Results of the Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/ Ft^2	Absorption Area Per Bedroom (3' Trench)		Additional Absorption Area Over 2 Persons Per Bedroom	
			Ft^2	Lf	Ft^2	Lf
Gravel	-	-	NOT SUITABLE			
Coarse Sand	-	1.2	108	36	54	18
Medium Sand	-	1.2	108	36	54	18
Fine Sand	-	0.8	163	54	81	27
Loamy Sand	-	0.8	163	54	81	27
Sandy Loam	<.5	0.6	108	72	108	36
Light Loam	<.5	0.6	217	72	108	36
Heavy Loam	.5 – 1	0.45	289	96	144	48
Silt Loam	<1	0.45	289	96	144	48
Sandy Clay Loam	1 – 2	0.45	289	96	144	48
Light Clay Loam	1 – 1.5	0.30	433	144	217	72
Heavy Clay Loam	1.5 – 2.0	0.20	650	217	325	108
Light Silty Clay Loam	1 – 1.5	0.30	433	144	217	72
Heavy Silty Clay Loam	1.5 – 2.0	0.20	650	217	325	108
Sandy Clay	>2.0	-	NOT SUITABLE			
Silty Clay	>2.0	-	NOT SUITABLE			
Clay	>2.0	-	NOT SUITABLE			

SOURCE: Miss Code Ann. §41-67-3

SIZING – AGGREGATE REPLACEMENT (Large Diameter Pipe)

Results of the Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/ Ft^2	Absorption Area Per Bedroom**						Additional Absorption Area Over 2 Persons Per Bedroom**					
			Ft^2			*Lf			Ft^2			*Lf		
			6	8	10	6	8	10	6	8	10	6	8	10
Gravel	-	-	NOT SUITABLE											
Coarse Sand	-	1.2	108	108	108	54	54	54	54	54	54	27	27	27
Medium Sand	-	1.2	108	108	108	54	54	54	54	54	54	27	27	27
Fine Sand	-	0.8	163	163	165	81	81	81	81	81	81	41	41	41
Loamy Sand	-	0.8	163	163	165	81	81	81	81	81	81	41	41	41
Sandy Loam	<.5	0.6	217	217	217	108	108	108	108	108	108	54	54	54
Light Loam	<.5	0.6	217	217	217	108	108	108	108	108	108	54	54	54
Heavy Loam	.5 – 1	0.45	289	289	290	144	144	144	144	144	144	73	73	73
Silt Loam	<1	0.45	289	289	290	144	144	144	144	144	144	73	73	73
Sandy Clay Loam	1 – 2	0.45	289	289	290	144	144	144	144	144	144	73	73	73
Light Clay Loam	1 – 1.5	0.30	433	433	433	217	217	217	217	217	217	108	108	108
Heavy Clay Loam	1.5 – 2.0	0.20	650	650	650	325	325	325	325	325	325	163	163	163
Light Silty Clay Loam	1 – 1.5	0.30	433	433	433	217	217	217	217	217	217	108	108	108
Heavy Silty Clay Loam	1.5 – 2.0	0.20	650	650	650	325	325	325	325	325	325	163	163	163
Sandy Clay	>2.0	-	NOT SUITABLE											
Silty Clay	>2.0	-	NOT SUITABLE											
Clay	>2.0	-	NOT SUITABLE											

Minimum and maximum trench widths are 24 and 36 inches, respectively.

*Linear footages assume 24” trench width.

** Bedroom is equivalent to 130 gallons per day.

SOURCE: Miss Code Ann. §41-67-3

SIZING – AGGREGATE REPLACEMENT (Multi-Pipe System)

Results of the Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/ Ft^2	Absorption Area Per Bedroom**					Additional Absorption Over 2 Person Per Bedroom**				
			MPS -14 & 36XX***		MPS – 13	MPS – 11	MPS – 9	MPS – 14 & 36XX***		MPS – 13	MPS – 11	MPS – 9
			Ft^2	Lf	Lf	Lf	Lf	Ft^2	Lf	Lf	Lf	Lf
Gravel	-	-	NOT SUITABLE									
Coarse Sand	-	1.2	108	36	40	47	54	54	18	20	23	27
Medium Sand	-	1.2	108	36	40	47	54	54	18	20	23	27
Fine Sand	-	0.8	163	54	60	70	81	81	27	30	35	41
Loamy Sand	-	0.8	163	54	60	70	81	81	27	30	35	41
Sandy Loam	<.5	0.6	217	72	80	94	108	108	36	40	47	54
Light Loam	<.5	0.6	217	72	80	94	108	108	36	40	47	54
Heavy Loam	.5 – 1	0.45	289	96	107	125	144	144	48	54	62	72
Silt Loam	<1	0.45	289	96	107	125	144	144	48	54	62	72
Sandy Clay Loam	1 – 2	0.45	289	96	107	125	144	144	48	54	62	72
Light Clay Loam	1 – 1.5	0.30	433	144	161	187	217	217	72	80	94	108
Heavy Clay Loam	1.5 – 2.0	0.20	650	217	241	281	325	325	108	120	141	163
Light Silty Clay Loam	1 – 1.5	0.30	433	144	161	187	217	217	72	80	94	108
Heavy Silty Clay Loam	1.5 – 2.0	0.20	650	217	241	281	325	325	108	120	141	163
Sandy Clay	>2.0	-	NOT SUITABLE									
Silty Clay	>2.0	-	NOT SUITABLE									
Clay	>2.0	-	NOT SUITABLE									

Minimum and maximum trench widths are 24 and 36 inches, respectively.

** Bedroom is equivalent to 130 gallons per day.

***XX represents either 9, 11, or 14 pipes

SOURCE: Miss Code Ann. §41-67-3

SIZING – AGGREGATE REPLACEMENT (Expanded Polystyrene System) "Horizontal" Configuration

Results of the Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/ Ft^2	Absorption Area Per Bedroom**							Additional Absorption Over 2 Person Per Bedroom**						
			3 – 8H	4 – 9H	3-10H		1 – 12	2 – 12	3 -12	3 – 8 Inch	4 – 9 Inch	3 – 10 Inch		1-12 Inch	2-12 Inch	3-12 Inch
			Lf	Lf	Ft^2	Lf	Lf	Lf	Lf	Lf	Lf	Ft^2	Lf	Lf	Lf	Lf
Gravel	-	-	NOT SUITABLE													
Coarse Sand	-	1.2	42	27	108	43	54	54	36	21	14	54	22	27	27	18
Medium Sand	-	1.2	42	27	108	43	54	54	36	21	14	54	22	27	27	18
Fine Sand	-	0.8	63	41	163	65	81	81	54	32	21	81	33	41	41	27
Loamy Sand	-	0.8	63	41	163	65	81	81	54	32	21	81	33	41	41	27
Sandy Loam	<.5	0.6	83	54	217	87	108	108	72	42	27	108	43	54	54	36
Light Loam	<.5	0.6	83	54	217	87	108	108	72	42	27	108	43	54	54	36
Heavy Loam	.5 – 1	0.45	112	73	289	116	144	144	96	56	37	144	58	72	72	48
Silt Loam	<1	0.45	112	73	289	116	144	144	96	56	37	144	58	72	72	48
Sandy Clay Loam	1 – 2	0.45	112	73	289	116	144	144	96	56	37	144	58	72	72	48
Light Clay Loam	1 – 1.5	0.30	167	109	433	173	217	217	144	84	55	217	87	108	108	72
Heavy Clay Loam	1.5 – 2.0	0.20	250	163	650	260	325	325	217	125	82	325	130	163	163	108
Light Silty Clay Loam	1 – 1.5	0.30	167	109	433	173	217	217	144	84	55	217	87	108	108	72
Heavy Silty Clay Loam	1.5 – 2.0	0.20	250	163	650	260	325	325	217	125	82	325	130	163	163	108
Sandy Clay	>2.0	-	NOT SUITABLE													
Silty Clay	>2.0	-	NOT SUITABLE													
Clay	>2.0	-	NOT SUITABLE													

Minimum and maximum trench widths are 24 and 36 inches, respectively.

** Bedroom is equivalent to 130 gallons per day.

SOURCE: Miss Code Ann. §41-67-3

SIZING – AGGREGATE REPLACEMENT (Expanded Polystyrene System) "Triangular" Configuration

Results of the Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/ Ft^2	Absorption Area Per Bedroom**		Additional Absorption Over 2 Person Per Bedroom**	
			3-10 Inch		3-10 Inch	
			Ft^2	Lf	Ft^2	Lf
Gravel	-	-	NOT SUITABLE			
Coarse Sand	-	1.2	108	54	54	27
Medium Sand	-	1.2	108	54	54	27
Fine Sand	-	0.8	163	81	81	41
Loamy Sand	-	0.8	163	81	81	41
Sandy Loam	<.5	0.6	217	108	108	54
Light Loam	<.5	0.6	217	108	108	54
Heavy Loam	.5 – 1	0.45	289	144	144	72
Silt Loam	<1	0.45	289	144	144	72
Sandy Clay Loam	1 – 2	0.45	289	144	144	72
Light Clay Loam	1 – 1.5	0.30	433	217	217	108
Heavy Clay Loam	1.5 – 2.0	0.20	650	325	325	163
Light Silty Clay Loam	1 – 1.5	0.30	433	217	217	108
Heavy Silty Clay Loam	1.5 – 2.0	0.20	650	325	325	163
Sandy Clay	>2.0	-	NOT SUITABLE			
Silty Clay	>2.0	-	NOT SUITABLE			
Clay	>2.0	-	NOT SUITABLE			

Minimum and maximum trench widths are 24 and 36 inches, respectively. The **Triangular Configuration** can only be installed in a trench.
** Bedroom is equivalent to 130 gallons per day.

SOURCE: Miss Code Ann. §41-67-3

SIZING – AGGREGATE REPLACEMENT (Chamber System)

Results of the Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/ Ft^2	Absorption Area in Ft^2 Per Bedroom**	Number of Pieces Per Bedroom based on Chamber Class**				Additional Pieces Over 2 Persons Per Bedroom Based on Chamber Class**			
				I	II	III	IV	I	II	III	IV
Gravel	-	-	NOT SUITABLE								
Coarse Sand	-	1.2	108	9	7	6	5	5	4	3	3
Medium Sand	-	1.2	108	9	7	6	5	5	4	3	3
Fine Sand	-	0.8	163	13	11	10	8	7	6	5	4
Loamy Sand	-	0.8	163	13	11	10	8	7	6	5	4
Sandy Loam	<.5	0.6	217	17	15	12	10	9	8	6	5
Light Loam	<.5	0.6	217	17	15	12	10	9	8	6	5
Heavy Loam	.5 – 1	0.45	289	23	19	16	14	9	8	6	5
Silt Loam	<1	0.45	289	23	19	16	14	12	10	8	7
Sandy Clay Loam	1 – 2	0.45	289	23	19	16	14	12	10	8	7
Light Clay Loam	1 – 1.5	0.30	433	33	28	24	21	17	14	12	11
Heavy Clay Loam	1.5 – 2.0	0.20	650	50	43	34	30	25	22	17	15
Light Silty Clay Loam	1 – 1.5	0.30	433	33	28	24	21	17	14	12	11
Heavy Silty Clay Loam	1.5 – 2.0	0.20	650	50	43	34	30	25	22	17	15
Sandy Clay	>2.0	-	NOT SUITABLE								
Silty Clay	>2.0	-	NOT SUITABLE								
Clay	>2.0	-	NOT SUITABLE								

Minimum and maximum trench widths are 24 and 36 inches, respectively.

** Bedroom is equivalent to 130 gallons per day.

SOURCE: Miss Code Ann. §41-67-3

Table I – SIZING - Drip Irrigation

Results of the Soil and Site Evaluation

Soil Textural Class	Loading Rate GPD/ Ft^2	Lf Per Bedroom	Additional Lf/Person Over 2 Person Per	Depth of Drip Line in Inches
Gravel	NOT SUITABLE			
Coarse Sand	0.5	130	65	6-18
Medium Sand	0.5	130	65	6-18
Fine Sand	0.5	130	65	6-18
Loamy Sand	0.5	130	65	6-18
Sandy Loam	0.3	217	109	6-18
Light Loam	0.3	217	109	6-18
Heavy Loam	0.3	217	109	6-18
Silt Loam	0.3	217	109	6-18
Sandy Clay Loam	0.3	217	109	6-18
Light Clay Loam	0.15	434	217	6-18
Heavy Clay Loam	0.15	434	217	6-18
Light Silty Clay Loam	0.15	434	217	6-18
Heavy Silty Clay Loam	0.15	434	217	6-18
Sandy Clay	0.15	434	217	6-18
Silty Clay	0.05	1300	650	6-18
Clay	0.05	1300	650	6-18

SOURCE: Miss Code Ann. §41-67-3

Rule 5.6.17. **System Design:**

2. Determine the average daily flow from the residence: Number of bedrooms X 130 gallons per day

3. Determining the size of the absorption area, basal area, side slopes, and maximizing length requirements:

    a. Sizing the absorption area – The absorption area size shall be determined by the **loading** rate of the fill material. The fill material shall be coarse sand, 0.5-1.0 mm (USDA designation), and is the same as concrete sand (Section S-703, MS Standard Specification for State Aid road and bridge construction). The **loading rate** of this material is 1.2 gallons per day per square foot. Note: A fill material as heavy as a light loam may be used, but this will change the size of the absorption area size. Use the appropriate **loading rate** of the fill to calculate the absorption area.

        i. Example: Three (3) bedroom home @ 390 gallons per day

        ii. 390 gallons per day / 1.2 gallons per day per square foot = 325 square feet

        iii. Absorption area = 325 square feet

    b. Sizing the basal area: Using the information gathered from the soil and site evaluation, determine the loading rate of the natural soil within two feet of the surface. Use the heaviest textured soil loading rate to size the basal area. Divide the average daily flow from the residence by the loading rate of the natural soil.

        i. Example: Three (3) bedroom home @ 390 gallons per day a natural soil of a heavy loam

        ii. 390 gallons per day /0.45 gallons per day per square foot = 867 square feet basal area

SOURCE: Miss Code Ann. §41-67-3

Rule 5.7.1 **General:**

2. The treatment facility and pump/dosing chamber shall be designed, constructed and installed so all joints, seams, and component parts preclude infiltration of surface and groundwater, while preventing the escape of wastewater or other liquids.

3. Electrical equipment shall be protected with safety devices (overload interrupting devices, fuses, etc.). Electrical equipment shall comply with appropriate National Electrical Manufacturer's Association (NEMA). Electrical component parts shall be covered by the manufacturer's limited warranty and must be installed in a manner to eliminate potential contact with sewage or effluent, including connections.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.7.3 **Soil and Site Evaluation:**

4. A satisfactory soil and site evaluation will comply with the following criteria:

   a. Absence of or protection from frequent flooding.

   b. Landscape position with positive surface runoff.

   c. Slopes of less than sixteen (16)%.

   d. Depth to high water table of greater than six (6) inches.

   e. Depth to bedrock, fragipan, redoximorphic features or plinthite of greater than twelve (12) inches.

   f. Soil texture and color defined by the Natural Resource Conservation Service as indicating good drainage and suitable for surface application of wastewater, based on a soil boring of five (5) feet.

5. Sizing of the spray disposal field will be based on the most restrictive soil within twelve (12) inches of the naturally occurring ground surface.

7. To overcome the lack of sufficient depth, to a restrictive horizon and/or Seasonal High Water Table, a clean fill material of a texture of sandy loam may be used as fill material. Organic matter shall be removed, from the native soil surface, prior to placing and incorporating the fill. This fill must be incorporated into the native soil to prevent a textural interface from developing. When fill material is used the entire fill area must be sodded to prevent erosion, or other effective erosion control methods used. The full depth of fill material must extend at least ten (10) feet in all

directions from outer edge of the spray field and at that point shall be sloped at a grade of no steeper than 3 to 1. Table II

8. The non compliance of one or more of the above items may (1) require a design alteration or (2) prohibit the use of a Spray Irrigation Disposal system. Slopes of greater than sixteen (16) % may be considered on a case by case basis.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.7.3 **Location of Spray Irrigation Disposal Systems:**

1. All components of the spray irrigation disposal system shall be located a minimum of:

   a. Five (5) feet from any dwelling or permanent structure.

   b. Ten (10) feet from any property line.

2. The advanced treatment system and pump/dosing chamber shall be located a minimum of fifty (50) feet from any public, private or individual potable water source.

3. Potable water lines and wastewater lines shall not be laid in the same trench. The potable water lines and wastewater lines shall maintain a minimum horizontal separation of 10 feet. Where a potable water line must cross a wastewater line, the potable water line within ten (10) feet of the point of crossing shall be at least twelve (12) inches above the wastewater line.

5. Spray Irrigation systems shall not be located in depressed areas where surface water will accumulate. Provisions shall be made to minimize the flow of surface water over the effluent disposal field.

6. There shall be maintained, from the outer edge of the spray pattern, the following distances:

   a. One hundred (100) feet from any public, private or individual potable water source and be located at a lower elevation.

   b. Fifty (50) feet from recreational waters, shellfish waters or other sensitive areas for spray fields located on slopes of less than eight (8) percent or if the soil texture is sandy loam or lighter or sandy clay or heavier.

   c. Seventy five (75) feet from recreational waters, shellfish waters or other sensitive areas for spray fields located on slopes of greater

than eight (8) percent or if the soil texture is sandy loam or lighter or sandy clay or heavier.

d. Twenty five (25) feet from dwellings, swimming pools, businesses or other inhabited structures.

e. Twenty five (25) feet from lot lines, porches, patios and decks.

f. Fifteen (15) feet from outbuildings.

g. Ten (10) feet from walkways, private roads, driveways and parking areas.

h. Effluent should not be sprayed upon any vessel containing wastewater.

7. Where all or part of the Spray Irrigation system is proposed to be installed on property other than the owner's, an easement in perpetuity shall be legally recorded in the proper county and a copy furnished to the local county Health Department prior to listing Spray Irrigation as an option. The easement shall be of sufficient area to permit access, construction and maintenance of the system.

8. It is the intent of these regulations that a minimum separation of fifty (50) feet between independent spray disposal fields be maintained. Over lapping of the required setback from property lines cannot be negated by the granting of easements.

11. In soils that contain a restrictive horizon (fragipan, chalk, bedrock, clay or silty clay), within two (2) feet of the surface, there shall be maintained a minimum of six (6) inches of unsaturated soil between the Seasonal High Water Table.

12. In soils that do not contain a restrictive horizon (fragipan, chalk, bedrock, clay or silty clay), within two (2) feet of the surface, there shall be maintained a minimum of twelve (12) inches of unsaturated soil between the Seasonal High Water Table.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.7.4 **Registration:** The term "manufacturer" for this section will mean the Certified Manufacturer of the treatment method, unless otherwise specified. Each manufacturer's treatment and disposal components shall be registered with the Department as a system. The treatment method shall in compliance with the current standards of *National Sanitation Foundation/American National Standards Institute International Standard 40 and/or 245* and the applicable sections of the regulations.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.7.5 **Pump/Dosing Chambers:**

1. The pump/dosing chamber shall have a minimum working capacity of 1.5 times the maximum volume produced for timed-dose and per manufacturer's specifications for demand-dose systems.

2. The dosing chamber shall be equipped with an audible high water alarm.

4. The pump/dosing chamber shall have a grade level access large enough to allow servicing and/or removal of the largest component in the chamber. Access ports shall be protected against unauthorized entrance or removal.

5. The pump/dosing chamber shall be vented through the grade level access or by means of a separate vent. In either case the vent shall be a minimum of one (1) inch in diameter.

6. The pump/dosing chamber shall be made of material resistant to the corrosive effects of wastewater, chemicals used for disinfection and designed to withstand the lateral and bearing loads to which it is expected to be subjected.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.7.6 **Minimum Pump Specifications**:

2. The pumping system shall be equipped with a low water cutoff to prevent damage to the pump during low water conditions in the pump/dosing chamber.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.7.7 **Minimum Filter Specifications:**

SOURCE: Miss Code Ann. §41-67-3

Rule 5.7.8 **Minimum Specifications for Irrigation Equipment:**

4. Radius reduction by means of nozzle retaining screw, distance control diffuser pin or other similar devices shall not be allowed.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.7.9 **Minimum Specifications for Disinfection:** Effluent discharge from spray irrigation systems shall be adequately disinfected prior to surface application. The method of disinfection and the disinfection equipment must be in compliance with Disinfection regulation.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.7.10 **Minimum Specifications for the Spray Field:** Spray irrigation systems may not be installed in drain ways, swamps, marshes, floodplain, concave landscape positions or other areas which would be prohibited.

4. The effluent distribution system shall be designed, constructed and maintained to provide for even distribution of effluent throughout the spray field.

5. Surface runoff of sprayed effluent from the spray field area shall not be permitted. Rainwater shall be diverted away from the spray field area.

6. The spray field area shall be designed and operated to prevent surface accumulation of sprayed effluent.

7. In order to prevent entrapped air causing serious problems pipelines shall be routed on contour, downhill or even uphill but not up and downhill along the same section of pipe.

8. The size of the spray field area shall be determined by soil texture and slope of the site to be sprayed. Table I

SOURCE: Miss Code Ann. §41-67-3

Table I **SIZING – Spray Irrigation**
Results of the Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/Ft^2	Absorption Area in Ft^2/Bedroom			Additional Absorption Area Over 2 Persons Per Bedroom		
			Slope			Slope		
			0 to 8 %	9 to 12%	13 to 16%	0 to 8 %	9 to 12%	13 to 16%
Gravel	NOT SUITABLE							
Coarse and Medium Sand Fine and Loamy Sand Sandy Loam	< 0.5	1.2 0.8 0.6	800	1070	1200	400	535	600
Loam Silt Loam Sandy Clay Loam	< 0.5 – 1.0 < 0.5- 1.0 1.0 – 2.0	0.45	1600	2000	2680	800	1000	1340
Silt Clay Loam Clay Loam Sandy Clay	1.0 – 2.0 1.0 – 2.0 > 2.0	0.2 – 0.3 0.2 – 0.3 -	3210	5350	8020	1605	2675	4010
Silty Clay Clay	> 2.0	-	8020	10030	13370	4010	5515	6685

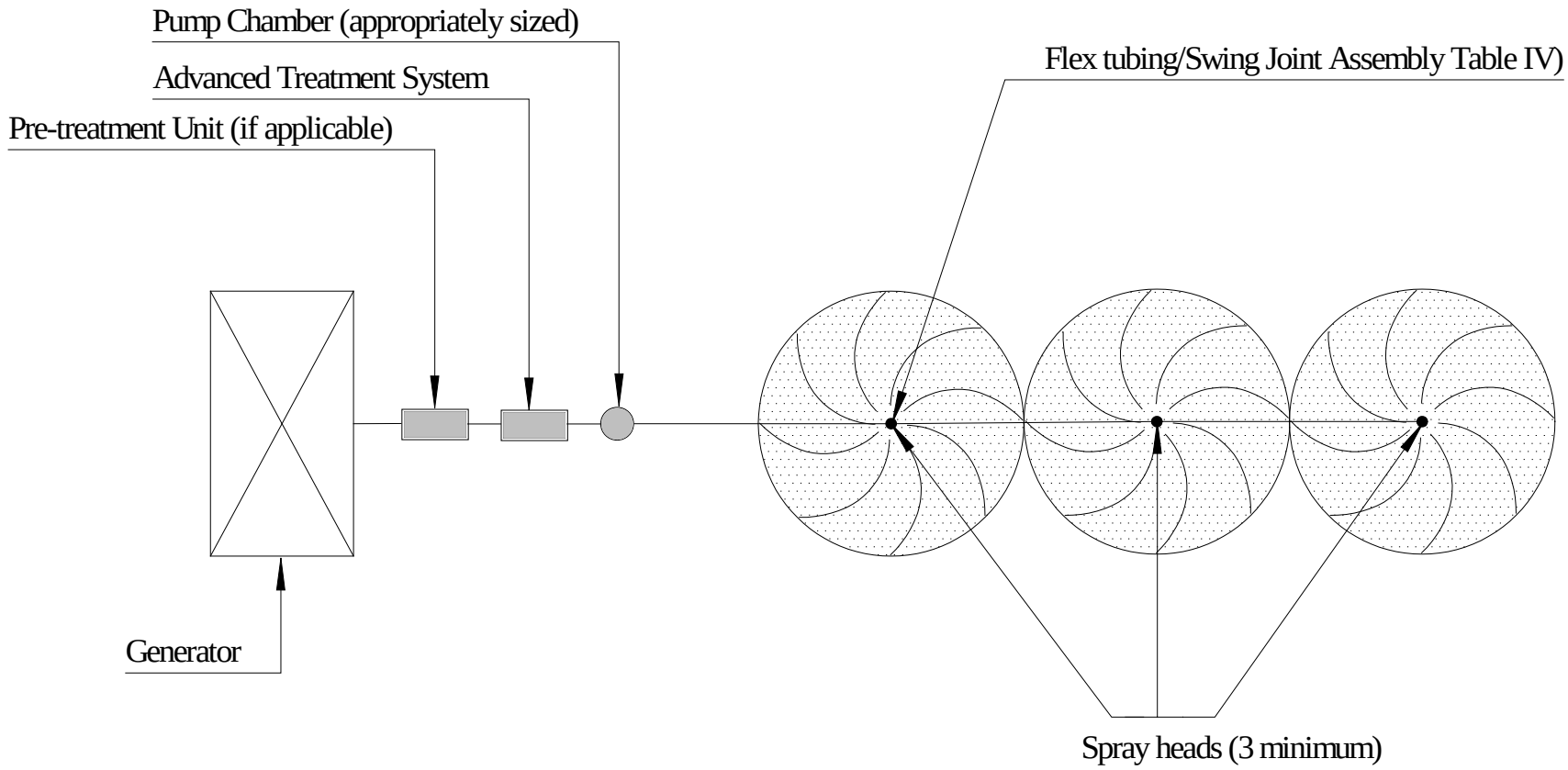
SOURCE: Miss Code Ann. §41-67-3

Table II **FILL MATERIAL**

Seasonal High Water Table Depth (inches)	…with a Restrictive Horizon/Layer (inches)	…without a Restrictive Horizon/Layer (inches)
0	6	12
1	5	11
2	4	10
3	3	9
4	2	8
5	1	7
6	-	6
7	-	5
8	-	4
9	-	3
10	-	2
11	-	1
12	-	-

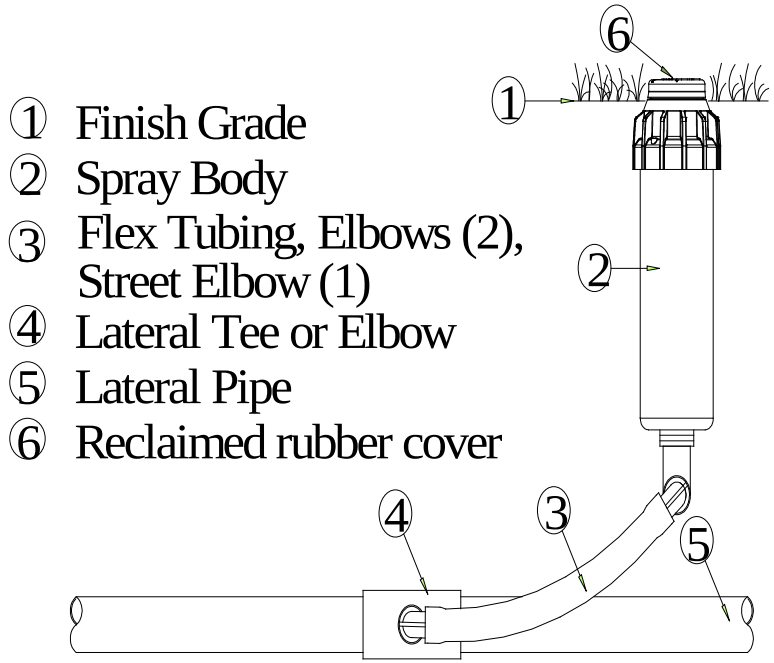
SOURCE: Miss Code Ann. §41-67-3

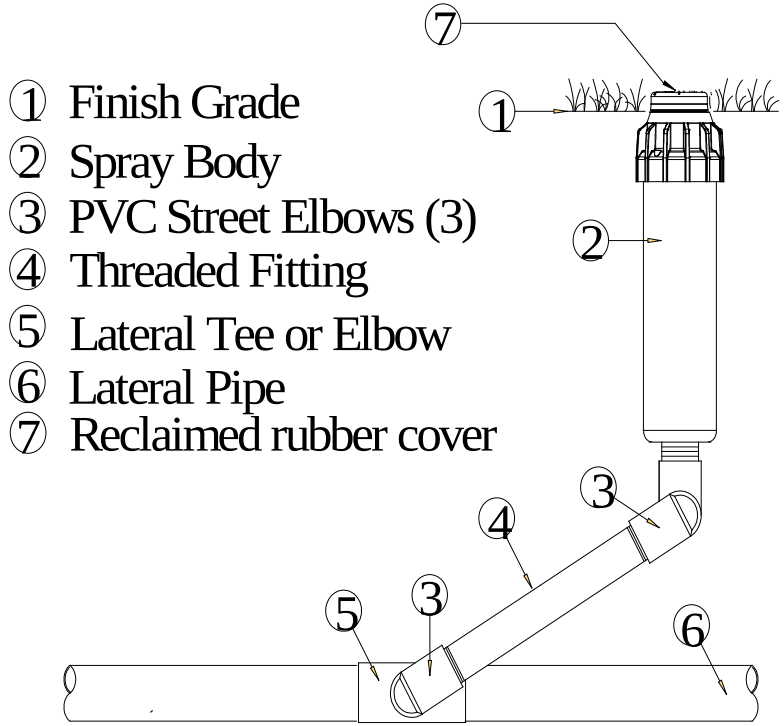
Figure I **SPRAY IRRIGATION SYSTEM**



SOURCE: Miss Code Ann. §41-67-3

Figure II **FLEX TUBE/SWING JOINT ASSEMBLY**





SOURCE: Miss Code Ann. §41-67-3

Title: Mississippi State Department of Health

Part 15: Division of On-site Wastewater

Subpart 77: On-site Wastewater Regulations

Rule 5.1.1. ~~The treatment units available for individual onsite wastewater disposal systems are the septic tank and the aerobic treatment unit. These treatment units differ due to the conditions in the tanks that break down the sewage.~~

Rule 5.1.2. ~~The septic tank works only as a primary treatment unit. Therefore, isposal of effluent must be sub-surface, or a form of secondary treatment must be used before disposal by land application. The septic tank is an anaerobic system that decomposes wastewater in the absence of oxygen. Microorganisms that are adaptable to an environment with almost no oxygen facilitate this process.~~

Rule 5.1.3. ~~The aerobic treatment unit produces a quality of effluent that is suitable or disposal by surface land application, spray irrigation or overland discharge. The aerobic treatment uni is an aerated system that decomposes wastewater in the presence of oxygen (air).~~

Rule 5.1.4. ~~Microorganisms that must use free dissolved oxygen facilitate this process.~~

~~Rule 5.1.6.~~ Rule 5.1.1 **Definitions:**

1. ~~Aerators - a mechanical device that provides the free dissolved oxygen in an aerobic treatment unit.~~

2. ~~Aerobic - a process that utilizes bacteria that require free dissolved oxygen for their growth.~~

3. ~~Aerobic Treatment Units (ATU) - a class I mechanical treatment plant as defined by the most current revision of the American National Standards Institute/National Sanitation Foundation International Standard Number 40.~~

4. 1. Air space - the space required between the lid of a septic tank and the bottom of the outlet pipe for the capture of gases generated by the anaerobic bacteria. Vent pipes within the facility or residence plumbing remove these gases from the septic tank.

5. 2. Anaerobic - a process that utilizes bacteria that grow only without free dissolved oxygen. They obtain oxygen from breaking down complex organic substances

6. 3. Filter - a device used to remove solids from the effluent of a septic tank.

7. 4. ~~Manhole~~ Access Opening – ~~an~~ resealable ~~access~~ opening in the treatment unit that allows for ~~removal of the largest component within the unit,~~ inspection, maintenance, ~~of the unit~~ and entry if necessary~~, to check the integrity of the unit~~.

8. 5. Septic tank – Water-tight, covered receptacle for treatment of sewage; receives the discharge of sewage from a building, separates settleable and floating solids from the liquid, digest organic matter by anaerobic bacterial action, stores digested solids through a period of detention, allows clarified liquids to discharge for additional treatment and final dispersal, and attenuates flows~~a wastewater treatment unit that provides only primary treatment of a waste stream from a facility or residence~~.

9. 6. Synthetic Fiber Reinforcement - Synthetic fibers of polypropylene or polypropylene/polyethylene blend used in place of welded wire or other accepted reinforcing materials for the purpose of providing structural integrity to concrete.

~~Rule 5.1.7.~~ Rule 5.1.2 **General:** ~~The septic tank may come in all shapes and constructed of a variety of materials.~~ Septic tanks ~~can~~ shall be constructed from concrete, ~~steel,~~ fiberglass or polyethylene. ~~The primary function of the septic tank is to receive and hold sewage. The process used to digest the sewage is anaerobic (no oxygen), thus creating methane gases that are vented from the tank.~~ The septic tank size is based on the number of bedrooms or twice the daily flow for nonresidential applications. ~~This is to ensure that a minimum 48-hour retention time be maintained before effluent is discharged to a subsurface disposal field or a secondary treatment system.~~

~~Rule 5.1.8.~~ Rule 5.1.3 **Location**

7. Septic tanks shall not be located in depressed areas where surface water will accumulate. This water may enter the septic tank causing it to flood.

8. The area over the septic tank shall not be used for vehicular traffic or vehicular parking~~No vehicular traffic should be allowed over the septic tank, nor any part of the individual onsite wastewater disposal system~~.

9. The septic tank must be installed according to the following minimum distances:

   a. foundation five (5) feet

   b. property lines ten (10) feet

   c. potable water supplies and all private wells fifty (50) feet

10. Septic tanks shall not be located under dwellings or other ~~permanent~~ structures.

11. Where all or part of the Individual ~~o~~On-site ~~w~~Wastewater ~~d~~Disposal ~~s~~System is proposed to be installed on property other than the owner's, an easement in

perpetuity shall be legally recorded in the proper county. The easement shall be of sufficient area to permit access, construction and maintenance of the Individual ~~o~~On-site ~~sewage~~ Wastewater ~~d~~Disposal ~~s~~System.

12. Easements or right-of-way areas for utilities, surface or subsurface drainage, roads, streets, ponds or lakes shall not be used as available space for location of I~~i~~ndividual O~~o~~n-site Wastewater~~sewage~~ D~~d~~isposal S~~s~~ystems.

~~Rule 5.1.8.~~ Rule 5.1.4 **Design:** All septic tanks (prefabricated concrete, ~~steel,~~ fiberglass or polyethylene) must be designed according to minimum standards as follows:

1. General

   a. The septic tank shall be watertight, structurally sound and not subject to excessive corrosion or decay. The outlet of the septic tank should be placed so as not to be located below the S~~s~~easonal High W~~w~~ater T~~t~~able ~~as indicated by gray mottles~~.

   b. The minimum hydraulic detention time of the septic tank must be two days (48 hours) based on daily sewage flows. In no case shall the septic tank have a minimum effective liquid capacity of less than seven hundred fifty (750) gallons. ~~On and after July 1, 1997 septic tanks that do not contain a baffle wall or an approved effluent filter shall have a volume of twice the maximum daily flow of the residence.~~

   c. All tanks manufactured in two (2) sections must have an interlocking type joint. Tanks manufactured in two sections must be sealed and joined with an approved sealant such as butyl rubber or other approved pliable sealant that is waterproof, corrosion-resistant and is warranted by the manufacturer for sealing concrete septic tanks.

   d. The use of metal tanks, drums, barrels or pipes is prohibited for use with Individual On-site Wastewater Disposal Systems.

   e. All septic tanks with a capacity of greater than fifteen hundred (1,500) gallons shall be deemed structurally sound by a licensed Professional Engineer via stamped letter.

3. Tank Dimensions

   a. The inside length of a rectangular septic tank shall be a minimum of 1.5 times the width. The minimum inside width of a septic tank shall not be less than 3.5 feet.

   b. The ~~maximum depth of a septic tank is 60 inches with a~~ minimum liquid depth of all septic tanks shall be thirty (30) inches. ~~The preferred depth is 48 inches.~~

c. A minimum air space of seventeen (17) percent of the liquid depth must be provided ~~for in septic tanks that have straight vertical sides. This air space is the space between the bottom of the outlet and lid of the septic tank~~.

3. Tank Inlet and Outlet

a. The inlet and outlet of the septic tank must be large enough to accommodate a four (4) inch schedule forty (40) pipe and be equipped with a sanitary tee or baffle.

b. The inlet and outlet pipes must extend a minimum of three (3) feet onto undisturbed soil before entering and after exiting the septic tank.

c. The inlet invert shall enter the septic tank a minimum of two (2) inches above the liquid level of the tank. The inlet tee or baffle shall be provided to divert the incoming sewage downward and extend a minimum of six (6) inches below the liquid level of the tank.

d. The outlet tee or baffle shall extend eighteen (18) inches below the liquid depth of the tank.

e. A three (3) inch house sewer stub out, when used, shall be connected to the four (4) inch pipe from the septic tank inlet using manufactured fittings designed for that purpose.

4. Baffle Walls and Two Compartment Tanks~~: If a two compartment tank is used the baffle wall shall be as follows:~~

a. The first compartment shall be between sixty (60) and sixty-seven (67) percent ~~two thirds (2/3) and three quarters (3/4)~~ of the total capacity of the tank.

b. The baffle forming the two (2) compartments shall have an opening four (4) to six (6) inches wide, ~~extending a minimum of one-half (½) the width~~ located in the center of the baffle and at fifty (50) percent of the liquid depth of the tank~~located a minimum of twelve (12) inches below the water level measured to the top of the opening or designed by an engineer and submitted to the Division of Onsite Wastewater for approval.~~

g. If the tank is to be made of concrete, t~~T~~he baffle wall shall be constructed of concrete and be structurally sound. This shall be interpreted as a minimum of three thousand (3000) pound concrete containing six (6) -inch by six (6) -inch number ten (10) concrete wire and having a minimum thickness of two and one-half inches.

e. ~~Allowance shall be made for adequate support of the upper portion of the baffle.~~

f. e. Baffle walls shall be securely and permanently fastened to the septic tank. All fasteners shall be of sound and durable material not subject to corrosion or decay.

6. ~~Manholes~~ **Access Openings:** ~~Adequate access openings above each tee and baffle must be provided in each tank top. These openings provide for cleaning or rodding out of the inlet or outlet pipe and access for pumping.~~

a. A resealable openings above each tee and baffle must be provided in each tank top. These openings provide for cleaning or rodding out of the inlet or outlet pipe and access for pumping.

b. Openings covering the inlet and outlet shall be accessible and visible at finished grade once the septic tank is covered.

~~a.~~ c. ~~In one piece lids, r~~Rectangular openings shall be a minimum of fifteen (15) inches by fifteen (15) inches as measured from~~they cut the plane of~~ the bottom side of the lid of the septic tank.

~~b.~~ d. ~~In one piece lids, c~~Circular openings shall be a minimum diameter of seventeen (17) inches as measured from~~they cut the plane of~~ the bottom side of the lid of the septic tank.

~~c. Multi-slab tank lids and one piece lids that can be removed manually to include but not limited to steel and fiberglass require the slab or lid over the inlet and outlet tee or baffle to have a minimum access opening of 6 inches by 6 inches if rectangular or 8 inches in diameter if round.~~

~~d.~~ e. All concrete covers, access openings and slabs must have a handle of 3/8 inch steel rebar or other corrosive resistant material of the size necessary to facilitate the removal of the cover, opening or slab.

~~Rule 5.1.9.~~ Rule 5.1.5 **Effluent Filters:** Effluent filters shall meet the following criteria:

3. The filter shall retain all partials greater than one-eight (~~e~~1/8) inch in size.

7. The assembly shall perform as a conventional tank outlet, meeting the requirements of Rule 5.1.4.3~~Section III part 3~~, when the filter is removed.

9. The filter must be designed to handle the flow of the system it is to serve and not result in excessive maintenance. For a single family dwelling, maintenance is considered “excessive” when the filter requires service or cleaning more than one

(1) time per year. Service shall be performed each time the tank is pumped, and in accordance with manufacturer's specifications.

~~Rule 5.1.10. **Sizes of Septic Tanks:** The effective liquid capacity of septic tanks for dwellings shall be based on the number of bedrooms proposed or anticipated and shall as a minimum comply with the following:~~

~~1.~~ Rule 5.1.6 **Minimum Standards for Septic Tank Construction**

~~a.~~ 1. General

~~i.~~ a. All septic tanks manufactured for sale in the state of Mississippi shall bear an imprint identifying the manufacturer, the serial number assigned to the manufacturer's plans and specifications approved by the department, the liquid or working capacity of the tank and be marked with the date of manufacture. These imprints and markings must be visible at the time of inspection by the Department~~This imprint must be adjacent to the blockout or opening for the inlet pipe end of the septic tank~~.

~~ii.~~ b. All openings and lids shall be capable of being sealed in a way that will prevent entrance of surface water and groundwater.

c. Tank openings shall be securely fastened or sealed to prevent unwarranted access to the contents of the tanks vandal, tamper and child resistant. Acceptable protection of openings may include, but is not limited to:

i. A padlock

ii. An "O" ring with twist lock cover requiring special tools for removal

iii. Covers weighing sixty-five (65) pounds or more, net weight

iv. Stainless steel or other corrosion resistant fasteners for fiberglass or polyethylene lids.

2. Prefabricated Concrete Septic Tank

a. A minimum twenty-eight (28) -day concrete compressive strength of three thousand (3,000) pounds per square inch must be used in the construction of the septic tank. The concrete must achieve a minimum compressive strength of two thousand five hundred (2,500) pounds per square inch before removal of the tank for the manufactured site. It shall be the

responsibility of the manufacturer to certify that this condition has been met before shipment. ~~A septic tank from the manufacturer shall be subject to testing to ascertain the strength of the concrete before being approved for installation. Recognized devices for testing the strength of concrete include a properly calibrated Schmidt Rebound Hammer.~~ Accelerated curing in the mold by use of propane gas or other fuels is prohibited, except by accepted methods and upon approval of the department.

b. The tank shall be free of voids or pits, with walls reasonably straight and plumb.

c. Lids, walls and bottom thickness must be a minimum of three (3) inches. The bottom and walls must be a monolithic pour.

d. ~~After curing, tanks manufactured in two sections should be joined and sealed before shipment from the manufacturing site. Tanks shall be joined and sealed at the joint by using a mastic, butyl rubber, or other pliable sealant that is waterproof, corrosion-resistant and approved for use in septic tanks. Before sealing, the joint shall be smooth, intact and free of all deleterious substances.~~

3. ~~Steel Septic Tanks: Steel septic tanks must meet Underwriters Laboratory Standard UL-70 for the tank coating. Only tanks listed as approved under the current published listing will be approved for installation.~~

4. Fiberglass and Polyethylene Septic Tanks ~~The following structural requirements are applicable to fiberglass septic tanks and tanks made of a comparable class of materials.~~

a. Resins and sealants used in the tank manufacturing process shall be capable of effectively resisting the corrosive influences of the liquid components of sewage, sewage gases and soil burial. Materials used shall be formulated to withstand shock, vibration, normal household chemicals, earth and hydrostatic pressure when either full or empty.

b. Not less than thirty (30) percent of the total weight of the tank shall be fiberglass reinforcement. Fiberglass tanks with an effective liquid capacity of not over one thousand five hundred (1500) gallons shall have a minimum wall thickness of 1/4 inch. However, a wall thickness of not less than 3/16 inch will be allowed in small isolated areas of a tank.

c. Internal surfaces shall be coated with an appropriate gel coating to provide a smooth, porefree, watertight surface.

d. Tanks shall be constructed so that all parts of the tank meet the following mechanical requirements.

i. Ultimate tensile strength - minimum twelve thousand (12,000) PSI when tested in accordance with ASTM D 638-89, Standard Method of Test for Tensile Properties of Plastics.

ii. Flexural strength - minimum nineteen thousand (19,000) PSI when tested in accordance with D 790-86, Standard Method of Test for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

iii. Flexural modules of elasticity - minimum eight hundred thousand (800,000) PSI when tested in accordance with ASTM D 790-86 , Standard Method of Test for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

e. A test report from an independent testing laboratory is required to substantiate that individual tank design and material formulations meet the requirements of Rule 5.1.6.3.d~~(d) 1., 2., and 3. above~~.

~~f. Physical properties for tanks over 1500 gallons effective liquid capacity must be approved by the department.~~

~~g. Tank lids shall be securely fastened or sealed to prevent unwarranted assess to the contents of the tanks and to make tanks vandal, tamper, and child resistant. Acceptable protection of openings may include, but is not limited to:~~

~~i. A padlock.~~

~~ii. An "O" ring, with twist lock cover requiring special tools for removal.~~

~~iii. Covers weighing 65 pounds or more, net weight.~~

~~iv. Stainless steel or other corrosion resistant fasteners for fiberglass, metal or plastic lids.~~

~~Rule 5.1.11.~~ Rule 5.1.7 **Minimum Standards for ~~Septic Tank~~ Concrete Reinforcement:**

1. Tanks Reinforced with Welded Steel Concrete Wire

a. The reinforcing wire shall be a minimum number ten (10) gauge six (6) inch on centers. The reinforcing wire shall be lapped a minimum of six (6) inches.

b. Lids for prefabricated septic tanks shall have one (1) 3/8 inch steel reinforcing rod per foot of length and width.

3. Tanks Reinforced with Synthetic Structural Fibers

a. ~~Fiber Properties - Synthetic fibers used shall meet the requirements of ASTM C 1116, Section 4.1.3, Part III.~~

b. a. Manufacturer of synthetic structural fibers shall provide certification showing fibers meet the requirements of ~~ASTM C 1116, Section 4.1.3, Part III~~outlined in this section.

c. b. Synthetic fibers shall be monofilament and made of a polypropylene or polypropylene/polyethylene blend in accordance with ASTM C 116, Section 4.1.3, Part III.

d. c. Synthetic structural fibers shall have a minimum length of 1.5 inches.

e. d. Synthetic structural fibers shall ~~have an aspect ratio (length divided by the equivalent diameter of the fiber) of 90~~produce concrete with a minimum average residual strength of one hundred fifty (150) psi when tested in accordance with ASTM C 1399.

f. ~~Synthetic structural fibers shall have a minimum tensile strength of 70 ksi when tested in accordance with ASTM D 3822.~~

g. ~~Synthetic structural fibers shall have a minimum modulus of elasticity of 1,300 ksi when tested in accordance with ASTM D 3822.~~

h. e. Fiber dosage rate shall be a minimum of 3 lb/yd3 of concrete. ~~Lids for prefabricated septic tanks shall have one 3/8 inch steel reinforcing rod per foot of length and width.~~

i. ~~Reinforcing steel shall not be exposed at any point or area on the septic tank.~~

~~Rule 5.1.12.~~ Rule 5.1.8 **Maintenance:** The septic tank should be pumped at a frequency depending on the wastewater flow. The recommended pumping cycle is three (3) to five (5) years, but pumping should not occur until the settleable solids have reached a depth of 1/3 the septic tank liquid depth. This can be determined by "sticking" the tank.

Rule 5.1.9 Septic Tank Sizing: The effective liquid capacity of septic tanks for dwellings shall be based on the number of bedrooms proposed or anticipated as shown in the table below:

Table Septic Tank Sizing

Number of Bedrooms	**Number of Occupants**	**Minimum Effective Liquid Capacity (gallons) without baffle or effluent filter**	**Minimum Effective Liquid Capacity (gallons) with baffle or effluent filter**

2 or less	**4 or less**	**750**	**750**
3	**6**	**900**	**900**
4	**8**	**1200**	**1000**
5	**10**	**1500**	**1250**
6	**12**	**1800**	**1500**

a. For each additional bedroom add ~~300~~ 260 gallons
b. For each additional occupant over 2 per bedroom add ~~150~~ 130 gallons
c. For a nonresidential application, the septic tank will be sized at twice the estimated daily flow

Subchapter 2. ~~AEROBIC TREATMENT UNITS~~ADVANCED TREATMENT SYSTEMS

Rule 5.2.1. **General:**

5. ~~The aerobic treatment unit may come in all shapes and sizes and construction materials. Aerobic treatment units can be constructed from concrete, steel, or fiberglass. The aerobic treatment unit size is based on the number of bedrooms or the estimated daily flow. This is to ensure time for the wasteflow to be adequately treated before final disposal.~~

6. 1. All advanced treatment systems~~aerobic treatment units~~ installed in the state of Mississippi shall be in compliance with the current revision of the *National Sanitation Foundation/American National Standard Insitute International Standard 40 or 245* testing protocol, hereby incorporated into regulation by reference and shall be certified by an approved third party certification program. The Division ~~of Onsite Wastewater~~ will maintain a current listing of registered and certified manufacturers. The current list will be made available by the ~~upon request and updated as other aerobic treatment plant manufacturers are added to the list. The updated list will be available at the county health d~~Department.

7. 2. The department shall only approve individual advanced treatment systems~~aerobic treatment plants~~ that have no discharge of wastewater off the property of the generator.

8. 3. All advanced treatment systems~~aerobic treatment units~~ must be installed according to the Certified Mmanufacturer's specifications by a factory-trained installer that is an authorized representative of the manufacturer.

4. The use of metal tanks, drums, barrels, or pipes is prohibited for use with Individual On-site Wastewater Disposal Systems.

Rule 5.2.2. **Definitions:**

1. Aerator – a mechanical device that provides dissolved oxygen to an Advanced Treatment System.

2. Advanced Treatment System – treatment component that utilizes oxygen to degrade or decompose wastewater.

~~Rule 5.2.1.~~ Rule 5.2.3 **Location:**

9. Advanced treatment systems~~Aerobic treatment units~~ shall be installed level on undisturbed soil. If leveling or elevation change is necessary, the advanced treatment system~~aerobic treatment unit~~ must be placed on a bed of sand.

10. It is recommended the outlet of the advanced treatment system~~aerobic treatment unit~~ should be placed so as not to be below the S~~s~~easonal High W~~w~~ater T~~t~~able ~~as indicated by gray mottles~~.

11. An advanced treatment system~~aerobic treatment unit~~ should not be located in an area that collects surface water. This water may enter the advanced treatment system~~aerobic treatment unit~~ causing a failure by flooding. This flooding will cause the effluent to be discharged before it is properly treated.

12. The advanced treatment system~~aerobic treatment unit~~ must be installed according to the following minimum distances:

    a. foundations five (5) feet

    b. property lines ten (10) feet

    c. potable water supplies and all private wells fifty (50) feet

13. The area over the advanced treatment system~~aerobic treatment unit~~ shall not be used for vehicular traffic or vehicular parking.

14. Advanced treatment systems~~Aerobic treatment units~~ shall not be located under dwellings or other ~~permanent~~ structures.

15. Where all or part of the Individual O~~o~~n-site W~~w~~astewater D~~d~~isposal S~~s~~ystem is proposed to be installed on property other than the owner's, an easement in perpetuity shall be legally recorded in the proper county. The easement shall be of sufficient area to permit access, construction and maintenance of the Individual O~~o~~n-site ~~sewage~~ Wastewater D~~d~~isposal S~~s~~ystem.

16. Easements or right-of-way areas for utilities, surface or subsurface drainage, roads, streets, ponds or lakes shall not be used as available space for location of I~~i~~ndividual O~~o~~n-site ~~sewage~~ Wastewater D~~d~~isposal S~~s~~ystems.

~~Rule 5.2.3.~~ Rule 5.2.4 **Inlet and Outlet:**

1. The inlet and outlet must be schedule forty (40) pipe four (4) inches in diameter. A three (3) inch house sewer stubout, when used, shall be connected to the four (4) inch pipe from the septic tank inlet using manufactured fittings designed for that purpose.

2. The inlet and outlet pipe (schedule 40 four (4) inch) must extend a minimum of three (3) feet onto undisturbed soil before entering and after exiting the advanced treatment system~~aerobic treatment unit~~.

~~Rule 5.2.4.~~ Rule 5.2.5 **Maintenance:**

1. All advanced treatment systems~~aerobic treatment units~~ should be pumped at a frequency based on the wastewater volume generated by the residence or establishment. The pumping cycle will depend on the level of the sludge in the advanced treatment system~~aerobic wastewater treatment~~. The sludge should not be allowed to accumulate more than the recommended depth specified by the manufacturer of the advanced treatment system~~aerobic treatment unit~~. If the sludge is allowed to discharge, a clogging problem may occur if any additional treatment or disposal system is used in conjunction with the ~~aerobic treatment unit~~. ~~Also, if spray or overland disposal is used, an odor problem may develop if the aerobic treatment unit is not properly pumped.~~

~~2. No vehicular traffic should be allowed on the aerobic treatment unit, nor any part of the individual onsite wastewater disposal system.~~

2. All advanced treatment systems shall be maintained and inspected as required by the Certified Manufacturer.

Rule 5.2.5. **Aerators:** The type of aerator used with the advanced treatment system~~aerobic treatment unit~~ is mandated by the manufacturer. ~~These aeration units will either be a "pump" or a "stir" type aerator.~~ The maintenance of the aerator is outlined in the manual provided by the Certified M~~m~~anufacturer or his authorized representative. ~~The aerator should be checked, according to the manufacturer's recommendations, to ensure that the aerobic treatment unit will function properly.~~

Rule 5.2.6. ~~**Existing Systems:** In addition to the existing inspection conducted by the county environmentalist when the existing system involves an ATU, the following will apply:~~

2. ~~The ATU must be inspected by a factory authorized representative to verify that the ATU is functioning within factory specifications.~~

3. ~~The factory authorized representative must furnish written verification, to the Department, that an inspection was made and the ATU is functioning properly or has been repaired and is presently functioning properly.~~

Rule 5.2.7 **Table Advanced Treatment System Sizing**

Number of Bedrooms	**Minimum~~Working~~ Capacity (gallons per day)**
2 or less	**400**
3	**400~~500~~**
4	**520~~600~~**
5	**650~~750~~**
6	**780~~900~~**

a. For each additional bedroom add ~~150~~ 130 gallons
b. For each additional occupant over 2 per bedroom add ~~75~~ 65gallons
c. For a nonresidential application, use the estimated daily flow

Table II – **SIZING – AGGREGATE (Gravel, Crushed Stone, Tire Chips, or other approved media)~~SYSTEM SIZING (~~**Results ~~O~~of the Soil and Site Evaluation~~)~~

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/Ft^2	Absorption Area Per Bedroom (3' Trench)		Additional Absorption Area Over 2 Persons Per Bedroom	
			Ft^2	Lf	Ft^2	Lf
Gravel	-	-	NOT SUITABLE			
Coarse Sand	-	1.2	108	36	54	18
Medium Sand	-	1.2	108	36	54	18
Fine Sand	-	0.8	163	54	81	27
Loamy Sand	-	0.8	163	54	81	27
Sandy Loam	<.5	0.6	108	72	108	36
Light Loam	<.5	0.6	217	72	108	36
Heavy Loam	.5 – 1	0.45	289	96	144	48
Silt Loam	<1	0.45	289	96	144	48
Sandy Clay Loam	1 – 2	0.45	289	96	144	48
Light Clay Loam	1 – 1.5	0.30	433	144	217	72
Heavy Clay Loam	1.5 – 2.0	0.20	650	217	325	108
Light Silty Clay Loam	1 – 1.5	0.30	433	144	217	72
Heavy Silty Clay Loam	1.5 – 2.0	0.20	650	217	325	108
Sandy Clay	>2.0	-	NOT SUITABLE			
Silty Clay	>2.0	-	NOT SUITABLE			
Clay	>2.0	-	NOT SUITABLE			

LARGE DIAMETER PIPE

Results of Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	Loading Rate GPD/ Ft^2	Absorption Area Per Bedroom**						Additional Absorption Area Over 2 Persons Per Bedroom**					
			Ft^2			*Lf			Ft^2			*Lf		
			6	8	10	6	8	10	6	8	10	6	8	10
Gravel	-	-	NOT SUITABLE											
Coarse Sand	-	1.2	189	189	125	63	63	43	95	95	63	32	32	22
Medium Sand	-	1.2	189	189	125	63	63	43	95	95	63	32	32	22
Fine Sand	-	0.8	285	285	190	95	95	63	143	143	95	43	43	32
Loamy Sand	-	0.8	285	285	190	95	95	63	143	143	95	43	43	32
Sandy Loam	<.5	0.6	375	375	250	125	125	83	188	188	125	63	63	42
Light Loam	<.5	0.6	375	375	250	125	125	83	188	188	125	63	63	42
Heavy Loam	.5 – 1	0.45	504	504	335	168	168	112	252	252	168	84	84	56
Silt Loam	<1	0.45	504	504	335	168	168	112	252	252	168	84	84	56
Sandy Clay Loam	1 – 2	0.45	504	504	335	168	168	112	252	252	168	118	118	56
Light Clay Loam	1 – 1.5	0.30	750	750	500	250	250	167	375	375	250	125	125	84
Heavy Clay Loam	1.5 – 2.0	0.20	1125	1125	750	375	375	250	563	563	375	188	188	125
Light Silty Clay Loam	1 – 1.5	0.30	750	750	500	250	250	167	375	375	250	125	125	84
Heavy Silty Clay Loam	1.5 – 2.0	0.20	1125	1125	750	375	375	250	563	563	375	188	188	125
Sandy Clay	>2.0	-	NOT SUITABLE											
Silty Clay	>2.0	-	NOT SUITABLE											
Clay	>2.0	-	NOT SUITABLE											

Minimum and maximum trench widths are 24 and 36 inches, respectively.

** Bedroom is equivalent to 150 gallons per day.

SIZING – AGGREGATE REPLACEMENT (~~LARGE~~arge ~~DIAMETER~~iameter ~~PIPE~~ipe)

Results of the Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	Loading Rate GPD/ Ft^2	Absorption Area Per Bedroom**						Additional Absorption Area Over 2 Persons Per Bedroom**					
			Ft^2			*Lf			Ft^2			*Lf		
			6	8	10	6	8	10	6	8	10	6	8	10
Gravel	-	-	NOT SUITABLE											
Coarse Sand	-	1.2	108	108	108	54	54	54	54	54	54	27	27	27
Medium Sand	-	1.2	108	108	108	54	54	54	54	54	54	27	27	27
Fine Sand	-	0.8	163	163	165	81	81	81	81	81	81	41	41	41
Loamy Sand	-	0.8	163	163	165	81	81	81	81	81	81	41	41	41
Sandy Loam	<.5	0.6	217	217	217	108	108	108	108	108	108	54	54	54
Light Loam	<.5	0.6	217	217	217	108	108	108	108	108	108	54	54	54
Heavy Loam	.5 – 1	0.45	289	289	290	144	144	144	144	144	144	73	73	73
Silt Loam	<1	0.45	289	289	290	144	144	144	144	144	144	73	73	73
Sandy Clay Loam	1 – 2	0.45	289	289	290	144	144	144	144	144	144	73	73	73
Light Clay Loam	1 – 1.5	0.30	433	433	433	217	217	217	217	217	217	108	108	108
Heavy Clay Loam	1.5 – 2.0	0.20	650	650	650	325	325	325	325	325	325	163	163	163
Light Silty Clay Loam	1 – 1.5	0.30	433	433	433	217	217	217	217	217	217	108	108	108
Heavy Silty Clay Loam	1.5 – 2.0	0.20	650	650	650	325	325	325	325	325	325	163	163	163
Sandy Clay	>2.0	-	NOT SUITABLE											
Silty Clay	>2.0	-	NOT SUITABLE											
Clay	>2.0	-	NOT SUITABLE											

Minimum and maximum trench widths are 24 and 36 inches, respectively.
*Linear footages assume 24” trench width.
** Bedroom is equivalent to 130 gallons per day.

MULTI-PIPE SYSTEM

Results of Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	Loading Rate GPD/ Ft^2	Absorption Area Per Bedroom**								Additional Absorption Over 2 Person Per Bedroom**							
			MP -14		MP -13		MP -11		MP - 9		MP -14		MP -13		MP -11		MP - 9	
			Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf
Gravel	-	-	NOT SUITABLE															
Coarse Sand	-	1.2	125	42	96	32	111	37	132	44	63	21	48	16	57	19	66	22
Medium Sand	-	1.2	125	42	96	32	111	37	132	44	63	21	48	16	57	19	66	22
Fine Sand	-	0.8	190	63	144	48	168	56	201	67	98	32	72	24	84	28	102	34
Loamy Sand	-	0.8	190	63	144	48	168	56	201	67	98	32	72	24	84	28	102	34
Sandy Loam	<.5	0.6	250	83	189	63	222	74	264	88	125	42	96	32	111	37	132	44
Light Loam	<.5	0.6	250	83	189	63	222	74	264	88	125	42	96	32	111	37	132	44
Heavy Loam	.5 – 1	0.45	335	112	255	85	297	99	354	118	168	56	129	43	150	50	177	59
Silt Loam	<1	0.45	335	112	255	85	297	99	354	118	168	56	129	43	150	50	177	59
Sandy Clay Loam	1 – 2	0.45	335	112	255	85	297	99	354	118	168	56	129	43	150	50	177	59
Light Clay Loam	1 – 1.5	0.30	500	167	381	127	444	148	591	177	250	84	192	64	222	74	267	89
Heavy Clay Loam	1.5 –	0.20	75	25	57	19	66	22	795	26	375	12	28	95	33	11	39	13

	2.0		0	0	0	0	9	3		5		5	5		6	2	9	3
Light Silty Clay Loam	1 – 1.5	0.30	500	167	381	127	444	148	591	177	250	84	192	64	222	74	267	89
Heavy Silty Clay Loam	1.5 – 2.0	0.20	750	250	570	190	669	223	795	265	375	125	285	95	336	112	399	133
Sandy Clay	>2.0	-	NOT SUITABLE															
Silty Clay	>2.0	-	NOT SUITABLE															
Clay	>2.0	-	NOT SUITABLE															

Minimum and maximum trench widths are 24 and 36 inches, respectively.
** Bedroom is equivalent to 150 gallons per day.

SIZING – AGGREGATE REPLACEMENT (~~MULTI~~ulti-~~PIPE~~ipe ~~SYSTEM~~ystem)

Results of the Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	Loading Rate GPD/ Ft^2	Absorption Area Per Bedroom**								Additional Absorption Over 2 Person Per Bedroom**							
			MPS -14 & 36XX		MPS – 13		MPS – 11		MPS - 9		MPS – 14 & 36XX		MPS – 13		MPS – 11		MPS – 9	
			Ft^2	Lf		Lf		Lf		Lf	Ft^2	Lf		Lf		Lf		Lf
Gravel	-	-	NOT SUITABLE															
Coarse Sand	-	1.2	108	36		40		47		54	54	18		20		23		27
Medium Sand	-	1.2	108	36		40		47		54	54	18		20		23		27
Fine Sand	-	0.8	163	54		60		70		81	81	27		30		35		41
Loamy Sand	-	0.8	163	54		60		70		81	81	27		30		35		41
Sandy Loam	<.5	0.6	217	72		80		94		108	108	36		40		47		54
Light Loam	<.5	0.6	217	72		80		94		108	108	36		40		47		54
Heavy Loam	.5 – 1	0.45	289	96		107		125		144	144	48		54		62		72
Silt Loam	<1	0.45	289	96		107		125		144	144	48		54		62		72
Sandy Clay Loam	1 – 2	0.45	289	96		107		125		144	144	48		54		62		72
Light Clay Loam	1 – 1.5	0.30	433	144		161		187		217	217	72		80		94		108
Heavy Clay Loam	1.5 – 2.0	0.20	650	217		241		281		325	325	108		120		141		163
Light Silty Clay Loam	1 – 1.5	0.30	433	144		161		187		217	217	72		80		94		108
Heavy Silty Clay	1.5 –	0.20	65	217		24		28		32	325	10		12		14		16

Loam	2.0		0			1		1		5		8		0		1		3
Sandy Clay	>2.0	-	NOT SUITABLE															
Silty Clay	>2.0	-	NOT SUITABLE															
Clay	>2.0	-	NOT SUITABLE															

Minimum and maximum trench widths are 24 and 36 inches, respectively.
** Bedroom is equivalent to 130 gallons per day.

EXPANDED POLYSTYRENE SYSTEM (EPS)
"HORIZONTAL" CONFIGURATION
Results of Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/ Ft^2	Absorption Area Per Bedroom**								Additional Absorption Over 2 Person Per Bedroom**							
			3-10H		1 – 12		2 – 12		3 -12		3-10 Inch		1-12 Inch		2-12 Inch		3-12 Inch	
			Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf
Gravel	-	-	NOT SUITABLE															
Coarse Sand	-	1.2	88	35	162	86	86	43	87	29	43	17	82	41	42	21	42	14
Medium Sand	-	1.2	88	35	162	86	86	43	87	29	43	17	82	41	42	21	42	14
Fine Sand	-	0.8	133	53	262	131	132	66	132	44	65	26	132	66	66	33	66	22
Loamy Sand	-	0.8	133	53	262	131	132	66	132	44	65	26	132	66	66	33	66	22
Sandy Loam	<.5	0.6	173	69	346	173	174	87	174	58	88	35	172	86	86	43	87	29
Light Loam	<.5	0.6	173	69	346	173	174	87	174	58	88	35	172	86	86	43	87	29
Heavy Loam	.5 – 1	0.45	233	93	462	231	232	116	231	77	115	46	228	114	114	57	114	38
Silt Loam	<1	0.45	233	93	462	231	232	116	231	77	115	46	228	114	114	57	114	38
Sandy Clay Loam	1 – 2	0.45	233	93	462	231	232	116	231	77	115	46	228	114	114	57	114	38
Light Clay Loam	1 – 1.5	0.30	345	138	690	345	246	173	345	115	173	69	346	173	174	87	174	58
Heavy Clay Loam	1.5 – 2.0	0.20	520	208	1036	518	520	260	231	173	260	104	518	259	260	130	258	86
Light Silty Clay	1 – 1.5	0.30	34	13	690	34	24	17	34	11	17	69	34	17	17	87	17	58

~~Loam~~			~~5~~	~~8~~		~~5~~	~~6~~	~~3~~	~~5~~	~~5~~	~~3~~		~~6~~	~~3~~	~~4~~		~~4~~	
~~*Heavy* Silty Clay Loam~~	~~1.5 – 2.0~~	~~0.20~~	~~520~~	~~208~~	~~1036~~	~~518~~	~~520~~	~~260~~	~~345~~	~~173~~	~~260~~	~~104~~	~~518~~	~~259~~	~~260~~	~~130~~	~~258~~	~~86~~
~~Sandy Clay~~	~~>2.0~~	~~-~~	~~NOT SUITABLE~~															
~~Silty Clay~~	~~>2.0~~	~~-~~	~~NOT SUITABLE~~															
~~Clay~~	~~>2.0~~	~~-~~	~~NOT SUITABLE~~															

~~Minimum and maximum trench widths are 24 and 36 inches, respectively.~~
~~** Bedroom is equivalent to 150 gallons per day.~~

SIZING – AGGREGATE REPLACEMENT (EXPANDEDxpanded POLYSTYRENEolystyrene SYSTEMystem) (EPS) "HORIZONTALorizontal" CONFIGURATIONonfiguration

Results of the Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/ Ft^2	Absorption Area Per Bedroom**								Additional Absorption Over 2 Person Per Bedroom**							
			3-10H		1 – 12		2 – 12		3 -12		3-10 Inch		1-12 Inch		2-12 Inch		3-12 Inch	
			Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf	Ft^2	Lf
Gravel	-	-	NOT SUITABLE															
Coarse Sand	-	1.2	108	43		54		54		36	54	22		27		27		18
Medium Sand	-	1.2	108	43		54		54		36	54	22		27		27		18
Fine Sand	-	0.8	163	65		81		81		54	81	33		41		41		27
Loamy Sand	-	0.8	163	65		81		81		54	81	33		41		41		27
Sandy Loam	<.5	0.6	21	87		10		10		72	10	43		54		54		36

			7			8		8			8							
Light Loam	<.5	0.6	217	87		108		108		72	108	43		54		54		36
Heavy Loam	.5 – 1	0.45	289	116		144		144		96	144	58		72		72		48
Silt Loam	<1	0.45	289	116		144		144		96	144	58		72		72		48
Sandy Clay Loam	1 – 2	0.45	289	116		144		144		96	144	58		72		72		48
Light Clay Loam	1 – 1.5	0.30	433	173		217		217		144	217	87		108		108		72
Heavy Clay Loam	1.5 – 2.0	0.20	650	260		325		325		217	325	130		163		163		108
Light Silty Clay Loam	1 – 1.5	0.30	433	173		217		217		144	217	87		108		108		72
Heavy Silty Clay Loam	1.5 – 2.0	0.20	650	260		325		325		217	325	130		163		163		108
Sandy Clay	>2.0	-	NOT SUITABLE															
Silty Clay	>2.0	-	NOT SUITABLE															
Clay	>2.0	-	NOT SUITABLE															

Minimum and maximum trench widths are 24 and 36 inches, respectively.
** Bedroom is equivalent to 130 gallons per day.

EXPANDED POLYSTYRENE SYSTEM (EPS)
"TRIANGULAR" CONFIGURATION
Results of Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/ Ft^2	Absorption Area Per Bedroom**		Additional Absorption Over 2 Person Per Bedroom**	
			3-10 Inch		3-10 Inch	
			Ft2	Lf	Ft2	Lf
Gravel	-	-	NOT SUITABLE			
Coarse Sand	-	1.2	62	31	30	15
Medium Sand	-	1.2	62	31	30	15
Fine Sand	-	0.8	96	48	48	24
Loamy Sand	-	0.8	96	48	48	24
Sandy Loam	<.5	0.6	126	63	64	32
Light Loam	<.5	0.6	126	63	64	32
Heavy Loam	.5 – 1	0.45	168	84	84	42
Silt Loam	<1	0.45	168	84	84	42
Sandy Clay Loam	1 – 2	0.45	168	84	84	42
Light Clay Loam	1 – 1.5	0.30	250	125	126	63
Heavy Clay Loam	1.5 – 2.0	0.20	376	188	188	94
Light Silty Clay Loam	1 – 1.5	0.30	250	125	126	63
Heavy Silty Clay Loam	1.5 – 2.0	0.20	376	188	188	94
Sandy Clay	>2.0	-	NOT SUITABLE			
Silty Clay	>2.0	-	NOT SUITABLE			
Clay	>2.0	-	NOT SUITABLE			

~~Minimum and maximum trench widths are 24 and 36 inches, respectively. The **Triangular Configuration** can only be installed in a trench.~~
~~** Bedroom is equivalent to 150 gallons per day.~~

SIZING – AGGREGATE REPLACEMENT (EXPANDEDxpanded POLYSTYRENEolystyrene SYSTEMystem) (EPS) "TRIANGULARriangular" CONFIGURATIONonfiguration

Results of the Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/ Ft^2	Absorption Area Per Bedroom**		Additional Absorption Over 2 Person Per Bedroom**	
			3-10 Inch		3-10 Inch	
			Ft^2	Lf	Ft^2	Lf
Gravel	-	-	NOT SUITABLE			
Coarse Sand	-	1.2	108	54	54	27
Medium Sand	-	1.2	108	54	54	27
Fine Sand	-	0.8	163	81	81	41
Loamy Sand	-	0.8	163	81	81	41
Sandy Loam	<.5	0.6	217	108	108	54
Light Loam	<.5	0.6	217	108	108	54
Heavy Loam	.5 – 1	0.45	289	144	144	72
Silt Loam	<1	0.45	289	144	144	72
Sandy Clay Loam	1 – 2	0.45	289	144	144	72
Light Clay Loam	1 – 1.5	0.30	433	217	217	108
Heavy Clay Loam	1.5 – 2.0	0.20	650	325	325	163
Light Silty Clay Loam	1 – 1.5	0.30	433	217	217	108
Heavy Silty Clay Loam	1.5 – 2.0	0.20	650	325	325	163
Sandy Clay	>2.0	-	NOT SUITABLE			
Silty Clay	>2.0	-	NOT SUITABLE			
Clay	>2.0	-	NOT SUITABLE			

Minimum and maximum trench widths are 24 and 36 inches, respectively. The **Triangular Configuration** can only be installed in a trench.

** Bedroom is equivalent to 130 gallons per day.

CHAMBER SYSTEM

Results of Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/ Ft^2	Absorption Area in Ft2 Per Bedroom**	Absorption Area in Chambers Per Bedroom**								Additional Absorption Area Over 2 Persons Per Bedroom**							
				I	II	III	IV	V	VI	VII	VIII	I	II	III	IV	V	VI	VII	VIII
Gravel	-	-	NOT SUITABLE																
Coarse Sand	-	1.2	88	10	8	7	6	5	5	4	4	5	4	3	3	3	2	2	2
Medium Sand	-	1.2	88	10	8	7	6	5	5	4	4	5	4	3	3	3	2	2	2
Fine Sand	-	0.8	133	15	13	11	9	8	7	6	6	7	6	5	5	4	4	3	3
Loamy Sand	-	0.8	133	15	13	11	9	8	7	6	6	7	6	5	5	4	4	3	3
Sandy Loam	<.5	0.6	175	20	17	14	12	11	10	9	8	10	8	7	6	5	5	4	4
Light Loam	<.5	0.6	175	20	17	14	12	11	10	9	8	10	8	7	6	5	5	4	4
Heavy Loam	.5 – 1	0.45	235	26	22	19	16	14	13	11	10	13	11	9	8	7	6	6	5
Silt Loam	<1	0.45	235	26	22	19	16	14	13	11	10	13	11	9	8	7	6	6	5
Sandy Clay Loam	1 – 2	0.45	235	26	22	19	16	14	13	11	10	13	11	9	8	7	6	6	5
Light Clay Loam	1 – 1.5	0.30	350	39	33	28	28	21	19	17	16	19	17	14	12	11	9	9	8
Heavy Clay Loam	1.5 –	0.20	525	5	5	4	3	3	2	26	23	2	2	2	1	1	1	13	12

	2.0			8	0	0	5	2	8			9	5	0	7	6	4		
Light Silty Clay Loam	1 – 1.5	0.30	350	39	33	28	24	21	19	17	16	19	17	14	12	11	9	9	8
Heavy Silty Clay Loam	1.5 – 2.0	0.20	525	58	50	40	35	32	28	26	23	29	25	20	17	16	14	13	12
Sandy Clay	>2.0	-	NOT SUITABLE																
Silty Clay	>2.0	-	NOT SUITABLE																
Clay	>2.0	-	NOT SUITABLE																

Minimum and maximum trench widths are 18 and 36 inches, respectively.
** Bedroom is equivalent to 150 gallons per day.

SIZING – AGGREGATE REPLACEMENT (C~~HAMBER~~hamber S~~YSTEM~~ystem)

Results of the Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/ Ft^2	Absorption Area in Ft^2 Per Bedroom**	Absorption Area in Linear Feet Per Bedroom based on Chamber Width**								Additional Absorption Area Over 2 Persons Per Bedroom Based on Chamber Width**							
				18"	24"	36"						Area	18"	24"	36"				
Gravel	-	-	NOT SUITABLE																
Coarse Sand	-	1.2	108	54	54	36						54	27	27	18				
Medium Sand	-	1.2	108	54	54	36						54	27	27	18				
Fine Sand	-	0.8	163	81	81	54						81	41	41	27				
Loamy Sand	-	0.8	163	81	81	54						81	41	41	27				
Sandy Loam	<.5	0.6	217	108	108	72						108	54	54	36				
Light Loam	<.5	0.6	217	108	108	72						108	54	54	36				
Heavy Loam	.5 – 1	0.45	289	144	144	96						144	72	72	48				
Silt Loam	<1	0.45	289	144	144	96						144	72	72	48				
Sandy Clay Loam	1 – 2	0.45	289	144	144	96						144	72	72	48				
Light Clay Loam	1 – 1.5	0.30	433	217	217	144						217	108	108	72				
Heavy Clay Loam	1.5 – 2.0	0.20	650	325	325	217						325	163	163	108				
Light Silty Clay Loam	1 – 1.5	0.30	433	217	217	144						217	108	108	72				
Heavy Silty Clay	1.5 –	0.20	650	32	325	217						325	163	163	108				

Loam	2.0			5															
Sandy Clay	>2.0	-	NOT SUITABLE																
Silty Clay	>2.0	-	NOT SUITABLE																
Clay	>2.0	-	NOT SUITABLE																

Minimum and maximum trench widths are 24 and 36 inches, respectively.
** Bedroom is equivalent to 130 gallons per day.

Table I – Subsurface Drip Irrigation System (Results of Soil Evaluation)

Soil Textural Class	Loading Rate GPD/ Ft^2	Lf Per Bedroom	Additional Lf/Person Over 2 Person Per	Depth of Drip Line in Inches
Gravel	NOT SUITABLE			
Coarse Sand	0.5	150	75	6-18
Medium Sand	0.5	150	75	6-18
Fine Sand	0.5	150	75	6-18
Loamy Sand	0.5	150	75	6-18
Sandy Loam	0.3	250	125	6-18
Light Loam	0.3	250	125	6-18
Heavy Loam	0.3	250	125	6-18
Silt Loam	0.3	250	125	6-18
Sandy Clay Loam	0.3	250	125	6-18
Light Clay Loam	0.15	500	250	6-18
Heavy Clay Loam	0.15	500	250	6-18
Light Silty Clay Loam	0.15	500	250	6-18
Heavy Silty Clay	0.15	500	250	6-18
Sandy Clay	0.15	500	250	6-18
Silty Clay	0.05	1500	750	6-18
Clay	0.05	1500	750	6-18

Table I – SIZING - ~~Subsurface~~ Drip Irrigation ~~System~~
~~(~~Results of the Soil and Site Evaluation~~)~~

Soil Textural Class	Loading Rate GPD/ Ft^2	Lf Per Bedroom	Additional Lf/Person Over 2 Person Per	Depth of Drip Line in Inches
Gravel	NOT SUITABLE			
Coarse Sand	0.5	130	65	6-18
Medium Sand	0.5	130	65	6-18
Fine Sand	0.5	130	65	6-18
Loamy Sand	0.5	130	65	6-18
Sandy Loam	0.3	217	109	6-18
Light Loam	0.3	217	109	6-18
Heavy Loam	0.3	217	109	6-18
Silt Loam	0.3	217	109	6-18
Sandy Clay Loam	0.3	217	109	6-18
Light Clay Loam	0.15	434	217	6-18
Heavy Clay Loam	0.15	434	217	6-18
Light Silty Clay Loam	0.15	434	217	6-18
Heavy Silty Clay Loam	0.15	434	217	6-18
Sandy Clay	0.15	434	217	6-18
Silty Clay	0.05	1300	650	6-18
Clay	0.05	1300	650	6-18

Rule 5.6.18. **System Design:**

1. A soil and site evaluation must be performed on the lot. See also Section VII. The loading rate of the natural soil must be determined from Table 2:

    a. **Table 2: Soil loading rates**

2. Determine the average daily flow from the residence: Number of bedrooms X ~~150~~ 130 gallons per day

3. Determining the size of the absorption area, basal area, side slopes, and maximizing length requirements:

    a. Sizing the absorption area- The absorption area size shall be determined by the **loading** rate of the fill material. The fill material shall be coarse sand, 0.5-1.0 mm (USDA designation), and is the same as concrete sand (Section S-703, MS Standard Specification for State Aid road and bridge construction). The **loading rate** of this material is 1.2 gallons per day per square foot. Note: A fill material as heavy as a light loam may be used, but this will change the size of the absorption area size. Use the appropriate **loading rate** of the fill to calculate the absorption area.

        i. Example: Given: 3 bedroom home @ ~~450~~ 390 gallons per day

        ii. ~~450~~ 390 gallons per day / 1.2 gallons per day per square foot = ~~375~~ 325 square feet

        iii. Absorption area = ~~375~~ 325 square feet

    b. Sizing the basal area: Using the information gathered from the soil and site evaluation, determine the loading rate of the natural soil within two feet of the surface. Use the heaviest textured soil~~'s~~ loading rate to size the basal area. Divide the average daily flow from the residence by the loading rate of the natural soil.

        i. Example: Given: a three bedroom home @ ~~450~~ 390 gallons per day a natural soil of a heavy loam

        ii. ~~450~~ 390 gallons per day /0.45 gallons per day per square foot = ~~1000~~ 867 square feet basal area

~~Rule 5.7.1 The spray irrigation disposal system is a surface disposal system which has two basic design principles different from other surface disposal systems. They are uniform distribution of effluent over a large area, and dosing and resting cycles. This system uses small diameter pipe (sprinkler laterals) connected to pop up or impact spray irrigation heads. The spray irrigation disposal system has the capability of equally distributing effluent at a relatively low rate over the entire spray field to prevent saturation of the soil.~~

~~Rule 5.7.2.~~ Rule 5.7.1 **General:**

1. ~~The system shall be designed to provide an equal volume and pressure at each spray head within 10% of the required system pressure.~~

3. The treatment facility and pump/dosing chamber shall be designed, constructed and installed so all joints, seams, and component parts preclude infiltration of surface and groundwater, while preventing the escape of wastewater or other liquids.

4. Electrical equipment shall be protected with safety devices (overload interrupting devices, fuses, etc.). Electrical equipment shall comply with appropriate National Electrical Manufacturer's Association (NEMA). Electrical component parts shall be covered by the manufacturer's limited warranty and must be installed in a manner to eliminate potential contact with sewage or effluent, including connections.

6. ~~Where soil and site limitations require, the spray irrigation disposal system may be placed in a fill. The imported fill soil must be of a sandy loam texture.~~

~~Rule 5.7.3.~~ Rule 5.7.2 **Soil and Site Evaluation:**

3. Prior to completing the ~~Notice of Intent/System~~ Permit/Recommendation, the Environmentalist shall visit the lot and conduct a soil and site evaluation.

4. ~~The soil determinations will be made based on soil borings to a depth of five feet or restrictive horizon. Restrictive soil or site conditions may preclude the use of a spray irrigation system.~~

5. A satisfactory soil and site evaluation will comply with the following criteria:

   a. Absence of or protection from frequent flooding.

   ~~a.~~ b. Landscape position with positive surface runoff.

   ~~b.~~ c. Slopes of less than sixteen (1~~2~~6)%.

~~c.~~ d. Depth to Seasonal H~~h~~high W~~w~~ater T~~t~~able of greater than six (6) inches.

~~d.~~ e. Depth to bedrock, fragipan, redoximorphic features or plinthite of greater than twelve (12) inches.

~~e.~~ f. Soil texture and color defined by the Natural Resource Conservation Service as indicating good drainage and suitable for surface application of wastewater, based on a soil boring of five (5) feet.

~~f.~~ g. Available space in which to install the Spray Irrigation ~~Disposal~~ system meeting all requirements of this Regulation.

6. Sizing of the spray disposal field will be based on the most restrictive soil within twelve (12) inches of the naturally occurring ground surface.

8. To overcome the lack of sufficient depth, to a restrictive horizon and/or S~~s~~easonal High W~~w~~ater T~~t~~able, a clean fill material of a texture of sandy loam may be used as fill material. Organic matter shall be removed, from the native soil surface, prior to placing and incorporating the fill. This fill must be incorporated into the native soil to prevent a textural interface from developing. When fill material is used the entire fill area must be sodded to prevent erosion, or other effective erosion control methods used. The full depth of fill material must extend at least ten (10) feet ~~(10')~~ in all directions from outer edge of the spray field and at that point shall be sloped at a grade of no steeper than 3 to 1. Table II

9. The non compliance of one or more of the above items may (1) require a design alteration or (2) prohibit the use of a Spray Irrigation Disposal system. Slopes of greater than sixteen (1~~2~~6)% may be considered on a case by case basis.

~~Rule 5.7.4.~~ Rule 5.7.3 **Location of Spray Irrigation ~~Disposal~~ Systems:**

1. All components of the spray irrigation ~~disposal~~ system shall be located a minimum of:

~~a.~~ five (5) feet from any dwelling or permanent structure.

~~b.~~ ten (10) feet from any property line.

2. The ~~aerobic treatment plant~~ advanced treatment system and pump/dosing chamber shall be located a minimum of fifty (50) feet from any public, private or individual potable water source.

3. Potable water lines and wastewater lines shall not be laid in the same trench. The potable water lines and wastewater lines shall maintain a

minimum horizontal separation of ten (10) feet. Where a potable water line must cross a wastewater line, the potable water line within ten (10) feet of the point of crossing shall be at least twelve (12) inches above the wastewater line.

5. Spray Irrigation ~~Disposal~~ systems shall not be located in depressed areas where surface water will accumulate. Provisions shall be made to minimize the flow of surface water over the effluent disposal field.

6. There shall be maintained, from the outer edge of the spray pattern, the following distances:

   a. One hundred (100) feet from any public, private or individual potable water source and be located at a lower elevation.

   b. Fifty (50) feet from recreational waters, shellfish waters or other sensitive areas for spray fields located on slopes of less than eight (8) percent or if the soil texture is sandy loam or lighter or sandy clay or heavier.

   c. Seventy- five (75) feet from recreational waters, shellfish waters or other sensitive areas for spray fields located on slopes of greater than eight (8) percent or if the soil texture is sandy loam or lighter or sandy clay or heavier.

   d. Twenty five (25) feet from dwellings, swimming pools, businesses or other inhabited structures.

   e. Twenty five (25) feet from lot lines, porches, patios and decks.

   f. Fifteen (15) feet from outbuildings.

   g. Ten (10) feet from walkways, private roads, driveways and parking areas.

   h. Effluent should not be sprayed upon any vessel containing wastewater.

7. Where all or part of the Spray Irrigation ~~Disposal~~ system is proposed to be installed on property other than the owner's, an easement in perpetuity shall be legally recorded in the proper county and a copy furnished to the local county Health Department prior to listing Spray Irrigation system ~~Disposal~~ as an option. The easement shall be of sufficient area to permit access, construction and maintenance of the system.

8. It is the intent of these regulations that a minimum separation of fifty (50) feet between independent spray ~~disposal~~ fields be maintained. Over

lapping of the required setback from property lines cannot be negated by the granting of easements.

9. No site for a Spray Irrigation ~~Disposal~~ system shall be approved which is located wholly within an area which is frequently flooded, swamp, marsh or wetland. Except that if permits have been issued and provided to the local health department by the proper regulatory agency authorizing the use of such areas for building sites and the installation of individual onsite wastewater disposal systems, the permitted property shall be evaluated using standard soil and site criteria for an Individual On-site Wastewater Disposal System.

10. When a proposed lot is located partially within an area which is frequently flooded, swamp, marsh or wetland, that area not within the frequently flooded, swamp, marsh or wetland area may be evaluated using standard soil and site criteria for an Individual On-site Wastewater Disposal System.

11. In soils that contain a restrictive horizon (fragipan, chalk, bedrock, clay or silty clay), within two (2) feet of the surface, there shall be maintained a minimum of six (6) inches of unsaturated soil between the surface and the ~~perched or~~ Sseasonal High W~~w~~ater T~~t~~able.

12. In soils that do not contain a restrictive horizon (fragipan, chalk, bedrock, clay or silty clay), within two (2) feet of the surface, there shall be maintained a minimum of twelve (12) inches of unsaturated soil between the surface and the ~~perched or~~ S~~s~~easonal High W~~w~~ater T~~t~~able.

~~Rule 5.7.5.~~ Rule 5.7.4 ~~Treatment~~**Registration:** The term "manufacturer" for this section will mean the Certified Manufacturer of the treatment method, unless otherwise specified. Each manufacturer's treatment and disposal components shall be registered with the Department as a system. The treatment method shall be ~~an aerobic treatment unit~~ in compliance with the current standards of ~~ANSI/~~*National Sanitation Foundation/American National Standard Institute International Standard 40 and/or 245* and the applicable sections of the ~~R~~regulations ~~Governing Individual Onsite Wastewater Disposal~~.

~~Rule 5.7.6.~~ Rule 5.7.5 **Pump/Dosing Chambers:**

1. The pump/dosing chamber shall have a minimum working capacity of 1.5 times the maximum volume produced for timed-dose and per manufacturer's specifications for demand-dose systems. ~~The maximum volume produced shall be determined based on charts provided in the Regulation Governing Individual Onsite Wastewater Disposal.~~

2. The pump/dosing chamber shall be equipped with an audible high water alarm~~, and a selfopening relief valve~~.

4. The pump/dosing chamber shall have a grade level access large enough to allow servicing and/or removal of the largest component in the chamber. Access ports shall be protected against unauthorized entrance or removal.

5. The pump/dosing chamber shall be vented through the grade level access or by means of a separate vent. In either case the vent shall be a minimum of one inch in diameter.

6. The pump/dosing chamber shall be made of material resistant to the corrosive effects of wastewater, chemicals used for disinfection and designed to withstand the lateral and bearing loads to which it is expected to be subjected.

~~Rule 5.7.7.~~ Rule 5.7.6 **Minimum Pump Specifications**:

2. The pumping system shall be equipped with a low water cutoff to prevent damage to the pump during low water conditions in the pump/dosing chamber.

~~Rule 5.7.8.~~ Rule 5.7.7 **Minimum Filter Specifications:**

~~Rule 5.7.9.~~ Rule 5.7.8 **Minimum Specifications for Irrigation Equipment:**

4. Radius reduction by means of ~~adjustment screw,~~ nozzle retaining screw, distance control diffuser pin or other similar devices shall not be allowed.

~~Rule 5.7.10.~~ Rule 5.7.9 **Minimum Specifications for Disinfection:** Effluent discharge from spray irrigation systems shall be adequately disinfected prior to surface application. The method of disinfection and the disinfection equipment must be in compliance with ~~Design Standard XI~~Disinfection regulation.

~~Rule 5.7.11.~~ Rule 5.7.10 **Minimum Specifications for the Spray Field:**

1. Spray irrigation ~~systems~~ may not be installed in drain ways, swamps, marshes, floodplain, concave landscape positions or other areas which would be prohibited ~~for the installation of a conventional onsite wastewater disposal system~~.

2. Treated effluent shall be sprayed evenly over the entire spray field area with non overlapping patterns. The spray field shall consist of a minimum of three (3) spray heads.

~~3. The maximum precipitation rate shall not exceed .25 inch per hour.~~

7. The size of the spray field area shall be determined by soil texture and slope of the site to be sprayed (See Table ~~1~~I).

SOURCE: Miss Code Ann. §41-67-3

Table I – Spray Irrigation System (Results from Soil Evaluation)

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/ Ft^2	Absorption Area in Ft2/Bedroom			Additional Absorption Area Over 2 Persons Per Bedroom**		
			0 to 8% Slope	8 to 12% Slope	12 to 16% Slope	0 to 8% Slope	8 to 12% Slope	12 to 16% Slope
Gravel	-	-	NOT SUITABLE					
Coarse Sand	-	1.2	800	1070	2000	400	540	1000
Medium Sand	-	1.2	800	1070	2000	400	540	1000
Fine Sand	-	0.8	800	1070	2000	400	540	1000
Loamy Sand	-	0.8	800	1070	2000	400	540	1000
Sandy Loam	<.5	0.6	800	1070	2000	400	540	1000
Light Loam	<.5	0.6	1600	2000	2680	800	1000	1340
Heavy Loam	.5 – 1	0.45	1600	2000	2680	800	1000	1340
Silt Loam	<1	0.45	1600	2000	2680	800	1000	1340
Sandy Clay Loam	1 – 2	0.45	1600	2000	2680	800	1000	1340
Light Clay Loam	1 – 1.5	0.30	3210	5350	8020	1610	2680	4010
Heavy Clay Loam	1.5 – 2.0	0.20	3210	5350	8020	1610	2680	4010
Light Silty Clay Loam	1 – 1.5	0.30	3210	5350	8020	1610	2680	4010
Heavy Silty Clay Loam	1.5 – 2.0	0.20	3210	5350	8020	1610	2680	4010
Sandy Clay	>2.0	-	3210	5350	8020	1610	2680	4010
Silty Clay	>2.0	-	8020	10030	13370	4020	5020	6690
Clay	>2.0	-	8020	10030	13370	4020	5020	6690

SOURCE: Miss Code Ann. §41-67-3

Table I – Setback Requirements from Sensitive Water (Minimum from Water Edge)

Soil Textural Class	Slope of Less Than 8 Percent	Slope of More Than 8 Percent
Gravel	NOT APPLICABLE	
Coarse Sand	75 feet	75 feet
Medium Sand	75 feet	75 feet
Fine Sand	75 feet	75 feet
Loamy Sand	75 feet	75 feet
Sandy Loam	75 feet	75 feet
Light Loam	50 feet	75 feet
Heavy Loam	50 feet	75 feet
Silt Loam	50 feet	75 feet
Sandy Clay Loam	50 feet	75 feet
Light Clay Loam	50 feet	75 feet
Heavy Clay Loam	50 feet	75 feet
Light Silty Clay Loam	50 feet	75 feet
Heavy Silty Clay	50 feet	75 feet
Sandy Clay	75 feet	75 feet
Silty Clay	75 feet	75 feet
Clay	75 feet	75 feet

SOURCE: Miss Code Ann. §41-67-3

Table I **SIZING – Spray Irrigation**
Results of the Soil and Site Evaluation

Soil Textural Class	Ribbon Lengths (Inches)	EPA Manual Application Rate GPD/Ft^2	Absorption Area in Ft^2/Bedroom			Additional Absorption Area Over 2 Persons Per Bedroom		
			Slope			Slope		
			0 to 8 %	9 to 12%	13 to 16%	0 to 8 %	9 to 12%	13 to 16%
Gravel	NOT SUITABLE							
Coarse and Medium Sand Fine and Loamy Sand Sandy Loam	< 0.5	1.2 0.8 0.6	800	1070	1200	400	535	600
Loam Silt Loam Sandy Clay Loam	< 0.5 – 1.0 < 0.5- 1.0 1.0 – 2.0	0.45	1600	2000	2680	800	1000	1340
Silt Clay Loam Clay Loam Sandy Clay	1.0 – 2.0 1.0 – 2.0 > 2.0	0.2 – 0.3 0.2 – 0.3 -	3210	5350	8020	1605	2675	4010
Silty Clay Clay	> 2.0	-	8020	10030	13370	4010	5515	6685

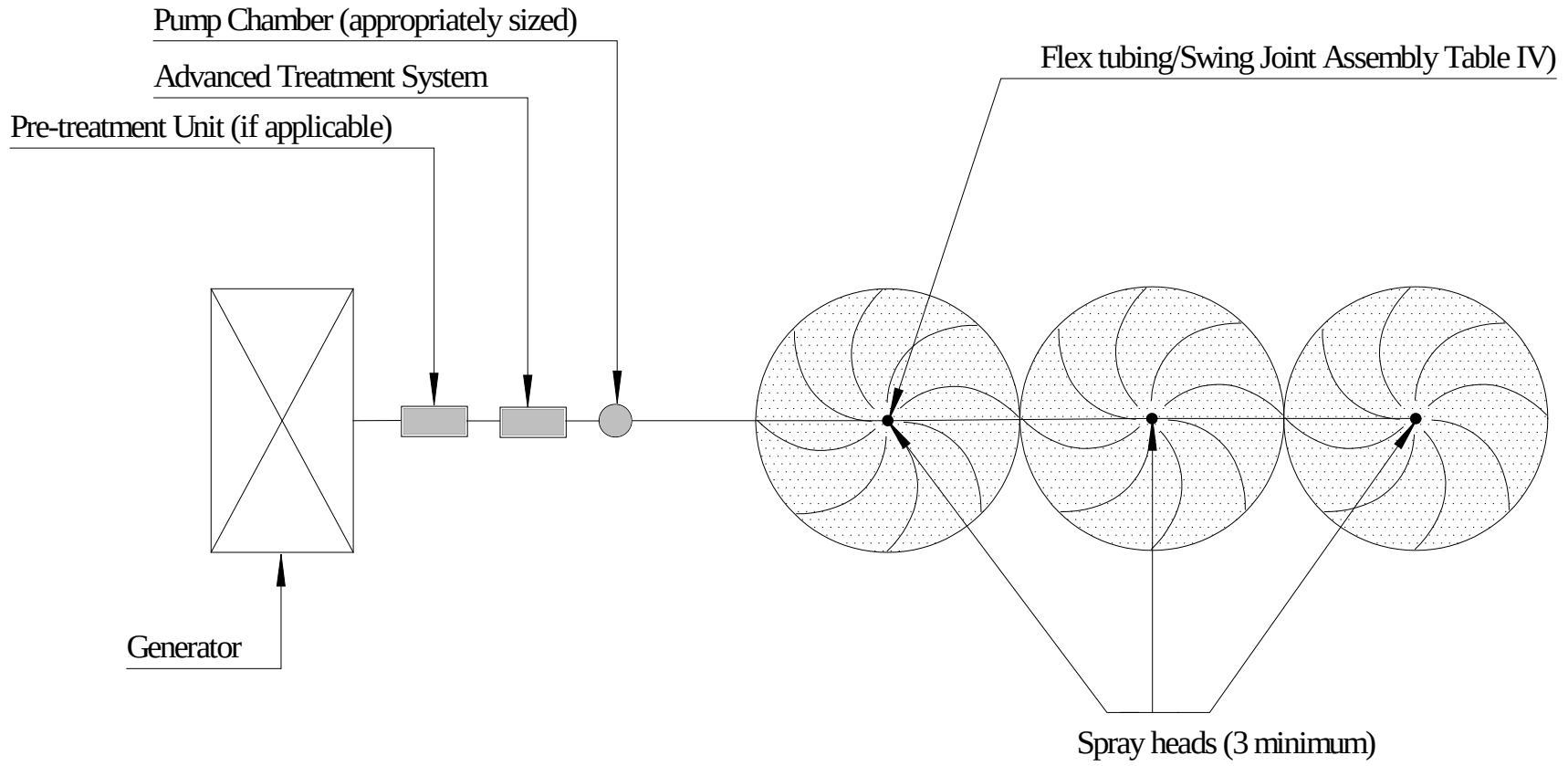
SOURCE: Miss Code Ann. §41-67-3

Table II **FILL MATERIAL**

Seasonal High Water Table Depth (inches)	…with a Restrictive Horizon/Layer (inches)	…without a Restrictive Horizon/Layer (inches)
0	6	12
1	5	11
2	4	10
3	3	9
4	2	8
5	1	7
6	-	6
7	-	5
8	-	4
9	-	3
10	-	2
11	-	1
12	-	-

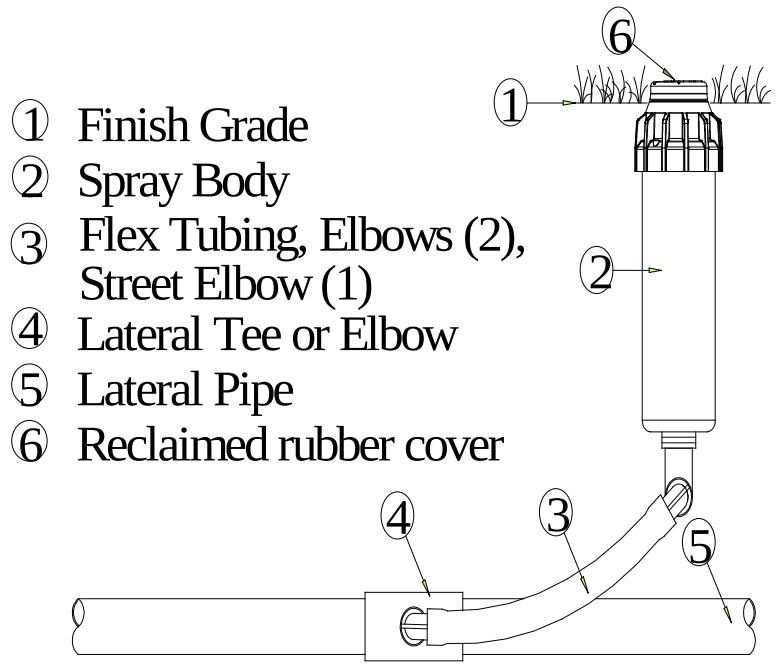
SOURCE: Miss Code Ann. §41-67-3

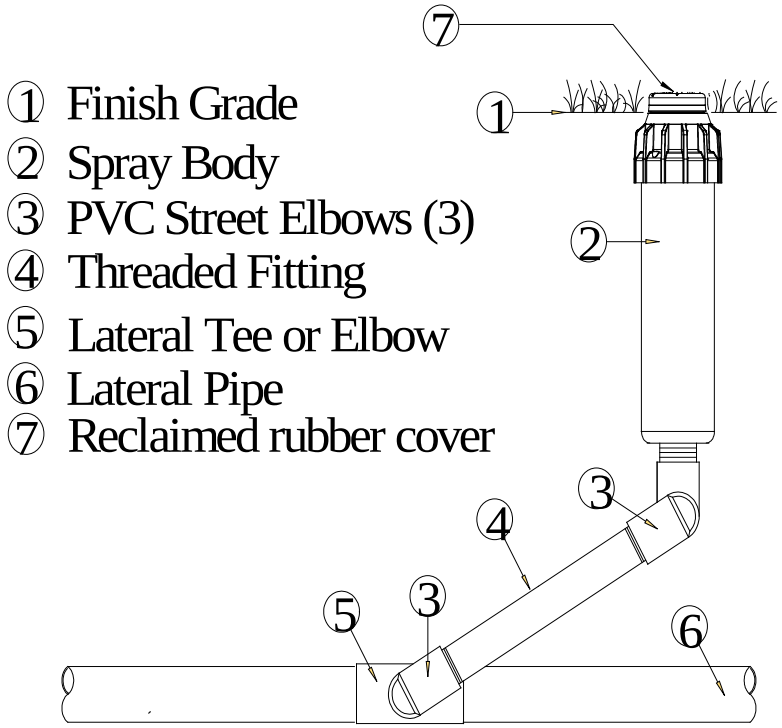
Figure I **SPRAY IRRIGATION SYSTEM**



SOURCE: Miss Code Ann. §41-67-3

Figure II **FLEX TUBE/SWING JOINT ASSEMBLY**





SOURCE: Miss Code Ann. §41-67-3