

Title 15: Mississippi State Department of Health

Part 15: Division of On-site Wastewater

Subpart 77: On-site Wastewater Regulations

Subchapter 1. SEPTIC TANKS

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, steel, 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 (2) 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. 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

- 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 minimum liquid depth of all septic tanks shall be thirty (30) inches.
- c. A minimum air space of seventeen (17) percent of the liquid depth must be provided.

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.

4. Baffle Walls and Two Compartment Tanks

- a. The first compartment shall be between sixty (60) and sixty-seven (67) percent 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, located in the center of the baffle and at fifty (50) percent of the liquid depth of the tank.
- c. 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.

- d. 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. 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.
 - f. 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:

- 1. The filter shall retain all partials greater than one-eighth (1/8) inch in size.
- 2. The assembly shall perform as a conventional tank outlet, meeting the requirements of Rule 5.1.4.3, when the filter is removed.
- 3. 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.
 - b. Lids, walls and bottom thickness must be a minimum of three (3) inches. The bottom and walls must be a monolithic pour.
3. Steel Septic Tanks: Steel septic tanks must meet Underwriter's 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
 - 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 (1,500) 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 5.1.6.4.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.
 - c. Synthetic structural fibers shall have minimum length of 1.5 inches.
 - d. 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.
 - e. 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:

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 Institute 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.

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			
<i>Coarse Sand</i>	-	1.2	108	36	54	18
<i>Medium Sand</i>	-	1.2	108	36	54	18
<i>Fine Sand</i>	-	0.8	163	54	81	27
Loamy Sand	-	0.8	163	54	81	27
Sandy Loam	<.5	0.6	108	72	108	36
<i>Light Loam</i>	<.5	0.6	217	72	108	36
<i>Heavy Loam</i>	.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
<i>Light Clay Loam</i>	1 – 1.5	0.30	433	144	217	72
<i>Heavy Clay Loam</i>	1.5 – 2.0	0.20	650	217	325	108
<i>Light Silty Clay Loam</i>	1 – 1.5	0.30	433	144	217	72
<i>Heavy Silty Clay Loam</i>	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 inch 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**							
			3-8	4-9	3-10H		1-12	2-12	3-12	3-8	4-9	3-10H		1-12	2-12	3-12
			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			
<i>Coarse Sand</i>	-	1.2	108	54	54	27
<i>Medium Sand</i>	-	1.2	108	54	54	27
<i>Fine Sand</i>	-	0.8	163	81	81	41
Loamy Sand	-	0.8	163	81	81	41
Sandy Loam	<.5	0.6	217	108	108	54
<i>Light Loam</i>	<.5	0.6	217	108	108	54
<i>Heavy Loam</i>	.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
<i>Light Clay Loam</i>	1 – 1.5	0.30	433	217	217	108
<i>Heavy Clay Loam</i>	1.5 – 2.0	0.20	650	325	325	163
<i>Light Silty Clay Loam</i>	1 – 1.5	0.30	433	217	217	108
<i>Heavy Silty Clay Loam</i>	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			
<i>Coarse Sand</i>	0.5	130	65	6-18
<i>Medium Sand</i>	0.5	130	65	6-18
<i>Fine Sand</i>	0.5	130	65	6-18
Loamy Sand	0.5	130	65	6-18
Sandy Loam	0.3	217	109	6-18
<i>Light Loam</i>	0.3	217	109	6-18
<i>Heavy Loam</i>	0.3	217	109	6-18
Silt Loam	0.3	217	109	6-18
Sandy Clay Loam	0.3	217	109	6-18
<i>Light Clay Loam</i>	0.15	434	217	6-18
<i>Heavy Clay Loam</i>	0.15	434	217	6-18
<i>Light Silty Clay Loam</i>	0.15	434	217	6-18
<i>Heavy Silty Clay Loam</i>	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. $390 \text{ gallons per day} / 1.2 \text{ gallons per day per square foot} = 325 \text{ square feet}$
 - 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 (2) 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. $390 \text{ gallons per day} / 0.45 \text{ gallons per day per square foot} = 867 \text{ square feet basal area}$

SOURCE: Miss Code Ann. §41-67-3

Subchapter 7. SPRAY IRRIGATION DISPOSAL SYSTEM

Rule 5.7.1. General:

1. 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.

2. 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 5.7.2. Soil and Site Evaluation:

1. 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.
2. Sizing of the spray disposal field will be based on the most restrictive soil within twelve (12) inches of the naturally occurring ground surface.
3. 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).
4. 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.
4. 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.
5. 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.
6. 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.
 7. 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.
 8. 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.
 9. 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 be 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.

3. 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.
4. 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.
5. 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:

1. The pumping system shall be designed to deliver wastewater at the required volume and pressure specified by the spray irrigation head manufacturer.
2. The pumping system shall be equipped with a low water cutoff to prevent damage to the pump during low water conditions in the dosing chamber.
3. The pump shall be constructed of corrosion resistant materials suitable for effluent pumping.
4. The pump shall be sized per manufacturers' specifications to meet or exceed the hydraulic head of the system while delivering the required volume.
5. The pump shall be installed in compliance with manufacturers' specifications so as not to violate pump warranty.
6. The suction and pressure lines shall be PVC schedule 40 and shall be sized to deliver the required volume at the design pressure while not exceeding a velocity of five feet per second.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.7.7. Minimum Filter Specifications:

1. The filter shall filter the effluent to the minimum specifications of the spray irrigation head manufacturer to prevent clogging.
2. The filter shall be made of material resistant to the corrosive effects of wastewater and chemicals used for disinfection.

3. The filters shall be readily accessible for inspection and/or service.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.7.8 Minimum Specifications for Irrigation Equipment:

1. Sprinklers, valves, controllers and all other equipment used in a spray irrigation system shall be designed, manufactured and warranted by their manufacturer for use in effluent disposal systems.
2. Sprinklers must be of low trajectory type designed to reduce aerosols. Low trajectory spray sprinklers have a nozzle trajectory equal to or less than thirty (30) degrees.
3. Sprinklers shall be connected to their supply line by means of polyethylene (PE) pipe or a swing joint manufactured specifically for this purpose.
4. Radius reduction by means of nozzle retaining screw, distance control diffuser pin or other similar devices shall not be allowed.
5. Impact and pop-up sprinklers may be used. Sprinkler risers greater than twenty four (24) inches in height must be braced.
6. Equipment susceptible to freezing must be adequately protected to prevent freezing.

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 Chapter 6 Disinfection.

SOURCE: Miss Code Ann. §41-67-3

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.
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 effluent distribution system shall be designed, constructed and maintained to provide for even distribution of effluent throughout the spray field.
4. Surface runoff of sprayed effluent from the spray field area shall not be permitted. Rainwater shall be diverted away from the spray field area.
5. The spray field area shall be designed and operated to prevent surface accumulation of sprayed effluent.
6. 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.
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).

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	< 0.5	1.2	694	928	1,040	347	478	520
Fine and Loamy Sand		0.8						
Sandy Loam		0.6						
Loam	< 0.5 – 1.0	0.45	1387	1734	2323	694	867	1162
Silt Loam	< 0.5- 1.0							
Sandy Clay Loam	1.0 – 2.0							
Silt Clay Loam	1.0 – 2.0	0.2 – 0.3	2782	4637	6951	1391	2319	3476
Clay Loam	1.0 – 2.0	0.2 – 0.3						
Sandy Clay	> 2.0	-						
Silty Clay	> 2.0	-	6951	8693	11588	3476	4347	5794
Clay								

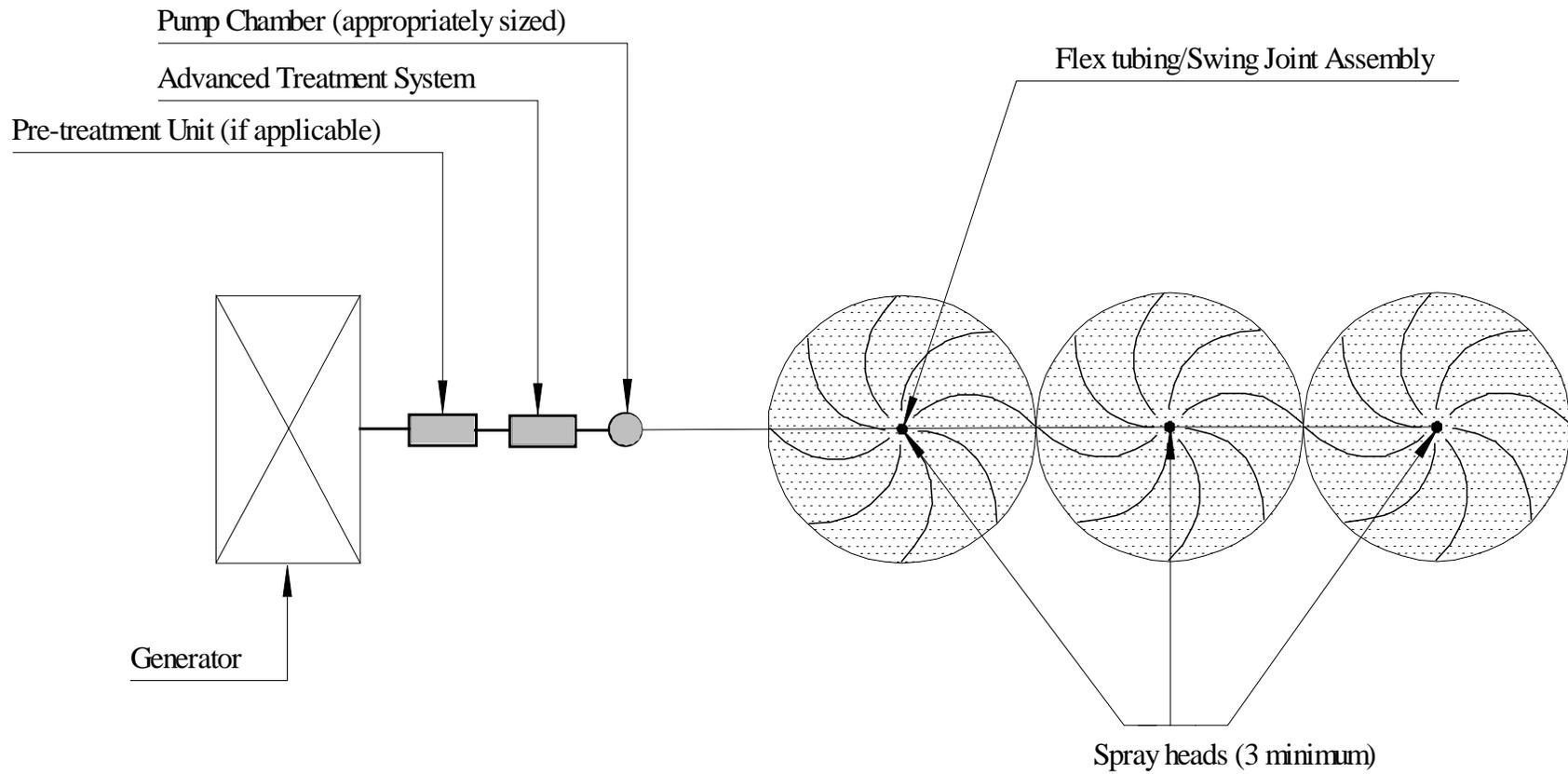
SOURCE: Miss Code Ann. §41-67-3

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	-	-

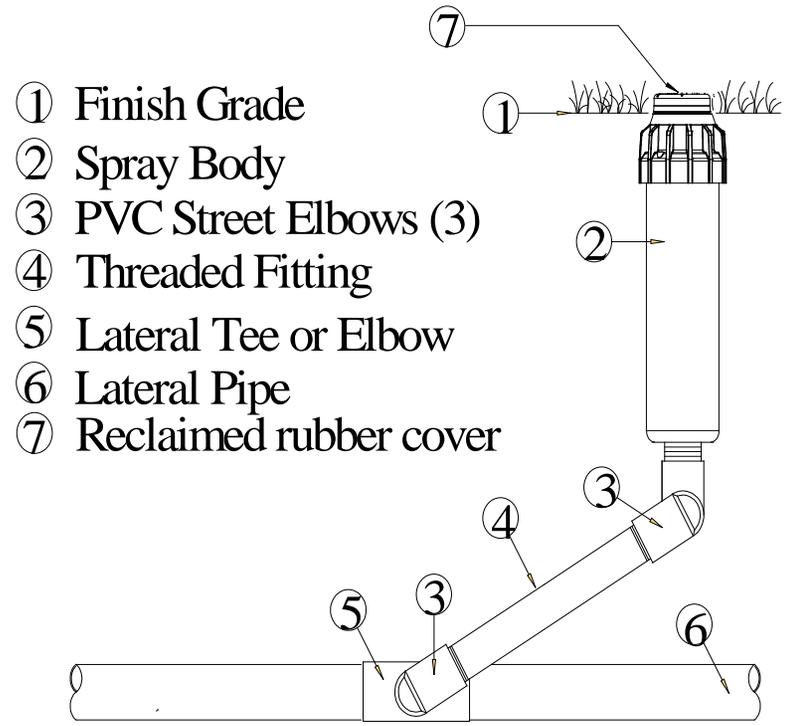
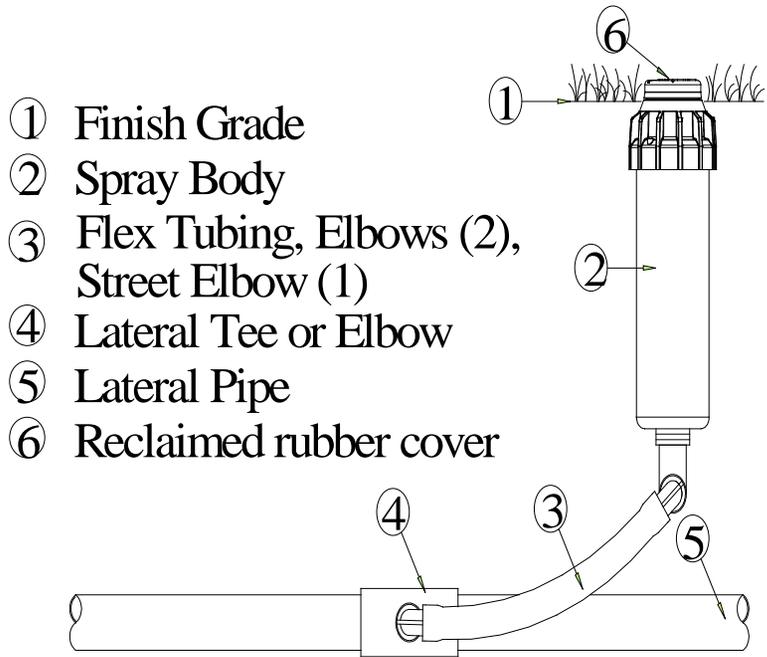
SOURCE: Miss Code Ann. §41-67-3

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 15: Mississippi State Department of Health

Part 15: Division of On-site Wastewater

Subpart 77: On-site Wastewater Regulations

Subchapter 1. SEPTIC TANKS

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, steel, 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 Systems.~~

d. 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

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

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

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.

4. Baffle Walls and Two Compartment Tanks

a. The first compartment shall be between sixty (60) and sixty-seven (67) percent 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, located in the center of the baffle and at fifty (50) percent of the liquid depth of the tank.

c. 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.

- d. 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. 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.
- f. 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:

- 1. The filter shall retain all partials greater than one-eighth (1/8) inch in size.
- 2. The assembly shall perform as a conventional tank outlet, meeting the requirements of Rule 5.1.4.3, when the filter is removed.
- 3. 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.
 - b. Lids, walls and bottom thickness must be a minimum of three (3) inches. The bottom and walls must be a monolithic pour.

3. Steel Septic Tanks: Steel septic tanks must meet Underwriter's 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
 - 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 (1,500) 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.

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.

3. 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.
 - c. Synthetic structural fibers shall have minimum length of 1.5 inches.
 - d. 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.
 - e. 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:

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
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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 Institute 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 Treatment Systems.~~

SOURCE: Miss Code Ann. §41-67-3

Rule 5.2.3. 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			
<i>Coarse Sand</i>	-	1.2	108	36	54	18
<i>Medium Sand</i>	-	1.2	108	36	54	18
<i>Fine Sand</i>	-	0.8	163	54	81	27
Loamy Sand	-	0.8	163	54	81	27
Sandy Loam	<.5	0.6	108	72	108	36
<i>Light Loam</i>	<.5	0.6	217	72	108	36
<i>Heavy Loam</i>	.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
<i>Light Clay Loam</i>	1 – 1.5	0.30	433	144	217	72
<i>Heavy Clay Loam</i>	1.5 – 2.0	0.20	650	217	325	108
<i>Light Silty Clay Loam</i>	1 – 1.5	0.30	433	144	217	72
<i>Heavy Silty Clay Loam</i>	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**							
			3-8	4-9	3-10H		1-12	2-12	3-12	3-8	4-9	3-10H		1-12	2-12	3-12
			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			
<i>Coarse Sand</i>	-	1.2	108	54	54	27
<i>Medium Sand</i>	-	1.2	108	54	54	27
<i>Fine Sand</i>	-	0.8	163	81	81	41
Loamy Sand	-	0.8	163	81	81	41
Sandy Loam	<.5	0.6	217	108	108	54
<i>Light Loam</i>	<.5	0.6	217	108	108	54
<i>Heavy Loam</i>	.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
<i>Light Clay Loam</i>	1 – 1.5	0.30	433	217	217	108
<i>Heavy Clay Loam</i>	1.5 – 2.0	0.20	650	325	325	163
<i>Light Silty Clay Loam</i>	1 – 1.5	0.30	433	217	217	108
<i>Heavy Silty Clay Loam</i>	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			
<i>Coarse Sand</i>	0.5	130	65	6-18
<i>Medium Sand</i>	0.5	130	65	6-18
<i>Fine Sand</i>	0.5	130	65	6-18
Loamy Sand	0.5	130	65	6-18
Sandy Loam	0.3	217	109	6-18
<i>Light Loam</i>	0.3	217	109	6-18
<i>Heavy Loam</i>	0.3	217	109	6-18
Silt Loam	0.3	217	109	6-18
Sandy Clay Loam	0.3	217	109	6-18
<i>Light Clay Loam</i>	0.15	434	217	6-18
<i>Heavy Clay Loam</i>	0.15	434	217	6-18
<i>Light Silty Clay Loam</i>	0.15	434	217	6-18
<i>Heavy Silty Clay Loam</i>	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 5.6.18. 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. $390 \text{ gallons per day} / 1.2 \text{ gallons per day per square foot} = 325 \text{ square feet}$
 - 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. $390 \text{ gallons per day} / 0.45 \text{ gallons per day per square foot} = 867 \text{ square feet basal area}$

SOURCE: Miss Code Ann. §41-67-3

Subchapter 7. SPRAY IRRIGATION DISPOSAL SYSTEM

Rule 5.7.1. General:

1. 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.

2. 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 5.7.2. Soil and Site Evaluation:

1. 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.
2. Sizing of the spray disposal field will be based on the most restrictive soil within twelve (12) inches of the naturally occurring ground surface.
3. 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).
4. 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.
4. 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.
5. 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.
6. 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.
 7. 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.
 8. 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.
 9. 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 be 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.

6. 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.
7. 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.
8. 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:

1. The pumping system shall be designed to deliver wastewater at the required volume and pressure specified by the spray irrigation head manufacturer.
2. The pumping system shall be equipped with a low water cutoff to prevent damage to the pump during low water conditions in the dosing chamber.
3. The pump shall be constructed of corrosion resistant materials suitable for effluent pumping.
4. The pump shall be sized per manufacturers' specifications to meet or exceed the hydraulic head of the system while delivering the required volume.
5. The pump shall be installed in compliance with manufacturers' specifications so as not to violate pump warranty.
6. The suction and pressure lines shall be PVC schedule 40 and shall be sized to deliver the required volume at the design pressure while not exceeding a velocity of five feet per second.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.7.7. Minimum Filter Specifications:

1. The filter shall filter the effluent to the minimum specifications of the spray irrigation head manufacturer to prevent clogging.
2. The filter shall be made of material resistant to the corrosive effects of wastewater and chemicals used for disinfection.

3. The filters shall be readily accessible for inspection and/or service.

SOURCE: Miss Code Ann. §41-67-3

Rule 5.7.8 Minimum Specifications for Irrigation Equipment:

1. Sprinklers, valves, controllers and all other equipment used in a spray irrigation system shall be designed, manufactured and warranted by their manufacturer for use in effluent disposal systems.
2. Sprinklers must be of low trajectory type designed to reduce aerosols. Low trajectory spray sprinklers have a nozzle trajectory equal to or less than thirty (30) degrees.
3. Sprinklers shall be connected to their supply line by means of polyethylene (PE) pipe or a swing joint manufactured specifically for this purpose.
4. Radius reduction by means of nozzle retaining screw, distance control diffuser pin or other similar devices shall not be allowed.
5. Impact and pop-up sprinklers may be used. Sprinkler risers greater than twenty four (24) inches in height must be braced.
6. Equipment susceptible to freezing must be adequately protected to prevent freezing.

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 Chapter 6 Disinfection.

SOURCE: Miss Code Ann. §41-67-3

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.
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 effluent distribution system shall be designed, constructed and maintained to provide for even distribution of effluent throughout the spray field.
4. Surface runoff of sprayed effluent from the spray field area shall not be permitted. Rainwater shall be diverted away from the spray field area.
5. The spray field area shall be designed and operated to prevent surface accumulation of sprayed effluent.
6. 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.
7. The size of the spray field area shall be determined by soil texture and slope of the site to be sprayed (See 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	< 0.5	1.2	694	928	1,040	347	478	520
Fine and Loamy Sand		0.8						
Sandy Loam		0.6						
Loam	< 0.5 – 1.0	0.45	1387	1734	2323	694	867	1162
Silt Loam	< 0.5- 1.0							
Sandy Clay Loam	1.0 – 2.0							
Silt Clay Loam	1.0 – 2.0	0.2 – 0.3	2782	4637	6951	1391	2319	3476
Clay Loam	1.0 – 2.0	0.2 – 0.3						
Sandy Clay	> 2.0	-						
Silty Clay	> 2.0	-	6951	8693	11588	3476	4347	5794
Clay								

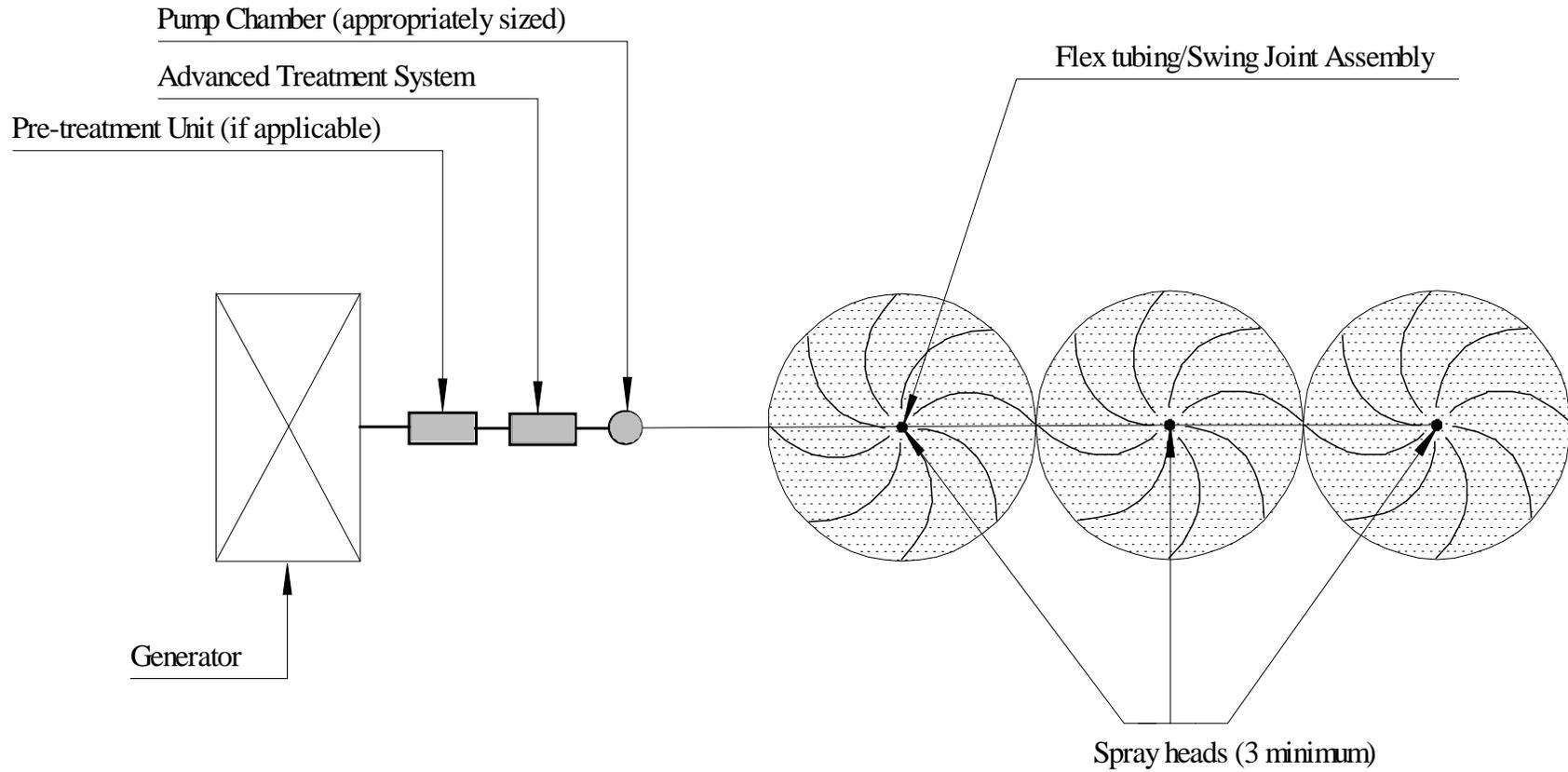
SOURCE: Miss Code Ann. §41-67-3

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	-	-

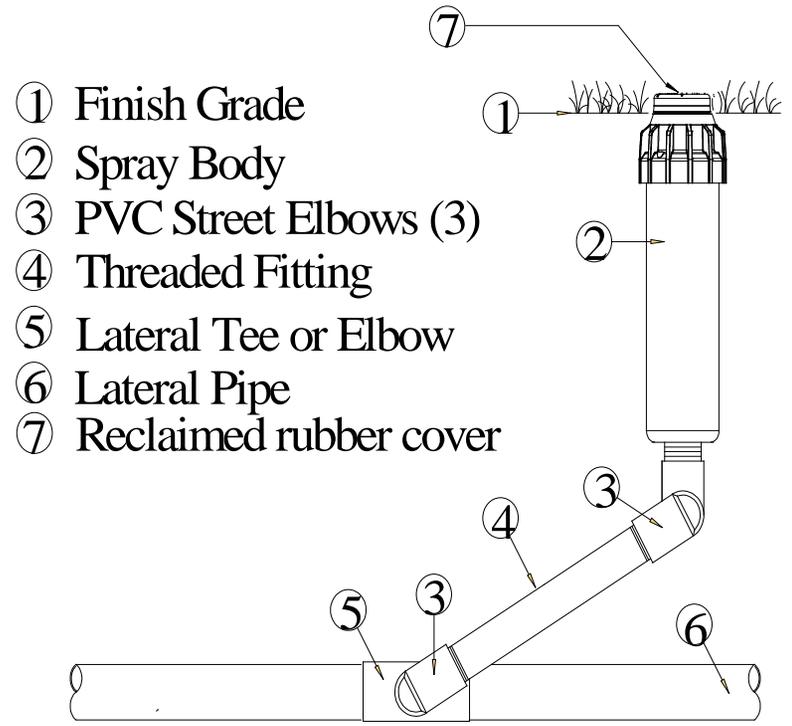
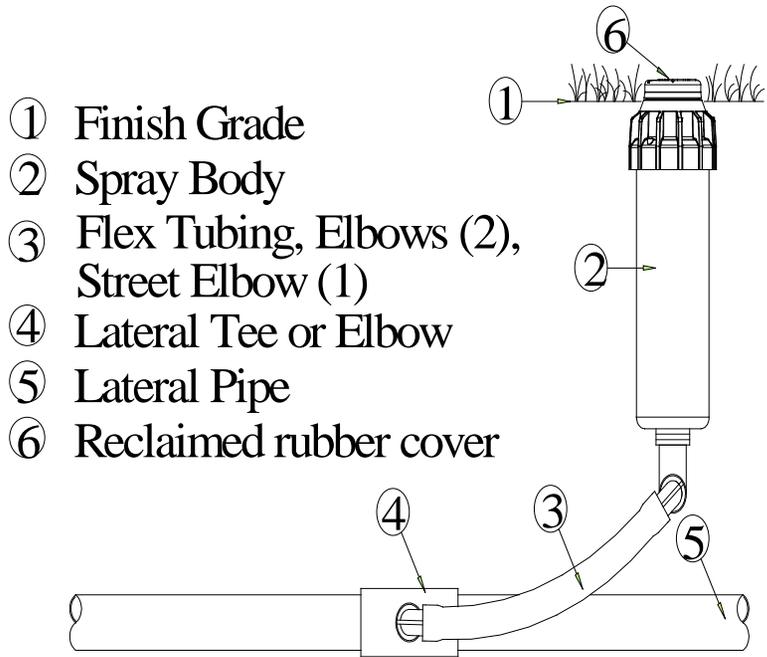
SOURCE: Miss Code Ann. §41-67-3

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