

Item #: 28

Moved by: CLAY BIBBS

Prepared by: Larry J. Smith

Seconded by: FORD

Reviewed by: Craig Barnes

ORDINANCE NO. 547

ORDINANCE TO AMEND THE REGULATIONS GOVERNING THE CONSTRUCTION, INSTALLATION AND OPERATION OF SUBSURFACE SEWAGE DISPOSAL SYSTEMS. SPONSORED BY COMMISSIONER HENRI E. BROOKS.

WHEREAS, Chapter 394 of the Private Acts of 1972 codified in the Code of Shelby County at Chapter 28, Article 3. SEWAGE did authorize Shelby County to enforce certain requirements of general state law then codified as Sections 53-2009 through 53-2016 of the Tennessee Code Annotated (TCA) with respect to the sanitary disposal of sewage; and

WHEREAS, Subsequently, the General Assembly enacted Chapter 188 of the Public Acts of 1973, Chapter 735 of the Public Acts of 1986, and Chapter 485 of the Public Acts of 1984 codified in the Tennessee Code Annotated at Section 68-221-401 et seq., which Acts did establish stricter regulations with respect to the sanitary disposal of sewage and which required the Commissioner of Environment and Conservation to enter into an agreement with any County of the first class administering a subsurface sewage disposal program as of April 15, 1986; and

WHEREAS, Tennessee Code Annotated Section 68-221-403(a)(10)(B) requires that any County Health Department implementing the provisions of Tennessee Code

Annotated Section 68-221-401, et seq., or its equivalent, must have program standards at least as stringent as those of the state law and regulations; and

WHEREAS, In order to comply with the statutory requirements referenced above, the Memphis and Shelby County Health Department standards governing the construction, installation and operation of subsurface sewage disposal systems must be amended; and

WHEREAS, Pursuant to Article II, Section 2.01 of the Charter of Shelby County, the Board of the Board of County Commissioners of Shelby County is authorized to exercise all authority of a legislative nature which is vested in the County by the Constitution, general statutes, or special, local, or private acts of the General Assembly or of the Shelby County Charter, including the authority to adopt rules and regulations enforceable by the Memphis and Shelby County Health Department as set out in Tennessee Code Annotated Section 68-2-601 and Section 68-221-401, et seq.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF SHELBY COUNTY, TENNESSEE, That the Tenn. Comp. R. & Regs. 0400-48-01-.15 (6), attached hereto as Exhibit "A," is incorporated herein by reference as if set forth in its entirety and is hereby approved.

BE IT FURTHER ORDAINED, That if any provision or application of any provision of this Ordinance is held invalid, the invalidity shall not affect other provisions or applications of such provisions.

BE IT FURTHER ORDAINED, That in any case where a provision of this ordinance is found to be in conflict with a provision of any private or public act or local ordinances

or code existing May 4, 1973, the provision which establishes the higher standard for the promotion and protection of the health and safety of the people shall prevail.

BE IT FURTHER ORDAINED, That this Ordinance shall take effect fifteen (15) days after the date of its final passage pursuant to the Shelby County Charter in Section 2.06(C)(4).



Lee Harris
Shelby County Mayor

Date: 11/18/2023

ATTEST:

Clerk of County Commission

FIRST READING: October 17, 2022

SECOND READING: October 31, 2022

ADOPTED
THIRD READING: November 14, 2022

CERTIFIED COPY

CLERK OF COUNTY COMMISSION

DATE 12/16/2022

Summary Sheet

1 Description of Item

Ordinance to amend the Shelby County TN Septic regulations to allow the permitting and construction of drip septic systems in Shelby County. This system has been approved by the State of TN for several years as a safe and effective septic system. Shelby County has regulated septic installation in Shelby County since 1972. This amendment will bring our septic regulations in line with the State regulations by adding a section that incorporates by reference Section 0400-48-01.15 (6) of the TN septic regulations. See Exhibit A

2 Source and Amount of Funding

N/A

3 Communicate How the Resolution Affects:

- A. Sub-awards- N/A
- B. Personnel- N/A
- C. Equipment- N/A
- D. Contracts- N/A

4 Other Relevant Information

Administration recommends approval of this item

(Rule 0400-48-01-.15, continued)

Exhibit "A"

Regulations to Govern Subsurface Sewage Disposal Systems. Rule 0400-48-01.15 (6).

- (6) A Subsurface Drip Disposal (SDD) System is a subsurface sewage disposal system, which utilizes pressurized drip irrigation line for the uniform application of treated wastewater throughout the disposal field. SDD systems shall be designed and installed to utilize the upper profiles of a suitable soils area through the uniform distribution of effluent, dosing and resting cycles, and shallow installation of the disposal line. SDD systems are to be preceded by a treatment device capable of achieving secondary effluent treatment standards unless otherwise determined by this department.

SDD systems designed to accommodate wastewater flows in excess of seven hundred fifty (750) gallons per day must be designed by a licensed engineer. The design shall be reviewed by the department applying the requirements of paragraph (6) of this rule.

(a) Site and Soil Requirements

1. Prior to the design of the SDD system, the suitability of the site must be demonstrated through acceptable soil properties, soil conditions and topographical characteristics. Acceptable soil textural and structural properties are shown in Table VII.
2. The design and installation of the SDD system shall be based on the most restrictive naturally occurring soil horizon or layer to a depth of twenty (20) inches or twelve (12) inches below the installation depth of the drip line, whichever is greater.
3. An area of suitable soil must be available to install the primary system and maintain a suitable area of adequate size for a one hundred (100) percent duplicate area.
4. An extra-high intensity soil map, provided by a soil consultant listed by the department, shall establish the soil properties.

(Rule 0400-48-01-.15, continued)

- (i) An extra-high intensity soil map for use to design a SDD system shall provide site-specific profile descriptions establishing the texture and structure (shape and grade) for each suitable soil unit mapped.
- (ii) Profile descriptions require the excavation of soil pits in order to allow for site-specific pedon descriptions. The soil column shall be described to a depth of thirty-six (36) inches or to rock or fragipan whichever is shallower. There shall be a minimum of two (2) pits per acre with at least one pit in any suitable soil unit intended for use, unless a different frequency is specified by the Commissioner.
- (iii) Slope classes (Table VI) for extra-high intensity soil maps used for SDD systems shall be delineated as follows:

Table VI.
Slope Classes

Slope Classes
0 - 9 %
10 - 20 %
20 - 30 %
30 - 40 %
40 - 50 %
> 50 %

- (iv) Percolation tests shall not be allowed to establish soil properties for the design of SDD systems.

5. The size of the SDD system shall be determined by the following:

- (i) The daily wastewater flow divided by the loading rate (Table VII) shall determine the area (ft²) required for the initial system.

Table VII.
Hydraulic Loading Rates (gpd/ft²) - For Subsurface Drip Disposal (SDD) Systems

TEXTURE	STRUCTURE		HYDRAULIC LOADING RATE (gpd / ft ²) BOD ≤ 30 mg/l
	SHAPE	GRADE	
Coarse Sand, Loamy Coarse Sand	NA	NA	NA
Sand	NA	NA	NA
Loamy Sand, Fine Sand, Loamy Fine Sand, Very Fine Sand, Loamy Very Fine Sand	Single Grain	Moderate, Strong	0.50
		Massive, Weak	0.40
Coarse Sandy Loam, Sandy Loam	Massive Platy	Structureless	0.30
		Weak	0.20
		Moderate, Strong	Not Used

(Rule 0400-48-01-.15, continued)

Loam	Blocky, Granular	Weak	0.40
		Moderate, Strong	0.50
	Massive	Structureless	0.20
Silt Loam	Platy	Weak, Moderate, Strong	Not Used
	Blocky, Granular	Weak	0.30
		Moderate, Strong	0.40
Sandy Clay Loam, Clay Loam, Silty Clay Loam	Massive	Structureless	0.20
	Platy	Weak, Moderate, Strong	Not Used
	Blocky, Granular	Weak	0.20
Sandy Clay, Clay, Silty Clay		Moderate, Strong	0.30
	Massive	Structureless	NA
	Platy	Weak, Moderate, Strong	Not Used
	Blocky, Granular	Weak	0.20
		Moderate, Strong	0.20
	Massive	Structureless	Not Used
	Platy	Weak, Moderate, Strong	Not Used
	Blocky, Granular	Weak	0.075
		Moderate, Strong	0.10

* Requires a special site investigation

Table VII compiled from: EPA, Netafilm, GeoFlow, AL, NC, MS, GA, TX, AR and TN

- (ii) When slopes exceed nine (9) percent, slope correction factors (Table VIII) shall be used to adjust area requirements.

Table VIII.
Slope Correction Factors

Slope Class	Depth to Restrictive Layer	
	≤ 23 in	≥ 24 in
10% - 20%	15%	0%
20% - 30%	35%	15%

- (iii) Slopes of more than fifty (50) percent shall be considered unsuitable.
- (iv) For sites with slopes between thirty (30) to fifty (50) percent a special investigation shall be conducted to evaluate those soils to determine: depth to rock, kind of rock and particle size class designation to a depth of six (6) feet or to hard rock, whichever is shallower.
- (v) SDD systems designed for sites with slopes greater than thirty (30) percent must be designed by a licensed engineer. The department shall review the design.

(Rule 0400-48-01-.15, continued)

(b) Design and Layout of the SDD System

1. The required minimum linear tubing footage is determined by dividing the amount of required square footage of suitable soil area by two (2). However when slope correction factors are required, the minimum linear tubing footage is calculated on the required square footage (without the addition of the slope correction factors) divided by two (2). The approximate tubing spacing is then determined by dividing the required square footage (including the slope correction factor) by the minimum linear tubing footage. Complete coverage of the required square footage (including any slope correction factor) is required. Designers are permitted to specify a closer tubing spacing and additional tubing, as soil and site conditions may accommodate to insure complete coverage of the disposal area.
2. The location of the septic tank, effluent treatment unit, dosing chamber, and the disposal field shall be in accordance with Rule 0400-48-01-.11.
3. The drip disposal lines shall be placed on contour. The maximum length of a single line or maximum drip zone size shall be in compliance with the manufacturer's recommendations and is subject to approval by the department.
4. Drip disposal lines and drip emitters shall be spaced on twenty-four (24) inch centers unless an alternative spacing is required by the use of slope correction factors. Tubing spacing other than twenty-four (24) inch centers may be considered on a case-by-case basis through the GWP Central Office.
5. All components of an SDD system shall be designed and manufactured to resist the corrosive effects of wastewater and household chemicals, and meet applicable ASTM standards.
6. All SDD systems shall include an automatic filtration system capable of removing suspended solids to a level recommended by the drip disposal line manufacturer or to a maximum particle size of no more than 120 microns, whichever is smaller. The filtration system shall be sized to provide the specified filtration level at or above peak flow conditions.
7. All SDD systems shall be designed to automatically flush each disposal field or zone at a minimum fluid velocity of two (2) feet per second. Flushing velocity is measured at the distal end of the drip disposal line. Flushing frequency shall be at least the minimum frequency recommended by the drip disposal line manufacturer or at a minimum once every thirty (30) days.
8. The filter flush, and network forward flushing volumes are to be hydraulically acceptable to and not adversely affect the pretreatment unit design for systems that flush to the pre-treatment tank. Systems designed to continuously forward flush to the dosing tank shall incorporate a system to automatically flush the filter to the pre-treatment tank.
9. Air / vacuum release valves shall be placed at the highest point of each zone. All valves shall be installed under a protective cover allowing grade level access.
10. Non-pressure-compensating turbulent flow drip emitters shall not be used in any SDD or packaged SDD system.

(Rule 0400-48-01-.15, continued)

11. Valves or appropriate fittings to allow for easy measurement of system pressures shall be provided on the pump output, and on each supply and return manifold of each zone.
12. SDD systems shall be timed dosed at regular intervals. Demand dosing shall not be used. Minimum dose calculations shall include at least three (3) times the volume of the tubing plus the volume of the supply and return manifolds. All SDD systems shall incorporate a flow meter to accurately determine the volume of flow to the disposal field. The approved system shall also provide the means to calculate pump cycles, alarm events, pump run time, and automated flushing events.
13. Systems designed to continuously forward flush shall incorporate a flow meter on the supply and return in order to accurately determine the volume of flow dosed in the disposal field.
14. SDD systems shall have a dosing tank capacity that will allow float placement to provide for a minimum working volume of fifty (50) percent of the peak design flow. This volume should be calculated from the timer enable to the high water alarm floats. The dosing chamber shall also provide a reserve capacity of at least fifty (50) percent of the peak daily flow above the high water alarm. The alarm and alarm switches shall be placed on a separate electrical circuit from the pump power line.
15. SDD systems shall be designed to prevent the redistribution of effluent by gravity in the disposal area.

(c) Construction Specifications

1. All supply and return manifolds, lines and pressure pipe network elements shall be constructed using Schedule 40 PVC or equivalent.
2. Any turn in the drip disposal line greater than ninety (90) degrees shall be made using flexible sections of PVC or functional equivalent. The drip line shall be secured to the flexible PVC using fittings manufactured for that purpose.
3. All electrical installations shall be installed to meet the current wiring methods of the current edition of the "National Electric Code" (NEC) adopted by the Department of Commerce and Insurance.
4. Drip disposal line shall be installed at a depth of eight (8) to twelve (12) inches below the natural soil surface. A buffer of twelve (12) inches of undisturbed soil below the drip disposal line to rock or restrictive horizon shall be maintained throughout the disposal field.
5. Drip disposal line shall be installed with the contour of the ground and in such a manner to prevent damage to the tubing and comply with the manufacturer's recommendations.

(d) General Requirements

1. SDD systems may only be used if the effluent introduced to the SDD system has been treated to secondary effluent treatment standards.

(Rule 0400-48-01-.15, continued)

- 2. Permits for SDD systems will only be considered for systems that are designed by a licensed engineer or have been previously approved as a packaged SDD system by this department.**
- 3. This Department will maintain a list of approved SDD systems either packaged with an ATS or independently.**
- 4. No manufacturer marketing an SDD system independently or packaged with an ATS in Tennessee shall deny the sale of replacement parts or deny technical guidance to any maintenance provider listed in accordance with Rule 0400-48-01-.23.**
- 5. The property owner at the time of initial installation of a SDD system and any subsequent owner, for the life of the system, shall have in effect a contract for operation and maintenance of the SDD with an approved maintenance provider under Rule 0400-48-01-.23. These contracts will be reviewed by this department on an annual basis. This requirement can be included with the ATS contract specified in Rule 0400-48-01-.10.**
- 6. SDD systems will not be considered for the purposes of subdivision plat approval or permit issuance unless the SDD system is to be utilized as the primary system.**
- 7. SDD systems will be considered for residential applications up to and including fifteen hundred (1500) gallons per day. However, commercial applications may be considered by the department on an individual basis.**
- 8. Upon installation of a packaged SDD system, a representative of the company holding the packaged approval shall inspect the system to certify that the system was installed to the approved specifications and provide GWP with a detailed layout of the system components. For systems designed by a licensed engineer, the engineer must submit construction as-built drawings showing the location of all components of the system.**

Authority: T.C.A. §§ 68-221-401 et seq. and 4-5-201 et seq. Administrative History: Original rule filed June 20, 2013; effective September 18, 2013. Rule renumbered from 1200-01-06.