

Ordinance No. 717

AN ORDINANCE to amend the Code of the City of Alexandria, Virginia, enacted as a whole July 2, 1940, and made effective August 5, 1940, by adding a new Chapter thereto numbered Chapter 21-A, which said Chapter relates to individual sewage disposal systems.

THE CITY COUNCIL OF ALEXANDRIA HEREBY ORDAINS:

SECTION 1. That the Code of the City of Alexandria, Virginia, enacted as a whole July 2, 1940 and made effective August 5, 1940, be and the same hereby is amended by adding a new chapter thereto numbered 21-A to read as follows:

CHAPTER 21-A

INDIVIDUAL SEWAGE DISPOSAL SYSTEMS

Section I. Definitions (a) The terms "install", "repair", "approved", and "standard", as used in this chapter shall be construed to mean in accordance with the specifications and standards established within this chapter. (b) The term "Health Department" for the purposes of this chapter shall mean the Health Officer of the City of Alexandria or his duly authorized representative.

That for the purpose of these regulations "an approved method of disposal of human excrement" shall be deemed to be either (a) a properly installed flush toilet connected to a public or approved private sewer; (b) a flush toilet connected to an approved properly installed septic tank system; (c) a flush toilet connected to an approved sewage disposal plant, publicly or privately owned.

Section II—Requirement of approved method of disposal—It shall be unlawful for the owner of any house used as a human habitation, or other place where human beings congregate or are employed in the City of Alexandria to use or occupy; or to rent or lease the same for the use or occupancy by any person, firm or corporation unless and until the said house or building shall have been supplied or equipped with an approved method of disposal of human excrement of such construction as will comply with the requirements hereinafter designated.

Section III—Procedure for the Installation of a Septic Tank System: The Permit To Install Septic Tank Systems:

1. It shall be unlawful for any person, firm or corporation to install or repair, have installed or repaired, allow to be installed or repaired, or contract to install or repair, a septic tank system for another person, firm or corporation without first making application to the Health Officer of the City of Alexandria for a septic tank permit on application forms furnished by the said Health Officer. The application form shall contain clearly a description, location and dimensions of the land or lot on which the septic tank, distribution box and sewer piping are to be installed, the dimensions of the sub-surface disposal field, the type of land (such as loam, sandy loam, clay, gravel, etc.), the direction in which the land drains in relation to reservoirs, springs and wells, and be accompanied by a plat of the land when required, showing the location of dwelling house and all other buildings, and the plans and specifications of the whole septic tank system intended to be installed or repaired; and upon approval of such application, the Health Officer shall issue a permit to the

applicant for the installation of such septic tank system in accordance with the plans and specifications furnished; and if the said plans are not approved, but the size and location of the lot and type of soil are suitable for a septic tank system, properly planned, the Health Officer shall clearly outline proper plans for the same and grant the permit only according to the plans so outlined by him.

2. It shall be unlawful for any septic tank system to be installed or repaired in the City of Alexandria except upon such a permit.

3. The owner or owners of any dwelling or other building in which human beings live or congregate shall, whenever a trunk line or lateral line sewer is available, connect such dwelling or building with such trunk line or lateral line sewer, subject to provisions of Chapter 14 of the Code of the City of Alexandria, and it shall be unlawful for any person to empty any sewer or sewer system into any well, septic tank or open stream in the City when a public trunk or lateral line sewer is available with which to connect same.

SECTION IV—Details of Specifications For Septic Tank Systems.

A. All septic tank systems installed or repaired in the City of Alexandria shall consist of sewer line from building to tank, septic tank, distribution box, and drain tile disposal field. The sewer line shall be of cast iron soil pipe, unless otherwise specified by the Plumbing Inspector. The entire system shall be built in accordance with the plans and specifications shown on the permit required.

B. **Excavations for Septic Tank Systems:** All excavations and trenches shall be of sufficient dimensions to permit sewers, tanks and other structures of the size shown, specified to be properly placed therein, according to the plans and specifications as required by this regulation, and to permit the removal of any obstructing material within the disposal field.

C. **Re-excavations and the Filling and Refilling of Trenches:** Where unsuitable foundation is encountered at the depth of any excavation shown on the drawing or specified by the Health Officer, further excavation and refilling the excavated spots with such foundation material as may be directed by him, is hereby required.

A representative of the Health Department of the City of Alexandria shall inspect septic tank construction after completion and before any part of the system shall be covered. Septic tank systems shall be back-filled immediately after inspection and approval by the Health Officer and care shall be taken not to disturb the pipe, grades, joints or alignment by the backfilling, or otherwise.

D. **Pipes and Jointing Materials:** Size and Types of House Sewer: The house sewer for individual homes shall be constructed of 4" or larger cast iron pipe or equivalent.

All house sewer pipes shall be laid complete with all jointing materials. All house sewer cast iron pipe shall be jointed with lead and oakum or similar jointing material, and shall be approved by the Plumbing Inspector of the City of Alexandria.

All house sewer pipe shall be laid accurately and shall have a grade of not less than $\frac{1}{4}$ " to the foot, or as otherwise specified by the Health Officer, and approximately 30" from the outside of the house there shall be a standard cast iron cleanout tie with screw cover, and all right angle bends in the house sewer shall be made with long sweep

soil pipe ells. Where septic tanks are located more than 35' from the above cleanout, then additional cleanouts are to be provided.

E. Location, Design, Liquid Capacity and Material Required in Septic Tank Disposal Systems:

1. Location and installation of the sewage disposal system and each part thereof shall be such that, with reasonable maintenance, it will function in a sanitary manner and will not create a nuisance nor endanger the safety of any domestic water supply. In determining a suitable location for the system consideration shall be given to the size and shape of the lot, slope of natural and finished grade, depth of ground water table, proximity to existing or future water supplies, and possible expansion of the system.

- a. No part of the system shall be located so that it is nearer to any water supply than 50 feet, or so that surface drainage from its location may reach any domestic water supply.
- b. The lot size shall be sufficient to permit proper location, installation and operation. Disposal field shall be located at least 10' from property line.
- c. Installations in low swampy area or areas with a high water table and/or which may be subject to flooding are prohibited.

2. Type of system shall be determined on a basis of location permeability and ground water level.

- a. The system shall be designed to receive all sanitary sewage from the dwelling.
- b. Basement floor, footing or roof drainage shall not enter any part of the septic tank system.

3. Design of the septic tank shall be rectangular in shape and the length shall not be less than twice nor more than three times the width. The liquid depth shall be not less than four feet and the free-board or airspace shall not be less than one foot.

4. Liquid capacity of all septic tanks shall be based upon the number of bedrooms contemplated in the building served and shall conform to Table I, herein shown.

TABLE I—CAPACITY OF SEPTIC TANK

Potential Capacity of Home - No. of Bedrooms	Minimum Capacity of Minimum Dimensions of Septic Tank				
	Septic Tanks - Gallons	A Length	B Width	C Air Space	D Liquid Depth
3 or less	720	7'0"	3'6"	1'0"	4'0"
4	1000	8'0"	4'0"	1'0"	4'0"
5	1250	9'0"	4'6"	1'0"	4'3"
6	1480	9'6"	4'8"	1'3"	4'6"
7	1720	10'0"	5'0"	1'3"	4'8"

5. Construction of the septic tank shall be such as to assure its being watertight and prevent the entrance of rain water or surface drainage.

- a. The tank shall be constructed of sound and durable material not subject to excessive corrosion or decay.
- b. Adequate access to each compartment of the tank for inspection and sludge removal, shall be provided by a manhole or removable cover.

(1) Where the top of the tank is located more than 18 inches below the surface of the ground manholes shall be built up to within 12 to 18 inches of the surface.

- c. Inlet and outlet connections shall be submerged or baffled to assure the least possible disturbances in the tank.

(1) The inlet pipe or baffle shall extend approximately 6 inches above the water surface and the outlet shall extend approximately 2 ft. below and 6 inches above the water surface.

(2) Venting of the tank shall be provided through the inlet and main building stack and must be approved by the Plumbing Inspector. The outlet shall be similarly vented to provide proper ventilation of the disposal field or seepage pits back into the septic tank and thence through the main building stack.

- d. Septic tanks shall be of poured-in-place concrete, or precast concrete, or brick wall, or cinder block wall, or properly coated metal.

(1) Concrete septic tanks, poured in place, shall be poured with a standard concrete mixture of 1-2-3 or 1-2-4 mix. Where the excavation is subject to caving, or where the water table is objectionably high, outside forms and pumping will be required in order to assure a water-tight tank. The walls, top and bottom of the tank are to be not less than 4' thick, as shown on plans; top and manhole cover to be reinforced with reinforcing steel, as shown on plans.

(2) Precast concrete tanks shall be of a design and size as stated in specifications submitted in accordance with Section III of this chapter, and made with a standard 1-2-3 mixture. The walls shall not be less than 2¼" in thickness, reinforced with No. 9 steel placed as shown in specifications submitted in accordance with Section III of this chapter.

The precast tank may be made in two sections or more with a horizontal half lap joint, cement grouted. The bottom, or top, and portion of the side walls shall be poured monolithically.

(3) Where metal septic tanks are used, they are to be of the same design and with the same fittings as required for concrete tanks, provided they are constructed of a material of sufficient thickness and properly coated to prevent rusting.

SUBSURFACE DISPOSAL FIELD

(1) Location of the disposal field should be in an unobstructed and unshaded area, and the distances given shall

be the minimum which the disposal field can be located from the following:

- (a) Any water supply (except as noted below) 50 feet
- (b) Streams ----- 25 feet
- (c) Dwellings ----- 10 feet
- (d) Large trees ----- 10 feet
- (e) Property lines ----- 10 feet

When existing wells are involved or exceptionally coarse soil formations are encountered, the 50-foot distance from any water supply shall be increased in accordance with the recommendations of the City of Alexandria Health Department.

(2) Distribution Box of sufficient size to accommodate the necessary field lateral lines shall be constructed at the head of each disposal field.

(a) Each field lateral line shall be connected separately to the distribution box and shall not be subdivided.

(b) The invert of all outlets shall be level and the inlet invert shall be at least 1 inch above the outlets.

(3) Minimum Seepage Area (total flat bottom of trenches) of the disposal field shall be determined by one of the following methods:

(a) Recommendation of the Health Department of the City of Alexandria, based upon experience data, in which case requirements should be stated on a basis of square feet of absorptive area per bedroom rather than lineal feet of tile.

(b) Results of actual percolation tests conducted on the site of proposed disposal field. Such tests shall be made by the owner and under the direct supervision of the Health Department and in the following manner:

NUMBER OF TEST HOLES: When a septic tank disposal field is to be constructed for a single dwelling unit with two bedrooms or less, a minimum of two test holes shall be used. One additional hole shall be provided for each additional bedroom to be served. When installations are planned for multiple units or buildings not used as dwellings at least one test hole shall be provided for each 400 square feet of area of the proposed disposal field site.

LOCATION OF TEST HOLES: The test holes shall be located on the site selected for the disposal field in a manner to be representative of the area under consideration. Tests shall not be made in filled ground unless it has been compacted for several years. All necessary surface drainage shall be completed before any percolation tests are made.

PREPARATION OF TEST HOLES: The holes shall be 6" to 12" in size and may be either circular or square and shall be dug to the depth of the proposed disposal field trench. A fixed reference point shall be provided in each test hole to permit accurate measurements of water levels. A layer of sand or fine gravel one to two inches thick shall be placed in the bottom of each test hole before any water is placed in the hole. Earth shall be mounded around tops of holes to prevent

entrance of surface water and suitable covers shall be placed over them when holes are left unattended.

CONDUCTING TESTS: First place water in hole to depth of at least 12 inches and allow to seep away. Proceed with test by filling hole to a depth of 6 inches and record time required for the water to seep away. Then compute the average time required for the water level to lower one inch. If water does not disappear from hole within 6 hours no further observations are necessary.

DETERMINATION OF ABSORPTIVE AREA FROM RESULTS OF PERCOLATION TESTS

Average Time In Minutes For Water Level to Lower One Inch	Effective Absorption Area (Area in bottom of disposal trench) In Square Feet Per Bedroom or Per 100 Gal. Per Day of Estimated Water Use.
10 minutes or less	130
11-20 minutes	170
21-30 minutes	210
31-40 minutes	250
41-50 minutes	290
51-60 minutes	330
Over 60 minutes	Unsuitable for subsurface drainage

Minimum installation shall be for a two-bedroom house.

(4) Construction shall be in accordance with recommendations of the Health Department of the City of Alexandria.

(a) All trenches in a disposal field shall be the same width and length, and the following standards shall be required:

1. Minimum number of lines per field 2
2. Maximum length of individual lines, 100 feet.
3. Minimum bottom width of trench, 18 inches.
4. Maximum depth of cover of tile lines, 24 inches.
5. Preferred depth of cover of tile lines, 16 inches.
6. Grade of tile lines ----- 2" to 4" per 100 ft.
7. Spacing of trenches ----- at least 6 ft. apart.
8. Minimum filter material under tile, 6 inches.
9. Minimum filter material over tile, 2 inches.

(b) Pipe used for the lines between the septic tank and distribution box, on all lines within 10 feet of dwelling, under paved areas and on all main laterals from distribution box in fields constructed on sloping ground, shall be bell and spigot type of vitrified clay or concrete with watertight joints. Pipe used under driveways or other areas subject to heavy loads shall be bell and spigot cast iron with leaded joints. Such sections laid in the disposal field shall not be considered in determining the effective absorption area.

(c) Field tile used in the disposal field shall be not less than 4 inches in diameter and shall be laid with $\frac{1}{4}$ inch open joints.

1. All open joints shall be protected, on top, by strips of

asphalt-treated building paper at least 10 inches long and 3 to 6 inches wide.

2. All bends used in the disposal field shall have one tight joint at each end of the bend.

(d) Filter material shall be hard and durable, of crushed stone, gravel, slag, screened cinder, or similar material having sufficient voids and shall be acceptable to the Health Department of the City of Alexandria.

1. Such material may vary from $\frac{1}{4}$ to 3 inches in size.

(e) Grade boards, securely staked in the bottom of the trench, shall be provided for all lines except where bell and spigot pipe is used. The grade boards shall be 1"x4", and nailed to stakes in center of the trench as shown on the plans, or grade stakes at intervals of not more than 5'. The grade boards are to be given a grade of from 2" to 4" per hundred feet.

SECTION V. Inspection of Septic Tank System—If, upon any inspection the Health Officer or his authorized agent shall find any violation of this Chapter and/or the provisions of the permit issued under it, he shall direct the person, firm or corporation to whom the permit was issued by written notice to make the necessary corrections within such reasonable time as shall be specified therein.

SECTION VI. No person, firm or corporation shall engage in the business of cleaning septic tanks unless and until the equipment to be used by such person, firm or corporation in connection with the operation of such business complies with the following standards and has been inspected and approved in writing by the Health Department.

A. The tank into which the septic tank sludge is pumped or delivered and carried shall be fully enclosed and watertight.

B. All inlets and outlets to such tank shall be fully enclosed and provided with watertight valves.

C. Suction and discharge hose shall be watertight and provision shall be made for carrying such hose in a manner that will prevent any leakage therefrom.

D. All exposed surfaces shall be painted and maintained in a sanitary condition by frequent washings.

E. The name and address of the person, firm or corporation owning or operating such equipment shall be painted thereon in letters at least 4 inches high.

It shall be unlawful to dispose of the sludge and other material removed from septic tanks except by depositing it under the surface of the ground in such manner that it will not be exposed to the atmosphere or endanger the source of domestic water supplies, or by depositing it into a public sewerage system or sewage treatment plant, at such designated locations and under such conditions as may be promulgated by the owners or operators thereof. In any event the sludge or other material shall be carefully deposited and the surface of the ground, manholes, tanks, etc., into which the deposit is made, shall be maintained in a sanitary condition. Any covering of such surfaces

with sludge or other material shall be promptly and completely removed.

SECTION VII. It shall be unlawful for any person, firm or corporation to start any new subdivision of housing development before furnishing in triplicate plans and specifications of the sewer system or sewage disposal system to be used, together with plans for the anticipated water system to be used in the structure or structures. These plans and specifications must be approved by the Health Officer, or his agent for the Health Department of the City of Alexandria, before construction is started.

SECTION VIII. Penalties. Any person who neglects, fails, or refuses to comply with any of the provisions of this Chapter shall be deemed guilty of a misdemeanor and upon conviction shall be fined in the sum of not less than \$10.00 nor more than \$300.00 and each time such person fails or refuses to comply with any of the provisions of this Chapter shall be deemed a separate offense and punished as herein provided.

Any person, firm or corporation found to be in violation of any of the provisions of this Chapter may be enjoined from proceeding with the installation of or operation of any disposal system until they shall comply with the provisions of this Chapter.

SECTION 2. That this ordinance shall be published in a newspaper of general circulation in the City not later than two days following its introduction together with a notice containing the time and place for a public hearing. The clerk of the council shall note the date of introduction and first reading, the date of publication, the date of the public hearing, and the date of the second reading and final passage in the minutes of the meeting. This ordinance shall become effective the date of its final passage.

Franklin P. Backus
Mayor

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