

REGULATIONS
GOVERNING
SEWAGE
TREATMENT AND DISPOSAL SYSTEMS
IN
WAKE COUNTY
EFFECTIVE
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TABLE OF CONTENTS

		Page
Preamble		3
Section I.	Definitions	3
Section II.	Specific Requirements for Permits to Construct or Repair, Sewage Treatment and Disposal Systems	4
Section III.	Specific Site Evaluation Requirements	5
Section IV.	Specific Criteria for the Design and Construction of Sewage Treatment and Disposal Systems	5
Section V.	Minimum Requirements for Installation and Operation of Sewage Treatment and Disposal Systems	10
Section VI.	Possible Exemptions to Address Selected Site Limitations	11
Section VII.	Suspension and Revocation of Permits	11
Section VIII.	Appeal Procedure	12
Section IX.	Severability	12
Section X.	Penalties	12
Section XI.	Administrative Penalties	12
Section XII.	Effective Date	13

REGULATIONS GOVERNING SEWAGE
TREATMENT AND DISPOSAL SYSTEMS IN WAKE COUNTY

WHEREAS, the Wake County Board of Human Services finds it necessary to protect and advance the public health and safety of Wake County Citizens, that said Board regulate the installation of sewage treatment and disposal systems, to wit:

- 1) The relatively high density of sewage treatment and disposal systems,
- 2) Restrictive soil conditions in areas which serve as watersheds for public water supplies and in areas which are intensively utilized for groundwater supplies, and
- 3) Areas where population density may have adverse impacts on the operation of such systems;

NOW, THEREFORE, BE IT RESOLVED by the Wake County Board of Human Services that the Laws and Rules for Sewage Treatment, and Disposal Systems codified at 15A NCAC 18A Section .1900, as amended are adopted by reference and shall apply to sewage treatment and disposal systems throughout Wake County except as modified by these more stringent local regulations adopted pursuant to GS 130A-39, 130A-43, and 130A-335 of the North Carolina General Statutes which shall also apply to sewage treatment and disposal systems throughout Wake County for the protection and promotion of the public health and safety of the citizens of Wake County.

SECTION I. DEFINITIONS

The following definitions shall apply throughout this Section:

- 1) The definitions contained in G.S. 130A-334, G.S. 130A-343, and 15A NCAC 18A.1935 are incorporated by reference including any subsequent amendments to those definitions.
- 2) The definitions contained in 15A NCAC 18C .0102 are incorporated by reference including any subsequent amendments to those definitions.
- 3) “Director” means the administrative head of the Wake County Human Services Agency appointed pursuant to NCGS 153A-77(e) or the Director’s authorized delegate.
- 4) “Shell building” means a building with an unfinished interior that can be partitioned without a roofline change such that one (1) or more separate commercial establishments may operate out of said building according to the specific conditions of an operation permit.
- 5) “Suitable or provisionally suitable area” means a specific area of soils which are classified or reclassified as suitable or provisionally suitable according to the provisions of 15A NCAC 18A Section .1900. For the purpose of Section V of these regulations the square footage of area

suitable or provisionally suitable for the installation of a sewage treatment, and disposal system shall not include areas where the installation of such system is expressly forbidden (i.e. easements, right-of-ways, area within 100 feet of a Class I or Class II reservoir, area within 50 feet of a stream or other impoundment designated wetlands, etc.).

- 6) "Watershed" means the natural area of drainage to a Class I, Class II or Class III reservoir as established by 15A NCAC 18C .0102 (C) and includes all contributing tributaries.

SECTION II. SPECIFIC REQUIREMENTS FOR PERMITS TO CONSTRUCT, OR REPAIR SEWAGE TREATMENT AND DISPOSAL SYSTEMS

- A) The authorized agent may not perform a final inspection nor issue approval of a sewage treatment and disposal system installation unless a representative of the contracting firm is present. It shall be the responsibility of the said representative to aid in the inspection and to make such corrections as required by the authorized agent pursuant to State and local rules.
- B) The authorized agent may prohibit the installation of any ground absorption system during periods of wetness.
- C) When property is to be served by a conventional, alternative, experimental or innovative system, the owner, if so required by the authorized agent, must record a description of the system and a general maintenance schedule at the Wake County Register of Deeds prior to issuance of the operation permit for such system.
- D) When it is proposed that a property is to be served by a system that receives a reduction in total nitrification trench length or trench bottom area, as compared to the total nitrification trench length or trench bottom area calculated for a 36 inch wide conventional wastewater system, the owner, or owner's legal representative must submit a letter to this office requesting the specific system and the reduction.
- E) Sewage treatment and disposal systems where the design daily flow exceeds 720 gallons must be designed by a professional engineer currently licensed by the State of North Carolina. Long-term-acceptance-rates, design flow, and location of such systems shall be reviewed and approved by the authorized agent. Plans and specifications for such systems, including methods of operation and maintenance, shall be reviewed and approved by the authorized agent prior to issuance of the Construction Authorization. An Operation Permit will not be issued until the design engineer certifies that the system has been installed in accordance with the approved plans and specifications.
- F) All individual lots which have failing ground absorption sewage treatment and disposal systems shall, upon notice from the authorized agent, connect to an available municipal, county or community wastewater collection system when it is determined that 300 feet or less of sewer line is required for connection. The property owner shall be required to connect to the wastewater collection system within 90 days of the notice. The authorized agent shall evaluate individual lots with failing ground absorption sewage treatment and disposal systems that request a variance from the above requirement. Requests for variances shall be in writing and addressed to the authorized agent. The authorized agent

may grant a variance upon a finding that an on-site option is available, and compliance with the above requirement is impractical because of conditions beyond the control of the system owner, or results in unreasonable or unnecessary hardship to the system owner.

SECTION III. SPECIFIC SITE EVALUATION REQUIREMENTS

- A) If laboratory determination of expansive clay mineralogy in accordance with 15A NCAC 18A .1941(3) is utilized, it shall NOT be considered decisive in altering the classification of the site with respect to clay mineralogy, unless substantiated by additional testing, which may include but may not be limited to, coefficient of linear extensibility, cation exchange capacity, particle size analysis, hydraulic conductivity, etc.
- B) Sites classified unsuitable as to soil structure, clay mineralogy, wetness and depth shall NOT be reclassified provisionally suitable using fill according to the provisions of 15A NCAC 18A .1957(b).

SECTION IV. SPECIFIC CRITERIA FOR THE DESIGN AND CONSTRUCTION OF SEWAGE, TREATMENT AND DISPOSAL SYSTEMS

A) Septic and Pump Tank Construction:

- 1) Garbage disposals shall be prohibited for facilities served by ground absorption systems.
- 2) No septic tank or pump tank shall be permitted with a minimum liquid capacity of less than 900 gallons. Minimum liquid capacity of the pump tank shall be at least equal to the required septic tank liquid capacity.
- 3) Minimum liquid capacities for residential septic tanks shall be in accordance with the following:

<u>Bedrooms</u>	<u>Minimum Liquid Capacity</u>
2 bedrooms or less	900 gallons
3 bedrooms	1000 gallons
4 bedrooms	1200 gallons
5 bedrooms	1500 gallons
6 bedrooms	1800 gallons

For residences with more than 6 bedrooms, the minimum liquid capacity shall be 1800 gallons plus 300 gallons for each bedroom in excess of 6 bedrooms. The minimum liquid capacity of a septic tank serving two or more residences shall be 1500 gallons or greater as otherwise specified.

- 4) Every septic tank shall be constructed with above ground access risers to provide access to each compartment and the sanitary tee/effluent filter to facilitate periodic inspection, cleaning and pumping. The risers and lids shall be made of concrete, masonry or an equivalent durable material. The risers shall extend at least six inches above the finished grade of the site. Inside dimensions

shall be sufficient to allow removal of the lids from the tank openings. The risers and junctures with the tank shall be rendered water-tight.

B) Design of Sewage Treatment and Disposal Systems:

- 1) Where more than one nitrification line is used, an effluent distribution device as specified in 15A NCAC 18A .1955 shall be installed and all lines shall contain equivalent square footage of trench bottom area unless approved by the authorized agent.
- 2) It shall be the responsibility of the owner to control the elevation and location for the stub out of the building sewer to the septic tank system.
- 3) The pipe or tubing used between the septic tank and the nitrification line shall be a minimum of three-inch nominal size Schedule 40 poly vinyl chloride (PVC), polyethylene (PE), acrylonitrile-butadiene-styrene (ABS or equivalent).
- 4) All systems shall be installed so that the elevation of the invert (bottom) of any outlet pipe at the distribution device shall be higher in elevation than the top of the gravel envelope or the innovative product in the nitrification trench that is connected to the outlet.
- 5) When it is proposed that a property be served by a system that receives a reduction in total nitrification trench length or trench bottom area that exceeds twenty-five percent (25%) as compared to the total nitrification trench length or trench bottom area calculated for a 36-inch-wide conventional (gravel aggregate) wastewater system, the following shall be required:
 - a. The system footprint area shall be equal to or greater than 75% of the area required for installation of a 36-inch-wide conventional system designed to receive untreated septic tank effluent. The minimum system footprint area shall be calculated by multiplying 75% of the trench length (in feet) required for a 36-inch-wide conventional system by 9 feet. Minimum trench spacing for the system with proposed reduction shall be determined by dividing the footprint area by the actual proposed trench length. A larger spacing shall be required if field conditions require portions of trenches to be installed further apart to in order for lines to be on contour. The repair system footprint area shall likewise be sized to be equal to or greater than 75% of the area required for a 36-inch-wide conventional system designed to receive untreated septic tank effluent, with minimum footprint area and spacing as calculated above. The system footprint and replacement system areas shall be suitable or provisionally suitable areas as defined in these Regulations.

Example: Three bedroom home: design flow 360 GPD and 0.3 GPD/ft² LTAR

$$\begin{aligned} \text{Required linear footage of gravel trench} &= \frac{(360 \text{ GPD})}{(0.3 \text{ GPD/ft}^2)} \\ &= \frac{3 \text{ ft}^2 / \text{lin. ft}}{3 \text{ ft}^2 / \text{lin. ft}} \\ &= 400 \text{ ft} \end{aligned}$$

$$\begin{aligned}\text{System footprint for conventional system} &= \text{trench length} \times \text{trench spacing} \\ &= 400 \text{ ft} \times 9 \text{ ft} = 3,600 \text{ ft}^2\end{aligned}$$

$$\begin{aligned}\text{Required minimum footprint for any innovative product} &= 3,600 \text{ ft}^2 \times 0.75 \\ &= 2,700 \text{ ft}^2\end{aligned}$$

Required minimum trench spacing, assuming reduction in trench length by 35% = $(2700 \text{ ft}^2)/(400 \times .65) = 10.4 \text{ ft}$

- b. The site shall be evaluated by a Licensed Soil Scientist. The Licensed Soil Scientist shall conduct a detailed assessment of site conditions and provide a written, signed and sealed report to the Department that includes:
- i) Detailed descriptions of landscape position and soil morphological conditions to a depth of at least three feet below the trench bottom in the drainfield and repair area,
 - ii) Field estimates of the depth and thickness of the least permeable horizons,
 - iii) Recommended depth for placement of the trench bottoms and the recommended LTAR,
 - iv) A hydraulic assessment, based on site-specific information, substantiating the projected effectiveness of system performance. This shall include documentation that indicates the sewage effluent at the proposed LTAR will not discharge to the surface of the ground within or adjacent to the drainfield when the system is installed and operated within design parameters, and justification for any proposed drainage system,
 - v) Other site-specific requirements for system design, installation, site preparation, modifications and final landscaping.
- c. The system daily design flow shall not exceed 1,500 gallons, and the wastewater characteristics shall not exceed those of domestic sewage.
- d. System installation shall be only by contractors or system installers trained and certified by the manufacturer of the specific product utilized. The manufacturer shall provide a current list of certified contractors/installers to this Department as often as necessary. Installation of systems by persons not on the current installers list shall not be approved and the operation permit shall be denied.
- e. The manufacturer of the product utilized shall provide a performance warranty, as set forth in G.S. 130A-343, to the owner or purchaser of the wastewater system which shall require:

- i) Certification by the manufacturer, certified contractor or system installer that the wastewater system is installed in accordance with the manufacturer’s specifications, any conditions of regulatory approval and all conditions of the Authorization to Construct the wastewater system.
 - ii) Copies of the certified warranty shall be returned to the manufacturer, the system owner or purchaser, and the Department, a copy of which shall be attached to the Operation Permit. A copy of the certified warranty shall also be recorded at the Wake County Register of Deeds prior to issuance of the operation permit.
- 6) Table No. I shall be used to determine the minimum daily design flow for the specific facilities listed.

Table I

<u>Type of Establishment</u>	<u>Daily Flow for Design</u>
Day Care Facilities	25 gal/person
Food Stands with public access to restrooms in addition to the requirements set forth in 15A NCAC 18A .1949(b)	The greater of 250 gal/water closet or if seating is provided, daily flow in accordance with 15 A NCAC 18A.1949, Food Service Facilities
Residential Care Facility	120 gal/bed
Shell Building	500 gal/day

C) Specific Requirements for Design of Modifications to Sewage Treatment and Disposal Systems:

Nitrification area for Prefabricated, Permeable, Block Panel systems (PPBPS) shall be determined in accordance with .1955 (b) and .1955 (c), with each linear foot of panel trench considered equivalent to a linear foot of a three-foot wide conventional trench.

D) Specific Requirements for Design of Alternative (Low Pressure Pipe) Disposal Systems:

- 1) LPP nitrification fields shall not be permitted on slopes in excess of seven percent unless special design procedures to address lateral and vertical flow away from the trenches and assure proper distribution of effluent over the nitrification field are approved.

- 2) Table II shall be used in determining the long term acceptance rate for low-pressure pipe (LPP) Systems.

Table II

<u>SOIL GROUP</u>	<u>SOIL TEXTURE CLASSES (USDA CLASSIFICATION)</u>	<u>LONG-TERM ACCEPTANCE RATE</u> <u>gpd/ft²</u>
I	Sands (With S or PS structure and clay mineralogy)	Sand Loamy sand 0.4-0.3
II	Coarse Loams (With S or PS structure and clay mineralogy)	Loam Sandy Loam 0.3-0.2
III	Fine Loams (With S or PS structure and clay mineralogy)	Sandy Clay Loam Silt Loam Clay Loam Silty Clay Loam Silt 0.2-0.1
IV	Clays (With S or PS structure and clay mineralogy)	Sandy Clay Silty Clay Clay 0.15-0.05

- 3) The use of LPP systems shall be prohibited for food service facilities, meat markets and other places of business where accumulation of grease is expected. LPP systems utilizing pretreatment of effluent to remove grease and oil may be considered for food service facilities.
- 4) The maximum elevation difference between the highest and lowest laterals in a field shall not exceed 8 feet unless the flow is hydraulically split between subfield segments without requiring simultaneous adjustment of multiple values.
- 5) The minimum width for LPP nitrification trenches shall be 18 inches. A 12 inch LPP trench width may be permitted by the authorized agent to address site specific conditions. All other provisions of these regulations must be met.

- 6) All LPP distribution laterals must be sleeved within 4 inch corrugated tubing described by 15A NCAC 18A .1955(f). Two holes shall be oriented downward in each lateral at points approximating one third and two thirds of the lateral length. Design flow rate shall be based upon delivering four feet to seven feet of static pressure head at the distal end of all lines.
- 7) The minimum LPP lateral length, measured from the manifold to the distal end, shall be 25 feet for an end fed lateral and 15 feet for a center fed lateral. LPP lateral length within a subfield shall not decrease by more than 20 percent of the length of the nearest lateral established at a higher elevation unless approved by the authorized agent. For a subfield served by an individual manifold and valve, the maximum decreasing line length from the lateral at the highest elevation to the lateral at the lowest elevation shall not exceed 30% unless approved by the authorized agent. LPP lateral lengths may increase across a subfield from the highest elevation to the lowest elevation as dictated by site conditions.
- 8) A maximum of 360 linear feet of LPP lateral shall be controlled by one gate valve for systems with a design unit volume of 480 gpd or less.

SECTION V. MINIMUM REQUIREMENTS FOR INSTALLATION AND OPERATION OF SEWAGE TREATMENT AND DISPOSAL SYSTEMS

- A) No Improvement Permit shall be issued for the installation of a sewage treatment and disposal system designed to serve a single family residence, place of business or place of public assembly on any lot which contains less than 30, 000 square feet of suitable or provisionally suitable area for the installation of such system, unless exempted under Section VI of these Regulations.
- B) No Improvement Permit shall be issued for the installation of a sewage treatment and disposal system on any lot to be utilized for a multiple family dwelling with two or more dwelling units unless the lot contains at least 30, 000 square feet of suitable or provisionally suitable area for the initial dwelling unit, and an additional 20,000 square feet of suitable or provisionally suitable area for each additional dwelling unit in the same structure, unless exempted under Section VI of these Regulations.
- C) No improvement permit shall be issued for a sewage treatment and disposal system to serve a condominium or other multiple-ownership development where the system will be under common or joint control, including control by any franchised utility, without a showing that necessary funds for continued satisfactory operation, maintenance and replacement of such system will be provided. Provision of such funds through letter of credit, deposit of monies in a custodial account or other approved funding for the life of the system shall be required prior to issuance of an Operation Permit.
- D) No Improvement Permit shall be issued for the installation of a sewage treatment and disposal system designed to serve a single family residence, place of business or place of public assembly on any lot located in the watershed of Class I, II or III reservoir which contains less than 40,000 square feet of suitable or provisionally suitable area except that when such lots are served by a public water system, a minimum of 30,000 square feet shall be suitable or provisionally suitable for the installation of such systems, unless exempted under Section VI of these Regulations. This requirement becomes effective whenever funds have been appropriated either for purchase of land or construction of a Class I, II or III reservoir.

- E) No improvement permit shall be issued for the installation of a sewage treatment and disposal system unless a minimum of 40,000 square feet of area is provided for each 1,250 gallons, or portion thereof, of sewage anticipated to be generated per day based on 15A NCAC 18A.1949.
- F) The requirements of this Section are minimum requirements. Each lot must contain sufficient available space for the installation of two complete sanitary sewage treatment and disposal systems that meet the requirements set out in these Regulations.

SECTION VI. POSSIBLE EXEMPTIONS TO ADDRESS SELECTED SITE LIMITATIONS

Based on site specific conditions, certain lots may be exempted from the provisions of Section V (A), (B), and (D) of these regulations if so doing does not constitute potential adverse impact on public health and if all of the following conditions are met:

- A) All other requirements set out in these Regulations met and
- B) There is sufficient space available for the installation of two complete sewage treatment and disposal systems meeting the requirements set out in these Regulations.
- C) The applicant may be required to have a Licensed Soil Scientist, Professional Geologist, Professional Land Surveyor, Professional Engineer, or Registered Sanitarian if required by G.S. 89C, 89E, 89F and 90A, Article 4, to prepare information that demonstrates conformance to the minimum requirements of these rules. This demonstration may include but not be limited to:
 - 1) A survey of the lot.
 - 2) A proposed site plan.
 - 3) Designation of disposal site on site plan
 - 4) Written evaluation of site
 - 5) Written justification of proposed application rate
 - 6) Calculations of drainfield requirements using proposed design unit volume.
 - 7) Field staking of location for the structure, tanks, property lines, drainfield lines etc.

Upon finding the site suitable or provisionally suitable and that a system can be installed in accordance with these rules, the authorized agent will issue an improvements permit in accordance with 15A NCAC 18A .1937(c) or when the permit is denied the authorized agent will prepare a written report in accordance with 15A NCAC 18A .1937(i)

SECTION VII. SUSPENSION AND REVOCATION OF PERMITS

- A) The authorized agent may suspend or revoke an improvement permit, authorization to construct or operation permit previously issued upon finding that a violation of the applicable provisions of these

rules and regulations or a condition imposed upon the permit has occurred. A permit may also be suspended or revoked upon a finding that its issuance was based upon incorrect or inadequate information that materially affected the decision to issue the permit.

- B) A person shall be given notice that there has been a tentative decision to suspend or revoke the permit, at which time the person may challenge the tentative decision as provided in Section VIII of these rules and regulations.
- C) If a violation of the regulations presents an imminent hazard, a permit may be suspended or revoked immediately. The authorized agent shall immediately give notice of the revocation, at which time the person may challenge the decision as provided in Section VIII of these regulations.

SECTION VIII. APPEAL PROCEDURE

Appeals concerning the interpretation and enforcement of these rules and regulations shall be conducted in accordance with the Wake County Human Services - Department of Environmental Services Rules of Appeal as amended and in compliance with G.S. 130A-24 as amended.

SECTION IX. SEVERABILITY

If any provisions of these regulations or the application thereof to any person or circumstances is held invalid, the remainder of the regulations and the application of such provisions to other persons or circumstances shall not be affected thereby.

SECTION X. PENALTIES

Any person who violates any of these regulations or shall fail to perform any acts required by these regulations shall be guilty of a misdemeanor and shall be subject to punishment as provided in G.S. 130A-25 as well as civil remedies set forth in Part 2, Article 1 of General Statutes Chapter 130A.

SECTION XI. ADMINISTRATIVE PENALTIES

A) Definitions - as used in this section the term:

- 1) "Delegate" means any person to whom the Director has delegated authority in writing to act in relation to administrative penalties;
- 2) "Hearing Officer" means the Director or Director's authorized representative;
- 3) "Respondent" means the person against whom a penalty has been assessed;

B) Administrative Penalties

The following rules concern the imposition of administrative penalties imposed by the Director pursuant to G.S. 130A-22 (H).

C) Who May Assess Penalties

Administrative penalties may be assessed by the Director.

D) When Penalties May Be Assessed

Administrative penalties may be assessed against any person for violations of Article 11 of G.S. Chapter 130A; or the Regulations Governing Sewage Treatment and Disposal Systems in Wake County, and/or any conditions imposed upon a permit issued under these regulations.

E) Amount of Penalty Assessment

- 1) The penalty shall not exceed fifty dollars (\$50.00) per day in the case of a sewage treatment, and disposal system with a design daily flow of no more than 480 gallons or in the case of any system serving a single one-family dwelling. The penalty shall not exceed three hundred dollars (\$300.00) per day in the case of a sewage treatment and disposal system with a design daily flow of more than 480 gallons which does not serve a single one-family dwelling.
- 2) Each day of a continuing violation shall constitute a separate violation.
- 3) Each violation of a specific provision of Article 11 of G.S. Chapter 130A, or of these Regulations adopted by the Board of Human Services pursuant to Article 11, or a condition imposed upon a permit issued under Article 11, shall be a separate violation.

F) Procedure For Assessment

- 1) A notice of assessment shall be sent to the respondent by registered or certified mail. If the registered or certified notice is refused or unclaimed by the respondent at his last known legal address, first class mail to the respondent at his last known legal address will be lawful and sufficient service under these regulations. The notice shall describe the nature of the violation with reasonable particularity, state the amount of the penalty for each violation, advise that each day of a continuing violation constitutes a separate violation, advise that the penalty is now due or continues to accrue, and advise the respondent of his rights of appeal as specified in SECTION VIII.
- 2) The Director may modify a penalty upon finding that additional or different facts should have been considered in determining the amount of the assessment.

SECTION XII. EFFECTIVE DATE

These amended regulations adopted by the Wake County Board of Human Services on May 23, 2002, shall be in full force and effect from and after May 23, 2002 and supercede all prior sewage treatment and disposal system regulations.

Chairman
Wake County Board of Human Services

Director
Wake County Human Services Agency