SECTION .0900 – SUBSURFACE DISPERSAL

15A NCAC 18E .0901 GENERAL DESIGN AND INSTALLATION CRITERIA FOR SUBSURFACE DISPERSAL SYSTEMS

(a) Wastewater systems shall be used on sites classified suitable in accordance with Rule .0509 of this Subchapter. The sizing and siting criteria in this Rule shall be based on soil receiving DSE. The site shall meet the following minimum criteria:

(1) 12 inches of naturally occurring soil between the infiltrative surface and any LC; and

(2) 18 inches of separation between the infiltrative surface and any SWC if more than six inches of separation consists of Group I soils.

(b) If any part of the trench or bed media extends above the naturally occurring soil surface, the system shall be a fill system and shall meet the requirements of Rule .0909 of this Section.

(c) The LTAR shall be determined in accordance with the following:

(1) Tables XVII and XVIII shall be used, as applicable;

(2) the LTAR shall be assigned based upon soil textural class or saprolite textural class, as applicable, structure, consistence, SWC, depth, percent coarse rock, landscape position, topography, and system type;

(3) LTARs determined from Table XVII shall be based on the soil textural class of the most limiting, naturally occurring soil horizon to a depth of 12 inches below the infiltrative surface or 18 inches to any SWC if more than six inches of the separation consists of Group I soils;

(4) LTARs determined from Table XVIII shall be based on the saprolite textural class of the most limiting, naturally occurring saprolite to a depth of 24 inches below the infiltrative surface, or less than 24 inches if combined with soil in accordance with Rule .0506(b) of this Subchapter; and

(5) for facilities that generate HSE as specified in Rule .0401(h) of this Subchapter or a facility with a full kitchen, the LTAR shall not exceed the mean rate for the applicable Soil Group.

TABLE XVII. LTAR for wastewater systems based on Soil Group and texture class

Soil Group	USDA Soil Textural Class		LTAR in gpd/ft^2
I	Sands	Sand	0.8 – 1.2
		Loamy Sand	
II	Coarse Loams	Sandy Loam	0.6 – 0.8
		Loam	
III	Fine Loams	Sandy Clay Loam	0.3 – 0.6
		Silt Loam	
		Clay Loam	
		Silty Clay Loam	
		Silt	
IV	Clays	Sandy Clay	0.1 – 0.4
		Silty Clay	
		Clay	

TABLE XVIII. LTAR for wastewater systems in saprolite based on Saprolite Group and texture class

Saprolite Group	Saprolite Textural Class		LTAR in gpd/ft^2
I	Sands	Sand	0.6 – 0.8
		Loamy Sand	0.5 – 0.7
II	Loams	Sandy Loam	0.4 – 0.6
		Loam	0.2 – 0.4
III	Fine Loams	Silt Loam	0.1 – 0.3
		Sandy Clay Loam*	0.05 – 0.15

* Sandy clay loam saprolite can only be used with advanced pretreatment in accordance with Section .1200 of this Subchapter.

(d) The minimum required infiltrative surface area and trench length shall be calculated in accordance with the following:

(1) the minimum required infiltrative surface area shall be calculated by dividing the DDF by the LTAR;

(2) the minimum trench length shall be calculated by dividing the minimum required infiltrative surface area by the equivalent trench width. The following equation shall be used to calculate the minimum trench length required:

	TL	=	(DDF / LTAR) / ETW
Where	TL	=	trench length, in feet
	DDF	=	design daily flow, in gpd
	LTAR	=	in gpd/ft^2
	ETW	=	equivalent trench width, in feet;

(3) the area occupied by step-downs, drop boxes, and supply lines shall not be part of the minimum required infiltrative surface area;

(4) the total trench length required for trench products other than conventional gravel shall be as follows:

(A) for trench products identified in Section .0900 of this Subchapter, the minimum line length shall be calculated in accordance with this Section; or

(B) for trench products approved under Section .1700 of this Subchapter, the minimum line length shall be calculated in accordance with the PIA Approval; and

(5) when HSE is proposed to be discharged to a dispersal field with no advanced pretreatment as required in Rule .0402(b)(1) of this Subchapter or has not been reclassified as DSE in accordance with Rule .0402(c) of this Subchapter, a licensed professional, if required in G.S. 89C, 89E, or 89F, shall calculate the adjusted LTAR in accordance with Rule .0402(b)(2) of this Subchapter.

(e) Any dispersal field where cover is required above the naturally occurring soil surface shall not be installed on slopes greater than 30 percent.

(f) Soil cover above the original grade shall be placed over the entire dispersal field and shall extend laterally five feet beyond the trenches. On level sites, the final grade of the dispersal field shall be crowned at one-half percent grade as measured from the centerline of the dispersal field.

(g) Wastewater system installation shall be in accordance with the following criteria:

(1) a device that measures elevation, such as an engineer's level or laser level shall be used for the following:

(A) staking, flagging, or marking on the ground surface the location of trenches on site before installation begins;

(B) installation of the trenches; and

(C) verification of elevations, excavations, and installation of other system components;

(2) trenches shall be installed with 12 inches of naturally occurring suitable soil between the infiltrative surface and any unsuitable LC. If the vertical separation between the infiltrative surface and any SWC is less than 18 inches, and if more than six inches of the separation consists of Group I soils, a pressure dispersal system shall be required;

(3) the trenches shall follow the ground contour. Trenches may be installed level but off contour if an authorized agent has determined that there is sufficient vertical separation to a LC along the entire trench length in accordance with Subparagraph (2) of this Paragraph;

(4) the lateral shall be centered horizontally in the trench;

(5) the type and placement of soil cover shall be approved by the authorized agent in accordance with this Subparagraph. The cover material shall be free of trash, debris, or large clods that do not break apart. The system can be installed utilizing native backfill unless otherwise specified in this Section or the PIA Approval:

(6) final soil cover over the dispersal field shall be a minimum of six inches deep after settling. The finished grade over the tanks and dispersal field shall be sloped to shed surface water;

(7) surface water runoff, including stormwater, gutter drains, or downspouts, shall be diverted away from the wastewater system. No depressions shall be allowed over the dispersal field area;

(8) Schedule 40 PVC or other pipe approved pursuant to Section .0700 of this Subchapter may be used as needed to connect sections of trench and overcome site limitations. The trench bottom area

where solid piping is installed shall not be included as part of the minimum required infiltrative surface area;

(9) gravity effluent distribution components including distribution boxes, drop boxes, and flow diversion devices shall be watertight, corrosion resistant, constructed to withstand active and passive loads, and their installation shall meet the following criteria:

(A) separated by a minimum of two feet of undisturbed soil from the septic tank and trench(es);

(B) placed level on a solid foundation of undisturbed soil, pea gravel, or concrete to prevent differential settling of the component; and

(C) backfilled by hand to minimize disturbance;

(10) when parallel distribution is used to distribute effluent to the trenches, the installer shall demonstrate to the authorized agent during the final inspection that the distribution devices perform as designed;

(11) serial and sequential distribution shall be approved by the authorized agent when the step-down or drop box in an individual trench is constructed to allow full utilization of the upstream trench prior to overflowing to the next downslope trench in accordance with the following criteria:

(A) step-downs shall be constructed of a minimum of two feet of undisturbed soil, bedding material, or concrete and the effluent shall be conveyed over the step-down through Schedule 40 PVC or other pipe approved in accordance with Rule .0703(f) of this Subchapter. Nonperforated corrugated polyethylene tubing may be used on sites with slopes greater than 25 percent. The installer shall demonstrate that the step-downs perform as designed. The authorized agent shall approve the step-downs when the installation and elevations have been verified in accordance with the CA; or

(B) drop boxes shall be separated from the trench by a minimum of two feet of undisturbed soil and constructed to allow for full utilization of the upstream trench prior to overflowing to the next lower drop box. The installer shall demonstrate that the drop boxes perform as designed. The authorized agent shall approve the drop boxes when the installation and elevations have been verified in accordance with the CA; and

(12) trench products other than conventional gravel shall be installed as follows:

(A) for trench products identified in Section .0900, the trench products shall be installed in accordance with this Section; or

(B) for trench products approved under Section .1700 of this Subchapter, the trench products shall be installed in accordance with their PIA Approval.

(h) Alternating dual dispersal fields shall only be used with DSE in Soil Groups III and IV. Alternating dual dispersal fields shall be approved when designed and installed in accordance with Paragraph (g) of this Rule and the following:

(1) both initial and repair dispersal fields shall be installed at the same time;

(2) initial and repair dispersal fields of the same system type are each sized at a minimum of 75 percent of the total trench length required;

(3) the initial and repair dispersal fields shall be separated by an effluent flow diversion valve(s);

(4) diversion valve(s) shall be resistant to 500 pounds crushing strength and corrosion resistant;

(5) effluent flow diversion valves shall be installed below finished grade in a valve box and be accessible and operable from the ground surface; and

(6) trench products approved under Section .1700 of this Subchapter shall be installed in accordance with their PIA Approval.

History Note: *Authority G.S. 130A-335(e), (f), and (f1); S.L. 2024-49, s.4.28;*
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