

**NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES  
DIVISION OF PUBLIC HEALTH  
ENVIRONMENTAL HEALTH SECTION  
ON-SITE WASTEWATER BRANCH**

<b>INNOVATIVE WASTEWATER SYSTEM APPROVAL</b>
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Innovative Wastewater System Approval Number: IWWS-1995-01-R2

Issued To: Brunswick County Health Department  
PO Box 9  
Bolivia, NC 28422

For: Brunswick Bed in Fill Wastewater Dispersal System

Approval Date: August 10, 1995  
December 31, 2024      Updated for 18E and renewed for 2025  
December 31, 2025      Renewed for 2026

In accordance with G.S. 130A-343 and 15A NCAC 18E, Section .1700, an approval for Brunswick Bed in Fill wastewater dispersal systems has been renewed and found to meet the requirements of an innovative system when the following conditions are met.

I. General

Scope of this Innovative Approval

- A. Use, design, and installation requirements for the Brunswick Bed in Fill wastewater dispersal systems.
- B. Operation, maintenance, and monitoring requirements for Brunswick Bed in Fill wastewater dispersal systems.

II. System Description

- A. Minimum pretreatment by septic tank as required in 15A NCAC 18E .0801.
- B. The bed system must meet the requirements in 15A NCAC 18E .0903 and .0909.

III. Siting Criteria

Brunswick Bed in Fill wastewater dispersal systems may be utilized sites which meet the following criteria:

- A. The first 36 inches below the naturally occurring soil surface consist of sand or loamy sand (Group I).

- B. It has been determined that there is inadequate space to install a gravity flow trench-type system as required in 15A NCAC 18E .0909. The site shall have a uniform slope not exceeding two percent slope.
- C. No soil wetness condition shall exist within the first 12 inches below the naturally occurring soil surface. Artificial drainage shall not be used to meet this requirement.
- D. The horizontal setbacks of 15A NCAC 18E .0601 shall apply as measured from a point five feet from the nearest edge of the bed sidewall.
- E. The required vertical separation shall be measured from the bed bottom.

#### IV. Dispersal Field System Sizing

- A. The maximum design daily flow shall not exceed 480 gpd.
- B. The LTAR shall not exceed 1.0 gpd/sq ft. For sites where the LTAR exceeds 1.0 gpd/sq ft, use 1.0 gpd/sq ft.
- C. The minimum required bed bottom area (sq ft) shall be determined based upon the design daily flow divided by the applicable LTAR. The resulting area value shall be increased by 50 percent in accordance with 15A NCAC 18E .0903.
- D. No industrial process wastewater shall discharge to a Bed-in-fill system.
- E. The available space requirements of 15A NCAC 18E .0508 shall be met, and an approved innovative system may be designated as the required replacement system.

#### V. Special Site Evaluation

A special site evaluation may be required based on the proposed dispersal field. Refer to 15A NCAC 18E .0510.

#### VI. Design Criteria

Refer to Siting Criteria in Section III and Installation information in Section VII for installation details.

#### VII. Installation

- A. Fill material shall be sand or loamy sand (Group I soil), containing not more than 10 percent debris, and shall be approved prior to placement by the LHD.
- B. Prior to fill placement, the site shall be void of a vegetative cover, organic litter, and debris.
- C. Fill shall be placed in six-inch lifts, with each fill layer mixed with the underlying layer of natural soil or sandy fill material.

- D. The sideslope of the fill shall not exceed a rise to run ratio of 1:3.
- E. The system shall be constructed as an elongated berm with the long axis parallel to the ground elevation contours of the slope.
- F. The bottom of the bed shall be excavated level ( $\pm \frac{1}{4}$ " ) in all directions.
- G. Trenches shall be placed three feet on-center.
- H. The edge of the bed shall be located 1  $\frac{1}{2}$  feet from the centerline of the outermost trench.
- I. Allowable effluent distribution includes gravity flow, pressure-dosed gravity, or LPP.
- J. For gravity and pressure-dosed gravity distribution, the following requirements apply:
  - 1. The bed bottom shall have a minimum separation of 24 inches from any soil wetness condition.
  - 2. The bed bottom shall have a minimum separation of 30 inches from any soil horizon unsuitable as to soil structure, clay mineralogy, organic soil, restrictive horizon, rock, or saprolite.
  - 3. The distribution device shall be placed in the center of the bed.
  - 4. A maximum of 16 lines are allowed, with no more than eight on each side of the distribution device.
  - 5. The bed width shall be constructed in a multiple of three feet up to a maximum of 24 feet.
  - 6. The final six inches of soil cover placed over the bed and side slopes shall be classified as a Group II or III soil.
- K. For LPP distribution, the following requirements apply:
  - 1. The bed bottom shall have a minimum separation of 18 inches from any soil wetness condition.
  - 2. The bed width shall be constructed in a multiple of three feet up to a maximum of 24 feet.
  - 3. Laterals shall be placed three feet on center and located no closer than 1  $\frac{1}{2}$  feet from the bed side walls. All laterals shall be sleeved in accordance with 15A NCAC 18E .0907.
  - 4. Except as described herein, the provisions of 15A NCAC 18E .0907 shall apply.
  - 5. The final four inches of soil cover over the bed and side slopes shall be classified as Group II or III soil.
- L. For approved Residential Wastewater Treatment Systems (RWTS) or approved innovative advanced pretreatment systems, the following requirements apply:
  - 1. The RWTS shall be approved in accordance with the provisions of 15A NCAC 18E, Section .1500.
  - 2. The bed bottom shall have a minimum separation of 18 inches from any soil wetness condition.
  - 3. The bed system may utilize a gravity distribution as described in Section VII.J.
  - 4. If LPP distribution is utilized, the requirements of Section VII.K shall apply except that the bed bottom shall have a minimum separation of 12 inches from any soil wetness condition.

VIII. Operation, Maintenance, and Monitoring

The Brunswick Bed in Fill wastewater dispersal system shall have a minimum classification in accordance with 15A NCA 18E .1301(b), Table XXXII.

IX. Responsibilities and Permitting

An owner shall submit an application to the local health department (LHD) requesting the use of this approved system. The LHD shall issue an Improvement Permit upon a finding that all the provisions of this approval have been met.

X. Repair of Systems

The provisions of 15A NCAC 18E .1306 shall apply to the use of Brunswick Bed in Fill wastewater dispersal systems for repairs to existing malfunctioning septic tank systems.

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_