NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH SECTION
ONSITE WATER PROTECTION BRANCH

INNOVATIVE WASTEWATER SYSTEM APPROVAL

Innovative Wastewater System Approval Number: IWWS 2024-01

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For:	Prinsco Pro4/36 Chamber System	
Approval Date:	February 7, 2024	Accepted Status First Granted for Prinsco Pro4/36 Chambers

Pursuant to G.S. 130A-343(g1), Prinsco petitioned the Commission for Public Health to have its wastewater trench system, Prinsco Pro4/36 Chamber System, approved as an innovative wastewater system based on Prinsco's claims that the Pro4/36 Chamber is functionally equivalent to an accepted wastewater system, the Arc 36 chamber manufactured by Infiltrator Water Technologies, LLC. The Commission found that the petition includes the information required by G.S. 130A-343(g1)(2) and supporting information. The Commission found that there is clear, convincing, and cogent evidence that the Pro4/26 Chamber is functionally equivalent to the Arc 36 chamber manufactured by Infiltrator Water Technologies, LLC, and satisfies all of the requirements in G.S. 130A-343(g1)(1)a. – e. Therefore, the Pro4/36 Chamber System is approved by the Commission as an innovative wastewater system when all of the conditions of this approval are met.

I. General

A. The scope of this Innovative Approval includes the use, design, and installation requirements for Pro4/36 chamber systems for new and repair systems.

B. The Pro4/36 chamber has been found to meet the standards of an innovative system.

II. System Description

A. Minimum pretreatment by septic tank as required in 15A NCAC 18E .0801.

B. The Pro4/36 chamber consists of injection molded high density polyethylene. Twenty-five Pro4/36 chambers are approximately equal to 100 linear feet.

Table I –Chamber Dimensions

Model	Height (in)	Invert[1] Height (in)
Pro4/36	12	7

[1]Invert Height is for a 4-inch diameter Schedule 40 PVC Pipe

C. Each chamber unit is designed to mechanically interlock with the downstream chamber forming a complete trench that consists of an inlet plate with a splash plate located below the inlet on the trench bottom and a solid end plate to be located at the distal end of any chamber trench.

III. Siting Criteria

Chamber systems may be utilized on any site on which a conventional wastewater system can be installed, and which meets the following criteria:

A. Sites which are classified as Suitable for a conventional wastewater system in accordance with 15A NCAC 18E .0509(a) through (c).

B. Sites which meet the criteria for new or existing fill in accordance with 15A NCAC 18E .0909. The provisions of Rule .0909 are applicable whenever any portion of the chamber in a system extends into fill material. There shall be no reduction in trench length compared to a conventional wastewater system. This reference to "fill material" applies to the site fill and not the backfill placed between the trench and the chamber sidewall.

C. The required vertical separation shall be measured from the bottom edge of the chamber.

IV. System Sizing

A. The maximum long-term acceptance rate (LTAR) shall be as follows:

Table II – LTAR for Chambers

Textural Group		LTAR (gpd/sq ft)	
		Natural Soil	Saprolite
Soil Group I	Sands	0.8-1.0*	0.6-0.8
	Loamy Sand		0.5-0.7
Soil Group II	Sandy Loam	0.6-0.8	0.4-0.6
	Loam		0.2-0.4
Soil Group III	Silt Loam	0.3-0.6	0.1-0.3
	Other Fine Loams		NA
Soil Group IV	Clays	0.1-0.4	NA

***** For sites where the LTAR exceeds 1.0 gpd/sq ft, use 1.0 gpd/sq ft.

B. The LTAR shall be based on the most limiting, naturally occurring soil horizon to a depth of 12

inches below the infiltrative surface or 18 inches to any soil wetness condition if more than six inches of the separation consists of Group I soils.

C. To determine the total trench bottom area (ft^2) required, the design daily flow shall be divided by the applicable LTAR shown in Table II. The minimum linear footage for chamber systems shall be determined by dividing the total trench bottom area by the equivalency factor in Table III.

Table III –Chamber Trench Width and Equivalency Factors

Product	Excavated Trench Width (inches)	Equivalency Factor* (SF/LF)
Pro4/36	36	4.00

* Reduction in trench length allowed by use of these Equivalency Factors, as compared to sizing requirements delineated in Rule .0901 for conventional wastewater systems, apply only to dispersal field receiving domestic strength effluent or better quality. Any proposed use of the system for facilities producing high strength effluent shall be sized in adherence with the conditions set forth in Rule .1713(5) and (6).

Example:

Three bedroom residence with a design daily sewage flow of 360 gallons on a sandy clay loam (Group III) soil

Total computed trench bottom area is:

360 gpd/0.5 LTAR = 720 ft^2

The required linear footage for the Prinsco chamber system is:

720 ft^2/4.0 ft = 180 linear ft

Where 4.0 ft. is the equivalency factor for the Prinsco chamber system

D. The sizing for the Pro4/36 chamber end cap shall be determined by the equivalency factor in Table IV.

Table IV – Equivalency Factors for End Cap Systems and Mid-Line Connections

Product	Excavated Trench Width (inches)	Approved Chamber Equivalency Factor Linear Foot Basis[1] (SF/LF)	Linear Feet of Chamber Credit per Pair when Placed at Ends of Chamber Line (LF)[2]	Linear Feet of Chamber Credit per Unit when Placed as a Mid-Line Connection (LF)
Pro4/36 End Cap	36	4.0	2	NA

[1] Actual linear-foot equivalency rating of compatible chamber part.

[2] Must install two end cap parts to get the approved linear feet of chamber credit.

E. The minimum area (without reduction or equivalency factor) for a bed system in natural soil shall be determined as required in 15A NCAC 18E .0903 except that the chambers shall be placed in rows next to each other. The requirements of 15A NCAC 18A .0903 shall be met for the installation of a bed system.

G. The available space requirements of Rule .0508 shall be met, and this 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 system. Refer to Rule 15A NCAC 18E .0510.

VI. Design Criteria

Refer to Siting Criteria (Section III) and Installation (Section VII) for design details.

VII. Installation

A. Chamber systems used in trenches shall be installed according to the minimum and maximum dimensions in Table V.

B. The inlet to the chamber shall be in the uppermost portion of the end cap. For dosed systems receiving effluent from a pump or siphon, manufacturer's installation procedures shall be followed, including provisions to dissipate inflow rate so as to minimize soil scouring and modifications that enable the presence and effectiveness of these provisions to be field verified.

Table V – Trench Installation Requirements

Model	Maximum Trench Width (in)	Minimum Trench Depth (in)	Minimum Trench Spacing (ft on center)	Minimum Soil Cover (in)
Pro4/36	36	24	9	6

C. Backfill shall be placed between the trench and chamber sidewall to a minimum compacted (carefully walked in) height that is equal to the top of the chamber louvers. Chamber systems can be installed utilizing native soil backfill (Group I, II, III, or IV). Backfill shall be free of trash or debris. The area adjacent to louvers shall be free of large (eight inches or greater) clods that do not break apart during the walk-in procedure. The latest version of the manufacturer's installation procedure shall be followed.

Vehicular traffic or construction equipment may traverse the chamber system only when the load is bridged over the trench so as not to disturb the chambers. The load may be bridged with a minimum of six inches of compacted soil cover.

D. Chamber trenches shall be constructed level in all directions with a plus or minus one-half-inch tolerance from side-to-side and maximum fall in a single trench bottom not exceeding one-fourth inch in 10 feet end-to-end for any continuous contoured segment. Trenches shall follow the contour of the ground surface elevation. Trenches shall be constructed with continuous interlocking chambers, including appurtenances, without any dams, stepdowns, or other water stops, except as described in VII.E.

E. Chamber systems installed on a sloping site may use distribution devices or stepdowns as described in 15A NCAC 18E .0901(g)(9) and (11) when it is necessary to change level line

segments from upper to lower elevations.

F. After installation of chambers in a trench or bed configuration, a filter fabric barrier shall be installed to cover the chambers if the chambers are installed in uncompacted, fine, or very fine uniform sand and at least one of the following conditions are present:
   1. installations are left uncovered and subject to a major rain event;
   2. systems are subject to not being sodded (or stabilized) within 30 days after final cover-up has occurred; or
   3. the dispersal field is not protected from surface drainage.

   The filter fabric shall be non-woven, weight 0.35 oz./s.y. to 1 oz./s.y., have apparent opening size (AOS) 20-30 U.S. Sieve (ASTM D-4571), or alternate with equal or better performance characteristics. An alternate fabric shall be approved in writing by the manufacturer on a case-by-case basis.

G. The manufacturer's installation instructions for the chamber system used in onsite wastewater systems shall be followed except as required herein or 15A NCAC 18E.

H. All chamber systems shall be installed by an installer certified in writing by the manufacturer or its authorized representative.

I. All chamber systems shall be installed with compatible end caps at the inlet and distal ends of each chamber row.

J. For low-pressure pipe applications, follow the manufacturer's guidelines. Sleeving the pressurized pipe within a larger-diameter pipe is not required, recommended, or prohibited.

VIII. Operation, Maintenance, and Monitoring

Chamber systems shall have a classification of IIIg in accordance with Table XXXII of 15A NCAC 18E .1301.

IX. Responsibilities and Permitting

A. Prior to the installation of the approved chamber trench or bed system at a site, the owner shall fill out an application at the local health department for the proposed use of this system. The local health department shall issue an Improvement Permit or Construction Authorization or amend a previously issued Construction Authorization allowing the use of a chamber system upon a finding that the provisions of the applicable rules are conditions of this approval are met. Use of the proposed innovative system and any conditions shall be described in the Construction Authorization or amended Construction Authorization, as applicable. Such information shall also be described on the Operation Permit to be issued upon the accepted completion of the system installation.

B. Any person installing the chamber system shall be authorized in writing by Prinsco or its authorized representative to install the chamber system. The installer shall provide the written authorization upon request by the State or local health department.

X. Repair of Systems

The provisions of 15A NCAC 18E .1306 shall apply to the use of chamber systems for repairs to existing malfunctioning on-site wastewater systems.

Approved by:_____Date:_____