

**15A NCAC 18E .1206    ADVANCED PRETREATMENT BED SYSTEMS**

(a) This Rule shall apply to bed systems receiving advanced pretreatment.

(b) Bed systems receiving NSF/ANSI 40 effluent, or better, on sites with a DDF less than or equal to 600 gpd shall meet the following requirements:

- (1) the soil and site shall meet the following criteria:
  - (A) the vertical separation requirements of Rule .0901(g)(2) of this Subchapter;
  - (B) soil texture is Group I, II, or III; and
  - (C) design options for the site are limited by topography or available space;
- (2) Table XVII in Rule .0901(c) of this Subchapter shall be used to determine the LTAR for a bed system. On sites where the soil texture is Group I or II, the initial LTAR shall be increased by a factor of 1.125 with no further reduction in bed size allowed;
- (3) setbacks allowed in Table XXVIII of Rule .1202(d) of this Section shall be used; and
- (4) bed system installation shall be in accordance with Rule .0903(e) of this Subchapter.

(c) Bed systems receiving TS-I or TS-II effluent on sites with a DDF less than or equal to 1,500 gpd shall meet the following requirements:

- (1) The soil and site meet the following criteria:
  - (A) there is a minimum of 30 inches of suitable Group I or II soils below the naturally occurring soil surface and no SWC within the first 36 inches below the naturally occurring soil surface or 36 inches of Group I soils below the naturally occurring soil surface and no SWC exists within the first 12 inches below the naturally occurring soil surface;
  - (B) the requirement for 30 inches of Group I or II soils or 36 inches of Group I soils in Part (A) of this Subparagraph may be reduced to 18 inches when a special site evaluation in accordance with Rule .0510 of this Subchapter is provided;
  - (C) sites shall have a uniform slope not exceeding two percent, unless a special site evaluation submitted and approved in accordance with Rule .0510 of this Subchapter is provided; and
  - (D) the bed system shall be considered to be a fill system if the infiltrative surface is installed less than six inches below the naturally occurring soil surface. For bed systems in fill, the requirements of Paragraph (e) of this Rule shall also be met.
- (2) Table XVII in Rule .0901(c) of this Subchapter shall be used to determine the initial LTAR for a bed system and shall be based on the most limiting, naturally occurring soil horizon within 36 inches of the naturally occurring soil surface or to a depth of 12 inches below the bed bottom, whichever is deeper. The minimum bed size shall be determined in accordance with the following:
  - (A) the minimum amount of bottom area square feet shall be determined by dividing the DDF by the LTAR;
  - (B) when the bed is a fill system, the lowest LTAR for the applicable Soil Group shall be used. The LTAR shall not exceed 1.0 gpd/ft<sup>2</sup>;
  - (C) fill shall not be added to the naturally occurring soil surface in order to increase the LTAR of a bed system;
  - (D) the minimum bed size shall be reduced by up to 25 percent when the system is designed to comply with TS-I or TS-II effluent and is not installed in existing fill; and
  - (E) the minimum bed size may be reduced by up to 40 percent when the following criteria are met: the system is designed to comply with TS-II effluent; Group I Soil is present in the first 36 inches of naturally occurring soil; no SWC exists within the first 30 inches below the naturally occurring soil surface or within 24 inches of the bed bottom; the bed or beds are not located beneath the advanced pretreatment components, and pressure dispersal is used; effluent is distributed to the beds by a pump and timer control system designed to distribute flow evenly over a 24-hour period; and there is 100 percent dispersal field repair area.
- (3) A special site evaluation shall be submitted and approved in accordance with Rule .0510 of this Subchapter when the vertical separation to a LC is reduced and on sites with slopes greater than two percent.
- (4) Setbacks as set forth in Table XXVIII of Rule .1202(d) of this Section shall apply as follows:
  - (A) the setbacks shall be measured from the nearest edge of the bed;

- (B) for bed systems using fill, the setbacks shall be measured from a point five feet from the nearest edge of the bed sidewall, or from the projected toe of the slope that is required to comply with the soil and site limitations, whichever is greater;
  - (C) the minimum separation between initial and repair dispersal field areas serving a single system and facility shall be two feet of naturally occurring soil. Ten feet of naturally occurring soils shall separate the initial and repair dispersal field areas serving separate facilities when these bed systems are on a common site or tract of land; and
  - (D) whenever the bed size is reduced in accordance with this Rule, only reduced setbacks to artificial drainage systems in accordance with Table XXVIII of Rule .1202(d) of this Section shall be allowed.
- (5) Bed system installation shall be in accordance with Rule .0903(e) of this Subchapter and the following:
- (A) pressure dispersal shall be used whenever effluent is distributed to a bed not located beneath the advanced pretreatment component; and
  - (B) when new fill is required for the installation of a bed system, suitable Group I fill material shall be used to comply with the vertical separation requirements from the bed bottom to a LC, when all of the following conditions are met: a groundwater lowering system is not used to comply with the vertical separation requirements; new fill material is sand or loamy sand, containing not more than 10 percent by volume fibrous organics, building rubble, or other debris and does not have discreet layers containing greater than 35 percent of shell fragments by volume; and the requirements of Rule .0909(c)(8) of this Subchapter, for the projected side slope of the fill are met, as determined beginning at a point six inches above the top edge of the bed.
- (d) Bed systems receiving TS-I or TS-II effluent on sites with a DDF greater than 1,500 gpd and less than or equal to 3,000 gpd shall meet the following requirements:
- (1) The soil and site shall meet the minimum following criteria:
    - (A) Group I soils are present for 54 inches below the naturally occurring soil surface;
    - (B) no SWC exists within the first 48 inches below the naturally occurring soil surface; and
    - (C) vertical separation of 24 inches to any SWC is maintained below the bed bottom, unless a site-specific groundwater mounding analysis is performed and demonstrates a 12-inch separation or 18-inch minimum for a fill system in accordance with Rule .0909(c) of this Subchapter shall be maintained.
  - (2) Table XVII in Rule .0901(c) of this Subchapter shall be used to determine the initial LTAR for a bed system and shall be based on the most limiting, naturally occurring soil horizon within 36 inches of the naturally occurring soil surface or to a depth of 12 inches below the bed bottom, whichever is deeper. The minimum bed size shall be determined in accordance with the following:
    - (A) the minimum number of square feet of bed bottom area shall be calculated by dividing the DDF by the LTAR;
    - (B) the minimum bed size shall be reduced by up to 25 percent when the system is designed and approved to comply with TS-I or TS-II effluent standards and will be installed in naturally occurring soil; and
    - (C) the minimum bed size may be reduced by up to 40 percent when all of the following criteria are met: the system is designed and approved to comply with TS-II effluent standards; the hydraulic assessment demonstrates that a 24-inch minimum vertical separation to a SWC is maintained after accounting for projected groundwater mounding; and there is 100 percent dispersal field repair area.
  - (3) A special site evaluation shall be submitted and approved in accordance with Rule .0510 of this Subchapter.
  - (4) No setback reductions shall be allowed in accordance with Table XXVIII of Rule .1202(d) of this Section. The following horizontal setbacks shall be met:
    - (A) the minimum setback between initial and repair dispersal field areas serving a single system and facility shall be two feet of naturally occurring soil. Ten feet of naturally occurring soil shall separate the initial and repair dispersal field areas serving separate facilities when these bed systems are on a common site or tract of land;

- (B) when two beds are used, the minimum separation between two beds shall be 20 feet. When three or more beds are used, the minimum separation between beds shall be 10 feet; and
  - (C) a 25-foot setback shall be maintained from edge of the bed to the property line unless a site-specific nitrogen migration analysis indicates that the nitrate-nitrogen concentration at the property line will not exceed 10 mg/L or TS-II or better effluent is produced by the approved system.
- (5) Bed system installation shall be in accordance with Rule .0903(e) of this Subchapter and the following criteria:
- (A) two or more equally sized beds shall be used and the beds shall not be located beneath the advanced pretreatment components; and
  - (B) effluent shall be distributed to the beds by a pressure dispersal system. A timed dosed system shall be used to distribute flow evenly to the beds over a 24-hour period.
- (e) Bed systems receiving TS-I or TS-II quality effluent may be proposed for a site with existing fill that meets the requirements of Rule .0909(d) of this Subchapter under the following conditions:
- (1) no SWC exists within 18 inches of the existing fill surface;
  - (2) 18 inches of vertical separation exists to the SWC;
  - (3) the DDF does not exceed 480 gpd; and
  - (4) pressure dispersal is used. The requirement for pressure dispersal shall not be required if the advanced pretreatment system PIA Approval allows for advanced pretreatment unit(s) to discharge directly to the underlying bed and for multiple units, where applicable, when the advanced pretreatment units are spaced at equal intervals across the entire bed area.

*History Note: Authority G.S. 130A-334; 130A-335; 130A-342; 130A-343; Eff. January 1, 2024.*