**Section 905.70 Buried Sand Filters**

a) General. Buried sand filters may be used, provided that the effluent is discharged in accordance with the requirements of Section 905.110.

b) Size. Buried sand filters shall be sized as follows:

1) Residential. The sand filter surface area for residential property shall be 200 square feet per bedroom. Where a sand filter is used in conjunction with an approved aerobic treatment plant, the surface area of the sand filter may be reduced by 50 percent.

2) Non-Residential. All of the following shall be met when a buried sand filter is to be installed on non-residential property.

A) The surface area of the sand filter shall be designed for one square foot per gallon per day for waste with an influent Biochemical Oxygen Demand (BOD) not to exceed 300 parts per million (ppm).

B) A sand filter with flows of 801 gallons or more per day shall have the influent distributed into the sand filter by a dosing system designed according to subsection (l). The sand filter shall be dosed 4 times per day with equal flows not to exceed the design capacity of the filter.

c) A single individual sand filter shall be used to treat flows from a wastewater source. Splitting flows prior to treatment or the use of multiple sand filters shall be prohibited unless subsurface disposal of the effluent is used. Where allowed, splitting of flows shall be done by pumps.

d) Minimum Size. The minimum size buried sand filter shall be designed to treat at least 100 gallons of waste per day.

e) Sand Filter Media. The depth of filter media shall be a minimum of 24 inches. The sand shall have an effective size of 0.5 to 2.0 millimeters, and a uniformity coefficient of less than 3.5. It shall be clean and free of clay and silt.

f) Alternate Media. Other filter media may be used in a subsurface filter provided that they meet the criteria of subsection (e) and comply with the following requirements:

1) Are chemically and biologically inert;

2) Will support biological growth; and

3) Have a hardness equivalent to, or greater than, that of sand.

g) Filter Media Cover. The filter media shall be covered with a minimum of 10 inches of clean coarse gravel or clean stone that is free of mud, silt or clay, ranging in size from ¾ to 2½ inches in diameter. The gravel or stone shall be covered with straw, untreated building paper, or other permeable material prior to backfilling. A minimum of 12 inches of earth cover shall be provided. (See Appendix A, Illustration N.)

h) Distribution and Collection Lines. The distribution and collection lines shall conform to the requirements for distribution lines in Section 905.60(b)(2). The distribution lines shall be level, shall be located 18 inches from sidewalls, and shall be spaced on 3-foot centers. There shall be solid pipe to the filter media. The collection lines shall have a slope of 6 inches per 100 feet, and one collection line shall be provided for each 10 feet of width or fraction of 10 feet, and shall be equally spaced. The upper end of the collection line shall be capped.

i) Bedding Material. The bedding material for the collection lines shall be placed as shown in Appendix A, Illustration N, and shall be clean gravel or clean stone that is free of mud, silt or clay. The coarse gravel shall range in size from ¾ to 2½ inches in diameter, and pea gravel shall range from ⅛ to ⅜ inches in diameter. A minimum of 2 inches of coarse gravel shall be placed on the excavation before placement of the collection lines.

j) Venting. A minimum of one vent shall be placed on the downstream end of the distribution lines as shown in Appendix A, Illustration N. These vents shall be placed as close as possible to the corners on the downstream distribution lines. The vents shall extend above the ground surface and be screened with ¼- inch mesh screen or equivalent.

k) Drainage. Surface drainage shall be directed away from the filter. If conditions prohibit gravity drainage of the filter effluent, a pumping chamber shall be installed. The chamber shall be constructed of a watertight, non-corrosive material and shall be provided with a removable lid, which will serve as an access for inspection, cleaning and general maintenance. An access port or extension collar shall extend at least 6 inches above the ground surface, and the access shall have a minimum dimension of 12 inches. The chamber shall have sufficient depth and the pump controls shall be set in a manner to allow for complete drainage of the filter to eliminate any ponding of effluent within the filter. (See Section 905.125, Pumps, Pumping/Dosing Chambers, and Ancillary Equipment.)

l) Distribution of Effluent. Buried sand filters designed to treat non-residential property with flows of 801 gallons or more per day shall have the effluent distributed into the sand filter by pumping. The pumps, pumping chamber and ancillary equipment shall comply with Section 905.125 and the following:

1) Dosing Volume. The dosing volume is the amount of liquid pumped or siphoned during each cycle minus the amount that drains back from the sand filter after each dose.

2) Pump Selection. The pump shall be a submersible pump designed for corrosive liquids.

3) Siphons. Siphons can be designed where elevation exists between the sand filter and the siphon chamber. However, the siphon shall be designed to deliver the same flow rate at the same head at the distribution system as a pump system. The distribution system consisting of manifold and laterals shall be designed so that it will drain after each siphon. This shall be accomplished by placing the manifold above the laterals.

(Source: Amended at 37 Ill. Reg. 14994, effective August 28, 2013)