



## **PROJECT GUIDELINE: RESIDENTIAL ON-SITE WASTEWATER TREATMENT**

**Objective: To ensure that residential on-site wastewater treatment systems protect soil, groundwater, and surface water resources.**

### **Background:**

Before the Agency can issue a permit, all new and replacement on-site wastewater treatment systems associated with the project must be reviewed under the standards established in New York State Department of Health Appendix 75-A “Wastewater Treatment Standards – Residential Onsite Systems” (“Appendix 75-A”) and Appendix Q-4 of Agency regulations.

This document describes many of the standards and guidelines applied by the Agency when evaluating proposed on-site wastewater treatment systems, and replaces the Agency’s “Guidelines for On-Site Sewage Disposal Systems,” dated March 25, 1991.

### **Conventional Systems:**

The following Agency standards and guidelines are used to identify a suitable location for a conventional on-site wastewater treatment system and a 100% replacement area for proposed residential development and proposed subdivisions creating vacant lots that will not be restricted against wastewater system construction.<sup>1</sup>

The size of the absorption area required for each proposed system is based upon the number of potential bedrooms proposed and the soil percolation rate, as described in Appendix 75-A. If a number of bedrooms is not proposed, the Agency will assume a four-bedroom design, and will recommend submission of plans that also account for a two- or three-bedroom dwelling.

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<sup>1</sup> For residential systems with a design flow of more than 1,000 gallons per day, the Agency applies NYS Department of Environmental Conservation standards. For non-residential systems of any size, the Agency applies NYS Department of Environmental Conservation and Department of Health standards as appropriate.

The following standards and guidelines apply to the absorption area. Required horizontal separation distances from wastewater treatment system components, including absorption areas, are listed in Appendix 75-A.

- Conventional Trench (including Gravelless systems) – See Figure 1
  - Depth to Seasonal High Groundwater Table (SHGWT) is a minimum of 48”
  - Depth to Bedrock is a minimum of 72”
  - Slope should be less than or equal to 15%
  - Percolation rate is between 1 and 60 minutes/inch
  - Trenches must be constructed wholly within the existing native soil
- Conventional Absorption Bed – See Figure 2
  - Depth to SHGWT is a minimum of 48”
  - Depth to Bedrock is a minimum of 72”
  - Slope must be less than or equal to 8%
  - Percolation rate is between 1 and 30 minutes/inch
  - Beds must be constructed wholly within the existing native soil
- Conventional Shallow Trench – See Figure 3
  - Depth to SHGWT is a minimum of 24”
  - Depth to Bedrock is a minimum of 48”
  - Slope should be less than or equal 8%
  - Percolation rate is between 1 and 60 minutes/inch
  - Trenches must be constructed with the bottom of the trench wholly within the existing native soil

#### Deep-hole test pits<sup>2</sup>

- At least one deep-hole test pit is required in the location of each proposed system
- Deep-hole test pit depth should be a minimum of 7 feet
- Deep-hole test pits must be described by a qualified soil evaluator
- On-site wastewater treatment systems are generally not allowed where the natural soil materials have been disturbed by excavation, removed, or covered by more than 12 inches of fill
- In areas that have percolation rates faster than 10 minutes per inch and overlie primary and principal aquifers as defined by DEC, the absorption system design may need to be modified to provide enhanced treatment

#### Soil percolation rates

- Percolation rates must be between 1 and 60 minutes/inch

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<sup>2</sup> Reference “Adirondack Park Agency, Soils Handbook, August 1990” for additional details.

- Unless soils are amended to slow the percolation rate:
  - where the percolation rate is 0 to 1 minute per inch, no absorption field is allowed
  - where the percolation rate is 1 to 3 minutes per inch, the separation distance from waterbodies must be at least 200 feet
- Amended soils must comply with criteria established in the New York State Department of Health “Residential On-Site Wastewater Treatment System Design Handbook”.

#### Absorption field slopes

- Slopes should be no more than 15%
- Absorption fields should be located at least 25 feet from slopes of 25% or more
- Slopes are calculated as the ratio of the maximum vertical rise or fall of the land in 50 feet of horizontal distance, measured across the absorption field and expressed as a percentage

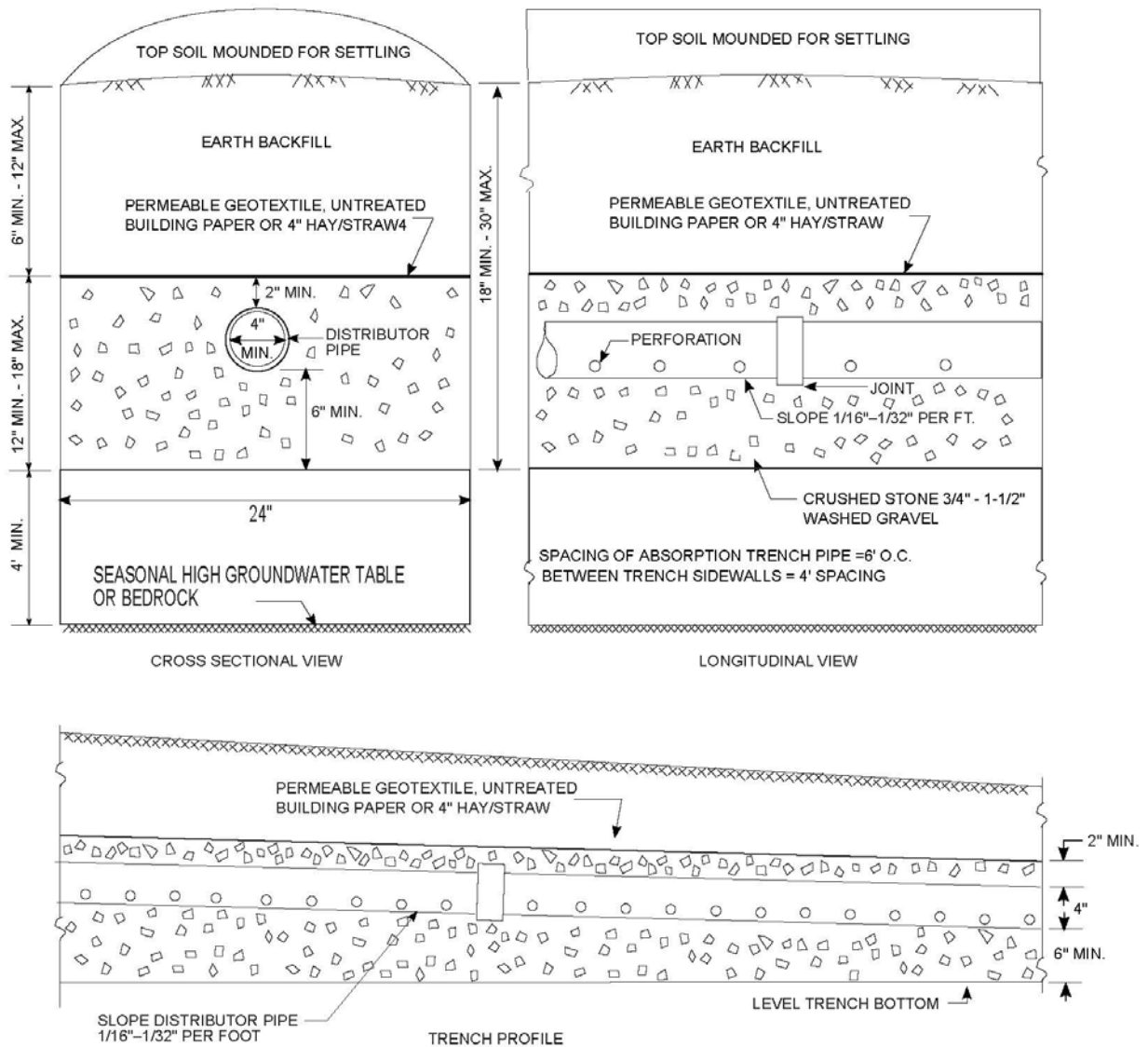
#### Piping distances

- Piping distances should be no more than 250 feet
- Piping is generally not allowed across wetlands, waterbodies, rights-of-way, property lines or soils with any limiting feature

#### **Alternative Systems:**

When the minimum site requirements for individual residential parcels cannot be met on a pre-existing lot, vacant lot subject to a prior Agency permit, or for the replacement of a lawfully existing on-site wastewater treatment system, the Agency may consider alternative systems on a case-by-case basis using New York State Department of Health standards. A separate approval from NYSDOH for any alternative system will also be required.

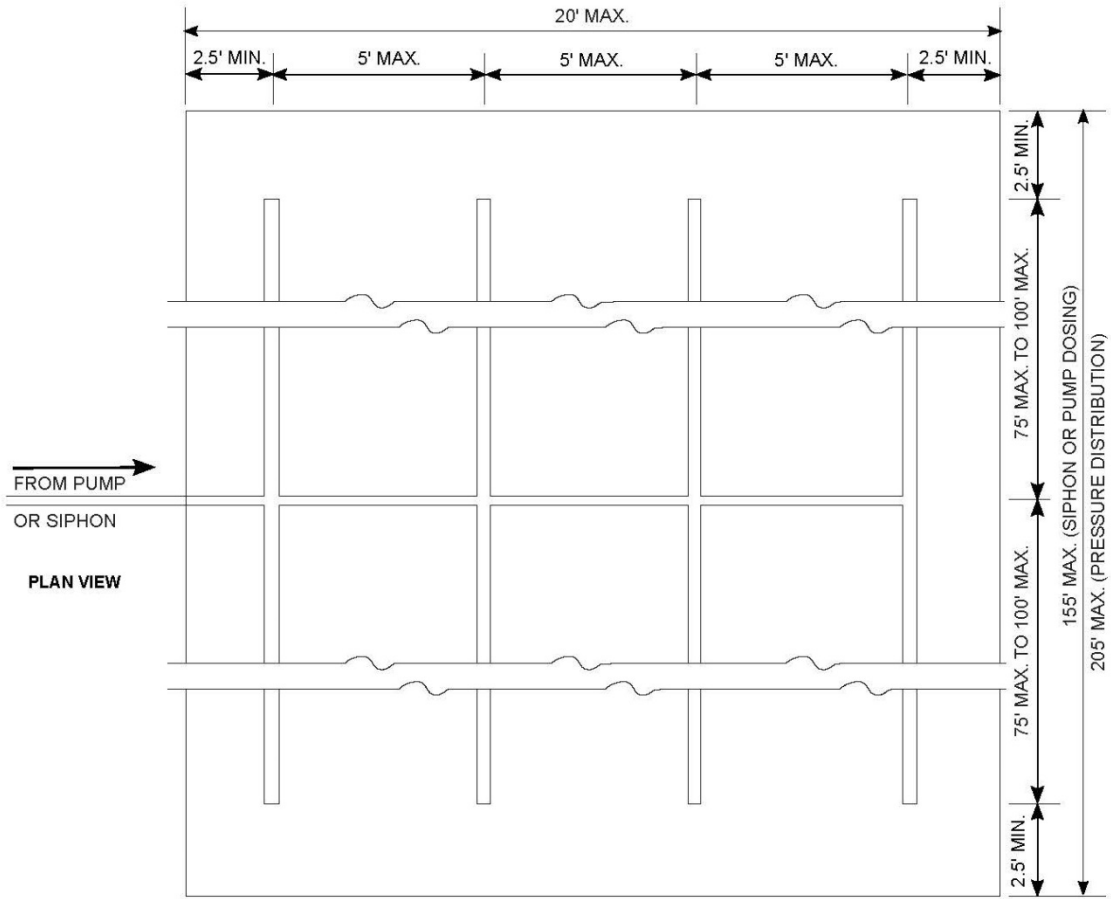
# RESIDENTIAL ON-SITE WASTEWATER TREATMENT



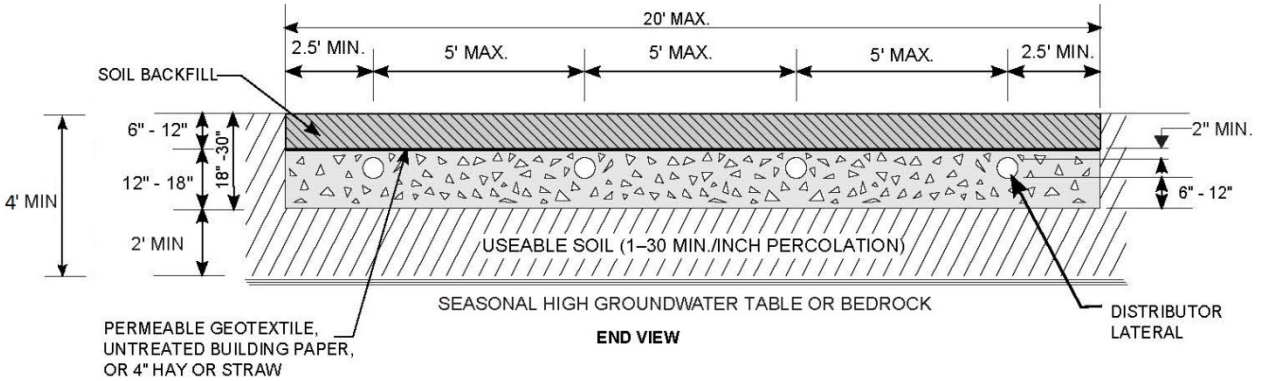
- NOTE:**
1. Do not install trenches in wet soil.
  2. Install trenches parallel to contours.
  3. Install trenches as shallow as possible which meet above noted minimum depths.
  4. Rake sides and bottom of trenches prior to placing gravel.
  5. Ends of all distributor pipes must be capped.
  6. Absorption trench spacing 6' o.c. (4 feet between trench sidewalls).
  7. Maximum depth of trenches is 30 inches.

**FIGURE 1: CONVENTIONAL ABSORPTION TRENCH DETAIL**

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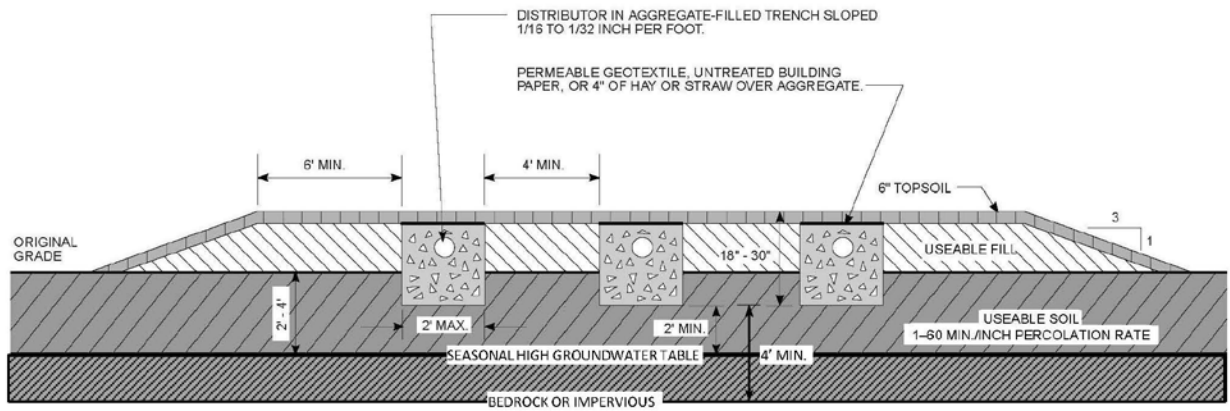


- NOTES:**
1. A bed system may be built in soils with a percolation rate between one (1) and 30 minutes per inch.
  2. A bed shall not be built where the soil evaluation indicates silty loam, clay loam, or clay.
  3. Slope of site shall not exceed eight (8) percent.
  4. Bed systems are more practical on sites that are long and narrow with a minimal slope.
  5. Pressure distribution is required for the installation of an absorption bed system.
  6. The local authority having jurisdiction may allow the use of siphon dosing on specific sites.
  7. Distributor laterals and bed bottom shall be level.
  8. The required bed bottom area shall be calculated from the application rates shown in table 7A or 7B.



**FIGURE 2: ABSORPTION BED SYSTEM**

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- NOTES:**
1. Bottom of all trenches shall not be above original useable soil and should preferably be at least 6" below original grade.
  2. Useable fill should have a percolation rate similar to but not faster than the useable soil percolation rate.
  3. Maximum depth of useable fill plus six (6) inches of topsoil shall not exceed 30 inches.
  4. Trench bottoms shall be level. Trenches shall be parallel to ground contours.
  5. On sloped sites, a diversion ditch shall be constructed uphill from the fill to prevent surface runoff from entering the fill.
  6. Extend fill at least six (6) feet beyond ends of trenches before starting 1 on 3 edges of fill.
  7. Heavy equipment shall be kept out of the absorption area.
  8. Fill material is carefully placed within the absorption area.

FIGURE 3: SHALLOW ABSORPTION TRENCH SYSTEM – END VIEW