

LESSON 2-1: On-Site Testing

Isolation Distances and Slope

Isolation Distances



Title 25, Section 73.13

- Site must meet all isolation distance minimums listed in the regulations
- The Eljen GSF Listing does not specify any additional isolation distance requirements

Slope

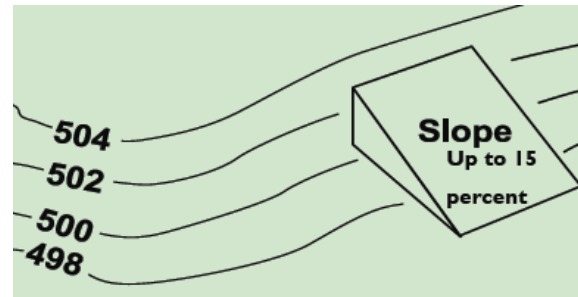


Eljen GSF® Listing II.G.1 & II.I.1

- Eljen GSF Listing allows for sites with slopes not exceeding 15 percent.



All absorption areas must be located at least 100 feet from a well.



An Eljen GSF System may be installed on sites with slopes up to 15 percent.

Soil Testing



Title 25, Section 73.14 and Eljen GSF® Listing II.E, II.G & II.I

- The absorption areas must meet the minimum required limiting zone depths established by either Chapter 73 or the Eljen listing.



Eljen GSF® Listing II.G & II.I

- When designing an elevated Eljen absorption area based on percolation testing, the minimum limiting zone requirement is 20 inches of soil profile between the bottom of the proposed absorption area and the limiting zone.
- When designing a shallow limiting zone elevated Eljen absorption area based on soil morphological analysis, the minimum limiting zone are as follows:
 - 10 inches to a seasonal high water table
 - 16 inches to rock

LESSON 2-1: On-Site Testing

Percolation Testing and Absorption Area Size Reduction

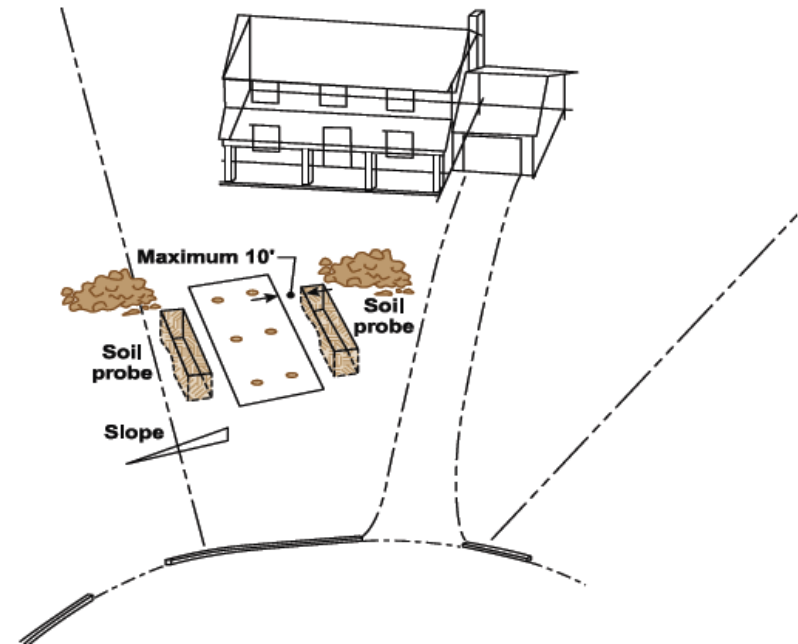
Percolation Testing



Title 25, Section 73.15 & 73.16

Used to size all absorption areas except for the shallow limiting zone absorption area.

Table A in Section 73.16 of the regulations uses percolation rates to determine the minimum square feet of required absorption area.



The graphic shows a six-hole percolation test for a single-family home.

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LESSON 2-1: On-Site Testing

Absorption Area Size Reduction



Eljen GSF® Listing II.D, II.E & II.G

Areas that qualify for size reductions (40%)

- Sites with a minimum of 20 inches of suitable soil
- Percolation rate is in the range of 3 to 60 minutes per inch.

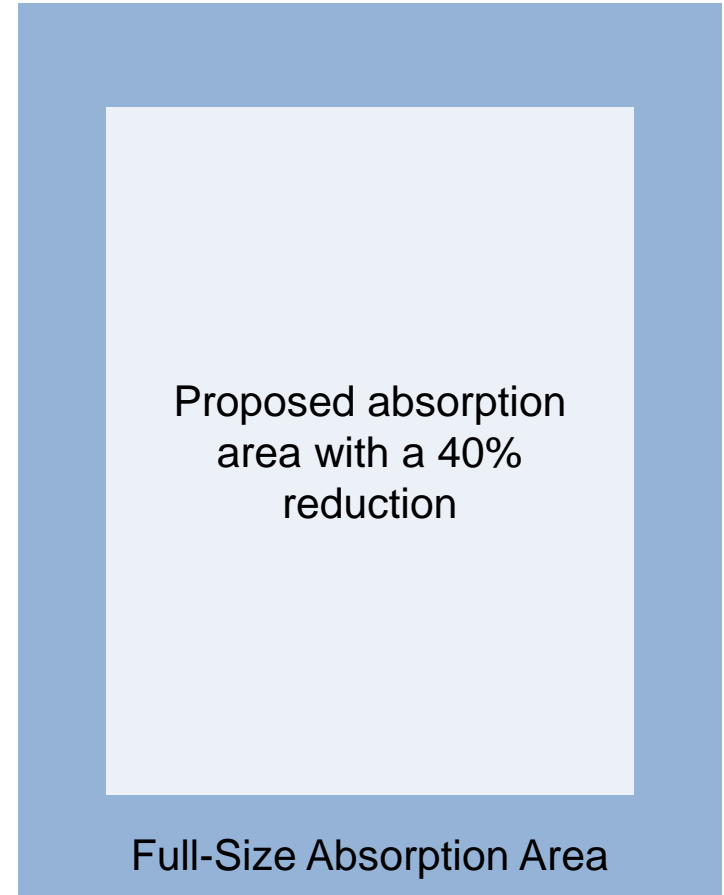
Where absorption area sizing reductions are proposed, they are not cumulative. No additional sizing reduction is allowed for an aerobic tank.

When a sizing reduction is taken it is recommended that the downslope sand toe be a minimum of 3:1 in order to maximize the available absorption area.

New Construction:

Must have sufficient suitable space available for the installation of a full sized absorption area

Still eligible for 40 percent reduction



If a 40 percent reduction is proposed for new construction, the site must have enough suitable space for a full-size absorption area.

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LESSON 2-1: On-Site Testing

Soil Morphological Analysis

Eljen GSF® Listing II.I



For limiting zones less than 20 inches from the mineral soil surface:

Use soil morphological analysis rather than a percolation test to size the absorption area

Evaluation must be conducted by a **qualified soil scientist**

- as defined in the regulations
- a soil scientist who is a professional member of the Pennsylvania Association of Professional Soil Scientists (PAPSS)
- A PAPSS member listing is available at www.papss.org

Absorption area dimensions will be determined by the soil morphological analysis and the Hydraulic Linear Loading Rate (HLLR) table in Table 1 of the listing.

When sizing the absorption area, the characteristics of the most restrictive soil horizon above the limiting zone are used with the HLLR table.

Title 25, Section 73.1

Qualified soil scientist: A person certified as a sewage enforcement officer and who has documented two years' experience in the characterization, classification, mapping, and interpretation of soils as they relate to the function of on-lot sewage disposal systems and either a Bachelor of Science Degree in soil science from an accredited college or university or certification by the American Registry of Certified Professionals in Agronomy, Crops and Soils.

LESSON 2-1: On-Site Testing

Soil Morphological Analysis

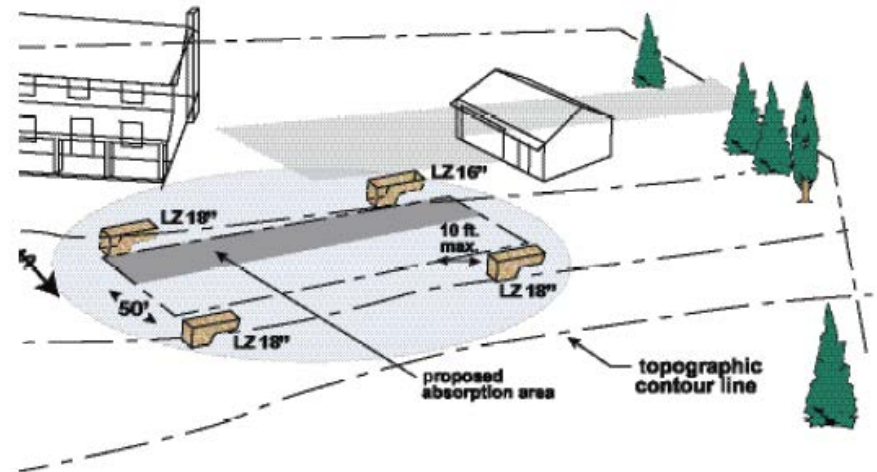
Soil Test Probes



Eljen GSF® Listing II.I.6.b

Minimum of four soil test probes on sites exhibiting a limiting zone of less than 20 inches from the mineral surface of the soil.

These four soil test probes consist of two soil profile evaluations on contour, bracketing the proposed absorption area, and two soil profile evaluations on contour, with the downgradient distance determined by the soil scientist.



On this site, a soil morphological analysis includes the evaluation of two probes on contour above the proposed shallow limiting zone elevated absorption area and two probes on contour downslope at a distance determined by the soil scientist

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Soil Morphological Analysis

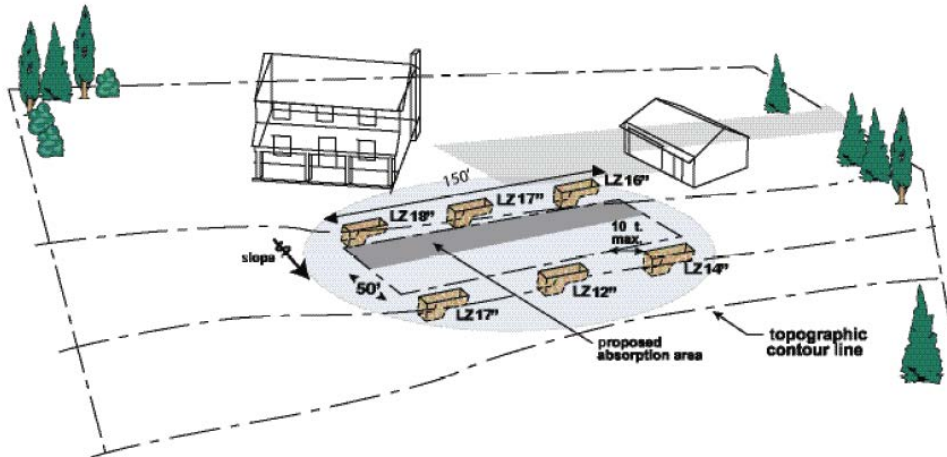
Soil Test Probes

Absorption Area Length Greater Than 100 Feet



Eljen GSF® Listing II.I

When the proposed absorption area is **more than 100 feet in length**, the **two bracketing probes and additional** soil probes are required along the top of the proposed absorption area and down gradient at a distance determined by the soil scientist to verify the soil morphology.



When the proposed shallow limiting zone absorption area is more than 100 feet long, additional soil test probes must be dug above the absorption area and down gradient at a distance determined by the soil scientist .