

- 1) According to state regulations, the County Health Department reviews a permit for a building addition to an older home. There is no public sewer connection in the area. The site has a seasonal high water table at 12 inches and is somewhat poorly drained soil. A site inspection reveals there is a septic tank on the property which flows into a tile that empties into a county ditch. There is no leach field. Choose all correct statements.
 - a) A perimeter drain is required.
 - b) Since the liquid from the septic tank is mostly water, there is no environmental concern.
 - c) Home septic waste contains contaminants, an important environmental concern.
 - d) The Health Department cannot do site inspections.
 - e) Installing a leach bed should filter out contaminants before they enter the stream.
- 2) **Soil profile 1** Answer each question separately.
 - a) Poorly drained soil often has dark top soil and gray subsoil. Is this soil poorly drained? **Yes/No**
 - b) Well drained soil has a brown subsoil. Is this soil well drained? **Yes/No**
 - c) Slope. Can you install a traditional septic system? **Yes/No**
 - d) Drainage class. Do you need a perimeter drain? **Yes/No**
 - e) Depth to slow permeability (dense glacial till). Can you install a traditional septic system? **Yes/No**
 - f) Depth to fast permeability (sand and gravel). Can you install a traditional septic system? **Yes/No**
 - g) Leach field will be located 60 feet from a pond. Can I install a traditional septic system? **Yes/No**
 - h) Based on a-g, can you install a traditional septic system? **Yes/No**
- 3) **Soil profile 2** Answer each question separately.
 - a) Slope. Can you install a traditional septic system? **Yes/No**
 - b) Drainage class. Do you need a perimeter drain? **Yes/No**
 - c) Depth to slow permeability (dense glacial till). Can you install a traditional septic system? **Yes/No**
 - d) Depth to fast permeability (sand and gravel). Can you install a traditional septic system? **Yes/No**
 - e) Leach field is located 45 feet from a water well. Can I install a traditional septic system? **Yes/No**
 - f) Based on a-e, can you install a traditional septic system? **Yes/No**
- 4) **Soil profile 3** Answer each question separately.
 - a) Poorly drained soil often has dark topsoil and gray subsoils. Is this soil poorly drained? **Yes/No**
 - b) Well drained soil has a brown subsoil. Is this soil well drained? **Yes/No**
 - c) Slope. Can you install a traditional septic system? **Yes/No**
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 - e) Depth to slow permeability (dense glacial till). Can you install a traditional septic system? **Yes/No**
 - f) Depth to fast permeability (sand and gravel). Can you install a traditional septic system? **Yes/No**
 - g) Based on a-f, can you install a traditional septic system? **Yes/No**
 - h)
- 5) My site is within the 100-year flood frequency zone. Can I install a traditional septic system? **Yes/No**

KEY

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 - h) Based on a-g, can you install a traditional septic system? **Yes**
- 3) **Soil profile 2** Answer each question separately.
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 - g) Based on a-f, can you install a traditional septic system? **Yes**
- 5) My site falls within the 100-year flood frequency zone. Can I install a traditional septic system? **No**

Site/Soils characteristics

- Flooding
- Limiting layer, slow permeability (dense glacial till)
- Limiting layer, fast permeability (sand & gravel)
- Natural soil drainage class (very poorly, somewhat poorly, moderately well and well drained)
- Slope
- Soil texture

Criteria for traditional on-site sewage disposal systems

- >50 foot from water well
- >50 foot from pond
- >40 inches to layer with fast permeability
- >40 inches to a layer with slow permeability
- No Flooding
- Slope: fifteen percent (15%) or less
- Well drained soils need no perimeter drain all other drainage classes need one

Useful terminology

Dense material: at the upper boundary has a dense contact if they have no cracks or if the spacing of cracks that roots can enter is ten (10) centimeters (cm) or more. This material is considered a restrictive feature with slow permeability.

Natural soil drainage: relates to the depth to seasonal high water table. Poorly drained soils have a high water table (closer to the surface). Well drained soils have a low water table (deeper or farther from the surface).

Perimeter drain: a subsurface tile drainage around a soil absorption system (leach field) for lowering a seasonal high water table or preventing movement of subsurface water into a soil absorption system (leach field).

Rapid (or fast) permeability: loose sand and gravel is considered a limiting layer for septic tank leach fields because the water can permeate or infiltrate rapidly into the soil and perhaps contaminate fresh water or drinking water aquifers.

Seasonal high water table: the upper limit of soil saturated with water for periods long enough for anaerobic conditions (low oxygen) to affect soil color (gray, or combination of gray and red).

Subsoil: the soil layer below the topsoil.

Topsoil: the surface layer of a soil.

Soil profile 1: Treaty soil series, silty clay loam (1% slope, dense glacial till at > 45" – mark on profile)

Soil profile 2: Miami soil series, silt loam (16% slope, moderately well drained, dense glacial till at 35")

Soil Profile 3: Ockley soil series, silt loam (2% slope, sand and gravel at 41")