

Envirothon 2007
Wood County
Soils

Site-Specific Questions Related to the Soil Pit:

1. How is the soil at this site identified on the soil map?
 - A. Em: Eel silt loam
 - B. Hv: Hoytville clay
 - C. KfB: Kibbie fine sandy loam, 2 to 6 percent slopes**
 - D. So: Sloan silty clay loam
2. What is the thickness of the 'A' horizon (topsoil) in the soil profile exposed at this site?
 - A. 6 inches
 - B. 12 inches**
 - C. 21 inches
 - D. 35 inches
3. Based on the depth to gray mottles in the soil profile exposed at this site, the depth to the seasonal high water table is:
 - A. 0 to 12 inches
 - B. 12 to 21 inches
 - C. 21 to 35 inches**
 - D. 35 to 52 inches
4. Based on the soil profile exposed at this stop, what is the internal drainage of this soil?
 - A. Well drained
 - B. Moderately well drained**
 - C. Somewhat poorly drained
 - D. Very poorly drained
5. What is the texture of the soil horizon from 12 to 19 inches below the soil surface?
 - A. Sandy
 - B. Loamy**
 - C. Silty
 - D. Clayey
6. Which of the following events best describes how the soil parent material at this site was deposited?
 - A. It flowed here during a volcanic eruption
 - B. It slid here during a landslide
 - C. The wind blew it here
 - D. A glacier deposited it here, then lake water covered and rearranged it**

7. As you walked the trail to get to this site, you may have noticed a river flowing nearby. The soil type that is mapped in the flood plain south of where you are now standing is Sloan silty clay loam. Sloan silty clay loam soils should not be used for:
- A. Pasture
 - B. Hiking trails
 - C. Home sites**
 - D. Woodland
8. The Board of Trustees of the Wood County Historical Center is considering building a working farmstead at this site so that visitors to the museum can learn how the people who settled in Wood County in the early 1800's lived off the land. What important soil features will the board of trustees need to consider determining if the soil mapped at this site is the best location to build the log cabin home? Referring to your Wood County Soil Information Packet will help you determine the correct answer.
- A. Very limited due to depth to saturated zone**
 - B. Very limited due to ponding, depth to saturated zone, and shrink-swell
 - C. Very limited due to flooding and depth to saturated zone
 - D. Very limited due to ponding and depth to saturated zone
9. The soil map shows that two ponds have been built due south of the main historical center building. Refer to your soil information packet to identify the soil type that is mapped at the location of the ponds, and to determine what soil-related limitation needed to be addressed during their design and construction to ensure that they function properly?
- A. Seepage**
 - B. Depth to saturated zone
 - C. Piping
 - D. Cutbanks cave
10. Wetlands are identified as areas that:
- A. Include designated wilderness areas and wildlife preserves
 - B. Include hydric soils that require subsurface tile drainage before it can be farmed
 - C. Include hydric soils, wetland hydrology, and hydrophytic vegetation**
 - D. Include soils that flood, hydrophytic vegetation, and are inhabited by wetland wildlife species
11. Very deep, well drained soils on 0 to 2 percent slopes on flood plains are good locations for home sites.
- A. True
 - B. False**
12. The recommended trees to plant at this site that would yield the highest value of commercial lumber under these soil conditions are:
- A. Black cherry
 - B. American sycamore**
 - C. Eastern white pine
 - D. Black walnut

13. What potential do Nappanee soils have as suitable habitat for openland wildlife?
- A. **Good**
 - B. Fair
 - C. Poor
 - D. Very poor
14. The northern white-cedar is a popular tree species selected for planting in windbreaks in Wood County. A homeowner wants to include a row of northern white-cedars in a windbreak they are going to plant around their home. If their home is built on Nappanee soils, how tall can the homeowner expect those cedars to grow in 20 years?
- A. 8 to 15 feet
 - B. **16 to 25 feet**
 - C. 26 to 35 feet
 - D. >35 feet
15. A sandy soil would have a permeability rate that is:
- A. Very slow
 - B. Slow
 - C. Moderate
 - D. **Rapid**
16. Which of the following can cause basement walls to crack?
- A. High shrink-swell potential due to high clay content
 - B. Frost action
 - C. Shallow bedrock
 - D. **Both A. and B.**
17. Which of the following are limitations for home sites?
- A. Well drained soils
 - B. **Bedrock at 24 inches**
 - C. 2 to 6 percent slopes
 - D. Both B. and C.
18. Although test holes are recommended before making a final decision, the soil survey can be a good tool to help you make wise land use decisions. Table 26 in the soil information packet lists some soil features that affect water management. If you wanted to build a pond, which soil would potentially provide the best site?
- A. **Hoytville**
 - B. Kibbie
 - C. Shoals
 - D. Sloan
19. Shrink-swell potential can affect roads, building foundations and other structures, as well as plant roots. Using Table 29 in the soil information packet, which soil has a moderate shrink-swell potential?
- A. Eel
 - B. Kibbie
 - C. **Nappanee**
 - D. Shoals

20. Which of these soil textures has the highest available water capacity for plant roots?
- A. **Silt loam**
 - B. Sandy loam
 - C. Loamy sand
 - D. Sand
21. If you were asked to form a small sample of soil into a ribbon between your thumb and index finger, what soil property would you be estimating?
- A. Density
 - B. Consistence
 - C. **Texture**
 - D. Structure
22. Poor soil structure negatively influences which of these soil characteristics?
- A. Bearing strength
 - B. pH
 - C. Soil stability
 - D. **Water movement**
23. Mottles in the soil are:
- A. Small voids where water accumulates when soil gets saturated
 - B. **Irregularly shaped areas that differ in color from the dominant soil matrix color**
 - C. Blotchy soil structure
 - D. Bacteria that decompose dead plant residues and transform it into organic matter
24. Dominantly gray soil matrix colors immediately beneath the A horizon in a soil profile indicate:
- A. The soil formed in limestone parent material
 - B. **Poorly drained wetness conditions**
 - C. All of the iron in that soil horizon has been oxidized
 - D. An absence of mineral materials
25. What is the greatest danger that will result from installing septic system leach lines in soils that are shallow to bedrock?
- A. Flooding
 - B. Untreated effluent will drain out of the overflow outlet, creating a public health hazard and polluting nearby streams and lakes
 - C. **Untreated effluent will pollute groundwater and/or drinking water wells**
 - D. The bedrock will dissolve and a sinkhole will form
26. What is the greatest danger that will result from installing septic system leach lines in soils that have a seasonal high water table that is shallower than the depth of the leach lines?
- A. Flooding
 - B. **Untreated effluent will drain out of the overflow outlet, creating a public health hazard and polluting nearby streams and lakes**
 - C. Untreated effluent will pollute groundwater and/or drinking water wells
 - D. When flushed, toilets will back up and overflow

27. What kind of landform would you be standing on if the soil profile you were looking at consisted of thin, stratified layers of alternating lighter and darker soil colors and varying soil textures, which are parallel to the soil surface?
- A. **Flood plain**
 - B. Marsh
 - C. Till plain
 - D. Upland summit
28. Farm lanes, gravel roads and parking lots, walking trails, and other areas subject to high traffic volumes tend to have highly compacted soils beneath them. How are these areas affected during periods of rainfall?
- A. Increased potential to heave and crack due to higher shrink-swell potentials
 - B. Rapid drainage
 - C. Shallow water table
 - D. **Increased potential to erode due to reduced infiltration and greater runoff**
29. The United States Dept. of Agriculture (USDA) Conservation Reserve Program (CRP) is intended to improve the quality of the surface waters of our nation by encouraging farmers to remove their highly erodible soils from crop production. This is accomplished by paying farmers to develop and follow a plan to convert their highly erodible soils to a less intensive use for a contractual period of 10 to 15 years. Our nations' search for renewable energy sources includes research on understanding biomass, which is all plant and plant-derived material, as a chemical and energy source. As markets for biomass as a renewable energy source are expected to emerge over the next 5 to 10 years, the demand for biomass, including agricultural plant residues, is expected to increase. This could result in potentially higher profits for farmers' products. As their CRP contracts with the USDA expire, farmers may be induced to return their highly erodible soils to crop production in an effort to maximize their profits in the biomass industry, rather than re-enroll their land in the CRP. This would have an overall negative impact on water quality due to greater levels of soil erosion.
- A. **True**
 - B. False