

Training Scorecard

Soils & Land Use Station

Section I: Landscape and Soil Profile Features (76 points total)

Part A – Landscape Features (8 points total)

Consider the immediate area around the soil pit, mark the box to select your answer.

1. Position (2 points)

- Upland
- Upland depression
- Drainageway
- Terrace
- Floodplain

2. Parent Material (2 points)

- Residuum
- Colluvium
- Recent alluvium
- Old alluvium
- Coastal Plain sediments

3. Slope Characteristics (2 points)

Slope Class	Piedmont-Appalachian	Coastal Plain	Letter Designation
<input type="checkbox"/> Nearly level	0-3%	0-2%	A
<input type="checkbox"/> Gently sloping	3-8%	2-5%	B
<input type="checkbox"/> Strongly sloping	8-15%	5-10%	C
<input type="checkbox"/> Moderately steep	15-25%	10-15%	D
<input type="checkbox"/> Steep	25-50%	15-25%	E
<input type="checkbox"/> Very steep	50+%	25+%	F

4. Surface Stoniness or Rockiness (2 points)

- None
- Very stony (less than 30 ft. apart)
- Rock outcrop (2 exposures within 100 ft)

Part B – Soil Profile Features (36 points total)

Examine the soil profile in the pit and the soil samples provided, mark the box to select your answer, or write your answer in the space provided.

1. Check the major soil horizons visible in this profile (check all that are present): (4 points)

- O A E B C R

2. What is the current topsoil thickness, O and/or A horizon(s)? (2 points)

_____ inches

3. What is the topsoil structure? (1 points)

- Granular
 Blocky
 Single grain, massive, or platy

4. Soil Color (2 points each column)

a. Topsoil – A Horizon

- Brown or dark brown
 Reddish brown
 Gray or grayish brown
 Black

b. Subsoil and Substratum – B and/or C Horizon

- Yellowish brown or red, no redox depletions (gray colors due to wetness)
 Yellowish brown or red, some redox depletions (gray colors due to wetness)
 Dominantly gray immediately below the topsoil, with redox concentrations (brownish red accumulations of iron)

5. Soil Drainage (3 points each column)

a. Depth to Redox Depletions

- Directly under a thick, black colored surface
 0 to less than 10 inches
 10 to less than 20 inches
 20 to less than 40 inches
 40 to less than 72 inches
 no redox depletions to 72 inches

b. Natural Soil Drainage Class

- Excessively well drained
 Well drained
 Moderately well drained
 Somewhat poorly drained
 Poorly drained
 Very poorly drained

6. Soil Depth (2 points each column)

a. Depth to Bedrock

- Very shallow (less than 10 inches)
 Shallow (10 to less than 20 inches)
 Moderately deep (20 to less than 40 inches)
 Deep (40 to less than 60 inches)
 Very deep (60 inches or greater)

b. Effective Rooting Depth

- Very shallow (less than 10 inches)
 Shallow (10 to less than 20 inches)
 Moderately deep (20 to less than 40 inches)
 Deep (40 to less than 60 inches)
 Very deep (60 inches or greater)

7. Rock Fragments (1 point)

What is the percentage of rock fragments in and on the surface layer?

- Less than 15% gravel
- 15-35% gravel
- Greater than 35% gravel OR very stony or rock outcrop

8. Soil Texture (3 points each column)

a. Topsoil – A horizon

- Coarse – sand, loamy sand
- Moderately coarse – sandy loam
- Medium – loam, silt loam, sandy clay loam
- Moderately fine – silty clay loam, clay loam
- Fine – clay, silty clay, sandy clay

b. Subsoil – B horizon

- Coarse – sand, loamy sand
- Moderately coarse – sandy loam
- Medium – loam, silt loam, sandy clay loam
- Moderately fine – silty clay loam, clay loam
- Fine – clay, silty clay, sandy clay

c. Percent clay in subsoil (used for tie breaker) _____ %

9. Soil Permeability (2 points each column)

a. Topsoil – A Horizon

- Rapid, > 6.0 in/hr
(coarse texture)
- Moderately rapid, 2.0-6.0 in/hr
(moderately coarse texture)
- Moderate, 0.6-2.0 in/hr
(medium texture)
- Moderately slow, 0.2-0.6 in/hr
(moderately fine texture)
- Slow, <0.2 in/hr
(fine texture)

b. Subsoil – B Horizon

- Rapid, > 6.0 in/hr
(coarse texture)
- Moderately rapid, 2.0-6.0 in/hr
(moderately coarse texture)
- Moderate, 0.6-2.0 in/hr
(medium texture)
- Moderately slow, 0.2-0.6 in/hr
(moderately fine texture)
- Slow, <0.2 in/hr
(fine texture or fragipan is present)

10. Soil Reaction (2 points)

Using the pH test kit, what is the pH of the soil in the sample box? _____

11. Topsoil Color (1 point)

Using the Munsell Soil Color Book, what is the color of the soil in the sample box?

Hue **Value / Chroma**

12. Compaction (1 point)

Use the wire flag to determine if the topsoil layer is compacted in the designated area

- Little to no compaction (good). Wire flag enters soil easily to a depth of 6 inches or more with little or no resistance
- Some compaction (fair). Wire flag penetrates 4-6 inches into the soil with a lot of wiggling and moderate force
- Compacted (poor). Wire flag penetrates 2-4 inches into the soil with force

Part C – Soil and Site Interpretations (32 points total)

Use your determinations from Landscape and Soil Profile Features (Parts A and B) to answer questions about soil and site interpretations. Mark the box to select your answer.

Agricultural Suitability

1. Past Soil Erosion (2 points)

Past Soil Erosion = Original topsoil thickness (from information sign) minus current topsoil thickness

- Slight (less than 3 inches of the original soil lost)
- Moderate (≥ 3 -8 inches of the original soil lost)
- Severe (greater than 8 inches of the original soil lost)

2. Potential future erosion if cultivated or disturbed (2 points)

- Slight (nearly level)
- Moderate (gently sloping)
- Severe (strongly sloping – very steep)

3. Major limiting factors (check all that apply): (2 points)

- None
- Flooding or ponding (Occasional or Frequent)
- Slope (Gently sloping or greater)
- Past erosion (Severe)
- Effective rooting depth (less than 40 inches deep)
- Drainage (less than 40 inches to redox depletions, gray colors due to wetness)
- Coarse textures (Topsoil and Subsoil)
- Very stony or Rock outcrop

4. Land Capability Class (3 points)

- I No limiting factors and nearly level
- II Gently sloping, or
Moderately well drained, or
Moderately deep effective rooting depth
- III Strongly sloping, or
Somewhat poorly drained, or
Poorly drained, or
Shallow effective rooting depth, or
Coarse textures
- IV Moderately steep, or
Very poorly drained, or
Occasionally flooded
- V Nearly level and very stony surface or rock outcrop, or
frequently flooded
- VI Steep, or
Gently sloping through steep and very stony surface or rock outcrop
- VII Very steep, or
Very shallow effective rooting depth
- VIII Swamp, tidal marsh, coastal beach, areas with >90% rock outcrop, or urban land

5. Best management practice(s) needed at this site (check all that apply): (4 points)

Use drainage class, slope, and Land Capability Class as criteria

- Drainage Moderately well, Somewhat poorly, Poorly, or Very poorly drained AND Land Capability Class less than or equivalent to IV
- Irrigation Excessively well drained or Effective rooting depth less than 20 inches AND Land Capability Class less than or equivalent to IV
- Contour farming Gently sloping AND Land Capability Class equivalent to II, III, or IV
- Contour strip-cropping Strongly sloping or Moderately steep AND Land Capability Class less than or equivalent to IV
- Grassed waterway Drainageway which conveys concentrated runoff AND Land Capability Class less than or equivalent to IV
- No-till farming Land Capability Class less than or equivalent to IV
- Cover crops Land Capability Class less than or equivalent to IV
- Permanent vegetation Land Capability Class V, VI, VII, or VIII

6. Is this a Hydric soil, i.e., poorly or very poorly drained? (2 points)

- Yes
- No

7. Is this Prime Farmland, i.e., Land Capability Class I or II? (2 points)

- Yes
- No

Soil Health

8. Using the Munsell Soil Color book notation for the topsoil color, it indicates this soil's health is: (1 point)

- Good – Soil is dark brown or black in color, organic matter is visible in the topsoil layer; Value ≤ 3 AND Chroma ≤ 3
- Fair – Soil is somewhat dark in color, little organic matter is visible in the topsoil layer; Any color that doesn't meet criteria for Good or Poor
- Poor – Soil is bright to dull colored, no organic matter is visible in the topsoil layer; Value > 4 AND Chroma > 4

9. Looking at the compaction in the topsoil, it indicates this soil's health is: (1 point)

- Good – Little to no compaction, root growth unrestricted
- Fair – Some compaction, root growth somewhat restricted
- Poor – Compacted, root growth restricted, roots may be growing laterally

10. Looking at the structure/aggregation of the topsoil layer, it indicates this soil's health is: (1 point)

- Good – Soil is granular, soft and crumbly, held together with many fine roots. Looks like cottage cheese
- Fair – Soil is blocky and firmer with some fine roots
- Poor – Soil is single grain, massive, or platy and hard to break apart. It has few or no fine roots.

11. Determine any nutrient management needs based on the soil test results on the information sign.

Crop to be grown (from information sign): _____

Soil Test Results (from information sign):

pH _____

Magnesium _____ Phosphorus _____ Potassium _____

Mark all that are needed: (5 points)

- Lime (based on topsoil pH from information sign)
- Nitrogen
- Magnesium
- Phosphorus (phosphate)
- Potassium (potash)

Wildlife Suitability


12. Which wildlife habitat is this soil best suited for? (1 point)

- Wetland wildlife
- Upland wildlife

Urban Suitability


13. Suitability for Septic Tank Absorption Fields: (2 points)

Check the appropriate suitability based on the most limiting soil property

More Limiting 	Soil Properties					Suitability: (check one)
	Slope	Flooding	Depth to Bedrock	Depth to Redox Features	Subsoil Permeability	
	Nearly level, gently sloping	None	> 72 inches	> 72 inches	Moderately rapid, moderate	<input type="checkbox"/> Slight
	Strongly sloping	Rare	40-72 inches	40-72 inches	Moderately slow	<input type="checkbox"/> Moderate
Moderately steep to very steep	Frequent, Occasional	< 40 inches	< 40 inches	Slow, Rapid	<input type="checkbox"/> Severe	


14. Suitability for Lawns: (2 points)

Check the appropriate suitability based on the most limiting soil property

More Limiting 	Soil Properties					Suitability: (check one)
	Slope	Topsoil Texture	Rock Fragments in/on Surface	Past Erosion	Depth to Redox Depletions	
	Nearly level, gently sloping	Moderately coarse, Medium	< 15% gravel	Slight	> 24 inches	<input type="checkbox"/> Slight
	Strongly sloping	Moderately Fine, Coarse	15-35% gravel	Moderate	12-24 inches	<input type="checkbox"/> Moderate
Moderately steep to very steep	Fine	> 35% gravel, or Very stony, or Rock outcrop	Severe	< 12 inches	<input type="checkbox"/> Severe	

15. Suitability for Dwellings with Basements: (2 points)

Check the appropriate suitability based on the most limiting soil property

More Limiting 	Soil Properties				Suitability: (check one)
	Slope	Flooding	Depth to Redox Depletions	Depth to Bedrock	
	Nearly level, gently sloping	None	> 72 inches	> 72 inches	<input type="checkbox"/> Slight
	Strongly sloping	---	40-72 inches	40-72 inches	<input type="checkbox"/> Moderate
Moderately steep to very steep	Rare, Frequent, Occasional	< 40 inches	< 40 inches	<input type="checkbox"/> Severe	

Section II: Soil Survey Use (24 points total)

Using Web Soil Survey (WSS)

Use Web Soil Survey to answer questions about specific soil types on a property. Questions will be about specific soil properties and suitability of the soil for various land uses.

Link to Web Soil Survey:

https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm?TARGET_APP=Web_Soil_Survey_application_hujyifhbzlyd04iqbovjbnmj