

Summary Statement:

This metadata summary applies exclusively to the data as it appears in this Loudoun County intranet/internet mapping application. To see the fully FGDC compliant version of this metadata [click here](#).

Abstract:

Small scale digital data consists of mapping units of the various soil types found in Loudoun County, Virginia. A mapping unit typically consists of one or more major soils with minor soils, and is named for the major soils. The data were collected by digitizing manuscript maps derived from USDA soil maps and supplemented by both fieldwork and geological data.

Purpose:

Digital data are used to identify the mapping unit potential for a variety of uses in large areas, such as agriculture drainfield suitability, construction concerns, or development possibility. The information in this guide is NOT intended for use in determining specific use or suitability of soils for a particular site, due to mapping scale of 1:12000.

Supplemental Information:

Fieldwork for the soil survey was first conducted between 1947 and 1952. Soils were originally shown at the scale of 1:15840 and then redrafted by the County soil scientist to 1:12000; the data were redrafted a final time to fit Loudoun County's base map standard of 1:2400. Although the current data rely heavily on the original soil survey, there have been extensive field checks and alterations to the soil map based on current soil concepts and land use.

Data are stored in the corporate ArcSDE Geodatabase as a polygon feature class. The coordinate system is Virginia State Plane (North), Zone 4501, datum NAD83 HARN.

Maintenance and Update Frequency:

The data are updated as field site inspections or interpretation changes occur.

Completeness Report:

Features may have been eliminated or generalized due to scale and intended use. To assist Loudoun County, Virginia in the maintenance of the data, please provide any information concerning discovered errors, omissions, or other discrepancies found in the data.

Data Owner:

Department of Building and Development

Soil Codes:**Soil:**

Soil mapping unit code -see the Interpretive Guide to the Use of Soils Maps; Loudoun County, VA, which is located after the SLOPE code list

Slope:

Steep Slopes are defined as any Slope Code = D or E (greater than 15%)

Slope classes in the Blue Ridge (Western Loudoun County) are:

A:	0 -	2%	NEARLY LEVEL
B:	2 -	7%	GENTLY SLOPING
C:	7 -	15%	SLOPING
D:	15 -	25%	MODERATELY STEEP
E:	25% +		STEEP

Slope classes in the Piedmont (Eastern Loudoun County) are:

A:	0 -	3%	NEARLY LEVEL
B:	3 -	8%	GENTLY SLOPING
C:	8 -	15%	SLOPING
D:	15 -	25%	MODERATELY STEEP

E: 25%+ STEEP

HYDRIC SOILS:

Hydric Soils are those that are wet at or near the ground surface for significant periods of the growing season. Hydric soils are one of the three parameters used to define wetlands. The other two parameters include Hydrology (actual perched or apparent water tables) and vegetation (plants identified to survive only or best in wet areas). This list of Hydric Soils should be used only as a guide since soils maps are not intended for site-specific purposes.

Mapping units that are dominantly Hydric Soils

- 4A Hatboro loam, 0 to 3 % slopes
- 6A Bowmansville silt loam, 0 to 3 % slopes
- 66A Waxpool silt loam, 0 to 3 % slopes
- 69A Elbert silty clay loam, 0 to 3 % slopes
- 79A Albano silt loam, 0 to 3 % slopes
- 99A Kinkora-Delanco complex, 0 to 3 % slopes

Mapping units that contain significant inclusions of Hydric Soils

- 5A Rowland silt loam, 0 to 3 % slopes
- 10B Mongle loam, 0 to 7 % slopes
- 12B Rohrersville cobbly loam, 1 to 7 % slopes
- 63A Kelly silt loam, 0 to 3 % slopes
- 78A Dulles silt loam, 0 to 3 % slopes
- 82B Scattersville silt loam, 1 to 7 % slopes
- 98B Clapham silt loam, 1 to 8 % slopes

Data Owner:

Department of Building and Development

INTERPRETIVE GUIDE TO THE USE OF SOILS MAPS OF LOUDOUN COUNTY, VIRGINIA

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Special thanks to the Office of Mapping and Geographic Information for assistance in updating this document and the soil maps

Updated 1998

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SOIL SERIES MAPPING UNIT INDEX

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Ashburn Series	74B
Birdsboro Series	72C
Bowmansville Series	6A
Braddock Series	83B,C
Brentsville Series	80B,C
Brumbaugh Series	81B,C
Cardiff Series	53C,D,E
Catlett Series	60C,D,E
Catoctin Series	40C,D,E,43B,C
Clapham Series	98B
Codorus Series	2A
Comus Series	3A
Delanco Series	99A
Dulles Series	78A
Elbert Series	69A
Eubanks Series	28B,C,29B,C,D
Fauquier Series	45B,C
Glenelg Series	55B,C,D
Goresville Series	95B
Hatboro Series	4A
Haymarket Series	67B,C,68B,C
Hibler Series	93B
Huntington Series	7A
Jackland Series	67B,C,68B,C
Kelly Series	62B,63A
Kinkora Series	99A
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Legore Series	64B,C
Lew Series	88C,D
Lindside Series	8A

Lucketts Series	84B,C
Manassas Series	14B
Middleburg Series	17B
Mongle Series	10B
Montalto Series	65B
Morven Series	13B
Myersville Series	43B,C
Nestoria Series	77C3,77D3,77E3
Oakhill Series	64D
Oatlands Series	76B,C,D
Panorama Series	71B
Penn Series	73B,C
Philomont Series	30C,D,31B
Purcellville Series	20B,C,D,E,22B,23B
Rohrersville Series	12B
Rowland Series	5A
Scattersville Series	82B
Springwood Series	90B,91B,C
Stumptown Series	50C,D,51E
Sudley Series	76B
Swampoodle Series	22B,38B
Sycoline Series	60C,62B
Tankerville Series	20B,C,D,E,30C,D,31B
Waxpool Series	66A
Weverton Series	89D,E

INTRODUCTION

Soil scientists from Virginia Tech and the USDA Soil Conservation Service conducted the Soil Survey of Loudoun County (fieldwork) between 1947 and 1952. Soils were originally shown on 1938 aerial photography at a scale of 4" = 1 mile; soils were later redrafted to a scale of 1" = 1666' (1:20000) for publication in the USDA's **Soil Survey of Loudoun County, Virginia, Series 1951, Number 8**, which was issued in September 1960. This publication is out of print, and the supply of copies for public distribution has been exhausted. A revision of the soil survey for Loudoun County has been completed. The manuscript is currently undergoing technical review and publication of the final document is anticipated during the 1999 calendar year.

As part of the County's Geographic Information System (G.I.S.) mapping project, the soil survey maps were redrafted onto the County's base maps, at a scale of 1" = 200', then digitized. This information is available at the Office of Mapping and Geographic Information or through the County soil scientist in the Cooperative Extension Office. Although these updated soil maps rely heavily on the original soil survey, changes in both locations of mapping unit lines and mapping unit descriptions/interpretations have occurred. The soils map is continuously being updated based on field site inspections and therefore the soils map merely represents a point in time. Many new soil series concepts have been developed and the emphasis has changed from primarily agricultural use to include urban uses.

This report is geared to mapping unit potential for general uses. Mapping unit potential ratings attempt to describe the broad range of conditions found in any given mapping unit for the noted uses. For more site-specific soil interpretations contact the County Soil Scientist in the Cooperative Extension Office.

GENERAL SOIL ASSOCIATION MAP

The general soil association map outlines broad areas that have distinctive patterns in landscape and general geographic appearance. Each of the soil associations has a unique set of features which effect general use and management including shape and length of slope; width of ridgetops and valleys; frequency, size, and direction of streams; type of vegetation, rate of growth; and agriculture. These differences are largely the result of broad differences in kinds of soils and in the geologic materials from which the soils formed. A mapping unit typically consists of one or more major soils with minor soils, and is named for the major soils.

This map shows, in small scale, a summary of the information contained on the individual detailed soil maps for Loudoun County. Because of its small scale and general soil descriptions, it is not suitable for planning small areas or specific sites, but it does present a general picture of soils in the County, and can show large areas generally suited to a particular kind of agriculture or other special land use. For more detailed and specific soils information, please refer to the detailed soils maps and other information available from the County Soil Scientist.

GEOLOGIC SETTING

Loudoun County is in the northeastern part of Virginia. It is bordered on the north and east by the Potomac River, and on the west by the Blue Ridge Mountains. The eastern half of the County occurs in the Piedmont geologic province and the western half in the Blue Ridge geologic province; the footslopes of the Catoctin Ridge form the boundary line between the two (see Fronstpiece). Topography varies sharply in Loudoun, with elevations above sea level ranging from 180' to 1900'. Major drainage systems include Broad Run, Goose Creek, Catoctin Creek, Bull Run, and numerous minor tributaries to the Potomac. All of these drainage systems are part of the Potomac River Basin.

The Potomac River separates the County from Washington, Frederick, and Montgomery Counties in Maryland. To the west, Loudoun County is bounded by Clarke County, Virginia, and Jefferson County, West Virginia; to the south and to the east by Fairfax County, Virginia. Loudoun County has an area of 521 square miles, or 333,498 acres.

The Blue Ridge Anticlinorium is the structural control for western Loudoun. The Precambrian and Cambrian age metamorphosed rock materials present include crystalline gneisses, metadiabase, and metabasalt, as well as a host of metasedimentary rocks ranging from quartzite to phyllites. The ridge-formers are the white to yellowish-brown Quartzite and limey green to greenish-black metabasalts. The valley between the three major ridges (Blue Ridge, Short Hill Mountain, and Bull Run Mountain-Catoctin Ridge-Furnace Mountain) is underlain by gneisses and metasediments which have been intruded with this metadiabase and subsequently sheared in the metamorphic processes. This complexity of geologic materials, combined with geologic erosion, has led to the formation of a highly complex array of soils.

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Rock materials on the extreme eastern edge of the County are mica schists of the Piedmont geologic province. These materials comprise a very small area of the County, and the soils formed are similar to those of the Harpers geologic formation in the Blue Ridge.

GENERAL SOIL MAP UNIT DESCRIPTIONS

1. Penn-Nestoria-Manassas Association

This association consists primarily of well to moderately well drained, moderately deep steeper, more dissected areas along major drainageways. The association comprises 6% of the County. The soils in the association are Penn(73), Nestoria(77), and Manassas(14) soils. Mapping units of lesser agricultural uses, including woodland management. These soils have good potential for agriculture. Soil erosion, rock, droughtiness, and seasonal water tables are major problems in this association.

2. Albano-Dulles-Ashburn Association

This association consists primarily of poorly to moderately well drained, moderately dissected, rolling landscapes with moderate relief, but more dissected areas occur along larger drainage ways. This association comprises 6% of the County and has elevations ranging from 180' to 300' above sea level. The major mapping units in this association are Brentsville(80), Nestoria(77) and Penn(73) soils. Mapping units of lesser extent include Ashburn(74) soil. The major soils have poor to very poor potential for general development on central sewer or on-site sewage disposal systems. The Nestoria soils have poor to very poor potential for general development on central sewer or on-site sewage disposal systems. The association is suitable for either agricultural or engineering purposes.

3. Brentsville-Nestoria Association

This association consists primarily of well drained, shallow to moderately deep soils on rolling landscapes with moderate relief, but more dissected areas occur along larger drainage ways. This association comprises 6% of the County and has elevations ranging from 180' to 300' above sea level. The major mapping units in this association are Brentsville(80), Nestoria(77) and Penn(73) soils. Mapping units of lesser extent include Ashburn(74) soil. The major soils have fair potential for agriculture, including pasture and hay crops or woodland management. They have fair to good potential for septic tank drainfields. Depth to rock, droughtiness, and steep slopes are major limiting factors.

4. Sycoline-Kelley-Catlett Association

This association consists primarily of moderately well drained to somewhat poorly drained, deep to moderately deep soils on rolling landscapes with low relief, with steeper, more dissected areas along large drainage ways. This association comprises 6% of the County and has elevations ranging from 180' to 300' above sea level. The major mapping units of this association are Sycoline-Kelley(62) Complex, Kelley(63) and Haymarket-Jackland(67), Dulles(78) and Albano(79) soils. The major soils have fair potential for general development on central sewer or on-site sewage disposal systems due to high shrinkage. The association is suitable for either agricultural or engineering purposes.

5. Goresville-Clapham-Birdsboro Association

This association consists primarily of well to somewhat poorly drained, very deep soils on rolling landscapes with low relief. This association comprises 1% of the County, and occurs on three distinct terrace levels with elevations ranging from 180' to 300' above sea level. The major mapping units in this association are Goresville(72) soils. Mapping units of lesser extent include Penn(73), Kinkora(99) and Lindside(8) soils. The major soils have fair to good potential for general development on central sewer or on-site sewage disposal systems and agricultural use. The Clapham soils have fair to poor potential for general development on central sewer or on-site sewage disposal systems.

6. Haymarket-Elbert-Waxpool Association

This association consists primarily of well to poorly drained, very deep soils formed on rolling landscapes with low relief. This association comprises 6% of the County, and has elevations ranging from 180' to 300' above sea level. The major mapping units in this association are Haymarket-Elbert(69) and Waxpool(66) Soils. Mapping units of lesser extent include Legore(65) and Montalto(65) soils. The major soils have good potential for most agricultural uses, including woodland management, and very poor potential for most engineering purposes.

7. Legore-Oakhill-Montalto Association

This association consists primarily of well-drained, deep to moderately deep soils formed on rolling landscapes with rolling relief. This association comprises 2% of the County, and has elevations ranging from 180' to 300' above sea level. The major mapping units in this association are Oakhill(64D), Legore-Oakhill(64D) Complex and Montalto(65) soils. Manassas(14), Jackland(67) and Albano(79) soils. The major soils have good potential for pasture and hay crops or woodland management. They have fair to good potential for septic tank drainfields. High rock fragment content and depth to rock are major limiting factors.

8. Rowland-Bowmansville-Kinkora Association

This association consists primarily of moderately well to poorly drained, very deep soils on rolling landscapes with moderate relief. This association comprises 6% of the County and has elevations ranging from 180' to 300' above sea level. The major mapping units in this association are Rowland-Bowmansville(68) and Kinkora(99) soils. Mapping units of lesser extent include Albano(79), Comus(2), Huntington(7) and Lindside(8) soils. The major soils have fair to good potential for general development on central sewer or for on-site sewage disposal systems. Seasonal high water tables, low bearing strengths, and steep slopes are major limiting factors.

9. Morven-Lucketts-Springwood Association

This association consists primarily of well-drained, very deep soils developed from rolling landscapes with gentle side slopes in undulating landscapes. This association comprises 2% of the County and has elevations ranging from 180' to 300' above sea level. The major mapping units in this association are Morven(13), Lucketts(84) and Springwood(90) soils. Mapping units of lesser extent include Albano(79), Comus(2), Huntington(7) and Lindside(8) soils. The major soils have good potential for most agricultural uses and most species of trees. They have fair to good potential for septic tank drainfields. Sinkholes, rock outcrops, slowly permeable subsoils, and potential groundwater are major limiting factors.

10. Lindside-Huntington-Allegheny Association

This association consists primarily of moderately well to well drained, very deep soils on rolling landscapes with moderate relief. This association comprises 6% of the County, and has elevations ranging from 180' to 250' above sea level. The major mapping units in this association are Lindside(8), Huntington(7) and Allegheny(6) soils. Mapping units of lesser extent include Comus(2), Hatboro(4), Delanco and Kinkora(99) soils. The major soils have fair to good potential for general development on central sewer or for on-site sewage disposal systems. Flooding, low bearing strengths and seasonal high water tables are major limiting factors.

11. Mongle-Codorus-Hatboro Association

This association consists primarily of moderately well to poorly drained, very deep soils on rolling landscapes with moderate relief. This association comprises 6% of the County and has elevations ranging from 180' to 300' above sea level. The major mapping units in this association are Mongle-Codorus(6) and Hatboro(4) soils. Mapping units of lesser extent include Albano(79), Comus(2), Huntington(7) and Lindside(8) soils. The major soils have fair to good potential for general development on central sewer or for on-site sewage disposal systems. Seasonal high water tables, low bearing strengths, and steep slopes are major limiting factors.

County, and has elevations ranging from 180' to 300' above sea level. The major mapping units include Comus(2), Middleburg(17) and Lindsides(8) soils. The major soils have good potential for on-site sewage disposal systems. Seasonal high water tables, low bearing capacity, and flooding are major problems in this association.

12. Springwood-Rock Outcrop Association

This association consists primarily of well-drained, very deep soils developed from residual slopes in undulating landscapes. This association comprises 3% of the County and includes Springwood (90-91) soils, and Rock Outcrops. Mapping units of lesser extent include Moxley. The major soils have good potential for agricultural uses and most species of trees. They have poor to very poor potential for on-site sewage disposal systems. Seasonal high water tables, low bearing capacity, and flooding are major problems in this association.

13. Braddock-Brumbaugh Association

This association consists of well to moderately well drained, very deep, gravelly soils. This association comprises 3% of the county and has elevations ranging from 240' to 500' above sea level. Mapping units of lesser extent include Rohrer'sville(12) and Middleburg(17) soils. The major soils of this association are used for orchards. They have fair to good potential for general development on central sewer and for on-site sewage disposal systems. The major problems in this association are depth to rock and land use.

14. Sudley-Leedsville-Oatlands Association

This association consists primarily of well-drained, very deep to moderately deep soils in dissected rolling landscapes. This association comprises 4% of the county and has elevations ranging from 240' to 500' above sea level. Mapping units of lesser extent include Oatlands(76) Complex, and Leedsville(70) soils. Mapping units of lesser extent include Moxley. The major soils have good potential for general development on central sewer and for on-site sewage disposal systems. The major problems in this association are depth to rock and land use.

15. Cardiff-Glenelg Association

This association consists primarily of well drained moderately deep to very deep soils. This association comprises 2% of the county and has elevations ranging from 400' to 900' above sea level. Mapping units of lesser extent include Middleburg(17) soils. The major soils have poor to good potential for on-site sewage disposal systems. The major problems in this association are depth to rock and land use.

16. Stumptown-Rock Outcrop Association

This association consists primarily of well drained, moderately deep soils formed in residual slopes and benches of the northern Blue Ridge, Short Hill, and Bull Run Mountains. This association comprises 1% of the county and has elevations ranging from 240' to 500' above sea level. Mapping units of this association are Airmont(27, 59), Weverton(89) and Stumptown(50-51) soils. Mapping units of lesser extent include Moxley. The major soils have good potential for woodland management. They have fair to very poor potential for general development on central sewer and for on-site sewage disposal systems. The major problems in this association are depth to rock, steep slopes, rough terrain, numerous stones and rock outcrops and depth to rock.

17. Airmont-Scattersville-Rohrer'sville Association

This association consists of well to moderately well drained to somewhat poorly drained soils. This association comprises 2% of the County and has elevations ranging from 240' to 500' above sea level. Mapping units of lesser extent include Weverton(89), Stumptown(50-51) soils. Mapping units of lesser extent include Moxley. The major soils have good potential for woodland management, and good potential for orchards. They have fair to good potential for on-site sewage disposal systems. The major problems in this association are high water tables, and surface stones and boulders are major problems in this association.

18. Catoctin-Myersville-Fauquier Association

This association consists primarily of well to moderately well drained, moderately deep soils. This association comprises 9% of the county and has elevations ranging from 450' to 900' above sea level. Mapping units of lesser extent include Rohrer'sville(12), Fauquier(45) soils. Mapping units of lesser extent include Moxley. The major soils have good potential for orchards, woodland management, and grassland agriculture. They have fair to good potential for on-site sewage disposal systems. The major problems in this association are depth to rock, steep slopes, and slowly permeable soils.

19. Purcellville-Tankerville-Middleburg Association

This association consists primarily of well to moderately well drained, deep to very deep soils on broad upland ridges in undulating landscapes with low relief. This association comprises 1% of the county and has elevations ranging from 240' to 500' above sea level. Mapping units of this association are Purcellville(23), Middleburg(17) and Purcellville-Tankerville(20) Complex, and Eubanks(28) soils. The major soils are the best agricultural soils in the county and have good potential for on-site sewage disposal systems. Depth to rock and land use are major problems in this association.

20. Swampoodle-Purcellville Association

This association consists of moderately well to poorly drained, deep or very deep soils; landforms with low relief. This association comprises 5% of the County and has elevations from 450' to 550' above sea level. Major soil types include Middleburg(17) soils. Mapping units of lesser extent are Middleburg(17) soils. Management. They have good to very poor potential for general development on central sand and shrink-swell clay subsoils.

21. Tankerville-Philomont Association

This association consists primarily of well-drained, moderately deep to very deep soils; This association comprises 3% of the County and has elevations from 450' to 550' above sea level. Major soil types include Eubanks(28), and Purcellville-Tankerville(29) soils. Mapping units of minor extent include Eubanks(28), and Purcellville-Tankerville(29) soils. They have good potential for grassland agriculture. They have good potential for general development. Shallow soils and depth to rock are major problems in this association.

22. Eubanks Association

This association consists of well-drained, deep to very deep soils formed in residuum on undulating and rolling landscapes with moderate relief. This association comprises 6% of the County. Major soil types include Eubanks(28-29), Philomont Tankerville(30) and Middleburg(17) soils. Major soil types include Eubanks(28-29), Philomont Tankerville(30) and Middleburg(17) soils. The major soils of this association have good potential for agriculture, woodland and surface stones in some areas.

23. Water

Any body of water such as streams, rivers, lakes and ponds.

24. Miscellaneous Areas

These include quarries, man made areas, etc.

TYPES OF INFORMATION AVAILABLE

The following mapped information may be obtained by contacting Loudoun County's Department of Mapping and Geographic Information, Loudoun County Government Center, 1 Harrison Street, SE, 2nd Floor, Leesburg, Virginia or calling (703) 771-5778.

MAPS

1. Soil maps at a scale of 1" - 200' (Detailed Scale) these maps are corrected and rechecked.
2. Soil maps at a scale of 1"- 1000' (Block Scale).
3. Type 1 Preliminary Soils Reports which include an on-site investigation, are available.

NARRATIVES AND MANUSCRIPTS

In addition to mapped information, the following are a few sources of information about the soils and geology of Loudoun County:

1. Soil Survey of Loudoun County, Virginia, Series 1951, No. 8, U.S. Department of Agriculture.
2. Interpretive Guide to the Use of Soils Maps, Loudoun Cooperative Extension Office, Loudoun County, Virginia.
3. Facilities Standards Manual (FSM), Loudoun County, Virginia, 1993.

The FSM contains a discussion of soils and geotechnical matters, with types of investigations.

4. Detailed soil profile descriptions from pits and laboratory analyses conducted on samples.
5. Geologic Map of Loudoun County Virginia, USGS United States Geological Survey open file report.
6. Geologic Map of Virginia and Expanded Explanation, Virginia Division of Mineral Resources.
7. Interpretive Guide to Geology and Groundwater in Loudoun County Virginia by the Department of Mapping and Geographic Information.

USE OF INFORMATION IN THIS GUIDE

HOW TO USE THIS INFORMATION

This material is **intended for planning purposes, as well as to alert the reader to the broad range of conditions, problems, and use potential for each mapping unit.** A mapping unit (for example, "73B") is the County wide sum of all mapping delineations (all the "73B" areas in the County). For most mapping units in Loudoun County, the individual series in a mapping unit name (for example, "Penn" soils in the 73B mapping unit or "Purcellville" soils in the 23B mapping unit) may account for only 50% of the soils actually to be found in the mapping unit. The mapping unit potential use rating refers to the overall combination of soil properties and landscape conditions. Therefore, a mapping unit rated as having good potential for urban uses probably contains some areas that have much poorer potential. Conversely, a mapping unit rated as having poor potential for a designated use may contain areas with good potential for that use. In on-site investigations, work is completed with much greater detail and inclusions of good or problem soils are specifically identified.

The information in this guide will enable the user to determine the distribution and extent of various classes of soil and generally, the types of problems which may be anticipated. For example, for a proposed subdivision using individual wells and septic tank drainfield systems, a site with mostly Class IV soils is probably not a viable project; whereas one with mostly Class I soils probably is, and would warrant a detailed on-site investigation. For a proposed rezoning or subdivision utilizing central water and sewer facilities, a site with mostly Class IV soils should have a Type 1, preliminary soils review conducted to determine the extent of problem areas, followed by a detailed geotechnical investigation at the subdivision stage to assist in design review and construction.

HOW NOT TO USE THIS INFORMATION

The information in this guide is **not intended for** use in determining **specific** use or suitability of soils for a particular site. It is of utmost importance that the reader understand that the information is geared to **mapping unit potential** and not to **specific site suitability**. An intensive on-site evaluation should be made to verify the soils map and determine the soil/site suitability for the specific use of a parcel.

MAPPING UNIT POTENTIAL

Soil properties and landscape features unique to a particular mapping unit can be used to describe that mapping units potential for certain generalized uses. The mapping unit potential ratings which are used are intended to indicate general information on soil and site properties for a single mapping unit or group of mapping units.

Mapping unit potential ratings and class criteria have been developed for the following three generalized uses:

- General Development on Central Water and Sewer
- On-site Sewage Disposal
- Agricultural Use

These three mapping unit potential ratings allow the comparison of the relative compatibility among a group of soil and site properties and a group of similar uses.

This document contains discussion of use potentials for the three groups named above, including descriptions of potential classes, class criteria, and problems associated with each class. Additionally the criteria for hydrologic group are defined for use in storm water runoff calculations and map units that are dominantly hydric soils are identified.

This information is provided for use in conceptual planning and review, and as an organizational guide for site-specific investigations. The chief objective of mapping unit potential ratings for soils is to maximize the effective use of soil maps. The chief objective of interpretive materials is to spotlight potential soil problems for a variety of uses which may be proposed.

MAPPING UNIT POTENTIAL FOR DEVELOPMENT ON CENTRAL WATER AND SEWER

In this section, the soil mapping unit use potentials for general development (on central water and sewer) are discussed. These potentials apply generally to the group of soils occurring within any given mapping unit. Major engineering operations in and on soils in land-development operations were taken into consideration (these include, but are not limited to, roads, foundations, basements, building slabs, shallow excavations, use of soil as controlled fill material, and erosion/sediment control).

1. Soil/Site Criteria Used in Rating Mapping Unit Potential

- A. Compaction rates at various moisture contents are determined generally by the amounts
- B. Stability at various moisture contents is also determined by particle size distribution of material to resist sloughing at various slope gradients in the fill.
- C. Plasticity and potential volume change (shrink-swell) of materials
- D. Bearing capacity of compacted and in-situ material

- E. Texture, particularly silt content
- F. If used for dam construction, resistance to piping by compacted material; sealing qual
- G. Nature of the various layers in the soil profile, whether or not they contain fragipai
- H. Kind of clay in subsoil and parent material; ability of these layers to withstand eros
- I. Landscape position, whether area receives seepage or is subject to ponding
- J. Presence of seasonal water table or restricted drainage
- K. Presence and characteristics of bedrock or stones in soil
- L. Presence of recent alluvium
- M. Presence in the limestone outcrop belt
- N. Presence of soil materials subject to slippage (mountain colluvium)
- O. Natural slope
- P. Soil variability

2. Classes

Mapping units in the Soil Survey of Loudoun County were grouped into one of four classes which

- A. CLASS I - Good potential; few major problems
- B. CLASS II - Fair potential; problems can generally be corrected satisfactorily at low
- C. CLASS III - Poor potential; major problems, many difficult to correct, and results ma
- D. CLASS IV - Very poor potential; severe problems, some not correctable, and others rec

3. Factors

With the exception of Class I (good potential), all other classes have been subdivided into sub

- 1. Slope.....S
- 2. Boulder Content and/or Depth to Rock.....R
- 3. Wetness.....W
- 4. Flood Plain.....F
- 5. Plastic (shrink-swell clays)P
- 6. Geomorphic stability (limestone/karst or debris flow area)G

SUMMARY OF MAP UNIT CRITERIA

KEY TO CLASSIFICATION OF

LOUDOUN COUNTY MAPPING UNITS

FOR SOIL POTENTIAL

ON CENTRAL WATER AND SEWER

SUBLCASS	IV VERY POOR	III POOR	II FAIR	I GOOD
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SHRINK-SWELL POTENTIAL (P)	high to very high PVC	<ul style="list-style-type: none"> • moderate to high PVC • high activity silt fraction 	<ul style="list-style-type: none"> • low to moderate PVC • a low activity silt fraction 	low PVC
DEPTH TO SEASONAL WATER TABLE WETNESS (W)	< 18" to prolonged perched water table		water 30-60" (short duration, <3 weeks)	< 60"
DEPTH TO NON-RIPPABLE ROCK (R)	<ul style="list-style-type: none"> • rocky land; > 25% of land surface covered by stones and rock outcrop • < 12" to non-rippable rock 	12-30" to non-rippable rock	> 60"	
SLOPE (S)	> 25% slopes	15-25% slopes	8-15% slopes	< 8% slopes
GEOMORPHIC STABILITY (G)	<ul style="list-style-type: none"> • mapping units over limestone conglomerate • certain mountain colluvial deposits on > 15% slopes 			
FLOOD PLAIN (F)	<ul style="list-style-type: none"> • developed from recent alluvium • subject to periodic flooding 			

5. Subclasses Defined

SUBCLASS/CLASS I - GOOD POTENTIAL

A. General Description of the Subclass

These soils are found on convex ridgetops and side slopes in undulating and rolling landscape Loudoun, and over greenstone, biotite schist, quartz-biotite, and granitic rocks in western Loudoun for urban use. Shrink-swell potential is low to moderate; frost heave potential is moderate; and they are suitable for urban use. Shrink-swell potential is low to moderate; frost heave potential is moderate; and they are suitable for urban use.

B. Problems Associated with the Subclass

Mapping units in this class have soil and site properties generally considered good for geotechnical use (e.g., low shrink-swell potential and dense-in-place but rippable weathered rock materials. While some soils are subject to periodic flooding).

C. Potential Remedial Actions

Soil-site characteristics (landscape, slope, drainage, plasticity, depth) are favorable, and in some mapping units are generally few in number and often readily moved by conventional methods.

D. Criteria of the Subclass

Mapping units which predominantly meet most or all of the following criteria:

- (1) low to moderate PVC (shrink-swell)
- (2) more than 60" depth to seasonal water table
- (3) more than 60" depth to non-rippable rock
- (4) **less than 15% slope**

Subclasses Defined (continued)

SUBCLASS II WP - FAIR POTENTIAL, WETNESS AND SOIL STABILITY

A. General Description of the Subclass

These mapping units occur on nearly-level ridgetops and sloping colluvial positions. The mapping units have high silt content soils, although these do not have high shrink-swell potential. They are common in Loudoun County and account for 8.5% of Loudoun County's land area.

B. Problems Associated with the Subclass

Mapping units in this subclass have a combination of wetness and soil stability problems. The wetness is low to moderate, and is generally not a problem. Frost heave potential is moderate to high. The soil stability gives rise to low bearing capacity when wet and high frost heave potential.

C. Potential Remedial Actions

Soil problems associated with this subclass can be adequately corrected by appropriate grading and foundation drainage. In the case of colluvial soils included in this subclass, the mapping units in Subclass II WP have adequate bearing capacity, either on rock or on soil.

D. Criteria of the Subclass

Mapping units which predominantly meet most or all of the following criteria:

- (1) low to moderate shrink-swell (PVC)
- (2) low activity silt fractions
- (3) short-duration (under three weeks) perched water tables at 30-60"

Subclasses Defined (continued)

SUBCLASS IV R - VERY POOR POTENTIAL ROCK CONTENT & DEPTH TO ROCK

A. General Description of the Subclass

Mapping units in Subclass IV R are generally described as miscellaneous land types on the land surface, but some mapping units have bedrock at or above the land surface or limestone conglomerate rock material in eastern Loudoun. They account for 9.5% of the land area.

B. Problems Associated with the Subclass

Subclass IV R mapping units provide numerous development problems for almost any kind of construction, particularly in eastern Loudoun, the soil between rock outcrops has a high shrink-swell potential. The soil between rock outcrops is difficult and costly, particularly in more plastic soils. Stone and boulders, if left in backfill material, they can crush sewer and water pipes and break basements.

C. Potential Remedial Actions

Float rock, stone, and boulders should be removed from controlled fill materials. Stone and boulders on extensive bedrock outcrop or very large boulders should be left in a natural state.

action section under Subclasses IV W and IV P. Soil materials containing large stone mapping units, a geotechnical study should be used to address the potential problem.

D. Criteria of the Subclass

- (1) more than 15% of land surface is rock outcrop or large boulders
- (2) the probability of special-method rock removal from a site should any construction be required

MAPPING UNIT POTENTIAL FOR ON-SITE SEWAGE DISPOSAL

In this section, soil mapping unit use potential for individual septic tank and drainfield sewage disposal sites is provided. The potentials apply generally to the group of soils occurring within any given mapping unit. Major soil/site factors affecting use for drainfields were considered. These ratings may apply to selected alternative on-site, in-soil sewage disposal (such as low pressure or spray irrigation systems). However, since these systems are design and site specific, general ratings often do not apply.

1. Factors Considered

- A. depth to water table or natural drainage
- B. whether area receives seepage and runoff water (colluvial areas)
- C. whether area is subject to flooding (alluvial areas)
- D. texture and structure
- E. amount and kind of clay
- F. thickness of the surface soil and thickness of subsoil or depth to friable, weathered soil
- G. nature of parent material
- H. general depth to hard rock or restricting layer
- I. past percolation tests of the soil and performance of septic tank drainage fields
- J. steepness of slope (installation problem)

2. Classes Defined

A. CLASS I - Good Potential

These mapping units have a combination of soil and landscape properties that are most favorable for on-site sewage disposal.

B. CLASS II - Fair Potential

These mapping units have some favorable and some unfavorable soil and landscape properties. On-site sewage disposal predictability is low. Often these mapping units have soils which require percolation tests.

C. CLASS III - Poor Potential

Those mapping units have questionable and unfavorable soil and landscape features and/or are associated with soil inclusions (soils outside of the norm described for the unit). They include, as well to somewhat poorly drained soils on nearly-level ridgetops and mountain colluvial deposits.

D. CLASS IV - Very Poor Potential

These mapping units have highly accurate predictability relative to landscape and drainfield use. These mapping units include somewhat poorly to poorly drained soils, soils with prolonged high seasonal water tables and soils on greater than 25% slopes.

MAPPING UNIT POTENTIAL FOR AGRICULTURE

In this section, soil mapping unit potential for agricultural use is provided. Potential ratings are made primarily by soil characteristics; some ratings are influenced by observations of different crops on various soils and by actual yield data. The ratings applied indicate the most conservative use, although certainly not the sole use. Local conditions may strongly impact the potential.

use potential of an individual mapping delineation.

1. Factors Considered

- A. surface and subsoil texture, and general depth of each
- B. natural drainage
- C. response of soil to liming, fertilization, and other management factors
- D. physical condition as influenced by texture, structure, kind of clay, etc.
- E. kind of parent material as it affects the chemical and physical nature of the soil
- F. depth to restricting layers (clay pan, fragipan, hard rock, Cr horizon, etc.)
- G. water-holding capacity--plus ability of the soil to release this water
- H. base exchange capacity--ability of the soil to hold and yet release nutrients to plants
- I. characteristics of plant or tree root zone; shallow or deep-rooted crops; also type of soil
- J. presence of large quantities of toxic elements (e.g., aluminum or manganese)
- K. air drainage
- L. slope aspect
- M. elevation

2. Classes Defined

A. Class I - Prime Farmland

These mapping units have a combination of soil and landscape properties that make them well suited for agriculture and forestry. The soils in these mapping units generally have high infiltration rates and are not subject to periodic flooding. The estimated potential corn yield average is greater than 125 bushels per acre. It is estimated that these should fall in excess of 45 bushels per acre. This class also has good potential for use in grassland agriculture and forestry, and as wildlife habitat.

B. Class II - Secondary Cropland

Mapping units in this class have soil properties or a combination of soil and site properties that make them best used in medium to long rotations including grassland agriculture. Some map units are subject to periodic flooding. Major features and properties include seasonal perched water tables, soil compaction, tillage, seed bed preparation, and harvesting; and abrupt textural change or bulk density. The estimated potential of these map units is 80-125 bushels per acre. Soybean yields are estimated to be 45-60 bushels per acre and as wildlife habitat.

C. Class III - Unique Orchard Land

Map units in this class have a combination of soil properties and landscape features that make them well suited for use in orchards. Many of these map units also have good potential for use in grassland agriculture and forestry, and as wildlife habitat.

D. Class IV - Grassland Agriculture

This class includes map units which are best suited to use as hay and pasture in grassland agriculture. Many of these map units also have good potential for use in forestry, and as wildlife habitat.

E. Class V - Woodland Use and Wildlife Habitat

This class includes map units on very steep slopes, map units with very shallow soils (e.g., fragipan, fragipan, hard rock, Cr horizon, etc.) left undisturbed in their natural wooded environment for use in timber production and as wildlife habitat. Many of these map units, particularly on steeper slopes with shallow soils, have stability problems on steeper slopes with shallow soils. Many of these map units, particularly on steeper slopes with shallow soils, have stability problems on steeper slopes with shallow soils. Many of these map units, particularly on steeper slopes with shallow soils, have stability problems on steeper slopes with shallow soils. Although some map units in this class also have good potential for use in forestry, and as wildlife habitat.

HYDROLOGIC SOIL GROUPS

This section provides a description of hydrologic soil group classes used in determining soil-cover complexes in Chapter 2 of Technical Release 55, "Urban Hydrology for Small Watersheds", prepared by the USDA Soil Conservation Service.

The hydrologic parameter (A, B, C, or D) is an indicator of the minimum rate of infiltration obtained for a bare soil after prolonged wetting. By using the hydrologic classification and the associated land use, runoff curve numbers can be selected. Runoff curve numbers are used for determining peak quantity and total volume of surface water runoff for given conditions.

Classes Defined

1. A - Low Runoff Potential

Soils having a high infiltration rate, even when thoroughly wetted, and consisting chiefly

2. B - Soils with Moderate Infiltration Rate

Soils having a moderate infiltration rate when thoroughly wetted, and consisting chiefly of

3. C - Soils with Slow Infiltration Rate

Soils having a slow infiltration rate when thoroughly wetted, and consisting chiefly of soils

4. D - High Runoff Potential

Soils having a very slow infiltration rate when thoroughly wetted, and consisting chiefly of soils with a high water table at or near the surface, and shallow soils over nearly-impermeable material.

GLOSSARY OF TERMS USED IN THIS GUIDE

ALLUVIAL SOIL	A soil developing from recently deposited alluvium and which exhibits essential characteristics of alluvium.
ALLUVIUM	Sand, clay, etc., deposited by flowing water, especially along a river bed.
BOULDERS	(See COARSE FRAGMENTS)
CAPPINGS	(See OVERLAYS)
CHANNERS	(See COARSE FRAGMENTS)
CLAY	1) the smallest soil separate consisting of particles less than 0.002 mm in diameter.
CLAY PAN	A dense, compacted layer in the subsoil having a much higher clay content than the soil above it, formed by downward movement of clay or by synthesis of clay in place during soil formation. Clays usually have high shrink-swell potential. Clay pans usually impede water movement.
COARSE FRAGMENTS	Rock or mineral particles greater than 2.0 mm (.079") in diameter, such as
	Rounded or Angular Fragments
	Gravel 2mm - 3" diameter
	(collection of pebbles)
	Cobbles 3 - 10" diameter
	Stones 10" - 2' diameter
	Boulders 2 - 10' diameter
COARSE FRAGMENTS	Flat on one side or one dimension much less than the other
	Channers .04" (2mm) - 6" long
	Flagstone 6 - 15" long
	Stones 15" - 2' long
	Boulders more than 2'
COLLUVIAL SOILS	Soils formed, wholly or in part, from colluvium, and generally found in swales and depressions characteristic due to landscape position.
COLLUVIUM	A deposit of rock fragments and soil material accumulated at the base of slopes.
CR HORIZON	Mineral horizons or layers of weathered bedrock and saprolite such as granitic gneiss, which have become so consolidated such that roots cannot easily enter. The material can be dug

in overnight shaking with water or sodium hexametaphosphate solution. This (See PARALITHIC CONTACT).

DEPTH (SOIL) Refers to depth below surface to a restrictive layer. This restrictive layer water and may be non-penetrable by roots. Roots further than 4" apart, cent

VERY SHALLOW	0 - 10"
SHALLOW	10 - 20"
MODERATELY DEEP	20 - 40"
DEEP	40 - 60"
VERY DEEP	>60"

DRAINAGE (SOIL) Generally, an interpreted characteristic of a soil which is a function of regimes on the soil (See WATER TABLE). Classes used:

WELL DRAINED	No indication of a seasonal water table or restricted drainage
MODERATELY WELL TO WELL DRAINED	Depth to a seasonal water table or restricted drainage is 0-8"
MODERATELY WELL DRAINED	Depth to a seasonal water table or restricted drainage is 8-18"
SOMEWHAT POORLY DRAINED	Depth to a water table (restricted drainage) is 8-18"
POORLY DRAINED	Depth to a water table (restricted drainage) is 0-8"

EROSION (SOIL) The wearing away of the land surface by running water, wind, ice, or other

NORMAL	Less than 25% of the surface soil has been removed by plowing in the solum
ERODED	25-75% of the surface soil removed and plow layer consists of a mixture of
SEVERELY ERODED	More than 75% of the surface soil has been removed. The plow layer consists

FLUVIUM Alluvium deposited in a fan or delta due to decrease in hydraulic gradient

FRAGIPAN A natural subsurface horizon with high bulk density relative to the solum

GRAVEL (See COARSE FRAGMENTS)

LITHIC CONTACT The zone in weathered rock below which rock materials have a hardness

LITHOLOGIC DISCONTINUITY A change in rock material in soils; in a soil profile, generally in

LIMESTONE OUTCROP BELT Those areas underlain by carbonate bedrock, including, but not limited to, carbonate bedrock outcrop, sinks, and sinkholes; solution channels

MAP DELINEATION A single area on a soils map depicted by the soil boundary line.

MAP UNIT The collective of all soil map delineations of the same type (number) and characteristics and use potential.

OVERLAY (CAPPING) General term referring to soils formed in or from materials deposited on

PARALITHIC Boundary of the soil-rock weathering zone below which contact with the (Mohs Scale) and gravel-size chunks that can be broken out will partially often referred to as weathered bedrock.

RELIEF The difference in elevation between the high and low points in a landscape

RESIDUUM Unconsolidated and partially weathered mineral materials accumulated by

PERMEABILITY (SOIL) Permeability is the rate of flow of water through a unit cross-section as to their suitability for on-site sewage disposal systems, permeability is from Uhland core hydraulic conductivity. Soil scientist used the following

Rates per Hour

	Inches	Centimeters	
<u>SLOW</u>			
1. VERY SLOW	<0.06		<.15
2. SLOW	0.06-0.2		.15-.50
<u>MODERATE</u>			
3. MODERATELY SLOW	0.2-0.6		.50-1.50
4. MODERATE	0.6-2.0		1.50-5
5. MODERATELY RAPID	2-6		5-15

<u>RAPID</u>		
6. RAPID	5-20	15-50
7. VERY RAPID	>20	>50

*(These rates through saturated, undisturbed cores in a laboratory and are not the same

SAND	1) a soil separate consisting of particles 2mm-.05mm in equivalent dia
SILT	1) a soil separate consisting of particles .05mm-.002 in equivalent dia

Slope classes in the Blue Ridge (Western Loudoun County) are:

A	0 -	2%	NEARLY LEVEL
B	2 -	7%	GENTLY SLOPING
C	7 -	15%	SLOPING
D	15 -	25%	MODERATELY STEEP
E.	25% +		STEEP

Slope classes in the Piedmont (Eastern Loudoun County) are:

A	0 -	3%	NEARLY LEVEL
B	3 -	8%	GENTLY SLOPING
C	8 -	15%	SLOPING
D	15 -	25%	MODERATELY STEEP
E	25%+		STEEP

SURFACE	Topsoil, layer that is darkened by organic matter (generally less than
SUBSOIL	Subsurface layer in which maximum clay occurs; in most Loudoun County ;
SUBSTRATUM	The zone of weathered rock material (saprolite) or other weathered par
TEXTURE (SOIL)	The relative percentage of the various soil separates (sand, silt, and coarse fragments, where present. The following is a partial list of USI

LOAM	Soil material that contains either clay or less and the percentage of silt plus 1
LOAM	Soil material that contains 7-27% clay, 28-50% silt and <52% sand
SILT LOAM	Soil material that contains 50% or more silt and 12-27% clay or 50-80% silt
SANDY CLAY	Soil material that contains 20-50%
LOAM	clay, <28% silt, and 45% or more sand
CLAY LOAM	Soil material that contains 40% clay and 20-45% sand
SILTY CLAY	Soil material that contains 40% or more clay and 40% or more slit
CLAY	Soil material that contains 40% or more clay, <45% sand and <40% silt

SUMMARY OF SOIL CHARACTERISTICS AND USE POTENTIALS

The following section/chart contains soil mapping unit characteristics and use potentials for 1

1. DEVELOPMENT ON CENTRAL WATER/SEWER
2. CONVENTIONAL SEPTIC TANK DRAINFIELDS
3. AGRICULTURAL USE

Mapping Unit Number, Name Slope,	Soil Characteristics	Mapping Unit Potential Subclasses For Selected Uses		
		General	Conventional	Agricultural

Flooding Potential, and Hydrologic Group		Development Central Water and Sewer/ Depth to Rock	Septic Tank Drain Fields	Forestry and Horticultural/ USDA Land use capability class
2A Codorus silt loam, (0-3%) occasional flooding, (C)	Very deep, moderately well drained brown and mottled brown and grey silty soils with seasonal water tables on level terrace positions in the flood plain; developed in alluvium of mica-bearing soils derived from crystalline rock	IV F - very poor potential; subject to flooding	IV - very poor: flooding potential	II - secondary cropland
depth to hard bedrock is generally greater than 6'	3W			
3A Comus silt loam, (0-3%) occasional flooding, (B)	Very deep, well drained brown sandy soils on convex terrace positions in the flood plain; developed in alluvium of mica-bearing soils derived from crystalline rock	IV F - very poor potential; subject to flooding	IV - very poor: flooding potential	I - prime farmland
depth to hard bedrock is generally greater than 6'	2W			
4A Hatboro loam, (0-3%) frequent flooding, Hydric soil (D)	Very deep, poorly drained dominantly gray silty or clayey soils with seasonal water tables on concave terrace positions in the flood plain; developed in alluvium of mica-bearing soils derived from crystalline rock	IV F - very poor potential; subject to flooding	IV - very poor: flooding potential	IV - grassland agriculture
depth to hard bedrock is generally greater than 6'	4W			
5A Rowland silt loam, (0-3%) occasional flooding, (C)	Very deep, moderately well to somewhat poorly drained reddish-brown and mottled reddish-brown and gray silty and clayey soils with seasonal water tables on level terrace positions in flood plains; developed in	IV F - very poor potential; subject to flooding	IV - very poor: flooding potential	IV - grassland agriculture
depth to hard bedrock is generally greater than 6'	2W			

	alluvium soils derived from Triassic shale and siltstone			
6A Bowmansville silt loam, (0-3%) occasional flooding, Hydric soil (C)	Very deep, poorly drained dominantly gray silty or clayey soils with seasonal water tables on concave terrace positions in the flood plain; developed in alluvium of soils derived from Triassic shale and siltstone	IV F - very poor potential; subject to flooding	IV - very poor: flooding potential	IV - grassland agriculture
		depth to hard bedrock is generally greater than 6'		4W
7A Huntington silt loam, (0-3%) occasional flooding, (A)	Very deep, well drained brown silty soils on convex terrace positions in the flood plain; developed in alluvium of mica-bearing soils derived from mixed acid and basic rock	IV F - very poor potential; subject to flooding	IV - very poor: flooding potential	II - secondary cropland
		depth to hard bedrock is generally greater than 6'		2W
8A Lindside silt loam, (0-3%) occasional flooding, (C)	Very deep moderately well drained brown and mottled brown and gray silty soils with seasonal water tables on level terrace positions in the flood plain; developed in alluvium of mica-bearing soils derived from mixed acid and basic rock	IV F - very poor potential; subject to flooding	IV - very poor: flooding potential	II - secondary cropland
		depth to hard bedrock is generally greater than 6'		2W
10B Mongle loam, (0-7%) brief ponding, (D)	Very deep, somewhat poorly drained brown and mottled brown and gray loamy to silty soils with seasonal water tables in concave drainageway positions; developed in alluvium and local colluvium from mixed acid and basic rock	IV W - very poor potential; prolonged high water table	IV - very poor: landscape position and prolonged high water table	IV - grassland agriculture
		depth to hard bedrock is generally greater than 5'		4W
12B Rohrersville	Very deep, somewhat	IV W - very poor potential;	IV - very poor: landscape	IV - grassland agriculture

cobbly loam, (1-7%) brief ponding, (C)	poorly to moderately well drained brown and mottled brown and gray silty soils with seasonal water tables in footslopes drainageway positions; developed in alluvium and local and drainageways at the base of mountains; developed in colluvium off soils derived from mixed acid and basic rock	seasonal water table	position and prolonged high water table	
		depth to hard bedrock is generally greater than 5'		3W
13B Morven silt loam, (1-8%) (B)	Very deep, well drained yellowish-red and reddish-brown silty soils with intermittent seasonal water tables in concave positions (swales); developed in recent colluvium of soils derived from calcareous conglomerate	IV G - very poor solution weathering/ collapse of underlying calcareous materials; pollution by sinkholes & rock outcrops	IV - very poor: landscape position and groundwater pollution	I - prime farmland cropland
		depth to hard bedrock is generally greater than 5'		2E
14B Manassas silt loam, (1-8%) (B)	Very deep, well to moderately well drained brown to reddish-brown silty soils with intermittent seasonal water tables in concave upland positions (swales); developed in recent colluvium of soils derived from Truassuc siltstone and shale	II W - fair potential; low bearing capacity & short duration perched water tables	IV - very poor: landscape position and flooding potential	II - secondary cropland
		depth to hard bedrock is generally greater than 5'		2E
17B Middleburg silt loam, (1-7%) (B)	Very deep, well drained yellowish-brown to brown loamy soils with intermittent seasonal water tables in concave upland positions (swales); developed in recent colluvium of soils derived from mixed acid and basic rock	III W - poor potential; short duration water tables	IV - very poor: landscape position and short duration water tables	I - prime farmland
		depth to hard bedrock is generally greater than 5'		2E
20B Purcellville and	complex of very deep, well drained yellowish-red silty	II R - fair potential; depth to rock	II - fair potential: depth to rock	II - secondary cropland

<p>Tankerville soils, (2-7%) (B)</p>	<p>Purcellville and moderately deep well drained, yellowish-brown loamy soils on convex upland positions; developed in residuum weathered from mixed granite gneiss and metadiabase rock</p>	<p>depth to hard bedrock is generally greater than 6' in Purcellville and greater than 30" in Tankerville</p>		<p>2E, 3S</p>
<p>20C Purcellville and Tankerville soils, (7-15%) (B)</p>	<p>complex of very deep, well drained yellowish-red silty Purcellville and moderately deep well drained, yellowish-brown loamy soils on convex upland positions; developed in residuum weathered from mixed granite gneiss and metadiabase rock</p>	<p>II R - fair potential; depth to rock</p> <p>depth to hard bedrock is generally greater than 6' in Purcellville and greater than 30" in Tankerville</p>	<p>II - fair potential: depth to rock</p>	<p>II - secondary cropland</p> <p>3E, 4S</p>
<p>20D Purcellville and Tankerville soils, (15-25%) (C)</p>	<p>complex of very deep, well drained yellowish-red silty Purcellville and moderately deep well drained, yellowish-brown loamy soils on convex upland positions; developed in residuum weathered from mixed granite gneiss and metadiabase rock</p>	<p>II R - fair potential; depth to rock</p> <p>depth to hard bedrock is generally greater than 6' in Purcellville and greater than 30" in Tankerville</p>	<p>III - poor potential: depth to rock and slope</p>	<p>IV - grassland agriculture</p> <p>4E, 4S</p>
<p>20E Purcellville and Tankerville soils, (25-45%) (C)</p>	<p>complex of very deep, well drained yellowish-red silty Purcellville and moderately deep well drained, yellowish-brown loamy Tankerville soils on convex upland positions; developed in residuum weathered from mixed granite gneiss and metadiabase rock</p>	<p>II RS - poor potential;</p> <p>steep slope</p> <p>depth to rock</p> <p>depth to hard bedrock is generally greater than 6' in Purcellville and greater than 30" in Tankerville</p>	<p>IV - very poor or no potential; steep slopes and depth to rock</p>	<p>V - forestry and wildlife</p> <p>6E, 6S</p>
<p>22B Purcellville-Swampoodle Complex, (2-7%)</p>	<p>complex of very deep, well drained yellowish-red silty Purcellville and very deep moderately well drained, strong brown and mottled strong</p>	<p>II WP - fair potential; seasonal water table</p>	<p>II - poor potential; seasonal water table, slow permeability</p>	<p>II - secondary cropland</p>

(B)	brown and gray silty Swampoodle soils in broad, nearly level to concave upland positions; developed in residuum weathered from mixed granite gneiss and metadiabase rock	depth to hard bedrock is generally greater than 5'		2E, 4W
23B Purcellville silt loam, (2-7%) (B)	very deep, well drained yellowish-red silty to loamy soil on undulating and gently sloping uplands; developed in residuum weathered from mixed granite gneiss and metadiabase rock	I - good potential	I- good potential	I - prime farmland
		depth to hard bedrock is generally greater than 6'		2E
27C Airmont very flaggy loam, (7-15%) (B)	very deep, moderately well drained yellowish-brown loamy soil with intermittent perched water tables and stones on moderately steep concave mountain slopes and benches; developed in local colluvium weathered from coarse grained rocks like sandstone, quartzite and charnokite	IV W - very poor potential; seasonal water table	IV- very poor; landscape position, fragipans and prolonged high water table	V - forestry and wildlife
		depth to hard bedrock is generally greater than 5'		5S
28B Eubanks loam, (2-7%) (B)	very deep, well drained reddish-yellow to red loamy soil on undulating and gently sloping uplands; developed in residuum weathered from mixed gneiss, metadiabase and other metamorphosed granitic rocks	I - good potential	I - good potential	I - prime farmland
		depth to hard bedrock is generally greater than 6'		2E
28C Eubanks loam, (7-15%) (C)	very deep, well drained yellowish-red to red loamy soil on undulating and sloping uplands; developed in residuum weathered from mixed gneiss, metadiabase and other metamorphosed granitic rocks	I - good potential	I - good potential	II - secondary cropland
		depth to hard bedrock is generally greater than 6'		3E

29B Eubanks loam, stony (2-7%) (B)	very deep, well drained yellowish-red to red loamy soil on undulating and gently sloping uplands; developed in stony residuum weathered from mixed gneiss, metadiabase and other metamorphosed granitic rocks	I - good potential	I - good potential	II - secondary cropland
		depth to hard bedrock is generally greater than 6'		3S
29C Eubanks loam, stony (7-15%) (C)	very deep, well drained yellowish-red to red loamy soil on undulating and sloping uplands; developed in residuum weathered from mixed gneiss, metadiabase and other metamorphosed granitic rocks	I - good potential	I - good potential	III - prime orchard
		depth to hard bedrock is generally greater than 6'		4S
29D Eubanks loam, stony (15-25%) (C)	very deep, well drained yellowish-red to red loamy soil on sloping uplands; developed in residuum weathered from mixed gneiss, metadiabase and other metamorphosed granitic rocks	I - good potential	II - fair potential; slope	III - prime orchard
		depth to hard bedrock is generally greater than 6'		5S
30C Tankerville and Philomont soils (7-15%) (B)	complex of moderately deep well drained, yellowish-brown loamy Tankerville soils and very deep, well drained yellowish-brown loamy Philomont on convex upland sideslopes; developed in residuum weathered from coarse grained granite gneiss	II R - fair potential; depth to rock	II - fair potential; depth to rock	II - secondary cropland
		depth to hard bedrock is generally greater than 6' in Philomont and greater than 30" in Tankerville		4S, 3E
30D Tankerville and Philomont soils (15-25%) (C)	complex of moderately deep well drained, yellowish-brown loamy Tankerville soils and very deep, well drained yellowish-brown loamy Philomont on convex upland sideslopes; developed in residuum weathered from coarse grained	II R - fair potential; depth to rock	II - fair potential; depth to rock	II - secondary cropland
		depth to hard bedrock is generally greater than 6' in Philomont and greater than 30" in Tankerville		4S, 3E

	granite gneiss			
31B Philomont and Tankerville soils (2-7%) (C)	complex of very deep, well drained, yellowish-brown loamy Philomont and moderately deep well drained yellowish- brown Tankerville soils on convex upland positions; developed in residuum weathered from coarse grained granite gneiss	I - good potential		I - prime farmland
		depth to hard bedrock is generally greater than 6'	I - good potential	2S, 3S
38B Swampoodle silt loam (1-7%) brief ponding (C)	very deep, moderately well drained, strong brown and mottled strong brown and gray silty soils with seasonal water tables in broad, nearly level to concave upland positions; developed in residuum derived from mixed acid and basic rock	IV WP - very poor potential; seasonal high water table and areas of shrink- swell clays	IV - very poor; landscape position and prolonged high water table	IV - grassland agriculture
		depth to hard bedrock is generally greater than 5'		4W
40C Catoctin channery silt loam, (7-15%) (C)	moderately deep, well drained, strong brown, shaley/silty soil with few rock outcrops and common flag stones on convex sideslopes; developed from greenstone schist	II R - fair potential; depth to rock	III - poor potential; depth to rock and slope	IV - grassland agriculture
		depth to hard bedrock ranges between 2-4'		3E
40D Catoctin channery silt loam, (15-25%) (C)	moderately deep, well drained strong brown, shaley/silty soil with few rock outcrops and common flag stones on moderately steep convex sideslopes; developed from greenstone schist	II R - fair potential; depth to rock	III - poor potential; depth to rock and slope	V - forestry and wildlife
		depth to hard bedrock ranges between 2-4'		4E
40E Catoctin channery silt loam, (25-45%) (C)	moderately deep, well drained strong brown, shaley/silty soil with few rock outcrops and common flag stones on steep convex sideslopes; developed from greenstone schist	II RS - fair potential; depth to rock	IV - very poor or no potential; depth to rock and slope	V - forestry and wildlife
		depth to hard bedrock ranges between 2-4'		7E
43B	complex of deep, well drained yellowish-red	I - good potential	II - fair potential; moderate	I - prime farmland

Myersville-Catoctin Complex, (2-7%) (B)	loamy Myersville and moderately deep, well drained, strong brown, shaly/silty Catoctin soils on gently rolling convex landscapes; developed from greenstone schist	depth to hard bedrock is generally greater than 4' in Myersville and 2 to 4' in Catoctin	permeability	2E, 3E
43C Myersville-Catoctin Complex, (7-15%) (C)	complex of deep, well drained yellowish-red loamy Myersville and moderately deep, well drained, strong brown, shaly/silty Catoctin soils on rolling convex sideslopes; developed from greenstone schist	II R - fair potential; depth to rock	II - fair potential; moderate permeability and depth to rock	II - secondary cropland
		depth to hard bedrock is generally greater than 4' in Myersville and 2 to 4' in Catoctin		3E, 4E
45B Fauquier silt loam, (2-7%) (C)	very deep well drained red clayey soils on gently sloping uplands in dissected landforms; developed from greenstone schist	I - good potential	I - fair potential; moderate permeability	I - prime farmland
		depth to hard bedrock is generally greater than 5'		2E
45C Fauquier silt loam, (7-15%) (C)	very deep well drained red clayey soils on gently sloping uplands in dissected landforms; developed from greenstone schist	I - good potential	I - fair potential; moderate permeability	II - secondary cropland
		depth to hard bedrock is generally greater than 5'		3E
50C Stumptown flaggy loam, (7-15%) (C)	moderately deep, well to excessively drained skeletal yellowish-brown loamy soils with many quartzite flagstones and boulders on mountain ridgetops	III RS - fair potential; shallow to rock	III - poor potential; shallow to rock	V- forestry and wildlife
		depth to hard bedrock ranges from 20 to 40"		4S
50D Stumptown flaggy loam, (15-25%) (C)	moderately deep, well to excessively drained skeletal yellowish-brown loamy soils with many quartzite flagstones and boulders on moderately steep mountain sideslopes	II RS - fair potential; shallow to rock and steep slopes	III - poor potential; shallow to rock and steep slopes	V- forestry and wildlife
		depth to hard bedrock ranges from 20 to 40"		6S
51E Stumptown-Rock outcrop	moderately deep, well to excessively drained skeletal yellowish-brown	II RS - fair potential; shallow to rock and steep slopes	IV - very poor or no potential; shallow to rock and steep slopes	V- forestry and wildlife

complex (25-45%) (D)	loamy soils with many quartzite outcrops, flagstones and boulders on sloping to steep mountain sideslopes	depth to hard bedrock ranges from 20 to 40"		7E,8
52C Cardiff Channery silt loam, (7-15%) (B)	deep, well drained yellowish-brown loamy soils with common quartzite flagstones and boulders on mountain sideslopes and ridgetops	I - good potential depth to hard bedrock ranges from 40 to 60"	I - good potential	IV- grassland agriculture 3E
52D Cardiff Channery silt loam, (15-25%) (C)	deep, well drained yellowish-brown loamy soils with common quartzite flagstones and boulders on mountain sideslopes and ridgetops	II RS - fair potential; depth to rock and steep slopes depth to hard bedrock ranges from 40 to 60"	II - fair potential; depth to rock and steep slopes	V- forestry and wildlife 4E
52E Cardiff Channery silt loam, (25-45%) (C)	deep, well drained yellowish-brown loamy soils with common quartzite flagstones and boulders on mountain sideslopes and ridgetops	IV RS - very poor potential; depth to rock and steep slopes depth to hard bedrock ranges from 40 to 60"	IV - very poor or no potential; depth to rock and steep slopes	V- forestry and wildlife 6E
55B Glenelg silt loam, (2-7%) (A)	deep, well drained yellowish-red loamy soils with common quartz stones on convex upland and mountain sideslopes and ridgetops	I - good potential depth to hard bedrock is generally greater than 4'	I - good potential	I- prime farmland 2E
55C Glenelg silt loam, (7-15%) (B)	deep, well drained yellowish-red loamy soils with common quartz stones on convex upland and mountain sideslopes and ridgetops	I - good potential depth to hard bedrock is generally greater than 4'	I - good potential	II- secondary cropland 3E
55D Glenelg silt loam, (15-25%) (C)	deep, well drained yellowish-red loamy soils with common quartzite flagstones and boulders on mountain sideslopes and ridgetops	II S - fair potential; slope depth to hard bedrock ranges from 40 to 60" or more	II - fair potential; slope	IV- grassland agriculture 4E
59C Airmont loam, very rubbly	very deep, moderately well drained yellowish-brown bouldery loamy soil	IV WG - very poor potential; seasonal water table, landscape	IV - very poor; landscape position, stones and prolonged	V- forestry and wildlife

(7-15%) (D)	with intermittent perched water tables and stones on sloping to moderately steep concave mountain slopes (swales); developed in stony and bouldery local colluvium weathered from coarse grained rocks like sandstone, quartzite and charnokites	and stones, slippage potential	high water table	
		depth to hard bedrock is generally greater than 5'		7S
60C Sycoline-Catlett complex (7-15%) (C/D)	complex of moderately deep, moderately well drained yellowish-brown silty (sycoline) and shallow, well drained grayish-brown skeletal (Catlett) soils with perched seasonal water tables on convex side slopes; developed from hornfel and granulites	II R - fair potential; shallow soils over rock	IV - very poor potential; shallow to rock	IV- grassland agriculture
		depth to hard bedrock generally ranges between 20 to 40" in Sycoline and 10 to 30" in Catlett		3E, 6S
60D Catlett gravely silt loam (15-25%) (C/D)	moderately deep to shallow well drained grayish-brown silty skeletal seasonal perched seasonal water tables on moderately steep side slopes; developed from hornfel and granulites	III RS - poor potential; shallow to rock and steep slopes	IV - very poor potential; shallow to rock and steep slopes	IV- grassland agriculture
		depth to hard bedrock generally ranges between 10 to 30"		6S
60E Catlett Rock outcrop complex, (25-45%) (D)	moderately deep to shallow well drained grayish-brown silty skeletal soils with many rock outcrops, stones, gravels and boulders on steep to very steep side slopes; developed from hornfel and granulites	IV S - very poor potential; shallow to rock and steep slopes	IV - very poor or no potential; shallow to rock and steep slopes	V- forestry and wildlife
		depth to hard bedrock generally ranges between 10 to 30"		7S, 8
62B Kelly-Sycoline complex, (3-8%) (D/C)	complex of moderately deep, moderately well to somewhat poorly drained yellowish-brown silty (Sycoline) soils; and deep, somewhat poorly	III WP - poor potential; high shrink-swell clays and moderate duration perched water table	III - poor potential; high water tables	II- secondary cropland

	drained gray and grayish-brown clayey (Kelly) soils with seasonal perched water table on gently sloping to nearly level ridge crests; developed from hornfel and granulites	depth to hard bedrock generally ranges 40 to 60" in Kelly and 20 to 40" in Sycoline		2E, 4W
63A Kelly silt loam, (0-3%) (D)	deep somewhat poorly drained gray and grayish-brown claypan soils with seasonal water tables on gently sloping to nearly level uplands with low relief; developed from hornfel and granulites	IV PW - very poor potential; high shrink-swell clays and prolonged perched water table depth to hard bedrock generally ranges 40 to 60"	IV - very poor potential; high water table	IV- grassland agriculture 4W
64B Legore loam, (3-8%) (B)	well drained very deep brown to reddish-brown loamy soils with few stones and rock outcrop on gently sloping uplands; developed from diabase or basalt	II R - fair potential; rock outcrops depth to hard bedrock is generally greater than 5'	II - fair potential	II- secondary cropland 6S
64C Legore loam, (8-15%) (B)	well drained very deep brown to reddish-brown loamy soils with common stones and few rock outcrop on side slopes; developed from diabase or basalt	II R - fair potential; rock outcrops depth to hard bedrock is generally greater than 5'	II - fair potential	IV - grassland agriculture 7S
64D Oakhill gravely silt loam, very stony (15-25%) (C)	well to excessively drained moderately deep brown to yellowish-red loam skeletal soils with many rock outcrop and stones on moderately steep side slopes; developed from diabase or basalt	III RS - poor potential; rock outcrops and steep slopes depth to hard bedrock generally ranges between 20 to 40"	III - poor potential; steep slopes and shallow to rock	IV - grassland agriculture 7S
65B Montalto silty clay loam, (3-8%) (C)	deep to very deep well drained red clayey soils with common to many stones and boulders on convex gently sloping uplands in rolling landforms; developed from	I - good potential depth to hard bedrock is generally greater than 5'	I - good potential	II- secondary cropland 2E

	diabase or basalt			
66A Waxpool silt loam, (0-3%) ponding (D) Hydric soil	very deep somewhat poorly to poorly drained gray and brown clayey soils with seasonal perched water tables on nearly level upland flats; developed from diabase	IV PW - very poor potential; high shrink-swell clays and prolonged perched water table depth to hard bedrock is generally greater than 6'	IV - very poor potential; high water table shrink-swell clays	IV - grassland agriculture 4W
67B Haymarket and Jackland soils, (2-8%) (D)	complex of very deep moderately well drained yellowish-brown to olive-brown (Jackland) and well drained strong brown (Haymarket) soils with perched water tables on convex ridgetops and side slopes over diabase and some basalt	IV P - very poor potential; high shrink-swell clays and seasonal perched water table depth to hard bedrock is generally greater than 5'	IV - very poor potential; high water tables, shrink-swell clays	II- secondary cropland 5E, 5W
67C Haymarket and Jackland soils, (8-15%) (D)	complex of very deep moderately well drained yellowish-brown to olive-brown (Jackland) and well drained strong brown (Haymarket) claypan soils with perched water tables on convex sloping side slopes in dissected landforms; developed from diabase	IV P - very poor potential; high shrink-swell clays and seasonal perched water table depth to hard bedrock is generally greater than 5'	IV - very poor potential; high water tables, shrink-swell clays	IV- grassland agriculture 5E, 5W
68C Haymarket and Jackland soils, very stony (8-15%) (D)	complex of very deep stony moderately well drained yellowish-brown to olive-brown (Jackland) and strong brown (Haymarket) claypan soils with perched water tables and common rock outcrop on convex sloping side slopes; developed from diabase	IV P - very poor potential; wetness and high shrink-swell clays depth to hard bedrock is generally greater than 5'	IV - very poor potential; high water tables and high shrink-swell clays	V- forestry and wildlife 5S, 5S
69A Elbert silty clay loam, (0-3%)	very deep poorly drained soil in drainageways; developed from diabase and basalt	IV PW - very poor potential; wetness and high shrink-swell clays	IV - very poor potential; high water table and shrink-swell clays	IV - grassland agriculture

ponding (D) Hydric soil		depth to hard bedrock is generally greater than 6'		5W
70B Leesville cobbly silt loam, (3-8%) (B)	very deep well drained cobbly yellowish-red and red fine loamy soils on convex gently sloping uplands; developed from residuum of Goose Creek conglomerate	I - good potential	I - good potential	I - prime farmland
		depth to hard bedrock is generally greater than 6'		3S
70C Leesville cobbly silt loam, (8-15%) (B)	very deep well drained cobbly yellowish-red and red fine loamy soils on convex gently sloping uplands; developed from residuum of Goose Creek conglomerate	I - good potential	I - good potential	I - prime farmland
		depth to hard bedrock is generally greater than 6'		4S
71B Panorama silt loam, (3-8%) (B)	deep well drained reddish-brown silty soils on convex ridge crests and side slopes; developed from fluvium over Triassic siltstones and shales	I - good potential	I - good potential	I - prime farmland
		depth to hard bedrock is generally greater than 6'		2E
72C Birdsboro loam, (8-15%) (B)	very deep well drained red and yellowish-red fine-loamy soils on convex and straight side slopes; developed from thin river terrace deposits over siltstone	I - good potential; few problems	II - fair potential	II - secondary cropland
		depth to hard bedrock is generally greater than 5'		3E
73B Penn silt loam, (3-8%) (C)	moderately deep well drained silty soils on sloping convex landscapes; developed from Triassic siltstones and shales	I - good potential; few problems	III - poor potential; perched water tables	II - secondary cropland
		depth to hard bedrock generally ranges 20 to 40"		2E
73C Penn silt loam, (8-15%) (C)	moderately deep well drained silty soils on sloping convex landscapes; developed from Triassic siltstones and shales	I - good potential; few problems	III - poor potential; shallow to rock	IV - grassland agriculture
		depth to hard bedrock generally ranges 20 to 40"		3E

74B Ashburn silt loam, (1-8%) (C)	moderately deep moderately well drained yellowish- brown silty soils with seasonal perched water tables on level to gently sloping landscapes; developed from thin fluvial cappings over Triassic siltstones	II WP - fair potential; wetness and low bearing capacity	III - poor potential; perched water table	II - secondary cropland
		depth to hard bedrock generally ranges 20 to 40"		2W
76B Sudley- Oatlands Complex, (3-8%) (B)	complex of very deep (Sudley) and moderately deep (Oatlands) well drained strong brown to reddish-brown loamy soils on gently sloping convex ridgetops and upper side slopes; developed from Triassic sandstones and red conglomerates	I - good potential	I - good potential	I - prime farmland
		depth to hard bedrock is generally greater than 6' in Sudley and 20 to 40" in Oatlands		2E, 3S
76C Oatlands gravelly silt loam, (8-15%) (B)	moderately deep well drained strong brown to reddish-brown loamy soils on sloping convex side slopes; developed from Triassic sandstones and red conglomerates	I - good potential; few problems	II - fair potential	II - secondary cropland
		depth to hard bedrock is generally greater than 20 to 40"		4S
76D Oatlands gravelly silt loam, (15-25%) (C)	moderately deep well drained strong brown to reddish-brown loamy soils on sloping convex side slopes; developed from Triassic sandstones and red conglomerates	II S - fair potential; steep slopes and subject to erosion	III - poor potential; steep slopes and shallow to rock	V - forestry and wildlife
		depth to hard bedrock is generally greater than 20 to 40"		4E
77C3 Nestoria gravelly silt loam, severely eroded (8-15%) (C)	shallow, well to excessively drained, eroded reddish-brown loamy-skeletal soils on steep convex slopes in highly dissected terrain with gullies; developed from Triassic sandstones/siltstones and shales	II R - fair potential; shallow to shale and siltstone; little soil material available for landscaping or grading	III - poor potential; shallow to rock	IV - grassland agriculture
		depth to rippable bedrock is generally less than 20" and hard bedrock is greater than 4'		4E

77D3 Nestoria gravelly silt loam, severely eroded (15-25%) (D)	shallow, well to excessively drained, eroded reddish-brown loamy-skeletal soils on steep convex slopes in highly dissected terrain with gullies; developed from Triassic sandstones/siltstones and shales	III RS - poor potential; shallow soils over rock and steep slopes	IV - very poor potential; shallow to rock and steep slopes	V - forestry and wildlife
		depth to rippable bedrock is generally less than 20" and hard bedrock is greater than 4'		6E
77E3 Nestoria gravelly silt loam, severely eroded (25-45%) (D)	shallow excessively drained eroded reddish-brown loamy- skeletal soils with gullies on steep slopes along drainageways; developed from Triassic sandstones/siltstones/ shales	IV RS - very poor potential; steep slopes and rock outcrops	IV - very poor or no potential; steep slopes and shallow to rock	V - forestry and wildlife
		depth to rippable bedrock is generally less than 20" and hard bedrock is greater than 4'		7E
78A Dulles silt loam, (0-3%) (C)	deep moderately well to somewhat poorly drained yellowish- brown mottled with gray clayey soils with seasonal perched water tables on nearly level landscapes; developed from fluvial cappings overlying siltstone and shales	IV W - very poor potential; low soils strength and prolonged perched water table	IV - very poor potential; low soil strength and prolonged perched water table	II - secondary cropland
		depth to hard bedrock generally ranges 40 to 60"		4W
79A Albano silt loam, (0-3%) brief ponding (D) Hydric soil	deep poorly drained mottled yellowish- brown and gray clayey soils with seasonal perched water tables in concave landscapes (swales); developed in colluvium and local alluvium of soils derived from Triassic siltstones and shales	IV W - very poor potential; seasonal perched water tables	IV - very poor potential; high water tables	IV - grassland agriculture
		depth to hard bedrock generally ranges 40 to 60"		4W
80B Brentsville loam, (3-8%) (B)	moderately deep well drained brown to reddish-brown loamy soils on gently sloping ridge crests and upper side slopes; developed from Triassic acid (arkosic) sandstones and pebbly conglomerate	I - good potential	II - fair potential; depth to rock	IV - grassland agriculture
		depth to hard bedrock generally ranges 20 to 40"		2E

80C Brentsville loam, (8-15%) (B)	moderately deep well drained brown to reddish-brown loamy soils on sloping side slopes in dissected landscapes; developed from Triassic acid (arkosic) sandstones and pebbly conglomerate	II R - fair potential; depth to rock	II- fair potential	IV - grassland agriculture
		depth to hard bedrock generally ranges 20 to 40"		3E
81B Brumbaugh cobbly silt loam, (2-7%) (B)	very deep moderately well drained gravelly strong brown to yellowish-red loamy soils with discontinuous perched water tables on gently sloping mountain toe slopes and foot slopes; developed from old mountain colluvium derived from acidic rocks	II W - fair potential; perched water tables	III- poor potential; high water tables	II - secondary cropland
		depth to hard bedrock is generally greater than 6'		3E
81C Brumbaugh cobbly silt loam, (7-15%) (B)	very deep moderately well drained gravelly strong brown to yellowish-red loamy soils with discontinuous perched water tables on flat to concave sloping mountain toe slopes and foot slopes; developed from old mountain colluvium acidic rocks	II W - fair potential; perched water tables	III- poor potential	II - secondary cropland
		depth to hard bedrock is generally greater than 6'		3E
82B Scattersville silt loam, (1-7%) brief ponding (D)	very deep somewhat poorly to poorly drained gravelly yellowish-brown mottled strong brown and gray loamy soils on gently sloping concave lowlands along drainageways at the base of the mountains; developed from old mountain colluvium of mixed acid and basic rocks	IV W - very poor potential; perched water tables	IV- very poor potential; high water tables	IV - grassland agriculture
		depth to hard bedrock is generally greater than 6'		4W
83B Braddock cobbly loam, (2-7%) (B)	very deep well drained gravelly red clayey soils on convex gently sloping mountain side slopes and foot slopes in rolling landforms; developed from old	I - good potential	II- fair potential; moderate permeability	II - secondary cropland
		depth to hard bedrock is generally greater than 6'		2S

	mountain colluvium derived from acidic rocks			
83C Braddock cobble loam, (7-15%) (B)	very deep well drained gravelly red clayey soils on convex gently sloping mountain side slopes and foot slopes in rolling landforms; developed from old mountain colluvium derived from acidic rocks	I - good potential	II- fair potential; moderate permeability	II - secondary cropland
		depth to hard bedrock is generally greater than 6'		3S
84B Lucketts silt loam, (2-7%) (B)	very deep well drained yellowish-red to red clayey soils on undulating upland with low relief; developed partly from alluvial/colluvial cappings and partly from residuum of calcareous conglomerate	II G - fair potential; solution channels may cause collapse and/or ground water pollution	II- fair potential; moderate permeability above discontinuity	II - secondary cropland
		evaluate by geotechnical investigation		depth to hard bedrock is generally greater than 6'
84C Lucketts silt loam, (7-15%) (B)	very deep well drained yellowish-red to red clayey soils on undulating upland with low relief; developed partly from alluvial/colluvial cappings and partly from residuum of calcareous conglomerate	II G - fair potential; solution channels may cause collapse and/or ground water pollution	II- fair potential; moderate permeability above discontinuity	II - secondary cropland
		depth to hard bedrock is generally greater than 6'		3E
88C Lew channery silt loam, stony (7-15%) (B)	very deep well drained brown soils on concave sloping side slopes in depressions and on benches on mountain side slopes; developed from recent mountain colluvium derived from greenstone rock materials	IV G - very poor potential; subject to slippage and unstable when cut	III- poor potential	V - forestry and wildlife
		depth to hard bedrock is generally greater than 6'		3E
88D Lew channery silt loam, stony (15-25%)	very deep well drained brown soils on concave sloping side slopes in depressions and on benches on	IV G - very poor potential; subject to slippage and unstable when cut	III- poor potential; steep slopes, questionable landscape	V - forestry and wildlife

(C)	mountain side slopes; developed from recent mountain colluvium derived from greenstone rock materials	depth to hard bedrock is generally greater than 6'	position and laterally moving water	6E
89D Weverton very flaggy silt loam, (15-25%) (C)	deep, well drained yellowish-brown loamy soil with many quartzite flagstone on moderately steep mountain side slopes; developed from colluvium and residuum of quartzite	IV G - very poor potential; slippage. mountain colluvium deposits may be unstable when cut (graded); proposals for development should be based on a geotechnical investigation	II- fair potential; moderate permeability; depth to rock	V - forestry and wildlife
		depth to hard bedrock is generally ranges 40 to 60"		7S
89E Weverton very flaggy silt loam, (25-45%) (C)	deep, well drained yellowish-brown loamy soil with many quartzite flagstone on moderately steep mountain side slopes; developed from colluvium and residuum of quartzite	IV G - very poor potential; slippage. mountain colluvium deposits may be unstable when cut (graded); proposals for development should be based on a geotechnical investigation	IV- very poor or no potential; steep slope	V - forestry and wildlife
		depth to hard bedrock is generally ranges 40 to 60"		7S
90B Springwood silt loam, (3-8%) (B)	very deep, well drained reddish-brown to red clayey soils on undulating uplands; developed from calcareous conglomerate	III G - poor potential; potential for collapse from underlying channels; proposals for development should be based on a geotechnical investigation	II- fair potential; pollution potential from sink holes/solution channels	I - prime farmland
		depth to hard bedrock is generally greater than 6'		2E
91B	very deep, well drained reddish-brown to red	IV G - very poor; solution weathering	IV- very poor potential;	V - forestry and wildlife

Springwood-Rock outcrop complex, (3-8%) (B)	clayey soils with numerous rock outcrops and sinkholes on undulating uplands; developed from calcareous conglomerate	collapse of underlying calcareous materials and potential groundwater pollution by sinkholes rock outcrops; evaluate by geotechnical investigation	pollution potential from sinkholes and rock outcrops	
		depth to hard bedrock is generally greater than 6'		2E, 8
91C Springwood-Rock outcrop complex, (8-15%) (B)	very deep, well drained reddish-brown to red clayey soils with numerous rock outcrops and sinkholes on sloping side slopes in dissected landscapes; developed from calcareous conglomerate	IV G - very poor; solution weathering collapse of underlying calcareous materials and potential groundwater pollution by sinkholes rock outcrops; evaluate by geotechnical investigation	IV- very poor potential; pollution potential from sinkholes and rock outcrops	V - forestry and wildlife
		depth to hard bedrock is generally greater than 6'		3E, 8
93B Hibler silt loam, (0-5%) rarely flooded (B)	very deep, moderately well drained yellowish-red loamy and silty soils with gray in the lower part and seasonal high water tables on convex river terrace positions; developed from alluvium of soils derived from sedimentary rock	II FW - fair potential; high seasonal water table, flooding	III- poor potential; moderate permeability and high water table	I - prime farmland
		depth to hard bedrock is generally greater than 6'		2E
94B Allegheny silt loam, (0-5%) rarely flooded (A)	very deep, well drained brown to yellowish-red loamy and silty soils with short duration perched water tables on convex river terrace positions; developed from alluvium of soils derived from sedimentary rock	II FW - fair potential; rare flooding	II- fair potential; moderate permeability	I - prime farmland
		depth to hard bedrock is generally greater than 6'		2E

95B Goresville gravelly silt loam, (0-5%) (B)	very deep, well drained red and yellowish-red clayey soils on convex high river terrace positions; developed from old alluvium of soils derived from sedimentary rock	I - good potential	I - good potential	I - prime farmland
		depth to hard bedrock is generally greater than 6'		2E
98B Captina silt loam, (1-8%) (C)	very deep moderately well to somewhat poorly drained yellowish-brown or mottled brown/gray and red clayey soils with fragipans and perched water tables on nearly level river terraces; developed from old alluvium of soils derived from sedimentary rock	III W - poor potential; perched water tables	IV - very poor potential; perched water tables	IV - grsssland agriculture
		depth to hard bedrock is generally greater than 6'		4W
99A Kinkora- Delanco complex, (0-3%) rarely flooded Hydric soil (D/C)	very deep poorly drained mottled gray clayey (Kinkora) and moderately well drained yellowish- brown loamy (Delanco) soils with a seasonal water table on concave to level terrace positions over siltstone	IV FW - very poor potential; prolonged water table and high shrink-swell clays	IV - very poor potential; water tables	IV - grsssland agriculture
		depth to hard bedrock is generally greater than 6'		2W