

INTRODUCTION

Section II provides information about the soils of Virginia. The information, which includes limitations, potentials, and soil properties, is useful in making decisions about land use and management. Information from NASIS will be used as the basis for soil properties and interpretations in Virginia. NASIS contains current information for each map unit that has been edited by soil scientists to represent local ranges in the data.

Interpretations are specific to the soils identified and mapped in the soil survey area. Map units to which interpretations apply are clearly identified by name, symbol, or both.

Soils are to be described and interpreted to help make decisions about use and management of land. Soil characteristics that limit or affect land use and management are to be identified, and soils are to be rated according to capability, limitations, potentials, and/or suitability.

Most of the soil information is presented in the form of tables arranged alphabetically by map unit name. Descriptive text about the tables is in individual Descriptive Materials section for each interpretation. All files are Adobe Acrobat PDF files. A free version of Adobe Acrobat Reader can be downloaded [here](#).

EXPLANATION OF SOIL INTERPRETATIONS

The basis for soil interpretations is the Data Mapunit, which is in NASIS. NASIS contains the most up to date information for each soil map unit, which has been edited by soil scientists to represent local ranges in the data.

Soil survey interpretations are predictions of soil behavior for specified land uses and specified management practices. They are based on the soil properties that directly influence the specified use of the soil. Soil survey interpretations allow users of soil surveys to plan reasonable alternatives for the use and management of soils. They are used to plan both broad categories of land use, such as cropland, pastureland, woodland, or urban development, as well as specific elements of those land uses, for example, septic tank absorption fields, suitability of the soil for roadfill, or shallow excavations.

When soil interpretations are used in connection with delineated soil areas on soil maps, the information pertains to the soil for which the soil area is named. Other soils that are in areas too small to map may occur within the delineated area. More detailed studies are required if small, specific sites are to be developed or used within a given soil delineation. For example, a soil delineation with the name Frederick silt loam, 2 to 7 percent slopes, can also include small, unmappable areas of other soils, such as Groseclose and Carbo.

Soil interpretations will not eliminate the need for onsite study and testing of specific sites for the design and construction of specific uses. They can be used as a guide to planning more detailed investigations and for avoiding undesirable sites for an intended use. The soil map and interpretations can be used to select sites that have the least limitations for an intended use. No consideration was given in these interpretations to the shape and size of soil delineations nor to the pattern they form with other soils on the landscape. For example, some very desirable soils areas are too small, too irregular in shape, or occur with less desirable soils in a pattern too complex for the intended use. Although not considered in the interpretations, these items should influence the final selection of a site.

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Key Phrases Used in Soil Interpretations

Soil interpretations typically list the degree of limitation or suitability and factors affecting use of the soil for agricultural and nonagricultural purposes. The interpretations apply to the soils in their natural state (unless otherwise stated) and not for areas that are altered by cut and/or fill operations.

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are **not limited**, **somewhat limited**, **moderately limited**, **limited**, and **very limited**. The suitability ratings are expressed as **well suited**, **moderately suited**, **poorly suited**, and **unsuited** or as **good**, **fair**, and **poor**.

Not limited indicates that the soil has features that are favorable for the specified use. Good performance and very low maintenance can be expected.

Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected.

Moderately limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected.

Limited indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional. Fair performance and moderate to high maintenance can be expected.

Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures that may result in additional. Poor performance and high maintenance can be expected.

Numerical Ratings

Numerical ratings in the tables indicate the severity of individual limitations. They also indicate the overall degree to which a soil is limited or not limited for a specific use. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00 with 0.00 indicating not limited with no limitations and 1.00 indicating very limited with severe limitations.

The numerical ratings used to express the severity of individual limitations indicated gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

In tables that use limitation class terms, such as very limited or limited, the limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each map unit component. The overall limitation rating for the component is based on the most severe limitation.

Good or well suited. The soil has properties favorable for the use. There are no soil limitations. Good performance and low maintenance can be expected. Vegetation or other attributes can easily be maintained, improved, or established.

Fair or moderately suited. The soil is moderately favorable for the use. One or more soil properties make these soils less desirable than those rated good or well suited. Vegetation or other attributes can be maintained, improved, or established; but a more intensive management effort is needed to maintain the resource base.

Poor or poorly suited. The soil has one or more properties unfavorable for the use. Overcoming the unfavorable property requires special design, extra maintenance, or costly alteration. Vegetation or other attributes are difficult to establish or maintain.

Unsuited. The expected performance of the soil is unacceptable for the use, or extreme measures are needed to overcome the undesirable properties or qualities. The unsuited rating is not used in current computer generated soil interpretation tables but may be used by soil survey areas within a state.

Numerical Ratings

Numerical ratings in the table indicate the severity of individual soil features. The numerical ratings are shown as decimal fractions ranging from 1.00 to 0.00 with 1.00 indicating well suited with no limitations and 0.00 indicating poorly suited with severe limitations.

The numerical ratings used to express the severity of individual soil features indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Explanation of key phrases for restrictive features

The terms for restrictive features are used to identify soil properties that restrict or limit the use of a soil for a specific purpose. The restrictive features are intended to assist users in identifying soil features important for use and management. Some of the terms are self-explanatory; others need explanation to help readers make maximum use of the information. The following is a list of terms and approved definitions:

Area reclaim	Borrow areas hard to reclaim
Cemented pan	Dense, hard, cemented soil material too near the surface
Cutbanks cave	Walls of excavation tend to cave in or slough
Deep to water	Deep to permanent water table during dry season
Dense layer	Layer is too dense for intended use
Depth to rock	Bedrock is too near the surface for the specified use
Depth to soft rock	Soft rock is too near the surface for the specified use
Droughty	Soil holds too little water for plants during dry periods
Erodes easily	Soil is easily eroded by water
Excess fines	Contains too much silt and clay
Excess humus	Contains too much organic matter
Excess permeability	Excess loss of water through subsurface discharge

Excess runoff	Excess loss of water through surface discharge
Excess salt	Water-soluble salts may restrict plant growth
Excess sodium	Contains too much exchangeable sodium
Excess sulfur	Excessive amount of sulfur in the soil may cause extreme acidity
Fast intake	The rapid movement of water into the soil.
Favorable	Features of the soil are favorable for the intended use.
Flooding	Soil temporarily floods by stream overflow, runoff, or high tides
Fragile	Soil that is easily damaged by use or disturbance
Fragmental	Contains rock fragments greater than or equal to 2 mm
Frost action	Freezing and thawing can damage structures
Hard to pack	Difficult to compact using earthwork construction equipment
Large stones	Rock fragments more than 3 inches adversely affect soil use
Loose material	Unconsolidated soil materials, such as sand
Low strength	Soil is not strong enough to support loads
No water	Too deep to ground water
Organic	Too much organic matter can adversely affects the soil
Percs slowly	Water moves through the soil too slowly
Piping	Water may form tunnels or pipe-like cavities in the soil
Ponding	Standing water on soils in closed depressions
Poor filter	Due to rapid permeability, soil may not adequately filter effluent
Restrictive layer	Soil or rock layer that inhibits water and/or root movement
Rock fragments	Fragments that reduce moisture and nutrient capacity of the soil
Rooting depth	Soil is shallow over a layer that greatly restricts roots
Runoff	Surface discharge of water that does not enter the soil
Seepage	Water moves through the soil or fractured bedrock too fast
Shrink-swell	Soil expands significantly on wetting and shrinks on drying
Slippage	Soil mass susceptible to movement downslope when loaded, excavated, or wet
Slope	Slope is too steep
Slow intake	Slow movement of water into the soil
Slow refill	Ponds fill slowly because of restricted soil permeability
Small stones	Contains many rock fragments less than 3 inches across
Soil blowing	Soil easily moved by wind
Stoniness	Soil has stones that interfere with its use and management
Subsides	Settlement of organic soils or of soils containing semifluid layers
Thin layer	Inadequate thickness of suitable soil
Too acid	Soil is so acid that growth of plants is restricted
Too bouldery	Soil has boulders that interfere with use or management
Too clayey	Soil is slippery and sticky when wet and slow to dry
Too cobbly	Soil has excess cobbles that interfere with use or management
Too gravelly	Soil has excess gravels that interfere with use or management
Too sandy	Soil is soft and loose, droughty, and low in fertility
Too stony	Soil has excess stones that interfere with use or management
Unstable	Soils are subject to failure under load
Wetness	Soil is wet during the period of desired use

Soil interpretations requested for a specific land use have a unique set of rating terms that identify either the limitation or the suitability of the soil for that purpose. Select soil properties or features are key components of the rating criteria used to rate each interpretation. Only the applicable restrictive feature phrase that relates to each soil property evaluated is used.