

Appendix 11-A

HYDROLOGIC SOIL GROUPS OF VIRGINIA SOILS

The Virginia state office of the USDA-Natural Resource Conservation Service has provided the following guidance pertaining to accessing Hydrologic Soil Group information from the *National Engineering Handbook* and NRCS web resources:

NEH630, Chapter 7 Hydrologic Soils Group Update

What's new? Chapter 7 contains the official definitions of the four hydrologic soils groups that, along with land use, management practices and hydrologic conditions, determine a soil's associated runoff curve number. Chapter 7 was revised in January 2009 and May 2007. HSGs are now listed by soil map unit. **A single national [or state list] list will not be maintained and is obsolete.**

Where is the official HSG information? HSG information can be found by consulting the Soils section of the VA NRCS web site. www.va.nrcs.usda.gov/technical/Soils/index.html. You can access the soils data through the eFOTG, the State Soil Geographic Database (STATSGO), the Soil Data Mart, or the Web Soil Survey.

What about Table 2.1 in the Engineering Field Handbook? Table 2.1 is a list of HSGs by soil series and is now obsolete.

What about the EFH-2 Runoff and Peak Discharge software and the HSG database (Soils.HG)? The software has an HSG database for Virginia, available on the engineering web site www.va.nrcs.usda.gov/technical/hydrology.html. The HSG database is "officially" obsolete. However, we will review the list once per year to ensure it is current. The HSG database is current for 2008. A notification will go out once it is updated for 2009. However, the most up-to-date soils information is located on the Web Soil Survey.

Additional information for obtaining and using digital soil information
(Contact your friendly area Soil Resource Specialist for further information.)

Web Soil Survey <http://websoilsurvey.nrcs.usda.gov/app/>



Using Soil Data Viewer with ArcMap 9.2: Once a digitized soil data layer is available, the user can use soil data viewer and toolkit to create soil-based thematic map. A step-by-step guide for using soil data viewer and toolkit is available on the web (from the main soils page, <http://www.va.nrcs.usda.gov/technical/Soils/index.html>, on the left; and on the training page <http://www.va.nrcs.usda.gov/intranet/training.html>).

In light of this NRCS guidance, designers are advised to obtain soil HSG information from directly from the NRCS soils web site, in order to have the most accurate, reliable and up-to-date information.

Table 11-A.1 below is an update of a similar table provided in Appendix A of Chapter 4 of the 1999 Virginia Stormwater Management Handbook, for which this is an update. **Table 11-A.1** contains the majority of soils found in Virginia, along with their corresponding Hydrologic Soil Group designations. Soil names that appear in *italics* were listed in the 1999 Handbook but are no longer included in Virginia soils as identified by the NRCS. However, we have included them here in order for designers and regulators to be able to reference the information that may have been used in earlier stormwater management plans and BMP designs. However, **designers should note that all stormwater BMP/SCM designs that require specific soil conditions to be present should be based on an actual analysis of soils at the site.**

Table 11-A.1. Hydrologic Soil Groups in Virginia

Soil Name	Hydro Group	Soil Name	Hydro Group	Soil Name	Hydro Group
Abell	B	Ackwater	D	Acredale (SIL)	D
Aden (SIL)	C	Airmont (FLV-L)	C	Alaga	A
Alanthus (SIL)	B	Albano (SIL)	D	Albermarle (FSL)	B
Alderflats (SIL)	D	Allegheny	B	Alluvial Land (FSL)	B
Alluvial Land (FSL)	B/D	Alluvial Land, Sandy and Gravelly (S)	C/D	Alluvial Land, Wet (SL)	C/D
Alonzville	B	Altavista	C	Alticrest	B
Appling	B	Appomattox	B	Aqualfs (SIL)	D
Aquents (CN-SIL)	B	Aquic Udifluvents (FSL)	B	Aquults (FSL)	D
Aquults (L)	C/D	Arapahoe	B/D	Arcola	C
Argent (SIL)	D	Ashburn (SIL)	C	Ashe	B
Ashlar	B	Assateague	A	Atkins	D
Atlee	C	Augusta	C	Aura	B
Austinville (SICL)	B	Axis (VFSL)	D	Aycock (SIL)	B
Ayersville (PGR-L)	B	Backbay (MPT)	D	Badin (SIL)	B
Baile (L)	D	Bailegap	B	Balsam (CB-L)	B
Bama (SL)	B	Bayboro	D	Banister	C
Barkers Crossroads (L)	D	Batteau (L)	C	Beaches (S)	D
Beckham (CL)	B	Beech Grove	C	Beech Grove (SIL)	D
Belhaven (MUCK)	D	Beltsville	C	Belvoir	C
Benthole (GR-SIL)	B	Bentley (LS)	C	Berks (CN-SIL)	C
Berks (CNV-SIL)	D	Bermudian (SIL)	B	Bertie (FSL)	C
Bertie (VFSL)	B	Bethera (SIL)	D	Bethesda (GR-SIL)	C
Bibb	D	Biltmore (FSL)	A	Birdsboro (L)	B
Birdsboro (SIL)	C	Bladen	D	Blairton (SIL)	C
Bland (SICL)	C	Bleakhill	C	Blocktown (GR-SIL)	C/D

Soil Name	Hydro Group	Soil Name	Hydro Group	Soil Name	Hydro Group
Bloodyhorse (GR-L)	B	Bluemount (GR-SIL)	C	Bohicket	D
Bojac	B	Bolling	C	Bolton (L)	B
Bonneau (LS)	A	Bookwood (SIL)	B	Botetourt	C
Bourne	C	Bowmansville (SIL)	B/D	Braddock	B
<i>Bradley</i>	C	Brandywine	A	<i>Brecknock</i>	<i>B</i>
Bremo	C	Brentsville	C	Brevard (GR-FSL)	B
Brickhaven (FSL)	C	Brinklow (SIL)	D	Broadway (SIL)	B
Brockroad (SIL)	C	Brownwood	B	Brumbaugh	B
Brushy	B	Buchanan	C	Buckhall	B
<i>Bucks</i>	<i>B</i>	Buckton	B	Buffstat (CN-SIL)	B
Buffstat (SIL)	C	Bugley	C/D	Buncombe	A
Burketown (FSL)	C	Burrowsville	C	Burton (L)	B
Buzzrock (L)	B	Calverton (SIL)	C	Calvin	C
Camocca (FS)	A/D	Caneyville (SIL)	C	Carbo	C
Carbonton (FSL)	C	Cardiff	B	Cardova (GR-L)	C
Caroline	C	<i>Carrvale</i>	<i>D</i>	Cartecay	C
Cataska	D	Catharpin (SIL)	C	Catlett (GR-SIL)	C/D
Catoctin	C	Catpoint	A	Caverns (SL)	B
Cecil	B	Cedarcreek	C	Chagrin	B
Chandler (L)	B	Chantilly (L)	D	Chapanoke (SIL)	C
Chastain	D	Chatuge	D	Chavies (FSL)	B
Chenneby	C	Chesapeake (SL)	B	Chester	B
Chestnut (GR-FSL)	C	Chestnut (SL)	B	Chewacla	C
Chickahominy	D	Chilhowie	C	Chincoteague (SIL)	D
Chipley (FS)	C	Chiswell	D	Christian	C
Cid	C	Claiborne (SIL)	B	Clapham (SIL)	C
Clearbrook (CN-SIL)	D	Clifffield (CBV-FSL)	B	Clifford (L)	C
<i>Clifton</i>	C	Clingman (MK-PEAT)	D	Clover	B

Soil Name	Hydro Group	Soil Name	Hydro Group	Soil Name	Hydro Group
Cloverlick (GR-SIL)	B	Clubcaf (SIL)	D	Clymer	B
<i>Coastal Beach</i>	<i>D</i>	Codorus	C	Colescreek (FSL)	C
Colfax	C	Colleen	C	Colvard (FSL)	B
Combs	B	Comus	B	Conetoe	A
Congaree	B	<i>Coosaw</i>	<i>B</i>	Corolla (S)	D
Corydon (SICL)	D	Cotaco	C	Cottonbend	B
Coursey	C	Cowee	B	Coxville (L)	D
Craigsville (CB-SL)	B	Craven	C	Creedmoor	C
<i>Croton</i>	<i>D</i>	Cullasaja	B	Cullen	C
Culleoka (GR-SIL)	B	Culpeper	C	Daleville	D
Dan River (L)	B	Dandridge (CN-SICL)	D	Danripple	C
<i>Davidson</i>	<i>B</i>	Dawhoo (FSL)	D	<i>Decatur</i>	<i>B</i>
Dekalb	C	Delanco	C	Delila (SL)	D
Dellwood (CB-SL)	A	Deloss (FSL)	B/D	Derroc (CBV-L)	B
Devotion (SL)	B	Diana Mills (PCB-L)	C	<i>Dillard</i>	<i>C</i>
Dogue	C	Dorovan	D	Dothan (LS)	B
Downer (LS)	A	Dragston (FSL)	C	Drall	B
Drapermill (GR-L)	B	Drypond	D	Duckston (FS)	A/D
Duffield (SIL)	B	Dulles (SIL)	D	Dumfries (SL)	B
Dumps Variant	?	Dunbar (FSL)	D	Dunning (SIL)	D
Duplin (FSL)	C	Durham	B	Dyke	B
Dystrochrepts (LS)	B/D	Easthamlet (SL)	D	Ebbing (L)	C
Edgehill (GRV-FSL)	C	Edgehill (GRV-SL)	B	Edgemont	B
Edneytown	B	Edneyville	B	Edom	C
Elbert	D	Elioak	C	<i>Eliock</i>	<i>C</i>
Elkton (SIL)	C/D	Elliber (GRV-SIL)	A	Elsinboro	B
Emporia (FSL)	C	Endcav	C	Enon	C
Enott	C	Ernest	C	Escatawba	B

Soil Name	Hydro Group	Soil Name	Hydro Group	Soil Name	Hydro Group
Eubanks	B	Eulonia (FSL)	C	Eunola	C
Evansham (SICL)	D	Evard	B	<i>Evergreen</i>	B
Exum (SIL)	C	Exway (CL)	B	Faceville	B
Fairfax (L)	B	Fairpoint (CN-SIL)	C	Fairview	B
Fallsington	B/D	Fauquier	C	Faywood	C
Featherstone (MK-SIL)	D	Feedstone (SIL)	B	Fisherman (FS)	D
Fiveblock (CNV-SL)	C	Flairmont (FLV-L)	C	Flatwoods (SIL)	C
Fletcher (L)	C	Flume (L)	C	Fluvanna	C
Fluvaquents (L/SL/VFSL)	B/D	Fluvaquents (SIL/SICL/FSL)	D	Forestdale	D
Fork (FSL)	C	Frankstown (CN-SIL)	B	Frederick	B
French (L)	C	Fresh Water Swamp (MK-SL)	B/D	Fripp (S)	A
Gaila (SL)	B	Gainesboro	C	Galestown (LFS)	A
Galtsmill (FSL)	B	Georgeville	B	Germanna (SIL)	B
Gertie (SIL)	D	Gilpin	C	Gladehill	B
Glenelg	B	Glenville (L)	C	<i>Glenwood</i>	B
Golbintown (MPM)	B	Goldsboro	B	Goldston	C
Goldvein (GRV-SIL)	C	Goresville	B	Gravelly Alluvial Land (GR-L)	B/D
Greenlee (CBV-L)	B	Griffinsburg (GRV-SL)	C	Grigsby	B
Grimsley	B	Grist Mill (SL)	D	Gritney	B
Groseclose	C	Grover	B	Guernsey (SIL)	C
Gunstock	C	Gunston (SIL)	D	Guyan (SIL)	C
<i>Gwinett Variant</i>	B	Hagerstown (SIL)	C	Halewood (FSL)	C
Halifax	C	Haplaquepts (L)	A/D	Hapludults (FSL)	B/D
Happyland (GR-L)	D	Hartleton (CN-L)	B	Hatboro	D
Hattontown (SIL)	D	Hawksbill	B	Hayesville	B

Soil Name	Hydro Group	Soil Name	Hydro Group	Soil Name	Hydro Group
Hayesville (Stony)	C	Haymarket (SIL)	D	Hayter	B
<i>Haywood</i>	<i>B</i>	Hazel	C	<i>Hazel Channery</i>	<i>C</i>
Hazleton	B	Helena	C	Herndon	B
Hibler (SIL)	B	Hickoryknob (MPM)	C	Highsplint (CN-SIL)	B
Hiwassee	B	Hoadly (L)	C	Hobucken (L)	D
<i>Hogeland</i>	<i>C</i>	Holly (L)	D	Hollywood (CL)	D
Honga (PEAT)	D	Huntington	B	<i>Hyattsville</i>	<i>B</i>
Hyde (SIL)	B/D	Hydraquents (MK)	D	Ingledove (L)	B
Iotla (SL)	B	Iredell	C/D	Irongate	B
Itmann	C	Iuka (FSL)	C	Izagora	C
Izagora	C	Jackland (SIL)	D	Jedburg (L)	C
Jefferson	B	Johns	C	Johnston	D
Junaluska (CN-L)	B	Kalmia	B	Kaymine (CNV-SIL)	C
Keener (L)	B	Kelly (SIL)	D	Kempsville (LFS)	B
Kenansville	A	<i>Kenansville Variant</i>	C	Keyport (SIL)	C
Kingstowne (SCL)	D	Kinkora (SIL)	D	Kinston	B/D
<i>Klej</i>	<i>B</i>	Klinesville (CN-SIL)	C/D	Konnarock (CN-SIL)	<i>C</i>
Lackstown (FSL)	C	Laidig	C	Lakehurst (S)	A
Lakeland	A	Lakin (LS)	A	Lanexa	D
<i>Lansdale</i>	<i>B</i>	LaRoque (L)	B	Lawnes	D
Leaf (SIL)	D	Leaksville (SIL)	D	Leck Kill (SIL)	B
Leedsville (CB-SIL)	B	Leetonia (GR-LS)	C	Legore (L)	B
Lehew	C	Lenoir	D	Leon (S)	B/D
Levy	D	Lew	B	<i>Lewisberry</i>	<i>B</i>
Library (SIL)	D	Lignum	C	Lily	B
Lindside (SIL)	C	Littlejoe	B	Litz	C
Lloyd	C	Lobdell	B	Local Alluvial Land (L)	B
Lodi	B	Louisa	B	Louisburg	B

Soil Name	Hydro Group	Soil Name	Hydro Group	Soil Name	Hydro Group
Lowell (SIL)	C	Luckettes (SIL)	B	Lucy (LS)	A
<i>Lugnum</i>	C	Lumbee	B/D	Lunt	C
Lynchburg	C	Macove	B	Madison	B
Madsheep	C	Maggodee (FSL)	B	Magotha (FSL)	D
Manassas (SIL)	B	Mandy (CN-SIL)	C	Manor	B
<i>Mantachie</i>	C	Manteo	C/D	Marbie (SIL)	C
Marbleyard (CBL-SL)	C	Margo (L)	B	Marlboro (FSL)	B
Marr (VFSL)	B	Marrowbone (FSL)	C	Marumsco (L)	C
Masada	C	Massanetta	B	Massanutten	B
Matapeake (SIL)	B	Matewan (FL-FSL)	B	Matneflat (GR-SL)	B
Mattan	D	Mattapex	C	Maurertown	D
Mayodan	B	McCamy (FSL)	B	McClung (SL)	B
McGary (SIL)	C	<i>McQueen</i>	C	Meadows (GR-L)	D
Meadowville	B	Mecklenburg	C	Meggett (SL)	D
Melfa (MPT)	D	Melvin (SIL)	D	Middleburg	B
Milldraper (L)	B	Millrock	A	Mine Run (LS)	B
Minnieville	C	Mirerock	D	Mixed Alluvial Land	D
"Mixed Alluvium M1" (SIL)	B/D	"Mixed Aluvium Mm" (SIL)	B	Molena (LS)	A
Monacan (SIL)	C	Mongle (L)	C	Mongle (SIL)	D
Monongahela	C	Montalto	C	Montonia (CN-SIL)	B
<i>Montessor</i>	B	Montross (SIL)	C	Moomaw	C
<i>Morrisonville</i>	B	Morven (SIL)	B	Mount Lucas (L)	C
Mt Rogers (GR-L)	B	<i>Mt Weather</i>	B	Muckalee (L)	D
Munden	B	Murrill	B	Myatt	D
<i>Myatt Variant</i>	D	Myersville	B	Nahunta (SIL)	C
Nanford (SIL)	C	Nansemond (LS)	C	Nason (GR-L/GR-SIL)	B
Nason (L/SIL/SICL)	C	Nathalie	B	Nawney	D

Soil Name	Hydro Group	Soil Name	Hydro Group	Soil Name	Hydro Group
Neabsco (L)	C	Nestoria	C/D	Nevarc	C
Newark (SIL)	C	Newbern (SIL)	C	Newflat (SIL)	D
Newhan (FS)	A	Newmarc (SIL)	C	Nicelytown (SIL)	C
Nicholson (SIL)	C	Nimmo	D	Nixa	C
Nolichucky	B	Nolin (SIL)	B	Nomberville	B
Nopan (L)	D	Norfolk	B	Oak Level (L)	C
Oakhill	B	Oaklet (SIL)	C	Oatlands	B
Occoquan	B	Ochlockonee (SIL)	B	Ochraquults (FSL)	B/D
Ochrepts (CN-SIL)	D	Ochrepts (SIL)	B/D	Ocilla (LS)	B
Ogles (CBV-L)	B	Okeetee (SL)	D	Opequon (SICL)	C
Orange	D	Orangeburg	B	Orenda (L)	B
Oriskany	B	Orrville (L)	C	Osier (LFS)	A/D
Othello (SIL)	C/D	Ott (SIL)	B	Pacolet	B
Pactolus	A	Paddyknob (CNV-L)	C	Paddyknob (GR-L)	A
Pagebrook	D	Pamlico	D	Pamunkey (FSL/L)	B
Pamunkey (GR-SL)	A	Panorama (SIL)	B	Parker	B
Partlow	D	Pasquotank (SIL)	B/D	Peaks	C
Peawick	D	Penhook	B	Penn	C
Philo	B	Philomont (GR-SL)	B	Pigeonroost	B
Pignut (SIL)	C	Pineola (L)	B	Pineville (CN-L)	B
Pineywoods (SIL)	D	Pinkston	B	Pinoka (GR-FSL)	B
Pisgah (SIL)	C	Pits (S/GRX-S)	A	Pocaty (MUCK)	D
<i>Pocomoke</i>	<i>B/D</i>	Poindexter	B	Polawana	A/D
Pooler (L)	D	Pope (FSL)	B	Poplimento	C
Porters	B	Portsmouth	B/D	Pouncey (FSL)	D
Poynor (GRV-SIL)	B	Psammets (FS)	A	Pungo	D
Purcellville (SICL)	B	Purdy	D	Quantico (L)	B
Rabun (SIL)	B	Rains	B/D	Ramsey	D

Soil Name	Hydro Group	Soil Name	Hydro Group	Soil Name	Hydro Group
Rapidan (L)	B	Rappahannock (MUCK)	D	<i>Raritan</i>	C
Rasalo (SL)	C	Rayne	B	<i>Readington</i>	C
Reaville (SIL)	C	Redbrush (L)	C	Remlick	A
Rhodhiss (SL)	B	Rigley (SL)	B	Rion	B
Riverview	B	Rixeyville (FSL)	C	Roanoke	D
Rock Outcrop (BR)	D	Rohrersville	D	Ross (L)	B
Rough	D	Rowland (SIL)	C	Rubble Land (BYX-BY)	A
Rumford	B	Rushtown	A	<i>Ruston</i>	B
<i>Safell</i>	B	Sandy and Clayey Land (GR-SL)	B/D	Sassafras	B
Saunook (L)	B	Sauratown (GR-L)	B	Savannah	C
Scales (PEAT)	D	Scattersville	C	Schaffemaker (LS)	A
Seabrook	C	<i>Sedgefield</i>	C	Sekil (SL)	B
Seneca	B	Sequoia	C	Sewell	C
Shelocta	B	Shenval	B	Sherando	B
Sheva (FSL)	C	Shottower	B	Siloam (FSL)	D
Siloam (MPM)	C	Sindion	B	Sketerville (SIL)	C
Slabtown (SIL)	B	Slagle	C	<i>Slickens</i>	B
Sloping Sandy Land (FS)	A	<i>Snickersville</i>	B	Sowego (L)	B
Speedwell	B	Spessard (LS)	A	<i>Spivey</i>	B
Spotsylvania (FSL)	C	Spriggs	C	Springwood (SIL)	B
<i>Stanton</i>	D	Starr	C	State	B
Steep Sandy Land (FS)	A	Steinsburg (FSL)	B	Stonecoal (CNX-SL)	C
Stoneville	B	Stony Local Alluvial Land (L)	D	Stott Knob	B
Straightstone (L)	B	Strawfield (CL)	B	<i>Stuart</i>	C
Stumptown (FLV-L)	B	Suches	B	<i>Sudley (L)</i>	B

Soil Name	Hydro Group	Soil Name	Hydro Group	Soil Name	Hydro Group
Suffolk	B	Sugarhol (SIL)	B	Sulfaquents (MK-SICL)	D
Sumerduck (L)	C	Susquehanna (L)	D	<i>Swamp</i>	<i>D</i>
Swampoodle (L)	C	Sweetapple (FSL)	B	Swimley	C
Sycoline (SIL)	D	Sylco	C	Sylvatus	D
Talladega (SIL)	C	<i>Tallapoosa</i>	C	Tankerville (L)	C
Tarboro	A	Tarrus (SIL)	B	Tate (L)	B
Tatum	B	Tetotum	C	Thunder (CB-L)	B
Thurmont	B	Tidal Marsh (MUCK)	B/D	“Tidal Marsh, High” (ML-SL)	D
“Tidal Marsh, Low” (MK-SICL)	D	Timberville	B	Tioga (FSL)	B
Toast (SL)	B	Toccoa	B	Toddstav (SIL)	D
Tomotley	B/D	Toms (SIL)	C	Torhunta (L)	C
<i>Totier</i>	C	Toxaway (SIL)	B/D	Trappist (SIL)	C
<i>Trego</i>	<i>B</i>	Trenholm (SL)	D	Trimont (L)	B
Tuckahoe (L)	B	Tuckasegee (CB-L)	B	Ti,b;omg	B
Tirbevo;;e	C	Tisqiotee	B	Tugart)SIL)	D
Typic Udorthents (GRV-SL)	A/D	Uchee	A	Udalfs	D
Udifluents	B/D	Udipsamments	A/D	Udorthents (FSL)	B
Udorthents (L)	D	Udults (SL)	B/D or C/D	Unaka (L)	B
Unicoi (GRV-SL)	C	Unison	B	Urban Land (MAT)	D
Vance	C	Varina	C	Vaucluse (SL)	C
Vertrees	B	Virgilina (GR-SIL)	C	Wadesboro (CL)	B
Wahee	D	Wallen	B	Walnut (MPM)	B
Wando (LFS)	A	Warminster (CL)	C	Warne (FSL)	D
Watahala	B	Watauga	B	Wateree	B

Soil Name	Hydro Group	Soil Name	Hydro Group	Soil Name	Hydro Group
Watt	D	Waxpool (SIL)	D	Weaver (SIL)	C
<i>Weaverton</i>	C	Webbtown (CN-SIL)	C	Wedowee	B
Weeksville (SIL)	B/D	Wehadkee	D	Weikert	C/D
Westfield (L)	B	Westmoreland (SIL)	B	Weston (FSL)	D
Westphalia (LVFS)	B	Weverton	B	Wharton (SIL)	C
Wheaton (L)	D	Wheeling	B	<i>White Stone</i>	D
Whiteford (SIL)	B	Wickham (FSL)	B	Wilkes	C
Wingina (L)	B	Winnsboro (SL)	C	Wintergreen	B
Winton (FSL)	C	Wolfgap	B	Wolftrap (FSL)	D
Woodington (FSL)	B/D	Woodstown	C	Woolwine	B
Worsham	D	Wrightsboro (FSL)	C	Wurno	C
Wyrick	B	Yadkin	B	Yellowbottom (L)	C
Yemassee (FSL)	C	Yeopim (SIL)	B	Yogaville	B/D
York (SIL)	C	Zepp	B	Zion	C
Zoar	C				

Source: Compiled from the USDA-NRCS Online Soil Survey Data for Virginia, July, 2009