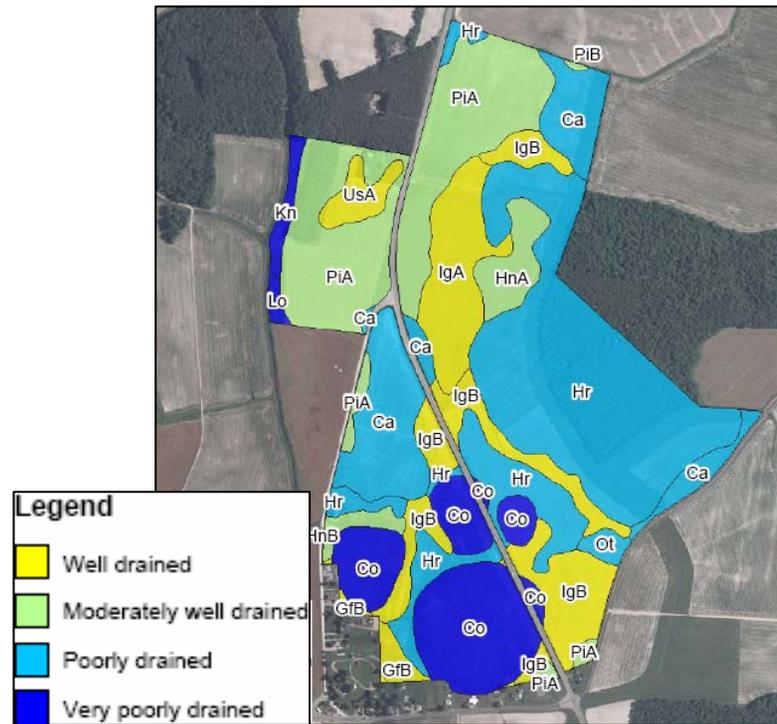


Toolkit Topic –

Using Soil Data Viewer to Create Interpretive Maps and Reports



Maryland NRCS and Partners

Web Meeting

December 12, 2007

Using Soil Data Viewer

TOPICS

- I. Install Soil Data Viewer
- II. The Soils Database
- III. Generating Soil Reports
- IV. Generating Non-Technical Descriptions
- V. Generating Soil Interpretive Maps
- VI. Soil Data Viewer Reports
- VII. Questions

For more information visit the Maryland NRCS Toolkit Web Page:

<http://www.md.nrcs.usda.gov/technical/toolkit.html>

I. Install Soil Data Viewer



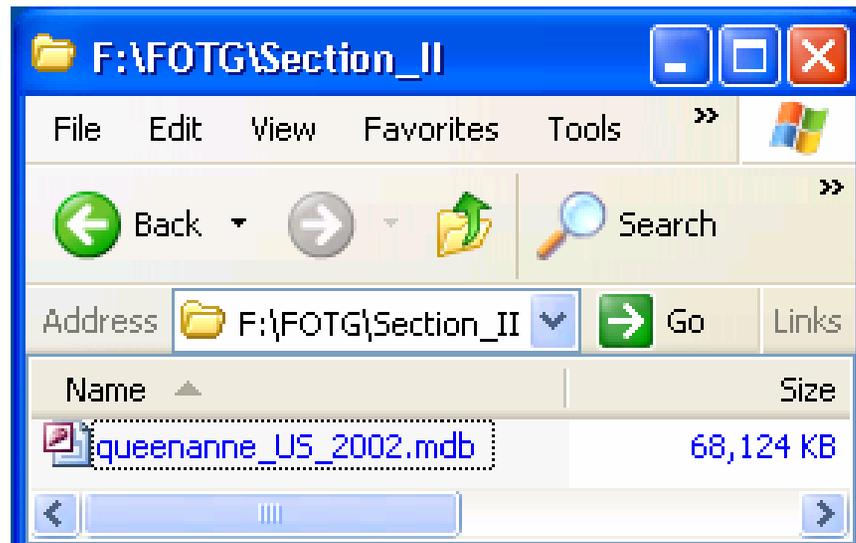
- Installation of Soil Data Viewer 5.0 requires Administrative Privileges – Ask ITS to install it!
- Outside customers may download Soil Data Viewer 5.0 from the Soil Data Viewer Web site: <http://soildataviewer.nrcs.usda.gov>
- Soil Data Viewer is compatible with ArcMap 8.3, 9.0, and 9.1 (Not with ArcMap 9.2).



II. The Soils Database

- The County Soils Database is located on the Field Office Server under:

F:\FOTG\Section_II



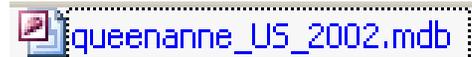
- Store a copy of the database on your workstation under

C:\Field_Office_Tech_Guide\Section_II (*Optional*).

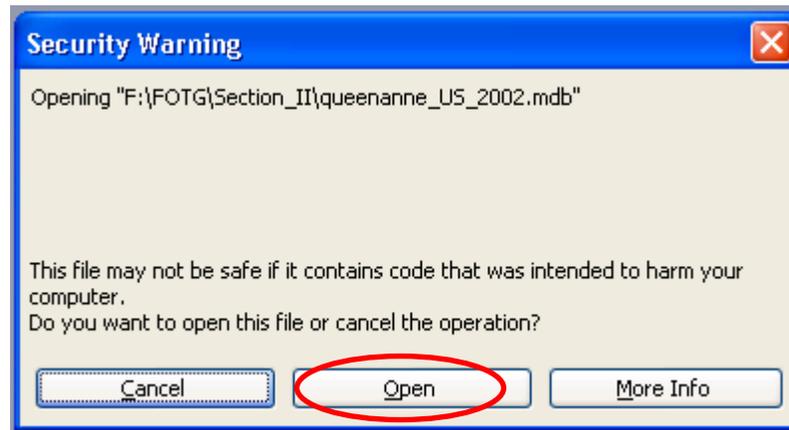
- Outside customers may download the soils database and spatial layer from the Soil Data Mart Web page: <http://soildatamart.nrcs.usda.gov/>

III. Generating Soil Reports

- One way to generate soil reports is by double-clicking on the soils database:



- A security window pops up before MS Access runs. Click "Open."



IV. Generating Non-technical Soils Descriptions

You cannot generate the Map Unit Description Report from Soil Data Viewer. You must use the database, Soil Data Mart or Web Soil Survey.

- Double-click on the soils database.
- A security window pops up before MS Access runs. Click **Open**.
- Select your **Map Unit Symbol**. To select multiple map units, hold the ctrl-key and left mouse click. Or, click on the **Select All** button.
- Under **Report Name** scroll down and click on “Map Unit Description (Brief).”
- Click on the **Select Parameters** button.

Soil Reports (Template Version: 33)

Soil Survey Area Name
Queen Anne's County, Maryland

Map Unit Symbol	Map Unit Name
Bp	Bestpitch peat
Ca	Carmichael loam
Co	Corsica mucky loam
DhC	Downer-Hammonton sandy loams, 5 to 10 percent slopes
DoB	Downer sandy loam, 2 to 5 percent slopes
DDE	Downer soils, 15 to 30 percent slopes
DUD	Downer and Unicorn soils, 10 to 15 percent slopes
Fg	Fallsington loam
FmA	Fort Mott loamy sand, 0 to 2 percent slopes

Select All Clear Selections Selection Help

Report Name
Map Unit Description (Brief)

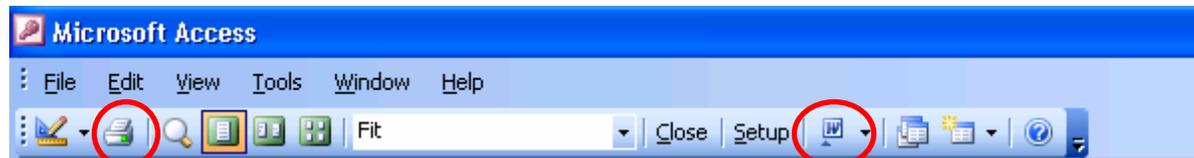
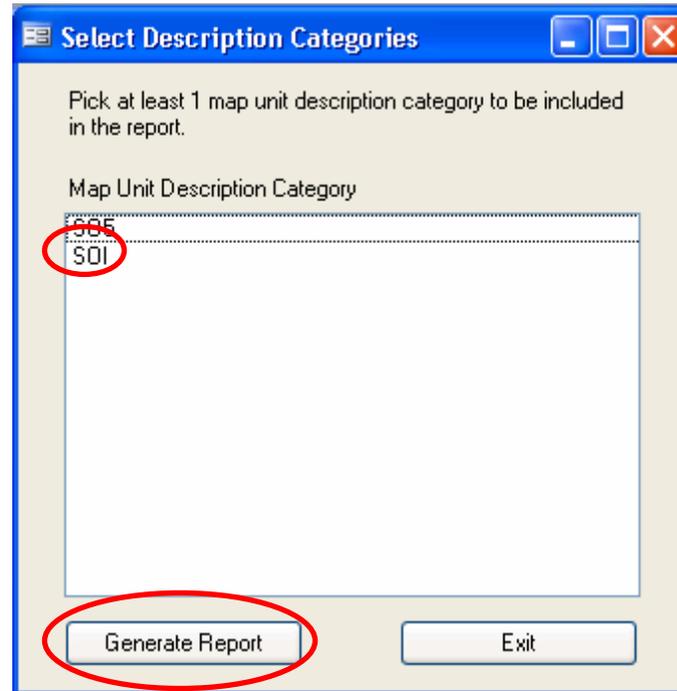
Include Minor Soils Include Report Description

Select Parameters Exit System Reports

If you are new to this database, please select the Reports tab of the Database window and open the report titled "How to Understand and Use this Database".

IV. Generating Non-technical Soils Descriptions

- Click on **SOI**.
- Click the **Generate Report** button.
- **Print** the report or click on the MS Word icon to save the report as a Word document.



Map Unit Description (Brief)
Queen Anne's County, Maryland

(Only those map units that have entries for the selected description categories are included in this report.)

Map unit: Rq - Beach pit soil

Description category: SOI

The Beach pit component makes up 33 percent of the map unit. The assigned permeability factor is 02. The soil is very poorly drained. The slowest permeability within 40 inches is slow. Available water capacity is very high and shrink swell potential is low. The soil is frequently flooded and is not ponded. The top of the seasonal high water table is at 0 inches. The soil has a strongly saline horizon. It is an unregulated land capability class 3B. The component is a hydric soil.

IV. Generating Non-technical Soils Descriptions

Map Unit Description (Brief)

Queen Anne's County, Maryland

[Only those map units that have entries for the selected description categories are included in this report]

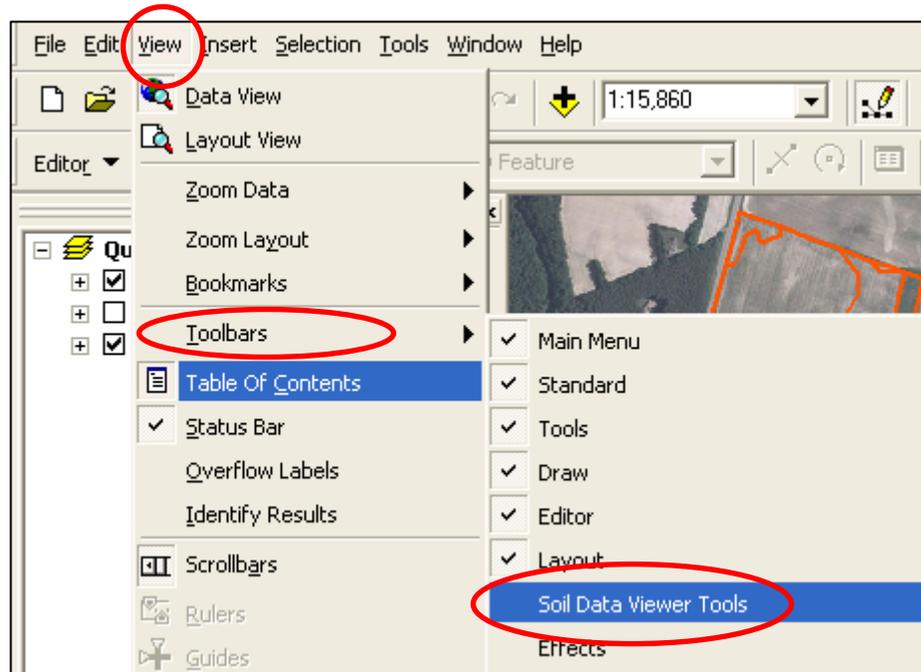
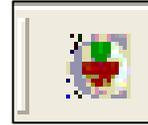
Map unit: Ca - Carmichael loam

Description category: SOI

The Carmichael component (drained) makes up 35 percent of the map unit. The assigned **Kw erodibility factor** is .37. **Soil drainage** has been altered. The slowest **permeability** within 60 inches is slow. **Available water capacity** is very high and shrink swell potential is low. This soil is not flooded and is not ponded. The top of the **seasonal high water table** is at 6 inches. There are no saline horizons. It is in nonirrigated **land capability class** 3w. Under natural conditions this component is a **hydric** soil. The hydrology of this component has been altered for agricultural use.

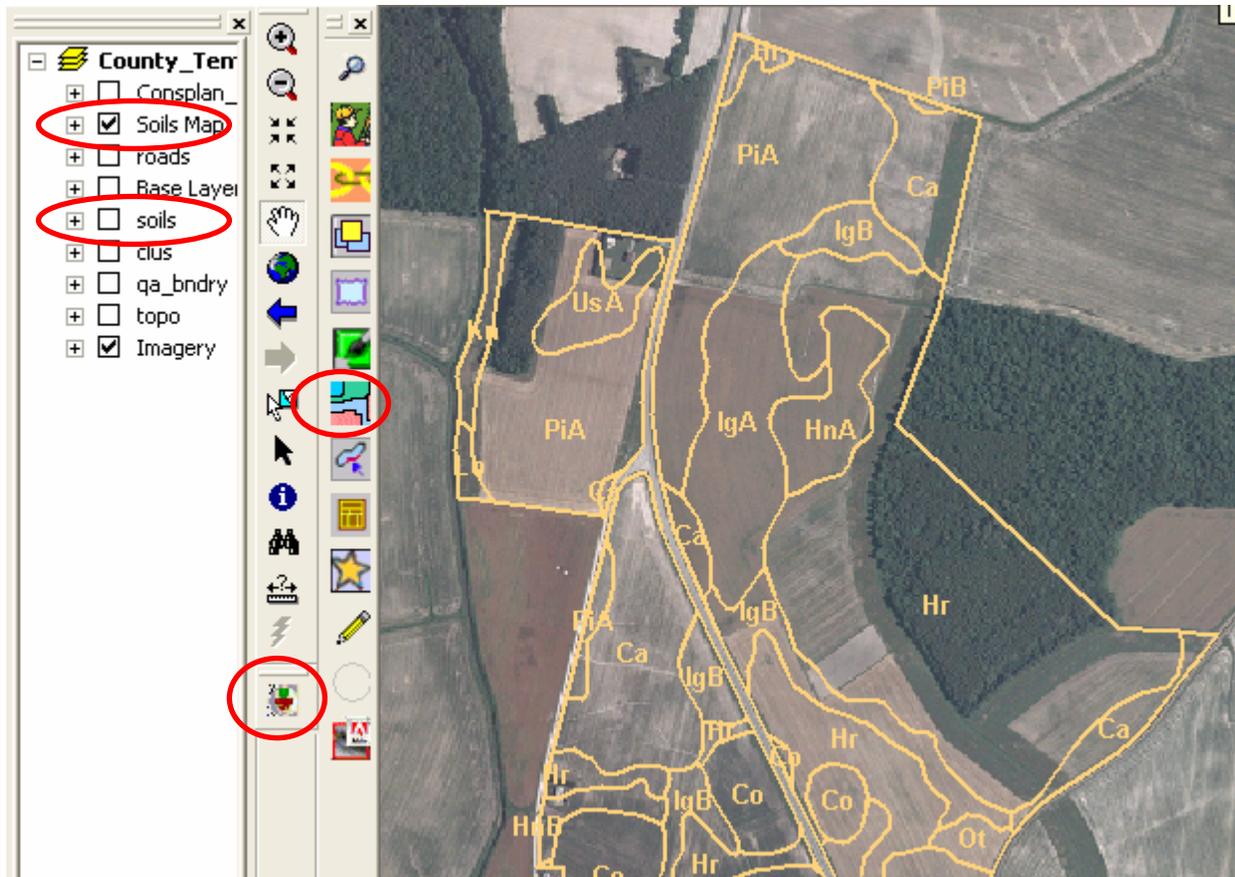
V. Create Interpretive Soil Maps – Load SDV Toolbar

- Load the **Soil Data Viewer** toolbar.
- Click on the **View** menu.
- Select **Toolbars>Soil Data Viewer Tools**
- Dock the “Flower Pot” next to an existing toolbar.



V. Create Interpretive Soil Maps

- The county soils layer should be added to the view.
- Use the **Soils Map and Inventory** button to create a **Soils Map** layer.
- Click on the **Soil Data Viewer** button.



V. Create Interpretive Soil Maps

- Toolkit Users should select the **Soils Map** layer. (Selecting the county soils layer will create an interpretive map for the entire county.)
- The bottom of the Soil Data Viewer window displays the **Map Layer** and **Database**. If these are not synchronized, a red **status patch** will appear.
- Click on the **browse icon** to select a new database.

Please select a soil map layer.

Map Layer Source	Map Layer Name
C:\Documents and Settings\melissa.hanner...	Soils Map
C:\Geodata\soils\soil_a_md035.shp	soils

Soil Data Viewer - ArcMap

File View Help

Attribute Folders

- Building Site Development
- Construction Materials
- Disaster Recovery Planning
- Land Classifications
- Land Management
- Military Operations
- Recreational Development
- Sanitary Facilities
- Soil Chemical Properties
- Soil Erosion Factors
- Soil Physical Properties
- Soil Qualities and Features
- Vegetative Productivity
- Waste Management
- Water Features
- Water Management

Attribute/Folder Description | Rating Options | Report Options

Building site development interpretations are designed to be used as tools for evaluating soil suitability and identifying soil limitations for various construction purposes. As part of the interpretation process, the rating applies to each soil in its described condition and does not consider present land use.

Example interpretations can include corrosion of concrete and steel, shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

Basic Mode Advanced Mode

Generate Report Generate Map Synchronize Clear Themes

Synchronization Status: All map units in sync.

Map Layer: C:\Documents and Settings\melissa.hanner\My Customer Files Toolkit\apple_j-----t133\Resource_Maps\soils_map_o Soils Map

Database: C:\Field_Office_Tech_Guide\Section_II\queenanne_US_2002.mdb

V. Create Interpretive Soil Maps

- Expand the Attribute Folders and select your Report Name.
- Click the Generate Map button.

The screenshot shows a software interface with two main panels. The left panel, titled 'Attribute Folders', contains a tree view of folders. The 'Attribute Folders' tab is circled in red. Under the 'Soil Qualities and Features' folder, 'Drainage Class' is selected and highlighted with a red circle. The right panel, titled 'Attribute/Folder Description', shows a text area with a description of 'Drainage class (natural)'. At the bottom of the interface, the 'Generate Map' button is circled in red.

Attribute Folders

- Building Site Development
- Construction Materials
- Disaster Recovery Planning
- Land Classifications
- Land Management
- Military Operations
- Recreational Development
- Sanitary Facilities
- Soil Chemical Properties
- Soil Erosion Factors
- Soil Physical Properties
- Soil Qualities and Features
 - AASHTO Group Classification (Surface)
 - Depth to a Selected Soil Restrictive Layer
 - Depth to Any Soil Restrictive Layer
 - Drainage Class**
 - Frost Action
 - Frost-Free Days
 - Hydrologic Soil Group
 - Map Unit Name
 - Parent Material Name
 - Representative Slope
 - Unified Soil Classification (Surface)
- Vegetative Productivity
- Waste Management
- Water Features
- Water Management

Attribute/Folder Description | Rating Options | Report Options

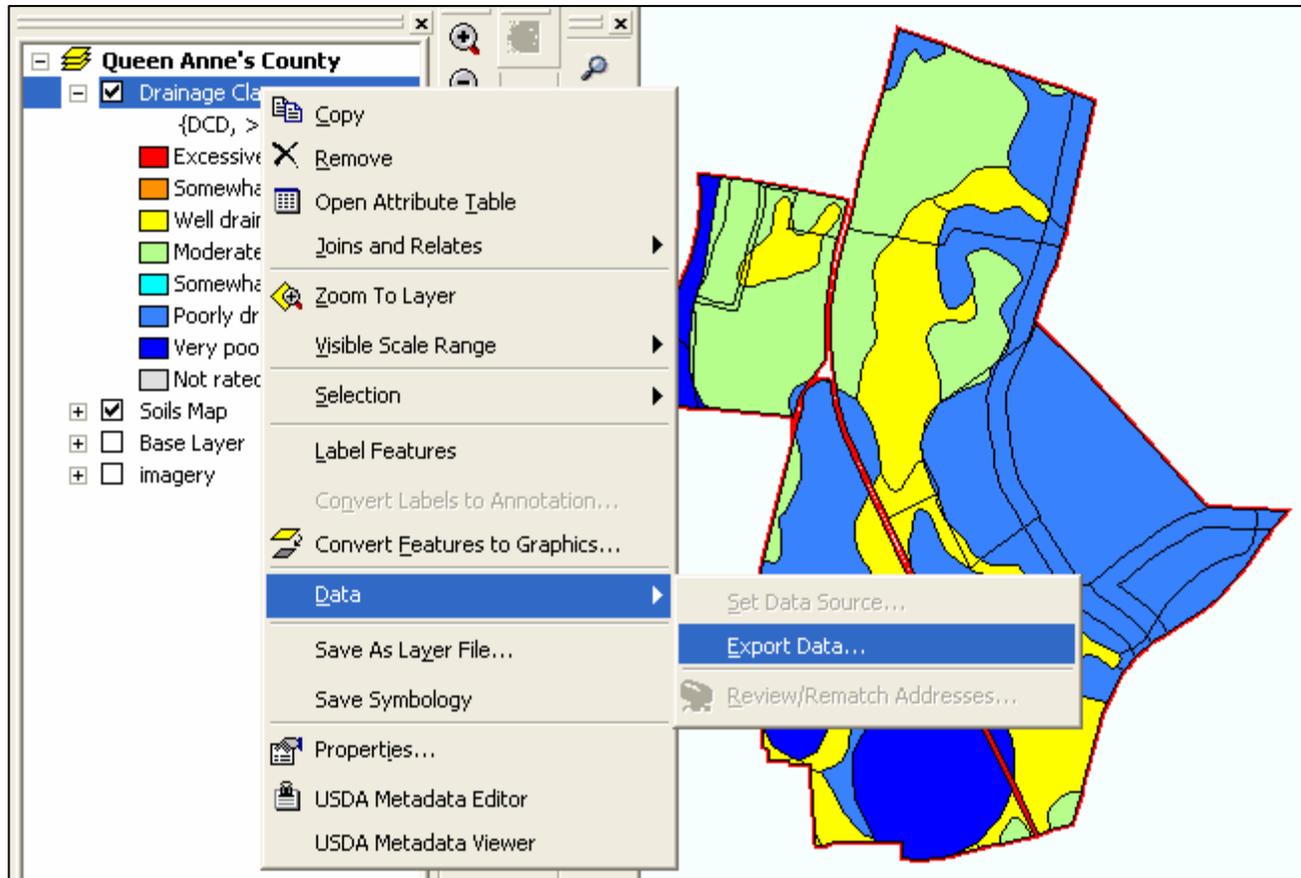
"Drainage class (natural)" refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized-excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

Basic Mode Advanced Mode

Generate Report **Generate Map** Synchronize Clear Themes

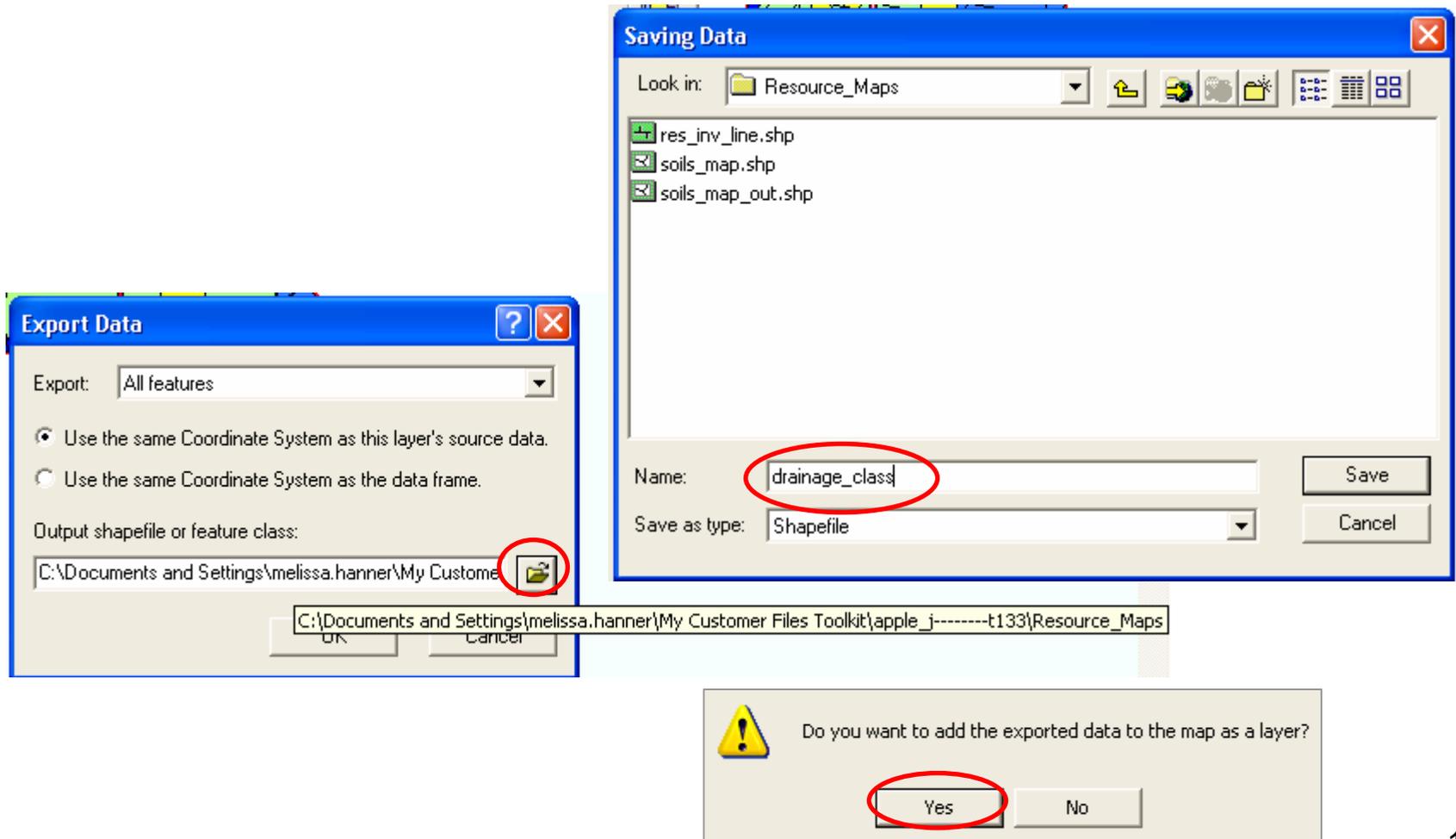
V. Interpretive Soil Maps – Create Permanent Layer

- The thematic map displays as a temporary layer in the Table of Contents (TOC).
- To create a permanent layer, right-click on the layer name.
- Select Data>Export Data



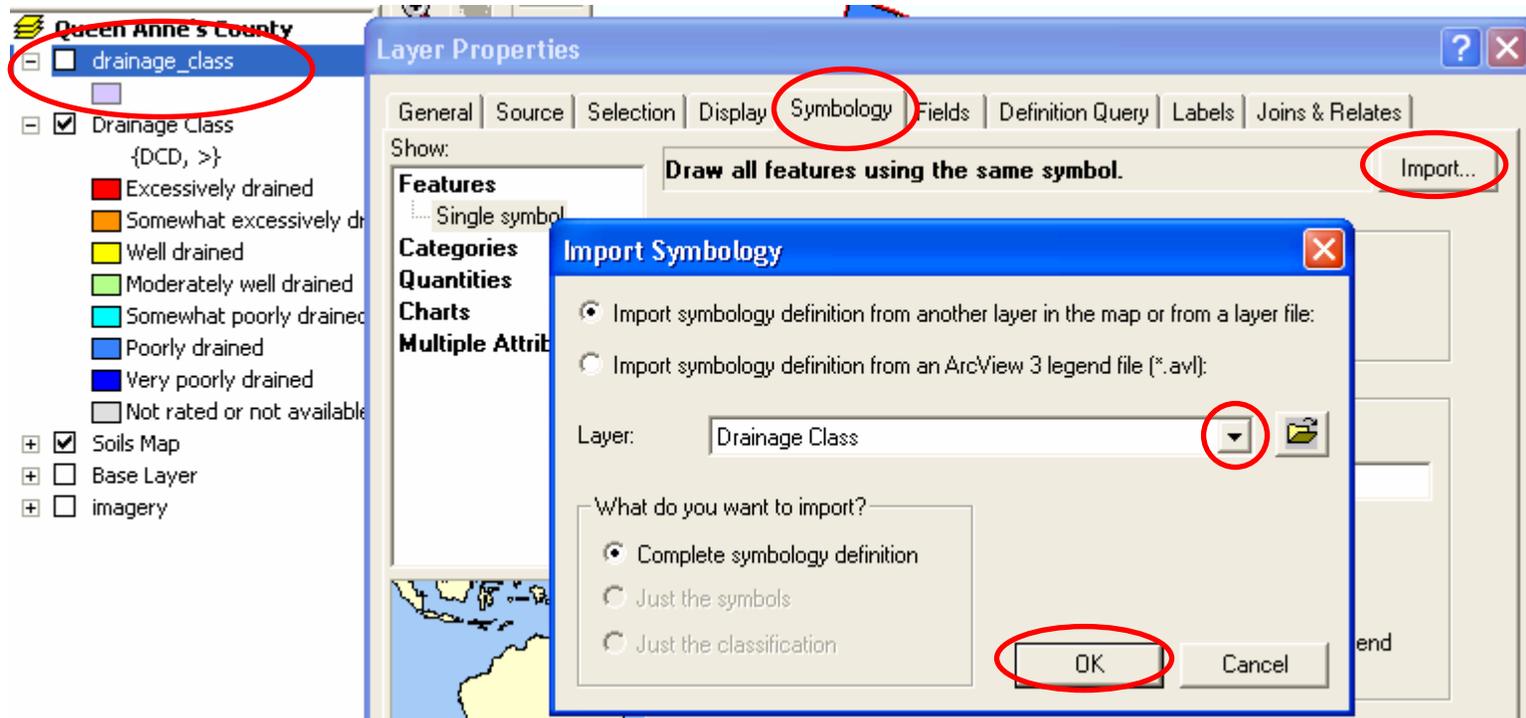
V. Interpretive Soil Maps – Create Permanent Layer

- Click on the **browse icon** in the Export Data window to specify a name and destination for the permanent layer.
- Click **Yes** to add the exported data to your map.



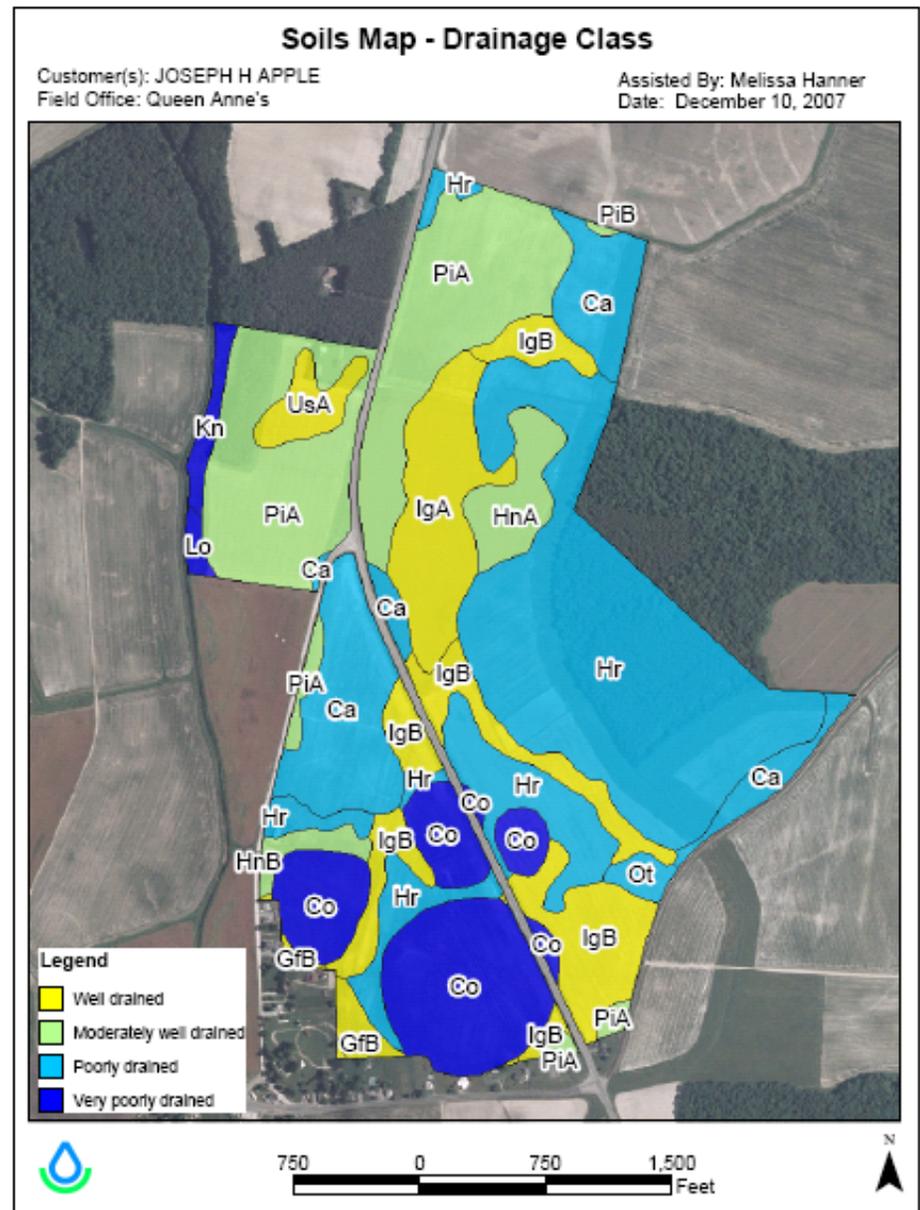
V. Interpretive Soil Maps – Applying Customizations

- The newly added layer does not retain any symbology.
- Open the layer properties. Import the symbology from the Soil Data Viewer layer, or create your own unique symbology.



V. Interpretive Soil Maps – Applying Customizations

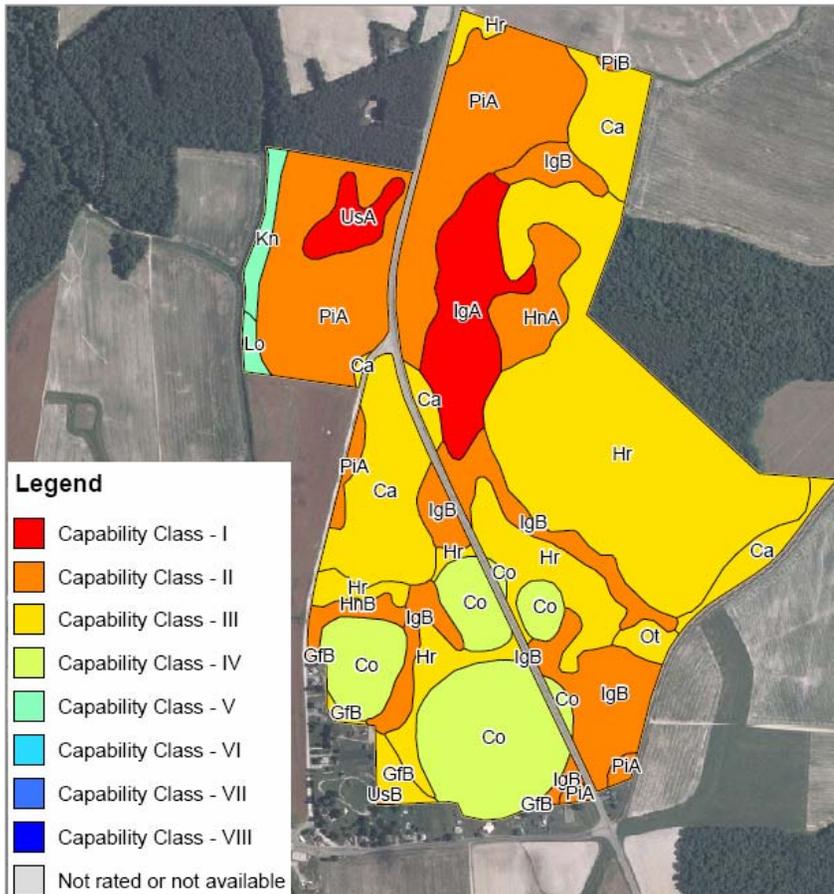
- When you are satisfied with your new interpretive layer, save your work in ArcMap.
- Create a Map Layout, and then save a PDF of your Interpretive Soils Map.
- Print a hard copy map for your files.



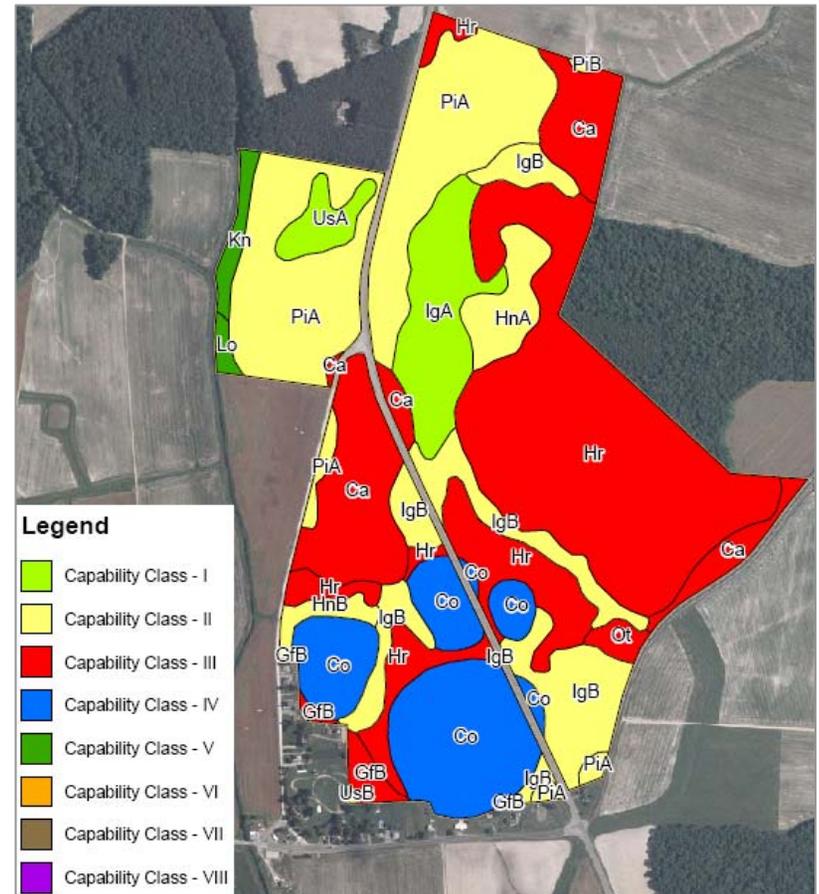
V. Interpretive Soil Maps – Applying Customizations

➤ Soil Data Viewer uses a fixed symbol palette. Note the symbology assigned to Land Capability Class. NRCS historically uses a standardized color rating for this interpretation.

Soil Data Viewer Symbols



Traditional NRCS Symbols



VI. Soil Data Viewer Reports

➤ Use Soil Data Viewer to Generate a Report.

The screenshot displays the Soil Data Viewer software interface. On the left, the 'Attribute Folders' tab is active, showing a tree view of various data categories. The 'Drainage Class' attribute is selected and highlighted with a red circle. On the right, the 'Attribute/Folder Description' tab is active, displaying a detailed description of the 'Drainage class (natural)' attribute. At the bottom of the interface, the 'Generate Report' button is highlighted with a red circle. The interface also includes a 'Basic Mode' / 'Advanced Mode' toggle at the bottom left and buttons for 'Generate Map', 'Synchronize', and 'Clear Themes' at the bottom right.

Attribute Folders

- Building Site Development
- Construction Materials
- Disaster Recovery Planning
- Land Classifications
- Land Management
- Military Operations
- Recreational Development
- Sanitary Facilities
- Soil Chemical Properties
- Soil Erosion Factors
- Soil Physical Properties
- Soil Qualities and Features
 - AASHTO Group Classification (Surface)
 - Depth to a Selected Soil Restrictive Layer
 - Depth to Any Soil Restrictive Layer
 - Drainage Class**
 - Frost Action
 - Frost-Free Days
 - Hydrologic Soil Group
 - Map Unit Name
 - Parent Material Name
 - Representative Slope
 - Unified Soil Classification (Surface)
- Vegetative Productivity
- Waste Management
- Water Features
- Water Management

Attribute/Folder Description | Rating Options | Report Options

"Drainage class (natural)" refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized-excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

Basic Mode | **Advanced Mode** | **Generate Report** | Generate Map | Synchronize | Clear Themes

VI. Soil Data Viewer Reports

Drainage Class

Aggregation Method: Dominant Condition

Tie-break Rule: Higher

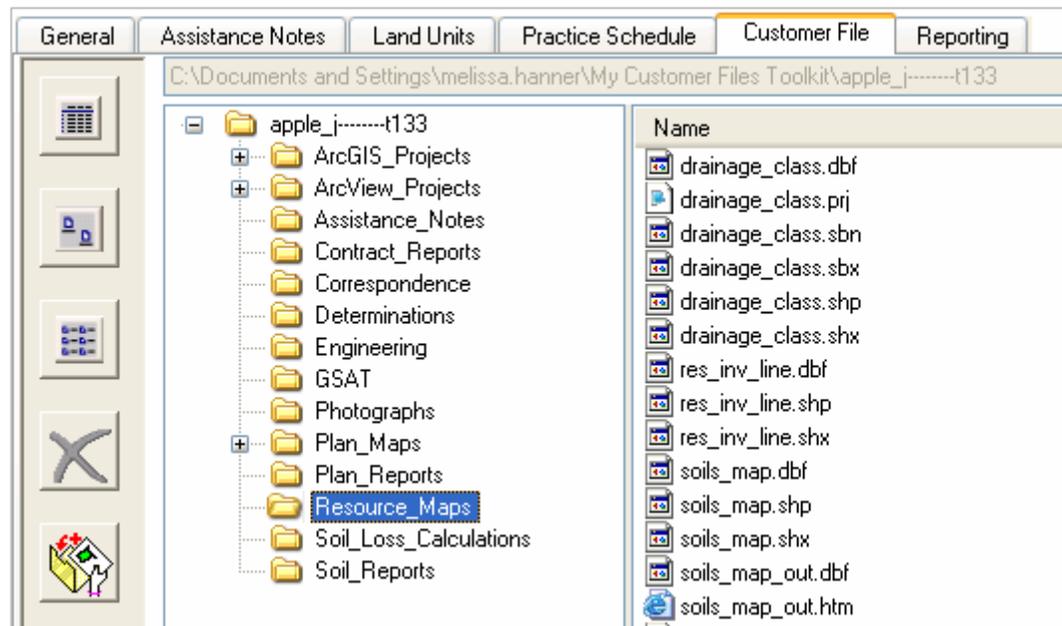
Queen Anne's County, Maryland

Survey Area Version and Date: 6 - 06/08/2007

Map symbol	Map unit name	Rating
Ca	Carmichael loam	Poorly drained
Co	Corsica mucky loam	Very poorly drained
GfB	Galestown-Fort Mott loamy sands, 0 to 5 percent slopes	Well drained
HnA	Hammonton sandy loam, 0 to 2 percent slopes	Moderately well drained
HnB	Hammonton sandy loam, 2 to 5 percent slopes	Moderately well drained
Hr	Hurlock sandy loam	Poorly drained
IgA	Ingleside sandy loam, 0 to 2 percent slopes	Well drained
IgB	Ingleside sandy loam, 2 to 5 percent slopes	Well drained
Kn	Kentuck mucky silt loam	Very poorly drained
Lo	Longmarsh mucky loam, 0 to 1 percent slopes	Very poorly drained
Ot	Othello silt loam	Poorly drained
PiA	Pineyneck silt loam, 0 to 2 percent slopes	Moderately well drained
PiB	Pineyneck silt loam, 2 to 5 percent slopes	Moderately well drained
UsA	Unicorn-Sassafras loams, 0 to 2 percent slopes	Well drained
UsB	Unicorn-Sassafras loams, 2 to 5 percent slopes	Well drained

VI. Soil Data Viewer Reports

- The Soil Data Viewer report does not give a break down of the soils by acreage.
- For this information, refer back to the **soil_map_out.htm** in the **Customer File > Resource Maps** folder.



VI. Soil Data Viewer Reports

- Click on the *MS Word* icon to save the report a Word document.
- Add customizations, such as a column for a specific interpretation.

Soils Inventory Report

JOSEPH H APPLE

Map Unit Symbol	Map Unit Name	Farmland Classification	Acres	Percent
Ca	Carmichael loam	Farmland of Statewide Importance	29.1	11%
Co	Corsica mucky loam	Farmland of Statewide Importance	34.1	13%
GfB	Galestown-Fort Mott loamy sands, 0 to 5 percent slopes	Farmland of Statewide Importance	2.7	1%
HnA	Hammonton sandy loam, 0 to 2 percent slopes	All Areas are Prime Farmland	7	3%
HnB	Hammonton sandy loam, 2 to 5 percent slopes	All Areas are Prime Farmland	2.4	1%
Hr	Hurlock sandy loam	Farmland of Statewide Importance	80.6	31%
IgA	Ingleside sandy loam, 0 to 2 percent slopes	All Areas are Prime Farmland	16.5	6%
IgB	Ingleside sandy loam, 2 to 5 percent slopes	All Areas are Prime Farmland	28.1	11%
Kn	Kentuck mucky silt loam	Farmland of Statewide Importance	2.5	1%
Lo	Longmarsh mucky loam, 0 to 1 percent slopes	Not Prime Farmland	1	0%
Ot	Othello silt loam	Farmland of Statewide Importance	1.8	1%
PIA	Pineyneck silt loam, 0 to 2 percent slopes	All Areas are Prime Farmland	51.1	20%
PIB	Pineyneck silt loam, 2 to 5 percent slopes	All Areas are Prime Farmland	0.2	0%
UsA	Unicorn-Sassafras loams, 0 to 2 percent slopes	All Areas are Prime Farmland	4.4	2%
UsB	Unicorn-Sassafras loams, 2 to 5 percent slopes	All Areas are Prime Farmland	0.1	0%
	Total:		261.6	

VI. Soil Data Viewer Reports

➤ Use the table below to find the Attribute Folder and Report Name for common interpretations.

Keywords	Report Name	SDV Attribute Folder
Depth to Bedrock	Depth to Any Soil Restrictive Layer	Soil Qualities and Features
Drainage	Drainage Class	Soil Qualities and Features
Hazard of Caving	Shallow Excavations	Building Site Development
Hydric Soils	Hydric Rating by Map Unit	Land Classifications
Hydrologic Group	Hydrologic Soil Group	Soil Qualities and Features
Kf	K Factor, Rock Free	Soil Erosion Factors
Land Capability Class	Nonirrigated Capability Class	Land Classifications
Permeability	Saturated Hydraulic Conductivity (Ksat), Standard	Soil Physical Properties
Ponds	Excavated Ponds	Water Management
Prime Farmland	Farmland Classification	Land Classifications
Slope	Representative Slope	Soil Qualities and Features
T	T Factor	Soil Erosion Factors
Texture	Surface Texture	Soil Physical Properties
Water Table	Depth to Water Table	Water Features

➤ Additional Soils tables and information are found on the Maryland NRCS Soils Page:

<http://www.md.nrcs.usda.gov/technical/soils/soils.html>

Questions ?

For more information visit the Maryland NRCS Toolkit Web Page:

<http://www.md.nrcs.usda.gov/technical/toolkit.html>