

Identification_Information:

Citation:

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Title: Digital Geology Layer for DGS Geologic Map No. 11 (Milton-Ellendale area)

Publication_Information:

Publisher: Delaware Geological Survey, University of Delaware

Publication_Place: Newark, Delaware

Originator: Delaware Geological Survey, University of Delaware

Geospatial_Data_Presentation_Form: vector digital data

Publication_Date: 2002

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Point_of_Contact:

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Hours_of_Service: Mon - Fri; 8:00am to 4:30pm EST

Description:

Abstract:

This data set contains the rock unit polygons for the surficial geology in the Delaware Coastal Plain covered by DGS Geologic Map No. 11 (Milton-Ellendale area) in ESRI shapefile format. The original Geologic Map Description of the published map follows:

The surficial geology of the Ellendale and Milton quadrangles reflects the geologic history of the Delaware Bay estuary and successive high and low sea levels during the Quaternary. Ramsey (1992) interpreted the Beaverdam Formation as deposits of a fluvial-estuarine system during the Pliocene. Sediment supply was high, in part due to geomorphic adjustments in the Appalachians related to the first major North Hemisphere glaciations around 2.4 million years ago. The Beaverdam Formation forms the core of the central Delmarva Peninsula around which wrap the Quaternary deposits. The Columbia Formation which is recognized to the north of the map area was deposited as the result of the distal portion of glacial outwash of the Delaware and possibly Susquehanna rivers during the early Pleistocene (Ramsey, 1997). After the deposition of the Columbia, the Delaware River and Bay developed their present geographic positions. In the northwest portion of the map area contiguous with the area mapped by Ramsey (1993) as the Columbia Formation, the surficial unit has many similarities in texture, color, bedding, geophysical log character, and thickness with the Beaverdam Formation to the south and east. No diagnostic pollen-bearing beds or other fossils

have been found in the area to aid in identification of the unit. Because of the continuity in thickness and lithic character with the Beaverdam, the area is mapped as Tbd?. Where the Beaverdam is mapped, silty clay to clayey silt beds yielded pollen assemblages characteristic of the unit (Andres and Ramsey, 1995, 1996; Groot and Jordan, 1999). The Lynch Heights and Scotts Corners formations (Ramsey, 1993, 1997) represent shoreline and estuarine deposits associated with high stands of sea level during the middle to late Pleistocene on the margins of Delaware Bay. The western boundary of these units is found at a topographic break (scarp) that marks the ancestral, erosional shoreline of Delaware Bay during the sea-level high stand. Upland dunes (Qd) are extensive linear dunes and large dune fields found along the contact between the Lynch Heights and older deposits to the west. Some of these dunes may be relict coastal dunes associated with the ancestral shoreline of Delaware Bay at the time of Lynch Heights deposition. Dunes to the west may be younger; late Pleistocene or early Holocene in age. Carolina Bay deposits are circular to semi-circular depressions with sand rims found in the northern half of the Milton Quadrangle. They are thought to be cold climate features associated with reduced tree cover and increased winds during the glacial periods of the Pleistocene (Ramsey, 1997). Quaternary upland deposits (Qud) cover much of the southern half of the Ellendale Quadrangle. These deposits represent deposition in swamps associated with poor drainage and eolian deposition during cold climate phase of the late Pleistocene and early Holocene. The eolian sands are found both as small dunes in this area, but more commonly, as sheets of fine to medium sand with no to rare sedimentary structures. Although no radiocarbon dates have been collected from this area, the age of the deposits is considered to be latest Pleistocene to early Holocene on the bases of similarities in stratigraphic position and depositional style with the Cypress Swamp Formation (Andres and Howard, 2000) found to the south of the map area. Quaternary and older deposits are transgressed by Holocene swamp, marsh, shoreline, and estuarine deposits along the stream valleys and shoreline of Delaware Bay. Stratigraphic units found at depth within the map area are shown with the geophysical log of Ng42-17, a deep test well drilled in Milton. Major aquifer units are also shown. Cross section A-A' is a north-south section roughly along Route 113 through the center of the Ellendale Quadrangle. It shows the relationship of the Beaverdam Formation (Tbd?) and the Beaverdam Formation (Tbd). Also shown are the units underlying the surficial units and position of the major aquifers.

Cross-section B-B' is a west-east section showing the relationships between the Quaternary-Tertiary deposits undifferentiated, Lynch Heights, and Scotts Corners formations as well as underlying stratigraphic units. Aquifers shown in the cross-sections are water-bearing sand layers that are used for public, domestic, agricultural, and industrial sources of water. Where the surficial or water-table aquifer is in contact with sands of an underlying geologic unit such as the Manokin formation, the entire water-bearing unit is called the Columbia aquifer.

Purpose: To facilitate the GIS community of Delaware and to release the geologic map of the Ellendale and Milton Quadrangles with all cartographic elements (including geologic symbology, text, etc.) in a form usable in a GIS, we have released this digital ESRI shapefile of DGS Geological Map 11. The update of earlier work and mapping of new units is

important not only to geologists, but also to hydrologists who wish to understand the distribution of water resources, to engineers who need bedrock information during construction of roads and buildings, to government officials and agencies who are planning for residential and commercial growth, and to citizens who are curious about the bedrock under their homes. Formal names are assigned to all rock units according to the guidelines of the 1983 North American Stratigraphic Code (NACSN, 1983).

Time_Period_of_Content:

Currentness_Reference: Publication Date

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2002

Status:

Progress: complete

Maintenance_and_Update_Frequency: none planned

Keywords:

Theme:

Theme_Keyword_Thesaurus: none

Theme_Keyword: geoscientificInformation

Theme_Keyword: Delaware

Theme_Keyword: Delaware Geology

Theme_Keyword: geology

Theme_Keyword: coastal plain geology

Theme_Keyword: environment

Place:

Place_Keyword: Delaware

Place_Keyword: Sussex County

Place_Keyword: Milton

Place_Keyword: Ellendale

Place_Keyword: Reynolds Mill

Place_Keyword: Anderson Crossroads

Place_Keyword: Jefferson Crossroads

Place_Keyword: Waples Pond Acres

Place_Keyword: Argo Corners

Place_Keyword: East Side Village

Place_Keyword: Vaughn Landing

Place_Keyword: Broadkill Hundred

Place_Keyword: Primehook Beach

Place_Keyword: Cave Neck

Place_Keyword: Primehook Neck

Place_Keyword: Broadkill Neck

Place_Keyword: Pikes Neck

Place_Keyword: Little Neck

Place_Keyword: Waples Pond

Place_Keyword: Reynolds Pond

Place_Keyword: Wagamons Pond

Place_Keyword: Diamond Pond

Place_Keyword: Beaverdam Creek

Place_Keyword: Broadkill River

Place_Keyword: Primehook Creek

Place_Keyword: Slaughter Creek

Place_Keyword_Thesaurus: USGS GNIS

Access_Constraints: None-Please give proper credit to the Delaware Geological Survey. Please reference as follows: Ramsey, K. W., 2002: Geologic Map of the Ellendale and Milton Quadrangles: Delaware Geological Survey Geologic Map No. 11.

Use_Constraints: The Delaware Geological Survey (DGS) is constantly gathering data from multiple sources, interpreting the data, and reflecting its interpretations on maps. DGS's interpretations of multiple data sources are reflected in this map available for download. Reasonable efforts have been made by DGS to verify that this digital shapefile accurately interprets the source data used in its preparation; however, this map may contain omissions and errors in scale, resolution, rectification, positional accuracy, development methodology, interpretations of source data, and other circumstances. This map is also date specific and as additional data becomes available and as verification of source data continues, this map may be reinterpreted and updated by DGS without notification. The DGS maintains a digital geologic polygon layer on which these changes may be reflected. Please check the metadata for these layers to verify any updates. This map was prepared for a scale of 1:24,000 and should not be used at larger scales for denotation of rock unit boundaries. Nothing contained herein shall be deemed an expressed or implied waiver of the sovereign immunity of the State of Delaware or its duly authorized representatives, agents, or employees.

Native_Data_Set_Environment: Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.2.4.1420

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -75.500142
East_Bounding_Coordinate: -75.249705
North_Bounding_Coordinate: 38.875121
South_Bounding_Coordinate: 38.749882

Distribution_Information:

Distributor:

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Contact_Organization: Delaware Geological Survey, University of Delaware

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Hours_of_Service: Mon - Fri; 8:00am to 4:30pm EST

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:
Transfer_Size: 0.915
Metadata_Reference_Information:
Metadata_Contact:
Contact_Information:
Contact_Address:
City: Newark
State_or_Province: Delaware
Postal_Code: 19716-7501
Address_Type: mailing and physical address
Country: USA
Address: Delaware Geological Survey, University of Delaware
Address: University of Delaware
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Contact_Organization: Delaware Geological Survey, University of
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Hours_of_Service: Mon - Fri; 8:00am to 4:30pm EST
Metadata_Date: 20080523
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial
Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Data_Quality_Information:
Positional_Accuracy:
Vertical_Positional_Accuracy:
Quantitative_Vertical_Positional_Accuracy_Assessment:
Vertical_Positional_Accuracy_Value: 2.5 feet and 5 feet
Vertical_Positional_Accuracy_Explanation: The accuracy of the
topographic base map (contour layer) is plus or minus one half the
contour interval. The contour interval of the maps used in this
construction was 5 feet in the Delaware Coastal Plain area and 10 feet in
the Delaware Piedmont area which gives a plus or minus 5 foot and 10 foot
vertical accuracy, respectively, according to National Map Accuracy
Standards.
Horizontal_Positional_Accuracy:
Quantitative_Horizontal_Positional_Accuracy_Assessment:
Horizontal_Positional_Accuracy_Value: 40 feet
Horizontal_Positional_Accuracy_Explanation: These geologic
polygons were mapped onto 1:24,000 scale topographic maps. The accuracy
of those maps is plus or minus 40 feet according to National Map Accuracy
Standards.
Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: G-polygon

Point_and_Vector_Object_Count: 513
Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Map_Projection:
Map_Projection_Name: Transverse Mercator
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.999995
Longitude_of_Central_Meridian: -75.416667
Latitude_of_Projection_Origin: 38.000000
False_Easting: 200000.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Planar_Distance_Units: meters
Coordinate_Representation:
Abscissa_Resolution: 0.000000
Ordinate_Resolution: 0.000000
Geodetic_Model:
Horizontal_Datum_Name: D_North_American_1983_HARN
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: geomap11
Attribute:
Attribute_Label: FID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: GEO_UNIT_S
Attribute_Definition: Geologic Unit Symbol. The Geologic Unit Symbol for Delaware geologic units. Symbols are documented in DGS Stratigraphy web page.
Attribute:
Attribute_Label: GEO_UNIT_N
Attribute_Definition: Geologic Unit Name. The Geologic Unit Name for Delaware geologic units. Geologic Unit Names are documented in DGS Stratigraphic web page.
Attribute:
Attribute_Label: GEO_UNIT_A
Attribute_Definition: