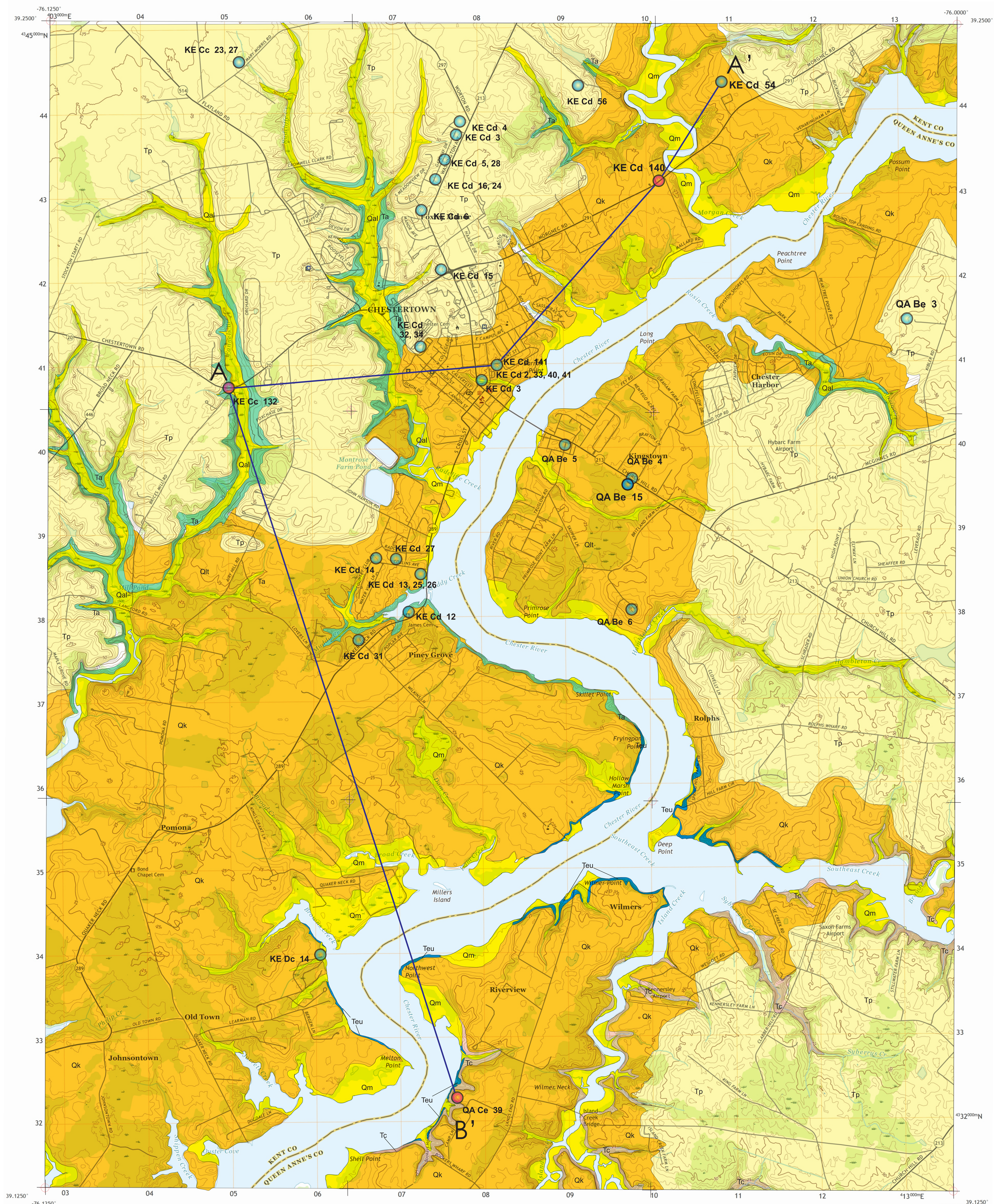

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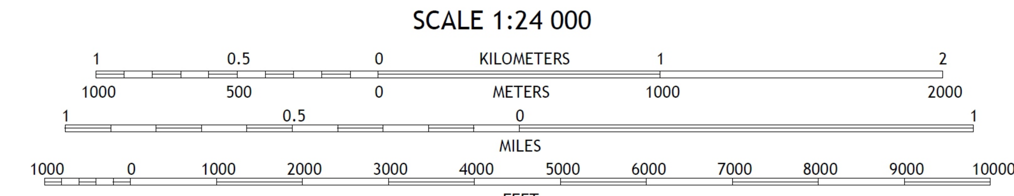
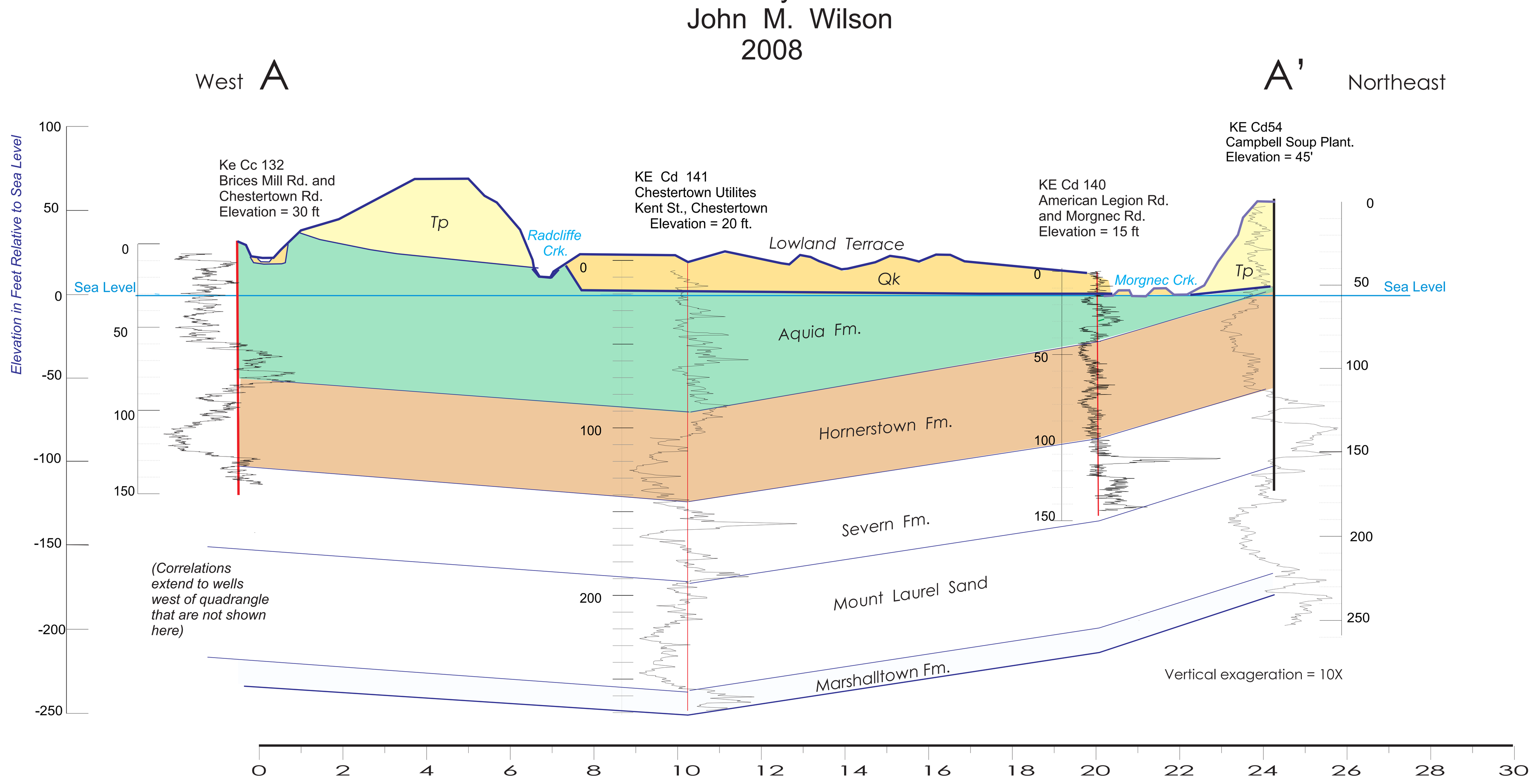
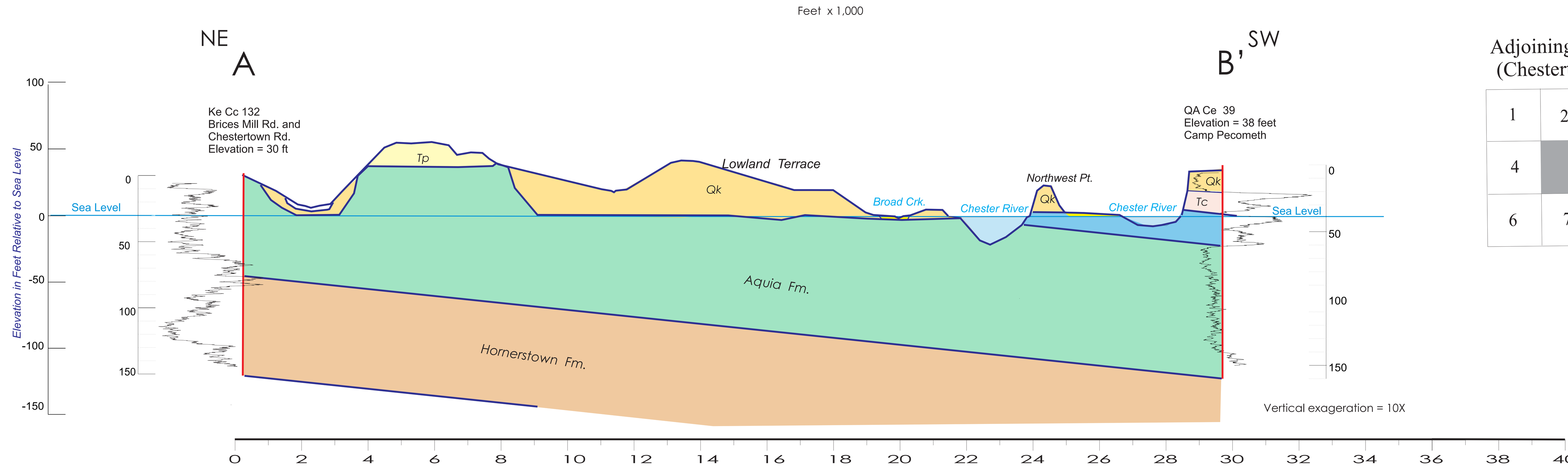


Geologic Map of the Chestertown Quadrangle, Maryland

by
John M. Wilson
2008





OPEN FILE MAP

SUBJECT TO UPDATE AND REVISION

DESCRIPTION OF MAP UNITS AND SYMBOLS

Quaternary

Qal/Qm — **Alluvium and Marsh deposits - *(Holocene)* -** Interbedded fine sand, silt, and silty clay rich in organic matter, often interbeded with peat. Thickness generally ranges from a few feet to less than 30 feet.

Qk — **Kent Island Formation (Pleistocene) -** Light orange-tan to light gray, fine- to coarse-grained quartz sand, gravelly in places. The sediments are derived from the older units on the upper Eastern Shore of Maryland. The unit is a terrace deposit of river and estuarine deposits. These deposits represent ancestral Pleistocene-age Chester River facies from a base level higher than that currently. The unit is inset into the older units, primarily the Pensauken and Aquia Formations and truncates the Miocene and older Tertiary units as well. Very likely three different aged terraces are represented. The oldest has a maximum elevation of about 40 feet is the most prominent readily identifiable terrace. The next youngest terrace appears to occur at an elevation of 18-foot, and most recent terrace at about the 6-foot level. Total thickness is approximately 25 feet.

Tertiary

Tp — **Pensauken Formation - (Pliocene to Pleistocene ?)** Light yellow to orange-tan, in places oxidized to deep reddish brown, feldspathic, fine- to coarse-grained, cross-bedded sand, with thin to thick beds of gravel. Base of formation generally characterized by gravelly channel-lag deposits. Upper part of formation where present is generally a fine to medium sand and loam, but may include gravelly beds and stringers. Clasts include vein quartz, crystalline rocks, sandstones and siltstones.   The Pensauken Formation is a fluvial deposit that was probably deposited by an ancestral Delaware River. The thickness ranges from 0 to possibly as much 50 feet. In other regions of Maryland's Eastern Shore thicknesses is up to 100 feet.

Tc — **Calvert Formation - (Miocene) -** Clay, slightly silty, and stiff, light gray oxidized to pale yellow where near surface. At 27 feet the gray clay is in contact with a brownish gray (5GY), plastic clay that, at present, is being included herein in the Calvert Formation. However, it is possible that clay encountered from 27 feet below land surface to essentially sea level is an older possibly Oligocene unit. This remains to be determined pending paleontological analysis of the core material. Thickness ranges from 0 to about 20 feet in the Chestertown Quadrangle.

Teu — **Unamed clay unit - Eocene (?) -** Clay, greenish gray (5GY 4/1), silty and micaceous, stiff and plastic, with fine to coarse very densely packed glauconitic sand. About 25 feet of this unit occurs in QA Ce 39. This clay unit may be equivalent to the Eocene-age Marlboro Clay based on correlations with geophysical logs from test holes to the northeast (Hansen, 1992; Wilson 2006, 2007). At this point in time, this should be considered a tentative correlation pending results of paleontologic analysis of the core material. On the map this unit is shown along parts of the Chester River where previous workers (Miller and others, 1915) mapped Aquia. Thickness ranges from 0 to about 25 feet in quadrangle.

Ta — **Aquia Formation - (Upper Paleocene - Thanetian)** Fine to medium glauconitic quartz sand, clayey in places, dark to light green and yellow where fresh; weathers to yellow brown and dusky dark orange. Thickness ranges from less than 5 feet in the northeastern part of the quadrangle to about 110 feet, in the western and southern parts of the quadrangle. The Aquia is beveled and truncated in the central and northern parts of the quadrangle by the Pensauken Formation and the Lowland Terrace deposits.

Formation in Cross-Section Only

Cretaceous

Hornerstown Formation - (Lower Paleocene - Danian)
Basal 15 feet is generally a fine, silty and clayey, olive black, glauconitic sand, very densely packed, Glauconite comprises 60 to 90 percent of the sand; glauconite is dark green, polylobate grains with little alteration to limonite. Middle part of the formation is a fine to medium glauconitic quartz sand, similar to the sands of the Aquia Formation. The upper 5 to 10 feet feet of the Hornerstown, just below the contact with the Aquia is generally a green, glauconitic silty clay. Thickness of the unit is about 50 feet in the quadrangle.

Severn Formation - (Upper Cretaceous - Maestrichtian) Olive black to olive brown heavily glauconitic sand; phosphate nodules common. The thickness is about 45 feet in the quadrangle.

Mount Laurel Sand - Upper Cretaceous - Maestrichtian) Medium light gray to light olive gray, fine to medium, glauconitic, quartz sand, shelly and calcareous in places. Weathers yellow to yellow brown. Thickness ranges from 60 to 70 feet in the quadrangle.

Marshalltown Formation - Upper Cretaceous - Maestrichtian) Greenish black, fine silty sand, heavily glauconitic, up to 90 percent glauconite. Glauconite grains, dark green and polylobate. Thickness is about 18 feet.

Other Subsurface Units - Other units stratigraphically lower than the Marshalltown Formation occur in the subsurface in the Chestertown quadrangle. They are from stratigraphically highest to lowest :the upper Cretaceous Englishtown, Merchantville, and Magothy Formations, and the lower to upper Cretaceous Potomac Group.

MAP SYMBOLS

A — A' Line of section

QA Be 15 KE Cc 39 Well or test hole location and number. Red dots indicate core holes drilled with STATEMAP funding for this mapping project.

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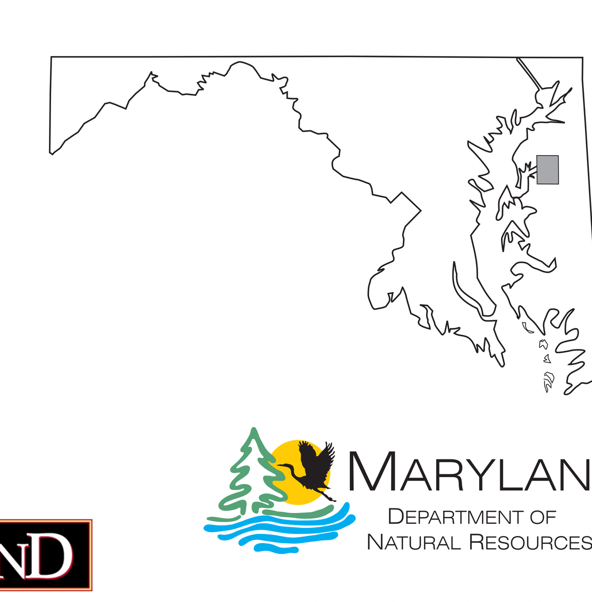
Geologic field mapping conducted by author in 2007-2008. Original mapping was conducted utilizing the 1993 version of the Chestertown Quadrangle. Map layout and contact distribution were applied based on the 2019 version the topographic quadrangle by D.K. Brezinski, 2020.

Version: CHEST2021.OF
Released April 2021

Adjoining 7.5-minute quadrangles
(Chestertown quadrangle shaded)

1	2	3	1 Hanesville 2 Betterton 3 Galena
4		5	4 Rock Hall 5 Church Hill 6 Langford Creek
6	7	8	7 Centreville 8 Price



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