

DESCRIPTION OF MAP UNITS

- Quaternary**
 - Qal Alluvium**
Pebbles and cobbles in a sandy matrix. Clasts are subrounded to rounded, weathering to a yellowish-orange, and orange-brown patina. These deposits are present along both modern and ancient stream channels, and may have a thick humic component near the top. The thickness of alluvium varies from a thin veneer to more than 30 feet. The thicker accumulations tend to be concentrated where colluvium at the edge of valleys overlaps the alluvium.
 - Qc Colluvium/Landslide**
Colluvium (Qc) is an unsorted mass of boulders and cobbles that forms on present-day steep slopes overlying and below massive sandstone intervals. These deposits are largely the result of frost wedging and slow mass movement, but also include possible landslide deposits. Topographically, these accumulations exhibit an irregular upper surface, thin upslope, and rarely have soil cover. Thickness ranges from several feet on steep slopes to more than 50 feet.
- Pennsylvanian**
 - Pcc Conemaugh Group**
Interbedded sandstone, shale, siltstone, and nonmarine limestone. The Conemaugh Group is divided into the Casselman and Glenshaw formations (Flint, 1965), and has an aggregate thickness of between 700 to 800 feet in the Upper Potomac Basin.
 - Pbc Casselman Formation**
Interbedded, tan, medium- to coarse-grained, locally conglomeratic, cross-bedded sandstone; gray to reddish-gray mudstone; medium-gray, silty shale and siltstone; and light-gray to grayish-brown, buff-weathering non-marine limestone. Coal beds of the Casselman Formation that are mined in the Kitzmiller Quadrangle consist of the Barton [b] and Franklin [f]. The Casselman Formation is approximately 400 feet thick in the Kitzmiller Quadrangle.
 - Pbcg Glenshaw Formation**
Gray, tan-weathering, micaceous, medium- to coarse-grained, cross-bedded sandstone containing abundant coaly plant fragments; interbedded with gray, reddish-gray, and locally reddish-brown, silty shale, siltstone, light-gray, bioturbated, non-marine limestone, and brittle, dark-gray, fossiliferous, marine shale. The base of the Glenshaw Formation is placed at the top of the Upper Freeport coal bed; the top of the formation is considered to be at the top of the Ames marine shale and coal [a]. Marginal marine intervals are underlain by mined coal beds at the Brush Creek [bc], Lower Bakerstown [lb], and Ames [a] coals. The Glenshaw Formation is approximately 350 feet thick.
 - Ppa Allegheny Formation**
Interbedded, medium- to dark-gray shale and siltstone, and tan to light-gray, coarse-grained, cross-bedded sandstone, with thin, light-gray claystones. The top of the formation is at the top of the Upper Freeport [uf] coal bed, and the base of the formation is the top of the white, massive, conglomeratic, Homewood Member of the underlying Pottsville Formation. The Upper Kittanning [uk] coal bed is locally mined. The Allegheny Formation is between 200 to 250 feet thick.
 - Pp Pottsville Formation**
Dominantly light-gray to tan, medium- to coarse-grained, cross-bedded sandstone and conglomeratic sandstone with abundant coaly plant fragments and thin intervals of dark-gray, coaly shale, siltstone, or coal beds. The massive, pebbly to granular, light-gray, highly cross-bedded Homewood Sandstone constitutes a resistant, mappable sandstone layer at the top of the formation and the massive, pebbly Sharon Member marks the base of the formation. Total thickness for the formation varies from 200 to 250 feet.
- Mississippian**
 - Mmc Mauch Chunk Formation**
Interbedded, reddish-brown shale, variegated mudstone and siltstone, and reddish-brown to greenish-gray, medium-grained, micaceous sandstone. Sandstone intervals are lenticular, cross-bedded, exhibit sharp bases, and fine upsection. Several thin, greenish-gray, marine, calcareous shale to argillaceous limestone units are present near the base of the formation. The Mauch Chunk Formation is as much as 400 feet thick in the Gorman Quadrangle.
 - Mg Greenbrier Formation**
Interbedded, gray to reddish-brown, calcareous sandstone, fossiliferous and variegated shale, and fossiliferous limestone. The Greenbrier Formation is subdivided into four members in Maryland (Brezinski, 1989), but are not mapped separately. The basal unit is a light-gray, highly cross-bedded, sandy limestone known as the Loyahanna Member. The Loyahanna Member is overlain by a thin, medium-bedded, greenish-gray limestone known as the Deer Valley Member. Above the Deer Valley Member the Greenbrier Formation consists of interbedded, reddish, fossiliferous mudstone, and white to tan and reddish-brown, fine-grained sandstone, and reddish-brown siltstone and variegated shale. This part of the formation is known as the Savage Dam Member. The Savage Dam Member is overlain by thin- to medium-bedded, light- to medium-gray, argillaceous, fossiliferous limestone known as the Wymps Gap Member. The Greenbrier Formation is 150 to 200 feet thick in Garrett County, Maryland.
 - Mp Purslane Formation**
Tan to light-gray, cross-bedded, coarse-grained sandstone to pebbly conglomerate near the base and reddish-brown, argillaceous, cross-bedded sandstone at the top of the formation. Thin beds of gray to reddish-brown shale and coaly shale are locally interbedded with the sandstone intervals. The Purslane Formation is 250 to 350 feet thick in the area.
 - Mdr Rockwell Formation**
Interbedded, greenish-gray, tan-weathering, argillaceous, bioturbated sandstone, and red-gray, coaly siltstone and shale. The greenish-gray, bioturbated sandstones at the base of the formation (Oswayo Member) are locally interbedded with the reddish strata of the upper Hampshire Formation. These basal marine strata are overlain by light-gray to tan, thin- to medium-bedded, cross-bedded, lenticular sandstone, and rooted, gray mudstone. The top of the formation consists of well-sorted, burrowed, locally fossiliferous, buff sandstone of the Riddlesburg Member. The Rockwell Formation is 150 to 200 feet thick in the Gorman Quadrangle.
- Devonian**
 - Dh Hampshire Formation**
Interbedded, reddish-brown to reddish-gray, and brownish-red, locally greenish-gray, cross-bedded, upward-fining, lenticular sandstone; reddish-brown micaceous siltstone and shale; and red-brown rooted claystone. The Hampshire Formation ranges from approximately 1,500 to 2,000 feet thick in Garrett County.
 - Df Foreknobs Formation**
Interbedded, olive-gray, tan-weathering, medium- to coarse-grained, cross-bedded, bioturbated sandstone; and greenish-gray to dusky red, fossiliferous shale and siltstone. Top of the formation is mapped at the top of the medium- to thick-bedded, cross-bedded, light-gray to white (>30 feet) sandstone considered equivalent to the Pound Sandstone Member of the Valley and Ridge Province. The Foreknobs Formation is approximately 1,500 feet thick in Garrett County, Maryland.

Explanation of Map Symbols

Contacts Geologic contacts; definite, approximate, and concealed location	Faults Fault; approximately located. D refers to down thrown side, U to the up thrown side.
Planar Features Inclined bedding strike and degree of dip shown Horizontal bedding Inclined joint strike and degree of dip shown Vertical joint strike shown	Coal Beds Projected outcrop trace of coal bed Quarry/mine Prospect pit
Transportation Primary route, class 1 (divided lanes) Primary route, class 1 (undivided) Secondary route, class 2 Light duty road or street, class 3	Topography Topographic index contour (100-ft interval) Topographic intermediate contour (20-ft interval) Hydrography Stream Spring Water body (eg. lakes, ponds, rivers)

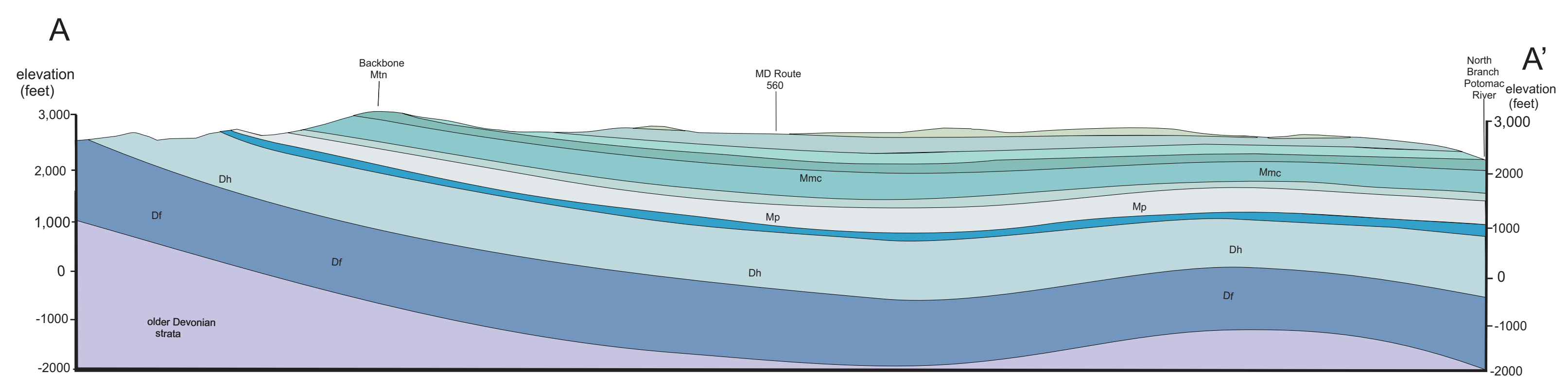
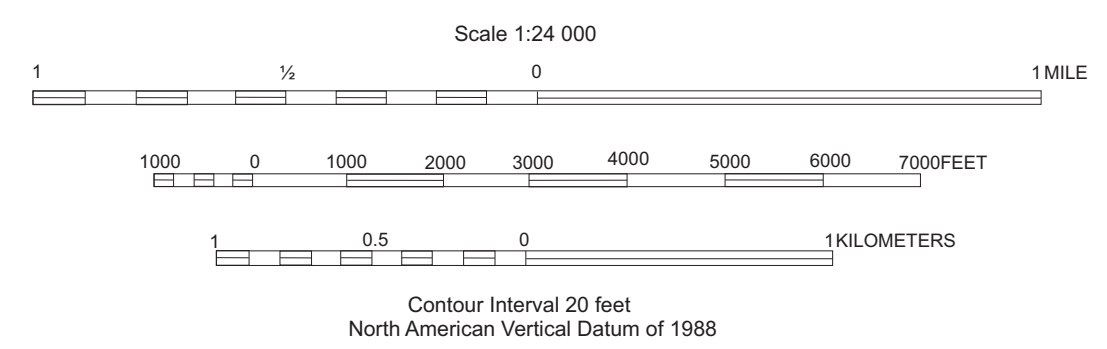
Basemap Gorman (2019) and Mt Storm (2019) 1:24,000 series. North American Datum of 1983 (NAD83) World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 17S. Magnetic declination 9.3 degrees.

Geologic Map of the Maryland Portions of the Gorman and Mt. Storm Quadrangles, Garrett County, Maryland
By **David K. Brezinski**
2021

Adjoining 7.5-minute quadrangles (Gorman-Mt Storm quadrangles shaded)

1	2	3
4	5	6
7	8	

1 Oaklana
2 Deer Park
3 Kitzmiller
4 Table Rock
5 Mt Storm
6 Davis
7 Mt Storm Lake
8 Greenland Gap



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Geologic field mapping conducted in 2020-2021.

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