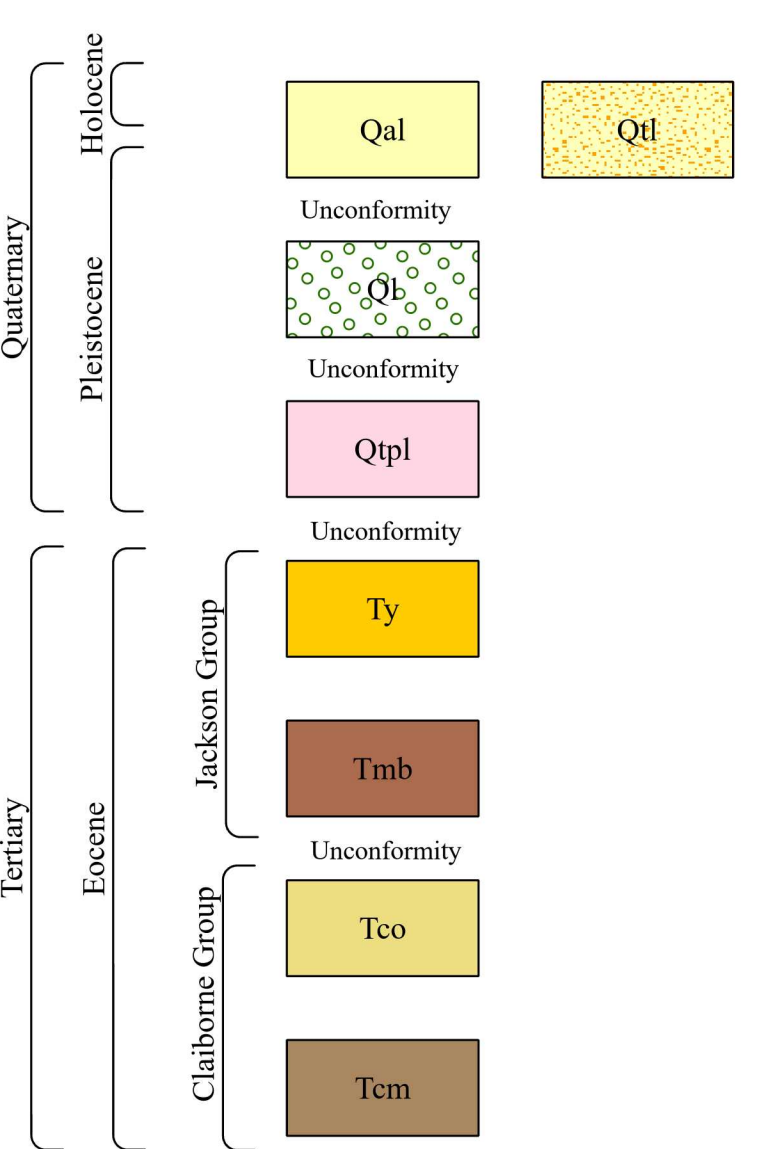


Correlation of Map Units



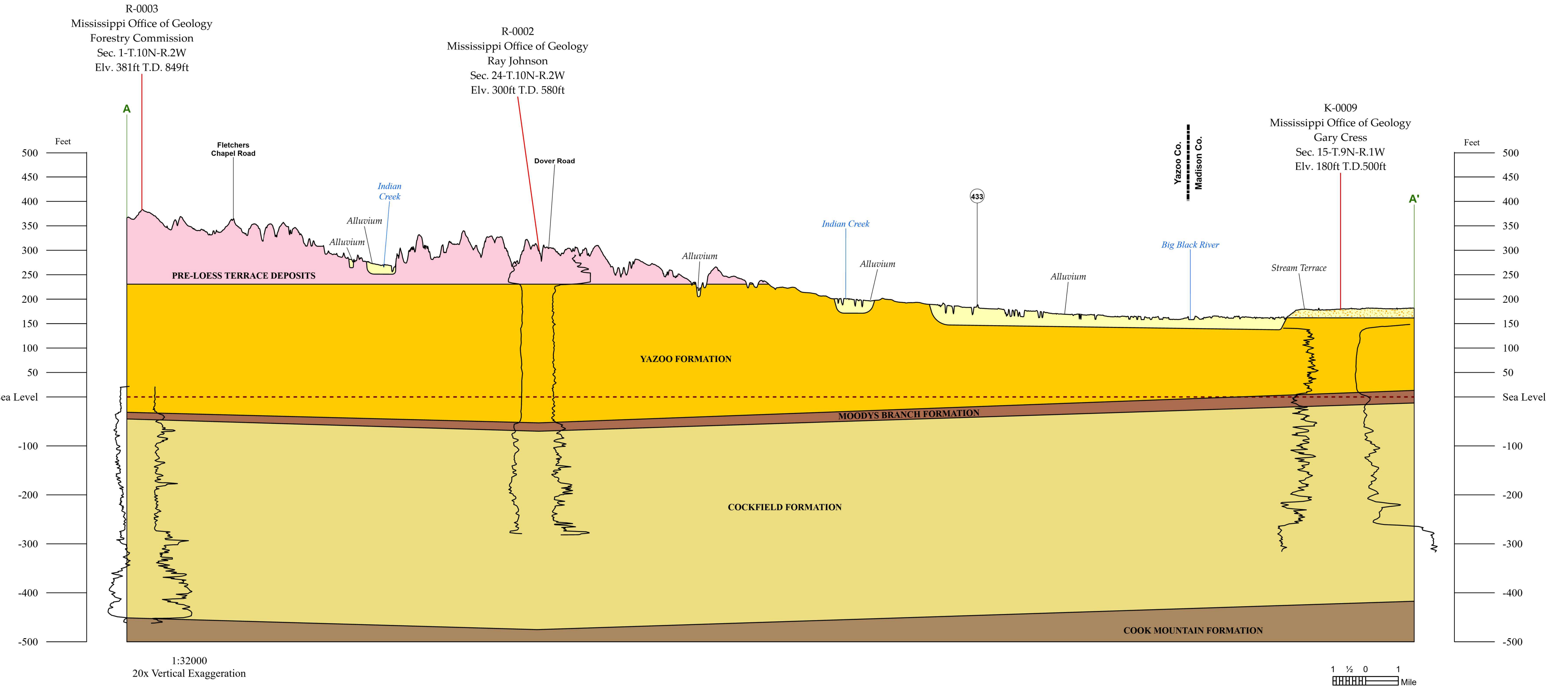
Descriptions of Map Units

- Qal Alluvium (Pleistocene to Holocene)**
Sand, yellow- to brownish-white in color, fine- to coarse-grained, subrounded to rounded, predominantly quartzose, silty, clayey; humus lenses common. Streams on clay subcrop will exhibit shallow, wide alluvial plains while streams on sand subcrop tend to incise creating steep valleys with narrow alluvial plains, silicified wood common. Thickness approximately 15 feet along larger streams, thinning up tributaries.
- Qtl Stream Terrace (Pleistocene to Holocene)**
Fluvial deposits associated with base elevation change with the incision of the Pearl River during the Pleistocene epoch just west of French's Store; Sand, yellow- to brownish-white in color, fine- to coarse-grained, subrounded to rounded, predominantly quartzose, locally graveliferous, silty to clayey; humus lenses common. Silicified wood may be common.
- Qtpl Pre-loess Terrace Deposits (Pleistocene)**
Pleistocene ancestral Mississippi River terraces deposited prior to Pleistocene loessification. Sand, yellow, orange, purple, red, pink, fine- to coarse-grained, predominantly quartzose, cross-bedded to massive; graveliferous, pea to large cobble size clasts, boulder size ice-rafted clasts of sandstone and chert. Economically significant gravels are predominantly chert with lesser amounts of vein quartz, metaquartzite, agate, sandstone, and rare rhyolite clasts; clay, pink to white, generally occurring as discontinuous lenses and as rip-up clasts up to boulder-size. Conglomeratic ironstone ledges are common in the graveliferous sands at the base of the deposits. The base of this terrace occurs at approximately 250 ft MSL and is masked by about 40 ft of loess overburden.
- Ty Yazoo Formation (Eocene to Oligocene)**
Outer neritic to bathyal marine clay. Clay is calcareous and montmorillonitic, blue-green when unweathered. Sparingly fossiliferous, with marine mollusk shell hash common along partings. Bentonite seams present. Limestone ledges occur in places. The Yazoo Formation is marked by the planktonic foraminifera *Hankenina alabamensis*. The Yazoo Formation conformably overlies the Moody's Branch Formation. Total thickness is approximately 400 ft.
- Tmb Moody's Branch Formation (Eocene)**
The Moody's Branch Formation is the basal member of a marine transgression towards the close of the Eocene epoch in the northern Gulf, situated unconformably above the deltaic to estuarine Cockfield Formation and conformably below the outer neritic to bathyal clays of the Yazoo Formation. It consists of sandy, fossiliferous marl containing abundant marine mollusk shells of the genera *Glycymeris* and *Venerocardia*. The unit unconformably overlies the Cockfield Formation, reflecting the delta destructional phase and subsequent marine transgression, and it conformably grades upward into the Yazoo Formation. Total thickness is approximately 15 ft.
- Tco Cockfield Formation (Eocene)**
Deltaic to estuarine deposits dominated by clays in the upper portions of the formation and sands in the lower portion. Clays are gray to brown in color, silty to fine sandy, plastic, highly carbonaceous with thin beds of lignite common, slightly micaceous, and locally pyritic. Sands are quartzose and are cross bedded to massive, locally lignitic, and can be silty to clayey. Conformably overlies the Cook Mountain Formation. Thickness is approximately 400 feet.
- Tcm Cook Mountain Formation (Eocene)**
Marine clays, silts, and sands. Clay, chocolate brown in color. Silt, dark yellowish-brown, carbonaceous, clayey, glauconitic, micaceous, sandy. Sand, light-gray to grayish-brown, fine- to coarse-grained, quartzose, fossiliferous, silty, clayey, micaceous, carbonaceous; shaley in upper portions, cross bedded in lower portions. Unconformably overlies the Kosciusko Formation. Thickness is approximately 60 feet.

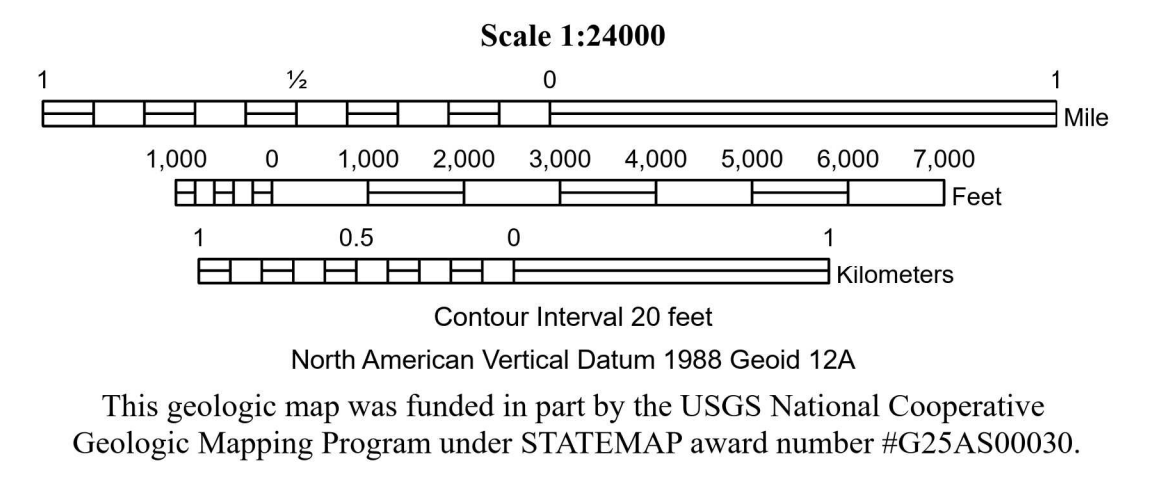
Field Photographs



Structural Cross-Section of the Bentonia 7.5-Minute Geologic Quadrangle



Base map produced by the Mississippi Office of Geology
PCS: NAD 1983 UTM Zone 15N
GCS: GCS North American 1983
Projection: Transverse Mercator
Datum: North American 1983
Units: Meter
Declination: USGS MS Bentonia 2024 Topographic Map
MDEM base map data from MARIS
Borehole data from Mississippi Office of Geology.



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**GEOLOGIC MAP of the BENTONIA
7.5-MINUTE QUADRANGLE**
Madison and Yazoo Counties, Mississippi

2026

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- Surface Mine
- Drill Hole Locality and Identification Number
- Formational Contact
- Line of Section



Geologic maps are only a guide to current understanding and do not eliminate the need for detailed investigations of specific sites for specific purposes. The views and conclusions contained in this Open-File Report are those of the geologists and should not be interpreted as representing the official policies, either expressed or implied, of the State of Mississippi or of the United States Government.

