

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY  
 OFFICE OF GEOLOGY  
 OPEN-FILE REPORT 290  
**GEOLOGIC MAP**  
 of the  
**TCHULA QUADRANGLE**  
 Holmes County, Mississippi

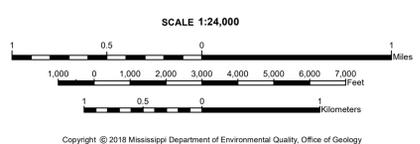
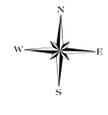
Geology by James E. Starnes, RPG  
 and Bobby Lee Bentley

2018

- DESCRIPTION OF MAP UNITS**
- |                                      |                                   |     |   |
|--------------------------------------|-----------------------------------|-----|---|
| HOLOCENE                             | <b>ALLUVIUM</b>                   | Qal | Flood plain sands, silts, gravels, and clays.   |
|                                      | <b>ALLUVIAL FANS</b>              | Qaf | Alternating silts, sands, and gravels. Coarsest at the apex of the fan, fining laterally (radially) from the apex of the fan.   |
|                                      | <b>LOW TERRACE DEPOSITS</b>       | Qt  | Stream terrace. Sand, orange to tan colored, fine- to coarse-grained, predominantly quartzose, cross-bedded to massive; graveliferous, pea- to cobble-size, predominantly chert and milky quartz; clay, kaolinitic, pink to white, generally occurring as discontinuous lenses.   |
| QUATERNARY                           | <b>LOESS</b>                      | Tco | Silt, buff to tan, pale yellow, red, or gray, sandy to clayey, quartzose to feldspathic. Loess is an eolian deposit derived from glacial outwash. Loess is typically calcareous with dolomite and calcite; however, the upper portion of the loess is highly weathered, leached / noncalcareous, very clayey, and has been referred to as "brown loam." Loess deposits unconformably blanket the pre-loess topography with substantial local variations in thickness. In places, weathered loess contains secondary deposits of small calcareous concretions (calciche, loess dolls). The basal few feet of loess grades into the sands and gravels of the Pre-loess terrace deposits. Loess can be locally and sparingly fossiliferous, commonly containing tests or stemmers of pulmonate gastropods and less commonly containing fossils of Pleistocene vertebrates. |
|                                      | <b>PRE-LOESS TERRACE DEPOSITS</b> | Ql  | Sand, yellow, orange, purple, red, pink, fine- to coarse-grained, predominantly quartzose, cross-bedded to massive; graveliferous, pea to large cobble size clasts, clasts of sandstone up to boulder size not uncommon. 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 (clasts may be boulder size). Conglomeratic ironstone ledges are common in the graveliferous sands at the base of the deposits, which overlies the Cockfield Formation unconformably. "Head-of-hollow", terrace-derived valley fill deposits are common at lower elevations and are isolated to valley walls. These small deposits are of such limited extent as not to warrant representation on this map.               |
| TERTIARY<br>Eocene<br>CLABORNE GROUP | <b>COCKFIELD FORMATION</b>        | Tco | Clay, brown, reddish-brown to grey in color; silty to fine- sandy; slightly carbonaceous to lignitic, slightly micaceous, pyritic. Sand, grey, weathers orange to tan in color, fine- to medium-grained, predominantly quartzose and slightly micaceous, cross-bedded to massive, carbonized and silicified plant fossils common. Thick quartzite sandstone and orthoquartzite ledges resembling those typical of the Kosciusko Formation, occurs in the lower sands of the Cockfield Formation in Sections 2, 11, and 14, Township 15 North, Range 1 East.   |
- K-0010 Drill-hole locality and identification number



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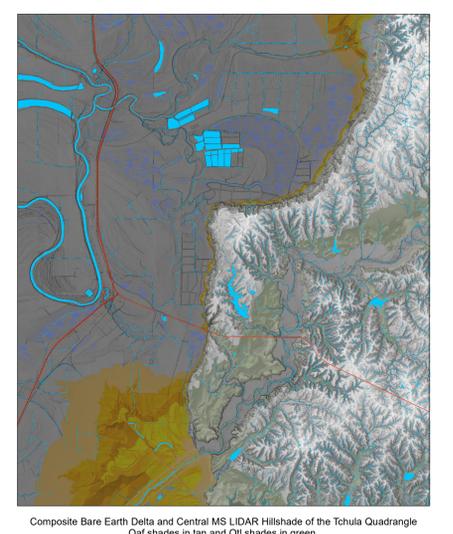


Geology field checked in 2017 using the 1982, U.S. Geological Survey 7.5-minute topographic quadrangle, 1983 North American datum, contour interval 5 and 20 feet; 1000-meter Universal Transverse Mercator grid (UTM), zone 15; 1983 datum shown in red. January 2018, magnetic north declination in quadrangle center is 1° 0' west of true north, changing by 0' 6" west per year.

Sources: Contours derived from Mississippi Automated Resource Information System (MARIS); Public Land Survey System, 1:24,000 scale; from MARIS; road features derived from the Mississippi Department of Transportation (MDOT) 2015 road centerlines; Light Detection and Ranging (LIDAR) DELTA 2009 U.S. Army Corps of Engineers (USACE) collected at 10 points per square meter (1.0m GSD) for entire portion of the Mississippi River Delta in the Vicksburg District and Central MS 2014 (0.7-meter nominal point spacing) United States Geological Survey (USGS) and Natural Resources Conservation Service (NRCS), water features derived from 2009 Delta LIDAR. Declination, National Oceanic and Atmospheric Administration (NOAA).

Geographic Information System by Daniel W. Morse. MDEQ does not warrant the accuracy or completeness of the source data. Geologic maps are only a guide to current understanding and do not eliminate the need for detailed investigations of specific sites for specific purposes.

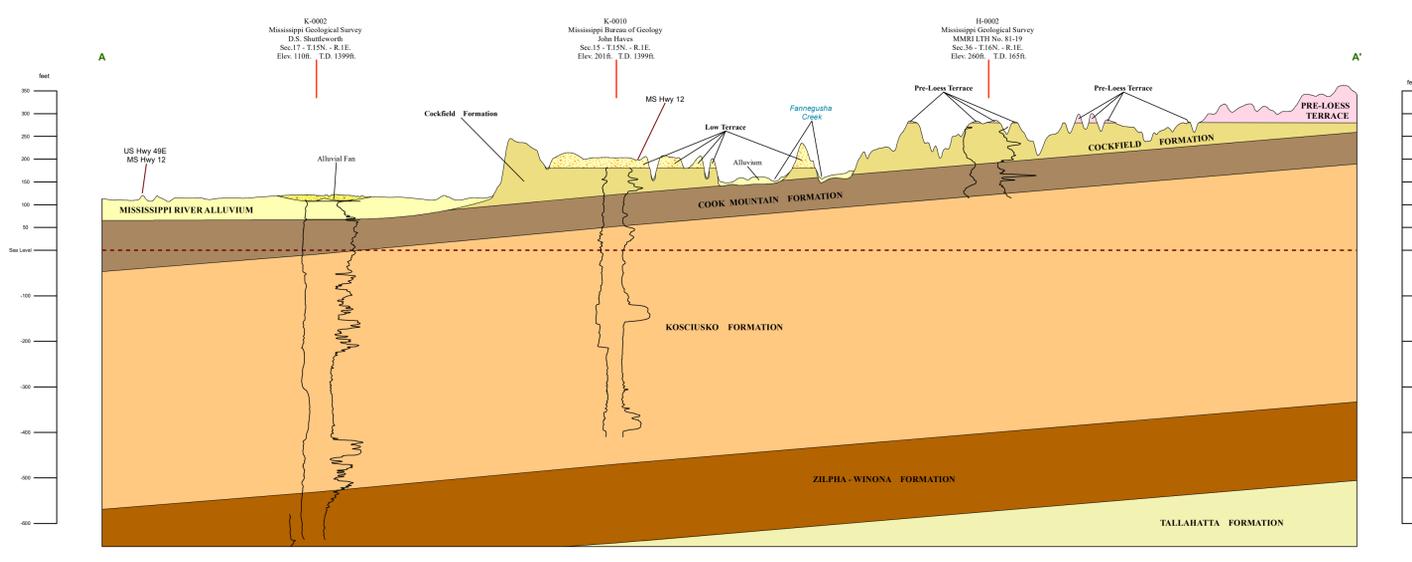
This map was produced by the Mississippi Office of Geology.



Composite Bare Earth Delta and Central MS LIDAR Hillshade of the Tchula Quadrangle  
 Qaf shades in tan and Ql shades in green.



**Structural Cross-Section of the Tchula 7.5-Minute Geologic Quadrangle**



Vertical Exaggeration X20

