



MISSISSIPPI DEPARTMENT OF
ENVIRONMENTAL QUALITY
OFFICE OF GEOLOGY
OPEN-FILE REPORT 103

GEOLOGIC MAP
of the
RED BANKS QUADRANGLE
Marshall County, Mississippi

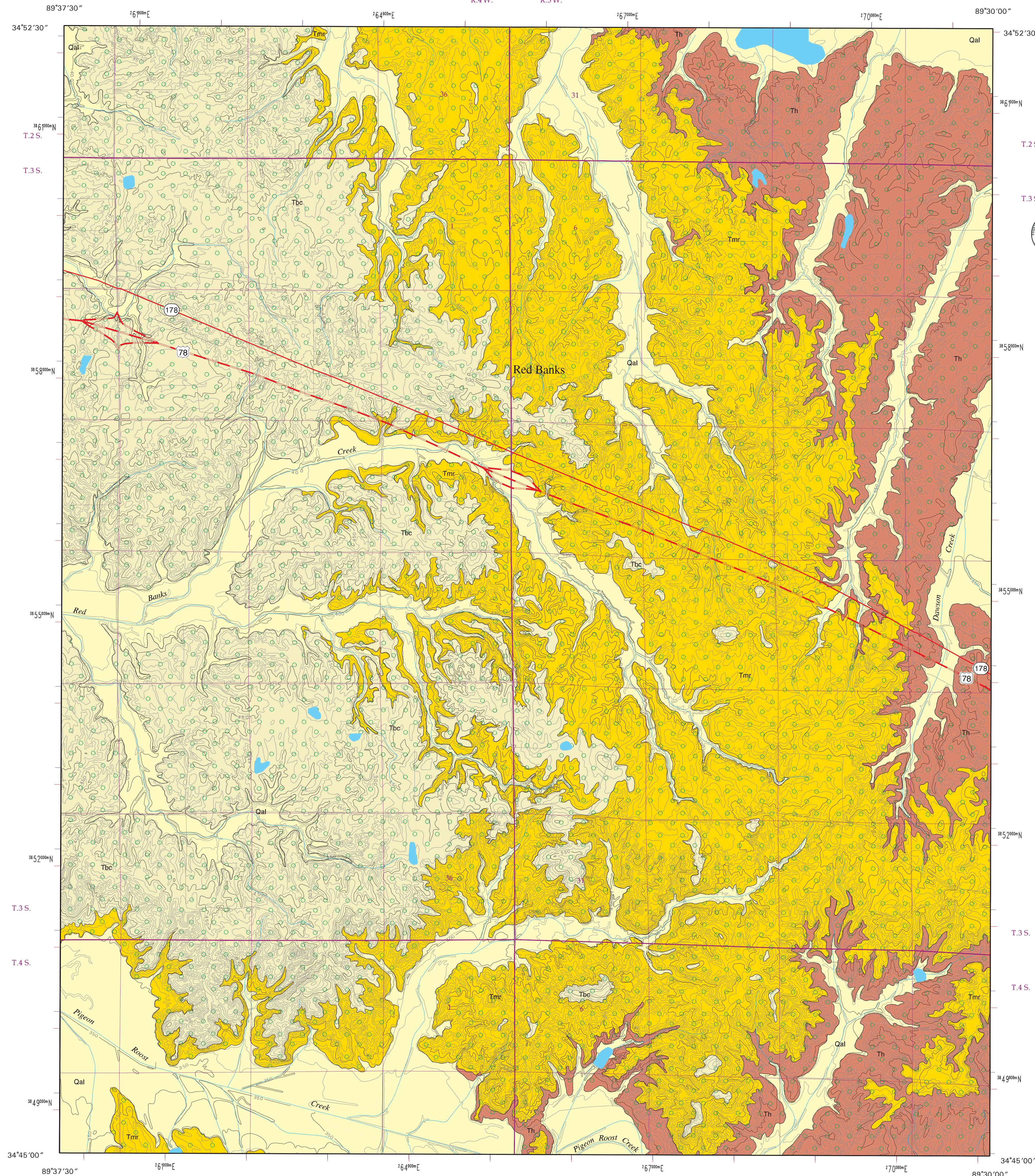
Geology by David E. Thompson, RPG, and D. Kenneth Davis

2003

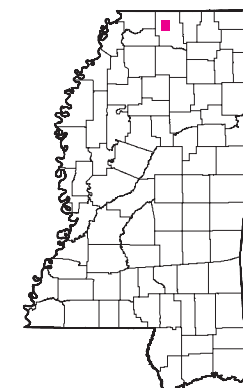
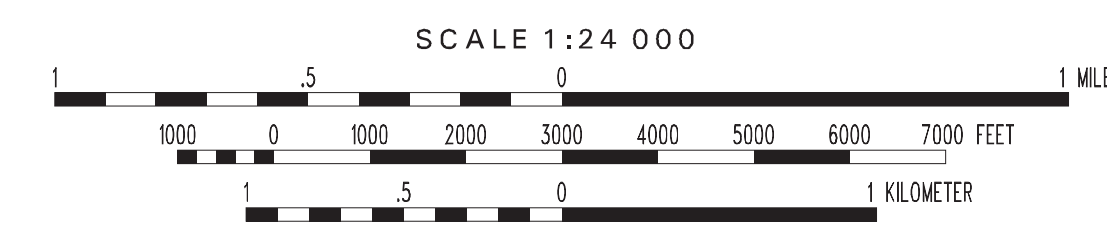
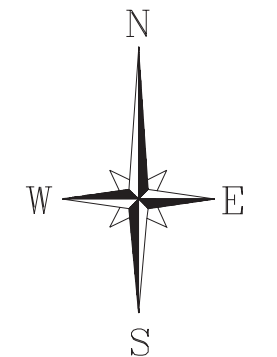
DESCRIPTION OF MAP UNITS



QUATERNARY	HOLOCENE	ALLUVIUM	Qal	Sand, flood plain sands and silts.	
	PLEISTOCENE	LOESS		Silt, buff to tan, pale yellow, red, or gray, sandy to clayey, quartzose, feldspathic. Unweathered loess is typically calcareous with dolomite and calcite; however, loess in this quadrangle is highly weathered, leached/noncalcareous, very clayey, and has been referred to as a brown or yellow loam. Loess is an eolian deposit derived from glacial outwash. Loess deposits blanket the pre-loess topography of the quadrangle area, with greater quantities developed along ridge crests than in valleys, creating substantial local variation in thickness. The thickness in the quadrangle is estimated at 2 to 7 feet. In places, weathered loess contains secondary deposits of small calcareous concretions (caliche, loess dolls).	
TERTIARY	Eocene	CLAIBORNE GROUP	Tallahatta Formation		
			Basic City Shale Member	Tbc	Clay and silt, olive gray to brownish gray, weathers yellowish gray to very light gray or white, carbonaceous to lignitic, locally indurated, near surface exposures may exhibit siderite nodules and jointing with limonite filling; interbedded to interlaminate with sand, gray to very light gray, weathers pale yellowish orange to reddish orange, very fine- to medium-grained, quartzose, micaceous, carbonaceous, pyritic, locally slightly glauconitic. The lower approximate half of the member is predominantly quartzose sand with a very coarse-grained texture. The total thickness is approximately 220 feet; however, only the lower 130 feet or so are exposed along the western portion of the quadrangle. Sandy horizons of the member constitute a portion of the Memphis Sand Aquifer.
WILCOX GROUP	Eocene	CLAIBORNE GROUP	Meridian Sand	Tmr	Sand, gray to very light gray, weathers yellowish gray to reddish orange, very fine- to very coarse-grained, typically fining upward, quartzose, micaceous, locally carbonaceous or slightly glauconitic, pyritic, interbedded to interlaminate with silt, siltstone, and clay, dark gray to white, carbonaceous; upper beds are typically silty or argillaceous. The thickness is approximately 100 feet. Unconformity at base. The Meridian Sand constitutes a portion of the Memphis Sand Aquifer.
			Hatchetigbee Formation	Th	Sand, gray to light gray, weathers reddish orange to pale yellowish orange, very fine- to very coarse-grained, quartzose, micaceous, pyritic, clay clast conglomerate, especially sandy and coarse-grained at base; interbedded to interlaminate with clay, gray to brownish gray, weathers very light gray to white, silty, carbonaceous, especially argillaceous in the upper beds of the formation. The basal 50 feet or so represent a non-marine equivalent to the fossiliferous, marine, Bashi Formation of east-central Mississippi, mark the Paleocene/Eocene unconformity, and consist of sand, gray to light gray, weathers reddish orange to pale yellowish orange, very fine- to very coarse-grained, quartzose, micaceous, carbonaceous, slightly pyritic, clay clast conglomerate. The thickness is approximately 220 feet; however, only the upper 120 feet or so are exposed along the eastern portion of the quadrangle. The Hatchetigbee Formation constitutes the basal portion of the Memphis Sand Aquifer.



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Marshall County, Mississippi



Geology field checked in 2001 using the 1971 U.S. Geological Survey 7.5-minute topographic quadrangle, 1927 North American datum, contour interval 10 feet.

Mississippi Transverse Mercator projection, 1983 North American datum, GRS80 spheroid, 1000-meter Universal Transverse Mercator grid ticks, zone 16; 1983 datum shown in red, 1927 datum shown in blue.

Sources: Road and water features, USGS Digital Line Graph data, 1:100,000 scale. Public Land Survey System and contours, Mississippi Automated Resource Information System (MARIS), 1:24,000 scale.

Geographic Information System by Daniel W. Morse.

This map was produced by the Mississippi Office of Geology in cooperation with the U.S. Geological Survey, National Geologic Mapping Program, under STATEMAP grant #00HQAG0053.