

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
 OFFICE OF GEOLOGY
 OPEN-FILE REPORT 206
GEOLOGIC MAP
 of the
ETHEL SOUTH QUADRANGLE
 Attala County, Mississippi



Geology by David E. Thompson, RPG

2006

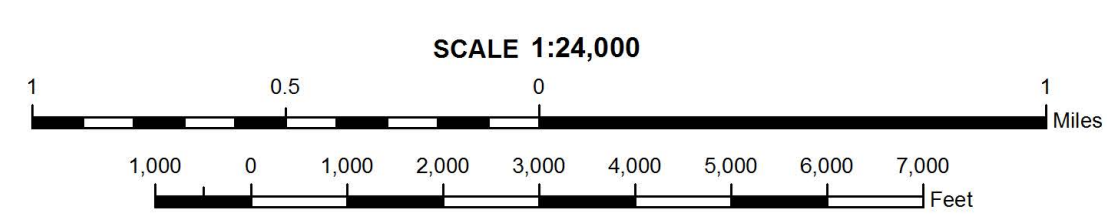
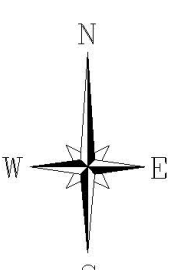
DESCRIPTION OF MAP UNITS

- QUATERNARY HOLOCENE**
- Qal** ALLUVIUM
Sand, flood plain sands and silts.
- TERTIARY EOCENE CLAIBORNE GROUP**
- Tk** KOSCIUSKO FORMATION
Sand, gray to light olive gray, weathers reddish orange to pale yellowish brown, very fine- to very coarse-grained, quartzose, micaceous interbedded to interlaminated with silt and clay, light olive gray to brownish gray, carbonaceous to lignitic, especially argillaceous in upper third of the formation. Locally the basal Kosciusko contains layers of quartzitic, siliceous siltstone and sandstone as thick as 5 feet, often occurring as large boulders along hill tops and slopes. Unconformity at base. The thickness is estimated to be 300 feet; however, only the lower 50 feet or so are exposed in the southwestern portion of the quadrangle. Constitutes the Sparta Aquifer.
 - Twn-Tz** WINONA and ZILPHA FORMATIONS
Zilpha - Clay, gray to brownish black, carbonaceous to lignitic, weathers light gray to reddish pink to white, massive and homogeneous or interbedded to interlaminated with silt and sand, gray to light olive gray, quartzose, micaceous, carbonaceous, locally glauconitic; concretionary siderite and limonite; near surface exposures may exhibit jointing with selenite or limonite infilling. The thickness is variable from a few feet to 60 feet.
Winona - Sand, gray to green, weathers very light gray to reddish orange or dark red, fine- to coarse-grained, quartzose, micaceous, typically glauconitic to very glauconitic, carbonaceous, silty, locally fossiliferous with thin marine shell beds and prints. Surface exposures commonly weather to distinctive contorted, concretionary, limonitic sandstone and sandy ironstone; concretionary siderite, especially near top. Approximately 60 feet thick.
The total thickness of the Zilpha/Winona interval is approximately 120 feet.
 - Tbc** TALLAHATTA FORMATIONS
Basic City Shale Member
Sand, gray to very light gray, weathers pale yellowish orange to reddish orange, very fine- to medium-grained, unconsolidated, massive to cross-bedded, quartzose, micaceous, carbonaceous, pyritic; also greenish yellow to buff, fine-grained, semi-consolidated, siliceous, glauconitic, and silty; interbedded to interlaminated with clay, silt, claystone, and quartzitic siltstone and sandstone, olive gray to brownish gray, weathers yellowish gray to very light gray or white, carbonaceous with leaf and plant impressions, faucoidal structures are common, near surface exposures may exhibit jointing with limonite infilling; claystones typically weather to lightweight and brittle rock with a subconchoidal fracture. Unconsolidated sands in the upper 30 to 60 feet are equivalent to the Neshoba Sand interval. The total thickness is approximately 220 feet; however, the unit thins to as little as 110 feet in the northeastern area of the quadrangle due to apparent overlap of marine Winona lithologies.
 - Tmr** MERIDIAN SAND
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 interlaminated with silt, siltstone, and clay, dark gray to white, carbonaceous, the upper beds are typically silty or argillaceous. Locally, the basal portion of the Meridian Sand may be predominantly argillaceous with typical Tallahatta siltstone lithologies overlying sand and clay of the Hatchetigbee Formation. This scenario led previous investigators to omit the Meridian Sand completely or to incorrectly assign the Meridian Sand to the underlying Hatchetigbee Formation. The thickness is approximately 100 feet; however, only the upper 60 feet are exposed in the northeastern portion of the quadrangle. Unconformity at base. The Meridian Sand constitutes the upper portion of the Meridian/Upper Wilcox Aquifer.

N - 2 Drill-hole locality and identification number



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 Attala County, Mississippi



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Geology field checked in 2005 using the 1972 U.S. Geological Survey 7.5-minute topographic quadrangle, 1927 North American datum, contour interval 20 feet. Universal Transverse Mercator projection, 1983 North American datum, GRS80 spheroid, 1000-meter Universal Transverse Mercator grid ticks, zone 18; 1983 datum shown in red, 1927 datum shown in blue. January 2006, magnetic north declination in quadrangle center is 0° 15' west of true north.

Sources: Road features, USGS Digital Line Graph data, 1:100,000 scale. Water features, USGS National Hydrography Dataset, 1:24,000 scale. Public Land Survey System and contours, Mississippi Automated Resource Information System (MARIS), 1:24,000 scale. 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 in cooperation with the United States Geological Survey, National Geologic Mapping Program, under STATEMAP grant #05HQAG0021.

Structural Cross-Section of the Ethel South 7.5-Minute Geologic Quadrangle

