MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

OFFICE OF GEOLOGY

OPEN-FILE REPORT 339

MISSISSIPPI STATE UNIVERSITY
DEPARTMENT OF GEOSCIENCES

GEOLOGIC MAP

of the

STARKVILLE QUADRANGLE

Oktibbeha County, Mississippi

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2022

DESCRIPTION OF MAP UNITS

QUATERNARY — PLEISTOCENE TO HOLOCENE

Qal — ALLUVIUM
Sand, yellow- to brownish-white in color, fine- to coarse-grained, subrounded to rounded, predominately quartzose, silty, clayey; humus lenses common; Silicified wood common. Streams on chalk or clay subcrop will exhibit shallow, wide alluvial plains while streams on sand subcrop tend to incise creating steep, narrow alluvial plains. Can contain Pleistocene vertebrate fossils.

Qtl — LOW TERRACE
Stream Terrace; Sand, orange to tan colored, fine-to medium grained, predominately quartzose; Clay, red to brown, kaolinitic. Can contain Pleistocene vertebrate fossils. Thickness variable depending on the drainage, thickness rarely exceeds 10 feet.

Qth — HIGH TERRACE
Terrace deposits that occupy drainage divides and are unattributable to modern streams. Sand, yellow, orange, red, pink, fine to coarse-grained, predominately quartzose. Clay, red to brown, kaolinitic. Can contain Pleistocene vertebrate fossils. High terraces indicated on this map (those on Mississippi State University Campus and the surrounding areas) are evidenced by Pleistocene fossils previously accessioned the collections at the Mississippi Museum of Natural Science as well as other terraces identified in the field. Thickness ranges from 1-15 feet.

TERTIARY — PALEOGENE — MIDWAY GROUP

Tpc — PORTERS CREEK FORMATION
Clay, gray to blue-gray, weathers to chocolate brown; jointing common, montmorillonitic. Conformably overlies the Clayton Formation. Total thickness not observed in this quadrangle.

Tcl — CLAYTON FORMATION
Silty Clay, gray to tan, weathers to red. Sands massive to cross-bedded, confined to the basal part and as incised channels into the underlying Prairie Bluff Formation, fossiliferous with *Pycondonte pulaskensis* oysters indurated in a glauconitic sandstone mark the basal section. Thickness averages 10 feet but can be more than 30 feet where channels are incised. Unconformably overlies the Prairie Bluff Formation.

CRETACEOUS — UPPER CRETACEOUS — SELMA GROUP

Kpb — PRAIRIE BLUFF FORMATION
Chalky marl with some beds of chalk, blue to gray, weathers white, massive, silty; very fossiliferous, interlaminated thinly bedded calcareous glauconitic sands. Total thickness approximately 90 feet. Unconformably overlies the Ripely Formation.

Kr — RIPLEY FORMATION
Basal clays grade coarsening-upward into sands; fossiliferous. Conformably overlies the Demopolis Formation with contact marked by transitional clays. Total thickness approximately 80 feet.

Kd — DEMOPOLIS FORMATION
Chalky marl with some beds of chalk, blueish gray to gray, weathers to white; fossiliferous. Total thickness not observed in this quadrangle.

G-0108 — Drill Hole Locality and Identifier

Surface Mine

2009-2018 Mississippi Statewide LIDAR-Generated DEM and Hill Shade

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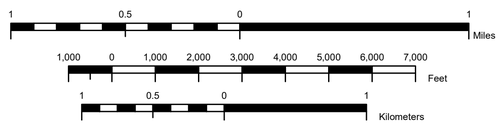
Oktibbeha County, Mississippi



Scale 1:24,000
Contour Interval 20 Feet

Geology field checked in 1999, 2001, 2002, 2021,2022 using the 1965, U.S. Geological Survey 7.5-minute topographic quadrangle, Universal Transverse Mercator projection, 1927 North American datum, contour interval 20 feet. Universal Transverse Mercator projection, 1983 North American datum. GRS80 spheroid. 1000-meter Universal Transverse Mercator 1983 datum grid ticks, zone 16, shown in red. September 2022 magnetic declination 2.39° W ± 0.36° changing by 0.09° W per year.

Sources: Contours are Lidar Derived. Data obtained from Mississippi Automated Resource Information System (MARIS). Public Land Survey System, 1:24,000 scale, railroad features, highway features, and hydrologic information from MARIS. We thank The City of Starkville, Dudley Waldrop, and The Starr family for property access for field tests. Lidar from Brad Segrest & Barbara Yassin of The Mississippi Department of Environmental Quality (MDEQ), Natural Resources Conservation Service, National Oceanic and Atmospheric Administration, United States Army Corps of Engineers, and MARIS. Building Footprint data is licensed by Microsoft under the Open Data Commons Open Database License (ODbL).

Geographic Information System by Jonathan R. Leard, RPG, MDEQ Office of Geology-Surface Mapping Division. 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.

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