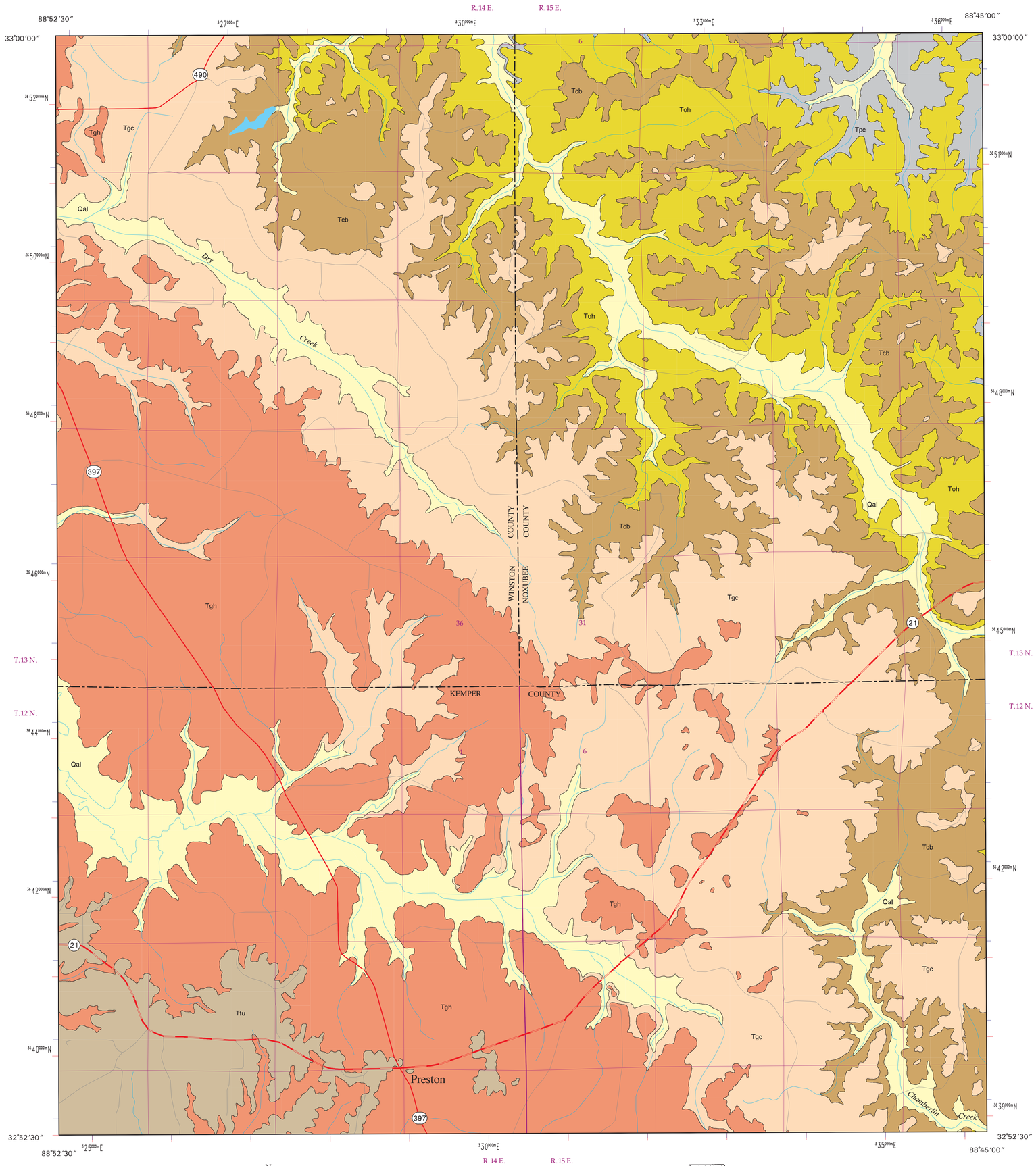

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF GEOLOGY
OPEN–FILE REPORT 34

GEOLOGIC MAP
of the
PRESTON QUADRANGLE
Kemper, Noxubee and Winston Counties, Mississippi

Geology by David E. Thompson

2001

DESCRIPTION OF MAP UNITS

QUATERNARY — HOLOCENE

ALLUVIUM

Qal — Sand, flood plain sands and silts.

TERTIARY — PALEOCENE

MIDWAY GROUP

TUSCAHOMA FORMATION

Ttu — Sand, dark greenish gray to light gray, weathers reddish orange to pale yellowish orange, very fine- to coarse-grained, quartzose, micaceous, carbonaceous, glauconitic. Interbedded to interlaminated with clay and silt, light olive gray to brownish black, weathers to various shades of red, gray, brown, or white; lignite, contains Red Hills Mine equivalent lignite seams H through L. Total thickness is approximately 400 feet; however, the maximum thickness present in the quadrangle is 60 to 70 feet in the southwestern area. The basal sandy interval constitutes the Middle Wilcox Aquifer.

WILCOX GROUP

NANAFALIA FORMATION

Grampian Hills Member

Tgh — Clay and silt, medium gray to pale green, weathers to various shades of red, brown, and gray, carbonaceous, lignitic, contains Red Hills Mine equivalent lignite seams C through G; interbedded to interlaminated with sand, dark greenish gray to medium gray, weathers reddish orange to pale yellowish orange, very fine- to medium-grained, quartzose, micaceous, carbonaceous, glauconitic. Basal portion is typically sandy. Thickness is 130 feet.

Gravel Creek Sand Member

Tgc — Sand, medium gray to very light gray, weathers reddish orange to pale yellowish orange, very coarse- to fine-grained, typically fining upward, quartzose, micaceous, clay clast conglomerate; upper portion consists of clay, dark gray to light gray, typically dense, occasionally silty, carbonaceous to lignitic. Thickness is 80 to 110 feet. Unconformity at base. The basal sandy interval (along with the underlying Coal Bluff sand) constitutes the Lower Wilcox Aquifer.

NAHEOLA FORMATION

Coal Bluff Member

Tcb — Sand, dark gray to light gray, weathers pale yellowish orange to reddish orange, very fine- to very coarse-grained, sometimes pebbly, typically fining upward, quartzose, very micaceous, carbonaceous, clay clast conglomerate; interbedded to interlaminated with clay and silt, dark gray to light gray, carbonaceous, lignitic, especially argillaceous at the top. The lower sands may contain kaolinitic to bauxitic clay clasts or beds. Numerous commercial brick clay pits are developed in Coal Bluff beds, and are generally located in the northern half of the quadrangle. The thickness is 70 to 80 feet. Unconformity at base. Along with the overlying Gravel Creek sand, constitutes the Lower Wilcox Aquifer.

Oak Hill Member

Toh — Clay, brownish black to medium gray, weathers grayish brown to white, silty, carbonaceous, lignitic, kaolinitic to bauxitic; interbedded to interlaminated with sand, dark gray to greenish gray, weathers reddish orange to light yellowish orange, fine- to coarse-grained, quartzose, very micaceous, carbonaceous, locally glauconitic. The Oak Hill is locally predominantly sandy. The thickness is approximately 100 feet.

PORTERS CREEK FORMATION

Tpc — Clay, grayish black, weathers dusky yellow brown to brownish gray, blocky, typically exhibits conchoidal fracture; upper beds are interbedded with sand, pale yellow to light brown, fine- to very fine-grained, highly micaceous, and often containing sideritic concretions and nodules. Matthews Landing Member at top consists of light brown to olive green, glauconitic, micaceous, clayey sand with limonite, siderite, and occasional prints of fossil marine mollusks. The total thickness is approximately 550 feet; however, only the upper 120 feet or so are exposed in the northeastern region of the quadrangle.

GEOLOGIC MAP

PRESTON QUADRANGLE

Kemper, Noxubee and Winston Counties, Mississippi

N W E S

SCALE 1:24 000

1 .5 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

Geology field checked in 2001 using the 1962 (photorevised 1982) U.S. Geological Survey 7.5-minute topographic quadrangle, 1927 North American datum, contour interval 20 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, 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.