

DESCRIPTION OF MAP UNITS

Qal Alluvium, modern (Holocene)
Silt, clay, and sandy silt with minor sand and sparse gravel; thickness 10 to 30 feet (3 to 10 m). Found along Blackford and Pop Creeks, near ratholes, and in floodplains along streams tributary to the Ohio River; deposited by modern fluvial stream processes. Deposit is least into adjacent main units; contact with adjacent units varies from sharp to poorly defined; mapped on the basis of field observations and topographic expression.

Qat1 Outwash, low terrace (Pleistocene - Holocene)
Fine to coarse sand and gravel, with local lenses of silt and clay; gravel includes chert, quartzite, sandstone, schistose, gneiss and metamorphic rocks, limestone, and coal. Lithologically similar to adjacent outwash terraces (Qat). Qat1 is fine grained with alluvial silt sand and sandy silt; 30 to 45 feet (10 to 15 m) thick; surface forms well-developed, low-terrace along Ohio River valley; deposited as glacial outwash reworked by post-glacial Ohio River; overlie older outwash deposits (Qat2); contact is sharp, drawn at scarp of next higher terrace or upland.

Qat2 Loess (Pleistocene - Holocene)
Silt, clayey silt, and fine sand deposited by wind; typically massive; unit is approximately 30 feet (10 m) thick in the northwestern part of the quadrangle and thin to less than 5 feet (1 m) in the western part of the quadrangle; massive bedrock upland; not mapped where locally found on limestone terraces (Qat) and high outwash terraces (Qat3); estimated range in age from 22,000 to 10,000 years old; locally includes thin layers of loess inferred to be older than 20,000 years.

Qat3 Sand dunes (Pleistocene)
Very fine to fine sand, locally contains lenses of clayey silt; thickness uncertain, base not observed; deposited by wind in long, linear ridges; mantled by loess up to 15 feet (5 m) thick.

Qat4 Lacustrine terrace (Pleistocene)
Clayey silt and silt clay; 10 to 15 feet (3 to 5 m) thick; thicker in tributary valleys. Represents lacustrine terrace in tributary valleys and distal portions of Ohio River valley; and deposited in lacustrine and black-water environments associated with the alluviation of the Ohio River valley by glacial outwash and resulting impoundment of tributary valleys; underlying materials of apparent mixed fluvial and fluvio-lacustrine origin; contact with fluvial units is sharp, and drawn on scarp separating adjacent terraces; contact with silt and upland units (Qat) is gradual and approximate; inferred by surface topography; estimated range in age from 22,000 to 10,000 years old.

Qat5 Marginal lacustrine deposits (Pleistocene)
Massive silt and silt clay; 10 to 15 feet (3 to 5 m) thick; surface forms massive steps and benches typical from bedding lacustrine deposits (Qat); represents complex transition between lacustrine deposits (Qat) and loess (Qat) mantling upland; deposit includes loess, locally derived alluvial deposits, calcareous, lacustrine, silt and clay, and lacustrine siltstone deposits; contact gradual and approximate; mapped on the basis of topographic expression.

Qat6 Outwash, high terrace (Pleistocene)
Fine to coarse sand and gravel, with local lenses of silt and clay; gravel includes chert, quartzite, sandstone, schistose, gneiss and metamorphic rocks, limestone, and coal. Lithologically similar to adjacent outwash terraces; surface mantled with silt and alluvial silt sand and sandy silt; up to 120 feet (40 m) thick; surface forms well-developed, dissected terrace above Ohio River valley; deposited as glacial outwash; represents maximum valley filling by glacial outwash main deposits; overlie bedrock (Pz) or older pre-glacial alluvial deposits (not shown); contact is sharp, drawn at scarp of adjacent terrace or upland; age estimated to be 120,000 to 22,000 years old.

Qat7 Upland gravel (Pleistocene - Pleistocene)
Gravel and medium to coarse sand; pebbles include brown, pink, chert, quartz, and silicified fossils; locally cemented by iron oxide; thickness uncertain; unit found on uplands, covered by loess and poorly exposed; comparable to the Luce Gravel of Ray (1965).

Pz Bedrock (Paleozoic)
Consolidated shale, sandstone, coal, and overlying poorly sorted regolith, comprising the core of the uplands; includes areas of lower than 7.11 m.

a1 Artificial fill, engineered fill (Modern)
Unconsolidated material used as fill for the construction of roads, runways, buildings, and floodwalls.

a2 Artificial fill, mine spoil (Modern)
Disturbed bedrock and regolith produced from mining operations.

a3 Artificial fill, other (Modern)
Chaotic, unconsolidated fill material; includes material dredged from creeks to form artificial levees.

EXPLANATION

- Contact
- Approximate contact
- Inferred contact
- Concealed fault
- Federal highways
- State roads
- Local roads
- Railroads
- Surface observations
- Landform
- Landform and soil
- Subsurface data
- This study
- Dam/levee
- Gravel pit

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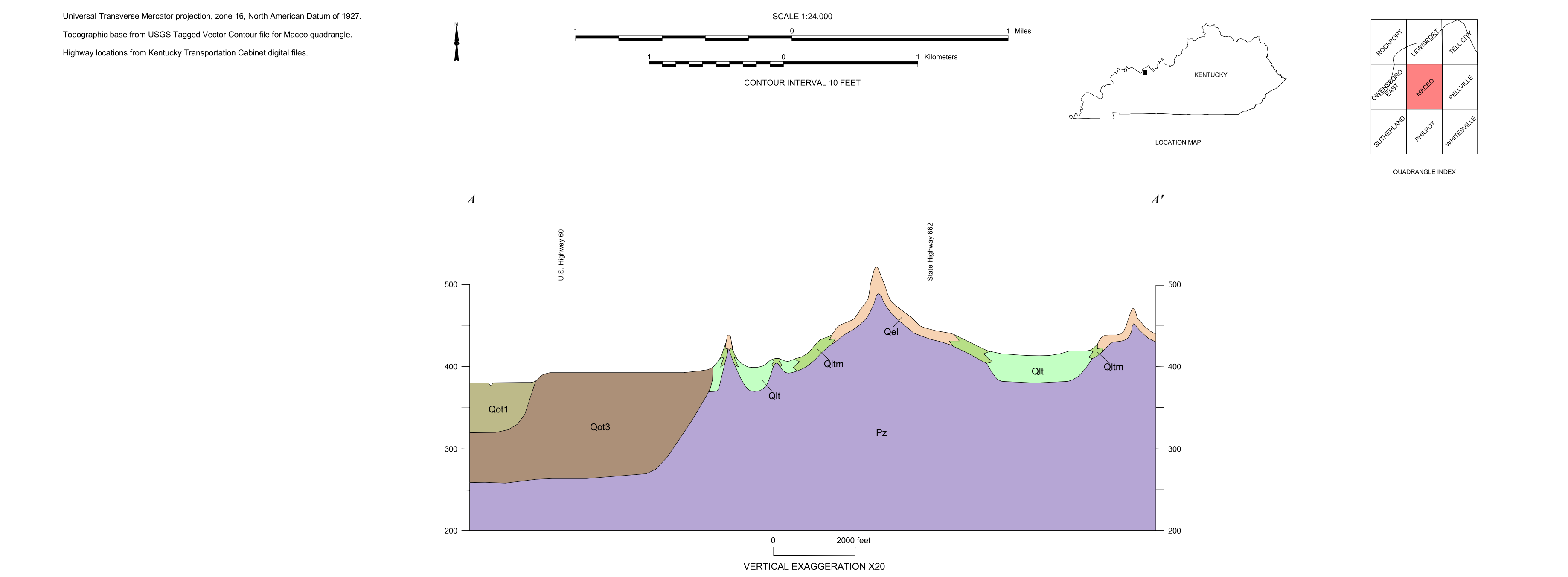
Field mapping was completed by Steve Martin from August 2005 to December 2005, with assistance from William Andrews, Ron Counts, and Mike Murphy of the Kentucky Geological Survey. William Andrews provided thoughtful reviews of the map.

Subsurface information was compiled from data on file at the Kentucky Geological Survey, and data contributed by the Kentucky Transportation Cabinet.

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QUATERNARY GEOLOGIC MAP OF THE MACEO 7.5-MINUTE QUADRANGLE, WESTERN KENTUCKY
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