KENTUCKY GEOLOGICAL SURVEY
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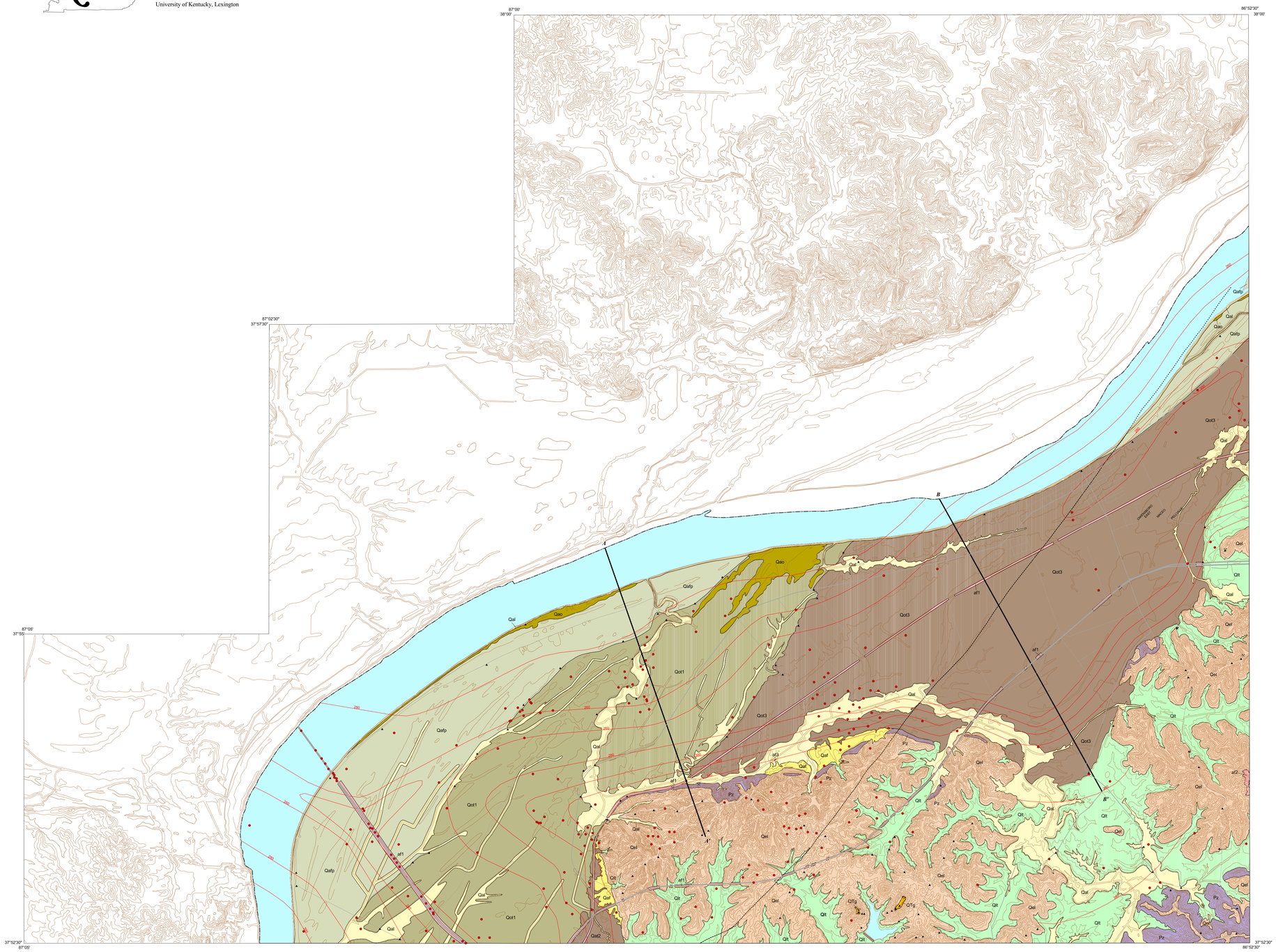
DRAFT GEOLOGIC MAP
Series XII, 2005
Contract Report 10




Universal Transverse Mercator projection, zone 16, North American Datum of 1927

Topograpic base from USGS Tagged Vector Contour file for Rockport and Lewisport quadrangles.

Highway locations from Kentucky Transportation Cabinet digital files.

N

SCALE 1:24,000

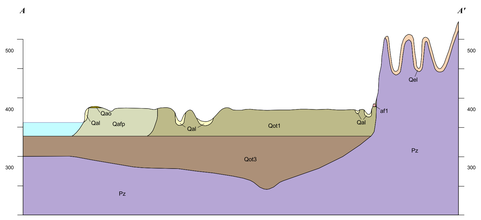
1 0 1 Miles

1 0 1 Kilometers

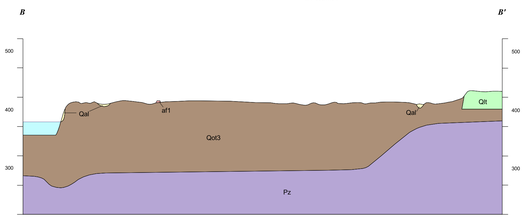
CONTOUR INTERVAL 10 FEET

MAP LOCATION

QUADRANGLE INDEX




VERTICAL EXAGGERATION X20




VERTICAL EXAGGERATION X20

## CORRELATION OF MAP UNITS

## DESCRIPTION OF MAP UNITS

**Qaf** — **Alluvium, modern (Holocene)**
Silty clay and sandy silt, with minor sand and sparse gravel, found in floodplains along streams to the Ohio River, and inset into adjacent map units; mostly sand sparse gravel along the banks of the Ohio River; contact with adjacent units varies from sharp to poorly defined, and is mapped on the basis of field observations and topographic expression.

**Qafp** — **Alluvium, Ohio River floodplain (Holocene)**
Sand, silt, fine gravel and clay; surface mantled by silty clay and sandy silt; forms lowest well-developed terrace along the Ohio River; approximately 50 feet thick, and overlies sand and gravel deposits of older outwash deposits; contact is sharp, drawn at scarp of next higher terrace.

**Qao** — **Alluvium, natural levee (Holocene)**
Sand and silt deposited in natural levees or overwash deposits on the Ohio River floodplain and low outwash terrace; typically sandier than adjacent floodplain deposits, and is mapped based on field observations and topographic expression.

**Qaf** — **Alluvial fan (Holocene)**
Silt derived from loess-covered upland areas; forms small, low-relief fans on outwash terrace surfaces.

**Qot1** — **Outwash, terrace (Pleistocene)**
Fine to coarse sand and gravel, with local lenses of silt and clay; gravel includes chert, quartzite, sandstone, siltstone, igneous and metamorphic rocks, limestone, and coal; lithologically indistinguishable from adjacent outwash terraces; deposited as glacial outwash; forms well-developed, low-relief terrace along Ohio River valley; surface mantled with silty sand and sandy silt; contact is sharp, drawn at scarp of next higher terrace or upland.

**Qel** — **Loess (Pleistocene)**
Silt, clayey silt, and fine sand deposited by wind; typically massive, mantling upland area and older landforms, especially the lacustrine/slackwater deposits and bedrock; unit is approximately 30 feet thick near the Ohio River valley and thins to less than 10 feet in the southern part of the quadrangle; new radiocarbon and thermo-luminescense dates suggest an age of 22,500 to less than 14,000 ybp (Newell and others, in prep.).

**Qot3** — **Outwash, terrace (Pleistocene)**
Fine to coarse sand and gravel, with local lenses of silt and clay; gravel includes chert, quartzite, sandstone, siltstone, igneous and metamorphic rocks, limestone, and coal; lithologically indistinguishable from adjacent outwash terraces; deposited as glacial outwash; forms well-developed, dissected terrace along Ohio River valley; surface mantled with silty sand and sandy silt; contact is sharp, drawn at scarp of lacustrine terrace or upland.

**Qlt** — **Lacustrine, terrace (Pleistocene)**
Clayey silt, 50 to 45 feet thick, overlying complex deposits of sand, silt, clay, and minor gravel; locally mantled by loess; upper part of unit deposited in lacustrine and slackwater environments associated with alleviation of the Ohio River valley by glacial outwash; lower part of unit of apparent mixed fluvial and fluvio-lacustrine origin; unit includes margin of complex transition between lacustrine deposits and loess mantling upland; new radiocarbon dates of 22,430 and 22,060 ybp in Owensboro West quadrangle (Newell and others, in prep.) are consistent with previous dates of 18,520 and 19,940 ybp (Rubin and Alexander, 1960).

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

**Pz** — **Bedrock (Pennsylvanian)**
Consolidated shale, sandstone, coal, and overlying poorly sorted regolith, comprising the core of the uplands area; includes areas of loess thinner than 3 ft (1 m).

**af1** — **artificial fill (engineered fill)**
Engineered fill for construction of roads, railroads, dams, floodwalls, and foundations.

**af2** — **artificial fill (mine spoil)**
Mine spoil associated with disturbed bedrock material.

**af3** — **artificial fill (other)**
Areas of disturbed unconsolidated material not related to engineering or mining purposes.

## EXPLANATION

- Contact
- Mined area
- Fault
- Concealed fault
- Bedrock elevation contour, 20' interval
- State line
- Federal highways
- State roads
- Local roads
- Subsurface data
- Surface observations
- Sand, gravel, or silt pit

## ACKNOWLEDGEMENTS

This map was generated using new field mapping and compilation of unpublished and previously published data under the STATEMAP Program authorized by the National Geologic Mapping Act of 1992, Grant No. 04HQPA0003, and was funded in part by the U.S. Geological Survey National Cooperative Mapping Program and by the Kentucky Geological Survey.

Field mapping was completed by Steve Martin from April 2004 to January 2005, with assistance from W. Andrews, R. Counts, M. Thompson, M. Murphy, and G. Weisenfluh (KGS); M. Dixon (Indiana Geological Survey); R. Forsythe (USDA-NRCS), and W. Newell (USGS). W. Andrews and R. Counts provided thoughtful reviews of the map.

Subsurface information was compiled from data on file at the Kentucky Geological Survey as well as data contributed by the Kentucky Transportation Cabinet, and the U.S. Geological Survey. Seismic refraction data was produced and processed by Zhenming Wang and Mark Thompson (KGS) with field assistance from William Reid (UK Department of Geological Sciences).

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Spencer, F.D., 1964, Geology of parts of the Rockport and Lewisport quadrangles, Kentucky: U.S. Geological Survey Geologic Quadrangle Map GQ-315, scale 1:24,000.

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# QUATERNARY GEOLOGIC MAP OF PARTS OF THE ROCKPORT AND LEWISPORT 7.5-MINUTE QUADRANGLES, WESTERN KENTUCKY

By
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2005