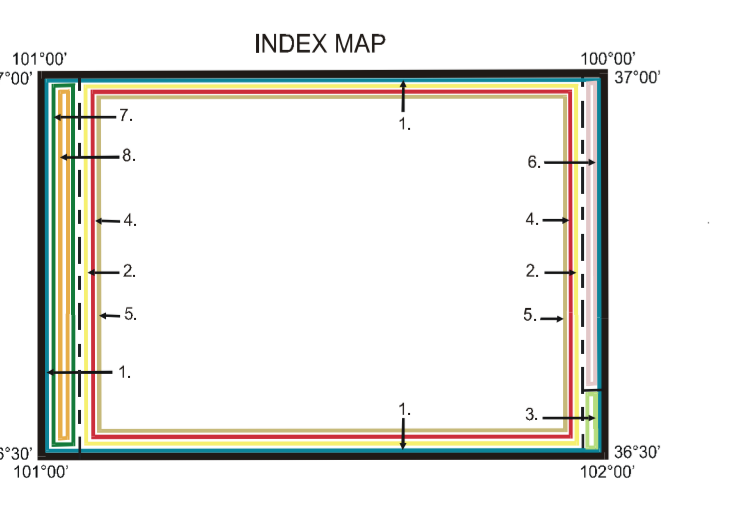
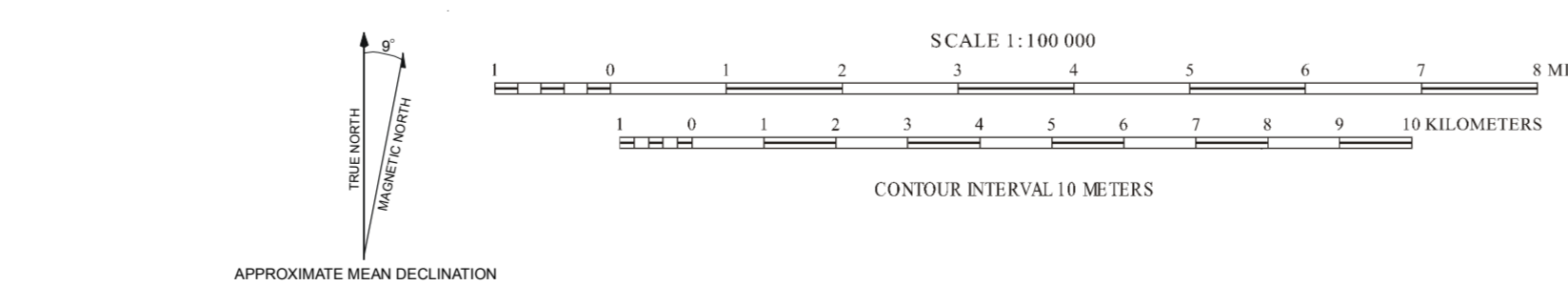


- ### DESCRIPTION OF UNITS
- Qal** ALLUVIUM—Unconsolidated sand, silt, clay, and gravel in stream and river channels on modern flood plains
 - Qao** OLDER ALLUVIUM—Unconsolidated sand, silt, clay, and gravel in stream and river channels mostly between 0 - 12 m above modern flood plains
 - Qpy** PLAYA DEPOSIT—Unconsolidated clay and silt in shallow depressions that contain water for variable periods of time. Includes Randall clay soil (Allgood and others, 1962)
 - Qpd** PEDIMENT DEPOSIT—Unconsolidated sand, silt, clay, and gravel forming an immature alluvial fan or debris field that slopes gently away from bedrock escarpments
 - Qds** DUNE SAND—Unconsolidated windblown sand formed into sand dunes and ridges
 - Qcs** COVER SAND—Featureless sheet of windblown sand with minor silt distinguishable from Qcl only on the basis of soil association. Mapped as Dallart-Richfield soil association by Allgood and others (1962). May correlate to the Blackwater Draw Formation of Reeves (1976)
 - Qcl** COVER LOESS—Featureless sheet of windblown silt with minor silt distinguishable from Qcs only on the basis of soil association. Mapped as Ulysses-Richfield soil association by Allgood and others (1962). May correlate to the Blackwater Draw Formation of Reeves (1976)
- UNCONFORMITY**
- Nog** OGALLALA FORMATION—Mostly unconsolidated to well cemented, light gray to light brown stream-laid deposits of sand, silt, clay, and gravel capped by light-colored caliche. Uncommon fossiliferous freshwater limestone and rare volcanic ash. Lower part locally red, similar to Permian units
- UNCONFORMITY**
- Kda** DAKOTA FORMATION—Unnamed lower sandstone member of Dakota Formation consisting of brownish-yellow to white, coarse- to medium-grained, cross-bedded sandstone. Unit appears to be in place
- UNCONFORMITY**
- Ptx** DOXEY FORMATION—Reddish-brown, laminated shale and siltstone, with some light yellowish brown mottling or iron-reduction spots. Minor orangish-brown, fine-grained sandstone locally at base
 - Pcc** CLOUD CHIEF FORMATION—Reddish-brown to orangish-brown, locally greenish-gray shale. Minor thin gypsum and reddish-brown fine-grained sandstone and siltstone near middle. Caliche veining common throughout
 - Prs** RUSH SPRINGS FORMATION—Reddish-brown, fine-grained sandstone, commonly cross-bedded, with local interbeds of reddish-brown shale
 - Pmw** MARLOW FORMATION—Poorly exposed, orangish-brown, fine-grained sandstone, with local interbeds of very sandy shale and siltstone

- ### SYMBOLS
- Unit contact; approximately located
- ### TEXT REFERENCES
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APPROXIMATE MEAN DECLINATION

GEOLOGIC MAP OF THE BEAVER 30' X 60' QUADRANGLE, BEAVER, ELLIS, HARPER, AND TEXAS COUNTIES, OKLAHOMA

Compiled by Thomas M. Stanley and Neil H. Suneson
Cartography by G. Russell Standridge
2002

Geologic Map Credits

County	Geologist	Year
Beaver	Stanley	2002
Ellis	Stanley	2002
Harper	Stanley	2002
Texas	Stanley	2002
Adair	Stanley	2002
Beckham	Stanley	2002
Cherokee	Stanley	2002
Delaware	Stanley	2002
Grady	Stanley	2002
Harmon	Stanley	2002
LeFlore	Stanley	2002
McCurtain	Stanley	2002
Nowata	Stanley	2002
Okfuskee	Stanley	2002
Osage	Stanley	2002
Pushmataha	Stanley	2002
Sevier	Stanley	2002
Wagon Wheel	Stanley	2002

The base map was compiled by the U.S. Geological Survey from 1:240,000-scale topographic maps dated 1970-1973. Preliminary revised from aerial photographs taken 1969-1990. Modified 1991. Universal Transverse Mercator (UTM) projection, 1927 North American Datum, 25,000-foot grid and ticks based on Oklahoma coordinate system, north zone, 10,000-meter UTM zone 14. The upper northeast part of the map contains part of the Liberal 30' X 60' quadrangle of southern Kansas to the Oklahoma.

Geology compiled and field checked by Thomas M. Stanley and Neil H. Suneson, 1999. The upper northeast part of the quadrangle includes the southern part of Seward County, Kansas. Research supported by the U.S. Geological Survey, National Cooperative Geologic Mapping Program, under Assistance Award Number 98HQ-0009. The views and conclusions contained in this document are those of the author and do not necessarily reflect those of the U.S. Geological Survey. The information herein is not intended to be used for legal purposes. Original published in Open-File Report OF-10-2003. Also revised and reissued as OGG-37. Cartography and layout prepared by G. Russell Standridge, 2002.