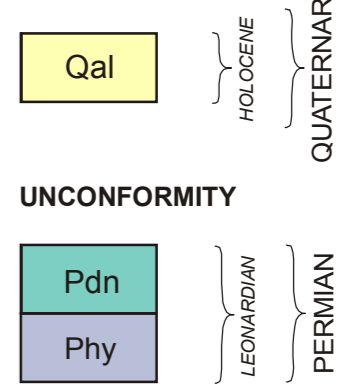


CORRELATION OF MAP UNITS

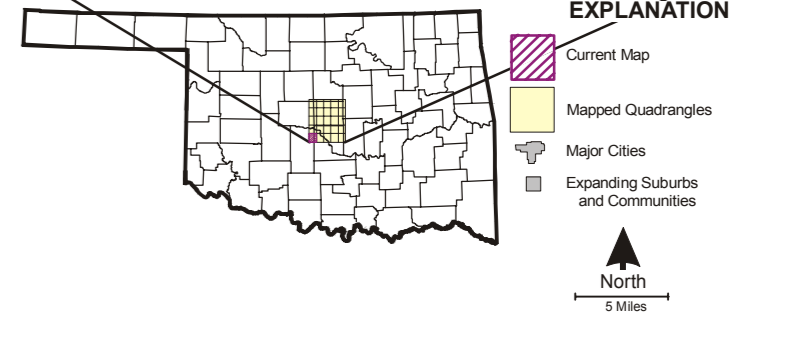
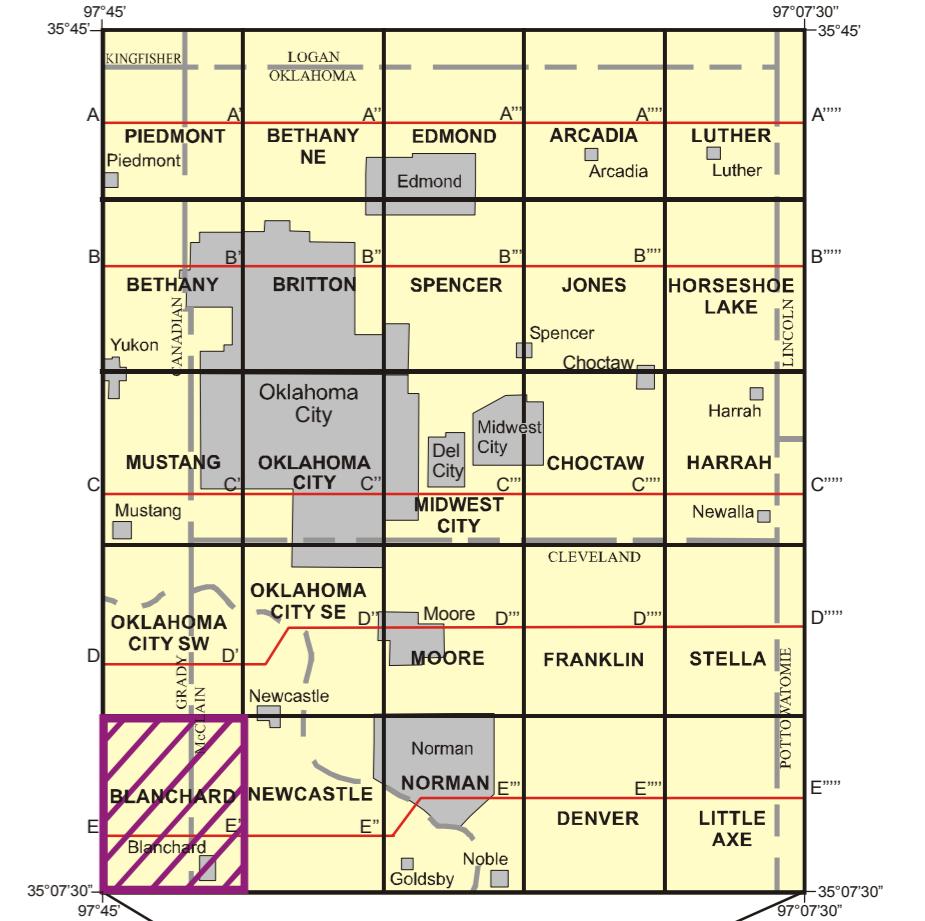


DESCRIPTION OF UNITS

- Qal** ALLUVIUM (Holocene)—Clay, silt, sand, and gravel in channels and on flood plains of modern streams. Includes terrace deposits of similar composition located directly above and adjacent to modern channels and flood plains. Thickness: 0 to about 30 ft
- Pdn** DUNCAN FORMATION (Permian)—Sandstone, fine- to very fine grained, rarely medium-grained, with mudstone- and siltstone-pebble conglomerates; thin siltstone interbeds locally. Basal parts of section consisting of moderate reddish orange (10R6/6) thin- to medium-bedded, fine-grained sandstone, siltstone, and siltstone-pebble conglomerate that locally fine upward to moderate reddish brown (10YR5/4) to moderate reddish orange (10R6/6) very fine grained sandstone. Trough cross-laminations and parting lineations common. Conglomerates consist of indurated siltstone and shale clasts set within a fine-grained, quartz-rich sandstone matrix; typically pale brown (5YR5/2) in color; well cemented with calcite. Clasts may be imbricated or loosely oriented into planar cross-beds. Up section, unit consists of inter-bedded friable sandstones and moderately indurated mudstone- and siltstone-pebble conglomerates. Sandstones are massive, rarely exhibiting internal bedding; are moderate reddish brown (10YR5/4 and 10R4/6), moderate reddish orange (10R6/6), to pale brown (5YR5/2) in color; and are texturally fine- to very fine grained quartz-rich sandstones. Iron oxide is predominant cement, although calcite cement does occur in patches. Sandstones may laterally grade into moderately indurated siltstone- and/or shale-pebble conglomerates. Locally, greenish gray (5GY6/1), trough cross-bedded bands, beds, and irregular spots occur in sandstones, siltstones and shales; burrow and root casts common. Contact with underlying Hennessey Formation placed at base of lowest mappable fine-grained sandstone. Thickness: 0 to 230 ft, top eroded across map area
- Phy** HENNESSEY FORMATION (Permian)—Mostly a poorly exposed, moderate reddish brown (10R4/6), moderate red (5R4/6), to moderate reddish orange (10R6/6) muddy siltstone, silty shale, and minor very fine grained sandstone; locally with conspicuous light greenish gray (5GY8/1) to pale green (10G6/2) iron-reduction spots and bands. Spots average 1/4 in. in diameter; bands usually oriented sub-parallel to bedding and are more common in lower third of unit. Minor lenticular beds of very fine grained sandstone and siltstone-pebble conglomerate also occur, with conglomerates common in basal half, rare in upper half. Where exposed, shales common in upper 20 ft of unit; locally interbedded with more resistant siltstone beds; shale typically unstratified, with small-scale slickensides that are indicative of paleosol development. Siltstone moderately to well stratified with thin to laminated trough-cross-stratification and/or ripple-marks. Locally, sandstone cross-stratified, but rarely forming channel deposits. Siltstone and sandstone exhibit paly to flaggy weathering, and occur as resistant beds that may cap tops of hills and ridges. Overall, unit is expressed as highly weathered, muddy soil. Thickness: Only upper 10 ft to 30 ft exposed in northeastern part of map area, maximum thickness of 550 ft based on cross section

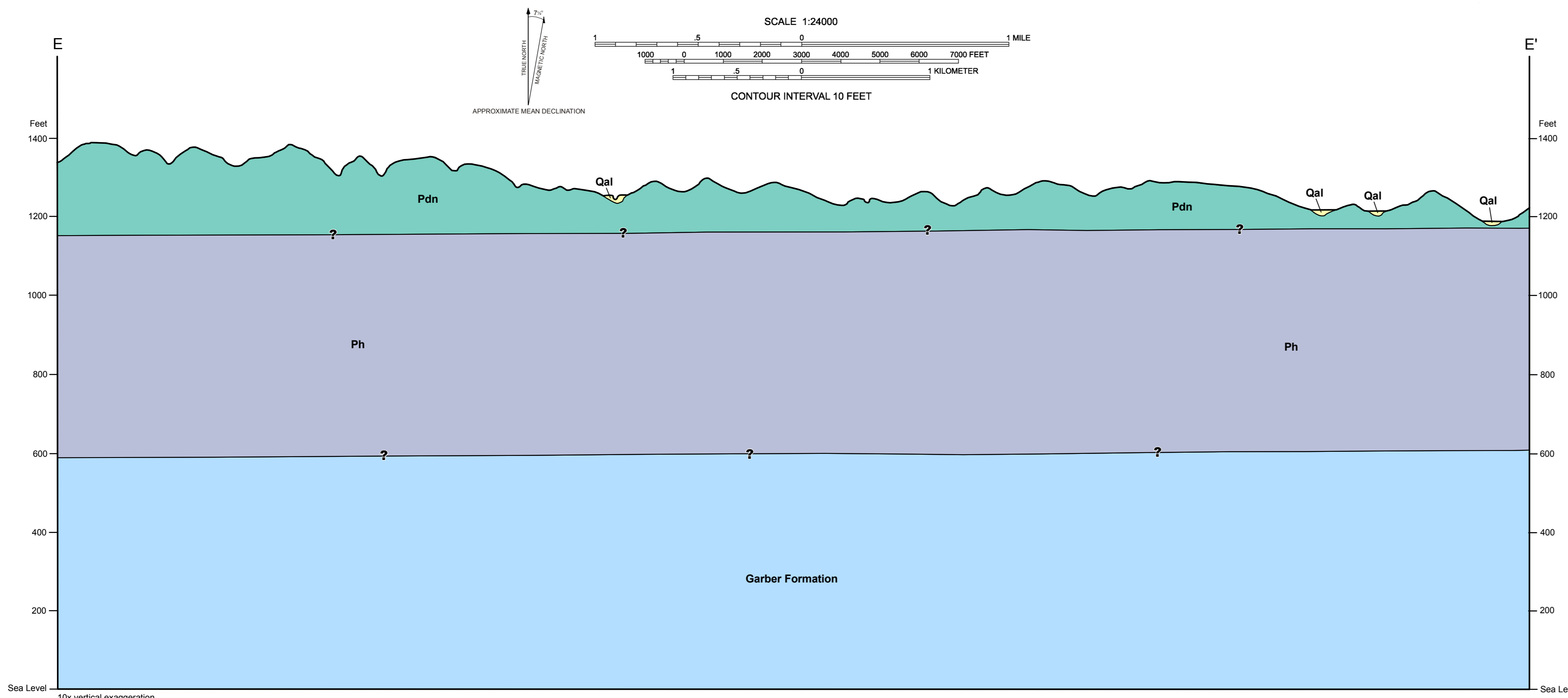
SYMBOLS

- Unit contact; dashed where approximate
- Mappable bed
- x Outcrop, geologic observation
- Petroleum well. Includes oil, gas, oil and gas, dry service (water supply or injection), junked and abandoned, unknown. Modified from Natural Resources Information System database



Base Map Credits
The base map was compiled by the U.S. Geological Survey and planimetry revised from aerial photographs taken 1962. Field checked 1965. Photorevised from aerial photographs taken 1961 and other map sources. Map edited 1983. Universal Transverse Mercator (UTM) projection, 1927 North American Datum, 10,000-foot grid ticks based on Oklahoma coordinate system, south zone, 1,000-meter UTM grid, zone 14.

Geologic Map Credits
Geology by Galen W. Miller and Thomas M. Stanley, 2001-2002. Assisted by Ivan London and Nicole Bepler. Research supported by the U.S. Geological Survey, National Cooperative Geologic Mapping Program, under Assistance Award Number 01HCA00101. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government. Originals published as Open File Report OF 3-2002. Map revised and published as OGG-27. Cartography and layout prepared by G. Russell Sandridge, 2002.



**GEOLOGIC MAP OF THE BLANCHARD 7.5' QUADRANGLE,
GRADY AND McCLAIN COUNTIES, OKLAHOMA**
Galen W. Miller and Thomas M. Stanley
2002