NEW MEXICO BUREAU OF MINES AND MINERAL RESOURCES
A DIVISION OF NEW MEXICO INSTITUTE OF MINING & TECHNOLOGY

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NMBMMR Open File Map Series
OF–GM–2 and OF–GM–16
Map last modified 17 February 2000
PLATE 1 of III.

# Geology of the Bernalillo and Placitas quadrangles, Sandoval County, New Mexico

**Plate 1 of III.**
**17 February 2000 Revision**

**Bernalillo quadrangle**
**NMBMMR OF-GM-16**
**May 1998**

**Sean D. Connell**[1]

**Placitas quadrangle**
**NMBMMR OF-GM-2**
**June 1995**

**Sean D. Connell**[1], **Steve M. Cather**[2] , **Bradley Ilg**[3], **Karl E. Karlstrom**[3], **Barbara Menne**[3], **Mark Picha**[3], **Chris Andronicus**[3], **Adam S. Read**[2], **Paul W. Bauer**[2], **and Peggy S. Johnson**[2]

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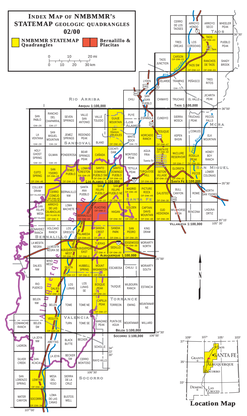
**Rebecca J. Titus**
*Digital Cartography*

## Explanation of Map Symbols

- B—B' Location of geologic cross section
- Geologic contact–solid where exposed, dashed where approximately located; dotted where concealed
- Geologic contact interpreted location within units *af* and *daf*
- Approximate location of buried contact separating the ancestral Rio Grande axial-fluvial deposits ($QTa_a$) and piedmont deposits (QTap) of the Upper Santa Fe Group on the Bernalillo quadrangle
- Approximate location of contacts separating the transitional (QTat) and piedmont ($QTap_{cs}$ and $QTap_s$) deposits of the Upper Santa Fe Group on the Placitas quadrangle; dotted where concealed
- Normal fault–Tic showing dip; solid where exposed, dashed where approximately located, dotted where concealed, queried where inferred; ball and bar on downthrown side, upthrown (U) and downthrown (D) sides indicated where concealed and/or interpreted
- Reverse fault–Tic showing dip; solid where exposed, dashed where approximately located, dotted where concealed; teeth on upthrown side; ball and bar added where reactivated as a Tertiary normal fault
- Anticline–Trace of axial plane showing direction of plunge; dashed where approximately located, dotted where concealed, queried where inferred
- Syncline–Trace of axial plane showing direction of plunge; dashed where approximately located, dotted where concealed, queried where inferred
- Monocline with anticlinal bend–Trace of axial plane; short arrow on steeper bend; dashed where approximately located, dotted where concealed, queried where inferred
- Monocline with synclinal bend–Trace of axial plane; short arrow on steeper bend; dashed where approximately located, dotted where concealed, queried where inferred
- Breccia or gouge zones
- Slickensides on fault
- Strike and dip of bedding, horizontal bedding
- Strike and dip of overturned bedding–ball indicates top of beds known from sedimentary structures
- Strike and dip of joint or fracture
- Strike and dip of S1 foliation
- Strike and dip of S2 foliation
- Strike and dip of magmatic foliation in granite defined by alignment of megacrysts
- Magmatic foliation in granite defined by mafic enclaves
- Trend and plunge of lineation–defined by elongate minerals or stretched grains
- Andalusite Metamorphic facies–Showing boundary between diagnostic mineral assemblages
- Metamorphic minerals locality–[1] sillimanite; [2] andalusite; [3] sillimanite and K-feldspar; [4] sillimanite - andalusite +/- K-feldspar and cordierite; [5] sillimanite - andalusite +/- cordierite; [6] chlorite - muscovite +/- biotite; [7] wollastonite; [8] calcite + quartz
- Diatomite marker bed at top of Edith Formation (Qre)
- Paleoflow direction–measured azimuths of imbricated clasts
- Gravels with affinities to western basin-margin deposits
- Gravels with affinities to ancestral Rio Grande fluvial facies
- Gravels with affinities to eastern basin-margin deposits
- Approximate extent of buried fluvial terrace risers of the ancestral Rio Grande (post Santa Fe Group)–Hachured towards fluvial terraces; Lomatos Negros Fm. (single hachured line), Edith Fm. (double hachured line), Los Duranes Fm. (triple hachured line), and Arenal Fm. (quadruple hachured line)
- AM Aeromagnetic anomaly (interpreted from U. S. Geological Survey and Sial Geosciences, Inc., 1998)
- Mine or quarry, adit, shaft
- Direction of landslide failure and surface movement
- Basalt bed
- Approximate boundary of tuff ring
- B5 Selected locality, Placitas (P), and Bernalillo (B) quadrangles
- W Water-supply well, included abbreviation
- EXAM Exploratory or groundwater monitoring well, including abbreviation
- B880 Exploratory geotechnical boring, including abbreviation
- Las Huertas geomorphic surface
- Del Agua geomorphic surface

**Index Map of NMBMMR's STATEMAP Geologic Quadrangles 02/00**

NMBMMR STATEMAP Quadrangles | Bernalillo & Placitas







Base from U.S. Geological Survey 1954, photorevised 1972
Polyconic projection, 1927 North American datum
10,000-foot grid based on New Mexico coordinate system, central zone 1000-meter Universal Transverse Mercator grid ticks, zone 13, shown in blue
Dashed land lines indicate approximate boundaries
West boundaries of San Felipe Grant and Sandia Pueblo Grant adjacent to Rio Grande control due to insufficient data

S. D. Connell: geologic mapping, compilation, Phanerozoic stratigraphy and regional structural interpretation refined from borehole data analyses, unit descriptions and correlations, and structural cross sections, geology depicted in areas of disturbance (*af* and *daf*) interpreted from aerial photography

D. J. McCraw, M. M. Mansell, and G. E. Jones: digital cartographic production

UTM GRID AND 1972 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1: 24,000

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

BERNALILLO CONTOUR INTERVAL 10 FEET
PLACITAS CONTOUR INTERVAL 20 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

NEW MEXICO
LOCATION OF QUADRANGLES

UTM GRID AND 1954 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

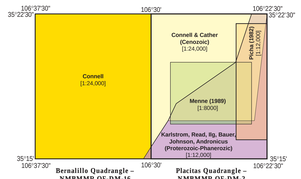
Base from U.S. Geological Survey 1954
Polyconic projection, 1927 North American datum, 10,000-foot grid based on New Mexico coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks, zone 13, shown in blue

Geologic mapping: S. D. Connell (Quaternary), S. M. Cather (Cenozoic), Bradley Ilg (S.E. section of quadrangle), C. Andronicus, A. S. Read, and K. E. Karlstrom (Proterozoic), B. Menne and M. Picha (M.S. Theses – Phanerozoic)

D. J. McCraw, M. M. Mansell, and Glen E. Jones: digital cartographic production

Mapping of these quadrangles was funded by matching-funds grants from the 1995 and 1997 **STATEMAP** component of the **National Cooperative Geologic Mapping Program** coordinated by the **U.S. Geological Survey** and the **New Mexico Bureau of Mines and Mineral Resources**.

## Index to Geologic Mapping



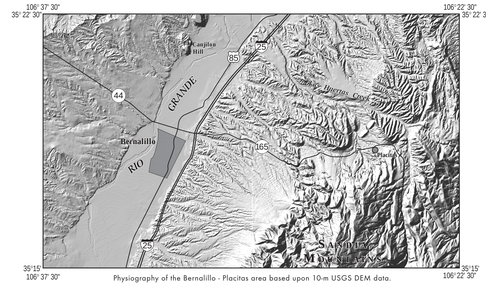

## Comments to Map Users

A geologic map graphically displays information on the distribution, nature, orientation and age relationships of rock and surficial units and the occurrence of structural features. These data are derived from geologic field mapping, compilation of published and unpublished work, analyses of borehole geophysics and well-cuttings, and photogeologic interpretation. Locations of geologic unit contacts are not surveyed; therefore, the accuracy of contact locations depends on the scale of mapping and the interpretation of the geologist(s). Portions of the study area were mapped at scales larger than depicted on the geologic map; therefore, the user should be aware of significant variations in map detail. Any enlargement of this map could cause misunderstanding in the detail of mapping and may result in erroneous interpretations. Site-specific conditions should be verified by detailed surface mapping or subsurface exploration.

This map has not been reviewed according to New Mexico Bureau of Mines and Mineral Resources standards. Revision of the map is likely because of the on-going nature of work in the region (Please note the date of last modification in the upper right of Plate I). The contents of this map and associated report should not be considered final and complete until reviewed and published by the New Mexico Bureau of Mines and Mineral Resources. 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 or expressed or implied, of the State of New Mexico or the U.S. Government.

Tentative correlations of alluvial units in the study area, based upon stratigraphic relations, landscape-topographic position, degree of soil development and physical correlation of units.

| *This Study* | *Connell (1996)* | *Lambert (1968)* |
|---|---|---|
| QHa, QHao | Q9 | Qya |
| Qrp, $Qrp_{1-4}$, Qrpr | Qfp9 | Qfa |
| Qay | Q8 | Qya |
| $Qay_2$ | Q7 | Qya |
| Qvm | Qva2 | Qm |
| Qre | Qoa1 | Qe |
| Qpm | Q6 | Qop |
| Qpo | Q5, Q4, Q3 | Qvp |
| QTsb, QTsp | Q2, QT1 | Qsf?s, Tm |




Physiography of the Bernalillo - Placitas area based upon 10-m USGS DEM data.