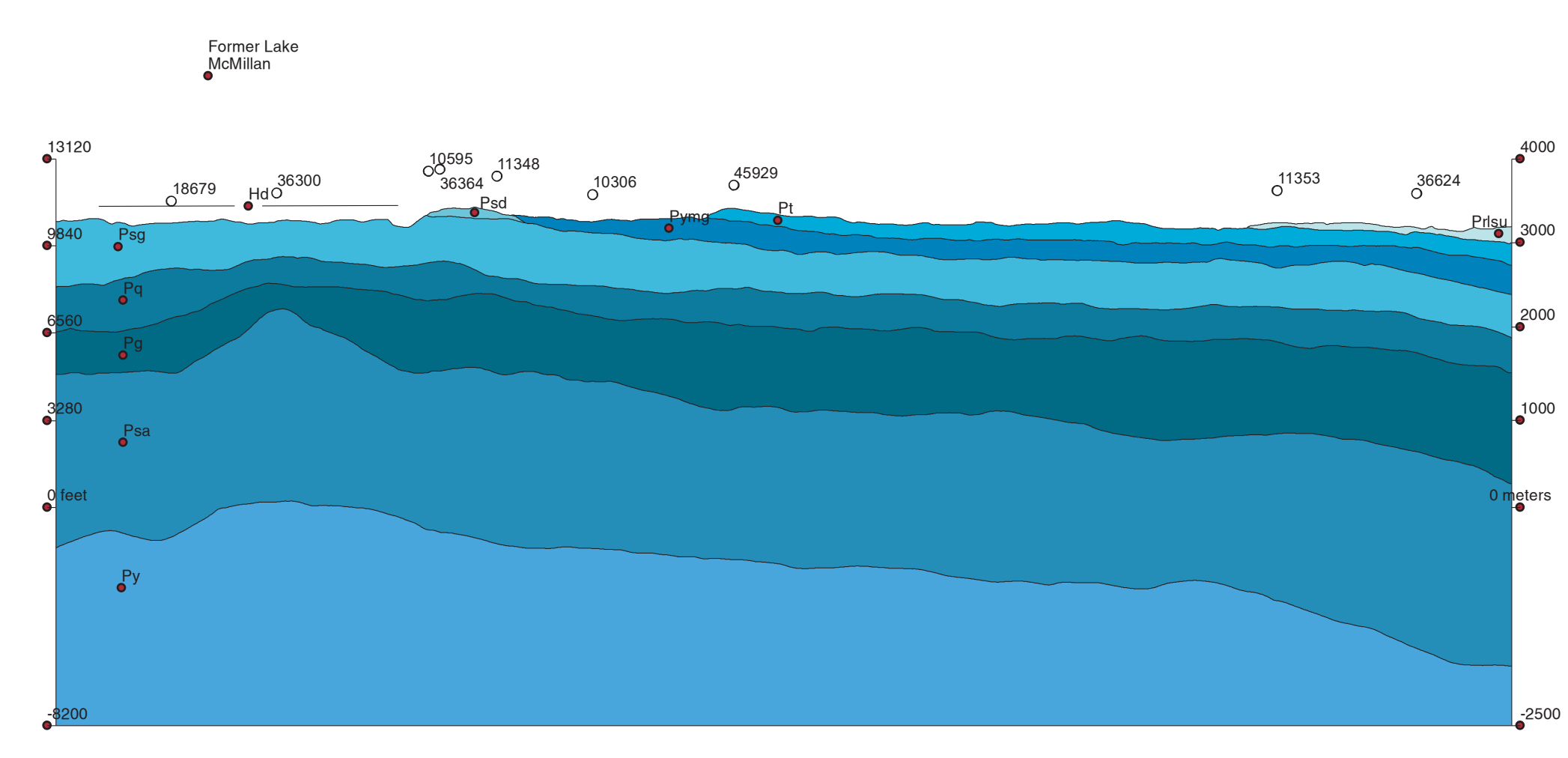
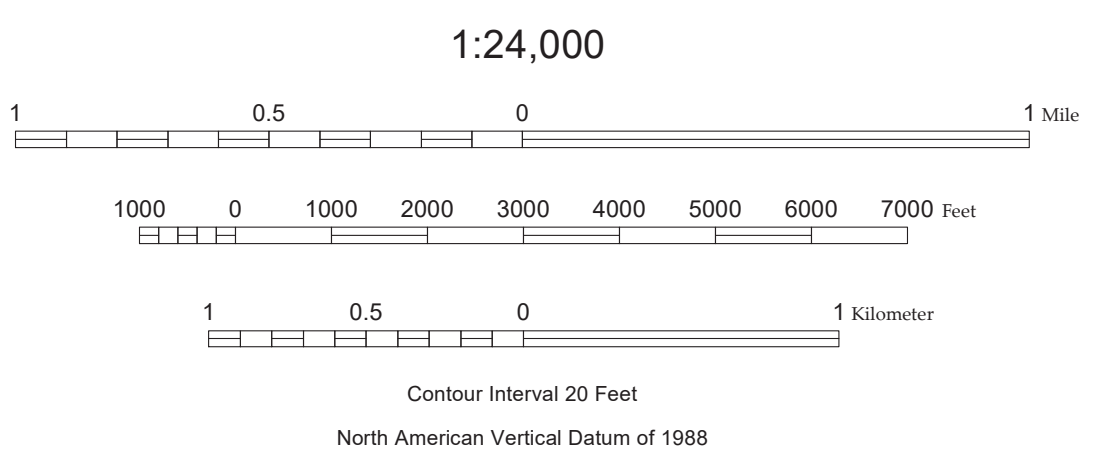


Description of Map Units
Hd -- Hd -- Human disturbed areas -- Disturbance area of drained Lake McMillan Reservoir where the local geology is obscured.
Qas1 -- <Null>
Qas2 -- Qas2 -- Alluvial and eolian deposits -- Brown (7.5 YR 6/4), silty clay to silt to sand, well sorted, subangular to subrounded grains composed of 70% quartz and 30% carbonate and chert. Unit locally weathers into badlands and exhibits piping. Common veneer on nearly all Quaternary deposits in the map area and commonly overlies Psg and Pymg. Thickness $\le 10\text{ m}$.
Qas3 -- Qas3 -- Alluvial sand mainstem -- Light brown (7.5 YR 6/4), silt to fine-lower sand, subrounded to subangular, well sorted, massive, quartzose and lithic grains, scattered pebbles and rare cobbles dispersed within matrix, rare calcic nodules and laminated drapes of dark red mud. Surface nearly always reworked into coppice dunes. Top of unit forms a terrace(T1) five meters above modern Pecos River and deposit is equivalent to flume sand in Carlsbad. May overlie or be inset into Qasg2. Thickness $\le 10\text{ m}$.
Qas4 -- Qas4 -- Alluvial gravel mainstem -- Pink (5 YR 7/4) to red to tan, medium sand to pebble and small cobbles ($\le 12\text{ cm dia.}$) in sand and gravel lenses, subangular to well rounded, poorly to well sorted. Pebbles of chert, gray and maroon quartzite, metamorphic clast(?), smaller cobbles are carbonates, chert, quartzite, dolomite, limestone, metamorphic schist, bull quartz, and basalt, and large pebbles and small cobbles are carbonate lithics. Gravel becomes sandy conglomerate where well cemented by calcite. Capped by calcare layer (D$\le 2\text{ m}$ thick). Commonly overlies Permian units. Thickness 0-75 m.
Qas5 -- Qas5 -- Alluvial gravel piedmont and mainstem -- Transitional deposit of Qasg2 and Qasg2.
Qas6 -- Qas6 -- Gatuna Formation -- Moderate orange pink (5 YR 8/4) to reddish orange (10 R 6/6) to red (2.5 YR 5/6), well sorted, subrounded to well rounded siltstone to sandstone (silt to fine upper sand), calcite cemented, locally gypsiferous. Slope former. Capped by mudstone- and gravel-bearing calcicrete; plug is 0.5-1.0 m thick, pillar structures penetrate down into bedrock about 2 m. Overlies Permian bedrock units. Highly variable thickness 0>-130 m (from cross section).
Psa -- Psa -- Permian Lower Rustler and Salado Formation, undifferentiated -- Irregular masses of gypsum, dolomite (Prc), and salt in large blocks scattered on surface and outcrops with chaotic bedding orientations. Exposed in eastern and southern part of quadrangle. Associated with yellow ripple-cross-laminated sandy dolomite blocks and massive gypsum blocks at surface in Gypsum Bend area. May include upper Salado Formation. Thickness unknown.
Pq -- Pq -- Queen Formation -- In cross section only.
Pg -- Pg -- Gray Formation -- In cross section only.
Psa -- Psa -- San Andres Formation -- In cross section only.

Explanation of Map Symbols
01.01.01 -- Contact -- Identity and existence certain, location accurate
01.01.03 -- Contact -- Identity and existence certain, location approximate
01.01.07 -- Contact -- Identity and existence certain, location concealed
01.01.19 -- Gradational contact -- Identity and existence certain, location approximate
\bullet -- \bullet -- call other values
05.11.02 -- Small, minor dome
05.11.24 -- Minor syncline, vertical or near-vertical axial surface (1st option)
06.02 -- Inclined bedding
09.14.11 -- Inclined asymmetric (Z-shaped, clockwise sense of shear) kink-band crenulation lineation (1st option)
Cartographic Lines



Base map from U.S. Geological Survey 2010.
North American Datum of 1983 (NAD83) World Geodetic System of 1972 (WGS84).
Projection and 100-meter grid Universal Transverse Mercator, Zone 13N.
UT Zone 13N uses the New Mexico Coordinate System of 1977 (NCS77) as basis.
Scale: 1:24,000
North American Vertical Datum of 1985



This draft geologic map is preliminary and will undergo revision. It was produced from either scans of hand-drafted originals or from digitally drafted original maps and figures using a wide variety of software, and is currently in cartographic production. It is being distributed in this draft form as part of the bureau's Open-File map series (OFGM), due to high demand for current geologic map data in these areas where STATEMAP quadrangles are located, and it is the bureau's policy to disseminate geologic data to the public as soon as possible.
After this map has undergone review, editing, and final cartographic production adhering to bureau map standards, it will be released in our Geologic Map (GM) series. This final version will receive a new GM number and will supersede this preliminary open-file geologic map.

DRAFT

Comments to Map Users

A geologic map displays information on the distribution, nature, orientation, and age relationships of rock and deposits and the occurrence of structural features. Geologic and fault contacts are irregular surfaces that form boundaries between different types or ages of units. Data depicted on this geologic quadrangle map may be based on any of the following: reconnaissance field geologic mapping, compilation of published and unpublished work, and photogeologic interpretation. Locations of contacts are not surveyed, but are plotted by interpretation of the position of a given contact onto a topographic base map; therefore, the accuracy of contact locations depends on the scale of mapping and the interpretation of the geologists. 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. Topographic and cultural changes may not be shown due to recent development.

Cross sections are constructed based upon the interpretations of the author made from geologic mapping, and available geophysical, and subsurface (drillhole) data. Cross sections should be used as an aid to understanding the general geologic framework of the map area, and not be the sole source of information for use in locating or designing wells, buildings, roads, or other man-made structures.

The New Mexico Bureau of Geology and Mineral Resources created the Open-File Geologic Map Series to expedite dissemination of these geologic maps and map data to the public as rapidly as possible while allowing for map revision as geologists continued to work in map areas. Each map sheet carries the original date of publication below the map as well as the latest revision date in the upper right corner. In most cases, the original date of publication coincides with the date of the map product delivered to the National Cooperative Geologic Mapping Program (NCGMP) as part of New Mexico's STATEMAP agreement. While maps are produced, maintained, and updated in an ArcGIS geodatabase, at the time of the STATEMAP deliverable, each map goes through cartographic production and internal review prior to uploading to the Internet. Even if additional updates are carried out on the ArcGIS map data files, citations to these maps should reflect this original publication date and the original authors listed. The views and conclusions contained in these map documents are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the State of New Mexico, or the U.S. Government.

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Geologic Map of the Lake McMillan South Quadrangle, Eddy County, New Mexico

2005
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