

DESCRIPTION OF GEOLOGIC MAP UNITS

BEDROCK UNITS

SEDIMENTARY UNITS

Qal Alluvium — River and stream floodplain deposits, silty sand, mud, channel gravel, rounded pebbles, and cobbles.

Qt Fluvialite terrace deposits — Gravel, silt, sand, and clay; increasing amounts of sand, silt, and clay in the Carrizo Sand unit. These deposits are mostly above flood level along entrenched streams, except along the Medina River. Fluvialite characteristics, such as point bars, oxbows, and abandoned-channel segments are well preserved.

Ec Carrizo Sand — Sandstone, medium to coarse grained, typically fining toward the top, poorly sorted, friable to locally indurated, noncalcareous, thick bedded, light-yellow to orange and brown, weathers yellowish-brown, locally iron-oxide banded, surface thickly forested with oak, thickens to the west, averaging 140–200 ft.

Ew1 Ew2 Ew3 Wilcox Group — Mostly mudstone with varying amounts of sandstone. Uppermost and lowermost parts are commonly glauconitic; mudstone, massive to thin bedded, some silt and very fine sand laminae, pale- to yellowish-brown in upper part, medium- to dark-gray, weathering yellowish-gray in lower part; sandstone in upper part, medium to fine grained, light-gray to pale yellowish-brown, in lower part very fine grained, yellowish- to moderate-brown, thickness varies between 440 and 1200 ft. Exposed outcrop, **Ew1**: parallelitic residual cover 40–80 inches thick, **Ew2**: residual cover deeper than 80 inches, **Ew3**.

Est Sabinetown Formation — Clay and sand; clay, silty, sandy, silt and sand more abundant upward grading to mudstone and sand of Wilcox Group, light- to dark-gray; sand, glauconitic to very glauconitic in lower part, argillaceous, poorly sorted, phosphatic nodules and pebbles common in lowermost part, weathers to yellow and yellowish-brown soil; thickness between 100 and 400 ft.

Klt Lituola Formation — Shale, siltstone, and sandstone; shale, gray to bluish-gray siltstone, brownish-yellow, thin bedded; sandstone, fine grained, calcareous, partly asphaltic, argillaceous, gray, flaggy, bedded; some pyroclastic material; marine megafossils common; generally poorly exposed; thickness 100–250 ft, thins westward.

Ksm San Miguel Formation — Clay, sandstone, coal, and fire clay; irregularly stratified, interfingering lenses of sandstone and clay, ferruginous concretions and silicified wood common; thickness up to 500 ft, feathers out eastward (Waechter, N.B., and Barnes, V.E., 1977).

Kpg Pecan Gap Formation — Limestone and marl; limestone, light-yellow to yellow-brown and light-gray, thick bedded, partly sandy, some volcanic rock fragments and weathered, rusty bentonite beds, marine megafossils abundant; thickness up to 500 ft, thins to a feather edge in western Bexar County (Brown, T.E., and others, 1974).

MAP SYMBOLS

(All map symbols may not appear on this sheet)

- QUARRY / SAND-PIT AREA
- BODY OF WATER
- RIVER
- INTERMITTENT STREAM / CREEK
- HIGHWAY
- ROAD / STREET
- RAILROAD
- CROSS-SECTION LINE
- FAULT CONTACT — Showing local normal offset — U, upthrown block; D, downthrown block, with amount of displacement
- SAMPLE LOCALITY — Location of sample taken for analytical work
- BEDDING — Sedimentary bedding plane showing strike and dip
- HORIZONTAL BEDDING

REFERENCES

Brown, T.E., Waechter, N.B., and Barnes, V.E., 1974, San Antonio Sheet: The University of Texas at Austin, Bureau of Economic Geology, Geologic Atlas of Texas, scale 1:250,000.

Clark, L.W., and Day, J.R., 1929–1931, Internal Map Sheet, San Antonio Sheet 'B' — Areal Geology: Amerada Petroleum Corporation, Tulsa, Oklahoma, scale 1:250,000.

U.S. Geological Survey, 1973, Thelma Quadrangle, Texas [map]: USGS, scale 1:24,000, 7.5-Minute Series.

Waechter, N.B., and Barnes, V.E., 1977, Del Rio Sheet: The University of Texas at Austin, Bureau of Economic Geology, Geologic Atlas of Texas, scale 1:250,000.

Wright, A.C., 1963, Internal Map Sheet, San Antonio: Shell Oil Co., Houston, Texas, scale 1:250,000.



Bedding and crossbedding in fine- to medium-grained sandstone, unconsolidated to loosely cemented in quarry/sand-pit operation extracting from the Carrizo Sand unit (Photo taken 01/23/13 by B.A. Elliott).



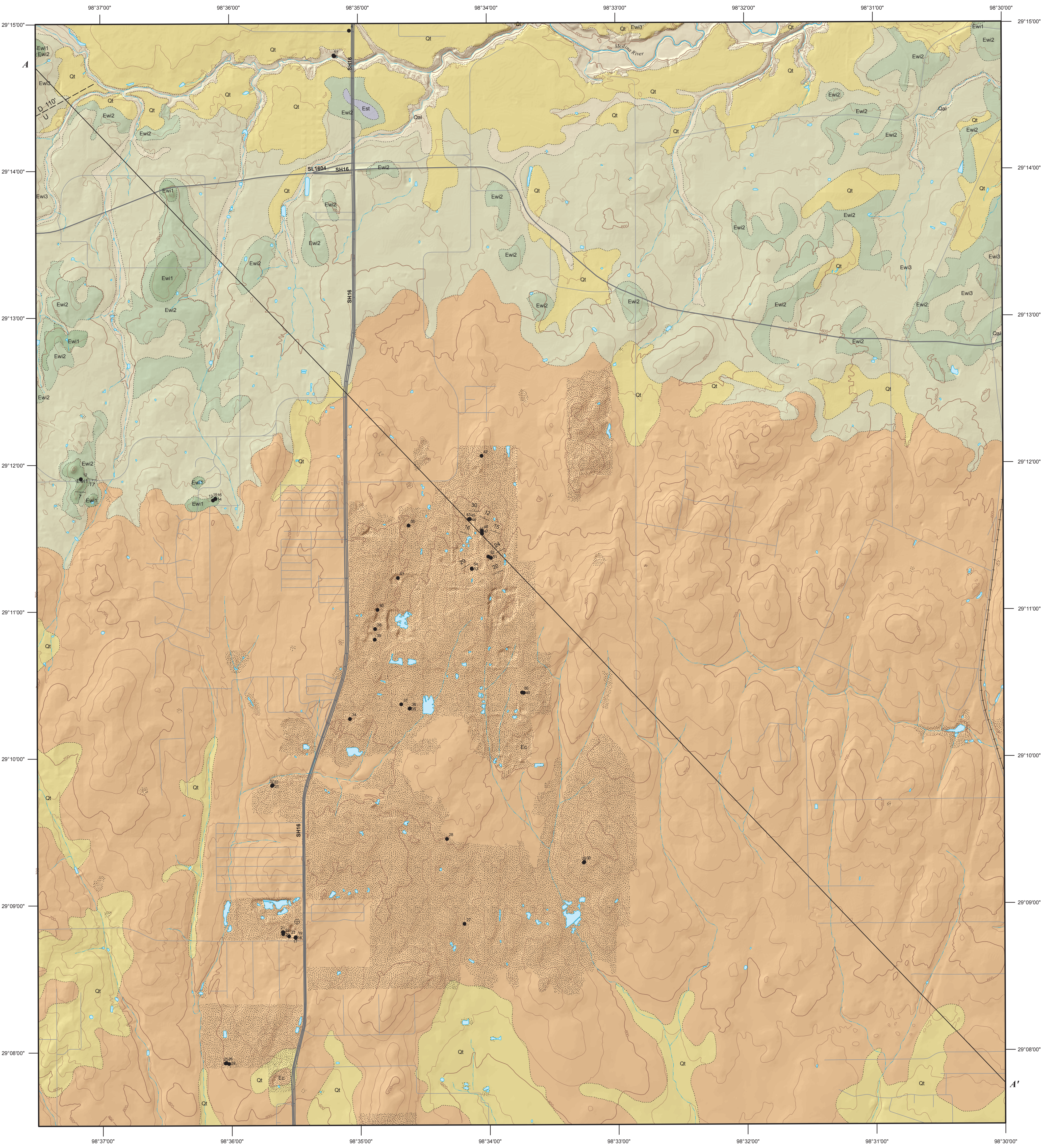
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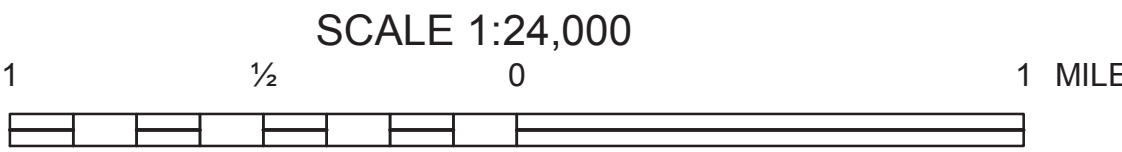
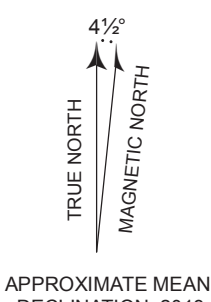
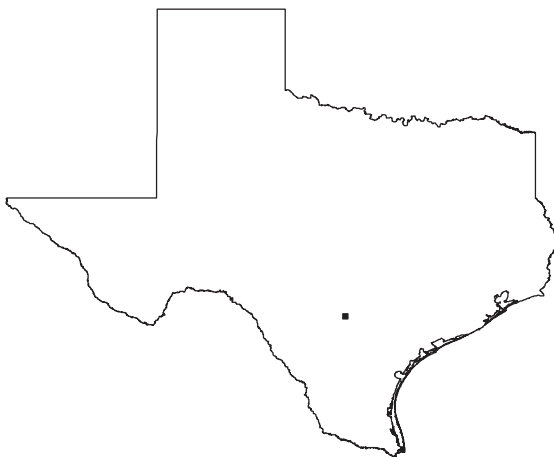
Topographic base map from:
U.S. Geological Survey (1958 — photo-revised 1973)

Projection:
Universal Transverse Mercator Zone 14N

Datum:
North American Datum of 1983

Bedrock geologic field investigations by:
Brown et al. (1974)

Faults mapped by:
Amerada Petroleum (Clark, L.W., and Day, J.R., 1929–1931)
Shell Oil Company (Wright, A.C., 1963)



UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 14N, NAD 83
CONTOUR INTERVAL IS 20 FT
DATUM IS MEAN SEA LEVEL

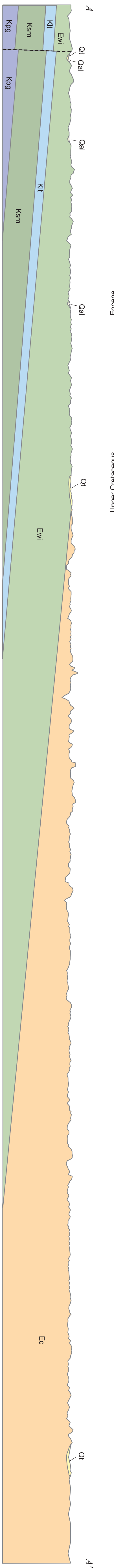
GEOLOGIC MAP OF THE THELMA QUADRANGLE, TEXAS

Brent A. Elliott

2013

SCALE 1:24,000

ELEVATION (FEET)



ELEVATION (FEET)

