

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey standards and nomenclature.

U.S. GEOLOGICAL SURVEY
OPEN FILE MAP

75-394

SAN BENITO QUADRANGLE
CALIFORNIA
15 MINUTE-SERIES (TOPOGRAPHIC)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SW OF SAN ANDREAS FAULT
Qa, Qls and Qoa same as NE of San Andreas Fault

NE OF SAN ANDREAS FAULT

QUATERNARY
Paso Robles Formation (San Benito Gravel of Wilson, 1943)
QTP, weakly consolidated terrestrial pebble gravel, sand and clay derived mostly from rocks SW of San Andreas Fault
QTF, landslide rubble of Franciscan debris

UNCONFORMITY
Tcg
Unnamed conglomerate
Tpo
Pancho Rico Fm. marine diatom. mudstone
Tas
Arkosic sandstone
Tm Tsg Trb
Sedimentary rocks (upper Miocene age)
Tm, Monterey Shale, (marine diatom, and siliceous shale, locally sandy)
Tsg, conglomerate and sandst. (terrestrial? light gray conglom. of unsorted clasts of granitic and rhyolitic rocks in arkosic sandst. matrix)
Trb, rhyolitic breccia, light gray breccia or conglom. of rhyolitic debris

PLIOCENE
Tvp Tvd
Volcanic rocks (early Miocene or late Oligocene age)
Tvp, Pinnacles Fm. of Wilson, 1943, rhyolitic breccia and tuff breccia
Tdr, rhyolitic rock (intrusive and extrusive rhyolite, quartz latite, and/or dacite)

UNCONFORMITY
ga
qm
gad

MIOCENE
Tm
Marble

HOLOCENE
Qg
Qa
Surficial deposits
Qg, river gravel and sand
Qa, alluvium

PLEISTOCENE QUATERNARY
Qls
Landslide debris
Qoa Qoa₂ Qoa₁
Older alluvium
Qoa₂, younger, lower
Qoa₁, older, higher

UNCONFORMITY
QTS
Santa Clara Formation (San Benito gravel of Wilson, 1943) (weakly consolidated terrestrial pebble-gravel, sand and clay, derived mostly from Pancho Rico Fm. and Franciscan rocks)

UNCONFORMITY
Tu
Te
Tun
Sedimentary rocks
Tu-terrestrial pebbly to sandy light greenish mudstone
Te-Etchegoin Fm., marine buff sandstone and siltstone
Tun-terrest. red and green clays sandst. and congl. of Franciscan pebble

MIOCENE
Tsm Tbv Tva
Santa Margarita Fm. (marine and brack-water sandstone, siltst. calc. reefs late Miocene fossils)
Tb-basalt
Tva-andesite

UNCONFORMITY
Tms
Tm
Tt

MIOCENE
Marine sedimentary rocks (middle Miocene age)
Tms-sandstone
Tm-Monterey Shale, semi-siliceous to argillaceous shale
Tt-Tembler Sandstone

MESZOZOIC
ga
qm
gad
Granitic rocks
ga, granite-glassite dike complex
qm, quartz monzonite
gad, biotite granodiorite, quartz diorite

MESOZOIC PALEO.
m
Marble

UNCONFORMITY
Tki Tks
TK
Kreyenhagen Shale
Los Muertos Creek Formation (of Wilson, 1943) (marine argill. shale mid and late Eocene)
TKi-semi-siliceous to argillac. shale
TKs-sandstone
TK-argillac. shale

UNCONFORMITY
Tdy
Domengine Sandstone (marine, middle? Eocene) includes Yukut Sandst. of White, 1940

UNCONFORMITY
Ttp Tlc
Tres Pinos Sandst. of Wilson, 1943 (marine, Eoc.)
Tlc-Marine Sandst. (probably Cantua Sandstone Member of Lodo Formation)

UNCONFORMITY
Tkh
Marine clay shale (Eocene, Paleocene, or Upper Cretaceous)

UNCONFORMITY
ga
qm
gad

CONTACT
Querried where gradational or approximately located

FAULT
dashed where doubtful
dotted where concealed
U, upthrown side
D, downthrown side
arrows indicate horizontal movement

UNCONFORMITY
Kpi Kp
Kpi-semi-silic. and clay shale (Moreno Shale? Wilson, 1943)
Kp-miocaceous shale, minor interbedded sandstone
Kps-mostly arkosic sandstone, minor miocaceous shale

UNCONFORMITY
Kgf
Gravelly Flat Formation (of Rose and Colburn, 1963) marine, dark miocaceous clay-shale and thin dark sandstones

UNCONFORMITY
sp
Serpentine

UNCONFORMITY
fgl fg fs
Franciscan rocks (marine eugeosynclinal rocks slightly to severely sheared)
fgl-glaucophane blue schist
fg-greenstone
fs-red and green chert
fss-graywacke sandstone (unshredded)
fs-graywacke sandstone and micaceous shale

anticline
syncline
Axis of fold, showing direction of plunge

horizontal
inclined
vertical
overturned

Strike and dip of strata

Abandoned well drilled for oil or gas

UNCONFORMITY
Kps Kpi Kp
Kpi-semi-silic. and clay shale (Moreno Shale? Wilson, 1943)
Kp-miocaceous shale, minor interbedded sandstone
Kps-mostly arkosic sandstone, minor miocaceous shale

UNCONFORMITY
Kgf
Gravelly Flat Formation (of Rose and Colburn, 1963) marine, dark miocaceous clay-shale and thin dark sandstones

UNCONFORMITY
sp
Serpentine

UNCONFORMITY
fgl fg fs
Franciscan rocks (marine eugeosynclinal rocks slightly to severely sheared)
fgl-glaucophane blue schist
fg-greenstone
fs-red and green chert
fss-graywacke sandstone (unshredded)
fs-graywacke sandstone and micaceous shale



Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography by plane-table surveys 1917
Contours based on aerial photographs taken 1949
Field check 1957
Polyconic projector. 1927 North American datum
10,000-foot grid based on California coordinate system.
zone 4
1000-meter circular Transverse Mercator grid ticks,
zone 10, shown in blue

Scale 1:62,500

ROAD CLASSIFICATION
Medium duty light duty
Unimproved dirt

SAN BENITO, CALIF.
H3680-W12100/15
1957

COMPILED AND MAPPED BY THOS. W. DIBBLEE JR. 1975
Drafted by G. J. Edmonston

INDEX TO SOURCE OF GEOLOGY
1, 2, 3-T.W. Dibblee Jr., fieldwork, 1972-73-74
(1. remapped from Wilson, 1943;
2. modified from Ernst, 1965;
3. remapped from Enos, 1965, and
assisted by T.H. Nilsen, 1974)
4. Wilson, 1943, (granitic rocks after
D.C. Ross, 1972)

GEOLOGIC MAP OF THE SAN BENITO QUADRANGLE, CALIFORNIA

References:
Andrews, Phillip, 1936, Geol. of the Pinnacles National Monument: Univ. Calif. Pub. Dept. Geol. Sci., v. 24, n. 1; Wilson, I.F., 1943, Geol. of the San Benito quadr., Calif.; Calif. Jour. Mines & Geol., State Min. Rpt. 39, n. 2, p. 183-270, pl. 3
Enos, Paul, 1965, Geol. of western Vallecitos syncline, Calif.; Calif. Div. Mines and Geol. Map, sheet 5; Ross, D.C., 1972, Geol. Map of pre-Cenozoic basement rocks, Gabilan Range, Calif.: U.S.G.S. Misc. Field Inv. Map MF-357; Rose, R.I. and Colburn, I.P., 1963, Guidebook to the Geology of Salinas Valley, Pac. Sec. A.A.P.G.-S.E.P.M., p. 38-45
Ernst, W.G., 1965, Min. paragen. in Franciscan met. rocks, Pancho Pass, Cal.; GSA Bull. v. 76, p. 879-914; White, R.T., 1940, Eocene Yukut Sandst. north of Coalinga Calif. AAPG Bull. v. 24, p. 1722-1751