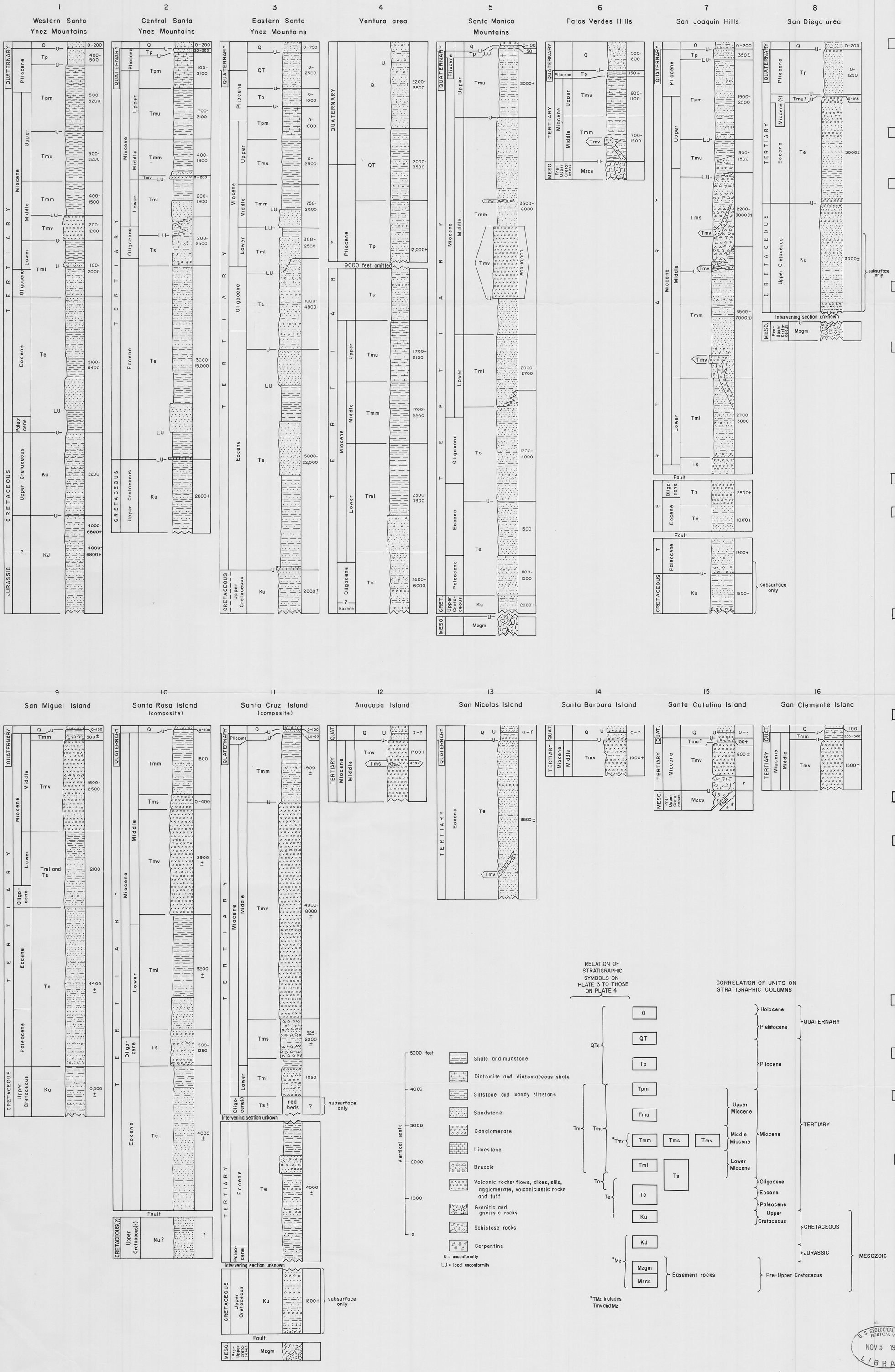

DESCRIPTION OF UNITS ON STRATIGRAPHIC COLUMNS

Q — QUATERNARY SEDIMENTS AND SEDIMENTARY ROCKS Mainly clay, silt, sand, and gravel. Includes: alluvium, older alluvium, marine and nonmarine terrace deposits, dune sand, beach sand; Orcutt Sand in western Santa Ynez Mountains; Casitas Formation, Carpinteria Formation of Chaney and Mason (1934), and upper part of Santa Barbara Formation near Carpinteria; San Pedro Formation in Ventura and Los Angeles basins; Palos Verdes Sand in Los Angeles basin; Bay Point Formation in San Diego area

QT — PLEISTOCENE AND PLIOCENE SEDIMENTS AND SEDIMENTARY ROCKS, UNDIFFERENTIATED Mainly semiconsolidated sandstone, siltstone, mudstone, and conglomerate. Includes: Santa Barbara Formation in Santa Barbara and Ventura areas; Saugus Formation east of the Oxnard Plain

Tp — PLIOCENE SEDIMENTARY ROCKS Mainly sandstone, siltstone, silty shale, and conglomerate. Includes: Careaga Sandstone in Santa Ynez Mountains; Potato Harbor Formation of Weaver and Meyer (1969) on Santa Cruz Island; Pico Formation in Ventura and Los Angeles basins; San Diego Formation of Hoots (1931) in the Santa Monica Mountains; Repetto Siltstone of Woodring and others (1946) in Palos Verdes Hills; Fernando Formation in Newport Bay area; Niguel Formation in San Joaquin Hills; San Diego Formation and Sweitzer Formation of Hertlein and Grant (1939) in San Diego area

Tpm — PLIOCENE AND MIOCENE SEDIMENTARY ROCKS, UNDIFFERENTIATED Mainly mudstone and diatomite in Santa Ynez Mountains; sandy siltstone and sandstone with conglomerate and breccia lenses in San Joaquin Hills area. Includes Sisquoc Formation in Santa Ynez Mountains and Capistrano Formation in San Joaquin Hills

Tmu — UPPER MIOCENE SEDIMENTARY ROCKS Mainly siliceous shale, diatomite, siltstone, sandstone, and mudstone; contains sandstone lenses in San Joaquin Hills area, bentonite and tuffaceous sandstone in San Diego area, and clastic limestone on Santa Catalina Island. Includes: upper member of Monterey Formation in Santa Ynez Mountains; "Santa Margarita" Formation of Redwine and others (1952) in Ventura river area; Modelo Formation in Santa Monica Mountains; upper part of Monterey Formation south of Malibu Coast fault in Santa Monica Mountains; Malaga Mudstone and Valmonte Diatomite Members of Monterey Shale in Palos Verdes Hills; upper part of the Monterey Formation in San Joaquin Hills; Otay Formation of Artim and Pinckney (1973) in San Diego area

Tms — SAN ONOFRE BRECCIA Breccia, conglomerate, with minor amounts of sandstone and siltstone, all containing blueschist debris. Middle Miocene

Tmm — MIDDLE MIOCENE SEDIMENTARY ROCKS Mainly shale, siltstone, sandstone, diatomite; also locally contains some limestone, chert, tuff, blueschist breccia, volcanic flows, and volcanic sandstone and conglomerate. Includes: lower member of Monterey Formation and "Temblor Sandstone" of Dibblee (1966) in Santa Ynez Mountains; Monterey Formation in Ventura basin and on Channel Islands; lower part of Monterey Formation in San Joaquin Hills; Topanga Formation in Santa Monica Mountains and San Joaquin Hills; lower part of Altamira Shale Member of Monterey Shale in Palos Verdes Hills

Tmv — MIOCENE VOLCANIC ROCKS Mainly basaltic and andesitic flows and intrusive rocks of middle Miocene age; also contains agglomerate, tuff, and volcanic breccia, conglomerate, and sandstone. Includes: Tranquillon Volcanics of Dibblee (1950) in western Santa Ynez Mountains; Conejo Volcanics of Taliaferro and others (1924) in Santa Monica Mountains; San Miguel Volcanics of Weaver and Doerner (1969b) on the Channel Islands; Blanca Formation of Weaver and others (1969) and Santa Cruz Island Volcanics of Nolf and Nolf (1969) on Santa Cruz Island. Quartz diorite porphyry on Santa Catalina Island also included

Tml — LOWER MIOCENE AND OLIGOCENE SEDIMENTARY ROCKS Mainly sandstone and shale, chiefly early Miocene in age; locally contains siltstone, mudstone, claystone, and pebble conglomerate. Includes: Rincon Shale in Santa Ynez Mountains, Ventura area, and on Channel Islands; Vaqueros Formation in Santa Ynez Mountains; Ventura area, Santa Monica Mountains, San Joaquin Hills, and on Channel Islands; Alegria Formation of Dibblee (1950) in western Santa Ynez Mountains

Ts — SESPE FORMATION Sandstone, conglomerate, mudstone, siltstone, claystone of late Eocene, Oligocene, and early Miocene age. Includes: Sespe and Vaqueros Formations, undifferentiated, in San Joaquin Hills

Te — EOCENE AND PALEOCENE SEDIMENTARY ROCKS Sandstone, siltstone, shale, mudstone, claystone, conglomerate, grit, limestone. Includes: Gaviota Formation of Dibblee (1950), Sacate Formation of Kelley (1943), Cozy Dell Shale, and Anita Shale in Santa Ynez Mountains and on Channel Islands; Coldwater Sandstone, Sierra Blanca Limestone, Juncal Formation, and Matilija Sandstone in Santa Ynez Mountains; "Martinez" Formation of Hoots (1931) and Llajas(?) Formation of Campbell and others (1970) in Santa Monica Mountains; Santiago and Silverado Formation in San Joaquin Hills; Mission Valley Formation, Stadium Conglomerate, Friars Formation, Scripps Formation, Ardath Shale, Torrey Sandstone, Delmar Formation, and Mount Soledad Formation in San Diego area; Cañada, Jolla Vieja, and Pozo Formations of Doerner (in Weaver and others, 1969) and South Point Sandstone of Weaver and others (1969) on Channel Islands

Ku — UPPER CRETACEOUS SEDIMENTARY ROCKS Sandstone, shale, conglomerate, siltstone. Includes: Jalama Formation of Dibblee (1950) in Santa Ynez Mountains; so-called Chico Formation of Hoots (1931) in Santa Monica Mountains; Williams Formation in subsurface San Joaquin Hills; Rosario Group in San Diego area

KJ — CRETACEOUS AND JURASSIC SEDIMENTARY ROCKS Sandstone, shale, conglomerate, siltstone. Includes: Espada and Honda Formations of Dibblee (1950) in Santa Ynez Mountains; Franciscan Formation in Carpinteria quadrangle

Mzgm — GRANITIC AND METAMORPHIC ROCKS Granodiorite, quartz diorite, diorite, granite, gabbro, norite, slate, argillite, phyllite, and metavolcanic rocks. Includes: rocks of the southern California batholith; Santa Monica Slate in Santa Monica Mountains; Santiago Peak Volcanics: Black Mountain Volcanics of Hanna (1926) in San Diego area

Mzcs — CATALINA SCHIST Predominantly schistose rocks of the blueschist facies. Includes glaucophane-lawsonite schist and altered mafic igneous rocks in Palos Verdes Hills and on Santa Catalina Island

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GENERALIZED STRATIGRAPHIC COLUMNS OF SOUTHERN CALIFORNIA COASTAL ZONE AND ISLANDS

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