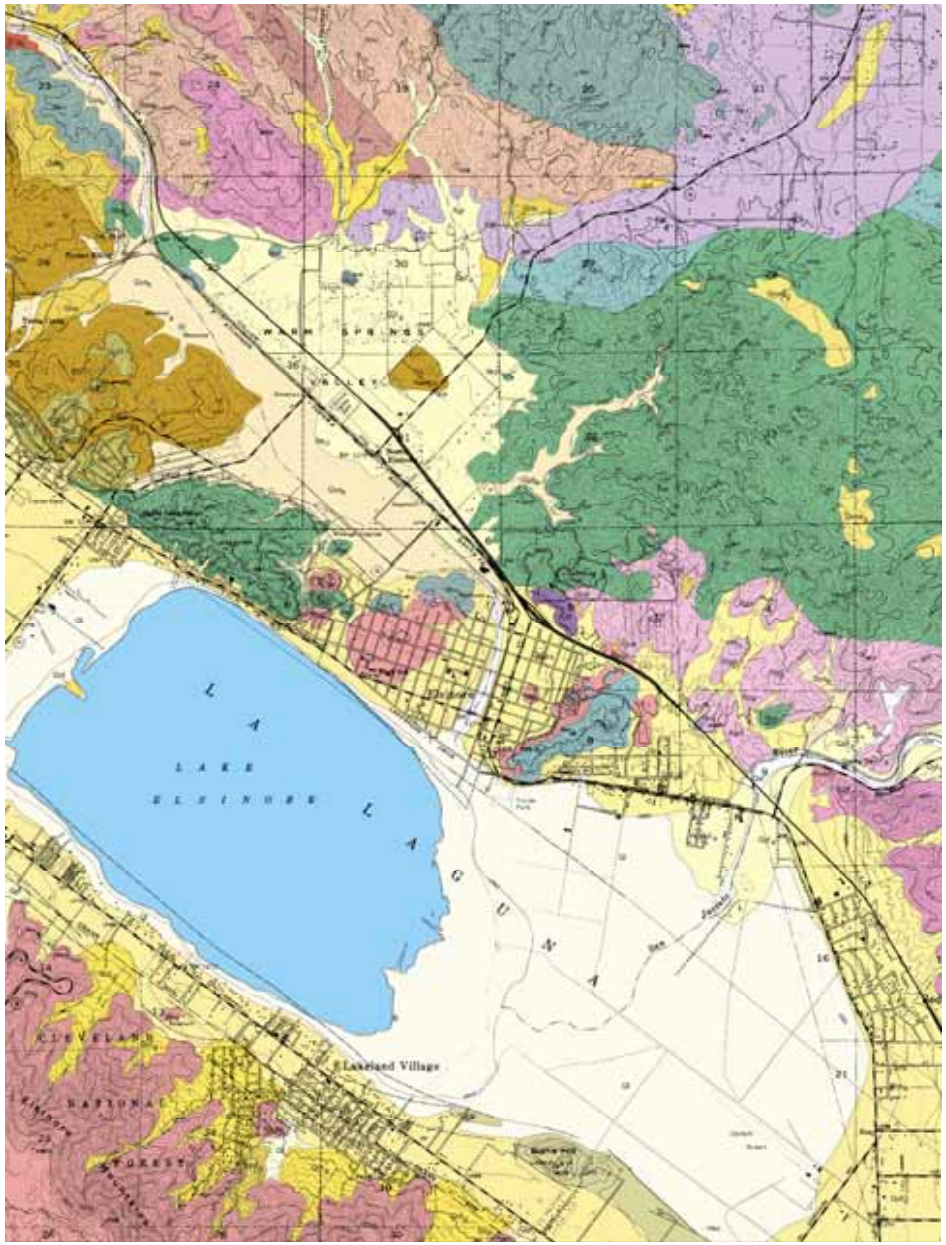

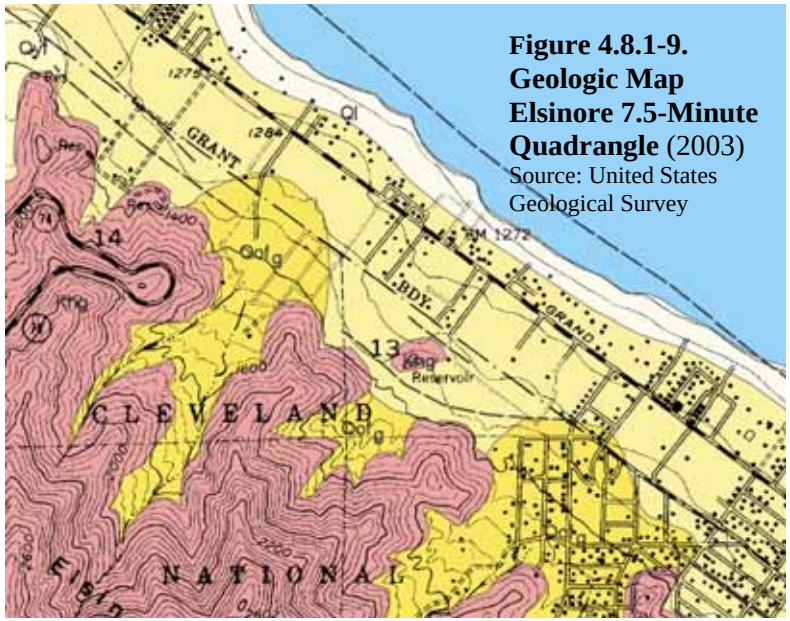

Figure 4.8.1-9.
Geologic Map Elsinore 7.5-Minute Quadrangle (2003)
Source: United States Geological Survey

Geologic Summary

The Elsinore quadrangle is located in the northern part of the Peninsular Ranges Province and includes parts of two structural blocks, or structural subdivisions of the province (Fig. 1). The active Elsinore Fault Zone diagonally crosses the southwest corner of the quadrangle, and is a major element of the right-lateral strike-slip San Andreas Fault system. The Elsinore Fault Zone separates the Santa Ana Mountains block west of the fault zone from the Perris block to the east. Internally both blocks are relatively stable and within the quadrangle are characterized by the presence of widespread erosional surfaces of low relief.

Within the quadrangle the Santa Ana Mountains block is underlain by undifferentiated granitic rocks of the Cretaceous Peninsular Ranges batholith, but to the west, includes widespread pre-batholithic Mesozoic rocks.

The Perris block is underlain by a combination of batholithic and prebatholithic rocks, the latter consisting of metasedimentary rocks of low metamorphic grade; sub-greenschist grade. The most abundant lithology is phyllite but includes locally thick sections of impure quartzite. Minor sills, dikes, and small elongate plutons of fine-grained hornblende gabbro intrude the phyllite. Thin layers of tremolite-bearing marble occur locally. Also local are thin layers of manganese-bearing rocks. Both rhodonite and manganese oxides occur in these layers. The phyllite has a regular northwest strike throughout the main body of metamorphic rock giving rise to a homoclinal section over 25,000 feet thick. The layering-schistocity of these rocks is transposed bedding and is not stratigraphic thickness.

In the northwest corner of the quadrangle is a series of Cretaceous volcanic and associated sedimentary rocks in the northwest corner of the quadrangle contain widespread primary sedimentary structures and appear to post date the metamorphism of the phyllite. The volcanic rocks are part of the Estelle Mountain volcanics of primarily rhyolitic composition. The sedimentary rocks are well indurated, perhaps incipiently metamorphosed, siliceous rocks containing local conglomerate beds.

Parts of three plutonic complexes are included within the quadrangle, all part of the composite Peninsular Ranges batholith. In the southeast corner is the northwest part of the Paloma Valley ring complex, which is elliptical in plan and consists of an older ring-dike and two subsidiary short-arced dikes that were emplaced into gabbro by magmatic stoping. Small to large stoped blocks of gabbro are common within the ring-dikes. A younger ring-set, made up of hundreds of thin pegmatite dikes, occur largely within the central part of the complex. Only the northern part of the older ring dike occurs within the quadrangle. Stoped gabbro masses occur near the southeast margin of the quadrangle.

In the northern part of the quadrangle is the southern part of the composite Gavilan ring complex of mostly tonalite composition. Hypersthene, although not usual in tonalite in the batholith, is a characteristic mineral of most of the rock of this complex. The Gavilan ring complex is a shallow intrusive that appears to be tilted up to the northeast. Fabric of the rocks changes in texture from hypautomorphic-granular in the east to seriporphyritic in the west. The main part of the complex appears to have been emplaced by magmatic stoping. Several inactive gold mines, Goodhope, Gavilan, and Santa Rosa, are located within the complex.

Within the Gavilan ring complex is the south-half of the Arroyo del Toro pluton. This near circular-in-plan pluton consists of massive-textured granodiorite that is essentially devoid of inclusions, and at one time was quarried for building stone.

The Elsinore Fault Zone forms a complex series of pull-apart basins. The largest and most pronounced of these pull-apart basins forms a flat-floored closed depression, La Laguna, which is partly filled by Lake Elsinore. This basin forms the terminus for the San Jacinto River. During excessively wet periods the La Laguna fills and the overflow passes through Warm Springs Valley into Temescal Wash which joins the Santa Ana River at Corona. La Laguna, bounded by active faults, is flanked by both Pleistocene and Holocene alluvial fans emanating from both the Perris block and the Santa Ana Mountains. North of La Laguna are exposures of the Paleocene Silverado Formation. Clay beds of the Silverado Formation have been an important source of clay. Overlying the Silverado Formation are discontinuous exposures of conglomeratic younger Tertiary sedimentary rocks that are tentatively correlated with the Pauba Formation.