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COMPLEX COMPRESSIONAL STRUCTURES DOCUMENTED WITH DIGITAL PHOTOGRAPHS IN SEPULVEDA CANYON, SANTA MONICA MOUNTAINS, LOS ANGELES, CALIFORNIA

Complex folds and faults were unexpectedly exposed in Sepulveda Canyon on the southerly side of the Santa Monica Mountains when a ¾-mile long bedrock cut, west of the 405 Freeway and below the Getty Museum, opened up some 20-30 vertical feet to view. We took advantage of the window of opportunity between cut and retaining wall construction, aided by a workers' holiday, to take a series of 140 digital photographs along the cut.

As many as five overturned, asymmetric folds, sheared and/or faulted on their north limbs by north-dipping reverse faults were recorded. An overturned, south-dipping thrust fault, with an associated recumbent drag fold on its hanging wall was clearly shown in the photographs of the cut. These structures, as well as "normal" south-dipping siliceous shales and sandstones were documented in the Upper Miocene Monterey (also known as Modelo) Formation. These are compressional structures, possibly representing the fault tips of a complex fault-bend fold system that formed and uplifted the Santa Monica Anticline, the major structure of the Santa Monica Mountains.

The Benedict Canyon fault is well exposed as an 8-foot wide crushed zone that dips about 50º north, between the Monterey Formation on the north and Upper Cretaceous sandstone of the "Unnamed Strata" (also mapped as Middle Miocene Topanga Formation) on the south.