

2.2.4 Paleontology

2.2.4.1 Regulatory Setting

Paleontology is the study of life in past geologic time based on fossil plants and animals. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects. (e.g., Antiquities Act of 1906 [16 U.S.C. 431–433], Federal-Aid Highway Act of 1935 [20 U.S.C. 78]). The Antiquities Act protects historic or prehistoric ruins or monuments and objects of antiquity and has been amended to specifically allow funding for paleontological mitigation.

Under California law, paleontological resources are protected by CEQA, the California Code of Regulations (CCR), Title 14, Section 4306 et seq., and Public Resources Code (PRC) Section 5097.5.

CEQA, Sections 21000 et seq. of the PRC with *Guidelines for implementation* codified in the CCR, Title 14, Chapter 3, Sections 15000 et seq., requires state and local public agencies to identify the environmental impacts of proposed discretionary activities or projects, determine if the impacts will be significant, and identify alternatives and mitigation measures that will substantially reduce or eliminate significant impacts to the environment. State-owned properties are subject to the provisions of PRC Section 5024 and 5024.5

The City provides protection of paleontological resources with City Council Policy 601 (CCP601), Historic Archaeological & Paleontological Resources Management (City of San Juan Capistrano, 1997).

2.2.4.2 Affected Environment

The geological, physiographical, and ecological zones represented in the proposed project area are best described as recently uplifted basin sediments of southern Orange County. This narrow band of marine and terrestrial basin sediment is bound to the east by the Peninsular Ranges and to the west by the Pacific Ocean. Figure 2.2.4-1 shows a map of California Geomorphic Provinces.

A Quaternary Deposits

The Quaternary sediments (alluvium and terraces) present in the project area have twelve vertebrate fossil localities. These Quaternary terrace deposits are sensitive at all depths greater than three feet below the original topography.

B Capistrano Formation

The Capistrano Formation present in the project area has 38 vertebrate fossil localities. The Siltstone member of the Capistrano Formation is considered to be fossiliferous throughout.

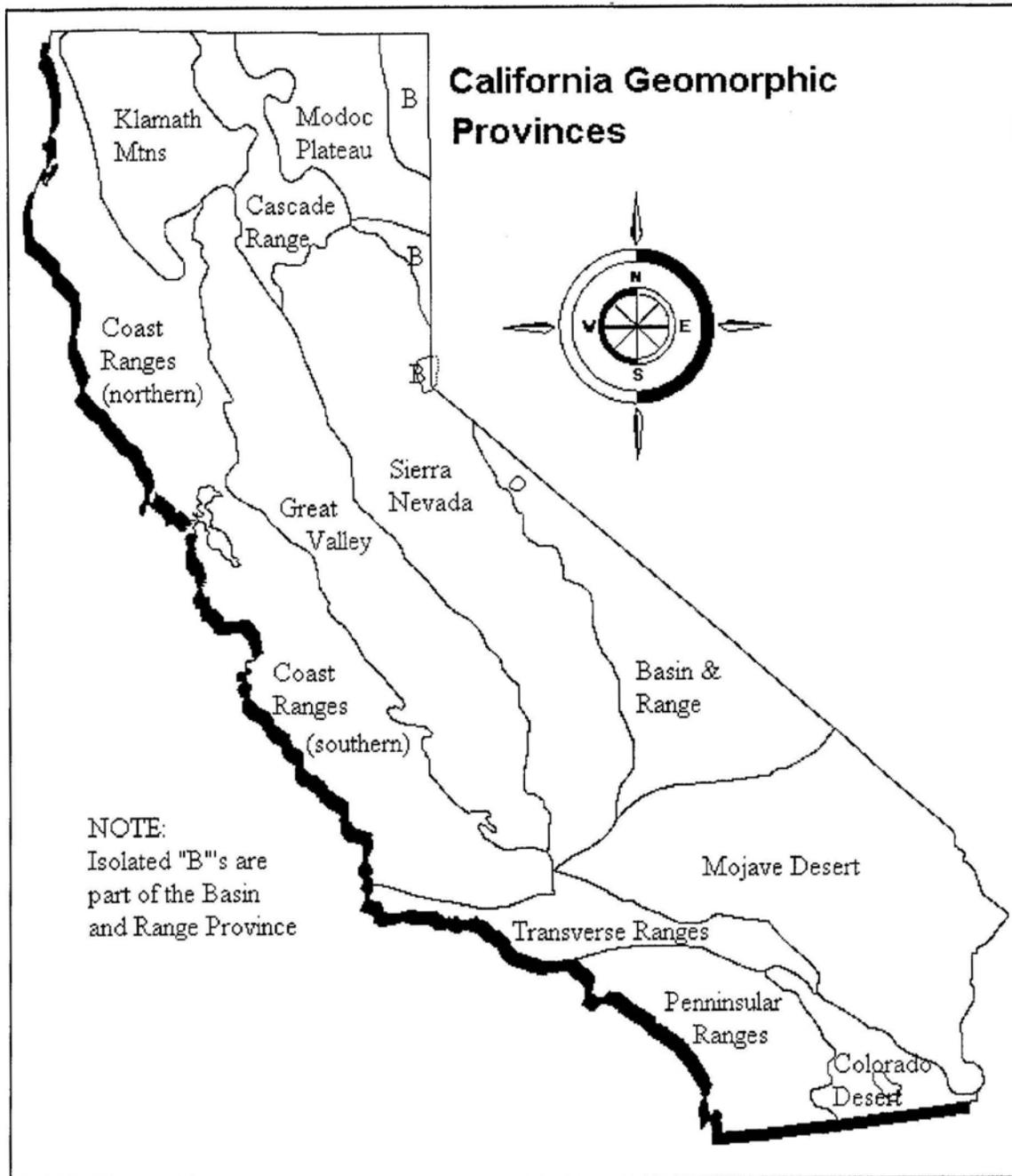


Figure 2.2.4-1
California Geomorphic Provinces

2.2.4.3 Environmental Consequences

A Temporary Impacts

Alternatives 3 and 5. Both alternatives would have the following similar impacts related to ground disturbance during project construction.

Quaternary Deposits. The Quaternary terrace deposits present in the project area are sensitive at all depths greater than three feet below the original topography. These sediments may be impacted by on- and off-ramp construction. A qualified paleontologist must be retained on an on-call basis to respond if there is an unanticipated discovery during project construction.

Capistrano Formation. The surface and depths of the project area receiving construction impacts for the proposed bridge pilings and soundwall are in native Capistrano Formation. Construction of the bridge pilings and soundwall would require excavations to a depth of up to 20 feet below the surface and there is a potential that fossil remains may be encountered. Project construction activities that involve ground disturbance must be monitored on a full-time basis by a qualified paleontologist.

The following mitigation measures MM PAL-1 through MM PAL-7 apply to Alternatives 3 and 5, and they have been developed to reduce the adverse effects of project construction upon cultural resources to an acceptable level. The measures are derived from the guidelines of the Society of Vertebrate Paleontologists. These general mitigation measures have been used throughout southern California and have been demonstrated to be successful in protecting resources while allowing timely completion of construction.

B Permanent Impacts

After project construction is complete, the long-term operation of the project would not cause any additional risk of disturbance to paleontological resources.

2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures

A Temporary Measures

MM PAL-1 A qualified principal investigator for paleontology, who is also an Orange County Certified Professional Paleontologist, must be retained to provide professional services. The principal investigator shall be responsible for the implementation of the mitigation plan and maintaining professional standards of work.

MM PAL-2 Qualified paleontological monitors shall perform full-time construction monitoring in areas of excavations for soundwalls and bridge pilings since they will affect the Capistrano Formation. Qualified paleontological monitors must be retained on an on-call basis during project construction to respond if there are unanticipated discoveries in other areas of the project site. Monitoring must include inspection of exposed surfaces and microscopic examination of matrix.

The monitor shall have authority to divert grading away from exposed resources temporarily to recover the specimens. Cooperation and assistance from on-site personnel will be required to facilitate the timely resumption of work in the area of the discovery.

- MM PAL-3** If any discovery meets the criteria for a fossil locality, then work must be diverted until the Paleontology Field Supervisor or Principal Investigator evaluates the discovery. Localities require documentation, including location and stratigraphic information. Decisions about testing and data recovery shall be made in consultation with the City and the Department.
- MM PAL-4** If microfossil localities are discovered, then the paleontological monitor shall collect matrix for processing. To limit downtime, the paleontological monitor shall be authorized to request heavy machinery assistance to move large quantities of matrix out of the path of construction to a designated stockpile area. Testing of stockpiles shall consist of screen washing small samples (200 pounds) to determine if fossils are present. Productive tests shall result in screen washing of additional matrix from the stockpiles to a maximum of 6,000 pounds per locality.
- MM PAL-5** The Principal Investigator must prepare monthly progress reports during the project construction period to be filed with the City and the Department.
- MM PAL-6** Fossils recovered must be prepared, identified, and cataloged before donation to the accredited repository designated by the Department. The Natural History Museum of Los Angeles County or the San Diego Natural History Museum are both suitable, accredited repositories. Any resources determined not to meet significance criteria shall be offered to local schools for use in education programs.
- MM PAL-7** The Principal Investigator must prepare a final report to be filed with the City and the Department. The report must include a list of resources recovered, documentation of each site/locality, and interpretation of resources recovered, and it must include all specialists' reports as appendices.

B Permanent Measures

None required.