

June 4, 2019

Ms. Cynthia Gibbs, Senior Environmental Analyst  
Albert A. Webb Associates  
3788 McCray Street  
Riverside, CA 92506  
Transmitted via email to [cynthia.gibbs@webbassociates.com](mailto:cynthia.gibbs@webbassociates.com)

***RE: Paleontological Technical Memorandum for the Duke Perry and Barrett Project, City of Perris, Riverside County, California.***

Dear Ms. Gibbs,

Albert A. Webb Associates retained Applied EarthWorks, Inc. (Æ) to complete a paleontological resource assessment for the Duke Perry and Barrett Project, which proposes to construct an industrial warehouse, a commercial/industrial trailer parking lot, and one detention basin on the southeast corner of Perry Street and Barrett Avenue in the City of Perris, Riverside County, California.

Æ's scope of work included a geologic map and paleontological literature review, a museum records search, and preparation of this technical memorandum (memo). This memo, which serves as a summary of our findings, was written in accordance with the guidelines set forth by the City of Perris (2008) and the Society of Vertebrate Paleontology (2010), and satisfies the requirements of the California Environmental Quality Act (CEQA). The City of Perris (City) is the lead agency for CEQA compliance.

### **Project Description and Background**

The Project is in the western portion of Riverside County within the Perris Valley (Figure 1). Specifically, the Project is located on the southeast corner of Perry Street and Barrett Avenue, north of the Ramona Expressway within Section 6, Township 4 South, Range 3 West as shown on the Perris, California 7.5' U.S. Geological Survey (USGS) topographic quadrangle (Figure 2). Elevation ranges from approximately 1,450 to 1,456 feet above mean sea level (amsl).

The Project area covers approximately 7.25 acres of vacant land within Assessor's Parcel Numbers (APNs) 302-060-011, -026, -030, and -031. Project plans as presently designed include two applications: one for a warehouse and one for a trailer parking lot. The warehouse application includes construction and operation of an approximately 148,297-square foot industrial warehouse that includes 3,000 square feet of office space and 3,000 square feet of mezzanine. The trailer parking lot application includes approximately 200 commercial/industrial trailer parking stalls and one detention basin. The basin is located within the southeasterly corner of the Project and will collect the runoff from the whole Project. The Project also includes offsite developments: a potential 4-way traffic signal at the intersection of Perry Street and Indian Avenue, and connection to a lateral storm drain line on Perris Boulevard. Storm Drain Line B will be approximately 845 feet in length and will connect the detention basin to Lateral Storm Drain Line E-11.



Additional improvements include a curb, gutter, and sidewalk on Perry Street along the Project frontage. Construction will involve mass grading of the Project area and the site will be landscaped to provide approximately 60,887 square feet of landscape. The site will include 14-foot-high screen walls on all four sides of the Project site with two truck and vehicle entrances on Perry Street and one truck and vehicle entrance on Barrett Avenue. Maximum depth of ground disturbance will be 6 feet. Final design of the Project includes a net import of 17,900 cubic yards of fill.

### **Regulatory Context**

The CEQA requires detailed studies that analyze the environmental effects of a proposed project. If a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered. Specifically, in Section VII (f) of Appendix G of the CEQA Guidelines, the Environmental Checklist Form, the question is posed, “Will the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?” If paleontological resources are identified as being within the proposed project area, the sponsoring agency must take those resources into consideration when evaluating project effects. The level of consideration may vary with the importance of the resource.

The City of Perris General Plan, *Conservation Element* includes Policy IV.A and associated Implementation Measure IV.A.4, which address the protection of paleontological resources (City of Perris, 2008:47). Following the General Plan, the City’s *Perris Valley Commerce Center Specific Plan Final Environmental Impact Report* (PVCCSP FEIR) set forth Mitigation Measure (MM) Cultural 5, which details procedures for mitigation of paleontological resources (City of Perris, 2011:11.0-26,27).

### **Paleontological Resource Potential**

Most professional paleontologists in California adhere to the base guidelines provided by the Society of Vertebrate Paleontology (SVP, 2010) to determine the course of paleontological mitigation for a given project on private and state lands, unless others are available. These guidelines may complement local guidelines regarding paleontological resources, if available, for determining the paleontological sensitivity of a project area, and to outline procedures to follow in order to mitigate impacts to known or unknown fossil resources during project development.

The City has developed its own paleontological sensitivity map, which divides the City of Perris and its immediate vicinity into five areas based on the geologic units exposed at or near the surface. Each area (geologic unit) is assigned to one of three categories—Low, High, and Low to High Sensitivity (City of Perris, 2008). Low or High Sensitivity indicate the geologic unit has low or high potential, respectively, to yield significant fossil resources. Low to High Sensitivity indicates the potential for impacts to fossil resources changes from low to high potential once excavation reaches five feet below ground surface (City of Perris, 2008).

### **Methodology**

To independently assess the paleontological sensitivity of geologic units exposed at the ground surface and thought to underlie the Project area, Æ reviewed published geologic maps, paleontological



literature, and the online database of the University of California Museum of Paleontology (UCMP), one of the largest paleontological collections of any university museum in the world. To supplement these desktop studies, Æ retained the Natural History Museum of Los Angeles County (NHMLAC) to conduct a records search of vertebrate fossil localities recorded in their collection (McLeod, 2018), as the geologic deposits within the region are known for producing abundant vertebrate fossils. Lastly, Æ completed a paleontological field survey to ground-truth the findings from the desktop studies.

### **Resource Context**

The Project area is located in the Perris Valley within the northern part of the geologically complex Peninsular Ranges geomorphic province. A geomorphic province is a region of unique topography and geology that is distinguished from other regions based on its landforms and tectonic history. The Peninsular Ranges, approximately 20 miles south of the Project area, are a northwest-southeast oriented complex of blocks that extend 125 miles from the Transverse Ranges and Los Angeles Basin to the tip of Baja California. The Peninsular Ranges are bounded to the east by the Colorado Desert and range in width from 30 to 100 miles (Norris and Webb, 1976). The Project area is situated within the central part of the Perris Block, a relatively stable rectangular structural unit positioned between the Elsinore and San Jacinto fault zones (Morton et al., 2001). The geology in the vicinity of the Project area consists of Quaternary alluvium unconformably overlying Mesozoic plutonic rocks of the Peninsular Ranges batholith (Morton et al., 2006).

According to Morton et al. (2001), the surficial geology of the Project area consists of alluvial fan deposits from the Early Pleistocene (Qvof<sub>a</sub>). This geologic unit is one of several alluvial fan complexes that emanate from the south flanks of the San Gabriel and San Bernardino mountains, covering the northern part of the Peninsular Ranges (Morton et al., 2006). The subscript “a” indicates these deposits are arenaceous (i.e., sandy) in composition. The sands here are mostly well-dissected, well-indurated, and reddish-brown in color, and may contain diagnostic soil horizons.

Pleistocene-age deposits similar to those mapped in the Project area have yielded scientifically significant paleontological resources throughout southern California from the coastal areas to the inland valleys. The nearest recorded fossil locality from literature is approximately 4 miles east of the Project area near the community of Lakeview. At this locality, a diverse assemblage of fossils has been recovered, including *Mammuthus* sp. (mammoth), *Smilodon* sp. (sabre-toothed cat), *Equus* sp. (extinct horse), *Bison* sp. cf. *B. antiquus* (bison), and numerous small mammals, reptiles, invertebrates, and plants (Reynolds and Reynolds, 1991).

To the east, in the neighboring Diamond and Domenigoni valleys, exists the largest known, non-asphaltic, open-environment late Pleistocene fossil assemblage. Discovered during excavations of Diamond Valley Lake, this locality has yielded nearly 100,000 identifiable fossils representing over 105 vertebrate, invertebrate, and plant taxa (Springer et al., 2009).

### **Records Search Results**

The UCMP online paleontological database revealed thousands of fossil localities in Riverside County, but did not show any reported within a 10-mile-wide radius of the Project area. The nearest recorded



locality consists of Pleistocene- to Holocene-age plant assemblages found approximately 13 miles southwest of the Project area, near Lake Elsinore (UCMP, 2018).

McLeod (2018) reports no known fossil localities from the NHMLAC vertebrate collections within the Project area; however, there are a few nearby localities found in alluvial deposits similar to those present in the Project area. The closest of these is LACM 4540, just east-northeast of the Project area in the San Jacinto Valley west of Jack Rabbit Trail, which produced a specimen of fossil horse (*Equus*). *Equus* specimens also were reported from LACM 5168 south-southwest of the Project area on the north side of the Railroad Canyon Reservoir, and LACM (CIT) 572 slightly farther south-southwest, just northeast of Lake Elsinore. Lastly, between the current Lake Elsinore margin and the San Jacinto River drainage, a fossil camel specimen (*Camelops hesternus*) was reported from LACM 6059.

McLeod (2018) concludes the uppermost layers of soil and alluvial deposits in the Project area are unlikely to contain significant fossil vertebrates; however, excavations that extend down into finer-grained older alluvial deposits may well encounter significant fossil vertebrate remains. As such, he recommends monitoring of any “substantial” Project-related excavations that occur, as well as collection and processing of sediment samples to determine the potential for small fossils within the Project area.

### **Field Survey**

One of Æ’s qualified paleontological field technicians, Ken Moslak, completed a pedestrian field survey for the Project on May 31, 2019. Moslak walked through much of the Project area and closely examined the ground surface for fossils every 15 meters. He also investigated the ground surface for signs of disturbance as well as any exposed geologic surfaces for lithological features. The northwest quarter of the Project area was not comprehensively examined due to low visibility from vegetation.

### **Findings and Recommendations**

The City’s (2008) paleontological sensitivity map indicates the surface geology of the Project area consists of older Pleistocene valley deposits, which is ranked High Sensitivity. Æ’s independent desktop assessment and record search results supports the high potential for these deposits to yield fossils, particularly in the older layers. Moslak’s field survey confirmed the presence of these deposits in the Project area, but noted the entire visible ground surface had been previously disturbed by plowing. No fossils were observed, significant or otherwise. Due to the amount of disturbance in the Project area, significant fossils with geologic context are unlikely to be found near the surface. However, they may occur below the depths of disturbance, which are presently unknown.

In accordance with MM Cultural 5 of the PVCCSP FEIR (City of Perris, 2011), a professional paleontologist will be retained prior to Project-related construction. The professional paleontologist must meet the SVP’s (2010) qualifications standards for a Project Paleontologist and must be approved by the City. To ensure implementation of mitigation procedures, the Project Paleontologist may prepare a Project-specific paleontological resource impact mitigation program (PRIMP), which also will be filed to the City prior to the start of construction. A PRIMP specifies the steps to be taken to mitigate impacts to paleontological resources. For instance, Worker’s Environmental Awareness Program (WEAP) training should be prepared prior to the start of Project-related construction and presented in-person to all field



personnel to describe the types of fossils that may be found and the procedures to follow if any are encountered. A PRIMP also will specify the subareas within the Project area for which construction monitoring is required, the depths of ground-disturbing activities that require monitoring, and the frequency of required monitoring (i.e., full-time, spot-checks, etc.). A PRIMP also provides details about fossil collection, analysis, and preparation for permanent curation at an approved repository. Lastly, the PRIMP will describe the different reporting standards to be used – monitoring with negative findings versus monitoring resulting in fossil discoveries.

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It has been a pleasure assisting you with this Project. If you have any questions, please do not hesitate to contact me at (626) 578-0119 x103.

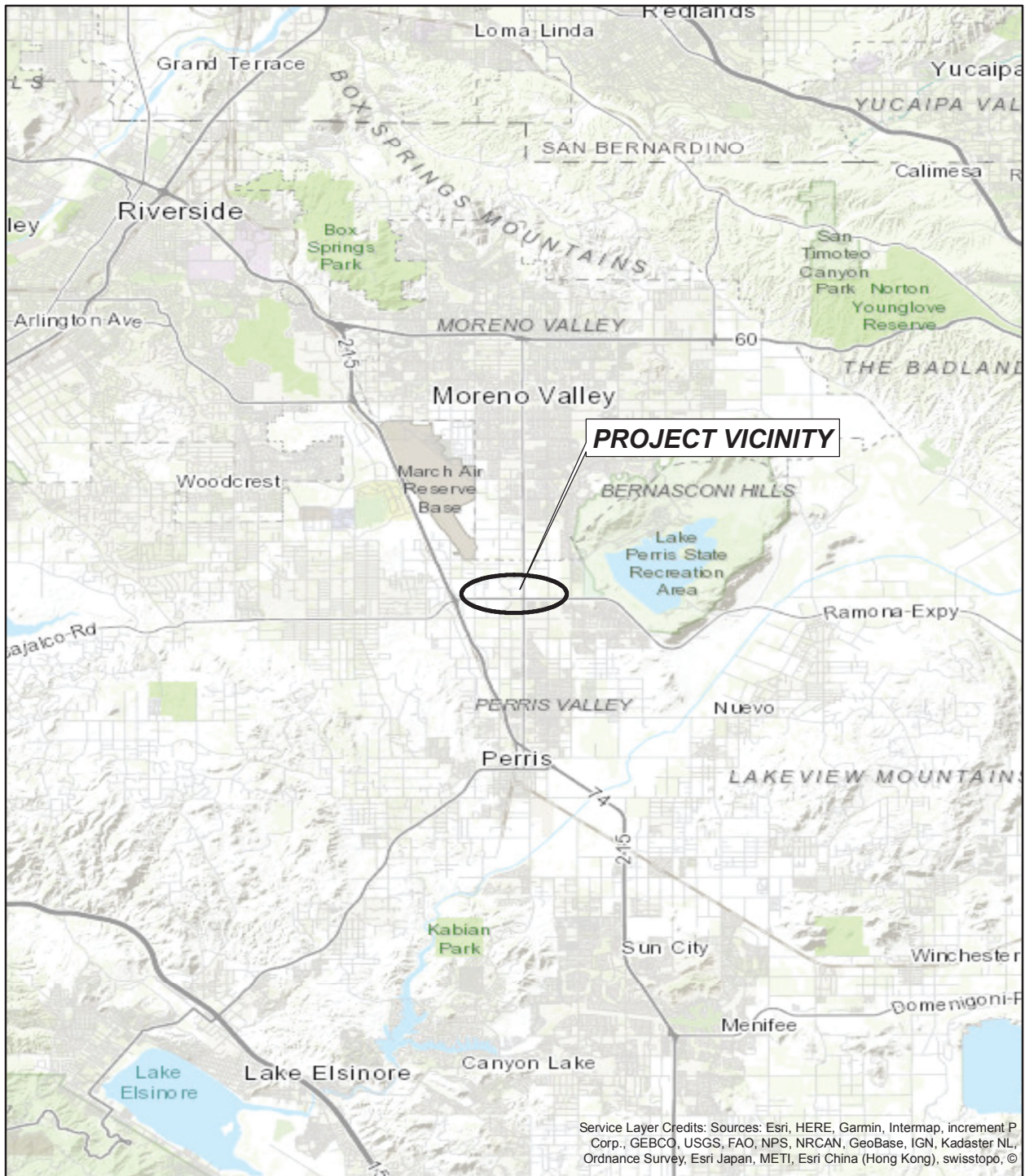
Sincerely,

Chris Shi  
Paleontology Supervisor  
Applied EarthWorks, Inc.

Edited and Approved By:

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**Amy Ollendorf, Ph.D., M.S., RPA (#12588)**  
**Paleontology Program Manager**



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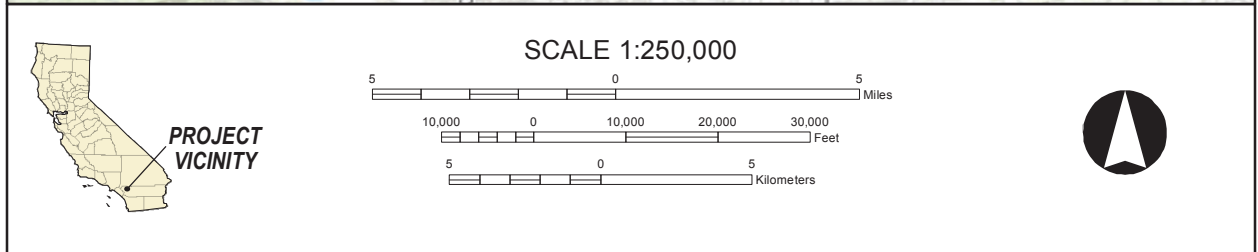
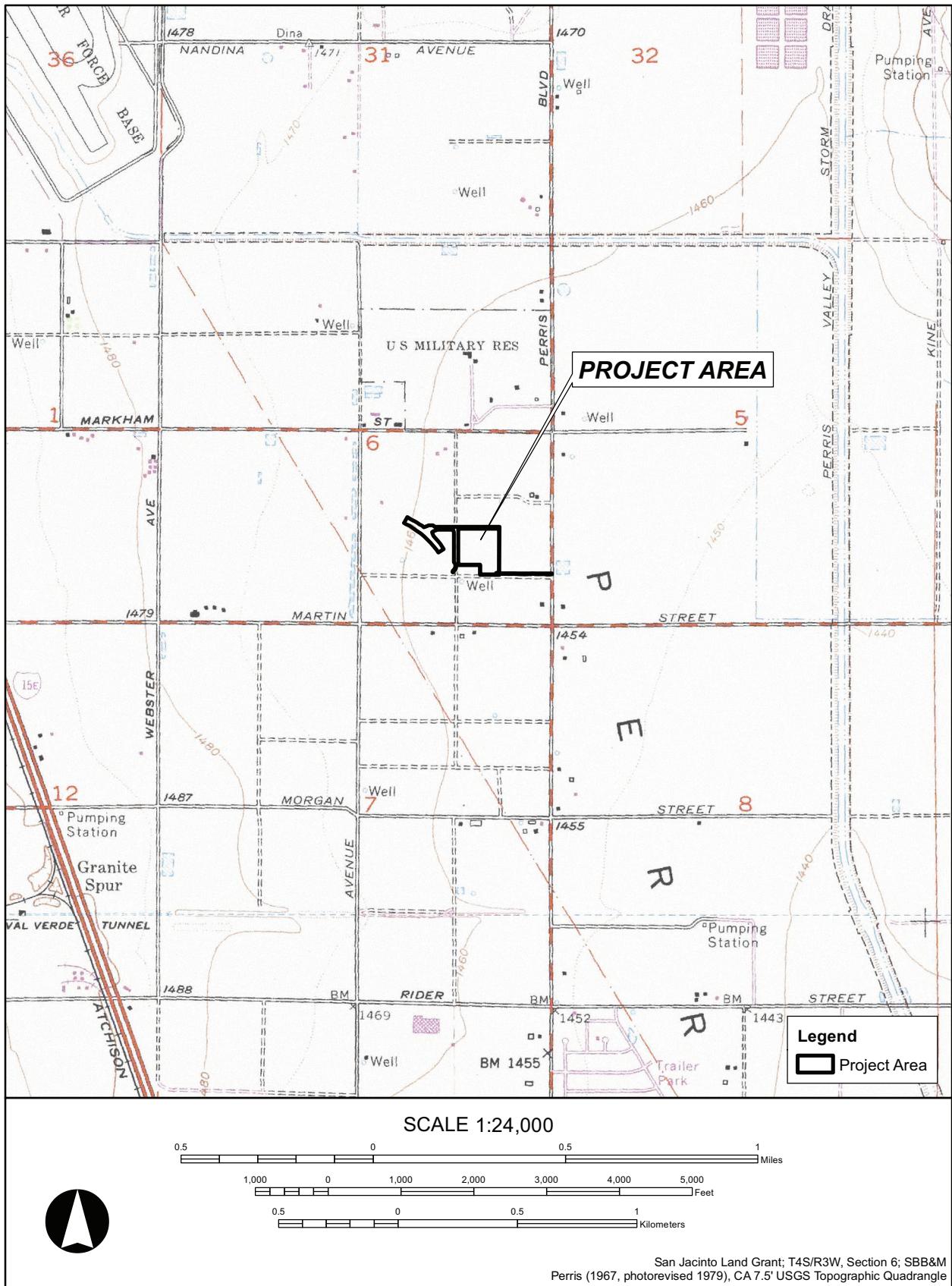


Figure 1 Project vicinity in Riverside County, California.



**Figure 2** Project location on U.S. Geologic Survey Perris topographic quadrangle.