

Appendix E

Cultural Resources Report

**CULTURAL RESOURCES INVENTORY REPORT
AND PALEONTOLOGICAL RESOURCES ASSESSMENT FOR THE
TUOLUMNE BIOENERGY, INC. PROJECT,
TUOLUMNE COUNTY, CALIFORNIA**

Prepared For:

Ascent Environmental, Inc.
455 Capitol Mall, Suite 205
Sacramento, CA 95814

Prepared By:

Nancy E. Sikes, Ph.D., RPA
Dylan Stapleton, M.A., RPA
Cindy J. Arrington, M.S., RPA



NATURAL
INVESTIGATIONS
COMPANY

3104 O Street, #221
Sacramento, CA 95816

USGS 7.5-Minute Quadrangle: Standard 1948 (PR 1987)

Negative Cultural Resources Survey, Tuolumne County

April 29, 2021

Archaeological and traditional property locations are considered confidential and should not be disclosed to the general public or unauthorized persons.

This document contains sensitive information regarding the nature and location of archaeological sites. Public access to information regarding the location, character, or ownership of a cultural or heritage resource is restricted by law per Section 304 of the National Historic Preservation Act; Section 9(a) of the Archaeological Resources Protection Act; Executive Order 13007; and is exempt from the California Public Records Act under Government Code Section 6254.10.

ABSTRACT

Purpose and Scope: Natural Investigations Company, Inc. (Natural Investigations) was retained by Ascent Environmental to provide cultural and paleontological resources services for the Tuolumne BioEnergy, Inc. (TBI) Project in southwestern Tuolumne County, California. TBI proposes to construct a wood pelletizing facility that will use a direct combustion of woody biomass from local forests to power the facility with both electricity and process heat (for drying the wood prior to pelletizing) and produce the merchantable product (wood pellets).

The services performed by Natural Investigations include cultural literature, Sacred Lands File and paleontological records searches, an intensive-level pedestrian survey of the Area of Potential Effects (APE), and a Project effects assessment with this report. This study was completed in compliance with the California Environmental Quality Act, for which Tuolumne County is the State Lead Agency for the Project, and with Section 106 of the National Historic Preservation Act, as funds from the U.S. Department of Housing and Urban Development will be used for the undertaking, for which the California Department of Housing and Community Development (HCD) is responsible for federal environmental review.

Dates of Investigation: A cultural resources literature search was completed by the Central California Information Center on March 24, 2021; a Sacred Lands File search by the Native American Heritage Commission on April, 16, 2021; and a search by Natural Investigations of the University of California Museum of Paleontology (UCMP) database on March 24, 2021. The Commission indicated their search was negative for sacred sites in the Project vicinity. Natural Investigations conducted an intensive-level pedestrian survey of the APE on April 7, 2021.

Investigation Constraints: Ground visibility in the majority of the APE was poor, constrained by existing construction grade gravel and the density of vegetation cover.

Findings of the Investigation: No prior study cultural resources studies have been completed within the APE; 22 studies are mapped within a 0.5-mile search radius. Twenty previously recorded cultural resources are mapped within the search radius, but outside the APE. No cultural resources were identified during survey of the APE or previously recorded within the APE. The project will thus have no effect on historic properties since no historic properties or historical resources are documented within the APE. The overall sensitivity for discovery of archaeological deposits, materials, or features within the previously disturbed APE is low.

UCMP records indicate no fossils are known from the Project area, mapped as being underlain by Mesozoic granitic rocks (plutonic/igneous), which have no potential for preserving identifiable, significant paleontological resources. Also, the Project parcels have no unique geologic features.

Recommendations: Construction monitoring of ground-disturbing activity is not recommended in the APE as there is a low potential for cultural and no potential for paleontological resources discovery. In the event resources are discovered during Project activities, work in the immediate area must be halted and a qualified specialist (archaeologist or paleontologist) notified, who will then evaluate the resource and consult with the County and any other relevant regulatory agency, as appropriate.

Disposition of Data: This report will be filed with Ascent Environmental; Central California Information Center, California State University, Stanislaus; and Natural Investigations Company, Sacramento, California. All field notes and other documentation related to the study are on file at the Sacramento office of Natural Investigations.

TABLE OF CONTENTS

Abstract.....	ii
Introduction.....	1
Project Description	1
Area of Potential Effects (APE)	1
Regulatory Setting	3
Cultural Resource Regulations	3
Federal Regulations	3
State Regulations	3
Paleontological Resource Regulations	5
Report Preparation.....	6
Environmental Setting	6
Geology, Hydrology, and Soils	6
Climate, Current Land Uses, and Flora/Fauna	7
Paleontology Setting, Records Search, and Resource Potential	7
Cultural Setting	8
Prehistoric Overview	8
Early Archaic Period (11,500–7000 cal BP).....	8
Middle Archaic Period (7000–3000 cal BP).....	8
Late Archaic Period (3000–1100 cal BP)	8
Recent Prehistoric I Period (1100–610 cal BP)	9
Recent Prehistoric II Period (610–100 cal BP)	9
Ethnographic Overview.....	9
Historic Overview	11
Spanish, Mexican, and American Periods.....	11
Local History	12
History Specific to Project APE	15
Pre-field Cultural Resource Research.....	15
Central California Information Center	15
Prior Cultural Resource Studies.....	16
Previously Recorded Cultural Resources	17
Other Cultural Resources Information Sources.....	19
Native American Sacred Lands File Search and Outreach.....	19
Field Methods	20
Findings.....	20
Summary	20
Description of Surveyed Area	20
Determination of Effects on Cultural Resources.....	22
Regulatory Requirements	22
Determination of Effects	23
Sensitivity for Discovery of Buried Cultural Resources	23
Cultural Resource Recommendations	24
No Construction Monitoring.....	24
Inadvertent Discoveries	24
Human Remains.....	24
Paleontological Resource Recommendations	24
References Cited.....	25

LIST OF TABLES

Table 1. Prior Cultural Resource Studies within 0.5-Mile Radius of APE	16
Table 2. Cultural Resources Previously Recorded within 0.5-Mile Radius of APE.....	18

LIST OF FIGURES

Figure 1. Project Location and APE Map	2
--	---

LIST OF PHOTOGRAPHS

Photograph 1. Overview of APE graded, graveled area. View north.	21
Photograph 2. Overview of APE adjacent to north side of creek. View west.	21
Photograph 3. Overview of gravel/vegetation interface in APE. View east.	21
Photograph 4. Overview of APE graveled area. View south.....	21
Photograph 5. Overview of creek bank in southern part of APE. View east.	21
Photograph 6. Overview of south APE arm on south side of creek. View west.....	21
Photograph 7. Overview of riparian area along Curtis Creek. View southwest.	21
Photograph 8. Overview of cleared corridor along building on adjacent property to west. View south.	21
Photograph 9. Overview of concrete chunks. View north.	22
Photograph 10. Overview of concrete chunks. Plan view.	22

LIST OF APPENDICES

APPENDIX A: CCalC File No. 117210	
APPENDIX B: Native American Sacred Lands File Search and Outreach	

INTRODUCTION

Natural Investigations Company, Inc. (Natural Investigations) was retained by Ascent Environmental to provide cultural and paleontological resources services for the Tuolumne BioEnergy, Inc. (TBI) Project (Project) in southwestern Tuolumne County, California. TBI proposes to construct a wood pelletizing facility that will use a direct combustion of woody biomass from local forests to power the facility with both electricity and process heat (for drying the wood prior to pelletizing) and produce the merchantable product (wood pellets).

Tuolumne County is the State Lead Agency for the Project. Because the Biomass Utilization Fund (BUF) from the U.S. Department of Housing and Urban Development (HUD) will be used, the Project is considered a Federal undertaking. The California Department of Housing and Community Development (HCD) administers the funds and is responsible for federal environmental reviews. This study was thus completed in compliance with Section 106 of the National Historic Preservation Act (NHPA) and the California Environmental Quality Act (CEQA).

The services by Natural Investigations include cultural literature, Sacred Lands File and paleontological records searches, an intensive-level pedestrian survey of the Area of Potential Effects (APE), and a Project effects assessment with this report.

PROJECT DESCRIPTION

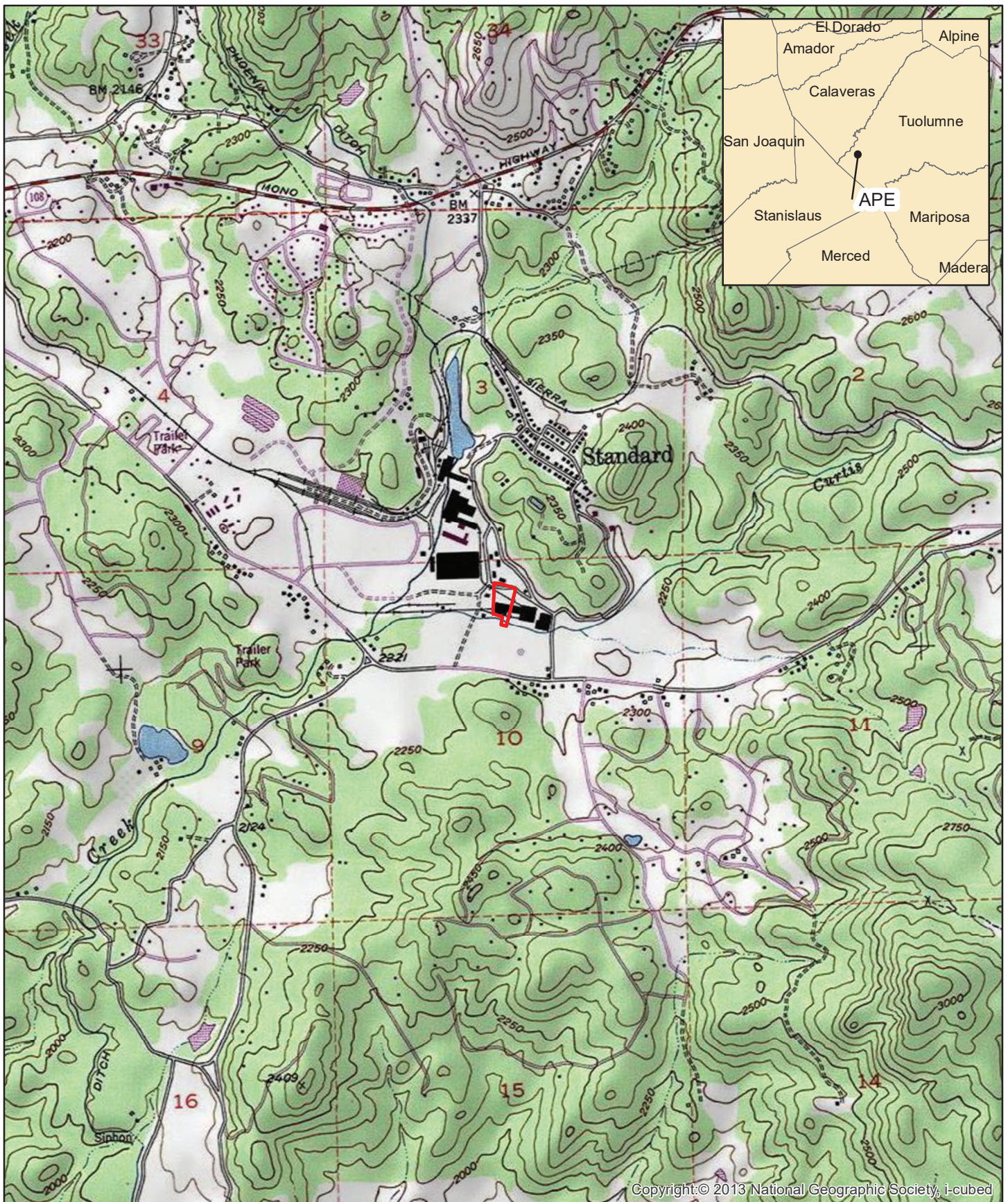
The proposed Project by TBI would construct a wood pelletizing facility that will use woody biomass from local forests to produce the merchantable product (wood pellets). A 400 KW electricity generating facility will use direct combustion of woody biomass to produce the electricity and also 2000 KW of thermal heat to dry the woody biomass before it is pelletized. As the electrical generating component of the power plant is a closed loop oil heating system, there is no wastewater discharge.

The business will use its own staff and equipment to process and remove biomass feedstock from local forests. This will remove the barriers of transport and operational costs by using adaptable technologies and processes in the forest to make accessing biomass feedstock supply less costly. Mobile chipping and hauling operations are dedicated to supplying waste forest biomass to the pellet production facility. The facility will annually process 40,000 bone dry tons (BDT) of forest biomass obtained from piles in the nearby forest. Approximately 24 employees will be employed by the facility.

The facility will be located on two parcels (APNs 061-150-046 and 061-150-047; 3.27-acres) on Camage Avenue in the Standard community south of the Sonora city limits. Curtis Creek transects the southern edge of the two parcels; the undeveloped, flat, graded and graveled area to the north is 2.5 acres. The pellet production plant will incorporate modular technology. The processing facility will have a mobile office with washroom facilities connected to the county water and sewer system. On-site developments will be limited but will include some permanent improvements like large concrete slabs and large open covered structure for storage of chips and/or finished product. Three-foot deep foundations will be needed. Located in a Light Industrial M1 Zone, there is a large Sierra Pacific Industries sawmill and woody biomass cogeneration plant across the street. No off-site infrastructure will be required.

AREA OF POTENTIAL EFFECTS (APE)

The APE within which the direct and indirect impacts of the proposed Project may have an effect on cultural resources totals approximately 3.27 acres. The maximum vertical APE for the facility will be 3 feet. The APE is located in Section 10 of Township 1 North, Range 15 East, as shown on the 1948 Standard (Photorevised 1987) USGS 7.5-minute quadrangle (Figure 1).



APE

0

0.5

1

Kilometers

0

0.5

1

Miles



1:24,000

Tuolumne BioEnergy
Figure 1 - APE Map



NATURAL
INVESTIGATIONS
COMPANY

REGULATORY SETTING

CULTURAL RESOURCE REGULATIONS

Federal Regulations

The current study was completed under the provisions of Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) (36 Code of Federal Regulations [CFR] 800). Cultural resources are considered during federal undertakings chiefly under Section 106 of the NHPA through one of its implementing regulations, 36 CFR 800 (Protection of Historic Properties), as well as the National Environmental Policy Act (NEPA). Properties of traditional religious and cultural importance to Native Americans are considered under Section 101(d)(6)(A) of NHPA.

Section 106 of the NHPA (16 United States Code [USC] 470f) requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places (NRHP) and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings (36 CFR 800.1). Under Section 106, the significance of any adversely affected cultural resource is assessed and mitigation measures are proposed to reduce any impacts to an acceptable level. Significant cultural resources are those resources that are listed in, or are eligible for listing on the NRHP per the criteria listed at 36 CFR 60.4 (Advisory Council on Historic Preservation 2000) below.

The quality of *significance* in American history, architecture, archaeology, engineering and culture is present in districts, sites, buildings, structures, and objects that possess *integrity* of location, design, setting, materials, workmanship, feeling and association and that:

- A. Are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. Are associated with the lives of persons significant in our past; or
- C. Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. Have yielded, or may be likely to yield, information important in prehistory or history.

Impacts to significant cultural resources that affect the characteristics of any resource that qualify it for the NRHP are considered a significant effect on the environment. Impacts to significant cultural resources from the proposed Project are thus considered significant if the Project physically destroys or damages all or part of a resource, changes the character of the use of the resource or physical feature within the setting of the resource which contribute to its significance, or introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

State Regulations

The current study was also completed under the provisions of CEQA. CEQA is the principal regulatory control addressing whether a project will have a significant effect on the environment, including impacts on historical resources, unique archaeological resources, tribal cultural resources, human remains, and paleontological resources in California.

Section 21083.2 of the statute and Section 15064.5 of the CEQA Guidelines provide instructions for a lead agency to consider the effects of projects on historical resources, unique archaeological resources, tribal

cultural resources, and human remains. A *historical resource* is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR) (Public Resources Code [PRC] Section 21084.1), a resource included in a local register of historical resources (PRC Section 15064.5[a][2]), or any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant (PRC Section 15064.5[a][3]).

PRC Section 5024.1 requires evaluation of historical resources to determine their eligibility for listing in the CRHR. The purpose of the register is to maintain listings of the State's historical resources and to indicate which properties are to be protected from substantial adverse change. The criteria for listing resources in the CRHR were expressly developed to be in accordance with previously established federal criteria for listing in the National Register of Historic Places (NRHP).

According to PRC Section 5024.1(c)(1–4), as well as Section 15064.5(a)(3)(A–D) of the revised CEQA guidelines, a resource is considered historically significant if it meets at least one of the following criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. It is associated with the lives of persons important in our past;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. It has yielded, or may be likely to yield, information important in prehistory or history.

In order to be listed in the CRHR, historical resources must meet at least one of the significance criteria. Resources that do not meet any of these criteria are viewed as not significant. In addition to meeting at least one of the significance criteria, historical resources must possess the quality of *integrity* (location, design, setting, materials, workmanship, feeling, and association). Historic resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance.

Impacts to significant cultural resources from a proposed Project are considered significant if the Project physically destroys or damages all or part of a resource, changes the character of the use of the resource or physical feature within the setting of the resource that contribute to its significance, or introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

Under CEQA, if an archaeological site is not a historical resource but meets the definition of a *unique archaeological resource* as defined in PRC Section 21083.2, then it should be treated in accordance with the provisions of that section. PRC Section 21083.2(g) defines a unique archeological resource to mean an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- (2) Has a special and particular quality such as being the oldest of its type or the best example available of its type
- (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Should a site qualify as a unique archaeological resource, it is protected under CEQA. If it can be demonstrated that a Project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (PRC Sections 21083.2[a], [b], and [c]). If the agency determines the site does not qualify, then the site merits no further consideration.

A “historical resource” as defined in PRC Section 21084.1, a “unique archaeological resource” as defined in PRC Section 21083.2(g), or a “nonunique archaeological resource” as defined in PRC Section 21083.2(h) may also be a *tribal cultural resource* (TCR). As defined under PRC Section 21074, TCRs are “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe” that are either: (1) included or determined to be eligible for inclusion in the CRHR; included in a local register of historical resources as defined in PRC Section 5020.1(k); or (2) determined by the lead agency to be significant pursuant to the criteria for inclusion in the CRHR set forth in PRC Section 5024.1(c), if supported by substantial evidence and taking into account the significance of the resource to a California Native American tribe. TCRs were established by Assembly Bill 52, effective July 1, 2015, as a new category of resource under CEQA.

PALEONTOLOGICAL RESOURCE REGULATIONS

Paleontological resources are limited, non-renewable resources of scientific, cultural, and educational value that are explicitly afforded protection by CEQA, specifically Appendix G. Section VII(f) of Appendix G (revised December 2018) addresses the potential for adverse impacts to unique paleontological resources, sites, or geological features, and requires that impacts to such resources must be considered in the project review process. While CEQA does not precisely define unique paleontological resources, the treatment of paleontological resources on non-federal lands is usually conducted in accordance with guidance from the criteria established by the Society for Vertebrate Paleontology (SVP 2010). Treatment usually consists of identification, assessment, and mitigation for potential impacts to significant paleontological resources.

PRC Section 5097.5 states that no person shall “knowingly and willfully” excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Public lands include those “owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.” If paleontological resources are identified within a given project area, the lead agency must take those resources into consideration when evaluating project impacts. The level of consideration may vary with the importance of the resource in question.

In accordance with guidelines established by the SVP (2010), assessments of the scientific significance of fossilized remains are based on whether they can provide data on the taxonomy and phylogeny of ancient organisms, the paleoecology and nature of paleoenvironments in the geologic past, or the stratigraphy and age of geologic units. Because most vertebrate fossils are rare, they are considered important paleontological resources. Conversely, marine invertebrates are generally common, the fossil record is well developed and well documented, and they would generally not be considered an important paleontological resource. Substantial damage to or destruction of significant paleontological resources as defined by the SVP (2010) would represent a significant impact.

REPORT PREPARATION

Nancy E. Sikes, Ph.D. was the Principal Investigator for this cultural resources Project and co-authored this report with Dylan Stapleton, M.A., and Cindy Arrington, M.S. Dr. Sikes and Ms. Arrington each have more than 20 years of archaeological experience in California and exceed all requirements of the *Secretary of Interior's Qualifications Standards* (36 CFR Part 61; National Park Service 1983). Mr. Stapleton, who performed the pedestrian survey, has over 15 years of experience in California archaeology and history, and is also cross-trained in paleontology.

The format of this report follows the *Archaeological Resource Management Reports: Recommended Contents and Format* by the Office of Historic Preservation (OHP 1990).

ENVIRONMENTAL SETTING

GEOLOGY, HYDROLOGY, AND SOILS

The Project area is located at an elevation ranging from 2,208-2,216 feet (673–675 meters) above mean sea level (msl) on the western slope of the Sierra Nevada Mountains in the Sierra Nevada physiographic province (Norris and Webb 1990). The Sierra Nevada is approximately 50 miles wide and extends for 400 miles paralleling California's eastern border south from the Cascade Range to the central Transverse Ranges. The geology of the Sierra Nevada is characterized primarily by igneous and metamorphic rocks of diverse composition and age that also contains gold-bearing veins in the northwest trending Mother Lode. The Mother Lode region in the Sierra Nevada extends southward from El Dorado County, passes through Calaveras and Tuolumne County, and ends in Mariposa County.

Review of geologic mapping indicates the Project is underlain by Mesozoic granite, quartz monzonite, granodiorite, and quartz diorite (grMz) (Gutierrez et al. 2010; Wagner et al. 1991). Located east of the Melones Fault Zone, these intrusive igneous rocks were likely formed approximately 161–66 million years ago during the Upper Jurassic to Lower Cretaceous.

There are two main watersheds in Tuolumne County, of which the waters of both originate in the Sierra Nevada. The Project is located in the Upper Tuolumne River watershed, which covers an area of approximately 1,533 square miles. The headwaters of the watershed originate in the Sierra Nevada at the eastern edge of Tuolumne Meadows in Yosemite National Park. The 149-mile-long Tuolumne River flows through Yosemite National Park and into Hetch Hetchy Valley, which was flooded behind O'Shaughnessy Dam in 1923. At the dam, approximately 33% of the river's flow is diverted to provide drinking water to the San Francisco Bay Area. The southern edge of the Project APE is transected by Curtis Creek, which flows southwestward to join Sullivan Creek and Don Pedro Reservoir. The reservoir, of which the northeastern arm is approximately 6 miles south of the APE, was formed when the Tuolumne River was dammed in 1923 and expanded when the dam was upgraded in 1971.

Soils in the Project APE are mapped as the Sierra-Flanly complex (California Soil Resource Lab 2021; Soil Survey Staff 2021). These moderately well-drained soils formed in material weathered from intrusive basic igneous rocks. Sierra coarse sandy loams have a previously disturbed brown A horizon (Ap, 0-20 cm), typically used for grain or pasturage, above a transitional horizon (BA_t, 20-46 cm), followed by a layered, yellowish red to red clay loam (argillic B_t, 46-122 cm), which then transitions to the residual parent material (C horizon). Flanly sandy loams have a brown A horizon (0-8 cm) above a transitional horizon (BA_t, 8-23 cm), followed by a layered, strong brown, clay-rich B horizon (argillic B_t, 23-86 cm) above the weathered parent material (Cr).

CLIMATE, CURRENT LAND USES, AND FLORA/FAUNA

The Project vicinity is characterized by hot, dry summers and warm, moist winters. Average precipitation is 20 inches per year in western Tuolumne County and 45 inches per year in the northeastern region. The wet season extends from October through May. Winter precipitation in this region falls as rain or snow. Snow is rare in the foothills but accounts for much of the precipitation in the higher elevations. Average winter temperature is 45 degrees Fahrenheit (°F), and summer temperature highs average 76°F. The current Mediterranean climate is dryer and hotter than the conditions present at the time of California's initial occupation (Major 1988).

The Project is located in a light industrial area in the community of Standard approximately 2 miles from the southern extent of the Sonora city limits along State Route (SR) 108. The Project parcel on the south side of Camage Avenue is currently undeveloped but is bordered on the east by a storage facility and on the west by a variety of commercial facilities. On the north side of Camage Avenue, there is a large Sierra Pacific Industries sawmill and woody biomass cogeneration plant.

Historically, the Project vicinity in the County was characterized by a wide diversity of habitat types, including woodlands, hardwood forest, conifer forest, shrub-dominated habitats, such as chaparral communities, annual grassland, and riparian vegetation communities (Ascent 2018: Appendix B; Sawyer et al. 2009). Woodland communities (valley oak, blue oak, and blue oak/gray pine) were dominant in most of the lowlands up to 3,000 feet above msl, while hardwood forests (montane hardwood and montane hardwood-conifer) transitioned from the middle elevations along river and stream drainages on the west slope of the Sierra Nevada, with aspen forests at high elevations. Conifer forest (ponderosa pine, white fir, lodgepole pine, and red fir) formed the dominant vegetation community above 2,500 feet in elevation, or basically the eastern half of the County. Riparian communities (valley-foothill and montane) were present along all watercourses in the county. This mosaic of ecological communities would have provided a very productive environment. Based on the ethnographic descriptions of the Central Sierra Mi-wuk who historically occupied this region, their hunting-gathering economy was supported by a variety of large and small mammals, edible plant species, fish, and birds (Kroeber 1925; Levy 1978).

Mule deer, mountain lion, and black bear would have been among the larger mammals inhabiting the Project vicinity. A variety of smaller animals, including rabbit, western gray squirrel, gray fox, bobcat, coyote, and pocket gopher, would have also been available for exploitation. Among the variety of birds present in this altitudinal mosaic today are belted kingfisher, great blue heron, willow flycatcher, yellow warbler, and woodpeckers. In addition, the Tuolumne River housed a variety of native anadromous and freshwater fish species, such as sturgeon, Chinook salmon, and rainbow trout/steelhead (TID and MID 2011).

PALEONTOLOGY SETTING, RECORDS SEARCH, AND RESOURCE POTENTIAL

A search of the database maintained by the University of California Museum of Paleontology (UCMP) on March 24, 2021, indicates there a total 72 fossil localities in Tuolumne County (UCMP 2021). These include 15 vertebrate localities, of which six are from the Miocene-age Mehrten Formation that have yielded extinct horses, a platybelodon “shovel-tusker,” and amphibians. The other nine vertebrate localities have yielded extinct specimens of Pleistocene Rancholabrean mastodon, elephant, tapir, horse, and shrub-ox. Of the remaining 57 Tuolumne County fossil localities, 19 are listed as containing invertebrate specimens of varying ages, one has invertebrate microfossils (forams and ostracods), 19 have been used to collect Holocene plant microfossils (pollen), and 18 have yielded plants of varying ages.

None of the fossil localities listed in the UCMP database for Tuolumne County occur within the Project area. The Project is underlain by Mesozoic granitic rocks (grMz) (161–66 million years old) (Gutierrez et al. 2010; Wagner et al. 1991). These plutonic rocks crystallized from magma slowly cooling and solidifying below the surface of the earth. Due to the high temperature and pressure conditions association with their formation, plutonic (i.e., igneous) rocks are too destructive to preserve identifiable fossil remains and thus have no potential for containing significant paleontological resources. As there is no record of fossils, no potential for fossils, and no unique geologic features known to exist within the Project area, a survey for paleontological resources was not recommended or conducted.

CULTURAL SETTING

PREHISTORIC OVERVIEW

A recent synthesis of the prehistory of California’s Sierran foothill region focuses on local data from more than 100 excavated sites in the watersheds of the Mokelumne, Calaveras, Stanislaus, and Tuolumne rivers (Rosenthal 2006, 2011). The local, site-based synthesis is based on spatial and stratigraphic analyses with over 875 projectile points, nearly 600 shell beads, more than 200 radiocarbon dates, and in excess of 4,000 source-specific obsidian hydration readings. With timeframes adjusted for modern calibration curves for radiocarbon dates, the chronological sequence for this region is divided into five major time periods: Early Archaic (11,500–7000 cal [calibrated] BP [before present]), Middle Archaic (7000–3000 cal BP), Late Archaic (3000–1100 cal BP), Recent Prehistoric I (1100–610 cal BP), and Recent Prehistoric II (610–100 cal BP). Unless otherwise cited, the following summary for each of these periods is based on Rosenthal (2006, 2011).

Early Archaic Period (11,500–7000 cal BP)

There is little evidence of the Early Archaic period in the named Sierran foothill region watersheds. Stratified cultural deposits at two sites have yielded wide stemmed and large stemmed dart points, as well as handstones and millingslabs, cobble core tools, and large percussion-flaked greenstone bifaces. Relatively high frequencies of obsidian from the Bodie Hills, located east of the Sierran crest, was also recovered.

Middle Archaic Period (7000–3000 cal BP)

A number of buried sites have been found in the western Sierran foothills that date to the Middle Archaic Period. The cultural material is primarily distinguished by corner-notched dart points, with an occasional mortar and pestle, as well as the earliest house structures in association with large subterranean storage pits. Various stone pendants, incised slate, and stone beads, as well as soapstone “frying pans” and other vessels first appear in the local archaeological record during this period. The presence of atlatl weights and spurs in these deposits confirms that the dart and atlatl were the primary hunting implements. In foothills sites in Calaveras County (CA-CAL-629/630 and CA-CAL-789), pine nut and acorn remains have been recovered (Rosenthal et al. 2007).

Late Archaic Period (3000–1100 cal BP)

Our understanding of the prehistory of the western Sierran slope benefits from a larger number of sites, many of which occur in buried stratigraphic contexts. Although Late Archaic lifeways, technologies, and subsistence patterns are similar to those of the Middle Archaic, a primary difference is an increase in the use of obsidian. Flaked stone assemblages found above 6,000 feet on the western slope are composed almost entirely of obsidian (greater than 80 percent). The use of chert, which is only available in the foothills of

the western Sierra below about 3,000 feet, is more common below 6,000 feet. This pattern suggests that groups who utilized the upper elevations of the western Sierra likely arrived from the east side where obsidian was the primary toolstone.

Recent Prehistoric I Period (1100–610 cal BP)

The beginning of the Prehistoric Period coincides with a region-wide interval of reduced precipitation known as the Medieval Climatic Anomaly. Among the most important changes in the archaeological record of the western slope at this time was the introduction of the bow and arrow at the start of the period. This innovation appears to have been borrowed from neighboring groups to the north or east. This shift in technology is clearly reflected by the dominance of small stemmed and corner-notched arrow points in Recent Prehistoric I sites.

Recent Prehistoric II Period (610–100 cal BP)

During the Recent Prehistoric II Period, bedrock milling features are established across the western Sierran landscape, near well-developed residential middens and as isolated features. The common occurrence of bedrock mortars suggests they became an important milling technology by the start of the period. Greater settlement differentiation is also evident during this period, with focused residential sites that often include house depressions and other structural remains, as well as with special-use localities consisting simply of bedrock milling features. Additional specialized technologies associated with the Recent Prehistoric II include stone drills and bone awls. The common occurrence of bone awls suggests basketry and other composite implements may have taken on a new importance. Desert Side-notched arrow points, which were likely adopted from Great Basin people to the east, appear in the archaeological record near the beginning of this period. Circular stone shaft-straighteners are also common in Recent Prehistoric II sites, consistent with use of the bow and arrow. The increase in sedentism and population growth led to the development of social stratification, with a more elaborate social and ceremonial organization. Imported shell beads from coastal California first appear in appreciable amounts in Recent Prehistoric II village sites, as do other rare items such as shell ornaments and bone whistles.

ETHNOGRAPHIC OVERVIEW

The Central Sierra Mi-wuk (also spelled Miwok) historically occupied the Study Area (Kroeber 1925; Levy 1978). They are one of four other Mi-wuk groups (Bay, Plains, Northern Sierra, and Southern Sierra) whose Eastern Miwok language is a subfamily of the Miwokan branch of the Utian language family, which is regarded as a subgroup of Penutian stock. Prior to Euro-American contact, Central Sierra Mi-wuk occupied the foothills and mountains of the Stanislaus and Tuolumne river drainages (Levy 1978:398). Neighboring groups included the Washoe to the east, Southern Sierra Mi-wuk to the southeast, Plains Mi-wuk to the west, and Northern Sierra Mi-wuk to the north.

Being seasonally mobile hunter-gatherers with semi-permanent villages, the foothills and mountains provided the Sierra Mi-wuk with an abundance of natural resources. Acorns were of particular importance to the diet. Oak trees from which this staple food was gathered annually were carefully preserved by the Sierra Mi-wuk (Heizer and Elsasser 1980:23). The Mi-wuk hunted, gathered or fished antelope, elk, rabbit, salmon, waterfowl, and valley oak acorns at the lower elevations (Heizer and Elsasser 1980:10). Deer, rabbit, salmon, valley quail, gray pine nuts, blue oak acorns, and live oak acorns were obtained in the foothills. At the higher elevations, resources included deer, squirrel, trout, mountain quail, pigeons, nuts of the sugar pine, and black oak acorns.

Political units among the Mi-wuk were structured by similarities in language and ethnicity, and villages were divided into “tribelets” (Levy 1978:410). Tribelets controlled specific lands and the natural resources within that territory. The population size of Sierran Mi-wuk tribelets averaged between 100 and 300 individuals. The main political unit of the Miwok was the tribelet. Each tribelet was an independent and sovereign population with a defined and bounded territory. Within that territory were several campsites used at various times during the hunting and gathering season. These semi-permanent campsites or villages were often situated below the snow line (4,000 feet elevation); only summer camps were built at higher altitudes. Villages in the mountains were habitually located on the ridges, not in the canyons. A spring or small stream, not a river, was typically the water supply for these villages. In the Lower Sonoran foothill country, villages were often near the river as the canyons were much shallower there than in the mountains (Barrett and Gifford 1933:135). Traditional houses were made of thatching, tule matting, or slabs of bark over a conical framework of poles (Levy 1978:408–409). Villages also contained acorn granaries, winter grinding houses, and conical sweathouses.

Similar to other California Native American groups, the Mi-wuk employed a variety of tools, implements, and enclosures for hunting and collecting natural resources (Levy 1978:403–406). The bow and arrow, snares, traps, nets, and enclosures or blinds were used for hunting land mammals and birds. For fishing, they made canoes from tule, balsa, or logs, and used harpoons, hooks, nets, and basketry traps. To collect plant resources, they used sharpened digging sticks, long poles for dislodging acorns and pinecones, and a variety of woven tools (seed beaters, burden baskets, and carrying nets).

Foods were processed with a variety of tools, such as bedrock mortars, cobblestone pestles, anvils, and portable stone or wooden mortars that were used to grind or mill acorns and seeds (Levy 1978:403–405). Additional tools and implements included knives, anvils, leaching baskets and bowls, woven parching trays, and woven strainers and winnowers. Prior to processing, the acorns were stored in the village granaries. Earth ovens were used by the Mi-wuk to bake acorn bread. The Mi-wuk participated in an extensive east-west trade network between the coast and the Great Basin (Levy 1978:411–412). From coastal groups marine shell (Olivella and abalone) and steatite moved eastward, while salt and obsidian traveled westward from the Sierras and Great Basin. Basketry, an important trade item, moved in both directions.

The traditional cultural and lifeways of the neighboring Plains Mi-wuk, who inhabited the fertile plains between Sacramento and the Sierra foothills, and between Sacramento and Stockton, were disrupted beginning in the early 1800s. As part of Spanish settlement and missionization, Plains Mi-wuk were transported to Mission San José by 1811 (Levy 1978:400). Although Spanish explorers explored the lower Stanislaus River as early as 1806, there is no record of the forced movement of Sierra Mi-wuk to the missions. During the Mexican period, native peoples in the Central Valley were affected by land grant settlements, labor exploitation, and violence by the colonists and military (Castillo 1978:104–107). Again, there is no record of specific effects to Sierra Mi-wuk groups. Native populations were also decimated by foreign disease epidemics that swept through the densely populated Central Valley and into the foothills (Cook 1955).

The discovery in 1848 of gold in the western Sierra Nevada foothills and the ensuing Gold Rush led to a flood of non-indigenous peoples into Mi-wuk territory. Sierra Mi-wuk remained in rancherias scattered throughout the foothills, but in addition to traditional hunting and gathering, they worked seasonally as paid laborers on foothill farms and ranches (Levy 1978:401). Their reliance on cash income increased as natural resources decreased with the growth of non-Miwukan communities and towns in their traditional territory.

During the first half of the 1900s, the federal government acquired lands and established reservations, or *rancherias*, for the Plains Mi-wuk, Northern Sierra Mi-wuk and Central Sierra Mi-wuk (Levy 1978:401). The U.S. Bureau of Indian Affairs terminated relations with most of these rancherias between 1934 and 1972, but status has been restored to the majority of the rancherias, beginning in 1984. At present, there are

seven federally-recognized rancherias (Wilton, Shingle Springs, Jackson, Buena Vista, Sheep Ranch, Tuolumne, and Chicken Ranch) in Amador, Calaveras, El Dorado, Lake, and Tuolumne counties that have primarily or exclusively Eastern Mi-wuk populations (Bureau of Indian Affairs 2018; California Indian Assistance Program 2011).

HISTORIC OVERVIEW

Spanish, Mexican, and American Periods

Post-contact history for the State of California generally is divided into three specific periods: Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although there were brief visits by Spanish, Russian, and British explorers from 1529 to 1769, the beginning of Spanish settlement in California occurred in 1769 at San Diego. Between 1769 and 1823, 21 missions were established by the Spanish and the Franciscan Order along the coast between San Diego and San Francisco. The Spanish expedition in 1806 led by Lieutenant Gabriel Moraga explored along the major rivers in the Central Valley and portions of the foothills, including the Stanislaus River in Tuolumne County (Hoover et al. 2002:548). The last Spanish expedition into California’s interior was led by Luis Arguello in 1817 and traveled up the Sacramento River, past the future site of the city of Sacramento to the mouth of the Feather River, before returning to the coast (Beck and Haase 1974:18, 20; Gunsky 1989:3-4).

After the end of the Mexican Revolution (1810–1821) against the Spanish crown, the Mexican Period is marked by an extensive era of land grants, most of which were in the interior of California, as well as by exploration by American fur trappers west of the Sierra Nevada Mountains. Most of the land grants to Mexican citizens in California (*Californios*) were in the interior since the Mexican Republic sought to increase the population away from the more settled coastal areas where the Spanish settlements had been concentrated. The largest land grants in the Sacramento Valley were awarded to John Sutter. In 1839, he founded a trading and agricultural empire called New Helvetia that was headquartered at Sutter’s Fort near the confluence of the Sacramento and American rivers in today’s City of Sacramento (Hoover et al. 2002). No land grants were awarded in present-day Tuolumne County, although the 48,887-acre Rancheria del Rio Estanislao, the majority of which was in neighboring Stanislaus County and the rest in Calaveras County, bordered Tuolumne County to the south (Beck and Haase 1974:32).

The first American trapper to enter California, Jedediah Smith, explored along the Sierra Nevada in 1826 and in 1827, he entered the Sacramento Valley, traveling along the American and Cosumnes rivers. In 1827, Smith also traveled through the San Joaquin Valley. Other trappers soon followed, including employees of the Hudson’s Bay Company in 1832 (Hoover et al. 2002:370). Between 1830 and 1833, and again in 1837, diseases introduced by the non-indigenous explorers, trappers, and settlers, as well as relocation to the missions, military raids, and settlement by non-native groups, decimated native Californian communities and tribes in the Sacramento and San Joaquin valleys (Cook 1955).

The American Period was initiated in 1848 with the signing of the Treaty of Guadalupe Hidalgo, which ended the Mexican–American War (1846–1848), and California became a territory of the United States. Gold was discovered at Sutter’s Mill on the American River in Coloma the same year in January, and by 1849, nearly 90,000 people had journeyed to the gold fields. In 1850, largely as a result of the Gold Rush, California became the thirty-first state. Four years later, the bustling boomtown of Sacramento became the state capital. In contrast to the economic boom and population growth that enabled statehood, the loss of land and territory (including traditional hunting and gathering locales), malnutrition, starvation, and violence further contributed to the decline of indigenous Californians in the Central Valley and all along the Sierra Nevada foothills (Chartkoff and Chartkoff 1984:296; Gunsky 1989).

Local History

One of California's original 27 counties, Tuolumne County was created at the time of statehood in 1850. The name is believed to be a transliteration of the Mi-wuk word *talmalamne*. Sonora has always been the County seat and is presently the only incorporated City in the County (Hoover et al. 2002:548). The history and growth of the County are intertwined with the presence and extraction of an abundance and variety of natural resources, beginning with the 1848 Gold Rush through to the growth of the tourism industry.

In the summer of 1848, gold was discovered in the streams and rivers that drained the County's foothills and mountains. The first discovery, in August 1848, was made on Woods Creek at Woods' Crossing, approximately 1 mile southwest of the present-day community of Jamestown, by a group led by James Woods. By the end of the summer 1848, Colonel George F. James, a lawyer from San Francisco, had established a placer mining camp above Wood's Crossing and named it Jamestown after himself (Hoover et al. 2002:548-553). Jamestown became known as the gateway to the Mother Lode and the southern mines. As a trade and supply depot, the town was a prime location on the roads to the Central Valley, and agriculture in the area flourished with the construction of ditches in the 1850s/60s. The town was listed in 1949 as a California Historical Landmark (CHL No. 431; Office of Historic Preservation 2021b).

In addition to Jamestown, other placer mining camps were rapidly established on the Stanislaus and Tuolumne rivers in 1848, such as at Melones, Don Pedro's Bar, and Shaws Flat. In March 1849, some Mexicans and Chileans were working claims upstream from Wood's Camp in the area known today as Columbia Way in the northern portion of Sonora. The new gold diggings became known as Sonoranian Camp, named for the state of Sonora, Mexico, from which the Mexican miners had come (CAGenWeb Project 2017). The Bonanza Mine, a famous pocket mine in the heart of Sonora, was first worked by the Chileans in 1851 and produced \$1.5-2 million in gold until mining ceased circa 1914. Estimates are that \$41 million in gold has been mined within a 2-mile radius of Sonora (Hoover et al. 2002:552-553). One of the oldest cities in California, Sonora was incorporated in 1851 (City of Sonora 2020). Known as the "Queen of the Southern Mines," Sonora prospered during the 1800s as the County's seat and commercial center and into the 1900s with the arrival of the Sierra Railway.

O'Byrnes Ferry across the Stanislaus River was an integral mining transportation link that was established in 1849 to service the gold prospectors. A large camp developed at the crossing, with miners washing gold out on both banks of the Stanislaus River. Operated by Patrick O. Byrne, it was only one of two ferries that crossed the river in the mid-1800s (Gudde 1998:54-55, 267; Maness 2015). A listed California Historical Landmark (CHL No. 281), a chain cable bridge replaced the ferries in 1852, replaced ten years later by a covered truss structure (Office of Historic Preservation 2021c). By 1852/1853, the historic O'Byrnes Ferry Road had linked Sonora to Stockton, where thousands of argonauts bound for the southern mines had arrived by boat or overland (Francis 2005).

Chinese Camp is 10 miles south of Sonora. The mining camp was established by the rapid growth of Chinese immigrants that lived and worked that area of the placer gold diggings in the County, or reportedly founded circa 1849 by a group of Englishmen who employed Chinese as miners (Gudde 1998:77; Hoover et al. 2002: 557-558; Office of Historic Preservation 2021a). In the early 1850s, it was headquarters for stage lines and for several California Chinese mining companies. By 1856, the town had a population of 1,000 and California's first Chinese tong war was fought nearby between the Sam Yap and Yan Woo Tongs. Several stone and brick buildings from the mid-1850s remain extant. Chinese Camp is a California Historical Landmark (CHL No. 423), listed in 1949. The value of the total output from placer mining at Chinese Camp is estimated at \$2.5 million (Clark 1970:37).

To meet the demands of the mining industry, steam-powered sawmills were established early on to produce lumber for the mining devices and water flumes, and then for the stamp mills built to crush the quartz ore

and separate the gold. Currently, the ditch system constructed in the early 1850s to deliver water to the miners and communities of Sonora, Jamestown, and Columbia is a key component of the Tuolumne Utilities District, established in 1992 (TUD 2021). The extensive system of historical ditches and flumes, plus associated reservoirs, was begun by the Tuolumne County Water Company in 1851 and extends from Twain Harte west to Columbia, and south from the South Fork Stanislaus River to Tuolumne City, Standard, and Jamestown (Francis and Marvin 2011).

After the easily mined placer deposits played out, with advanced technology (e.g., dredging, hydraulic, hard rock mining) plus the infusion of foreign capital, \$30 million in gold was produced from the Jamestown area during the “Second Gold Rush of the years 1890-1915” (Clark 1970:77-78; Hoover et al. 2002:551-554; Tuolumne County 2018: JT-1). At one time, Tuolumne County was one of California's leading mining districts, with over 300 patented mines and about 1,000 ore stamping facilities (CAGenWeb Project 2017). The County was one of the leading gold producers in the state during 1850-1870, and produced at least \$151 million in placer gold before 1899, mostly from the Jamestown-Sonora area and the Columbia Basin north of Sonora (Koschmann and Bergendahl 1968:82). The development of dredge mining in 1898 had renewed gold mining as a major industry, but the tailings piles left behind by the massive machines are still visible today along many of the rivers and streams in the region, including segments of the Tuolumne River downstream of Don Pedro Reservoir, on the Stanislaus River near Knights Ferry, and on Six Bit Gulch southwest of Chinese Camp.

The arrival of the Sierra Railway (also known as the Sierra Railroad) in 1897 cemented Jamestown's status as an important transportation center. The railway provided freight and passenger service to and from the County, connecting directly to the Santa Fe and Southern Pacific railroads to the west in Oakdale in Stanislaus County, thus providing access to the national rail network. With establishment of a stop at Chinese Station in the autumn of 1897, the association of the railway with hard rock (quartz) mining era during the Second Gold Rush was established. This association endured until the close of World War II (Cassasa 1980:20). In 1900, the line was extended to east to Tuolumne City in the East Belt of the Mother Lode. The 56-mile-long line passed through the communities of Jamestown, Sonora, and Standard before terminating in Tuolumne City. In addition to gold and lumber, cattle and fresh produce became major economic enterprises, all exported from the County via the Sierra Railway (Hoover et al. 2002:548-553; Tuolumne County 2018: JT-1). Located in Jamestown, Railtown 1897 State Historic Park is home to an intact and functioning steam locomotive repair and maintenance facility, including a roundhouse, turntable, and shops, where a 6-mile roundtrip train excursion has operated since late 1990s between Jamestown and Chinese Station (California State Parks 2021; Larson 2008).

In response to the need to support the hard rock mines, to build stamp mills, and to construct buildings in the mining camps, the timber industry expanded in the late 1800s. The County's first major lumber operation was incorporated in 1899 as the West Side Flume and Lumber Company, later renamed West Side Lumber Company, based in Tuolumne City. The company also subdivided lots and established a company town. A post office was established in 1901 in the company's main office. The lumber company had its own logging railroad (West Side Narrow Gauge Railroad) that provided access to the lumber camps in the Stanislaus National Forest and also connected to the Sierra Railway terminus (CAGenWeb Project 2017).

Standard Lumber Company, which was established in 1901 and headquartered in Sonora and later at the company town of Standard, became the second major lumber operation in the County. Standard Lumber also established a logging railroad, the Sugar Pine (later Pickering) Railway (Cassasa 1980). In 1919, the company formally moved its operations and built a new mill and box factory at Standard, 4.5 miles east of Sonora. The post office at Standard was opened in 1912 (Gudde 1998:373). Standard Lumber had junctions with the Sierra Railway at Ralphs Station, at its Sonora mill, and at its new Standard Mill. For over 60 years, Standard Lumber and West Side Lumber provided the Sierra Railway with a major source of revenue,

as supplies were hauled east into the Sierra Nevada forests and large shipments of logs and lumber were shipped west until rail operations ceased in 1966 in favor of motor transport (Boutin 1988). The Standard property was sold in 1964 to Fiberboard Corporation, later bought by Louisiana-Pacific, and then purchased in 1995 by its current owner, Sierra Pacific Industries (Cassasa 1980; Tuolumne County Historical Society n.d.).

One of the most important routes for this region during the Gold Rush and into the early 20th century is today's SR 49 corridor, located northwest of the Project APE. In Tuolumne County, this corridor is depicted on historic maps near the Project north from Jacksonville (now inundated by Don Pedro Reservoir), Chinese Camp, Montezuma, Jamestown, and Sonora, and the maps show the Sierra Railway paralleling part of the corridor between Chinese Camp and Sonora (1897 Sonora USGS 1:125,000 map and 1923 edition of 1897 Sonora USGS 1:125,000 map). Known today as the Golden Chain Highway, the road was named after the "49ers" and signed as part of the initial state signage of routes in 1934 (California Highways 2020). This north-south, 295-mile route runs through the mining towns in the Mother Lode from Downieville in Sierra County south to Oakhurst in Madera County.

By the late 1880s, tourism to Yosemite Valley had become a major seasonal industry. The road from Sonora to Groveland by way of Wards Ferry across the Tuolumne River was used to connect to the east-west direct route to Yosemite (Lang 1882). Joseph Ward had begun operating the ferry circa 1850, with crossing fees paid in gold by prospectors. The narrow 1860s wagon road was eventually paved but retains a steep descent into the river canyon. As shown as historic maps, today's "Old Wards Ferry Road" crossed the river 1.5 miles southwest of the APE (e.g., 1897 Sonora USGS 1:125,000 and 1948 Sonora USGS 15-minute quadrangles).

In 1874, the Big Oak Flat Road to Yosemite was completed as a tourism and freight route linking the San Joaquin River docks in Stockton and Yosemite Valley. As depicted on historic maps, this east-west road passed through Big Oak Flat and Garrote (now Groveland) south of the Tuolumne River (1897 Sonora USGS 1:125,000 map and 1923 edition of 1897 Sonora USGS 1:125,000 map). The route, largely SR 120 in Tuolumne County, became and remains an important factor in the vitality of the region (California Highways 2021; Tuolumne County Historical Society n.d.).

In the early 1920s the Sierra Railway was used to supply the Don Pedro Dam project on the Tuolumne River and the Melones Dam project on the Stanislaus River (Tuolumne County Historical Society n.d.). The two reservoirs were created by newly established irrigation districts to provide year-round crop irrigation to local farmers. The original Melones Dam/Powerplant was completed in 1926 by the Oakdale Irrigation District (OID) and South San Joaquin Irrigation District (SSJID), both established in 1909 (OID 2015; SSJID 2021). The railway also supported construction in the 1920s of the Hetch Hetchy project on the Tuolumne River. In the 1950s, the Sierra Railway provided support for the Tri-Dam Project developed in partnership by the OID and SSJID, and comprising the Tulloch, Beardsley, and Donnell dams on the Middle Fork Stanislaus River.

On the Tuolumne River, the original Don Pedro Dam/Powerhouse was constructed in 1923 by the Turlock Irrigation District (TID) and Modesto Irrigation District (MID), both organized in 1887. The two districts also completed construction of the New Don Pedro Dam and Powerhouse in 1971 (JRP and Caltrans 2000; TID and MID 2011:3.3). On the Stanislaus River, construction of the New Melones Dam and Powerhouse, replacing the original Melones Dam, was completed in 1979. Begun by the U.S. Army Corps of Engineers in 1966, management of the project was transferred to the Bureau of Reclamation (USBR) in 1979, and the reservoir is now part of the extensive, federally funded Central Valley Project (CVP) that delivers Sacramento River water to the arid San Joaquin Valley (JRP and Caltrans 2000:73-74; USBR 2010). Since water from the CVP first reached the valley in 1951, irrigation and related flood control management had

become an integral component of the history of the productive agricultural and livestock economy of the state.

History Specific to Project APE

The APE comprises a portion of the central northern rim of Section 10 of Township 1 North, Range 15 East (Figure 1). The General Land Office (GLO) land survey plat from 1871 shows the east-west “Sonora and Summerville Road” transecting Section 10 south of the Project APE, plus a “hydraulic ditch” to the west into Section 9. The road approximates the current alignment of Tuolumne Road, which is 0.15 miles south of the Project. There is no development depicted on the GLO plat within the APE.

The earliest land patent that included the APE in Section 10 was issued to George Soulsby in 1873 under the 1862 Morrill Act (BLM 2021). It is unclear whether George was related to Benjamin Soulsby who lived on Sullivan’s Creek just west of the Project until his discovery of the Soulsby Mine in 1858 (Lang 1882:324). Three 3 miles northeast of the APE, the camp that grew around the gold mine was named Soulsbyville, which is now a California Historical Landmark (CHL No. 420; Office of Historic Preservation 2021d).

Only one gold mine, the Seminole Group, is mapped within a 1-mile radius of the APE by the USGS Mineral Resources Data System (USGS 2011); none are mapped within the APE. The hard rock Seminole mining group included several other claims (Buckeye, Georgia, Mayflower, Lena Belle, and Young America) but the Seminole was the principal claim.

In the early 1900s, the APE was developed as part of the mill and box factory built by Standard Lumber Company in 1919—as shown by aerial photographs from 1945 and 1946 and by historical maps (1923 edition of 1897 Sonora USGS 1:125,000 map; 1948 Sonora USGS 15-minute quadrangle; 1948 Standard USGS 7.5-minute quadrangle). The aerials and maps show a portion of Standard Lumber’s box factory and two railroad spurs within the APE. The northern spur led to the mill and the western spur at the edge of the APE connected the box factory to the Sierra Railway. In 1964, the Standard property was sold to Fiberboard Corporation, later Louisiana-Pacific, and then purchased in 1995 by Sierra Pacific Industries (Cassasa 1980; Tuolumne County Historical Society n.d.). The building and rail line segments continue to be shown within the APE on the 1987 photorevised version of the Standard USGS 7.5-minute quadrangle, which is based on aerial photographs taken in 1984 (see Figure 1). By August of 1988, aerial photographs show the previously developed land within the APE is bare; the buildings and rail lines have been removed and Camage Avenue has been constructed along the northern border. By May 2014, aerial photos show the APE as one of two undeveloped areas in the light industrial zone on the south side of Camage Avenue between Standard Road and Microtronics Way.

PRE-FIELD CULTURAL RESOURCE RESEARCH

CENTRAL CALIFORNIA INFORMATION CENTER

A cultural resources literature search was accomplished on March 24, 2021, by the Central California Information Center (CCaIC) at California State University, Stanislaus. The CCIC acts as a branch of the California Historic Resources Information System (CHRIS), which was established by the Office of Historic Preservation (OHP) and maintains information concerning cultural resources and associated studies recorded in their respective counties. The CCIC maintains the records for Tuolumne County, among others. The search was conducted to determine if prehistoric or historic cultural resources were previously recorded within the APE, the extent to which the APE had been previously surveyed, and the number and

type of cultural resources within a 0.5-mile radius of the APE. The record search summary (CCaIC File No. 11721O) is provided as Appendix A. The archival search by the CCaIC of the archaeological and historical records, national and state databases, and historic maps included:

- National Register of Historic Places: listed properties
- California Register of Historical Resources: listed resources
- Built Environment Resource Directory (BERD) for Tuolumne County (2019)
- Archaeological Determinations of Eligibility (ADOE) for Tuolumne County
- California Inventory of Historical Resources (1976)
- California Historical Landmarks
- California Points of Historical Interest
- 1871 General Land Office (GLO) Plat for Township 1 North, Range 15 East
- 1907 Official Map of Tuolumne County by Sonora Abstract and Trust Company
- 1948 Standard USGS 7.5-minute quadrangle

Prior Cultural Resource Studies

The records search by the CCaIC indicates no prior cultural resources studies have been mapped within the APE, while 22 studies have been completed within the 0.5-mile search radius (Table 1). The 22 prior studies were completed between 1985 and 2015.

Table 1. Prior Cultural Resource Studies within 0.5-Mile Radius of APE

CCaIC Report No. TO-	Study	Author and Year	Within APE?
00986	Historical Architectural Survey Report; Standard, California Community Church Property	Boghosian 1990	No
01096	Archaeological Survey of the Standard Main Post Office Site, Tuolumne County	Ebasco Environmental 1990	No
01226	Cultural Resource Investigation of the Sonora Union High School Site Study, Tuolumne County	Napton 1985	No
01375	Cultural Resources Investigations for the Proposed New Standard Project, Tuolumne County	Davis-King et al. 1991	No
02268	Contextual History of Tuolumne County	Davis-King and Marvin 1994	No
02665	Archaeological Survey of the Henderson Zone Change Plat 95RZ-009 on APN 97-110-14, Tuolumne County	Francis 1995	No
02851	Archaeological Survey Report - Positive Findings: T. U. D. Proposed Purchase of a ca. 13.29 Acre Parcel on Tuolumne Road for Construction of a New Operations Headquarters	Davis-King 1996	No
03010	Sierra Pacific Industries/Tuolumne Road Business Park Development	Davis-King 1997	No
03716	Letter Report: Striker Court Project	Davis-King 2000	No
03726	Appendix B: Cultural Resources Report, Wastewater Collection System Project, Tuolumne County Water District No. 2, Clean Water Grant Project No. C-06-1647-010	Johnston 1980	No

CCaIC Report No. TO-	Study	Author and Year	Within APE?
03727	Historic Survey Report: Wastewater Collection System Project, Tuolumne County Water District No. 2 (Clean Water Grant Project No. C-06-1647-010)	De Ferrari 1980	No
03871	CDF Project Review Report for Archaeological and Historical Resources: Sonora Forest Fire Station, Project No. R9809009	Francis 2000	No
04717	Historic Structure Report and National Register Evaluation for Site No. 05-16-53-687, Cabin No. 370, Pinecrest Lake, Tuolumne County, California Stanislaus National Forest, Cultural Resource Management Report No. 05-16-3058	Marvin 1995	No
05032	Cultural Resources Inventory of Mother Lode Storage Project, Tuolumne County, California, Final Report	PAR Environmental 2003	No
05329	Cultural Resource Assessment of the Costanzo Project 02T-137 and 03SDP-01, APN 061-140-30-00, Sierra Industrial Park, Lot 10	Francis 2003	No
06171	Native American Ethnographic Research for Stages 1 and 2 of the East Sonora Bypass, State Route 108, PM R1.8/R6.9, Tuolumne County	Davis-King 2003	No
06536	Draft Environmental Impact Report for the Peaceful Oak Estates Project Vol. 1	PBS&J 2007	No
06888	Peaceful Oaks Cultural Resources Individual Resource Descriptions, Impact Assessments, Mitigation Measures	Davis-King 2006	No
07521	Tuolumne Utilities District Ditch Sustainability Project Historic Resource Evaluation Report	Foothill Resources & Francis Heritage 2012	No
07874	PG&E Curtis 1705, Tuolumne County; PG&E Cultural Resources Constraints Report, PM 30910898	Cox and Harper 2013	No
08557	Phase I Investigation for the Verizon Wireless Camague Tower Installation Project, Sonora, Tuolumne County	Roland 2015	No
09200	Draft Cultural Resources Study of the Curtis Creek Elementary School District Consolidation with Tuolumne Utilities District (Project No. 5500152-005P)	Patrick GIS Group 2018	No

Previously Recorded Cultural Resources

The records maintained by the CCaIC indicate no cultural resource have been previously recorded within the APE, while 20 cultural resources are mapped within the 0.5-mile search radius. Of the 20 resources documented outside the APE, six are prehistoric bedrock milling sites, of which also have lithic scatters. Two of the known resources are multi-component sites, with prehistoric bedrock milling features and historic-era features comprising a logging company town (Standard Townsite) and the remains of a corral, shed, and bridge. The remaining 12 documented cultural resources are historic-era and comprise the Tuolumne County Water Company Ditch and Flume System Historic District, the Phoenix Ditch component of the historic district, two buildings, the Sierra Railway/Sierra Railroad, a road, a stone foundation, bridge remains, a rock quarry, debris from the Standard Lumber Company mill, a water conveyance ditch, and a trash dump.

Table 2. Cultural Resources Previously Recorded within 0.5-Mile Radius of APE

Primary No.	Trinomial CA-TUO-	Period	Description	Recorded By/ Year	Within APE?
P-55-000120	n/a	Historic	Union Church building, 1915	Marvin 1993; Patrick 2018	No
P-55-000123	n/a	Historic	McCauley House, ca. 1870	Marvin 1993	No
P-55-000347	2774H	Historic	Sierra Railroad/ Sierra Railway Historic District	Multiple records from 1994–2018	No
P-55-001378	355	Prehistoric	Lithic scatter and bedrock milling site	Stone 1970; Davis-King 1999	No
P-55-001379	356	Prehistoric	Bedrock milling site	Stone 1970; Valentine et al. 1991	No
P-55-001380	357/H	Multi-component	Prehistoric: lithic scatter and bedrock milling site. Historic: corral, sheds, bridge remains.	Stone 1970; Bailey et al. 1991	No
P-55-001425	402	Prehistoric	Bedrock milling site	Heron 1968	No
P-55-003745	2759H	Historic	Bridge remains, 1800s and 1912	Valentine et al. 1991	No
P-55-003746	2760H	Historic	Trash dump	Valentine et al. 1991	No
P-55-003747	2761	Prehistoric	Bedrock milling site	Valentine et al. 1991	No
P-55-003748	2762H	Historic	Water conveyance ditch, debris, placer mining areas	Davis-King & Hodges 1991	No
P-55-003749	2763/H	Multi-component	Prehistoric: bedrock milling site. Historic: Standard Townsite, logging company town.	Hodges et al. 1991; Patrick & Patrick 2018	No
P-55-003750	2764H	Historic	Granitic rock quarry, sheds, earthen dam	Valentine & McClinton 1991	No
P-55-003751	2765H	Historic	Phoenix Ditch component of Tuolumne County Water Company Ditch and Flume System, 1852	Davis-King et al. 1991; Ziesling & Selverston 2000; Francis 2003, 2007; Francis & Marvin 2011	No
P-55-003752	2766	Prehistoric	Bedrock milling site, lithic scatter	Valentine et al. 1991	No
P-55-003756	2770	Prehistoric	Bedrock milling site	McClinton et al. 1991	No
P-55-003759	2773H	Historic	Stone foundation, iron pipes, debris	Valentine & McClinton 1991	No
P-55-006813	n/a	Historic	Debris, Standard Lumber Company mill operation, ca. 1920s-19501	Francis 2003	No
P-55-008270	n/a	Historic	Tuolumne County Water Company Ditch and Flume System, 1852, Historic District	Francis & Marvin 2011	No
P-55-009885	n/a	Historic	Standard Road, ca. 1920s, realigned 1950s	Patrick GIS Group 2018	No

OTHER CULTURAL RESOURCES INFORMATION SOURCES

Natural Investigations staff reviewed the series of historical maps and aerial photographs listed below, not provided by or not available at the CCalC (see NETR n.d., USGS n.d.). Relevant information gleaned from our review of maps and aerials has been incorporated in the history sections.

- 1897 Sonora USGS 1:125,000 quadrangle
- 1923 edition of 1897 Sonora USGS 1:125,000 quadrangle
- 1948 Sonora USGS 15-minute quadrangle
- 1948 Standard (Photorevised 1987) USGS 7.5-minute quadrangle
- Aerial photographs for 1945, 1946, 1998, 2005, 2009, and 2010

NATIVE AMERICAN SACRED LANDS FILE SEARCH AND OUTREACH

Natural Investigations contacted the Native American Heritage Commission (NAHC), requesting a search of their Sacred Lands File for traditional cultural resources within or near the APE. The reply from the NAHC, dated April 16, 2021, states that the search was negative for the presence of Native American sacred lands in the immediate vicinity.

By letter dated April 16, 2021, sent via email, Natural Investigations then contacted each of the Native American tribes or individuals provided by the NAHC, requesting any information regarding sacred lands or other heritage sites that might be impacted by the proposed Project. If no response was received, follow-up telephone calls were made on April, 29, 2021, and messages have been left on voice mail, as follows:

- Chicken Ranch Rancheria of Me-Wuk Indians, Lloyd Mathiesen, Chairperson: Mr. Mathiesen was unavailable on April, 29, 2021. The receptionist said cultural resources queries were handled by Ms. Bailey and she would let her know about the inquiry.
- Nashville Enterprise Miwok-Maidu-Nishinam Tribe, Cosme Valdez, Chairperson: Mr. Valdez was unavailable on April, 29, 2021; left voicemail.
- Tule River Indian Tribe, Kerri Vera, Environmental Department: Ms. Vera stated on April, 29, 2021, that she did not recall the Project, but would review the information and communicate if the Tribe had any concerns.
- Tule River Indian Tribe, Joey Garfield, Tribal Archaeologist: The April 16, 2021, email to Mr. Garfield was returned as “not deliverable.” Mr. Garfield is not listed in Tribal directory.
- Tule River Indian Tribe, Neil Peyron, Chairperson: Mr. Peyron was unavailable on April, 29, 2021; left voicemail.
- Tuolumne Band of Me-wuk Indians, Stanley Cox, Cultural Resources Director: Mr. Cox stated on April, 29, 2021 that he has no concerns at this time, but to call him should cultural resources be identified during Project implementation.
- Tuolumne Band of Me-wuk Indians, Kevin Day, Chairperson: Mr. Day was unavailable on April, 29, 2021; left voicemail.

All correspondence and a tracking record are included as Appendix B.

FIELD METHODS

An intensive-level pedestrian survey within the APE was conducted on April 7, 2021, by Natural Investigations archaeologist Dylan Stapleton. Survey transects were spaced apart at intervals no greater than 15 meters. During the pedestrian survey, all visible ground surface within the APE was carefully examined for cultural material (e.g., flaked stone tools, tool-making debris, stone milling tools, or fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions and features indicative of the former presence of structures or buildings (e.g., postholes, foundations), or historic-era debris (e.g., metal, glass, ceramics). Ground disturbances (e.g., embankment, dirt roads, etc.) were visually inspected. A digital camera was used to take photographs, a Munsell® Soil Color Chart used to record soil color, and a handheld BE-3300-GPS global positioning system (GPS) unit with sub-meter accuracy used to record locational data.

FINDINGS

SUMMARY

No prehistoric or historic-era archaeological sites, ethnographic sites, or historic-era built environment resources were identified during survey of the APE, and none have been previously recorded within the APE.

No unique geologic features or rock units that have the potential to preserve paleontological resources (fossils) were observed during the survey.

DESCRIPTION OF SURVEYED AREA

The 3.27-acre APE is bordered on the north by Camage Avenue, to the west and east by light industrial property, and to the south by the Tuolumne County Fire Department. Curtis Creek is present in the southern portion of the APE, trending east-west. The property comprising the Project APE is currently undeveloped. Outside of the 0.77-acre Curtis Creek riparian zone, the 2.5-acre empty lot is flat, graded, and covered with construction grade gravel.

When present, vegetation within the APE was comprised of riparian species and annual grasses and forbs. Ground visibility at the time of survey varied depending on location within the property (Photographs 1-8). Due to the presence of imported construction grade gravel on the ground and dense grass plus trees in the riparian zone, ground visibility in the majority of the APE was poor (1-25%). Within the Camage Avenue shoulder and a small 11-foot-wide, vegetation-free corridor parallel to the industrial buildings bordering the west side of the APE, ground visibility was excellent (75-100%). A couple chunks of individual concrete support foundation remnants were noted between the graded, graveled area and the creek, which appear to have been moved from elsewhere as the chunks were facing various directions and on their sides (Photographs 9 and 10). There does not appear to be any association between these concrete chunks and the buildings removed from the property over 30 years ago, so recordation was deemed unwarranted. Slope within the APE was low (1-2%) and the brown (7.5YR 5/4) coarse sandy loam was consistent with the Sierra soil series.





DETERMINATION OF EFFECTS ON CULTURAL RESOURCES

REGULATORY REQUIREMENTS

As mandated by NHPA Section 106, federal agencies must take into account the effects of their undertakings on historic properties and seek ways to avoid, minimize, or mitigate adverse effects on such properties [36 CFR 800.1(a)]. Likewise, CEQA regulations state that “a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment” (PRC Section 21084.1). “Substantial adverse change” means “demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired” [PRC Section 5020.1(q)].

If a cultural resource is determined eligible for listing in the NRHP or CRHR, the provisions of Section 106 and CEQA require the lead agency to determine whether or not the proposed undertaking will have an effect, pursuant to 36 CFR 800.4(d)(1-2), upon that historic property or will result in a “substantial adverse change” to the historical resource as defined under PRC Section 21084.1.

According to federal regulations, “*Effect* means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register” (36 CFR 800.16[i]). The criteria of adverse effect listed at 36 CFR 800.5(a)(1) are:

“an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property’s eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.”

According to CEQA regulations, “a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment” (PRC Section 21084.1). “Substantial adverse change” means “demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired” (PRC Section 5020.1(q)).

DETERMINATION OF EFFECTS

The proposed Project will have No Effect on historic properties or on historical resources. There are no historic properties or historical resources, including no traditional cultural properties or tribal cultural resources, documented within the APE.

SENSITIVITY FOR DISCOVERY OF BURIED CULTURAL RESOURCES

Based on the results of the records search, review of archival maps and photographs, areal geology and soils, Native American settlement patterns, geoarchaeological studies, site-specific variables, field survey, and assessment of potential direct or indirect Project impacts, the potential for the discovery of buried archaeological deposits within the APE is considered to be low. No cultural resources have been previously recorded within the APE and none were identified during survey of the previously disturbed, currently undeveloped property. The APE housed part of Standard Lumber Company's former box factory and two railroad spurs, but these were removed circa 1988 and the area graded. Of 20 previously recorded resources mapped within a 0.5-mile radius of the APE, six prehistoric and two multi-component sites have exposed bedrock milling features. There are no bedrock outcrops within the APE that would otherwise bear similar milling features. The surface soils developed in weathered material from the underlying intrusive basic plutonic/igneous rocks formed approximately 161–66 million years ago, long before human evolution.

Although landscape evolution has exerted an influence on the visibility of the archaeological record and prehistoric archaeological sites have been discovered in connection with buried soils in other parts of Tuolumne County, the potential for buried sites versus the probability of locating a buried site depends on site-specific variables. Variables include proximity to surface water and as a general guide, a geoarchaeological study completed for the California Department of Transportation (Caltrans) District 10, which includes Tuolumne County, estimates Sierra Nevada foothill landforms most likely to contain buried archaeological deposits include meadows, fans, foot slopes, floodplains, inset terraces, and some hillslope positions (Rosenthal and Meyer 2004:107-108). These types of landforms are not present and historical maps indicate the nearest stream, Curtis Creek, was intermittent, with the Tuolumne and Stanislaus rivers 6 and 9 miles distant.

The Project area, centrally located between Sonora and Tuolumne City, has been disturbed by a variety of anthropogenic activities over the last 150 years, beginning with prospecting during the Gold Rush, then construction in 1897 of the Sierra Railway 0.3-mile northwest of the APE, followed by establishment of the nearby company town of Standard, and then Standard Lumber Company's mill and box factory in 1919. The mill, now operated by Sierra Pacific Industries, was located on the north side of present-day Camage Avenue. A portion of Standard Lumber's box factory and two railroad spurs were present in the Project APE for nearly 70 years, from 1919 to circa 1988, when the buildings and tracks were removed. Camage Avenue was constructed along the northern border of the APE circa 1988, and development of the light industrial zone on the south side of the roadway ensued. Considering the box factory building and railroad tracks were removed over 30 years ago, and the permanent improvements planned by TBI will have a maximum vertical APE of 3 feet and will occur within the graded and graveled area north of the Curtis Creek riparian zone, the potential for the discovery of buried archaeological materials within the APE for this Project is low.

CULTURAL RESOURCE RECOMMENDATIONS

No Construction Monitoring

Construction monitoring of ground-disturbing activity is not recommended within the APEs for the Project. The probability that intact prehistoric, ethnohistoric, or historic-era archaeological sites remain within the Project APEs is considered low.

Inadvertent Discoveries

In the event that cultural resources are inadvertently discovered during Project activities, work must be halted in that area within 100 feet (30 meters) of the find and a qualified archaeologist (36 CFR Part 61) must be immediately notified. Work must remain halted to allow the qualified archaeologist to assess the significance of the find. Construction activities could continue in other areas, but not resume in the vicinity of the find until the County or other relevant regulatory agency provides written permission. If the discovery proves to be significant, additional work, such as data recovery excavation, may be warranted and would be discussed in consultation with the developer and the County, HCD or any other relevant regulatory agency.

Human Remains

Although unlikely, the discovery of human remains is always a possibility. State of California Health and Safety Code Section 7050.5 covers these findings, except on federal and tribal lands. This code section states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately. If the human remains are determined to be of Native American origin, the Coroner will notify the NAHC, which will determine and notify a Most Likely Descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

PALEONTOLOGICAL RESOURCE RECOMMENDATIONS

As there is no record of fossils or unique geologic features and no potential for paleontological resources to be present in the Mesozoic granitic rocks underlying the Project, implementation of the proposed Project would not uncover or damage fossils and has no potential to cause a significant impact on any resource that currently qualifies as a significant paleontological resource. No additional paleontological resources work is recommended. Construction monitoring of ground-disturbing activity for the presence of paleontological resources is also not recommended.

Although unlikely, should paleontological resources be discovered during ground disturbing activities for the Project, work must be halted in that area within 50 feet of the find and a qualified paleontologist notified immediately to evaluate the find. Construction activities could continue in other areas. If the discovery proves to be significant under SVP criteria, additional work, such as fossil recovery excavation, may be warranted and would be discussed in consultation with the developer, the County, HCD, or any other relevant regulatory agency, as appropriate.

REFERENCES CITED

- Ascent Environmental, Inc.
2018 *Draft Recirculated Environmental Impact Report for the Tuolumne County General Plan Update*. SCH #2015082027. August 2018. Prepared for Tuolumne County Community Resources Agency, Sonora, CA.
- Barrett, S. A. and E. W. Gifford
1933 *Miwok Material Culture: Indian Life of the Yosemite Region*.
- Beck, W. A. and Y. D. Haase
1974 *Historical Atlas of California*. University of Oklahoma Press, Norman.
- Boutin, Fred
1988 Grant Application for Sierra Railroad Historic District, P-55-000347 (CA-TUO-774H). On file, Central California Information Center, California State University, Stanislaus.
- Bureau of Indian Affairs
2018 US States Polygon Data for Maps. Electronic dataset available at <https://www.bia.gov/tribal-leaders-directory#c>, accessed September 4, 2018.
- Bureau of Land Management (BLM)
2021 Accession No. AGS-0372-196. Available at <https://gloreCORDS.blm.gov/details/patent/default.aspx?accession=0362-196&docClass=AGS&sid=aldutl4p.whp>, accessed April 1, 2021.
- Bureau of Reclamation (USBR)
2010 *New Melones Lake Area Final Resource Management Plan and Environmental Impact Statement*. February 2010. Available at <https://www.usbr.gov/mp/ccao/newmelones/rmp.html>, accessed March 30, 2021.
- CAGenWeb Project
2017 *Early History of Tuolumne County*. Available at <https://www.cagenweb.org/tuolumne/his.htm>, accessed March 24, 2021.
- California Highways
2020 *State Route 49*. Electronic document, <https://www.cahighways.org/ROUTE049.html>, accessed April 1, 2021.
2021 *State Route 120*. Electronic document, <https://www.cahighways.org/ROUTE120.html>, accessed April 1, 2021.
- California Indian Assistance Program
2011 *2004 Field Directory of the California Indian Community*. State of California Department of Housing and Community Development, Division of Community Affairs, Sacramento, California. Updated by Indian Dispute Resolution Services, Inc.
- California Soil Resource Lab
2021 *SoilWeb: An Online Soil Survey Browser*. University of California, Davis Soil Resource Laboratory. Available online at <http://casoilresource.lawr.ucdavis.edu/drupal/node/902>, accessed March 25, 2021.
- California State Parks
2021 *Railtown 1897 State Historic Park*. Available at http://www.parks.ca.gov/?page_id=491, accessed March 26, 2021.

- Cassasa, Bruce W.
1980 *National Register of Historic Places Nomination Form for Sierra Railroad Historic District*. See P-55-000347 (CA-TUO-774H), on file, Central California Information Center, California State University, Stanislaus.
- Castillo, Edward D.
1978 The Impact of Euro-American Exploration and Settlement. In *California*, edited by Robert F. Heizer, pp. 99-127. Handbook of North American Indians, Vol. 8, William G. Sturtevant, general editor, Smithsonian Institution, Washington D.C.
- Chartkoff, Joseph L. and Kerry K. Chartkoff
1984 *The Archaeology of California*. Stanford University Press, California.
- City of Sonora
2020 *A Short History*. Available at <https://www.sonoraca.com/visit-sonora/sonora-california-history/short-history/>, accessed March 31, 2021.
- Clark, William B.
1970 *Gold Districts of California*. Bulletin 193, California Division of Mines and Geology, Sacramento, CA.
- Cook, Sherburne A.
1955 The Epidemic of 1830–1833 in California and Oregon. *University of California Publications in American Archaeology and Ethnology* 43(3):303–326. Berkeley.
- Francis, Charla
2005 Primary record for P-55-007439 (CA-TUO-41H) O’Byrnes Ferry Road. On file, Central California Information Center, California State University, Stanislaus.
- Francis, Charla, and Judith Marvin
2011 Primary record for P-55-008270, Tuolumne County Water Company Ditch and Flume System. On file, Central California Information Center, California State University, Stanislaus.
- Gutierrez, Carlos, William Bryant, George Saucedo, and Chris Wills
2010 Geologic Map of California. California Geological Survey, Geologic Data Map No. 2. Available at https://www.conservation.ca.gov/cgs/Pages/Program-RGMP/2010_geologicmap.aspx.
- Gudde, Erwin G.
1998 *California Place Names*. 4th ed., revised by William Bright. University of California Press, Berkeley, California.
- Gunsky, F. R.
1989 *Pathfinders of the Sacramento Region*. Elk Grove Library, California.
- Heizer, Robert F., and Albert B. Elsasser
1980 *The Natural World of the California Indians*. University of California Press, Berkeley, California.
- Hoover, Mildred B., Hero E. Rensch, Ethel G. Rensch, and William N. Abeloe
2002 *Historic Spots in California*. 5th ed., revised by Douglas E. Kyle. Stanford University Press, Stanford, California.
- JRP Historical Consulting Services and California Department of Transportation
2000 *Water Conveyance Systems in California: Historic Context Development and Evaluation Procedures*. California Department of Transportation, Sacramento, CA.

Koschmann, A. H., and M. H. Bergendahl

- 1968 *Principal Gold-Producing Districts of the United States*. Geological Survey Professional Paper 610. U.S. Government Printing Office, Washington, D.C.

Kroeber, Alfred J.

- 1925 *Handbook of the Indians of California*. *Bureau of American Ethnology, Smithsonian Institution Bulletin* 78. Government Printing Office, Washington, D.C. Reprinted 1976 by Dover Publications, Inc., New York.

Lang, Herbert O.

- 1882 *A History of Tuolumne County, California*. B. F. Alley Publisher, San Francisco, California.

Larson, Bryan

- 2008 Primary record update for P-55-000347 (CA-TUO-774H). On file, Central California Information Center, California State University, Stanislaus.

Levy, Richard

- 1978 Eastern Miwok. In *California*, edited by Robert F. Heizer, pp. 398-413. *Handbook of North American Indians*, Vol. 8, William G. Sturtevant, general editor, Smithsonian Institution, Washington D.C.

Major, J.

- 1988 California Climate in Relation to Vegetation. In *Terrestrial Vegetation of California*, edited by M. Barbour and J. Major, pp. 11-74. Special Publication No. 9, California Native Plant Society, Sacramento.

Maness, Charity

- 2015 The many crossings of O'Byrnes Ferry. *Calaveras Enterprise*. 16 June 2015. Available at http://www.calaverasenterprise.com/news/article_acc14706-13ae-11e5-b42a-e36a376840af.html, accessed March 31, 2021.

National Park Service

- 1983 Archaeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines: Professional Qualifications Standards. Available online, http://www.cr.nps.gov/local-law/arch_stnds_9.htm

Nationwide Environmental Title Research (NETR)

- n.d. *Historic Aerials*. Available at <https://www.historicaerials.com/>, accessed April 1, 2021.

Norris, Robert M., and Robert W. Webb

- 1990 *Geology of California*. 2nd Edition. John Wiley and Sons, Inc., New York.

Oakdale Irrigation District (OID)

- 2015 *History of OID*. Available at <https://www.oakdaleirrigation.com/history-of-oid>, accessed March 31, 2021.

Office of Historic Preservation (OHP)

- 1990 *Archaeological Resource Management Reports (ARMR): Recommended Contents and Format*. Department of Parks and Recreation, Office of Historic Preservation, Sacramento, California.

- 2021a *Chinese Camp Historical Landmark*. Available at <http://ohp.parks.ca.gov/ListedResources/Detail/423>, accessed March 31, 2021.

- 2021b *Jamestown Historical Landmark*. Available at <http://ohp.parks.ca.gov/ListedResources/Detail/431>, accessed March 31, 2021.

- 2021c *O'Byrne Ferry Historical Landmark*. Available at <http://ohp.parks.ca.gov/ListedResources/Detail/281>, accessed March 31, 2021.
- 2021d *Soulsbyville Historical Landmark*. Available at <http://ohp.parks.ca.gov/ListedResources/Detail/420>, accessed April 6, 2021.
- Rosenthal, Jeffrey S.
- 2006 *The Prehistory of the Sonora Region: Archaeological and Geoarchaeological Investigations for Stage I of the East Sonora Bypass Project, State Route 108, Tuolumne County, California. Vol. Ia: Synthesis*. Prepared by Far Western Anthropological Research Group, Davis, CA for Central Sierra Environmental Services Branch, California Department of Transportation, District 10, Stockton, CA.
- Rosenthal, Jeffrey S. (editor)
- 2011 *A New Frame of Reference Prehistoric Cultural Chronology and Ecology in the North-Central Sierra Nevada*. Center for Archaeological Research at Davis, Department of Anthropology, University of California, Davis.
- Rosenthal, Jeffrey S., and Jack Meyer
- 2004 *Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways, Volume III: Geoarchaeological Study*. Prepared by Far Western Anthropological Research Group, Davis, CA for California Department of Transportation, District 10, Stockton, CA. On file, Central California Information Center, California State University, Stanislaus. Report No. TO-05501.
- Rosenthal, Jeffrey S., Gregory G. White, and Mark Q. Sutton
- 2007 *The Central Valley: A View from the Catbird's Seat*. In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 147–163. AltaMira Press, Lanham, Maryland.
- Sawyer, J. O., T. Keeler-Wolf, and J. Evens
- 2009 *A Manual of California Vegetation*. Second edition. California Native Plant Society, Sacramento CA.
- Society of Vertebrate Paleontology (SVP)
- 2010 *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontological Resources*. Available at <http://vertpaleo.org/The-Society/Governance-Documents.aspx>, accessed February 4, 2020.
- Soil Survey Staff
- 2021 *Official Soil Series Descriptions*. Natural Resources Conservation Service, United States Department of Agriculture. Available online at <http://soils.usda.gov/technical/classification/osd/index.html>, accessed March 25, 2021.
- Sonora Abstract and Trust Company
- 1907 *Official Map of Tuolumne County*. Compiled and published by Sonora Abstract and Trust Company, Sonora, California.
- South San Joaquin Irrigation District (SSJID)
- 2021 *Welcome to South San Joaquin Irrigation District*. Available at <https://www.ssjid.com/>, accessed March 31, 2021.
- Tuolumne County
- 2018 *Tuolumne County General Plan, Volume III: Community Identity Element and Community Plans*. August 2018. Prepared by the Tuolumne County Community Resources Agency.
-

Tuolumne County Historical Society

- n.d. *Tuolumne County History*. Available at <https://tchistory.org/research-center/>, accessed March 31, 2021.

Tuolumne Utilities District (TUD)

- 2021 *About Us: History, Ditch System*. Available at <https://tudwater.com/about-us/>, accessed April 1, 2021.

Turlock Irrigation District and Modesto Irrigation District (TID and MID)

- 2011 *Pre-Application Document, Don Pedro Project*. FERC Project No. 2179. February 2011. Available at <http://www.donpedro-relicensing.com/documents.aspx>, accessed March 31, 2021.

United States Geological Survey (USGS)

- n.d. *Topo View*. Available at <https://ngmdb.usgs.gov/topoview/>, accessed April 1, 2021
- 2011 *Mineral Resources Data System*. Database for Tuolumne County available at <https://mrdata.usgs.gov/mrds/>, accessed April 1, 2021.

University of California Museum of Paleontology (UCMP)

- 2020 *UCMP Locality Search for Tuolumne County, California*. Database available online at <https://ucmpdb.berkeley.edu/loc.html>, accessed March 24, 2021.

Wagner, D. L., Bortugno, E. J., and McJunkin, R. D.

- 1991 Geologic Map of the San Francisco-San Jose Quadrangle, California. California Division of Mines and Geology, Regional Geologic Map 5A, scale 1:250,000.

**APPENDIX A:
CCaIC File No. 117210**

Confidential -Not for Public Review

APPENDIX B:
Native American Sacred Lands File Search and Outreach
