



REPORT

Specialty Granules (Ione) LLC - Ione Expansion Project

Cultural Resources Study Technical Report

Submitted to:

Specialty Granules (Ione) LLC

1900 CA-104
Ione, CA 95640

Submitted by:

Golder Associates Ltd.

14 July 2020



Executive Summary

On behalf of Specialty Granules (Ione) LLC, Golder Associates Ltd. (Golder) conducted a cultural resources study for the proposed Ione Quarry Expansion Project (Project), located near Ione, California. The Area of Potential Effects (APE) includes proposed expansions to the existing quarry and reclamation boundaries. The assessment included a cultural resources records search, liaison with the Native American Heritage Commission which included a Sacred Lands File search, and a cultural resources field survey and evaluation. All activities were conducted in accordance with the requirements of the *California Environmental Quality Act* (CEQA) and applicable local regulations.

A California Historical Resources Information System (CHRIS) records search was conducted in July 2019 by the North Central Information Center, located at California State University in Sacramento. The search identified four previous studies and seven resources located within a 0.25-mile radius of the APE in a letter dated 8 July 2019. One of the previous studies and one of the recorded resources overlap the APE (P-03-108). The search results for the Sacred Lands Files (SLF) from the Native American Heritage Commission (NAHC) were received on 20 August 2019 which produced negative results for the APE and also included a list of Native American groups and individuals with interests in the APE. Native American groups and individuals have not yet been contacted at the time of reporting.

Field work was conducted from 16 to 20 September 2019 by Emily Wilkerson, MA, RPA, with the assistance of Julian Hiltbrand Consoli, Conner T. Brossart, and Robert Paul Erickson. An intensive pedestrian reconnaissance of the APE was undertaken, followed by subsurface testing of one previously recorded prehistoric site (P-03-108) and two shovel test areas considered to have potential for prehistoric resources. In total, 40 shovel tests were excavated and one new isolated find, Golder T – 1, was discovered. All cultural material discovered during this assessment was identified and left on site. If encountered in a shovel test, the location of the find was recorded by an averaged waypoint using a hand-held GPS and reburied.

The newly recorded prehistoric isolated find (Golder T – 1) is considered ineligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR); and therefore is not considered a cultural resource for the purposes of CEQA. No further cultural work is recommended for this resource,

One previously recorded prehistoric site (P-03-180) was revisited during the field investigations and its record updated. The site is unevaluated for the National Register of Historic Places under Criterion D, Title 36 Code of Federal Regulations (CFR) 60.4 and under Criteria 3CS of CRHR. It is recommended the prehistoric site be avoided by the proposed project. Protection fencing should be placed at the site and all construction activities within 20 m of P-03-180 should be monitored by a qualified archaeologist if avoidance of this area is not possible. Furthermore, it is recommended that an unanticipated discovery plan be implemented to help protect any cultural resources that may be inadvertently uncovered during construction. Based on these findings and recommendations, the proposed Project will have no adverse effect on significant cultural resources provided the archaeological recommendations are adhered to.

Credits

Task Director

Andrew R. Mason, MA, RPCA

Task Manager

Emily Wilkerson, MA, RPA

Principal Investigator

Emily Wilkerson

Field Support

Robert Paul C. Erickson, PE

Julian Hiltbrand Consoli

Connor Brossart

Report Author

Emily Wilkerson

Angela Kappen, BA

GIS Analyst

Mandy Hansen, BA

Senior Technical Review

Andrew R. Mason

Table of Contents

1.0 INTRODUCTION	1
2.0 PROJECT DESCRIPTION AND LOCATION	1
3.0 REGULATORY SETTING	1
3.1 National Historic Preservation Act	1
3.1.1 Eligibility Criteria for Cultural Resources	2
3.1.2 Integrity Evaluation for Cultural Resources	2
3.1.3 Evaluation of Effects to Cultural Resources	3
3.1.4 Section 106 Process	3
3.2 California Environmental Quality Act	4
3.2.1 Significance Evaluation of Cultural Resources	4
3.2.2 Mitigation Options for Cultural Resources	5
3.3 Local	6
4.0 METHODS	7
4.1 Records and Background Search	7
4.2 Field Investigations	7
4.2.1 Surface Inspection	7
4.2.2 Subsurface Testing	8
4.3 Identification of Cultural Resources	8
4.4 Reporting	8
5.0 RESULTS	8
5.1 Environmental Setting	8
5.2 Cultural Setting	10
5.2.1 Prehistoric Background	10
5.2.2 Ethnographic Setting	12
5.2.3 Historical Background	12
5.2.4 Summary of Expected Site Types	13

5.3 Records and Background Search 13

5.3.1 Native American Scoping and Sacred Lands File Search 13

5.3.2 Previous Cultural Resource Studies 13

5.3.3 Previously Recorded Cultural Resources 14

5.4 Field Assessment..... 15

5.4.1 Surface Inspection 15

5.4.2 Subsurface Inspection 15

5.4.3 Revisited Archaeological Site 15

5.4.4 Shovel Test Areas..... 16

5.4.4.1 STA – 01: Golder T – 1 16

5.4.4.2 STA – 02 16

6.0 SUMMARY AND RECOMMENDATIONS 17

7.0 CLOSURE 19

8.0 REFERENCES 20

TABLES

Table 1: Summary of Biological Communities in the Study Area 9

Table 2: Previous Studies within 0.25 miles of the APE..... 14

Table 3: Previously Recorded Resources within 0.25 miles of the APE. 14

Table 4: Site Recommendations 17

APPENDICES

APPENDIX A

Figures (Confidential)

APPENDIX B

Native American Heritage Commission and Sacred Lands File Search (Confidential)

APPENDIX C

Records Search Results (Confidential)

APPENDIX D

Selected Photographs (Confidential)

APPENDIX E

Site and Isolate Find Records (Confidential)

1.0 INTRODUCTION

Golder conducted a cultural resources study for the Lone Quarry Expansion Project (Project), located near Lone, California. The Area of Potential Effects (APE) includes proposed expansions to the existing quarry and reclamation boundaries (Figure 1). The study included a cultural resources records search; coordination with the Native American Heritage Commission which included a Sacred Lands File search; and a cultural resources field survey and evaluation. All activities were conducted in accordance with Section 106 of the *National Historic Preservation Act* (NHPA), the *California Environmental Quality Act* (CEQA), and the Register for Professional Archaeologists Standards.

2.0 PROJECT DESCRIPTION AND LOCATION

The project site is on approximately 390 acres at 1900 California Highway 104, within Assessor's Parcel Numbers [APNs] 005-080-016-502 and 005-080-020-000, approximately 3 miles west of the City of Lone, in unincorporated Amador County, California. The site is accessed from the access road off SR 104, approximately 700 feet southeast of where Michigan Bar Road meets SR 104. The project site is within Section 17, Township 6 North, Range 9 of the Mt. Diablo Baseline and Meridian U.S. Geological Survey 7.5-minute quadrangle.

SGL proposes to expand the existing footprint and depth of the Lone Quarry to access additional rock reserves. This expansion requires an amended Conditional Use Permit (CUP) and Reclamation Plan that allows for the expanded proposed mining area and additional stockpiling area(s) for the additional cap rock (the proposed project). The quarry will expand by approximately 130 acres and the depth will increase by 605 feet. The stockpile area will expand by approximately 87 acres and increase in height by approximately 44 feet (at its largest increase). No changes in the current rates of production or other operations are proposed. The expanded reserves could provide for an estimated 100 years of operation at current annual production rates.

3.0 REGULATORY SETTING

This Project will require a conditional use permit and reclamation plan amendment from Amador County triggering compliance with CEQA and the County's general plan and zoning code. In addition, this Project may impact "waters of the United States" or otherwise trigger a "federal undertaking" requiring compliance with Section 106 of the NHPA. This section discusses the applicable federal, state, and local laws and regulations governing cultural resources.

3.1 National Historic Preservation Act

Section 106 of NHPA requires that, before taking action on an undertaking, a federal agency must take into account the effects of the undertaking on *historic properties* and afford the Advisory Council on Historic Preservation (ACHP) and other interested parties an opportunity to comment on these actions. Implementing regulations for §106 are found at 36 CFR Part 800. The Project may require the issuance of a *Clean Water Act* §404 permit administered by the U.S. Army Corps of Engineers (USACE). Therefore, the Project is considered a federal undertaking subject to §106 of the NHPA.

A *historic property* is a cultural resource that is eligible for listing in the National Register of Historic Places (NRHP).

For cultural resources qualifying as historic properties, protection is afforded under the NHPA (NHPA, 16 U.S.C. 470s; Section 106, 36 CFR 800). The NHPA defines a historic property as follows (36 CFR 800, as amended 2004, Title III, Section 301, #5):

...any Pre-European contact or historic district, site, building, structure, or object included in, or eligible for listing on the National Register, including artifacts, records, and material remains related to such a property or resource.

3.1.1 Eligibility Criteria for Cultural Resources

The criteria for evaluating eligibility for listing on the NRHP are as follows:

The quality of significance in American history, architecture, archeology, 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:

- **Criteria A:** That are associated with events that have made a significant contribution to the broad patterns of our history; or
- **Criteria B:** That are associated with the lives of persons significant in our past; or
- **Criteria C:** That embody the distinctive characteristics of a type, period, or method of construction, 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
- **Criteria D:** That have yielded, or may be likely to yield, information important in prehistory or history (National Register Bulletin: How to Apply the Criteria for Eligibility, NPS, 1997.)

3.1.2 Integrity Evaluation for Cultural Resources

Although the evaluation of integrity is sometimes subject to judgement, it must always be grounded in an understanding of the property's physical features and how they relate to its significance. The NRHP defines the seven aspects of integrity as follows:

- **Location:** The place where the historic property was constructed or the place where the historic event occurred.
- **Design:** The combination of elements that create the form, plan, space, structure, and style of a property.
- **Setting:** The physical environment of a historic property.
- **Materials:** The physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
- **Workmanship:** The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.
- **Feeling:** A property's expression of the aesthetic or historic sense of a particular period of time.
- **Association:** The direct link between an important historic event or person and a historic property.

3.1.3 Evaluation of Effects to Cultural Resources

Section 106 of the NHPA prescribes specific criteria for determining whether a project would adversely affect a *historic property*, as defined in 36 CFR Part 800.5. An impact is considered significant when prehistoric or historic archaeological sites, structures, or objects listed in or eligible for listing in the NRHP are subjected to the following effects:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
 - Neglect of a property that causes its deterioration; and
 - Transfer, lease, or sale of the property.

3.1.4 Section 106 Process

The Section 106 process is presented in 36 CFR 800 and consists of the following five basic steps:

- **Step 1:** Initiate process by coordinating with other environmental reviews, consulting with the State Historic Preservation Officer (SHPO), identifying the Area of Potential Effects; identifying and consulting with interested parties, and identifying points in the process to seek input from the public and to notify the public of proposed actions.
- **Step 2:** Identify cultural resources and evaluate them for NRHP eligibility, resulting in the identification of historic properties.
- **Step 3:** Assess effects of the project on historic properties.
- **Step 4:** Consult with SHPO and interested parties regarding adverse effects on historic properties, resulting in a Memorandum of Agreement (MOA).
- **Step 5:** Proceed in accordance with MOA.

Section 106 requires that the federal agency carry out the process. A second party, in this case, Golder, can only make recommendations to the federal agency. The federal agency must consult with SHPO and interested parties and make the determinations of eligibility and effect.

3.2 California Environmental Quality Act

The *California Environmental Quality Act* CEQA of 1970 (California Public Resources Code [PRC] 21000) offers directives regarding impacts on historical resources and unique archaeological resources. The State CEQA Guidelines (California Code of Regulations [CCR] 15000) defines a “historical resource” to include more than one category of resources. The first category is, “...resource(s) listed or eligible for listing on the California Register of Historical Resources (CRHR).” (CCR Section 15064.5[a][1]; see also PRC Sections 5024.1 and 21084.1). A historical resource may be eligible for inclusion in the CRHR, as determined by the State Historical Resources Commission or the lead agency, if the resource:

- 1) Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage; or
- 2) Is associated with the lives of persons important in our past; or
- 3) 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) Has yielded, or may be likely to yield, information important in prehistory or history.

3.2.1 Significance Evaluation of Cultural Resources

A resource is presumed to constitute a “historical resource” if it is included in a “local register of historical resources” unless “the preponderance of evidence demonstrates that it is not historically or culturally significant.” (CCR Section 15064.5[a][2])

“Historical resources” are those deemed significant pursuant to criteria set forth in PRC Section 5024.1(g), as follows:

[a] resource identified as significant in an historical survey may be listed in the California Register [CRHR] if the survey meets all of the following criteria:

- (1) The survey has been or will be included in the State Historic Resources Inventory.
- (2) The survey and the survey documentation were prepared in accordance with office [State Office of Historic Preservation] procedures and requirements.
- (3) The resource is evaluated and determined by the office [State Office of Historic Preservation] to have a significance rating of Category 1 to 5 on DPR Form 523 [the Department of Parks and Recreation Historic Resources Inventory Form].
- (4) If the survey is five or more years old at the time of its nomination for inclusion in the California Register, the survey is updated to identify historic resources which have become eligible or ineligible due to changed circumstances or further documentation and those which have been demolished or altered in a manner that substantially diminishes the significance of the resource.

Resources identified by such surveys are presumed to be historically or culturally significant unless the preponderance of the evidence demonstrates otherwise.

The final category of “historical resources” is an optional one, which a lead agency may opt to consider or not consider. According to the State CEQA Guidelines (CCR Section 15064.5[a][3]):

Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency’s determination is supported by substantial evidence in light of the whole record.

In addition to the obligation to consider impacts on “historical resources,” CEQA and the State CEQA Guidelines require consideration of unique archaeological sites (PRC Section 21083.2, 14 CCR Section 15064.5). A “unique archaeological resource” is defined in CEQA (PRC Section 21083.2[g]) as:

...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 available example of its type.
- (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

3.2.2 Mitigation Options for Cultural Resources

If a resource meeting the criteria defined above would be affected by a project and data recovery through excavation is the only feasible mitigation, a data recovery plan that makes provisions for adequately recovering the scientifically-consequential information from and about the historical resource shall be prepared and adopted before any excavation is undertaken (CCR Section 15126.4[b][3][C]). Other acceptable methods of mitigation under the State CEQA Guidelines (CCR Section 15126.4) include excavation and curation or study-in-place without excavation and curation (if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource). The State CEQA Guidelines (CCR Section 15064.5[e]) require that excavation activities be stopped whenever human remains are uncovered, and that the County Coroner be called in to assess the remains. If the County Coroner determines that the remains are those of Native Americans, the Native American Heritage Commission (NAHC) must be contacted within 24 hours. At that time, the State CEQA Guidelines (CCR Section 15064.5[d]) direct the lead agency to consult with any appropriate Native Americans as identified by the NAHC in a timely manner and direct the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

3.3 Local

The Amador County General Plan and Implementation Plan (Amador County 2016a, 2016b) set forth goals and policies for historic and archeological resources within unincorporated areas of Amador County. The Implementation Plan is meant to guide the County's elected and appointed officials, staff, and the public when putting the adopted General Plan goals and policies into practice. The Amador County General Plan Conservation Element includes discussion of the County's historical and cultural resources and includes a figure identifying cultural sensitive areas in the County (see Figure C-2, "Cultural Resource Sensitivity" of the General Plan Conservation Element.) The following provides the goals and policies related to historical and cultural resources provided in the County General Plan.

Historical Resources

- Goal C-7: Preserve the county's historical resources.
- Policy C-7.1: Balance the community's interest in historic preservation with the rights of individual property owners.
- Policy C-7.2: Promote use of building envelopes or cluster development as a means of protecting historical resources when land is developed.
- Policy C-7.3: Support the preservation of historic structures, including rehabilitation and adaptive reuse of structures. Encourage property owners to preserve and maintain historic structures.
- Policy C-7.4: Promote the preservation of historically significant Gold Rush sites, mining sites and other identified sites.
- Policy C-7.5: Collaborate with interested groups to develop interpretive materials for historically important sites.
- Policy C-7.6: Promote historic preservation as an engine for Amador County's tourist economy.

Cultural Resources

- Goal C-8: Preserve the county's cultural resources.
- Policy C-8.1: Balance the community's interest in the protection of cultural resources with the rights of individual property owners.
- Policy C-8.2: Encourage project design that will protect cultural and archaeological resources and consider using incentives to support protection of these resources when land is developed.
- Policy C-8.3: Educate local realtors, property owners, and developers regarding the need to protect and preserve cultural resources, with the objective of increasing cultural resource awareness among existing and new property owners.
- Policy C-8.4: Encourage other interested groups to develop interpretive materials for culturally and archaeologically important sites.

Implementation Plan, “Program D-6: Historic Preservation, Cultural Resources” objective is to reduce or avoid impacts to cultural resources through preservation in place. Data recovery or other mitigation measures are allowed when preservation is not feasible. When reviewing discretionary projects, the County will guide its decisions for resource treatment based on Secretary of the Interior standards and CEQA.

4.0 METHODS

The following sections describe the methods of the Project.

4.1 Records and Background Search

Golder requested a review of the California Historical Resources Information System (CHRIS) at the North Central Information Center (NCIC), located at California State University, Sacramento, California to identify previously recorded cultural resources work within the APE and 0.25-mile buffer zone. The request included a search of the California Office of Historic Properties Directory, California Inventory of Historic Resources, Archaeological Determinations of Eligibility, ethnographic information, historical literature, and historical maps.

The Native American Heritage Commission was also contacted to request a Sacred Lands File (SLF) search of the APE. The purpose of this request is to identify lands or resources important to Native Americans and to assess the potential for project-related development to impact tribal cultural resources.

4.2 Field Investigations

Field investigations included an intensive pedestrian survey and shovel testing, with the intent to locate and assess the nature and extent of any cultural resources that may be present within the APE (Appendix A, Figure 1). A cultural resource is defined as one or more features (e.g., stone circle, cairn, building, etc.); and / or six artifacts (e.g., lithic material, ceramics, glass, etc.); or an intact cultural deposit regardless of the number of artifacts. Cultural resources composed of less than six artifacts are classified as isolated finds. All resources within the APE over 45 years in age were documented except for fence lines, unnamed roads, and stock ponds. Cultural resources encountered in the APE were explored as much as possible with consideration to land access constraints. Prehistoric sites were recorded in metric. Shovel testing was completed at prehistoric sites to define the depth and boundaries of cultural deposits. No artifacts were collected, and any artifact encountered in the field was documented and returned to its original location. A total of 389 acres were surveyed. All field investigations were documented by Emily Wilkerson in field notes, digital photos, site maps, and handheld GPS, which remain on file with Golder.

4.2.1 Surface Inspection

A systematic pedestrian survey within the APE was completed in 15 to 25-meter intervals for areas not previously impacted by significant ground disturbance (e.g., existing discharge ponds, active quarries, plant sites, etc.) (Appendix A, Figure 1). All exposures including tree falls, creek bed exposures, and side slopes were examined for cultural material. Surface evidence of cultural material was sought, including but not limited to, stone, bone, antler, or other artifacts; fire-altered rock; cultural features (e.g., bed rock mortars); ancestral human remains; anthropogenic soils; and historical materials and debris.

4.2.2 Subsurface Testing

Subsurface shovel testing was conducted within the APE at one previously located prehistoric site and two shovel test areas identified as having potential for cultural resources to be present. Tests were placed systematically averaging 40 cm by 40 cm, and were excavated to bedrock, reach of shovel, or the C Horizon. All removed matrices were screened through 6 mm (1/4-inch) mesh, and any cultural materials encountered were identified, photographed, inventoried, and reburied. Locations of cultural material were recorded with averaged waypoints using a handheld GPS.

4.3 Identification of Cultural Resources

All stone tools and debris produced during tool manufacture were identified and classified in the field and no artifacts were collected for curation. Tool dimensions (i.e., maximum length, width, and thickness) were measured using a tape measure to the nearest 1 cm. Tool length is defined as the maximum measurement of the tool following its longest orientation; width is the maximum measurement at right angles to the length; and thickness is measured at right angles to both the length and width. Lithic debitage was measured using 1 cm size grades to record their maximum dimension. Lithic raw material was identified for chipped stone artifacts and for ground stone artifacts when weathering was minimal on the lithic surface.

4.4 Reporting

This report documents the methods employed and details the results of the documents and background research, and field assessment. Detailed plan maps of the sites were produced and plotted on a USGS 7.5-minute topographic maps. A description of the anticipated impacts from the proposed Project is provided, along with recommendations for appropriate management of these findings.

In addition to this report, appropriate California site record forms were filled out for sites revisited and discovered during the investigation.

5.0 RESULTS

5.1 Environmental Setting

The APE is within the western foothills of the Sierra Nevada mountain range which is characterized by a Mediterranean climate with dry, hot summers, and relatively mild winters. The Study Area is located above the valley fog influence of the Central Valley, and below the montane snowfall of the Sierra Nevada. Average annual precipitation for Lone is 22.04 inches, with the majority falling as rain in the winter months (December through March). The lowest minimum average monthly temperature in degrees Fahrenheit is 37.2 in December, and the highest maximum average monthly temperature is 91.5 degrees in July (WRCC 2019). The majority of the Study Area is within the Cosumnes River watershed (HUC 18040013) with streams and swales draining to the north. However, the southernmost portion of the Study Area, south of the quarry pit is within the Mokelumne River (HUC 18040012) watershed, draining to the south. Sources of hydrology within the Study Area include direct precipitation falling as rain, with occasional, non-persistent snowfall.

Topography in the Study Area typically consists of gently to moderately undulating hillslopes and swales with slopes of 3 to 30 percent, circling the existing quarry pit, which is the high point in the Study Area. Active quarry operations have altered the local topography and soils within the Study Area with areas of excavation temporary stockpiling, and/or permanent fill and reclaimed slopes. Elevations range from approximately 460 feet above mean sea level (amsl) along the rim of the quarry pit, to approximately 275 feet amsl along the northeastern border of the Study Area where the railroad tracks intersect with Highway 104 (Twin Cities Road). SoilWeb (CSRL 2019) indicates that the Study Area contains ten mapping units consisting of seven soil series, as well as water, placer diggings, rock land, and riverwash. Soil mapping units within the Study Area include: Auburn-Argonaut silt loams, 0 to 16 percent slopes; Auburn-Argonaut very rocky silt loams, 3 to 31 percent slopes; Inks loam and Rock land, 3 to 45 percent slopes; Pardee cobbly loam, 3 to 31 percent slopes; Pentz gravelly sandy loam, 2 to 16 percent slopes; Pentz sandy loam, 16 to 31 percent slopes; Pentz sandy loam, 2 to 16 percent slopes; Red Bluff-Mokelumne complex, 5 to 16 percent slopes, water, placer diggings, and riverwash.

Table 1 summarizes the area of each biological community type observed in the Study Area. Non-sensitive biological communities include developed (active quarry), detention basin, mining-related drainage ditch, non-native annual grassland, and buckbrush chaparral. Potentially sensitive biological communities include: seasonal wetland, vernal pool, ephemeral stream, drainage ditch, pond, blue oak woodland, and interior live oak woodland.

Table 1: Summary of Biological Communities in the Study Area

Community Type	Area (Acres)
Non-Sensitive	
Developed	147.99
Mining-related drainage ditch	0.46
Detention basin	4.72
Non-native annual grassland	184.57
Buckbrush chaparral	4.88
Subtotal	342.62
Potentially Sensitive	
Seasonal wetland	2.82
Vernal pool	0.33
Ephemeral stream	0.65
Drainage ditch	0.01
Pond	0.87
Blue oak woodland	37.45
Interior live oak woodland	4.46
Subtotal	46.59
Total	389.21

5.2 Cultural Setting

5.2.1 Prehistoric Background

The prehistoric record of the Central Valley is poorly defined due mainly to the natural processes of landscape evolution, agricultural development, and levee construction. In addition, over the past 20 years, most of the cultural resource investigations have been small scale excavations; there have been very few large cultural resource management projects (Jones and Klar 2007). Due to modern advancements in radiocarbon dating, the culture historic occupation periods for the Central Valley have been redefined from three basic periods to five, including Paleo-Indian (11,550 – 8550 B.C.), Lower Archaic (8550 – 5550 B.C.), Middle Archaic (5550 – 550 B.C.), Upper Archaic (550 B.C. – A.D. 1100), and Emergent (A.D. 1100 – Historic) (Groza 2002; LaJeunesse and Pryor 1996; Meyer and Rosenthal 1997).

Paleo-Indian (11,550 – 8,550 B.C.)

Although the archaeological record in the Central Valley during this time is sparse, the earliest accepted evidence of human occupation is located in three locations in the San Joaquin Valley. These diagnostic artifacts are basally thinned and fluted projectile points, often compared to Clovis points. The reason for the sparse archaeological record during this time period is that periodic episodes of erosion and deposition during the Holocene have removed or buried large segments of the Late Pleistocene landscape (Rosenthal and Meyer 2004a, b). The archaeological deposits associated with these landforms have either been destroyed or lie buried beneath more recent alluvial deposits (Jones and Klar 2007).

Lower Archaic (8550 – 5550 B.C.)

Like the Paleo-Indian period, Lower Archaic representation of the Central Valley is mostly represented by isolated finds. Only one lower archaic archaeological deposit has been found in the Central Valley (Jones and Klar 2007). Artifacts include chipped stone crescents, a stemmed projectile point fragment, a carved stone atlatl spur and small flaked stone implements. The deposit also yielded a human skull fragment and diverse faunal assemblage. Radiocarbon dates on freshwater mussel shells dates this deposit between 7175 – 6450 B.C. No milling tools or plant remains were found in this deposit.

Despite the lack of large mammal remains at the sampled site, it is assumed that hunting large mammals was a focus of early archaic economies due to the common occurrence of large, reworked projectile points (Wallace 1991). This assumption is also evidenced by the lack of subsidiary processing tools in the valley assemblages, however, recent investigations in the adjacent Sierra Nevadas and Coast Range foothills have documented Lower Archaic sites with milling equipment and other indications on the reliance of plant foods (Jones and Klar 2007). These foothill sites appear to represent frequently visited camps in a seasonally structured settlement system (Basgall and True 1985; Hale 2001; LaJeunesse and Pryor 1996; McGuire and Hildebrandt 1994; Meyer and Rosenthal 1997; Moratto 2002; Rosenthal and McGuire 2004; Sundahl 1992). Although these relationships between foothill and valley floor assemblages are unknown, they are evident in the Middle Archaic record and it could be possible that they emerged in the Lower Archaic. Further discovery and investigation will be necessary to make this determination.

Middle Archaic (5550 – 550 B.C.)

Beginning in the Middle Archaic, two distinct settlement-subsistence patterns are shown to have been operating within central California. There is an ever-growing body of evidence for these distinct types, one on the valley floor and one entering into the foothills. Exchange of commodities such as shell beads and ornaments was also widespread during the Middle Archaic (Jones and Klar 2007).

As with the previous periods, cultural assemblages on the valley floor during the Middle Archaic are rare in the Central Valley. There are only a few isolated artifacts and four dated components, found on the valley floor, associated with this time period represented (Jones and Klar 2007). However, sites associated with the later portion of this time period are comparatively well represented. Late Middle Archaic records reveals an adaptive pattern reflecting the emergence of organized subsistence practices and residential stability along river corridors, however, origins, spatial extent and regional variability of this pattern is poorly known. Artifacts found on the valley floor consist of mortar and pestle, but not all sites where this assemblage is found have archaeobotanical evidence. Fishing seems to have taken on a role in the valley groups as new fishing technologies emerged including gorge hooks, composite bone hooks and spears, along with fish remains. Several other technologies that are common in later periods start emerging including twined basketry, basketry awls, simple pottery, other baked clay objects and personal adornments (Olsen and Wilson 1964; Ragir 1972).

Conversely, Middle Archaic sites are comparatively common in the foothills. Foothill artifact assemblages are composed almost exclusively of flaked and ground stone tools used in food procurement and processing. Rock-filled hearths and ovens are common. Projectile points dating to this period have a high degree of local and regional morphological variability along with their source materials; primarily because of reliance on local tool-stone supplements by a small percentage of stone derived from the nearest quarries. In addition, archaeobotanical assemblages from these foothill sites confirm that acorn and pine nuts were targeted plant foods (McGuire 1995; Rosenthal and McGuire 2004).

Upper Archaic (550 B.C. – A.D. 1100)

The Upper Archaic archaeological record is better represented and understood than previous time periods (Jones and Klar 2007). Cultural diversity was more pronounced and clearly reflected by distinct sociopolitical entities marked by contrasting burial postures, artifacts, styles and other elements of material culture (Jones and Klar 2007). During this time period, many specialized technologies emerged such as new types of bone tools and widespread manufactured goods. Economies varied regionally and focused on seasonally structured resources that could be harvested and processed in bulk. Large mounded villages developed in the lower Sacramento Valley, known as the Berkeley Pattern, and contain extensive accumulation of habitation debris and features that reflect long-term residential occupation (Bouey 1995). The lower foothill woodlands appear to have been a boundary area, where valley people may have periodically colonized well-watered foothill habitats along the base of the Sierra. People living in the San Joaquin Valley during the Upper Archaic still obtained obsidian from the east side of the Sierra which was transported over the mountains along well-defined, east-west travel corridors (Bouey and Basgall 1984; Ericson 1981; Jackson et al. 1994). In the southern Sacramento Valley, obsidian was obtained from quarries to the west in the North Coast ranges (Carpenter and Mikkelsen 2005).

Emergent (A.D. 1100 – Historic)

The Emergent period archaeological record is the most substantial and comprehensive available for any period, and the assemblages and adaptations represented are the most diverse (Bennyhoff 1977; Fredrickson 1974, Kowta 1988; Sundahl 1982, 1992). After approximately A.D. 1000, many archaic technologies and cultural traditions disappeared throughout the Central Valley and the onset of cultural traditions became similar to those existing at the time of European-American contact.

The Emergent Period is marked by the introduction of the bow and arrow which replaced the dart and atlatl as the favoured hunting implement (Bennyhoff 1994). An increase in variation of burial type and furnishings indicates more complex social norms (Atchley 1994). In the Sacramento Valley, large populous towns developed along the

river and similar mound villages and smaller hamlets were established in the delta region and along major tributaries (Atchley 1994; Derr 1983; Eugster 1990; Johnson and Dondero 1990; Olsen 1963; Peak et al. 1984; Schenck and Dawson 1929; Shapiro and Tremaine 1995). In the San Joaquin Valley, villages and smaller residential communities developed along the side streams of the foothills and along the river channels of the valley bottom (Olsen and Payen 1968; Pritchard 1970, 1983; Siefken 1999).

Two broad phases are recognized during the Emergent Period; the Lower and the Upper. Lower Emergent is marked by the first appearance of banjo-type ornaments as well as incised bird bone whistles and tubes, flanged soapstone pipes, and rectangular sequin beads. Upper Emergent artifacts include small corner-notched and desert series arrow points, lipped and clam disk beads and bead drills, magnesite blinders, hopper mortars and village sites with house pits (Beardsley 1955; Elsasser 1978; Fredrickson 1984; Moratto 1984; Pritchard 1970, 1983).

5.2.2 Ethnographic Setting

The study area lies within lands once held by the Miwok. The Miwok were originally composed of three divisions: Eastern (Sierra), Lake and Coast (Pritzker 1998). The Eastern Miwok occupied the foothills and wooded mountains of the Sierra Nevada. Permanent villages were below 4,000 feet elevation because the Sierra winter was too severe for year-round settlement. Seasonally, the Miwok moved from the lower foothills into the upper ranges as the snow retreated. Settlements were oriented around reliable water sources where there would be a large central village with numerous smaller hamlets located geographically within a territory (Barrett and Gifford 1933).

The Miwok had an economic subsistence based on the acorn, which was common for most of the Native Americans in the Central Valley. Dietary supplements of greens, nuts, berries, seeds and roots were relied on. Hunting of game, small mammals and birds and fishing provided protein to their diet. Their environmental setting was an important factor in their dietary habits as the savanna produced abundant acorns and edible grass seeds as well as forage for deer (Morato 2014).

The main political unit of the Miwoks was the tribelet. Each tribelet was composed of a number of lineages of extended family. These tribelets were led by chiefs whose office was hereditary and male, if possible. Inter-marriage between groups was common (Pritzker 1998).

Lowland occupation of California by the Eastern Miwok began as early as 2,000 years ago, however, occupation of the Sierra Nevada is only approximately 500 years old (Pritzker 1998).

5.2.3 Historical Background

The first Europeans to enter the Central Valley were the Spanish. An estimated 100,000 Native Americans, speaking over 30 different languages, lived in the Central Valley prior to the arrival of the Spanish (Rosenthal et al. 2007). In 1840, a 48,857 acre land grant, Rancho Arroyo Seco, was granted to Teodosio Yerba by Mexican Governor Juan Bautista Alvarado. Rancho Arroyo Seco was located in present day Amador County and located within a portion of the Project APE. Teodosio Yerba conveyed his right, title and interest in the land in 1852 to Andres Pico for 500 head of cattle. In 1861, Andres Pico sold Rancho Arroyo Seco to a firm of speculators (Thompson and West 1881).

During the time of Andres Pico's ownership of Rancho Arroyo Seco, many early pioneers settled on his land believing the land was public land belonging to the United States. These settlers planted orchards and vineyards, introduced steam power, dug ditches, built infrastructure and had a large Portuguese work force. In desperation of keeping their homes, the residents wrote a letter to President Abraham Lincoln to intercede on their behalf. This was not successful and in 1863, Union soldiers arrived in Amador County to force the settlers out of their homes (Thompson and West 1881).

Clay mining began in Amador County as early as 1864 with the opening of the Dosch Pit located between Lone and Carbondale (Carlson and Clark 1954). Four underground mines and four open pits were utilized to extract the clay. The clay was shipped to Pittsburg, California where it was used for the manufacture of fire brick (Carlson and Clark 1954). By the early 1890s, the Lone Coal and Iron Company owned approximately 33,300 acres of land within the Rancho Arroyo Seco (Boyd 1917). Amador County's mineral resources consisted of asbestos, brick, chrome, clay, coal, copper, gold, lime, sandstone, silver and soapstone (Tucker 1915).

5.2.4 Summary of Expected Site Types

Based on the background archaeological; ethnographic; and historical information, expected archaeological site types which may be present in the Project area include bedrock mortar milling stations along creeks and drainages; chipped and ground stone lithic artifact scatters; rock-filled hearths and earth ovens; small residential sites which may contain subsurface house pits; and burial locations. Historical resources which may be present in the Project area include historical railroads and associated infrastructure; settler homes and farms; and mining – related features including buildings, tailings, discharge ponds, drainage ditches, subsidence features, and refuse scatters.

5.3 Records and Background Search

5.3.1 Native American Scoping and Sacred Lands File Search

Golder contacted the NAHC on 29 July 2019. The NAHC responded on 20 August 2019 with negative results. However, the absence of specific site information in the SLF does not negate the possibility of cultural resources existing within the APE. The NAHC provided a list of Native American individuals and tribal organizations that may have knowledge of cultural resources in the area (Appendix B).

No tribal organizations had been contacted for additional information at the completion of this report. It is expected they will be contacted during a later permitting phase of the Project.

5.3.2 Previous Cultural Resource Studies

The North Central Information Center identified four previous archaeological studies within 0.25 mile of the APE (Table 2; Appendix C). One of the studies directly overlaps the APE (report number 6336).

Table 2: Previous Studies within 0.25 miles of the APE.

Report Number	Author	Year	Title	Within APE (Y/N)
6336	Ann Peak	1976	Cultural Resource Assessment of the Interpace Properties, Amador and Sacramento Counties	Y
678	Alison Macdougall	1995	Cultural Resources Investigation of PG&E's Proposed Ranchtile Distribution Feeder Main Project, Amador County, California.	N
5213	Rick Windmiller, Donald Napoli, and Jane Russell	1998	Phase I Cultural Resources Inventory Reed Minerals Permit Area Amador County, California	N
5240	Laura Leach-Palm, Patricia Mikkelsen, Jerome King, Jennifer Hatch, Bryan Larson, Julia Costello, and Monica Nolte	2004	Cultural Resources Inventory of Caltrans District 10 rural Conventional Highways: Volume I Summary of Methods and Findings: Volume II B: Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways; Volume III: Geoarchaeological Study	N

5.3.3 Previously Recorded Cultural Resources

The NCIC search located seven cultural resources within 0.25 mile of the APE (Table 3; Appendix A, Figure 2; Appendix C). One of the resources overlap with the APE and is discussed below (P-03-180).

Table 3: Previously Recorded Resources within 0.25 miles of the APE.

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year	Current NHRP / CHRP Code	Overlaps APE (Y/N)
P-03-179	CA-AMA-144	Site	Prehistoric Bedrock Milling station	1976 (T Weber/A. Peak)	Not previously provided or assessed	N
P-03-180	CA-AMA-145	Site	Prehistoric Bedrock Milling Station, Lithic Scatter	1976 (R. Weber/A. Peak)	Not previously provided or assessed	Y
P-03-765	CA-AMA-540H	Structure	Historic – era Amador Branch Railroad	2002 (B. Larson, R. Flores, JRP Historical Consulting Services)	7 – Not previously assessed	N
P-03-899	None	Building	Historic – era storage building	1998 (Donald S. Napoli)	6Z – Found ineligible	N
P-03-900	None	Building	Historic – era storage building	1998 (Donald S. Napoli)	6Z – Found ineligible	N
P-03-901	CA-AMA-000614H	Site	Historic – era mining features	1998 (R. Windmiller, consultant)	Not previously assessed	N
P-03-902	CA-AMA-000615H	Site	Historic – era foundations / structure pads	1998 (Ric Windmiller, consultant)	Not previously provided or assessed	N

P-03-180 (CA-AMA-145) is a prehistoric bedrock milling station and lithic scatter located on the north side of a seasonal creek. The original site record reports 14 bedrock mortars associated with surface chipped-stone lithic artifacts, and a cache of pestles and choppers near the milling station (Ann S. Peak and Associates 1976). No subsurface testing was completed at the site and no assessment of NHRP or CRHR status has been previously completed for the site.

5.4 Field Assessment

The field assessment was conducted on 16 to 20 September 2019 and involved surface inspection and shovel testing at two shovel test areas (STA) and one previously recorded prehistoric site (P-03-000180) (Appendix A, Figure 3). The archaeological field crew included archaeologist Emily Wilkerson and archaeological field technicians Julian Hiltbrand, Robert Paul Erickson, and Conner Brossart.

5.4.1 Surface Inspection

The archaeological crew traversed each STA, historical resource, and archaeological site in 2 to 5 m intervals to complete the surface inspection. Ground visibility was poor in all areas due to dense vegetation (e.g., low lying shrubs and tall grasses). Archaeological materials were observed on the ground surface during the inspection at one previously recorded site, P-03-180. No other archaeological or historical materials were observed on the ground surface during surface inspections.

5.4.2 Subsurface Inspection

A total of 40 subsurface shovel tests were completed during the subsurface inspections at STA – 01, STA – 02, and P-03-000180 (Appendix A, Figures 2 and 3). STA – 01 was negative for subsurface cultural material; and STA – 02 and P-03-180 were positive for subsurface cultural material.

5.4.3 Revisited Archaeological Site

Previously recorded site P-03-180 (CA-AMA-145) was revisited on 19 and 20 September 2019. It measures 46 m long (north to south), 26 m wide (east to west), with a south-facing aspect (Appendix A, Figure 4; Appendix D, Photograph 1). The site is situated on the south bank of a seasonal creek and is surrounded by relatively flat and undifferentiated terrain interspersed with bedrock outcrops. Vegetation consists of blue oak, interior live oak, wild oats, hairy golden aster, mint, grasses, foxtails, slender woolly marbles and gumweed. Observed disturbances include possible natural exfoliation of the bedrock.

A total of 28 shovel tests were systematically placed in 2.5 m to 5 m intervals in each cardinal direction to test for the presence of subsurface archaeological deposits and to define the site boundaries. In general, stratigraphy consisted of dry, medium-brown fine silty sand (0 to 5 cm below surface); underlain by dry, light reddish-brown silt with fine sand (5 to 20 cm below surface); all overlying dry, very compact, reddish-brown silty clay (20 to 50 cm below surface) (Appendix D, Photograph 2). Seven shovel tests were positive for cultural material consisting of one chipped-stone expedient flake tool and nine pieces of lithic debitage (Appendix D, Photograph 3).

Eight bedrock mortars, one chipped stone scraper, one cobble chopper, and nine ground stone pestles were observed on one rock outcrop. All but one pestle was clustered together which may represent a cache or stockpile of pestles (Appendix D, Photograph 4). No other artifacts or features were observed on the ground surface or bedrock surfaces. None of the artifacts and features are temporally diagnostic and none of the chipped stone artifacts were made from obsidian.

5.4.4 Shovel Test Areas

Two shovel test areas were identified during the pedestrian survey. STA – 01 was negative for cultural material and STA – 02 was positive for cultural material.

5.4.4.1 STA – 01: Golder T – 1

Golder T – 1 was discovered on 20 September 2019 and is situated on a rocky bench which overlooks Loch Lane to the south. It measures 5 m long (north to south), 5 m wide (east to west), with a north-facing aspect (Appendix A, Figure 5; Appendix D, Photograph 5). The site is surrounded by relatively flat and undifferentiated terrain interspersed with bedrock outcrops to the north, east and west, and is bordered by a downslope to the south which grades into Loch Lane. Vegetation consists of blue oak, interior live oak, wild oats, hairy golden aster, mint, grasses, foxtails, slender woolly marbles and gumweed. Observed disturbances include natural bioturbation from small animals.

A total of 9 shovel tests were systematically placed in 2.5 m intervals in each cardinal direction to test for the presence of subsurface archaeological deposits and to define the site boundaries. In general, tests were shallow and stratigraphy consisted of dry, medium-brown fine silty sand (0 to 11 cm below surface); underlain by dry, very compact, reddish-brown silty clay (11 to 30 cm below surface); all overlying bedrock (Appendix D, Photograph 6).

Two pieces of grey chert debitage were discovered in a single shovel test (Appendix D, Photograph 7). No other artifacts or features were observed on the ground surface or bedrock surfaces. None of the artifacts are temporally diagnostic¹ and none of the chipped stone artifacts were made from obsidian. Due to the low artifact count, the site is classified as an isolated find.

5.4.4.2 STA – 02

STA – 02 was tested on 20 September 2019. The STA is located on a rocky knoll overlooking Loch Lane to the southwest (Appendix A, Figure 3; Appendix D, Photograph 7). It measures 8 m long (north to south), 7 m wide (east to west) and is surrounded by large bedrock features and boulders on all sides. The location is surrounded by relatively undifferentiated terrain to the north, low-lying small knolls to the south, east and west, and a small drainage with flows into Loch Lane to the west. Vegetation consists of blue oak, interior live oak, wild oats, hairy golden aster, mint, grasses, foxtails, slender woolly marbles and gumweed. Observed disturbances in the immediate vicinity include natural bioturbation from small animals, and the construction of a small man-made pond to the northwest of the STA.

Three shovel tests were judgmentally placed in areas which were observed to exhibit soil development. All three were shallow, hitting bedrock between 5 and 8 cm below surface. Matrices consisted of dry, dark brown coarse-grained silty sand mixed with organics and were negative for cultural material. No further archaeological work is recommended for this area.

¹ Indicative of a particular time period.

6.0 SUMMARY AND RECOMMENDATIONS

On behalf of SGI – lone, Golder conducted an intensive cultural resources survey of the proposed mine and reclamation area expansion near lone, California. The archaeological investigations were conducted in accordance with Section 106 of NHPA and CEQA. The archaeological work included a literature review and intensive pedestrian survey to determine if the proposed project would adversely impact significant cultural resources.

The literature review conducted on 17 August 2019 revealed that four archaeological surveys and seven cultural resources are within a 0.25 mile radius of the Project area. One of the cultural resource sites (P-03-180) are located within or overlap the APE.

During the field investigation, P-03-180, was revisited and the record for the site was updated. One new isolated find, Golder T – 1, was located within the APE.

P-03-180 retains integrity of location and setting to a lesser extent. The site is not associated with a significant event (Criterion A), individual (Criterion B), or represent a unique method of construction or the work of a master (Criterion C). Therefore, the site is recommended as unevaluated for the NRHP under Criterion D and Criteria 3CS of CRHR (appears eligible for the CRHR as an individual property through survey evaluation). Avoidance of the site is recommended.

Golder T – 1 retains integrity of location and setting to a lesser extent. The resource is not associated with a significant event (Criterion A), individual (Criterion B), represent a unique method of construction or the work of a master (Criterion C), and are unlikely to provide information regarding the history of the region (Criterion D). It is considered not eligible for the CRHR. No further archaeological work is recommended for this resource.

Recommendations are summarized in Table 4.

Table 4: Site Recommendations

Site / Resource	Recommended Evaluation	Management Recommendations if Avoided	Management Recommendations if Avoidance is Not Possible
P-03-180 (CA-AMA-145)	Unevaluated under Criteria D of NRHP, and Criteria 3CS of CRHR (appears eligible for the CRHR as an individual property through survey evaluation).	Site should be demarcated in the field with protection fencing and all construction activities monitored by a qualified archaeologist if work should occur within a 20 m buffer of the recorded site boundary.	Additional consultation with a professional archaeologist to determine the best mitigation option for the type of expected impact to the site. Acceptable options for the mitigation of cultural resources under CEQA include: <ul style="list-style-type: none"> • Site Capping • Conservation Easements • Data Recovery
Golder T – 1	Not eligible for the NRHP and CRHR.	No further heritage work is recommended.	Modifications to this resource should be updated and recorded in the resource record on file with the NCIC by a professional archaeologist.

While the records search of the Native American Heritage Commission Sacred Lands File was negative for cultural resources, individual tribes were not contacted during this study. Golder recommends contacting individual tribes (Appendix B) for additional information on cultural resources not made available in the SLF or NCIC searches prior to undertaking any Project related impacts within APE.

Even the most thorough investigations may fail to reveal the presence of all archaeological materials, including those protected under the Federal, State, and local legislation. Subsurface conditions observed during development activity may differ from those on which this assessment is based. Therefore, it is recommended that an unanticipated discovery plan be implemented to help protect any cultural resources that may be inadvertently uncovered during construction. Information commonly included in these plans consists of photographs and descriptions of cultural resources common to the region; and contact information for officials to be notified if known or suspected cultural resources are encountered during construction. Typically, contacted officials include site owners, project managers, and an identified archaeological consultant. Contact information for the state coroner would also be included in the unlikely event human remains are encountered during project activities.

Based on these findings and recommendations, the proposed SGI - Lone mine and reclamation area expansion will have no adverse effect on significant cultural resources assuming significant cultural resources are avoided and provided the archaeological recommendations are adhered to.

7.0 CLOSURE

This report was prepared for the exclusive use of the SGI - Ione and any use, reliance, or decisions made by third parties on the basis of this report are the sole responsibility of such third parties.

We trust the information in this report is satisfactory for your present needs. Should you require additional information or clarification, please do not hesitate to contact the undersigned at your earliest convenience.

Golder Associates Ltd.



Emily Wilkerson, MA, RPA
Archaeologist



Andrew R. Mason, MA, RPCA
Principal and Cultural Heritage Specialist

Golder and the G logo are trademarks of Golder Associates Corporation

https://golderassociates-my.sharepoint.com/personal/ewilkerson_golder_com/documents/sgione report/1781618-cultural study 14jul_20.docx

8.0 REFERENCES

- Ann S. Peak & Associates 1976. *Cultural Resource Assessment of the Interpace Properties, Amador and Sacramento Counties, California*. Document AM-6336 on file at the North Central Information, California State University, Sacramento.
- Atchley, S. M. 1994. *A Burial Analysis of the Hotchkiss Site (CA-CCO-138)*. Master's thesis, Department of Anthropology, California State University, Sonoma.
- Barrett, S. A., and E. Gifford 1933 *Miwok Material Culture*. Milwaukee: Bulletin of the Public Museum of Milwaukee, 2:4, pp. 117-376.
- Basgall and True 1985. *Archaeological Investigations in Crowder Canyon, 1973 – 1984: Excavations at sites SBR-421B, SBR-421C, SBR421D, and SBR-713m San Bernardino County California*. Report prepared for the California Department of Transportation, District 8, San Bernardino.
- Beardsley, R. K. 1955. Functional and Evolutionary Implications of Community Patterning. *Memoirs of the Society for American Archaeology* 2:131 – 151.
- Bennyhoff J. A. 1977. *Ethnography of the Plains Miwok*. Center for Archaeological Research at Davis Publication no. 5. University of California, Davis.
- Bennyhoff J. A. 1994 The Napa District and Wappo Prehistory. In *Toward a New Taxonomic Framework for Central California Archaeology: Essays by James A. Bennyhoff and David A. Frederickson*, edited by R. E. Hughes, pp. 49 – 56. Contributions to the University of California Archaeological Research Facility 52, Berkeley.
- Bouey, P. D. 1995. *Final Report on the Archaeological Analysis of CA-SAC-43, Cultural Resources Mitigation for the Sacramento Urban Area Levee Reconstruction Project, Sacramento County, California*. Far Western Anthropological Research Group, Davis. Report on file, North Central Information Center, Department of Anthropology, California State University, Sacramento.
- Bouey, P. D. and M. E. Basgall 1984. Trans-Sierran Exchange in Prehistoric California: The Concept of Economic Articulation. In *Obsidian Studies in the Great Basin*, edited by R. E. Hughes, pp. 135 – 172. Contributions of the University of California Archaeological Research Facility 45.
- Boyde, J.C. 1917. *Map of the Rancho Arroyo Seco*. Electronic Resource, <https://archive.org/details/map1983079126>, accessed January 15, 2020.
- Carlson, D.W. and W.B. Clark 1954. *Mines and Mineral Resources of the Amador County, California*. In *California Journal of Mines and Geology*, pp. 149-285. Col. 50, No. 1., San Francisco, CA.
- Carpenter, K. L. and P. Mikkelsen 2005. *Lithic Production and Craft Specialization in the Middle Period: Data Recovery Excavations at CA-NAP-172*. Far Western Anthropological Research Group, Davis. Submitted to the State Water Resource Control Board, Sacramento, and the City of Calistoga. Copies available from Northwest Archaeological Information Center, Department of Anthropology, Sonoma State University, Rohnert Park, California.
- Davis M, Gdaniec K, Brice M, White L. 2004. Mitigation of construction impact on archaeological remains. English Heritage. University of Cambridge.

- Derr, E. H. 1983. Archaeological Investigations of a Middle/Late Horizon Village in the Lower Sacramento Valley of California. Master's thesis, Department of Anthropology, California State University, Sacramento.
- Dupre, W. R., R. B. Morrison, H. E. Clifton, K. R. Lajoie, D. J. Ponti, Leithold, W. R. Lettis, P. F. McDowell, T. K. Rockwell, J. R. Unruh, and R. S. Yeats. 1991. Quarternary Geology of the Pacific Margin. In *Quaternary Nonglacial Geology: Conterminous U.S.*, edited by R. B. Morrison, pp. 141-214. The Geological Society of America, Boulder, Colorado.
- Elsasser, A. B. 1978. Development of Regional Prehistoric Cultures. In *California*, edited by R. F. Heizer, pp. 37 – 57, Handbook of North American Indians. Vol. 8. W. G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.
- Ericson, J. E. 1981. *Exchange and Production Systems in California Prehistory: The Results of Hydration Dating and Chemical Characterization of Obsidian Sources*. British Archaeological Reports, International Series no. 110.
- Eugster, S. E. 1990. Freshwater Mussel Utilization at a Late Prehistoric Period Archaeological Site (CA-BUT-12) in the Northern Sacramento Valley, California. Master's thesis, Department of Anthropology, California State University, Chico.
- Fredrickson, D. A. 1974. Cultural Diversity in Early Central California: A View from the North Coast Ranges. *Journal of California Anthropology* 1:41 – 54.
- Fredrickson, D. A. 1984. The North Coastal Region. In *California Archaeology*, edited by M. J. Morratto, pp. 471 – 527. Academic Press, New York.
- Groza, R. G. 2002. An AMS Chronology for Central California *Olivella* Shell Beads. Master's thesis, Department of Anthropology, California State University, San Francisco.
- Hale, M. J. 2001. Technological Organization of the Millingstone Patterns in Southern California. Master's thesis, California State University, Sacramento.
- Jackson, R. J., T. Jackson, C. Miksicek, K. Roper, and D. Simons 1994. *Framework for Archaeological Research and Management, National Forests of the North Central Sierra Nevada: Unit III, Special Studies and Research Data. Vol. C. Projectile Point Compendium*. Prepared by BioSystems Analysis, Sacramento. Submitted to USDA Forest Service, Eldorado National Forest, Placerville. Report on file, North Central Information Center, California State University, Sacramento.
- Johnson, J. J., and S. B. Dondero 1990. *Excavations at Archaeological Site CA-THE-10, Cemetery I: Black Butte Lake, Glenn and Tehama Counties, California*. The Hornet Foundation, California State University, Sacramento. Submitted to U. S. Army Corps of Engineers, Sacramento. Copies available from the North Central Information Center, Department of Anthropology, California State University, Sacramento.
- Jones and Klar 2007. *California Prehistory; Colonization, Culture, and Complexity*. Rowman & Littlefield Publishers, Inc.
- Kowta, M. 1988. *The Archaeology and Prehistory of Plumas and Butte Counties, California: An Introduction and Interpretive Model*. Report on file, North Central Information Center, Department of Anthropology, California State University, Sacramento.

- LaJeunesse, R. M., and J. M. Pryor 1996. *Skyrocket Appendices*. Report on file, Department of Anthropology, California State University, Fresno.
- McGuire, K. R. 1995. *Test Excavations at CA-FRE-61, Fresno County, California. Occasional Papers in Anthropology no. 5. Museum of Anthropology, California State University, Bakersfield.*
- McGuire, K. R. and W. R. Hildebrandt 1994. The Possibilities of Women and Men: Gender and the California Millingstone Horizon. *Journal of California and Great Basin Anthropology* 16:41 – 59.
- Meyer, J. and J. S. Rosenthal 1997. *Archaeological and Geoarchaeological Investigations at Eight Prehistoric Sites in Los Vaqueros Reservoir Area, Contra Costa County, California*. Anthropological Studies Center, Sonoma State University Academic Foundation, Rohnert Park, California. Submitted to the Contra Costa Water District, Concord, California. Copies available from the Northwest Information Center, Sonoma State University, Rohnert Park.
- Moratto, M. J. 1984. *California Archaeology*. Academic Press. Cambridge, MA.
- Moratto M. J. 2002. Culture History of the New Melones Reservoir Area, Calaveras and Tuolumne Counties, California. In *Essays in California Archaeology: A Memorial to Franklin Fenenga*, edited by W. J. Wallace and F. A. Riddell, pp. 25 – 54. Contributions of the University of California Archaeological Research Facility no. 60.
- Moratto, M. J. 2014. *California Archaeology*. Academic Press. Cambridge, MA.
- Natural Resource Conservation Service (NRCS) 2020. Web Soil Survey. Electronic resource <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>, accessed January 13, 2020.
- Napoli, D.S. 1998a. Record prepared for P-3-899. On file at the North Central Information Center, California State University, Sacramento.
- Napoli, D.S. 1998b. Record prepared for P-3-900. On file at the North Central Information Center, California State University, Sacramento.
- Olsen, W. H. 1963. The Comparative Analysis of the King Brown Site (4-SAC-29). Master's thesis, Department of Anthropology, California State University, Sacramento.
- Olsen, W. H., and L. A. Payen 1968. *Archeology of the Little Panoche Reservoir, Fresno County, California*. California Department of Parks and Recreation Archeological Report no. 11.
- Olsen, W. H., and N. L. Wilson 1964. *The Salvage Archeology of the Bear Creek Site (SJO-112), a Terminal Central California Early Horizon Site*. Sacramento Anthropological Society Papers 1.
- Peak, A. S., H. L. Crew, and R. A. Gerry 1984. *The 1971 Archaeological Salvage of the Bennett Mound, CA-SAC-16, Sacramento County, California*. Peak and Associates, Sacramento. On file with Peak and Associates.
- Pritchard, W. E. 1970. *Archeology of the Mejoulet Site, Merced County, California*. Archaeological Resources Section Report 13. California Department of Parks and Recreation, Sacramento.
- Pritchard, W. E. 1983. Archaeological Testing of Three Kahwathwah Yokuts Dwelling Structures at the San Luis Forebay Site (CA-MER-119), Merced County, California. In *Papers in Merced County Prehistory*, pp. 86 – 103. *University of California Archaeological Survey Reports* no. 21.

- Pritzker, B. M. 1998. *Native Americans: An Encyclopedia of History, Culture, and Peoples. Volume 1.* ABC-CLIO, Inc. Santa Barbara, CA.
- Ragir, S. 1972. The Early Horizon in Central California Prehistory. *Contributions of the University of California Archaeological Research Facility* 15.
- Rosenthal, J. S., and K. R. McGuire 2004. *Middle Holocene Adaptations in the Central Sierra Foothills: Data Recovery Excavations at the Black Creek Site, CA-CAL-789.* Far Western Anthropological Research Group, Davis. On file with the Central California Information Center, Department of Anthropology, California State University, Stanislaus, Turlock.
- Rosenthal, J. S., and J. Meyer 2004a. *Landscape Evolution and the Archaeological Record: A Geoarchaeological Study of the Southern Santa Clara Valley and Surrounding Region.* Center for Archaeological Research at Davis Publication no. 14. University of California, Davis.
- Rosenthal, J. S., and J. Meyer 2004b. Cultural Resources Inventory of Caltrans District 10, Rural Conventional Highways. In *Geoarchaeological Study. Vol. 3, Landscape Evolution and the Archaeological Record of Central California.* Far Western Anthropological Research Group, Davis, California.
- Rosenthal, J. S., G. G. White, and M. Q. Sutton. 2007. The Central Valley: A View from the Catbird's Seat. In *California Prehistory; Colonization, Culture, and Complexity.* Pp. 147 to 163. Rowman & Littlefield Publishers, Inc
- Schenck and Dawson 1929. Archaeology of the Northern San Joaquin Valley. *University of California Publications in Archaeology and Ethnology* 25:289 – 413. University of California Press, Berkeley.
- Shapiro and Tremaine 1995. *Final Report for the Archaeological Investigation of the Wiegand Property, Dixon, California.* On file with the North Central Information Center, Department of Anthropology, California State University, Sacramento.
- Siefken, N. 1999. Archaeology of the Redtfeldt Mound (CA-KIN-66), Tulare Basin, California. Master's thesis, Department of Sociology and Anthropology, California State University, Bakersfield.
- Storer, T. I., R. L. Usinger, D. Lukas 2004. *Sierra Nevada Natural History.* University of California Press. Berkeley, CA.
- Sundahl, E. M. 1982. The Shasta Complex in the Redding Area, California. Master's thesis, Department of Anthropology, California State University, Chico.
- Sundahl, E. M. 1992. Cultural Patterns and Chronology in the Northern Sacramento River Drainage. In *Proceedings of the Society for California Archaeology* 5, edited by M. D. Rosen, L. E. Christenson, and D. Laylander, pp. 89 – 112. Society for California Archaeology, San Diego.
- Thompson & West 1881. *History of Amador County, California.* Pacific Press Publishing House, Oakland, California.
- Tucker, W. B. 1915. *Mines and Mineral Resources of Amador County, Calaveras County, Tuolumne County.* California State Mining Bureau, San Francisco, California.

Wallace, W. J. 1991. Tulare Lake's Archaeological Past. In *Background to a Study of Tulare Lake's Archaeological Past*. Pp. 23 – 33. Contributions to Tulare Lake Archaeology I.

Williams, J., Corfield M. 2003. Construction impacts on in situ preservation of archaeological sites. In: Kozlowski R, editor. Proceedings of the 5th European Commission conference on research for protection, conservation and enhancement of cultural heritage; 16–18 May 2002; Krakow, Poland. Polish Academy of Science. p. 276–279.

Windmiller, R. 1998a. Record prepared for P-3-901. On file at the North Central Information Center, California State University, Sacramento.

Windmiller, R. 1998b. Record prepared for P-3-902. On file at the North Central Information Center, California State University, Sacramento.

Windmiller, R., D.S. Napoli and J. Russell 1998. *Phase I Cultural Resources Inventory, Reed Minerals Permit Area, Amador County, California*. Document AM-5213 on file at the North Central Information Center, California State University, Sacramento.