G. CULTURAL RESOURCES ASSESSMENT

SUPPLEMENTARY PHASE I SURVEY AND ARCHAEOLOGICAL EVALUATION (PHASE II) REPORT

WILLOW ROAD EXTENSION PROJECT
COMMUNITY OF NIPOMO, COUNTY OF SAN LUIS OBISPO, CALIFORNIA

CA-SLO-1767, CA-SLO-2271, P-40-038219, P-40-038220, LSA-RAJ334-I-5, and LSA-RAJ334-I-6

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National Archaeological Data Base Information:

USGS Quadrangles: Nipomo and *Oceano* 7.5'
Area Covered: ~100 acres
Sites Identified: CA-SLO-1767, CA-SLO-2271, P-40-038219, P-40-038220, LSA-RAJ334-I-5, LSA-RAJ334-I-6
Keywords: Chumash, Geoarchaeological Trenching, Lithic Reanalysis, Nipomo Creek, Nipomo Dunes, Nipomo Mesa, *Tivela* Radiocarbon Date, Survey, CEQA

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SUMMARY OF FINDINGS

This document describes the results of additional surveys and evaluates site importance and eligibility for listing in the California Register of Historical Resources (California Register) pursuant to the California Environmental Quality Act (CEQA) for several cultural resources not previously addressed for the Willow Road Extension Project. The project, a cooperative effort of the Federal Highway Administration (FHWA), the California Department of Transportation (Caltrans), and the County of San Luis Obispo (County), is the construction of a new segment of Willow Road between US Route 101 (US 101) and Thompson Road, a frontage road between Willow Road and Sandydale Drive, and an interchange along U S 101 in the community of Nipomo, San Luis Obispo County, California.

Additional surveys for the project included pedestrian surface surveys and subsurface trenching surveys. First, a pedestrian survey was conducted between US 101 and Thompson Road. Two isolated finds were found during this survey: a retouched chert flake (LSA-RAJ-334-I-5) and a small chert core (LSA-RAJ334-I-6). Additional intensive pedestrian surveys were conducted west of US 101 and north of Willow Road in the vicinity of two previously identified isolated finds, P-40-038219, a Pismo clam *(Tivela stultorum)* shell fragment, and P-40-038220, a chert flake scraper.

Second, subsurface geoarchaeology backhoe trenching was conducted in the area west of US 101 where the Willow Road interchange is proposed. The purpose of trenching was to identify cultural resource sites as well as the potential for cultural resource sites to occur. Three trenches were excavated to depths of 3.0–4.6 m (10–15 ft). No cultural resources were found during trenching. Trenching also identified clay lamellae at depths of 1.8–3.0 m (6–10 ft). These clay lamellae, or lenses of accumulated silt and clay particles, take thousands of years to form and mark the depth below which cultural resource sites will not occur.

Site importance was then determined for the four isolated finds (P-40-038219, P-40-038220, LSA-RAJ-334-I-5, and LSA-RAJ334-I-6), as well as for previously recorded cultural resource sites CA-SLO-1767 and CA-SLO-2271. Careful survey in the area of these four isolated finds failed to identify additional cultural material that would indicate they were archaeological sites. Under CEQA, isolated finds are not important. As such, the four listed isolated finds are not eligible for listing in the California Register.

Site CA-SLO-1767 was previously tested by Lebow et al. (2001), who showed the site to be a moderately dense deposit limited to lithic debris occurring to a maximum depth of 80 cm in an area measuring 90 x 220 m (295 x 722 ft). Previous excavation included 34 shovel test pits (STPs) and five 1 x 1 m excavation units. A total of 6.35 m^3 of sediment was excavated. Several obsidian flakes from the site were used to identify a general period of site use from approximately 3000–1000 BC. This was the most accurate temporal estimation possible due to the absence of organic material from the site.

Reanalysis of the lithic material from CA-SLO-1767 included both standard and minimum analytical nodule (MAN) studies. MANs are distinctive variants of standard lithic materials. These studies showed no evidence of multicomponent site use, no episodes of discrete lithic reduction, and except for a small decrease in lithic quantity in the 0–10 cm levels, no evidence of postdepositional formation processes. The study showed that local Monterey chert was used for tool retouch and sharpening and also, to a lesser extent, to produce expedient flake stone tools thought to have been used for collection and processing of vegetal materials for manufacture of such items as cordage, basketry, and bow and arrows. Previous excavation produced repetitive lithic data. Due to the limited type of material at the site and the absence of a variety of archaeological materials, this site contains insufficient information to answer important regional research questions. The limited data also is insufficient to accurately identify temporal placement in order to place the site into its proper chronological setting. For these reasons, it is recommended that the site is not important under CEQA and is not eligible for listing in the California Register.

Site CA-SLO-2271 consists of a few legal-sized Pismo clam *(Tivela stultorum)* scattered in a 47 x 17 m (154 x 56 ft) area in open field. The current study submitted one clamshell, which produced an intercept date of ca. 1919 (Cal BP 40), indicating that the shell is historic and was dumped about 1910. This radiocarbon date indicates the site is a historic shell dump. As such, the site contains no information concerning the prehistory of the area, and since only shell exists at this site, there is an insufficient diversity of historic material to answer important research questions concerning the historic era. Based on this information, it is recommended that CA-SLO-2271 is not important and therefore not eligible for listing in the California Register.

No additional cultural resource work is recommended for sites CA-SLO-1767, CA-SLO-2271, or for isolates LSA-RAJ-334-I-5, LSA-RAJ334-I-6, P-40-038219, or P-40-038220. However, because there is a high sensitivity for cultural resources in the area, it is recommended that cultural resource monitoring occur during all ground-disturbing construction activities above 3.0 m (10 ft) depth, due to the potential for their occurrence.

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I. INTRODUCTION

A. PROPOSED HIGHWAY PROJECT

The FHWA, Caltrans, and the County propose to construct a new interchange along US 101 in the Community of Nipomo, San Luis Obispo County, California. The proposed Willow Road Extension project includes construction of a new segment of Willow Road between US 101 and Thompson Road and a frontage road between Willow Road and Sandydale Drive. The County is also planning to extend Willow Road from its existing terminus approximately 500 feet west of Pomeroy Road to the proposed new interchange at US 101, construct a park-and-ride lot, and install four drainage infiltration basins (Appendix A: Maps 1 and 2). The Willow Road Extension project is subject to compliance with CEQA. This cultural resource investigation constitutes part of the effort to satisfy the requirements of CEQA.

B. NATURE AND PURPOSE OF ARCHAEOLOGICAL INVESTIGATIONS

LSA Associates, Inc. (LSA) conducted a cultural resources records search and a pedestrian archaeological survey of the project area (S. Pletka and N. Pletka 2003). Five archaeological sites and two isolated artifacts are located within the Area of Direct Impacts (ADI): CA-SLO-1319H, CA-SLO-1620, CA-SLO-1767, CA-SLO-2133, CA-SLO-2271, P-40-038219, and P-40-038220. The ADI includes the limits of all proposed ground-disturbing activity. The archaeological Area of Potential Effects (APE) encompasses the ADI and includes adjacent archaeological sites in their entirety. The ADI and the archaeological APE are depicted on the APE map (Appendix A: Map 3).

Several areas within the ADI required additional survey. While the survey examined the surface for traces of archaeological sites and other cultural resources, some areas were obscured by heavy vegetation, and sites could have been buried by locally shifting sands within Nipomo Mesa. In order to lessen the possibility of missing undocumented resources, LSA conducted supplementary surface surveys and geoarchaeological trenching in these areas. To identify sites buried by sand, a series of backhoe trenches was excavated within the portion of Nipomo Mesa where the interchange is proposed. All trenches were examined for direct evidence of buried sites, such as artifacts and features. However, the purpose of these trenches was to look for buried cultural resources, as well as to determine the potential for buried resources based on the degree of soil development and sediment stability evident in the trench profiles.

LSA performed additional studies at the previously-identified sites within the ADI as required by Caltrans. Most sites within the ADI had already been evaluated for their eligibility for listing in the California Register. LSA previously found that site CA-SLO-1319H—a remnant of the Pacific Coast Railroad—did not appear eligible for listing in the California Register since it lacks integrity (Marvin 2004). Sites CA-SLO-1620 and CA-SLO-2133 were previously evaluated and found eligible for the California Register (Gibson and Parson 1997). These sites required no additional studies or treatments.

Several other sites within the ADI did, however, require additional study. CA-SLO-1767 was previously evaluated and found ineligible for the National Register of Historic Places (National

Register) but was not evaluated for eligibility for listing in the California Register (Lebow et al. 2001). CA-SLO-2271 had never been tested for eligibility for listing in the register. LSA performed this evaluation. A single shell sample from CA-SLO-2271 was submitted to Beta Analytic, Inc. for radiocarbon analysis, while intensive surface survey occurred in the areas around the two isolated finds.

C. FIELDWORK AND PERSONNEL

Scott Pletka, Ph.D., RPA, served as the senior author for the original testing plan, conducted the supplementary field survey, and recorded the lithic types and other data for the reanalysis of the existing collections. Dr. Pletka meets the Secretary of Interior's standards for a professional archaeologist. Dr. Pletka has over six years of experience in California as well as several years of experience directing archaeological projects overseas. He also possesses expertise in lithic artifact and fish bone analysis.

Ivan Strudwick, M.A., RPA, conducted supplemental field investigations, reported the results of the reanalysis of material from CA-SLO-1767, and authored the results of fieldwork for this report. During the past 25 years, Mr. Strudwick has conducted archaeological investigations throughout California, including on California's Channel Islands. His specialty is the identification of marine shellfish and maritime artifacts, and he published the results of recent investigations on prehistoric dwelling construction techniques.

Nicole Pletka, B.A., was the junior author for the testing plan and assisted with reanalysis of existing collections. She has worked in California for over three years and possesses expertise in GIS analysis. Ms. Pletka is currently completing her Masters degree in Anthropology at California State University, Long Beach. Expected completion date is May 2005.

Christopher Roberts, B.A., conducted the field investigations. Mr. Roberts has extensive prehistoric and historic excavation experience, having spent the past eight years conducting fieldwork for various projects throughout southern California, including on the Channel Islands with the University of California, Santa Barbara, field school. His specialty is historic resource identification, especially for the Spanish Colonial era. Mr. Roberts has spent the past four years conducting excavation and laboratory analysis of excavated material at the Santa Barbara Presidio.

John Odom, Northern Chumash Council Native American, conducted field investigations and, as a Native American, monitored all field work for this project. Mr. Odom has been working as a Native American monitor for over 20 years and has assisted with archaeological excavation for over 7 years. Mr. Odom's experience is within Obispeño Chumash territory.

D. PERMISSION FOR LAND ACCESS

LSA or the County contacted all landowners prior to work on private property. Landowners had already received a letter from the County stating that archaeologists would require access to their land for the Willow Road Extension Project. Additionally, LSA or the County sent specific landowners a second letter one week prior to conducting ground-disturbing activities. LSA or the County followed up with a telephone call. Contacted by telephone were Charles Mehlschau, Andrew and Susan Hemrick, Mike Calvetto at C&M Nursery, Kim Walenius at Canada et al., and Salvador and Helen Ortiz at the Powers of God Church.

In addition, LSA contacted Underground Services Alert (USA) five working days prior to the initiation of any ground-disturbing activities. USA is a free service that provides information regarding buried utilities. A representative from USA contacted each utility known to provide service in the project vicinity. LSA then spray-painted the testing area to delineate the location of proposed subsurface testing. Subsequently, individuals from the various utilities contacted by USA indicated those areas where buried utilities existed so that they could be avoided during subsurface testing.

LSA archaeologists also consulted with project biologists to avoid disturbing sensitive biological species during subsurface excavations. Two areas were specified for avoidance. One was inside the oak tree drip-line for backhoe trench excavation, and the second was the location of two manzanita bushes located within the Caltrans US 101 right-of-way. These areas were avoided as requested.

E. CURATION

Materials recovered during excavations have been curated at the San Luis Obispo County Archaeological Society (SLOCAS) Research and Collections Facility in San Luis Obispo, California. This curation facility meets the standards of the State Historical Resources Commission for the curation of archaeological collections (State Historical Resources Commission 1993). Appendix B contains a copy of the collection agreement.

Project documents that will be useful for future interpretation of the collection materials have also been curated. These documents include field notes, maps, laboratory notes, an artifact catalogue, and the final report. In addition, the collection catalogue has been submitted as an unbound computer printout with catalogue entries in numerical order and as an Access database file on a 3.5 HD. All paperwork has been photocopied onto archival quality paper.

The final report has also been submitted to several other institutions. Copies have been submitted to the County and the Central Coast Information Center. Copies will also be maintained in the project files at LSA.

F. NATIVE AMERICAN CONSULTATION

During the initial consultation with Native Americans, several individuals and/or tribes expressed concern over the destruction of archaeological sites and requested Native American monitors to be present during all ground-disturbing activities. These individuals and groups included Lei Lynn and Peggy Odom of the Northern Chumash Council and the Santa Ynez Band of Chumash Mission Indians. LSA encouraged all of these interested entities to participate in the project, but the Santa Ynez Band of Chumash stated that for all projects in the Nipomo area, they defer to Lei Lynn and Peggy Odom of the Northern Chumash Council. Thus, the Northern Chumash Council monitored all archaeological activities conducted for this project.

II. SETTING

A. ENVIRONMENT

Available Resources

The project area is located within the southern portion of the Coast Ranges Province. The Coast Ranges formed from the movement of the Pacific plate past the North American plate. The resulting pressures folded the North American plate, creating a series of northwest-southeast trending ridges and valleys. The tectonic processes that created the mountains and valleys also raised the coastline. Tectonic uplift and fluctuations in Pleistocene sea levels combined to create a series of coastal terraces. Rivers draining from the mountains ran through the rising terraces on their way to the ocean, forming coastal valleys.

Strong winds blowing from the ocean have created large coastal dune fields on the terraces of the Santa Maria River Valley. Three sets of dunes formed during three different periods of activity (Orme and Tchakerian 1986; Sharp and Glazner 1993). The youngest, active dunes extend from the shoreline several miles inland. A set of older, stabilized dunes lies just inland of the active dunes. These dunes stabilized between 2,000 and 9,000 years ago (Orme and Tchakerian 1986; Sharp and Glazner 1993). As the younger dunes slowly expanded inland, they filled in gaps between the older dunes, creating many depressions that filled with fresh ground water. Small lakes, ponds, and marshes thus have been created between the younger and older dunes, creating a rich wetland environment. The oldest and largest portion of the Nipomo Dunes, the Nipomo Sand Lobe, also known as Nipomo Mesa, extends 11 miles (17.6 km) east and southeast from the younger dunes. In the approximately 10,000 years since having stabilized by vegetation, they have experienced much weathering (Sharp and Glazner 1993).

Landform in the region has greatly influenced the distribution of archaeological sites and historic settlement. The project area sits at the boundary between Nipomo Mesa and Nipomo Valley. Nipomo Creek runs along the eastern base of the slope leading up to the Mesa. Several smaller creeks drain into Nipomo Creek. Periodic flooding of the drainages of Nipomo Valley could have buried archaeological sites. Since the dunes of the Nipomo Sand Lobe have been stable for most of the time during which humans occupied the coast, most archaeological sites within the Nipomo Mesa region probably lie at or near the surface.

The different landforms and habitats in the region influenced how humans settled and used the landscape. This also affected both precontact and historic-era land use. For example, the sandy sediment of Nipomo Mesa is not optimal for growing many crops, but is suitable for cattle grazing. The alluvial sediment of Nipomo Valley east of Nipomo Creek is suitable for farming.

Since water is a limiting resource for settlement in the region, Nipomo Creek and its tributaries probably served as important focal points for early settlement. In the transitional zone between Nipomo Mesa and Nipomo Valley, a variety of useful resources also exists. Grassland and oak trees once covered much of the mesa edge. The oak have been cleared from many areas to create open agricultural fields. The oak and grasslands provided many important food resources such as acorns, seeds, and game animals such as deer, rabbit, and other small rodents. In addition, riparian vegetation along Nipomo Creek also provided economically important plants such as sycamore and willow, used for dwelling construction (Kroeber 1925:557; Strudwick 2004).

The local Chumash groups typically exploited these resources using stone tools, making the raw lithic material used in the production of such tools an important resource. Raw lithic materials were locally and regionally available. Monterey chert occurs in the foothills bordering Nipomo and in the valleys to the south. Other raw lithic materials such as fine-grained volcanic rocks and chalcedony are also available in these areas.

Paleoenvironment and Resources

Climatic changes altered the distribution and availability of important plant and animal species. Both precontact and historic era settlers had to contend with sometimes dramatic changes in environmental conditions. It is helpful to understand these changes in order to account for technological and social adaptations that emerged in response.

Although the Holocene climate in general has been considerably more stable than the late Pleistocene climate (GRIP 1993; Ditlevsen et al. 1996), California has experienced rapid changes in climatic and environmental conditions over the past 10,000 years. The climate was relatively warm during the Early Holocene except for a brief cold period. Consequently, sea levels rose steadily as ice, formerly trapped in glaciers during the preceding Pleistocene Epoch, was freed in the form of water (Inman 1983). The resulting rise in sea level produced rich estuarine and near shore habitats, including rocky reefs and kelp beds.

The beginning of the Middle Holocene exhibited little inter-annual variability (Davis 1999; Overpeck and Webb 2000). The climate remained warm (GRIP 1993), while coastal areas became drier (Axelrod 1981; Heusser and Sirocko 1997; Davis 1999). Sea levels stabilized at roughly modern levels, which provided time for estuaries to slowly fill with sediment carried by inflowing rivers. Sea level stabilization may have initially increased the diversity of estuarine habitats, providing niches for plant and animal species that prefer both rocky and sandy bottom habitats. Ultimately, however, sediment infilled most of the lagoons and led to the transport of sand southward along the coast. Estuarine productivity therefore began to decline during the Middle Holocene as near-shore substrates changed and lagoons shrank.

Various lines of evidence attest to considerable environmental variability during the Late Holocene (e.g., Quinn 1992; Jones and Kennett 1999; Field and Baumgartner 2000; Kennett and Kennett 2000; deMenocal 2001). Although it may have been cool during this time (GRIP 1993) and initially moist (Axelrod 1981; Goman and Wells 2000), periodic drought afflicted the west during the Late Holocene (Dean 1988, 1996; Stine 1994; Hughes and Graumlich 1996; Ingram et al. 1996; Cook 2000; deMenocal 2001). Within the past 750 years there have been 200-year periods that were generally wetter and drier, and within these periods, shorter intervals of wet and dry climate lasting 40 to 160 years (Ingram et al. 1996). It was this environmental variability to which human groups occupying the coastal regions of California were forced to adapt.

B. ARCHAEOLOGY

Terminal Pleistocene

The first settlement in California is now thought to have occurred during the Terminal Pleistocene. Early sites on the Channel Islands date to well before 10,000 years ago (Erlandson et al. 1996; Rockwell and Stafford 2003). Although archaeologists have traditionally assumed that the first California inhabitants arrived from inland areas, groups could have migrated into the region while moving down the Pacific Coast (Erlandson and Rick 2004). The presence of early archaeological sites on the Channel Islands indicates that the earliest inhabitants had seaworthy boats. Furthermore, evidence at sites dating to the Terminal Pleistocene and Early Holocene increasingly suggests that the early inhabitants of coastal California relied on marine resources and seeds and thus followed a subsistence strategy quite distinct from the big-game hunters of the Great Plains (Greenwood 1972; Rick et al. 2001; Jones et al. 2002). Several Clovis points have been found in San Luis Obispo County, but these points are not associated with other archaeological evidence (Erlandson and Rick 2004). As such, it is difficult to associate these points with a definitive subsistence strategy.

While linguistic evidence attests to considerable population movement following the initial settlement of California, as well as much later (e.g., Kroeber 1925:578-580), occupation along the central coast may have considerable antiquity and stability. The Chumash languages, spoken by coastal groups from Malibu to San Luis Obispo at the time of European contact, bear no relationship to any other languages in California (Golla 2004). It is possible that the tribes speaking the Chumash languages may thus be descendents of the first immigrants to settle in California.

Early Holocene

The rapid rise in sea level following the end of the Ice Age diminished the extent of coastal plains and flooded coastal river valleys while creating estuaries and providing new opportunities for coastal hunter-gatherers. The coastal environment was productive during the Early Holocene. The first well-documented settlement along the central coast took place during this period (e.g., Jones et al. 2002), and early sites clustered around the newly formed estuaries (Erlandson 1994). Coastal sites dating to this period are rare; coastal erosion has probably destroyed traces of most early settlements. Archaeological material from early sites attests to a subsistence economy focused on the procurement of shellfish and seeds. Milling equipment such as manos, metates, and shellfish remains are abundant in sites dating to this period. This is similar to what is being found in southern California (Drover et al. 1983). Toolmakers produced few formal flaked stone tools during this period. Although the Early Holocene settlers of the central coast have often been regarded as quite mobile (e.g., Dietz and Jackson 1981; Glassow 1991, 1996), evidence from some sites indicates that occupation occurred on a year-round basis (Jones et al. 2002).

Middle Holocene

Along the coast, exploitation of the environment intensified during the Middle Holocene, perhaps in response to the declining productivity of estuaries, dry climatic conditions, or a population increase (Glassow 1996; Glassow et al. 1988). Technological change attests to this intensification. The use of mortars and pestles became common (Glassow et al. 1988; Glassow 1991, 1996), and formal projectile point types appear more commonly on sites. Toolmakers produced some of these bifaces for exchange (Arnold 1992b). The range of food types expanded, and groups relied more on fish and game than previously. The frequency of dated sites nevertheless declines throughout southern and central California during the early portion of the Middle Holocene (Breschini et al. 1992; Glassow 1996). At the end of the Middle Holocene, the frequency of dated sites rebounds, then decreases again by the end of the period (Breschini et al. 1992; Glassow 1996).

Late Holocene

Between the late portion of the Middle Holocene and early portion of the Late Holocene, the number of radiocarbon-dated sites is relatively stable in frequency (Breschini et al. 1992; Glassow 1996). Gradually, however, the number of dated sites increases (Breschini et al. 1992; Glassow 1996). In some areas, settlement systems grew in complexity, although the exact nature of these changes is unclear (Bamforth 1991). Changes in settlement along the central coast did not occur in a gradual, progressive fashion. In this region, groups abandoned most sites occupied prior to AD 1300 and settled in new locations (Jones et al. 1999; Jones and Ferneau 2004). Settlement occurred more frequently at inland locations after AD 1300.

In southern California, intensification and diversification of subsistence practices is a notable component of prehistoric culture during the Late Holocene. This is not the case in central California. New technologies for exploiting the marine environment appeared throughout southern and central California during this period, including circular shell fishhooks (Rick et al. 2002) and the bow and arrow. Groups in southern California also developed seaworthy plank canoes, which they used for fishing and transporting trade goods (Arnold 1995). Central coast groups did not adopt the plank canoe. Ethnohistorically, the plank canoe was only observed in the Santa Barbara area (Strudwick 1986:9-27). Elsewhere, from San Diego to San Francisco, when a native canoe was observed, it was made of tule or bulrush. North of Point Conception, the coast is exposed to westerly winds, strong winter storms, and heavy surf (Kroeber 1925:551), which limited the usefulness of the relatively small plank canoe. Thus, north of Point Conception, canoes were only regularly used in bays, where they did not need to be manufactured of wood.

During the early part of the Late Holocene, some central coast groups began to fish and hunt for sea mammals more frequently than they had in earlier times. Other central coast groups, such as those inhabiting CA-SLO-2 near the mouth of Diablo Canyon, continued to rely more on shellfish (Greenwood 1972). Between AD 1000 and 1300, central coast groups turned to terrestrial resources for much of their subsistence needs (Jones and Ferneau 2004).

The economic adaptations of indigenous southern and central Californian culture groups diverged in other ways. Channel-area and Vandenberg groups became more economically interdependent during the Late Holocene. These groups exported the goods that were easiest for them to produce and received goods that they could not obtain as easily. Some of the Vandenberg-area Chumash groups made bifaces for exchange (Arnold 1992b). They received beads and probably other goods in return (Glassow 1996). While household specialization and hereditary inequality emerged late in this period among groups within the Santa Barbara Channel area (King 1982; Martz 1984; Arnold 2001; cf. Gamble et al. 2002), such institutions apparently did not emerge along the central coast, where population density was much lower.

On the Channel Islands, elite individuals apparently controlled access to oceangoing canoes and thus controlled the means of distribution for the goods that craft specialists produced (Arnold and Munns 1994; Arnold 1995; Gamble et al. 2002). These individuals served as middlemen in exchange (Pletka 2001a). The emergence of hereditary elite in the Channel area occurred under particularly poor environmental conditions (Arnold 1992a, 2001; Kennett and Kennett 2000).

A variety of evidence attests to poor environmental conditions between AD 900 and 1300. Interpersonal violence and poor health peaked during this period (Walker 1986, 1989; Lambert 1994; Lambert and Walker 1991). On the central coast, these conditions disrupted settlement (Jones et al. 1999; Jones and Ferneau 2004). Poor environmental conditions may have stimulated the development of more complex social organization in the northern Channel Islands and adjacent mainland and may have allowed some individuals to exploit their control over plank canoes (Arnold 1992a, 2001; Arnold et al. 1997). Similar environmental conditions probably did not affect northern Chumash in the same fashion, however. The northern Chumash did not readily use the plank canoe in the rough seas north of Point Conception. These groups may have relied on flexible social ties, rather than formal social and economic relationships, to adapt to variable Late Holocene conditions.

Discussion

The significance of many of the observed changes in the archaeological record has yet to be fully resolved. Many of the remaining questions concern how environmental changes influenced group adaptations. For example, new technological innovations occurred throughout prehistory. Did such innovations occur at a constant rate, without respect to the need for such innovations (Dunnell 1978), or did poor environmental conditions motivate experimentation among toolmakers (Fitzhugh 2001)? The number of archaeological sites dating to a given period did not remain constant over time. Trends in the number of dated components may reflect fluctuating population levels, or they may reflect changes in the extent of residential mobility. Many interpretations of Chumash settlement describe a shift from foraging to collecting, which may have occurred at various times (Bamforth 1986; Glassow 1996). While changes in site size and assemblage diversity are evident in the archaeological record, such variation could result from changes in such factors as group size, duration of occupation, and frequency of occupation. The role of such variables must be identified in order to fully understand past patterns of settlement mobility. Clearly, Channel-area Chumash groups developed economic strategies for coping with Late Holocene environmental variability. The effect of such variability on northern Chumash groups is less clear, however. How did northern Chumash groups adapt to periodic drought and other conditions? The ethnographic record attests to the role played by environmental variability in shaping economic and social adaptations.

C. ETHNOGRAPHY

At the time of European contact, the Chumash inhabited the project area. The Chumash occupied the California coast from Malibu north to Estero Bay and San Luis Obispo, the adjacent inland region east to the edge of the Central Valley, as well as the northern Channel Islands (Kroeber 1925:551). The Chumash language is from the Hokan language family and is similar to Salinan, Pomo, Washo, Yana, Shasta, and Karok groups to the north, and to Yuman groups to the south. Interestingly the Takic, or "Shoshonean" language group to the south separates the Chumash from the Yuman, while to the north the Penutian language group separates the Chumash from the northern Hokan speakers. It is possible that the Hokan language family, of which the Chumash are a part, is thus much older than either of the other two major language families, the Takic or Penutian language families.

Five missions were established within Chumash territory: San Buenaventura, Santa Barbara, Santa Ynez, La Purisima Concepcion, and San Luis Obispo; and there was a Chumash language dialect for each mission (Kroeber 1925:551-552). So few Chumash remained when ethnographic information was being recorded that much of what was once common knowledge was never recorded. As Kroeber (1925:550) states, "There is no group in the State that once held the importance of the Chumash concerning which we know so little."

The current project is located within what was once Obispeño Chumash territory. The word "Nipomo" is from the Obispeño Chumash word *nipumu'*, meaning house place, or village (Gudde

1998:262). The Rancho Nipomo land grant was near the Chumash rancheria, Nipomo, mentioned in the records of La Purisima Mission between 1799 and 1822 (Gudde 1998).

Both cultural and social differences emerged among geographically distinct Chumash groups. Chumash language groups notwithstanding, three Chumash subgroups have been identified: the Chumash of the mainland Santa Barbara Channel region south of Point Conception, the Island Chumash, and the Chumash who lived north of Point Conception. All of these groups were hunter-gatherers. Each group developed distinct adaptations to their particular environmental circumstances.

In general, the Chumash society of the mainland Santa Barbara Channel region and the northern Channel Islands was much more complex than that of the Chumash who lived north of Point Conception. The mainland coast south of Point Conception is protected from prevailing northwesterly winds, facilitating exploitation of the marine environment. The Channel-area groups fished extensively, hunted sea mammals, and gathered acorns. Population densities were thus highest along the mainland coast of the Santa Barbara Channel region and on the northern Channel Islands (Johnson 1998). Groups visited small camps during the summer in order to hunt and gather but occupied large villages during the winter months. While most villages in these regions had populations of 150 to 200 people, as many as 1,000 people lived in some settlements. Hereditary chiefs occupied the larger Channel-area villages, and they presided over loose confederations of villages (Blackburn 1975; Hudson and Underhay 1978). Craft specialization and trade also fostered ties among villages on both sides of the Santa Barbara Channel (King 1976; Arnold 1992a; 2001). Chiefs used both marriage ties and control over trade to centralize their power (Arnold 2001). Chiefs often owned plank canoes and used them to exploit mainland-island exchange (Arnold 1992a, 1995). These chiefs served as middlemen in the important exchange that occurred between the northern Channel Islands and adjacent mainland (Pletka 2001a).

While craft specialization, inter-village exchange, and chiefly power constituted important elements of social life among Channel-area Chumash, social hierarchies and differentiation were not as elaborate among the Chumash who lived north of Point Conception. While some individuals among the northern Chumash had higher status and multiple wives, their authority was limited. Post-marital residence was apparently more variable among the northern Chumash than among the Channel-area Chumash (King 1984). The environment exploited by these northern groups provided fewer opportunities for aspiring elites to monopolize important resources.

North of Point Conception, westerly and northwesterly winds batter the exposed coast, influencing many aspects of northern Chumash social life and adaptations. The ocean is much rougher, limiting the ability of local groups to travel along the ocean and exploit marine resources. The Chumash north of Point Conception made, at best, limited use of plank canoes. They primarily fished from the shore and relied to a much greater extent on shellfish (Glassow 1996). The scarcity of the plank canoe may have been one of the reasons why single piece shell fishhooks were relatively rare north of Point Conception (Strudwick 1986:193, 195-196).

Despite the differences between the northern Chumash and the Channel-area Chumash, these groups clearly shared many cultural traits. Except for the plank canoe, all Chumash groups employed similar technology. The northern Chumash probably moved between summer and winter settlements just as the Channel-area Chumash groups did. The northern Chumash also engaged in exchange relationships with their southern neighbors, although this exchange probably did not have the same significance among the northern groups. The archaeological record attests to the widespread emergence of a shared cultural tradition among the various Chumash groups and may also help to explain regional differences in adaptation.

D. HISTORY

Like the Chumash, European settlers faced environmental and social challenges after they arrived in the region. Periodic drought had a particularly devastating impact on these settlers. The historical and archaeological records attest to their success in responding to these challenges.

Early Exploration

European exploration of California began in AD 1542 with the voyage of Spanish explorer Juan Rodriguez Cabrillo, a Portuguese flying the Spanish flag (Cowan 1988:7). Cabrillo explored the California coast at the behest of Pedro de Alvarado, the Governor of Guatemala. Exploration resumed 40 years later as several voyagers searched for a suitable place along the California coast where Spanish galleons traveling from the Philippines might find a safe harbor. Pedro de Unamuno, for example, landed at Morro Bay in AD 1587 and briefly explored the interior. In 1602–1603, Sebastian Vizcaino searched the California coastline for suitable harbors and probably traded with local Chumash groups at San Luis Bay. These early explorations did not impress the viceroy of New Spain, who decided that sailing to the California coast was too risky.

Missionization

Europeans did not visit California again until 1765. Jose de Galvez, appointed to the post of inspector general to New Spain in that year, regarded the Russians as a possible threat to Spanish interests in California. To ensure control of Alta California, the Spanish built pueblos, presidios, and missions (Gutierrez and Orsi 1998). Between 1769 and 1823, the Spanish established a chain of 4 presidios, 2 pueblos, and 21 missions (Cleland 1962:xi–xii). Each establishment had a particular responsibility within the colonial system.

Presidios were military outposts. The Spanish established four presidios in California, one each at Monterey, San Diego, San Francisco, and Santa Barbara (Gutierrez and Orsi 1998). Interspersed between the presidios were pueblos, or civilian villages.

The Spanish built the first pueblos in Alta California in 1774. The pueblos were civilian farming communities, designed to provide additional resources to colonial settlements and the Spanish Empire. The Spanish chose the sites of the pueblos for their proximity to native populations, fertile land, dependable water sources, and safe harbors. Two pueblos were established in Alta California. The first, San Jose, was founded in 1774. Subsequently, the pueblo of Los Angeles was founded in 1781 (Robinson 1948).

The Spanish intended the missions to be only temporary establishments. They built them to convert the Indians to the Spanish Catholic faith and to assimilate the Indians into the lower ranks of Spanish society. Missions were permitted to occupy and use the land for the benefit of the Indians, who could not own land. Once the population was converted, the missions were to become pueblos, ruled over by the indigenous people (Robinson 1948). San Luis Obispo served as the site of the first mission in San Luis Obispo County. Father Serra, president of the Franciscan order that ran the missions, founded Mission San Luis Obispo de Tolosa on September 1, 1772 (Lowman 1993:2).

Over the next 70 years, the missions of San Luis Obispo County developed successful ranching and farming operations. The missions, however, had less success in cultivating a self-sufficient population of indigenous converts, called neophytes. Introduced diseases took their toll on the local Chumash groups, undermining the viability of affiliated neophyte communities. These circumstances and the changing political scene worked to end the missions.

Cattle Herding

The Spanish Mission period ended when Mexico won its independence from Spain in 1821. The new Mexican government acted quickly to undermine the power and wealth of the California missions. While very few people occupied the productive mission lands, many of Mexico's inhabitants struggled to survive. The Mexican Republic passed the Secularization Act of 1833, which demoted the missions to parish churches and gave the Mexican governor power to redistribute the vast wealth controlled by the missionaries.

The period between the 1830s and the 1840s is known as the golden age of ranching in California because Mexican governors made numerous large land grants during this time. Between 1833 and 1846, Mexican governors distributed approximately 700 land grants in California (Cleland 1975). William G. Dana, an American sea captain and cousin of author Richard Henry Dana, married Maria Carrillo and eventually became a Mexican citizen. In 1837, he was granted the 11-square league (37,888 acres) *Rancho Nipomo* by Mexican Governor Juan Bautista Alvarado (McK. Shumway 1988:80; Dana and Harrington 1999; Blomquist 2003). In 1868, the United States patent, or rights to this grant, was also made to William G. Dana. The current APE is located within a portion of what was once *Rancho Nipomo*.

During this era, few people lived in California. At this time, the land of *Rancho Nipomo* was relatively wild. Initially, the settlers used their large land grants for herding cattle. Wild cattle, descendants of the cattle the Franciscan missionaries brought when they established the missions, roamed the hills. Grazing land was abundant. Trading of hides and tallow began in the early 1800s, and by the 1840s, livestock ranching was the primary economic resource of California (Cleland 1975).

In the 1840s, tensions between the United States and Mexico mounted. These tensions culminated in the Mexican-American War, which lasted from 1846 to 1848. On February 2, 1848, the Treaty of Guadalupe Hidalgo was signed by the United States and Mexico. This treaty ceded California, Nevada, New Mexico, Arizona, and parts of Colorado and Wyoming to the United States for $15,000,000, officially ending the war with Mexico. The Treaty of Guadalupe Hidalgo bound the United States to honor the legitimate land claims of Mexican citizens residing in those captured territories.

The Land Act of 1851 established a board of Land Commissioners to review these records and adjudicate claims and charged the Surveyor General with surveying confirmed land grants. In order to investigate and confirm titles in California, American officials acquired the provincial records of the Spanish and Mexican governments in Monterey. Those records, most of which were transferred to the U. S. Surveyor General's Office in San Francisco, included land deeds and sketch maps (Gutierrez and Orsi 1998).

From 1852 to 1856, a Board of Land Commissioners determined the validity of grant claims. Land grants determined to be invalid reverted to public domain, and the land then became fair game for squatters. Ranch titles represented little as collateral. Although the claims of some owners were eventually substantiated, the owners lost their lands through bankruptcy or the inability to meet the exorbitant interest on their legal debts (Atkinson 1933). Many of the original rancho owners eventually lost their land to the United States. Unsurveyed land boundaries created a loophole through which squatters could occupy plots on the fringes of land grants and eventually come to own those plots through squatters' rights (Gutierrez and Orsi 1998).

The cattle boom continued throughout this period, largely due to the tremendous immigration that accompanied the Gold Rush. The great demand for beef kept cattle prices high. However, this demand began to decline by the mid-1850s, due largely to sheep from New Mexico and cattle from the Mississippi and Missouri Valleys as well as the development of stock breeding farms (Cleland 1975:108). Nature, too, conspired to end the era of the great cattle ranches. During the winter of 1861–1862, a disastrous series of floods struck California. According to rainfall statistics maintained in San Francisco, more than 45 inches of rain fell in some parts of California between November 1861 and February 1862 (Brewer 1930:253). This unprecedented deluge was followed by two years of drought (Cleland 1975:130–131). These events decimated many cattle herds and drove a number of ranchers out of business.

The Dana ranch survived the droughts, however, and began to supplement cattle ranching with sheep herding (Dana and Harrington 1999). As cattle ranching declined, sheep grew in importance. In 1854, California produced only 175,000 pounds of wool; by 1870, the total had grown to 11.4 million pounds. The industry reached its greatest prosperity during the Civil War, when the disruption of the national cotton trade created a huge demand for wool (Cleland 1975:139–141). Eventually, however, the local market for wool collapsed, and dry years plagued ranchers during the 1870s.

The Subdivision of Rancho Nipomo

In 1881, the surviving children of William G. Dana granted permission for the Pacific Coast Railroad to construct a track across the Rancho lands (Dana and Harrington 1999). Construction of the railroad began the following year. In 1883, following the death of William Dana's wife Maria Carrillo Dana, their children divided the rancho among themselves and sold various portions of it to other individuals (Nicholson 1993). The modern town of Nipomo, created from some of the smaller lots near the railroad, was officially laid out in 1889 (Gudde 1998:262). The construction of the rail line formed part of a flurry of construction that created a solid transportation infrastructure linking the northern and southern ends of the county and providing access to sea transport. In 1941, the railway was abandoned in this area.

Dairy and cattle farmers continued raising herds. Bean farming briefly flourished on the Nipomo Mesa during the First World War (Krieger 1990). The federal government bought these hardy staples to feed its allies. The market for beans crashed following the conclusion of the war.

San Luis Obispo fared better than other areas during the Great Depression. Farmers from this region did not borrow as extensively to increase their holdings as farmers elsewhere, so they did not accumulate as much debt. Thus, local farmers did not suffer as much from the collapse of financial markets. Immigrants from various areas flocked to the central coast in search of work.

Agriculture still dominates that landscape today. Citrus orchards, vegetable farms, and cattle ranches can be found in the Nipomo area, and recent development has started to alter the rural character of this area. This development has also led to the need for expansion of infrastructure and transportation as represented by the interchange project in the current report.

E. RESEARCH IN THE NIPOMO MESA REGION

The foregoing review of archaeological, ethnographic, and historic data has raised a number of questions about the adaptations of the inhabitants of the central coast. Many of these questions have been inspired by contrasting the archaeological records from the Vandenberg and Santa Barbara Channel areas with the archaeological record from San Luis Obispo County. Such comparisons are useful because the archaeological record of the central coast remains less well-documented than the record for southern California.

Nevertheless, many precontact archaeological sites have been recorded in the Nipomo Mesa region, particularly along the edges of the Mesa (Gibson and Parson 1997). Sites on Nipomo Mesa typically lie along flat, sandy terraces with access to sources of water. Occupation of the Mesa's interior occurred much less frequently. A few earlier settlements have been identified (e.g., Fitzgerald et al. 2000), but sites on Nipomo Mesa may date largely to the Late Holocene (Gibson and Parson 1997). Well-dated sites, however, are rare (Gibson and Parson 1997; Jones and Ferneau 2004).

While many sites have been identified, data from these sites have not been integrated to provide a coherent picture of how people utilized the Mesa or how land use might have changed over time. Sites along the eastern edge of Nipomo Mesa typically consist of large, low-density scatters of lithic artifacts and, occasionally, shellfish. For example, CA-SLO-804 covers approximately 420,000 square meters and contains traces of Pismo clam *(Tivela stultorum)*, flaked stone debitage, fire-affected rock (FAR), and mammal bone (Spanne 1977). The apparent homogeneity of these large sites suggests that they may be best understood by comparison to sites from neighboring regions. To the west of Nipomo Mesa, for example, many small sites lie in the dunes near freshwater lakes and the beach (Gibson 1993). These sites contain sparse scatters of shell, lithic artifacts, and FAR. The relationship between these sites and those sites on the Mesa is unclear.

Sites in these two regions may have formed some part of a larger settlement system. Addressing such hypotheses requires more detailed information from individual sites. The proposed investigation of sites within the ADI may help to contribute to this information. Some sites have already been the subject of testing.

Status of Previous Research

As noted previously, two sites lie within the ADI. Site CA-SLO-1767 was tested during a previous archaeological project (Lebow et al. 2001). Investigations at CA-SLO-1767 evaluated this site's eligibility for listing in the National Register but not the California Register (Lebow et al. 2001). The other site within the ADI, CA-SLO-2271, has never been tested.

Evaluation of Previous Research

During the course of research to evaluate the eligibility potential of CA-SLO-1767 for listing in the National Register, archaeologists excavated over six cubic meters at the site, concentrating on the area of densest deposits (Lebow et al 2001). These archaeologists amassed a collection consisting entirely of flaked stone artifacts. Artifacts include 51 tools and cores and 1,440 pieces of debitage (Lebow et al. 2001:10.7). Given the extent of previous excavations, additional work will be limited to a review of the previous study and a brief examination of the existing collection. Site CA-SLO-2271, however, requires a complete analysis; the strategy for conducting this study will be presented in the following sections.

Conclusions

Previous research at sites within the ADI has accumulated data that will form the basis for the evaluation of the sites' eligibility for listing in the California Register. The research proposed here aims only at supplementing this work, addressing questions that have been left unanswered. Reanalysis of existing collections from CA-SLO-1767 will evaluate the formation processes that have affected this site and assess its suitability for answering important research questions. Radiocarbon analysis of marine shell will be conducted at CA-SLO-2271. The following section presents research questions and introduces methods for evaluating cultural resources within the ADI.

III. RESEARCH DESIGN

A. RESEARCH ISSUES

The preceding review of the cultural history of the Nipomo region suggests several significant, related research themes that additional study of the archaeological sites within the ADI might address. As described in the discussion of both the precontact and historic eras, groups living in the area had to adapt to considerable environmental variability. This variability may have shaped the technological, economic, and social strategies employed by groups.

Environmental variability exposed groups to risk and hazards. Risk refers to variation in the outcome of an event, while hazards refer to potential costs faced by groups resulting from the occurrence of an event (Hirshleifer and Riley 1992; Winterhalder et al. 1999). In this context, "events" are activities undertaken during periods of distinct environmental conditions, such as times of drought, flooding, or elevated sea surface temperatures.

Many anthropological studies have considered how risk affects the decisions made by individuals in small-scale societies (see review in Winterhalder et al. 1999). Archaeological research conducted in the American Southwest has shown that local variability in environmental conditions fostered the development of social institutions for ameliorating risk (Hegmon 1989; Kohler and Van West 1996; Larson et al. 1996; Rautman 1993). These groups seem to be generally risk-averse, although periods of very poor environmental conditions apparently elicited risk-prone behaviors (Kohler and Van West 1996). Whether groups will elicit risk-prone or risk-averse behavior depends on a number of factors (Fitzhugh 2001; Henrich 2001; Henrich and McElreath 2002; Kuznar 2001; Winterhalder 1986; Winterhalder et al. 1999). The importance of these factors is documented in the following analyses, which compare the kinds of strategies employed by groups in the face of variable and stable environmental conditions.

B. MANAGEMENT GOALS

The research themes identified for this project will be used to evaluate the eligibility of sites within the ADI for listing in the California Register, focusing on Criterion 4. Resources eligible for listing under Criterion 4 possess data that can yield information important in prehistory or history. The research themes suggest important questions that additional study of the archaeological sites within the project area might address. Such questions provide useful guidance for the collection of data and selection of appropriate methods for acquiring the data. To investigate these questions, this research will acquire basic data on the sites within the ADI, including information on the distribution of the archaeological record, the depositional history at the sites, and the nature of activities conducted there. This information may also be relevant to important research questions not explicitly considered in this research design and to evaluation of the integrity of the sites.

Environmental Context

Regardless of the specific research questions addressed, the environmental context of site occupation and use provides an important part of the context for understanding the local archaeological record. The kinds of activities in which the inhabitants of the site(s) engaged should depend, in part, on the environment in which those inhabitants lived. The environmental context of occupation may be identified through analysis of the sediments that contain the archaeological record (Hassan 1978) and the faunal and botanical remains that comprise a portion of that record (Davis 1987; Pearsall 2001).

Sedimentary features, such as grain size distributions, grain shape, and sedimentary structures, attest to the depositional environment in which a site formed. Sedimentary structures within a dune deposit may, for example, indicate the dominant wind direction (Hassan 1978). The degree of soil development at a site provides an indication of the length of time that the local landform has remained stable (Birkeland 1999).

Species of birds, shellfish, and fish can be particularly sensitive to environmental conditions. For example, shellfish species typically prefer distinctive substrates. Changes in the proportion of rocky and sandy substrate shell species found at archaeological sites can be used to identify fluctuations in Holocene sea level and the extent of local estuarine environments (e.g., Wojdak 1993). Fish species are sensitive to water temperature (Wooten 1992). Some species, such as tuna, travel to the central coast only during particularly warm summer months. All other things being equal, changes in the prevalence of such species may be indicative of changes in the occurrence of warm water. Alternatively, changes in the prevalence of such species at archaeological sites may be indicative of shifts in the seasons of site use. Seasonality of site use can be inferred from species whose ranges are sensitive to changing seasonal conditions and from the study of fish otoliths (earbones). From such analyses, the environmental challenges and opportunities faced by groups living in the region can be evaluated.

Definition and Characterization of Site Deposits

In order to address these and other research questions, field and laboratory analyses must first identify homogenous assemblages. Homogenous assemblages are those assemblages that are most likely to be attributable to a single process or set of processes (Carr 1985; Read 1985). Such assemblages display unimodal variation in quantitative characteristics or bear only one state of a discrete attribute. For example, a spatially homogenous assemblage would include all the artifacts found at one locus of activity. A homogenous flaked stone artifact assemblage would comprise the flakes and other debitage attributable to the reduction of a specific nodule of raw material. Homogenous assemblages must be identified so that analysis can focus on those processes that are of interest. LSA will begin the identification of homogenous assemblages by defining the horizontal and vertical extent of discrete archaeological deposits.

Distinction between deposits and particles (including artifacts) that compose those deposits will follow Stein (1987). Deposits result from a single depositional event during which the sources of the particles, the transporting agents, and the depositional environment all remained constant. Deposits may form over long or relatively brief periods, depending on the duration that these conditions remained constant. Particle contents, particle size distribution, and structure reflect such conditions (Stein 1987) and can be used to identify discrete deposits. By definition, these attributes remain relatively consistent throughout a deposit. The stratigraphic position of different deposits indicates the succession of depositional events that occurred at the site.

As Stein (1987) points out, all undisturbed deposits are in primary context since these deposits must follow the laws of superposition, which state that older deposits will be located underneath more recent deposits. The law of superposition applies only to deposits and not to the particles of which they are composed. The particles that compose a deposit may be older than the deposit that they form.

Therefore, another research objective is to understand how artifacts come to be part of a particular deposit. If the investigations can demonstrate that the role of noncultural formation processes has been relatively modest or at least predictable, research can then focus on how the distribution of the archaeological record relates to past human behavior. A number of observations on the deposits and their constituent particles can help to identify significant noncultural formation processes and explain how artifacts came to be a part of the deposit.

The spatial distribution of artifacts within and among deposits reflects some of these processes. Evidence of size sorting among artifacts, or a bimodal distribution of artifact density with depth, often indicates that artifact distribution has been affected by processes such as rodent burrowing (Schiffer 1983; Bocek 1986; Erlandson and Rockwell 1987; Johnson 1989, 2002; Balek 2002) and trampling (Schiffer 1983). Such processes may also be detected if artifact fragments recovered at different depths can be refit or, at least, attributed to the same nodule of raw material (Larson 1994).

The attributes of particles within a deposit may also herald the effects of similar processes. Particle size distributions reflect the mode of transport for the particles in a deposit (Stein 1987; Stein and Teltser 1989). Most lithic production sequences produce regular flake size distributions (e.g., Brown 2001); disturbed contexts may be identified from debitage assemblages that do not produce these flake size distributions. The orientation of artifacts primarily reflects forces such as water transport (Schick 1987) and bioturbation (Schiffer 1983).

Site Chronology

Processes such as bioturbation, trampling, and flooding are often responsible for removing artifacts from their original context and association. These processes produce deposits that are mixtures of particles with longer and shorter depositional histories, the occurrence of which has sometimes been termed "stratigraphic reversals" (Erlandson and Rockwell 1987). Some artifacts, such as those of shell, bone, or obsidian, may be dated directly, and the application of these dating techniques may allow the effects of noncultural formation processes to be recognized.

The use of appropriate dating methods also establishes the chronology of site occupation. Absolute dates should be obtained so that at least one artifact from each distinct deposit at each site has been dated. Obsidian artifacts may be dated through obsidian hydration studies to provide a relative chronology for human activities within the ADI. Chronologically diagnostic artifacts, such as shell beads and projectile points, can also be used to supplement the chronological information obtained from absolute methods.

The analyses of artifact dates, particle attributes, and other evidence provide a depositional history for each site. This depositional history attests to the potential of the site to address significant research questions. It provides information relevant to characterizing both site integrity and, as further discussed below, the kinds of research questions that the site might address.

Nature of Activities

Both the organization and contents of the archaeological record reflect the nature of site activities. The depositional history at each site attests to the manner in which humans produced and discarded the waste that forms the constituents of the archaeological record (Tani 1995). The fashion in which groups discarded their waste often varies with the kinds of activities that occurred at a site (Tani 1995).

The organization of activities across the landscape reflects patterns of mobility and settlement. How did groups travel and settle on the landscape during periods of both environmental stability and change? Studies of settlements within neighboring areas of central California (e.g., Glassow 1996) and from other parts of the world have demonstrated that mobility and settlement are very sensitive to the distribution of resources (Binford 1980; Heffley 1981; Habu 2002; Zeanah 2002). Hunter-gatherer settlement decisions may weigh variables like the return rate to foraging key resources and the cost of transporting such resources (Winterhalder and Smith 1981; Bettinger and Baumhoff 1982; Kelly 1995; Broughton 1999; Ames 2002; Fitzhugh 2002; Zeanah 2002). Group size depends on such factors as the benefits to be obtained from risk pooling, resource defense, and economic coordination relative to the costs resulting from competition and disease (Smith 1981; Boone 1992). The type of activities conducted at a site and the organization of the resulting deposit should indicate the manner by which groups adapted to environmental variability.

Various archaeological signatures are indicative of these adaptations. The horizontal and vertical distribution of the archaeological record should reflect such phenomena as the organization of activities, intensity of those activities, number of occupational episodes that occurred at the sites, and size of the groups that stayed there (Tani 1995; Laylander 1997). The distribution of different size classes of artifacts is also sensitive to cultural formation processes such as the intentional maintenance of activity areas through sweeping (Stein and Teltser 1989; Sherwood 2001). The extent of such maintenance should vary with the intensity of occupation (Tani 1995). The intensity and duration of site activities may also be reflected by the extent to which those activities produced features, such as hearths and pits.

Analysis of the specific constituents of the archaeological record is also relevant for identifying the nature of site activities and understanding how groups responded to environmental changes. For example, the nature of occupation at a site may be discerned from the kinds of lithic artifacts that groups brought, produced at the site, or exported (e.g., Bamforth 1986, 1991; Larson 1994). The identification of distinctive material types facilitates this analysis (Larson 1994).

While these analyses will cover the full range of material discovered at each site, faunal remains and stone artifacts are likely to provide the most significant data.

Subsistence

Faunal remains reflect not only the environment from which they were procured, but also the strategies employed by groups in adapting to that environment. For example, groups might broaden their diet to include previously less-desirable game during periods of environmental variability. Diet breadth should expand during periods of scarcity to supplement higher ranking resources (Winterhalder 1981) and as a mechanism for ameliorating risk (Winterhalder 1986). Alternatively, groups might exploit new habitats in search of the same game. Groups would be particularly likely to acquire only the choicest parts of a game animal when such animals were bulky and only found at a considerable distance from the home base. Such long-distance transport would be particularly likely when population pressure has caused local resources to become scarce (Broughton 1999). Some of these strategies entail higher risks than other strategies. For example, hunters may encounter big game animals infrequently, but those encounters might produce high payoffs. In contrast, digging for smaller clams entails less risk, but also results in smaller payoffs. The choice made by hunter-gatherers between such strategies depended on factors such as their tolerance for risk. Groups would have utilized the landscape in very different ways as a result of such choices, leaving very different archaeological signatures. Study of lithic artifacts may also address issues concerning how groups moved across the landscape.

Stone Tool Production and Design Analysis

Analysis of stone tools and the production debris resulting from their manufacture attests to the demands and constraints placed on toolmakers and users by the local environment. Stone tool design and production reflect many factors, such as the demand for tools that serve a particular function, availability of suitable raw materials, and anticipated context of tool use (Horsfal 1987; Bamforth 1991; Hayden et al. 1996). Was access to raw materials, mobility, or risk an important determinant of stone tool design and production? These factors may not be equally important.

For example, sedentism or territoriality may limit access to suitable raw materials for stone tool production, and such restrictions on access can influence how groups use the raw materials that are available to produce tools. Access to raw materials can be evaluated from the extent to which groups attempted to conserve scarce raw materials (Kuhn 1991; Ricklis and Cox 1993; Andrefsky 1994; Newman 1994; Stone 1994; MacDonald 1995; Roth and Dibble 1998). While archaeological studies have documented conservation of raw materials in many cases, conservation does not occur in every instance where access to key raw materials is limited. Other technological constraints may prevail, inhibiting raw material conservation (e.g., Henry 1992; Close 1999). Changes in mobility may not affect stone tool production as long as groups have access to raw materials and conduct the same kinds of activities (Bamforth 1991).

Analysis of tool design must similarly consider many factors. The design of stone tools should be attributable to the conditions under which toolmakers worked and the problems they faced in exploiting resources. Ground stone tool design, for example, may reflect environmental pressures for efficient food processing (Hard et al. 1996; Adams 1999) or the anticipated level of site occupation (Nelson and Lippmeier 1993). Ground foods can be digested more easily, increasing the amount of nutrients consumers can obtain from them (Stahl 1989). The form of ground stone tools, such as metates determines how efficiently foods can be processed and stored (Hard et al 1996; Adams 1999). Thus, changes in ground stone tool form would reflect changes in population pressure and sedentism.

Toolmakers invest more energy in producing efficient designs when ground stone will be used repeatedly. Such ground stone would be found at long-term occupations. Do such design features correlate with other measures of occupation length, such as the degree to which particular cores have been reduced?

Considerations of risk may also shape stone tool design. Demand for tools that perform exactly as expected may vary with the degree of risk experienced by tool users (Torrence 1983, 1989; Vierra 1995; Bamforth and Bleed 1997). However, the function of those tools may impose design constraints that limit the extent to which toolmakers alter tool characteristics (Hayden et al. 1996). Did tool characteristics vary according to the context of their use or according to the level of environmental variability?

Environmental variability may have also affected the rate of innovation in tool design. Evolutionary archaeologists have often claimed that innovation is analogous to mutation, arising independently of the selective environment (Dunnell 1978; Neff 1992; Rindos 1989; cf. Lyman and O'Brien 2000). Some archaeologists have disputed this perspective, arguing that the pace of innovation is sensitive to the selective environment (Schiffer 1996; Boone and Smith 1998; Fitzhugh 2001). For example, Fitzhugh (2001) argues that innovations in tool technology should advance at the highest rate when toolmakers are most subject to risk in technological productivity, such as when environmental conditions are poor. Do new tool types appear with greatest frequency during periods of poor environmental conditions or is the pace of innovation constant over time?

IV. METHODS

A. INTRODUCTION

The following sections present the approach that will be followed to evaluate the cultural resources located in the ADI. While the specific research plan for each site is unique, certain elements will be the same. In general, a staged research design will be followed in an attempt to identify homogenous assemblages. A staged research design allows the results of previous analyses to help form methodology in the next stage, therefore enabling a methodology to be chosen that is appropriate for the data (Carr 1985). By identifying the structure of the data, homogenous assemblages can be distinguished. The identification of such assemblages has influenced field and laboratory methods.

B. FIELD METHODS FOR SUPPLEMENTARY PEDESTRIAN SURVEY

LSA surveyed the APE in August 2003 (Pletka and Pletka 2003). During this fieldwork, dense vegetation covered several fields located east of Nipomo Creek, making them impossible to survey adequately; therefore, the 2003 survey remained incomplete. LSA originally intended to conduct an extended Phase I Survey within these areas and proposed the use of phosphate tests to identify archaeological sites. Although Caltrans and the County approved a plan for the implementation of such a survey (Pletka and Pletka 2004), farmers cleared the fields and disked them shortly before the initiation of field work. Several days of rain in the area improved field conditions by cleaning and thereby exposing rocks on the ground surface. These changed circumstances created ideal conditions for a pedestrian survey.

With approval from Caltrans and the County, LSA conducted this pedestrian survey on October 28, 2004. Scott Pletka surveyed the area in transects spaced by no more than ten meters. Upon encountering an artifact, he thoroughly covered an area of ten meters in radius around the find, looking for additional artifacts and other archaeological evidence. He photographed each find, noted its location using a Garmin Global Positioning System (GPS), and took notes on the landform where each find occurred.

C. FIELD METHODS FOR GEOMORPHOLOGICAL ANALYSES

The possibility exists that some archaeological sites could be deeply buried within the dunes of the Nipomo Mesa beyond the reach of surface survey methods. Substantial excavation (up to 30 feet in depth) will occur as part of the construction of the interchange at Willow Road and US 101. For this reason, geomorphological study of those areas of deep construction excavation is proposed.

The geomorphological study will help to determine the relative age and integrity of sediment in this area in order to provide guidance for archaeological surface excavations. The degree of soil development attests to the length of time a land surface has remained stable (Birkeland 1999). The Willow Road/US 101 interchange will be constructed in an area of old stabilized sand dunes with developed soils consisting of Oceano sand. This soil type's most noticeable characteristic is the formation of lamellae. Lamellae, or thin bands of alluvial clay, are indicative of highly stable soils (Birkeland 1999). The absence of lamellae in Oceano sand would suggest that the sediment had not lain undisturbed for thousands of years, and that it was "recently" disturbed. Archaeological deposits should not occur below intact lamellae, since lamellae require thousands of years to form in a stable land surface.

To evaluate soil development in the area where construction excavation for the underpass will occur, LSA will excavate a series of backhoe trenches to expose soil profiles. As many as four trenches will be excavated to a maximum depth of 16 ft (4.9 m). Soil profiles will be drawn to document soil horizons, soil morphological traits, presence/absence of buried soil strata, and associated cultural materials. Analysis of soil properties will allow the project archaeologists to determine the appropriate depth for surface probes. Field investigations will be conducted according to the National Cooperative Soil Survey Standards, following the methods in the Soil Survey Manual (Soil Survey Staff 1993).

D. FIELD METHODS FOR SITE AND ISOLATE EVALUATION

Intensive Pedestrian Survey and Surface Collection

Surface collection can provide both an indication of the kinds of artifacts that might be found in a prehistoric or historic archaeological deposit and a relatively representative sample of artifacts by which site function may be inferred (Redman and Watson 1970; Redman 1987). The expectation of finding artifacts during surface collection may facilitate the recovery of both small and large surface artifacts, whereas small artifacts are not as commonly discovered during surface surveys (Wandsnider and Camilli 1992). Thus, surface collection is an appropriate technique for evaluating the archaeological record when a substantial portion of the archaeological record may be exposed at the modern ground surface or when archaeological deposits have been disturbed by agricultural plows. The plow brings large objects up to the surface with greater frequency than smaller objects (Baker and Schiffer 1975; Baker 1978; Versaggi 1984;Ammerman 1985; Knoerl and Haselgrove1985; Mills 1985; Boismier 1997; Pletka 2001b) and diagnostic artifacts tend to be relatively large. Therefore, surface collection on plowed fields may also provide a relatively large sample of artifacts that may indicate the function and date of the site. The exact procedures followed during surface collection depend on the local setting.

In all cases, provenance will be established by using a compass and tape and measuring the location of artifacts or collection units with reference to a local datum. The provenance of the local datum will be established using GPS. The exact surface collection procedures depend on site size and surface density. Surface density will be evaluated by using low-density surface survey methods, described below, within a 50 x 50 m survey area. Based on the results of this initial survey, the field director will determine whether such methods would require more than one day to complete the surface collection. If the surface collection would take more than one day to complete, the rest of the site will be surveyed using methods for large or high-density sites.

On small or low-density sites, the entire surface area will be walked in transects spaced by no more than two meters. Surveyors will place a pin flag next to each artifact. Artifacts will then be systematically collected. Surveyors will number the artifacts in order of collection and record the provenance of the find.

On large or high-density sites, the area will be divided into square collection grids. In plowed fields, the area of the site will be divided into five-meter-square collection grids. A finer scale of resolution is not warranted in plowed or disked fields. Artifacts in the plow zone can move up to five meters from their original location, although large artifacts tend to be displaced further than smaller artifacts (Roper 1976; Lewarch and O'Brien 1981; Dunnell 1990; Dunnell and Simek 1995). Collection units of this size may be used in other contexts as well. Surface collection will occur on a systematic sample of 10 percent of all collection grids. The entire area of each collection grid will be walked in transects spaced by no more than 2 m. LSA will count the number of nondiagnostic artifacts within each sample grid and collect diagnostic artifacts.

These procedures should allow the surface record at each site to be efficiently characterized. As noted previously, LSA does not expect to conduct subsurface test investigations for this project. Should such methods become necessary, they will follow the procedures outlined here. To characterize the subsurface component of a site, LSA will conduct shovel test pit sampling and test unit excavation.

Shovel Test Pit Excavation

The general goal of the STP excavation program is three-fold. First, STPs will be used to define the boundaries of resources within the ADI. Second, the STPs will identify concentrations of artifacts for use in planning the next phase of testing. Third, these methods provide data relevant to the identification of the formation processes that affected the archaeological record. For example, the distribution of refuse across the site should reflect the role of the site within the settlement system (Tani 1995). When feasible, the distribution of STPs will follow an offset grid (Krakker et al. 1983) with the test pit locations spaced at 15-m intervals. This distribution will ensure intersection with circular artifact scatters larger than 19 m in diameter. All of the sites within and near the project area appear to be larger than 19 m (S. Pletka and N. Pletka 2003). Horizontal boundaries for any archaeological deposit within the ADI will be determined after two consecutive sterile STPs have been excavated in each direction along two perpendicular axes running through the site. If a boundary is not encountered by this strategy because the deposit continues beyond the ADI, excavations shall be discontinued upon reaching the ADI boundary.

If the area around the STP has not been subject to surface collection, all artifacts within a 3-m radius of the STP will be collected prior to excavation. The provenance of these artifacts will be recorded with reference to the STP. Each STP will then be hand-excavated using a round bladed shovel. The STPs will be excavated in 20 cm levels, each with a diameter of 40 cm. The volume of excavated sediment will be measured to the nearest liter using graduated buckets. All soil will be screened through 1/8-inch mesh screen and excavation will be terminated after two sterile levels are identified, or after bedrock is encountered. If the archaeological deposit continues below 80 cm, it may be necessary to use an auger to excavate deeper. The auger will measure 10 cm in diameter, and excavation will continue in 20-cm levels.

All artifacts, ecofacts, and faunal remains will be collected for laboratory processing and analysis. Additionally, 10 x 10 x 10 cm soil samples will be collected from each deposit. These soil samples can be processed for microartifact, sediment, and phosphate analyses. Additional samples may be collected for flotation if excavation encounters midden deposits or features. Excavators will collect five-liter samples from such contexts. Control samples from off-site locations will also be taken so that the level of background variation in phosphate and botanical remains can be identified.

Like many other kinds of archaeological data, samples for phosphate testing must be derived from a wide range of contexts. Sampling from many contexts allows "background noise" to be identified and removed prior to analysis of the phenomenon of interest. Samples will be taken from previously identified on-site and off-site locations to determine whether phosphate testing effectively discriminates loci of activity from background variation in phosphate levels. Both the local geomorphological context and human activities, such as fertilizing fields, can affect the background levels of phosphates. LSA will employ this technique only at those sites where phosphate levels within on-site areas can be effectively distinguished from off-site areas. If an initial comparison of on-site and off-site areas does not successfully distinguish them, LSA will not continue to test phosphate levels within the site.

Several statistical techniques exist for discriminating background variation in phosphate levels from truly significant variation. Comparisons of the results of on-site and off-site tests may employ discriminant analysis (Bjelajac et al. 1996), Bayesian statistical analysis (Buck et al.1996), or a permutation analysis (Good 2001; N. Pletka and S. Pletka 2003). These tests have proven capable of identifying significant phosphate levels, even in agricultural fields (e.g., Bjelajac et al. 1996; N. Pletka and S. Pletka 2003).

Specific postcollection procedures will be discussed in the Laboratory Analysis Section of this document. Information recorded about each STP will not only include the number and type of cultural resources observed, but also the STP location, soil color and texture per level, depth of termination, and observed noncultural disturbances. STP locations will be backfilled immediately after completing excavation.

Unit Excavation

LSA will excavate test excavation units within the loci of activity identified during the previous phases of field research. Such units may range from 0.5 to 2 meters square in size. The placement of each unit will be determined by the distribution of artifacts and ecofacts as revealed by the surface collection and/or STP samples. The units will be used to determine whether the resources in the ADI have been disturbed by burrowing animals or by construction activities. They will also address the research issues discussed previously. Units will be placed in areas of high artifact and/or ecofact densities to ensure sufficient data is collected to address the aforementioned research questions. By exploring the vertical integrity and the data potential of each resource, LSA will be able to evaluate each site's potential eligibility to be listed in the California Register.

Each test excavation unit will be hand-excavated using flat-bladed shovels and trowels in 10-cm levels. The volume of excavated sediments will be measured to the nearest liter using graduated buckets. Excavated sediment will be screened through 1/8-inch mesh, and excavation will be terminated after two consecutive sterile levels are identified. Based on previous testing in the area, LSA estimates that the average unit depth will be 120 cm. Because these units will probably require several days to complete, LSA will cover all in-progress test excavation units with plywood boards at the end of each day.

All artifacts, ecofacts, and faunal remains will be collected for laboratory processing and analysis. Column samples of 10 x 10 cm size will be excavated from each level of a unit for microartifact analysis, sediment analysis, and phosphate analysis. Additional samples may be collected for flotation if midden deposits or features are encountered during excavation. Excavators will collect five-liter samples from such contexts. Control samples from off-site locations will also be taken so that the level background variation in phosphate and botanical remains can be identified. Specific postcollection analysis procedures will be discussed in the Laboratory Analysis Section of this document. Information recorded about each unit will not only include the number and type of cultural resources observed, but also the unit location, soil color and texture per level, depth of termination, and observed noncultural disturbances. The floor of each level will be drawn, and once a unit is completed, sidewall profiles will be created for the north and west walls. Excavated units will be backfilled immediately after the excavation is completed and adequately documented.

Photographs and Illustrations

Photographic documentation will include photographs taken during all phases of fieldwork. Photographs of site activities will include all features and shots of the field crew during excavation. Unit profiles will be photographed once test unit excavation is complete. Overview photographs will show site physiographic and environmental setting. Photographs will be recorded on standard photographic logs identifying the frame, day, month, year, time, subject, and direction of view. Photographic logs will be submitted with the written report. Unique and representative artifacts will also be identified for illustration or photographs in order to provide the best possible depiction for publication.

Site Mapping and Datum Placement

LSA will use either Lecia/ArcPad or Trimble/PENMAP GPS Receivers for site mapping. Site boundaries, datum, phosphate sample, STP, and test excavation unit locations will be mapped in the field down to submeter accuracy utilizing U. S. Department of Defense satellites. Other features of the landscape, such as US 101, Willow Road, and Nipomo Creek, will also be mapped for reference. These reference points may be necessary to rectify the GPS data points with aerial photographs or topographic maps. GPS data points will then be downloaded into ArcGIS computer software. Each GPS point will have associated data that may be used to create maps detailing the STP and unit locations and show artifact or ecofact concentrations.

At each site, LSA will establish a permanent datum just beyond the ADI. The datum will be a brass plate with the site number, site grid location, and LSA company name inscribed. The brass plate will be set into concrete for permanency, and will be flush with the ground surface.

E. LABORATORY ANALYSIS

Basic Laboratory Processing

Artifacts will be cleaned and sorted into categories for cataloging. A sample of artifacts may be processed without being cleaned so that residue or other specialized analyses could be conducted. The artifacts will generally be processed and catalogued by lot: site, unit, and level from which the artifacts derived. Tools or other unusual artifacts will receive individual catalog numbers. Debitage, FAR, bone and shell material will be separated and catalogued. All items will be counted and weighed. Because of constraints on the ability of curation facilities to store bulk artifact samples, nondiagnostic artifacts such as FAR will be culled from the collection prior to curation. These nondiagnostic artifacts will be size sorted through nested screens, counted, and weighed. Only a representative sample of these items will be curated. After analysis, the redundant items may be maintained by LSA for use in public meetings, donated to teaching facilities, or discarded. The retained artifacts will then be prepared for curation.

Artifacts will be placed into 4-mm thick polyethylene ziplock bags. An acid-free card with site, unit, depth, material, object type, count, weight, accession number, and catalog number information written on the card will be placed with the artifact in the ziplock bag. The information recorded on the card will also be recorded in an Access database, creating a complete artifact catalog. Paper copies of the catalog will be printed on acid-free paper.

Sampling for More Detailed Analysis

The entire artifact assemblage will be subject to the detailed analyses described in the following sections, if feasible. However, if the resulting assemblage is very large, specific provenances may be selected for the more detailed analyses. The sub-sampling strategy will target loci of activity identified through the initial sorting of the STP and unit assemblages. Should such loci be difficult to isolate, the sub-samples will be chosen systematically from the available provenances, ensuring that sub-samples represent the horizontal and vertical extent of the local archaeological record. Likewise, detailed analyses might not be warranted if the available artifact sample is very small.

Stone Artifact Analysis

Lithic analysis will address flaked stone tools, flaked stone tool debitage, and ground stone tools. The exact details of these analyses depend on the size and character of the assemblage. Nevertheless, LSA can suggest some of the analyses that will probably be performed. The lithic analysis will identify the kinds of tools that groups made on site, distinguish the tools that tool users imported to, and exported from, the site, evaluate the degree to which toolmakers selected the performance characteristics of those tools, and assess the access that toolmakers had to desirable raw materials. These analyses will answer questions concerning technological innovation, site function, mobility, and risk.

Analysis of flaked stone debitage will include classifying a sample of debitage by MAN (Larson 1994). MANs are distinctive variants of standard raw material types. Division of the assemblage by MANs facilitates the analysis of discrete production episodes, creating homogenous assemblages.

This debitage sample will then be subject to a technological analysis. The goal of the analysis is to identify the extent to which different raw materials were subject to core reduction, bifacial reduction, and extensive resharpening and rejuvenation. Certain types of debitage reflect the manner in which toolmakers treated raw materials. This analysis will distinguish two main types of debitage: flakes and shatter. Shatter occurs more frequently during early stages of production (Sullivan and Rozen 1985; Prentiss and Romanski 1989; Tomka 1989; Morrow 1997), but also reflects the extent of internal flaws possessed by the raw material. Experimental replication of flaked stone tools using Monterey chert and quartz has demonstrated that these materials may sometimes possess many internal flaws, generating a considerable quantity of shatter when worked.

This typological analysis can be refined by size-sorting the flakes. Graphs of the count or weight of debitage by size grade for different stages have proven effective in distinguishing those stages (Stahle and Dunn 1982; Ahler 1989; Brown 2001), despite the fact that flint knapping produces many small flakes at all reduction stages (Patterson and Sollberger 1978; Stahle and Dunn 1982; Mauldin and Amick 1989). Following Brown (2001), LSA will determine the number of flakes that fall into the following screen mesh size categories: 0.32 cm, 0.40 cm, 0.63 cm, 0.80 cm, and 1.6 cm. The resulting data can be plotted in such a way that the slope of the line in the plot reflects the stages of production represented (Brown 2001). Plots with steeper slopes result from later production stages, while plots with shallower slopes result from earlier production stages.

For the most abundant analytical nodules, this analysis may be supplemented by a more detailed technological analysis. A series of individual measurements will be made on the flakes following the approaches advocated by Shott (1994) and Bradbury and Carr (1999). Simple measures such as thickness and weight can distinguish pressure flakes from other debitage (Henry et al. 1976). Principal components analysis of this data should allow flakes resulting from different processes, such as different reduction strategies, to be distinguished (Read and Russell 1996; Bradbury and Carr 1999).

LSA will then compare the results of debitage analysis with tools from the site. Tool types will be defined following bifaces and unifacial tools illustrated in Read (1982) and Read and Russell (1996). Tool types will be compared within any observed spatial loci at the site. Once tool types are defined, it will be possible to use them to answer specific research questions. The degree of time, stress and risk experienced by tool users, for example, can be evaluated from the care with which they made their tools. Pletka (2001b) provides details on identifying and quantifying the level of selection for tool attributes.

Analysis of ground stone artifacts will determine the function of ground stone, the demand for particular tool qualities, and the availability of suitable raw materials. Ground and pecked stone tools will first be classified by basic functional categories, including mano, metate, mortar, pestle, hammerstone, and other types. To the extent possible, ground stone analysis will incorporate tool fragments.

In order to help distinguish fragments that may be part of the same ground stone tool from those pieces that derived from different tools, minimum analytical nodules (Larson 1994) will be identified among the ground stone artifacts. Ground stone fragments from distinct analytical nodules must represent different tools. When a sufficiently large sample of fragments and complete ground stone tools of a particular type derive from the same analytical nodule, additional steps will be taken to identify the minimum number of whole artifacts that contributed to the assemblage following Hard et al. (1996).

Subsequent ground stone tool analyses will document attributes that reflect ground stone production, use, and conservation strategies. For each unique mano and metate, the type of processing strategy followed by the tool users will be identified from use wear facets and striation patterns (Adams 1999, 2002). Mano length or surface area provides a good measure of demand for ground products (Hard et al. 1996). Subsequent analysis will focus on the attributes of the ground stone tools that reflect the procurement and conservation of suitable raw materials (Horsfal 1987; Stone 1994; Adams 1999, 2002). For each ground stone tool, raw material hardness and texture will be evaluated, since these properties affect the utility of the tool for performing particular tasks. Then the tools will be evaluated for the intensity of use, including the quantity and extent of surface utilization, and size of any discarded tool or tool fragment. These data may address the nature of site activities, group mobility, access to resources, and demand for intensification.

Faunal Analysis

Faunal analysis will address research questions similar to those investigated in the analyses of stone tool production and use. Analysis of the range of faunal species taken by groups provides evidence for the intensity of resource exploitation (e.g., Broughton 1994). The size range of a faunal species may also reflect exploitation intensity. Overexploitation of large, desirable individuals may result in a group procuring smaller and previously less desirable individuals. The parts of an animal species that are represented in the faunal assemblage can provide other important information about human adaptations. The relative abundance of some parts may result from differential preservation of bone or from the differential processing, transport, or trade of choice parts. Groups would be particularly likely to acquire just the choicest parts of a game animal when such animals are bulky and can be found only at a considerable distance from the home base. Such long-distance transport would be particularly likely when population pressure has caused local resources to become scarce (Broughton 1999). Did groups expand their hunting range or intensify exploitation of local resources as population pressure increased?

Therefore, faunal analysis will quantify the kinds and portions of species represented in the assemblages. Bone will be separated from other artifact categories as part of the initial LSA laboratory analysis. For each analyzed context, bone will be distinguished by general taxa (mammal, bird, fish), and the separate groups will be submitted for analysis. LSA faunal analysts will identify fish and mammals. Analysis of birds will be subcontracted to a qualified specialist, such as the UCLA Zooarchaeology Laboratory. The faunal analyses will identify specimens to the most specific taxonomic level possible and identify element, size, and portion of the element represented as necessary. These specimens will also be examined for cut marks, traces of burning, and other signs of intentional modification. Identified bone tools will be described by functional categories. The representation of species in an assemblage can be determined from the number of identified specimens (NISP) from that species or from the minimum number of individuals (MNI) who had to have contributed parts to the assemblage to produce the observed NISP (Reitz and Wing 1999:191-202).

The representation of parts can be evaluated in many ways (Reitz and Wing 1999:202-221). One approach is to compare the NISP for all parts of a species to the NISP that would be present in complete animal skeletons (Stiner 1994). This method requires calculating MNI to determine how many parts from a species would be expected in the archaeological assemblage.

Shell will also be sorted from other artifact categories during the initial laboratory analysis. The shell will be treated in a fashion similar to the bone if shell density is low. Analysts will calculate both NISP and MNI from identifiable pieces. If the amount of marine shell recovered during the project is high, LSA will employ a slightly different strategy for analysis.

Detailed marine shell analysis may utilize a sample of shell from each analyzed context. The methods employed in sampling marine shell for this analysis will follow methods used to sample sediment grains in microartifact analyses (see Stein and Teltser 1989 and below). The shell from a given provenance will be sorted by size in a series of at least four nested screens. Each size fraction will then be weighed. From each size fraction, a percentage of the total shell weight, 5–10 percent depending on total weight, will be randomly selected. This sample will be identified to the most specific taxonomic level possible. Shell weight will then be calculated for the original sample. This procedure provides a consistent sample of shell from all contexts, facilitating comparisons, but requiring only small, manageable samples.

Microartifact Analysis

Processing and analysis of the microartifacts follows methods discussed by Sherwood (2001) and Stein and Teltser (1989). Each 500-gram sample taken from the field will be placed in a fine-mesh nylon bag, soaked in sodium hexametaphosphate, rinsed, and then dried. The resulting sandy fraction will be weighed and size-sorted through nested geologic sieves. Each individual size fraction will then be weighed. A constant sample of grains (500 grains, for example) will be selected at random from each size fraction for further analysis. The grains will be classified by material (such as quartz, bone, shell, or obsidian) and by type, when possible. The proportion of grains of a given material and type in this sample will then be converted to a proportion of the weighed size fraction. The results of this procedure can be plotted as a histogram, showing the proportion of grains of a given type and material by grain size interval. Such histograms facilitate comparison of artifacts by type and by context.

Sediment Analysis

Samples for analysis of sediment grain size will be derived from the same samples taken for microartifact analysis. This sediment will be analyzed using a LaMotte Soil Texture Kit. The kit measures the proportion of sand, silt, and clay that comprise a sediment sample. Because the tests in the kit are easy to perform and inexpensive, many samples can be processed. The sandy fraction from a sub-sample of the analyzed samples will be saved, weighed, and screened through nested geologic sieves. The analysis of the sandy fraction will facilitate a finer discrimination of the grain size distribution. A portion of the sandy fraction will also be examined for grain shape, angularity, and surface morphology.

Phosphate Analysis

Samples for analysis of the phosphate content of the sediments will be derived from the same samples taken for microartifact analysis. These sediments will be analyzed using a LaMotte Soil Phosphorous Kit. Because the tests in the kit are easy to perform and inexpensive, many samples can be processed. While this kit permits only a qualitative discrimination of available phosphate levels, useful results may be obtained from the large number of such tests performed. By running a large number of tests, patterns in the distribution of phosphate in the deposits may be discerned. This strategy has proven effective in other contexts.

F. SPECIALIZED STUDIES

Specialized studies will be conducted as needed, depending on the results of the project. LSA cannot definitively determine which studies will be performed prior to excavation. However, based on the results of previous testing (e.g., Gibson and Parson 1997), educated guesses can be made concerning the type and quantity of material that may be found that will require special study. Marine shell will require analysis as described previously and could be used for radiocarbon testing or evaluation of the seasonality of site use. Bone, if present in sufficient quantities, may also be subject to radiocarbon testing, and otoliths can provide data on the seasonality of site use. Such items may not be common in the project area. When found, obsidian should undergo sourcing and hydration analysis, although such material is less likely to be discovered during this project. Features or midden deposits will be sampled for flotation and paleoethnobotanical analysis if the excavations encounter such contexts. Beads, ornaments, and specialized utilitarian objects such as circular fishhooks are not likely to be found but may be of sufficient importance to warrant specialized study if the project does recover them. The following sections describe those studies that will likely be necessary, based on the items found during previous research in the project area.

Radiocarbon Testing

In order to firmly place the occupation and use of the sites in time, LSA will submit samples for radiocarbon dating as appropriate. Radiocarbon data will also be used to identify site disturbances (Erlandson and Rockwell 1987). Single organic items will be used to obtain radiocarbon data. Bone or marine shell is commonly used to generate such data. Bone is often of insufficient size to obtain precise dates. For this reason, the project will rely primarily on marine shell to date the loci of activity identified at each site during fieldwork. Samples of shell from varying depths within a single unit will be taken from these loci.

Should LSA recover an adequate sample of bone, it will also be radiocarbon-tested. Due to the normally small size of the bone found in midden deposits, Accelerator Mass Spectrometry (AMS) dating may be conducted instead of standard radiocarbon dating techniques. AMS dating provides accurate dates using very small samples of organic material. If sufficiently large pieces of bone are found, standard dating techniques will be used rather than AMS dating.

Otolith Analysis

Many fish species have otoliths sufficiently large to be retained in 1/8-inch mesh screen. Otoliths are almost always identifiable to family and are often identifiable to genus and species. In addition, otoliths exhibit annual growth rings that allow a determination of the season during which the fish died (Casteel 1976). Since various fish species are known to inhabit specific marine habitats, extrapolation of otolith data can also be used to identify those prehistoric marine habitats being fished. Richard Huddleston can perform such analyses as needed.

Obsidian Analysis

Specialized studies of obsidian may provide information about exchange and the periods during which the obsidian was flaked. Richard Hughes of the Geochemical Research Laboratory conducts x-ray fluorescence tests of obsidian, the results of which he matches to known obsidian sources in order to provide information on the origin of each flake. Origer's Obsidian Laboratory conducts hydration testing through thin-section analysis. Obsidian sourcing and hydration analysis should generally occur on as much obsidian debitage as possible in order to obtain a sufficient sample for making meaningful inferences. Factors that influence the quantity of material subject to sourcing and hydration will include the total number of obsidian items recovered, the location of recovered obsidian, and visible physical characteristics between obsidian artifacts.

Paleoethnobotanical Analysis

Analysis of carbonized wood and seeds provides indications of the local environment, seasonality of site use, and diet of the site's occupants. Samples excavated for paleoethnobotanical analysis will be transported to the Paleoethnobotanical Laboratory at UCLA. The samples will be processed by flotation, and the resulting wood, seeds, and fruits will be identified to the most specific taxonomic category possible. The results of these analyses will be compared to a control sample taken from an off-site location to assess the effects of bioturbation and other disturbances on the content of the paleoethnobotanical samples from archaeological contexts.

G. SITE-SPECIFIC RESEARCH PLANS

CA-SLO-1767 lies within the ADI just to the west of Thompson Avenue. Modern agricultural plowing has disturbed the site, but previous excavations at this site revealed fairly deeply buried archaeological deposit (Lebow et al. 2001). Most artifacts occurred within the upper 40 cm of the archaeological deposit, but artifacts could be found to depths of 80 cm below the modern ground surface. The site contains a moderate density of Monterey chert debitage, flaked stone tools, and ground stone tools. As at CA-SLO-1620, evidence for on-site early stage biface manufacture dominates the lithic assemblage. The site covers an area of approximately 8,000 square meters. Additional details can be found in the site record forms included in Appendix C. The excavators determined that the site was not eligible for the National Register. They derived this conclusion from the paucity of datable material at the site, although they did provisionally date it to the Early Period. Without a means by which to place the site in a secure chronological context, they felt that the artifacts at the site could not address important research questions. The National Register criteria for significance, however, specify a slightly higher threshold for significance than that required by the California Register, so it is possible that the site may be eligible for listing in the California Register.

Consequently, the collection from this site will be reanalyzed along the lines proposed in the foregoing sections. This analysis will address whether sufficient data exists at the site to answer the kinds of research questions presented earlier. No additional fieldwork will be conducted.

CA-SLO-2271 lies within the ADI along Willow Road between Hetrick Road and US 101. It consists solely of fragments of legal-sized Pismo clams *(Tivela stultorum)*. The site covers an area 47 x 17 m, with the greatest length in the northwest to southeast direction. At least 11 shell fragments lie in this area. Additional details can be found in the site record forms (Appendix C). Such refuse has often been found in association with historic trash deposits, and it is known that Pismo clam *(Tivela stultorum)* was placed historically on dirt roads for traction. Based on current information, the site does not appear to meet the criteria for listing in the California Register, lacking sufficient data that could address research questions about the historic era. The assignment of this site to the historic period is a plausible hypothesis but is based solely on the size and weathering of the shells. The shell derives from specimens larger than legal size and exhibit only moderate weathering. Many local archaeologists date such shells based on these criteria, but this method is subjective and rather unreliable. If the site dates to the precontact period, it may contain data relevant to an assessment of the relationship between prehistoric groups and environmental changes.

LSA will collect a single large shell sample for radiocarbon dating in order to ascertain its age. Should the shell sample date to the precontact era, LSA will then excavate a series of at least 13 STPs and test excavation units totaling up to two cubic meters in volume. The STPs will help to define the distribution of the archaeological record, and the test excavation units will provide data for evaluating site contents, integrity, and significance.

P-40-038219 consists of a single, weathered Pismo clam *(Tivela stultorum)* shell fragment (Appendix C). The shell fragment lies roughly 220 m (722 ft) east of the intersection of Hetrick Road and Willow Road. Isolated find 40-038219 may be the result of the same set of activities that produced CA-SLO-2150, a site located outside the ADI to the northwest. Together, these artifact scatters may form a single, large, low-density artifact scatter.

LSA will evaluate this possibility by first conducting an intensive surface survey and surface collection in a 50 x 50 m (164 x 164 ft) area around the isolated find. If this survey identifies four or more artifacts clustered within 10 m (33 ft) of each other, LSA will then excavate 10 STPs in the area surrounding the center of the finds. These STPs will be excavated using an offset grid with STP intervals spaced at 67.5 m (25 ft).

Should these STPs identify an archaeological deposit, LSA may excavate additional STPs. The additional STPs will be excavated at 7.5-m intervals until STPs that produced artifacts have been completely bounded by STPs that did not produce artifacts. This distribution of STPs will define the loci of activity and refine site boundaries. Test excavation units will then be placed at the center of the identified loci.

P-40-038220, another isolated artifact, rests within the ADI to the northwest of the point at which Willow Road ends at US 101 (Appendix C). This retouched flake lies in the same general area as an isolated artifact identified during an earlier survey (Gibson and Parson 1997). Isolated find 40-038220 may thus be part of a larger site. STPs excavated by Gibson and Parson (1997), however, failed to find any additional artifacts near the isolated artifact. Surface visibility in this area was variable during the LSA survey.

To ensure that no archaeological deposits exist in this area, LSA will conduct an intensive surface survey and surface collection within a 50 x 50 m area centered on the isolated find. LSA will then excavate STPs to search for an associated subsurface deposit if the survey identifies four or more additional artifacts clustered within 10 m of each other. LSA will excavate 10 STPs around the center of the finds. These STPs will be placed using an offset grid with STP intervals spaced at 7.5-m (25-ft) intervals.

Should these STPs identify an archaeological deposit, LSA will excavate additional STPs. The additional STPs will be excavated at 7.5-m (25-ft) intervals until STPs that produced artifacts have been completely bounded by STPs that did not produce artifacts. This distribution of STPs will define the loci of activity and refine site boundaries. LSA will then excavate test excavation units at the center of the identified loci.

V. STUDY RESULTS

A. SUPPLEMENTARY PHASE I SURVEY

The supplementary pedestrian survey identified two isolated artifacts. Both of these isolated finds occur outside the ADI. Isolated find LSA-RAJ334-I-5 is a retouched Franciscan chert flake found on the shoulder of a low, southeast-facing rise within Nipomo Valley. Isolated find LSA-RAJ334-I-6 is a small, burned, Monterey chert core found on a gentle, southwest-facing slope within Nipomo Valley. Additional details about these finds are provided on the site record forms in Appendix C. Isolates are not considered important resources. Because both of these isolated finds occur outside of the ADI, no additional cultural resource investigations are recommended.

B. GEOARCHAEOLOGY

LSA conducted geoarchaeological backhoe trenching in the area where proposed interchange work will occur. The purpose of this trenching was twofold: (1) to identify cultural resource sites buried by sand, and (2) to determine the potential for buried cultural resources based on the degree of soil development and sediment stability evident in the trench profiles. It was suggested that it may be possible to identify limits to the depth at which potentially buried cultural deposits could exist within the area by conducting large-scale mechanical excavation. Backhoe trenches were excavated to depths of 3.0–4.6 m (10–15 ft), while proposed excavation for the Willow Road interchange project is expected to reach depths exceeding 12.2 m (40 ft).

In the local area, it has been found that cultural remains and artifacts do not occur below soil horizons known as clay lamellae (Christopher Ryan, Caltrans Archaeologist, personal communication). Clay lamellae are formed by the downward, water-propelled percolation of windborne silt and clay deposited onto the landform. These silt and clay lenses tend to trap water, and are slowly pushed downward by percolating water and gravity. Over time, the particles accumulate at depth into layers, or lenses, which are expansive horizons where the silt and clay have accumulated. There are often several superimposed lamellae that form often two or more meters from the current ground surface. Since these lamellae can take thousands of years to form, their presence indicates undisturbed sediment of great age. The great length of time associated with lamellae formation indicates that the likelihood of finding cultural material below lamellae is negligible. Thus, in areas such as the Nipomo Dune Complex, the existence of cultural material can then be estimated to occur no deeper than the uppermost lamellae.

On January 25, 2005, three backhoe trenches were excavated in the sandy sediment known to be part of the Nipomo Dune Complex. The extensive Nipomo Dune Complex extends nearly 16 km (10 miles) along the coast from Arroyo Grande Creek at Oceano, south to Point Sal, and extends inland nearly the same distance to the confluence of Nipomo Creek and the Santa Maria River (Reynolds 2005:2). The Callendar Dune Complex is the northernmost of three components of the Nipomo Dunes and encompasses the current project. The Callender Dune Complex has existed for at least 18,000 years and has been stabilized for the past 10,000 years. This suggests that cultural resources should not exist deep in the dune matrix.

The inland extent of the dunes is Nipomo Creek, less than 0.4 km (0.25 mile) east of the current trenching area. The location of all backhoe trenches excavated for this project is depicted in Map 3 and Appendix D. Trench No. 1, the easternmost trench, is located just less than 50 m (160 ft) southwest of the western US 101 fence line, at a point 30 m (100 ft) northwest of the current paved Willow Road. The middle trench, Trench No. 2, is located southwest of Trench No. 1, approximately 82 m (270 ft) southwest of the western US 101 fence line, and 52 m (170 ft) northwest of Willow Road. The westernmost trench, Trench No. 3, is located 107 m (350 ft) southwest of US 101 and 12 m (40 ft) northwest of Willow Road.

Trench locations were chosen because of their proximity to the current project footprint. They were also chosen for the following reasons: Trench No. 1 is in an area that appears to be a small spoils pile. It was possible that a soil profile in this area would identify previous subsurface disturbance. Trench No. 2 was placed approximately the same distance from Willow Road as Trench No. 1. The location was chosen because it appears as though a low drainage depression originates from this area, and it was hoped that Trench No. 2 would identify any subsurface components to this erosion if they existed. Trench No. 3 was placed nearer Willow Road and directly within the proposed new Willow Road alignment to identify any subsurface anomalies in this area.

The soil profile of each trench was recorded separately, and all three are included in Appendix D. All three profiles were sufficiently similar that one generalized sediment stratigraphy is described for all of the profiles. The generalized profile follows.

- **Zone 1.** Approximately the upper 60 cm (2 ft) of sediment is brown (10 YR 5/3) bioturbated soil. Rodent and root disturbance are common within this first zone.

- **Zone 2.** The second zone occurs between 60 cm–1.8 m (2–6 ft) and consists of massive, light yellowish-brown (10 YR 6/4), bioturbated, aeolian sand. Rodent and root disturbance are not as abundant in this zone, but when they do occur, they are highly visible. Roots tend to be larger and spread out. The light color of the sand and absence of rocks makes this lense appear somewhat artificial, although it is the windborne nature of the particles that is known to have produced this effect.

- **Zone 3.** This zone occurs from 1.8–3.0 m (6–10 ft) in depth and is the lamellae zone. Like Zone 2, Zone 3 is also colored light yellowish-brown (10 YR 6/4). Sediment within Zone 3 contain from three to seven thin (1 mm thick) discontinuous lamellae. Lamellae were clearly visible within this zone in all three trenches within 1.8–2.4 m (6–8 ft) of the current ground surface.

- **Zone 4.** The fourth zone occurs below a depth of 3 m (10 ft). Zone 4 is a dark yellowish-brown (10 YR 4/4) of clay draped over aeolian sand grains. Some breaks between the clay grains increase the porosity within this zone, and fractures are evident in the trench walls.

An additional soil characteristic was identified in Trench No. 3 between Zone 2 and 3, near where the lamellae begin. At a depth of 1.8 m (6.0 ft), metallic oxides and carbonate precipitation were identified, but only at this depth within Trench No. 3. It is likely that water percolation brought the elements that created this effect, to a depth where it was stopped due to the interruption in downward migration caused by the lamellae silt and clay lense. This suggests that the metallic oxides and carbonate precipitation are recent, or at least no older than approximately 10,000 years.

An interesting observation concerning the trenches is that each of the four zone profiles occurs at a relatively constant depth below the current ground surface within each trench, even though overall elevation of each zone differs between trenches. This suggests recent development of surface topography. Had each zone been located at a constant elevation within each trench, this would have suggested Pleistocene stratigraphy. However, their differential elevation suggests that each zone is a secondary, subsurface, postPleistocene product of erosion that developed into the currently visible Holocene topography (Reynolds 2005:4).

Summarily, geoarchaeological trenching identified subsurface stratigraphy to be intact. There have been no large subsurface disturbances at depth in the area tested. In fact, trenching identified lamellae within each of the three trenches, beginning at depths ranging from 1.8–2.4 m (6–8 ft). This suggests that it is highly unlikely for cultural resources to exist at depths greater than the shallowest of lamellae, which range from 1.8–2.4 m (6–8 ft) in the area tested. Above this depth, cultural resources and artifacts may exist. This depth is contemporaneous with the end of the Pleistocene. Below this depth, however, Pleistocene fossils may occur.

C. CA-SLO-1767

Previous Research

The site was excavated by Lebow et al. (2001), who identified it as a moderately dense scatter of lithic debris occurring in an area measuring 90 x 220 m (295 x 722 ft). The site was located on a low rise just west of Thompson Road and approximately 0.4 km (0.25 mile) east of Nipomo Creek. Excavation included 34 STPs and five 1 x 1 m excavation units. Maximum site depth was 80 cm. A total of 6.35 m^3 of sediment was excavated. The majority of material was recovered from the upper 40 cm of deposit (Lebow et al. 2001:10.1-10.4).

It is important to note that the collection from this site consists entirely of lithic tools and debitage. The original tool analysis provided a comprehensive discussion of tool production and use (Lebow et al. 2001). This analysis concluded that the site served as a short-term camp where toolmakers engaged in retooling and tool maintenance of expedient flake tools made primarily of Monterey chert.

> "The lithic assemblage from CA-SLO-1767 is expedient in nature, as reflected by the unprepared multidirectional cores and the reliance on flake tools. The debitage assemblage reveals that mid- to late-stage bifacial reduction was rare and that on-site tool production focused on core reduction for flake tools. Recovered bifaces are mostly...blanks that were rejected during manufacture. Whereas flake tools were made to serve...on-site uses, the few bifaces made at the site were intended for use off-site." [Lebow et al. 2001:10.15-10.16]

Obsidian analysis included testing six specimens for x-ray fluorescence and eight specimens for hydration testing. Results showed that two pieces originated each from the Napa Valley source (4.7 and 4.8 µm hydration measurement), Casa Diablo (5.0 and 5.8 µm hydration), and an unknown source (4.9 and 6.4 µm), and that one piece originated each from Fish Springs (4.8 µm hydration) near Casa Diablo, and Coso (4.0 µm hydration; Lebow et al. 2001:10.16).

Determining a use period for the site based on the eight obsidian hydration measurements involved using previously developed hydration rates and correction factors. When these rates were applied to the eight hydration readings, they suggested that CA-SLO-1767 was used between 4810–1262 BP. If the smallest hydration measurement (4.0 µm Coso) is disregarded, Lebow et al. (2001:10.18) suggest that the site was used prior to 1000 BC, or during what they describe as the Early Period.

Reanalysis of Collections

This analysis left several questions unanswered. Do other lines of evidence suggest that multiple depositional episodes took place at the site? Have noncultural formation processes impacted potential signatures of distinct occupations? With these questions in mind, LSA undertook a reanalysis of the existing debitage, relying on the MAN technique to identify discrete periods of occupation. Laboratory recording of MAN numbers was conducted by Dr. Scott Pletka. Organization of data into tables was completed by Ivan Strudwick.

Reanalysis of the material excavated by Lebow et al. (2001) focused on the excavation units for several reasons. Primarily, units are more controlled and exhibit less loss of depth accuracy than other types of excavation such as STPs, which were also placed at the site. STP sidewalls will slough during excavation, resulting in the mixing of material from upper and lower depths. Usually, it is material from the sidewall of upper levels that falls into a lower level during excavation. Another somewhat less compelling reason is that STP volume varies more than excavation unit volume. Often, deep STPs are not perfectly cylindrical in shape and can taper with depth, resulting in a decreased volume of excavated sediment as the STP is excavated deeper. The size of excavation units, however, is more easily controlled, as is depth. Units rarely taper if excavated carefully. The resulting difference in actual versus conceptual volume between an STP and excavation unit is such that material from units more accurately reflect reality than material from STPs. Thus, reanalysis focused on lithic residual from units.

First, a list of material types by size and depth was compiled for each unit. Then, similar tables were completed for the MAN analysis. Because of the number of tables, the majority have been included as Appendix E. The usefulness of these tables is that they list not only the type and size of debitage, but their specifics by level for each unit. Using these tables, the size, material, and type of debitage from a given level of any unit can be easily identified. Information from these tables was condensed onto three overview tables (Tables A–C) presented here. Traits identified within these tables are discussed prior to a discussion of MAN analysis data.

Table A summarizes debitage type by size and unit. Table B summarizes all debitage by material and size for each unit. Table C identifies the distribution by size and depth of all debitage of the two lithic materials, Monterey chert and siliceous shale, that compose 97.9 percent of all debitage.

Table A shows that there are more flakes (n=747) than flake fragments (n=122) or pieces of shatter (n=142). Table A also shows that there is an almost even distribution of flakes and flake fragments by size within the 4.0, 6.3, and 8.0 mm screen mesh sizes, whereas the 3.2 and 16.0 mm categories have relatively few examples of flakes and flake fragments. Shatter, interestingly, has a more even distribution, with relatively greater representation (n=24, or 16.9 percent) in the 16.0 mm category. This is most likely indicative of the care taken when working items that will produce small flakes. In other words, initial core reduction will produce a distribution of

TABLE A
CA-SLO-1767
SUMMARY OF LITHIC DEBITAGE TYPE BY UNIT AND SIZE

		(cm)	Screen Mesh Size (mm)					
Debitage Type	**Unit**	**Depth**	**3.2**	**4.0**	**6.3**	**8.0**	**16.0**	**Total**
Flake	1	(20)	14	24	20	18	3	79
	2	(80)	9	23	23	40	3	98
	3	(60)	34	60	50	36	7	187
	4	(50)	28	43	43	65	9	188
	5	(60)	27	57	47	59	5	195
		Total	112	207	183	218	27	**747**
Flake Fragment	1	(20)	--	1	3	5	1	10
	2	(80)	2	3	2	5	1	13
	3	(60)	2	12	7	5	--	26
	4	(50)	7	10	11	10	1	39
	5	(60)	4	5	12	12	1	34
		Total	15	31	35	37	4	**122**
Shatter	1	(20)	1	3	--	3	1	8
	2	(80)	1	4	5	5	2	17
	3	(60)	7	5	4	8	--	24
	4	(50)	5	11	13	19	20	68
	5	(60)	3	3	11	7	1	25
		Total	17	26	33	42	24	**142**
Biface	1	(20)	--	--	--	--	--	0
	2	(80)	--	--	--	1	--	1
	3	(60)	--	1	1	--	--	2
	4	(50)	--	--	--	1	1	2
	5	(60)	--	--	--	--	--	0
		Total	0	1	1	2	1	**5**

Data based on reanalysis of lithic debitage from Lebow et al. (2001)

TABLE B
CA-SLO-1767
SUMMARY OF LITHIC DEBITAGE MATERIAL BY UNIT AND SIZE

		(cm)	Screen Mesh Size (mm)					
Material Type	**Unit**	**Depth**	**3.2**	**4.0**	**6.3**	**8.0**	**16.0**	**Total**
Chert - Monterey	1	(20)	15	27	22	26	5	95
	2	(80)	15	40	39	55	6	155
	3	(60)	42	76	61	44	4	227
	4	(50)	40	56	53	75	11	235
	5	(60)	34	60	62	64	6	226
		Total	146	259	237	264	32	**938**
Chert - Franciscan	3	(60)	--	1	--	2	--	3
	4	(50)	--	1	--	--	--	1
		Total	0	2	0	2	0	**4**
Chert - Island	2	(80)	--	--	1	--	--	1
	4	(50)	--	2	--	--	--	2
		Total	0	2	1	0	0	**3**
Siliceous Shale	1	(20)	--	--	1	0	--	1
	2	(80)	--	1	3	6	1	11
	3	(60)	--	1	--	4	1	6
	4	(50)	1	--	3	6	1	11
	5	(60)	--	4	7	12	1	24
		Total	1	6	14	28	4	**53**
Undifferent. Igneous	2	(80)	--	--	--	2	1	3
	4	(50)	--	--	--	1	--	1
	5	(60)	--	--	1	1	--	2
		Total	0	0	1	4	1	**6**
Obsidian	1	(20)	--	1	--	--	--	1
	2	(80)	--	--	--	1	--	1
	3	(60)	1	--	--	--	--	1
		Total	1	1	0	1	0	**3**

Does not include Quartzite (n=1), Sandstone (n=2), and Undetermined (n=2) materials.
Data based on reanalysis of lithic debitage from Lebow et al. (2001)

TABLE C
CA-SLO-1767
DISTRIBUTION OF MONTEREY CHERT AND SILICEOUS SHALE DEBITAGE IN UNITS BY SIZE AND DEPTH

	(cm)	Screen Mesh Size (mm)						(%)
	Depth	**3.2**	**4.0**	**6.3**	**8.0**	**16.0**	**Total**	***Percent***
Monterey Chert	0-10	20	45	38	41	11	155	*16.5*
	10-20	42	59	49	71	8	229	*24.4*
	20-30	20	51	44	50	2	167	*17.8*
	30-40	10	33	34	42	4	123	*13.1*
	40-50	33	48	40	31	3	155	*16.5*
	50-60	17	13	20	18	2	70	*7.5*
	60-70	4	8	11	8	2	33	*3.5*
	70-80	--	2	1	3	--	6	*0.6*
	Total	146	259	237	264	32	**938**	*100.0*
	Percent	*15.6*	*27.6*	*25.3*	*28.1*	*3.4*	*100.0*	
Siliceous Shale	0-10	--	1	3	5	1	10	*18.9*
	10-20	--	2	1	6	1	10	*18.9*
	20-30	--	1	3	2	--	6	*11.3*
	30-40	--	1	3	7	1	12	*22.6*
	40-50	1	--	2	4	--	7	*13.2*
	50-60	--	--	--	2	1	3	*5.7*
	60-70	--	--	2	2	--	4	*7.5*
	70-80	--	1	--	--	--	1	*1.9*
	Total	1	6	14	28	4	**53**	*100.0*
	Percent	*1.9*	*11.3*	*26.4*	*52.8*	*7.5*	*100.0*	

Data based on reanalysis of lithic debitage from Lebow et al. (2001)

shatter sizes, including shatter measuring greater than 1.6 cm (16.0 mm). However, shatter of this size is not likely to have been produced during subsequent reduction sequences, thus the dearth of relatively large, 16.0 mm sized flakes and flake fragments, and the relative abundance of 16.0 mm sized pieces of shatter.

The total distribution of debitage sizes can be viewed another way. The majority of debitage, excluding the largest (16.0 mm) category, includes flakes (n=720, or 96 percent), flake fragments (n=118, or 97 percent), and shatter (n=118, or 83 percent) measuring less than 1.6 cm maximum size. An even distribution would have been 20 percent per category. Shatter is the only debitage type to approximate an even distribution. This size distribution, in conjunction with a total of only 5 bifacially worked pieces of debitage, suggests that lithic retouch, retooling, and sharpening was the primary lithic activity at this site. A larger proportion of large-sized lithic debris, such as flakes and shatter measuring greater than 1–2 cm in size, would suggest that initial core reduction was occurring at the site. A larger number of cores, or spent cores, would also suggest this. The small quantity of bifacially worked material also serves the argument that biface production was not the primary activity at this site.

The disproportionally low quantity of shatter also suggests that initial lithic reduction was not the primary activity at CA-SLO-1767. Shatter has been shown to occur more recently during early stages of production (Sullivan and Rozen 1985; Prentiss and Romanoski 1989; Tomka 1989; Morrow 1997). Despite the fact that flint knapping produces many small pieces of debitage during all stages of reduction (Petterson and Sollberger 1978), the absence of larger flakes, shatter, and lack of cores indicates that the focus of the reduction sequence was not initial lithic reduction.

Table B shows that there are several different types of material represented by the debitage from CA-SLO-1767, including chert, siliceous shale, undifferentiated igneous, obsidian, quartzite, sandstone, and undetermined materials. However, chert and siliceous shale are by far the most common materials used. In fact, of the 1,007 pieces listed in the table (and the 5 pieces not listed), 938 pieces (92.7 percent) are Monterey chert, and another 53 pieces (5.2 percent) are siliceous shale. Together, chert and siliceous shale compose 97.9 percent of all the material reanalyzed in this study. For this reason, Table C specifically addresses only Monterey chert and siliceous shale.

Table C lists the distribution of Monterey chert and siliceous shale debitage in units by size and depth. The Monterey chert distribution appears relatively normal by level. There is a relatively even quantity of debitage (n=155, or 16.5 percent) in the 0–10 cm level, becoming somewhat greater (n=229, or 24.4 percent) in the 10–20 cm level, then returning (n=167, or 17.8 percent) to a quantity similar to the first level by 20–30 cm, and continuing similar quantities to the 50–cm level, after which debitage quantities taper off. This is a standard curve typifying sites that have had some, but little, sediment accumulation since the site was last occupied. The slight difference in debitage quantity by depth does not suggest that there were multiple occupations or periods of abandonment. Had there been a significant rise in debitage count in one or more lower levels, this might have been the case. Because over 90 percent of all lithic material at the site is Monterey chert debitage, the distribution of this material typifies the distribution of all material at the site.

The reason for the decrease in quantity of material below 50 cm is twofold. First, only three of the five units were excavated below 50 cm. Second, as at most other sites, abundance of material decreases with depth until a sterile noncultural horizon is reached.

The distribution of siliceous shale in Table C is similar to the distribution of Monterey chert, although there is no variation between the upper two levels and there is an increase in quantity at the 30–40 cm level. However, this increase in quantity is inconsequential due to the relatively small total number of siliceous shale items (Table C). What is notable concerning the distribution of siliceous shale debitage is the near absence (n=1, or 1.9 percent) of 3.2–4.0 mm sized debitage. This indicates that small shale debitage is rare, and the reason for this is either that siliceous shale material does not flake well at a small size, or that no attempt was being made to make small flakes from this material.

Concomitantly, there is also a relative dearth of siliceous shale flakes (n=4, or 7.5 percent) measuring greater than 16.0 mm (Table C). In conjunction with the relative lack of small flakes, this suggests that there was an effort to produce debitage 6.3–16.0 mm in size. This may have been a byproduct of the morphological characteristics of siliceous shale. Localized beds of compressed marine sedimentary shale found in and near the Miocene Monterey Formation may have contributed significantly to the average siliceous shale debitage size measured here. It may be that the siliceous shale material thickness is constrained by the thickness of the vitrified portion of the shale being reduced. In cases where tool retouch and sharpening is the principal reduction activity, which is what is tentatively thought to have occurred at this site, the distribution of debitage size for siliceous shale is probably consistent with what is observed in Table C. It is also possible that the limited quantity of siliceous shale worked is insufficient to identify flaking patterns and that tool retouch and sharpening was not the predominant lithic activity occurring for this material. Interestingly, of the 51 flaked stone tools identified by Lebow et al. (2001:10.8), only one (1.9 percent) is siliceous shale. Furthermore, this tool is a cobble tool rather than a biface, projectile point, or flake tool, suggesting that retouch and sharpening was not conducted on this material.

Knowledge concerning the primary lithic reduction activity of the site can be further refined by observing the distribution of Monterey chert debitage (Table C). Like siliceous shale, the quantity of chert debitage is notably low in the 3.2–4.0 (n=146, or 15.6 percent) and >16.0 mm (n=32, or 3.4 percent) categories. Given that the quantity of chert debitage at CA-SLO-1767 is 938 pieces, one would expect that had initial core reduction been the primary lithic activity at the site, more than 3.4 percent of the residual would measure greater than 1.6 cm in size. Substantiating this is the fact that only 2 (3.9 percent) of the 51 flaked stone tools are cores (Lebow et al. 2001:10.8).

A relatively even distribution of debitage within the 4.0–16.0 mm categories (n=760, or 81 percent) composes the majority of Monterey chert debitage (Table C). This quantity of debitage is remarkably great considering the small size of the flakes included in the total. This quantity includes primarily small thinning flakes and larger pressure flakes that were made during tool retouching, sharpening, and probably limited biface manufacture. The 51 flaked stone tools identified during the original study (Lebow et al. 2001) include 48 (94.1 percent) made of some type of chert, primarily Monterey chert. Of these 48 chert tools, 13 (27.1 percent) are bifaces and projectile points, and 32 (66.7 percent) are flake tools. Thus, the primary lithic activity at the site was the maintenance of flaked stone tools other than bifaces, along with limited biface manufacture. The flaked stone tools are both patterned and unpatterned, indicating that they were expedient in nature and made or retooled quickly for an immediate task.

As Lebow et al. state (2001:10.9), the assemblage is badly fragmented, with few complete specimens. Most of the flaked stone tools, Lebow et al. state (2001:10.11), were used to work "hard" rather than "soft" materials. Projectile points and fragments are rare in the assemblage, and hunting was not a primary activity for the site occupants. The logic of this statement is also suggested by the fact that no bone was found at the site. Flaked stone tools found at the site suggest that "...site activities were centered around manufacture, maintenance, and processing... Most stone tools at CA-SLO-1767 are expedient flake tools" (Lebow et al. 2001:10.11). This conclusion is supported by the current debitage reanalysis, but with less emphasis on manufacture. It is possible that site activities focused on some sort of vegetal processing. Perhaps some fiber used for basketry production was collected and processed at CA-SLO-1767.

MAN Analysis. MAN analysis was also conducted on debitage from the site recovered by Lebow et al. (2001). Per Larson (1994), MANs are distinctive variants of standard raw material types that were identified within general lithic material categories. These unique nodule types were based on characteristics such as color and texture, and are used to estimate discrete production episodes. Individual MAN identification numbers were assigned to each distinctive lithic reanalyzed for this study. MAN numbers are listed each time they were observed by depth for each of the five units in Tables D–H. Table I compiles this unit data by level and thus contains all MAN numbers identified within the five units.

Table I shows that MAN numbers were provided for 866 specimens. MAN No. 0 was recorded every time a specimen lacked a MAN number. MAN Nos. 1–24 and 26 are chert; 28 and 38–39 are obsidian; 30–35 are siliceous shale; 36 and 42 are undifferentiated igneous, and 41 is sandstone. Thus, 37 individual MAN numbers exist, of which 25 (67.6 percent) are chert; 6 (16.2 percent) are siliceous shale; 3 (8.1 percent) are obsidian; 2 (5.4 percent) are undifferentiated igneous; and 1 (2.7 percent) is sandstone. MAN number clusters are evident to depths of 60 cm. Only Unit 2 extends below 60 cm depth, so any MAN numbers below 60 cm are from Unit 2. Those MAN numbers found in greater than average percentages include MAN Nos. 3, 4, 5, 6 and 11 (Table I). No other lithic material contains substantial quantities of one MAN number.

One manner by which to identify discrete lithic reduction episodes is to identify quantities of an individual MAN number within a unit that far exceeds the overall average for all of the units. This would indicate that a distinctive variety of one lithic type was being flaked.

Beginning with Unit 1 (Table D), it is observed that the only MAN numbers occurring in substantial quantity are Nos. 2, 3, 4, 5, 6, and 11, all chert. Except for MAN No. 2, these are common in other units at nearly the same percentage rates. Unit 2 (20 cm total depth) has seven occurrences of MAN No. 2. However, Units 3 (50 cm) and 4 (50 cm) both have six occurrences each of MAN No. 2 chert. Although all seven of these are within the upper 20 cm in Unit 2, this unit was excavated only to 20 cm. Five of the six occurrences of MAN No. 2 in Unit 3 (Table F) are within the 10–30 cm levels, and five of the six occurrences in Unit 4 are within the upper 20 cm. However, MAN No. 2 also occurs in the 50–60 cm level of Units 4 and 5 (Tables G and H) and the 40–50 cm level of Unit 4 (Table G). While it appears that MAN No. 2 is concentrated in the upper 20 cm of Units 1, 3, and 4, there is some distribution. And although Unit 1 is close to Unit 3, Unit 4 is distant, so the argument that there is a localization of MAN No. 2 is less true than the premise that it exhibits a depth concentration.

MAN No. 1 is similar to MAN No. 2 in that much of the total identified occurrences come from one unit, in this case Unit 2 (n=11, or 39.3 percent), although this is not a majority of its total occurrence (Table E). In Unit 2, these occurrences are from 30–70 cm. Unit 3 (Table F) also has several occurrences of MAN No. 1 (n=5) in the 20–50 cm level. However, Unit 4 has two

TABLE D
CA-SLO-1767, UNIT 1
MAN NUMBER* OCCURRENCE BY DEPTH

		Depth (cm)		Total	
MAN No.	**Material**	**0-10**	**10-20**	**No.**	**%**
0**	No MAN No.	8	8	--	--
1	Chert	1	--	1	*1.2*
2	Chert	5	2	7	*8.6*
3	Chert	2	7	9	*11.1*
4	Chert	4	12	16	*19.8*
5	Chert	8	3	11	*13.6*
6	Chert	--	9	9	*11.1*
7	Chert	1	--	1	*1.2*
8	Chert	1	--	1	*1.2*
9	Chert	--	1	1	*1.2*
10	Chert	2	1	3	*3.7*
11	Chert	5	5	10	*12.3*
13	Chert	1	--	1	*1.2*
14	Chert	--	2	2	*2.5*
16	Chert	--	4	4	*4.9*
21	Chert	--	1	1	*1.2*
23	Chert	1	--	1	*1.2*
24	Chert	1	--	1	*1.2*
34	Siliceous Shale	1	--	1	*1.2*
39	Obsidian	--	1	1	*1.2*
20	**Total**	**33**	**48**	**81**	***100.0***

* - MAN: Minimum Analytical Nodule
** - Not included in totals

TABLE E
CA-SLO-1767, UNIT 2
MAN NUMBER* OCCURRENCE BY DEPTH

MAN		Depth (cm)								Total	
No.	Material	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	No.	%
0**	No. MAN No.	2	6	2	3	2	1	1	--	--	--
1	Chert	--	--	--	3	3	1	4	--	11	*7.1*
2	Chert	--	--	1	--	1	--	--	--	2	*1.3*
3	Chert	3	1	1	--	3	2	4	1	15	*9.7*
4	Chert	1	4	1	3	3	2	4	--	18	*11.6*
5	Chert	1	2	--	4	2	2	--	--	11	*7.1*
6	Chert	3	2	5	1	2	1	5	--	19	*12.3*
7	Chert	--	--	--	--	--	1	--	--	1	*0.6*
8	Chert	--	3	--	4	--	--	--	--	7	*4.5*
10	Chert	--	1	--	--	--	1	--	--	2	*1.3*
11	Chert	--	4	2	2	1	4	4	1	18	*11.6*
12	Chert	--	--	--	--	--	5	--	--	5	*3.2*
13	Chert	--	3	--	--	1	--	2	2	8	*5.2*
14	Chert	1	--	--	--	1	--	1	--	3	*1.9*
15	Chert	--	--	--	1	--	--	--	--	1	*0.6*
16	Chert	--	2	1	2	--	1	4	2	12	*7.7*
19	Chert	--	--	--	--	--	--	1	--	1	*0.6*
20	Chert	--	--	--	--	--	--	1	--	1	*0.6*
21	Chert	--	--	--	--	--	--	1	--	1	*0.6*
22	Chert	1	--	--	1	--	--	--	--	2	*1.3*
30	Siliceous Shale	--	--	--	--	--	--	1	1	2	*1.3*
31	Siliceous Shale	--	1	2	1	--	1	2	2	9	*5.8*
33	Siliceous Shale	--	--	--	--	--	--	1	--	1	*0.6*
34	Siliceous Shale	--	--	1	--	--	--	--	--	1	*0.6*
36	Undiff. Igneous	1	--	--	--	2	--	--	--	3	*1.9*
38	Obsidian	--	1	--	--	--	--	--	--	1	*0.6*
25	**Total**	**11**	**24**	**14**	**22**	**19**	**21**	**35**	**9**	**155**	***100.0***

* - MAN: Minimum Analytical Nodule
** - Not included in totals

TABLE F
CA-SLO-1767, UNIT 3
MAN NUMBER* OCCURRENCE BY DEPTH

MAN		Depth (cm)						Total	
No.	Material	0-10	10-20	20-30	30-40	40-50	50-60	No.	%
0**	No MAN No.	9	3	10	4	6	1	--	--
1	Chert	1	--	1	1	3	--	6	*2.9*
2	Chert	--	4	1	--	--	1	6	*2.9*
3	Chert	6	5	2	2	7	--	22	*10.6*
4	Chert	7	16	10	4	1	3	41	*19.7*
5	Chert	1	1	5	2	--	3	12	*5.8*
6	Chert	3	1	2	3	17	6	32	*15.4*
8	Chert	2	2	2	--	2	1	9	*4.3*
9	Chert	--	--	--	--	1	--	1	*0.5*
10	Chert	2	1	1	--	--	--	4	*1.9*
11	Chert	6	2	--	3	6	6	23	*11.1*
13	Chert	--	--	3	--	--	--	3	*1.4*
14	Chert	1	--	--	--	--	--	1	*0.5*
15	Chert	1	--	1	--	1	--	3	*1.4*
16	Chert	5	4	3	3	5	1	21	*10.1*
17	Chert	--	1	1	--	--	--	2	*1.0*
18	Chert	--	1	--	--	--	--	1	*0.5*
19	Chert	--	--	--	--	--	2	2	*1.0*
20	Chert	--	1	--	--	1	1	3	*1.4*
21	Chert	1	--	--	--	1	2	4	*1.9*
22	Chert	--	1	--	--	--	--	1	*0.5*
28	Obsidian	--	--	--	1	--	--	1	*0.5*
31	Siliceous Shale	1	--	--	--	1	--	2	*1.0*
32	Siliceous Shale	--	--	--	--	1	1	2	*1.0*
33	Siliceous Shale	1	--	--	--	--	1	2	*1.0*
34	Siliceous Shale	--	2	--	--	--	--	2	*1.0*
36	Undiff. Igneous	1	1	--	--	--	--	2	*1.0*
26	**Total**	**39**	**43**	**32**	**19**	**47**	**28**	**208**	***100.0***

* - MAN: Minimum Analytical Nodule
** - Not included in totals

TABLE G
CA-SLO-1767, UNIT 4
MAN NUMBER* OCCURRENCE BY DEPTH

MAN		Depth (cm)					Total	
No.	**Material**	**0-10**	**10-20**	**20-30**	**30-40**	**40-50**	**No.**	**%**
0**	No MAN No.	7	13	5	7	11	--	--
1	Chert	2	--	--	1	1	4	*1.9*
2	Chert	3	2	--	--	1	6	*2.9*
3	Chert	1	6	7	2	9	25	*12.1*
4	Chert	5	10	10	7	10	42	*20.3*
5	Chert	--	9	3	8	8	28	*13.5*
6	Chert	5	4	3	2	3	17	*8.2*
7	Chert	--	--	2	--	--	2	*1.0*
8	Chert	2	3	2	1	2	10	*4.8*
9	Chert	--	1	--	--	--	1	*0.5*
10	Chert	--	2	1	--	3	6	*2.9*
11	Chert	2	4	6	6	6	24	*11.6*
12	Chert	2	--	--	--	1	3	*1.4*
13	Chert	--	--	1	3	1	5	*2.4*
14	Chert	1	--	1	--	--	2	*1.0*
15	Chert	--	1	--	1	--	2	*1.0*
16	Chert	--	--	7	1	3	11	*5.3*
19	Chert	--	1	--	--	1	2	*1.0*
20	Chert	--	--	1	--	--	1	*0.5*
21	Chert	--	1	--	--	1	2	*1.0*
22	Chert	--	1	--	--	--	1	*0.5*
23	Chert	--	--	1	2	1	4	*1.9*
26	Chert	--	--	1	--	--	1	*0.5*
30	Siliceous Shale	--	--	--	--	1	1	*0.5*
31	Siliceous Shale	--	1	--	--	--	1	*0.5*
32	Siliceous Shale	--	--	--	1	2	3	*1.4*
34	Siliceous Shale	--	--	--	1	--	1	*0.5*
35	Siliceous Shale	--	1	--	--	--	1	*0.5*
36	Undiff. Igneous	1	--	--	--	--	1	*0.5*
28	**Total**	**24**	**47**	**46**	**36**	**54**	**207**	***100.0***

* - MAN: Minimum Analytical Nodule
** - Not included in totals

TABLE H
CA-SLO-1767, UNIT 5
MAN NUMBER* OCCURRENCE BY DEPTH

MAN		Depth (cm)						Total	
No.	Material	0-10	10-20	20-30	30-40	40-50	50-60	No.	%
0**	No MAN No.	1	9	11	13	3	3	--	--
1	Chert	1	1	3	1	--	--	6	*2.8*
2	Chert	--	--	--	--	--	1	1	*0.5*
3	Chert	3	--	4	1	1	4	13	*6.0*
4	Chert	6	11	11	10	1	5	44	*20.5*
5	Chert	8	9	8	4	5	3	37	*17.2*
6	Chert	1	3	6	2	3	1	16	*7.4*
8	Chert	--	--	4	--	--	--	4	*1.9*
10	Chert	--	1	1	2	--	--	4	*1.9*
11	Chert	1	7	--	5	8	1	22	*10.2*
13	Chert	1	--	2	--	--	--	3	*1.4*
14	Chert	--	--	2	--	--	--	2	*0.9*
15	Chert	1	--	--	--	--	--	1	*0.5*
16	Chert	3	6	3	2	2	2	18	*8.4*
17	Chert	--	--	1	--	--	--	1	*0.5*
18	Chert	--	--	--	--	1	--	1	*0.5*
19	Chert	--	--	1	1	--	2	4	*1.9*
20	Chert	--	1	2	--	1	--	4	*1.9*
21	Chert	--	--	2	1	--	--	3	*1.4*
22	Chert	2	1	1	--	--	--	4	*1.9*
24	Chert	1	--	--	--	1	--	2	*0.9*
30	Siliceous Shale	--	--	--	--	--	1	1	*0.5*
31	Siliceous Shale	--	1	--	2	--	--	3	*1.4*
32	Siliceous Shale	3	2	--	3	--	--	8	*3.7*
33	Siliceous Shale	3	--	1	--	--	--	4	*1.9*
34	Siliceous Shale	--	--	3	--	1	--	4	*1.9*
35	Siliceous Shale	--	--	--	1	--	--	1	*0.5*
36	Undiff. Igneous	--	--	--	--	--	1	1	*0.5*
41	Sandstone	--	--	2	--	--	--	2	*0.9*
42	Undiff. Igneous	--	--	--	--	--	1	1	*0.5*
29	**Total**	**34**	**43**	**57**	**35**	**24**	**22**	**215**	***100.0***

* - MAN: Minimum Analytical Nodule

** - Not included in totals

TABLE I
CA-SLO-1767
MAN NUMBERS* IN ALL UNITS BY DEPTH

MAN		Depth (cm)								Total	
No.	Material	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	No.	%
0**	No MAN No.	27	39	28	27	22	5	1	--	--	--
1	Chert	5	1	4	6	7	1	4	--	28	*3.2*
2	Chert	8	8	2	--	2	2	--	--	22	*2.5*
3	Chert	15	19	14	5	20	6	4	1	84	*9.7*
4	Chert	23	53	32	24	15	10	4	--	161	*18.6*
5	Chert	18	24	16	18	15	8	--	--	99	*11.4*
6	Chert	12	19	16	8	25	8	5	--	93	*10.7*
7	Chert	1	--	2	--	--	1	--	--	4	*0.5*
8	Chert	5	8	8	5	4	1	--	--	31	*3.6*
9	Chert	--	2	--	--	1	--	--	--	3	*0.3*
10	Chert	4	6	3	2	3	1	--	--	19	*2.2*
11	Chert	14	22	8	16	21	11	4	1	97	*11.2*
12	Chert	2	--	--	--	1	5	--	--	8	*0.9*
13	Chert	2	3	6	3	2	--	2	2	20	*2.3*
14	Chert	3	2	3	--	1	--	1	--	10	*1.2*
15	Chert	2	1	1	2	1	--	--	--	7	*0.8*
16	Chert	8	16	14	8	10	4	4	2	66	*7.6*
17	Chert	--	1	2	--	--	--	--	--	3	*0.3*
18	Chert	--	1	--	--	1	--	--	--	2	*0.2*
19	Chert	--	1	1	1	1	4	1	--	9	*1.0*
20	Chert	--	2	3	--	2	1	1	--	9	*1.0*
21	Chert	1	2	2	1	2	2	1	--	11	*1.3*
22	Chert	3	3	1	1	--	--	--	--	8	*0.9*
23	Chert	1	--	1	2	1	--	--	--	5	*0.6*
24	Chert	2	--	--	--	1	--	--	--	3	*0.3*
26	Chert	--	--	1	--	--	--	--	--	1	*0.1*
28	Obsidian	--	--	--	1	--	--	--	--	1	*0.1*
30	Siliceous Shale	--	--	--	--	1	1	1	1	4	*0.5*
31	Siliceous Shale	1	3	2	3	1	1	2	2	15	*1.7*
32	Siliceous Shale	3	2	--	4	3	1	--	--	13	*1.5*
33	Siliceous Shale	4	--	1	--	--	--	2	--	7	*0.8*
34	Siliceous Shale	1	2	4	1	1	--	--	--	9	*1.0*
35	Siliceous Shale	--	1	--	1	--	--	--	--	2	*0.2*
36	Undiff. Igneous	3	1	--	--	2	1	--	--	7	*0.8*
38	Obsidian	--	1	--	--	--	--	--	--	1	*0.1*
39	Obsidian	--	1	--	--	--	--	--	--	1	*0.1*
41	Sandstone	--	--	2	--	--	--	--	--	2	*0.2*
42	Undiff. Igneous	--	--	--	--	--	1	--	--	1	*0.1*
37	**Total**	**141**	**205**	**149**	**112**	**144**	**70**	**36**	**9**	**866**	***100.0***

* - MAN: Minimum Analytical Nodule

** - Not included in totals

occurrences in the 0–10 cm level, and another two in the 30–50 cm levels (Table G). Unit 5 (Table H) exhibits six occurrences in the 0–40 cm levels. This demonstrates a relatively wide overall distribution of MAN No. 1.

A relatively wide and even MAN number distribution is typical of the other commonly occurring MAN numbers such as Nos. 4, 5, 6, 11, and 16. Of interest are the 17 occurrences of MAN No. 6 in Unit 3, 40–50 cm (Table F). This is 53.1 percent of all the MAN No. 6 occurrences for Unit 3, although it is only 18.3 percent of all (n=93) occurrences of MAN numbers (Table I), indicating that while it is somewhat unusual for Unit 3, this MAN number is relatively evenly distributed throughout all units. It does suggest an isolated occurrence of lithic reduction using this material in Unit 3 at a depth of 40–50 cm.

MAN No. 12 was found a total of eight times in all units (Table I). Five of these occurrences (62.5 percent) are from Unit 2, 50–60 cm (Table E). This is as isolated a lithic reduction episode as exists at CA-SLO-1767. The other three occurrences are from Unit 4, 0–10 cm (n=2), and 40–50 cm (n=1; Table G). Units 2 and 4 are not adjacent units, as Unit 5 is between them.

A similar but even more quantitatively limited MAN number occurrence is MAN No. 17, found in Unit 3, 10–30 cm (n=2; Table F), and also in Unit 5, 20-30 cm (n=1, Table H). As Unit 2 is closer to Unit 3 than is Unit 5, one wonders why MAN No. 17 is not present in Unit 2.

Man No. 22 was also identified a total of eight times in all units from CA-SLO-1767 (Table I). It comes from Units 2, 3, 4, and 5 and occurs no deeper than 40 cm (Tables E–H). Although it generally appears to be distributed evenly throughout the units, it occurs four times in Unit 5 (Table H). However, this is by no means an isolated instance of lithic reduction.

The six different varieties of siliceous shale appear in all units, although more abundantly in Units 2–5. This is not unexpected due to the fact that Unit 1 was excavated to only 20 cm. Of note is the fact that MAN No. 32 occurs in Units 3–5 (n=13); in Unit 3 (n=2), within the 0–10 and 50–60 cm levels (Table F); in Unit 4 within the 30–50 cm levels (n=3, Table G); and in Unit 5 in the upper 40 cm (n=8, Table H). Although the majority of MAN No. 32 occurrences is within Unit 5 (61.5 percent), these are distributed within the upper 40 cm, and the remainder of occurrences are from a variety of levels. Thus, there does not appear to be a depth pattern with respect to MAN No. 32.

A depth pattern does appear evident with the two occurrences of obsidian, MAN Nos. 38 and 39 (Table I). Both numbers are found one time each in the 10–20 cm level of Units 1 and 2 (Tables D and E). While the distribution of two pieces of obsidian probably does not constitute a pattern, it is even less so considering these two fragments were given different MAN numbers, suggesting that there was a visible difference in their morphology, and that they were not flaked at the same time. This serves to negate any correspondence between them, except that they are both obsidian and come from the same level. A third piece of obsidian, MAN No. 28, comes from Unit 3, 30–40 cm (Table F).

Of little consequence is the fact that MAN No. 41, sandstone (n=2), and MAN No. 42, undifferentiated igneous (n=1), both occur in different levels of Unit 5 (Table H). Why sandstone was used in lithic reduction is unknown. The flaking characteristics of sandstone are neither conducive for flaked stone reduction nor for use as flake tools.

By considering individual Tables D–H, it may be possible to identify clusters of specific material varieties. Unfortunately, there are few clusters, and none that exist solely within one particular unit. The only material variety that appears to be somewhat clustered is the rather limited MAN

No. 12, of which five of eight occurrences (62.5 percent) are from Unit 2; 50–60 cm (Table E). As stated, this is about as isolated a lithic reduction episode as exists at CA-SLO-1767.

Another manner by which to use MAN numbers to show flaking episodes is to compare MAN numbers for debitage with those of tools. The two cores recovered during the original surface collection are Man Nos. 1 and 4. Whereas MAN No. 4 is a relatively common chert variety from the site, comprising 161 (18.6 percent) occurrences of all MAN number identifications, MAN No. 1 comprises only 28 (3.2 percent) of all MAN number identifications. Bifaces include MAN Nos. 4, 6, and 11, three commonly occurring MAN number identifications. There is nothing unusual about the MAN numbers of these completed artifacts; however, a relatively uncommon chert variety is represented by a core from the site surface. However, the relationship between MAN numbers of debitage and tools shows that some tool manufacture probably did occur at the site.

The final manner by which an attempt to identify clusters is conducted here is to show that they are isolated in upper or lower levels. Table I is helpful in considering depth clustering, since it combines all MAN data from units. As stated, chert Man No. 22 appears to be isolated in the upper 40 cm of deposit. Similarly, MAN No. 33 (n=7) also at first appears to be isolated in the upper levels of Unit 5, where it occurs four times in the 0–30 cm levels (Table H),. However, it also occurs in Unit 3, 50–60 cm (n=1, Table F), and within Unit 2, 60–70 cm (n=1, Table E), so that it is not an exclusively upper component occurrence. In fact, there is really no one lithic variety found in relative abundance that is limited to either upper or lower midden levels. When MAN Nos. 8 and 10 are viewed by individual unit, it is found that with the exception of MAN No. 10 in Unit 3 (Table F), they are relatively dispersed throughout all levels of those units in which they are identified. Thus, only MAN Nos. 12 and 22 appear to have any kind of depth distinction, although individual pieces of each chert variety are found at various depths.

What this indicates is that there is no clear way to distinguish individual lithic reduction episodes by distinctive lithic variety, or MAN number designation. Had one or more MAN numbers occurred in relative quantity within one or more units in either upper or lower levels, it would have been easily observed and would have suggested individual lithic reduction episodes. Had some MAN numbers occurred in lower levels and others in upper levels, it might have been sufficient to identify multicomponent site use. However, this was not the case. As shown by Tables D–H, individual units share MAN numbers, and Table I shows that the distribution of these lithic variants is spread throughout most units and levels.

Postdepositional Formation Processes. A primary goal of the reanalysis was to determine whether different occupational episodes could be identified. However, the distribution of material at the site could have been affected by rodent activity, plowing, or erosion. An examination of the impact of such postdepositional formation processes on site was undertaken.

The most significant change in item quantity by depth is the substantial increase in debitage from the 0–10 cm to the 10–20 cm level (Table C). As discussed, this is visible in the number of Monterey chert items based on the fact that nearly 93 percent of the reanalyzed material is Monterey chert. This sudden increase from 155 items in the 0–10 cm level to 229 items in the 10–20 cm level is probably due to postoccupation sediment accumulation. There is a slight but insignificant increase in material quantity from 30–40 cm (n=123) to 40–50 cm (n=155), although the 50–60 cm level (n=70) is quantitatively much smaller (Table C).

Comparing the only other lithic material that occurs at the site in any number, siliceous shale, there is no difference between the 0–10 cm (n=10), and the 10–20 cm (n=10) levels. However, there is a slight increase in the 30–40 cm (n=12) level compared with the 20–30 cm (n=6) and 40–50 cm (n=7) levels. The significance of this is probably not important since the number of siliceous shale items (n=53) is only 5.2 percent of all debitage analyzed. No bimodal or multimodal distribution is evident with MAN numbers, either.

The site is located along the south side of Thompson Road in a level field that for years has been used for agricultural purposes. The field has been plowed and tilled over a long period of time. There is evidence of rodent activity. These are the major disturbances to the site. No evidence of erosion is observed in this portion of the field. Aside from a slight decrease in the number of items within the uppermost level (0–10 cm; see Table C), there is no evidence of multiple occupations and little evidence of postdepositional formation processes.

Settlement Systems and Site Use. Site CA-SLO-1767 is unusual in that it contains more flaked stone tools than bifaces or projectile points. The absence of other cultural material at the site suggests that the site was probably not a long-term habitation or village site. The absence of quantities of bone indicates that it is unlikely that the site was used for hunting. The site does not contain dense quantities of lithic residual, just moderate quantities. Lithic materials are primarily local in nature, with Monterey chert (92.7 percent) and siliceous shale (5.2 percent) being the most commonly occurring. The site does have obsidian that was obtained in trade. There are no easily visible patterns of lithic residual identifiable by depth, except that shatter is proportionally low in quantity. Large and small flakes and fragments are also proportionally low in quantity.

What does this say about settlement systems in the local area? For one, it says that the group was in contact with other groups and that trade did occur. The individuals who lived here were not living in a vacuum, removed from contact with other groups. They traded for exotic lithic materials. They appreciated silicified minerals with better flaking qualities, as evidenced by the predominance of Monterey chert compared with small quantities of other lithic materials such as igneous and quartzite found at the site. The absence of habitation debris indicates that the site may have been used on a short-term basis. It was either a short-term camp or a locale visited for collecting purposes. A short-term camp, however, would have contained some other material aside from just lithics. Most likely the site contains residual from specialized collecting and processing.

What the individuals were collecting and/or processing is another question. Most likely, the small expedient flake tools were used to cut and smooth some sort of vegetation, either wood or reed. Limited retooling did occur and projectile points are known from the site. It is possible that the tools were used for arrow-making, both shaft and point. Scraping of arrow shafts could have been facilitated using small flake tools such as the ones found at CA-SLO-1767. Retooling of broken points is discussed by Lebow et al. (2001:10.11).

Chumash bows and arrows are exceedingly rare, but a Cuyama Chumash arrow-making kit with two arrows, an arrow foreshaft, and several other items are reported from a dry cave in Castro Canyon. The kit includes "...several pieces of cordage; [and] a few flakes retouched into scrapers and burins;..." (Hudson 1974:5). Flake tools such as these compose the majority of lithic tools at CA-SLO-1767. The Chumash are also known to have used a fiber bowstring on their hunting bows (Hoover 1974:46; Hudson 1974:3). Another possibility is that the site was used for processing material for use in making baskets.

Archaeologically, little is known about basketry and basket materials from this region. Ethnographically, some is known, but not exclusively from the Chumash region. Three Chumash baskets from a display in southern California are manufactured from *Juncus* (Silva and Cain 1983:28-29), the rush, or wire grass. *Juncus* was also used by the Cahuilla for both rough and finely-worked baskets (Bean and Saubel 1972:80-81).

In the Pomo area of north-coastal California, one of the rarest and most valuable of Pomo basketry materials was *Scirpus*, a grass-like plant growing among the tules on the borders of marshy areas (Purdy 1973:21). Additionally, the Pomo used slender willow shoots as a framework for all of their baskets. A "very sharp knife" was used to make baskets. Prior to the introduction of metal to the Pomo, this knife was made of obsidian (Purdy 1973:23). The location of scirpus is interesting since site CA-SLO-1767 lies in the uppermost portion of a field adjacent to Nipomo Creek that is extremely marshy during the rainy season. Immediately east of the site, the topography rises into low hills.

East of the Pomo, the Maidu used wood of the redbud (*Cercis occidentalis*) as the woof in baskets (Powers 1976:422). Redbud bark was split into fine strings to be used as thread using flakes or fingernails.

Merrill (1973:Map 2) states that willow was not used in Chumash basketry. Merrill (1973) also states that the majority of basketry materials require some work prior to being used for basketry. This includes removal of bark by scraping, dyeing, drying, or some form of pulverization to separate strands. Bean and Saubel (1972) list many plants used for food, basketry, and other purposes by the Cahuilla of inland southern California. Many of these plants were said to have been ground or cut, and although not specified, prehistorically these plants would have been cut using a sharp flake tool.

Fiber for cordage is another possible resource that could have been gathered in an area such as CA-SLO-1767. Indian hemp, *apocynum*, was a commonly used cordage fiber found throughout western North America (Hoover 1974:7). *Apocynum* grows in damp places and was cut in the fall. Three-ply, four-ply, braided cordage, and cordage made of *asclepias* and *urtica* were all known from the Chumash region (Hoover 1974:26-28, 36, 38). As described, the Chumash used fiber bowstrings (Hoover 1974; Hudson 1974).

Summary. Reanalysis of material from CA-SLO-1767 indicates that the prehistoric occupants were conducting lithic reduction using primarily Monterey chert, and to a lesser extent, siliceous shale. Both materials are available locally, contributing to their abundance. A minor quantity of other materials such as obsidian, igneous, quartzite, and sandstone were also used, but in such small quantities as to make them irrelevant in discussions of reduction methodology and purpose.

Standard material, size, and location analysis of the material was conducted. This analysis shows that there are relatively few pieces of shatter. It also shows that there is a relatively even distribution of flakes and flake fragments within the 4.0-, 6.3-, and 8.0-mm screen mesh sizes, although relatively few pieces within the 3.2- and 16.0-mm categories. Flake size distribution and the low quantity of shatter both suggest that tool retouch and sharpening were the primary lithic activities at the site, rather than initial lithic reduction.

Strengthening this argument, the original study (Lebow et al. 2001) identified few projectile points and bifaces, a near absence of cores, and a relatively large quantity of expedient flake tools. The assemblage is badly fragmented, with few complete specimens. Hunting was not the primary activity at the site. Initial lithic reduction was not the primary lithic reduction strategy at the site. The lithic analysis indicates that the site was used for maintenance of expedient flaked stone tools other than bifaces, along with some limited biface manufacture. The flaked stone tools were being sharpened and reworked at the site. Lebow et al. postulate that the flaked stone tools were used to work hard, rather than soft, material. It is possible that site activities focused on vegetal processing, perhaps basketry fiber collection, or collection of various vegetal materials used for cordage, or for bow and arrow manufacture. The location of CA-SLO-1767 near Nipomo Creek is a likely setting for the collection, and possibly processing, of plants used for a variety of purposes.

A MAN analysis, designed to identify discrete production episodes, was also conducted on lithic material from the site. This analysis failed to identify isolated instances of the use of any material other than single flakes such as obsidian (MAN Nos. 28, 38, and 39), undifferentiated igneous (MAN No. 42), and sandstone (MAN No. 41). In such instances, the reason for their isolation is that only one item was identified for each of the lithic material varieties. A type of chert, MAN No. 12, was identified eight times at the site. Five of the occurrences were from Unit 2, 50–60 cm. The other three occurrences were from Unit 4, 0–10 cm (n=2), and 40–50 cm (n=1); however, Units 2 and 4 are not adjacent. No other instance of isolation by area or depth was found.

In addition, differential abundance of material by depth was also not identified at the site. Table C lists Monterey chert and siliceous shale materials by size and depth for the site as a whole. Because 92.7 percent (n=938) of all debitage from CA-SLO-1767 is Monterey chert, this material was viewed as representative of all material. Although there was a noticeable increase of debitage quantity between the 0–10 cm and 10–20 cm level, there was a general and even decrease in quantity with depth. The decrease in material in the 0-10 cm level is likely associated with postabandonment sediment accumulation atop the site. No significant increase in quantity with depth occurred to suggest one or more episodes of site use and abandonment.

Thus, lithic reanalysis substantiated the original conclusions made by Lebow et al. (2001). Artifact density was relatively great, but lithic reanalysis failed to identify discrete flaking episodes or patterns of multicomponent occupation, including abandonment and reuse. Previous dating of the site by obsidian hydration generally suggests that the site was most likely used between approximately 3000–1000 BC. Due to the lack of a well-developed midden deposit, the absence of items other than flaked lithics, and the lack of datable archaeological material that would have provided accurate temporal resolution, the site exhibits insufficient research potential to suggest it is important.

D. CA-SLO-2271

LSA collected a single sample of Pismo clam *(Tivela stultorum)* for radiocarbon testing conducted by Beta Analytic, Inc. (Beta-194571). The calibrated report of radiocarbon data is attached to the site record form for CA-SLO-2271 (Appendix C). Results of dating indicate that the intercept date is ca. 1910 (Cal BP 40), while 1 sigma calibrated results are somewhat less specific, dating Cal AD 1810-1910 (Cal BP 140-40) and Cal AD 1910 to beyond 1950 (Cal BP 40-0). In other words, the shell is historic in nature, and was most likely dumped ca. 1910, well within the recent historic era. Thus, the shell scatter at CA-SLO-2271 is a historic trash dump.

The entire site consists of a handful of legal-sized Pismo clam *(Tivela stultorum)* scattered about in an area measuring 47 x 17 m (154 x 56 ft). Since the shell does not date to the precontact era, the site contains no information concerning prehistory, and because only shell exists at this site, there is an insufficient diversity of historic material to answer important research questions concerning the historic era. For this reason, no additional cultural resource work was conducted at CA-SLO-2271.

As such, it is recommended that the site is not important and therefore not eligible for listing in the California Register.

E. P-40-038219

This isolated find is a single piece of Pismo clam *(Tivela stultorum)* found in an open field across and approximately 40 m (131 ft) north of Willow Road at some private stables. Dense low grasses and filaree are the result of grazing. Even though ground cover is low, ground visibility is less than 10 percent. No trees exist in this open field. The field slopes up gently northward. Outside the current project area, to the south, the slope is also gently upward. The result is that Willow Road runs along the low middle portion of what is basically a small valley.

The current work effort at the location of this isolated find was to intensively survey the area in its immediate vicinity, which was undertaken on January 24, 2005 by Christopher Roberts, Johnny Odom, and Ivan Strudwick. The location was identified using an eTrex Vista GPS unit and previously recorded Universal Transverse Mercator (UTM) coordinates. Visible landmarks, including distance from Willow Road and proximity to stables south of Willow Road, matched the original recording information.

Once the isolated find location was determined, a 50 x 50 m area around the find was intensively surveyed by walking random transects. Transects were also surveyed outside of this area. Surveying consisted of checking all rodent backdirt piles, kicking the low vegetal cover to observe sediment in some areas, and otherwise carefully checking the entire area. The area was surveyed for approximately 50 minutes without finding any cultural material. No darkened sediment was observed, only the natural compact light yellow-brown sand. One small fragment of Pismo clam *(Tivela stultorum)* was found along Willow Road approximately 70 m southeast of the original find. Nothing else was found in the area.

The small fragment of Pismo clam *(Tivela stultorum)* was found near Willow Road and nearly halfway from the original isolated find, P-40-038219, to CA-SLO-2271. Site CA-SLO-2271 was previously shown to have quantities of historically dumped Pismo clam *(Tivela stultorum)*, since radiocarbon testing of one of the shells in this report shows that they were probably dumped ca. 1910 (refer to site record form for CA-SLO-2271 in Appendix C). The proximity of the shell to Willow Road is probably the result of traffic along the road, or possibly even of someone throwing the shell. Because no cultural material was found in the immediate vicinity of the original find, and because only one other small fragment of shell was found nearby, no additional cultural resource work was conducted in this area

F. P-40-038220

This isolated find is a single chert flake scraper measuring 4 x 2.5 cm. The find was relocated using GPS and previously recorded UTMs. An area measuring more than 50 x 50 m around the find was intensively surveyed on January 24, 2005, by Christopher Roberts, Johnny Odom, and Ivan Strudwick. Ground cover included grass and some brush. Large oak trees exist in the vicinity. Ground visibility would have naturally been approximately 50 percent, but was in excess of 90 percent due to recent bulldozer disturbance that appeared to consist of driving and turning in the area. No excavation appears to have been conducted by the bulldozer. The area is gently rolling broken terrain that slopes slightly to the northwest and toward US 101.

The vicinity of the isolated find was intensively surveyed. Surveying was relatively easy due to the excellent ground visibility. Sediment was a loose, fine-grained, yellow-brown sand that was dry on the surface and moister with depth. No cultural material was found in the vicinity of the isolated find. No sediment discoloration, rocks, or features were observed. The area appears to be a natural sloping area with occasional oak trees. Because no cultural material was observed during this intensive survey of the area, no additional cultural resource work was conducted there.

VI. CALIFORNIA REGISTER SIGNIFICANCE

Per CEQA (1970, as amended 2005), §15064.5, a resource is "historically significant" if it meets the criteria for listing in the California Register of Historical Resources. There are four criteria specified, A–D below, and the resource can meet any one of them to be considered eligible for listing and therefore historically significant. The resource is thus significant and eligible for listing if it:

A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

B) Is associated with the lives of persons important in our past

C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or posses high artistic values

D) Has yielded, or may be likely to yield, information important in prehistory or history

Prehistoric archaeological sites are usually found to be eligible under Criterion D, since they will contain information that is useful for answering important research questions. Archaeological sites are not usually associated with important events (Criterion A) or individuals (Criterion B), and it is not common for a prehistoric site to exhibit distinctive construction characteristics, or represent the work of an important individual (Criterion C). Rarely, a rock art site may possess high artistic value, but even so, such a site will probably also be highly regarded for its potential to answer important regional research questions associated with rock art.

This section reviews site importance under CEQA for two sites, CA-SLO-1767 and CA-SLO-2271, and for four isolates, P-40-038219, P-40-038220, LSA-RAJ334-I-5, and LSA-RAJ334-I-6. Briefly, isolates are not considered important archaeological sites and as such they are not eligible for listing in the California Register. No further cultural resource work needs to occur due to their presence.

Site CA-SLO-1767 was previously tested by Lebow (2001:10.18), who determined the site was not eligible for the National Register due to the lack of specific chronological data. Previous excavation showed the site was a moderately dense deposit of lithic debris occurring to a maximum depth of 80 cm in an area measuring 90 x 220 m (295 x 722 ft). Previous excavation included 34 STPs and five 1 x 1 m excavation units. A total of 6.35 m^3 of sediment was excavated. The majority of material was recovered from the upper 40 cm of deposit (Lebow et al. 2001:10.1-10.4). This work showed the site to contain only flaked lithics. All other archaeological material, such as ground stone, fire hearths, charcoal, bone, and shell, was absent from the site. Thus, the site lacks organic material that could have been used to produce an accurate radiocarbon date identifying a period of site occupation.

Temporal site dating was conducted at CA-SLO-1767 using several pieces of obsidian. Results of obsidian hydration testing indicate the site was most likely used between 3000–1000 BC. However, this general site use date is the most accurate date possible, to the absence of additional archaeological material that would have provided accurate temporal resolution.

The current study reanalyzed the collection (all lithics) for the purpose of determining whether additional valuable data exist that could help answer important research questions. This reanalysis showed no evidence of multicomponent occupation, including abandonment and reuse, and almost no evidence of postdepositional formation processes. Specialized MAN analysis showed no identifiable episodes of discrete lithic reduction by distinctive lithic variety. Additionally, the MAN analysis also shows that lithic variants are distributed relatively evenly across the site and throughout levels with no significant patterns evident.

The current study does show that predominantly local Monterey chert was used at the site to sharpen and also, to a lesser extent, produce expedient flake stone tools. Several unconventional site attributes were also identified at the site. These include the fact that the site contains no other cultural debris aside from lithic residual. The site contains more flake stone tools with bifaces or projectile points. The absence of a well-defined midden deposit and habitation debris such as hearth features, charcoal, bone, and other material indicates that the site was probably used for specialized collecting and processing in which expedient flake stone tools were used. This use includes sharpening, and to a small extent, retooling of projectile points. Possible purposes include collection and processing of vegetal materials for manufacture of items such as cordage, basketry, or bow and arrows.

Thus, reanalysis of the CA-SLO-1767 collection substantiates the original conclusions made by Lebow et al. (2001). The site contains insufficient information to answer important regional research questions. The excavation conducted removed 6.35 m^3 of deposit and shows repetitive data, indicating that the quantity and type of material at the site are identified. Analysis of existing data indicates that additional excavation would result in redundancy of data. Thus, additional excavation is unwarranted. Based on the above, it is recommended that the site is not important under CEQA, and as such is not eligible for listing in the California Register.

CA-SLO-2271 consists of a few legal-sized Pismo clam (*Tivela stultorum*) scattered about a field in an area measuring 47 x 17 m (154 x 56 ft). Radiocarbon dating (Appendix F) of one shell produced 1 sigma calibrated results of Cal AD 1810-1910 (Cal BP 140-40) and Cal AD 1910 to beyond 1950 (Cal BP 40-0). The more specific intercept date is ca. 1910 (Cal BP 40), indicating that the shell is historic, and was dumped ca. 1910. Site CA-SLO-2271 is a historic shell dump. Since the shell does not date to the precontact era, the site contains no information concerning prehistory, and because only shell is present at this site, there is an insufficient diversity of historic material to answer important research questions concerning the historic era. As such, it is recommended that the site is not important and therefore not eligible for listing in the California Register.

Isolates P-40-038219, P-40-038220, LSA-RAJ334-I-5, and LSA-RAJ334-I-6 were intensively surveyed in an effort to find additional cultural material near them that would prove them to be archaeological sites. However, no cultural material was found near them. Isolated finds are not considered important under CEQA, and as such these isolated finds are not eligible for listing in the California Register.

VII. REFERENCES

Adams, J. L.
1999 Refocusing the Role of Food-Grinding Tools as Correlates for Subsistence Strategies in the U.S. Southwest. *American Antiquity* 64(3):475–498.

2002 *Ground Stone Analysis*. University of Utah Press.

Ahler, S.
1989 Mass Analysis of Flaking Debris: Studying the Forest Rather than the Trees. In Alternative Approaches to Lithic Analysis, edited by D. Henry and G. Odell, pp. 85–118. *Archaeological Papers of the American Anthropological Association No.* 1. American Anthropological Association, Washington D.C.

Ames, K.
2002 Going by Boat: The Forager-Collector Continuum at Sea. In *Beyond Foraging and Collecting: Evolutionary Change in Hunter-Gatherer Settlement Systems*, edited by B. Fitzhugh and J. Habu, pp. 19–52. Kluwer Academic/Plenum Publishers, New York, New York.

Ammerman, A. J.
1985 Plow-zone Experiments in Calabria, Italy. *Journal of Field Archaeology*, 12:33–40.

Andrefsky, W.
1994 Raw Material Availability and the Organization of Technology. *American Antiquity* 59(1):21–35.

Arnold, Jeanne E.
1992a Early-Stage Biface Production Industries in Coastal Southern California. In Stone Tool Procurement, Production, and Distribution in California Prehistory, edited by J.E. Arnold, pp. 67–129. *Perspectives in California Archaeology No.* 2. Institute of Archaeology, University of California, Los Angeles.

1992b Complex Hunter-Gatherer-Fishers of Prehistoric California: Chiefs, Specialists, and Maritime Adaptations of the Channel Islands. *American Antiquity* 57:60–84.

1995 Transportation Innovation and Social Complexity among Maritime Hunter-Gatherer Societies. *American Anthropologist* 97:733–747.

Arnold, Jeanne E. (editor)
2001 *The Origins of a Pacific Coast Chiefdom*. University of Utah Press.

Arnold, Jeanne E., and A. Munns
1994 Independent or Attached Specialization: The Organization of Shell Bead Production in California. *Journal of Field Archaeology* 21:473–489.

Arnold, Jeanne E., Roger H. Colten, and Scott Pletka
1997 Contexts of Cultural Change in Insular California. *American Antiquity* 62:300–318.

Atkinson, J. I.
1933 *Los Angeles Historical Directory*. McFarland, North Carolina.

Axelrod, D. I.
1981 Holocene Climatic Changes in Relation to Vegetation Disjunction and Speciation. *The American Naturalist* 117(6):847–870.

Baker, C.
1978 The Size Effect: An Explanation of Variability in Surface Artifact Assemblage Content. *American Antiquity* 43:288–293.

Baker, C. M., and Michael B. Schiffer
1975 Archaeological Evidence for the Size Effect. In *Arkansas Eastman Archaeological Project*, edited by C. Baker, pp. 117–122. Research Report No. 6. Arkansas Archaeological Survey, Fayetteville, Arkansas.

Balek, C. L.
2002 Buried Artifacts in Stable Upland Sites and the Role of Bioturbation: A Review. *Geoarchaeology* 17(1):41–51.

Bamforth, D. B.
1986 Technological Efficiency and Tool Curation. *American Antiquity* 51:38–50.

1991 Technological Organization and Hunter-Gatherer Land Use: A California Example. *American Antiquity* 56:216–234.

Bamforth, D. B. and P. Bleed
1997 Technology, Flaked Stone Technology, and Risk. In Rediscovering Darwin: Evolutionary Theory and Archeological Application, edited by C. Barton and G. Clark, pp. 109–139. *Archeological Papers of the American Anthropological Association No.* 7. American Anthropological Association, Arlington, Virginia.

Bean, Lowell John, and Katherine Siva Saubel
1972 *Temalpakh: Cahuilla Indian Knowledge and Usage of Plants*. Malki Museum Press. Morongo Indian Reservation.

Bethell, P. and I. Maté
1989 The Use of Soil Phosphate Analysis in Archaeology: A Critique. In Scientific Analysis in Archaeology, edited by J. Henderson, pp. 1–29. *Oxford University Communications for Archaeology Monograph* 19, Oxford.

Bettinger, Robert L. and Martin A. Baumhoff
1982 The Numic Spread: Great Basin Cultures in Competition. *American Antiquity* 47(3):485–503.

Binford, Lewis R.
1980 Willow Smoke and Dogs' Tails: Hunter-Gatherer Settlement Systems and Archaeological Site Formation. *American Antiquity* 45:4–20.

Birkeland, P. W.
1999 *Soils and Geomorphology*. Third Edition. Oxford University Press.

Bjelajac, V., Edward M. Luby, and Rose Ray
1996 A Validation Test of a Field-Based Phosphate Analysis Technique. *Journal of Archaeological Science* 23:243–248.

Blackburn, Thomas C.
1975 *December's Child: A Book of Chumash Oral Narratives Collected by John C. Harrington*. Berkeley and Los Angeles: University of California Press.

Blomquist, Leonard Rudolph
2003 *California in Transition: The San Luis Obispo District, 1830–1850*. San Luis Obispo County Historical Society, San Luis Obispo, California.

Bocek, B.
1986 Rodent Ecology and Burrowing Behavior: Predicted Effects on Archaeological Site Formation. *American Antiquity* 51:589–603.

Boismier, W. A.
1997 *Modeling the Effects of Tillage Processes on Artefact Distribution in the Ploughzone: A Simulation Study of Tillage-Induced Pattern Formation*. Archaeopress, Oxford.

Boone J. L.
1992 Competition, Conflict, and the Development of Social Hierarchies. In *Evolutionary Ecology and Human Behavior*, edited by E. Smith and B. Winterhalder, pp. 301–337. New York: Aldine de Gruyter.

Boone, J. L., and E. A. Smith
1998 Is It Evolution Yet?: A Critique of Evolutionary Archaeology. *Current Anthropology* 39:141–173.

Bradbury, A. P., and P. J. Carr
1999 Examining Stage and Continuum Models of Flake Debris Analysis: An Experimental Approach. *Journal of Archaeological Science* 26:105–116.

Brady, N. C., and R. R. Weil
2002 *The Nature and Properties of Soils*. 13th edition. Prentice Hall, Upper Saddle River, New Jersey.

Breschini, Gary S., Trudy Haversat, and Jon Erlandson
1992 *California Radiocarbon Dates*. Seventh edition. Coyote Press, Salinas, California.

Brewer, W. H.
1930 *Up and Down California in 1860–1864: The Journal of William H. Brewer, Professor of Agriculture in the Sheffield Scientific School from 1864–1903*. F. P. Farquhar, ed. Yale University Press, New Haven, Connecticut.

Broughton, J. M.
1994 Declines in Mammalian Foraging Efficiency during the Late Holocene, San Francisco Bay, California. *Journal of Anthropological Archaeology* 13:371–401.

1999 Resource Depression and Intensification During the Late Holocene, San Francisco Bay: Evidence from the Emeryville Shellmound Vertebrate Fauna. *University of California Anthropological Records* 32.

Brown, C. T.
2001 The Fractal Dimensions of Lithic Reduction. *Journal of Archaeological Science* 28:619–631.

Buck, C. E., W. G. Cavanagh, and C. D. Litton
1996 *The Bayesian Approach to Interpreting Archaeological Data.* Wiley, Chichester.

Carr, C.
1985 Perspective and Basic Definitions. In *For Concordance in Archaeological Analysis: Bridging Data Structure, Quantitative Technique, and Theory*, edited by C. Carr, pp. 1–17. Westport Publishers, Inc., Kansas City, Missouri.

Casteel, Richard W.
1976 *Fish Remains in Archaeology and Paleo-Environmental Studies.* Academic Press, New York.

Cleland, Robert Glass
1962 Introduction. *In*, M. Hoover, H. Rensch, and E. Rensch eds., *Historic Spots in California*, pp. xi–xiv. Stanford University Press.

1975 *The Cattle on a Thousand Hills.* Fourth edtion. Huntington Library, San Marino, California.

Close, A. E.
1999 Distance and Decay: An Uneasy Relationship. *Antiquity* 73:24–32.

Cook, E. R.
2000 Southwestern USA Drought Index Reconstruction. NOAA/NGDC Paleoclimatology Program, Boulder, Colorado.

Cook, S. F. and Robert F. Heizer
1965 Studies on the Chemical Analysis of Archaeological Sites. *University of California Publications in American Archaeology and Ethnology* 2.

Cowan, Robert G.
1988 Preface: California's Land Grants. *In* B. McK. Shumway, *California Ranchos: Patented Private Land Grants Listed by County*, pp. 7-9. Stokvis Studies in Historical Chronology and Thought. No. 11. Edited by Michael and Mary Burgess. San Bernardino: The Borgo Press.

Crowther, J.
1997 Phosphate Sampling: Critical Approaches to Sampling, Analysis, and Interpretation. *Archaeological Prospection* 4:93–102.

Dana, R., and M. Harrington
1999 *The Blond Ranchero: Memories of Juan Francisco Dana.* Second edition. South County Historical Society, Arroyo Grande, California.

Davis, O. K.
1999 Pollen Analysis of Tulare Lake, California: Great Basin-like Vegetation in Central California during the Full-Glacial and Early Holocene. *Review of Palaeobotany and Palynology* 107:249–257.

Davis, S. J. M.
1987 *The Archaeology of Animals.* Yale University Press, New Haven, Connecticut.

Dean, Jeffrey S.
1988 A Model of Anasazi Behavioral Adaptation. In *The Anasazi in a Changing Environment*, edited by G. Gummerman, pp. 25–44. Cambridge University Press, Cambridge.

1996 Demography, Environment, and Subsistence Stress. In *Evolving Complexity and Environmental Risk in the Prehistoric Southwest*, edited by J. Tainter and B. Tainter, pp. 25–56. Addison Wesley, Reading, Massachusetts.

deMenocal, P. B.
2001 Cultural Responses to Climate Change During the Late Holocene. *Science* 292:667–673.

Dietz, S. and T. L. Jackson
1981 *Report of Archaeological Excavations at Nineteen Archaeological Sites for the Stage I Pacific Grove-Monterey Consolidation Project of the Regional Sewerage System.* Submitted to Engineering-Science, Berkeley, California. Archaeological Research and Consulting Services, Santa Cruz, California.

Ditlevsen, P. D., H. Svensmark, and S. Johnsen
1996 Contrasting Atmospheric and Climatic Dynamics of the Last-Glacial and Holocene Periods. *Nature* 379:810–812.

Drover, Chris E., Hank C. Koerper, and Paul Langenwalter, II
1983 Early Holocene Adaptation on the Southern California Coast: A Summary Report of Investigations at the Irvine Site (CA-ORA-64), Newport Bay, Orange County, California *Pacific Coast Archaeological Society Quarterly* 19(3&4):1–84.

Dunnell, R. C.
1978 Style and Function: A Fundamental Dichotomy. *American Antiquity* 43:192–202.

1990 Artifact Size and Lateral Displacement under Tillage: Comments on the Odell and Cowan Experiment. *American Antiquity* 55:592–4, 598–605.

Dunnell, R. C., and J. F. Simek
1995 Artifact Size and Plowzone Processes. *Journal of Field Archaeology* 22(3):305–319.

Erlandson, Jon M.
1994 *Early Hunter-Gatherers of the California Coast.* Plenum Press, New York, New York.

Erlandson, Jon M. and T. Rockwell
1987 Radiocarbon Reversals and Stratigraphic Discontinuities: Natural Formation Processes in Coastal California Archaeological Sites. In *Natural Formation Processes and the Archaeological Record*, edited by D. Nash and M. Petraglia, pp. 51–73. International Series No. 352. British Archaeological Reports.

Erlandson, Jon, M. Tveskov, Douglas Kennett, and L. Ingram
1996 Further Evidence for a Terminal Pleistocene Occupation of Daisy Cave, San Miguel Island, California. *Current Research in the Pleistocene* 13.

Erlandson, Jon M. and T. C. Rick
2004 One if by Land, Two if by Sea: Changing Perspectives on the Peopling of the Americas. Paper presented at the 38th Annual Meeting of the Society for California Archaeology, Riverside.

Field, D. B., and T. R. Baumgartner
2000 A 900-Year Stable Isotope Record of Interdecadal and Centennial Change from the California Current. *Paleoceanography* 15:695–708.

Fitzgerald, R. T., J. Farquar, and N. Farrell
2000 Archaeological Data Recovery at a Portion of CA-SLO-809, Nipomo, San Luis Obispo, California. Ms. on file, Central Coast Archaeological Information Center, University of California, Santa Barbara.

Fitzhugh, B.
2001 Risk and Invention in Human Technological Evolution. *Journal of Anthropological Archaeology* 20:125–167.

2002 Residential and Logistical Strategies in the Evolution of Complex Hunter-Gatherers on the Kodiak Archipelago. In *Beyond Foraging and Collecting: Evolutionary Change in Hunter-Gatherer Settlement Systems*, edited by B. Fitzhugh and J. Habu, pp. 257–306. Kluwer Academic/Plenum Publishers, New York, New York.

Gamble, Lynn H., P. H. Walker, and G. S. Russell
2002 Further Considerations on the Emergence of Chumash Chiefdoms. *American Antiquity* 67(4):772–777.

Gibson, Robert O.
1993 Results of Archaeological Monitoring for the Unocal Pipeline Replacement Project North of Nipomo, San Luis Obispo County, California. Ms. on file, Central Coast Information Center, University of California, Santa Barbara.

Gibson, Robert O., and J. Parson
1997 *Inventory and Assessment of Cultural Resources for the Willow Road Extension Project, Nipomo Mesa, San Luis Obispo County, California*. Ms. on file at the Central Coastal Information Center, University of California, Santa Barbara (E-4352).

Glassow, Michael A.
1991 Early Holocene Adaptations on Vandenberg Air Force Base, Santa Barbara County. In *Hunter-Gatherers of Early Holocene Coastal California*, edited by J. Erlandson and R.

Colten, pp. 113–124. Perspectives in California Archaeology, Volume 1. Institute of Archaeology, University of California, Los Angeles, California.

1996 *Purisimeno Chumash Prehistory.* Harcourt Brace and Company, Fort Worth, Texas.

Glassow, Michael A., Larry R. Wilcoxon, and Jon M. Erlandson
1988 Cultural and Environmental Change During the Early Period of Santa Barbara Channel Prehistory. In *The Archaeology of Prehistoric Coastlines*, edited by G. Bailey and J. Parkington, pp. 64–77. Cambridge University Press, Cambridge.

Golla, V.
2004 Linguistic Prehistory. Paper presented at the 38th Annual Meeting of the Society for California Archaeology, Riverside.

Goman, M., and L. Wells
2000 Trends in River Flow Affecting the Northeastern Reach of the San Francisco Bay Estuary over the Past 7,000 Years. *Quaternary Research* 54:206–217.

Good, P. I.
2001 *Resampling Methods: A Practical Guide to Data Analysis.* Second Edition. Birkhäuser, Boston.

Greenwood, Roberta S.
1972 9,000 Years of Prehistory at Diablo Canyon, San Luis Obispo County. *San Luis Obispo County Archaeological Society Occasional Papers* 2. San Luis Obispo, California.

GRIP (Greenland Ice-core Project Members)
1993 Climatic Instability during the Late Interglacial Period Recorded in the GRIP Ice Core. *Nature* 364:203–207.

Gudde, Erwin G.
1998 *California Place Names.* Fourth edition, revised and enlarged by W. Bright. Berkeley and Los Angeles: University of California Press.

Gutierrez, R. A., and R. J. Orsi, editors
1998 *Contested Eden: California Before the Gold Rush.* Berkeley and Los Angeles: University of California Press.

Habu, J.
2002 Jomon Collectors and Foragers: Regional Interactions and Long-Term Changes in Settlement Systems among Prehistoric Hunter-Gatherers in Japan. In *Beyond Foraging and Collecting: Evolutionary Change in Hunter-Gatherer Settlement Systems*, edited by Ben Fitzhugh and Junko Habu, pp. 53–72. Kluwer Academic/Plenum Publishers, New York.

Hard, R. J., R. P. Mauldin, and G. R. Raymond
1996 Mano Size, Stable Carbon Isotope Ratios, and Macrobotanical Remains as Multiple Lines of Evidence of Maize Dependence in the American Southwest. *Journal of Archaeological Method and Theory* 3(4):253–318.

Haselgrove, C.
1985 Inference from Ploughsoil Artifact Samples. In *Archaeology from the Ploughsoil: Studies in the Collection and Interpretation of Field Survey Data*, edited by C. Haselgrove, M. Millett, and I. Smith, pp. 7–30. University of Sheffield, Sheffield.

Hassan, F. A.
1978 Sediments in Archaeology: Methods and Implications for Paleoenvironmental and Cultural Analysis. *Journal of Field Archaeology* 5(2):197–213.

Hayden, B., N. Franco, and J. Spafford
1996 Evaluating Lithic Strategies and Design Criteria. In *Stone Tools: Theoretical Insights into Human Prehistory*, edited by G. Odell, pp. 9–49. Plenum Press, New York, New York.

Heffley, S.
1981 The Relationship between Northern Athapaskan Settlement Patterns and Resource Distribution: An Application of Horn's Model. In *Hunter-Gatherer Foraging Strategies: Ethnographic and Archeological Analyses*, edited by B. Winterhalder and E. Smith, pp. 126–147. University of Chicago Press, Chicago, Illinois.

Hegmon, M.
1989 Risk Reduction and Variation in Agricultural Economies: A Computer Simulation of Hopi Agriculture. *Research in Economic Anthropology* 11:89–121.

Henrich, J.
2001 On Risk Preferences and Curvilinear Utility Curves. *Current Anthropology* 42:711–714.

Henrich, J. and R. McElreath
2002 Are Peasants Risk-Averse Decision Makers? *Current Anthropology* 43:172–181.

Henry, D. O.
1992 Transhumance during the Late Levantine Mousterian. In *The Middle Paleolithic: Adaptation, Behavior, and Variability*, edited by H. Dibble and P. Mellars, pp. 143–162. University Museum Symposium Series Volume 4. University of Pennsylvania, Philadelphia, Pennsylvania.

Henry, D. O., C. Vance Haynes, and B. Bradley
1976 Quantitative Variations in flaked stone debitage. *Plains Anthropologist* 21:57–61.

Herz, Norman, and Ervan G. Garrison
1998 *Geological Methods for Archaeology*. Oxford University Press, New York.

Heusser, L. E., and F. Sirocko
1997 Millennial Pulsing of Environmental Change in Southern California from the Past 24 K. Y.: A Record of Indo-Pacific ENSO Events. *Geology* 25(3):243–246.

Hirshleifer, J., and J. G. Riley
1992 *The Analytics of Uncertainty and Information*. Cambridge University Press, Cambridge.

Hoover, Robert L.
1974 Aboriginal Cordage in Western North America. *Imperial Valley College (IVC) Museum Society, Occasional Paper No.* 1. El Centro, California.

Horsfal, G. A.
1987 Design Theory and Grinding Stones. In *Lithic Studies among the Contemporary Highland Maya*, edited by B. Hayden, pp. 332–377. University of Arizona Press, Tucson, Arizona.

Hudson, Dee Travis
1974 Chumash Archery Equipment. *Ethnic Technology Notes No.* 13. San Diego Museum of Man.

Hudson, Dee Travis, and E. Underhay
1978 *Crystals in the Sky*. Ballena Press, Socorro, New Mexico.

Hughes, M. K., and L. J. Graumlich
1996 Climatic Variations and Forcing Mechanisms of the Last 2,000 Years. In *Multi-millenial Dendroclimatic Studies from the Western United States*, pp. 109–124. NATO ANSI Series Volume 141.

Ingram, B. L., J. C. Ingle, and M. E. Conrad
1996 A 2000 Yr Record of Sacramento-San Joaquin River Inflow to San Francisco Bay Estuary, California. *Geology* 24(4):331–334.

Inman, D. L.
1983 Application of Coastal Dynamics to the Reconstruction of Paleocoastlines in the Vicinity of La Jolla, California. In *Quaternary Coastlines and Marine Archaeology: Towards the Prehistory of Land Bridges and Continental Shelves*, edited by P. M. Masters and N. C. Flemming, pp. 1–49. Academic Press, London.

Johnson, D. L.
1989 Subsurface Stone Lines, Stone Zones, Artifact-Manuport Layers, and Biomantles Produced by Bioturbation via Pocket Gophers *(Thomomys bottae). American Antiquity* 54:370–389.

2002 Darwin Would Be Proud: Bioturbation, Dynamic Denudation, and the Power of Theory in Science. *Geoarchaeology* 17(1):7–40.

Johnson, John R.
1998 Foreward: A Bibliographic History of Chumash Studies. In *The Chumash and Their Predecessors: An Annotated Bibliography*, edited by M. Holmes and J. Johnson, pp. i-xi. Contributions in Anthropology No. 1. Santa Barbara Museum of Natural History, Santa Barbara, California.

Jones, Terry .L., G. M. Brown, L. Mark Raab, J. L. McVickar, W. G. Spaulding, Douglas J. Kennett, Andrew York, and P. L. Walker
1999 Environmental Imperatives Reconsidered: Demographic Crises in Western North American during the Medieval Climatic Anomaly. *Current Anthropology* 40(2):137-170.

Jones, Terry L. and J. A. Ferneau
2004 Deintensification along the Central Coast. In *Catalysts to Complexity: Late Holocene Societies of the California Coast*, edited by J. Erlandson and T. Jones, pp. 205-232. Perspectives in California Archaeology, Volume 6. Cotsen Institute of Archaeology, University of California, Los Angeles.

Jones, Terry L., and Douglas J. Kennett
1999 Late Holocene Sea Temperatures along the Central California Coast. *Quaternary Research* 51:74–82.

Jones, Terry L., R. T. Fitzgerald, Douglas J. Kennett, Charles H. Miksicek, J. L. Fagan, J. Sharp, and Jon M. Erlandson
2002 The Cross Creek Site (CA-SLO-1797) and Its Implications for New World Colonization. *American Antiquity* 67(2):213–230.

Kelly, R. L.
1995 *The Foraging Spectrum: Diversity in Hunter-Gatherer Lifeways*. Smithsonian Institution Press, Washington, D.C.

Kennett, Douglas J., and J. P. Kennett
2000 Competitive and Cooperative Responses to Climatic Instability in Coastal Southern California. *American Antiquity* 65:379–395.

King, Chester D.
1976 Chumash Inter-Village Economic Exchange. In *Native Californians: A Theoretical Retrospective*, edited by L. Bean and T. Blackburn, pp. 288–318. Ballena Press, Socorro, New Mexico.

1984 Archaeological Investigation of the San Antonio Terrace, Vandenberg Air Force Base, California, in Connection with MX Facilities Construction. Unpublished document, Chambers Consultants and Planners, Stanton, California.

King, Linda B.
1982 Medea Creek Cemetery: Late Inland Chumash Patterns of Social Organization, Exchange, and Warfare. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles, California.

Kintigh, K.
1988 The Effectiveness of Subsurface Testing: A Simulation Approach. *American Antiquity* 53:686–707.

Knoerl, J. J., and N. Versaggi
1984 Plow Zone Sites: Research Strategies and Management Policy. *American Archaeology* 4:76–80.

Kohler, T. A. and C. R. Van West
1996 The Calculus of Self-Interest in the Development of Cooperation: Sociopolitical Development and Risk among the Northern Anasazi. In *Evolving Complexity and Environmental Risk in the Prehistoric Southwest*, edited by J.A. Tainter and M.B. Tainter, pp. 169–196. Addison-Wesley, Reading, Massachusetts.

Krakker, J. J., M. J. Shott, and P. D. Welch
1983 Design and Evaluation of Shovel-Test Sampling in Regional Archaeological Survey. *Journal of Field Archaeology* 10:469–480.

Krieger, D. E.
1990 *San Luis Obispo County*. Second edition. EZ Nature Books, San Luis Obispo, California.

Kroeber, Alfred L.
1925 *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Washington, D. C.: Smithsonian Institution. (Reprinted in 1976. New York: Dover Publications, Inc.)

Kuhn, S. L.
1991 "Unpacking" Reduction: Lithic Raw Material Economy in the Mousterian of West-Central Italy. *Journal of Anthropological Archaeology* 10:76–106.

Kuznar, L. A.
2001 Risk Sensitivity and Value among Andean Pastoralists: Measures, Models, and Empirical Tests. *Current Anthropology* 42:432–440.

Lambert, P. M.
1994 *War and Peace on the Western Front: A Study of Violent Conflict and Its Correlates in Prehistoric Hunter-gatherer Societies of Coastal Southern California*. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Santa Barbara, California.

Lambert, P., and P. L. Walker
1991 Physical Anthropological Evidence for the Evolution of Social Complexity in Coastal Southern California. *Antiquity* 65:963–973.

Larson, M. L.
1994 Toward a Holistic Analysis of Chipped Stone Assemblages. In *The Organization of North American Prehistoric Chipped Stone Tool Technologies*, edited by P. Carr, pp. 57–69. Archaeological Series No. 7. International Monographs in Prehistory, Ann Arbor, Michigan.

Larson, Daniel O., Hector Neff, D. A. Graybill, J. Michaelsen, and E. Ambos
1996 Risk, Climatic Variability, and the Study of Southwestern Prehistory: An Evolutionary Perspective. *American Antiquity* 61:217–241.

Laylander, Don
1997 Inferring Settlement Systems for the Prehistoric Hunter-Gatherers of San Diego County, California. *Journal of California and Great Basin Anthropology* 19:179–196.

Lebow, Clayton G., Mary Clark Baloian, Douglas R. Harro, Rebecca L. McKim, Carole Denardo, Jill Onken, Eugene Romanski, and Barry A. Price
2001 *Final Report of Archaeological Investigations for Reaches 5B and 6, Coastal Branch Aqueduct, Phase II*. Prepared for Central Coast Water Authority, Buellton, California. Prepared by Applied Earthworks, Inc., Fresno, California. On file at the Central Coastal Information Center, University of California, Santa Barbara, California (E-4472).

Lewarch, D. E. and M. J. O'Brien
1981 Effects of Short Term Tillage on Aggregate Proven Provenance Surface Pattern. In *Plowzone Archaeology: Contributions to Theory and Technique*, edited by M. O'Brien

and D. Lewarch, pp. 7–49. Publications in Anthropology No. 27. Vanderbilt University, Nashville, Tennessee.

Lightfoot, Kent G.

1986 Regional Surveys in the Eastern United States: The Strengths and Weaknesses of Implementing Subsurface Testing Programs. *American Antiquity* 51:484–504.

1989 A Defense of Shovel-Test Sampling: A Reply to Shott. *American Antiquity* 54:413–416.

Lowman, Hubert A.

1993 *The Old Spanish Missions of California.* Lawson Mardon Group, Publisher.

Lovis, W. A., Jr.

1976 Quarter Sections and Forests: An Example of Probability Sampling in the Northeastern Woodlands. *American Antiquity* 41:364–372.

Lyman R. L., and M. J. O'Brien

2000 *Applying Evolutionary Archaeology: A Systematic Approach.* Kluwer Academic/Plenum, New York, New York.

MacDonald, D. H.

1995 Mobility and Raw Material Use at the Hunting Camp Spring Site (35WA96), Blue Mountains, Oregon. *North American Archaeologist* 16:343–361.

Martz, Patricia

1984 *Social Dimensions of Chumash Mortuary Populations in the Santa Monica Mountains Region.* Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Riverside, California.

Marvin, Judith

2004 *Historic Resource Evaluation Report (Positive), Willow Road Extension Project, Community of Nipomo, San Luis Obispo County, California.* Submitted to Department of Public Works, County of San Luis Obispo, and Special Funded Projects, California Department of Transportation, San Luis Obispo. Prepared by LSA Associates, Inc., Rocklin and San Luis Obispo, California.

Mauldin, R. P., and D. S. Amick

1989 Investigating Patterning in Debitage from Experimental Bifacial Core Reduction. In *Experiments in Lithic Technology*, edited by D.S. Amick and R.P. Mauldin, pp. 67–88. International Series No. 528. British Archaeological Reports, Oxford.

McK. Shumway, Burgess

1988 *California Ranchos – Patented Private Land Grants Listed by County.* Stokvis Studies in Historical Chronology and Thought 11. San Bernardino: The Borgo Press.

McManamon, F. P.

1984 Discovering Sites Unseen. *Advances in Archaeological Method and Theory* 7:223–292.

Merrill, Ruth Earl
1973 *Plants Used in Basketry by the California Indians*. Ramona, California: Ballena Press. (Originally published in 1923. University of California Publications in American Archaeology and Ethnology 20(13):215-242.)

Mills, N.
1985 Sample Bias, Regional Analysis, and Fieldwalking in British Archaeology. In *Archaeology from the Ploughsoil: Studies in the Collection and Interpretation of Field Survey Data*, edited by C. Haselgrove, M. Millett, and I. Smith, pp. 39–47. University of Sheffield, Sheffield.

Morrow, T. A.
1997 A Chip off the Old Block: Alternative Approaches to Debitage Analysis. *Lithic Technology* 22:51–69.

Munsell Color Chart

Nance, J. D.
1981 Statistical Fact and Archaeological Faith: Two Models in Small Site Sampling. *Journal of Field Archaeology* 8:151–165.

Nance, J. D. and B. F. Ball
1986 No Surprises? The Reliability and Validity of Test Pit Sampling. *American Antiquity* 51:457–483.

1989 A Shot in the Dark: Shott's Comments on Nance and Ball. *American Antiquity* 54:405–412.

Neff, Hector
1992 Ceramics and Evolution. *Archaeological Method and Theory* 4:141–193.

Nelson, M. C., and H. Lippmeier
1993 Grinding-Tool Design as Conditioned by Land-Use Pattern. *American Antiquity* 58(2):286–305.

Newman, J. R.
1994 The Effects of Distance on Lithic Material Reduction Technology. *Journal of Field Archaeology* 21:491–501.

Nicholson, L.
1993 *Rails across the Ranchos.* Third edition. San Luis Obispo, California.

Office of Historic Preservation
1991 *Guidelines for Archaeological Research Designs*. Preservation Planning Bulletin No. 5. Office of Historic Preservation, Department of Parks and Recreation, Resources Agency, State of California, Sacramento, California.

Orme, A. R., and V. P. Tchakerian
1986 Quaternary Dunes of the Pacific Coast. In *Aeolian Geomorphology*, edited by W. G. Nickling, pp. 149–175. Allen and Unwin, Boston, Massachusetts.

Orton, C.
2000 *Sampling in Archaeology*. Cambridge University Press, Cambridge.

Overpeck, J., and R. Webb
2000 Nonglacial Rapid Climatic Events: Past and Future. *Proceedings of the National Academy of Sciences* 97(4):1335–1338.

Patterson, L. W. and J. B. Sollberger
1978 Replication and Classification of Small Size Lithic Debitage. *Plains Anthropologist* 23:103–111.

Pearsall, D.M.
2001 *Paleoethnobotany*. Second edition. Academic Press, New York.

Pletka, Scott
2001a Bifaces and the Institutionalization of Exchange Relationships in the Chumash Sphere. In *The Origins of a Pacific Coast Chiefdom: The Chumash of the Channel Islands*, edited by J. E. Arnold, pp. 133–150. University of Utah Press, Salt Lake City, Utah.

2001b *Technology, Labor Organization, and Institutions during the Adoption of Agriculture in Mesolithic and Neolithic Denmark*. Unpublished Ph.D. dissertation. Department of Anthropology, University of California, Los Angeles, California.

Pletka, Nicole, and Scott Pletka
2003 *Archaeological Survey Report, Planning Areas 18 and 39, Irvine, Orange County, California*. Submitted to The Irvine Company, Newport Beach, California. LSA Associates, Inc., Irvine, California.

Pletka, Scott, and Nicole Pletka
2003 *Archaeological Survey Report, Willow Road Extension Project, Nipomo, County of San Luis Obispo, California*. Submitted to Department of Public Works, County of San Luis Obispo, San Luis Obispo, California and California Department of Transportation, San Luis Obispo, California. LSA Associates, Inc., San Luis Obispo, California.

Powers, Stephen
1976 *Tribes of California*. Introduction and Notes by R. Heizer. Berkeley and Los Angeles: University of California Press. [Originally published in 1877. Contributions to North American Ethnology, Vol. III. Department of the Interior, U. S. Geographical and Geological survey of the Rocky Mountain Region, J. W. Powell in Charge. Washington: Government Printing Office.]

Prentiss, W. C. and E. J. Romanski
1989 Experimental Evaluation of Sullivan and Rozen's Debitage Typology. In *Experiments in Lithic Technology*, edited by D.S. Amick and R.P. Muldin, pp. 89–100. International Series No. 528. British Archaeological Reports, Oxford.

Purdy, Carl
1973 *Pomo Indian Baskets and Their Makers*. Mendocino County Historical Society. Ukiah. [Reprint of 1902 publication]

Quinn, W. H.
1992 A Study of Southern Oscillation-Related Climatic Activity for A. D. 622–1900 Incorporating Nile River Flood Data. In *El Niño*, edited by H. Diaz and V. Markgraf, pp. 119–149. Cambridge University Press, Cambridge.

Rautman, A. E.
1993 Resource Variability, Risk, and the Structure of Social Networks: An Example from the Prehistoric Southwest. *American Antiquity* 58:403–424.

Read, D. W.
1982 Toward a Theory of Archaeological Classification. In *Essays on Archaeological Typology*, edited by R. Whallon and J. A. Brown, pp. 56–92. Center for American Archaeology Press, Evanston, Illinois.

1985 The Substance of Archaeological Analysis and the Mold of Statistical Method: Enlightenment out of Discordance? In *For Concordance in Archaeological Analysis: Bridging Data Structure, Quantitative Technique, and Theory*, edited by C. Carr, pp. 56–92. Westport Publishers, Inc., Kansas City, Missouri.

Read, D. W., and G. Russell
1996 A Method for Taxonomic Typology Construction and an Example: Utilized Flakes. *American Antiquity* 61:663–684.

Redman, C. R.
1987 Surface Collection, Sampling, and Research Design: A Retrospective. *American Antiquity* 52:249–265.

Redman, C. R. and P. J. Watson
1970 Systematic, Intensive Surface Collection. *American Antiquity* 35:279–291.

Reitz, E. J. and E. S. Wing
1999 *Zooarchaeology*. Cambridge University Press, Cambridge.

Rick, J. W.
1976 Downslope Movement and Archaeological Intrasite Spatial Analysis. *American Antiquity* 41:133–144.

Rick, T. C., Jon M. Erlandson, and Rene L. Vellanoweth
2001 Paleocoastal Marine Fishing on the Pacific Coast of the Americas: Perspectives from Daisy Cave, California. *American Antiquity* 66:595–614.

Rick, T. C., Rene L. Vellanoweth, Jon M. Erlandson, and Douglas J. Kennett
2002 On the Antiquity of the Single-Piece Shell Fishhook: AMS Radiocarbon Evidence from the Southern California Coast. *Journal of Archaeological Science* 29:933–942.

Ricklis, R.A. and K.A. Cox
1993 Examining Lithic Technological Organization as a Dynamic Cultural Subsystem: The Advantages of an Explicitly Spatial Approach. *American Antiquity* 58:444–461.

Rindos, D.
1989 Undirected Variation and the Darwinian Explanation of Cultural Change. *Archaeological Method and Theory* 1:1–45.

Robinson, W. W.
1948 *Land in California*. University of California, Berkeley, California.

Rockwell, T. K. and T. W. Stafford, Jr.
2003 *The Geologic Context of the Arlington Springs Site, Santa Rosa Island, Southern California*. Paper presented at the 37th Annual Meeting of the Society for California Archaeology Annual Meetings, Sacramento.

Roper D.
1976 Lateral Displacement of Artifacts Due to Plowing. *American Antiquity* 41:372–375.

Roth, B. J. and H. L. Dibble
1998 Production and Transport of Blanks and Tools at the French Middle Paleolithic Site of Combe-Capelle Bas. *American Antiquity* 63:47–62.

Schick, K. D.
1987 Experimentally-Derived Criteria for Assessing Hydrologic Disturbance of Archaeological Sites. In *Natural Formation Processes and the Archaeological Record*, edited by D. T. Nash and M. D. Petraglia, pp. 86–107. BAR International Series 352. BAR, Oxford.

Schiffer, M. B.
1983 Toward the Identification of Formation Processes. *American Antiquity* 48:675–706.

1996 Some Relationships between Behavioral and Evolutionary Archaeologies. *American Antiquity* 61:643–62.

Sharp, Robert P., and Allen F. Glazner
1993 *Geology Underfoot in Southern California*. Mountain Press Publishing Co., Missoula, Montana.

Sherwood, S. C.
2001 Microartifacts. In *Earth Sciences and Archaeology*, edited by P. Goldberg, V. Holliday, and C. Ferring, pp. 327–351. Kluwer Academic/Plenum Publishers, New York.

Shott, M. J.
1989 Shovel-Test Sampling in Archaeological Survey: Comments on Nance and Ball, and Lightfoot. *American Antiquity* 54:396–404.

1994 Size and Form in the Analysis of Flake Debris: Review and Recent Approaches. *Journal of Archaeological Method and Theory* 1:69–110.

Silva, Aurthur M., and William C. Cain
1983 *California Indian Basketry: An Artistic Overview*. Second Printing. Cypress College Fine Arts Gallery. North Orange County Community College District.

Smith, E. A.
1981 The Application of Optimal Foraging Theory to the Analysis of Hunter-Gatherer Group Size. In *Hunter-Gatherer Foraging Strategies: Ethnographic and Archeological Analyses*, edited by B. Winterhalder and E. Smith, pp. 36-65. University of Chicago Press, Chicago, Illinois.

Soil Survey Staff
1993 *Soil Survey Manual*. USDA-SCS Agricultural Handbook 18. U.S. Government Printing Office, Washington, D.C.

Spanne, Larry W.
1977 Summary Archaeological Report for the Nipomo Sewer Project, Clean Water Grant Project No. C-06-1255. Ms. on file at the Central Coast Information Center, University of California, Santa Barbara.

Stahl, A.
1989 Plant-Food Processing: Implications for Dietary Quality. In *Foraging and Farming*, edited by D. Harris and G. Hillman, pp. 171–194. Unwin Hyman, London.

Stahle, D. W., and J. E. Dunn
1982 An Analysis and Application of the Size Distribution of Waste Flakes from the Manufacture of Bifacial Stone Tools. *World Archaeology* 14:84–97.

State Historical Resources Commission
1993 *Guidelines for the Curation of Archaeological Collections*. Office of Historic Preservation, Department of Parks and Recreation, Resources Agency, Sacramento, California.

Stein, J. K.
1987 Deposits for Archaeologists. In *Advances in Archaeological Method and Theory*, edited by M. Schiffer, pp. 337–392. Volume 11. Academic Press, Orlando, Florida.

Stein, J. K. and P. A. Teltser
1989 Size Distributions of Artifact Classes: Combining Macro- and Micro-Fractions. *Geoarchaeology* 4(1):1–30.

Stine, S.
1994 Extreme and Persistent Drought in California and Patagonia during Mediaeval Time. *Nature* 369(6481):546–549.

Stiner, M. C.
1994 *Honor among Thieves: A Zooarchaeological Study of Neandertal Ecology*. Princeton University Press, Princeton, New Jersey.

Stone, T.
1994 The Impact of Raw Material Scarcity on Ground-Stone Manufacture and Use: An Example from the Phoenix Basin Hohokam. *American Antiquity* 59(4):680–694.

Strudwick, Ivan H.
1986 Temporal and Areal Considerations Regarding the Prehistoric Circular Fishhook of Coastal California. Unpublished Master's Thesis, Department of Anthropology, California State University, Long Beach.

2004 The Use of Fired Clay Daub from CA-ORA-269 in the Identification of Prehistoric Dwelling Construction Methods, San Joaquin Hills, Orange County, California. Presented at both the Annual Meeting of the Society for California Archaeology, Riverside, and at the Meeting of the Southern California Academy of Sciences, California State University, Long Beach.

Sullivan, A. P. III and K. C. Rozen
1985 Debitage Analysis and Archaeological Interpretation. *American Antiquity* 50:755–779.

Tani, M.
1995 Beyond the Identification of Formation Processes: Behavioral Inferences Based on Traces Left by Cultural Formation Processes. *Journal of Archaeological Method and Theory* 2(3):231–252.

Tomka, S.A.
1989 Differentiating Lithic Reduction Techniques: An Experimental Approach. In *Experiments in Lithic Technology*, edited by D. Amick and R. Mauldin, pp. 137–162. International Series No. 528. British Archaeological Reports, Oxford.

Torrence, R.
1983 Time Budgeting and Hunter-Gatherer Technology. In *Hunter-gatherer Economy in Prehistory*, edited by R. Torrence, pp. 11–22. Cambridge University Press, New York.

1989 Retooling: Towards a Behavioral Theory of Stone Tools. In *Time, Energy, and Stone Tools*, edited by R. Torrence, pp. 57–66. Cambridge University Press, Cambridge.

Vierra, B. J.
1995 *Subsistence and Stone Tool Technology: An Old World Perspective*. Arizona State University, Tempe, Arizona.

Walker, P. L.
1986 Porotic Hyperostosis in a Marine Dependent California Indian Population. *American Journal of Physical Anthropology* 69:345–354.

1989 Cranial Injuries as Evidence of Violence in Prehistoric Southern California. *American Journal of Physical Anthropology* 80:313–323.

Wandsnider, L., and E. L. Camilli
1992 The Character of Surface Archaeological Deposits and Its Influence on Survey Accuracy. *Journal of Field Archaeology* 19:169–188.

Waters, Michael R.
1992 *Principles of Geoarchaeology*. University of Arizona Press, Tucson.

White, E. M.
1978 Cautionary Note on Soil Phosphate Data Interpretation for Archaeology. *American Antiquity* 43(3):507–508.

Winterhalder, B.
1981 Optimal Foraging Strategies and Hunter-Gatherer Research in Anthropology: Theory and Models. In *Hunter-Gatherer Foraging Strategies: Ethnographic and Archeological Analyses*, edited by B. Winterhalder and E. Smith, pp. 13–35. University of Chicago Press, Chicago, Illinois.

1986 Diet Choice, Risk, and Food Sharing in a Stochastic Environment. *Journal of Anthropological Archaeology* 5:369–392.

Winterhalder, B., F. Lu, and B. Tucker
1999 Risk-Sensitive Adaptive Tactics: Models and Evidence from Subsistence Studies in Biology and Anthropology. *Journal of Archaeological Research* 7:301–348.

Winterhalder, B., and E. A. Smith (editors)
1981 *Hunter-Gatherer Foraging Strategies: Ethnographic and Archaeological Analyses*. University of Chicago Press, Chicago, Illinois.

Wobst, H.M.
1983 We Can't See the Forest for the Trees: Sampling and the Shapes of Archaeological Distributions. In *Archaeological Hammers and Theories*, edited by J. Moore and A. Keene, pp. 37–85. Academic Press, New York.

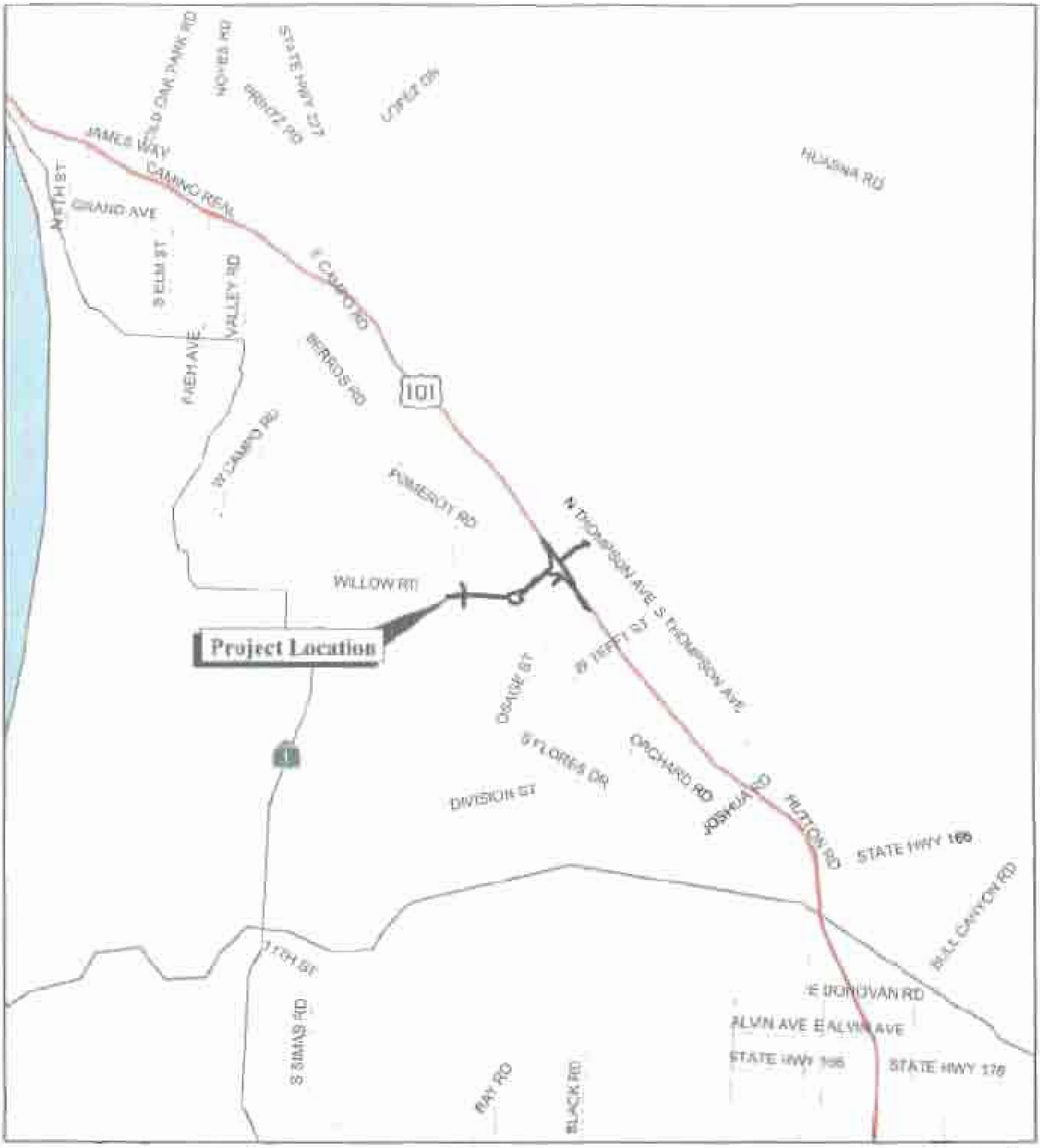
Wojdak, Elizabeth M.
1993 A Regional Study of Changing Subsistence Strategies at Newport Bay, California. *Proceedings of the Society for California Archaeology* 6:287–299.

Wooten, R. J.
1992 *Fish Ecology*. Chapman and Hall, New York.

Zeanah, D. W.
2002 Central Place Foraging and Prehistoric Pinyon Utilization in the Great Basin. In *Beyond Foraging and Collecting: Evolutionary Change in Hunter-Gatherer Settlement Systems*, edited by B. Fitzhugh and J. Habu, pp. 231–256. Kluwer Academic/Plenum Publishers, New York, New York.

APPENDIX A

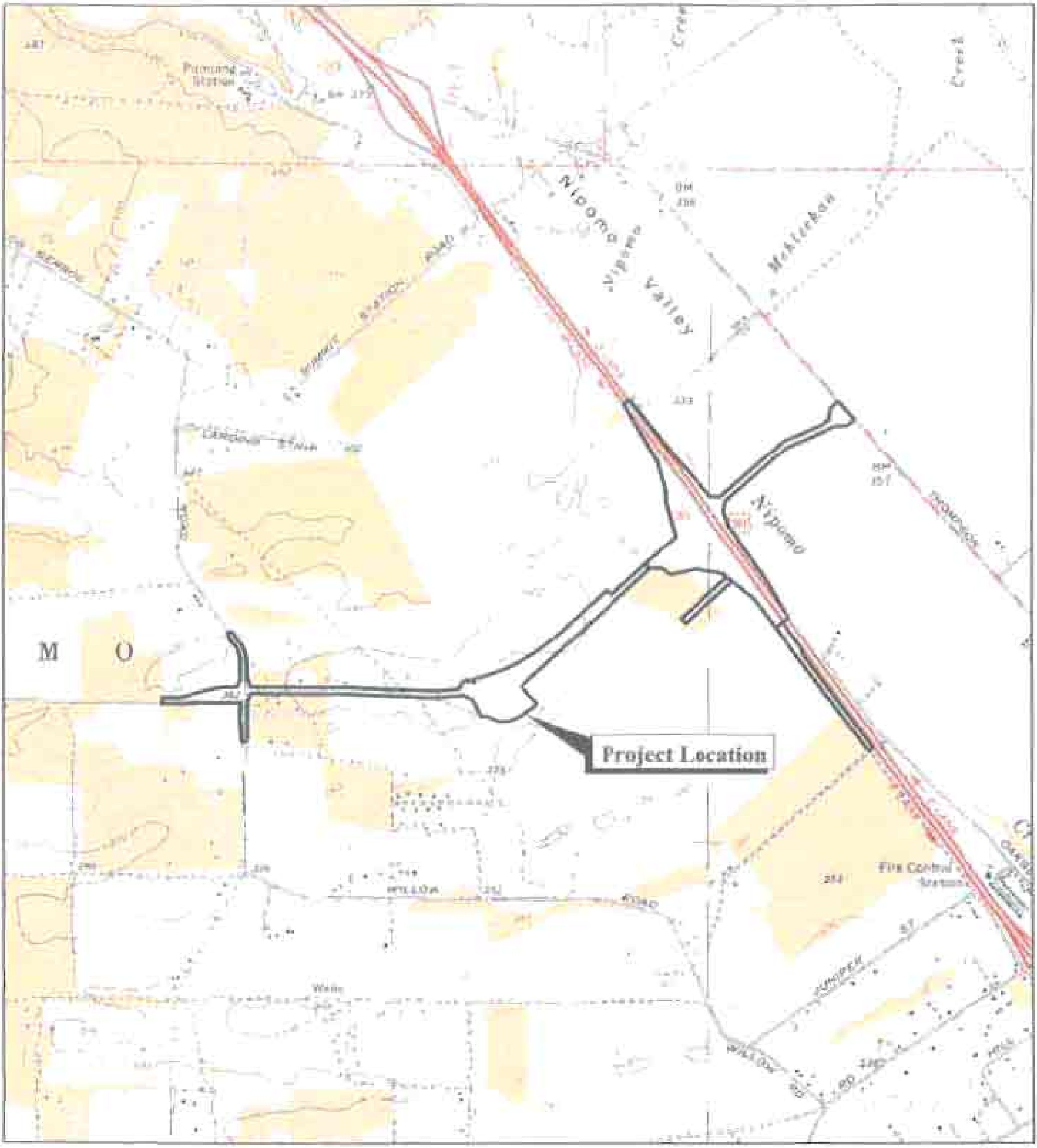
Maps



LSA

MAP 1

Willow Road Extension Project
Project Vicinity Map



MAP 2

LSA

N

Feet

Willow Road Extension Project
Project Location Map

SOURCE: USGS 7.5' QUAD(s) - Oceano ([illegible]), Nipomo ([illegible]), Calif
[illegible]

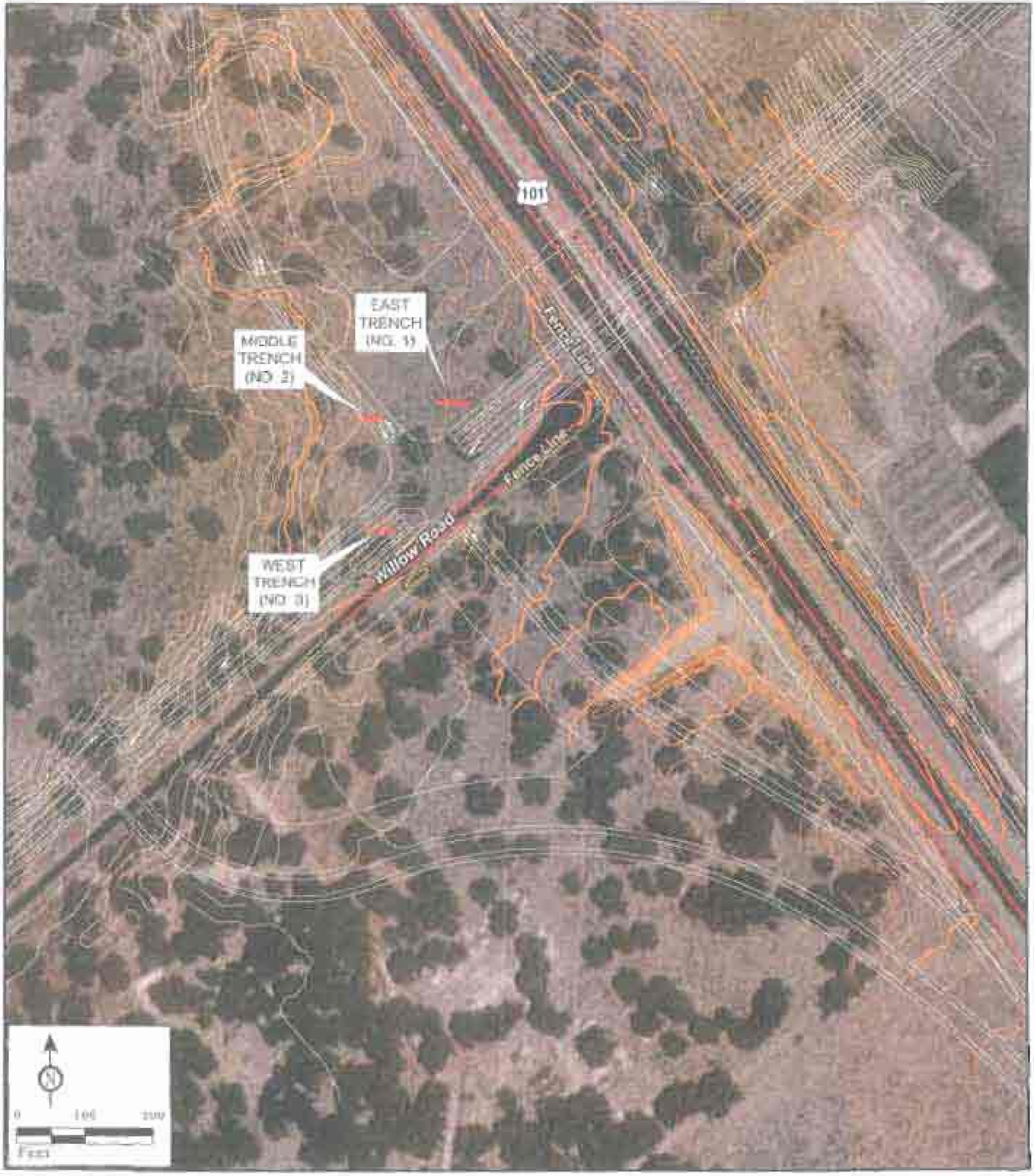


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FIGURE 1

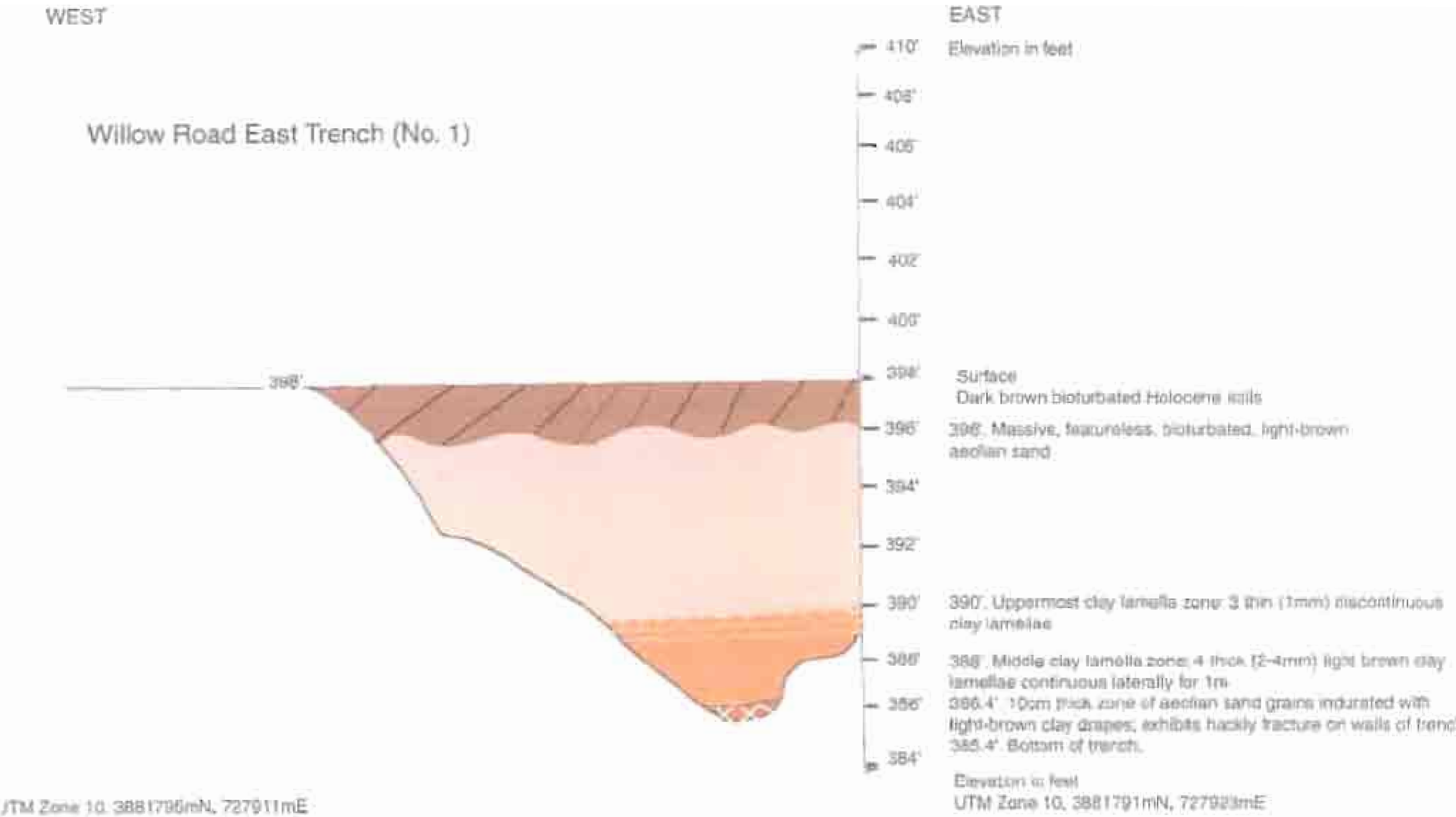
— TRENCHES

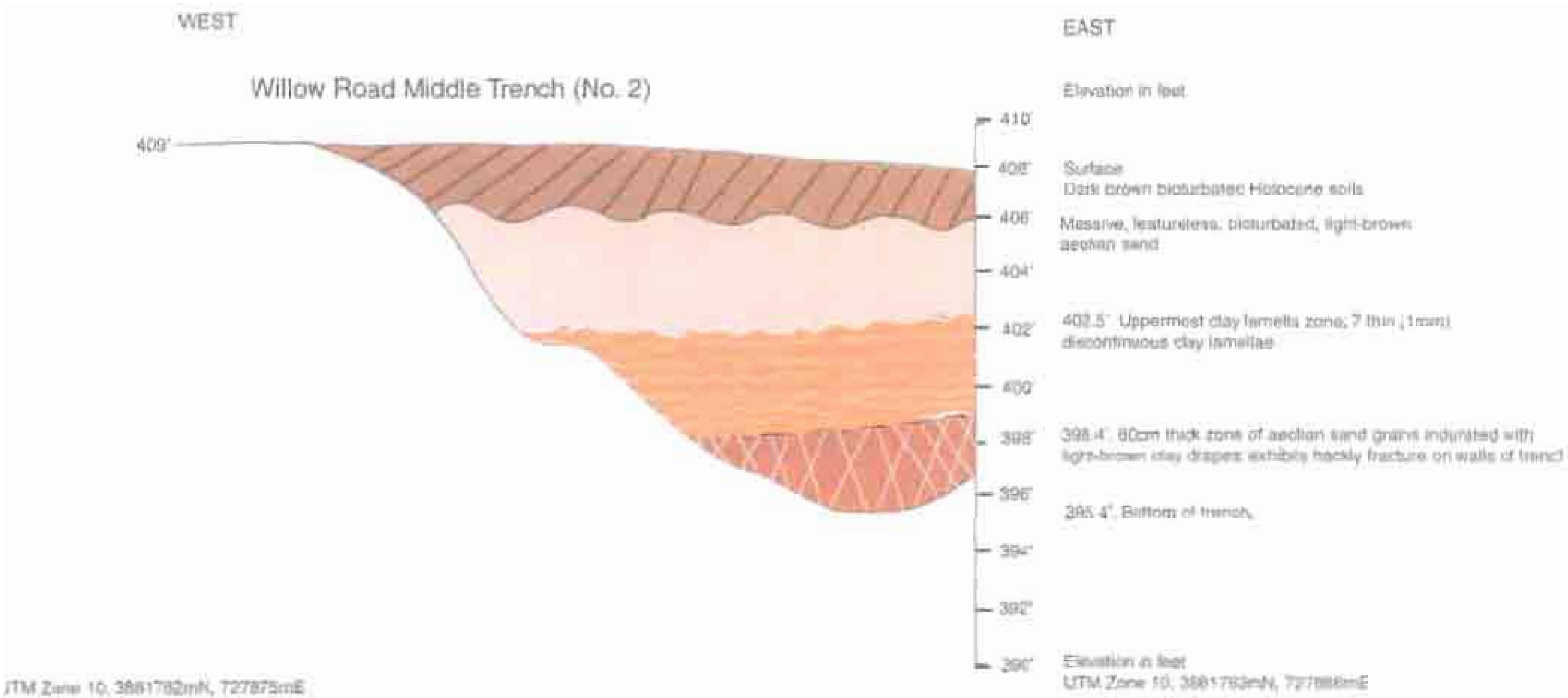
Willow Road, Nipomo
Archaeological Assessment

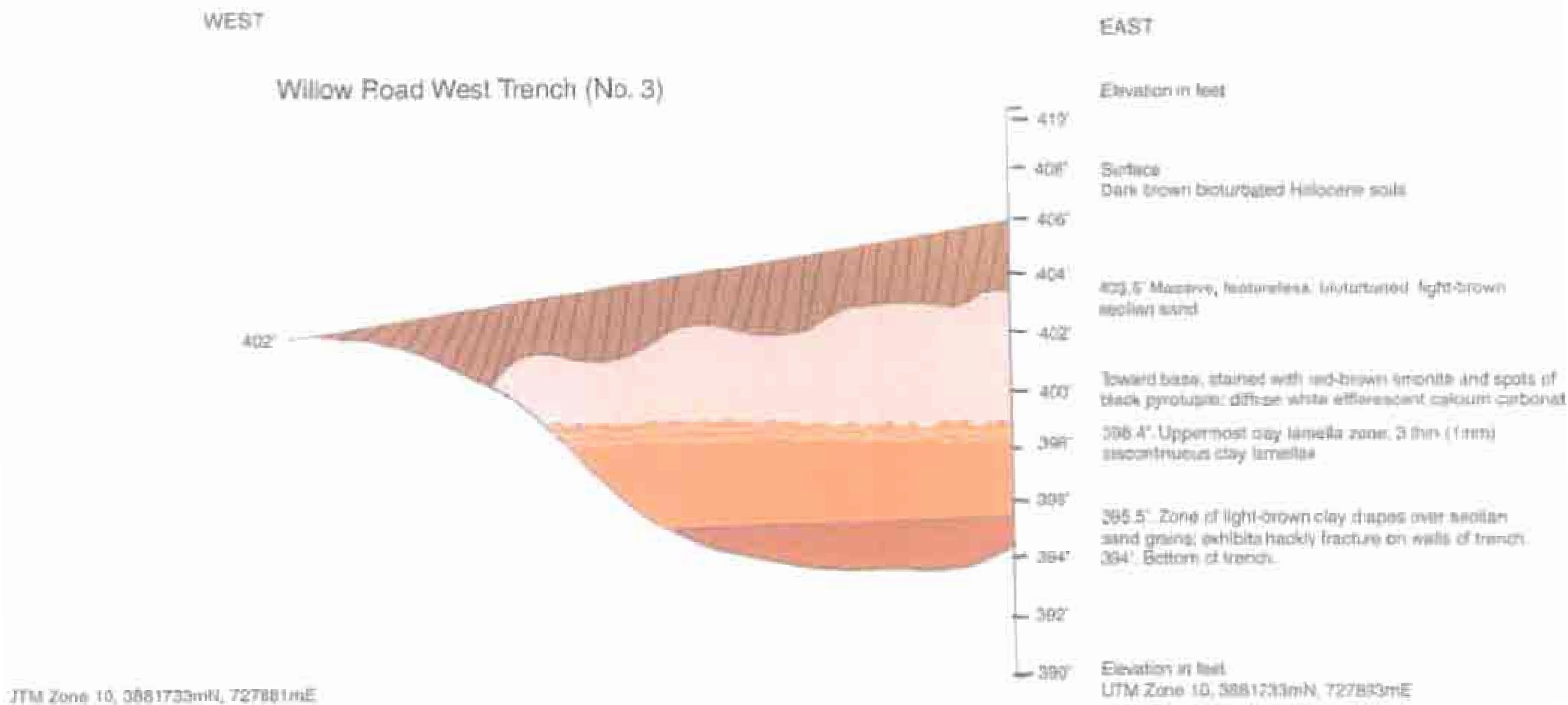
Geoarchaeological Trench Locations

SOURCE: State of California DOQQ; Rajappan and Meyer Consulting Engineers, Inc.

Willow Road East Trench (No. 1)




WEST
EAST
Willow Road Middle Trench (No. 2)
Elevation in feet
409'
410'
408'
406'
404'
402'
400'
398'
396'
394'
392'
390'
Surface
Dark brown bioturbated Holocene soils
Massive, featureless, bioturbated, light-brown aeolian sand
402.5'. Uppermost clay lamella zone; 7 thin (1mm) discontinuous clay lamellae
398.4'. 60cm thick zone of aeolian sand grains indurated with light-brown clay drapes; exhibits hackly fracture on walls of trench
395.4'. Bottom of trench.
Elevation in feet
UTM Zone 10, 3881793mN, 727888mE
UTM Zone 10, 3881792mN, 727875mE


WEST
EAST
Willow Road West Trench (No. 3)
Elevation in feet
410'
408'
406'
404'
402'
400'
398'
396'
394'
392'
390'
402'
Surface
Dark brown bioturbated Holocene soils
403.5' Massive, featureless, bioturbated light-brown aeolian sand
Toward base, stained with red-brown limonite and spots of black pyrolusite; diffuse white efflorescent calcium carbonat
398.4' Uppermost clay lamella zone: 3 thin (1 mm) discontinuous clay lamellae
395.5' Zone of light-brown clay drapes over aeolian sand grains; exhibits hackly fracture on walls of trench.
394'. Bottom of trench.
Elevation in feet
UTM Zone 10, 3881733mN, 727893mE
JTM Zone 10, 3881733mN, 727881mE

Map 3

CONFIDENTIAL

NOT FOR PUBLIC DISTRIBUTION

Map 4

CONFIDENTIAL

NOT FOR PUBLIC DISTRIBUTION

APPENDIX B

Collection Agreement for the Perpetual Curation of Archaeological Collections at the San Luis Obispo County Archaeological Society Research and Collections Facility

COLLECTION AGREEMENT

FOR THE PERPETUAL CURATION OF ARCHAEOLOGICAL COLLECTIONS AT THE SAN LUIS OBISPO COUNTY ARCHAEOLOGICAL SOCIETY RESEARCH AND COLLECTIONS FACILITY

I, the requester for submission of the collection identified below, have read, understand, and agree to comply with the Policies and Procedures for the curation of archaeological collections stipulated by the San Luis Obispo County Archaeological Society Research and Collections Facility. I further understand that SLOCAS will invoice me for curation charges based on the fee schedule identified within the curation guidelines. I agree to pay the charges with the understanding that failure to do so will result in denial of access to all facility collections and refusal to accept any additional collections. I understand that SLOCAS will not accept collections that contain either human remains or any grave associated artifacts, and certify that the collection I am submitting does not contain any such items.

Title of Project (include site trinomial): *Willow Road/US Route 101 Interchange and Willow Road Extension Project* (CA-SLO-1318H, CA-SLO-1620, CA-SLO-2133, CA-SLO-2133, CA-SLO-2271, CA-SLO-2272, CA-SLO-2273, 40-038219, 40-038220)

Project Conducted for: County of San Luis Obispo, Department of Public Works, Federal Highways Administration, and Rajappan & Meyer Consulting Engineers, Inc.

Signature of Requestor/Submitter

January 7, 2004
Date

Nicole Pletka
Print Name of Requestor/Submitter

Invoice to be sent to: LSA Associates, Inc.

1998 Santa Barbara Street, Suite 120

San Luis Obispo, California 93401

APPENDIX C

Site Records for CA-SLO-1767, CA-SLO-2271, 40-038219, and 40-038220

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APPENDIX D

Results of Geoarchaeological Backhoe Testing for the Willow Road Extension Project, Nipomo Mesa, San Luis Obispo County, California

By
Robert E. Reynolds
LSA Associates, Inc.

RESULTS OF GEOARCHAEOLOGICAL BACKHOE TRENCHING FOR THE WILLOW ROAD EXTENSION PROJECT NIPOMO MESA SAN LUIS OBISPO COUNTY, CALIFORNIA

Robert E. Reynolds

LSA Associates, Inc.
1650 Spruce Street, Suite 500
Riverside, CA 92507

March 8, 2005

SETTING

Site Location and Description

Geoarchaeological investigation of a portion of the Willow Road Extension Project was conducted along the west side of US 101, just north of Tefft Street and south of Los Berros Road/Thompson Avenue in Nipomo (refer to attached figures). This investigation area is north of the paved, rural and private portion of Willow Road. The area is within the northern portion of the Callender Dune Complex of the larger Nipomo Mesa Dunes, which extends 16 km (10 miles) along the coast between Oceano and Pt. Sal, and inland about the same distance to the Nipomo area. The investigation area is located in an unsectioned portion of Township 11 North, Range 34 West, Mount Diablo Base Line and Meridian. The project is depicted on the *Nipomo* (1965) and *Oceano* (1994), California 7.5' USGS Quadrangle maps.

Investigation consisted of backhoe excavation and recording of three trenches. Backhoe trenches were recommended to explore the subsurface soil sequence to determine if there are identifiable limits to the depth of potentially buried cultural deposits. Archaeologists (p. c. Mr. Christopher Ryan, Caltrans, 2005) have observed locally that cultural remains and artifacts do not occur below soil horizons referred to as clay laminae. Backhoe trenches were anticipated to reach depths of 3.0-4.6 m (10-15 ft), while proposed excavation for the Willow Road project may reach depths exceeding 12.2 m (40 ft).

Geological Setting

The Willow Road Interchange project is located in a portion of California's Coast Range geologic province of that encompasses western San Luis Obispo County. It is situated at the western margin of the Santa Lucia Range along Nipomo Creek (Jennings 1958). The San Rafael Range consists of Miocene marine sediments that interfinger with Miocene volcanic rocks (Jennings, 1958) and, to the northwest, a core of Mesozoic Franciscan volcanic rocks. Canyons along Arroyo Grande Creek and Nipomo Creek contain perched Plio-Pleistocene terrace deposits of the Paso Robles formation. A series of middle to late Pleistocene wave-cut platforms (marine terraces) are developed below elevations of 400 feet on the east side of Nipomo Creek. They range in age from 500,000 years (oldest) to 300,000 years (most recent).

The extensive dunes in the are known as the Nipomo Dune Complex. This dune system extends along the coast northwest of Santa Maria. It extends approximately 16 km (10 miles) from Arroyo Grande Creek at Oceano, south to Point Sal, and extends nearly the same distance inland to the confluence of Nipomo Creek and the Santa Maria River. The Nipomo Dune complex has three components of which the Callender Dune Complex is the northernmost and contains the subject study area. Further south are the Guadalupe Dune Complex and the Mussel Rock Dune

Complex.

Late Pleistocene terrace deposits referred to as the Nipomo Mesa Quaternary Terrace Deposits (McLeod 2004) sit on these terraces and are exposed along Nipomo Creek. These sedimentary formations are covered by a wedge of Pleistocene to Holocene dune sand (the Callender Dune complex of the Nipomo Dunes; Terratech, 1997) that thickens westward toward its source. The dunes are Pleistocene at depth (Terratech 1997; McLeod 2004), although the thin layer of sand that covers the well vegetated Nipomo Mesa Dunes is currently active.

Soils at the Project Site

The Callender Dune Complex , on which the project site is situated, was deposited prior to the Flandrian marine transgression (>18,000 ybp, Terratech 1997; or older than the Wisconsinan Glacial maximum). Late Pleistocene (>10,000 years) and Holocene (<10,000 years) aeolian (dune) deposits overlie the earlier dune deposits. Three parameters influence the geographic extent of the dune complex, which drops steeply into and terminates at Nipomo Creek, located less than approximately 0.4 km (0.25 mile) east of the currently excavated trenches. These parameters are:

1. Wind that transports coast-derived sand eastward from the Pacific Ocean shoreline.

2. Westward sheet-flow from the Santa Lucia Range on the east into Nipomo Creek. This removes dune sand from eastern slopes and terraces and deposits it into Nipomo Creek.

3. Nipomo Creek supports a riparian habitat, and the trees along this south-flowing channel act as a wind break that reduces the carrying capacity of the sand-laden wind.

Since late Pleistocene time (20,000 + years) the local geomorphology has constrained the eastern margin of the Callender Dune Complex of the Nipomo Mesa Dunes. Wind carries dune sand eastward from the coast. The carrying capacity of the wind is baffled by the tree wind break along Nipomo Creek, causing sand to drop. During exceptionally strong winds, sand is blown past the riparian wind break and drops on the western slopes of the Santa Lucia Range. The Santa Lucia Range also acts as a barrier to coastal storms, and runoff from precipitation washes sand down slope to the west into Nipomo Creek, eventually carrying sand southward into the Santa Maria River and west to the Pacific Ocean.

During Pleistocene and Holocene time, a period spanning more than 20,000 years, the stratigraphy recorded within the backhoe-exposed soil profiles developed within the Callender Dune Complex on Nipomo Mesa. Generalized soil stratigraphy observed in the Willow Road backhoe trenches is depicted within the attached figures described here:

Surface	Depth	Munsell Soil Color	Description
1st zone	0 - 2 Feet	10 YR53 Brown	Dark brown bioturbated soils
2nd zone	2 - 6 Feet	10 YR64 Light yellowish-brown	Massive, featureless, bioturbated, light-brown aeolian sand
3rd zone	6 - 10 Feet	10 YR64 Light yellowish-brown	Clay lamellae zone; three to seven thin (1 mm), discontinuous lamellae
4th zone	10 - 12 Feet	10 YR44 Dark yellowish-brown	Thick zone of light-brown clay draped over aeolian sand grains. Micro-piping between clay-coated grains increases porosity. This clay zone exhibits hackly fracture on walls of trench.
Base of Cut			

An additional soil characteristic was noted in the west trench, at the base of the second zone: massive, featureless, bioturbated, light-brown aeolian sand. Metallic oxides and carbonate precipitation were identified at this depth within this trench only, here described as "base of zone stained with red-brown limonite and spots of black pyrolusite; diffuse white efflorescent calcium carbonate."

The four profile zones appear at relatively constant depths below the surface of each trench. However, the overall elevation of each zone differs from trench to trench, suggesting a relationship to recent development of surface topography. If each zone was at a constant elevation between the three trenches, that consistent elevation would suggest stratigraphy that was inherited from Pleistocene times. The zones are a secondary, subsurface, post-Pleistocene depositional product of erosion that developed in the Holocene topography that is present today.

The consistency of clay laminae in the three trenches overlying a zone of clay drapes surrounding aeolian sand grains suggests that the clay zones were developed from aeolian silts and clays that were dropped to the topographic surface on a regular, cyclic basis by coastal fogs. These clay and silt-sized particles then percolated downward to perch and precipitate at certain limits within the vesicular horizon. Porosity and vertical moisture mobility were preserved by micro-piping between the clay-draped sand grains.

SUMMARY

The local depth of cultural resources may be constrained to six to eight feet below the surface, the local uppermost occurrence of clay laminae zones. Sediment located stratigraphically below the clay lamellae zone are probably Pleistocene in age, and therefore there is a potential for significant paleontological resources to be encountered by excavation that occurs deeper than lamellae.

RECOMMENDATIONS

Cultural resource material within the Willow Road Extension project can be expected to occur from the surface to a depth of approximately six to eight feet. Paleontological resources are expected to occur in strata below that depth, to the lower limits of project construction excavation, which may be in excess of 12.2 m (40 ft). It is recommended that a resource monitoring program accompany project excavation to identify any previously unrecorded cultural and paleontological resources. Compliance with these recommendations for a monitoring and salvage program to recover resources will ensure that excavation impacts to cultural and paleontological resources are maintained below a level of significance.

REFERENCES

Jennings, Charles W.
1958 Geologic Map of California, San Luis Obispo Sheet. Scale 1:250,000.

McLeod, Samuel A.
2004 Paleontological Resource Record Search for the proposed Willow Road / U. S. 101 project area, Nipomo, San Luis Obispo County, California.

Terratech, Inc.
1997 Draft Environmental Impact Report Willow Road Extension, Realignment, Highway 101 Interchange and Frontage Road Alternatives, Nipomo Area, San Luis Obispo County, California. Geology and Soils" Project 328001/2. Prepared by Terratech, Inc., for Douglas Wood & Associates, Inc. 21 p.

APPENDIX

TRENCH DESCRIPTIONS AND PROFILES

1) **Locality Map**
2) **Profile: East Trench (No. 1)**
3) **Profile: Middle Trench (No. 2)**
4) **Profile: West Trench (No. 3)**

APPENDIX E
CA-SLO-1767: Tables and Catalog Sheets Generated from the Reanalysis of Lithic Material Collected from Previous excavation (Lebow et al. 2001)

TABLE 1
CA-SLO-1767, UNIT 1
TYPE AND SIZE OF LITHIC DEBITAGE BY DEPTH

(cm)		Screen Mesh Size (mm)					
Depth	**Debitage Type**	**3.2**	**4.0**	**6.3**	**8.0**	**16.0**	**Total**
0-10	Flake	4	9	9	9	3	34
	Flake Fragment	0	1	0	1	1	3
	Shatter	0	1	0	2	1	4
10-20	Flake	10	15	11	9	0	45
	Flake Fragment	0	0	3	4	0	7
	Shatter	1	2	0	1	0	4
Total	Flake	14	24	20	18	3	**79**
	Flake Fragment	0	1	3	5	1	**10**
	Shatter	1	3	0	3	1	**8**

TABLE 2
CA-SLO-1767, UNIT 1
MATERIAL AND SIZE OF LITHIC DEBITAGE BY DEPTH

(cm)		Screen Mesh Size (mm)					
Depth	**Debitage Type**	**3.2**	**4.0**	**6.3**	**8.0**	**16.0**	**Total**
0-10	Chert - Monterey	4	11	8	12	5	40
	Siliceous Shale	0	0	1	0	0	1
10-20	Chert - Monterey	11	16	14	14	0	55
	Obsidian	0	1	0	0	0	1
Total	Chert - Monterey	15	27	22	26	5	**95**
	Siliceous Shale	0	0	1	0	0	**1**
	Obsidian	0	1	0	0	0	**1**

Based on reanalysis of lithic debitage from Lebow et al. (2001)

TABLE 4
CA-SLO-1767, UNIT 3
TYPE AND SIZE OF LITHIC DEBITAGE BY DEPTH

(cm)		Screen Mesh Size (mm)					
Depth	**Debitage Type**	**3.2**	**4.0**	**6.3**	**8.0**	**16.0**	**Total**
0-10	Flake	6	11	8	7	2	34
	Flake Fragment	0	5	2	2	0	9
	Shatter	1	1	0	2	0	4
	Biface	0	1	0	0	0	1
10-20	Flake	7	14	7	10	3	41
	Flake Fragment	0	1	0	2	0	3
	Shatter	1	1	0	0	0	2
20-30	Flake	3	13	7	7	0	30
	Flake Fragment	0	5	1	1	0	7
	Shatter	2	0	2	1	0	5
30-40	Flake	3	5	9	2	0	19
	Flake Fragment	1	1	0	0	0	2
	Shatter	0	1	0	1	0	2
40-50	Flake	5	15	12	4	0	36
	Flake Fragment	1	0	4	0	0	5
	Shatter	3	2	2	3	0	10
	Biface	0	0	1	0	0	1
50-60	Flake	10	2	7	6	2	27
	Shatter	0	0	0	1	0	1
Total	Flake	34	60	50	36	7	**187**
	Flake Fragment	2	12	7	5	0	**26**
	Shatter	7	5	4	8	0	**24**
	Biface	0	1	1	0	0	**2**

Based on reanalysis of lithic debitage from Lebow et al. (2001)

TABLE 5
CA-SLO-1767, UNIT 4
TYPE AND SIZE OF LITHIC DEBITAGE BY DEPTH

(cm)		Screen Mesh Size (mm)					
Depth	**Debitage Type**	**3.2**	**4.0**	**6.3**	**8.0**	**16.0**	**Total**
0-10	Flake	5	4	4	7	2	22
	Flake Fragment	0	1	3	3	0	7
	Shatter	0	1	0	0	0	1
	Biface	0	0	0	1	0	1
10-20	Flake	6	7	12	15	5	45
	Flake Fragment	0	5	2	3	0	10
	Shatter	0	0	0	3	0	3
20-30	Flake	3	10	9	20	1	43
	Flake Fragment	1	2	1	0	0	4
	Shatter	2	1	1	2	0	6
30-40	Flake	2	11	5	16	0	34
	Flake Fragment	0	0	4	2	1	7
	Shatter	0	0	0	0	1	1
40-50	Flake	12	11	13	7	1	44
	Flake Fragment	6	2	1	2	0	11
	Shatter	3	4	1	1	0	9
	Biface	0	0	0	0	1	1
Total	Flake	28	43	43	65	9	**188**
	Flake Fragment	7	10	11	10	1	**39**
	Shatter	5	11	13	19	20	**68**
	Biface	0	0	0	1	1	**2**

Based on reanalysis of lithic debitage from Lebow et al. (2001)

TABLE 6
CA-SLO-1767, UNIT 5
TYPE AND SIZE OF LITHIC DEBITAGE BY DEPTH

(cm)		Screen Mesh Size (mm)					
Depth	**Debitage Type**	**3.2**	**4.0**	**6.3**	**8.0**	**16.0**	**Total**
0-10	Flake	4	5	9	10	3	31
	Flake Fragment	0	0	0	1	0	1
	Shatter	0	0	2	1	0	3
10-20	Flake	13	9	5	8	0	35
	Flake Fragment	2	0	2	5	0	9
	Shatter	2	1	3	2	0	8
20-30	Flake	5	19	13	11	0	48
	Flake Fragment	2	2	4	1	0	9
	Shatter	1	2	2	4	1	10
30-40	Flake	1	9	9	16	1	36
	Flake Fragment	0	1	5	4	1	11
40-50	Flake	3	11	3	8	0	25
	Flake Fragment	0	0	1	1	0	2
	Shatter	0	0	1	0	0	1
50-60	Flake	1	4	8	6	1	20
	Flake Fragment	0	2	0	0	0	2
	Shatter	0	0	3	0	0	3
Total	Flake	27	57	47	59	5	**195**
	Flake Fragment	4	5	12	12	1	**34**
	Shatter	3	3	11	7	1	**25**

Data based on reanalysis of lithic debitage from Lebow et al. (2001)

TABLE 7
CA-SLO-1767, UNIT 2
MATERIAL AND SIZE OF LITHIC DEBITAGE BY DEPTH

(cm)		Screen Mesh Size (mm)					
Depth	**Debitage Type**	**3.2**	**4.0**	**6.3**	**8.0**	**16.0**	**Total**
0-10	Chert - Monterey	0	6	4	2	0	12
	Siliceous Shale	0	0	0	0	1	1
10-20	Chert - Monterey	0	7	5	14	2	28
	Siliceous Shale	0	0	0	1	0	1
	Obsidian	0	0	0	1	0	1
20-30	Chert - Monterey	1	1	6	5	0	13
	Siliceous Shale	0	0	1	1	0	2
	Undiff. Igneous	0	0	0	1	0	1
30-40	Chert - Monterey	3	7	5	7	1	23
	Chert - Island	0	0	1	0	0	1
	Siliceous Shale	0	0	0	1	0	1
40-50	Chert - Monterey	1	4	4	9	1	19
	Undiff. Igneous	0	0	0	1	1	2
50-60	Chert - Monterey	6	5	3	7	0	21
	Siliceous Shale	0	0	0	1	0	1
60-70	Chert - Monterey	4	8	11	8	2	33
	Siliceous Shale	0	0	2	2	0	4
70-80	Chert - Monterey	0	2	1	3	0	6
	Siliceous Shale	0	1	0	0	0	1
Total	Chert - Monterey	15	40	39	55	6	**155**
	Chert - Island	0	0	1	0	0	**1**
	Siliceous Shale	0	1	3	6	1	**11**
	Undiff. Igneous	0	0	0	2	1	**3**
	Obsidian	0	0	0	1	0	**1**

Data based on reanalysis of lithic debitage from Lebow et al. (2001)

TABLE 8
CA-SLO-1767, UNIT 3
MATERIAL AND SIZE OF LITHIC DEBITAGE BY DEPTH

(cm)		Screen Mesh Size (mm)					
Depth	Debitage Type	3.2	4.0	6.3	8.0	16.0	Total
0-10	Chert - Monterey	7	17	10	9	1	44
	Chert - Franciscan	0	0	0	1	0	1
	Siliceous Shale	0	1	0	1	0	2
	Undetermined	0	0	0	0	1	1
10-20	Chert - Monterey	8	16	7	11	1	43
	Siliceous Shale	0	0	0	1	1	2
	Quartzite	0	0	0	0	1	1
20-30	Chert - Monterey	5	17	10	9	0	41
	Chert - Franciscan	0	1	0	0	0	1
30-40	Chert - Monterey	3	7	9	3	0	22
	Obsidian	1	0	0	0	0	1
40-50	Chert - Monterey	9	17	18	6	0	50
	Chert - Franciscan	0	0	0	1	0	1
	Siliceous Shale	0	0	0	1	0	1
50-60	Chert - Monterey	10	2	7	6	2	27
	Siliceous Shale	0	0	0	1	0	1
Total	Chert - Monterey	42	76	61	44	4	**227**
	Chert - Franciscan	0	1	0	2	0	**3**
	Siliceous Shale	0	1	0	4	1	**6**
	Quartzite	0	0	0	0	1	**1**
	Obsidian	1	0	0	0	0	**1**
	Undetermined	0	0	0	0	1	**1**

Data based on reanalysis of lithic debitage from Lebow et al. (2001)

TABLE 9
CA-SLO-1767, UNIT 4
MATERIAL AND SIZE OF LITHIC DEBITAGE BY DEPTH

(cm)		Screen Mesh Size (mm)					
Depth	**Debitage Type**	**3.2**	**4.0**	**6.3**	**8.0**	**16.0**	**Total**
0-10	Chert - Monterey	5	6	7	10	2	30
	Undiff. Igneous	0	0	0	1	0	1
10-20	Chert - Monterey	6	12	14	19	5	56
	Siliceous Shale	0	0	0	2	0	2
20-30	Chert - Monterey	6	12	11	22	1	52
	Chert - Island	0	1	0	0	0	1
30-40	Chert - Monterey	3	10	8	16	1	38
	Siliceous Shale	0	0	1	2	1	4
	Chert - Franciscan	0	1	0	0	0	1
40-50	Chert - Monterey	20	16	13	8	2	59
	Siliceous Shale	1	0	2	2	0	5
	Chert - Island	0	1	0	0	0	1
Total	Chert - Monterey	40	56	53	75	11	**235**
	Siliceous Shale	1	0	3	6	1	**11**
	Chert - Franciscan	0	1	0	0	0	**1**
	Chert - Island	0	2	0	0	0	**2**
	Undiff. Igneous	0	0	0	1	0	**1**

Data based on reanalysis of lithic debitage from Lebow et al. (2001)

TABLE 10
CA-SLO-1767, UNIT 5
MATERIAL AND SIZE OF LITHIC DEBITAGE BY DEPTH

(cm)		Screen Mesh Size (mm)					
Depth	**Debitage Type**	**3.2**	**4.0**	**6.3**	**8.0**	**16.0**	**Total**
0-10	Chert - Monterey	4	5	9	8	3	29
	Siliceous Shale	0	0	2	4	0	6
10-20	Chert - Monterey	17	8	9	13	0	47
	Siliceous Shale	0	2	1	2	0	5
20-30	Chert - Monterey	8	21	17	14	1	61
	Siliceous Shale	0	1	2	1	0	4
	Sandstone	0	1	0	1	0	2
30-40	Chert - Monterey	1	9	12	16	2	40
	Siliceous Shale	0	1	2	4	0	7
40-50	Chert - Monterey	3	11	5	8	0	27
	Siliceous Shale	0	0	0	1	0	1
50-60	Chert - Monterey	1	6	10	5	0	22
	Siliceous Shale	0	0	0	0	1	1
	Undiff. Igneous	0	0	1	1	0	2
Total	Chert - Monterey	34	60	62	64	6	**226**
	Siliceous Shale	0	4	7	12	1	**24**
	Sandstone	0	1	0	1	0	**2**
	Undiff. Igneous	0	0	1	1	0	**2**

Data based on reanalysis of lithic debitage from Lebow et al. (2001)

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-SCP-1		Chert-Mainland Monterey	Flake	1	37.47	16	2	No	Yes	
1767	AE-SCP-10		Chert-Mainland Monterey	Core	1	87.58	16	1	No	No	
1767	AE-SCP-11		Chert-Mainland Monterey	Flake	1	17.9	16	3	No	Yes	
1767	AE-SCP-12		Chert-Mainland Monterey	Flake	1	16.62	16	4	No	Yes	
1767	AE-SCP-2		Chert-Mainland Monterey	Biface	1	12.44	16	6	No	No	
1767	AE-SCP-3		Chert-Mainland Monterey	Biface	1	9.41	16	11	No	No	
1767	AE-SCP-4		Chert-Mainland Monterey	Biface	1	48.93	16	4	No	No	
1767	AE-SCP-5		Chert-Mainland Monterey	Flake	1	66.71	16	3	No	Yes	
1767	AE-SCP-6		Chert-Mainland Monterey	Core	1	39.36	16	4	No	No	
1767	AE-SCP-7		Chert, Other - "Unidentified"	Flake	1	14.43	16	37	No	No	
1767	AE-SCP-9		Chert-Mainland Monterey	Hammer	1	516.9	16	8	No	No	
1767	AE-STP-1	20-40	Chert-Mainland Monterey	Flake	1	1.96	8	11	No	Yes	
1767	AE-STP-1	40-60	Chert-Mainland Monterey	Flake	1	0.55	8	0	No	No	
1767	AE-STP-1	40-60	Chert-Mainland Monterey	Flake	1	0.55	8	0	No	No	
1767	AE-STP-1	40-60	Chert-Mainland Monterey	Flake	1	0.41	8	0	No	No	
1767	AE-STP-1	40-60	Chert-Mainland Monterey	Flake	1	0.05	4	0	No	No	
1767	AE-STP-1	40-60	Chert-Mainland Monterey	Flake	1	0.13	4	0	Yes	No	
1767	AE-STP-1	40-60	Chert-Mainland Monterey	Flake	1	0.16	4	0	No	No	
1767	AE-STP-12	0-20	Chert-Mainland Monterey	Flake	1	3.18	8	0	No	No	
1767	AE-STP-12	0-20	Chert-Mainland Monterey	Flake	1	0	2	0	No	No	
1767	AE-STP-12	0-20	Chert-Mainland Monterey	Flake	1	0.16	6.3	0	No	No	
1767	AE-STP-12	0-20	Chert-Mainland Monterey	Damaged	1	1.13	8	0	No	No	
1767	AE-STP-12	0-20	Chert-Mainland Monterey	Flake	1	0	4	0	No	No	
1767	AE-STP-12	0-20	Chert-Mainland Monterey	Flake	1	0	3.2	0	No	No	
1767	AE-STP-12	0-20	Chert-Mainland Monterey	Flake	1	0.11	4	0	No	No	
1767	AE-STP-12	0-20	Chert-Mainland Monterey	Flake	1	0.04	4	0	No	No	
1767	AE-STP-12	0-20	Chert-Mainland Monterey	Flake	1	0.06	6.3	0	No	No	
1767	AE-STP-12	0-20	Chert-Mainland Monterey	Flake	1	0.13	4	0	No	No	
1767	AE-STP-12	0-20	Chert-Mainland Monterey	Shatter	1	1.34	8	8	No	No	
1767	AE-STP-12	20-40	Siliceous Shale	Damaged	1	0.92	8	0	Yes	No	
1767	AE-STP-12	20-40	Chert-Mainland Monterey	Flake	1	0.12	6.3	0	No	No	
1767	AE-STP-12	20-40	Chert-Mainland Monterey	Damaged	1	0.6	6.3	0	Yes	No	
1767	AE-STP-12	20-40	Chert-Mainland Monterey	Flake	1	0.04	3.2	0	No	No	
1767	AE-STP-12	20-40	Chert-Mainland Monterey	Flake	1	0.05	3.2	0	No	No	
1767	AE-STP-12	20-40	Chert-Mainland Monterey	Flake	1	0.06	4	0	No	No	
1767	AE-STP-12	20-40	Chert-Mainland Monterey	Flake	1	0.06	4	0	No	No	
1767	AE-STP-12	20-40	Chert-Mainland Monterey	Flake	1	0.33	4	4	No	No	
1767	AE-STP-12	20-40	Obsidian	Flake	1	0.08	4	39	No	No	
1767	AE-STP-12	40-60	Chert-Mainland Monterey	Flake	1	0.1	4	0	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-STP-12	40-60	Chert-Mainland Monterey	Flake	1	0.16	6.3	0	No	No	
1767	AE-STP-12	40-60	Chert-Mainland Monterey	Flake	1	0.04	3.2	0	No	No	
1767	AE-STP-12	40-60	Chert-Mainland Monterey	Damaged	1	0.07	4	0	Yes	No	
1767	AE-STP-13	0-20	Siliceous Shale	Flake	1	0.15	4	32	No	No	
1767	AE-STP-14	0-20	Chert-Mainland Monterey	Flake	1	0.65	8	0	No	No	
1767	AE-STP-14	0-20	Chert-Mainland Monterey	Shatter	1	0.45	6.3	0	No	Yes	
1767	AE-STP-14	0-20	Chert-Mainland Monterey	Damaged	1	0.45	8	0	Yes	No	
1767	AE-STP-14	0-20	Chert-Mainland Monterey	Damaged	1	1.23	8	0	Yes	No	
1767	AE-STP-14	0-20	Chert-Mainland Monterey	Flake	1	0.29	6.3	0	No	No	
1767	AE-STP-14	0-20	Chert-Mainland Monterey	Flake	1	0.21	8	0	No	No	
1767	AE-STP-14	0-20	Chert-Mainland Monterey	Flake	1	0	2	0	No	No	
1767	AE-STP-14	0-20	Chert-Mainland Monterey	Flake	1	0.08	4	0	No	No	
1767	AE-STP-14	0-20	Chert-Mainland Monterey	Flake	1	0.05	4	0	No	No	
1767	AE-STP-14	0-20	Chert-Mainland Monterey	Flake	1	0.01	3.2	0	No	No	
1767	AE-STP-14	0-20	Chert-Mainland Monterey	Flake	1	0	4	5	No	No	
1767	AE-STP-14	0-20	Chert-Mainland Monterey	Flake	1	0.03	4	7	No	No	
1767	AE-STP-14	0-20	Siliceous Shale	Flake	1	1.02	8	34	No	No	
1767	AE-STP-14	20-40	Chert-Mainland Monterey	Flake	1	0.49	8	0	No	No	
1767	AE-STP-14	20-40	Chert-Mainland Monterey	Flake	1	0.29	6.3	0	No	No	
1767	AE-STP-14	20-40	Chert-Mainland Monterey	Flake	1	1.07	8	0	No	No	
1767	AE-STP-14	20-40	Chert-Mainland Monterey	Damaged	1	0.56	4	0	No	No	
1767	AE-STP-14	20-40	Siliceous Shale	Shatter	1	0.26	6.3	32	No	No	
1767	AE-STP-14	40-50	Chert-Mainland Monterey	Flake	1	0.06	4	0	Yes	No	
1767	AE-STP-14	40-50	Chert-Mainland Monterey	Flake	1	0.32	6.3	0	No	No	
1767	AE-STP-14	40-50	Chert-Mainland Monterey	Flake	1	0.25	6.3	0	No	No	
1767	AE-STP-14	40-50	Chert-Mainland Monterey	Damaged	1	0.09	4	0	Yes	No	
1767	AE-STP-14	40-50	Chert-Mainland Monterey	Flake	1	0.06	4.	0	No	No	
1767	AE-STP-14	40-50	Chert-Mainland Monterey	Flake	1	0.02	3.2	0	No	No	
1767	AE-STP-14	40-50	Chert-Mainland Monterey	Flake	1	0.05	4	0	No	No	
1767	AE-STP-14	40-50	Chert-Mainland Monterey	Shatter	1	0.06	4	0	No	No	
1767	AE-STP-14	40-50	Chert-Mainland Monterey	Shatter	1	0.07	4	0	No	No	
1767	AE-STP-14	40-50	Chert-Mainland Monterey	Flake	1	0.03	4	0	No	No	
1767	AE-STP-14	40-50	Chert-Mainland Monterey	Damaged	1	0.07	4	0	Yes	No	
1767	AE-STP-14	40-50	Siliceous Shale	Flake	1	2.87	8	31	No	No	
1767	AE-STP-14	40-50	Obsidian	Flake	1	0.01	3.2	39	No	No	
1767	AE-STP-14	40-50	Obsidian	Flake	1	0	2	39	No	No	
1767	AE-STP-15	20-40	Shale	Flake	1	1.65	8	0	Yes	No	
1767	AE-STP-16	20-40	Chert-Mainland Monterey	Flake	1	0.01	2	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Shatter	1	1.71	8	0	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	3.78	8	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.21	6.3	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.32	6.3	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.17	8	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.15	6.3	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.12	6.3	0	Yes	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Shatter	1	0.66	8	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.8	8	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	1.95	8	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.42	6.3	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.51	4	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	1.1	8	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.41	8	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.11	4	0	Yes	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Damaged	1	0.09	4	0	Yes	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Shatter	1	0.35	4	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.04	4	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.07	4	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.03	3.2	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.12	4	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.01	4	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.12	4	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Shatter	1	0.02	2	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.17	4	0	No	No	
1767	AE-STP-17	0-20	Chert-Mainland Monterey	Flake	1	0.09	3.2	15	No	No	
1767	AE-STP-17	0-20	Siliceous Shale	Core	1	179.8	16	32	No	No	
1767	AE-STP-17	20-40	Chert-Mainland Monterey	Flake	1	8.32	16	0	No	No	
1767	AE-STP-17	20-40	Chert-Mainland Monterey	Flake	1	1.45	8	0	No	No	
1767	AE-STP-17	20-40	Chert-Mainland Monterey	Flake	1	0.17	6.3	0	No	No	
1767	AE-STP-17	20-40	Chert-Mainland Monterey	Flake	1	0.09	4	0	No	No	
1767	AE-STP-17	20-40	Chert-Mainland Monterey	Flake	1	0.09	4	0	No	No	
1767	AE-STP-17	20-40	Chert-Mainland Monterey	Flake	1	0.08	4	0	No	No	
1767	AE-STP-17	40-60	Chert-Mainland Monterey	Flake	1	0	2	0	No	No	
1767	AE-STP-17	40-60	Chert-Mainland Monterey	Flake	1	0.09	4	0	No	No	
1767	AE-STP-17	40-60	Chert-Mainland Monterey	Shatter	1	0.04	3.2	0	No	No	
1767	AE-STP-17	40-60	Chert-Mainland Monterey	Flake	1	0.11	4	0	No	No	
1767	AE-STP-17	40-60	Chert-Mainland Monterey	Flake	1	0.01	2	0	No	No	
1767	AE-STP-17	40-60	Chert-Mainland Monterey	Shatter	1	0.01	2	0	No	No	
1767	AE-STP-17	40-60	Chert-Mainland Monterey	Flake	1	0.17	4	0	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-STP-17	40-60	Chert-Mainland Monterey	Damaged	1	0.09	4	0	Yes	No	
1767	AE-STP-17	60-80	Chert-Mainland Monterey	Flake	1	0.25	8	0	No	No	
1767	AE-STP-17	60-80	Chert-Mainland Monterey	Flake	1	1.08	8	0	No	No	
1767	AE-STP-17	60-80	Chert-Mainland Monterey	Damaged	1	0.03	4	0	No	No	
1767	AE-STP-17	60-80	Chert-Mainland Monterey	Damaged	1	1.01	8	0	Yes	No	
1767	AE-STP-17	60-80	Chert-Mainland Monterey	Damaged	1	0.25	6.3	0	Yes	No	
1767	AE-STP-17	60-80	Chert-Mainland Monterey	Damaged	1	0.15	4	0	Yes	No	
1767	AE-STP-17	60-80	Chert-Mainland Monterey	Damaged	1	0.06	3.2	0	Yes	No	
1767	AE-STP-17	60-80	Chert-Mainland Monterey	Flake	1	0.04	4	0	No	No	
1767	AE-STP-17	60-80	Chert-Mainland Monterey	Flake	1	0.07	4	0	No	No	
1767	AE-STP-17	60-80	Chert-Mainland Monterey	Damaged	1	0.03	3.2	0	Yes	No	
1767	AE-STP-17	60-80	Chert-Mainland Monterey	Flake	1	0.14	4	16	No	No	
1767	AE-STP-17	60-80	Obsidian	Flake	1	0.01	3.2	39	No	No	
1767	AE-STP-17	60-80	Obsidian	Flake	1	0	2	39	No	No	
1767	AE-STP-18	0-20	Chert-Mainland Monterey	Flake	1	0.19	8	0	No	No	
1767	AE-STP-18	0-20	Chert-Mainland Monterey	Flake	1	0.1	6.3	0	No	No	
1767	AE-STP-18	0-20	Chert-Mainland Monterey	Flake	1	0.32	6.3	0	No	No	
1767	AE-STP-18	0-20	Chert-Mainland Monterey	Flake	1	0.66	8	0	No	No	
1767	AE-STP-18	0-20	Chert-Mainland Monterey	Flake	1	0.1	4	0	No	No	
1767	AE-STP-18	0-20	Chert-Mainland Monterey	Flake	1	0.05	4	0	No	No	
1767	AE-STP-18	0-20	Igneous - Undifferentiated	Flake	1	0	3.2	37	No	No	
1767	AE-STP-18	40-60	Chert-Mainland Monterey	Flake	1	0.76	8	0	No	No	
1767	AE-STP-18	40-60	Chert-Mainland Monterey	Flake	1	0.44	6.3	0	No	No	
1767	AE-STP-18	40-60	Igneous - Undifferentiated	Flake	1	8.44	16	36	No	No	
1767	AE-STP-18	60-80	Chert-Mainland Monterey	Flake	1	0	3.2	14	No	No	
1767	AE-STP-19	0-20	Chert-Mainland Monterey	Flake	1	0.21	6.3	0	No	No	
1767	AE-STP-19	0-20	Chert-Mainland Monterey	Flake	1	0.23	6.3	0	No	No	
1767	AE-STP-19	0-20	Chert-Mainland Monterey	Flake	1	0.01	3.2	0	No	No	
1767	AE-STP-19	0-20	Chert-Mainland Monterey	Flake	1	0.15	6.3	0	No	No	
1767	AE-STP-19	0-20	Chert-Mainland Monterey	Flake	1	0	2	0	No	No	
1767	AE-STP-19	0-20	Chert-Mainland Monterey	Flake	1	0	3.2	0	No	No	
1767	AE-STP-19	0-20	Chert-Mainland Monterey	Flake	1	0.02	3.2	0	No	No	
1767	AE-STP-19	0-20	Chert-Mainland Monterey	Flake	1	0	3.2	0	No	No	
1767	AE-STP-19	0-20	Chert-Mainland Monterey	Flake	1	0.04	3.2	0	No	No	
1767	AE-STP-19	20-40	Chert-Mainland Monterey	Flake	1	12.86	16	4	No	Yes	
1767	AE-STP-19	40-60	Chert-Mainland Monterey	Damaged	1	3.11	8	0	Yes	No	
1767	AE-STP-19	40-60	Siliceous Shale	Flake	1	0.35	6.3	32	No	No	
1767	AE-STP-2	0-20	Chert-Mainland Monterey	Shatter	1	0.55	6.3	0	No	No	
1767	AE-STP-2	0-20	Chert-Mainland Monterey	Flake	1	0.32	8	0	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-STP-2	0-20	Chert-Mainland Monterey	Flake	1	0.22	6.3	0	No	No	
1767	AE-STP-2	0-20	Chert-Mainland Monterey	Flake	1	0.1	4	0	No	No	
1767	AE-STP-2	0-20	Chert-Mainland Monterey	Flake	1	0.58	8	0	No	No	
1767	AE-STP-2	0-20	Chert-Mainland Monterey	Flake	1	0.72	8	0	No	No	
1767	AE-STP-2	0-20	Chert-Mainland Monterey	Flake	1	0.04	4	0	No	No	
1767	AE-STP-2	0-20	Chert-Mainland Monterey	Flake	1	0.06	3.2	0	No	No	
1767	AE-STP-2	0-20	Chert-Mainland Monterey	Damaged	1	0.2	4	0	Yes	No	
1767	AE-STP-2	20-40	Chert-Mainland Monterey	Shatter	1	0.28	6.3	0	No	No	
1767	AE-STP-2	20-40	Chert-Mainland Monterey	Shatter	1	0.1	4	0	No	No	
1767	AE-STP-2	20-40	Chert-Mainland Monterey	Flake	1	0	3.2	0	No	No	
1767	AE-STP-2	20-40	Chert-Mainland Monterey	Flake	1	0.1	4	0	No	No	
1767	AE-STP-2	20-40	Chert-Mainland Monterey	Flake	1	0.04	4	0	No	No	
1767	AE-STP-2	20-40	Siliceous Shale	Flake	1	0.06	4	32	No	No	
1767	AE-STP-2	20-40	Siliceous Shale	Flake	1	0.2	4	32	No	No	
1767	AE-STP-2	40-54	Chert-Mainland Monterey	Flake	1	0	3.2	0	No	No	
1767	AE-STP-2	40-54	Chert-Mainland Monterey	Flake	1	0	3.2	0	No	No	
1767	AE-STP-2	40-54	Chert-Mainland Monterey	Flake	1	0	2	0	No	No	
1767	AE-STP-2	40-54	Chert-Mainland Monterey	Flake	1	0.04	3.2	0	No	No	
1767	AE-STP-20	0-20	Chert-Mainland Monterey	Flake	1	0.68	8	0	No	No	
1767	AE-STP-20	0-20	Chert-Mainland Monterey	Flake	1	0.41	6.3	0	Yes	No	
1767	AE-STP-20	0-20	Chert-Mainland Monterey	Flake	1	0.03	4	0	No	No	
1767	AE-STP-20	0-20	Chert-Mainland Monterey	Flake	1	0.07	4	0	No	No	
1767	AE-STP-20	0-20	Chert-Mainland Monterey	Flake	1	0.97	8	0	No	No	
1767	AE-STP-20	0-20	Chert-Mainland Monterey	Flake	1	1.14	8	0	No	No	
1767	AE-STP-20	0-20	Chert-Mainland Monterey	Damaged	1	0.01	2	0	Yes	No	
1767	AE-STP-21	0-20	Chert-Mainland Monterey	Flake	1	0.33	6.3	0	Yes	No	
1767	AE-STP-22	0-20	Chert-Mainland Monterey	Flake	1	0.1	6.3	4	No	No	
1767	AE-STP-23	0-20	Chert-Mainland Monterey	Damaged	1	0.26	6.3	0	Yes	No	
1767	AE-STP-23	0-20	Chert-Mainland Monterey	Flake	1	0.24	6.3	0	No	No	
1767	AE-STP-23	0-20	Chert-Mainland Monterey	Flake	1	0.12	4	0	No	No	
1767	AE-STP-23	0-20	Chert-Mainland Monterey	Flake	1	0	3.2	0	No	No	
1767	AE-STP-23	0-20	Chert-Mainland Monterey	Flake	1	0.02	3.2	0	No	No	
1767	AE-STP-23	20-40	Chert-Mainland Monterey	Damaged	1	1.09	8	0	Yes	No	
1767	AE-STP-23	20-40	Chert-Mainland Monterey	Flake	1	0.05	4	0	No	No	
1767	AE-STP-23	20-40	Chert-Mainland Monterey	Flake	1	0.11	6.3	0	No	No	
1767	AE-STP-23	20-40	Chert-Mainland Monterey	Flake	1	0.36	6.3	0	No	No	
1767	AE-STP-23	20-40	Chert-Mainland Monterey	Flake	1	1.22	8	0	No	No	
1767	AE-STP-23	20-40	Chert-Mainland Monterey	Flake	1	0.31	8	0	No	No	
1767	AE-STP-23	20-40	Chert-Mainland Monterey	Flake	1	0.14	6.3	0	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-STP-23	20-40	Chert-Mainland Monterey	Flake	1	0.03	3.2	0	No	No	
1767	AE-STP-23	20-40	Chert-Mainland Monterey	Flake	1	0.02	4	0	No	No	
1767	AE-STP-23	20-40	Chert-Mainland Monterey	Flake	1	0.02	4	0	No	No	
1767	AE-STP-23	40-60	Chert-Mainland Monterey	Damaged	1	0	2	0	Yes	No	
1767	AE-STP-23	40-60	Chert-Mainland Monterey	Flake	1	1.41	8	0	No	No	
1767	AE-STP-23	40-60	Chert-Mainland Monterey	Flake	1	0.11	4	0	No	No	
1767	AE-STP-23	40-60	Chert-Mainland Monterey	Flake	1	0.15	4	0	No	No	
1767	AE-STP-23	40-60	Chert-Mainland Monterey	Damaged	1	0.18	4	0	Yes	No	
1767	AE-STP-23	40-60	Chert-Mainland Monterey	Flake	1	0.09	4	0	No	No	
1767	AE-STP-23	40-60	Chert-Mainland Monterey	Flake	1	0.02	4	0	No	No	
1767	AE-STP-23	40-60	Chert-Mainland Monterey	Flake	1	0	2	0	No	No	
1767	AE-STP-24	0-20	Chert-Mainland Monterey	Flake	1	0.52	8	0	No	No	
1767	AE-STP-24	0-20	Chert-Mainland Monterey	Flake	1	0.03	3.2	0	No	No	
1767	AE-STP-24	0-20	Chert-Mainland Monterey	Damaged	1	0.12	4	0	Yes	No	
1767	AE-STP-24	0-20	Chert-Mainland Monterey	Damaged	1	0.19	4	0	Yes	No	
1767	AE-STP-24	20-40	Chert-Mainland Monterey	Flake	1	0	2	1	No	No	
1767	AE-STP-24	20-40	Chert-Mainland Monterey	Flake	1	0	2	1	No	No	
1767	AE-STP-24	20-40	Chert-Mainland Monterey	Flake	1	0.12	4	1	No	No	
1767	AE-STP-24	40-60	Chert-Mainland Monterey	Flake	1	0.11	4	16	No	No	
1767	AE-STP-25	0-20	Chert-Mainland Monterey	Flake	1	0.08	4	3	No	No	
1767	AE-STP-25	0-20	Chert-Mainland Monterey	Flake	1	0.16	6.3	4	No	No	
1767	AE-STP-25	0-20	Chert-Mainland Monterey	Flake	1	1.41	16	5	No	No	
1767	AE-STP-25	0-20	Chert-Mainland Monterey	Flake	1	0.14	6.3	5	No	No	
1767	AE-STP-25	0-20	Chert-Mainland Monterey	Damaged	1	1.89	8	16	Yes	No	
1767	AE-STP-25	0-20	Chert-Mainland Monterey	Flake	1	0.13	4	16	No	No	
1767	AE-STP-25	0-20	Chert-Mainland Monterey	Flake	1	0.03	3.2	18	No	No	
1767	AE-STP-25	0-20	Siliceous Shale	Shatter	1	1.09	8	32	No	No	
1767	AE-STP-25	0-20	Obsidian	Flake	1	0.04	4	39	No	No	
1767	AE-STP-25	0-20	Obsidian	Flake	1	0	2	39	No	No	
1767	AE-STP-25	20-40	Chert-Mainland Monterey	Flake	1	0.13	4	0	No	No	
1767	AE-STP-25	20-40	Chert-Mainland Monterey	Flake	1	0.16	4	4	No	No	
1767	AE-STP-25	20-40	Chert-Mainland Monterey	Flake	1	4.23	8	10	No	Yes	
1767	AE-STP-25	40-48	Chert-Mainland Monterey	Flake	1	2.22	16	11	No	No	
1767	AE-STP-26	0-20	Chert-Mainland Monterey	Flake	1	0.02	3.2	0	No	No	
1767	AE-STP-26	0-20	Chert-Mainland Monterey	Flake	1	0.02	3.2	0	No	No	
1767	AE-STP-26	0-20	Chert-Mainland Monterey	Flake	1	0.05	4	0	No	No	
1767	AE-STP-26	0-20	Chert-Mainland Monterey	Flake	1	0.02	4	0	No	No	
1767	AE-STP-26	0-20	Chert-Mainland Monterey	Flake	1	0.02	4	0	No	No	
1767	AE-STP-26	0-20	Chert-Mainland Monterey	Flake	1	0.02	3.2	0	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-STP-26	0-20	Chert-Mainland Monterey	Flake	1	0.01	2	0	No	No	
1767	AE-STP-27	0-20	Chert-Mainland Monterey	Damaged	1	0.03	4	0	Yes	No	
1767	AE-STP-27	0-20	Chert-Mainland Monterey	Flake	1	0.15	6.3	0	No	No	
1767	AE-STP-27	0-20	Chert-Mainland Monterey	Flake	1	0.12	6.3	0	No	No	
1767	AE-STP-27	0-20	Chert-Mainland Monterey	Flake	1	0.32	8	0	No	No	
1767	AE-STP-27	0-20	Chert-Mainland Monterey	Flake	1	0.15	6.3	0	No	No	
1767	AE-STP-27	0-20	Chert-Mainland Monterey	Flake	1	0.09	4	0	No	No	
1767	AE-STP-27	0-20	Chert-Mainland Monterey	Flake	1	0	3.2	0	No	No	
1767	AE-STP-27	0-20	Chert-Mainland Monterey	Flake	1	0.02	3.2	0	No	No	
1767	AE-STP-27	0-20	Chert-Mainland Monterey	Flake	1	0.16	4	0	No	No	
1767	AE-STP-27	0-20	Chert-Mainland Monterey	Flake	1	0.01	4	0	No	No	
1767	AE-STP-28	0-20	Chert-Mainland Monterey	Flake	1	0.17	4	0	No	No	
1767	AE-STP-28	0-20	Chert-Mainland Monterey	Flake	1	0	2	0	No	No	
1767	AE-STP-28	0-20	Chert-Mainland Monterey	Flake	1	0.08	4	0	No	No	
1767	AE-STP-28	0-20	Chert-Mainland Monterey	Flake	1	0.03	3.2	0	No	No	
1767	AE-STP-28	0-20	Chert-Mainland Monterey	Flake	1	0.05	3.2	0	No	No	
1767	AE-STP-28	0-20	Chert-Mainland Monterey	Flake	1	0.01	3.2	0	No	No	
1767	AE-STP-28	0-20	Chert-Mainland Monterey	Flake	1	0	2	0	No	No	
1767	AE-STP-28	0-20	Chert-Mainland Monterey	Flake	1	0.22	6.3	0	No	No	
1767	AE-STP-28	0-20	Chert-Mainland Monterey	Damaged	1	0.79	8	0	Yes	No	
1767	AE-STP-28	0-20	Chert-Mainland Monterey	Damaged	1	0.23	6.3	0	Yes	No	
1767	AE-STP-28	0-20	Chert-Mainland Monterey	Damaged	1	0.17	4	0	Yes	No	
1767	AE-STP-28	0-20	Chert-Mainland Monterey	Flake	1	0.17	6.3	0	No	No	
1767	AE-STP-28	0-20	Chert-Mainland Monterey	Damaged	1	0.06	4	0	Yes	No	
1767	AE-STP-28	0-20	Chert-Mainland Monterey	Flake	1	0.9	8	15	No	No	
1767	AE-STP-28	0-20	Siliceous Shale	Flake	1	0.79	6.3	32	No	No	
1767	AE-STP-28	20-40	Chert-Mainland Monterey	Damaged	1	12	16	0	Yes	No	
1767	AE-STP-28	20-40	Chert-Mainland Monterey	Flake	1	0.57	6.3	6	No	No	
1767	AE-STP-28	20-40	Quartzite	Flake	1	2.39	8	37	No	No	
1767	AE-STP-29	0-20	Chert-Mainland Monterey	Flake	1	0.32	6.3	5	No	No	
1767	AE-STP-29	0-20	Chert-Mainland Monterey	Flake	1	0.22	6.3	5	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Damaged	1	2.54	8	0	Yes	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	3.11	16	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	9.76	16	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0.05	4	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Damaged	1	0	3.2	0	Yes	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0	3.2	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0.8	4	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Shatter	1	0.12	3.2	0	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0.06	4	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Damaged	1	0.1	4	0	Yes	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0.06	4	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0	3.2	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0.82	8	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0.06	4	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Damaged	1	0.86	6.3	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	1.04	8	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0.22	8	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0.09	6.3	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0.61	8	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0.24	6.3	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0.51	8	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0.26	8	0	No	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Damaged	1	1.23	8	0	Yes	No	
1767	AE-STP-3	0-20	Chert-Mainland Monterey	Flake	1	0.75	8	0	No	No	
1767	AE-STP-3	20-40	Chert-Mainland Monterey	Flake	1	0.27	6.3	5	No	No	
1767	AE-STP-4	0-20	Siliceous Shale	Damaged	1	1.38	8	0	Yes	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.06	2	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.06	4	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Damaged	1	0.09	4	0	Yes	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.06	4	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.04	3.2	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.04	4	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.03	2	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.02	4	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.03	3.2	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.06	4	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	1.49	8	0	Yes	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.18	6.3	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Damaged	1	0.96	8	0	Yes	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	1.06	8	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.02	2	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Damaged	1	0.11	4	0	Yes	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.04	4	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.1	4	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.02	3.2	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.07	4	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.07	4	0	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.03	3.2	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.12	4	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.18	4	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.01	3.2	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.03	3.2	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0	2	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Damaged	1	0.03	3.2	0	Yes	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.03	4	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.09	2	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.01	3.2	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.03	4	0	No	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Damaged	1	0.06	3.2	0	Yes	No	
1767	AE-STP-4	0-20	Chert-Mainland Monterey	Flake	1	0.11	4	0	No	No	
1767	AE-STP-4	0-20	Siliceous Shale	Flake	1	0.01	3.2	32	No	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Damaged	1	0.25	6.3	0	Yes	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Flake	1	0.01	2	0	No	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Damaged	1	2.29	8	0	Yes	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Flake	1	0.24	8	0	Yes	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Damaged	1	0.21	4	0	Yes	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Flake	1	0.21	6.3	0	No	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Damaged	1	0.43	8	0	Yes	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Flake	1	0	4	0	No	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Flake	1	0	2	0	No	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Damaged	1	0.03	3.2	0	Yes	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Flake	1	0.02	3.2	0	No	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Flake	1	0.02	3.2	0	No	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Flake	1	0.02	4	0	No	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Flake	1	0.06	4	0	No	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Flake	1	0.04	6.3	0	No	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Flake	1	0.01	4	0	No	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Flake	1	0.04	4	0	No	No	
1767	AE-STP-4	20-40	Chert-Mainland Monterey	Flake	1	4.45	16	3	No	Yes	
1767	AE-STP-4	40-60	Chert-Mainland Monterey	Flake	1	0.78	8	0	No	No	
1767	AE-STP-4	40-60	Chert-Mainland Monterey	Damaged	1	0.22	4	0	No	No	
1767	AE-STP-4	40-60	Chert-Mainland Monterey	Flake	1	0.34	8	0	No	No	
1767	AE-STP-4	40-60	Chert-Mainland Monterey	Damaged	1	0.65	8	0	Yes	No	
1767	AE-STP-4	40-60	Chert-Mainland Monterey	Flake	1	0.14	4	0	No	No	
1767	AE-STP-4	40-60	Chert-Mainland Monterey	Flake	1	0.03	2	0	No	No	
1767	AE-STP-4	40-60	Chert-Mainland Monterey	Flake	1	0.56	8	0	Yes	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-STP-4	40-60	Chert-Mainland Monterey	Flake	1	0.05	3.2	0	No	No	
1767	AE-STP-4	40-60	Chert-Mainland Monterey	Flake	1	0.01	2	0	No	No	
1767	AE-STP-4	40-60	Chert-Mainland Monterey	Flake	1	0	2	0	No	No	
1767	AE-STP-4	40-60	Chert-Mainland Monterey	Flake	1	0.11	4	0	No	No	
1767	AE-STP-4	40-60	Chert-Mainland Monterey	Flake	1	0.01	3.2	0	No	No	
1767	AE-STP-4	40-60	Siliceous Shale	Shatter	1	0.06	4	34	No	No	
1767	AE-STP-5	0-20	Siliceous Shale	Damaged	1	0.9	8	0	Yes	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	1.89	8	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0.18	6.3	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0.2	6.3	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0.1	4	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0.03	3.2	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0.04	4	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0.12	4	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0	4	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0.15	4	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0.01	3.2	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0.25	4	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0.1	3.2	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0.1	4	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0.09	4	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0.1	4	0	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	19.69	16	6	No	No	
1767	AE-STP-5	0-20	Siliceous Shale	Core	1	27.33	16	31	No	No	
1767	AE-STP-5	0-20	Siliceous Shale	Flake	1	0.34	6.3	32	No	No	
1767	AE-STP-5	0-20	Chert-Mainland Monterey	Flake	1	0.46	4	38	No	No	
1767	AE-STP-5	20-40	Chert-Mainland Monterey	Flake	1	0.66	8	0	No	No	
1767	AE-STP-5	20-40	Chert-Mainland Monterey	Flake	1	0.16	6.3	0	No	No	
1767	AE-STP-5	20-40	Chert-Mainland Monterey	Damaged	1	0.61	8	0	Yes	No	
1767	AE-STP-5	20-40	Chert-Mainland Monterey	Flake	1	0.09	4	0	No	No	
1767	AE-STP-5	20-40	Chert-Mainland Monterey	Flake	1	0.06	3.2	0	No	No	
1767	AE-STP-5	20-40	Chert-Mainland Monterey	Flake	1	0	4	0	No	No	
1767	AE-STP-5	20-40	Chert-Mainland Monterey	Flake	1	0.04	3.2	0	No	No	
1767	AE-STP-5	20-40	Siliceous Shale	Flake	1	0	2	30	No	No	
1767	AE-STP-5	20-40	Siliceous Shale	Flake	1	0.31	8	30	No	No	
1767	AE-STP-5	20-40	Igneous - Undifferentiated	Flake	1	0.79	8	33	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	0	2	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Damaged	1	7.43	16	0	Yes	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Damaged	1	6.82	16	0	Yes	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	5.27	16	0	Yes	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	0.12	3.2	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	0.08	3.2	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	0.1	3.2	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	0.05	3.2	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	0.06	3.2	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	0.05	3.2	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	0.05	3.2	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	0.01	2	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	0.04	3.2	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	0.01	2	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	0.11	3.2	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	0.3	6.3	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Shatter	1	1.09	8	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Shatter	1	0.91	8	0	No	No	
1767	AE-STP-5	40-60	Chert-Island Monterey	Flake	1	0.28	4	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Flake	1	1.14	8	0	No	No	
1767	AE-STP-5	40-60	Chert-Mainland Monterey	Core	1	46.08	16	8	No	No	
1767	AE-STP-5	40-60	Chert-Franciscan	Flake	1	0.46	8	15	No	No	
1767	AE-STP-5	40-60	Siliceous Shale	Shatter	1	0.32	6.3	33	No	No	
1767	AE-STP-6	0-20	Chert-Mainland Monterey	Flake	1	2.04	8	0	No	No	
1767	AE-STP-6	0-20	Chert-Mainland Monterey	Flake	1	0.2	4	0	No	No	
1767	AE-STP-6	0-20	Chert-Mainland Monterey	Damaged	1	0.19	4	0	No	No	
1767	AE-STP-6	0-20	Chert-Mainland Monterey	Damaged	1	0.39	6.3	0	No	No	
1767	AE-STP-6	0-20	Chert-Mainland Monterey	Flake	1	0.15	4	0	No	No	
1767	AE-STP-6	0-20	Chert-Mainland Monterey	Flake	1	0.13	4	0	No	No	
1767	AE-STP-6	0-20	Chert-Mainland Monterey	Shatter	1	0.11	4	0	No	No	
1767	AE-STP-6	0-20	Chert-Mainland Monterey	Shatter	1	0.11	3.2	0	No	No	
1767	AE-STP-6	0-20	Chert-Mainland Monterey	Flake	1	0	3.2	0	No	No	
1767	AE-STP-6	0-20	Chert-Mainland Monterey	Flake	1	0.05	3.2	0	No	No	
1767	AE-STP-6	0-20	Chert-Mainland Monterey	Flake	1	0.06	4	0	No	No	
1767	AE-STP-6	20-40	Chert-Mainland Monterey	Flake	1	0	6.3	0	No	No	
1767	AE-STP-6	20-40	Chert-Mainland Monterey	Flake	1	0.32	6.3	0	No	No	
1767	AE-STP-6	20-40	Chert-Mainland Monterey	Flake	1	0.37	8	0	No	No	
1767	AE-STP-6	20-40	Chert-Mainland Monterey	Flake	1	0.25	6.3	0	No	No	
1767	AE-STP-6	40-60	Chert-Mainland Monterey	Flake	1	0.16	4	6	No	No	
1767	AE-STP-7	0-20	Chert-Franciscan	Flake	1	3.15	8	40	No	No	
1767	AE-STP-7	20-40	Chert-Mainland Monterey	Damaged	1	0.59	8	0	Yes	No	
1767	AE-STP-7	20-40	Chert-Mainland Monterey	Flake	1	0.09	4	0	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-STP-7	20-40	Quartz	Flake	1	0.1	3.2	38	No	No	
1767	AE-STP-7	20-40	Obsidian	Flake	1	0	3.2	39	No	No	
1767	AE-STP-7	20-40	Obsidian	Flake	1	0.1	4	39	No	No	
1767	AE-STP-8	0-20	Chert-Mainland Monterey	Flake	1	0.77	8	0	Yes	No	
1767	AE-STP-8	0-20	Chert-Mainland Monterey	Flake	1	0	3.2	0	No	No	
1767	AE-STP-8	0-20	Chert-Mainland Monterey	Flake	1	0	2	0	No	No	
1767	AE-STP-8	0-20	Chert-Mainland Monterey	Flake	1	0	3.2	0	No	No	
1767	AE-STP-8	0-20	Igneous - Undifferentiated	Flake	1	0.02	3.2	36	No	No	
1767	AE-STP-9	0-20	Chert-Mainland Monterey	Damaged	1	0.04	4	0	Yes	No	
1767	AE-STP-9	20-40	Chert-Mainland Monterey	Flake	1	0.01	3.2	3	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Damaged	1	0.72	8	0	Yes	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Damaged	1	0.14	6.3	0	Yes	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.08	6.3	0	Yes	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Damaged	1	0.35	6.3	0	Yes	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Damaged	1	0.83	8	0	Yes	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Damaged	1	1.33	8	0	Yes	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Damaged	1	0.4	6.3	0	Yes	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Damaged	1	0.36	8	0	Yes	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.01	3.2	2	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.11	4	2	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.25	8	3	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.06	3.2	3	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.04	4	3	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.16	4	3	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.12	6.3	3	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.46	4	3	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.3	6.3	3	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.16	6.3	4	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Shatter	1	0.26	4	4	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.02	3.2	4	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Shatter	1	0.01	3.2	4	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0	3.2	4	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.04	3.2	4	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.05	4	4	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.18	4	4	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.55	8	4	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.28	6.3	4	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.15	6.3	4	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.09	4	4	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.01	3.2	5	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.11	4	5	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0	3.2	5	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.21	6.3	6	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Shatter	1	0.07	4	6	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.04	4	6	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.13	4	6	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	1.32	8	6	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.64	8	6	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	1.76	8	6	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.41	8	6	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	1.77	8	6	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.23	6.3	9	Yes	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.64	8	10	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0	3.2	11	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.04	4	11	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.01	4	11	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0	3.2	11	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.17	6.3	11	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Shatter	1	1.41	8	14	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.03	4	14	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.01	3.2	16	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.16	4	16	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.33	6.3	16	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.87	8	16	No	No	
1767	AE-TEU-1	10-20	Chert-Mainland Monterey	Flake	1	0.21	6.3	21	No	No	
1767	AE-TEU-1	10-20	Obsidian	Flake	1	0.04	4	39	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Damaged	1	9.25	16	0	Yes	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Damaged	1	0.52	8	0	Yes	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.68	8	0	Yes	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.35	6.3	0	Yes	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.18	4	0	Yes	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Damaged	1	0.22	4	0	Yes	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.46	6.3	0	Yes	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.07	4	0	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.19	4	1	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.49	8	2	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.64	8	2	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.02	3.2	2	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.02	16	2	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Shatter	1	0.08	4	2	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.07	4	3	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.01	3.2	3	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.76	8	4	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.16	6.3	4	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.5	8	4	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	18.89	16	4	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.11	4	5	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.26	6.3	5	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.22	6.3	5	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.07	4	5	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	1.12	8	5	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.05	4	5	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	1.49	8	5	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	1.1	8	5	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.16	4	7	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.94	8	8	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Shatter	1	0.89	8	10	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Shatter	1	0.66	8	10	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	5.07	16	11	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.34	6.3	11	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.03	3.2	11	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.11	4	11	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.32	6.3	11	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0	3.2	13	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Flake	1	0.27	6.3	23	No	No	
1767	AE-TEU-1	0-10	Chert-Mainland Monterey	Shatter	1	6.59	16	24	No	No	
1767	AE-TEU-1	0-10	Siliceous Shale	Flake	1	0.19	6.3	34	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Damaged	1	1.09	16	0	Yes	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Damaged	1	1.06	8	0	Yes	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.45	8	0	Yes	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Damaged	1	0.1	4	0	Yes	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Damaged	1	0.13	4	0	Yes	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Damaged	1	1.23	8	0	Yes	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.09	4	3	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.16	6.3	4	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.62	8	4	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.25	6.3	4	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.37	8	4	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.12	6.3	5	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.1	4	5	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	1.86	8	6	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.56	8	6	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.19	4	8	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.29	8	8	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Shatter	1	0.46	6.3	8	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Shatter	1	4.86	16	10	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Shatter	1	0.09	4	11	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.16	6.3	11	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.5	8	11	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.8	8	11	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.16	4	13	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.78	8	13	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.92	8	13	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	2.34	8	16	No	No	
1767	AE-TEU-2	10-20	Chert-Mainland Monterey	Flake	1	0.47	8	16	No	No	
1767	AE-TEU-2	10-20	Siliceous Shale	Flake	1	0.82	8	31	No	No	
1767	AE-TEU-2	10-20	Obsidian	Biface	1	2.8	8	38	No	No	
1767	AE-TEU-2	0-10	Chert-Mainland Monterey	Damaged	1	2.45	8	0	Yes	No	
1767	AE-TEU-2	0-10	Chert-Mainland Monterey	Damaged	1	0.07	4	0	Yes	No	
1767	AE-TEU-2	0-10	Chert-Mainland Monterey	Flake	1	0.46	8	3	No	No	
1767	AE-TEU-2	0-10	Chert-Mainland Monterey	Flake	1	0.06	4	3	No	No	
1767	AE-TEU-2	0-10	Chert-Mainland Monterey	Flake	1	0.03	4	3	No	No	
1767	AE-TEU-2	0-10	Chert-Mainland Monterey	Shatter	1	0.37	6.3	4	No	No	
1767	AE-TEU-2	0-10	Chert-Mainland Monterey	Flake	1	0.07	4	5	No	No	
1767	AE-TEU-2	0-10	Chert-Mainland Monterey	Flake	1	0.2	6.3	6	No	No	
1767	AE-TEU-2	0-10	Chert-Mainland Monterey	Flake	1	0.2	4	6	No	No	
1767	AE-TEU-2	0-10	Chert-Mainland Monterey	Flake	1	0.16	6.3	6	No	No	
1767	AE-TEU-2	0-10	Chert-Mainland Monterey	Shatter	1	0.11	4	14	No	No	
1767	AE-TEU-2	0-10	Chert-Mainland Monterey	Flake	1	0.39	6.3	22	No	No	
1767	AE-TEU-2	0-10	Siliceous Shale	Flake	1	8.24	16	36	No	No	
1767	AE-TEU-2	20-30	Chert-Mainland Monterey	Damaged	1	0.15	6.3	0	Yes	No	
1767	AE-TEU-2	20-30	Chert-Mainland Monterey	Flake	1	0.26	6.3	0	Yes	No	
1767	AE-TEU-2	20-30	Chert-Mainland Monterey	Shatter	1	1.61	8	2	No	No	
1767	AE-TEU-2	20-30	Chert-Mainland Monterey	Flake	1	0	3.2	3	No	No	
1767	AE-TEU-2	20-30	Chert-Mainland Monterey	Flake	1	0.04	4	4	No	No	
1767	AE-TEU-2	20-30	Chert-Mainland Monterey	Flake	1	0.31	8	6	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-2	20-30	Chert-Mainland Monterey	Flake	1	0.38	6.3	6	No	No	
1767	AE-TEU-2	20-30	Chert-Mainland Monterey	Flake	1	0.18	8	6	No	No	
1767	AE-TEU-2	20-30	Chert-Mainland Monterey	Flake	1	0.16	6.3	6	No	No	
1767	AE-TEU-2	20-30	Chert-Mainland Monterey	Flake	1	0.19	6.3	6	No	No	
1767	AE-TEU-2	20-30	Chert-Mainland Monterey	Flake	1	0.53	8	11	No	No	
1767	AE-TEU-2	20-30	Chert-Mainland Monterey	Shatter	1	1.24	8	11	No	No	
1767	AE-TEU-2	20-30	Chert-Mainland Monterey	Flake	1	0.28	6.3	16	No	No	
1767	AE-TEU-2	20-30	Siliceous Shale	Shatter	1	0.42	6.3	31	No	No	
1767	AE-TEU-2	20-30	Siliceous Shale	Flake	1	0.6	8	31	No	No	
1767	AE-TEU-2	20-30	Igneous - Undifferentiated	Flake	1	1.82	8	34	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.1	4	0	Yes	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Damaged	1	0.22	6.3	0	Yes	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.78	8	0	Yes	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.17	4	1	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.71	8	1	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.5	6.3	1	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.12	4	4	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.12	6.3	4	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.1	6.3	4	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.04	3.2	5	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Damaged	1	0.07	3.2	5	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.02	3.2	5	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.16	4	5	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.19	6.3	6	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	1.36	8	8	No	No	
1767	AE-TEU-2	30-40	Chert-Island Monterey	Flake	1	0.22	6.3	8	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.4	8	8	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.43	8	8	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.27	8	11	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.09	4	11	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.17	4	15	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Shatter	1	5.62	16	16	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	0.1	4	16	No	No	
1767	AE-TEU-2	30-40	Chert-Mainland Monterey	Flake	1	1.62	8	22	No	No	
1767	AE-TEU-2	30-40	Siliceous Shale	Flake	1	2.15	8	31	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Damaged	1	0.91	8	0	Yes	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Damaged	1	0.02	3.2	0	Yes	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	0.78	8	1	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	0.36	6.3	1	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	0.22	4	1	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	2.22	8	2	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	0.26	6.3	3	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	0.1	4	3	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	0.14	6.3	3	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Shatter	1	2.58	8	4	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	0.23	8	4	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	0.25	4	4	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	0.36	8	5	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	0.48	8	5	Yes	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	1.75	8	6	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	0.18	4	6	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	0.38	6.3	11	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	7.69	16	13	No	No	
1767	AE-TEU-2	40-50	Chert-Mainland Monterey	Flake	1	0.72	8	14	No	No	
1767	AE-TEU-2	40-50	Igneous - Undifferentiated	Flake	1	1.19	8	36	No	No	
1767	AE-TEU-2	40-50	Igneous - Undifferentiated	Flake	1	3.37	16	36	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Damaged	1	0.14	4	0	Yes	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Shatter	1	0.36	6.3	1	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0.02	3.2	3	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0.04	4	3	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Shatter	1	3.16	8	4	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Shatter	1	1.63	8	4	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0.02	3.2	5	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0.03	3.2	5	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	1.43	8	6	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0.6	8	7	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0.71	8	10	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0.11	4	11	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0	3.2	11	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0.64	8	11	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0.5	8	11	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0.06	3.2	12	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0.04	4	12	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0.04	3.2	12	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Shatter	1	0.1	4	12	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0.28	6.3	12	No	No	
1767	AE-TEU-2	50-60	Chert-Mainland Monterey	Flake	1	0.21	6.3	16	No	No	
1767	AE-TEU-2	50-60	Siliceous Shale	Shatter	1	0.9	8	31	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.91	8	0	Yes	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Damaged	1	1.06	8	0	Yes	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.36	8	1	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.6	8	1	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.11	4	1	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	16.64	16	1	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.21	6.3	3	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.08	3.2	3	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.16	6.3	3	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.09	4	3	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.22	6.3	4	Yes	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.02	6.3	4	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.21	6.3	4	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0	3.2	4	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	3.24	16	6	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.28	6.3	6	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.23	6.3	6	No	Yes	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Shatter	1	0.6	6.3	6	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.12	4	6	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.45	8	11	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.2	6.3	11	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.04	4	11	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0	4	11	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Shatter	1	0.34	6.3	13	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.13	4	13	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Shatter	1	0.07	4	14	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.12	4	16	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.09	6.3	16	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Shatter	1	1.42	8	16	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	0.05	3.2	16	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Shatter	1	2.22	8	19	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Shatter	1	0.02	3.2	20	No	No	
1767	AE-TEU-2	60-70	Chert-Mainland Monterey	Flake	1	1.83	8	21	No	No	
1767	AE-TEU-2	60-70	Siliceous Shale	Flake	1	0.25	6.3	30	No	No	
1767	AE-TEU-2	60-70	Siliceous Shale	Flake	1	0.24	6.3	31	No	No	
1767	AE-TEU-2	60-70	Siliceous Shale	Flake	1	1.29	8	31	No	No	
1767	AE-TEU-2	60-70	Siliceous Shale	Flake	1	0.51	8	33	No	No	
1767	AE-TEU-2	70-80	Chert-Mainland Monterey	Shatter	1	0.33	4	3	No	No	
1767	AE-TEU-2	70-80	Chert-Mainland Monterey	Flake	1	1.69	8	11	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-2	70-80	Chert-Mainland Monterey	Flake	1	0.46	6.3	13	No	No	
1767	AE-TEU-2	70-80	Chert-Mainland Monterey	Flake	1	0.89	8	13	No	No	
1767	AE-TEU-2	70-80	Chert-Mainland Monterey	Flake	1	0.22	4	16	No	No	
1767	AE-TEU-2	70-80	Chert-Mainland Monterey	Flake	1	0.67	8	16	No	No	
1767	AE-TEU-2	70-80	Siliceous Shale	Flake	1	0.18	4	30	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.21	6.3	0	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Damaged	1	0.72	8	0	Yes	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Damaged	1	0.19	4	0	Yes	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.34	8	2	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0	3.2	2	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.03	4	2	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0	3.2	2	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.08	4	3	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.03	4	3	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0	3.2	3	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0	3.2	3	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.05	4	3	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	1.03	8	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Shatter	1	0.37	4	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.2	6.3	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.07	4	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.35	8	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.56	8	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.91	8	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.36	6.3	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.56	8	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.43	6.3	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	2.17	8	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.23	6.3	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.3	6.3	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.04	3.2	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.05	4	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.08	4	4	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.25	4	5	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	1.74	8	6	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	4.37	16	8	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.26	4	8	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.07	4	10	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.09	4	11	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.14	6.3	11	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Damaged	1	1.11	8	16	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.03	3.2	16	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.07	4	16	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.04	3.2	16	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.13	4	17	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	0.08	4	18	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Shatter	1	0	3.2	20	No	No	
1767	AE-TEU-3	10-20	Chert-Mainland Monterey	Flake	1	2.57	8	22	No	No	
1767	AE-TEU-3	10-20	Siliceous Shale	Flake	1	29.64	16	34	No	No	
1767	AE-TEU-3	10-20	Siliceous Shale	Flake	1	0.68	8	34	No	No	
1767	AE-TEU-3	10-20	Quartzite	Flake	1	10.54	16	36	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Damaged	1	0.07	4	0	Yes	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Damaged	1	1.28	8	0	Yes	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Damaged	1	0.84	6.3	0	Yes	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Damaged	1	0.51	6.3	0	Yes	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Damaged	1	1.17	8	0	Yes	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Damaged	1	0.11	4	0	Yes	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Damaged	1	0.09	4	0	Yes	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Damaged	1	0.12	4	0	Yes	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Damaged	1	0.34	4	0	Yes	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.08	4	1	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Shatter	1	1.13	8	3	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Shatter	1	0.05	3.2	3	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Shatter	1	1.69	8	3	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.09	4	3	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.24	6.3	3	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Biface	1	0.09	4	3	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.03	4	4	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.05	3.2	4	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.28	4	4	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.35	6.3	4	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.65	8	4	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.04	4	4	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.03	4	4	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.03	3.2	5	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.32	6.3	6	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.17	6.3	6	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.31	6.3	6	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	2.54	8	8	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.69	8	8	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	1.78	8	10	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	8.75	16	10	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.15	6.3	11	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.15	4	11	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.07	3.2	11	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.04	4	11	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.13	4	11	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.04	3.2	11	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Shatter	1	0.25	4	14	No	No	
1767	AE-TEU-3	0-10	Chert-Franciscan	Flake	1	4.21	8	15	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.18	6.3	16	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0	3.2	16	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.04	4	16	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.02	3.2	16	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.44	8	16	No	No	
1767	AE-TEU-3	0-10	Chert-Mainland Monterey	Flake	1	0.38	6.3	21	No	No	
1767	AE-TEU-3	0-10	Siliceous Shale	Flake	1	0.15	4	31	No	No	
1767	AE-TEU-3	0-10	Siliceous Shale	Flake	1	0.68	8	33	No	No	
1767	AE-TEU-3	0-10	Comments)	Flake	1	4.79	16	36	No	No	Basalt
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Damaged	1	0.13	4	0	Yes	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Damaged	1	2.18	8	0	Yes	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Damaged	1	0.11	4	0	Yes	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Damaged	1	0.39	6.3	0	Yes	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Shatter	1	0	3.2	0	Yes	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Damaged	1	0.12	4	0	Yes	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Damaged	1	0.06	4	0	Yes	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Damaged	1	0.15	4	0	Yes	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.13	4	0	Yes	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.13	4	0	Yes	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Shatter	1	0.29	8	1	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.41	8	2	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.8	8	3	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.01	3.2	3	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.18	4	4	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Shatter	1	0.44	6.3	4	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.43	6.3	4	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.04	4	4	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.01	3.2	4	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.03	3.2	4	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.09	4	4	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0	4	4	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0	4	4	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Shatter	1	0.04	3.2	4	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.22	6.3	5	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.09	4	5	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.56	8	5	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.3	6.3	5	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.04	4	5	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.3	6.3	6	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.54	8	6	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.09	4	8	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.29	6.3	8	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	3.01	8	10	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.11	6.3	13	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.31	8	13	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Shatter	1	0.5	6.3	13	No	No	
1767	AE-TEU-3	20-30	Chert-Franciscan	Flake	1	0.09	4	15	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.36	8	16	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.12	4	16	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.17	6.3	16	No	No	
1767	AE-TEU-3	20-30	Chert-Mainland Monterey	Flake	1	0.3	4	17	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Damaged	1	0.04	3.2	0	Yes	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Damaged	1	0.1	4	0	Yes	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.01	3.2	0	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.08	4	0	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Shatter	1	2.24	8	1	Yes	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.26	6.3	3	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Shatter	1	0.05	4	3	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.04	3.2	4	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.26	6.3	4	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.23	6.3	4	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.17	6.3	4	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.15	4	5	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.22	4	5	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.17	6.3	6	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.13	6.3	6	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.29	6.3	6	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.18	4	11	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.12	4	11	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.24	6.3	11	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.21	8	16	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.52	8	16	No	No	
1767	AE-TEU-3	30-40	Chert-Mainland Monterey	Flake	1	0.16	6.3	16	No	No	
1767	AE-TEU-3	30-40	Obsidian	Flake	1	0.01	2	28	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Damaged	1	0.03	3.2	0	Yes	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.15	6.3	0	Yes	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Damaged	1	0.31	6.3	0	Yes	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Damaged	1	0.35	6.3	0	Yes	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Damaged	1	0.43	6.3	0	Yes	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Damaged	1	0.52	6.3	0	Yes	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.06	6.3	1	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.09	4	1	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0	3.2	1	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.03	4	3	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Shatter	1	0	3.2	3	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Shatter	1	0.12	6.3	3	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Shatter	1	0.22	4	3	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.15	4	3	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.33	6.3	3	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.4	6.3	3	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.4	6.3	4	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Shatter	1	0.03	3.2	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Shatter	1	0.06	3.2	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.04	6.3	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.03	4	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.06	4	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.03	3.2	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.08	4	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.11	4	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.1	4	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.45	8	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	1.22	8	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.21	6.3	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.31	6.3	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Shatter	1	1.94	8	6	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Shatter	1	1.64	8	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.13	6.3	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.22	6.3	6	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	1.19	8	8	Yes	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	1.4	8	8	No	No	
1767	AE-TEU-3	40-50	Chert-Franciscan	Biface	1	2.94	8	9	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.01	3.2	11	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0	3.2	11	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.06	4	11	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.08	4	11	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.15	4	11	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Shatter	1	0.34	6.3	11	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.06	4	15	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.02	3.2	16	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.07	4	16	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.08	4	16	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.5	6.3	16	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.42	6.3	16	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Shatter	1	0.03	4	20	No	No	
1767	AE-TEU-3	40-50	Chert-Mainland Monterey	Flake	1	0.13	4	21	No	No	
1767	AE-TEU-3	40-50	Siliceous Shale	Pebble	1	1.17	6.3	31	No	No	
1767	AE-TEU-3	40-50	Siliceous Shale	Shatter	1	2.4	8	32	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.06	3.2	0	Yes	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0	3.2	2	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	3.6	16	4	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.72	8	4	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.04	3.2	4	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.18	4	5	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.02	3.2	5	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.01	3.2	5	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.23	6.3	6	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.5	8	6	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0	3.2	6	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0	3.2	6	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.01	3.2	6	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.02	3.2	6	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.97	8	8	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.17	4	11	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.19	6.3	11	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.31	6.3	11	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.87	8	11	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.25	6.3	11	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	3.7	16	11	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	3.74	8	16	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.67	8	19	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0	3.2	19	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.22	6.3	20	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.19	6.3	21	No	No	
1767	AE-TEU-3	50-60	Chert-Mainland Monterey	Flake	1	0.48	6.3	21	No	No	
1767	AE-TEU-3	50-60	Siliceous Shale	Shatter	1	2.65	8	32	No	No	
1767	AE-TEU-3	50-60	Siliceous Shale	Pebble	1	18.4	16	33	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Damaged	1	0.19	4	0	Yes	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.14	4	0	Yes	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Damaged	1	0.13	4	0	Yes	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Damaged	1	0.37	6.3	0	Yes	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Damaged	1	0.4	8	0	Yes	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Damaged	1	0.34	8	0	Yes	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Damaged	1	0.22	4	0	Yes	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Damaged	1	0	4	0	Yes	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.38	8	0	Yes	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.77	8	0	Yes	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Damaged	1	0.13	4	0	Yes	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Damaged	1	1	8	0	Yes	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Damaged	1	0.67	6.3	0	Yes	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	2.38	16	3	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.15	6.3	3	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	1.74	8	3	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.29	6.3	3	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.86	8	3	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.88	8	3	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	9.86	16	4	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.07	4	4	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.7	8	4	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.71	8	4	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.25	6.3	4	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	1.04	8	4	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	1.8	8	4	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.11	4	4	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.02	3.2	4	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.04	4	4	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.13	6.3	5	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.33	8	5	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.16	6.3	5	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.26	6.3	5	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Shatter	1	2.35	8	5	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.04	4	5	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.03	2	5	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0	3.2	5	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.16	4	5	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.51	6.3	6	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	6.84	16	6	No	Yes	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	1.95	8	6	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0	3.2	6	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.2	6.3	8	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.12	6.3	8	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.03	3.2	8	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.03	4	9	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	1.33	8	10	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.24	6.3	10	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.23	8	11	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.2	6.3	11	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.42	8	11	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	6.75	16	11	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.31	6.3	15	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.04	3.2	19	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	0.71	8	21	No	No	
1767	AE-TEU-4	10-20	Chert-Mainland Monterey	Flake	1	8.8	16	22	No	No	
1767	AE-TEU-4	10-20	Siliceous Shale	Shatter	1	1.48	8	31	No	No	
1767	AE-TEU-4	10-20	Siliceous Shale	Shatter	1	1.03	8	35	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Damaged	1	0.22	6.3	0	Yes	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Damaged	1	0.09	4	0	Yes	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Damaged	1	0.19	6.3	0	Yes	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Damaged	1	0.74	8	0	Yes	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Damaged	1	0.29	6.3	0	Yes	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Damaged	1	0.5	8	0	Yes	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Damaged	1	0.61	8	0	Yes	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.01	3.2	1	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.02	3.2	1	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.06	4	2	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.01	4	2	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.01	3.2	2	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.25	8	3	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	30.84	16	4	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.26	8	4	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.02	3.2	4	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	6.7	8	4	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.46	6.3	4	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Shatter	1	0.11	4	6	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.04	3.2	6	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0	4	6	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	9.17	16	6	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.25	6.3	6	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.14	4	8	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.94	8	8	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.36	8	11	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.76	8	11	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.2	6.3	12	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Biface	1	0.56	8	12	No	No	
1767	AE-TEU-4	0-10	Chert-Mainland Monterey	Flake	1	0.21	6.3	14	No	No	
1767	AE-TEU-4	0-10	Igneous - Undifferentiated	Flake	1	0.7	8	36	No	No	
1767	AE-TEU-4	0-10	Chert-Island Monterey	Flake	1	0.01					
1767	AE-TEU-4	20-30	Chert-Island Monterey	Damaged	1	0.07	4	0	Yes	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Damaged	1	0.08	4	0	Yes	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Damaged	1	0	3.2	0	Yes	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Damaged	1	0.48	6.3	0	Yes	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.77	8	0	Yes	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.07	4	2	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.46	8	2	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.15	6.3	3	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.08	6.3	3	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	5.56	16	3	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.07	4	3	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.09	6.3	3	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.28	8	3	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.9	8	3	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.13	4	4	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.07	4	4	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	1.24	8	4	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.16	8	4	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.67	8	4	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.42	6.3	4	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.19	6.3	4	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Shatter	1	0.06	3.2	4	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.18	4	4	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.31	8	4	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	2.9	8	5	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.41	8	5	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.23	6.3	5	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0	3.2	6	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.02	3.2	6	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Shatter	1	0.01	4	6	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.03	4	7	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Shatter	1	0.42	8	7	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.32	4	8	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.96	8	8	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	1.08	8	10	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.21	8	11	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.34	6.3	11	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.53	8	11	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.13	4	11	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.13	6.3	11	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Shatter	1	1.84	8	11	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.36	8	13	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.04	4	14	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.18	4	16	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.18	6.3	16	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	1.2	8	16	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.32	8	16	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.2	8	16	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Shatter	1	0.41	6.3	16	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.61	8	16	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0.76	8	20	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Flake	1	0	3.2	23	No	No	
1767	AE-TEU-4	20-30	Chert-Mainland Monterey	Shatter	1	0.02	3.2	26	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Damaged	1	0.36	6.3	0	Yes	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Damaged	1	0.5	8	0	Yes	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Damaged	1	0.44	6.3	0	Yes	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Damaged	1	0.22	6.3	0	Yes	No	
1767	AE-TEU-4	30-40	Siliceous Shale	Damaged	1	0.84	8	0	Yes	No	
1767	AE-TEU-4	30-40	Siliceous Shale	Damaged	1	0.32	6.3	0	Yes	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Damaged	1	30.35	16	0	Yes	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.79	8	1	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.15	6.3	3	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.13	4	3	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.24	8	4	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.83	8	4	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.14	6.3	4	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.16	4	4	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.1	6.3	4	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.17	4	4	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.34	8	4	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.62	8	5	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.03	4	5	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.15	4	5	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.32	8	5	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.5	8	5	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.21	4	5	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.19	4	5	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.09	4	5	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.83	8	6	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	1.55	8	6	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	1.33	8	8	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.02	3.2	11	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.08	4	11	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.27	6.3	11	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	3.41	8	11	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.5	8	11	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.11	4	11	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.66	8	13	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	1.48	8	13	Yes	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.52	8	13	No	No	
1767	AE-TEU-4	30-40	Chert-Franciscan	Flake	1	0.14	4	15	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.17	6.3	16	No	No	
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Shatter	1	0.01	3.2	23	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-4	30-40	Chert-Mainland Monterey	Flake	1	0.01	3.2	23	No	No	
1767	AE-TEU-4	30-40	Siliceous Shale	Flake	1	1.87	8	32	No	No	
1767	AE-TEU-4	30-40	Siliceous Shale	Shatter	1	5.15	16	34	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Damaged	1	0.1	3.2	0	Yes	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Damaged	1	0.09	4	0	Yes	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Damaged	1	0	3.2	0	Yes	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Damaged	1	0.05	3.2	0	Yes	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Damaged	1	0.05	4	0	Yes	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Damaged	1	0.03	3.2	0	Yes	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Damaged	1	0.03	3.2	0	Yes	No	
1767	AE-TEU-4	40-50	Siliceous Shale	Damaged	1	0.04	3.2	0	Yes	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Damaged	1	0.83	8	0	Yes	No	
1767	AE-TEU-4	40-50	Siliceous Shale	Damaged	1	0.42	6.3	0	Yes	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Damaged	1	0.44	8	0	Yes	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Shatter	1	0.12	3.2	1	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.4	6.3	2	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0	2	3	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0	3.2	3	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.04	3.2	3	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0	3.2	3	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0	3.2	3	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.12	4	3	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.07	4	3	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.17	4	3	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.25	8	3	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.25	6.3	4	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.4	3.2	4	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.07	4	4	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.08	4	4	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.03	3.2	4	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.25	4	4	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.19	6.3	4	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.3	6.3	4	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.14	6.3	4	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.21	6.3	4	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0	3.2	5	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Shatter	1	0.23	4	5	No	No	
1767	AE-TEU-4	40-50	Chert-Island Monterey	Flake	1	0.11	4	5	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.18	6.3	5	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.34	6.3	5	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Biface	1	39.14	16	5	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.23	6.3	5	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.49	8	5	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.27	8	6	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.01	3.2	6	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	1.12	8	6	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Shatter	1	0.37	4	8	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	2.05	16	8	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Shatter	1	0.21	4	10	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Shatter	1	0.15	4	10	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Shatter	1	0.55	6.3	10	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.13	6.3	11	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.05	3.2	11	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.03	3.2	11	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Shatter	1	0.05	3.2	11	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.03	4	11	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.57	8	11	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.72	8	12	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.04	4	13	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.09	4	16	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0	3.2	16	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.4	4	16	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.41	6.3	19	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Flake	1	0.19	6.3	21	No	No	
1767	AE-TEU-4	40-50	Chert-Mainland Monterey	Shatter	1	0.04	2	23	No	No	
1767	AE-TEU-4	40-50	Siliceous Shale	Shatter	1	0.77	8	30	No	No	
1767	AE-TEU-4	40-50	Siliceous Shale	Flake	1	1.76	8	32	No	No	
1767	AE-TEU-4	40-50	Siliceous Shale	Flake	1	0.15	6.3	32	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Damaged	1	2.3	8	0	Yes	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Damaged	1	0.27	6.3	0	Yes	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Damaged	1	0.84	8	0	Yes	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Damaged	1	0.59	8	0	Yes	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Damaged	1	0.04	3.2	0	Yes	No	
1767	AE-TEU-5	10-20	Siliceous Shale	Damaged	1	0.43	8	0	Yes	No	
1767	AE-TEU-5	10-20	Siliceous Shale	Damaged	1	0.09	6.3	0	Yes	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Damaged	1	1.3	8	0	Yes	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Damaged	1	0.04	3.2	0	Yes	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.2	4	1	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0	4	4	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.24	6.3	4	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Shatter	1	0.83	8	4	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.14	6.3	4	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Shatter	1	0.01	2	4	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.27	6.3	4	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Shatter	1	0.06	3.2	4	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0	3.2	4	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.01	3.2	4	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Shatter	1	0.08	4	4	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0	3.2	4	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.31	8	5	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.18	6.3	5	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.03	3.2	5	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.29	8	5	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.94	8	5	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.03	3.2	5	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0	3.2	5	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.07	4	5	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.05	3.2	5	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.39	6.3	6	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.09	4	6	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.08	4	6	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	2.11	8	10	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.23	8	11	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.34	8	11	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.03	3.2	11	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.02	3.2	11	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.02	3.2	11	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.06	4	11	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.09	3.2	11	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Shatter	1	0.27	6.3	16	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Shatter	1	1.89	8	16	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Shatter	1	0.5	6.3	16	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.07	4	16	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.01	3.2	16	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.03	3.2	16	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Flake	1	0.22	8	20	No	No	
1767	AE-TEU-5	10-20	Chert-Mainland Monterey	Shatter	1	0.58	6.3	22	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-5	10-20	Siliceous Shale	Flake	1	0.53	8	31	No	No	
1767	AE-TEU-5	10-20	Siliceous Shale	Flake	1	0.22	4	32	No	No	
1767	AE-TEU-5	10-20	Siliceous Shale	Flake	1	0.27	4	32	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Damaged	1	0.9	8	0	Yes	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.06	4	1	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0	3.2	3	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.01	3.2	3	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.18	4	3	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.01	3.2	4	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	17.17	16	4	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.05	4	4	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.1	6.3	4	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.07	4	4	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.02	3.2	4	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.11	6.3	5	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.24	6.3	5	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.12	4	5	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.26	6.3	5	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.34	8	5	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.4	6.3	5	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.4	8	5	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.2	6.3	5	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	11.8	16	6	No	Yes	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.13	6.3	11	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	1.04	8	13	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.61	8	15	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.52	8	16	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	3.98	8	16	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.44	6.3	16	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.17	6.3	22	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	0.4	8	22	No	No	
1767	AE-TEU-5	0-10	Chert-Mainland Monterey	Flake	1	4.24	16	24	No	No	
1767	AE-TEU-5	0-10	Siliceous Shale	Flake	1	0.19	8	32	No	No	
1767	AE-TEU-5	0-10	Siliceous Shale	Flake	1	0.58	8	32	No	No	
1767	AE-TEU-5	0-10	Siliceous Shale	Flake	1	0.35	8	32	No	No	
1767	AE-TEU-5	0-10	Siliceous Shale	Shatter	1	0.66	8	33	No	No	
1767	AE-TEU-5	0-10	Siliceous Shale	Shatter	1	0.65	6.3	33	No	No	
1767	AE-TEU-5	0-10	Siliceous Shale	Shatter	1	0.32	6.3	33	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Damaged	1	0.25	6.3	0	Yes	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Damaged	1	0.38	6.3	0	Yes	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Damaged	1	1.31	8	0	Yes	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Damaged	1	0.25	6.3	0	Yes	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	1.36	8	0	Yes	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Damaged	1	0.47	6.3	0	Yes	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.1	4	0	Yes	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Damaged	1	0.07	3.2	0	Yes	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Damaged	1	0.03	3.2	0	Yes	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Damaged	1	0.13	4	0	Yes	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Damaged	1	0.12	4	0	Yes	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.19	4	1	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0	3.2	1	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0	3.2	1	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.21	4	3	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.07	4	3	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.03	4	3	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.05	4	3	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	2.87	8	4	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.76	8	4	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.32	6.3	4	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	1.07	8	4	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.68	8	4	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.27	6.3	4	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.17	6.3	4	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.09	4	4	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.33	6.3	4	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.9	4	4	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.03	3.2	4	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.18	6.3	5	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.18	8	5	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.13	6.3	5	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.38	6.3	5	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.15	4	5	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Shatter	1	0.06	4	5	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.12	4	5	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.02	4	5	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Shatter	1	18.66	16	6	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	2.88	8	6	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.78	8	6	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.47	6.3	6	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.1	4	6	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Shatter	1	0.24	4	6	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.15	6.3	8	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.38	8	8	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	7.08	8	8	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	3.32	8	8	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Shatter	1	1.73	8	10	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.01	3.2	13	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.05	4	13	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Shatter	1	0.66	8	14	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Pebble	1	0.05	4	14	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.28	6.3	16	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.12	4	16	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Shatter	1	0.01	3.2	16	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.06	4	17	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.08	4	19	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.16	6.3	20	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.32	6.3	20	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.1	4	21	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.04	3.2	21	No	No	
1767	AE-TEU-5	20-30	Chert-Mainland Monterey	Flake	1	0.28	6.3	22	No	No	
1767	AE-TEU-5	20-30	Siliceous Shale	Shatter	1	0.47	6.3	33	No	No	
1767	AE-TEU-5	20-30	Siliceous Shale	Flake	1	0.12	4	34	No	No	
1767	AE-TEU-5	20-30	Siliceous Shale	Shatter	1	0.4	6.3	34	No	No	
1767	AE-TEU-5	20-30	Siliceous Shale	Shatter	1	0.76	8	34	No	No	
1767	AE-TEU-5	20-30	Sandstone	Shatter	1	0.5	8	41	No	No	
1767	AE-TEU-5	20-30	Sandstone	Flake	1	0.07	4	41	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Damaged	1	11.01	16	0	Yes	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Damaged	1	0.19	4	0	Yes	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Damaged	1	0.19	6.3	0	Yes	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Damaged	1	1.1	8	0	Yes	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Damaged	1	0.75	8	0	Yes	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Damaged	1	0.55	6.3	0	Yes	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Damaged	1	0.39	6.3	0	Yes	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.1	4	0	Yes	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.27	6.3	0	Yes	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Damaged	1	0.53	8	0	Yes	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Damaged	1	0.41	6.3	0	Yes	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-5	30-40	Siliceous Shale	Damaged	1	0.44	6.3	0	Yes	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Damaged	1	0.61	8	0	Yes	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.04	3.2	1	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	1.74	8	3	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	6.57	16	4	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.12	6.3	4	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.17	6.3	4	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.36	8	4	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.29	4	4	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.21	6.3	4	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	1.55	8	4	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.15	4	4	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.08	4	4	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.08	4	4	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.14	4	5	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.42	8	5	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.53	8	5	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.26	6.3	5	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	2.83	8	6	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Pebble	1	2.87	8	6	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	3.08	8	10	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.45	6.3	10	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.09	8	11	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.36	8	11	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.28	6.3	11	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.25	8	11	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	1.08	8	11	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.05	4	16	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.2	6.3	16	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.78	8	19	No	No	
1767	AE-TEU-5	30-40	Chert-Mainland Monterey	Flake	1	0.06	4	21	No	No	
1767	AE-TEU-5	30-40	Siliceous Shale	Flake	1	0.79	8	31	No	No	
1767	AE-TEU-5	30-40	Siliceous Shale	Flake	1	0.22	4	31	No	No	
1767	AE-TEU-5	30-40	Siliceous Shale	Flake	1	1.2	8	32	No	No	
1767	AE-TEU-5	30-40	Siliceous Shale	Flake	1	0.33	6.3	32	No	No	
1767	AE-TEU-5	30-40	Siliceous Shale	Flake	1	0.4	8	32	No	No	
1767	AE-TEU-5	30-40	Siliceous Shale	Flake	1	0.95	8	35	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Damaged	1	0.7	6.3	0	Yes	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Damaged	1	3.51	8	0	Yes	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.07	4	0	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.22	6.3	3	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	1.17	8	4	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.63	8	5	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.27	8	5	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.13	6.3	5	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.12	4	5	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.05	4	5	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.54	8	6	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.18	4	6	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.01	4	6	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	1.06	8	8	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.96	8	11	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.46	8	11	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0	2	11	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.34	6.3	11	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.25	4	11	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.1	4	11	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.02	3.2	11	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.06	3.2	11	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.2	4	16	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.09	4	16	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.07	4	18	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Flake	1	0.21	4	20	No	No	
1767	AE-TEU-5	40-50	Chert-Mainland Monterey	Shatter	1	0.48	6.3	24	No	No	
1767	AE-TEU-5	40-50	Siliceous Shale	Flake	1	0.24	8	34	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.63	8	0	Yes	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Damaged	1	0.02	4	0	Yes	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Damaged	1	0.06	4	0	Yes	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.44	6.3	2	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.15	6.3	3	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.14	6.3	3	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.25	8	3	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.06	4	3	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.37	8	4	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.16	6.3	4	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Shatter	1	0.45	6.3	4	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Shatter	1	0.44	6.3	4	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.05	4	4	No	No	

Site	Unit	Level	Material	Type	Count	Weight	Mesh Size	MAN Number	Burnt	Modified	Comments
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.3	6.3	5	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.35	6.3	5	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.06	4	5	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Shatter	1	0.65	6.3	6	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.07	4	11	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.33	8	16	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.03	2	16	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.26	6.3	19	No	No	
1767	AE-TEU-5	50-60	Chert-Mainland Monterey	Flake	1	0.64	8	19	No	No	
1767	AE-TEU-5	50-60	Siliceous Shale	Flake	1	0.1	16	30	No	No	
1767	AE-TEU-5	50-60	Igneous - Undifferentiated	Flake	1	1.29	8	36	No	No	
1767	AE-TEU-5	50-60	Igneous - Undifferentiated	Flake	1	0.3	6.3	42	No	No	
1620	E40	100	Chert-Mainland Monterey	Flake	1	0	3.2	16	No	No	
1620	LSA-STP-17	60-80	Chert-Mainland Monterey	Flake	1	0.21	6.3	0	No	No	

APPENDIX F

CA-SLO-1767: Radiocarbon Dating Results

FROM: Darden Hood, Director (mailto:mailto:dhood@radiocarbon.com)
(This is a copy of the letter being mailed. Invoices/receipts follow only by mail.)

August 12, 2004

Dr. Scott Pletka
LSA Associates, Incorporated
1998 Santa Barbara Street
Suite 120
San Luis Obispo, CA 93401
USA

RE: Radiocarbon Dating Result For Sample SLO-2271-S1

Dear Dr. Pletka:

Enclosed is the radiocarbon dating result for one sample recently sent to us. It provided plenty of carbon for an accurate measurement and the analysis went normally. The report sheet contains the method used, material type, applied pretreatments and, where applicable, the two sigma calendar calibration range.

As always, this report has been both mailed and sent electronically. All results (excluding some inappropriate material types) which are less than about 20,000 years BP and more than about ~250 BP include this calendar calibration page (also digitally available in Windows metafile (.wmf) format upon request). Calibration is calculated using the newest (1998) calibration database with references quoted on the bottom of the page. Multiple probability ranges may appear in some cases, due to short-term variations in the atmospheric 14C contents at certain time periods. Examining the calibration graph will help you understand this phenomenon. Don't hesitate to contact us if you have questions about calibration.

We analyzed this sample on a sole priority basis. No students or intern researchers who would necessarily be distracted with other obligations and priorities were used in the analysis. We analyzed it with the combined attention of our entire professional staff.

Information pages are also enclosed with the mailed copy of this report. If you have any specific questions about the analysis, please do not hesitate to contact us.

The cost of the analysis was charged to the VISA card provided. A receipt is enclosed. Thank you. As always, if you have any questions or would like to discuss the results, don't hesitate to contact me.

Sincerely,

Darden Hood

Dr. Scott Pletka

LSA Associates, Incorporated

Report Date: 8/12/2004

Material Received: 8/2/2004

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 194571	260 +/- 60 BP	+0.4 o/oo	670 +/- 60 BP

SAMPLE : SLO-2271-S1
ANALYSIS : Radiometric-Standard delivery
MATERIAL/PRETREATMENT : (shell): acid etch
2 SIGMA CALIBRATION : Cal AD 1690 to 1910 (Cal BP 260 to 40) AND Cal AD 1910 to beyond 1950 (Cal BP 40 to 0)

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=0.4:Delta-R=225±35:Glob res=-200 to 500:lab. mult=1)

Laboratory number: **Beta-194571**

Conventional radiocarbon age: **670±60 BP**

(450±70 adjusted for local reservoir correction)

2 Sigma calibrated results[2]: **Cal AD 1690 to 1910 (Cal BP 260 to 40) and**
(95% probability) **Cal AD 1910 to beyond 1950 (Cal BP 40 to 0)**

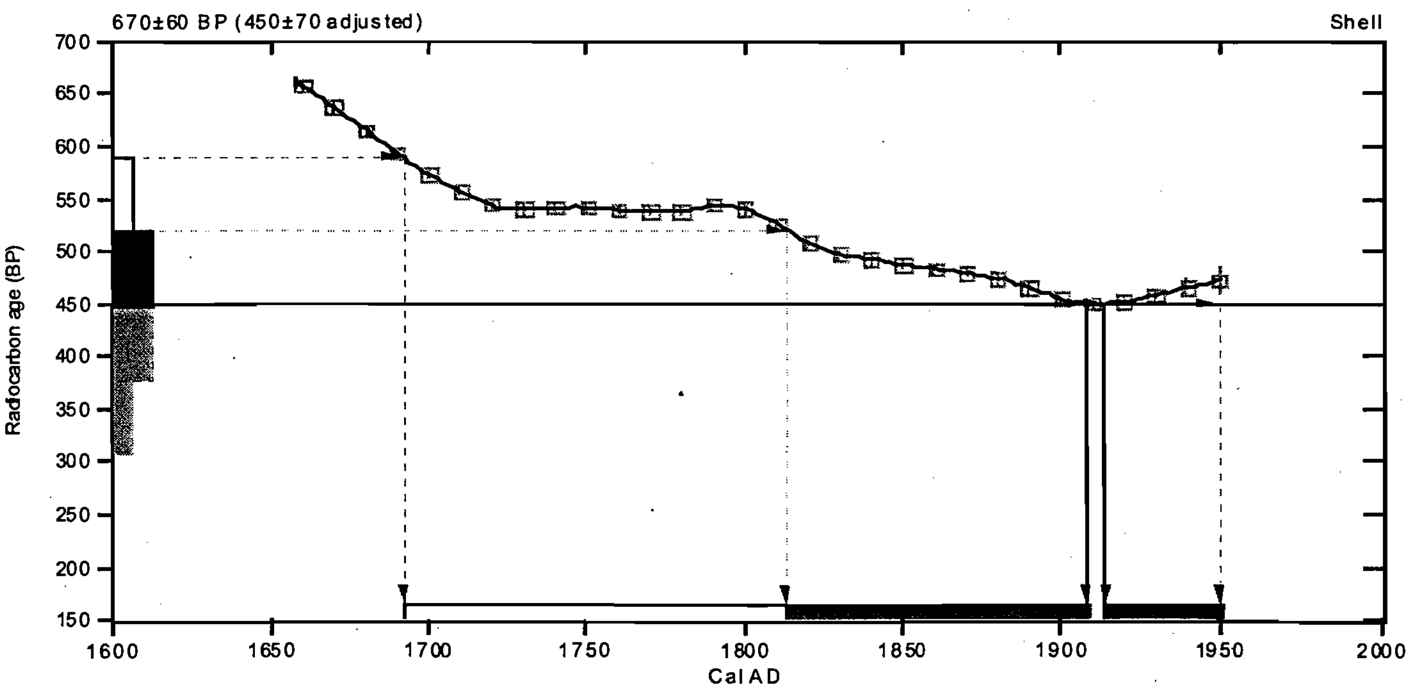
[2] 2 Sigma range being quoted is the maximum antiquity based on the minus 2 Sigma range

Intercept data

Intercepts of radiocarbon age
with calibration curve: Cal AD 1910 (Cal BP 40) and
Cal AD 1910 (Cal BP 40)

1 Sigma calibrated results[3]: Cal AD 1810 to 1910 (Cal BP 140 to 40) and
(68% probability) Cal AD 1910 to beyond 1950 (Cal BP 40 to 0)

[3] 1 Sigma range being quoted is the maximum antiquity based on the minus 1 Sigma range



References:

Database used
MARINE98
Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii
INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083
Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

APPENDIX G

Resumes of Key Personnel

IVAN STRUDWICK

ASSOCIATE/ARCHAEOLOGIST

EXPERTISE

Prehistoric Archaeology
Prehistoric Artifact and Marine Shell Identification
Circular Shell Fishhooks
Cultural Resource Management

EDUCATION

California State University, Long Beach, California, M.A. in anthropology, *(magna cum laude)* specializing in Archaeology, 1986.
California State University, Long Beach, California, B.A. in anthropology, 1981.

APPOINTMENTS

Executive Committee, CSULB Anthropology Alumni Association, 1999–2002.
Graduate Field Assistant, CSULB, Archaeological Field Class, Trabuco Hills, 1983.
Graduate Field Assistant, CSULB, Archaeological Field Class, Santa Catalina Island, 1981.
President, Anthropology Club, CSULB, 1981.

AWARDS

Scholarship, Anthropology Club of CSULB, December, 1981.
President's Honor List, CSULB, Spring, 1980, 1981.
Scholarship, National Science Foundation, marine biological research, 1975.

ACCREDITATIONS

Register of Professional Archaeologists (RPA)

PROFESSIONAL EXPERIENCE

Associate/Archaeologist, LSA Associates, Inc., 1994–present.
Project Archaeologist and Field Director, Gallegos & Associates, 1991–1994.
Field Director for Crowder Canyon, Assistant Field Director for Las Flores Ranch, Chambers Group, 1990–1991.
Field Director for Pelican Hill Transportation Corridor, The Keith Companies, 1988–1990.
Assistant Field Director, Vail Ranch Project, Chris Drover, Archaeological Consultant.

PRINCIPAL PROFESSIONAL RESPONSIBILITIES

Currently, Mr. Strudwick is an Associate in the Archaeology/Paleontology Division at LSA Associates, Inc. He is responsible for managing archaeological projects, including archaeological fieldwork and report completion. His duties include project design and proposal preparation for surveys, testing and mitigation; personnel supervision; and report write-up and recommendations. Mr. Strudwick also serves as LSA's primary field and laboratory director.

SPECIFIC PROJECT EXPERIENCE

LSA Associates, Inc. Associate. Responsible for monitoring, surveys, test and data recovery programs, report preparation, 1994–present. A list of publications for archaeological survey and test reports in Alameda, Del Norte, Humboldt, Lake, Mendocino, Monterey, Napa, Orange, Riverside, San Diego, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, San Bernardino, Santa Clara, Santa Cruz, Orange, and Tehama counties is available upon request.

Gallegos & Associates. Project Archaeologist and Field Director. Responsibilities included monitoring, surveys, test and data recovery programs, 1991 to 1994.

The Chambers Group. Field Director for Crowder Canyon test excavations (SBR-113-115, 3769, 3771-3774, 3803/H). Assistant Field Director for the Las Flores Ranch project (SBr-1615, 1672, 1674 and JS-1), 1990 to 1991.

The Keith Companies. Field Director for the Newport Coast Archaeological Project at over 15 sites including ORA-660-663, 671-673, 679 and 683, 1988 to 1990.

Archaeological consultant to Chris Drover. Assistant Field Director for the excavation of prehistoric site RIV-364, near Temecula, 1988.

RMW Paleo Associates. Crew member for the survey and excavation of 10 sites (including Ora-647, 648 and 1063), in the south Saddleback foothills, 1988.

The Chambers Group. Laboratory analysis and recording of artifacts and eocfacts from steatite quarry sites in Fresno, including FRE-632, 633- 1154, 1155, 1987.

Archaeology Advisory Group. Crew member for the excavation of historic refuse site in Irwindale, as part of the initial test for the construction of the proposed Los Angeles Raiders football stadium, 1988.

Mike Macko Archeological Consulting. Crew chief for test survey and excavation of a series of sites inland of Pelican Point as part of the San Joaquin Hills Transportation Corridor, ORA-662 (Pelican Hill), 1987.

Mike Macko Archaeological Consulting. Directed survey and mapping of historic and prehistoric sites (including SBR-180), near the Mojave River Narrows in Victorville, 1987.
Pacific Coast Archaeological Society. Laboratory analysis, illustration and publication of PCAS artifact collection obtained from the Crystal Cove survey (March, 1983), 1987.

LSA Associates, Inc. Survey and excavation of ORA-718 (Bee Canyon), 1987.

LSA Associates, Inc. Survey and excavation of ORA-123, 221-222 (Bonita Mesa Canyon), 1987.

Sanchez-Talarico, Inc. Excavation of ORA-3 in north Laguna Beach, 1987.

LSA Associates, Inc. Survey and test excavation of ORA-64 in upper Newport Bay, 1986.

URS Corp. Survey, excavation, grading observation, mapping, photography, and monitoring of the twenty mile Union 76 pipeline project (platform Irene) in Lompoc/Vandenberg, 1986.

U.S. Forest Service, Idyllwild Ranger Station. U.S. Forest Service Reconnaissance Report Archaeologist for a 790 acre project within the Pinyon Flats area, 1986.

LSA Associates, Inc. Survey and test excavation of RIV-1970-1974, 1986.

Statistical Research Inc. Test excavation of RIV-269 (Mission Creek), 1986.

Westec Services, Inc. Assisted with phosphate analysis of a late prehistoric site near Escondido, California, 1986.

Westec Services, Inc. Survey and excavation of W-182, Carlsbad, 1985.

Henry Koerper. Laboratory identification of shellfish remains on Batiquitos Lagoon, Carlsbad, 1985.

Westec Services, Inc. Excavation of burial site ORA-287 (Fluor) in Irvine. Included discovery and excavation of the first burial associated basketry discovered in Orange County since the 1930s, 1985.

Post-graduate studies, UCLA. Field excavation and laboratory analysis of SCLI-119 (Big Dog Cave), SCLI-1178 and SCLI-1215 on San Clemente Island, 1985.

SRS Inc. Topographical mapping, excavation and grading monitoring of the Encino village burial grounds, LAN-43, 1984.

ARF Inc. Survey, topographical mapping, grading observation, excavation, photography and illustration of several sites, including ORA-504, 632, 635-640, 746-750, 789, 1053, in Rancho San Clemente, 1984.

Archaeological Advisory Group. Final of Prado Flood Control Basin surveys, topographical mapping and excavations, 1984.

Archaeological Associates. Excavation of LAN-59, 1983.

UCLA. Survey, recording and test excavation of several sites, including KER-1, 4 and 11 in Kern County, 1983.

LSA Associates, Inc. Excavation of several Newport Bay shell middens, 1983.

U.S. Army Corps of Engineers. Field survey, topographical mapping with transit, map production and excavation of the Prado Flood Control Basin extension for the US Army Corps of Engineers, 1983.

CSU, Long Beach. Transit mapping of ORA-125, 1983.

Early Man Site. Research and excavation of Calico Hills Early Man Site, Yermo, 1973.

PUBLICATIONS

The Use of Fired Clay Daub from CA-ORA-269 in the Identification of Prehistoric Dwelling Construction Methods. In Press *Proceedings of the Society for California Archaeology.* Volume 18, 2005.

A Galena Manuport from an Orange County Rock Art Site. Henry Koerperand, Ivan H. Strudwick. In Press *Pacific Coast Archaeological Society Quarterly.* 2005.

The Multi-functional Pitted Stones of Coastal California and Their Use in Marine Shell Processing. *Proceedings of the Society for California Archaeology* 8:147-166, 1995.

The Bulrush Canyon Project: Excavations at Bulrush Canyon Site (SCal-137) and Camp Cactus Road Site, Santa Catalina Island. *Pacific Coast Archaeological Society Quarterly* 24(2-3):1-120, 1988. (Co-author with E. J. Rosenthal, S. L. Williams, M. Roeder and W. Bonner).

The Cultural Assemblage from the PCAS Crystal Cove Project. *Pacific Coast Archaeological Society Quarterly* 23(4):7-29, 1987. (Co-author with A. Schroth and R. Cerreto).

Comments on a Shell Artifact and Worked Shell Pieces from CA-SLO-187, San Simeon State Beach. Appendix F in The Prehistory of San Simeon Creek by Philip Hines. Department of Parks and Recreation, June, 1986, pp. 140-145.

The Single-piece Circular Fishhook: Classification and Chronology. *Pacific Coast Archaeological Society Quarterly* 21(2):32-69, 1985.

Shell Fishhooks and the Archaeology of Coastal California. *Informant.* Newsletter of the CSULB Anthropology Club, spring, 1983.

PAPERS PRESENTED

The Use of Fired Clay Daub from CA-ORA-269 in the Identification of Prehistoric Dwelling Construction Methods. Presented at the Society for California Archaeology Annual Meetings, Riverside, March 19, 2004 and at The Meeting of the Southern California Academy of Sciences, California State University, Long Beach, May 15, 2004.

CA-ORA-269: A Rockshelter Habitation in the San Joaquin Hills of Coastal Southern California. Presented at the Society for California Archaeology Annual Meetings, Riverside, March 19, 2004 and at The Monthly Meeting of the Pacific Coast Archaeological Society, Irvine, October 14, 2004.

Radiocarbon Dates from the Crystal Cove and Newport Bay Areas. Presented at the Society for California Archaeology Data Sharing Meetings, Santa Barbara, California, October 1998.

Marine Shell Procurement Strategies Characteristic of the MCB Camp Pendleton Coast, Northern San Diego County, California. Presented at the Society for California Archaeology Annual Meetings, San Diego, 1998.

Prehistoric and Early Historic Occupation of *Topamai* CA-SDI-10156/12599/H, the Santa Margarita Ranch House. Presented at the Society for California Archaeology Annual Meetings, Bakersfield, 1996.

The Multi-functional Pitted Stones of Coastal California and Their Use in Marine Shell Processing. Presented at the Society for California Archaeology Annual Meetings, Ventura, California, 1994. Chairman, symposium for southern coastal California.

Reassessing the Temporal Placement of the Southern California Single-piece Fishhook. Presented at the Society of California Archaeology Annual Meetings, San Diego, California, 1985.

Three Late Prehistoric Time Markers for Coastal California. Presented at the Society for California Archaeology Annual Meetings, Salinas, California, 1984.

Some Notes on the Single-piece Shell Fishhook of Central and Southern California. Presented at the Southwestern Anthropological Association Meetings, San Diego, California, 1983.

The Relation of Prestige and Age in Hopi and Balinese Societies During the First Half of the Twentieth Century. Presented at the Southwestern Anthropological Association Meetings, Sacramento, California, and to the Anthropology Club of CSULB in April, 1982.

PROFESSIONAL CERTIFICATIONS

Orange, San Diego, and Santa Barbara County Certified Archaeologist

SCOTT M. PLETKA

SENIOR CULTURAL RESOURCE MANAGER/ARCHAEOLOGIST

EXPERTISE

California Archaeology
Complex Hunter-Gatherer Archaeology
Evolutionary Theory
Mathematical Modeling
Lithic Analysis
Faunal Analysis

EDUCATION

University of California, Los Angeles, Ph.D., Anthropology, 2001.

University of California, Los Angeles, M.A., Anthropology, 1996.

University of Michigan, B.A., Anthropology, with highest distinction and highest honors, 1993.

ACCREDITATION

Register of Professional Archaeologists (RPA)

RECENT PROFESSIONAL EXPERIENCE

Senior Cultural Resource Manager/Archaeologist, LSA Associates, Inc., August 2002–present.

Lecturer, University of California, Los Angeles, 2001–2003.

Instructor, East Los Angeles College, 1999–2002.

Research Assistant; Thy Archaeological Project, University of California, Los Angeles and Thisted Museum, Denmark, 1997.

Research Assistant; Thy Archaeological Project, University of California, Los Angeles and Thisted Museum, Denmark, 1996.

Research Assistant, Archaeological Field School; University of California, Los Angeles, 1996.

Research Assistant, Archaeological Field School; University of California, Los Angeles, 1995.

PROFESSIONAL RESPONSIBILITIES

Dr. Pletka handles all phases of cultural resources compliance work, serving both public and private clients. His responsibilities include proposal preparation, project management, supervision of field and laboratory staff, laboratory and statistical analyses, and report writing. Dr. Pletka has special expertise in lithic analysis and faunal analysis, particularly the study of fish bones.

SELECTED RESEARCH PUBLICATIONS AND PRESENTED PAPERS

n.d. Cultural Transmission Processes and Change in Bead Types on Santa Cruz Island. In *Foundations of Chumash Cultural Complexity*, edited by J. E. Arnold. Cotsen Institute of Archaeology Press, Los Angeles. In press.

2004a Evaluating Hunter-Gatherer Mobility in Coastal Southern California: Models and Minimum Analytical Nodules. Paper presented at the Society for American Archaeology Annual Meetings, Montreal.

2004b Evaluating Mobility in the Muddy Canyon Archaeological District, Orange County, California through Lithic Analysis. Paper presented at the Society for California Archaeology Annual Meetings, Riverside.

2002 Cultural Transmission and Change in Olivella Shell Bead Frequencies on Santa Cruz Island, California. Paper presented at the Society for American Archaeology Annual Meetings, Denver.

2001a The Economics of Island Chumash Fishing Practices. In *The Origins of a Pacific Coast Chiefdom*, edited by J. E. Arnold, pp. 221-244. University of Utah Press, Salt Lake City.

2001b Bifaces and the Institutionalization of Exchange Relationships in the Chumash Sphere. In *The Origins of a Pacific Coast Chiefdom*, edited by J. E. Arnold, pp. 133-150. University of Utah Press, Salt Lake City.

2001c Warfare and the Evolution of Monuments in Prehistoric Denmark. Paper presented at the Society for American Archaeology Annual Meetings, New Orleans.

2000a The Function and Evolution of Monuments in Neolithic and Bronze Age Denmark. Paper presented at the Society of American Archaeology Annual Meetings, Philadelphia.

2000b Ditched Enclosures and Neolithic Settlements in Denmark. Paper presented at the Society for American Archaeology Annual Meetings, Philadelphia (with Nicole Wallock).

1999 Site and Off-site: Good Data and Bad Data, Plow Zone and Shovel Testing. Paper presented at the Society for American Archaeology Annual Meetings, Chicago (with John Steinberg).

1997 Contexts of Cultural Change in Insular California. *American Antiquity* 62: 300-318. (with Jeanne E. Arnold and Roger H. Colten).

SELECTED TECHNICAL REPORTS

2004a Archaeological Reconnaisance and Test Level Investigations; Planning Area 1, Irvine, California. Submitted to Irvine Community Development Company, Newport Beach, California (with William A. Sawyer and Steven W. Conkling).

2004b Cultural Resources Survey, Testing, and Evaluation; Blossom Valley Area Middle School; San Diego County, California. Submitted to Cajon Valley Union School District, El Cajon, California (with William Sawyer and Shannon Younger).

2003a Archaeological Survey Report, Willow Road/US Route 101 Interchange Project, Community of Nipomo, County of San Luis Obispo, California. Submitted to Department of Public Works, County of San Luis Obispo and Special Funded Projects, California Department of Transportation (with Nicole Pletka)..

2003b Summary of Cultural Resources Identified within the San Diego Creek Special Area Management Plan Permit Area, Specifically Planning Areas 1, 2, 3, 5, 6, 8, and 9; Irvine, California. Submitted to Irvine Community Development Company, Newport Beach, California (with Steven W. Conkling).

2003c Lithics Analysis. In Summary of Archaeological Investigations at CA-ORA-1407B, CA-ORA-1597, and CA-ORA-1614; Muddy Canyon Archaeological District; Planning Area 15; Crystal Cove Phase IV Project; Orange County, California; prepared by William A. Sawyer; pp. 53-64. Submitted to Irvine Community Development Company, Newport Beach, California.

2003d Testing and Evaluation of CA-ORA-1098; Bayview Senior Housing and Park Project; Newport Beach, Orange County, California. Submitted to Newport Housing Partners L.P., Irvine, California.

2003e Historic Setting Report; San Gabriel Basin Water Quality Authority Superfund Site; Los Angeles County, California. Submitted to San Gabriel Basin Water Quality Authority, Covina, California (with Shannon Younger, Steven W. Conkling, and Deborah K. B. McLean).

2002 Historic Property Treatment Plan; CA-ORA-269; Planning Area 27, Irvine, California. Submitted to Irvine Community Development Company, Newport Beach, California (with Ivan H. Strudwick and Steven W. Conkling).

NICOLE M. PLETKA

ARCHAEOLOGIST/SENIOR CULTURAL RESOURCES MANAGER

EXPERTISE

Cultural Resources Management
Archaeological Survey, Monitoring, and Excavation
Telecommunications Compliance
Geographic Information Systems and Archaeology

EDUCATION

California State University at Long Beach, M.A., Anthropology, in progress.

University of California at Los Angeles, B.A., Anthropology, Los Angeles, California, 1998.

University of California at Davis, Studies Abroad Program, Nice, France, 1995.

PROFESSIONAL EXPERIENCE

Archaeologist/Senior Cultural Resource Manager, LSA Associates, Inc., July 2000–present.

Field Archaeologist, Statistical Research, Inc., October 1999–July 2000.

Volunteer, George C. Page Museum, Rancho La Brea, 1998.

Research Assistant, Thy Archaeological Project, University of California, Los Angeles and Thisted Museum, Denmark, 1997–1998.

University of California at Los Angeles, Field School, Santa Cruz Island, California, 1996.

PROFESSIONAL RESPONSIBILITIES

At LSA Associates, Inc., Ms. Pletka is responsible for writing cultural resource assessment reports to meet the guidelines of the California Environmental Quality Act, Section 106 of the National Historic Preservation Act, and/or Caltrans regulations as stated in Volume II of the Environmental Handbook. In addition, Ms. Pletka regularly initiates consultation with the Office of Historic Preservation, conducts Native American consultation, conducts record searches, completes pedestrian field surveys, monitors construction, and excavates archaeological sites. Ms. Pletka has worked on surveys and excavations of both prehistoric and historic archaeological sites. Ms. Pletka has also worked closely with architectural historians to develop the ability to document, characterize, and evaluate historic buildings and structures.

Ms. Pletka has worked on over 500 proposed telecommunications facilities and has considerable previous experience in the application of Nationwide Programmatic Agreement for the Collocation of Wireless Antennas. Some of the facilities Ms. Pletka has been involved with have been located on or adjacent to previously recorded archaeological sites. Other proposed facilities have been located on historic buildings or in historic districts.

For the last year, Ms. Pletka has been working closely with LSA's Geographic Information Systems (GIS) group. She conducts regional analyses of archaeological site locations as well as cultural resource sensitivity maps. These maps can be used to synthesize information such as the location of past surveys and previously recorded resources. Other GIS analyses conducted by Ms. Pletka include:

- Interpolation of phosphate test results to determine areas likely to contain sites, but heavily obscured by vegetation
- Nearest neighbor analyses of archaeological site location to determine how sites are situated with regard to one another and gain insight into resource procurement strategies
- Utilization of slope data to assess whether sites are preferentially located upon least-costly routes between one another
- Utilization of a digital elevation model to create site catchement areas that more accurately reflect possible resource procurement areas than the circular catchments typically used by archaeologists

TECHNICAL REPORTS AND PRESENTED PAPERS

Nicole Pletka

2004 Late Period Settlement Patterns in the Newport Coast, Orange County, California: A GIS Based Approach, presented at the 2004 Annual Meeting of the Society for American Archaeology and the 2004 Annual Meeting of the Society for California Archaeology.

2003 Archaeological Survey Report, Willow Road/US Route 101 Interchange Project, Community of Nipomo, County of San Luis Obispo, California (with Scott Pletka).

2003 A Nearest Neighbor Analysis of Newport Coast Archaeological Sites, Orange County, California, poster presented at the 2003 Annual Meeting of the Society for California Archaeology.

2003 Cultural Resources Assessment for AT&T Wireless Services Facility 13078B, Orange County, California.

2002 Cultural Resources Assessment for AT&T Wireless Services Facility C951.2, Los Angeles County, California.

2002 Historic Properties Survey Report for the Orange County Gateway Project, Orange County, California (with Steve Conkling and Jay Michalsky).

Nicole Wallock

2001 Revised Results of the Cultural Resource Site File Check and Field Survey, Pacific Bell Wireless, Facility No. LV 125-03, Mohave County, Arizona (with Curt Duke).

2000 Result of Archaeological Salvage and Monitoring Activities for Planning Area 22, Tract 15585, in the Newport Ridge area, Orange County, California (with Antonina Delu).

2000 Draft Supplemental Cultural Resource Assessment for the CenterLine Rail Transit Project, Orange County, California (with Philippe Lapin, and Steve Conkling).

2000 Ditched Enclosures and Neolithic Settlements in Denmark, presented at the 2000 Annual Meeting of the Society for American Archaeology (with Scott Pletka).

1998 Settlement Patterns in San Nicholas Island, California: A Geographic Information System Analysis, presented at the Santa Clara Undergraduate Research Conference.

ARCHAEOLOGICAL AND PALEONTOLOGICAL FIELD EXPERIENCE

The primary focus of Ms. Pletka's work at LSA includes conducting compliance work for the installation of wireless communications antennas. Several other projects Ms. Pletka has been involved in include the following:

- Pedestrian Survey and Native American consultation for Willow Road/US Route 101 Interchange Project
- Pedestrian Survey and Phosphate Testing for Planning Areas 18 and 39, Orange County
- Pedestrian Survey and recordation of several historic buildings for the Greenwald Avenue Realignment, Riverside County
- Records search, survey, and Native American consultation for the Van Buren Bridge Replacement project, Riverside County
- Pedestrian Survey and recordation of several archaeological sites and historic buildings for the CETAP/RCIP Transportation Corridor, Riverside County
- Monitoring of the Level (3) Fiber Optics Cable Installation, Santa Barbara County
- Testing and excavation of the Muddy Canyon Archaeological District, Orange County
- Pedestrian Survey and recordation of several historic buildings for the Orange County Centerline Rail Transit project, Orange County
- Archaeological salvage and monitoring activities for Planning Area 22, Tract 15585, in the Newport Ridge area, Orange County

AWARDS AND HONORS

Entered Golden Key National Honor Society, 1998.
Awarded President's Undergraduate Fellowship, 1997.
Awarded Delta Gamma House Corporation Scholarship, 1996 and 1997.
Entered Alpha Lambda Delta Honor Society, 1994.
Entered Phi Eta Sigma Honor Society, 1994.

PROFESSIONAL MEMBERSHIPS/AFFILIATIONS

Society for American Archaeology
Society for California Archaeology