A PHASE I ARCHAEOLOGICAL SURVEY AND PHASE II CULTURAL RESOURCES EVALUATION FOR THE HAWANO PROJECT

SAN DIEGO COUNTY, CALIFORNIA

TM 5566; Environmental Log No. 93-19-00600; APN: 648-070-17

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List of Abbreviations

AMSL	above mean sea level
APN(s)	Assessor's Parcel Number(s)
BFSA	Brian F. Smith and Associates
CEQA	California Environmental Quality Act
FGM	fine-grained metavolcanic
LPW	lithic production waste
MGM	medium-grained metavolcanic
NAHC	Native American Heritage Commission
OHP	(State) Office of Historic Preservation
SCIC	South Coastal Information Center
SDSU	San Diego State University
SHPO	State Historic Preservation Officer
SS	Surface scrape
STP	Shovel test pit
TU	Test unit
USGS	United States Geological Survey
YBP	years before present

EXECUTIVE SUMMARY

The following report describes a cultural resources study conducted by Brian F. Smith and Associates (BFSA) for the Hawano Project, situated north of the international border and east of the road termini for Airway Road, Enrico Fermi Place and Siempre Viva Road in East Otay Mesa, within an unincorporated section of San Diego County. The project, as proposed by the applicant, will consist of subdividing the project into 23 industrial lots and one detention basin on 80 acres of land and will include a road network and off-site road and utility improvements. The archaeological study conducted in May 2010 included an archaeological Phase I survey and records search and Phase II testing and significance program for four cultural resource sites within the Hawano Project boundary.

Archaeological records searches were conducted at the South Coastal Information Center (SCIC) at San Diego State University (SDSU) and the San Diego Museum of Man (MOM) in Balboa Park. The searches indicated that four cultural resources are recorded within the project boundary (SDI-8081, SDI-12,256, SDI-12,887 and SDI-12,888). In addition, 73 cultural resources (54 sites and 19 isolates) have been recorded within a one-mile radius of the project. Sites SDI-8081, SDI-12,256 and SDI-12,887 are recorded as lithic scatters, and the SCIC does not have any information for Site SDI-12,888. Four previous studies overlap the current project boundary (Carrico 1974; TMI 1990; Rosenberg and Smith 2009).

In addition to the archaeological records searches, BFSA requested a review of the Sacred Lands File from the Native American Heritage Commission (NAHC). The NAHC indicated that no known sacred sites are present within the project area. In accordance with San Diego County guidelines, a representative of local Native American groups was present during the fieldwork. A representative of the Kumeyaay Nation, Clinton Linton, participated in the fieldwork program.

The archaeological survey of the proposed project area was conducted on May 17, 2010 by field archaeologists Clarence Hoff, Richard Savitch, Matthew Smith, and Charles Callahan under the direction of Brian F. Smith, Principal Investigator. The survey resulted in the relocation of the four previously recorded cultural resources. The relocated sites include SDI-8081, SDI-12,256, SDI-12,887, and SDI-12,888. Sites SDI-8081, SDI-12,256, and SDI-12,887 are sparse lithic scatters, although a small shell and lithic midden deposit was identified within SDI-8081. Site SDI-12,888 is a historic artifact scatter that is associated with a larger historic site (SDI-11,799) located within 200 feet to the east (off-site). No previously unrecorded sites were discovered during the field survey.

As part of the County-mandated cultural resources guideline requirements, a testing program was implemented to determine whether any of the recorded resources were significant according to San Diego County and CEQA criteria. The testing program took place between May 24 and May 30, 2010 and included field archaeologists Clarence Hoff, Richard Savitch,

Matthew Smith, and Charles Callahan under the direction of Brian F. Smith, Principal Investigator. The site studies are summarized below:

- SDI-8081: A portion of Site SDI-8081 was previously tested by BFSA for the Otay Business Park Project. The data recovered from that study was combined with the current data for the site significance evaluation. In total, fieldwork included five surface scrapes and the excavation of 52 shovel test pits and two standard one-meter-square test units. The analysis of the prehistoric cultural materials recovered from Site SDI-8081 revealed a significant cultural deposit extending to a depth of 60 centimeters. The midden deposit was calculated to include approximately 889 square meters. The recovered lithic artifacts indicate that site activities were focused on the procurement, processing, and maintenance of lithic tools. The depth and density of recovered ecofacts indicate that shellfish resources were processed and consumed at the site, and represent prolonged occupation. The portion of Site SDI-8081 associated with the shell midden exhibits the potential for subsurface deposits and/or buried cultural features. Since the testing and evaluation program identified an intact subsurface deposit containing artifacts and ecofacts, the site has yielded information and is considered to have additional research potential. Based on the information derived from the current testing program, this portion (the midden deposit only) of Site SDI-8081 is considered an important resource according to County criteria.

- SDI-12,256: Testing of Site SDI-12,256 included the excavation of 14 shovel test pits and two standard test units. The analysis of cultural materials recovered from Site SDI-12,256 revealed a sparse surface scatter of lithic materials. The lack of subsurface deposits and sparse surface artifacts at the site confirms that the resource has no potential for buried cultural features and no additional research potential. However, the site did yield information during the current testing program. Therefore, according to County criteria, Site SDI-12,256 is considered as a resource of limited significance; however, the site does not retain any further research potential.

- SDI-12,887: For Site SDI-12,887, testing included the excavation of ten shovel test pits and one standard test unit. Analysis of the prehistoric cultural material recovered from, or reported from previous studies at, Site SDI-12,887 revealed that the site has minimal depth (within the plow zone). Recovered lithic artifacts indicate that site activities were focused on resource exploitation. Site SDI-12,887 is unlikely to produce buried cultural features and, therefore, lacks additional research potential. However, the site did yield information during the testing program. Therefore, Site

SDI-12,887 is considered to possess limited significance; however, the site does not retain any further research potential.

- SDI-12,888: Testing of Site SDI-12,888 included ten surface scrapes and the excavation of ten shovel test pits and two standard test units. The area corresponding to the previously recorded location of Site SDI-12,888 exhibits minimal surface artifacts and a shallow subsurface cultural deposit. No features or concentrations of buried cultural materials were noted, and the materials recovered are within the plow zone. Based upon information from the investigations of the adjacent Otay Business Park Project, the source for the historic artifacts is likely the historic homestead at SDI-11,799, which is directly adjacent to and northeast of SDI-12,888. Based on the testing performed within the recorded boundary of SDI-12,888, the sparse subsurface artifact deposit is evaluated as having limited significance, but no further research potential. No features or concentrations of historic materials were discovered, and the detection of buried materials is likely a result of repeated plowing of the fields. The artifacts also indicated a mix of both historic and modern items, which can be associated with the active use of the dirt roads in the area for off-road activities, frequent passage of foot traffic, dumping of debris, and construction activities.

Site SDI-8081 contains a significant deposit that corresponds to the site significance criteria provided in CEQA and County guidelines. The site is not RPO significant, as the midden deposit has been disturbed by several decades of plowing and loss of integrity; however, the site does retain research potential, which qualifies it as a CEQA-significant site. Mitigation of project impacts for SDI-8081 will be achieved through completion of a data recovery program, curation of artifacts, and a grading monitoring program consisting of a Native American monitor and County approved consultant. Sites SDI-12,256, 12,887, and 12,888 will be mitigated through curation of artifacts and grading monitoring. Monitoring of grading will ensure that any deposits associated with these sites are discovered during grading, and are subsequently evaluated and recorded.

Because of the dense ground cover within the project area and the potential for buried deposits and/or features, all brushing and grading that affect areas in the upper five-feet of soil within the Hawano Project area and off-site improvements shall be monitored by an archaeologist and a Native American monitor. Any known resources that are graded must be intensively monitored during grading to ensure that any important features, isolates, or deposits are either recorded and collected, or excavated. Should any resources be encountered during the monitoring of brushing and grading and not previously recorded, the action will be temporarily halted or redirected to another area while the nature of the discovery is evaluated. Any resources that may be encountered will require testing to determine their significance. If the testing demonstrates that a resource is significant, then a data recovery program will be necessary.

1.0 INTRODUCTION

Brian F. Smith and Associates (BFSA) conducted an archaeological Phase I survey and records search and a Phase II testing and significance program for the Hawano Project located in the East Otay Mesa Specific Plan area in San Diego County, California. The applicant for this project is Paragon Management Company, LLC. As part of the preparation of environmental review documents required by San Diego County, a cultural resources assessment was prepared to document the extent of cultural sites within the project area and evaluate the potential impacts to cultural resources associated with the planned development. The scope of work for this project included records searches, a field survey, and a testing and evaluation program for three prehistoric sites and one historic site. The Hawano Project archaeological study was conducted according to regulations set forth by CEQA, Section 15064.5, San Diego County Resource Protection Ordinance (RPO), and San Diego County's *Draft CEQA Process Guidance for Cultural Resources, Land Use and Environment Group* (revised July 27, 2006). In addition to the cultural resource guidelines listed above, the Phase II testing program was designed to determine significance according to *County of San Diego, Guidelines for Determining Significance, Cultural Resources: Archaeological and Historic Resources* (December 5, 2007).

1.1 Project Description

The project site (Assessor's Parcel Number [APN] 648-070-17) is located north of the international border and east of the road termini for Airway Road, Enrico Fermi Place and Siempre Viva Road in East Otay Mesa, within an unincorporated section of San Diego County (Figure 1.0-1). Specifically, the project is located on the *Otay Mesa, California* USGS 7.5-minute topographic quadrangle in the southwest 1/4 of Section 31, Township 18 South, Range 1 East (Figure 1.0-2). The total project area consists of 80 acres; two acres of off-site improvements will occur to the west. The project, as proposed, by the applicant, will consist of subdividing the project into 23 industrial lots and one detention basin on 80 acres of land and will include a road network improvement and off-site road and utility improvements. (Figure 1.0-3). The entire property will be impacted by development. Currently, the project is characterized as disturbed agricultural grassland with various dirt roads and trails used by United States Border Patrol and off-road enthusiasts, pedestrian traffic, and previous agricultural activities.

According to San Diego County cultural resource guidelines, local Native American groups designated by the Native American Heritage Commission (NAHC) must be consulted during the course of the project. A representative of the Kumeyaay Nation, Clinton Linton, participated in the fieldwork program.

All aspects of the project were directed by Consulting Archaeologist and Principal Investigator Brian F. Smith who prepared the text of this report and conducted the field

survey and testing program with assistance from Field Archaeologists Clarence Hoff, Charles Callahan, Matthew Smith, Richard Savitch, and Native American representative Clinton Linton. Artifact analysis was conducted by Tracy A. Stropes. Graphics were provided by Adrián Moreno. Report editing and production were conducted by Karen E. Doose, Alexandra Bornhoft, and Leigh Kulbacki.

Figure 1.0–1

General Location Map

The Hawano Project

USGS *San Diego* (1:250,000 series)

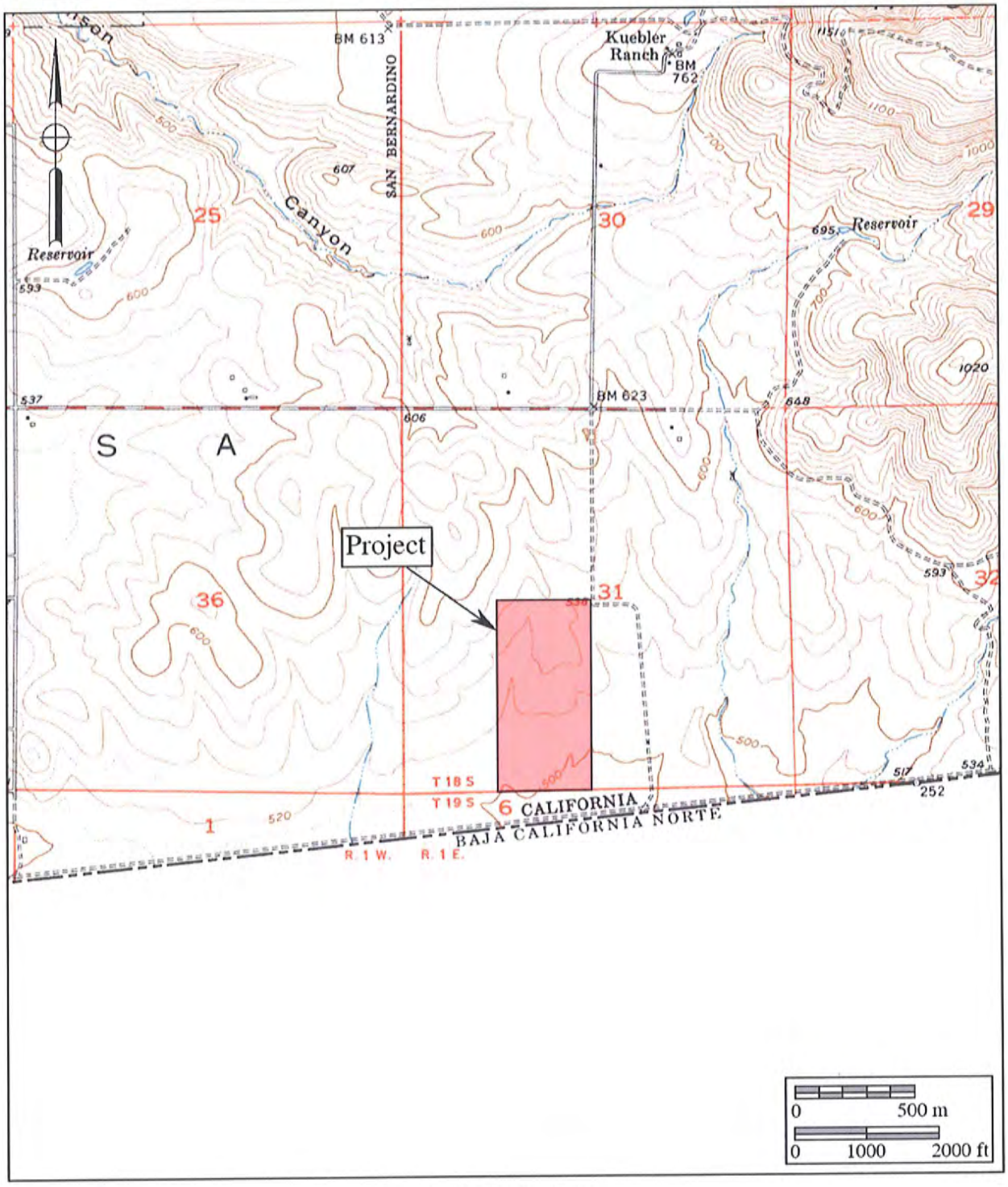


Figure 1.0–2

Project Location Map

The Hawano Project

USGS *Otay Mesa* Quadrangle (7.5 minute series)

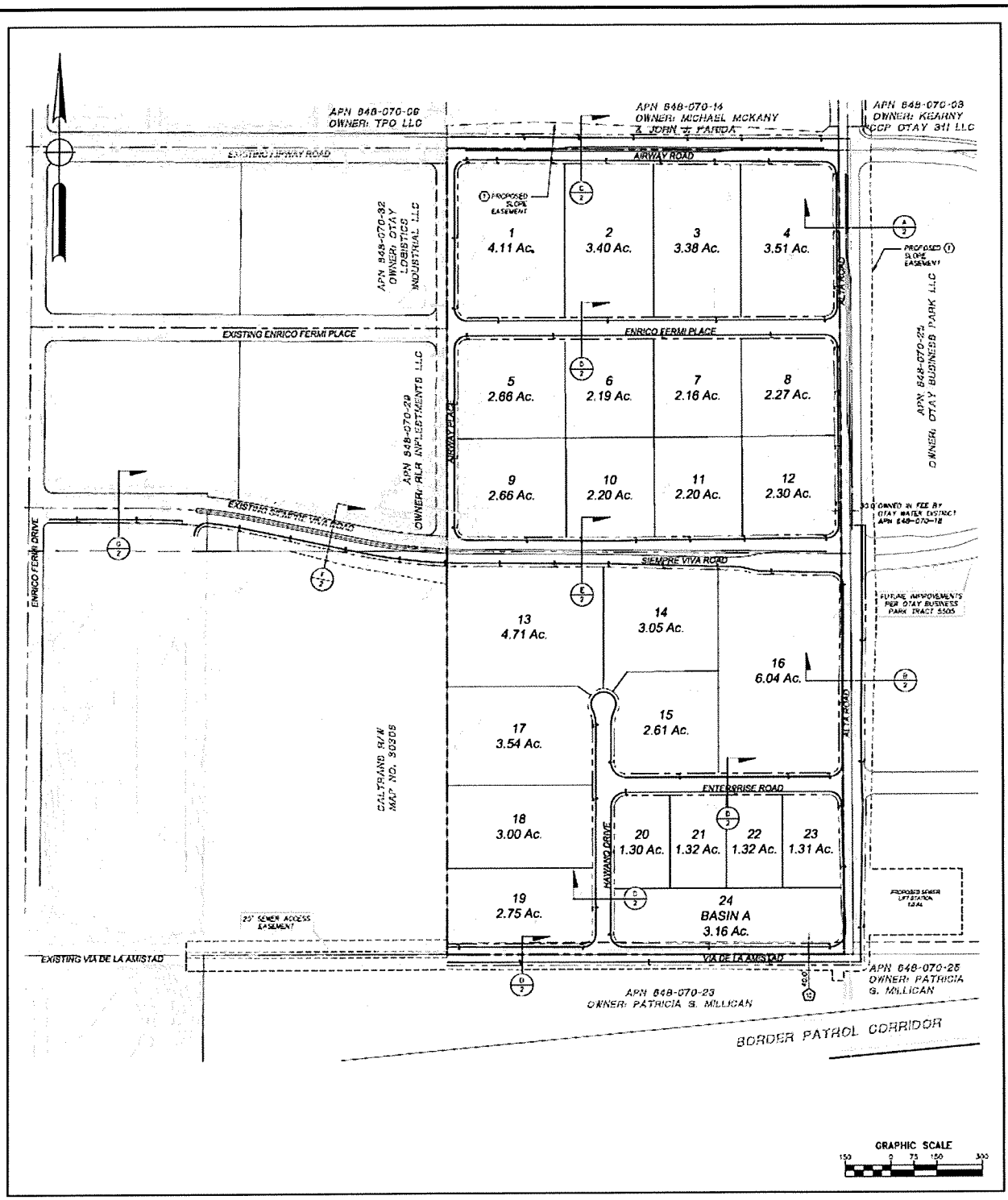


Figure 1.0–3

Project Development Map

The Hawano Project

1.2 Existing Conditions

1.2.1 Environmental Setting

Natural Setting

The Hawano Project is located on a series of low-lying hills on Otay Mesa, just west of the San Ysidro Mountains in San Diego County (Plates 3.1–1 and 3.1–2). The topography within the project area is dominated by rolling hills, crossed by several seasonal drainages. Elevations within the project area range from approximately 480 feet above mean sea level (AMSL) within a drainage located at the international border in the southeast portion of the project area, to approximately 560 feet AMSL along the central northern border of the project area.

The project is located in a transitional region between the generally level Otay Mesa and the rolling hills and gentle slopes at the base of the San Ysidro Mountains to the north and east. This geologic area consists of a series of knolls and mesas that are interrupted by small canyons and drainages located in the Coastal Plains Physiographic Province. Much of this area is composed of Pleistocene and Upper Pliocene marine deposits, currently known as the Lindavista, Sweitzer, and San Diego Formations (Biehler 1979). The San Diego Formation is composed of gray friable sandstone and conglomerate. The Lindavista and Sweitzer formations mantle the majority of the mesa tops. These formations consist of near-shore marine and non-marine sediments deposited on a wave-cut terrace, following the deposition of the San Diego Formation. The Lindavista Formation is composed of moderate, reddish-brown, interbedded sandstone and conglomerate, and the Sweitzer Formation is composed of brown, reddish-brown, and red, poorly sorted sandstone and conglomerate. The Otay River Valley, the major canyon bisecting Otay Mesa from east to west, is composed of Quaternary, non-marine terrace deposits and recent alluvium derived from rocks in the area. The juncture of the coastal plain and foothill provinces to the east is composed of Plio-Pleistocene, non-marine deposits typically consisting of angular metavolcanic detritus. The hills to the north and east of the project area are composed of Jurassic volcanics, a collection of mildly metamorphosed volcanic and volcanoclastic rock formations, characterized by the Black Mountain or Santiago Peak Volcanics (Biehler 1979). Santiago Peak Volcanics are represented throughout this area of San Diego County by outcrops of basalt and fine-grained, green metavolcanics known locally as felsite.

The project area also includes a variety of soils. The lower elevations consist of alluvial clays and sands indicative of a flood plain. The soil in the upper elevations consists of clay mixed with pockets of bentonite and/or cobbles, primarily composed of granite, basalt, and quartzite. These lithic materials, generally hard and extremely resistant to erosion, were preferred by the prehistoric inhabitants of the San Diego region for the manufacture of flaked tools and grinding implements (Smith 1991; Robbins-Wade 1990).

Plate 1.2–1, Overview of project area showing general topography and vegetation, facing northeast.

Plate 1.2–2, Overview of project area showing general topography and vegetation, facing southeast.

The biological setting of the project area is dominated by an agricultural vegetative community consisting primarily of introduced grasses, with scant areas of native coastal sage scrub adjacent to drainages. These communities are dependent on the amount of precipitation that the area receives. The amount of seasonal precipitation is related to the major landforms that exist throughout the County. Coastal mesas, such as Otay Mesa, receive an average of between 12 and 16 inches (30 to 40 centimeters) of rainfall annually, mostly between October and May (Beauchamp 1986). The project area also exhibits generally mild temperatures; however, several instances of winter frost, as well as some weeks in the summer with temperatures reaching 100° Fahrenheit, are recorded annually. These environments tend to support a wide variety of wildlife, particularly birds and small mammals (Beauchamp 1986).

The entire project area has been used for farming and grazing during the past, although currently the property is vacant. The previous plowing and cattle grazing ushered in introduced grasses and weeds that contributed to the generally poor surface visibility encountered during the investigation of the project area.

Cultural Setting

Archaeological investigations in San Diego County have documented a diverse and rich record of human occupation spanning the past 10,000 years. Likewise, the history of archaeological research in San Diego County and southern California since the 1920s is as diverse and rich as the number of archaeological investigations conducted by scholars with different research designs and mental constructs. These investigations have provided an overwhelming body of knowledge concerning the prehistory of San Diego County and southern California. Researchers have continuously built on this body of knowledge and have offered more than a dozen cultural sequences based on characteristics observed in the archaeological record. Typically, scholars have separated prehistory into three general sequences and have used the terms complex, period, stage, tradition, and horizon to define each sequence. The terms used to describe these sequences generally fall into three categories: those used to describe a culture with a specific toolkit (e.g., San Dieguito, La Jolla), geographical (e.g., La Jolla, Pauma), and/or temporal (e.g., Archaic, Late Prehistoric). These terms are often used interchangeably to describe a particular artifact assemblage or site.

The first generally accepted culture chronology for San Diego County was developed by Malcolm Rogers (1939, 1945). Rogers (1939, 1945) divided San Diego prehistory into three complexes or cultures, which he called (in temporal order from earliest to latest) San Dieguito, La Jolla, and Yuman. Subsequent researchers have modified Rogers' original sequence by further subdividing the cultures (e.g., La Jolla I, La Jolla II, and La Jolla III) (Moriarty et al. 1959), renaming the cultures based on geographical distinctions (e.g., La Jolla vs. Pauma) (Meighan 1954; True 1966), and/or by collapsing the cultures into cultural temporal periods (e.g., Early Period [Archaic], Late Period) (Gallegos 2002). Most of the early (i.e., pre-1960) cultural sequences were developed prior to the development and use of radiocarbon dating, and

were based on similar comparisons with artifact assemblages in other geographical regions with relative and/or absolute dates. While a number of different cultural sequences have been put forth in the past 60 years, including many based on radiocarbon sequences, there still does not appear to be a consensus in the culture chronology for San Diego County.

Today, most researchers collapse San Diego prehistory into three general periods - PaleoIndian, Archaic, and Late Prehistoric (Masters and Gallegos 1997; Reddy 2000) - and use the terms San Dieguito, La Jolla, Pauma, Encinitas Tradition, Millingstone Horizon, Yuman, Shoshonean, Diegueño, Cuyamaca Complex, and San Luis Rey Complex interchangeably in describing these periods. For example, PaleoIndian is frequently used interchangeably with San Dieguito, and Archaic is alternated with La Jolla or Pauma. The situation is further confused by the realization that as more and more information is gathered about San Diego prehistory, the more the characteristics distinguishing San Dieguito, Pauma, La Jolla, and Yuman become blurred. In fact, archaeological sites in San Diego County often contain evidence of use throughout prehistory, and repeatedly this information is located in poorly stratified and mixed subsurface deposits. These types of difficulties preclude making distinctions between specific complexes that are based on toolkit or geographical differences. Unlike other areas of California or the southwest, the discovery of archaeological sites with strong stratification sequences undisturbed by bioturbation is extremely rare in San Diego.

The following discussion about the prehistory of San Diego County uses the terms PaleoIndian, Archaic, and Late Prehistoric/Kumeyaay to guide the review of San Diego prehistory with specific reference to the San Dieguito, La Jolla, and Pauma complexes. The discussion will focus on the historical use of these terms; particularly, how scholars have used these terms to differentiate particular periods of prehistory. Absolute chronological information, where possible, will be incorporated into this discussion to examine the effectiveness of continuing to interchangeably use these terms. The Archaic Period represents 7,700 years of prehistory from the Early Holocene to the beginning of the Late Holocene. The Archaic Period is typically broken down into Early, Middle, and Late in order to examine trends that occurred during this period. The Early Archaic Period represents the time from 9,000 to 6,000 years before present (YBP), the Middle Archaic Period signifies the time between 6,000 to 3,000 YBP, and finally, the Late Archaic Period characterizes the period from 3,000 to 1,300 YBP. The Late Prehistoric Period represents the terminus of the Late Holocene between 1,300 YBP to 450 YBP. The end of the Late Prehistoric Period is associated with the arrival of Spanish explorers in 1542 AD, after which the next cultural stage is usually referred to as the Protohistoric Period. Reference will be made to the geological framework that divides the culture chronology of the area into four segments: late Pleistocene (20,000 to 10,000 YBP), early Holocene (10,000 to 6,650 YBP), middle Holocene (6,650 to 3,350 YBP), and late Holocene (3,350 to 200 YBP). The use of the geological framework in describing San Diego prehistory is advantageous over other frameworks, as it allows comparisons to be made with other geographic regions, relies on absolute dating methods, and can be used to examine climatic or environmental changes.

Additionally, for sites where cultural affiliation or complex cannot be determined, a geological framework is useful. Table 3.2–1 provides a summary of the regional chronologies in relationship to the geological framework.

Paleolndian Period (11,500 to circa 9,000 YBP)

The Paleolndian Period is associated with the terminus of the late Pleistocene (12,000 to 10,000 YBP). The environment during the late Pleistocene was cool and moist, which allowed for glaciation in the mountains and the formation of deep, pluvial lakes in the deserts and basinlands (Morrato 1984). At approximately 10,000 YBP, a cool/moist climate was present in San Diego County. This is supported by pine pollen found in deposits at Point Loma and Encinitas and oak pollen identified in deposits from Otay Mesa (Gallegos and Kyle 1988; Kaldenberg 1982; Kyle et al. 1989). However, by the terminus of the late Pleistocene, the climate became warmer, which caused the glaciers to melt, sea levels to rise, greater coastal erosion, large lakes to recede and evaporate, extinction of Pleistocene megafauna, and major vegetation changes (Moratto 1984; Martin 1967, 1973; Fagan 1991). The San Diego shoreline at 10,000 YBP, depending on the particular area of the coast, was near the 30-meter isobath, or two to six kilometers further west than its present location (Masters 1983).

In North America, the Paleolndian Period begins at approximately 11,500 YBP with what is known as the Clovis culture. The Clovis culture is distinctly recognized by large, fluted points, although other artifacts including knives, scrapers, choppers, perforators, and casual flake tools, have been found in Clovis and other late Pleistocene sites (Fagan 1991; Moratto 1984). They are typically thought of as big-game hunters because of the association of fluted points with extinct megafauna such as mammoths, found at kill sites in the Plains and Rocky Mountains. Additionally, during the late Pleistocene, plants do not seem to be important in subsistence because of the lack of ground stone tools and other artifacts typically associated with plant gathering. Clovis sites have not been identified in the project area, although in San Diego County and southern California, isolated Clovis-like fluted points have been found in a variety of settings including passes in the Cuyamaca Mountains and the Tehachapi Mountains, valleys in the Mojave Desert and Owens Valley, and along the shorelines of Little Lake, Searles Lake, Panamint Lake, and ancient Lake Mojave (Davis 1973; Glennan 1971). The recovery of isolated fluted points would suggest that at the end of the Pleistocene small groups of people sharing Clovis-like traits were present in southern California. The recovery of fluted points in a variety of settings would suggest that Paleolndians were likely attracted to the abundant marshlands, estuaries, and lakeshores. Rather than being big-game hunters, these people likely subsisted using a more generalized hunting, gathering, and collecting adaptation and utilizing a variety of resources including birds, mollusks, and both large and small mammals (Erlandson and Colten 1991; Moratto 1984; Moss and Erlandson 1995). The lack of sites with late Pleistocene and/or early Holocene subsurface assemblages in San Diego County greatly hinders the understanding of the Paleolndian Period in San Diego (True and Bouey 1990).

Table 1.2–1

Summary of Prehistoric Culture Chronologies for Southern California*

			Coastal San Diego County		Interior San Diego County Northern	Interior San Diego County Southern	Syntheses		
Year YBP	**Geologic Era**	**Years AD/BC**	**Rogers 1939, 1945**	**Moriarty 1966**	**Meighan 1954**	**True 1958, 1966, 1970**	**Warren 1968**		**Gallegos 2002 Reddy 2000**
Present	Late Holocene	1950	Yuman III Culture		Luiseño	Diegueño	Yuman	Shoshonean	Late Prehistoric/Kumeyaay or Late Period (1,300 AD to present) Other Names: Diegueño/Yuman Cuyamaca Complex San Luis Rey I, II
		1,500	Yuman II Culture		San Luis Rey I San Luis Rey II	Cuyamaca Complex			
1,000		1,000	Yuman I Culture		Shoshonean Intrusion		Encinitas Tradition		Archaic or Early Period
2,000		500 AD 0 BC 500			Transition or Hiatus?				
3,000		1,000 1,500	La Jolla II Culture	La Jolla III	Millingstone Substratum (La Jolla/Pauma Complexes)				Other Names: Pauma Complex Encinitas Tradition La Jolla Complex
4,000	Middle Holocene	2,000 2,500							
5,000		3,000		La Jolla II					San Dieguito
		3,500	La Jolla I Culture						
6,000		4,000 4,500		La Jolla I					
7,000		5,000 5,500	San Dieguito Culture						
8,000	Early Holocene	6,000 6,500			San Dieguito		San Dieguito Tradition		
9,000		7,000 7,500		San Dieguito					PaleoIndian
10,000		8,000							
	Pleistocene	8,500 9,000							

(adapted from Moratto 1984 and Gallegos 2002)

The lack of distinctive Clovis sites has not precluded assumptions about the antiquity of humans in San Diego prehistory; however, some of the earliest archaeological investigations in San Diego County and in southern California were quick to provide evidence of late Pleistocene occupation in California. Human skeletal fragments collected by Rogers between 1920 and 1935 from sites near La Jolla (SDM-W2 and SDM-W4) yielded amino acid dates of roughly 44,000 and 28,000 years, respectively. However, over 40 years later, researchers demonstrated that amino-acid dates differ substantially from those by radiometric techniques (Protsch 1978). In fact, radiocarbon analysis conducted on the skeletal fragments from Site SDM-W2 (La Jolla Shores) yielded early to middle Holocene dates ranging from 7,370 ± 70 to 5,460 ± 100 YBP (Moratto 1984). The Del Mar Man site (W-34) was once thought to be 46,000 years old, but has been more recently dated to 5,400 YBP (Taylor et al. 1985).

George Carter and Herbert Minshall even proposed that people existed in San Diego County as long ago as 80,000 to 100,000 years ago, although these views are unconventional and not widely accepted (Moratto 1984). Carter and Minshall, examining locales in La Jolla Valley, Old Mission, Sweetwater River Valley, Mission Valley, and Texas Street, argued that people were in San Diego County by at least 40,000 years and possibly by 125,000 years ago. They based their claim on several items, including the association of a Pleistocene horse tooth near the La Jolla Valley site, climatic and geomorphologic data, and the perceived similarities between the San Diego cultural materials and artifacts found in Eurasian deposits that dated to the Sangamon Interglacial (80,000 YBP). Several books were written by Carter, including *Earlier than You Think* (1980) and *Pleistocene Man at San Diego* (1957), and Minshall wrote *The Broken Stones: The Case for Early Man in California* (1976). Most researchers dismiss the work of Carter and Minshall, asserting that their artifacts are naturally modified stones and their archaeological sites are natural geological features. Nonetheless, the work by Carter and Minshall contributed to the argument for early occupation of San Diego County by Pleistocene humans.

Archaic Period (circa 9,000 to 1,300 YBP)

The Archaic Period of prehistory begins with the onset of the Holocene around 9,000 YBP. The climate at the beginning of the early Holocene is marked by cool/moist periods and an increase in warm/dry periods and sea levels. The San Diego shoreline at 8,000 YBP, depending on the particular area of the coast, was near the 20-meter isobath, or one to four kilometers further west than its present location (Masters 1983). In Arizona and southern California, the juniper woodlands below approximately 5,300 feet AMSL persisted into the early Holocene, but above approximately 6,000 feet AMSL, conifer forests gave way to modern vegetation types (Van Devender and Spaulding 1979). Several individuals have documented the recession of the once abundant coniferous forests during the early Holocene (Axelrod 1967; Heusser 1978).

The rising sea level during the early Holocene created rocky shorelines and bays along the San Diego Coast by flooding valley floors and eroding the coastline (Curray 1965; Inman

1983). Shorelines were primarily rocky with small littoral cells, as sediments were deposited at bay edges, but rarely discharged into the ocean (Reddy 2000). These bays eventually evolved into lagoons and estuaries, which provided a rich habitat for mollusks and fish. In particular, *Argopecten* and *Chione*, seem to dominate the mollusks gathered by prehistoric people during this time (Gallegos 1992). The warming trend and rising sea levels generally continued until the late Holocene (4,000 to 3,500 YBP).

At the beginning of the late Holocene, sea levels stabilized, rocky shores declined, lagoons filled with sediment, and sandy beaches became established (Gallegos 1985; Inman 1983; Masters 1994; Miller 1966; Warren and Pavesic 1963). Many former lagoons became saltwater marshes surrounded by coastal sage scrub by the late Holocene (Gallegos 2002). The filling of lagoons with sediment and the expansion of sandy beaches generally occurred first in northern San Diego County and then ultimately spread south toward the southern portion of the County. This was in large part due to the greater size of the drainage systems in the northern part of the County (Inman 1983; Masters 1994). The sedimentation of the lagoons is significant in that it had profound effects on the types of resources available to prehistoric peoples. Habitat was lost for certain mollusks, namely *Chione* and *Argopecten*, but habitat was gained for other mollusks, particularly *Donax* (Gallegos 1985; Reddy 2000). The larger mollusks, *Chione* and *Argopecten*, are found in lagoons and estuaries and the smaller mollusk, *Donax*, prefer gentle, sloping beaches. Several researchers have documented the shift in the use from *Chione* and *Argopecten* during the end of the late Holocene by prehistoric occupants (Laylander 1993, 2005). In northern San Diego County, *Donax* has been found in significant quantities in late prehistoric deposits along the coast and inland, whereas in earlier deposits, *Donax* is non-existent or rare (Cardenas and Robbins-Wade 1985; Corum 1991; Hector 1983; Quintero 1987). The decline in larger shellfish, loss of drinking water and Torrey Pine nuts resulted in a major depopulation of the coast as people shifted inland to reliable freshwater sources and intensified their exploitation of terrestrial small game and plants, including acorns (originally proposed by Rogers 1929; Gallegos 2002). San Diego and Mission bays, however, are unique in that they did not experience the infilling of sediment witnessed by smaller lagoons and estuaries to the north because the tidal flushing that occurs there washes sediment into the ocean (Masters 1988). As a result, the coast south of Mission Bay did not witness the same major population decline.

In San Diego County, the Archaic Period is associated with a number of different cultures, complexes, traditions, or horizons including San Dieguito, La Jolla, Pauma, Encinitas, and Millingstone. Archaeologists have differing opinions regarding the age and importance of these different periods of San Diego prehistory. The following summary of the Archaic begins with an examination of the San Dieguito Complex followed by a discussion of the La Jolla and Pauma complexes.

The San Dieguito Complex is probably the least understood cultural manifestation in the region because concise radiocarbon dates on stratigraphically intact, undisturbed San Dieguito deposits, or sites, is lacking. Most San Dieguito sites, or sites with San Dieguito-like artifacts,

are surface assemblages and those with subsurface deposits have usually been disturbed by bioturbation or modern agricultural activities. Some scholars view the San Dieguito as the earliest complex in San Diego prehistory (Warren and True 1961; Warren 1967); whereas other researchers, propose that the San Dieguito Complex represents the inland hunting component of a generalized hunting and gathering culture of the Holocene, and lump it in with the La Jolla and Pauma complexes (Kaldenberg 1982; Norwood and Walker 1980; Gallegos 1991). Some researchers (Bull 1987; Raven-Jennings and Smith 1999) have also proposed that the phases of the San Dieguito (I, II, and II) represent different stages of lithic tool procurement and production, and the presence of hunting-type tools represents use of terrestrial resources inland (Berryman and Berryman 1988; Gallegos 1987).

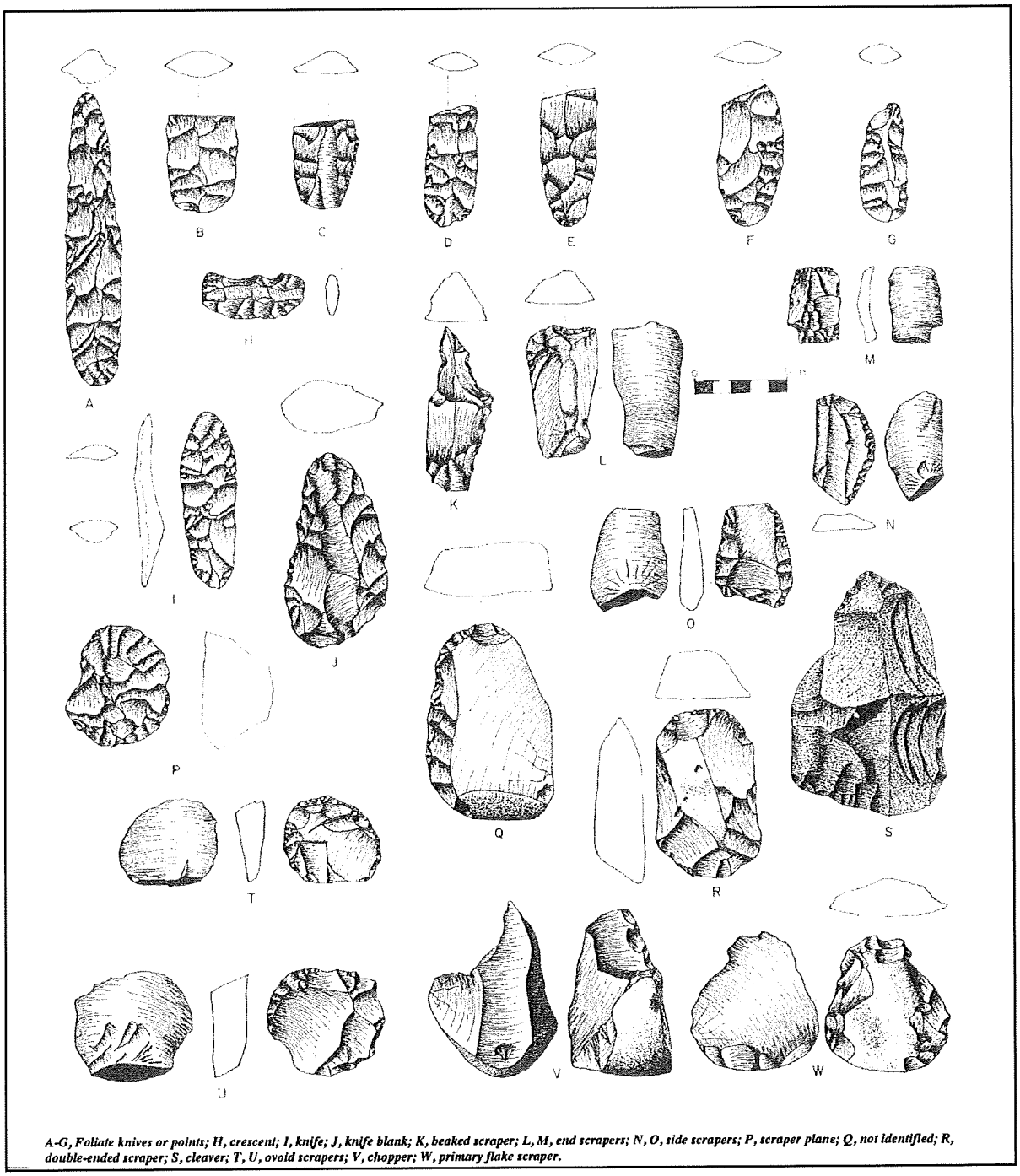
Malcolm Rogers was the first to refer to the earliest artifact assemblages in San Diego County as belonging to the San Dieguito Complex. Beginning in the 1920s, Rogers conducted investigations of archaeological sites located along the San Diego and Baja California coast and surveys of the San Dieguito Plateau and Colorado Desert (Rogers 1966). In 1920, Malcolm Rogers stated that he "discovered the San Dieguito Industry at what is now known as the C. W. Harris Site" (Rogers 1939; Warren 1966). The Harris Site (SDM-W-198/SDI-149) became known as a San Dieguito-type site through Rogers' and later Warren and True's (1961) investigations. Interestingly however, Rogers never published his research on the site. His research on the Harris site and his perceived views on the San Dieguito Complex would later be published in 1966 by Claude Warren and H. M. Wormington, E. L. Davis, and Clark Brott.

Rogers did publish the results of his archaeological investigations concerning the surface examination of San Dieguito sites along the San Dieguito Plateau and Colorado Desert (1929, 1939). In 1929, Rogers had identified four loci of San Dieguito sites in San Diego County based on areas of intensive occupation, each having at least one large site dignified with the term village, including three in the Coast Range (also referred to as Black Mountain volcanics) between San Marcos Creek on the north and Los Peñasquitos Creek on the south. Generally, most San Dieguito Complex sites lack midden and are often eroded, although the C. W. Harris site is a notable exception (Rogers 1929). Artifacts designated by Rogers (1929, 1939) as diagnostic of this complex were tools typically associated with hunting tool manufacture and animal procurement and processing. These artifacts included teshoa flakes, beveled flakes, notched cobbles (rare), cores, hammerstones, cleavers, choppers, pulping planes, leaf-, lancelote-, and triangular-shaped bifaces and knives, amulets or crescents, a variety of scrapers (ovoid, keeled, domed, flake, side and end), spokeshaves, reamers (drills and gravers), and borers (Rogers 1939). These tools were often made from felsite, now referred to as Santiago Peak Volcanics (SPV) or FGM (fine-grained metavolcanic material), for which the Otay area was a major source. Rogers (1939) found similarities between the artifact assemblages in San Diego County and those in the Colorado Desert. The only difference Rogers (1939) noted was that those in the desert contained "stemmed blades" (stemmed projectile points) whereas "stemmed blades" or points were absent in San Diego County. These early lithic industries were at first

labeled Malpais, Scraper-Makers, and Playa; however, these terms were eventually subsumed under the San Dieguito Complex (Rogers 1939), which later would be divided into San Dieguito I, II, and III. Plate 3.2–1 shows artifacts considered typical of the San Dieguito Complex.

Rogers (1939, 1958) originally believed that the San Dieguito Complex lasted approximately 2,000 to 3,000 years from 2,000 BC to 1,000 BC through 800 AD. Rogers based this assumption on the observation that the artifacts were associated with a culture that was earlier than the Yuman or Shoshonean culture since the San Dieguito artifacts displayed patina, desert varnish, and sandblasting and the Yuman assemblages, besides containing additional artifacts like pottery, did not show patina, desert varnish, or sandblasting (Rogers 1966). Furthermore, Rogers (1939, 1958), citing Antevs' 1938 climatic study, stated that since San Dieguito-like artifacts were found around the shorelines of extinct stands of desert lakes, this offered evidence that these sites were inhabited during a period of cooler/moister climate that occurred at approximately 2,000 BC (4,000 YBP). According to Warren (1966), before Rogers' death and after dates on La Jolla coastal sites yielded evidence of occupation at 6,000 YBP, Rogers had decided that the San Dieguito Complex was much older than 2,000 BC.

In 1920, Rogers discovered the C. W. Harris Site (SDM-W-198/SDI-149 and SDI-316) located on a low terrace of the San Dieguito River. The Harris Site is better characterized as a series of loci with different subsurface components and is now referred to as the Harris Site Complex (Carrico et al. 1991). The subsequent investigations of the Harris Site by Rogers (1939) and Warren and True (1961) provided the first stratigraphic evidence to place the San Dieguito as the earliest cultural complex in San Diego County based upon their interpretations. The San Dieguito component was a deeply buried deposit (approximately seven feet below the modern surface) and was below subsurface deposits of La Jolla and Yuman artifact assemblages. Although Rogers never produced a report, Warren (1966) compiled the notes and records from Rogers' 1938 investigation of the site, which involved the investigations of two loci, one in the area south of Lynch Wash (Locus I) and the other in the mid-channel of the San Dieguito River (Locus II). Rogers (in Warren 1966) identifies San Dieguito II artifacts in the "E stratum of Locus I," San Dieguito III artifacts in the "M stratum of Locus II," and La Jolla II and Diegueño artifacts in "Stratum B of Locus I." Artifacts identified as San Dieguito II in the "E stratum of Locus I" included a number of different scrapers (ovoid, domed, flake, end and side), scraper planes, amulets or crescents, and leaf-, triangular-, and lancelote-shaped projectile points, bifaces, and knives. Artifacts identified as San Dieguito III in the "M stratum of Locus II" included a variety of scrapers (domed, ovoid, and side), square-based knives, ovoid to leaf-shaped knives and bifaces, and triangular- (Humboldt) and stemmed-eared (Elko) projectile points. Rogers suggested that the marine shell (mostly *Chione* and *Argopecten*) recovered in the "M stratum of Locus II" represented the first San Dieguito midden with marine shell (Rogers in Warren 1966). La Jolla II and Diegueño artifacts (found in "Stratum B of Locus I") were identified as unifacial and bifacial manos, oval basin metates, primary flake scrapers (teshoa flakes, cortex-based scrapers, and cortex back scrapers), domed scrapers, and miscellaneous



A-G, Foliate knives or points; H, crescent; I, knife; J, knife blank; K, beaked scraper; L, M, end scrapers; N, O, side scrapers; P, scraper plane; Q, not identified; R, double-ended scraper; S, cleaver; T, U, ovoid scrapers; V, chopper; W, primary flake scraper.

Plate 1.2–3, San Dieguito-type artifacts (after Moratto 1984, Figure 3.7).

flake scrapers (pentagonal, triangular, end, and irregular), hammer/choppers, choppers, cores, notched and concave-base projectile points (small Humboldt and Cottonwood projectile points), and knives (flat-based and rectangular). Additionally, Rogers discovered disturbed La Jolla II burials in his 1938 excavations (Rogers in Warren 1966).

In 1959, Claude Warren and D. L. True directed an UCLA Archaeological Survey team in excavations at the Harris Site (SDI-149 and SDI-316) and specifically in what Rogers referred to as the multi-component Locus I. The investigations by Warren and True (1961) led to an update of the cultural sequence of San Diego prehistory, placing the San Dieguito Complex as the earliest culture in San Diego prehistory. They characterized San Dieguito sites as located on mesas and ridges, small in size, lacking midden, and often heavily eroded. Warren and True (1961) and Warren (1967) identified San Dieguito artifacts as leaf- and lancelote-shaped knives, knife blanks (bifaces), projectile points (occasional stemmed), a variety of scrapers (ovoid side, keeled side and end, rectangular side, rectangular end, triangular end, domed, and flake), crescent amulets (eccentric Type 5 crescent) (Fenenga 1984) or eccentric crescents, engraving tools (gravers), choppers (crude), hammerstones (pebble), core hammers, and cores. The lithic tools are percussion flaked and occasionally some are pressure flaked. Pottery is absent and ground stone is extremely rare if present at all in San Dieguito sites (Warren and True 1961). Most San Dieguito lithic tools were made of locally available felsitic materials (SPV), but other local fine-grained volcanics and occasionally imported materials were used. Warren and True (1961) concluded that the San Dieguito Complex represents an early population, relatively small in number, whose primary subsistence was hunting.

Warren and True (1961) submitted two samples for radiocarbon analysis. The first was conducted on shell (*Chione californiensis*) collected by Rogers in 1938 from the San Dieguito III component he identified in Stratum M. The sample (LJ-136) resulted in a radiocarbon date of 4,720 ± 160 YBP (calibrated 2,770 BC ± 160). The second sample submitted was carbonized wood and seeds collected from what was called a La Jolla feature (Feature 5 - possible hearth or roasting pit). This sample (LJ-202) yielded a date of 6,300 ± 200 YBP (calibrated 4,350 BC ± 240). The first date of 4,720 ± 160 YBP, from Rogers' San Dieguito III component, was dismissed by Warren and True (1961) because the sample had been collected 21 years before it was assayed, the La Jolla component of the Harris Site yielded an older radiocarbon date, and a series of radiocarbon dates (7,370 ± 100 YBP, 7,300 ± 200 YBP, and 5,460 ± 100 YBP) from coastal La Jolla sites yielded older dates (Hubbs and Seuss 1960; Moriarty et al. 1959). They reasoned that since the La Jolla Feature 5 was separated by the San Dieguito III component by 32 inches of consolidated and partially cemented river silt and that since the San Dieguito component was positioned in deposits below the La Jolla component, the San Dieguito had to be older than the La Jolla. Moreover, they reasoned that since La Jolla Complex on the coast had been given an initial date of approximately 7,500 YBP (5,500 to 6,000 BC), then the San Dieguito Complex had to date to at least 8,000 YBP (6,000 BC). Additional charcoal and carbonaceous earth samples collected from within the San Dieguito component during additional

excavations in 1965 by Warren (1967), yielded calibrated radiocarbon dates of 6,540 BC ± 400 (A-724 and A-725) and 7,080 BC ± 350 (A-722A). These dates led Warren (1967) to suggest an age of over 8,000 YBP for the San Dieguito Complex and "probably in the neighborhood of 10,000 YBP" for the earliest complexes (in reference to San Dieguito I) given that San Dieguito-type artifacts had been found further east around the lakeshores of Pleistocene lakes.

In 1964, Paul Ezell with San Diego State College (now San Diego State University) carried out additional work at the Harris Site (SDI-149 and SDI-316). Ezell's (1977) research largely supported the earlier work of Rogers and Warren. La Jolla cobble and Yuman fire hearths were excavated resulting in a radiocarbon date on charcoal from a La Jolla Complex roasting pit of 3,910 ± 50 YBP (Beta No. 38827). Ezell, in a later 1987 publication, thought that the Harris Site (SDI-149 and SDI-316) was atypical of the San Dieguito Complex and not a "type site" of the San Dieguito. Additional work at the Harris Site was carried out by Ezell and Carrico in 1977 and Carrico et al. in 1991. In the latter study, Carrico et al. (1991) substantiated what was known already about the Harris Site Complex, and recommended that the site be considered a Historic District and eligible for listing on the National Register of Historic Places. A bulk soil sample taken from a hearth feature resulted in a date of 3,470 ± 110 YBP (Beta No. 38826).

Artifacts considered diagnostic of the San Dieguito Complex are similar to artifact assemblages located further east in the Great Basin and American Southwest. The San Dieguito artifacts are also similar to the artifact assemblages found around the presumed late Pleistocene shorelines of Lake Mojave (Campbell et al. 1937), Tonopah Lake (Campbell 1949), Panamint Basin (Davis et al. 1969), and Owens Lake (Antevs 1938; Campbell 1949). Furthermore, the San Dieguito tool assemblage resembles that of the Western Lithic Co-Tradition (Davis et al. 1969) and the Western Pluvial Lakes Tradition (Bedwell 1970; Moratto 1984). Additionally, excavations conducted at Danger Cave in Utah (Jennings 1957), Ventana Cave in Arizona (Haury 1950), and Newberry Cave in the Mojave Desert (Smith et al. 1957) provided stratigraphic evidence for the San Dieguito Complex being the earliest culture, as San Dieguito-like artifacts were found in the basal levels of the caves' subsurface deposits. The results of these studies, the investigations of the Harris Site by Warren and True (1961), the suggestion that the earliest phase of the San Dieguito dated to 10,000 YBP (Warren 1967), and the lack of Clovis sites led to the conception that the San Dieguito represent the earliest cultural complex in San Diego prehistory. The San Dieguito culture became synonymous with PaleoIndian and for many current researchers it remains a viable PaleoIndian cultural complex (Reddy 2000).

The basis for the identification of the San Dieguito Complex has been lithic artifact morphology, as described by Rogers (1939), Warren (1966), and Davis et al. (1969), and the use of local green metavolcanic material in tool manufacture (especially in the Otay area), but very few absolute dates have been confirmed. Many archaeologists continue to debate whether the San Dieguito Complex people continued to occupy San Diego County or abandoned the area circa 8,000 YBP (SDCAS 1987). Sites in San Diego County that have been reported as early

Holocene (circa 9,000 to 7,000 YBP) and/or with possible San Dieguito components include the Agua Hedionda sites (UCLJ-M-15 and SDI-10,695, W-131) (Koerper et al. 1986), Rancho Park North (SDM-W-49) (Kaldenberg 1982), Batiquitos Lagoon (Gallegos 1992), San Dieguito Lagoon/River Valley (Norwood 1980; Norwood and Walker 1980; Smith 1986, 1987; Warren 1967), San Elijo Lagoon (Gallegos 1992), Peñasquitos Lagoon (Smith and Moriarty 1985a), La Jolla/UCSD (Moriarty et al. 1959; Shumway et al. 1961), and Tijuana Lagoon/Otay Mesa (Bingham 1978; Breschini et al. 1990). Recently, however, there have been sites that have been reported as having a San Dieguito component or having San Dieguito-like artifacts, but that are dated to the middle and late Holocene. An investigation of the San Dieguito Scraper Hill Site (SDI-8330/W-240) by Raven-Jennings and Smith (1999) provided support for Rogers' original age estimation of the San Dieguito Complex dating between 4,000 to 2,800 YBP. Similar assemblages have also been found in the Otay region in contexts younger than 5,000 YBP (Smith and Moriarty 1985b; Kyle et al. 1990). Clearly, more research is needed regarding the temporal placement and definition of the San Dieguito Complex.

In any event, at approximately 8,000 YBP a different yet major prehistoric cultural complex, called the La Jolla Complex (Encinitas Tradition, Millingstone Horizon), appears in the archaeological record along the San Diego coastal region (Plate 3.2–2). Radiocarbon dates from sites attributed to this complex span over 7,000 years of prehistory. The La Jolla Complex is best recognized for its pattern of large coastal sites, shell middens, basin metates, manos, cobble-based tools, discoidals, and flexed human burials (Shumway et al. 1961; Smith and Moriarty 1985a). While scrapers are the most recognized tool type, coastal La Jolla Complex sites also contain a large quantity of utilized flakes, which may have been used to pry open marine mollusks, and large numbers of manos and metates. Plates 3.2–3 and 3.2–4 show a sample of La Jolla-type artifacts.

Assemblages at coastal sites indicate a subsistence pattern focused on mollusk collection and near-shore fishing, suggesting an incipient maritime adaptation with regional similarities to more northern sites of the same period (Koerper et al. 1986). The presence of obsidian from the Coso source has also been attributed as a characteristic of Archaic La Jolla Complex sites in San Diego and Orange counties (Koerper et al. 1986; Erickson et al. 1989). This obsidian source was located several hundred miles northeast of San Diego County, and was likely obtained through trade with groups situated further north. Shellfish have been interpreted as the dietary staple, although both nuts and grasses were also an important part of the diet. The La Jolla Complex was considered different from the prior San Dieguito Complex by being more focused on gathering activities that emphasized shellfish, plants and fish, rather than hunting activities, which focused on terrestrial large game. Regionally, the La Jolla Complex is associated with the Encinitas Tradition (Warren 1968) and Millingstone Horizon (Wallace 1955), which characterize the Archaic Period throughout coastal southern California.

The earliest sites from this period are mostly found in the northern portion of San Diego County and are the same sites as those reported for the San Dieguito Complex, including the

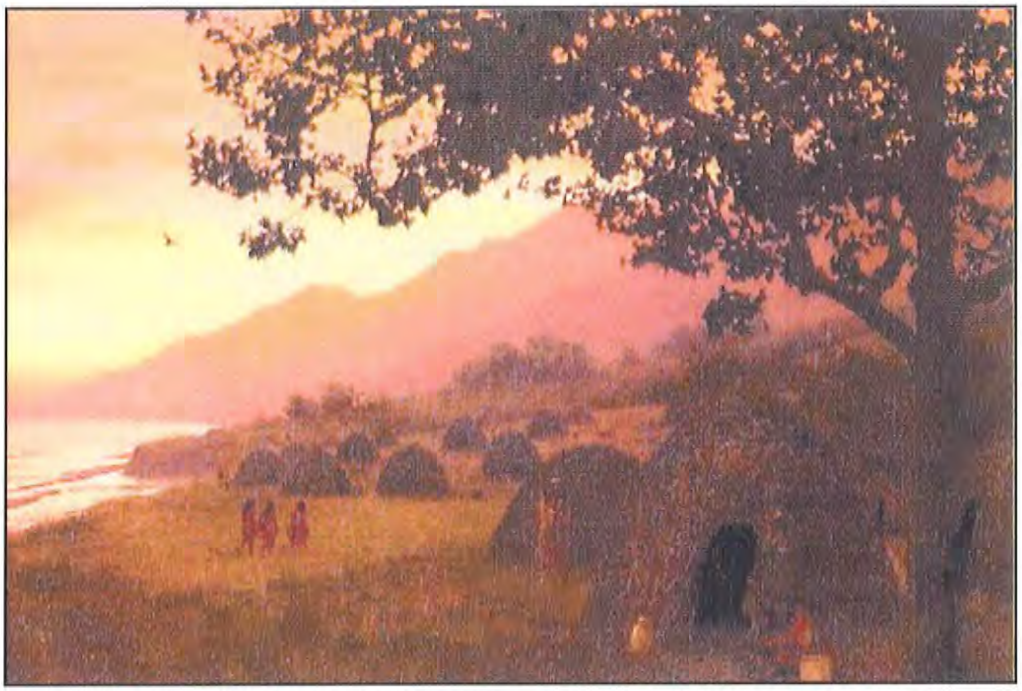
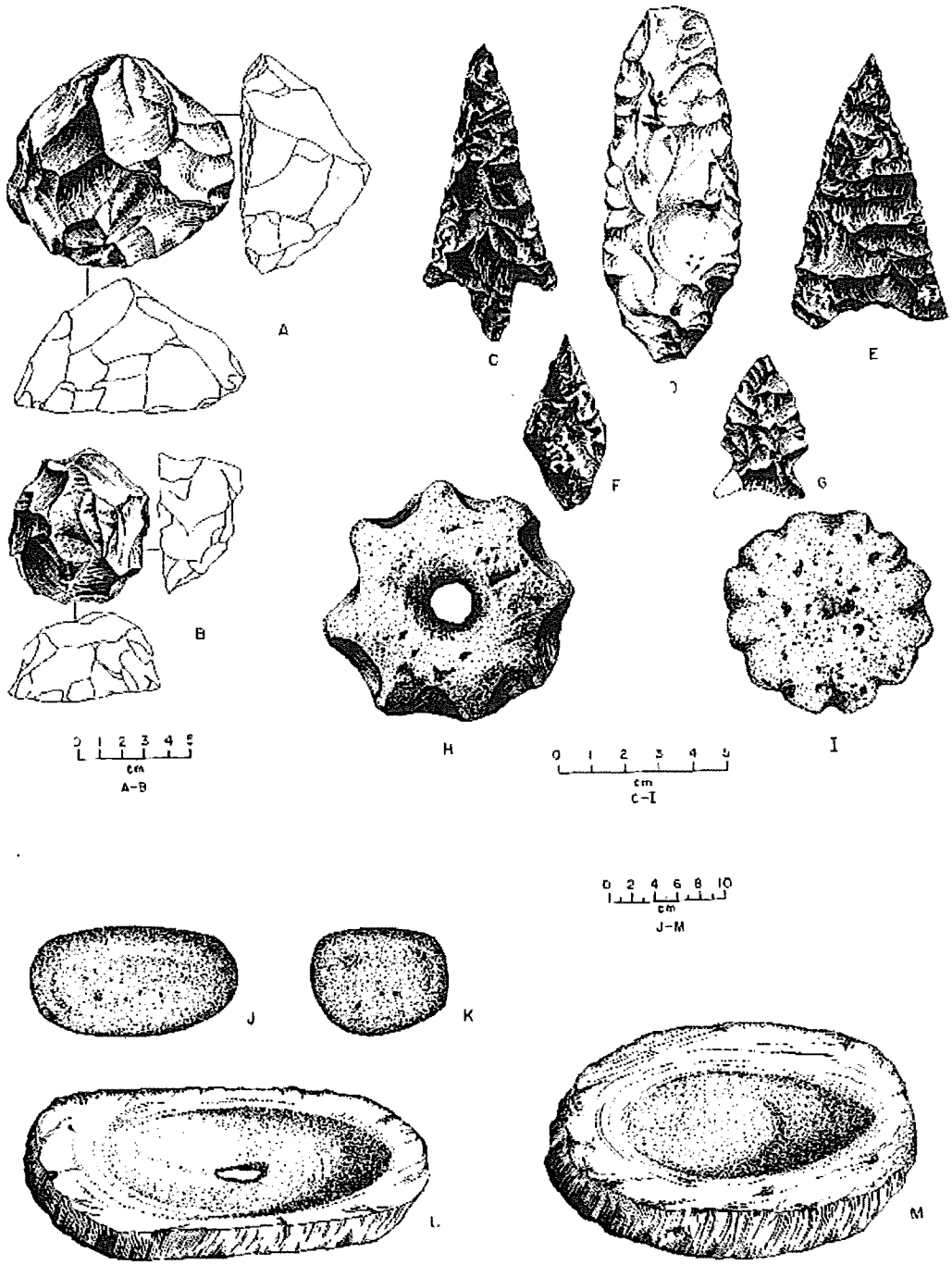


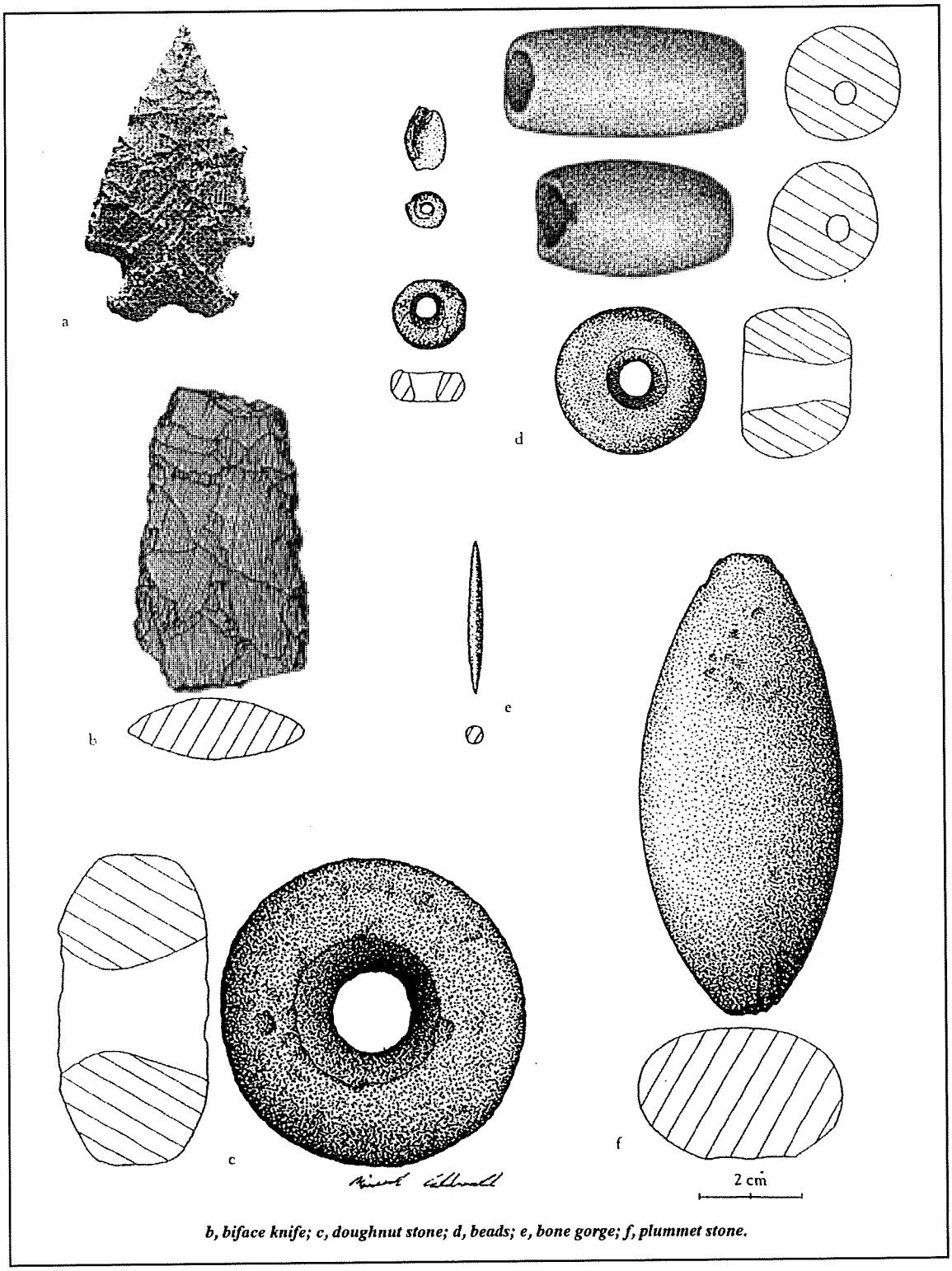
Plate 1.2–4, Illustration of a hypothesized early prehistoric coastal settlement.

Harris Site Complex (Rogers in Warren 1966; Warren 1967), Rancho Park North Site (Kaldenberg 1982), Agua Hedionda Sites (Koerper et al. 1986), Batiquitos Lagoon (Gallegos 1992), Peñasquitos Lagoon Sites - W-20 (Smith and Moriarty 1985a), La Jolla/UCSD sites (Moriarty et al. 1959; Shumway et al. 1961; Gallegos 1989), Tijuana Lagoon/Otay Mesa (Gallegos 1992), and Ballast Point/San Diego Bay (Gallegos and Kyle 1988). Most lagoonal sites exhibit continuous occupation from 9,000 to 3,500 YBP (Gallegos 1992) and in northern San Diego County coastal lagoons supported large populations circa 6,000 YBP, as shown by numerous radiocarbon dates from the many sites adjacent to these lagoons (Carrico et al. 1991). The collection of shellfish and seeds, fishing, and the hunting of terrestrial game and marine animals have been documented through the archaeological investigations of these coastal lagoon sites. The distribution of radiocarbon dates suggests that coastal adaptations supported a sustainable population density during the middle Holocene between 7,500 YBP and 3,500 YBP (Masters and Gallegos 1997). Archaeological investigations at the Ballast Point Site (Gallegos and Kyle 1988) indicate that a larger portion of the diet was filled with marine, rather than terrestrial resources. Evidence from dietary analyses and fishing tools, such as gorges and composite fishhooks, and the implied use of boats, suggests an intensification of the San Diego maritime pattern in the middle Holocene - one that resembles the Santa Barbara Channel maritime tradition (Masters and Gallegos 1997).



A, B, scraper planes, Phase I; D, E, projectile points of Phase I types; C, F, G, projectile points of Phase II types; H, I, cogged stones; J, K, manos; L, M, millingstones.

Plate 1.2–5, La Jolla-type artifacts (after Moratto 1984, Figure 4.6).



b, biface knife; c, doughnut stone; d, beads; e, bone gorge; f, plummet stone.

Plate 1.2–6, Middle Holocene artifacts (after Masters and Gallegos 1997, Figure 2.4).

In northern San Diego County, between 4,000 and 3,000 YBP the lagoons filled with sediment, the most important resources, particularly mollusks and fish, were lost or diminished, and many of the coastal sites were thought to have been abandoned. The paucity of archaeological sites dating to 3,000 to 1,300 YBP in northern San Diego County has been used as evidence to support this argument (Gallegos 1992). Recent investigations at sites along the northern San Diego County coast, including Camp Pendleton, and new investigations at Agua Hedionda Lagoon, Buena Vista Lagoon, Los Peñasquitos Lagoon and Sorrento Valley, have challenged the coastal decline model by showing that coastal sites were inhabited during this period and that there was increased reliance on less optimal resources, such as small shellfish and near shore schooling fish (Byrd and Reddy 2002). At Site W-20 on Los Peñasquitos Lagoon, radiocarbon dates for the village site document a continuous occupation from 7,140 to 2,355 YBP. During this occupation span of 5,000 years, factors of environmental change and overfishing of shellfish were documented by the gradual shifting in shellfish recovery patterns and decline in the size (and maturity) of all shellfish species (Smith and Moriarty 1985a). Investigations at coastal lagoon sites farther south around the San Diego Bay, such as Ballast Point (Gallegos and Kyle 1988) have shown continuous occupation throughout the period between 6,600 and 1,300 YBP. San Diego Bay, being larger and influenced by tidal flushing, did not fill with sediment, as did the northern San Diego lagoons and estuaries (Masters 1988). Additionally, at Chollas Creek on the eastern shore of San Diego Bay, a midden extending into the intertidal zone yielded radiocarbon dates of 2,100 YBP and 1,450 YBP (Masters and Gallegos 1997).

In any event, there appears to have been a change in the subsistence and settlement strategies to include an increase in the use of terrestrial inland resources at the end of the middle Holocene and beginning of the late Holocene. Populations shifted inland to river valleys and intensified exploitation of terrestrial animals and plants, possibly including acorns (Rogers 1929). Inland La Jolla Complex sites have been reported in transverse valleys and sheltered canyons, and have been termed "Pauma Complex" (True 1958; Warren et al. 1961; Meighan 1954) in northern San Diego County. Pauma Complex sites, as proposed by True and others, represent inland manifestations of the coastal La Jolla Complex occupation and were considered distinct from earlier coastal sites given their lack of subsurface deposits, marine shell, and bone. By definition, Pauma Complex sites share a predominance of grinding implements (manos and metates), lack mollusks, have greater tool variety including atlatl dart points and quarry-based tools, and seem to express a more sedentary lifestyle with a broader range of resources utilized than sites from the earlier San Dieguito Complex. True (1958) initially suggested that inland Pauma Complex sites were similar to San Dieguito sites based on the presence of crescentics, bifaces, and projectile points. The dependence on terrestrial resources is seen by some investigators as representing a Campbell-like subsistence focus based on the hunting of large and small mammals and the collection of hard seeds and roots (True 1958; Gallegos 1985). Subtle

modifications in the artifact assemblage are interpreted as a response to changing environmental conditions, which required an increasingly diversified economy focused on terrestrial resources.

Data from inland sites support the idea that settlement patterns may have changed at the end of the middle Holocene to compensate for declining marine resources. In particular, the greatest period of occupation at the Rolling Hills Ranch sites was the end of the middle Holocene and beginning of the late Holocene or between 5,800 YBP to 2,140 YBP (Smith et al. 2004). The Scripps Poway Parkway Site (SDI-4608c) also showed evidence of being more intensely occupied at the beginning of the late Holocene, around 3,400 YBP, given that a greater variety of activities including subsistence, domestic, and ritual were performed on site. Furthermore, the Rancho San Diego sites in the Sweetwater Valley show repeated and intensive occupation of inland sites at the beginning of the late Holocene (Byrd and Serr 1993). The archaeological investigations of inland Archaic sites have not been as intensive and varied as those investigations conducted at coastal sites. In part, this is because of the visibility of coastal sites, as historically, development in San Diego County advanced from west to east. Nevertheless, as San Diego County continues to grow eastward, more inland archaeological sites will be investigated and information gathered will be used to update the culture chronology.

In summary, archaeological research indicates that San Diego County was occupied between 9,000 YBP and 1,300 YBP by a population(s) that utilized a wide range of both marine and terrestrial resources. Overlapping radiocarbon dates and artifact types between sites identified as San Dieguito, La Jolla, and/or Pauma complexes suggest a generalized hunting and gathering pattern that was employed for over 8,000 years. Rather than two separate and distinct cultural complexes, the San Dieguito and La Jolla (and variations within) likely represent differences in site types and uses of marine and terrestrial resources. The nomenclature using San Dieguito, La Jolla, Pauma, Encinitas, and Millingstone for an 8,000-year period of prehistory should be redefined to recognize a wider variety of site types, such as shell dumps, coastal lagoon sites, inland hunting camps, and quarry sites (Gallegos 1992). The large amount of marine shell and fish with some mammal bone found in early and middle Holocene sites next to coastal lagoons changes as one moves inland, where an increase in flakes, tools, and bone, but a decrease in shell occurs (Gallegos 1992; Smith 1986). The transition in sites and artifact assemblages likely reflects the same people seasonally moving within the coastal drainages and exploiting both marine resources (fish and mollusks) and terrestrial resources (small and large game, plants, and lithic material). The future analysis of both coastal and inland sites will eventually provide a more complete assessment of the subsistence and settlement strategies employed by inhabitants of San Diego County during the Archaic Period and, likely, to the dismissal in use of the terms San Dieguito and La Jolla as defining separate cultural complexes.

Late PrehistoriclKumeyaay (1,300 YBP to Contact)

Generally, most scholars agree that by around 1,300 YBP a culture different from the preceding Archaic culture occupied San Diego County. The Late Prehistoric Kumeyaay, located

in the western part of San Diego, is recognized between 650 AD to Spanish contact (sixteenth century). The Kumeyaay were a complex hunting and gathering group that utilized a wide variety of marine and terrestrial resources. Cremation of the dead, pottery production and use, the bow and arrow, small projectile points, the use of Obsidian Butte obsidian from Imperial Valley, and the reliance upon acorns as a main food staple are the defining characteristics of the Late Prehistoric Kumeyaay (Gallegos 2002; Moratto 1984). Artifacts considered diagnostic of the Late Prehistoric are shown in Plate 3.2–5. The bow and arrow and buff and brown ware pottery appears to have spread west from the American Southwest across the Colorado Desert (Moratto 1984). The Kumeyaay adopted these technologies rather than being replaced by groups moving westward given that the language they speak is in the Yuman language family in the Hokan Stock. The Hokan Stock is considered the oldest language stock in California prehistory (Kroeber 1925; Moratto 1984; Shipley 1978).

Firm evidence has not yet been recovered to indicate whether the people living during the Archaic Period are predecessors of the Kumeyaay or whether archaic people were culturally absorbed or pushed out. However, stratigraphic information recovered from Site SDI-4609 in Sorrento Valley suggests a hiatus of 650 ± 100 years between the occupation of the coastal area by the La Jolla Complex (1,730 ± 75 YBP) and the Kumeyaay (1,085 ± 65 YBP) (Carrico and Taylor 1983; Smith and Moriarty 1983). This gap in the archaeological record may represent the decline and abandonment of the coast by archaic people followed by the arrival of the Kumeyaay. On the other hand, continuous occupation during the transition from the Archaic Period to the Late Prehistoric Kumeyaay Period has been suggested by evidence found at the Scripps Poway Parkway Site (Raven-Jennings and Smith 1999) and the Rancho San Diego sites (Byrd and Serr 1993), which would generally support the linguistic information.

When contacted by the Spanish in the sixteenth century, the Kumeyaay occupied a territory bounded on the west by the Pacific Ocean, on the east by the Sand Hills, on the north by Agua Hedionda Lagoon, and on the south by Todos Santos Bay in what is now Baja California (Luomala 1978). A series of closely related, Yuman-speaking bands crisscrossed this region, divided into a northern (Ipai) and southern (Tipai) dialect (Figure 3.2–1). Variously referred to in the literature as Tipai-Ipai (Luomala 1978), Diegueño (after the mission at San Diego) (Kroeber 1925), or lumped together with other groups under the term Mission Indians, in San Diego County these people refer to themselves as Kumeyaay. The disruption of native customs and subsistence makes the estimates of protohistoric populations and political units difficult. Nevertheless, the Kumeyaay population was estimated to be between 10,000 and 20,000 with as many as 85 villages (Carrico 1986; Luomala 1978; Shipek 1986). Figure 3.2–2 displays a map of ethnographic villages. The center of the villages contained the ceremonial and political structures and clusters of residential houses surrounded these structures (Shipek 1981). Each village community or rancheria consisted of a patrilineal band or tribelet that was politically independent and controlled territory over 10 to 30 miles of a particular river or creek drainage (Shipek 1981; Kroeber 1925; Luomala 1978). The resources in each band's territory were

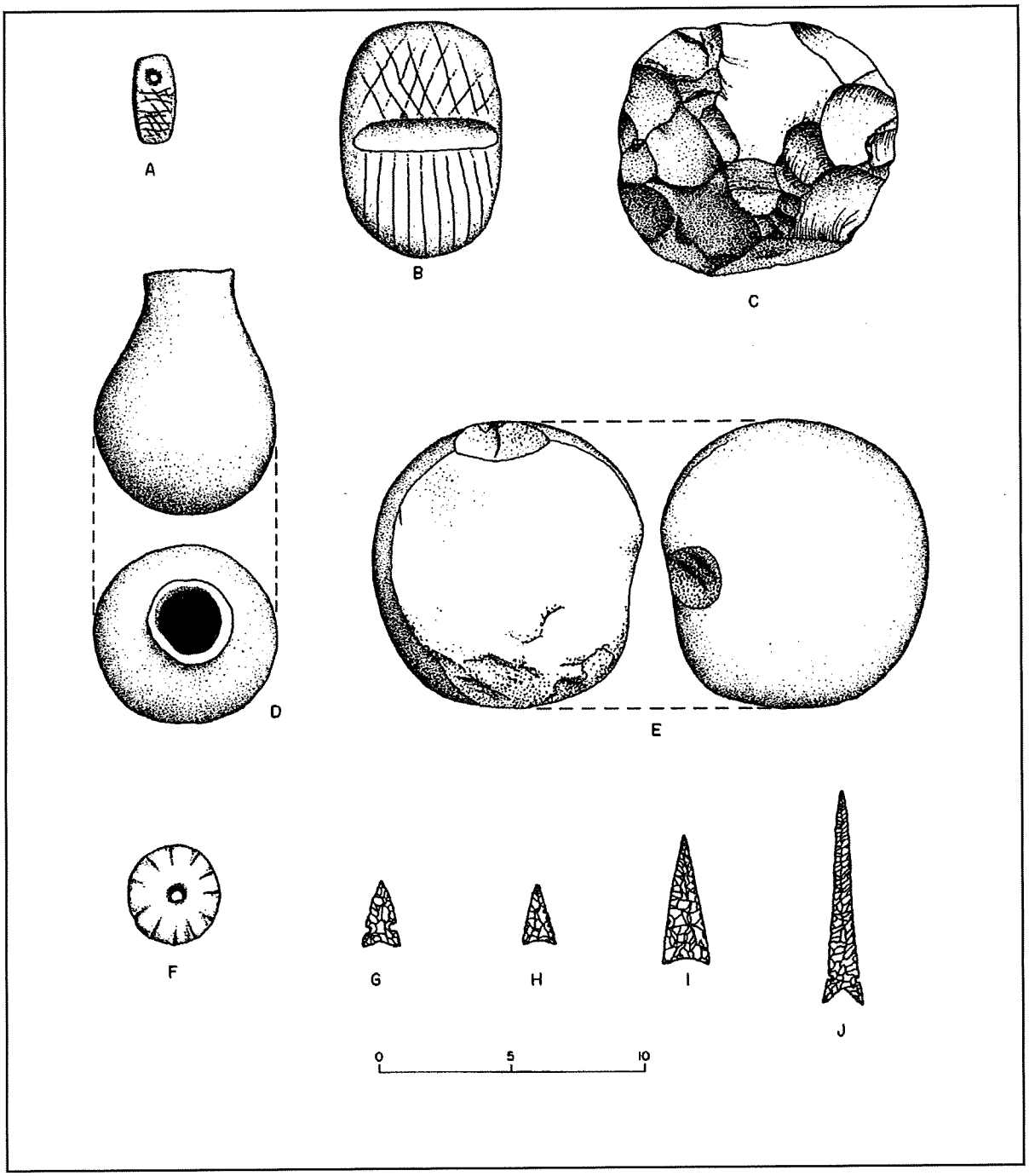


Plate 1.2–7, Late Prehistoric artifacts (after Moratto 1984, Figure 4.16).

Figure 1.2–1

Ethnographic Map (circa 1770)

The Hawano Project

(after Luomala 1978)

Figure 1.2–2

Ethnographic and Historic Villages of San Diego County

The Hawano Project

(after Carrico 1986 and Bean and Shipek 1978)

controlled by that band and another band could not trespass by gathering plants or hunting game without that band's permission. Bands, which were autonomous tribelets, claimed territorial areas and communally distributed resources, such as water, food caches, and agave. Use rights existed, by which families and individuals owned what they made or obtained. Leadership, often inherited, consisted of a clan chief and his assistant(s) and a hunt master. Dance and ceremonial leaders also existed (Luomala 1978). Clans were locally exogamous and patrilocal, so wives came from outside the area (Spier 1923).

Acorns, seeds, rabbits, hares, deer, fish, mollusks, and other marine resources are considered the major food resources of the Kumeyaay (Bancroft 1886; Carrico 1986). A study by Christenson (1990) found that acorns and rabbits meet minimal daily nutritional requirements, but that a broader diet is demonstrated in the ethnographic and archaeological record. The Kumeyaay traveled with the seasons and, unlike earlier inhabitants of the area, built their seasonal cycle around access to acorns and piñons located in the higher elevations above 4,000 feet. In autumn, western Kumeyaay met with eastern Kumeyaay to harvest acorns, trade, and conduct ceremonies (Christenson 1990; Lee 1937). Winter was spent in sheltered valleys where neither high-elevation cold nor coastal fogs were a problem. Spring subsistence centered on the collection of buds and shoots and the animals that were attracted by them. Ripened grasses and fruits were focused on during the summer. Groups traveled to higher elevations for the harvesting of nut crops during the fall (Luomala 1978). Hunting augmented this vegetal diet, and foothill people visited coastal bands to fish. Large game was not common prey, and only a few men were trained in its procurement; more commonly, rabbits, rodents, snakes, and birds were captured informally (Luomala 1978; Spier 1923). Rabbits were killed communally at times, for in addition to the meat, large quantities of skins were desired for robes.

Luomala (1978) suggests that camping places were chosen based on access to water, protection from the weather, and abundant flora and fauna. Structures included dwellings, ramadas, and windbreaks. Dwellings were typically grass-thatched domes over a slight pit. Ramadas and windbreaks protected workplaces, with ramadas shading grinding areas and windbreaks shielding outdoor cooking areas. Conical acorn granaries were also constructed of interwoven willow withes (Spier 1923). Ceremonial shelters were open to the east, facing a dance circle with an outdoor pit (Luomala 1978). Sweathouses were semi-subterranean, pole and earth-covered structures that contained a fire pit in the center of the floor (Kroeber 1925). Houses were burned following the death of an occupant and former house sites were avoided because of fear of spirit-caused illnesses.

Personal possessions included ground stone tools, pottery of a variety of shapes, sizes, and functions, carrying nets, bows and arrows, throwing sticks, and tobacco pipes. Triangular stone-tipped arrows were used against big game, such as deer; otherwise, a sharpened wooden foreshaft sufficed. A hide quiver contained a pottery cup in which extra points were kept. Men carried a sharpened bone dagger from the foreshaft of a deer and women made basket awls of the same material (Spier 1923). Children sometimes had clay dolls. A game was played with stone

disks that were 7.5 to 10 centimeters in diameter, where one disk was thrown and then used by the others as a target, much like a modern game of horseshoes (Spier 1923).

Clothing was minimal and was primarily made from willow bark, tules, or sedge. Women wore an apron of corded fiber held in place with a belt of their own hair (Gifford 1931). Men and children typically went naked, although men sometimes wore a waist cord from which they tied objects in order to transport. In cold weather, blanket/robes of rabbit skins or deer hides were worn. Basket hats were worn by both sexes, as well as sandals made from agave or yucca fiber (Spier 1923). Tattoos were popular decorations for both men and women; men also wore deer-shank earrings and a pendant, or a tube from the nasal septum.

Crystals were frequently kept for their magical properties and shamans would use them to facilitate communicating with spirits and to determine the cause of illness. Other ceremonial artifacts included deer hoof, gourd, or pottery rattles, ceremonial wands consisting of a hafted leaf-shaped point, eagle, owl and raven feathers, wooden flutes, soapstone mortars and pestles for jimsonweed preparation, and crescent-shaped stones for use in female puberty ceremonies (Spier 1923; Waterman 1910). Projectile points sometimes served ceremonial functions as well. Points were placed under rocks around camps to prevent bewitching, and were sometimes worn on a cord around the neck by shamans during dances for the same reason (Spier 1923). Possessions were not inherited; all were burned at the death of an individual or as a part of the yearly keruk mourning ceremony.

Generally, missionization for the Kumeyaay was less swift than in other areas, owing to sustained resistance (Luomala 1978). Nevertheless, as increasing numbers of Spanish and Mexican people, and later Americans during the Gold Rush, settled in the area, the Native American populations diminished as they were displaced or decimated by disease (Carrico and Taylor 1983). Additionally, as cattle ranching and farming in inland San Diego County became more prevalent after 1850, many native plants and animals were eliminated or their populations severely narrowed, which disrupted food resources typically utilized by native peoples.

Historic Period

Exploration Period (1530-1769)

The historic period around San Diego Bay began with the landing of Juan Rodríguez Cabrillo and his men in 1542 (Chapman 1921). Sixty years after the Cabrillo expeditions (1602-1603), an expedition led by Sebastian Vizcaíno made an extensive and thorough exploration of the Pacific Coast. Although the voyage did not extend beyond the northern limits of the Cabrillo track, Vizcaíno had the most lasting effect on the nomenclature of the coast. Many of the names he gave to places have survived, whereas nearly every one of Cabrillo's has faded from use. Cabrillo gave the name of "San Miguel" to the first port at which he stopped in what is now the United States; 60 years later, Vizcaíno changed it to "San Diego" (Rolle 1969).

Spanish Colonial Period (1769-1821)

The Spanish occupation of the claimed territory of Alta California took place during the reign of King Carlos III of Spain (Engelhardt 1920). A powerful representative of the king in Mexico, José de Gálvez, conceived of the plan to colonize Alta California and thereby secure the area for the Spanish crown (Rolle 1969). The effort involved both a military and religious contingent, where the overall intent of establishing forts and missions was to gain control of the land and the native inhabitants through conversion. Actual colonization of the San Diego area began on July 16, 1769 when a Spanish exploration party, commanded by Gaspar de Portolá (with Father Junípero Serra in charge of religious conversion of the native populations), arrived by the overland route to San Diego to secure California for the Spanish crown (Palou 1926). The natural attraction of the harbor at San Diego and the establishment of a military presence in the area solidified the importance of San Diego to the Spanish colonization of the region and the growth of the civilian population. Missions were constructed from San Diego to as far north as San Francisco. The mission locations were based on a number of important territorial, military, and religious considerations. Grants of land were made to persons who applied, but many tracts reverted back to the government for lack of use. As an extension of territorial control by the Spanish empire, each mission was placed so as to command as much territory and as large a population as possible. While primary access to California during the Spanish Period was by sea, the route of El Camino Real served as the land route for transportation, commercial, and military activities within the colony. This route was considered to be the most direct path between the missions (Rolle 1969; Caughey 1970). As increasing numbers of Spanish and Mexican peoples, as well as the later Americans during the Gold Rush, settled in the area, the Native American populations diminished as they were displaced or decimated by disease (Carrico and Taylor 1983).

Mexican Period (1821-1846)

Father Miguel Hidalgo y Costilla and a group of Native American followers began a revolt against Spanish rule on September 16, 1810. Hidalgo did not succeed in the fight against the Spanish, and ultimately was executed. However, the revolt continued and the Spanish were finally defeated in 1821. Mexican Independence Day is celebrated on September 16 each year in honor of Father Hidalgo's bravery. The revolution had repercussions in the northern territories as well and by 1834 all of the mission lands in Alta California had been removed from the control of the Franciscan Order under the Acts of Secularization. Without proper maintenance, the missions quickly began to disintegrate. After 1836, missionaries ceased to make regular visits to the outlying Native American communities to minister their needs (Engelhardt 1920). Large tracts of land continued to be granted to persons who applied for them or who had gained favor with the Mexican government. Grants of land were also made to settle government debts. The Mexican government was also called upon to reaffirm some older Spanish land grants shortly before the Mexican-American War of 1846 (Moyer 1969).

Anglo-American Period (1846-Present)

California was invaded by United States troops during the Mexican-American War of 1846–1848. The acquisition of strategic Pacific ports and California land was one of the principal objectives of the war (Price 1967). At the time, the inhabitants of California were practically defenseless, and they quickly surrendered to the United States Navy in July 1847 (Bancroft 1886).

The cattle ranchers of the "counties" of southern California had prospered during the cattle boom of the early 1850s. They were able to "reap windfall profit...pay taxes and lawyer's bills...and generally live according to custom" (Pitt 1966). However, cattle ranching soon declined contributing to the expansion of agriculture. With the passage of the "No Fence Act," San Diego's economy shifted from stock raising to farming (Robinson 1948). The act allowed for the expansion of unfenced farms, which was crucial in an area where fencing material was practically unavailable. Five years after its passage, most of the arable lands in San Diego County had been patented as either ranchos or homesteads, and growing grain crops replaced raising cattle in many of the County's inland valleys (Blick 1976; Elliott 1883).

By 1870, farmers had learned to dry-farm and were coping with some of the peculiarities of San Diego County's climate (*San Diego Union*, February 6, 1868; Van Dyke 1886). Between 1869 and 1871, the amount of cultivated acreage in the County rose from less than 5,000 acres to more than 20,000 (*San Diego Union*, January 2, 1872). Of course, droughts continued to hinder the development of agriculture (Crouch 1915; *San Diego Union*, November 10, 1870; Shipek 1977). Large-scale farming in San Diego County was limited by a lack of water and the small size of arable valleys. The small urban population and poor roads also restricted commercial crop growing. Meanwhile, cattle continued to be grazed in parts of inland San Diego County. In the Otay Mesa area, for example, the "No Fence Act" had little effect on cattle farmers because ranches were spaced far apart and natural ridges kept the cattle out of nearby growing crops (Gordinier 1966).

During the first two decades of the twentieth century, the population of San Diego County continued to grow. The population of the inland portion of the County declined during the 1890s, but between 1900 and 1910, it rose by about 70 percent. The pioneering efforts were over, the railroads had broken the relative isolation of southern California, and life in San Diego County became similar to other communities throughout the west. After World War I, the history of San Diego County was primarily determined by the growth of San Diego Bay. In 1919, the United States Navy decided to make the bay the home base for the Pacific Fleet (Pourade 1967). During the 1920s, the aircraft industry also established itself at the bay (Heiges 1976). The establishment of these industries led to the growth of the County as a whole; however, most of the civilian population growth occurred in the coastal areas in the northern portion of the County where the population almost tripled between 1920 and 1930. During this time period, the history of inland San Diego County was subsidiary to that of the City of San Diego, which had become a Navy center and industrial city (Heiges 1976). In inland San Diego

County, agriculture became specialized, and recreational areas were established in the mountain and desert areas. Just before World War II, urbanization began to spread to the inland parts of the County.

1.2.2 Results of the Archaeological Records Search

As part of the current study, BFSA conducted archaeological records searches at the South Coastal Information Center (SCIC) at San Diego State University (SDSU) and the San Diego Museum of Man (MOM) in Balboa Park. The records searches showed that the project area has been subjected to a number of cultural resource studies related to environmental impact studies. The records indicate that two cultural resource studies and one draft Environmental Impact Report (EIR) have been conducted within portions of the project area (Table 6.1–1). In addition, 32 cultural resource studies have been conducted within a one-mile radius of the project area. For specific information about these projects, see the complete records search results provided in Appendix II.

The results of these records searches also showed that four cultural resources have been recorded within the Hawano Project boundary. In addition, 73 resources, including 54 sites and 19 isolates, have been recorded within a one-mile radius of the project area (Table 6.1–2).

As is typical of Otay Mesa, most of the prehistoric sites listed in the records searches are characterized as lithic scatters, approximately 54.8% (N=40), ranging from only two artifacts to moderately dense scatters of lithic artifacts. In most cases, these sites were identified during surveys and have not been tested for significance; therefore, their subsurface characteristics are not known. Although a few of these sites have minimal subsurface deposits, the majority of these deposits are attributed to agricultural disturbances resulting in the downward turbation of artifacts. One prehistoric site (SDI-12,704) is described as a habitation site, three appear to be temporary camps (SDI-513, SDI-11,999 and SDI-12,721), while others are quarry sites, milling stations, or marine shell scatters (Appendix II). Four sites are listed as historic (SDI-11,796, SDI-11,802, SDI-15,040 and SDI-17,433), consisting of refuse scatters and historic features.

In addition to these 54 sites, approximately 19 isolated prehistoric artifacts have been recorded within one mile of the project (see Table 1.2–3). Most of these isolate finds consist of only one or two flakes or tested cobbles that are not associated with a concentration of artifacts; therefore, they were identified, mapped, and recorded with no further research being conducted. The large quantity of recorded isolates is a result of the intense use of the Otay Mesa area as a prehistoric raw material source. The complete results of the records searches are provided in Appendix II. In addition, the SCIC reviewed the following historic sources:

- The National Register of Historic Places Index
- The Office of Historic Preservation, Archaeological Determinations of Eligibility
- The Office of Historic Preservation, Directory of Properties in the Historic Property Data File

- 1872 County of San Diego Map
- Historic Roads and Trails: 1769-1885
- Cuyamaca 1903 30 Minute USGS Map
- El Cajon 1939 15 Minute USGS Map
- El Cajon 1955 7.5 Minute USGS Map
- 1928 Aerial Photograph

Although a structure is identified on the 1903 Cuyamaca 30 Minute USGS Map, near the vicinity of SDI-12,888 (tested as part of this project), the scale of the map does not allow for the precise identification of the structures location. It is more likely that this structure is part of SDI-11,799H as indicated by Robbins-Wade (2006). Elements of 12,888H are likely related to activities at 11,799H. Each of these sites falls within the historic use and time period of the D.O. McCarthy farmstead that opened a blacksmith shop, post office, and racetrack on their ranch back in the 1889. Review of 1928 aerial photographs indicates that there are no buildings remaining related to the former McCarthy farmstead by this period.

TABLE 1.2–2
Previous Studies Conducted within the Hawano Project Boundary

Carrico, Richard L.
1974 *Archaeological Survey of the Proposed Otay Mesa International Border Crossing.* WESTEC Services, Inc. On file at the South Coastal Information Center, San Diego State University, California.

Cooley, Theodore G.
1990 *Report of a Historic Properties Inventory for a Meter Station Facility Located on Otay Mesa Adjacent to the United States/Mexico Border for the Proposed Mexico/United States Emergency Water Connection Project, San Diego County, California.* Mooney & Associates. On file at the South Coastal Information Center, San Diego State University, California.

Rosenberg, Seth and Brian F. Smith
2009 A Phase I Archaeological Survey and Phase II Cultural Resources Evaluation for the Otay Business Park Project, San Diego County, California. On file at the South Coastal Information Center, San Diego State University, California.

TMI Environmental Services
1990 *Draft Supplemental Environmental Impact Report for American International Raceway.* TMI Environmental Services. On file at the South Coastal Information Center, San Diego State University, California.

TABLE 1.2–3
Archaeological Sites Located within One Mile of the Hawano Project (outside of current project boundary)

Site Number	Site Type	Site Dimensions	Report Reference
I-503	Prehistoric Isolate		
I-504	Prehistoric Isolate		
I-505	Prehistoric Isolate		
I-506	Prehistoric Isolate		
I-507	Prehistoric Isolate		
I-509	Prehistoric Isolate		
I-510	Prehistoric Isolate		
I-512	Prehistoric Isolate		
I-514	Prehistoric Isolate		
I-515	Prehistoric Isolate		
I-516	Prehistoric Isolate		
I-632	Prehistoric Isolate		
I-669	Prehistoric Isolate		
I-670	Prehistoric Isolate		
I-672	Prehistoric Isolate		
I-673	Prehistoric Isolate		
I-674	Prehistoric Isolate		
P-37-013722	Prehistoric Isolate		
SDI-10,067	Lithic Scatter	10x10m	Kyle & Gallegos 1992
SDI-10,080	Lithic Scatter		
SDI-10,081	Information Missing from SCIC and No Evidence of Site at Recorded Location		
SDI-10,082	Lithic Scatter	100x40m	James, Campbell, Briggs & Cooley 1993
SDI-10,297	Lithic Scatter	487x182m	Smith 1984
SDI-10,298	Lithic Scatter	365x182m	Smith 1984
SDI-10,299	Lithic Scatter	426x240m	Smith 1984
SDI-11,397	Lithic Scatter	10x10m	RECON 1989
SDI-11,793	Lithic Scatter	350x170m	Gross, Robbins-Wade, Smith, Jacobson 1989
SDI-11,794	Lithic Scatter	410x305m	Gross, Robbins-Wade, Smith, Jacobson 1989
SDI-11,795	Lithic Scatter	120x105m	Gross, Robbins-Wade, Smith, Jacobson 1989
SDI-11,796H	Historic Windmill/Well & Refuse Scatter	Feature	Gross, Robbins-Wade, Smith, Jacobson 1989
SDI-11,800	Lithic Scatter	305x185m	Gross, Smith, Jacobson 1989
SDI-11,801	Prehistoric Shell Scatter	4x13m	Gross, Smith, Jacobson 1989
SDI-11,802H	Historic Refuse Scatter	180x130m	Gross, Smith, Jacobson 1989
SDI-12, 256	Lithic Scatter	200x560m	Cotterman 2000

Table 1.2–3 (continued)

SDI-12,701	Lithic Scatter	140x175m	James, Campbell, Briggs & Cooley 1993
SDI-12,702	Lithic Scatter	10x10m	Price 1986
SDI-12,703	Lthic Scatter	80x20m	Price & Christenson 1986
SDI-12,704	Prehistoric Habitation Site (bedrock milling, ground-stone, lithic scatter)	480x150m	Huey & Campbell 1991
SDI-12,705	Lithic Scatter	50x50m	Gallegos & Price 1986
SDI-12,707	Lithic Scatter		
SDI-12,721	Temporary Camp (groundstone, bedrock milling, lithic scatter)	70x105m	James, Campbell, Briggs & Cooley 1993
SDI-12,862	Prehistoric Shell Scatter	15x30m	Huey & Baker 1992
SDI-12,877	Lithic Scatter	600x305m	Huey & Campbell 1991
SDI-12,878	Lithic Scatter	20x40m	Huey & Campbell 1991
SDI-12,879	Lithic Scatter	10x35m	Huey & Campbell 1991
SDI-12,880	Lithic Scatter	25x10m	Huey & Campbell 1991
SDI-12,881	Lithic Scatter	40x30m	Kyle & Gallegos 1992
SDI-12,882	Lithic Scatter	50x30m	Huey & Campbell 1991
SDI-12,883	Lithic Scatter	15x15m	Huey & Campbell 1991
SDI-12,884	Lithic Scatter	65x50m	Guerrero, Gallegos & Stropes 2004
SDI-12,885	Lithic Scatter	20x20m	Guerrero, Gallegos & Stropes 2004
SDI-12,886	Lithic Scatter	15x25m	Buysse 2000
SDI-12,887	Lithic Scatter	1x1m	Buysse 2000
SDI-12,888	Information Missing from SCIC	Unknown	Unknown
SDI-13,224	Lithic Scatter	40x25m	Briggs, James, Campbell & Cooley 1993
SDI-13,225	Bedrock Milling Station	50x65m	James, Briggs & Campbell 1993
SDI-14,726	Lithic Scatter	28x18m	Kay 1996
SDI-14,727	Lithic Scatter	25x15m	Kay 1996
SDI-15,040	Historic Refuse Scatter	6x8m	Buysse & Pemberton 1998
SDI-15,041	Lithic Scatter	75x125m	Buysse & Pemberton 1998
SDI-15,871	Bedrock Milling Station	5x3m	James & Briggs 2000
SDI-18,872	Lithic Scatter	75x140m	James & Briggs 2000
SDI-18,873	Lithic Scatter	25x80m	James & Briggs 2000
SDI-18,874	Lithic Scatter	15x35m	James & Briggs 2000
SDI-18,875	Lithic Scatter	35x100m	James & Briggs 2000
SDI-16,788	Quarry Site & Lithic Scatter	70x70m	Tift 2003
SDI-17,431	Lithic Scatter	100x120m	Clifford 2005
SDI-17,433H	Historic Cobble Feature	3x2m	Clifford 2005
SDI-7215	Lithic Scatter	120x140m	Taton 1976
SDI-8081	Lithic Scatter	300x130m	Huey & Campbell 1991
SDI-8652	Lithic Scatter	150x260m	Kay 1996
SDI-8653	Lithic Scatter	115x110m	Buysee, Waters & Pemberton 1998

1.3 Applicable Regulations

Resource importance is assigned to districts, sites, buildings, structures, and objects that possess exceptional value or quality illustrating or interpreting the heritage of San Diego County in history, architecture, archaeology, engineering, and culture. A number of criteria are used in demonstrating resource importance. Specifically, criteria outlined in CEQA, RPO, and the San Diego County Local Register provide the guidance for making such a determination. The following sections detail the criteria that a resource must meet in order to be determined important.

1.3.1 California Environmental Quality Act (CEQA)

According to CEQA (§15064.5a), the term "historical resource" includes the following:

1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR. Section 4850 et seq.).
2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14, Section 4852) including the following:
    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 possesses high artistic values; or
    d) Has yielded, or may be likely to yield, information important in prehistory or history.

4) The fact that a resource is not listed in, or determined eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Section 5020.1(j) or 5024.1.

According to CEQA (§15064.5b), a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. CEQA defines a substantial adverse change as:

1) Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.
2) The significance of an historical resource is materially impaired when a project:
    a) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
    b) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or,
    c) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Section 15064.5(c) of CEQA applies to effects on archaeological sites and contains the following additional provisions regarding archaeological sites:

1. When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource, as defined in subsection (a).
2. If a lead agency determines that the archaeological site is an historical resource, it shall refer to the provisions of Section 21084.1 of the Public Resources Code, Section 15126.4 of the Guidelines, and the limits contained in Section 21083.2 of the Public Resources Code do not apply.
3. If an archaeological site does not meet the criteria defined in subsection (a), but does meet the definition of a unique archaeological resource in Section 21803.2 of the Public Resources Code, the site shall be treated in accordance with the provisions of Section 21083.2. The time and cost limitations described in Public Resources Code Section 21083.2 (c-f) do not apply to surveys and site evaluation activities intended to determine whether the project location contains unique archaeological resources.
4. If an archaeological resource is neither a unique archaeological nor historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Initial Study or EIR, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

Section 15064.5 (d) & (e) contain additional provisions regarding human remains. Regarding Native American human remains, paragraph (d) provides:

(d) When an initial study identifies the existence of, or the probable likelihood, of Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage Commission as provided in Public Resources Code SS5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the Native American Heritage Commission. Action implementing such an agreement is exempt from:

1) The general prohibition on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (Health and Safety Code Section 7050.5)
2) The requirement of CEQA and the Coastal Act.

1.3.2 San Diego County Local Register of Historical Resources (Local Register)

The County requires that resource importance be assessed not only at the State level as required by CEQA, but at the local level as well. If a resource meets any one of the following criteria as outlined in the Local Register, it will be considered an important resource:

1) Is associated with events that have made a significant contribution to the broad patterns of San Diego County's history and cultural heritage;
2) Is associated with the lives of persons important to the history of San Diego or its communities;
3) Embodies the distinctive characteristics of a type, period, San Diego County region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4) Has yielded, or may be likely to yield, information important in prehistory or history.

1.3.3 San Diego County Resource Protection Ordinance (RPO)

The County of San Diego's RPO protects significant cultural resources. The RPO defines "Significant Prehistoric or Historic Sites" as follows:

> Location of past intense human occupation where buried cultural deposits can provide information regarding important scientific research questions about prehistoric or historic activities that have scientific, religious, or other ethnic value of local, regional, State, or Federal importance. Such locations shall include, but not be limited to: any prehistoric or historic district, site, interrelated collection of features or artifacts, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places or the State Landmark Register; or included or eligible for inclusion, but not previously rejected, for the San Diego County Historical Site Board List; any area of past human occupation located on public or private land where important prehistoric or historic activities and/or events occurred; and any location of past or current sacred religious or ceremonial observances protected under Public Law 95-341, the American Indian Religious Freedom Act or Public Resources Code Section 5097.9, such as burial(s), pictographs, petroglyphs, solstice observatory sites, sacred shrines, religious ground figures, and natural rocks or places which are of ritual, ceremonial, or sacred value to any prehistoric or historic ethnic group.

The RPO does not allow non-exempt activities or uses damaging to significant prehistoric or historic lands on properties under County jurisdiction. The only exempt activity is scientific investigation authorized by the County. All discretionary projects are required to be in conformance with applicable County standards related to cultural resources, including the noted

RPO criteria on prehistoric and historic sites. Non-compliance would result in a project that is inconsistent with County standards.

2.0 GUIDELINES FOR DETERMINING SIGNIFICANCE

Pursuant to the County of San Diego *Guidelines for Determining Significance – Cultural Resources* (December 5, 2007), any of the following will be considered a significant impact to cultural resources:

1) The project, as designed, causes a substantial adverse change in the significance of a historical resource as defined in §15064.5 of the State CEQA Guidelines.

2) The project, as designed, causes a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5 of the State CEQA Guidelines.

3) The project, as designed, disturbs any human remains, including those interred outside of formal cemeteries.

4) The project proposes non-exempt activities or uses damaging to, and fails to preserve, significant cultural resources as defined by the Resource Protection Ordinance.

3.0 RESEARCH DESIGN

The cultural resource survey and significance testing program conducted for the Hawano Project was required by the County of San Diego. The investigation included an archaeological reconnaissance of the property, records searches, recordation and collection of isolates, and recordation and significance testing of four sites including three prehistoric sites and one historic site. The cultural resource study for the Hawano Project focused on the relationship between the environmental setting and the human response to environmental factors.

3.1 Prehistoric Research Design

The theoretical construct or research orientation was designed for the significant resources located within the project and focused primarily on the manifestation in the archaeological record of prehistoric subsistence patterns in the Otay Mesa area. The question posed as a working hypothesis is provided below.

Research Question:

How did the prehistoric subsistence patterns in the Otay Mesa area change through time?

Previous research has indicated that the majority of sites within the Otay Mesa area represent a repetitive pattern of location characteristics and artifact assemblages (Carrico et al. 1992; Smith 1995). Sites in the vicinity are generally located on elevations near drainages; larger, more diverse sites are located in areas of vegetation transition, while smaller sites are located in zones of single or limited biological resources. Over time, environmental changes during the Archaic Period likely had a significant impact on the subsistence pattern in the Otay Mesa area. Therefore, in inland areas of the coastal zone, such as Otay Mesa, the semi-arid climate resulted in a concentration of water and other resources in drainage areas, resulting in a drainage-oriented settlement pattern. It follows that within the Hawano Project, site location, frequency, and size would be expected to be directly related to resource abundance, particularly in ecological transition zones and drainage patterns and, furthermore, that as the environmental conditions changed, so too did the subsistence pattern.

Discriminating between the La Jolla Complex (Archaic) and Kumeyaay (Late Prehistoric) subsistence practices is central to the issue of adaptive change. It appears likely that the transition between the foraging strategy of the La Jolla Period and the collector strategy of the Late Prehistoric Period was a gradual one, possibly fueled by the changing environmental conditions at the end of the Archaic Period. The degree to which the resulting archaeological assemblages represent adaptations to inland resources is of much interest in San Diego County (Laylander 1993). The inland expression of the La Jolla Complex is characterized by diminishing shellfish remains, a diversified tool kit made of inland quarried lithic material in

addition to cobbles, a broad range of resource exploitation, increased milling, increased sedentism, and an emphasis on terrestrial hunting and gathering (Moriarty 1966; Gallegos 1991; Kaldenberg 1982; True 1958; Warren et al. 1961; Meighan 1954; and Forstadt et al. 1992). The apparent similarities between La Jolla Complex and Late Prehistoric Kumeyaay subsistence adaptations make distinguishing between the two a complicated issue, until the later appearance of pottery, smaller projectile points, cremations, and exotic lithic materials (Gallegos 1992; Christenson 1992). While it is generally understood that a gradual intensification in the use of a broad range of resources took place during this period, the ways in which this adaptation is expressed in artifact assemblages and settlement patterns is less well understood.

Determination of site function is an important aspect of this research topic, particularly as it relates to site location through time. The assignment of site function has generally been reduced to an extrapolation of primary site activities based on artifact recoveries (i.e., food processing, lithic production, milling, etc.). However, the word "function" is used to describe not only the activities conducted at a site, but also the role played by the site in the subsistence pattern of a particular group. Thus, the analysis of site function can be focused at two levels - site specific function and regional or subsistence function.

At the testing level, the small sample size taken from any one site is not typically sufficient to substantially advance the knowledge of prehistoric patterns. This is particularly true of small, localized sites such as the four lithic scatters investigated during this study, where the artifact assemblage is limited to single representatives from one or two different artifact classes (i.e., a single core or a single metate fragment). On the other hand, the fact that small lithic scatters are so common, particularly on Otay Mesa, indicates the importance of understanding the role of such limited-use sites in the prehistoric subsistence system as a whole through time. It follows that each site holds the potential to contribute to this type of study, however limited the data collected. As large-scale archaeological studies in areas such as Otay Mesa progress and more is understood regarding prehistoric subsistence systems, the data gathered from small, limited-use sites may find increased significance.

The optimal data needs for this study include the determination of the cultural affiliation and general dates of use for each site. It is hoped that time- and culture-sensitive artifacts will be recovered. The identification and recovery of any faunal remains found at any of the sites is very important, and the identification of the floral materials present at the time of prehistoric occupation is also essential. Any faunal materials that are recovered must be identified to species, and any other cultural information, such as evidence of cooking, butchering, or other modifications, must be analyzed. Such analysis will provide information regarding diet and subsistence patterns by revealing the types of plant and animal resources that were exploited and the environments that existed when the exploitation took place.

- The size, shape, construction materials, and construction configuration of any remaining architectural elements or features that may indicate age, varying technologies, economic status, and ethnic patterning.

- The size, shape, and construction materials of features may suggest different functions (e.g., residence, industrial, garage, barn), indicating different economic activities.

- Integrity of the deposit or feature is critically important when determining significance.

Archaeological laboratory investigations will focus on the following information:

- The presence of discrete clusters of functionally related items may indicate a variety of different economic activities, such as mercantile enterprises, bootlegging, and general household refuse.

- The presence and relative density of non-local items, such as Chinese coins (wens), ceramics with Asian makers' marks, ethnic-specific ornamental items, and religious jewelry such as crosses, may suggest different ethnic groups.

- The presence and relative density of personal items, such as women's jewelry, combs, brushes, curlers, needles, thimbles, and garter clips, or men's work boots and cufflinks may indicate gender.

- The presence and relative density of subsistence items, such as different types of tins, bottles, shell, and bone remains, may suggest economic status, food availability, or personal preference.

- The presence and relative density of personal items, such as marbles, porcelain doll fragments, toy cars, cap guns, toy china fragments, and toy banks, may indicate the presence of children.

- The types and quantities of food bone may reflect consumer trends and economic status.

- The presence and relative density of luxury items, such as ornamental lamps, fine china, silverware, and perfume bottles, may indicate economic status.

4.0 ANALYSIS OF PROJECT EFFECTS

The archaeological program conducted for the Hawano Project consisted of archaeological records searches, an intensive survey of the entire project area, and the significance evaluation of four cultural resources identified within the project boundary. This archaeological study conformed to County of San Diego Archaeological/Historical Guidelines and appropriate statutory requirements of CEQA. Specific definitions for archaeological resource type(s) used in this report are those established by the State Historic Preservation Officer (SHPO 1995) and the Management Plan for Otay Mesa Prehistoric Resources (Gallegos et al. 1998).

4.1 Methodology

4.1.1 Survey Methodology

The archaeological survey of the proposed project area was conducted on May 17, 2010 by field archaeologists Clarence Hoff, Richard Savitch, Matthew Smith, and Charles Callahan under the direction of Brian F. Smith, Principal Investigator. In addition, all offsite improvements west of the project were also surveyed as part of this project. An intensive pedestrian survey, employing a series of north/south parallel transects spaced at approximately five- to ten-meter intervals, was conducted in order to relocate any previously recorded sites and identify any other archaeological resources within the project boundary. These transects conformed to the general orientation of the project area. When resources were located, transects were reduced to three meters or less to accurately delineate the surface expression. All resources located were mapped using a handheld Trimble Geo XT Global Positioning System (GPS) unit equipped with TerraSync software.

4.1.2 Testing Methodology

The testing program took place between May 24 and May 30, 2010 and included field archaeologists Clarence Hoff, Richard Savitch, Matthew Smith and Charles Callahan under the direction of Brian F. Smith, Principal Investigator. The Management Plan indicates that most sites located on Otay Mesa are sparse to moderate lithic scatters with no research potential (Gallegos et al. 1998). Because of the abundance of raw lithic materials provided by the Lindavista and Otay formations, the area provided easily accessible cobbles along the surface of the mesa. The Management Plan reveals that previous testing on Otay Mesa indicates the majority of these resources are solely a "smear or background noise" (Gallegos et al. 1998) and, therefore, cannot address important research issues. According to the 2002 update of the East Otay Mesa Specific Plan area (Russell et al. 2002), specific sites on Otay Mesa were designated as requiring testing or other mitigation measures, while others were determined not significant. Nonetheless, because significant archaeological materials have been identified at sites previously listed as not significant according to the Management Plan, a Phase II testing program was

implemented for any cultural resources with additional research potential. Field procedures for the testing program included shovel tests, test units, a surface collection, and shovel scrapes. A series of shovel test pits (STPs) was instituted at each site to identify the nature and extent of any subsurface deposits. Placement of the STPs within each site was based on the combination of a specific sampling strategy and the extent of the surface artifacts. The sampling strategy consisted of placing an initial STP in either the center of the densest portion of the surface collection, or within the center of previously recorded site boundaries where no adequate surface expression remained to locate the STPs. The STPs were then radiated out from the site center to the site boundaries, while still taking into account the location of surface artifacts when applicable. The shovel tests were approximately 30 centimeters in diameter and excavated in decimeter levels to a minimum depth of 30 centimeters or until a sterile level was encountered. All excavated soils were sifted through one-eighth-inch mesh hardware cloth.

As indicated by the Management Plan (Gallegos et al. 1998), Otay Mesa possesses a large number of sites limited to surface expressions of raw lithic material procurement and do not possess subsurface deposits. Therefore, test units were typically placed within sites possessing subsurface deposits, as indicated by the initial shovel tests. However, where ground cover was too dense to adequately assess the surface artifact density, a test unit was still employed to help define the potential significance of a site where other indications were either absent or inconclusive. The test units, one-square-meter in size, were excavated in standard decimeter levels to a minimum depth of 30 centimeters or until a sterile level or impassable degenerated granite was encountered. All excavated soils were sifted through one-eighth-inch hardware mesh cloth. Although the majority of the sites possessed poor ground visibility, an intense surface collection was attempted to determine the exact surface expression of each site. Surface scrapes (Plate 5.1–1) were used at all sites with poor ground visibility. The surface scrapes consisted of scraping and screening approximately four centimeters or less of the surface vegetation and humus layer within a one-square-meter area to expose the ground surface. Surface scrapes were placed at the same location as some of the STPs. In order to avoid confusion, surface scrapes were numbered with the same number as the corresponding STP. Missing surface scrape numbers in the catalogs are not indicative of excavated shovel scrapes with no recovery.

Plate 4.1–1 Example of a surface scrape.

All excavations conducted were mapped using GPS. The collected artifacts were bagged, labeled, and returned to the laboratory of BFSA for further analysis. As per San Diego County

requirements, a Native American representative, Clinton Linton, was present during the field testing program.

The following table (Table 4.1–1) lists the four cultural resources located within the project boundary that were subjected to a Phase II testing program to determine their significance and research potential. The table includes recommendations for the scope of testing data required to determine significance based on the area of the site, the concentration of artifacts observed, and the degree of ground visibility. The testing program for the project was submitted and approved by the County prior to initiation of fieldwork.

Table 4.1–1
Proposed Testing Procedures

Sites	Shovel Test Pits	Surface Collection	Test Units (dependent on Shovel Tests)	Surface Scrapes
SDI-8081	30-40	Yes	2	20
SDI-12,256	10-15	Yes	1	4-6
SDI-12,887	10-15	Yes	1	4-6
SDI-12,888	10-15	Yes	1	4-6

4.1.3 Laboratory Methodology

In keeping with generally accepted archaeological procedures, the artifacts and ecofacts collected during the investigations were categorized as to artifact form, mineralogy, and function. Comparative collections curated in the laboratory of BFSA are often helpful in identifying unusual or highly fragmentary specimens. The cataloging process for the recovered specimens utilized a classification system commonly employed in this region. After cataloging and identification, the collections were marked with the appropriate provenience and catalog information, then packaged for permanent curation. Radiocarbon dating was not conducted as part of the testing program; however, dating is recommended as part of the data recovery program to e implemented as a mitigation measure.

4.1.4 Registration and Curation

A copy of this report will be permanently filed with the SCIC. All project field notes, photographs, and other paperwork associated with our involvement in this project will be housed at the offices of BFSA in Poway, California. Per County requirements, all artifacts collected will be curated at the San Diego Archaeological Center (SDAC) upon completion of the project, along with a copy of all notes, photographs, and this report.

4.1.5 Native American Participation/Consultation

In addition to the archaeological records searches County of San Diego DPLU staff performed a review of the Sacred Lands File from the NAHC (Appendix V) and conducted all Native American correspondence in August of 2010. In accordance with San Diego County guidelines, specifically Section 4.2 of San Diego County's Draft CEQA Process Guidance for Cultural Resources, Land Use and Environment Group (revised July 27, 2006), a representative of local Native American groups was present during the fieldwork. A representative of the Kumeyaay Nation, Clinton Linton, participated in the fieldwork program.

4.2 Results

The archaeological survey conducted for the Hawano Project, including all off-site improvement areas, resulted in the relocation of four previously recorded sites (Figure 4.2–1). The relocated sites include SDI-8081, SDI-12,256, SDI-12,887, and SDI-12,888. Sites SDI-8081, SDI-12,256, and SDI-12,887 are sparse lithic scatters, although a small shell and lithic midden deposit was identified within SDI-8081. Site SDI-12,888 is a historic artifact scatter that is associated with a larger historic site (SDI-11,799) located within 200 feet to the east. No previously unrecorded sites were discovered during the field survey. These previously recorded sites, along with the results of the records searches, were discussed in Section 1.2.2.

As part of the County-mandated cultural resources guideline requirements, a testing program was implemented to determine whether any of the recorded resources were significant according to San Diego County and CEQA criteria. The four resources noted previously were subjected to a testing and significance evaluation program. The results of that process are presented in Sections 4.3 through 4.6.

The three prehistoric sites are characterized as short-term use resource extraction/processing sites exhibiting moderately disturbed contexts. The subsequent sections (4.3 through 4.6) describe the testing and evaluation of these cultural resources, including details of the artifact recovery from excavations. An evaluation of the significance of these sites is presented in Section 5.0. Generally, all of the sites within the project area exhibited cultural material within the topsoil. Anywhere from ten to 40 centimeters below the surface, depending on erosion and depositional processes, either a very compacted clay, or clay/decomposed granite (DG) conglomerate, or very compacted calcitic decomposed sandstone was encountered. This subsoil level was determined to be sterile of cultural material. The evaluations of the cultural resources within the Hawano Project boundary are presented in Sections 4.3 through 4.6. Each section provides the details of the sampling program and the artifact recovery.

Figure 4.2–1

Cultural Resource Location Map

(Deleted for Public Review; Bound Separately)

4.3 Site SDI-8081

4.3.1 Site Description

Site SDI-8081 is a large and widely dispersed resource extraction and processing temporary habitation site located along the east side of the project, adjacent to Alta Road (see Figure 4.3–1). The site was first recorded by Carrico in 1974 as a moderate lithic scatter and then updated to a habitation site by Huey and Campbell in 1991 (see Appendix II). Elevation at the site ranges from approximately 500 to 540 feet AMSL. Disturbances in the area include agricultural disking, as well as the grading of dirt roads. Minimal evidence of erosion was observed. Ground visibility within the roads was excellent; however, beyond the graded roads, ground visibility was very poor because of dense vegetation of tall grasses and weeds. The portion of the site located within the proposed alignment of Siempre Viva Road was previously studied as part of the Otay Business Park Project (Rosenberg and Smith 2009) that is adjacent to the Hawano Project property to the east. No bedrock outcrops or features were observed during the survey or as part of the limited study by Rosenberg and Smith in 2008. The survey in 2008 identified a shell midden located along the southern edge of the proposed Siempre Viva Road, roughly in the center of Site SDI-8081. The area of the shell midden was identified as having the greatest research potential and was therefore tested for significance as part of the off-site improvement impacts associated with the Otay Business Park Project. The information from the 2009 report for the adjacent project regarding SDI-8081 will be incorporated into this section.

The general configuration of the resource is shown in Figure 4.3–1, and the setting of the site is shown in Plates 4.3–1 and 4.3–2. Testing of Site SDI-8081 within the project area consisted of the excavation of 52 shovel test pits and two test units. The area of the shell midden at SDI-8081 previously identified by Rosenberg and Smith (2009) was relocated, mapped, and reinvestigated in its entirety as part of the current study for the Hawano Project.

4.3.2 Description of Field Investigations

Field investigations at Site SDI-8081 were conducted using the standard methodologies described in Section 4.1. A total of 36 artifacts and 2,816.4 grams of ecofacts were recovered from the site, including the recovery of materials in 2008 (Rosenberg and Smith 2009). A summary of artifact recovery from the site is presented in Table 4.3–1, while detailed provenience information in provided in the artifact catalog (Appendix IV).

Surface Recordation

The majority of the site surface was covered with dense, tall grasses; consequently, surface visibility was poor across most of the survey area except for the dirt roads. To compensate for the poor ground visibility, five surface scrapes were placed across the site according to the sampling design discussed in Section 4.1. The locations of these surface scrapes are illustrated in Figure 4.3–1.

Figure 4.3–1

Excavation Location Map — Site SDI-8081

(Deleted for Public Review; Bound Separately)

Plate 4.3–1, General overview of Site SDI-8081, facing east.

Plate 4.3–2, General overview of Site SDI-8081, facing north.

The surface scrapes, summarized in Table 4.3–1 and detailed in Table 4.3–2, yielded only four artifacts (three MGM flakes and one FGM flake) and 153.6 grams of marine shell. The shell midden area contained less dense vegetation than the surrounding area, resulting in better ground visibility than the remainder of the site. Unfortunately, the amount of shell visible was minimal and could not be assumed to be an accurate representation of the configuration of the midden deposit. Shovel tests were used to define the boundary of the midden deposit. The shell midden measures approximately 37.6 meters north/south by 34.4 meters east/west covering approximately 889 square meters.

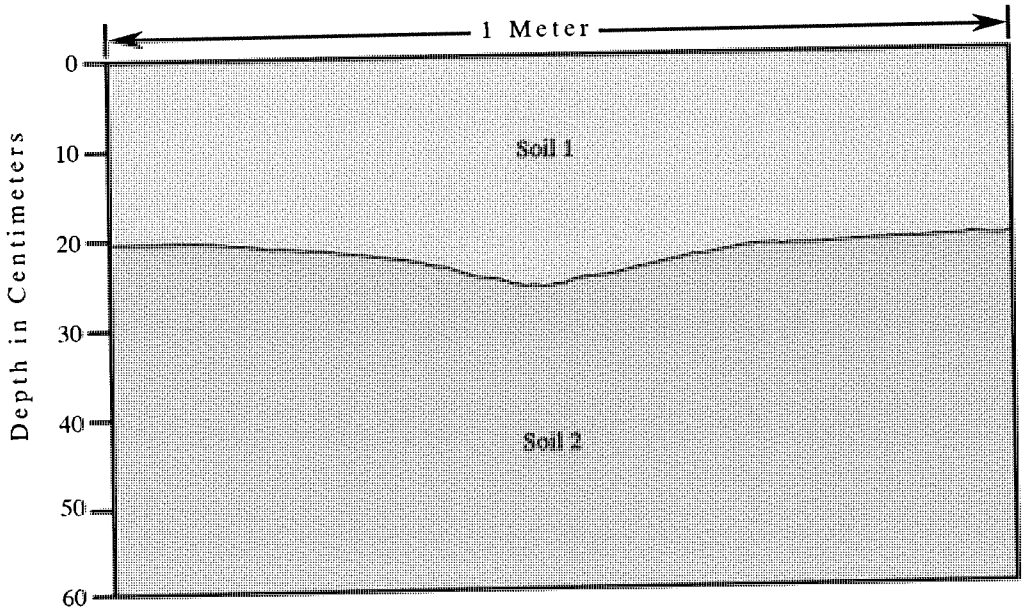
Subsurface Excavation

The potential for subsurface cultural deposits within Site SDI-8081 was investigated through the excavation of a total of 52 STPs, including those STPs excavated as part of the off-site improvements for the Otay Business Park Project (Rosenberg and Smith 2009). The locations of the STPs are shown in Figure 4.3–1. All shovel tests were excavated in decimeter levels to a minimum depth of 30 centimeters, unless a culturally sterile level or bedrock was encountered. Eight of the 52 STPs excavated at Site SDI-8081 were positive for cultural material (STPs 2, 11, 13, 21, 22, 23, 29, and 30). The majority of these positive STPs were associated with the shell midden identified in the north-central area of the site. STP 30 yielded a single animal bone; however, there was no indication it had been culturally modified. A summary of recovery from the STPs at Site SDI-8081 is presented in Table 4.3–1, and detailed excavation data is provided in Table 4.3–3.

Based on the results of the surface inspection and shovel tests, the shell midden covers an area measuring approximately 213 square meters. Subsurface testing of the potentially significant area of the site included the excavation of two standard one-meter-square test units. Test Unit 1 (TU 1) was placed just south of the future alignment of Siempre Viva Road and was completed by BFSA in 2008. The second unit was placed in the area of the site that produced the highest quantity of shell material from all of the STPs. The locations of the test units are illustrated in Figure 4.3–1.

The test units were excavated in standard decimeter levels to subsoil, and all removed soils were sifted through one-eighth-inch mesh hardware cloth. Recovery from TU 1 consisted of 13 lithic artifacts (12 flakes and one flake scraper) and 1,657.6 grams of marine shell. Cultural material was recovered to a maximum depth of 60 centimeters in TU 1, where hard clay/decomposed granite (DG) was encountered. Recovery from the test unit is summarized in Table 4.3–1 and detailed by depth in Table 4.3–4.

The soil from TU 1 was characterized as a moderately compacted very dark grayish brown (10YR 3/2) clay loam to a depth of approximately 22 centimeters, overlying a very compacted brown (10YR 5/3) clay subsoil with small cobble/DG inclusions to the maximum depth of the unit at 60 centimeters. The north wall of TU 1 is illustrated in Figure 4.3–2 and pictured in Plate 4.3–3.



Soil Types

1 Moderately compacted, very dark grayish brown (10YR 3/2) clay loam

2 Very compacted, brown (10YR 5/3) clay

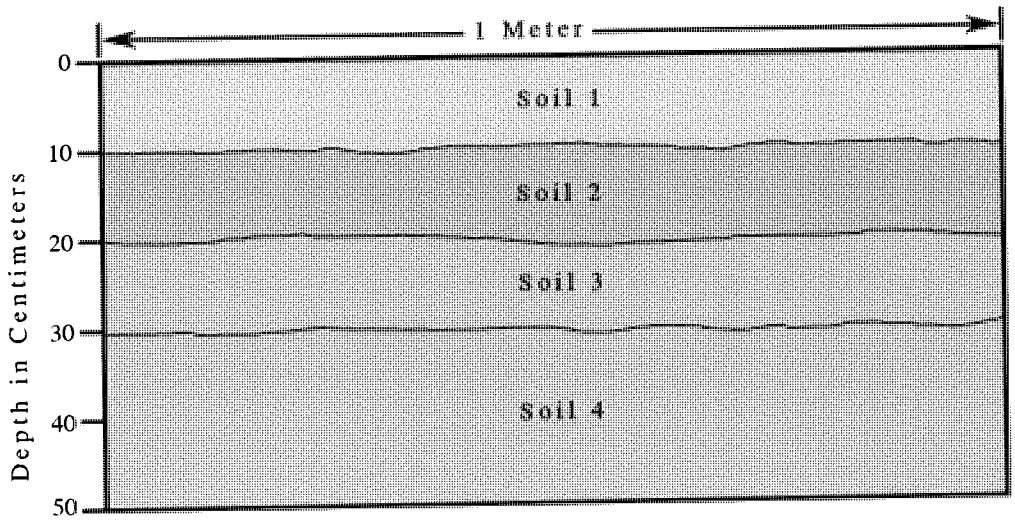
0 10 20 cm

Figure 4.3–2

North Wall Profile, Test Unit 1

Site SDI-8081

The Hawano Project



Soil Types

1 Loose, dark grayish brown (10YR 4/2) sandy loam

2 Loose, dark grayish brown (10YR 4/2) sandy loam

3 Compacted brown (10YR 4/3) silty clay

4 Compacted dark brown (10YR 3/3) silty clay

0 10 20 cm

Figure 4.3–3

North Wall Profile, Test Unit 2

Site SDI-8081

The Hawano Project

Plate 4.3–3, North wall profile of TU 1, SDI-8081.

Plate 4.3–4, North wall profile of TU 2, SDI-8081.

Recovery from TU 2 consisted of 14 debitage and 943.2 grams of marine shell. Cultural material was recovered to a maximum depth of 40 centimeters in TU 2, where hard clay/decomposed granite (DG) was encountered. Recovery from the test unit is summarized in Table 4.3–1 and detailed by depth in Table 4.3–4.

The soil from TU 2 was characterized as a loose, dark grayish brown (10YR 4/2) sandy loam to a depth of 20 centimeters, overlying a very compacted brown (10YR 4/3) silty clay to 30 centimeters, followed by a very compacted dark brown (10YR 3/3) silty clay subsoil with DG inclusions. The north wall of TU 2 is illustrated in Figure 4.3–3 and pictured in Plate 4.3–4.

4.3.3 Laboratory Analysis

Laboratory analysis for SDI-8081 included the standard procedures described in Section 4.1 of this report. All artifacts and ecofacts recovered from field investigations conducted at the site were returned to the laboratory facility of BFSA to be cataloged and analyzed. Recovery from Site SDI-8081, including 36 artifacts and 2,816.3 grams of marine shell, is summarized in Table 4.3–1 and detailed in Appendix IV.

Lithic Artifact Analysis

Fourteen lithic artifacts were recovered from the current program at SDI-8081. Lithic production waste (debitage) accounted for all artifacts. Activities indicated by the artifacts recovered from the site include procurement, processing, and maintenance of lithic tools. The lithic artifact collection included a small range of material types including fine-grained metavolcanic (FGM) and medium-grained metavolcanic (MGM), which are locally available. No temporally diagnostic artifacts (i.e. ceramics, projectile points) were recovered.

Marine Shell Analysis

For the invertebrate analysis, only the shellfish remains recovered from TU 1 was analyzed. A total of 1,657.6 grams of marine shell were recovered TU 1. *Chione* sp. accounted for the largest portion of the marine shell recovery, representing 68% (N=1,133.9 grams), followed by *Ostrea lurida* (15%; N=244.2 grams). Recovery also included scant amounts of a wide variety of gastropods, bivalves, and crustaceans. Although a wide range of marine resources was recovered from the shell midden, the most predominant species are found in coastal bay/mud flats and sandy beaches, not rocky shorelines (Table 4.3–5). Burned items represented 1% (N=12.6 grams). Generally, the recovery of all marine resources decreased with depth as excavations continued in TU 1 (Table 4.3–4). While large percentages of *Chione* sp. is usually indicative of an Archaic Period occupation and, conversely, *Donax* sp. is thought to be an indicator of Late Prehistoric Period occupation in the northern San Diego County region (Laylander 1993; Byrd 1998), recent excavations to the north of the current project have shown that shell middens do not follow the same patterns in the Otay Mesa area (Gilbert et al. 2006).

4.3.4 Discussion

Site SDI-8081 was previously recorded as a large, but dispersed lithic scatter with a central midden deposit. The overall dimensions of the recorded site boundary are approximated at 634 meters north/south by 208 meters east/west. These dimensions could not be substantiated during the current study because of the dense ground cover and the sparse nature of the surface scatter of artifacts. The subsurface testing of SDI-8081 has identified the dimensions of the subsurface deposit as 37.6 meters north/south by 34.4 meters east/west. The current program demonstrated that the site contains two types of material expressions. The first is the presence of an approximately 889 square meters of moderately deep shell midden containing a wide variety of marine species, but minimal quantities of lithic artifacts. The second expression is the presence of shallow, isolated lithic artifacts (flakes) found in some of the shovel test pits outside of the midden area. Site SDI-8081 represents elements commonly characteristic of Otay Mesa sites. These elements include scant lithic flake recovery with very minimal depth associated with widespread cobble lens quarrying found throughout the Otay Mesa area.

Test unit and shovel test excavations indicate that the shell midden subsurface deposit extends to a depth of 60 centimeters. No diagnostic artifacts were identified. Although there was little variety in the artifact types recovered, Site SDI-8081 exhibited a moderately deep, dense, and varied marine shell assemblage, indicating that the site was occupied for long durations. Therefore, the shell midden portion of the site does exhibit additional research potential. Additional portions of the site reflect the usual artifact "smear" with no research potential, as described in the Management Plan (Gallegos et al. 1998).

The shell midden portion of the site is interpreted as a habitation site where activities included the procurement, production, and maintenance of lithic resources and the processing and consumption of marine resources. No temporally diagnostic artifacts such as projectile points or ceramic (artifacts that give a clear indication of the time range in which they were manufactured) that would aid in identifying the site to a particular time period, were recovered. Although some chronometrically measurable faunal materials were recovered (shell), radiocarbon dating was not conducted as part of this phase of the project.

4.3.5 Summary

The analysis of the prehistoric cultural materials recovered from the tested portion of Site SDI-8081 revealed a significant cultural deposit extending to a depth of 60 centimeters. The recovered lithic artifacts indicate that site activities were focused on the procurement, processing, and maintenance of lithic tools. The depth and density of recovered ecofacts indicate that shellfish resources were processed and consumed at the site, and represent prolonged occupation.

The portion of Site SDI-8081 associated with the shell midden exhibits the potential for subsurface deposits and/or buried cultural features. Since the testing and evaluation program identified an intact subsurface deposit containing artifacts and ecofacts, the site has yielded

information and is considered to have additional research potential. Based on the information derived from the current testing program, this portion (the midden deposit only) of Site SDI-8081 is considered an important resource according to criteria listed in *County of San Diego, Guidelines for Determining Significance, Cultural Resources: Archaeological and Historic Resources* (September 26, 2006; Revised December 5, 2007).

TABLE 4.3–1
Artifact Summary, Site SDI-8081

Recovery Category	Surface	Surface Scrapes	Shovel Tests	Test Unit 1	Test Unit 2	Total	Percent
Ecofacts (weight in grams):							
Gastropodia:							
Cerithidea californica				4.2		4.2	0.25%
Littorina sp.				0.1		0.1	0.01%
Nassarius tegula				11.6		11.6	0.70%
Nassarius tegula (burnt)				1.1		1.1	0.07%
Olivella biplicata				<0.1		<0.1	0.01%
Terebra sp.				2.1		2.1	0.13%
Bivalvia:							
Amiantis callosa				<0.1		<0.1	0.01%
Anomia peruviana				<0.1		<0.1	0.01%
Argopecten sp.				23.9		23.9	1.44%
Argopecten sp. *(burnt)*				0.2		0.2	0.01%
Chione californiensis				138.5		138.5	8.36%
Chione fluctifraga				6.1		6.1	0.37%
Chione undatella				604.7		604.7	36.48%
Chione undatella (burnt)				1.6		1.6	0.10%
Chione sp.				382.3		382.3	23.06%
Chione sp. *(burnt)*				0.7		0.7	0.04%
Crucibulum spinosum				1.8		1.8	0.11%
Crucibulum spinosum (burnt)				0.1		0.1	0.01%
Donax gouldii				52.3		52.3	3.16%
Laevicardium elatum				33.0		33.0	1.99%
Modiolus sp.				<0.1		<0.1	0.01%

Recovery Category	Surface	Surface Scrapes	Shovel Tests	Test Unit 1	Test Unit 2	Total	Percent
Mytilus sp.				0.1		0.1	0.01%
Ostrea lurida				236.2		236.2	14.25%
Ostrea lurida (burnt)				8.0		8.0	0.48%
Tagelus sp.				24.3		24.3	1.47%
Tagelus sp. *(burnt)*				0.1		0.1	0.01%
Tivela sulturom				16.1		16.1	0.97%
Crustecea:							
Brachyura sp.				0.2		0.2	0.01%
Indeterminant shell				107.5		107.5	6.49%
Indeterminant shell (burnt)				0.8		0.8	0.05%
Unidentified shell		153.6	61.9		943.2	1158.7	NI
Unidentified bone			0.1			0.1	NI
Total Ecofacts:		153.6	62.0	**1657.6**	943.2	2816.4	**100%**
Percent of Ecofacts:		5.5%	2.2%	58.9%	33.5%	100%	
Artifacts:							
Expedient Tools:							
Utilized Flake(s)			1			1	2.6%
Lithic Production Waste:							
Flake(s)	2	4	3	12	14	35	92.1%
Precision Tools:							
Flake Scraper(s)				1		1	2.6%
Scraper(s)			1			1	2.6%
Total Artifacts:	2	4	5	13	14	38	100%
Percent of Artifacts:		11.1%	13.9%	36.1%	38.9%	100%	

NI = Not Included

Note: Percentages of shell (far right column) for Test Unit 1 only.

TABLE 4.3–2
Surface Scrape Recovery, Site SDI-8081

Surface Scrape	Quantity/ Weight (g)	Artifact Type	Material Type
1	No Recovery		
2	No Recovery		
3	No Recovery		
4	No Recovery		
5	1	Flake(s)	FGM
	3	Flake(s)	MGM
	153.6	Marine Shell	Unidentified

**Depth for all Shovel Scrapes was 0–3 centimeters*

TABLE 4.3–3

Shovel Test Excavation Data, Site SDI-8081

Shovel Test	Depth (cm)	Quantity/ Weight (g)	Artifact Type	Material Type
1	0-10	No Recovery		
	10-20			
	20-30			
2	0-10	1	Flake	MGM
	10-20	No Recovery		
	20-30			
	30-40			
3	0-10	No Recovery		
	10-20			
	20-30			
4	0-10	No Recovery		
	10-20			
	20-30			
5	0-10	No Recovery		
	10-20			
	20-30			
6	0-10	No Recovery		
	10-20			
	20-30			
7	0-10	No Recovery		
	10-20			
	20-30			
8	0-10	No Recovery		
	10-20			
	20-30			
9	0-10	No Recovery		
	10-20			
	20-30			
10	0-10	No Recovery		
	10-20			
	20-30			
11	0-10	<0.1	Shell	Unidentified
	10-20	No Recovery		
	20-30			
12	0-10	No Recovery		
	10-20			
	20-30			
13	0-10	No Recovery		
	10-20	1	Flake	MGM
	20-30	No Recovery		
	30-40			
14	0-10	No Recovery		
	10-20			
	20-30			

Shovel Test	Depth (cm)	Quantity/ Weight (g)	Artifact Type	Material Type
15	0-10	No Recovery		
	10-20			
	20-30			
16	0-10	No Recovery		
	10-20			
	20-30			
17	0-10	No Recovery		
	10-20			
	20-30			
18	0-10	No Recovery		
	10-20			
	20-30			
19	0-10	No Recovery		
	10-20			
	20-30			
20	0-10	No Recovery		
	10-20			
	20-30			
21	0-10	1 / 250.1	Scraper	MGM
	10-20	No Recovery		
	20-30			
22	0-10	25.5	Shell	Unidentified
	10-20	15.4	Shell	Unidentified
	20-30	10.2	Shell	Unidentified
	30-40	3.2	Shell	Unidentified
	40-50	6.0	Shell	Unidentified
	50-60	1.6	Shell	Unidentified
	60-70	No Recovery		
23	0-10	No Recovery		
	10-20	<0.1	Shell	Unidentified
	20-30	No Recovery		
	30-40			
24	0-10	No Recovery		
	10-20			
	20-30			
25	0-10	No Recovery		
	10-20			
	20-30			
26	0-10	No Recovery		
	10-20			
	20-30			
27	0-10	No Recovery		
	10-20			
	20-30			
28	0-10	No Recovery		
	10-20			
	20-30			

Shovel Test	Depth (cm)	Quantity/ Weight (g)	Artifact Type	Material Type
29	0-10	No Recovery		
	10-20	1	Flake	MGM
	20-30	No Recovery		
30	0-10	0.1	Bone	Animal
	10-20	No Recovery		
	20-30			
31	0-10	No Recovery		
	10-20			
	20-30			
32	0-10	No Recovery		
	10-20			
	20-30			
33	0-10	No Recovery		
	10-20			
	20-30			
34	0-10	No Recovery		
	10-20			
	20-30			
35	0-10	No Recovery		
	10-20			
	20-30			
36	0-10	No Recovery		
	10-20			
	20-30			
37	0-10	No Recovery		
	10-20			
	20-30			
38	0-10	No Recovery		
	10-20			
	20-30			
39	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
40	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
41	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			

Shovel Test	Depth (cm)	Quantity/ Weight (g)	Artifact Type	Material Type
42	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
43	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
44	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
45	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
46	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
47	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
48	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
49	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
50	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			

Shovel Test	Depth (cm)	Quantity/ Weight (g)	Artifact Type	Material Type
51	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
52	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			

TABLE 4.3-4
Summary of Test Unit 1 Recovery by Depth, Site SDI-8081

Recovery Category	Depth (in centimeters)						Total	Percent
	0-10	10-20	20-30	30-40	40-50	50-60		
Ecofacts (weight in grams):								
Gastropodia:								
Cerithidea californica	3.9	0.1	<0.1	0.2	–	–	4.2	0.25
Littorina sp.	–	0.1	<0.1	–	–	–	0.1	0.01
Nassarius tegula	6.3	3.3	1.1	0.3	–	0.6	11.6	0.70
Nassarius tegula (burnt)	–	0.3	–	–	0.8	–	1.1	0.07
Olivella biplicata	–	<0.1	–	–	–	–	<0.1	<0.01
Terebra sp.	0.6	1.3	0.2	–	–	–	2.1	0.13
Bivalvia:								
Amiantis callosa	–	–	–	–	–	<0.1	<0.1	<0.01
Anomia peruviana	<0.1	–	–	–	–	–	<0.1	<0.01
Argopecten sp.	9.7	9.4	3.4	0.6	0.3	0.5	23.9	1.44
Argopecten sp. (burnt)	0.1	0.1	–	–	–	–	0.2	0.01
Chione californiensis	37.6	71.0	14.6	9.6	2.7	3.0	138.5	8.36
Chione fluctifraga	3.2	0.3	0.5	–	–	2.1	6.1	0.37
Chione undatella	258.9	248.3	48.8	22.8	17.1	8.8	604.7	36.48
Chione undatella (burnt)	1.1	0.2	–	0.3	–	–	1.6	0.10
Chione sp.	193.2	140.7	25.5	10.5	6.0	6.4	382.3	23.06
Chione sp. (burnt)	0.2	0.4	–	–	0.1	–	0.7	0.04
Crucibulum spinosum	0.8	0.8	–	0.1	0.1	<0.1	1.8	0.11
Crucibulum spinosum (burnt)	–	0.1	–	–	–	–	0.1	0.01
Donax gouldii	18.2	24.2	3.6	3.3	1.4	1.6	52.3	3.16
Laevicardium elatum	22.4	10.1	0.4	0.1	–	–	33.0	1.99
Modiolus sp.	–	–	–	–	<0.1	<0.1	<0.1	<0.01

TABLE 4.3-4
Summary of Test Unit 1 Recovery by Depth, Site SDI-8081

Recovery Category	Depth (in centimeters)						Total	Percent
	0-10	10-20	20-30	30-40	40-50	50-60		
Mytilus sp.	0.1	–	–	–	–	–	0.1	0.01
Ostrea lurida	97.4	84.5	25.9	12.0	9.9	6.5	236.2	14.25
Ostrea lurida (burnt)	4.3	2.3	0.7	0.5	0.1	0.1	8.0	0.48
Tagelus sp.	8.8	8.6	2.9	2.0	1.3	0.7	24.3	1.47
Tagelus sp. (burnt)	0.1	–	–	–	<0.1	–	0.1	0.01
Tivela sulturom	14.1	0.6	1.4	–	–	–	16.1	0.97
Crustecea:								
Brachyura sp.	0.1	0.1	–	–	–	–	0.2	0.01
Indeterminant	46.7	35.0	10.2	5.3	6.6	3.7	107.5	6.49
Indeterminant (burnt)	–	0.8	–	–	–	<0.1	.0.8	0.05
Total Ecofacts:	727.8	642.6	139.2	67.6	46.4	34.0	1657.6	100.03
Percent of Ecofacts:	43.91	38.77	8.40	4.08	2.80	2.05	100.01	
Artifacts:								
Lithic Production Waste:								
Flake(s)	6	4	–	2	–	–	12	92.31
Precision Tools:								
Flake Scraper(s)	–	–	–	1	–	–	1	7.69
Total Artifacts:	6	4	–	3	–	–	13	100.00
Percent of Artifacts:	46.15	30.77	–	23.08	–	–	100.00	

TABLE 4.3–5
Summary of Test Unit 2 Recovery by Depth, Site SDI-8081

Recovery Category	Depth (in centimeters)					Total
	0-10	10-20	20-30	30-40	40-50	
Ecofacts (weight in grams):						
Marine Shell	560.7	331.1	49.8	1.6		943.2
Artifacts:						
Lithic Production Waste:						
Flake(s)	2	12				14

TABLE 4.3–6
Habitats of the Mollusks Most Represented at SDI-8081

Scientific Name	Habitat
Chione sp.	Bay/Mud Flats
Laevicardium sp.	Bay/Mud Flats
Donax sp.	Sandy Beach
Ostrea sp.	Bay/Mud Flats
Argopecten sp.	Bay/Mud Flats
Tagelus sp.	Bay/Mud Flats
Tivela sp.	Sandy Beach

4.4 Site SDI-12,256

4.4.1 Site Description

Site SDI-12,256 is another very expansive, but sparse prehistoric lithic scatter located on a relatively broad, south-facing slope immediately west of Site SDI-8081 (Figure 4.1–1). The site was identified by Schilz in 1989 as a lithic scatter (see Appendix II) and was partially evaluated as part of the Border Fence and Road Project for the Army Corps of Engineers. Elevation at the site is approximately 520 feet AMSL. Disturbances consisted of activities associated with agricultural use and erosion. The western limits of the site have also been disturbed by development of land west of the Hawano property. The general configuration of the resource is shown in Figure 4.4–1 and the setting of the site is shown in Plate 4.4–1. Testing of the site by BFSA consisted of the mapping and collection of all surface artifacts, and the excavation of 14 shovel tests and two standard test units.

Plate 4.4–1, General overview of Site SDI-12,256.

4.4.2 Description of Field Investigations

Field investigations at Site SDI-12,256 were conducted using the standard methodologies described in Section 5.0. Only one FGM core fragment was recovered from the surface during investigations at the site (Table 4.4–1). Detailed provenience information is provided in the artifact catalog (Appendix IV).

Figure 4.4–1

Excavation Location Map — Site SDI-12,256

(Deleted from Public Review; Bound Separately)

Surface Recordation

The entire surface of the site was inspected for artifacts and features. All artifacts and excavations were mapped using a handheld GPS unit (see Figure 4.4–1). The majority of the site surface was covered with dense grasses; subsequently, surface visibility was poor across most of the site. One artifact was collected during the surface collection. The surface expression of the site within the Hawano property, as defined by the orignial site form, covers an area measuring approximately 420 meters north/south by 165 meters east/west. The site does continue off-site to the south and west; however, no additional study was completed into those areas as part of the current investigation. The boundary of the site could not be verified or altered as a consequence of the current investigations, as the ground cover was too dense to accurately delineate site boundaries.

Subsurface Excavation

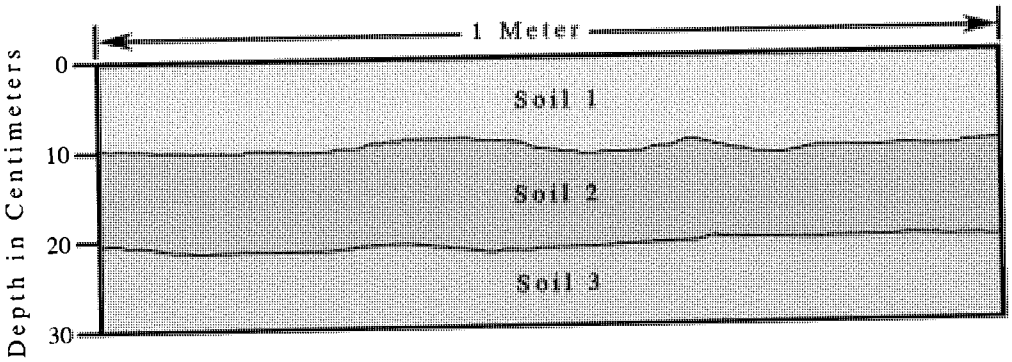
The potential for subsurface cultural deposits at Site SDI-12,256 was investigated through the excavation of a total of 14 STPs and two test units. Shovel test pits were excavated across the entire site in two parallel lines that covered the entire portion of the site within the current project boundary. The locations of the STPs are shown in Figure 4.4–1. All of the shovel tests were excavated in decimeter levels to a minimum depth of 30 centimeters, unless one sterile level or bedrock was encountered. Of the 14 STPs excavated at Site SDI-12,256, all were negative for cultural material. The STP excavation data is summarized in Table 4.4–2.

Subsurface testing of Site SDI-12,256 continued with the excavation of two standard one-by-one meter test units. The test units were positioned to sample the areas of greatest potential to produce subsurface deposits in light of the lack of any positive data from the series of STPs that were excavated. The locations of the test units are illustrated in Figure 4.4–1.

The test units were excavated in standard decimeter levels to subsoil, and all removed soils were sifted through one-eighth-inch mesh hardware cloth. The units were excavated to a depth of 30 centimeters. No artifacts or ecofacts were recovered from either of the test units (Tables 4.4–3 and 4.4–4).

The soil from TU 1 was characterized as a loose, dark grayish brown (10YR 4/2) sandy loam to a depth of approximately 10 centimeters, overlying a moderately compacted very dark grayish brown (10YR 3/2) sandy loam intermixed with clay to approximately 20 centimeters, followed by a compacted very dark brown (10YR 2/2) clay to the maximum depth of the unit at 30 centimeters. The north wall of TU 1 is illustrated in Figure 4.4–2 and pictured in Plate 4.4–2.

The soil from TU2 was characterized as moderately compacted dark grayish brown (10YR 4/2) silty loam to a depth of approximately 10 centimeters, overlying a compacted very dark grayish brown (10YR 3/2) silty clay to the maximum depth of the unit at 30 centimeters. The north wall of TU2 is illustrated in Figure 4.4–3 and pictured in Plate 4.4–3.



Soil Types

1 Loose, dark grayish brown (10YR 4/2) sandy loam

2 Moderately compacted very dark grayish brown (10YR 3/2) sandy loam

3 Compacted very dark brown (10YR 2/2) clay

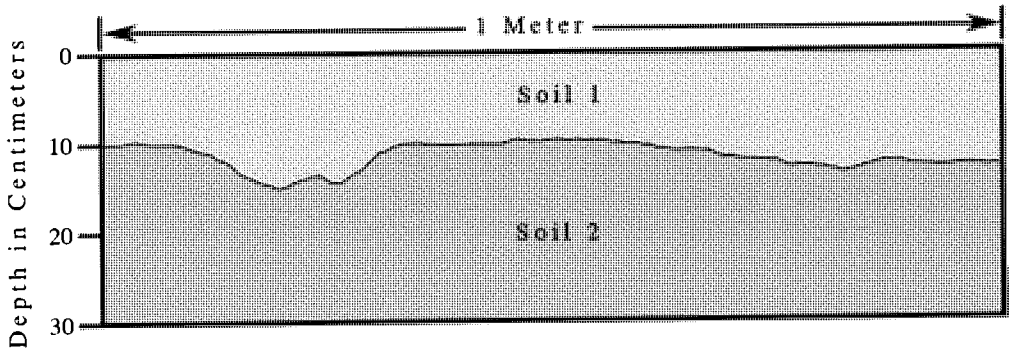
0 10 20 cm

Figure 4.4–2

North Wall Profile, Test Unit 1

Site SDI-12,256

The Hawano Project



Soil Types

1 Moderately compacted dark grayish brown (10YR 4/2) silty loam

2 Compacted very dark grayish brown (10YR 3/2) silty clay

0 10 20 cm

Figure 4.4–3

North Wall Profile, Test Unit 2

Site SDI-12,256

The Hawano Project

Plate 4.4–2, North wall profile of TU 1, SDI-12,256.

Plate 4.4–3, North wall profile of TU 2, SDI-12,256.

4.4.3 Laboratory Analysis

Laboratory analysis for Site SDI-12,256 included the standard procedures described in Section 5.0 of this report. All artifacts recovered from field investigations conducted at the site were returned to the laboratory facility of BFSA to be cataloged and analyzed. Recovery from Site SDI-12,256 included a single FGM core fragment. The artifact recovery from the site is summarized in Table 4.4–1 and detailed in Appendix IV.

4.4.4 Discussion

The current testing program demonstrated that Site SDI-12,256 consists of a very sparse lithic scatter. No evidence of any subsurface deposits was encountered during the study of this site. Based on the field invesstigations and the lack of variety and quantity of material noted at this site, the site does not exhibit additional research potential.

The site is interpreted as a limited-use resource extraction area where activities included very limited lithic tool production and/or maintenance. No temporally diagnostic artifacts, which would aid in identifying the site to a particular time period, were recovered from the site. The research potential of the site has been exhausted through the current testing program.

4.4.5 Summary

Analysis of cultural materials recovered from Site SDI-12,256 revealed a sparse surface scatter of lithic materials. The lack of subsurface deposits and sparse surface artifacts at the site confirms that the resource has no potential for buried cultural features and no additional research potential. However, the site did yield information during the current testing program. Therefore, according to the criteria listed in *County of San Diego, Guidelines for Determining Significance, Cultural Resources: Archaeological and Historic Resources* (September 26, 2006; Revised December 5, 2007), Site SDI-12,256 is considered as a resource of limited significance.

TABLE 4.4–1

Artifact Summary, Site SDI-12,256

Recovery Category	Surface	Shovel Test	Test Units	Total
Artifacts:				
Lithic Production Waste:				
Core(s)	1			1
Total:	1			1

TABLE 4.4–2

Shovel Test Excavation Data, Site SDI-12,256

Shovel Test	Depth (cm)	Quantity	Artifact Type	Material Type
1	0-10			No Recovery
	10-20			
	20-30			
	30-40			
	40-50			
2	0-10			No Recovery
	10-20			
	20-30			
	30-40			
	40-50			
3	0-10			No Recovery
	10-20			
	20-30			
	30-40			
	40-50			
4	0-10			No Recovery
	10-20			
	20-30			
	30-40			
	40-50			
5	0-10			No Recovery
	10-20			
	20-30			
	30-40			
	40-50			
6	0-10			No Recovery
	10-20			
	20-30			
	30-40			
	40-50			

Shovel Test	Depth (cm)	Quantity	Artifact Type	Material Type
7	0-10		No Recovery	
	10-20			
	20-30			
	30-40			
	40-50			
8	0-10		No Recovery	
	10-20			
	20-30			
	30-40			
	40-50			
9	0-10		No Recovery	
	10-20			
	20-30			
	30-40			
	40-50			
10	0-10		No Recovery	
	10-20			
	20-30			
	30-40			
	40-50			
11	0-10		No Recovery	
	10-20			
	20-30			
	30-40			
	40-50			
12	0-10		No Recovery	
	10-20			
	20-30			
	30-40			
	40-50			

Shovel Test	Depth (cm)	Quantity	Artifact Type	Material Type
13	0-10		No Recovery	
	10-20			
	20-30			
	30-40			
	40-50			
14	0-10		No Recovery	
	10-20			
	20-30			
	30-40			
	40-50			

TABLE 4.4–3

Summary of Test Unit 1 Recovery by Depth, Site SDI-12,256

Test Unit	Depth (cm)	Quantity	Artifact Type	Material Type
1	0-10	No Recovery		
	10-20			
	20-30			

TABLE 4.4–4

Summary of Test Unit 2 Recovery by Depth, Site SDI-12,256

Test Unit	Depth (cm)	Quantity	Artifact Type	Material Type
2	0-10	No Recovery		
	10-20			
	20-30			

4.5 Site SDI-12,887

4.5.1 Site Description

Site SDI-12,887 was first recorded by Huey and Campbell in 1991 as a sparse lithic scatter (see Appendix II). The western side of the site was subsequently investigated nine years later by BFSA (Buysse and Smith 2000) as part of the Airway Truck Parking Project. The investigation of the site area west of the Hawano property determined that area of the resource to be not significant based upon CEQA and County of San Diego guidelines at that time. The site was recorded as extending onto the Hawano property in 2000, and therefore, this area was investigated as part of the current study.

The site is located on an east/southeast-facing slope at the eastern terminus of Airway Road. The elevation of the site is approximately 530 feet AMSL. Disturbances include agricultural disking practices, erosion, and grading for multiple dirt roads. The western side of the site has been destroyed by grading for the Airway Truck Parking Project. Ground visibility was generally poor because of dense vegetation consisting of tall, introduced grasses and weeds. No bedrock outcrops, features, or darkened soils were observed. The general configuration of the resource is shown in Figure 4.5–1 and the setting is shown in Plate 4.5–1. Testing of Site SDI-12,887 consisted of the excavation of ten STPs and one standard test unit.

Plate 4.5–1, General overview of Site SDI-12,887, facing west.

Figure 4.5–1

Excavation Location Map — Site SDI-12,887

(Deleted for Public Review; Bound Separately)

4.5.2 Description of Field Investigations

Field investigations at Site SDI-12,887 were conducted using the standard methodologies described in Section 4.1. No artifacts were recovered during the current investigation (Table 4.5–1).

Surface Recordation

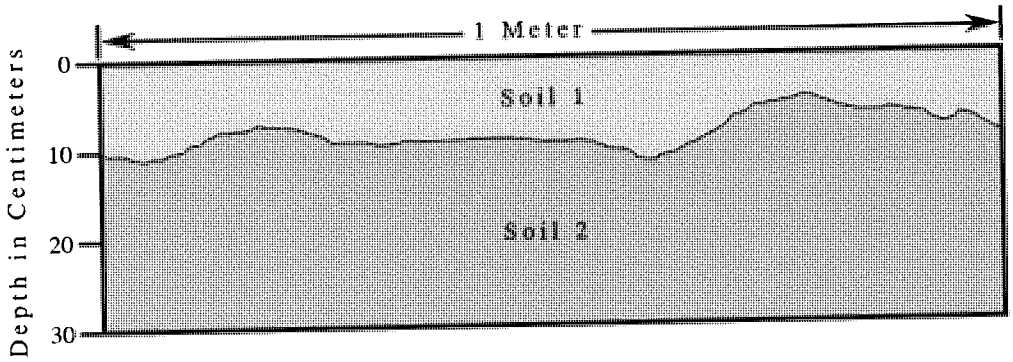
The entire surface of the site was inspected for artifacts and features. All artifacts and excavations were mapped using a handheld GPS unit (Figure 4.5–1). Off-road portions of the site surface were covered with dense tall grasses; subsequently, surface visibility was poor across these areas. Because of the density of ground cover, no artifacts were observed on the surface of the site. The original site description stated that the investigators at that time observed only one scraper and two flakes. Subsequent investigations by Buysse and Smith in 2000 recovered only one additional flake from the surface of the site during the testing of the site. Based upon the observations from the two previous investigations, the likelihood that surface artifacts are present at this site appears remote.

Subsurface Excavation

The potential for subsurface cultural deposits at Site SDI-12,887 was investigated through the excavation of a 10 STPs, which were excavated across the portion of the site within the Hawano Project. The shovel tests that excavated by Buysse and Smith in 2000 on the portion of SDI-12,887 to the west of the Hawano Project did not identify any subsurface deposits in that portion of the site. The locations of the STPs from the current study are shown in Figure 4.5–1. All shovel tests were excavated in decimeter levels to a minimum depth of 30 centimeters. The ten shovel tests excavated did not result in the recovey of any cultural materials. The excavation data for the STPs at Site SDI-12,887 is presented in Table 6.2–4.

Subsurface testing of Site SDI-12,887 continued with the excavation of one standard one-meter-square test unit. The test unit was positioned to sample the area of greatest potential to produce a subsurface deposit. TU 1 was placed in the northwest corner of the site, near STP 1. The location of TU 1 is illustrated in Figure 4.5–1.

The test unit was excavated to a depth of 30 centimeters in standard decimeter levels to subsoil, and all removed soils were sifted through one-eighth-inch mesh hardware cloth. No cultural materials were recovered from the test unit excavation. The test unit recovery is summarized in Table 4.5–3. The soil from TU 1 was characterized as a loose, grayish brown (10YR 5/2) sandy silt to a depth of approximately 10 centimeters, overlying a compacted dark brown (7.5YR 3/2) clay to the maximum depth of the unit at 30 centimeters. The north wall of TU 1 is illustrated in Figure 4.5–2 and pictured in Plate 4.5–2.



Soil Types

1 Loose, grayish brown (10YR 5/2) sandy silt

2 Compacted dark brown (7.5 YR 3/2) clay

0 10 20 cm

Figure 4.5–2

North Wall Profile, Test Unit 1

Site SDI-12,887

The Hawano Project

Plate 4.5–2, North wall profile of TU 1, SDI-12,887.

4.5.3 Laboratory Analysis

Laboratory analysis for Site SDI-12,887 would have included the standard procedures described in Section 5.0 of this report. However, no cultural material was recovered during the current investigation.

4.5.4 Discussion

Previous testing demonstrated that Site SDI-12,887 is a sparse surface lithic scatter. Test unit and shovel test excavations indicate that the site does not include a subsurface deposit. This is supported as well by the findings of the investigations of SDI-12,887 in 2000 by Buysse and Smith. There is little variety in the artifact types recovered and a complete absence of ecofacts. Site SDI-12,887 does not appear to exhibit additional research potential. The site is interpreted as a resource extraction site. No temporally diagnostic artifacts, which would aid in identifying the site to a particular time period, were recovered from the site.

4.5.5 Summary

Analysis of the prehistoric cultural material recovered from, or reported from previous studies at, Site SDI-12,887 revealed that the site has minimal depth (within the plow zone). Recovered lithic artifacts indicate that site activities were focused on resource exploitation. Site SDI-12,887 is unlikely to produce buried cultural features and, therefore, lacks additional

research potential. However, the site did yield information during the testing program. Therefore, Site SDI-12,887 is considered to possess limited significance according to criteria listed in *County of San Diego, Guidelines for Determining Significance, Cultural Resources: Archaeological and Historic Resources* (September 26, 2006; Revised December 5, 2007).

TABLE 4.5–1
Artifact Summary, Site SDI-12,887

Recovery Category	Surface	Shovel Test	Test Unit	Total
No Recovery	0	0	0	0

TABLE 4.5–2
Shovel Test Excavation Data, Site SDI-12,887

Shovel Test	Depth (cm)	Quantity	Artifact Type	Material Type
1	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
2	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
3	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			

Shovel Test	Depth (cm)	Quantity	Artifact Type	Material Type
4	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
5	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
6	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
7	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
8	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			

Shovel Test	Depth (cm)	Quantity	Artifact Type	Material Type
9	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
10	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			

TABLE 4.5–3
Summary of Test Unit 1 Recovery by Depth, Site SDI-12,887

Test Unit	Depth (cm)	Quantity	Artifact Type	Material Type
1	0-10	No Recovery		
	10-20			
	20-30			

4.6 Site SDI-12888

4.6.1 Site Description

Site SDI-12,888 is a previously recorded historic trash scatter located north of SDI-8081 and west of SDI-11,799 at the southwest corner of the intersection of the two dirt roads associated with Airway Road and Alta Road adjacent to the relatively level proposed off-site improvements area (see Figure 4.2–1). Site SDI-12,888 was first recorded by Ogden and Gallegos & Associates in 1993, and was described as a historic trash scatter including aqua glass, sun-colored amethyst glass, and ceramics. Given the proximity to Site SDI-11,799 (a cistern containing historic materials), it is possible these two sites reflect one larger historical resource. SDI-12,888 was not relocated at its mapped location during a 2005 study for the Otay Crossings Commerce Park Project (Robbins-Wade 2006), nor was it relocated during the study of the Otay Business Park Project (Rosenberg and Smith 2009). However, in the area where the west side of the site is mapped, BFSA field archaeologists did identify a small amount of historic artifacts that appear to correspond to the recorded description of SDI-12,888.

The SCIC records indicate that SDI-12,888 has never been tested for significance. To determine potential impacts associated with the proposed plan of development, the area along the northeast site boundary was subjected to subsurface testing as part of the current investigation (Figure 4.6–1). The recorded location of the site sits on relatively level terrain at an elevation of approximately 538 feet AMSL. Disturbances in the area include disking activities associated with past agricultural practices, and erosion may have also affected the site. Dense vegetation in the area, consisting of tall grasses, resulted in very poor ground visibility. The general configuration of the resource, as previously recorded, is shown in Figure 4.6–1 and the setting of the site is shown in Plate 4.6–1. The current evaluation of the western area of Site SDI-12,888 consisted of the collection of surface artifacts and the excavation of ten surface scrapes and 14 STPs (four of which were excavated in 2008 for the Otay Business Park Project off-site impact analysis). The locations of all field investigations are shown on Figure 4.6–1.

4.6.2 Description of Field Investigations

Field investigations at Site SDI-12,888 were conducted using the standard methodologies described in Section 5.0. All artifacts recovered from field investigations conducted at the site were returned to the laboratory facility of BFSA to be cataloged and analyzed. Recovery from Site SDI-12,888 included 46 glass fragments (clear, amber, bright green and light blue), ten ferrous metal fragments, one white ware ceramic fragment, one small fragment of lumber, one sawcut bone fragment and 1.3 grams of marine shell. The artifact recovery from the site is summarized in Table 4.6–1 and detailed in Appendix IV.

Surface Recordation

Although ground visibility was very poor throughout the site area, the entire surface was inspected for artifacts and features. To account for poor ground visibility, ten surface scrapes

Figure 4.6–1

Excavation Location Map — Site SDI-12,888

(Deleted for Public Review; Bound Separately)

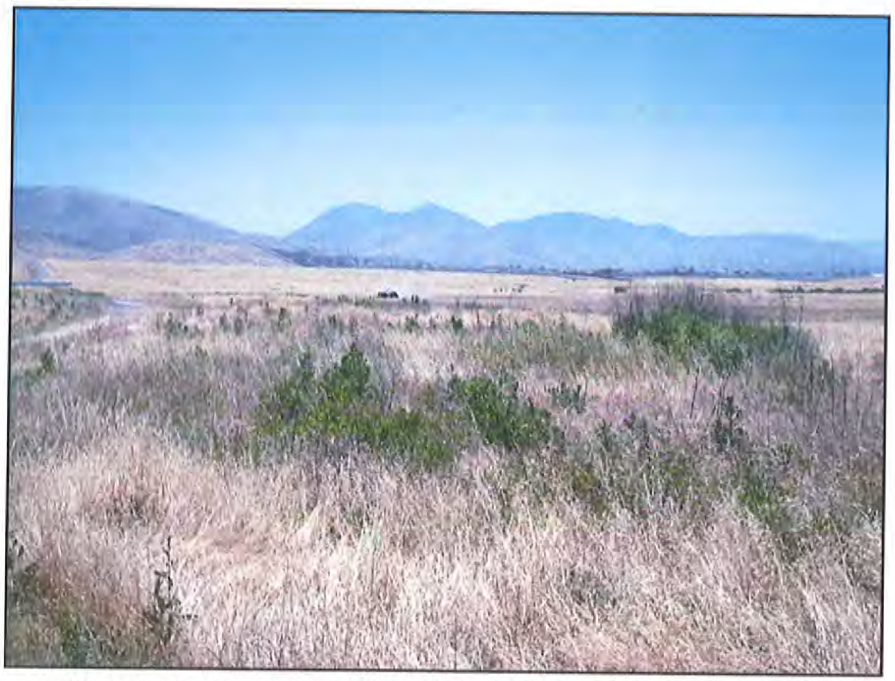


Plate 4.6–1, General overview of Site SDI-12,888, facing southeast.

were conducted at the location of each STP excavated as part of the current study of SDI-12,888. Only a single glass fragment was recovered from the surface scrapes (Table 4.6–2). The locations of the surface scrapes are illustrated in Figure 4.6–1.

Subsurface Excavation

The potential for subsurface cultural deposits within the portion of Site SDI-12,888 within the Hawano Project was investigated through the excavation of ten surface scrapes, ten STPs and two test units. STPs were excavated according to the field methodology discussed in Section 5.0. The locations of the STPs in relationship to the recorded site boundary are illustrated in Figure 4.6–1. All shovel tests were excavated in decimeter levels to a minimum depth of 30 centimeters, unless a culturally sterile level or bedrock was encountered. Four of the 14 STPs were positive for cultural materials. The recovery information for the STPs is provided in Table 4.6–3. The recovery from the STPs included only 11 glass fragments (7 clear, 1 amber, 1 bright green) and one small fragment of lumber. The majority of the glass fragments were recovered within the 0-10 centimeter level, with three recovered from 10-20 centimeters, and one glass fragment from the 20-30 centimeter level. All of the glass fragments were basically within the plow zone. No temporally diagnostic specimens were recovered. All of the specimens were too fragmentary and the assemblage too small to warrant an in-depth discussion of functional categories.

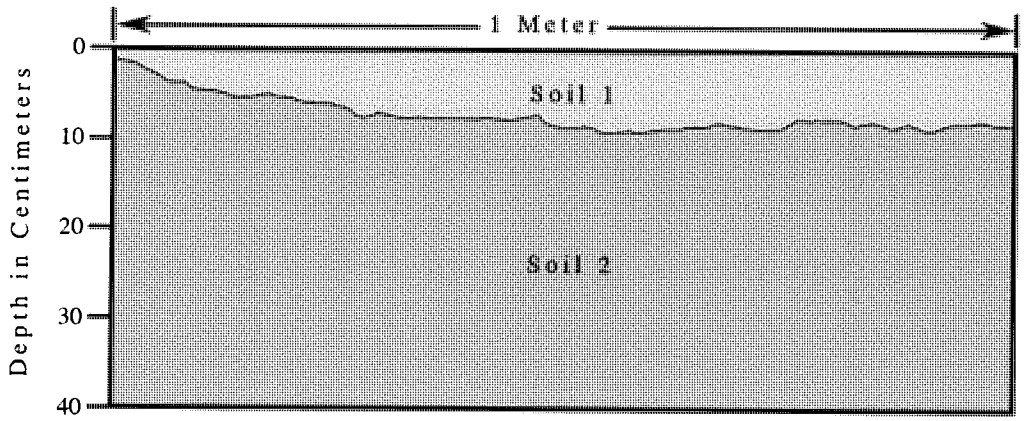
The two test units were excavated within the area where the positive shovel tests had indicated the potential for subsurface deposits (see Figure 4.6-1). Both test units produced

historic artifacts, with TU 1 having recovery to 30 centimeters and TU 2 to 20 centimeters. The recovery from the test units is presented in Tables 4.6–4 and 4.6–5. The soil from TU 1 was characterized as a moderately compacted very dark grayish brown (10YR 3/2) silty loam to a depth of approximately 10 centimeters, overlying a moderately compacted very dark grayish brown (10YR 3/2) silty clay to the maximum depth of the unit at 40 centimeters. The north wall of TU 1 is illustrated in Figure 4.6–2 and pictured in Plate 4.6–2. The soil from TU 2 was characterized as a compacted very dark grayish brown (10YR 3/2) silty clay to to the maximum depth of the unit at 30 centimeters. The north wall of TU 2 is illustrated in Figure 4.6–3 and pictured in Plate 4.6–3.

The recovery from the test units included glass (primarily bottle fragments), ferrous metal including round nails, barbed wire fragments and can fragments (type indeterminable), one ceramic fragment, one sawcut bone fragment, and one marine shell fragment. The glass fragments included what are likely bottle wall fragments based on the curvature of the specimens. The majority of the specimens are 0.5 inch in size making a definitive identification of vessel form impossible. The assemblage of glass fragments is dominated by clear glass with a small amount of amber, bright green, and light blue glass making up the remainder of the collection. The materials were both modern and historic in timeframe; however, none of the historic items had time-specific characteristics. In general, the historic materials may date from the late 1800s and are likely reflective of the agricultural rural occupation of Otay Mesa during the late 1800s to mid-1900s.

4.6.3 Discussion and Summary

The area corresponding to the previously recorded location of Site SDI-12,888 exhibits minimal surface artifacts and a shallow subsurface cultural deposit. No features or concentrations of buried cultural materials were noted, and the materials recovered are within the plow zone. Based upon information from the investigations of the adjacent Otay Business Park Project, the source for the historic artifacts is likely the historic homestead at SDI-11,799, which is directly adjacent to and northeast of SDI-12,888. If elements of 12,888H are related to activities at 11,799H, the chronologically the site falls within the historic use and time period of the D.O. McCarthy farmstead that opened a blacksmith shop, post office, and racetrack on their ranch back in the 1889. Review of 1928 aerial photographs indicates that there are no buildings remaining related to the former McCarthy farmstead by the 1920's. Based on the testing performed within the recorded boundary of SDI-12,888, the sparse subsurface artifact deposit is evaluated as having limited significance, but no further research potential. No features or concentrations of historic materials were discovered, and the detection of buried materials is likely a result of repeated plowing of the fields. The artifacts also indicated a mix of both historic and modern items, which can be associated with the active use of the dirt roads in the area for off-road activities, frequent passage of foot traffic, dumping of debris, and construction activities.



Soil Types

1 Moderately compacted very dark grayish brown (10YR 3/2) silty loam

2 Moderately compacted very dark grayish brown (10YR 3/2) silty clay

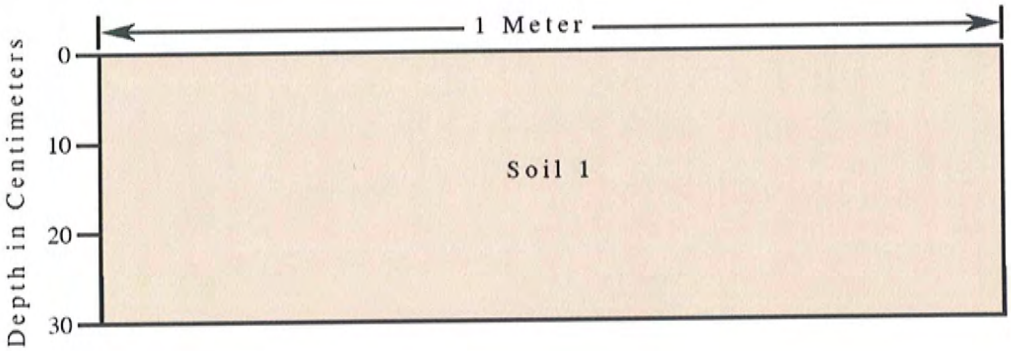
0 10 20 cm

Figure 4.6–2

North Wall Profile, Test Unit 1

Site SDI-12,888

The Hawano Project



Soil Types

1 Compacted very dark grayish brown (10YR 3/2) silty clay

0 10 20 cm

Figure 4.6–3

North Wall Profile, Test Unit 2

Site SDI-12,888

The Hawano Project

Plate 4.6–2, North wall profile of TU 1, SDI-12,888.

Plate 4.6–3, North wall profile of TU 2, SDI-12,888.

TABLE 4.6–1
Artifact Summary, Site SDI-12,888

Recovery Category	Surface Scrapes	Shovel Tests	Test Units	Total
Artifacts:				
Historic:				
Glass	1	11	34	46
Metal			10	10
Ceramic			1	1
Wood		1		1
Total:	1	12	45	58
Ecofacts:				
Sawcut Bone			1	1
Marine Shell			1.3 g	1.3g

TABLE 4.6–2
Surface Scrape Recovery, Site SDI-12,888

Surface Scrape	Quantity/ Weight (g)	Artifact Type	Material Type
1	No Recovery		
2	No Recovery		
3	No Recovery		
4	No Recovery		
5	No Recovery		
6	No Recovery		
7	1	Historic	Glass fragment
8	No Recovery		
9	No Recovery		
10	No Recovery		

TABLE 4.6–3
Shovel Test Excavation Data, Site SDI-12,888

Shovel Test	Depth (cm)	Quantity/ Weight (g)	Artifact Type	Material Type
5	0-10	2	Historic	1 Glass frag; 1 Wood frag
	10-20	No Recovery		
	20-30			
	30-40			
	40-50			
6	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
7	0-10	2	Historic	Glass fragments
	10-20	No Recovery		
	20-30			
	30-40			
	40-50			
8	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
9	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
10	0-10	No Recovery		
	10-20	1	Historic	Glass fragment
	20-30	1	Historic	Glass fragment
	30-40	No Recovery		
	40-50			
11	0-10	1	Historic	Glass fragment
	10-20	2	Historic	Glass fragment
	20-30	No Recovery		
	30-40			
	40-50			
12	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			

Shovel Test	Depth (cm)	Quantity/ Weight (g)	Artifact Type	Material Type
13	0-10	No Recovery		
	10-20			
	20-30			
	30-40			
	40-50			
14	0-10	3	Historic	Glass fragments
	10-20	No Recovery		
	20-30			
	30-40			
	40-50			

TABLE 4.6–4
Summary of Test Unit 1 Recovery by Depth, Site SDI-12,888

Recovery Category	Depth (in centimeters				Total
	0-10	10-20	20-30	30-40	
Artifacts:					
Historic:					
Glass	16	9	5	NR	30
Metal	2	6	1	NR	9
Ceramic			1	NR	1
Total:	18	15	7		40
Ecofacts:					
Sawcut Bone		1			1

NR = No Recovery

TABLE 4.6–5
Summary of Test Unit 2 Recovery by Depth, Site SDI-12,888

Recovery Category	Depth (cm)			Total
	0-10	10-20	20-30	
Artifacts:				
Historic:				
Glass	1	3	NR	4
Metal		1	NR	1
Total:	1	4		5
Ecofacts:				
Marine Shell	1.3 g			1.3 g

NR = No Recovery

4.7 Discussion

The cultural resources study of the Hawano Project consisted of an archaeological survey and program of site evaluations. The cultural resources identified within the project are all previously recorded, and no additional sites were discovered. The resources within the Hawano Project are listed in Table 7.0–1.

TABLE 4.7–1

Cultural Resources Located within the Hawano Project

Cultural Resource	Evaluation
SDI-8081	Tested/ Important (Further Mitigation Required)
SDI-12,256	Tested/ Not Important
SDI-12,887	Tested/ Not Important
SDI-12,888	Tested/ Not Important

To evaluate the potential impacts to cultural resources by the proposed development, a testing program was implemented to determine whether any of the resources are significant according to San Diego County and CEQA criteria. The information gathered during testing and documentation of the three prehistoric cultural resources within the project area indicates that the majority of the property was utilized primarily for limited-use resource processing within the known prehistoric subsistence pattern in the area (Gallegos et al. 1998). All of the sites have been previously impacted by a variety of disturbances including erosion, grading activities, agricultural uses, and vehicle and pedestrian traffic. Only Site SDI-8081 possesses a significant subsurface component, and in the case of this site, the subsurface deposit is relatively small as compared to the recorded boundary of the site. In addition to the three prehistoric resources, one historic site (SDI-12,888) was relocated and investigated. The historic site was subjected to surface inspection and subsurface testing to determine if any elements of the site were present within the impact area. The current program determined that the portion of SDI-12,888 within the project has no further research potential.

Sites SDI-12,256 and SDI-12,887 consisted of very sparse surface scatters and no subsurface deposits. These sites are located on gentle slopes on the south side of Otay Mesa. These sites are not directly associated with any natural features or lithic sources, and appear to be primarily resource extraction sites associated with food collecting activities of the prehistoric population of Otay Mesa. No temporally sensitive artifacts were noted during the investigations of these sites, nor were any such artifacts noted during previous studies of the sites. These sites

have yielded some information regarding the prehistoric occupation of Otay Mesa, and are therefore considered to represent limited significance according to San Diego County criteria; however, the sites do not retain any further research potential.

Subsurface testing of SDI-8081 demonstrated that a small distinct area of Site SDI-8081 contains a subsurface deposit of artifacts and ecofacts to a maximum depth of 80 centimeters. The relatively small size of the deposit (889 square meters) and the depth to which artifacts and ecofacts were recovered suggests that the midden represents a small, but repeatedly visited temporary camp. The shell midden contained a wide variety of shell species, indicating that the site occupants accessed a variety of ecosystems before traveling to the site. The shell midden portion of the site exhibits additional research potential and is considered an important resource according to criteria listed in *County of San Diego, Guidelines for Determining Significance, Cultural Resources: Archaeological and Historic Resources* (September 26, 2006; Revised December 5, 2007).

5.0 INTERPRETATION OF RESOURCE IMPORTANCE AND IMPACT IDENTIFICATION

The Hawano Project cultural resources study was conducted to provide an inventory of archaeological sites within the project area, to assess resources for significance, and to evaluate potential impacts represented by the planned development (Figure 5.0–1). As has been noted previously, the work conducted by BFSA for the Hawano Project and off-site improvement areas is one of several cultural resource studies conducted for the property. The result of these studies has been the identification of four previously recorded cultural resources (SDI-8081, SDI-12,256 SDI-12,887, and SDI-12,888). Sites SDI-8081 and SDI-12,887 were previously partially tested. SDI-8081 was identified as containing a limited and defined significant subsurface deposit, while SDI-12,887 was found to be not significant for portions of the site located outside of the Hawano property. The BFSA 2010 study incorporated these previous test results and expanded upon them to complete the significance evaluation. The goal of the archaeological study is to determine the potential impacts to cultural resources associated with grading for development. The project, as proposed by the applicant, will consist of subdividing the project area into 24 industrial lots.

Within the project boundary and off-site improvement areas, four cultural resources (SDI-8081, SDI-12,256 SDI-12,887, and SDI-12,888) were tested and evaluated during the current study in accordance with the guidelines of the County of San Diego and in compliance with the California Environmental Quality Act of 1970 (CEQA). For this review, the *County of San Diego, Guidelines for Determining Significance, Cultural Resources: Archaeological and Historic Resources* (September 26, 2006; Revised December 5, 2007) criteria were utilized as the foundation for resource evaluations. These significance guidelines synthesize both Section 15064.5 of CEQA and the County of San Diego's Resource Protection Ordinance (RPO) criteria. The significance criteria used to evaluate the Hawano Project sites is listed in Section 5.1.

The results of the evaluations are provided in the individual site reports, as well as summarized in Table 5.0–1. Three sites that were tested (SDI-12,256, SDI-12,887, and SDI-12,888) did not possess additional research potential and are listed as "limited" significant sites based on County criteria. Only Site SDI-8081 contains a significant deposit that corresponds to the site significance criteria provided in CEQA and County guidelines. The site is not RPO significant, as the midden deposit has been disturbed by several decades of plowing and loss of integrity; however, the site does retain research potential, which qualifies it as a CEQA-significant site.

Figure 5.0–1

Project Impact Map

(Deleted for Public Review; Bound Separately)

TABLE 5.0–1
Evaluation Summary for Tested Cultural Resources

Site	Evaluation	Mitigation Measures
SDI-8081	Significant	Mitigation Required
SDI-12,256	Limited Significant	Grading Monitoring, Artifact Curation
SDI-12,887	Limited Significant	Grading Monitoring, Artifact Curation
SDI-12,888	Limited Significant	Grading Monitoring, Artifact Curation

Based on the information provided in the technical report, the following significance determinations were made for the resources within the project area that were tested as part of the current study:

Tested Resources (4):	Number of Resources	Significant or Not Significant (CEQA, RPO, & County Guidelines)
	1	Significant (CEQA & County)
	0	Significant (RPO)
	3	Limited Significance (County)

5.1 Evaluation Procedures

The cultural resources tested within the project area were evaluated according to the County criteria, as stated previously. The characteristic consistently cited for sites evaluated as significant was the ability of the resource to produce information during the testing program. Only Site SDI-8081 contained the elements of material culture and ecofacts that represent a focused occupation for a long period of time, and thus is considered significant. The sites within the Hawano property represent primarily temporary encampment and limited-use areas associated with resource exploitation. Historically, the project area was used for agricultural and ranching activities, and a historic homestead site is situated directly adjacent to and northeast of the project.

Determining the Significance of Impacts to Archaeological and Historical Resources

As part of the evaluation of resources for the Hawano Project, the term "historical resources" as described in CEQA shall include the following:

(1) A resource listed in, or determined to be eligible by, the State Historical Resources Commission, for listing in the California Register of Historical Resources (pub. Res. Code SS5024.1, Title 14 CCR, Section 4850 et seq.).

(2) A resource included in the local register of historical resources as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in an historical resources survey meeting the requirements in Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript, which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4852) including the following:

(A) Is associated with the 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 possesses high artistic values; or

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

(4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code sections 5020.1(i) or 5024.1.

In addition, CEQA also states that impacts to a local community, ethnic, or social group must also be considered. If a resource is determined to be not important under these criteria, it is assumed that the resource cannot be significantly impacted and, therefore, mitigating measures are not warranted. However, any resources found to be important according to these criteria must be assessed for project-related actions that could directly or indirectly impact such resources. Impacts that adversely affect important resources are considered to be significant impacts for which mitigating measures are warranted.

Resources within the project were also evaluated against the listing information included in the County of San Diego's Resource Protection Ordinance (RPO). Sites that are considered to be regionally important may be eligible for RPO status. The criteria for RPO-eligible sites is as follows:

> Significant prehistoric or historic sites: Location of past intense human occupation where buried deposits can provide information regarding important scientific research questions about prehistoric or historic activities that have scientific, religious, other ethnic value of local, regional, state, or federal importance. Such locations shall include, but not be limited to: any prehistoric or historic district, site, interrelated collection of features or artifacts, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places or the State Landmark Register; or included or eligible for inclusion, but not previously rejected, for the San Diego County Historical Site Board List; any area of past human occupation located on public or private land where important prehistoric or historic activities and/or events occurred; and any location of past or current sacred religious or ceremonial observances protected under Public Law 95-341, the American Indian Religious Freedom Act or Public Resources Code Section 5097.9, such as burial(s), pictographs, petroglyphs, solstice observatory sites, sacred shrines, religious ground figures, and natural rocks or places which are of ritual, ceremonial, or sacred value to any prehistoric or historic ethnic group.

In addition to the CEQA and County RPO significance guidelines, the criteria set forth in the *County of San Diego, Guidelines for Determining Significance, Cultural Resources: Archaeological and Historic Resources* (September 26, 2006; Revised December 5, 2007) has been included for further evaluation of significance:

1. Resources associated with events that have made a significant contribution to the broad patterns of California or San Diego County's history and cultural heritage.
2. Resources associated with the lives of persons important to our past, including the history of San Diego County or its communities.
3. Resources that embody the distinctive characteristics of a type, period, region (San Diego County), or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
4. Resources that have yielded or may be likely to yield, information important in prehistory or history.
5. Districts are significant resource if they are composed of integral parts of the environment not sufficiently significant by reason of historical association or artistic

merit to warrant individual recognition, but collectively compose an entity of exceptional historical or artistic significance, or outstandingly commemorate or illustrate a way of life or culture. A traditional cultural landscape is an example of a prehistoric district because individual must be considered within the broader context of their association with one another.

6. Resource Protection Ordinance. Cultural resources must be evaluated for both the California Environmental Quality Act as outlined in criteria 1-4 above and the Resource Protection Ordinance pursuant to Article II of the ordinance (for specific RPO definitions see the RPO criteria listed above).
7. If human remains are discovered, the County Coroner shall be contacted. In the event that the remains are determined to be of Native American origin, the Most Likely Descendent, as identified by the Native American Heritage Commission, shall be contacted in order to determine proper treatment and disposition of the remains. A resource shall be considered significant if it contains any human remains interred outside of a formal cemetery.
8. Resources must retain enough of their historical character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated through the assessment of a cultural resource's attributes, and may include design, location, setting, materials, workmanship, feeling, and association. It must be judged with reference to the particular criteria under which a resource is proposed for eligibility (structural, architectural, artistic, historic location, archaeological site, historic district). Alterations over time to a resource or historic changes in its use may themselves have historical, cultural, or architectural significance.

5.2 Discussion of Significance

5.2.1 Discussion of Individual Site Significance

The testing program conducted for the Hawano Project produced the information necessary to evaluate the resources present according to the criteria presented in Section 5.1. The site evaluations are provided in the individual site discussions included in Section 4.0. For Site SDI-8081, the basis for the finding of significance was the potential of the site to provide additional information that would contribute to local and regional research issues related to the prehistoric occupation of the project sites (CEQA, Section 15064.5, Criterion D & San Diego County Guidelines for Determining Significance Criterion 4). The remaining three sites (SDI-12,256, SDI-12,887, and SDI-12,888) are listed as "limited significance" resources under County of San Diego Criteria; however, these sites do not retain any further research potential. None of the sites that were tested were found to qualify as important under any other criteria of CEQA or as regionally important, nor were any sites listed on or eligible for listing on the National Register of Historic Places. No sites were listed on the California Register of Historical Resources.

The sites were also reviewed in accordance with the County of San Diego RPO. While one of the tested sites was recommended as significant based on CEQA and San Diego County guidelines, none of these sites contains the range of artifacts or information potential that would elevate the sites to the status of RPO significance. None of the tested sites contained any evidence or artifacts of religious or ceremonial nature.

The cultural resources within the Hawano Project were evaluated on the basis of data gathered during the current investigation. Of the four sites tested and evaluated during the current project, only one is recommended as significant, or important while the remaining three sites are categorized as "limited significance" resources based on County guidelines. The cultural resources are listed by significance category in Table 4.2–1.

TABLE 5.2–1
Significance Recommendations for Evaluated Sites

Significant (CEQA and RPO)	Significant (County)	Significant (CEQA)	Limited Significance (County)
None	SDI-8081	SDI-8081	SDI-12,256 SDI-12,887 SDI-12,888

5.2.2 Discussion of Collective Site Significance

Site significance has been discussed throughout this report on the basis of individual site evaluations using County criteria, which requires consideration of site importance based on the association of multiple site districts. Therefore, the discussion of obvious inter-site relationships of prehistoric sites in the project area merits discussion. In small measure, the absence of radiocarbon dates limits the confirmation of site linkage chronologically. Chronological studies are recommended for future work at this project, which will assist the analysis of the temporal spectrum of prehistoric site use within the project area.

Utilizing data from the testing program, some conclusions may be drawn from a multiple site analysis. Geographically, several of the prehistoric sites within the project area are associated with contiguous landforms that are characterized by metavolcanic exposures. The consistency of the land-use pattern at the sites is worthy of note. The natural abundance of lithic resources in the Otay Mesa area combined with the geographical assimilation of the mesa to the west of the project area and the rolling hills and steep canyons of the San Ysidro Mountains to the east provided sufficient water and food resources for prehistoric subsistence over a wide area, which encompasses the project area.

Judging from site characteristics, artifact density and quantity and subsurface deposits, the matrix of a prehistoric resource exploitation pattern can be recognized. Although the sites within the project boundary are not isolated and, in fact, are connected geographically, temporally and culturally to related sites within a short distance of the project, together these sites form a recognizable collection of habitation and resource processing sites associated with major Late Prehistoric Kumeyaay and Archaic La Jolla Complex encampments in Otay Valley and Salt Creek to the north.

In a hierarchical analysis of sites, the weight of importance is directly based on the range of human activities represented or inferred from the material culture left behind in the archaeological record. Using Binford's model (Binford 1980), it is expected that the sites with the highest number of activities represent the permanent or semi-permanent settlements where all members of a group participated in cultural activities. This is typified by Site SDI-8081, which possesses a moderately deep midden deposit containing lithic resources and a wide variety of marine shell. Conversely, special-use sites, such as a quarry or hunting blind, are used by only a limited selection of the group's population for activities that require a minimal tool kit and have a brief duration of use. Focusing on the Hawano Project sites, use of a hierarchical approach to site typology is difficult because the remaining sites lack a variety of artifact types and features.

Historic sites within the Otay Mesa area are usually sporadic in nature and conform to the artificial division of land. These sites are typically homestead sites where farmers and ranchers acquired land through various land grants and acts, which were contingent upon successful development of the land either for agricultural, ranching, or timber use. The success of these rural enterprises was, in turn, contingent upon factors such as the environment, population pressures, regional development, and supply and demand. The historic site SDI-12,888 is associated with an adjacent historic site (SDI-11,799), which is a significant historic occupation site. SDI-12,888 does not share the level of historic artifact content or features identified at SDI-11,799 to be evaluated as CEQA-significant.

5.3 Assessment of Effects

In order to assess the effects of the proposed Hawano Project on cultural resources, a set of assumptions was used for the impact analysis:

- The area of potential development will include all areas within the project boundary, resulting in 100% impact.
- All impacts to cultural resources are assumed to be direct, particularly those resulting from grading. All direct impacts will result in the disturbance or removal of the resources.
- Cultural resources that border the proposed development and the off-site improvements will not be directly impacted; however, indirect impacts may be a concern for these sites.

The proposed project will impact four archaeological resources within the Hawano Project and off-site improvements boundaries. Impacts to the resources mentioned below will be fully mitigated by the measures that are recommended.

1. Direct impacts from the development of the Hawano Project:

   A. Direct Impacts to One Site Recommended as Significant based on CEQA and County Guidelines: The following important site would be directly affected by the grading and brushing of the project. Direct impacts to this site would be significant. Potential impacts to this site are considered significant.

   SDI-8081

   B. Direct Impacts to Three Sites Recommended as Limited Significant based on County Guidelines: Within the limits of grading and brushing for the proposed project and the off-site improvement areas, three resources will be impacted that have been tested and recommended as limited significant sites. These sites do not possess research potential, and therefore will be mitigated by grading monitoring, the recording of testing data, and the curation of all collected artifacts.

   SDI-12,256 SDI-12,887 SDI-12,888

Summary of Impact Significance

The area within the Hawano Project and off-site improvements will directly impact four cultural resources. Three of these sites were evaluated as representing only limited significance sites based on County guidelines and are considered to have no further potential to yield additional information. Only SDI-8081 is considered to be a CEQA-significant cultural resource; however, this significant site is not RPO significant. Impacts and significance recommendations are summarized in Table 5.3–1.

TABLE 5.3–1
Summary of Impacts and Significance Recommendations

Directly Impacted	Number of Sites
Number of Significant/Important (CEQA/San Diego County) Resources Directly Impacted:	1
Number of Limited Significance/Not Important Resources Directly Impacted:	3
Total Number of Resources:	4

5.4 Cumulative Impact Analysis

A cumulative impact, in terms of cultural resources, refers to increasing total effect on cultural sites due to past, present, and future activities of public and private entities and natural processes. The key to assessing cumulative impacts to archaeological sites is to understand that these resources are not renewable nor can they be replaced. The importance and significance of cultural resources comes from their association with our heritage, as well as the research value and the information that they contain. Hence, the issue that must be explored in a cumulative impact analysis is the cumulative loss of information as well as the loss of recognized cultural landmarks and vestiges of our cultural history. The CEQA definition of a cumulative impact from the Office of Planning and Research, Section 15355 is:

> Cumulative impacts refer to two or more individual effects, which when considered together, are considerable or which compound or increase other environmental impacts. Furthermore:
>
> (a) The individual effect may be changes resulting from a single project or a number of separate projects.
>
> (b) The cumulative impact from several projects is the change in the environment, which results from the incremental impacts of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

A cumulative impact analysis considers the development of the proposed project, in conjunction with other modern development in the vicinity and the effects of natural events, on cultural resources. The potential cumulative effect of these projects is the loss of cultural

resources, which would collectively contribute to the loss of San Diego prehistory. However, project specific mitigation can be implemented to reduce the effect of this development by ensuring scientific recovery, study, and curation of important cultural resources.

The following section discusses the cumulative impacts for the prehistoric cultural resources located within the Hawano Project. The *Management Plan for Otay Mesa Prehistoric Resources* (Gallegos et al. 1998) was used as a guide for defining prehistoric site types, the resource study area, and site comparisons. In addition, information obtained through the records search received from the SCIC (updated October 2009; see Appendix II) was also used for the cumulative impact assessment. The current status of archaeological sites outside of the project boundary was not verified through visual inspection. Assumptions of site status were based on aerial maps showing developed lands and site record information.

Resource Study Area

The Hawano Project is located in the southeastern portion of Otay Mesa, southwest of the San Ysidro Mountains, in San Diego County. Otay Mesa comprises approximately 10,000 acres that is bordered by the coastal plain on the west, Otay River on the north, Tijuana River on the south, and the San Ysidro Mountains on the east. In prehistoric times, the vegetation of Otay Mesa consisted of coastal sage scrub, chaparral, grasslands, and mima mounds with associated vernal pools (Gallegos et al. 1998). Otay Mesa is unique in that it contains hundreds of archaeological sites, some of which date to the early and middle Holocene and the beginning of San Diego prehistory (Gallegos et al. 1998; Kyle et al. 1990; Smith et al. 2004; Rosenberg and Smith 2009).

A total of 365 prehistoric archaeological sites had been recorded in the Otay Mesa Management Plan area as of 1998 (Gallegos et al.). Many of the archaeological sites on the mesa are marginal, sparse lithic scatters (N=225; 61.64%) and constitute part of the cultural manifestation known as the "Otay Smear," which is characterized as an extensive, yet scant, surface lithic scatter consisting primarily of cores and debitage and occasionally a few tools (Gallegos et al. 1998). The natural abundance of cobble materials, associated with the Lindavista and Otay formations and well suited for making stone tools, accounts for the extensive nature of this lithic scatter. Habitation sites and temporary camps are scattered throughout Otay Mesa and tend to be located near water sources and at the heads of drainages. Major habitation sites contain knives, atlatl dart points, milling and cobble tools, cores, drills, hammerstones, scrapers, beads, pendants, bone and shell, and have ranged in age from between 9,500 years and 300 years before present (Gallegos et al. 1998; Smith et al. 2004; Rosenberg and Smith 2009). Metavolcanic quarries are located in the San Ysidro Mountains, on the east side of the mesa, near outcrops of Santiago Peak Volcanic materials. The quantity and variety of sites on Otay Mesa attests to availability of tool stone materials, plant and animal resources, and water that provided sustenance to prehistoric populations.

Radiocarbon information is available for only 22 of the 365 sites recorded in the Otay Mesa Management Plan area and less than one percent of these resources have been preserved in open space (Gallegos et al. 1998). Only five habitation sites (SDI-222, SDI-4281, SDI-8654, SDI-11,424, and SDI-10,198) and two quarry sites (SDI-10,666 and SDI-10,667) are in open space easements or undeveloped land, and available for long-term preservation since they are situated on State or County lands (Gallegos et al. 1998). The preserved sites, however, do not represent the temporal range and diversity of prehistoric cultural resources. Consequently, it is recommended that a minimum of ten percent of all sites within river valleys, canyons, and in the Santiago Peak Volcanic formation be identified for preservation (Gallegos et al. 1998). Many of the other sites have been destroyed by development (e.g., roads, residences, industrial), or their current status is unknown. Nearly all have been impacted by agricultural activities including plowing, disking, and grazing.

In this area, the County of San Diego typically requests the use of the East Otay Mesa Specific Plan (EOMSP) area for the Hawano Project cumulative impact area. The EOMSP area encompasses approximately 3,300 acres comprising multiple drainages and open mesa land that approaches the southwestern foothills of the San Ysidro Mountains. The San Ysidro Mountains are a natural barrier to large-scale cultural expansion (past and present), which was taken into consideration in the establishment of the cumulative impact study.

Cumulative Projects

According to the updated (2009) SCIC records search (National Archaeological Database, NADB) results, 106 submitted reports describe past archaeological investigations for proposed projects within the EOMSP/cumulative impact area for the proposed Hawano Project (Table 8.4–1; see Appendix II). Failed project proposals and parcels documented by multiple archaeological investigations mean that the number of returned NADB results exceeds the number of actualized EOMSP projects. The NADB results document reports for projects (failed, actualized, and proposed) that concerned the international border, security, and commercial endeavors, transmission line projects, industrial quarries, public service projects that involve sewer, water, and correctional facility construction and improvements, off-road vehicle parks, resource management, transportation, and unspecified development. Collectively, these projects reflect the east and southward expansion of housing and industrial development in the Otay Mesa area, and a need for improved and increased infrastructure and recreational areas along with heightened international border security. In addition to development, much of this area has been disturbed by agriculture since the early 1900s. The archaeological reports that the SCIC records search results returned address cultural resource issues on approximately 33,950 acres in the Otay Mesa area over the past 30 years. The inflated number is due to survey duplication and surveys with boundaries that extend beyond the EOMSP area.

TABLE 5.4–1
Summary of EOMSP Area Cumulative Projects

General Project Type	Description	Estimated Number of Projects	Estimated Number of Reports	Estimated Acreage and/or Linear Miles
Border/Security	• Border Crossing (Carrico 1974); • Border Lights (McDonald et al. 1998, SAIC 1996, Mooney 1994, Dibble 1991, Cook and Pallette 1994); • Lighting, Fencing, and Roadways at Border (US Army Corps of Engineers 1997); • East Mesa Detention (Gallegos et al. 1998, Westec 1987, 1988); • Otay Mesa Correctional Facility/ State Prison (Thesken and Carrico 1982, Westec 1982); • Six Border Road Repair (Gross et al. 1996); • Vehicle Barrier & Drainage Works (Schiltz 1989); • RTX Rapid Transfer Xpress (Robbins-Wade and Giletti 2007); • Border Patrol Station (Guerrero and Gallegos 2007); • Corrections Corporation of American (Noah et al. 2006); • Space Surveillance Field Station (Underwood 2000)	11	18	888+ acres, 25+ miles
Commercial	• International Raceway (Graves 1985, TMI 1990); • San Diego Motor Racing Park (Smith and Moriarty 1985); • Bradley Auto Storage (Xinos Enterprises 1988); • Airway Business Park (Hector 1987); • Airway Truck Parking (Buysse and Smith 2000); • Sunroad Otay Truck Park (Wade 1999); • Auto Storage (BFSA 2000); • Otay Crossings Commerce Park (Robbins-Wade 2008) • Otay Business Park	9	10	1,651 acres

General Project Type	Description	Estimated Number of Projects	Estimated Number of Reports	Estimated Acreage and/or Linear Miles
Development (unspecified)	• Negative Survey (City of San Diego 1994); • Wetmore Property (Gallegos and Associates 2000); • Westmore (Cupples and Eidsness 1978); • Lonestar Parcel (Gallegos & Associates 2003, 2004); • Parcel 646-130-42 (Gallegos & Associates 1992); • Parcel B (Gallegos & Associates 2004); • Alta Lot Line (Gallegos & Associates 2004); • Valle de Oro Property (Nighabhlain 2000); • Monofil (Saunders 1993); • International Center (Recon 1983, Rick Engineering 1983); • TPM 12400 (Berryman 1976); • Zinser-Furby Parcel (Gallegos and Kyle 1992); • Robert Eggar Jr. Parcel (Gallegos and Kyle 1992); • Struthers Trust #3 Parcel (Gallegos and Kyle 1992); • Parcel 646-264-31 and 646-240-28 (Gallegos and Kyle 1992); • Loma-Sorrento Investors (Gallegos 1992); • Otay Ranch (Berryman 1987; Carrico 1993, Ogden 1992); • Otay Valley Parcel (Smith 1996); • Piper Homestead (Hector and Van Wormer 1987); • Piper Otay Park (Robbins-Wade 2007); • Historic Property (Gallegos et al. 1997); • Rancho Vista del Mar (Guerrero and Gallegos 2003); • Johnson Canyon (Gallegos and Guerrero 2003); • TPM 18724 (Berryman 1986); • California Crossing (Robbins-Wade 2008); • Otay Business Park (BFSA 2010)	26	30	24,000 + acres
Energy	• Miguel-Tijuana 230 KV International Connection (Cultural Systems Research, Inc. 1983; Westec Services 1979, 1991); • Generating Project (Gallegos & Associates 2000, 2001, 2002)	2	6	2+ Miles
Industrial	• Otay Hills Quarry (BFSA 2005); • Otay Mesa Sand and Gravel (Tetra Tech 2000); • 27 Drill Sites (Gallegos & Associates 1988)	3	3	218+ acres
Public Services	• Sludge Processing and Pipeline (Robbins-Wade and Gross 1990); • SDG&E Vecinos Gas Pipeline (Gross 1992; Robbins-Wade 1992); • SDG&E Pipeline Extension (Robbins-Wade 1998, 1999); • Otay Water District Central (Kyle and Gallegos 1994); • Otay Mesa Road Pipeline (Latas and Roth 1991); • Prison Sewer Pipeline (Hargrove 1985, Kidder 1984); • Otay Valley Water Reclamation Plant (Mooney 1992); • SD County Water Authority Pipeline (Mooney 1991); • Gravity Sewer Interceptor (Pierson 2003); • Stormwater System Maintenance (Robbins-Wade 2008)	10	13	190+ acres, 1,800+ miles
Recreation	• Otay Mesa OHV Park EIR (Westec/ EDAW 1986)	1	1	2150 acres

General Project Type	Description	Estimated Number of Projects	Estimated Number of Reports	Estimated Acreage and/or Linear Miles
Resource Management	• East Otay Mesa Specific Plan (Ogden Environmental 1993); • Otay Mesa Development (Case 2007); • CA-SDI-10,454 (Dominici 1992); • CA-SDI-5352 and CA-SDI-12,730 (Gallegos and Kyle 1992); • Kuebler Ranch (Gallegos and Flennikan 2000, Gallegos and Guerrero 2005); • CA-SDI-16788 (Guerrero et al. 2004); • CA-SDI-12884 and CA-SDI-12885 (Guerrero et al. 2003); • Six Sites on Otay Mesa (McDonald and Eighmey 1997); • Two Prehistoric Sites (Cooley 1999)	9	10	5450+ acres
Transportation	• Future State Route 11 (Kyle Consulting 2001; Rosen 2008); • SR 125 (McCorkle-Apple and Shaver 2006, Pierson and Henry 2007, Rosen 1990, 2006, Serr and Saunders 1994, Caltrans 1990, 1995, 1998); • Truck Inspection (Rosen 1993); • SR 905 (Gallegos 1999); • Otay Mesa Truck Route (Wade 1994); • Otay Mesa Road Widening (Kyle et al. 1996); • Pilot Transportation Center (Kyle 2005, Robbins-Wade 2007); • Enrico Fermi Drive Road Improvement (Fink 1999)	8	17	52.5+ acres, 11.2 miles

Archaeological Sites Within and Surrounding the Project Area

A combined total of 137 cultural resources have been recorded within the Hawano Project and its surrounding cumulative impact area. One hundred and four (86 prehistoric, nine historic, six dual, and three unknown) of these resources are characterized as archaeological sites, and the remaining 33 are artifact isolates (32 prehistoric and one historic). Scant surface lithic scatters, temporary camps/artifact scatters, and habitation sites are the types of prehistoric sites identified in, or in the vicinity of, the project area. The sparse surface scatters can be characterized as part of the "Otay Smear" and are generally located atop the mesa. The other temporary camps/artifact scatters and habitation locales are situated along the canyons and drainages that feed into the Otay or Tijuana rivers.

Of the 104 archaeological sites recorded within the EOMSP/cumulative impact area, 19 sites are believed to have been destroyed, or partially destroyed, by grading and other development activities based upon the SCIC records search aerial (dated to 2007; see Appendix II) and site records. Only one cultural resource, Site SDI-10,081, was destroyed before a formal recordation and evaluation could be performed. Impacts to the majority of the cultural resources (N=15) were mitigated through testing or data recovery. Three surficial lithic scatters (SDI-10,072, SDI-14,726, and SDI-14,727) were not relocated for more formal evaluation. The destroyed/partially destroyed sites are listed in Table 5.4–2.

TABLE 5.4–2
Summary of Destroyed, or Partially Destroyed, Sites in EOMSP/ Cumulative Impact Area

Site	Type	Significance Determination	Mitigation
SDI-7215 (Locus A)	Surficial Lithic Scatter	Not Significant (Noah and Gallegos 2006)	Tested, Monitoring (Guerrero and Gallegos 2007)
SDI-8076/ SDI-8079	Habitation	Not Significant (McDonald et al. 1998)	Tested, no additional archaeological studies recommended (McDonald et al. 1998)
SDI-8652	Surficial Lithic Scatter	Not Significant (McDonald 1998)	Tested, no additional archaeological studies recommended (McDonald 1998)
SDI-8653	Surficial Lithic Scatter	Not Significant (McDonald 1998)	Tested, no additional archaeological studies recommended (McDonald 1998)
SDI-8654	Habitation Area/ Lithic Scatter	Lithic Scatter Not Significant, Habitation Area Significant (Kyle and Gallegos 1994)	Data Recovery/Avoidance recommended for non-tested Significant portions of site (Kyle and Gallegos 1994)
SDI-10,067	Surficial Lithic Scatter	Not Significant (Kyle and Gallegos 1992)	Tested, no additional archaeological studies recommended (Kyle and Gallegos 1992)
SDI-10,072	Surficial Lithic Scatter (part of SDI-12,337)	Not Relocated (Gross 1993)	Not Possible, Destroyed (Gross 1993)
SDI-10,081	No Description Available, Destroyed	Not Possible, Destroyed (Gross 1993)	Not Possible, Destroyed
SDI-10,297	Temporary Camp/Historic Cistern	Significant Temporary Camp/ Not Significant Cistern (Clifford and Smith 2005)	Tested, Monitoring recommend (Clifford and Smith 2005, Guerrero and Gallegos 2007)
SDI-10,298	Temporary Lithic Reduction	Not Significant (Gallegos 2000)	Tested, no additional archaeological studies recommended (Gallegos 2000)
SDI-10,627	Surficial Lithic Scatter	Not Significant (Hector and Wade 1986)	Tested, no additional archaeological studies recommended (Hector and Wade 1986)
SDI-11,821	Piper Ranch Complex/ Disturbed Prehistoric Camp	Not Significant (Kyle et al. 1996)	Tested, no additional archaeological studies recommended (Kyle et al. 1996)
SDI-12,256	Habitation	Not Significant (Robbins-Wade 1999, Rosenberg and Smith 2007)	Tested, no additional archaeological studies recommended (Robbins-Wade 1999, Rosenberg and Smith 2007)
SDI-12,337	Dispersed Lithic Scatter	Not Significant (Rosen 1990)	Tested, Monitoring (Pierson 2009)
SDI-12,878	Surficial Lithic Scatter	Not Significant (Cooley 1999)	Tested, no additional archaeological studies recommended (Cooley 1999)

Site	Type	Significance Determination	Mitigation
SDI-12,886	Surficial Lithic Scatter	Not Significant (Buysse and Smith 2000)	Tested, no additional archaeological studies recommended (Buysse and Smith 2000)
SDI-12,887	Surficial Lithic Scatter	Not Significant (Buysse and Smith 2000)	Tested, no additional archaeological studies recommended (Buysse and Smith 2000)
SDI-14,726	Surficial Lithic Scatter	Not Relocated (Buysse 1998)	No additional archaeological studies recommended (Buysse et al. 1998)
SDI-14,727	Surficial Lithic Scatter	Not Relocated (Buysse 1998)	No additional archaeological studies recommended (Buysse et al. 1998)

Archaeological Sites within the EOMSP/Cumulative Impact Area

At least 87 archaeological sites are located within the EOMSP/cumulative impact area surrounding, but not including, the current project property. Sixteen of these sites (Table 5.4–3) have been added to the cultural resource inventory for East Otay Mesa since the production of the *Supplement to the East Otay Mesa Cultural Resources Technical Report Update* (Russell et al. 2002). In addition to the site types summarized in Table 5.4–4 (68 prehistoric, seven historic, five dual component, and three unknown), two bedrock milling sites, one prehistoric shell scatter, and one quarry site have been recorded.

TABLE 5.4–3

Archaeological Sites Added to the East Otay Mesa Specific Plan Area (EOMSP)*

Trinomial	Other Designation(s)	Site Type
SDI-10,072	Part of SDI-12,337	Unknown
SDI-11,363	-	Lithic Scatter
SDI-11,385	-	Munitions Debris
SDI-11,821	-	Disturbed Temporary Camp/ Piper Ranch Complex
SDI-12,274	-	Historic Artifact Scatter
SDI-14,726	-	Lithic Scatter
SDI-14,727	-	Lithic Scatter
SDI-15,041	-	Lithic Scatter
SDI-15,874	-	Lithic Scatter
SDI-15,875	-	Lithic Scatter

Trinomial	Other Designation(s)	Site Type
SDI-16,788	-	Lithic Scatter
SDI-17,104	Part of SDI-12,337	Lithic Scatter
SDI-17,105	Part of SDI-12,337	Lithic Scatter
SDI-17,431	-	Lithic Scatter
SDI-17,433	-	Historic Rock Enclosure
SDI-18,400	-	Lithic Scatter

* *For a detailed list of the remaining sites within the East Otay Mesa Specific Plan Area see "Supplement to the East Otay Mesa Cultural Resources Technical Report Update" (Russell et al. 2002).*

TABLE 5.4–4
Summary of Sites within the EOMSP/Cumulative Impact Area

Prehistoric Site Type*	Disturbances	Total	Significance	Status
Habitation	Roads, jeep trails, plowing, erosion, pot hunted, and modern trash	7	4 Significant, 1 Not Significant, 2 Undetermined	5 Mitigated, 2 Require Mitigation
Temporary Camp; Artifact Scatter	Roads, jeep trails, plowing, erosion, pot hunted, and modern trash	10	2 Significant, 5 Not Significant, 3 Undetermined	5 Mitigated, 5 Require Mitigation
Non-Site (surficial lithic scatters)	Roads, jeep trails, plowing, erosion, and grazing	56	24 Not Significant, 32 Undetermined	24 Mitigated 32 Require Mitigation
Unknown	Roads, jeep trails, plowing, erosion, and grazing	3	2 Unknown, 1 Undetermined	2 Destroyed 1 Undetermined
*Site type definitions after Gallegos et al. 1998				

Historic Site Type	Disturbances	Total	Significance	Status
Structures	Roads, jeep trails, plowing, erosion	6	4 Undetermined, 2 Not Significant	1 Destroyed, 1 Protected, 4 Require Mitigation
Artifact Scatters	Roads, jeep trails, plowing, erosion	5	5 Undetermined	5 Require Mitigation
Rock Enclosure	Roads, jeep trails, plowing, erosion, grading	1	1 Not Significant	1 Mitigated

Sparse Surface Lithic Scatters or "Non-Sites"

Most sites (N=56; 64.37%) within the EOMSP/cumulative impact area consist of sparse surface lithic scatters that are represented mostly by lithic production waste, and few if any tools. Gallegos et al. (1998) refers to these sparse lithic scatters as "non-sites," since the surface artifact density ratio (number of artifacts divided by site size) is less than 0.03, and they lack a subsurface deposit. Surface lithic scatters, or non-sites, are recorded to the west, northwest, north, northeast, and east of the current project area, particularly along the margins of the seasonal drainages. These sparse lithic scatters represent small, task-specific locations that are part of a regional pattern of resource acquisition associated with habitation sites elsewhere.

Sparse surface lithic scatters, or "non-sites," are the most common type of cultural resource identified on the mesa and in the immediate project vicinity. Sparse surface lithic scatters represent prehistoric actions of knappers testing cobbles to determine the suitability of the interior lithic material, and possibly the production and use of a tool on the spot for a one-time event. The research potential of these "non-sites" is almost non-existent because often the boundaries are difficult to define, they cannot be compared with other sites or loci, and they cannot be said to represent a statistical sample of either lithic production waste or tools (Gallegos et al. 1998). Furthermore, archaeological tests of sparse lithic scatters have demonstrated that these site types lack research potential and Native American concerns, and hence, are not eligible for inclusion in the California Register of Historical Resources or National Register of Historic Places. Cumulative disturbances to these sparse lithic scatters, or "non-sites," include plowing, roads, jeep trails, erosion, reservoir construction, fence construction and grazing (see Table 5.4–4). Several lithic scatters or "non-sites" have been destroyed (N=14) from development projects conducted within the EOMSP/cumulative impact area of the proposed project (see Table 5.4–3); impacts to 11 of these lithic scatters were mitigated through testing before destruction, and three were not relocated. Most of the EOMSP/cumulative impact area surface lithic scatters (N=32) require more formal evaluation (see Table 8.4–4).

Temporary Camps/Artifact Scatters

The second most common site type within the EOMSP/cumulative impact area is the temporary camps/artifact scatters, which is defined as having three artifacts every 100 square meters, some bone and shell, and the lack of a significant subsurface deposit (Gallegos et al. 1998). Seventy-one (31 temporary camps and 40 artifact scatters) have been recorded in the Otay Mesa Management Plan area (Gallegos et al. 1998). Ten temporary camps/artifact scatters lie within the EOMSP/cumulative impact area of the proposed project (see Table 5.4–4). Two of these site types were at least partially destroyed after impacts were mitigated (SDI-10,297 and SDI-11,821; see Table 5.4–2). Temporary camps/artifact scatters suffer similar modern and historic disturbances as the sparse lithic scatters; although modern trash dumping and pot hunting have also affected this site type (see Table 5.4–4).

Habitation

The third site type, habitation sites, is the least common site type within the EOMSP/cumulative impact area; however, the habitation site is the most important, as it typically contains information that can be used to address a range of research issues including chronology, subsistence, settlement, trade, and technology. Habitation sites are the location where people conducted subsistence, utilitarian and ceremonial activities for an extended period. Consequently, the cultural material from this type of site is varied and abundant, typically containing multiple tool types and lithic materials, rare materials and artifacts, animal bone and marine shell. Seven habitation sites have been found in the EOMSP/cumulative impact area of the proposed project (see Table 5.4–4). Impacts to two of these sites (SDI-8654 and SDI-12,256) have been at least partially mitigated through testing or data recovery and destroyed. Three of the sites (SDI-10,297, SDI-12,707 and SDI-12,710) have been mitigated or mitigation measures have been recommended. The remaining two sites (SDI-10,299 and SDI-12,710) require more formal evaluation. Site SDI-10,299 has been subjected to partial testing (Robbins-Wade 2006) and a grading monitoring program (Guerrero and Gallegos 2007) for nearby developments. SDI-12,704 is reported to contain numerous metavolcanic tools, manos, and metates (Huey and Campbell 1991, site form; see Appendix II); however, no testing has been undertaken for this site to date.

Historic

Seven historic sites (SDI-12,888, SDI-11,385, SDI-12,274, SDI-11,796, SDI-11,802, SDI-17,433 and SDI-15,040) and five sites with historic components (SDI-12,713, SDI-10,297, SDI-11,821, SDI-11,797 and SDI-12,701) are present within the EOMSP/cumulative impact area of the Hawano Project (see Table 5.4–4). The historic components of SDI-10,297 and SDI-11,821 were tested and evaluated as not significant and at least partially destroyed (see Table 5.4–2). Site SDI-17,433, a rock enclosure, was evaluated as not significant and no additional archaeological studies were recommended (Clifford and Smith 2005). The remaining historic resources all require more formal evaluation in order to determine appropriate mitigation measures.

Archaeological Sites within the Hawano Project Area

Four archaeological sites (three prehistoric and one historic) are located within the Hawano Project (Table 8.4–5). Portions of two of these sites (SDI-12,256 and SDI-12,887) have been previously tested and determined not significant. All four sites were tested for the current Hawano Project investigation. Three of the sites (SDI-12,256, SDI-12,887 and SDI-12,888) were determined to have limited significance; however, their lack of future research potential indicates that testing has mitigated the developmental impacts to these sites. One site (SDI-8081) was determined significant and mitigation is required because of the resource's ability to contribute additional information regarding past cultural lifeways. In addition, curation and

cultural resource monitoring by a County approved archaeologist and Native American monitor will be required.

TABLE 5.4–5
Summary of Hawano Sites

Prehistoric Site Type*	Total	Significance	Status
Temporary Camp; Artifact Scatter	1	1 Significant	Intact
Non-Site (surficial lithic scatters)	2	2 Limited Significance (Mitigated)	1 Partially Destroyed 1 Intact
*Site type definitions after Gallegos et al. 1998			
Historic Site Type	**Total**	**Significance**	**Status**
Surface Trash Scatter	1	1 Limited Significance (Mitigated)	Intact

Sparse Surface Lithic Scatters or "Non-Sites"

Two sites (SDI-12,256 and SDI-12,887) identified within the Hawano Project can be characterized as "non-sites," both of which are not significant (see Table 5.4–5). These sparse lithic scatters, or "non-sites," will be directly impacted by the proposed development. These marginal, non-significant sites are defined as "non-sites" (after Gallegos et al. 1998) since they lack a substantial subsurface deposit and surface artifact density ratios are less than three artifacts present in a 100 square meter area. Nonetheless, cumulative impacts to this site type are not considered significant given that this site type lacks research potential or Native American concerns.

Temporary Camps/Artifact Scatters

One site (SDI-8081) within the Hawano property is considered a Temporary Camp/Artifact Scatter (after Gallegos et al. 1998). This site was not identified in the Otay Mesa Management Plan (Gallegos et al. 1998). Previous testing of portions of SDI-8081 within the off-site improvements portion of the Otay Business Park Project recovered 22 artifacts and 1,873.2 grams of marine shell (Rosenberg and Smith 2009). The site remains partially intact with continued research potential. Development of the Hawano Project will pose significant direct impacts to an important cultural resource, Site SDI-8081, and will result in significant adverse effects that will require additional mitigation.

Site SDI-8081 is not discussed by Gallegos et al. (1998) and represents a partially impacted temporary camp. Of the 11 temporary camps/artifact scatters tested on Otay Mesa, and identified by Gallegos et al. (1998), at least nine have been destroyed. Within the broader EOMSP/cumulative impact area, only ten cultural resources of this type are recognized, two of which are at least partially destroyed. Clearly, these previous impacts and the foreseeable direct impacts of the Hawano Project will result in cumulative impacts to prehistoric resources given the continued loss of temporary camps/artifact scatters on Otay Mesa. However, mitigation can be implemented to reduce the affect of the proposed development by ensuring the scientific recovery and study of the temporary camp/artifact scatter (Site SDI-8081) to be directly impacted by the proposed project.

Historic

SDI-12,888 is a historic trash scatter believed to be associated with an adjacent significant historic homestead site (SDI-11,799). No features or concentrations of historic materials were discovered as a result of the current investigation, and the detection of buried materials is likely a result of repeated plowing of the fields. The artifacts also indicated a mix of both historic and modern items, which can be associated with the active use of the dirt roads in the area for off-road activities, frequent passage of foot traffic, dumping of debris, and construction activities. Based on the testing performed within the recorded boundary of SDI-12,888, the sparse subsurface artifact deposit is evaluated as having limited significance, but no further research potential.

Summary

The current status of most of the 137 cultural resources (104 archaeological sites, 33 archaeological isolates) in the EOMSP/cumulative impact area and the Hawano Project has been discussed based upon current aerial photography and site record information (see Appendix II). The majority of the sites have been impacted to varying extents by roads and agricultural activity. Nineteen archaeological sites, including three prehistoric habitation sites, two prehistoric temporary camps (both with historic components), 14 prehistoric surface lithic scatters, and one unidentified resource have been destroyed or have likely been destroyed.

Given the loss or partial destruction of prehistoric resources, especially habitation sites, in the general vicinity of the project area and on Otay Mesa from years of historic use or modern land development, in combination with previous impacts from roads, plowing and erosion, the proposed Hawano Project development is considered to have a cumulative impact on resources, as it represents the continued destruction of non-renewable cultural resources. The development of the proposed Hawano Project will at least partially impact one prehistoric temporary camp (SDI-8081), resulting in a significant cumulative impact to prehistoric cultural resources given that this resource can contribute to the diversity and temporal range of sites on Otay Mesa. Furthermore, this site is positioned on the southeastern edge of the mesa where it transitions into

the San Ysidro Mountains and, as such, is ideally suited for answering important questions regarding subsistence and settlement, chronology, technology and trade.

Mitigation can be implemented to reduce the cumulative impact of the proposed development by ensuring the scientific recovery, study, documentation and curation of this significant site, which retains further research potential. Important information about past lifeways will not be lost through well-planned and executed mitigation that documents and gathers all data from this non-replaceable and non-renewable resource. Consequently, since the actions of the proposed project can be mitigated through grading monitoring, data recovery, curation and reporting, the cumulative impact of the proposed project will be reduced to a level below significant.

6.0 MANAGEMENT CONSIDERATIONS – MITIGATION MEASURES AND DESIGN CONSIDERATIONS

The proposed development for the Hawano Project will impact four cultural resources. As noted in the impact analysis section, it is assumed that sites within the project boundary or off-site improvement areas will be subjected to development impacts as a result of project approval. For the purpose of determining appropriate impact mitigation measures, these impacts to cultural resources will be considered on a project-wide basis. Any phasing of the project does not affect the net result of the eventual direct and indirect impacts to these cultural resources. Where significant archaeological sites with no additional research potential are impacted, measures to reduce impact levels to below significant will include the recording of site data during testing , the submittal of collected artifacts for curation and gradining monitoring. Where significant archaeological sites with additional research potential are impacted, measures will be required to mitigate the potential impacts to a level below significant. No additional mitigation measures, aside from monitoring during grading and the curation of collections, will be required for resources that have been determined to be of "limited significance." In general, the mitigation of impacts to important archaeological sites may be achieved through avoidance (preservation) or data recovery. Because cultural resources are finite, avoidance and preservation are the preferred mitigation measures. Avoidance would require that cultural resources be set aside and preserved in open space easements.

Where avoidance is not feasible, mitigation of potential impacts may be achieved through data recovery, curation of artifacts, and grading monitoring. For the one site (SDI-8081) found to be a significant resource, the determination of significance is rooted in the information potential represented by subsurface artifact and ecofact deposits. Therefore, the research potential of the site may be realized through data extraction by excavation and analysis of artifacts and provenience information.

The applicant has determined that preservation of SDI-8081 is not feasible for the Hawano Project, and has opted to request the County approve a data recovery program, curation of artifacts, and grading monitoring for the mitigation of impacts. The necessary treatment of cultural resources within the Hawano property is provided in Section 6.3, which lists the mitigation measures for significant cultural resources. The location of the significant cultural resource within the project area has been plotted in Figure 6.0–1.

Figure 6.0–1

Significant Site Area Location Map

(Deleted for Public Review; Bound Separately)

6.1 Recommendations

In accordance with Section 15064.5 of CEQA and the guidelines of San Diego County, the site evaluated as important in regards to research potential and which will be adversely impacted will require mitigation measures in the form of avoidance (preservation) and/or a data recovery program to reduce the significance of developmental impacts. Preservation is the preferred method to reduce adverse impacts to significant cultural resources. In order to reduce impacts to a level below significant, the area of the project that represents direct impacts could be redesigned to avoid the significant site (SDI-8081), or a data recovery program will be necessary if this site cannot be preserved. Where preservation is not a feasible alternative from the applicant's position and data recovery is selected, the data recovery program must include adequate subsurface samples of significant cultural deposits to meet County requirements. The general mitigation proposal is provided in Section 6.2, while specific project mitigation procedures are provided in Section 6.3, and site-specific mitigation measures are given in Section 6.4.

6.2 Proposed Mitigation Measures

The applicant has determined that preservation is not feasible, and that mitigation will be achieved through the implementation of a data recovery program. Proposed mitigation measures for the Hawano Project are provided below.

Mitigation Measure 1: The mitigation of adverse impacts to Site SDI-8081 will be achieved through the implementation of a data recovery program. The data recovery program will include vertical and horizontal recordation of the site, the curation of all collected materials, and grading monitoring by a County approved archaeologist and a Native American monitor.

Mitigation Measure 2: Because of the dense ground cover within the project area and the potential for buried deposits and/or features, all brushing and grading that affect areas in the upper five-feet of soil within the Hawano Project area and off-site improvements shall be monitored by an archaeologist. The monitoring of surface brushing and grading shall be conducted by one or more archaeologists, as dictated by the size of the grading operation. All utility excavations, road grading, or brush removal must be coordinated with the archaeological monitor. Any known resources that are graded must be intensively monitored during grading to ensure that any important features, isolates, or deposits are either recorded and collected, or excavated. Should any resources be encountered during the monitoring of brushing and grading and not previously recorded, the action will be temporarily halted or redirected to another area while the nature of the discovery is evaluated. Any resources that may be encountered will require testing to determine their significance. If the testing demonstrates that a resource is significant, then a data recovery program will be necessary.

Mitigation Measure 3: Three sites (SDI-12,256, SDI-12,887 and SDI-12,888) have been determined to be of limited significance, but with no additional research potential. To reduce impacts to these resources to a level below significant, mitigation in the form of the recordation of information, curation of artifacts, and grading monitoring is recommended to exhaust all information associated with these sites. The recordation of information includes the data presented within the results of this report. The curation of artifacts includes the legal transfer of all artifacts associated with the project to the San Diego Archaeological Center (SDAC) or other County-approved facility for permanent curatorial storage.

Mitigation Measure 4: All archaeological mitigation work shall include the participation of a Kumeyaay Native American monitor. The Kumeyaay Native American monitor will coordinate with the project archaeologist and discuss any issues related to Native American concerns about resources included in the mitigation program.

6.3 Project-Specific Mitigation Measures

The general categories of measures to mitigate potential impacts to cultural resources within the Hawano Project are provided below:

(A) **Mitigation of Impacts to One Site Recommended as Significant Based on CEQA and San Diego County Guidelines:** Within the project, one site has been tested and recommended as significant based on criteria set forth in CEQA and County guidelines. Mitigation measures recommended for the site are discussed in Section 6.4.

SITE	RECOMMENDED MITIGATION
SDI-8081	Data Recovery, Curation of Artifacts, Grading Monitoring

(B) **Mitigation of Impacts to Limited-Significance Resources:** The following three resources have been tested and evaluated according to CEQA and County criteria. All of these resources were evaluated as having limited significance. To reduce impacts to these resources to a level below significant requires mitigation in the form of the recordation of information, curation of artifacts, and grading monitoring to exhaust all information associated with these sites.

SDI-12,256 SDI-12,887 SDI-12,888

6.4 Mitigation Plan for the Hawano Project

The proposed development of the Hawano Project will impact one archaeological site (SDI-8081) evaluated as an important cultural resource based upon further research potential. In order to comply with the regulations of CEQA and County of San Diego guidelines for the treatment of cultural resources, the following mitigation plan was developed. The goal of this plan is the successful mitigation of impacts and the preservation of valuable, non-renewable cultural resources. Four cultural resources were identified within the boundaries of the Hawano Project and the off-site improvement areas. Three of these resources were surface lithic scatters that were evaluated as limited significance sites. Three sites were determined to be of limited significance according to County criteria, as they did yield information during the testing program, but do not have the potential to provide further information. None of these resources were significant based on the County of San Diego's RPO criteria.

The technical report for this archaeological study includes information regarding the four sites identified and tested within the project area. The testing of these sites did not identify any temporally diagnostic prehistoric artifacts or features, but provided information that demonstrates that the property was most likely occupied first during the La Jolla Complex (Archaic Period), and again during the Late Prehistoric Period by Kumeyaay Native Americans. The artifact collection from the cultural resource sites within the project comprises a limited representation of prehistoric use, and reflects a focus resource extraction and processing, and maintenance of lithic tools.

The major goal of the mitigation program is the reduction of the potentially adverse impacts to the CEQA-significant site (SDI-8081) through a data recovery program. The data recovery program will reduce the impacts to this resource to a level less than significant. For this site, mitigation can be achieved through data recovery because the principal aspect of the significance of the site is directly related to the research potential and information value represented in the cultural deposits. Successful mitigation of impacts is contingent upon the development and execution of a comprehensive data recovery program. This program will be based upon the following premise:

> *The significant site that will be impacted has been identified as significant according to CEQA, which stipulates that its importance lies in the information potential represented in the individual cultural deposits.*

If the importance of a site is directly associated with the information potential it retains, then identifying the range and types of data available at the site and the regional archaeological objectives that can be furthered with the addition of data from the site will provide the foundation for achieving mitigation through data recovery. As will be demonstrated in the subsequent sections, data recovery, along with curation and grading monitoring, will mitigate direct impacts to the specific cultural resource identified as CEQA significant, but not feasible to be preserved with the current project design.

In the following sections, specific mitigation measures will be discussed on an individual basis for all sites tested and identified as significant. Actual research issues and data needs are also discussed in Section 6.4.4, Research Design.

6.4.1 General Mitigation Recommendations

One CEQA-significant cultural resource identified within the Hawano Project will be directly impacted (SDI-8081). The applicable significance criteria, site attributes, and proposed mitigation measures are listed in Table 6.4–1. The following list of mitigation recommendations includes all of the sites that were identified as significant and are considered to have additional potential to yield information important to the history or prehistory of the region.

(1) CEQA-significant Site SDI-8081 is located entirely within the limits of grading and brushing and will require mitigation measures. The specific measures are described in Section 6.4–2.

(2) For this site, which will be subjected to data recovery, the laboratory analyses and special studies will be provided in the methodology discussion.

(3) Native American representatives will be contacted to participate in the mitigation program.

(4) Cultural materials recovered from the project shall be placed in permanent storage at the San Diego Archaeological Center (SDAC) or other recognized curation facility that meets federal standards.

(5) Grading of the project will include monitoring by a qualified archaeologist and a Native American representative. Monitors shall be present during all grading, both on-site and off-site, as long as the potential exists to encounter previously undisturbed soil. Monitoring shall continue until the consulting archaeologist provides written documentation to the County of San Diego that monitoring has been completed and further monitoring is not required. Any resources identified by the monitoring archaeologist shall be secured from any further disturbance until the resource can be recorded, reported to the County, and evaluated for significance.

TABLE 6.4–1
Summary of Data Recovery Mitigation Measures for SDI-8081

Site Designation	Applicable Significance Criteria	Size of Subsurface Deposit (m^2)	Proposed Test Units per Phase (m^2)			Total Square Meters (m^2)	Proposed % of Subsurface to be Excavated
			Phase 1	Phase 2	Phase 3		
SDI-8081	CEQA/County	889	25	20	Unlikely	45	5.0%

Significance After Mitigation

The successful implementation of a mitigation plan that incorporates curation, grading monitoring, preservation or data recovery will achieve the goals of the mitigation program, and impacts to cultural resources will be reduced to a level below significance.

General Mitigation Procedures For Data Recovery

As noted previously, for SDI-8081 which cannot be feasibly preserved, and for which the applicant has committed support of a data recovery program to mitigate impacts, the success of the program is contingent upon extracting a sample that will exhaust the data potential of the site. The County of San Diego has not adopted a policy that identifies exactly the specific level of excavation required to achieve mitigation of impacts by data recovery. In most cases, the level of sampling is dictated by the information potential of the site. Data recovery is commonly discussed in terms of sampling percentages, referring to the percent of the area of the significant subsurface deposit that will be excavated. The general approach for achieving the mitigation of impacts through data recovery will begin with an indexing of the site. The site index will include a sufficient sample of the subsurface deposit, consisting of three percent of each deposit, to effectively stratify the deposits into areas of differing artifact content, densities, and activity areas. The indexing process will utilize a static grid to cover each site, with a sample unit placed in each grid cell. Utilizing a grid will produce a very structured, non-random, and uniform index of the content of each cultural deposit. Within the portion(s) of the site that retains the greatest research potential, an additional two percent of that area will be excavated. For the data recovery program, the area excavated will be up to two percent of the significant subsurface deposit (area of greater research potential). This volume of recovery will be sufficient to successfully pursue the research objectives of the research design, as well as to provide other researchers with a large information resource. Within the area of SDI-8081, considered to retain the greatest research potential, a third level of stratified sampling may be implemented to focus block excavations on areas that demonstrate intense artifact recovery, features, or multi-cultural depositional patterns.

The excavation of the subsurface deposits will be accomplished with standard one-meter-square test units excavated by hand in decimeter levels. A more detailed description of the field methods to be used is provided in Section 6.4.5. All units will be screened, mapped, measured, and photographed through standard stratigraphic control measures.

For the phases of work at the site, the first phase will be the site indexing and the second phase will be the focused investigation. A third phase, if warranted, would be extremely focused on high potential elements of the site. Each phase has specific goals: the site index is a non-random representative sample of the entire site, while the second and third phases will be a focused, biased and intuitive study of the area within the deposit that has the greatest potential. The use of this type of data recovery has been successfully completed for the many projects in southern California, notably in the County of San Diego at the Rancho San Diego development (Byrd and Serr, 1993) and at the 4S Ranch project, where 26 regionally important sites were subjected to data recovery as mitigation for development-related impacts (Smith et al. 2010).

The phases of the sampling procedure to be used at the sites included in the data recovery program are:

Phase 1: The first phase of excavation will typically involve a three percent sample used to index the site content and document intra-site variation. Test units will be uniformly distributed within each site using a grid system.

Phase 2: The second phase of excavation will consist of up to two percent sample of the site area identified as representing the greatest research potential. The stratification of the site following the Phase 1 work will typically identify an area distinguished as retaining additional research potential. For this sampling phase, the test units would not be randomly placed, but would be intuitively located at the discretion of the archaeologist.

Phase 3: The last phase of excavation will be conducted at locations found to contain particularly important deposits worthy of extended excavation. The sample size of any such area is dependent on the nature of the deposit and research potential.

The procedures noted above will be applied to SDI-8081. The actual number of square meters to be excavated at this site are listed in Table 6.4–1. The field procedures are described in Section 6.4.5, including standard unit sizes and standard sifting screen size (one-eighth inch mesh). A backhoe may be employed following the completed sampling program to search for any anomalies within the site. Trenches would be used to expose portions of the site; however the number of trenches used in this type of investigation would be discussed and approved by the County before initiation.

6.4.2 Site-Specific Mitigation Measures

SDI-8081

Site SDI-8081 is a resource extraction and processing/seasonal habitation site located along the east side of the project. The significant deposit within the site lies generally in the central area of the project. The shell midden measured approximately 889 square meters. The sampling program for the site will focus on a uniform indexing of the significant midden area of the site. This first level of index sampling will consist of a three percent sample of the shell midden deposit. This represents a sample of 25 square meters for the Phase 1 index. The proposed Phase 2 excavations are projected based on an area of increased research potential estimated to be approximately two percent or 20 square meters; the exact number of Phase 2 excavations will depend on the results of the Phase 1 excavations. The proposed data recovery excavations are summarized as follows:

- Size of Subsurface Deposit — 889 square meters
- Phase 1 — Three percent sample of 25 test units
- Phase 2 — Two percent sample of overall area of increased research potential, resulting in the excavation of 20 test units. The total number of units excavated during Phase 2 will vary depending on the stratification of the subsurface deposit into areas of greater research potential.
- Total proposed sample size for data recovery — 45 square meters, representing approximately 5.0% of the significant site area.
- A third phase of mitigation sampling is not likely at SDI-8081, as this site is not considered a candidate for intense artifact deposits or substantial subsurface features.

6.4.3 Data Recovery Program

In accordance with CEQA (Section 15064.5) and the guidelines of the County of San Diego, the site that has been evaluated as important which will be adversely impacted by the proposed project will require mitigation measures in the form of avoidance and/or data recovery programs to reduce the significance of potential impacts. In order to reduce impacts to a level below significant, a data recovery program will be implemented. The data recovery program must include an adequate subsurface sample of the significant deposit at SDI-8081. Special studies, including radiocarbon dating, faunal analysis, obsidian hydration and sourcing, and flake attribute analysis, shall be conducted to exhaust the research potential of the site areas to be impacted (see Section 6.4.5). The recovered materials should be treated according to standard archaeological procedures—each specimen should be washed (only if necessary for identification), cataloged, and analyzed, and a technical report of findings should be prepared in accordance with professional archaeological standards and guideline requirements.

6.4.4 Research Design

The data recovery program must comply with the regulations of the County of San Diego, and the results of this program should successfully exhaust the research potential of the site in order to reduce the impacts to a level below significant. The data recovery program will also follow the California OHP publication *Guidelines for Archaeological Research Design. Preservation Planning Bulletin No.* 5 (1991).

The design for the data recovery program for the Hawano Project includes a consideration of the types of data that are potentially available, and applies this information to the current regional research questions pertaining to the cultures represented at the sites. The research questions posed, therefore, include those that can be more appropriately addressed during data recovery of significant sites to further these research issues.

This research design incorporates research questions based upon the current state of knowledge in anthropological theory and area-specific research concerns. For the purposes of this research design, the study area includes the western San Diego County region. As a prelude to archaeological data recovery, theoretical research hypotheses must be applied to the proposed data recovery program to ensure that the information recovered will address these important research concerns. The hypotheses contained herein are designed so that they may be tested against the archaeological data recovered from SDI-8081.

The Hawano Project is located south of the Otay River Valley. Comparatively little is known about the prehistory of the Otay region of San Diego County — the development of the National City and Chula Vista areas prior to the establishment of CEQA laws resulted in the loss of a considerable amount of archaeological sites. By way of contrast, recent and rapid development of the area east of Chula Vista has resulted in the discovery of and recovery from numerous archaeological sites in that area. Recent work by Kyle et al. (1990), Pigniolo et al. (1990), McDonald et al. (1993), and Smith et al. (2004) has identified several prehistoric habitation sites within the eastern Otay River watershed, and data from these sites will be important in the discussion of SDI-8081. The proposed research questions primarily consider questions regarding the placement of this site within the overall subsistence and settlement system of prehistoric populations inhabiting the Otay Mesa area.

<u>Prehistoric Research Design</u>

The data recovery program for SDI-8081 will focus on understanding the use of natural resources by the prehistoric occupants of the area through time. The research design for the data recovery program was formulated using information from surrounding sites to determine the variety of characteristics manifested in the area, including site location in relation to water, vegetation, lithic resources, and elevations. The theoretical orientation and major research objectives for SDI-8081 were based on an attempt to determine the vertical and horizontal variability within the site. Vertical variation in the deposit might indicate either a shift in the subsistence strategy or in the kinds of subsistence materials available over a period of time. A shift in subsistence strategy over time might signify that different cultural groups were

present at different times, or that one group adopted new lifestyles. Horizontal variations in the sample might indicate specialized activity areas or intra-site organization.

The data recovery program was designed to retrieve the maximum amount of information from SDI-8081 that could be applied to a wide variety of research topics concerning the region as a whole. Specifically, the research goals focused on gathering site-specific data to define intra-site organization, temporal placement, trade associations, and site function. Furthermore, SDI-8081 will be analyzed in spatial context, to address the goals of environmental archaeology and define the relationship of SDI-8081 to the biophysical environment. Subsistence and settlement, chronology, technology, quarrying activities, and regional exchange and inter-group relations are the topics from which archaeological questions were formulated. These topics are presented below with individual research questions, although collectively they are designed to contribute to the overall understanding of how the prehistoric inhabitants of SDI-8081 utilized the natural resources of the area through time.

Research Topics

Subsistence and Settlement Patterns

The degree to which the archaeological cultures represent alternate adaptations to inland resources has been an issue of much interest and debate in San Diego County (Laylander 1993). As is true elsewhere in California, an early hunting orientation was replaced by a more diversified, plant-oriented strategy during the Archaic Period, becoming ever more broad-based over time (Moratto 1984). The Late Prehistoric Period was characterized by even wider use of resources, with new strategies that focused on a few storable species, especially acorns (Chartkoff and Chartkoff 1984). This change may have been fueled, particularly in northern San Diego County, by the siltation of previously resource-rich lagoons circa 3500 YBP (Warren 1964). In the southern portion of the county, the formation of San Diego Bay encouraged the growth of an even more specialized marine orientation. A subsistence shift may have occurred when the coastal areas north of Mission Bay became less attractive, prompting a switch to inland strategies (Gallegos and Kyle 1988). If the Tijuana Lagoon also became silted, this may have pushed some groups into the Hawano Project area, which is easily within a day's walk from both San Diego Bay to the west, and the Sweetwater wetlands, to the north.

Researchers generally believe that the adaptation to the environment by Archaic La Jollan peoples in San Diego County initially emphasized hunting over gathering (in the guise of the now-subsumed San Dieguito Complex), and marine over terrestrial resources, and that this practice was "replaced" by the Late Prehistoric Kumeyaay subsistence pattern, where inland, terrestrial resources gained ascendancy. Generally, archaeologists agree that increased settlement densities and a terrestrial resource focus, particularly on the gathering and processing of acorns, are Late Prehistoric characteristics. The appearance of pottery, smaller projectile points, cremations, and the use of exotic lithic materials, especially Obsidian Butte

obsidian, is evidence used to recognize this adaptive change (Gallegos 1992; Christenson 1992).

Recent evidence indicates that the La Jollan subsistence strategy was much more dependent on inland resources than previously thought (Raven-Jennings and Smith 1999; Buysse and Smith 2003). Therefore, contrasting inland Archaic and Late Prehistoric Kumeyaay sites presents much more of a challenge than comparing coastal La Jolla Complex and Late Prehistoric Kumeyaay sites. The inland expression of the La Jolla Complex (Warren and True 1961) is characterized by a decrease quantity of marine mollusks, a greater variety of tools made of inland quarried stone in addition to cobbles, a broader range of resources used and resource zones exploited, increased milling, increased sedentism, and an emphasis on terrestrial hunting and gathering, all of which blur the distinctions between the La Jolla Complex and the later Late Prehistoric Kumeyaay lifeways (Moriarty 1966; Gallegos 1991; Kaldenberg 1982; True 1958; Warren and True 1961; Meighan 1954; Forstadt et al. 1992). As a result, many archaeologists propose continuity between the inland La Jolla Complex and the Late Prehistoric Kumeyaay, stressing the overall similarity of the tool kits and the general extension of Archaic lifeways into the Late Prehistoric Period (Warren 1964, 1968; True 1966, 1970; True et al. 1974; Byrd and Serr 1993; Cardenas 1986).

Various researchers (True and Waugh 1982; Byrd and Serr 1993) have found it useful to employ Binford's (1980) distinction between foragers and collectors to contrast local Archaic and Late Prehistoric patterns. The difference between foraging and collecting strategies is a matter of relative mobility and the spatial relationship between consumers and resources, both of which have implications for the resulting archaeological record. The Archaic La Jollan Complex is associated with the foraging strategy, where residential camps are placed near desired resources and occupied for short periods of time. This focus on very local resource procurement and consumption results in quite small, resource-specific locations and tool kits. The Late Prehistoric Kumeyaay pattern is characterized as a collector strategy, where habitation sites were of a seasonal nature, and thus are larger and display more diversity in tools. Logistical forays are staged from these areas to seek out a wide variety of resources beyond the camp boundary, which result in the appearance of many ancillary resource procurement locations. At the large sedentary camps, faunal resources in particular appear to be very diverse, with various animal classes represented. Waugh (1986), while noting this correlation, stated that it is uncertain if this diversity was due to more inhabitants in a small area, or whether the sedentism itself was a response to the depletion or absence of larger animals.

The transition between a forager and a collector strategy was not abrupt, however, and sites from the Late Archaic Period (3000 to 1300 YBP) represent the gradual transformation of Archaic lifeways into a collector mode. Although the change appears at different times throughout California, the Late Archaic is characterized by increased hunting and an emphasis on acorns (Chartkoff and Chartkoff 1984). In the Santa Barbara area, the shift to a broader resource base began around 5000 to 3000 YBP, reached up to 50 miles inland, and was labeled the Campbell Tradition. The Campbell Tradition represents a more diversified economy that

was focused on acorn processing, mollusk gathering, terrestrial hunting of rabbits, deer, and waterfowl, and the beginnings of a specialized maritime economy. The technological hallmarks of this tradition include stone bowls, mortars and pestles, hopper mortars, projectile points, drill-like implements, flake scrapers, large knives, and ornaments made of shell, bone, and stone (Koerper et al. 1986). The latter part of the Campbell Tradition is termed Middle Period in the Santa Barbara area (King 1981), where increasing complexity is posited on the basis of multiplying varieties of beads and ornaments, in addition to the technological developments listed above. The Campbell Tradition was initially characterized as an intrusion of Alaskan peoples; however, more recent studies all point to a gradual, *in situ,* development of the Chumash people over the course of 7,000 years (Moratto 1984).

Wallace (1955) also separates this time period from preceding patterns for southern California as Horizon III of his Intermediate Cultures (3000 to approximately 2000/1000 YBP). He notes that mortars and pestles become more common, perhaps signaling the initial use of acorns, along with basket-hopper mortars. Additionally during this time period, projectile points become smaller and there are increasing quantities of *Olivella* beads, bone awls, and steatite artifacts, as exemplified by the Campbell Tradition. Similarly, Moriarty (1966) places a major change during this time period, calling it Dieguerio I (pre-ceramic Yuman), and attributes the change in subsistence and settlement to the amalgamation of desert peoples with the resident La Jolla Complex people circa 3000 to 2000 YBP. Other researchers, while not giving this period a specific name, have noted an increasingly broad resource base and a proliferation of inland occupation sites at this time period (Norwood 1980; Forstadt 1992; Cardenas 1986).

In San Diego County, the Campbell Tradition has previously been considered only weakly represented due to the lack of evidence for marine mammal hunting (Warren 1968) and the lack of evidence for the utilization of inland environments (Warren 1964). However, recent investigations from Otay Ranch (Smith et al. 2004), Scripps Poway Parkway (Raven-Jennings and Smith 1999), Rancho San Diego (Byrd and Serr 1993), and Sites SDI-4648 and W-348 (Cardenas and Van Wormer 1984), offer increasing evidence of relatively intense use of inland San Diego County by the end of the Middle Archaic (3000 YBP). Byrd and Serr (1993), in fact, question whether the Archaic exploitation of inland environments was not already well established prior to 3000 YBP but note the lack of evidence.

In addition, the hiatus or decline in the occupation of coastal sites during the Late Archaic and early Late Prehistoric, which caused consternation due to the lack of radiocarbon dates between approximately 2000 and 600 YBP, appears to be in the process of being filled in by the discovery of inland occupation sites in northern and southern San Diego County. Several reasons have been put forward to explain what seems to be the lack of coastal occupation during this time period. Given the known decimation of coastal resources during this same period, an exodus from the larger coastal villages to locations inland, may have occurred. However, rather than utterly disappear, the La Jolla complex resurfaces inland at this same time period and is transformed by a tool kit meant for a different environment which has subsequently, been identified as Pauma complex. As inland San Diego County continues to be developed, it is likely

that the idea that site location shifted towards the inland to exploit more abundant, terrestrial resources will be accepted. Alternatively, the lack of radiocarbon dates from this time period may be explained by error factors in the radiocarbon method or it may be indicative of bias in the selection of radiocarbon samples (Laylander 1993). In short, a mixed hunting/gathering strategy prevailed over most time periods in San Diego County, yet there are enough cumulative differences to make the effort to discriminate between Archaic and Late Prehistoric sites and site components, in order to isolate and characterize subsistence and settlement strategies over time, a worthy task.

Chronology

Chronology is the foundation of most archaeological research; in the current case, where contrasts between time periods are sought, it is imperative to maximize the number of solidly dated associations. Culture-sensitive materials include pottery and projectile points, while relative and absolute dating techniques can be employed on obsidian, shell, charcoal, and soil samples. Detailed investigations at sites in the Otay Mesa area containing significant subsurface deposits are severely lacking. One reason for this is that until recently, development and associated archaeological investigations in the Otay region have been relatively limited. Also, many of the identified sites in the area, particularly on the east side of Otay Mesa, are limited-use lithic extraction sites or artifact scatters; these sites were often repeatedly utilized over many years, but determining the dates of their use is often impossible due to a lack of subsurface deposition or datable material. In addition, farming activity has been extensive throughout the area for the past 100 years, further contributing to the dispersal and erosion of deposits.

Based on earlier work, most sites in Otay Mesa fall either into the Early Archaic Period (7600 to 3500 YBP), when the Tijuana Lagoon was open, or in the later portion of the Late Prehistoric Period (560 to 260 YBP). Dates on coastal Site SDI-4281 included 3840 ± 60 YBP and 4340 ± 50 YBP, although these dates were conducted on marine shell; a single piece of Tizon Brown Ware suggests a later component might also be present (Bingham 1978). Bingham suggested that Site SDI-4281 served as a primary camp or village due to the fact that the midden deposit was at least 70 centimeters deeper than at nearby Site SDI-222, although the radiocarbon dates suggest occupation may have been of longer duration at Site SDI-222 (7260 ± 80 to 3640 ± 60 YBP) (Bingham 1978). Again, these dates were on shell samples. Similarly, at the largely Archaic Keubler Ranch site, where radiocarbon dates on shell indicate the site was occupied between 6430 ± 140 and 7620 ± 100 YBP, an additional single ceramic sherd was recovered (Kyle et al. 1990). Site SDI-10,185, located at the head of Spring Canyon was radiocarbon dated to 3568 ± 80 YBP (Robbins-Wade 1990). The sample used for the date was a marine shell fragment, which may have resulted in a date slightly older than the actual utilization of the site. Comparison of the results from these sites to SDI-8081 might shed some light on the utilization of inland southern San Diego County, particularly at the transition from the Archaic to the Late Prehistoric.

Research Questions:

- Did both the Late Prehistoric Kumeyaay and Archaic La Jollan occupy SDI-8081?
- Is there a hiatus within the Archaic or between the La Jollan and Kumeyaay habitations of inland sites, as has been documented in coastal areas between 2000 and 600 YBP, or is there continued use of the area during this period?
- Do the assemblages at SDI-8081 provide data in support of continuity or change in tool kits and subsistence activities?
- Some researchers maintain that radiocarbon dates taken from shell and soil are not comparable. Do paired shell/soil samples at SDI-8081 agree or disagree as to the date range at this site?
- Are the previously accepted culturally diagnostic artifact types (marine shell, groundstone tools, Coso obsidian, and cobble-based tools for La Jolla Complex; ceramics, small projectile points, Obsidian Butte obsidian, and bedrock milling for Late Prehistoric) accurate cultural markers at SDI-8081, if in fact the site supported two periods of occupation?

Technology

The relative lack of temporally diagnostic artifacts at sites in San Diego County limits the analytic value of even a large sample of sites unless a model can be proposed that allows at least some sites to be dated based on the groupings of non-diagnostic artifacts for a particular time period. To expand the interpretive value of the non-diagnostic artifacts recovered, characteristic tools kits of the Late Prehistoric Kumeyaay and Archaic La Jollans should be identified in datable contexts. If diagnostic tool kits could be identified, these could be used to assist in the interpretation of the cultural affiliation of other sites that lack temporally diagnostic tools or absolute dates.

Cobble and domed scrapers, scraper planes, and cobble tools in general (Kowta 1969; Kaldenberg 1982), along with associated cortical debitage (Rosen 1989), marine shell, and heavier tools are thought to be associated with the La Jolla Complex. Quarried materials, lighter flake tools, a high frequency of medium processing tools such as perforators, drills, and flake scrapers (Cardenas and Van Wormer 1984) and an increased use of fine-grained materials such as quartz, chalcedony, and jasper are typical of the Late Prehistoric Kumeyaay (Gallegos 1992).

Groundstone tools are believed by some archaeologists to be temporally sensitive. Portable metates appear to be associated with Archaic sites (Byrd and Serr 1993), while mortars and pestles are considered hallmarks of the Late Prehistoric Kumeyaay (Carrico and Taylor 1983; Byrd and Serr 1993). Bedrock milling stations are considered by some to be diagnostic of Late Prehistoric use (Forstadt et al. 1992; Byrd and Serr 1993), although some believe that they may be also be found at Late Archaic sites as well (Westec Services 1981). Byrd and Serr (1993) found evidence of bedrock milling at an Archaic site and at several Late Prehistoric sites,

suggesting that perhaps the presence of milling features as a diagnostic temporal trait remains undefined.

Tool function is another key issue in the understanding of cultural change, since La Jollan and Late Prehistoric Kumeyaay tools are relatively simple and redundant in terms of lithic materials and functional types represented. For example, without residue analysis, it is not known whether a mano represents a plant- or animal-processing tool. Therefore, the possibility exists that the same tools were put to different uses over time. The ethnographic literature associates groundstone tools not only with plant processing but with the grinding of small animals (Michelson 1967; Luomala 1978), which has been supported by blood residue analysis of metates (Carbone 1984, Yohe et al. 1991) and manos (Byrd and Serr 1993), wherein rabbit blood was identified on both types of tools.

Without empirical evidence, it is difficult to ascertain the function of even those tools that have a more obvious use; as Carrico and Kyle (1987) pointed out, the presence of knives may indicate not only hunting, but any activities which included scraping and cutting, such as in the processing of wood, shell, and hide. Byrd and Serr's (1993) residue analysis was a case in point: hammerstones showed residues from rabbit and deer, one Desert Side-Notched projectile point contained pronghorn blood and another had trout (or salmon) blood, and an Elko projectile point included rabbit blood residue. This inquiry is further confounded by the fact that assemblage-oriented analysis to determine cultural discriminations is often derailed by seasonal or special activity tool kits (Binford 1980).

Research Questions:

- If a tool kit is recovered from SDI-8081, which includes scrapers, scraper planes, and cobble and domed scrapers, be indicative of Archaic use?
- What types of artifacts were made with fine-grained metavolcanic materials? Was there variation in the use of ultra fine-grained materials, both local and non-local, from the Archaic to the Late Prehistoric?
- Considering the close proximity of SDI-8081 to several lithic quarries, are bifaces and debitage from the site, if actually recovered, reflective of earlier stages of reduction, or are they finished tools?
- Were milling functions different between Archaic and Late Prehistoric sites? What resources were ground or pounded in mortars and on portable metates? Did these differ through time?
- What were the functions of the different tool categories? Did these functions change over time? Were different resources processed with different lithic tools?
- Can assemblages and/or certain tool categories be used to indicate subsistence activities in the absence of faunal remains?

Research Questions for Potential Data Recovery:

- Can specialized studies, including use-wear studies, residue analysis, and reduction stage

classification, provide additional clues regarding the range of activities conducted at the site?

- How do these sites fit into the overall settlement and subsistence systems of prehistoric populations in the area? How does the utilization of SDI-8081 compare to other sites in the region both spatially and temporally?

6.4.5 Methodology

A plan for a program to carry out the necessary data recovery procedures is presented below. The program is consistent with the policies and guidelines of the County of San Diego and with the California OHP publication *Guidelines for Archaeological Research Design. Preservation Planning Bulletin No. 5.* (1991). In order to mitigate potential impacts to SDI-8081 in accordance with CEQA, and also to retrieve the data needed to comply with County guidelines, a sample of the site area to be impacted (i.e., the limits of impacts) will be required. The governing parameters to be used to determine the level of the sampling will be the redundancy of the recovered artifacts and the research potential of the site.

Field Methods

The data recovery program will focus upon the excavation of test units measuring one meter square to a minimum depth of 30 centimeters or until native soil is encountered. If cultural materials are present beyond this depth, the excavation shall continue until one sterile level is exposed. The units will be excavated in controlled, ten-centimeter levels. All removed soils will be sifted through 1/8-inch mesh hardware cloth. All artifacts recovered during the screening process shall be properly labeled with provenience information in the field, and subsequently subjected to standard laboratory procedures of washing (if appropriate) and cataloging. The excavation of the units will be documented with field notes, illustrations, and photographs.

At the conclusion of the test unit excavations, backhoe trenches may be excavated to investigate the site further and search for any unusual features or artifact concentrations. When a backhoe is used, the methodology to be followed shall include:

- All trenches must be excavated under the supervision of the project archaeologist.
- All trenches must be mapped, measured, photographed, and sketched.
- Periodic screening of the excavated material from the trenches will be conducted.
- Provenience data for all screened soil shall be recorded.

Based on data from the backhoe trenches, the data recovery program could be expanded to focus upon features or unique deposits that differ from the materials already studied.

Any features that are discovered during the archaeological excavations shall be exposed through careful hand-excavation. Additional test units may be needed to fully expose the features, which will then be recorded by sketching and photography. Any datable materials

found in association with discovered features shall be collected for radiocarbon dating. If obvious datable samples cannot be found at the sites in the data recovery program, then several bulk soil samples may be collected and processed in an attempt to date the deposits.

Column samples will be taken to permit microanalysis of midden contents. The columns will measure ten centimeters square, and will conform to the walls of selected completed test units to the bottom of the deposit. All of the soil from the column will be collected, and not screened in the field. The samples will be returned to the laboratory for analysis. In addition, during hand excavation, special attention will be given to the identification of lithic tools found in situ and their potential for residue analysis. When possible, such tools will be bagged separately, thereby excluded them from the wet-screening process. A sample of the surrounding soil will be collected to serve as a control sample, should the artifact be chosen for pollen, phytolith, and blood residue analyses.

Throughout the field operations, standard archaeological procedures will be implemented. All test units and features will be mapped utilizing a Trimble GeoXT Global Positioning.

Prehistoric Laboratory Analysis

All of the materials recovered from the field excavations will be subjected to standard laboratory analysis. Artifacts may be washed, if necessary, to permit proper identification. The artifacts will be sorted and cataloged, including counts, materials, condition, weight, provenience, and unique artifact identification numbers.

The lithic artifacts recovered from the project will be subjected to analysis that will include recordation of critical measurements and weight, and inspection for evidence of use-wear, retouch, patination, or stains. The recovered flakes (or a representative sample) will be subjected to an analysis of attributes such as size, condition, type, termination, and material. The attribute analysis will include the flake collections recovered during the testing program.

Non-lithic materials, such as ecofacts (shell and bone), shall be subjected to specialized analyses. The shell will be cataloged by species and weight of recovery per level. The bone material will be weighed and subsequently submitted for specialized faunal analysis. The laboratory analysis of the column samples may include flotation procedures to remove seeds and other microfaunal remains from the soil, followed by the screening of the remainder through a 1/16-inch mesh sieve, if the potential for non-lithic materials is noted in the deposit.

Other specialized studies that will be conducted if the appropriate materials are encountered during the data recovery program will include marine shell species identification, faunal analysis, otolith analysis (for seasonality), oxygen isotopic analysis (also for seasonality), radiocarbon dating, obsidian sourcing and hydration, and blood residue and phytolith studies. These specialized studies are briefly described below:

a. Shell Analysis: The recovery of shell at SDI-8081 is expected. Analysis of the shell recovery will include the speciation of all shell fragments collected. The shell will

be recorded by weight, and will include a count of hinges to determine the minimum number of individuals represented by the recovery.

b. Faunal Analysis: Prehistoric food bone was not documented at SDI-8081; however, further excavations may uncover bone material within temporary camps. Any bone material recovered during the data recovery program should be analyzed by a faunal expert to identify species, types, age, and evidence of burning or butchering. The prehistoric bone recovery will provide information concerning diet, activity areas within the sites, the habitats exploited, and methods of processing.

c. Radiocarbon Dating: This dating technique will be attempted at SDI-8081. The investigations conducted thus far did recover dateable material, although dating was not conducted as part of the testing program. The radiocarbon dating will be useful in conjunction with the stratigraphic recovery of cultural materials to establish the chronology of SDI-8081. Therefore, the collection of samples for dating should be based on the presence of diagnostic artifacts, features, or geological strata delineations. In conjunction with the research topics, any possible opportunities to delineate parts of sites into Late Prehistoric and Archaic periods will be advanced through the use of dating methods.

d. Blood Residue Studies: Organic residue on lithic artifacts may be useful in the determination of the species of animals represented by the residue. However, the use of blood residue studies is necessarily dependent upon the identification of such residues on artifacts. The detection of blood residue must be made prior to any washing of artifacts, or the residue samples will be lost.

e. Isotopic Profiles: The analysis of Oxygen-18 isotopic profiles from shells may be used to determine the season during which the shells were collected. This process measures the ratio of isotopes of oxygen, which is determined by water temperature. A minimum of five shells shall be used in this analysis, particularly if no other means of determining seasonality can be utilized. Use of his type of analysis is not likely due to the paucity of shell.

f. Obsidian Hydration and Sourcing: Any recovered obsidian artifacts will be submitted to a specialist to determine the source of the lithic material. The obsidian shall also be analyzed to produce hydration readings, which may then be used to provide relative dates for the use of the artifacts.

6.4.6 Curation

The prehistoric cultural materials recovered from the Hawano Project shall be permanently curated at a San Diego facility that meets federal standards per 36 CFR Part 79, such as the San Diego Archaeological Center. Artifacts would be professionally curated and made available to other archaeologists/researchers for further study. The curation program will include collections from all four sites evaluated as well as any additional collections recovered during mitigation monitoring.

6.4.7 Native American Consultation

Local Native American representatives shall be contacted and included as part of the mitigation program. Native American monitoring shall be required during the archaeological excavations. As part of the data recovery mitigation program, a pre-excavation agreement may be made with the local Kumeyaay Native American tribes. This agreement will describe the procedures to be invoked in the event any human remains are encountered or items of sacred or religious significance are discovered.

Provisions for the Discovery of Human Remains

The possibility exists that human remains may be discovered during the data recovery programs, although no human bone material was identified during the testing program. In the event that human burials are encountered, standard procedures for such discoveries will be implemented, including notification of the San Diego County Coroner's Office, the County of San Diego, and the Native American Heritage Commission in Sacramento, and local Native American representatives. Fieldwork will be discontinued in the area of any such discovery. The Native American representative and the County of San Diego will be consulted to determine a preferred course of action, and the burial will be treated accordingly.

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November 10, 1870
January 2, 1972

8.0 LIST OF PREPARERS, PERSONS, AND ORGANIZATIONS CONTACTED

The Hawano Project was directed by Brian F. Smith, Principal Investigator. Field Archaeologists Brian F. Smith, Clarence Hoff, Richard Savitch, Matthew Smith and Charles Callahan conducted field survey and test excavation. Brian F. Smith prepared this technical report of findings. Adrián Moreno prepared the report graphics and Karen E. Doose, Alexandra Bornhoft, and Leigh Kulbacki conducted technical editing and report production. Clint Linton, a Kumeyaay Native American representative with Red Tail Monitoring and Research, Inc., was present for all fieldwork conducted. The County of San Diego provided the resource assessment and reporting guidelines for this project.

9.0 LIST OF MITIGATION MEASURES AND DESIGN CONSIDERATIONS

Resource	Mitigation Measures	Design Considerations
SDI-8081	Data Recovery, Curation and Grading Monitoring	None
SDI-12,256	Curation and Grading Monitoring	None
SDI-12,887	Curation and Grading Monitoring	None
SDI-12,888	Curation and Grading Monitoring	None

APPENDIX I

Resumes of Key Personnel

Tracy A. Stropes, MA, RPA

Senior Project Archaeologist
Brian F. Smith and Associates, Inc.
14010 Poway Road • Suite A • Poway, California 92064
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: Tstropes@bfsa-ca.com

Education

Master of Arts, Anthropology, San Diego State University, California **2007**

Bachelor of Science, Anthropology, University of California, Riverside **2000**

Experience

March 2009–Present

Project Archaeologist
Brian F. Smith and Associates, Inc.

Duties include project management of all phases of archaeological investigations for local, state, and federal agencies, field supervision of all phases of archaeological projects, lithic analysis, site evaluations of National Register of Historic Places (NRHP) and California Environmental Quality Act (CEQA), authoring and coauthoring of cultural resource management reports primarily for southern California.

June 2008–February 2009

Archaeological Principal Investigator
TRC Solutions

Archaeological Principal Investigator for cultural resource segment of Natural Sciences and Permitting Division. Duties included management of all phases of archaeological investigations for private companies and local, state and federal agencies; personnel management, field supervision of all phases of archaeological projects; laboratory supervision; lithic analysis, Native American consultation, and reporting; National Register of Historic Places (NRHP) and California Environmental Quality Act (CEQA) site evaluations; authoring and coauthoring of cultural resource management reports primarily for southern California.

June 2006–May 2008

Principal Investigator and Project Archaeologist
Archaeological Resource Analysts

As a sub consultant, served as Principal Investigator and Project Archaeologist for several projects for SRS Inc. Primary tasks included filed direction, project management, personnel management, lab analysis, and authorship of company reports throughout southern California.

September 1996–June 2006

Project Archaeologist
Gallegos & Associates

Duties included project management, laboratory management, lithic analysis, field direction, Native American consultation, report authorship, and editing for several technical reports for various projects throughout southern California. In addition, composed several data recovery and preservation programs for sites throughout California for both CEQA and NEPA level compliance.

Project Archaeologist **September 1993–September 1996**
Macko Inc.

Duties included project management, laboratory management, lithic analysis, field supervision, report authorship, and editing for technical reports for various projects throughout southern California.

Archaeological Field Technician **January 1996–September 1993**
Chambers Group Inc.

Duties included archaeological excavation, survey, monitoring, wet screen facilities management, and project logistics. January 1993 – September 1993.

Archaeological Field Technician **May–September 1992**
John Minch and Associates

Duties included archaeological excavation, survey, monitoring, wet screen facilities management, and project logistics.

Reports/Papers

Principal Author

2009 An Archaeological Assessment for the Rivera-Placentia Project, City of Riverside, California. Prepared for Riverside Construction Company.

2009 Cultural Resource Data Recovery Plan for the North Ocean Beach Gateway Project. Prepared for the City of San Diego and KTU+A.

2009 Cultural Resource Letter Report for the Borrego Substation Feasibility Study, Borrego Springs, California. Prepared for RBF Consulting.

2009 A Cultural Resource Study for the Gatto Residence Project, La Jolla, California. Prepared for Marengo Martin Architects Inc.

2008 Phase I Cultural Resource Survey for the 28220 Highridge Road Development Project, Rancho Palos Verdes, California. Prepared for REC Development.

2008 Wild Goose Expansion 3 Project Butte County, California Colusa County, California. Prepared for Niska Gas Storage LLC.

2008 Class III Cultural Resource Survey for the Burlington Northern Santa Fe Four Railway Bridge Renewal Project San Bernardino County, California. Prepared for BNSF Railway Company.

2008 I-80 Colfax Site Cultural Resource Records Search Report, Placer County California. Prepared for Granite Construction Company.

2008 I-80 Gold Run Site Cultural Resource Records Search Report, Placer County California. Prepared for Granite Construction Company.

Brian F. Smith, MA

Owner, Principal Investigator
Brian F. Smith and Associates, Inc.
14010 Poway Road • Suite A • Poway, California 92064
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: Bsmith@bfsa-ca.com

Education

Master of Arts, History, University of San Diego, California **1982**

Bachelor of Arts, History and Anthropology, University of San Diego, California **1975**

Experience

Principal Investigator **1977–Present**
Brian F. Smith and Associates, Inc.

Owner and principal historical and archaeological consultant for Brian F. Smith and Associates. In the past 32 years, he has conducted over 2,500 cultural resource studies in California, Arizona, Nevada, Montana, and Texas. These studies include every possible aspect of archaeology from literature searches and large-scale surveys to intensive data recovery excavations. Reports prepared by Brian Smith have been submitted to all facets of local, state, and federal review agencies, including the US Army Crops of Engineers (USACE), the Bureau of Land Management (BLM), Bureau of Reclamation (BR), the Department of Defense (DOD), and Department of Homeland Security. In addition, Mr. Smith has conducted studies for utility companies (Sempra Energy) and state highway departments (CalTrans).

Professional Accomplishments

These selected major professional accomplishments represent research efforts which have added significantly to the body of knowledge concerning the prehistoric lifeways of cultures once present in the southern California area and historic settlement since the late 18th century. Mr. Smith has been principal investigator on the following select projects, except where noted.

Downtown San Diego Mitigation and Monitoring Reporting Programs: Large number of downtown San Diego mitigation and monitoring projects submitted to the Centre City Development Corporation, some of which included Strata (2008), Hotel Indigo (2008), Lofts at 707 10th Avenue Project (2007), Breeza (2007), Bayside at the Embarcadero (2007), Aria (2007), Icon (2007), Vantage Pointe (2007), Aperture (2007), Sapphire Tower (2007), Lofts at 655 Sixth Avenue (2007), Metrowork (2007), The Legend (2006), The Mark (2006), Smart Corner (2006), Lofts at 677 7th Avenue (2005), Aloft on Cortez Hill (2005), Front and Beech Apartments (2003), Bella Via Condominiums (2003), Acqua Vista Residential Tower (2003), Northblock Lofts (2003), Westin Park Place Hotel (2001), Parkloft Apartment Complex (2001), Renaissance Park (2001), and Laurel Bay Apartments (2001).

Archaeology at the Padres Ballpark: Involved the analysis of historic resources within a seven block area of the "East Village" area of San Diego, where occupation spanned a period from the 1870s to the 1940s. Over a period of two years, BFSA recovered over 200,000 artifacts and hundreds of pounds of metal, construction debris, unidentified broken glass, and wood. Collectively, the Ballpark project and the other

downtown mitigation and monitoring projects represent the largest historical archaeological program anywhere in the country in the past decade. 2000-2007.

The Navy Broadway Complex: Architectural and historical assessment of over 25 structures that comprise the Naval Supply Depot, many of which have been in use since World War I and were used extensively during World War II. The EIR/EIS which was prepared included National Register evaluations of all structures. The archaeological component of the project involved the excavation of backhoe trenches to search for evidence of the remains of elements of the historic waterfront features that characterized the bay front in the latter half of the 19th century. This study was successful in locating portions of wharves and shanties that existed on the site prior to capping of this area after construction of the sea wall in the early 20th century.

4S Ranch Archaeological and Historical Cultural Resources Study: Data recovery program consisted of the excavation of over 2,000 square meters of archaeological deposits that produced over one million artifacts, primarily prehistoric materials. The archaeological program at 4S Ranch is the largest archaeological study ever undertaken in the San Diego County area and has produced data that has exceeded expectations regarding the resolution of long-standing research questions and regional prehistoric settlement patterns.

Charles H. Brown Site: Attracted international attention to the discovery of evidence of the antiquity of man in North America. Site located in Mission Valley, in the City of San Diego.

Del Mar Man Site: Study of the now famous Early Man Site in Del Mar, California, for the San Diego Science Foundation and the San Diego Museum of Man, under the direction of Dr. Spencer Rogers and Dr. James R. Moriarty.

Old Town State Park Projects: Consulting Historical Archaeologist. Projects completed in the Old Town State Park involved development of individual lots for commercial enterprises. The projects completed in Old Town include Archaeological and Historical Site Assessment for the Great Wall Cafe (1992), Archaeological Study for the Old Town Commercial Project (1991), and Cultural Resources Site Survey at the Old San Diego Inn (1988).

Site W-20, Del Mar, California: A two-year-long investigation of a major prehistoric site in the Del Mar area of the City of San Diego. This research effort documented the earliest practice of religious/ceremonial activities in San Diego County (circa 6,000 years ago), facilitated the projection of major non-material aspects of the La Jolla Complex, and revealed the pattern of civilization at this site over a continuous period of 5,000 years. The report for the investigation included over 600 pages, with nearly 500,000 words of text, illustrations, maps, and photographs which document this major study.

City of San Diego Reclaimed Water Distribution System: A cultural resource study of nearly 400 miles of pipeline in the City and County of San Diego.

Master Environmental Assessment Project, City of Poway: Conducted for the City of Poway to produce a complete inventory of all recorded historic and prehistoric properties within the City. The information was used in conjunction with the City's General Plan Update to produce a map matrix of the City showing areas of high, moderate, and low potential for the presence of cultural resources. The effort also included the development of the City's Cultural Resource Guidelines, which were adopted as City policy.

APPENDIX II

Archaeological Records Search Results

SCIC*, Museum of Man

(In Confidential Appendix; bound separately)

**The updated October 2009 SCIC records search is on an attached CD in the Confidential Appendix.*

APPENDIX III

Confidential Site Maps

(In Confidential Appendix; bound separately)

APPENDIX IV

Artifact Catalogs

The Hawano Project
SDI-8081 Master Catalog

ACCESSION	CAT NO	UNIT TYPE	UNIT	PROVENIENCE	LEVEL	ARTIFACT	PORTION	MATERIAL	QUAN	WEIGHT (g)	COMMENTS
SDI-8081	1	Unit	2		0-10 cm	Debitage	com	Metavolcanic	2	0.9	
SDI-8081	2	Unit	2		0-10 cm	Faunal	frag	Shell		560.7	
SDI-8081	3	Unit	2		10-20 cm	Debitage	com	Undif	12	85	
SDI-8081	4	Unit	2		10-20 cm	Faunal	frag	Shell		331.1	
SDI-8081	5	Unit	2		20-30 cm	Faunal	frag	Shell		49.8	
SDI-8081	6	Unit	2		30-40 cm	Faunal	frag	Shell		1.6	
SDI-8081	7	Surface		SC-1	Surface	Debitage	com	Metavolcanic	1	25	
SDI-8081	8	Surface		SC-2	Surface	Debitage	com	Metavolcanic	1	44.8	

The Hawano Project
SDI-12,556 Master Catalog

ACCESSION	CAT NO	UNIT TYPE	PROVENIENCE	LEVEL	ARTIFACT	PORTION	MATERIAL	QUAN	WEIGHT (g)	COMMENTS
SDI-12256	1	Surface	SC-1	Surface	Non-Artifact		Discard	1		Discard
SDI-12256	2	Surface	SC-2	Surface	Non-Artifact		Discard	1		Discard
SDI-12256	3	Surface	SC-3	Surface	Core	frag	Metavolcanic	1	141	

The Hawano Project
SDI-12,888 Master Catalog

ACCESSION	CAT NO	UNIT TYPE	UNIT	LEVEL	ARTIFACT	PORTION	MATERIAL	MOD 1	MOD 2	TYPE	QUAN	WEIGHT (g)
SDI-12888	1	Surface Scrape	11	Surface	Historic	frag	Glass	Clear			1	0.2
SDI-12888	2	STP	5	0-10 cm	Historic	frag	Wood				1	0.5
SDI-12888	3	STP	5	0-10 cm	Historic	frag	Glass	Amber			1	0.7
SDI-12888	4	STP	7	0-10 cm	Historic	frag	Glass	Clear and Amber			2	1.5
SDI-12888	5	STP	10	10-20 cm	Historic	frag	Glass	Clear			1	0.8
SDI-12888	6	STP	10	20-30 cm	Historic	frag	Glass	Clear	"23 _ 83 LAI..." embossment		1	2.6
SDI-12888	7	STP	11	0-10 cm	Historic	frag	Glass	Clear			1	0.3
SDI-12888	8	STP	11	10-20 cm	Historic	frag	Glass	Clear			2	1
SDI-12888	9	STP	14	0-10 cm	Historic	frag	Glass	Amber and Bright Green			3	1.3
SDI-12888	10	Unit	1	0-10 cm	Historic	frag	Glass	Clear, Light Blue, Amber			16	10.8
SDI-12888	11	Unit	1	0-10 cm	Historic	frag	Metal	Ferrous		CO2 cartridge and can frag	2	24.8
SDI-12888	12	Unit	1	10-20 cm	Faunal	frag	Bone	Sawcut			1	22.8
SDI-12888	13	Unit	1	10-20 cm	Historic	frag	Glass	Amber and Clear			9	11.2
SDI-12888	14	Unit	1	10-20 cm	Historic	frag	Metal	Ferrous		Can frags, barbed wire frag, nails	6	19.1
SDI-12888	15	Unit	1	20-30 cm	Historic	frag	Ceramic	Soft paste porcelain	Undecorated glazed white ware		1	2.5
SDI-12888	16	Unit	1	20-30 cm	Historic	frag	Glass	Amber and Clear			5	9.6
SDI-12888	17	Unit	1	20-30 cm	Historic	frag	Metal	Ferrous		Barbed wire	1	8.9
SDI-12888	18	Unit	2	0-10 cm	Historic	frag	Glass	Amber			1	5.2
SDI-12888	19	Unit	2	0-10 cm	Faunal	frag	Shell				1	1.3
SDI-12888	20	Unit	2	0-10 cm	Recent	frag	Rubber and Plastic				2	1.5
SDI-12888	21	Unit	2	10-20 cm	Historic	frag	Glass	Amber and Clear			3	2.1
SDI-12888	22	Unit	2	10-20 cm	Historic	frag	Metal	Ferrous		Barbed wire	1	9.1

APPENDIX V

Native American Correspondence;
NAHC Sacred Lands File Search

(In Confidential Appendix; bound separately)

APPENDIX VI

Updated Site Record Forms

(In Confidential Appendix; bound separately)