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Chopper
Cores
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Ground Stone
Hammerstone
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Kumeyaay
Mano
Mountain Meadow Dairy
Olivella Shell Bead
Pot Drop
Prehistoric
Prehistoric Habitation Site
Round Mountain
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C. Category 3 Artifact Types/Material Classes
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G. Category 7 Other
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A. **Category 0** – Types of Resources and Features:

______ **No Resources** (negative survey)

__X__ **Prehistoric**

______ Faunal Site

______Food Processing/Procurement Site

______ Other Prehistoric: ______________________________

__X__ Prehistoric Habitation Site

______ **Historic**

______ Historic Habitation Site

______ Service Industry Site

______ Religious Site

______ Manufacturing Site

______ Water Extraction/Storage Site

______ Water Transportation Site

______ Hostelry

______ Penal Site

______ Other Historic:

______ Cultural Site

______ Government Site

______ Mercantile Site

______ Medical/Cemetery Site

______ Fire Suppression Site

______ Procurement/Refining/ Packaging Site

______ Refuse Disposal Site

______ Educational Site

______ Military Site

B. **Category 1**: Research Types

______ Cultural Chronology

______ Settlement Pattern Analysis

______ Technology

C. **Category 2**: Archaeological Taxonomic Names

______ Archaic

______ Mexican

______La Jollan

__X__ Kumeyaay

______ Spanish

______San Dieguito

______ Cuyamaca Complex

______ Euro-America

______Luiseno

D. **Category 3: Artifact Types/Material Classes**

E. **Prehistoric:**

__X__ Flaked Lithics

______ Projectile Points

______ Faunal Materials

__X__ Tizon

__X__ Ground Stone

______ Shell

______ Prehistoric Pottery

______ Colorado Buff

Historic:

______ Historic Ceramic

______ Building Materials

E. **Category 4** – Geographic location:

Map Name	Circle Scale		Year	Quad
____________________	7.5'	15'	________	Quad
____________________	7.5'	15'	________	Quad

______ Southern Peninsular Regions

______ Cismontane Region

______ Colorado Desert

______ Imperial Valley

______ Coastal Areas

Area: ____________________ Acres Miles Hectares

F. **Category 7** Other

G. **Category 8**: (List sites contained in Report and under keywords)

CA-SDI- 4455	CA-SDI- 8072	CA-SDI- 11676	i-11679
CA-SDI- 6741	CA-SDI- 8430	CA-SDI- 11677	i- 11681
CA-SDI- 7056	CA-SDI- 11675	CA-SDI- 11678	i-11682
~~Primary #~~ i-11685	~~Primary #~~ i-11689	~~Primary #~~ i-11692	i-11683
~~Primary #~~ i-11686 i-11688	~~Primary #~~ i-11690 i-11691	~~Primary #~~ i-11693 i-11694	i-11684

20. Other Publications

2. Chapter in a book or, report series:

Source document #: ____________

Beginning Page #: ______________ Ending Page #: ______________

1. Monograph/Book:

Publisher: ________________________

Place (city, state abbrev., - no period): ________________________

8. Other. For Example: Record in a continuing series (see appendix "A" in manual):

(example: American antiquity reference style): ________________________

6. Paper presented at meeting:

Meeting name: ________________________________

Meeting place (city, state abbrev. – no period): ________________________

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APPENDIX F
CULTURAL RESOURCES
DRAFT ENVIRONMENTAL IMPACT REPORT FOR JACUMBA VALLEY RANCH SPECIFIC PLAN
(SP91- , TM , P91-012, P91- , Log#91- -)

VOLUME I

Prepared for:

Jacumba Valley Partnership
2423 Camino Del Rio South, Suite 212
San Diego, California 92108

Prepared by:

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April 1991

JACUMBA VALLEY RANCH
CULTURAL RESOURCES INVENTORY AND EVALUATION

VOLUME I

Prepared for:

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TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

LIST OF FIGURES

LIST OF FIGURES (Continued)

LIST OF TABLES

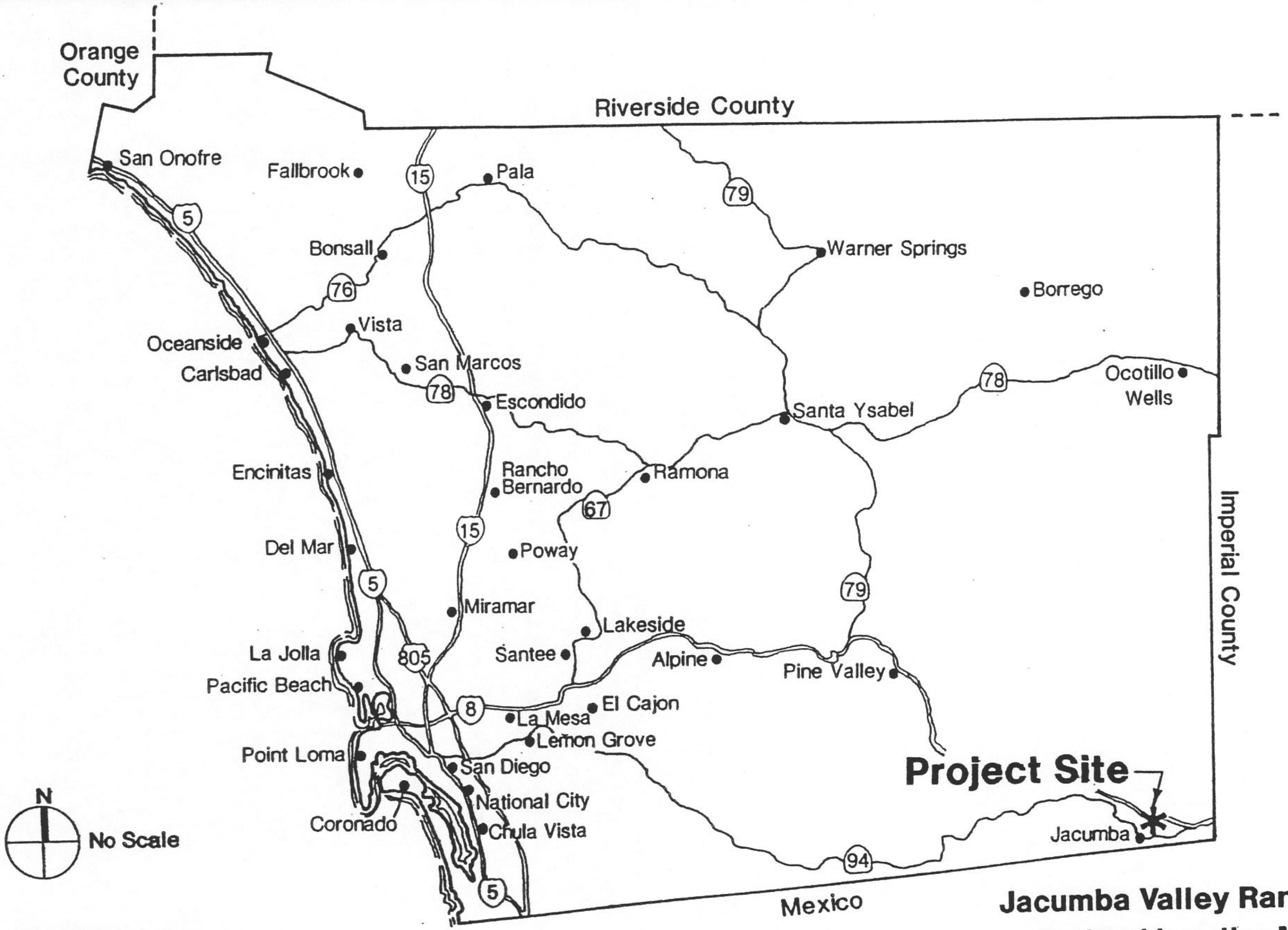
I. EXECUTIVE SUMMARY

INTRODUCTION

This report documents the results of a cultural resource survey and significance evaluation for the proposed Jacumba Valley Ranch project located in southeastern San Diego County (Figure 1). The report is divided into four major sections, this executive summary and three chapters that address studies conducted for the project's prehistoric archaeological resources, historic resources, and Native American heritage resources. This executive summary provides information applicable to the overall cultural resource study including the project description and setting, and a comprehensive discussion of the results and recommendations for all three resource analyses.

Jacumba Valley Ranch is a proposed mixed-use development of the 1,347-acre Ketchum Ranch. The project site is located between Interstate 8 and the U.S./Mexico International Border near the community of Jacumba. Applications for approval of a specific plan, rezone, tentative map and major use permits are being concurrently processed to enable development of the site with approximately 1,048 dwelling units, golf course and club house, hotel, commercial area, congregate care facility, sand mining, and sewage treatment plant. The project also includes areas of natural and recreational open space, an elementary school site, and approximately 450 acres designated as "Future Planning Area".

Cultural resource studies were initiated in September 1989 with an intensive archaeological survey of the entire project property. The survey resulted in the identification and documentation of 5 previously recorded sites and 18 new sites related to prehistoric/ethnohistoric occupation and use, one historic site, 16 isolates, and a geographic feature of Native American heritage importance. In accordance with County of San Diego cultural resource guidelines, a significance evaluation program was then conducted involving limited subsurface testing and surface artifact mapping and collection. Most of the sites proved to be small lithic scatters lacking any subsurface components, but several more extensive sites were investigated including quarry/workshops, temporary camps, and a portion of the ethnohistorically occupied village of Hakum. At the direction of County staff, extended testing was then performed at four sites that lacked subsurface deposits yet consisted of moderately extensive surface scatters. Data recovered as a result of the two testing programs effectively exhausted any further research potential of all but six of the prehistoric/ethnohistoric



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Jacumba Valley Ranch
Regional Location Map

Figure 1

archaeological sites, and no mitigation will be required. It is recommended that the remaining six sites be mitigated by preservation in dedicated open space easements.

Archival research was conducted at the San Diego Historical Society Research Archives, San Diego County Recorders Office, the Map Collection at San Diego State University Library, and the Survey Records Department of the San Diego County Operations Center in order to facilitate the identification of historic resources within the project property. This research indicated the potential presence of two early residences, the Lawrence House and the W. H. Purdy House, though no remains were found of either. A third site, the Mountain Meadows Dairy Complex, still exists though the majority of the structures are in a serious state of disrepair. Most of the dairy complex was built by 1928, and in 1934 it was claimed that Mountain Meadows Dairy was the largest producer and distributor of milk in San Diego County. While the entire complex is not considered significant for a variety of reasons, it is recommended that antique farm implements be donated to an appropriate museum since these items will provide information that is of public interest.

As a final component, an ethnographic study was conducted to document the potential occurrence of significant Native American resources within the boundaries of the project. This study entailed a review of archival sources and publications, input from several anthropologists, and interviews with Native Americans familiar with the Jacumba area. Although many Native American sites of cultural significance have vanished or been destroyed, a few critical resources remain of concern including Round Mountain and mitigation recommendations are provided to ensure their preservation.

PROJECT DESCRIPTION AND SETTING

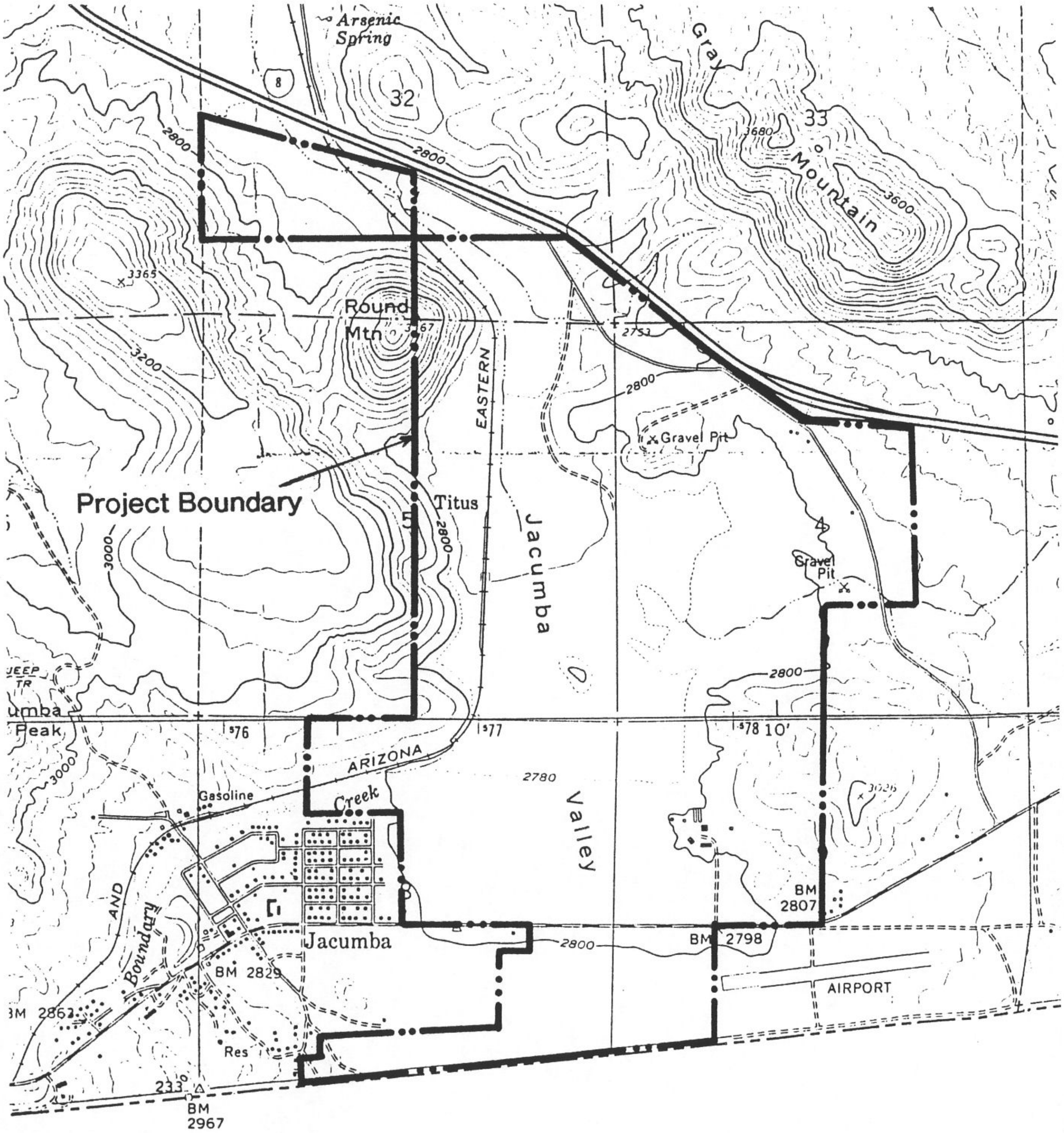
The description of the proposed development project and its cultural setting are provided below as background information of relevance to the overall cultural resource study. The reader is referred to the Specific Plan and Environmental Impact Report for more detailed information about the development and the natural environment.

Project Description

Jacumba Valley Ranch is located immediately east of the community of Jacumba in southeastern San Diego County, approximately 56 miles east of downtown San Diego. The 1,347-acre property is bounded on the north by Interstate Highway 8 and on the south by the U.S./Mexico International Border, and includes portions of Sections 4, 5, 8, and 9 of Township 18 South, Range 8 East, and a portion Section 32, Township 17 South, Range 8 East (Figure 2). Access is taken from Interstate 8 via Carrizo Gorge Road or via Old Highway 80 which crosses the southern portion of the property. The existing community of Jacumba lies on the western boundary of the project, south of the San Diego and Arizona Eastern rail line. This rail line enters the Jacumba Valley Ranch near its southwestern boundary, curves north and continues through the western portion of the project.

Historically in agricultural use, the property is now essentially vacant with the exception of a ranch house complex and two services stations near the Carrizo Gorge Road off ramp from Interstate 8. The majority of the property, which lies on the floor of Jacumba Valley, has been levelled and cultivated from many years. Boundary Creek, an intermittent stream, runs south to north along the western edge of Jacumba Valley, and Carrizo Creek, also an intermittent drainage, flows east to west and bisects the valley near the center of the property. Proposed flood channel improvements along Boundary and Carrizo Creeks will provide necessary flood protection, recreational opportunities, and open space.

The property supports a variety of native and disturbed plant communities including semi-desert chaparral (SDC), sparse SDC, desert saltbush scrub, desert sink scrub, valley freshwater marsh, and mesquite woodland. As a result of historic farming, ranching, and mineral extraction, approximately 737 acres of the valley floor and surrounding slopes are classified as disturbed and contain either barren soils or non-native plant communities. Prior to these uses it can be assumed that the mesquite woodland, an important resource for the prehistoric inhabitants, would have been considerably more extensive.



Jacumba Valley Ranch

Project Location

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Figure 2

The proposed Jacumba Valley Ranch project will implement the goals and objectives of the Mountain Empire Subregional Plan through the creation of a mixed-use community including residential, employment, commercial, and visitor-serving land uses. The southern half of the project site is located within the Country Town Boundary of Jacumba and carries an overall residential density designator of 1.7 dwelling units per acre, allowing over 1,100 residential units. The northern portion is proposed to provide various visitor oriented commercial, employment, and recreational uses. The overall project concept is to orient the development in a direction that emphasizes the history and cultural heritage of the Jacumba area and the natural and environmental attributes of the country setting. The planned development under a specific plan will facilitate design which maximizes open space and provides substantial recreational amenities in order to ensure a high quality of life for the project's residents and the surrounding area.

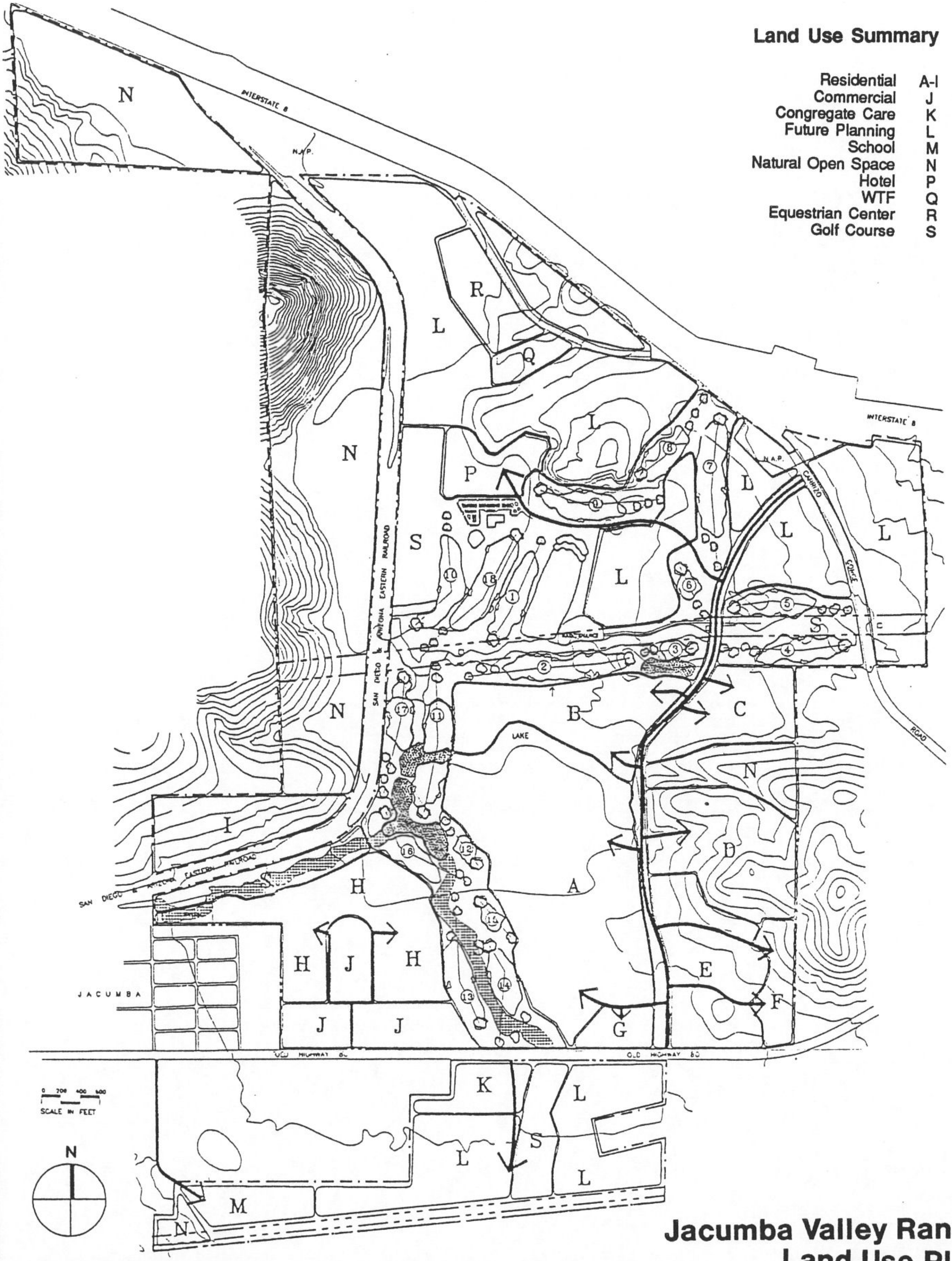
Development of the project as proposed will ultimately affect approximately 1,129 acres of the property through a variety of different land uses. The uses and their locations within the property are shown in Figure 3. Natural open space includes 218 acres of hillside slopes and valley floor in the western area of the property west of the San Diego and Arizona Eastern rail line. The residential element of the proposed project comprises 1,048 dwelling units on some 328.1 acres. Housing types are primarily single family, with the exception of Area G which contains 70 multi-family dwelling units, and Area H which contains 275 dwelling units comprised of both attached and detached units. Major roads will consume 24.3 acres, and 450 acres throughout the property are designated as a Future Planning Area for later development.

Phase 1 includes an 18-hole championship golf course and clubhouse facility on approximately 248 acres. Initial clubhouse construction will be limited to approximately 3,000 square feet for a starter and pro shop, rest rooms, locker facilities, and equipment storage. The major use permit includes a later clubhouse addition of approximately 8,250 square feet to expand the pro shop and lock facilities, and add a dining room, cocktail bar, lounge area, club offices, and expanded maintenance facilities. A pool, jacuzzi, and tennis courts will also be added.

The property between Old Highway 80 and the International Border includes portions of the golf course, future planning areas, 10 acres for congregate care facilities, and a 10-acre school site. A 28.7-acre commercial center is proposed for the area north of Old Highway 80

Land Use Summary

Residential	A-I
Commercial	J
Congregate Care	K
Future Planning	L
School	M
Natural Open Space	N
Hotel	P
WTF	Q
Equestrian Center	R
Golf Course	S



Jacumba Valley Ranch
Land Use Plan

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Figure 3

and immediately east of the existing community of Jacumba. Other uses include 15-acre equestrian center and a 6.6-acre waste treatment facility situated south of Interstate 8 in the northern area of the property.

Setting

The Jacumba area provides a unique array of prehistoric and archaeological resources because of its special geographical situation and relationship to varied natural resources. Located at the far eastern end of the Peninsular Range, at an elevation of 2,800-3,000 feet above sea level, the Jacumba Valley is the last major alluvial filled upland valley and populated area before descending Mountain Springs Grade to the east into Imperial Valley. Boundary Creek Wash flows from the west into Jacumba Valley and drains north into Carrizo Gorge. Although intermittent in nature, the constriction of the watercourse at the north end of the valley must have produced a marshy bottomlands habitat in prehistoric and early historic times (Chase 1980:2).

Central to human activities throughout Jacumba's history was the hot springs. Located on the western edge of the valley, the mineral rich water wells created by a geological fault system extend south into Mexico. In prehistoric times the springs provided a reliable source of drinking water, supported wild plants and animals that were exploited by the inhabitants, and became a focus of ritual activities associated with spiritual purification, health and bathing (Wirth 1980:6.0). In ethnohistoric times, possibly extending back into the pre-contact period, the springs were also used to irrigate domestic crops (Gifford 1931:23). This would make Jacumba the westernmost location in the United States where agriculture, not to mention irrigation, may have been practiced by aboriginals before European contact.

The surrounding geological resources provided a varied source for the manufacture of stone tools. Manos, metates and bedrock mortars and slicks were made from the granite of the Mesozoic Age Southern California Batholith. Andesite and quartz outcrops from Miocene volcanic formations provided a source for flaked stone tools. Soapstone outcrops to the north, near Table Mountain were quarried to make arrow shaft straighteners and other utilitarian items (Zelenka 1982).

The biotic habitat, characterized as transitional mountain chaparral desert scrub, provided a great variety of animal and vegetal resources. Hunters and gatherers operating from base camps or temporary camps enjoyed a much greater variety of staple resources available to them within a daily foraging radius of 10 kilometers than groups based in either the desert or mountains. Among the most important resources were juniper, pinion nuts, yucca, agave, mesquite, sage, buckwheat, cholla, opuntia, Morman tea, desert apricot, jojoba, and coast live oak, among many others. Important game animals included bighorn sheep, pronghorn antelope, mule deer, and rabbits. A distinctive marsh habitat would also have been present around the spring and in the valley bottom during prehistoric times. Cattail, tule, waterfowl and other wetland species would have been important resources.

Jacumba served as an excellent base from which to conduct seasonal expeditions. During the spring and early summer, desert resources in Imperial Valley are most abundant, including mesquite beans in riparian wash habitats and agave in the Upper Sonoran life zone. The area to the east of Jacumba, through Mountain Springs Grade, is especially rich in agave roasting pits (Shackley 1984). To the west, the oak woodlands and mountain meadows of the Lagunas also provided an important source of acorns and pine nuts.

Jacumba's geographical setting also made it a natural stopping point for peoples travelling between the desert and the Pacific Coast Mountain. Mountain Springs Grade provided a natural route through the Peninsular Range, as the builders of Old Highway 80 and Interstate 8 well appreciated. It is through this route that Malcolm Rogers hypothesized the Colorado Desert-adapted San Dieguito peoples migrated to the Pacific Coast. This route also facilitated the Late Prehistoric migration of Yuman speaking groups from the Colorado River to the southern California coast and was a major trade and transit route throughout late prehistoric and ethnohistoric times.

The cultural history of eastern San Diego County extends back in time over 10,000 years. Only the Late Prehistoric, Ethnohistoric, and Historic Anglo periods are known to be well represented at Jacumba and will be discussed here. For a detailed overview of the entire region and for all periods, the reader is referred to Wirth Associates (1978), Moratto (1984), and Cook and Fulmer (1980).

Prehistory. The oldest material in the project area may be a quarry on the slopes north of the airport. Recorded as SDi-8430 this site includes hundreds of volcanic cores, flakes, chopping tools, blades, scrapers and "pushplanes", some of which are thought to be of possible San Dieguito II origin (McCoy and Thesken 1979; Whitney-Desautels 1982). Most of this material is heavily patinated, but unpatinated flakes also suggest continued quarry use throughout the prehistoric period. Many aceramic chipping stations and lithic scatters in the region may also be that old but precise dates are impossible to determine.

All other aboriginal sites in the project area are presumed to be from the Late Prehistoric or Ethnohistoric periods. They range from small temporary camps to lithic and pottery scatters. The ethnohistoric focus of activity was at the base camp of "Hakum", Site SDi-4455 (C-147). Located west of the project area, this complex includes a large array of Late Prehistoric material centered on the hot springs. Most of this site has been obliterated by modern Jacumba but portions of the site, including cremation burials, were found on the Mexican side of the border and to the southeast of the present town. Presumably, most other sites in the project area represent outlying residences and specialized activity areas associated with the base camp.

Ethnohistoric Period. Aspects of Late Prehistoric lifeways can be reconstructed from Euro-American accounts of the people living in Jacumba Valley during early contact. The Yuman speaking Kumeyaay (Diegueño) experienced culture change much more slowly here than on the Pacific Coast or Colorado River because they were so far from the influence of the Spanish Missions and later Anglo urbanization. The main occupants of Jacumba at contact were eastern lineages of the Kumeyaay and desert adapted groups who regularly travelled between Imperial Valley and Jacumba. The latter are documented as the Kamia (Gifford 1931), but are now generally recognized not as a separate tribal group, but as far eastern Kumeyaay (Hedges 1975; Langdon 1975; Gifford 1931:2; Luomala 1978).

The Kamia maintained particularly close ties with the Quechan on the Colorado River and acted as trade intermediaries between coastal and Colorado River tribes using the Mountain Springs Grade travel route. The Quechen, Kamia and other Kumeyaay also maintained political alliances against other tribes to the north and south (Gifford 1931; Forbes 1965; Forde 1931).

Early Spanish visits to Jacumba may go back as early as 1785, by Pedro Fages. But he would have found the Kumeyaay hostile to Spanish intrusions and in alliance with other tribes against the Missions. After secularization of the Missions and departure of the San Diego Presidio contingent in the 1830's, the Jacumeño, as they were known, were actively raiding ranches in San Diego and San Bernardino Counties (Forbes 1965:283-287). Despite early American attempts to pacify the Jacumeño and other groups, raiding continued until the tragic "McCain Massacre" drove the Kumeyaay out of Jacumba in 1880 (Burkenroad 1980:25).

When anthropologist E. W. Gifford interviewed some of the remaining Kamia who had previously left Imperial Valley to live with the Colorado River tribes, they still remembered what it was like living in Jacumba. Of particular importance was the description of irrigated agriculture; although Gifford concluded that these agricultural practices were learned from the Spanish as many of the cultigens are old world. Indian cultivation of Jacumba Valley was recorded as early as 1851 (Lyon 1851) and the discovery of a cached ceramic vessel near Boulevard confirmed these observations. Inside the vessel, sorted and wrapped in textiles dating to the 1850's were seeds of both Old World and New World domesticates (Treganza 1947).

These and other observations, in conjunction with tribal mythological accounts have led several investigators to speculate on the aboriginal origins of agriculture and irrigation among the Jacumba Kamia (Lawton and Bean 1972). If aboriginal, one hypothesis is that agriculture was adopted, probably from the Quechan, as an adaptation to the lost resource base when Lake Cahuilla receded for the final time around 1700. Among other adaptive shifts may have been an intensification of agave exploitation, for which evidence is abundant to the east of Jacumba (Shackley 1984).

In any event, the traditional adaptive patterns of the Jacumeño must have become increasingly compromised with the environmental pressure brought on by Anglo ranching and the social and spiritual pressures of industrial American expansion.

Historic Period. No historic sites had been previously recorded in the project area prior to investigation, except for the San Diego and Arizona Eastern Railroad (SDi-7015) and some late historic trash dumps. The main occupation was directly west within the developed town of Jacumba. These resources have been inventoried by Burkenroad (1980:33-41).

Many of the same geographical and environmental factors that attracted the prehistoric inhabitants also influenced the Euro-American occupation. The first major incursion was by "Forty-Niners" who used the trail from Yuma, across the Colorado Desert and through Mountain Springs Grade to reach San Diego and ships bound for the Mother Lode country (Burkenroad 1980:89-91). This road was pioneered over the existing Indian trail in 1849, by Andrew Gray and Col. James Collier of the International Boundary Commission (Lindsay 1973:61; Powell 1931:180-183). In 1853, a stone fort was built at the hot springs to protect and service mail carriers travelling between San Diego and Yuma, marking the first Anglo structure in Jacumba (Woodward 1956:201). This route continued to be developed through the

1850's and 1860's and in 1865 or 1866 a rock house (now destroyed) was built for Peter Larkin, the toll-house keeper at Mountain Springs. By 1868, farmers were already cultivating Jacumba Valley (Burkenroad 1980:28). Having arrived from Texas, these settlers were part of a region-wide pattern of post-Civil War migration of ranchers and farmers to the Peninsular Range and included such prominent families as the McCains (Cook and Fulmer 1980). Many of these people came with the giant Texas cattle drives that followed the Gold Rush (Jelinek 1979).

Cattle ranching became a major economic pursuit in Jacumba Valley through the 1870's. Added to the number of ranchers was Peter Larkin, former Mountain Springs toll-keeper. Expansion of Anglo land interests and cattle grazing must have severely compromised the economic base of the Kumeyaay as wild sheep and deer became more scarce. As in other parts of inland southern California, the Indians resorted to cattle poaching. For the ranchers from Jacumba, this situation was accentuated by Mexican rustlers. Continuing friction came to a head on February 17, 1880 when open confrontation lead to the death of William McCain and fifteen local Kumeyaay. A Native American village occupied at the east end of the valley was described as abandoned at this time (Burkenroad 1980:29). The exact location of such a village is not identified but the 1880 event marks the tragic end of the native American occupation of Jacumba. Less than three years later, Larkin moved to Jacumba and built an adobe house that still stands.

The next turning point in Jacumba's history was marked by the completion of the San Diego and Arizona Eastern Railway in 1919. By this time, a little town had developed as a way station between San Diego and the newly developed Imperial Valley agricultural communities.

The Jacumba hot springs had already attracted several health-seekers and other residents by the turn of the century and the new railroad station now provided an opportunity to develop Jacumba as a resort. Bert L. Vaughn, owner of the famous Barbara Worth Hotel in El Centro bought the land around the hot springs in 1919 and by 1925 had opened a hotel and spa. Principal among the guests were families of Imperial Valley farmers who, before air conditioning, came to escape the oppressive summer heat. Among other Jacumba amenities were a hot and cold plunge, a lake, dance hall, cafe, racetrack-rodeo, cinema, stores, and numerous guest cottages and tents.

The town remained stable until after World War II. The advent of air conditioning made it possible to stay in Imperial Valley through the summer and better automobiles provided easier personal access to San Diego. After Interstate 8 was built in 1967, Jacumba lost even the traffic business along Old Highway 80. Several attempts to revitalize or redevelop the town have failed, and recent fires at the Spa Hotel are symptomatic of further economic and demographic decline.

RESULTS AND RECOMMENDATIONS

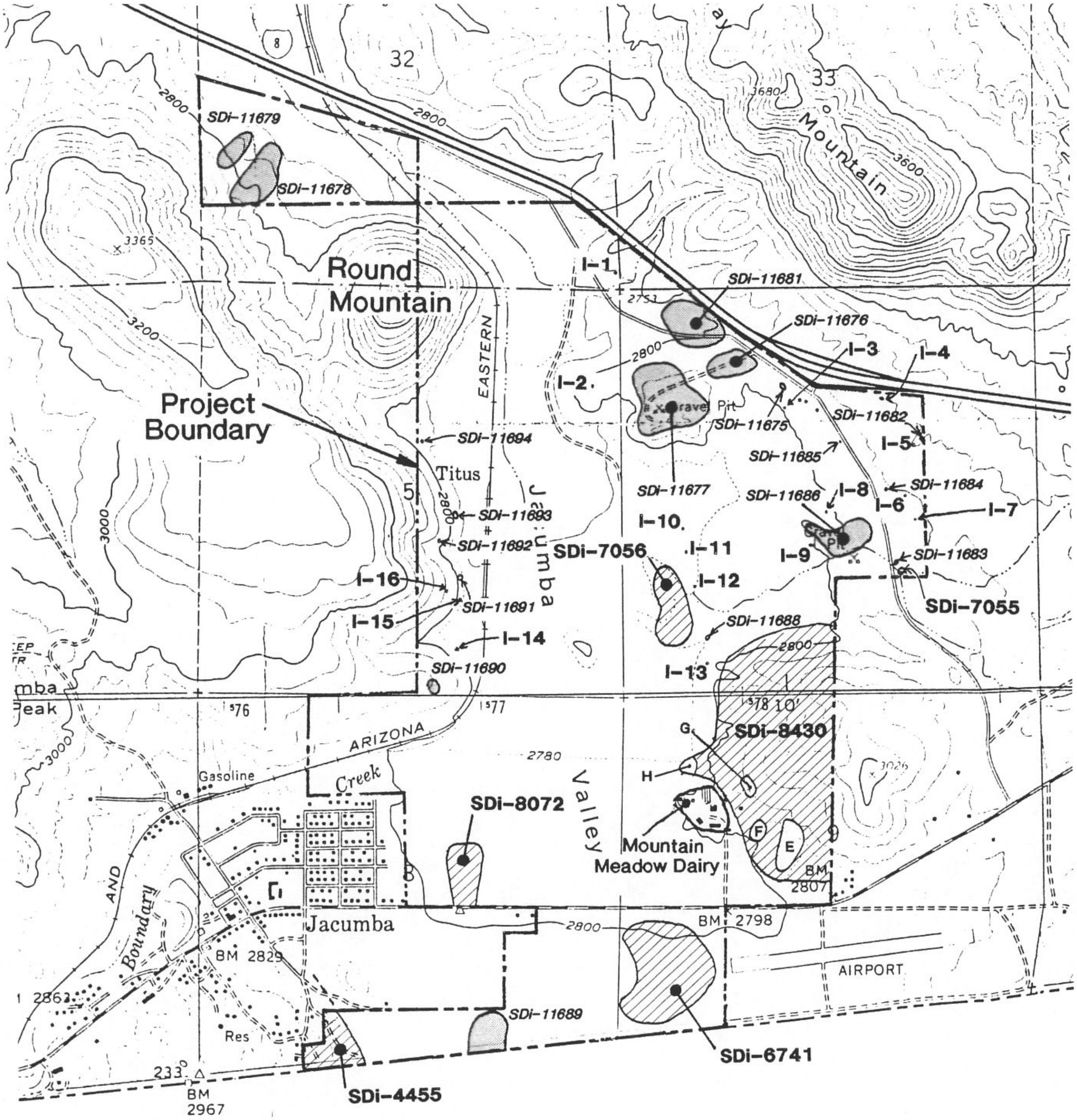
Studies conducted to inventory and evaluate the cultural resources within Jacumba Valley Ranch resulted in the documentation of archaeological sites relating to prehistoric, ethnohistoric, and historic occupation and use of the region, as well as areas of Native American heritage concern (Figure 4). These resources are described in detail in the chapters that follow this section and are summarized below along with a discussion of the recommended mitigation measures based on evaluations of resource significance and project-related impacts.

Results

Comprehensive field surveys, archaeological testing programs, archival research, and informant interviews were performed in an attempt to identify all potentially significant cultural resources contained within the project property. An intensive archaeological survey resulted in the recordation of 23 sites and 16 isolates of prehistoric/ethnohistoric origin which were subsequently subjected to County mandated testing in order to assess their significance. Historic research concentrated on potential resources of archaeological and architectural nature of which only three were identified; although the Jacumba region has a rich and diverse history, the project property itself was clearly not the focus of much of this activity. Additionally, two locations of Native American heritage concern were documented. The following is a summary description of the cultural resources addressed for this impact analysis.

Prehistoric Archaeological Resources

Prior to the current study only a few, small portions of the project property had been investigated culminating in the recordation of but five sites. The systematic survey conducted for this study relocated and examined these sites and identified 18 additional sites which have been appropriately recorded with the South Coastal Information Center at San Diego State University. With the exception of three sites (SDi-6741, SDi-8072, and SDi-11,689), the archaeological resources all occur on terrain elevated above the valley floor on the low knolls and hillsides that encircle Jacumba Valley. The vast majority of these sites consist primarily of scattered flaked lithic debitage with minimal quantities of tools, groundstone, and ceramics, whereas those on the valley floor are considerably more complex and variable. Subsurface testing indicates that all of the sites but SDi-4455 are essentially surface deposits.

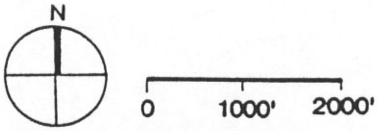


· I-1 Isolates

⬭ SDi- Newly Recorded Sites

▨ SDi- Previously Recorded Sites

Ⓔ Site Locus



brian f mooney associates
planning, design & environmental studies

Jacumba Valley Ranch
Cultural Resource Locations

Figure 4

Sites:

SDi-4455	This site represents a portion of the ethnohistoric Kumeyaay village complex of Hakum which originally covered much of the present town of Jacumba and extended into Mexico. Only a small eastern portion of the site lies within the project property, adjacent to the valley floor. This area contains 10 milling features and a surface scatter of over 100 flakes, 50+ sherds and various flaked tools and groundstone implements. Testing indicated a fairly rich and deep (70cm) subsurface deposit.
SDi-6741	The widely dispersed (300 by 380m) scatter of 59 flaked lithic, groundstone, and ceramic artifacts recovered from the surface of this site indicates a Late Prehistoric temporary resource procurement and processing camp existed in this portion of the valley floor. Subsurface deposits were minimal and probably due to agricultural disking of the upper 40cm of soil.
SDi-7056	This site appears to be primarily a Late Prehistoric lithic procurement and reduction site comprised of over 1600 cores and flakes with a few associated flaked lithic tools and a limited amount of ceramics and groundstone, suggesting some resource processing occurred within the 180 by 330 meter site area as well. Subsurface recovery was very minimal and did not exceed five centimeters in depth.
SDi-8072	Situated on the western side of the valley floor, this site appears to be a Late Prehistoric temporary camp similar to SDi-6741 and SDi-11,689 based on the surface recovery of over 500 sherds, an Olivella shell bead, groundstone tools, projectile points, point preforms, other flaked lithic tools, cores, and over 300 flakes. Only the northern portion of the site extends inside the project boundary. The artifacts have been dispersed over a 200 by 250 meter area and mixed, along with historic debris, into the upper 40cm of soil through cultivation of the floodplain.
SDi-8430	This site is a lithic procurement quarry/workshop encompassing the slopes of a mountain located on the eastern side of Jacumba Valley. Only the western half of the site is within the project. Four loci were collected mostly comprised of cores and waste debitage. One locus, adjacent to the valley floor, contained a greater variety and count of tools indicating other activities besides quarrying. No subsurface components were detected during testing.
SDi-11,675	This is a small, 18 by 22 meter, limited activity site consisting of a chipping station, a pot drop, and a scatter of tools, cores, and debitage located 45 meters southwest of Carrizo Gorge Road. Sixty one artifacts were collected from the surface, and 4 sherds and a flake were recovered from the upper 5 centimeters during testing.
SDi-11,676	This site is a 100 by 180 meter lithic procurement and reduction quarry/workshop similar to SDi-7056, located near the base of a knoll immediately south of Interstate 8. Surface artifacts include 3 retouched flakes, a scraper, cores, and an estimated 160 flakes. Subsurface testing yielded only 8 flakes in the upper 10 centimeters of two units.

SDi-11,677	Located southwest of SDi-11,676, on the top and slopes of the same knoll, this widely dispersed 250 by 260 meter lithic scatter is comprised of two areas of concentration with a low density intervening lithic scatter. Locus A, at the top, contains bedrock slicks and a mano along with over 20 flaked lithics. Locus B, on the northern slope, is a work area consisting of a core and over 20 pieces of debitage. No subsurface component was detected during testing.
SDi-11,678	The site is situated on a ridge slope overlooking Boundary Creek, and is primarily a quarry/workshop with limited evidence of resource extraction. A surface inventory of the 120 by 260 meter area included unifaces, a hammerstone, 90+ cores, and over 400 flakes (no collection was made). Subsurface testing resulted in the recovery of a core and 2 flakes from the upper 5 cm of one unit.
SDi-11,679	Located across an intermittent drainage from SDi-11,678, this is also a quarry/workshop related to expedient tool production and undoubtedly limited on-site use as indicated by the presence of 3 utilized flaked lithics. The majority of cultural debris, however, consists of cores and over 70 flakes based on a surface inventory of the 60 by 160 meter area. Limited subsurface testing proved negative.
SDi-11,681	This widely dispersed, low density quarry/workshop is located at the northern base of the knoll containing SDi-11,676 and SDi-11,677, and is bisected by a small intermittent drainage. Cores and waste debitage made up the majority of the 106 surface artifacts. Six flaked lithic tools were also recovered from the 150 by 250 meter site. Subsurface testing was negative.
SDi-11,682	This site is a small, 12 by 25 meter, lithic scatter consisting of 2 cores and 5 flakes with no subsurface component located near the eastern boundary of the project.
SDi-11,683	This is a low density lithic procurement/reduction scatter with 4 distinct reduction stations. Seven cores, 66 pieces of waste debitage and one cobble hammerstone were collected from the 60 by 80 meter surface area. Subsurface testing yielded 6 pieces of debitage in the upper 5 cm of one unit. A larger scatter, SDi-7055, lies 40 meters to the southeast which Dames and Moore mitigated in 1982.
SDi-11,684	This small, 6 by 8 meter, lithic scatter consists of 2 cores and 3 flakes with no subsurface component.
SDi-11,685	This site consists of a chopper and 2 flakes in a 12 by 25 meter area located immediately west of Carrizo Gorge Road. Subsurface testing proved negative.
SDi-11,686	This site is a moderately extensive combined quarry/workshop and resource extraction locale covering an 80 by 280 meter area situated on a narrow terrace north of Carrizo Creek. Surface collection recovered 464 flaked lithic artifacts (17 tools) and one Tizon Brown Ware sherd. The subsurface yield was very minimal.
SDi-11,688	This is a low density scatter consisting of cores, flakes, and 2 Tizon Brown Ware sherds with no subsurface component. The scatter, dispersed over a 2,000 square meter area near the eastern edge of the valley floor, is probably associated with SDi-7056.

SDi-11,689	Located on the valley floor north of the International Border, this 190 by 210 meter site appears to represent a Late Prehistoric temporary camp similar to SDi-8072 (which may be an extension) and SDi-6741. A partial surface collection yielded over 1,400 artifacts including 10 different types of flaked lithic tools, plus cores, debitage, groundstone, over 400 ceramics, an Olivella bead, faunal remains, and a few historic artifacts. Subsurface testing proved marginally positive, probably due to agricultural plowing. The site may extend into Mexico.
SDi-11,690	This site is a small, 40 by 75 meter quarry/workshop situated on a ridge along the western edge of the valley. A total of 134 artifacts were recovered from the surface including a chopper, utilized flake, cores and waste flakes. A bedrock feature (rub) is associated with the scatter. Subsurface testing yielded one flake.
SDi-11,691	This site is a low density lithic scatter consisting of cores and flakes. The 10 artifacts occurred within a 570 square meter area at the base of ridge slope at the western edge of the valley. Subsurface testing proved negative.
SDi-11,692	This site is an isolated bedrock milling feature with two moderately worn slicks; no artifacts were found in association nor was any subsurface cultural debris detected. The slicks occur on a small boulder near the base of a ridge slope, north of SDi-11,691.
SDi-11,693	This 5 by 22 meter area contains one unidirectional core and 2 secondary flakes located on a ridge slope at the western edge of the valley. Subsurface testing proved negative.
SDi-11,694	This site is a low density lithic scatter located at the base of a ridge slope adjacent to a large cobble filled wash. Three cores and 7 pieces of debitage were collected from a 16 by 8 meter area. No subsurface material was recovered.

<u>Isolates</u>:

I-1	One grey-green porphyritic volcanic flake.
I-2	One grey-green porphyritic volcanic flake, possibly retouched.
I-3	One black porphyritic volcanic flake.
I-4	Three grey-green porphyritic volcanic flakes.*
I-5	Three grey-green porphyritic volcanic flakes.*
I-6	Two black porphyritic volcanic flakes.
I-7	One Tizon Brown Ware sherd.
I-8	One grey-green porphyritic volcanic flake.
I-9	One Tizon Brown Ware sherd.
I-10	Three grey-green porphyritic volcanic flakes and 1 chert flake.*
I-11	One grey-green porphyritic volcanic flake and two pieces of angular debris.
I-12	One grey-green porphyritic volcanic flake.
I-13	One metate fragment.
I-14	One grey-green porphyritic volcanic flake.
I-15	One grey-green porphyritic volcanic core.
I-16	One grey-green porphyritic volcanic flake.

* Dispersed over 20 meter area.

Historic Resources

Euro-American occupation of the greater Jacumba region dates to the 1860s and 1870s when settlers began to establish ranches in the surrounding mountains, and by 1913 a small village had been established at the present day town of Jacumba whose spa attracted Imperial Valley farming families. Completion of the San Diego and Arizona Eastern Railroad in 1919 facilitated further development of Jacumba as a resort, and construction of a hotel and other amenities ensued during the 1920s and 1930s. Historic research indicates, however, that the project property was peripheral to the development of the community of Jacumba, and agriculture appears to have been the predominant use. Archival research identified three potential historic resources within the study property (the railroad is located on fee lands which are not owned or controlled by Jacumba Valley Ranch). No remains could be found for two of the potential sites, a house built in the 1870s by a settler named Lawrence and the W. H. Purdy residence dating to the 1910s. The third site is a dairy complex located in the southeastern area of the property north of Old Highway 80.

> The Mountain Meadow Dairy. This resource consists of a complex of buildings relating a major dairy farming operation that in 1934 claimed to be the largest producer and distributor of milk in San Diego County. Many of the structures were apparently built by the Keeler Milling Company in 1927, and the operation incorporated in May 1930 as Mountain Meadows Creameries Ltd. At its peak the dairy averaged about 35 employees and maintained 500 guernsey and holstein cows. Roughly 750 acres of the valley were cultivated for feed using horse drawn equipment. The operation closed in 1945 when the owner retired. The present dairy complex consists of two concrete block silos, three residential dwellings, a milk barn, various wooden and corrugated tin sheds, a tank room, concrete reservoir, two trash dumps, and miscellaneous antique farm equipment. All of the buildings except for one dwelling and the milking barn are in serious states of disrepair.

Native American Heritage Resources

Ethnographic research conducted for this and other studies indicate that the Jacumba region contains many resources of importance to contemporary Native Americans. No fewer than 22 villages have been documented in the ethnohistorical literature, and Native American consultants have identified other sites of heritage concern such as plant gathering areas, clay and mineral sources, camps, trade areas, trails, and sacred places. For the current ethnographic study an attempt was made to inventory those resources that might be affected by the proposed project in general and specifically development of the property itself. With regards to the latter, two sites were identified as warranting consideration.

Round Mountain. Situated in the northwestern area of the property, this topographic feature was considered sacred by the Kumeyaay/Kamia. Known as "Mat kweryur", the mountain was apparently used by religious specialists for spiritual purposes, curing and ceremonial dances.

The Village Hakum. A portion of this site, designated SDi-4455, exists in the southwestern corner of the property. The entire site and associated hot springs in Jacumba are considered significant for a variety of reasons.

Recommendations

Site significance evaluations, potential impact assessments, and recommended mitigation measures are summarized below and in Table 1. The significance or uniqueness of the Jacumba Valley Ranch cultural resources is based on an analysis of the data and information collected as a result of the current studies and a consideration of whether the resources possess value for scientific, historical, public educational, or ethnic heritage reasons. Several different levels of significance are indicated which express the relative importance each resource possesses in contributing to any of these values. The assessment of potential direct impacts involves determining what land uses are proposed and whether implementation of the project would result in resource disturbance or destruction. Mitigation measures are recommended for those cultural resources that are deemed significant at any level. Preservation is recommended for all of the cultural resources evaluated as possessing high significance, whereas data recovery is proposed for several sites of lesser significance. For many of the sites, the current investigation and extended testing effectively exhausted their data yield and informational value, and mitigation is not warranted for these sites.

Of the 23 prehistoric archaeological sites, SDi-4455 is considered highly significant, SDi-8072, SDi-11,678, and SDi-11,689 are moderately significant, SDi-7056, SDi-8430, SDi-11,676, SDi-11,677, SDi-11,679, and SDi-11,686 are of low significance, and the remaining 13 sites are evaluated as insignificant. The latter group includes those sites that had relatively minimal quantities of surface artifacts and assemblages of limited typological variability. Included in this category are a milling station, a heavily impacted temporary camp, 3 quarry/workshops, and 8 low density lithic scatters. Additionally, all of the isolates identified during the inventory are considered categorically insignificant. The moderate to low significance rating is used to designate sites that possess or potentially possess research value that could contribute to a better understanding the region's prehistory. Six quarry/workshop sites and one scatter are considered to be of relatively low importance with regards to research

TABLE 1

CULTURAL RESOURCE ASSESSMENT

Resource	Type	Significance	Land Use	Mitigation
SDi-4455	Village	High	Open Space	Preservation
SDi-6741	Camp	None	Golf Course	None
SDi-7056	Quarry	Low	Golf Course	Extended Test
SDi-8072	Camp	Moderate	Commercial	Extended Test
SDi-8430	Quarry	Low	Residential	Extended Test
SDi-11,675	Scatter	None	Golf Course	None
SDi-11,676	Quarry	Low	Future Planning	Data Recovery
SDi-11,677	Scatter	Low	Future Planning	Data Recovery
SDi-11,678	Quarry	Moderate	Open Space	Preservation
SDi-11,679	Quarry	Low	Open Space	Preservation
SDi-11,681	Quarry	None	Future Planning	None
SDi-11,682	Scatter	None	Future Planning	None
SDi-11,683	Quarry	None	Future Planning	None
SDi-11,684	Scatter	None	Future Planning	None
SDi-11,685	Scatter	None	Future Planning	None
SDi-11,686	Quarry	Low	Golf Course	Extended Test
SDi-11,688	Scatter	None	Golf Course	None
SDi-11,689	Camp	Moderate	Future Planning	Data Recovery
SDi-11,690	Quarry	None	Open Space	None
SDi-11,691	Scatter	None	Open Space	None
SDi-11,692	Milling	None	Open Space	None
SDi-11,693	Scatter	None	Open Space	None
SDi-11,694	Scatter	None	Open Space	None
Dairy Complex	Historic	Low	Residential	Curation
Round Mtn.	Native American	High	Open Space	Preservation

concerns in that their data are of utility for addressing only a limited number of problem domains. Two temporary camps and one quarry are considerably more complex and variable archaeologically, and these are evaluated as having a moderate level of research value. SDi-4455, the ethnohistoric village of Hakum, is the only archaeological site with a subsurface component, and this site is considered to be of high significance based on its research potential and because of heritage concerns identified as a result of the ethnographic study.

The Mountain Meadows Dairy complex is the only historic resource identified within the project property, but given its poor integrity and negligible interpretative value the complex is considered to be of rather low overall significance. Conversely, ethnographic research indicates that Round Mountain is highly significant to contemporary Native Americans for religious and heritage reasons.

Development of Jacumba Valley Ranch as proposed will directly affect 8 of the cultural resources, and may ultimately affect an additional 8 archaeological sites that are located within designated future planning areas. Nine cultural resources are contained within open space areas and will not be directly affected by development. Given the nature of the project and the proposed land uses both direct and indirect impacts can be anticipated. Direct impacts will occur as a result of grading and construction activities related to the golf course, commercial center, and residential elements of the project. However, in all cases the eight resources affected either are considered insignificant or have been subjected to extended testing programs, and any impacts are therefore inconsequential. Similarly, although eight sites are contained within future planning areas, adverse impacts could potentially occur to only the 3 sites evaluated as significant.

Indirect impacts are adverse affects that are secondary in nature but clearly brought about by project development. Most often indirect impacts result from the increased access and population density allowed by development. Examples of indirect impacts include vandalism or "pot-hunting" and gradual site degradation resulting from general recreational use. Within Jacumba Valley Ranch, this kind of adverse impact could potentially affect the sites which are contained within the open space areas, though the magnitude of any such impact will depend upon accessibility from and proximity to the population center and also the type or nature of site involved. For example, considerably less indirect impact should be experienced by a scatter or quarry situated on inaccessible sloping terrain than a village with pottery and projectile points within a short walk of the major residential area of the property.

Given the potential for both direct and indirect impacts, mitigation recommendations are provided for all of the cultural resources that possess any level of significance regardless of proposed land use. Four different mitigations are proposed: preservation, curation, data recovery, and extended testing. As mentioned, the village site SDi-4455 and Round Mountain are considered to be cultural resources of high significance and preservation is recommended. Both were identified in the early stages of project planning facilitating avoidance through the project design process, and open space areas were established to accommodate preservation. Sites SDi-11,678 and SDi-11,679 are also proposed for preservation via open space in that they are representative of the quarry and scatter site types within the project. In order to ensure the long-term conservation of these resources explicit preservation plans should be submitted to the County for approval, and implemented in accordance with any conditions of project approval.

Data recovery is recommended as mitigation for those sites where preservation is not deemed a feasible option. Sites included in this category consist of surface artifact deposits whose continued integrity could not be guaranteed given their close proximity to intensive land uses. By nature, these kinds of sites are so fragile that site capping would essentially destroy them, as would cumulative indirect impacts if left open regardless of fencing and other protective measures. Extended testing, an intermediate form of data recovery, has already been conducted at SDi-7056, SDi-8072, SDi-8430, and SDi-11,686 at the direction of County staff, and no further work will be required. However, for SDi-11,676, SDi-11,677, and SDi-11,689 that are located in future planning areas additional work is recommended as conditions of approval for any subsequent projects. The data recovery efforts should address relevant research questions and incorporate the results of the current investigation.

Finally, it is recommended that the antique farm equipment associated with the historic dairy complex be appropriately curated at a museum where it can be permanently preserved and used for public interpretative and educational purposes. Given the debilitated condition of the various buildings comprising the complex and their lack of architectural uniqueness, resource preservation is not warranted.

II. PREHISTORIC ARCHAEOLOGICAL RESOURCES

INTRODUCTION

A cultural resource survey and significance evaluation was conducted by Brian F. Mooney Associates (BFMA) between September 1989 and February 1991 to identify and assess all cultural resources located within the boundaries of the proposed Jacumba Valley Ranch project (see Figure 2). This report provides a description of the study methods used to conduct the investigation and documents the results, followed by an interpretation section discussing intra-site variability, debitage, ceramic, and obsidian analyses, site chronology, and general discussion. Recommendations with regards to project impacts and appropriate mitigation measures are provided and a discussion of the research potential of the existing resources within the project are given. The report concludes with the County Resource Survey Report and Resource forms. Site records and site record search forms are provided as appendices in a separate volume.

Prior to performing the investigation of the property, record search information was requested from The South Coast Information Center at San Diego State University and the Museum of Man. This information, along with that obtained from previous cultural resource studies, indicated the presence of a substantial number of archaeological sites within the Jacumba Valley region suggesting extensive prehistoric occupation.

The intensive survey resulted in the identification and documentation of five previously recorded sites, 18 unrecorded sites, and 16 isolates (see Figure 4). In accordance with County of San Diego cultural resource guidelines, a significance evaluation program was then conducted involving limited subsurface testing and surface artifact mapping and collection. At the direction of County staff, extended testing was performed at four sites that lacked subsurface deposits yet consisted of moderately extensive surface scatters. Data recovered as a result of the two testing programs effectively exhausted any further research potential of all but six of the archaeological sites, and no mitigation will be required. It is recommended that the remaining six sites be mitigated by preservation in dedicated open space easements.

STUDY METHODS

Field investigations of the Jacumba Valley Ranch project property were conducted in two separate phases. The first phase consisted of an intensive survey of the entire property and preliminary site recordation. The second phase involved significance evaluation of each site through limited subsurface testing, site mapping, and surface collection. Extended testing was subsequently performed at four sites containing moderately extensive surface scatters. A general discussion of field methods and laboratory procedures used during the project are given below. Site specific details are provided on the second page of each County Resource Form.

Field Methods

The initial investigation consisted of the pedestrian survey of the 1,347 acre property by staff archaeologists from BFMA. The terrain was traversed systematically using transects of 10-30 meter intervals in accordance with County guidelines. During this phase all cultural resources encountered were plotted on both USGS 7.5 minute typographic maps and 1:100 scale orthotopo maps, and documented on standard site and isolate record forms. Subsequently, all the sites were subjected to significance evaluations which began with the precise determination of site perimeters as well as any artifact concentrations or features. This was accomplished by conducting a systematic intensive survey, at 5-10 meter intervals, of each site in conjunction with the use of 1:100 scale maps on which all pertinent data were recorded. Pin flags were used to demarcate precise locations of artifacts, reduction stations or other information necessary for accurately documenting each site.

Field methods varied somewhat during the course of data recovery to adapt to site specific needs and changing situations. Subsurface testing was performed at each site to determine the presence or absence of a subsurface component. Two types of testing methods, shovel tests and 1 by 1 meter excavation units, were used. Shovel tests were used initially to ascertain whether or not subsurface material was present. Placement of each 40 by 40cm shovel test was for the most part determined judgmentally based on the presence of surface artifacts or features. At larger sites, placement was more systematic for the purpose of delineating site extent.

Once the presence of subsurface material was established, one to four units were excavated. Units were generally placed judgmentally in site areas where subsurface material was expected based on surface indications. The number of units to be excavated at each site was determined by the size of the site, the potential for subsurface material, the expected significance of the site, and the nature and extent of the project impacts. Excavation was conducted using arbitrary 10cm levels based on surface contour. All excavated soil was screened through 1/8 inch hardware cloth and collected materials were bagged, labeled and boxed by site to be submitted to the laboratory.

Both shovel test and unit excavations were documented through descriptive notes which included information regarding soil type and color, artifact inventory, observations of charcoal, rodent activity, changes in stratigraphy, and historic disturbance. Each positive unit was excavated two sterile levels or to bedrock or subsoil before being considered completed. Subsequent to unit excavations, backhoe trenching was conducted at the four sites (SDi-4455, SDi-6741, SDi-8072, SDi-11,689) situated in or adjacent to the flood plain to determine the presence or absence of buried cultural deposits. Prior to trenching, at SDi-8072 and SDi-11,689, two perpendicular 40 meter wide strips were surface collected (see site maps). The trenches were 6 to 10 meters in length with an average depth of 1.5 meters. Their locations were judgmentally determined in order to add insight to site extent and content. At each site at least one trench was oriented perpendicular to the other(s) in order to detect any variations in sediment deposition. Representative profiles were drawn and each trench was examined by the project's consulting geologist.

All surface artifacts were mapped and collected at 12 sites that lacked any substantive subsurface deposits and possessed fewer than 200 surface artifacts. The collection of surface materials was not undertaken at two such sites (SDi-11,678 and SDi-11,679), however, because they will be preserved in a natural open space easement. Instead, an inventory of all observed items was compiled from which estimates of surface content were made. Only partial surface collections were performed at three sites (SDi-11,676, SDi-11,677 and SDi-11,689). These sites will require further data recovery in the future when these areas are developed.

Extended testing was performed at four sites at the request of County staff due to their moderately extensive surface density. This consisted of a 50-100 percent surface collection for SDi-7056, SDi-8072 and SDi-11,686, and 100 percent collection of four loci at SDi-8340. For these sites, a combination of sampling methods were used: systematic, random or judgmental. At SDi-11,686, all surface artifacts were plotted as shots on a 1:100 scale map and collected. Four concentrations of surface materials were collected at SDi-8430 in this same manner.

Surface materials throughout the remaining portion of this site are so widely dispersed that collection was not warranted. Extended testing at SDi-8072 involved the additional collection of surface materials performed by griding off the artifact concentration area into 10 square meter units. Alternate units were then 100 percent collected. A similar collection method was initiated at SDi-7056 over a 70 by 140 meter portion of the site (Station A). The remaining site area was collected through the use of judgmentally placed 40 by 40 meter "stations" (B through I) which were divided into sixteen 10 square meter units and 100 percent collected.

All collected materials were plotted and given shot numbers, or unit/square numbers for collection grids/stations and boxed by site to be sent to the laboratory. Locations of lithic reduction (chipping) stations, when recognized, were collected as a distinct collection shot and plotted on the site map.

Laboratory Methods

The procedures used in the initial processing of recovered artifacts included four major steps: 1) cleaning of artifacts and faunal remains, 2) cataloging of all materials, 3) sorting of all items by artifact class, and 4) processing of any samples such as obsidian. All artifacts were individually examined and cataloged according to class, type and material. Recovered materials were sorted into a number of general classes which included: flaked lithics, groundstone, ceramics, faunal remains, and historics. Each class was divided into types such as cores, which were further broken down into subtypes. An artifact catalog was produced for each site and is attached to the corresponding resource form.

The flaked lithic class contained fourteen separate types: projectile points, preforms, bifaces, unifaces, scrapers, scraper planes, choppers, hammerstones, utilized flakes, retouched flakes, cores, and debitage. Groundstone types included manos and metates. Ceramics were rough-sorted into brown ware and buff ware types. Faunal remains consisted of bone and marine shellfish which were identified to genera or more specifically when possible. All items were counted and weighed on a digital scale.

More detailed attribute analyses were conducted for specific artifacts types subsequent to the initial cataloging, including debitage and ceramics. Obsidian specimens were sent to consulting technicians for sourcing and hydration analysis (Appendix A).

RESULTS

Studies conducted to inventory and evaluate the prehistoric cultural resources within Jacumba Valley Ranch resulted in the documentation and testing of 23 sites and identification of 16 isolates (see Figure 4). These resources are discussed in more detail in chapters following this section and in the County Resource Forms. A summary description of the cultural resources addressed for this impact analysis is provided below.

Prehistoric Cultural Resources

Sites:

SDi-4455	This site, a portion of which is located in the far southwestern corner of the property, is probably what remains of the ethnohistoric Kumeyaay village of Hakum. Originally recorded by Malcolm Rogers, it is mapped as being over 1,000 meters long, covering much of the southern part of the town of Jacumba, and extending south into Mexico. A moderately dense surface scatter occurs within property including 150+ flakes, 50+ sherds, various flaked lithic tools, and groundstone. Ten milling features consisting of mortars, basins, slicks, and rubs were mapped and recorded within the property. A dark brown to dark midden is present within portions of the site, and testing indicated a fairly rich deposit extending to a depth of 70 centimeters.
SDi-6741	Situated on the valley floor in the southeastern corner of the project property, this site appears to have been a Late Prehistoric Horizon temporary camp possibly related to mesquite procurement and processing. Construction of an earthen storage reservoir (ca. 1960s) and agricultural disking has disturbed or destroyed most of this site. A total of 59 artifacts were collected from the surface including a hammerstone, utilized flake, 2 metates, 2 manos, 21 sherds, 2 cores, and 30 pieces of debitage. Subsurface testing yielded only 13 artifacts in four 1x1 meters units; additionally, 2 backhoe trenches proved negative.
SDi-7056	This site was originally identified as a result of the Southwest Powerlink Project conducted by Dames and Moore, and described as a lithic scatter with 68 flakes and 2 cores. The current study found the site to be considerably larger, covering an entire low knoll within the valley floor south of Carrizo Creek. Based on data collected from an extended testing program, SDi-7056 appears to be primarily a Late Prehistoric Horizon lithic procurement and reduction site with evidence of associated resource extraction activities. Only a small quantity of artifacts were recovered during subsurface testing, and the site is considered essentially a surface manifestation. An extensive surface collection was conducted yielding several bifaces including an obsidian Cottonwood Triangular point base, hammerstones, crude unifaces, utilized and retouched flakes, and over 1600 cores and flakes. Ceramics and groundstone were also recovered, but in very limited quantities.

SDi-8072	Situated on the valley floor immediately east of the town of Jacumba, this site appears to be a Late Prehistoric temporary camp similar to SDi-6741 and SDi-11,689. When recorded by Paul Chace in 1980, it was described as a "long linear but highly diffuse scatter of camp debris in a cultivated field". Only the northern portion of the site occurs within the project boundaries, and SDi-11,689 is possibly its southern extension. Subsurface testing revealed the presence of a small quantity of cultural debris to 40 centimeters, but this is attributed to plowing and disking and all evidence indicates SDi-8072 is essentially a surface site; backhoe trenching confirmed the absence of any buried components. An extensive surface collection was performed as part of an extended testing program yielding over 500 sherds, an Olivella shell bead, 6 groundstone tools, 3 projectile points, 4 point preforms, 17 other flaked lithic tools of various types, 8 cores, and over 300 flakes.
SDi-8430	This site is a large lithic procurement quarry/workshop located on the slopes of a low mountain on the eastern side of Jacumba Valley. The eastern half of the site was collected and described by Whitney-Desautels in 1982, and the current investigation focused only on the loci contained within the project property. An extended testing program was conducted and all artifacts within the loci were collected for analysis. Three of the loci proved to be localized quarry areas related to expedient tool production as evidenced by the abundance of discarded cores and waste debitage. At Locus H, however, other activities are indicated by the presence of a greater number of flaked lithic tools including a variety of unifaces, utilized flakes, hammerstones and manos associated with bedrock slicks. No subsurface components were detected during testing.
SDi-11,675	This is a small limited activity site consisting of a chipping station, a pot drop, and a scatter of tools, cores, and debitage over a 22 by 18 meter area south of Interstate 8. A total of 61 artifacts were collected from the surface, and subsurface testing resulted in the recovery of 4 sherds and a flake.
SDi-11,676	This site is a lithic procurement and reduction quarry/workshop similar to SDi-7056 and SDi-8430 except smaller in area. Surface artifacts observed include 3 retouched flakes, a scraper, 9 cores, and an estimated 160 flakes. Subsurface testing yielded only 8 flakes in the upper 10 centimeters of two 1x1 meter units. The scatter occurs on the eastern slopes of a knoll immediately south of Interstate 8.
SDi-11,677	This site is a widely dispersed lithic scatter comprised of two areas of concentration, Locus A and B, with a low density intervening lithic scatter. Locus A contains 4 bedrock slicks and a mano along with scattered flaked lithics, whereas Locus B consists of chipping stations and associated waste debitage. Except for the presence of milling, this site is similar in nature to SDi-11,676 which is located on the same knoll to the northeast. No subsurface component was detected during testing.
SDi-11,678	Situated in the far northwestern area of the project property on a ridge slope overlooking Boundary Creek, this site is primarily a quarry/workshop with limited evidence of resource extraction. A systematic surface inventory included 8 unifaces, a hammerstone, 90+ cores, and over 400 flakes (no collection was made). Subsurface testing resulted in the recovery of a core and 2 flakes from the 0-10 cm level of one unit.

SDi-11,679	This site is separated from SDi-11,678 by an intermittent drainage, but occurs in a similar geographic setting. It also is a quarry/workshop related to expedient tool production and undoubtedly limited on-site use as indicated by the presence of 3 utilized flaked lithics. The vast majority of cultural debris, however, consists of discarded cores and waste debitage based on a surface inventory. Two distinct chipping stations were observed within the boundaries of the site. Limited subsurface testing proved negative.
SDi-11,681	This site is a widely dispersed, low density quarry/workshop located between Interstate 8 and Carrizo Gorge Road in the north-central area of the property. Sites SDi-11,676 and SDi-11,677 occur in close proximity on the knoll to the south. A total of 106 artifacts were collected from the surface, all of which were discarded cores or waste debitage except for 6 tools; no groundstone or ceramics were recovered in the assemblage. Subsurface testing indicates that only a surface component exists within the site boundaries.
SDi-11,682	This site is a small lithic scatter consisting of 2 cores and 5 secondary flakes; no subsurface material was detected during testing.
SDi-11,683	This site is a low density lithic procurement and reduction scatter with 4 chipping stations. It is probably related to SDi-7055 located on the project boundary to the south which Dames and Moore mitigated by data recovery for the Southwest Powerlink Project in 1982. Except for a cobble hammerstone, only 7 cores and 66 pieces of waste debitage were collected from the surface. Subsurface testing yielded but one flake and 5 pieces of angular debris in the upper 5 cm of one unit situated near the base of a low ridge.
SDi-11,684	This site is a small lithic scatter consisting of 2 cores and 3 secondary flakes in a 6 by 8 meter area adjacent to Carrizo Gorge Road in the eastern part of the property. No subsurface material was detected during testing.
SDi-11,685	This site consists of a chopper and 2 secondary flakes situated within a highly disturbed 300 square meter area west of Carrizo Gorge Road; subsurface testing proved negative.
SDi-11,686	This site is a moderately extensive combined quarry/workshop and resource extraction locale similar in nature to SDi-7056. It is situated on an eroding terrace north of Carrizo Creek in the eastern part of the project property. A complete surface collection was made as part of an extended testing program resulting in the recovery of 465 artifacts all of which are flaked lithics except for one Tizon Brown Ware sherd. Seventeen tools were collected including scrapers, scraper planes, choppers, rough bifaces, and utilized and retouched flakes. Over 90% of the assemblage was made of porphyritic volcanics which occurs was raw material within the site boundaries. Subsurface testing yielded only 5 artifacts from 3 units and 7 shovel test pits indicating that SDi-11,686 is essentially a surface manifestation as are most of the other similar such sites.
SDi-11,688	This site is a low density scatter consisting of 4 cores, 23 flakes, and 2 Tizon Brown Ware sherds; no subsurface component was detected. The artifacts were recovered from a 2,000 square meter area on the edge of the valley floor southeast of SDi-7056.

SDi-11,689 Located on the valley floor north of the International Border, this site appears to represent a Late Prehistoric Horizon temporary camp possibly related to the procurement and processing of mesquite or other wetland/marsh resources. As such, it is similar in nature to SDi-8072 to the north (which may be an extension) and SDi-6741 to the east. A partial surface collection conducted to facilitate deep subsurface testing by backhoe trenching yielded over 1,400 artifacts including 10 different types of flaked lithic tools, cores, debitage, groundstone, ceramics, an Olivella bead, faunal remains, and a few historic artifacts. Nearly half of all recovered artifacts were ceramics. Subsurface testing involved the excavation of two 1x1 meter units which proved marginally positive, principally because of agricultural plowing and disking; only a single quartzite mano was found 80 cm below the surface during trenching and no deeply buried component was detected. The relatively high density of surface artifacts appears to be the result of wind erosion that has deflated the denuded alluvial soil.

SDi-11,690 This site is a small quarry/workshop situated on a ridge overlooking the valley in the west-central area of the property. The surface collection yielded a chopper, utilized flake and 3 retouched flakes indicating limited resource extraction of some form, but most of the assemblage consisted of discarded cores and waste flakes; a total of 134 artifacts were recovered. Although groundstone was absent from the collection, one milling feature, a 30x30 cm rub, was noted within the site boundary. Subsurface testing yielded one flake.

SDi-11,691 This site is a low density lithic scatter consisting of 3 cores and 7 flakes of porphyritic volcanic material. The artifacts occurred within a 570 square meter area at the base of ridge slope between the railroad tracks and the western boundary of the project property. Subsurface testing proved negative.

SDi-11,692 This site is an isolated bedrock milling feature with two moderately worn slicks; no artifacts were found in association nor was any subsurface cultural debris detected. The slicks occur on a small boulder near the base of a ridge slope, north of SDi-11,691.

SDi-11,693 This site consists of one unidirectional core and 2 secondary flakes located on a ridge slope between the railroad tracks and the property boundary. As would be expected, subsurface testing proved negative.

SDi-11,694 This site is a low density lithic scatter located on sloping terrain just above the valley floor south of Round Mountain. Three cores and 7 pieces of debitage were collected from a 16 by 8 meter area. No subsurface material was recovered.

Isolates:

I-1	One grey-green porphyritic volcanic flake.
I-2	One grey-green porphyritic volcanic flake, possibly retouched.
I-3	One black porphyritic volcanic flake.
I-4	Three grey-green porphyritic volcanic flakes.*
I-5	Three grey-green porphyritic volcanic flakes.*
I-6	Two black porphyritic volcanic flakes.

I-7	One Tizon Brown Ware sherd.
I-8	One grey-green porphyritic volcanic flake.
I-9	One Tizon Brown Ware sherd.
I-10	Three grey-green porphyritic volcanic flakes and 1 chert flake.*
I-11	One grey-green porphyritic volcanic flake and two pieces of angular debris.
I-12	One grey-green porphyritic volcanic flake.
I-13	One metate fragment.
I-14	One grey-green porphyritic volcanic flake.
I-15	One grey-green porphyritic volcanic core.
I-16	One grey-green porphyritic volcanic flake.

* Dispersed over 20-30 meter area (not interpreted as a site).

INTERPRETATION

The interpretation section includes discussion on pertinent topics including inter-site assemblage variability, debitage, ceramics, and obsidian analyses, and chronology followed by an overall discussion.

Inter-Site Assemblage Variability

In order to facilitate a better understanding of the archaeological resources within Jacumba Valley Ranch it is useful to examine the nature of inter-site assemblage variability. In general, sufficient data are available for most of the sites as a result of surface artifact collections, samplings, and inventories conducted for the evaluation and extended testing programs. Since all of the sites except for SDi-4455 lacked subsurface components, the analysis focuses only on the surface manifestations which are summarized in Tables 2 and 3 (as SDi-4455 is to be preserved, only 4 surface artifacts were collected).

As would be expected, debitage is the most numerous artifact type overall and the dominant component of nearly all of the individual site assemblages. Only at SDi-8072 is another type, ceramics, more frequent. Given its predominance in the archaeological record, a separate analysis of the debitage has been provided below. Based on samples from five sites, this analysis demonstrated that there is significant variability in the debitage which can be attributed to different site-specific lithic reduction activities. Apparently, the initial stages of reductions were conducted with greater frequency at certain sites while at others the later stages of reduction were more prevalent. There is, however, considerable intergrading also evident suggesting a complexity that could not be fully explicated by the debitage alone.

The assemblages are comprised of four basic artifact classes - flaked lithics, groundstone, ceramics, and other - within which 20 types can be discerned. The "other" category consists solely of two shell beads, one each at SDi-8072 and SDi-11,689, and further consideration of this is dismissed at this juncture. With regards to groundstone what is perhaps most surprising and unexpected is that this class is so poorly represented. Of the nearly 7,000 artifacts collected or inventoried, only 25 or 0.4% are groundstone. Included are 10 bifacial manos, 2 unifacial manos, 1 multifacial mano, and 3 non-diagnostic fragments, as well as 7 slab metate fragments and 2 basin metate fragments. These artifacts were distributed among 9 of the 22 sites, though 76% are from but three sites. Obviously, given the very limited

TABLE 2

SUMMARY OF SURFACE ARTIFACTS FOR PREVIOUSLY RECORDED SITES

	SDi-4455+	SDi-6741	SDi-7056+	SDi-8072+	SDi-8430+	TOTAL
Flaked lithics						
Projectile points	1		1°	3°		**5**
Preforms				4	2	**6**
Bifaces			5	1	1	**7**
Scrapers	X		1	1	1	**3**
Scraper planes	X				1	**1**
Choppers			1	1	2	**4**
Core hammers	X		4	7	17	**28**
Hammer/ grinders	X				2	**2**
Utilized flakes	X	1	1	7	3	**12**
Retouched flakes	X		3	1	15	**19**
Cores	X	2	156	8	87	**253**
Debitage	X	30	1564°	303°	914	**2811**
Groundstone						
Manos	X	2	2	3	1	**8**
Metates	-	2	-	3	-	**5**
Ceramics						
Rim sherds	3	2	2	21		**28**
Body sherds	X	19	11	492	1	**523**
Other						
Shell beads				1		**1**
TOTAL	**4**	**58**	**1751**	**856**	**1047**	**3716**

\+ Partial collection only
° Includes obsidian
X Present but not collected

TABLE 3

SUMMARY OF SURFACE ARTIFACTS FOR ALL NEW SITES

	SDi-11675	SDi-11676	SDi-11677	SDi-11678*	SDi-11679*	SDi-11681	SDi-11682	SDi-11683	SDi-11684	SDi-11685	SDi-11686	SDi-11688	SDi-11689+	SDi-11690	SDi-11691	SDi-11693	SDi-11694	TOTAL
Flaked lithics																		
Projectile points													5°					5
Preforms			1										9	1				11
Bifaces											3		1					4
"Unifaces"				8	1													9
Scrapers	1	1	1			2					3		4					12
Scraper planes						2					3							5
Choppers					1					1	3		2	1				8
Hammers	1		1	1									8					11
Hammer/ grinders													2					2
Cobble hammers								1					1					2
Utilized flakes					1	1					3		7	1				13
Retouched flakes	2	3	2			1					2		4	3				17
Cores	4	9	6	97	9	8	2	7	2	---	65	4	31	4	3	1	3	255
Debitage	24	150	53	424	72	92	5	60	3	2	383	23	602°	125	7	2	7	2034
Groundstone																		
Manos	1		1	1									5					8
Metates													4					4
Ceramics																		
Sherds	28										1	2	768					799
Pipe													1					1
Other																		
Shell beads													1					1
TOTAL	**61**	**163**	**65**	**531**	**84**	**106**	**7**	**68**	**5**	**3**	**466**	**29**	**1455**	**135**	**10**	**3**	**10**	**3201**

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* Inventory only (not collected)
\+ Partial collection only
° Includes obsidian

distribution and frequency of groundstone at the sites within the project property it is apparent that either much of the milling-dependent resource processing occurred at sites outside the project or that the kinds of resources within the valley didn't require milling and possibly marginal. While the absence of granitic rock suitable for milling features could also be a factor, it is difficult to imagine that the valley was of marginal resource value. Clearly then, it must be assumed that most of resources procured from within the valley were transported elsewhere for milling and processing.

Ceramics are the next most numerous class of artifacts encountered in the assemblages. Except for one pipe fragment collected at SDi-11,689, all are body and rim sherds from a variety of vessels used by the Late Prehistoric inhabitants of the region. Although no explicit attempt was made to discern vessel type, a cursory examination indicates that ollas or jars account for roughly 70% of the sherds, with perhaps 20% being pots, and the remainder bowls and other utilitarian items. A typological analysis, provided in a separate section below, found that 59% of the sherds are Tizon Brown Ware, 31% are Tumco Buff, 5% are Salton Brown, 3% are Colorado Buff, and 2% are Salton Buff. Ware frequency distributions vary somewhat from site to site suggesting potentially important differences, though the ranking and order of the two most frequent types remains constant at the larger sites. That is, at those sites where ceramic use was fairly substantial Tizon Brown predominates followed by Tumco Buff, and combined the two account for 75-80% of the pottery.

There also appears to be a tendency for the co-occurrence of ceramics and groundstone which suggests a relationship between the use of these items. Except for those instances where either were found to occur essentially in isolation, sites that have relatively high frequencies of ceramics had groundstone. Sites included in this category are SDi-4455, SDi-6741, SDi-8072, and SDi-11,689.

All 22 of the sites had flaked lithics of some form, most often as debitage and cores. The debitage category was divided into five types: primary flakes, secondary flakes, interior flakes, flake fragments and angular debris; and six types of cores were recognized: test, unidirectional, bidirectional, multidirectional, bifacial, and core fragments. On average for all sites, the ratio of debitage to cores is 10:1. Sites with ratios less than the average, e.g., 6:1, have relatively greater percentages of primary and secondary flakes, angular debris, core fragments, and test, unidirectional, and bidirectional cores. Where a substantial quantity of these types of debitage and cores occurs quarrying is indicated. The quarrying involved at these sites appears to be of a rather expedient and opportunistic nature, focusing on raw material testing followed by minimal reduction. In all likelihood when tools were produced, most were for use on-site relating to some resource procurement or processing task. Sites with ratios greater than the average tended to yield comparatively smaller flakes with less cortex and more extensively prepared cores for flake production such as the multidirectional and bifacial types. The intermediate and final stages of tool manufacture, as well as maintenance and rejuvenation, predominated at these sites.

Tools and nearly complete tools represent only 3.5% of the entire flaked lithic assemblage. Thirteen different types were identified: projectile points, preforms, bifaces, scrapers, scraper planes, unifaces, retouched flakes, utilized flakes, hammer/grinders, choppers, core hammers, hammers, and cobble hammers. As a group, the projectile points, preforms, and bifaces account for 20% of the tools, and are of limited site distribution. Projectile points were found at only 4 of the 22 sites, and 80% came from just two sites: SDi-8072 and SDi-11,689 which are classified as probable temporary camps. The village SDi-4455 also undoubtedly has the potential to yield numerous points as two were recovered during subsurface testing. The distribution of preforms and bifaces is somewhat wider and includes several of the larger quarry/workshop sites where these as yet unfinished forms were apparently discarded or abandoned.

Approximately 36% of the tools are a functionally related group that includes scrapers, scraper planes, undifferentiated unifaces, and retouched flakes. The vast majority of these implements were made of the locally available volcanic stone and lacked formal stylistic and morphological patterning. Edge damage and wear suggests use on medium to hard fibrous materials. As can be seen in the two summary tables, the distribution of scrapers is fairly wide in that they were occurred at nearly 60% of the sites. These sites had comparatively large assemblages and include not only habitation and but also quarry/workshop type sites.

Utilized flakes comprise some 13% of the tools. These are unmodified flakes with evidence of unifacial or bifacial use wear that were used for light scraping and cutting. Utilized flakes were encountered at 45% of the sites, although 14 of the 25 (56%) came from the two aforementioned temporary camps. The pattern is somewhat reversed for choppers in that 75% were found at the various quarry/workshop sites and only 25% were from the temporary camps. Choppers, which are heavy percussive cutting and dicing implements, accounted for 7% of the entire tool assemblage.

The final tool group considered includes hammers, core hammers, cobble hammers, and hammer/grinders. All of these types are percussion tools for use on hard materials, the vast majority of which were undoubtedly employed for lithic reduction. As a related group they constituted 24% of the tools, however, were found at only 41% of the sites. Specifically, their distribution includes all of the habitation sites, most of the larger quarry/workshops, and a few of the lower density scatters. Interestingly, with one exception all of the sites that had tools of this group also had groundstone, regardless of site size and type, suggesting some possible relationship.

Given the presence of functionally diverse tools assemblages it is apparent that a wide range of different subsistence related activities were conducted at the sites within the project property and the Jacumba Valley region in general. The procurement and reduction of the locally abundant lithic material was clearly a major focus of the prehistoric inhabitants, and that responsible for a very substantial proportion of the archaeological remains at most of the sites. It is also quite probable the valley's mesquite groves were extensively exploited in that most of the groundstone was found in close association. Other seeds were most certainly gathered but there is no clear and obvious linkage to facilitate their identification. The only other general activity readily discernable from the archaeological record is hunting. Townsend (1986) states that there is evidence for the exploitation of agave, pinyon nuts, and acorns based on her investigation of several sites in the Jacumba Valley region, and ethnographic information confirms this. There is, however, no evidence to support this for the sites within the project property, as will be discussed below in another section.

Debitage Analysis

Surface collections conducted as part of the extended testing and evaluation program resulted in the recovery of large quantity of flaked lithics. As would be expected, the vast majority of this class is comprised of debitage -- the by-products of different reduction activities. An analysis of the debitage was performed to assess inter-site variability and address questions about site function. This analysis involved a quantitative examination of several key attributes for a sample of the debitage collected. The results of this analysis were then compared to other collections from the Jacumba region.

The importance of debitage in the understanding of tool production in archaeology has increased measurably in the last decade (Ahler 1988; Kelly 1985; Patterson 1982; Prentiss and

Romanski 1988; Stahle and Dunn 1982; Sullivan and Rozen 1985). Debitage is the direct result of tool manufacture and core reduction, and many attributes observable on these flakes and angular debris can be directly linked to various production activities. A preponderance of original cortical material on the debitage suggests primary reduction and possibly proximity to sources. Conversely, a general lack of cortical material on flakes suggests extensive and intensive reduction and production or rejuvenation of tools (Ahler 1988; Prentiss and Romanski 1988). A high proportion of broken flakes and flake fragments can suggest facial tool production and/or maintenance (Sullivan and Rozen 1985), but these flakes can also be produced by a number of other processes including trampling (Prentiss and Romanski 1988). A predominance of small flake sizes are also indicative of facial tool production, particularly in the general absence of angular debris. High proportions of angular debris (no distinctive features and more than one interior surface) are certainly a sign of core reduction, particularly with hard hammers on siliceous materials such as chert or obsidian (Ahler 1988).

Recently, Ahler has demonstrated through extensive chert knapping experiments and the analysis or archaeological debitage over a 10 year period, "that flake types, no matter how carefully defined, are not linked on a one-to-one basis with particular technologies" (1988:8). Even so, there is a general trend toward small non-cortical flakes in facial tool production. Ahler (1988) also noted through experiments that the majority of flakes from bifacial thinning operations would not be classified as "bifacial thinning flakes", and small numbers of "bifacial thinning flakes" and "bipolar" flakes are produced by hard hammer bifacial edging operations. The use of the morphological criterion of "bifacial thinning flakes" as targeting facial tool production or maintenance appears to be untenable given Ahler's work (see also Henry et. al. 1976). Ahler also noted that the frequency of angular debris increased as the size of the nuclei decreased. Hard hammer bipolar core reduction created more angular debris (30.8%) than hard hammer freehand core reduction (13.3%) or, interestingly, hard hammer biface edging (23.5%) (1988:10).

A sample of between 10 and 20 percent of the debitage from each site was randomly selected. Attributes recorded for each artifact included: site designation, provenience (datum, square or shot, as appropriate), debitage type, material type, length, and weight. Although many other attributes could be recorded, e.g., platform dimensions, number of dorsal flake scars, etc, only those considered relevant to the level of analysis for this study were deemed necessary. As will be discussed, these were found sufficient for addressing our research requirements.

Frequency distributions for debitage by site, debitage type, and material are presented in Table 4. As can be seen, a total of 476 artifacts were encoded for analysis; the per site sample averaged around 75 for four of the sites with 168 for SDi-7056 (Table 4a). Five types of debitage were recognized: primary flakes, secondary flakes, interior (or tertiary) flakes, angular debris, and flake fragments (Table 4b). Interestingly, only 11 or 2.3% of the types were primary flakes while secondary flakes predominated with 33.2% of the sample. Flake fragments represented 28.8% of the types, interior 26.5%, and angular debris 9.2%.

The sample clearly indicates that porphyritic volcanics (abbreviated "porph vol") were the predominant raw material reduced in that these account for 91.4% of all material in the sample. Of the remaining percentage, aphanitic (non-porphyritic) volcanic stone (referred to hereafter as volcanic) is represented by 4.8%, quartz by 1.7%, chalcedony by 2.5%, and chert by 0.6% (Table 4c). The chert and chalcedony were derived from desert sources possibly obtained through trade, while the volcanics and quartz are available locally. In fact, both types of materials occur naturally at SDi-7056, 8430, and 11,686, sites that are underlain by Miocene volcanic rock. This geologic unit forms the low hills on the northern, western, and eastern boundaries of the project property, and Table Mountain off-site some 4 miles to the northeast. Surface exposures are manifest as wide spread but discontinuous, moderate density scatters of fractured debris covering the low knolls and hillsides above the alluvial valley floor.

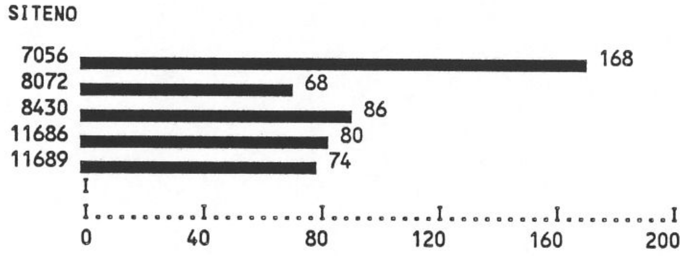
The porphyritic volcanic and volcanic raw materials were therefore easily procured by quarrying of the surface debris. Nodules of potentially suitable material occur at several locations throughout the project property, and there the initial stages of reduction were conducted. Often this consisted of test knapping to assess the quality of the raw material resulting in the production of a few, ostensibly isolated flakes and an abandoned core. Further reduction, if warranted, is evidenced by small chipping stations consisting of a number of related flakes. Depending on what was desired, either the core or selected flakes would have been retained for continued reduction, and these may or may not have been transported off site to another locale. Regardless, it is apparent that the local materials were extensively exploited for the manufacture of tools used in the region.

The distribution of material type by site is shown in Table 5. Porphyritic volcanics occurred at all five of the sites accounting for between 98.8% and 79.4% of the raw material for any given site. Volcanics were the next most frequently identified material in the sample occurring at four of the five sites, followed by chalcedony, quartz, and chert at three, two, and

```
                                          Valid     Cum
Value   Frequency   Percent   Percent   Percent

 7056         168      35.3      35.3      35.3
 8072          68      14.3      14.3      49.6
 8430          86      18.1      18.1      67.6
11686          80      16.8      16.8      84.5
11689          74      15.5      15.5     100.0
              -------   -------   -------
TOTAL         476     100.0     100.0
```

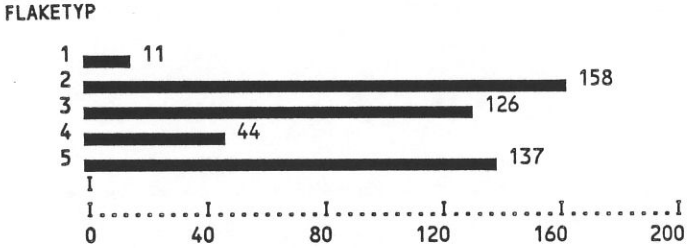
A



```
                                          Valid     Cum
Value   Frequency   Percent   Percent   Percent

    1          11       2.3       2.3       2.3
    2         158      33.2      33.2      35.5
    3         126      26.5      26.5      62.0
    4          44       9.2       9.2      71.2
    5         137      28.8      28.8     100.0
              -------   -------   -------
TOTAL         476     100.0     100.0
```

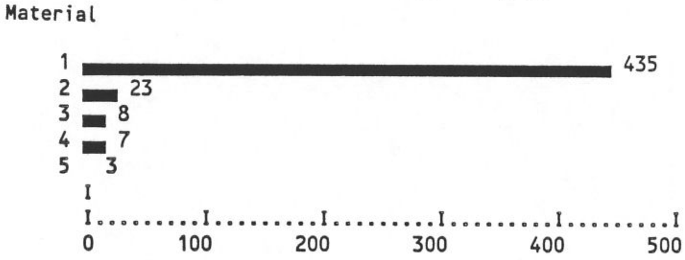
B



```
                                          Valid     Cum
Value   Frequency   Percent   Percent   Percent

    1         435      91.4      91.4      91.4
    2          23       4.8       4.8      96.2
    3           8       1.7       1.7      97.9
    4           7       1.5       1.5      99.4
    5           3        .6        .6     100.0
              -------   -------   -------
TOTAL         476     100.0     100.0
```

C



Jacumba Valley Ranch

Frequency Distributions of Debitage by
Site, Type, and Material

brian f mooney associates
planning, design & environmental studies

Table 4

```
              Count   |
            Row Pct   |PORPH VO|VOLCANIC|QUARTZ  |CHALCEDO|CHERT   |
MATERIAL->  Col Pct   |L       |        |        |NY      |        |  Row
            Tot Pct   |       1|       2|       3|       4|       5| Total
SITENO        --------+--------+--------+--------+--------+--------+
              7056    |   165  |     3  |        |        |        |   168
                      |  98.2  |   1.8  |        |        |        |  35.3
                      |  37.9  |  13.0  |        |        |        |
                      |  34.7  |    .6  |        |        |        |
                      +--------+--------+--------+--------+--------+
              8072    |    54  |     3  |     7  |     4  |        |    68
                      |  79.4  |   4.4  |  10.3  |   5.9  |        |  14.3
                      |  12.4  |  13.0  |  87.5  |  57.1  |        |
                      |  11.3  |    .6  |   1.5  |    .8  |        |
                      +--------+--------+--------+--------+--------+
              8430    |    75  |     9  |        |     2  |        |    86
                      |  87.2  |  10.5  |        |   2.3  |        |  18.1
                      |  17.2  |  39.1  |        |  28.6  |        |
                      |  15.8  |   1.9  |        |    .4  |        |
                      +--------+--------+--------+--------+--------+
              11686   |    79  |        |     1  |        |        |    80
                      |  98.8  |        |   1.3  |        |        |  16.8
                      |  18.2  |        |  12.5  |        |        |
                      |  16.6  |        |    .2  |        |        |
                      +--------+--------+--------+--------+--------+
              11689   |    62  |     8  |        |     1  |     3  |    74
                      |  83.8  |  10.8  |        |   1.4  |   4.1  |  15.5
                      |  14.3  |  34.8  |        |  14.3  | 100.0  |
                      |  13.0  |   1.7  |        |    .2  |    .6  |
                      +--------+--------+--------+--------+--------+
              Column     435       23        8        7        3      476
               Total    91.4      4.8      1.7      1.5       .6    100.0


   Chi-Square      D.F.       Significance        Min E.F.      Cells with E.F.< 5
   ----------      ----       ------------        --------      ------------------

     86.26784       16           .0000              .429     19 OF    25 ( 76.0%)

                                                         With SITENO        With MATERIAL
          Statistic                        Symmetric      Dependent          Dependent
          ---------                        ---------     -------------      -------------

  Lambda                                     .05731         .06494             .00000
  Uncertainty Coefficient                    .07821         .04902             .19336

          Statistic                        Value          Significance
          ---------                        -----          ------------

  Cramer's V                               .21286
  Contingency Coefficient                  .39170
```

Jacumba Valley Ranch

Crosstabulation of Debitage Material by Site

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Table 5

one of the five sites, respectively. Although obviously dominated by porphyritic volcanics, a differential distribution is indicated in that two of the sites had only two kinds of raw material, one had three, and another two had four kinds. Upon examination, it is found that the sites having a more limited range of raw materials are those situated on the Miocene volcanic unit, while SDi-8072 and 11,689 on the alluvial valley appear to possess a wider range of raw materials. This is to be expected if the former were quarries and workshop locales and the latter served as temporary encampments or resource processing sites.

Debitage type by site distributions are provided in Table 6. As mentioned previously, each of the different types is generally indicative of a different kind or stage of reduction, though there is no one-to-one linkage. For example, angular debris is considered a sign of core reduction, but can be produced by other activities such as hard hammer biface edging. The initial stages of core reduction result in relatively higher percentages of flakes with cortical surfaces such as primary and secondary flakes, while interior (or tertiary) flakes represent later stages of tool production or rejuvenation.

On average 36% of the sample consists of primary and secondary flakes compared to individual site rankings of (from high to low): 53.8% for SDi-11686, 39.6% for SDi-8430, 34.2% for SDi-7056, 29.4% for SDi-8072, and 20.3% for SDi-11689. It is apparent from this ranking that the relative amount of initial stage reduction varied considerably from site to site with more of this activity occurring at the elevated sites and less at those in the valley. The ranking for interior flakes by site is almost the reverse with SDi-11689 having the greatest percentage and SDi-11686 the lowest. Comparatively higher percentages of flake fragments, which are suggestive of facial tool manufacture and maintenance, occur at the valley sites SDi-8072 and SDi-11689, corroborating the finding with regard to interior flakes. Less than 10% of the debitage was classified as angular debris and over 60% of this type was collected from SDi-7056 indicating a high degree of core reduction.

The material by type frequencies are shown in Table 7. In that over 90% of the sample is porphyritic volcanics some caution should be observed in generalizing from the data. It is, however, interesting to note the chalcedony and chert tend to be represented by the types of debitage suggestive of the later stages of reduction including facial tool production, maintenance and rejuvenation. This is not to say that the locally available raw materials were not reduced to the same degree, though it is apparent from the primary and secondary flakes and angular debris that the materials were quarried and subjected to initial reduction on-site.

```
              Count     |
              Row Pct   |PRIMARY  |SECONDAR|INTERIOR|ANGULAR |FLAKE FR|
FLAKETYP->    Col Pct   |         |Y       |        |DEBRIS  |AG      |  Row
              Tot Pct   |        1|       2|       3|       4|       5| Total
SITENO        ----------+---------+--------+--------+--------+--------+
              7056      |      8  |    49  |    42  |    27  |    42  |  168
                        |    4.8  |  29.2  |  25.0  |  16.1  |  25.0  |  35.3
                        |   72.7  |  31.0  |  33.3  |  61.4  |  30.7  |
                        |    1.7  |  10.3  |   8.8  |   5.7  |   8.8  |
                        +---------+--------+--------+--------+--------+
              8072      |      1  |    19  |    18  |     4  |    26  |   68
                        |    1.5  |  27.9  |  26.5  |   5.9  |  38.2  |  14.3
                        |    9.1  |  12.0  |  14.3  |   9.1  |  19.0  |
                        |     .2  |   4.0  |   3.8  |    .8  |   5.5  |
                        +---------+--------+--------+--------+--------+
              8430      |      1  |    33  |    23  |     5  |    24  |   86
                        |    1.2  |  38.4  |  26.7  |   5.8  |  27.9  |  18.1
                        |    9.1  |  20.9  |  18.3  |  11.4  |  17.5  |
                        |     .2  |   6.9  |   4.8  |   1.1  |   5.0  |
                        +---------+--------+--------+--------+--------+
              11686     |      1  |    42  |    13  |     2  |    22  |   80
                        |    1.3  |  52.5  |  16.3  |   2.5  |  27.5  |  16.8
                        |    9.1  |  26.6  |  10.3  |   4.5  |  16.1  |
                        |     .2  |   8.8  |   2.7  |    .4  |   4.6  |
                        +---------+--------+--------+--------+--------+
              11689     |         |    15  |    30  |     6  |    23  |   74
                        |         |  20.3  |  40.5  |   8.1  |  31.1  |  15.5
                        |         |   9.5  |  23.8  |  13.6  |  16.8  |
                        |         |   3.2  |   6.3  |   1.3  |   4.8  |
                        +---------+--------+--------+--------+--------+
                Column        11     158      126      44      137      476
                 Total       2.3    33.2     26.5     9.2     28.8    100.0


  Chi-Square    D.F.     Significance      Min E.F.     Cells with E.F.< 5
  ----------    ----     ------------      --------     ------------------

    48.37164     16         .0000            1.571       5 OF    25 ( 20.0%)

                                                    With SITENO      With FLAKETYP
          Statistic                 Symmetric       Dependent        Dependent
          ---------                 ---------       -------------    -------------

Lambda                                .03514           .00000           .06918
Uncertainty Coefficient               .03480           .03299           .03681

          Statistic                  Value           Significance
          ---------                  -----           ------------

Cramer's V                           .15939
Contingency Coefficient              .30372

Number of Missing Observations =         0
```

Jacumba Valley Ranch

Crosstabulation of Debitage Type by Site

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Table 6

```
                  Count   |
                  Row Pct |PORPH VO|VOLCANIC|QUARTZ  |CHALCEDO|CHERT   |
MATERIAL->        Col Pct |L       |        |        |NY      |        |  Row
                  Tot Pct |       1|       2|       3|       4|       5| Total
FLAKETYP          --------+--------+--------+--------+--------+--------+
                        1 |    10  |     1  |        |        |        |    11
  PRIMARY                 |  90.9  |   9.1  |        |        |        |   2.3
                          |   2.3  |   4.3  |        |        |        |
                          |   2.1  |    .2  |        |        |        |
                          +--------+--------+--------+--------+--------+
                        2 |   142  |    11  |     1  |     4  |        |   158
  SECONDARY               |  89.9  |   7.0  |    .6  |   2.5  |        |  33.2
                          |  32.6  |  47.8  |  12.5  |  57.1  |        |
                          |  29.8  |   2.3  |    .2  |    .8  |        |
                          +--------+--------+--------+--------+--------+
                        3 |   116  |     4  |     3  |     2  |     1  |   126
  INTERIOR                |  92.1  |   3.2  |   2.4  |   1.6  |    .8  |  26.5
                          |  26.7  |  17.4  |  37.5  |  28.6  |  33.3  |
                          |  24.4  |    .8  |    .6  |    .4  |    .2  |
                          +--------+--------+--------+--------+--------+
                        4 |    40  |     1  |     2  |        |     1  |    44
  ANGULAR DEBRIS          |  90.9  |   2.3  |   4.5  |        |   2.3  |   9.2
                          |   9.2  |   4.3  |  25.0  |        |  33.3  |
                          |   8.4  |    .2  |    .4  |        |    .2  |
                          +--------+--------+--------+--------+--------+
                        5 |   127  |     6  |     2  |     1  |     1  |   137
  FLAKE FRAG              |  92.7  |   4.4  |   1.5  |    .7  |    .7  |  28.8
                          |  29.2  |  26.1  |  25.0  |  14.3  |  33.3  |
                          |  26.7  |   1.3  |    .4  |    .2  |    .2  |
                          +--------+--------+--------+--------+--------+
                   Column      435       23        8        7        3     476
                    Total     91.4      4.8      1.7      1.5       .6   100.0

   Chi-Square      D.F.       Significance       Min E.F.     Cells with E.F.< 5
   ----------      ----       ------------       --------     ------------------

    12.67797        16           .6961              .069      17 OF    25 ( 68.0%)

                                                     With FLAKETYP    With MATERIAL
           Statistic                    Symmetric    Dependent        Dependent
           ---------                    ---------    -------------    -------------

  Lambda                                   .00836         .00943           .00000
  Uncertainty Coefficient                  .01592         .01021           .03609

           Statistic                     Value         Significance
           ---------                     -----         ------------

  Cramer's V                             .08160
  Contingency Coefficient                .16107

  Number of Missing Observations =          0
```

Jacumba Valley Ranch

Crosstabulation of Debitage Type by Material

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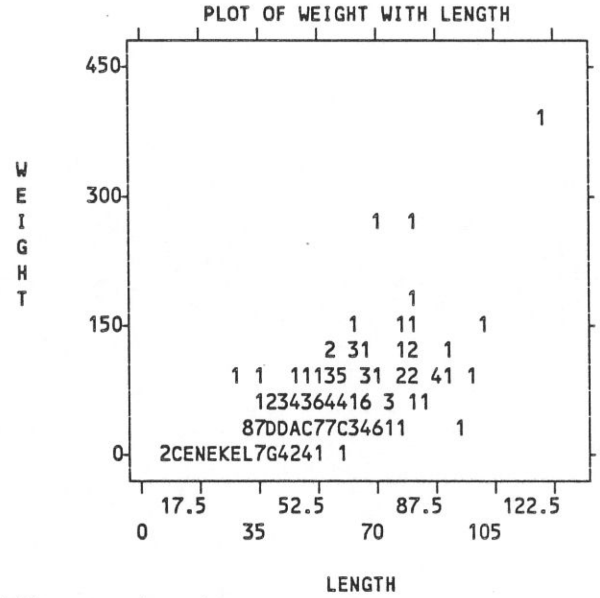
Table 7

At this juncture it has become apparent that the sites can be divided into two basic groups. SDi-7056, SDi-8430, and SDi-11686 occur on Miocene volcanic deposits where the surface rock was exploited on an as-needed basis, both systematically and expediently. The raw material was tested and reduced to the desired stage of completion and then transported off-site for subsequent use and/or further modification. The production activities at these sites seemed to have been oriented to the manufacture of both cores for flakes and flakes in and of themselves. Food resource extraction and processing probably were not major activities, nor is habitation in evidence. Instead, these activities appear to have occurred at sites SDi-8072 and SDi-11689 which were probably extensions of the village complex centered around SDi-4455. The later stages of tool production and maintenance were undoubtedly conducted at these sites.

As further corroboration of this proposition, debitage length and weight attributes were examined for the sites. Both length and weight are good indices of overall flake size which tend to decrease with each subsequent stage of reduction. As would be expected, weight and length are strongly correlated (Figure 5) and can be used interchangeably. Histograms showing the frequencies for length and weight are presented in Table 8.

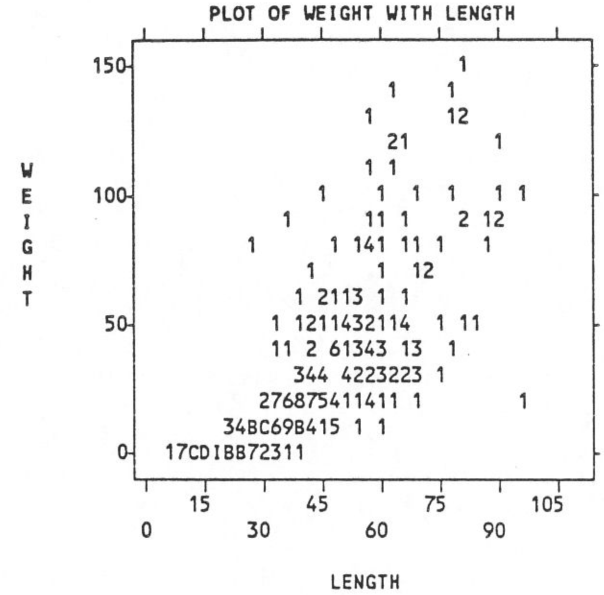
Analysis of variance statistics were calculated for length by site for the entire sample (Table 9) and length by site including only the porphyritic volcanics (Table 10). In both analyses the results were found to be significant below the 0.01 level indicating that the site samples are meaningfully different. Mean length for the entire sample is 42.3 mm, compared to the means of 51.8 mm for SDi-8430, 47.8 mm for SDi-7056, and 45.9 mm for SDi-11686 which are sites where quarrying occurred and means of 26.1 mm for SDi-8072 and 25.4 mm for SDi-11689 which are sites where quarrying did not occur. As these differences could possibly be attributed to differences in the raw material, an analysis of only the porphyritic volcanics was conducted. Table 8 shows that while the means are somewhat larger, the overall results are the same with respect to inter-site differences.

Similar findings also resulted for the analysis of variance using the variable weight, although the differences are even more pronounced. Tables 11 and 12 present the analyses of weight by site for all materials and for porphyritic volcanics only; in both the analysis of variance is significant below the 0.01 level. Again, the debitage sample from SDi-8430 proved to be of the greatest size or mass with a mean weight of 46.6 grams, over 70% heavier than the sample mean for all five sites of 27.7 grams. The mean weights for the other two quarry sites are also greater than the group mean, with SDi-11686 averaging 34.5 grams and



```
344 cases plotted.

Correlations:  LENGTH
  WEIGHT        .7286**         2-tailed Signif:  * - .01  ** - .001
```



Plot of Debitage Weight with Length

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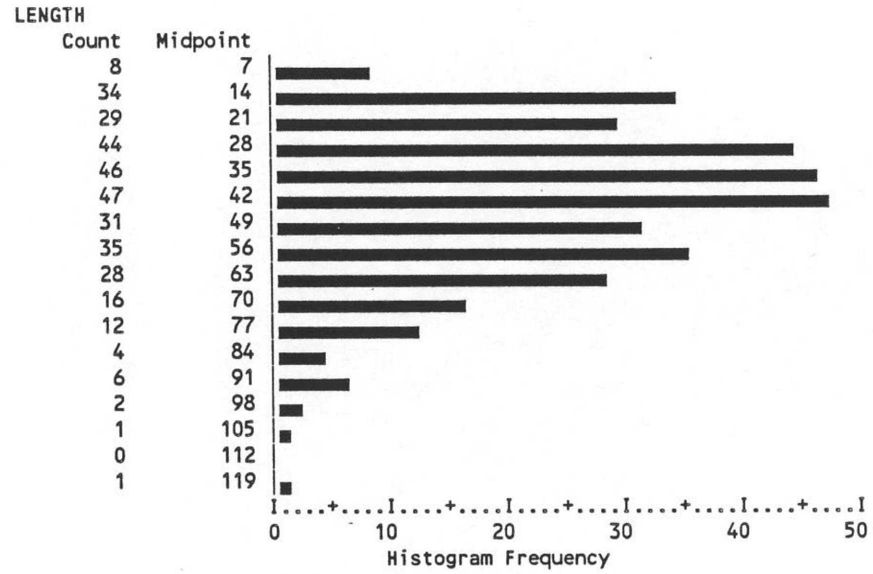
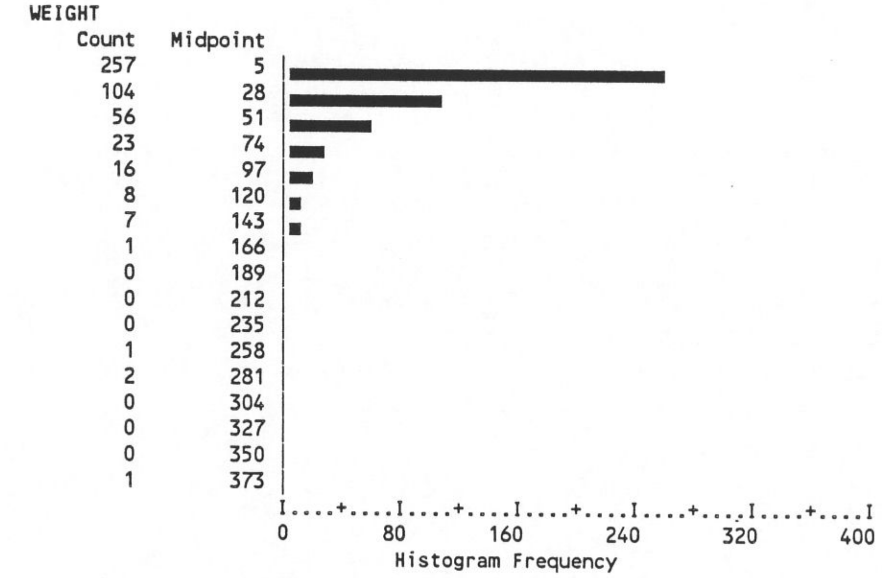
Figure 5



Valid Cases 344 Missing Cases 132



Valid Cases 476 Missing Cases 0

Jacumba Valley Ranch

Histograms of Debitage Length and Weight

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Table 8

```
Summaries of   LENGTH
By levels of   SITENO

Variable       Value  Label                        Mean     Std Dev    Cases

For Entire Population                             42.2587    20.3703      344

SITENO          7056                              47.7597    19.2060      129
SITENO          8072                              26.0952    14.5348       42
SITENO          8430                              51.8281    19.4190       64
SITENO         11686                              45.9655    15.5315       58
SITENO         11689                              25.4314    16.1050       51

  Total Cases =      476
Missing Cases =      132 OR   27.7 PCT.



Summaries of   LENGTH
By levels of   SITENO

     Value  Label                       Mean      Std Dev  Sum of Sq     Cases

      7056                            47.7597    19.2060 47215.5504       129
      8072                            26.0952    14.5348  8661.6190        42
      8430                            51.8281    19.4190 23757.1094        64
     11686                            45.9655    15.5315 13749.9310        58
     11689                            25.4314    16.1050 12968.5098        51
                                   ----------------------------------------
Within Groups Total                   42.2587    17.7123 106352.720       344



Criterion Variable LENGTH


                          Analysis of Variance

                            Sum of                    Mean
Source                     Squares        D.F.       Square          F        Sig.

Between Groups           35975.2542         4      8993.8135     28.6678     .0000

  Linearity               6023.7070         1      6023.7070     19.2006     .0000
  Dev. from Linearity    29951.5471         3      9983.8490     31.8236     .0000

                         R = -.2057      R Squared =  .0423

Within Groups           106352.7196       339       313.7248

                       Eta =  .5028    Eta Squared =  .2528
```

Jacumba Valley Ranch

Analysis of Variance for Debitage Length by Site

```
Summaries of   LENGTH
By levels of   SITENO

Variable       Value  Label                          Mean     Std Dev     Cases

For Entire Population                              43.7660    20.3557      312

SITENO          7056                               47.7402    19.3240      127
SITENO          8072                               28.6129    15.7155       31
SITENO          8430                               53.4286    19.9288       56
SITENO         11686                               46.1579    15.5997       57
SITENO         11689                               26.3902    17.2306       41

  Total Cases =      435
Missing Cases =      123 OR  28.3 PCT.

Summaries of   LENGTH
By levels of   SITENO

     Value  Label                        Mean     Std Dev  Sum of Sq    Cases

      7056                             47.7402    19.3240 47050.4252     127
      8072                             28.6129    15.7155  7409.3548      31
      8430                             53.4286    19.9288 21843.7143      56
     11686                             46.1579    15.5997 13627.5789      57
     11689                             26.3902    17.2306 11875.7561      41
                                  ----------------------------------------
Within Groups Total                    43.7660    18.2104 101806.829     312


Criterion Variable LENGTH


                          Analysis of Variance

                           Sum of                    Mean
Source                    Squares        D.F.       Square          F       Sig.

Between Groups          27057.0905        4      6764.2726     20.3978     .0000

  Linearity              4709.4593        1      4709.4593     14.2014     .0002
  Dev. from Linearity   22347.6313        3      7449.2104     22.4632     .0000

                         R = -.1912     R Squared =  .0365

Within Groups          101806.8294      307       331.6183

                       Eta =  .4582   Eta Squared =  .2100
```

Jacumba Valley Ranch

Analysis of Variance for Porphyritic Debitage Length by Site

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Table 10

```
Summaries of    WEIGHT
By levels of    SITENO

Variable       Value  Label                         Mean     Std Dev    Cases

For Entire Population                             27.6716    40.1154      476

SITENO          7056                              32.2792    32.4094      168
SITENO          8072                               7.7426    17.1864       68
SITENO          8430                              46.6035    62.5325       86
SITENO         11686                              34.4513    40.3583       80
SITENO         11689                               6.1932    11.0579       74

  Total Cases =      476


Summaries of    WEIGHT
By levels of    SITENO

     Value  Label                         Mean     Std Dev  Sum of Sq      Cases

      7056                              32.2792    32.4094 175411.257       168
      8072                               7.7426    17.1864 19789.9663        68
      8430                              46.6035    62.5325 332376.209        86
     11686                              34.4513    40.3583 128674.540        80
     11689                               6.1932    11.0579  8926.3066        74
                                     ------------------------------------------
Within Groups Total                     27.6716    37.5802 665178.279       476


Criterion Variable WEIGHT


                              Analysis of Variance

                            Sum of                        Mean
Source                      Squares         D.F.          Square          F          Sig.

Between Groups            99212.2483          4       24803.0621      17.5626       .0000

  Linearity                8698.4989          1        8698.4989       6.1592       .0134
  Dev. from Linearity     90513.7494          3       30171.2498      21.3637       .0000

                          R = -.1067       R Squared =    .0114

Within Groups            665178.2789        471        1412.2681

                         Eta =  .3603      Eta Squared =  .1298
```

Jacumba Valley Ranch

Analysis of Variance for Debitage Weight by Site

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Table 11

```
Summaries of   WEIGHT
By levels of   SITENO

Variable      Value  Label                      Mean    Std Dev    Cases

For Entire Population                        29.1131    41.2857      435

SITENO         7056                          31.9097    32.4846      165
SITENO         8072                           9.1926    18.9855       54
SITENO         8430                          50.0133    65.9304       75
SITENO        11686                          34.6557    40.5745       79
SITENO        11689                           6.6758    11.7326       62

  Total Cases =      435

Summaries of   WEIGHT
By levels of   SITENO

     Value  Label                      Mean    Std Dev  Sum of Sq    Cases

      7056                          31.9097    32.4846 173060.544      165
      8072                           9.1926    18.9855 19103.7370       54
      8430                          50.0133    65.9304 321664.767       75
     11686                          34.6557    40.5745 128410.375       79
     11689                           6.6758    11.7326  8396.9337       62
                                 -----------------------------------------
Within Groups Total                 29.1131    38.8987 650636.357      435


Criterion Variable WEIGHT


                              Analysis of Variance

                            Sum of                  Mean
Source                     Squares       D.F.      Square          F       Sig.

Between Groups           89120.2785        4   22280.0696    14.7247    .0000

  Linearity               6590.0906        1    6590.0906     4.3553    .0375
  Dev. from Linearity    82530.1879        3   27510.0626    18.1812    .0000

                         R = -.0944     R Squared =  .0089

Within Groups           650636.3568      430    1513.1078

                       Eta =  .3471    Eta Squared =  .1205
```

Jacumba Valley Ranch

Analysis of Variance for Porphyritic Debitage Weight by Site

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Table 12

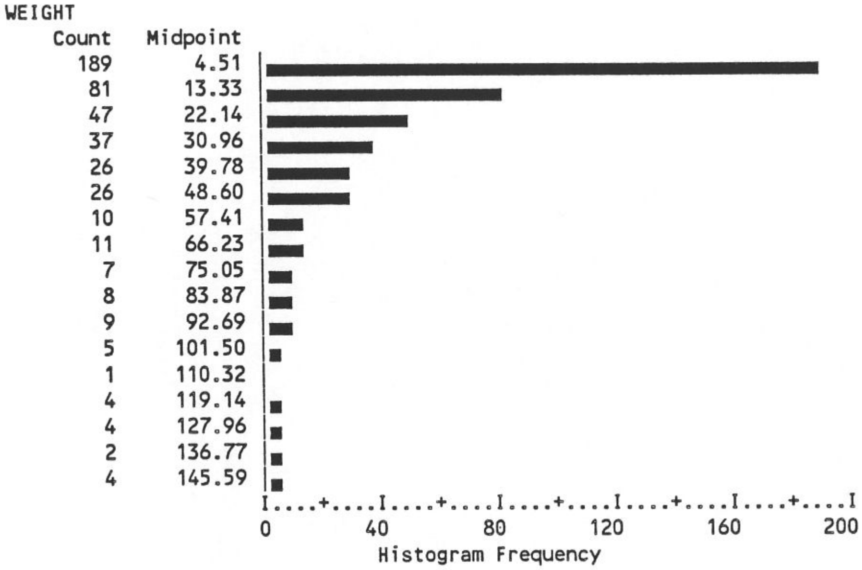
SDi-7056 at 32.3 grams. In contrast, the valley sites had mean weights substantially below the average with SDi-8072 at 7.7 grams and SDi-11689 at 6.2 grams. These means clearly indicate the production of much thinner flakes such as those that would result from the later stages of reduction for tool manufacture and maintenance. The analysis for porphyritic volcanics only shows similar results except that the mean weights are greater for the sample and each of the sites. This is to be expected in that differences in raw material should effect variables such as length and weight.

Histograms showing the frequency distributions of debitage weight by site are presented in Tables 13, 14, and 15. These histograms illustrate in graphic form the statistical differences observed in the analysis above. As can be seen, sites SDi-7056, SDi-8430, and SDi-11686 have debitage weights with wider ranges of values as compared to those from SDi-8072 and SDi-11689, though in all cases the lowest weight category is the most numerous.

The analysis of debitage has also been of utility in the interpretation of site function for other investigations conducted in the Jacumba region. In 1982, Scientific Resource Surveys performed surface collections and limited subsurface testing of a series of sites on the Mazzanti property which abuts Jacumba Valley Ranch on the southeast. Their analysis indicated that of the 8 sites within the project, 6 could be classified as quarry sites and the other two evidenced both quarrying and other uses. In the authors general comments they state that the collections were examined by 8 different experts and that all agreed that:

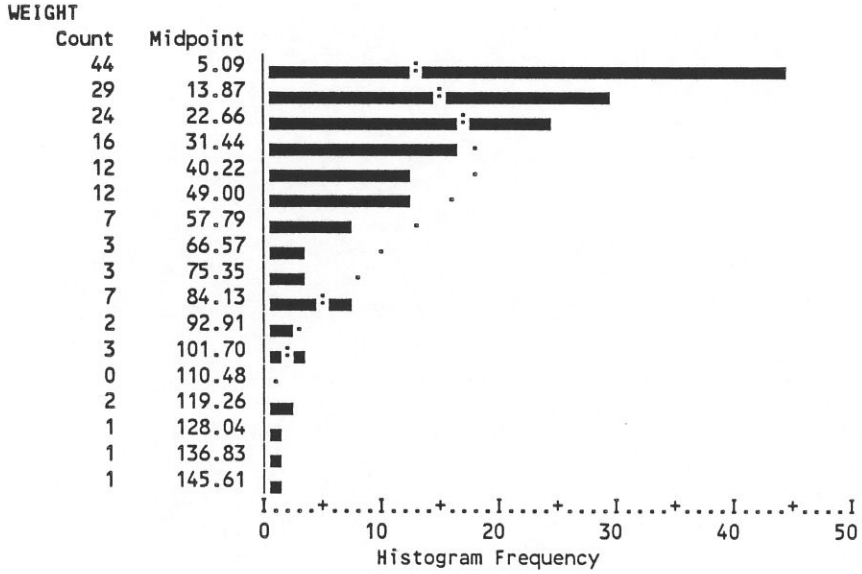
> ... the sites can best be interpreted as quarries where people obtained andesites and basalts for stone tool manufacture. The collection indicates that these prehistoric people split open the water worn cobbles lying on or near the ground surface, and removed the trimmed blanks or preforms to complete manufacture at their village workshops. The discarded materials left behind reflect a "primary reduction" technology and consist mostly of discarded cores, unsatisfactory tool blanks and rough cortical waste flakes (Whiney-Desautels 1982:108).

A sample of the debitage (960 pieces) from the Mazzanti project was quantified for length, width, and thickness. Although no descriptive statistics are provided (mean, standard deviation, etc.), histograms are presented allowing a rudimentary comparison of length. In general, the values range from a minimum of approximately 20 mm to a high of 160 mm with a mode and mean of roughly 50 mm (ibid:Figure 62). This is somewhat similar to that for the Jacumba Valley Ranch sample, though perhaps 5 mm larger. If, however, the valley sites are



```
Mean          27.672       Std Dev       40.115       Minimum          .100
Maximum      377.000

Valid Cases      476       Missing Cases      0
```



```
Mean          32.279       Std Dev       32.409       Minimum          .700
Maximum      166.800

Valid Cases      168       Missing Cases      0
```

Jacumba Valley Ranch

Histograms of Debitage Weight by Site for All Sites and SDi-7056

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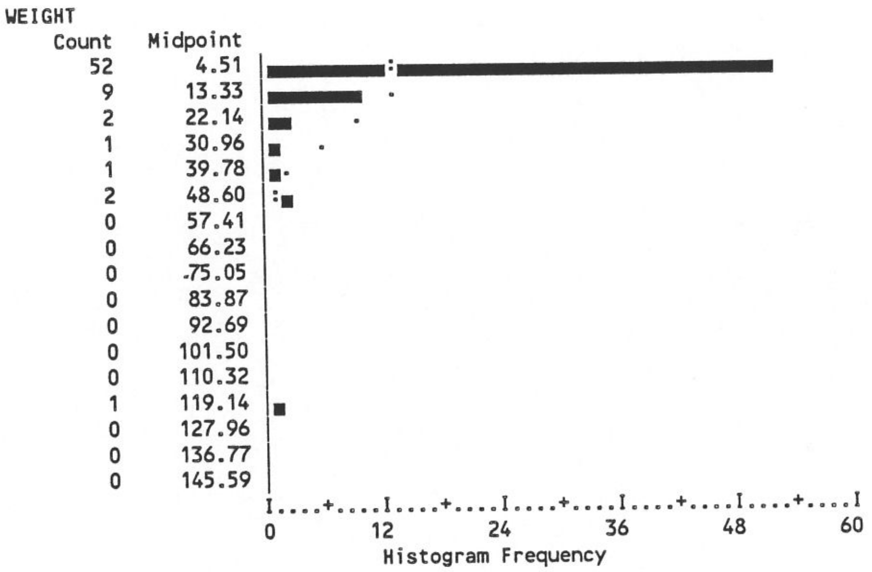
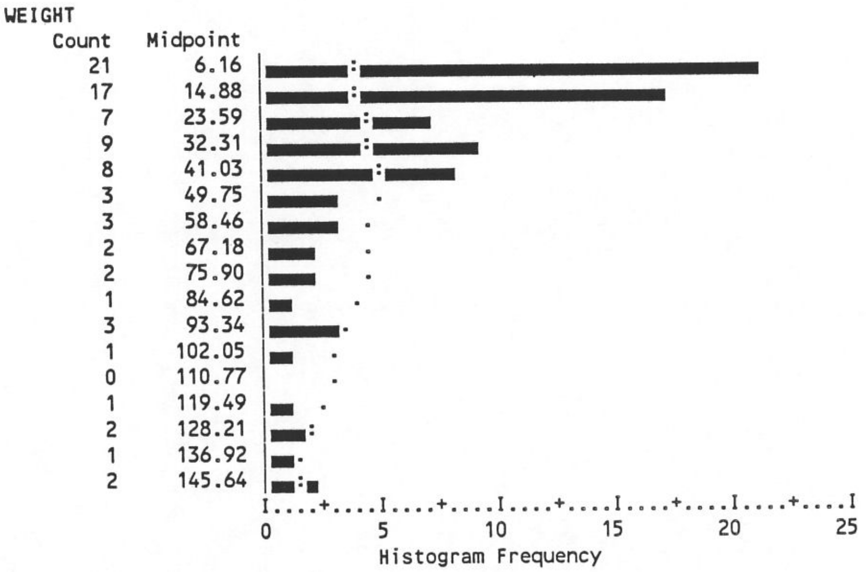
Table 13



```
Mean            7.743       Std Dev       17.186       Minimum          .100
Maximum       118.500

Valid Cases        68       Missing Cases      0
```



```
Mean           46.603       Std Dev       62.532       Minimum         1.800
Maximum       377.000

Valid Cases        86       Missing Cases      0
```

Jacumba Valley Ranch

Histograms of Debitage Weight by Site for SDi-8072 and SDi-8340

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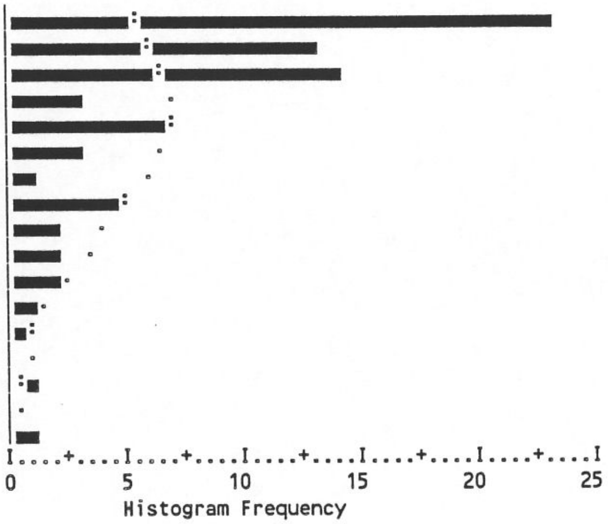
Table 14

WEIGHT

Count	Midpoint
23	4.99
13	13.78
14	22.57
3	31.36
7	40.15
3	48.94
1	57.72
5	66.51
2	75.30
2	84.09
2	92.88
1	101.66
1	110.45
0	119.24
1	128.03
0	136.82
1	145.61

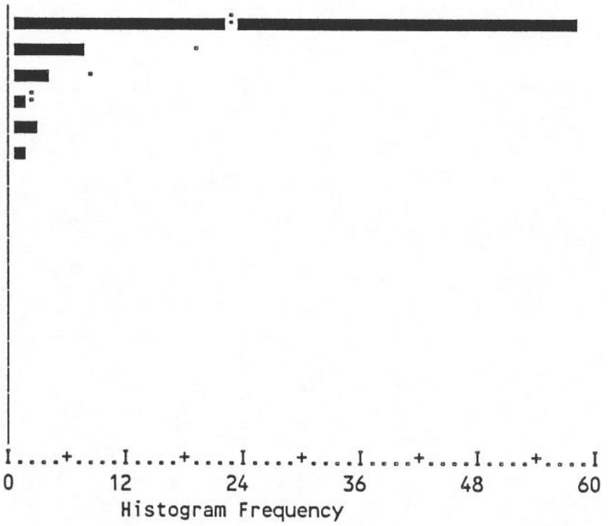


```
Mean          34.451      Std Dev       40.358     Minimum         .600
Maximum      252.500

Valid Cases       80      Missing Cases      0
```

WEIGHT

Count	Midpoint
58	4.51
7	13.33
4	22.14
2	30.96
2	39.78
1	48.60
0	57.41
0	66.23
0	75.05
0	83.87
0	92.69
0	101.50
0	110.32
0	119.14
0	127.96
0	136.77
0	145.59



```
Mean           6.193      Std Dev       11.058     Minimum         .100
Maximum       50.600

Valid Cases       74      Missing Cases      0
```

Jacumba Valley Ranch

Histograms of Debitage Weight by Site for SDi-11,686 and SDi-11,689

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Table 15

excluded from the sample and only the "quarry" sites from both projects are compared, then the two are very similar with only minor deviation that can be attributed to sampling error. Not surprisingly the raw material frequency distributions for the two projects are also essentially the same, although SRS refers to the dominant material as porphyritic andesite while porphyritic volcanic is the term used here. Associated tools include crude scrapers, choppers, hammerstones, and utilized flakes at the sites from both projects.

The other regional study of interest is Jan Townsend's data recovery mitigation for the San Diego Gas & Electric transmission line that bisects Jacumba Valley east-west near the center of the project property. Faced with the problem of determining site function for a series of lithic scatters similar to those on the Mazzanti and Jacumba Valley Ranch properties, Townsend analyzed a sample of flakes from three sites. Three variables were selected as potentially sensitive indices: weight, length, and thickness and the mean, range, and coefficient of variation were calculated. For each of the variables, significant differences were observed between two of the sites, one that was hypothesized to be a quarry and the other a probable habitation site. Specifically, the habitation site mean flake weight was 2.96 grams and the length was 20.4 mm, whereas for the quarry site the mean weight was 38.93 grams and the length was 49.1 mm. Comparing these values to those from Jacumba Valley Ranch, all appear to be roughly similar with the exception of the mean flake weight for her habitation site which is less than half that resulting from the current study. Although it is difficult to explain this discrepancy without additional information and access to her sample, it is quite possible that lithic reduction at her site was limited to tool maintenance and rejuvenation whereas intermediate and late stages of tool production occurred at the two Jacumba Valley Ranch sites.

The problem of determining site types is one that has often vexed archaeologists working in the Jacumba region, principally because of the ubiquitous nature of the lithic scatters. Although San Dieguito artifacts have been reported, no definite examples were identified in any of the studies mentioned above. Aside from chronological difficulties, it is apparent that activities overlapped and expedient quarrying and reduction could occur throughout the region with its abundant raw material. As such, discreet site types should not be expected and any interpretations must consider a number of factors. For example, Townsend states that:

> SDi-7951, the major quarry site, is somewhat problematic. Current evaluations indicate that not only are tools found on the steep slopes but also that many of the tools show definite evidence of use-wear. Generally, the presence of tools (and particularly used

> tools), indicates habitation. Perhaps a group found it necessary to camp atop Jacumba Peak at some point in the distant past. Although there is no supporting evidence, perhaps the environment of Jacumba Peak was different in prehistoric times. It is possible that the Peak, which stands about 800 feet above the surrounding terrain, had stands of pinyon or juniper which were exploited for food, shelter and/or utilitarian purposes. The tools could have been discarded after use. What the real explanation is for tools being on the steepest, highest slopes of Jacumba Peak cannot be answered with the available information (1986:123).

The presence of abundant raw material from the Miocene volcanic formations is clearly a factor involved in the interpretative problem. In most other areas of the County the procurement of suitable raw material would have required that the prehistoric knappers make special trips to a limited number of locales where the stone could be quarried and reduced. Other than hammerstones and other implements involved in the manufacturing process, tools with evidence of use-wear would not be expected at this kind of site. The finished tools would then be transported off-site for use elsewhere in their subsistence related activities. In the Jacumba region, however, suitable quality raw material occurs widely on the hillsides and ridges that surround the valley floor, eliminating the requirement for special trips oriented solely to material procurement. Instead, tools could be expediently produced during the normal course of subsistence activities and the co-occurrence of workshop debitage and discarded, used tools would be expected wherever both food and raw material resources were in close proximity. These types of sites occur in relatively high frequency throughout the Jacumba region as examplified by those studied in the current, SDG&E Interconnect, and Mazzanti projects.

Ceramics

A sample totaling 702 sherds were examined from seven sites. Sherd fabric was examined under a 10x lens and if a buff ware, sorted according to Waters' (1982) Patayan typology. All Brown wares were only sorted into two types: Tizon Brown and Salton Brown, according to typologies developed by Rogers and discussed by May (1978). Townsend (1986b) and Laylander (1983) provide useful critiques of these typologies, and several of the issues they discuss are reiterated here as they apply to the Jacumba sherd assemblage. Only sites with over 20 sherds are discussed in detail below because sampling error makes it impossible to draw conclusions from very small sherd samples.

Brown Wares

Two types of brown wares were identified from the collection: Tizon and Salton Brown. No further effort was made to distinguish between Tizon varieties because of the extensive overlap of characteristics observed both in Malcolm Rogers type collection at the San Diego Museum of Man and the difficulty of distinguishing temporally or regionally specific types within Tizon Brown Ware. Salton Brown was distinguishable by observing large amounts of rounded quartz sand and small amounts of mica in a brown-to-buff fabric. Absence of angular-subangular particles and low frequency of other mineral types indicates a sedimentary origin rather than the residual clay origin that gives Tizon Brown its distinctive appearance. Schaefer (1987) replicated Salton Brown from sedimentary clays on alluvial terraces above the relic Lake Cahuilla shoreline near the Superstition Mountains. Tizon and Salton Brown characteristics can overlap, however, and it is conceivable that some of the catalogued Tizon Brown Ware at Jacumba may actually be Salton Brown. Most ceramicists do not distinguish between these two types. Tizon and Salton Brown sherds from Jacumba therefore must be combined if sherd frequencies are to be compared with other published sherd counts. Both Salton Brown and Tizon Brown varieties observed at Jacumba were identical to examples from Superstition Mountain near the Lake Cahuilla Shoreline (Schaefer 1988:113). Tizon Brown constitutes from 54 to 87 percent of the various Jacumba site ceramic assemblages (Table 16).

Buff Wares

Three buff ware types were identified: Tumco Buff, Salton Buff, and Colorado Buff. Only Tumco Buff occurs as the dominant buff ware and as a principal constituent of the sherd assemblage at most sites. Tumco Buff was produced during the Patayan II period (A.D. 1000-1500) and marks most of the sites as contemporary with the infilling of Lake Cahuilla and with populations who regularly travelled to the low desert and lake shore area. Waters (1982:563) incorrectly limits the distribution of Tumco Buff to the Colorado River area, for it has been found as a major component of several Lake Cahuilla shoreline sites on West Mesa, constituting from 50 to 80 percent of the pottery (Schaefer 1987:39, 1988:83, Gallegos 1984: Shackley 1984:119-120). Tumco Buff comprises from 21 to 36 percent of the ceramic assemblage at those sites with more than 20 sherds.

Salton Buff, also produced during the Patayan II period, is characterized by abundant rounded quartz sand temper and little or no mica inclusions. It typifies ceramic production directly on the Lake Cahuilla Shoreline. Salton Buff occurs more frequently on East Mesa and remains a rare type on West Mesa. Only one to four percent of Jacumba site ceramics were Salton Buff.

Colorado Buff was the rarest type. This thin, hard fired ceramic contains no temper and is typical of the high level production from sedimentary clays following the final recession of Lake Cahuilla until recent historic times (A.D. 1500-1900). The Jacumba examples may be anomalous untempered sherds or intentional early examples of this Patayan III period type.

TABLE 16

DISTRIBUTION OF CERAMIC WARE TYPES

Site No.	Tizon Brown	Salton Brown	Tumco Buff	Salton Buff	Colorado Buff	Total
SDi-6741	12 (54%)	2 (9%)	6 (27%)	1 (4%)	1 (4%)	22
SDi-8072	282 (55%)	30 (6%)	187 (36%)	12 (2%)	5 (1%)	516
SDi-11675	27 (87%)	-	-	-	4 (13%)	31
SDi-11689*	81 (70%)	-	24 (21%)	1 (1%)	9 (8%)	115
TOTAL	402 (59%)	32 (5%)	217 (31%)	14 (2%)	19 (3%)	684

* Sampled

Rim Forms

Waters employed rim form as a principal means of dating Patayan ceramics. Potters made jars with straight rims in the Patayan I period (A.D. 500-1000) while increasingly using recurved rims in the Patayan II and III periods. This observation is substantially true except that straight rims continue to be present on late period vessels. The absence of recurved rims can be used to identify a Patayan I assemblage, but mixed rim forms does not necessarily indicate a mixed date ceramic complex. Such is the case at Jacumba where the mix of straight and recurved rims, along with either rounded or flat lips, match the Patayan II age determination of this assemblage.

Conclusions

Combined buff ware and brown ware frequencies at Jacumba indicate a mobile population making use of resources in both the mountain and desert habitats of the southeastern Peninsular Range region. This bi-modal settlement pattern is well documented for the Kumeyaay lineages of eastern San Diego County (Spier 1923) and those of Imperial County (Gifford 1931). Lineages whose residential bases were in the mountains descended to the desert floor in late spring and early summer to collect mesquite and fish along the shores of Lake Cahuilla, while desert-based lineages ascended to the mountains in early spring for agave and fall for pinyon and bighorn sheep. Such a pattern would contribute to the deposition of both brown and buff wares at sites in both localities, with the expected higher frequencies of Tizon Brown in the mountains and of Tumco Buff in the deserts during Patayan II times.

The dominance of Tumco Buff among the buff wares strongly indicates a Patayan II date for the investigated sites. Sites dominated by Colorado Buff have been recorded at Jacumba (Townsend 1986:110) so a continuous occupation may be asserted. Ceramic frequencies provide no clear indication of Wilke's (1978) postulation of a sudden shift in population to upland areas in Patayan III times after the final recession of Lake Cahuilla.

Obsidian Analysis

One of the major difficulties encountered by this study has been the overall absence of temporally sensitive diagnostic artifacts with which to assess site antiquity. In an attempt to provide additional means of dating the prehistoric occupation of the Jacumba Valley Ranch sites selected obsidian samples recovered from three sites were submitted for sourcing and hydration analysis (see Appendix A). This section summarizes the methods and discusses the results of the analysis.

Of the over 4,000 flaked lithic artifacts recovered from the Jacumba Valley Ranch sites, less than one percent are of obsidian. Obsidian was present in various quantities at four sites, SDi-4455, SDi-7056, SDi-8072, and SDi-11,689, principally in the form of waste flakes resulting from the production of projectile points and other tools. A total of 35 flakes were collected: 12 from SDi-4455, ten from SDi-7056, seven from SDi-8072, and six from SDi-11,689. Subsurface flakes were only recovered from SDi-4455, the remaining flakes and tools were all on the surface. The tools are all fragments including one Cottonwood Triangular projectile point base (SDi-7056), one "Dos Cabezas" Serrated point missing the tip (SDi-8072), one point tip, 1 point preform and 1 possible knife midsection (SDi-11,689).

At the completion of evaluation testing and surface collections nine specimens of obsidian were selected to be sourced, six from SDi-8072 and three from SDi-11,689. Trace element analysis performed by Paul Bouey of the Department of Geology, University of California, Davis determined through the use of an x-ray fluorescence technique that all the specimens possess element qualities characteristic of the Obsidian Butte source area. Obsidian Butte is a small volcanic dome rising about 100 feet above the southeastern shore of the Salton Sea in Imperial County (Morton 1977). Located some 50 miles east of Jacumba, it is the closest known source of obsidian to the area. The volcanic glass from Obsidian Butte is characterized as being black to very dark gray and containing visible white crystalline inclusions, specifically phenocrysts of sandine and/or plagioclase feldspar. Based on macroscopic examination of each specimen, <u>all</u> specimens collected from the Jacumba Valley Ranch sites exhibit these characteristics, so it has been assumed that they were derived from Obsidian Butte.

Subsequent to the extended testing, 23 obsidian specimens were selected from three sites, SDi-7056, SDi-8072, and SDi-11689, and sent to Thomas Origer at the Obsidian Hydration Laboratory at Sonoma State University for hydration analysis. For comparative purposes only surface specimens were used for analysis therefore the twelve subsurface flakes from SDi-4455 were not analyzed.

Obsidian hydration analysis has been used by archaeologists as a useful dating technique and a viable means of establishing chronology. However, a number of problems exist in relation to the proposed hydration rate equations (Ericson 1977; Meighan 1983; Dominici 1984). A detailed discussion of the method is provided by Michels and Bebrich (1971). Essentially, it involves the measurement of a microscopically visible hydration band or "rind" that results when atmospheric water is chemically absorbed on the surface of the obsidian. The rate at which water is absorbed is a function of time and temperature and can be measured. The longer a given piece of obsidian has been exposed, the more the hydration process will develope and the larger the band width will be. Thus, a band width of 1.0 microns is younger or "later" in relative chronology than a band width of 5.0 microns. The hydration band measurements represent the last episode of flaking (or breaking), and not the time when the obsidian was obtained through direct access or exchange. The rate of hydration varies between region, obsidian source, chemical composition, soil chemistry and exposure to solar radiation.

The obsidian hydration measurements for the 23 samples used for analysis are contained in Table 17. Seven flakes and one point base were submitted from SDi-7056, seven flakes from SDi-8072, and seven flakes, one preform fragment, and one point tip from SDi-11,689. Analysis of one specimen from SDi-11,689 produced no visible hydration band. The apparent absence of a hydration band can be from a number of reasons, or simply because it is to thin to measure.

TABLE 17

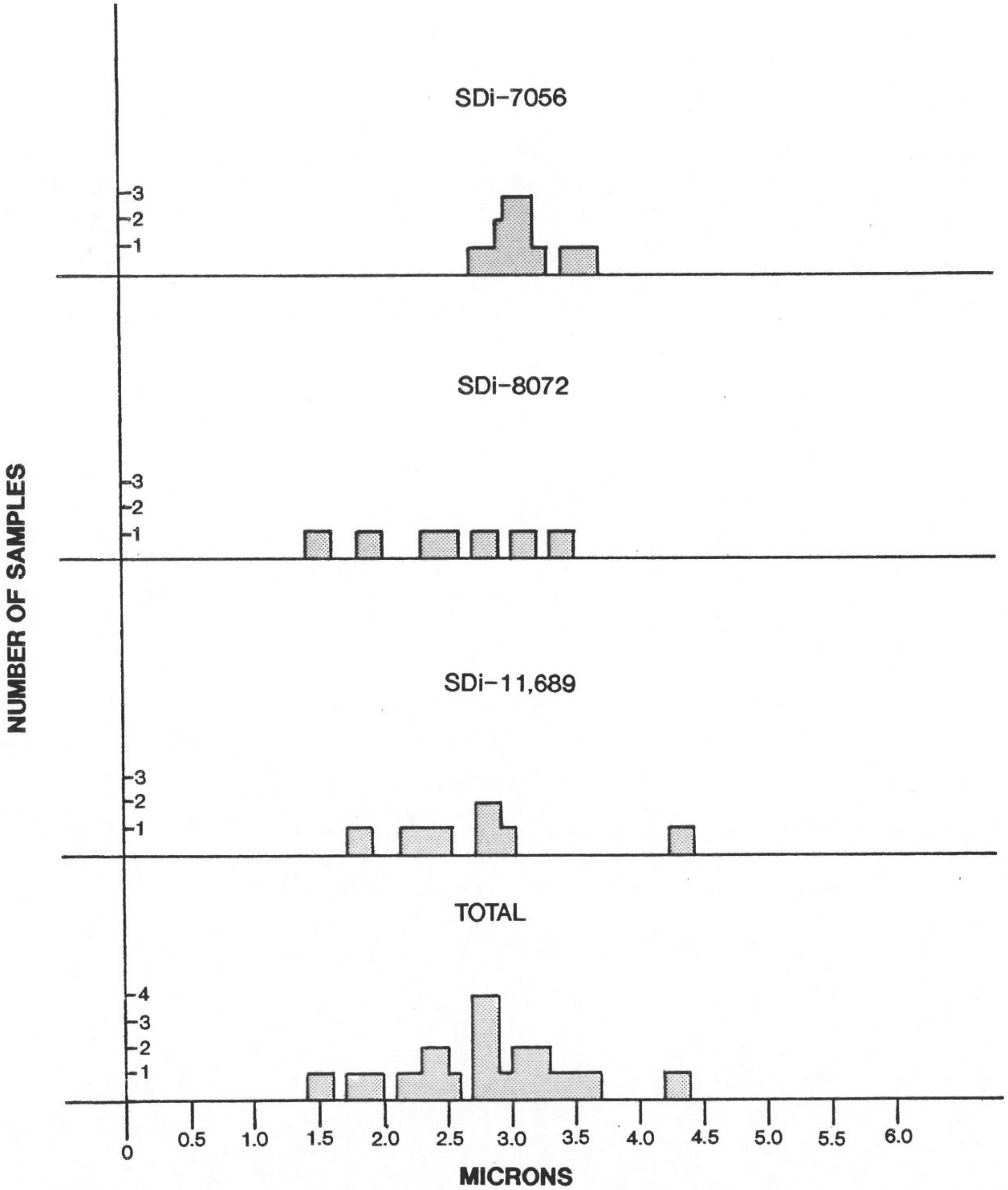
OBSIDIAN HYDRATION MEASUREMENTS

SDi-7056		SDi-8072		SDi-11689	
SP NO*	MBM**	SP NO	MBM	SP NO	MBM
16	3.0	01	3.4	08	1.9
17	2.8	02	1.9	09	1.8
18	3.1	03	3.1	10	2.8
19	3.2	04	1.5	11	4.3
20	2.9	05	2.5	12	2.4
21	3.6	06	2.8	13	NVB
22	3.1	07	2.4	14	2.8
23	3.5			15	2.2
SITE MEAN: 3.1		SITE MEAN: 2.5		SITE MEAN: 2.3	

---

*	Specimen number
**	Mean band measurement in microns
NVB	No visible hydration band

Figure 6 shows the frequency distributions for hydration measurements from each of the three sites and the entire sample. The smallest hydration value is 1.5 microns and the largest 4.3, a range of 2.8 microns. The mean for site SDi-8072 is 2.5 microns, 2.3 for SDi-11,689, and 3.1 for SDi-7056. The overall site mean is 2.7 microns. It should be noted that the sample size is very small, and therefore interpretation of Jacumba Valley Ranch hydration data should be approached with caution.



Frequency distrbutions for obsidian hydration measurements at three Jacumba Valley Ranch sites and the total.

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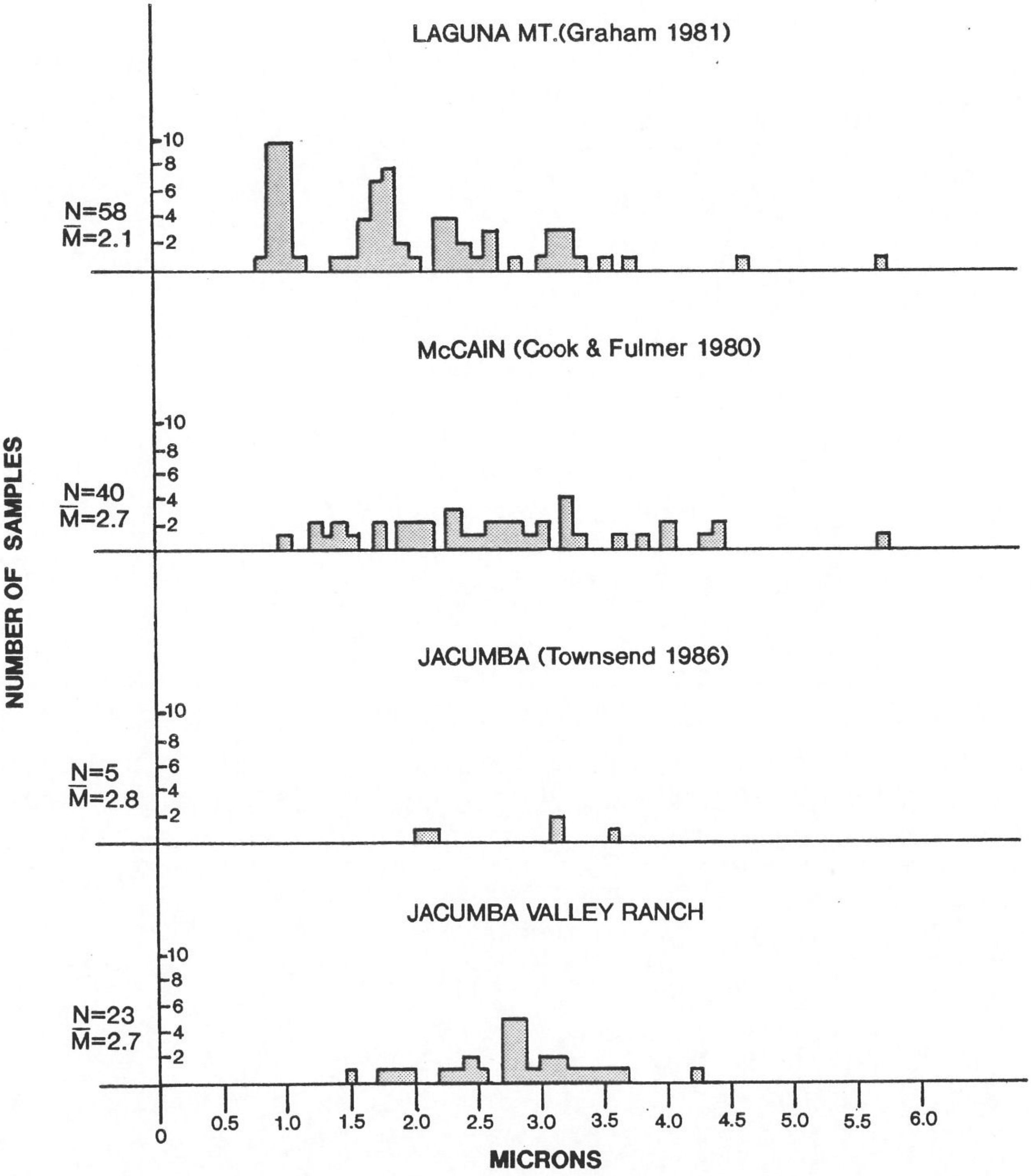
Figure 6

Obsidian use at all three sites appears to have been contemporary. Almost all the hydration values fall within similar ranges, with the mean values of SDi-8072 and SDi-11,689 being almost the same, while SDi-7056 may be slightly older. The span between values from 1.5 microns to 3.6 microns is narrow, and represents a limited time period (see absolute dating discussed below).

Comparative information for obsidian hydration values at three other eastern San Diego County project areas is shown in Figure 7. All three areas are close to Jacumba Valley with the primary source for the obsidian being Obsidian Butte allowing hydration band widths to be compared. The very small number of samples (five) that Townsend (1986) examined helps to add to the limited obsidian data base for the Jacumba Valley. Her samples were taken from sites directly east and adjacent the Jacumba Valley Ranch project. They all fall within the same range (2.0-3.6). The much larger samples from Laguna Mountains (Graham 1981) of 58 specimens and 40 samples from McCain Valley (Cook & Fulmer 1980) are of interest when compared to rates from Jacumba. The evidence shows that the use of obsidian appears to have continued for a longer period at the Laguna Mountains and McCain Valley areas than is exhibited at the Jacumba Valley sites. This is reflected in the smaller values (1.0) at those sites compared to the Jacumba Valley sites (1.5). Obsidian usage appears to have started at approximately the same time at all four study areas reflected in the increase in frequency of band widths of 4.0 microns or smaller. A few samples of obsidian were recovered at McCain Valley with band widths of 4.5 indicating an earlier usage.

To this point the discussion has focused on the use of the obsidian hydration data as a relative dating technique. A number of methods have been suggested for absolute dating using hydration band widths (Ericson 1978; Christenson 1981; Meighan 1983). All of these attempts at calibration remain controversial and inconclusive. The simplest hydration rate model proposes that hydration is linear with respect to time (Meighan et al 1968)-- that is, each micron of hydration takes the same amount of time to form. Dominici (1984) developed a calibration rate for the Obsidian Butte source modifying the linear equation of $T = bx$ (where "T" is age in years before present and "x" is the obsidian hydration rind measurement in microns) by determining that $b = 78.16$. Townsend used a linear equation for analysis of her Obsidian Butte samples stating the hydration rate as $b = 314$ (based on recommendations from Coughlin and Ericson 1983)



Comparisons of obsidian hydration rates between various projects in eastern San Diego County.

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Figure 7

Other proposed models use the premise that each micron requires a longer amount of time to form than the preceding micron. One example of such a diffusion model is $T = 200x^2$ (Friedman and Obradovich 1981). There is wide variation in such diffusion models related to the specific amount of additional time needed to form the subsequent micron. Besides time, both chemical composition of the obsidian and the ambient temperatures it is exposed to are primary factors in the formation of hydration bands. The significance of these and other variables on the hydration process is not yet fully understood therefore caution should be taken when using any of these equations to determine absolute dates.

Figure 8 below provides a line of hydration rates and corresponding dates using various hydration models.

FIGURE 8

Absolute Dates for Hydration Band Widths Using Various Proposed Rates

Source	Years B. P.				
Dominci 1984	78	156	234	313	391*
Chace 1980	95	190	285	380	475
Archaeology Associates 1989	190	380	570	760	950
Coughlin & Ericson 1983**	314	628	942	1256	1570
Friedman & Obradovich 1981	200	800	1800	3200	5000
	1.0	2.0	3.0	4.0	5.0

Band Width in Microns

----

* Rounded to nearest integer
** In Townsend 1986

Using Dominici's linear equation model for dating hydration rates, the Jacumba obsidian samples range in dates from 1873 A.D. and 1655 A.D. which places the occupation within the Patayan III (A.D. 1500 - present) period of the Late Prehistoric. Combined with data from other project areas in eastern San Diego County the Jacumba obsidian dates suggest introduction of the use of obsidian in those areas in the late 1600s. This may reflect a general increase of aboriginal activities in the upland areas of eastern San Diego county corresponding with the final recession of Lake Cahuilla to the west area around 1650 A.D.

Drawing strong conclusions from the Jacumba Valley Ranch obsidian data remains problematic. Limiting factors include the sample size as well as site frequency and type. Based on the total content of the artifact assemblages recovered from SDi-8072 and SDi-11,689, these sites are considered Late Prehistoric temporary resource procurement and processing camps. Site SDi-7056, however, appears to have been used predominantly as a lithic procurement locale and the obsidian recovered from this site probably reflects a few isolated events.

Chronology

Although the exact span of occupation of the Jacumba Valley sites studied in this report cannot be determined with any certainty a relative chronology can be addressed using available data. The investigations within the Jacumba Valley Ranch property resulted in the recovery of a number of cultural materials that are generally regarded as time-sensitive, including ceramic ware sherds and projectile points, which are discussed below.

Malcolm Rogers hypothesized that San Dieguito peoples used the natural easy grade up from the desert into the Jacumba Valley region as a migration route through the mountains to the coast (1966:79). However, no distinctive San Dieguito tool forms have been recovered from Jacumba Valley sites to substantiate this theory (Townsend 1986). Much of the volcanic lithic waste material found at quarry sites such as SDi-8430 show some degree of patination suggesting antiquity, but since there is no standard rate of patination (probably highly variable) this evidence in and of itself cannot be used to identify San Dieguito sites. Many of these sites also contain unpatinated volcanic flakes suggesting continued procurement and use throughout the prehistoric period.

Furthermore, the lack of ceramics at many of the Jacumba sites is not conclusive evidence to indicate occupation during the Archaic (Milling) period. Though groundstone implements were recovered from seven of the sites no other diagnostic tools, such as dart points, were found to suggest an Archaic occupation in the valley region. Several of the sites contained core tools which could be associated with the Archaic time frame, however, similar tools were also produced during the Late Prehistoric period. The fact that the majority of the sites are aceramic quarries and surface lithic scatters does not imply a preceramic time frame of occupation.

The majority of the cultural material collected from the larger sites reflect a Late Prehistoric occupation. Although difficult to completely substantiate, archaeological evidence suggest that the Kumeyaay occupied portions of what has been identified as their ethnographic territory as early as A.D. 700-800, and most probably were settled throughout the entire territory by A.D. 1550 (Rogers 1945; True 1970; Shackley 1984). Ethnographic accounts provided by informants claim the Jacumba Hot Springs area served as a major trading area associated with a complex of villages, quarries, gathering areas and a sacred mountain (Gifford 1931:11). The numerous lithic scatters throughout the valley most likely represent extractive sites and workshops associated with the village of Hakum, as they are situated well within the foraging range of hunter-gathers (assumed to be a 10km radius).

Ceramic technology is believed to have been introduced into the region at about A.D. 1000 (Meighan 1959) or possibly as early as A.D. 700 (Schaefer 1988). Ceramics can be used as only a gross time indicator because supposed diagnostic morphological traits (like rim form) have been inconclusive when applied to actual collections (Shaefer 1988). Patayan buff ware ceramics are broken down into three Late Prehistoric time periods (discussed in the ceramics section) of which the later two periods, spanning from approximately A.D. 1050 to European contact, are represented in the ceramic assemblage. Brown wares, being much more difficult to distinguish, are extremely generalized (May 1978) exhibiting little spatial or temporal sensitivity. The occurrence of brown ware covers a broad time range between ca. A.D. 750 to post-1900 (Waters 1982) making it difficult to determine specific temporal associations however, definite spatial association between Tizon and other artifacts can at least bracket the material between these dates.

Small ceramic scatters, like at SDi-11,675, usually represent an isolated "pot drop" rather than occupation over time. It is difficult to determine the age of these types of sites because the breakage of the vessel could have occurred before, during or after the main occupation of the site area.

All of the projectile points recovered during the investigation are small arrow points (Table 18). The bow and arrow technology, as opposed to spear and dart point, is associated with the Late Prehistoric period. The three types of points identified, Cottonwood Triangular,

Projectile Point Attributes

Site No.	Provenience	Type/Condition	Length	Maximum* Width	Thickness	Weight	Basal width	Material	
SDi-4455	Surface	DSN/complete	1.6	0.8	0.3	0.2g	0.9	Chalcedony	
	Unit 1/0-10cm	DSN/minus base	(1.7)	1.0	0.7	0.6g	---	Chalcedony	
	Unit 1/10-20cm	CTC/mid section	(1.6)	1.7	0.6	1.6g	---	Volcanic	
SDi-7056	Surface/Sq.53	CTC/base fragment	(1.3)	(2.5)	0.5	1.2g	---	Obsidian	
SDi-8072	Surface/Sh.4	DCS/minus tip	(3.0)	1.7	0.5	1.6g	1.7	Obsidian	
	Surface/Sq.55	CTS/almost complete	1.9	1.5	0.3	0.6g	"1.6"	Metavolcanic?	
	Surface/Sq.81	CTC/broken base	2.6	1.4	0.6	1.6g	"1.6"	Quartz	
SDi-11,689	Surface/Sh.15	CTC/base fragment	(1.8)	1.7	0.4	1.4g	1.7	Quartz	
	Surface	CTS/fragment	(1.9)	1.7	0.4	1.3g	"1.9"	Quartz	
	Surface/Sh.28	DSN/mid section	(1.9)	1.4	0.5	1.2g	---	Chert	
	Surface/Sh.203	CTC/fragment	(2.0)	1.4	0.6	1.6g	"1.8"	Quartz	
	Surface/Sh.236	CTC/fragment	(2.0)	1.0	0.6	0.7g	"1.1"	Chert	
	Surface/Sh.248	CTC/base fragment	(1.2)	1.3	0.4	0.5g	---	Quartz	

---

* Dimensions given in cm
( ) Measurement of incomplete dimension
" " Estimated measurement

DSN = Desert Side-Notched
CTC = Cottonwood Triangular, concave base
CTS = Cottonwood Triangular, straight base
DCS = Dos Cabezas Serrated

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Jacumba Valley Ranch
Projectile Point Attributes

Table 18

Desert Side-notched, and Dos Cabezas Serrated, all date to post-A.D. 1300 (Thomas 1981) and continued to be manufactured into historic times.

Two *Olivella* shell beads were found in the valley floor sites. These type of beads were a common product of the Late Prehistoric (post-ca. A.D. 1000) coastal peoples of southern California.

No materials suitable for radiocarbon analysis were recovered during investigations of the Jacumba Valley Ranch sites. Only SDi-4455 has an intact subsurface component from which material could be obtained for radiocarbon dating.

Without associated radiocarbon dates obsidian hydration results, discussed earlier, do not provide competent evidence for forming a chronology due to the large variance of proposed rates for conversion of hydration values into equivalent calendar years. Comparisons of hydration band measurements with regional sites that have been dated indicates a Late Prehistoric occupation for those Jacumba sites containing analyzed obsidian. Again, however, as with isolate pot drops, the occurrence of surface obsidian at a site does not necessarily reflect the earliest occupation of the site nor the most recent.

In conclusion, the data suggest that the majority of the Jacumba Valley sites were in use during the Late Prehistoric period. The population density of the valley may have increased after the desiccation of Lake Cahuilla with the region being occupied by the Kumeyaay into historic times. Earlier use of the area is not easily recognized and cannot be confidently determined but appears to have been non-intensive.

Discussion

Ethnographic and archaeological research indicate that the greater Jacumba region was a fairly extensive prehistoric and ethnohistoric Native American settlement. Surveys conducted throughout the region have documented relatively high site densities, and according to the ethnographic literature there were more than 20 separate villages associated with the Kumeyaay and Kamia occupation of Jacumba. Hot springs would have provided a reliable source of water capable of supporting permanent residential use, and the rich biotic environment included a variety of important food resources within a daily foraging radius of any base camp. Exploitation of these resources would have required somewhat different and overlapping subsistence strategies that archaeologically have proven complex and difficult to interpret.

Given what were environmentally very favorable conditions, one would expect that a fairly substantial time depth should be reflected in the archaeological record. Rogers (1966) argued that Jacumba was along the main route used by the San Dieguito to migrate from the deserts to coastal San Diego County, but none of the recent investigations in the region have produced a definitive collection with truly diagnostic types. There is also little evidence to indicate Early Archaic settlement. While it is quite possible that this apparent lack of time depth may be a function of the paucity of multicomponent sites excavated, there is no doubt that the vast majority of archaeological remains are attributable to Late Prehistoric occupation spanning the last 2000 to 1500 years.

The Jacumba Valley Ranch archaeological resources also proved devoid of any evidence for occupation by Paleo-Indian and Early Archaic populations. Large bifaces were recovered from a number of the quarries and these may be what Whitney-Desautels (1982) and Townsend (1986) consider to be of San Dieguito affiliation, but a closer examination shows that these are more likely bifacial cores and roughouts that are chronologically non-diagnostic. Combined, the surface and subsurface collections yielded only ceramics, projectile points and obsidian: all general indicators of the Late Prehistoric Horizon.

With regards to any interpretations of settlement patterning it must be emphasized that the Jacumba Valley Ranch sites constitute only a fractional sample and as such are probably not representative from a regional perspective. Geographically, the project property is substantially different from much of the surrounding area in that is predominantly a large open alluvial valley. This valley would have contained food and material resources unique to the area, and in essence have been a distinct "micro-environment". Given this, then one would expect that the particular subsistence strategies involved in the exploitation of valley's resources may not have been the same as those used for the procurement of agave or pinyon which occur outside the project property. That is, the groups may have behaved as foragers when focusing on one set of resources and then collectors for another different set of resources.

Binford (1980) has made a useful distinction between residential and logistical mobility among hunter-gatherers. Residential mobility referes to the movements of most members of a camp, whereas logistical mobility defines small specially organized task groups that leave the residential base to procure specific resources. Highly mobile groups, termed foragers, move the consumer to the resources with frequent residential moves. Foragers, because of their constant mobility, usually do not store resources but procure and process for immediate consumption. Collectors occupy residential areas for a longer period of time, such as an entire season, and transport the resources to the consumers through logistical organization.

The particular mobility strategy employed by any given hunter-gatherer group creates archaeological evidence that reflects the different strategies. The foraging strategy results in two spatially and formally distinct archaeological sites: the residential base and the location. The former, as the daily center of subsistence activities, is where processing, manufacturing, maintenance, and ceremonial activities occurred, while the location is where exclusively extractive tasks were performed. Collectors, by virtue of their different subsistence strategy, generated three additional site types: the field camp, the station, and the cache. Field camps served as temporary residential locales for habitation and maintenance that unlike the residential base were established in close proximity to important targeted resources. Stations were the sites where the task groups would meet for organizational purposes prior to dispersing to procure the resources, and caches were special facilities where the resources would be stored on a temporary basis until transported to the residential base.

Based on the archaeological data from the sites within Jacumba Valley Ranch it would appear that the prehistoric occupants were more likely collectors than foragers. SDi-4455, the ethnohistoric village of Hakum, would most certainly be classified as a residential base given the accumulation of midden and its diverse assemblage. Although situated in close proximity to the village, SDi-8072 and SDi-11,689 are characteristic of field camps. Available evidence seems to indicate that these sites were primarily established for the procurement and process the abundant mesquite and other plant resources on the valley floor. The remaining sites can best be described as locations where unspecified extractive tasks were conducted. Clearly, the vast majority of evidence from these sites relates to opportunistic quarrying and lithic reduction, but on-site use of the manufactured tools appears to have been minimal. Moreover, the types that are present seem to be fabricators or tools used to make tools, e.g., crude, heavy scrapers for working wood and other fiberous materials.

As mentioned, the Jacumba Valley Ranch sites represent only a small sample of the relevant archaeological record and it would be inappropriate to extrapolate from the data recovered during the current study to the greater region. For example, Townsend (1986) speculates a high probability for year round occupation based on potentially available food resources, although the data from her investigation only indicates habitation during early spring and early fall. Resolution of major research questions, however, will require the excavation and analysis of an adequate sample of sites with substantial subsurface deposits such as the village and other temporary camps in the region.

RECOMMENDATIONS

The significance or uniqueness of the Jacumba Valley Ranch cultural resources is based on an analysis of the data and information collected as a result of the current studies and a consideration of whether the resources possess value for further scientific research. Several different levels of significance are indicated which express the relative importance each resource possesses in contributing to this value. The assessment of potential direct impacts involves determining what land uses are proposed and whether implementation of the project would result in resource disturbance or destruction. Mitigation measures are recommended for those cultural resources that are deemed significant at any level. Preservation is recommended for all of the cultural resources evaluated as possessing high significance, whereas data recovery is proposed for several sites of lesser significance. For the majority of the sites, the current investigation and extended testing effectively exhausted their data yield and informational value, and mitigation is not warranted for seventeen sites. Site significance evaluations, potential impact assessments, and recommended mitigation measures are summarized below and in Table 19.

Impacts and Mitigation

Given the nature of the project and the proposed land uses both direct and indirect impacts can be anticipated. Direct impacts will occur as a result of grading and construction activities related to the golf course, commercial center, and residential elements of the project. Development of Jacumba Valley Ranch as proposed will directly affect 7 of the archaeological sites, however, in all cases the resources affected are either considered insignificant or have been subjected to extended testing programs, and any impacts are therefore inconsequential. Development may ultimately affect an additional 8 sites that are located within designated future planning areas, although, adverse impacts could potentially occur to only the 3 sites evaluated as significant (SDi-11,676, SDi-11,677, and SDi-11,689).

Eight cultural resources are contained within open space areas and will not be directly affected by development. Five of these sites are considered insignificant, however, three of them (SDi-4455, SDi-11,678, and SDi-11,679) which contain some degree of significance may receive indirect impacts. Indirect impacts are adverse affects that are secondary in nature but clearly brought about by project development. Most often indirect impacts result from the increased access and population density allowed by development. Examples of indirect impacts include vandalism or "pot-hunting" and gradual site degradation resulting from general recreational use. Within Jacumba Valley Ranch, this kind of adverse impact could potentially affect the three significant sites preserved in open space. Additionally, prior to future planning, the three significant sites existing in undeveloped portions of the project may also receive adverse impacts through increased accessibility which may substantially affect their integrity prior to mitigation.

Given the potential for both direct and indirect impacts, mitigation recommendations are provided for all of the cultural resources that possess any level of significance regardless of proposed land use. Two forms of mitigation measures are proposed: preservation and data recovery. As mentioned, the village site SDi-4455 is considered to be a cultural resources of high significance, therefore preservation of the site is recommended and an open space area has been established to accommodate this measure. Sites SDi-11,678 and SDi-11,679 are also proposed for preservation via open space in that they are representative of the quarry and scatter site types within the project. In order to ensure the long-term conservation of these resources explicit preservation plans should be submitted to the County for approval, and implemented in accordance with any conditions of project approval.

Data recovery is recommended as mitigation for those sites where preservation is not deemed a feasible option. The sites in this category consist of surface artifact deposits whose continued integrity could not be guaranteed given their close proximity to intensive land uses. By nature, these kinds of sites are so fragile that site capping would essentially destroy them, as would cumulative indirect impacts if left open regardless of fencing and other protective measures. For SDi-11,676, SDi-11,677, and SDi-11,689 that are located in future planning areas, additional work is recommended as conditions of approval for any subsequent projects. The data recovery efforts should address relevant research questions and incorporate the results of the current investigation.

TABLE 19

CULTURAL RESOURCE IMPACTS AND MITIGATIONS

Resource	Type	Significance	Land Use	Impact	Mitigation
SDi-4455	Village	High	Open Space	Indirect	Preservation
SDi-6741	Camp	None	Golf Course	None	None
SDi-7056*	Quarry	Low	Golf Course	None	None
SDi-8072*	Camp	Moderate	Commercial	None	None
SDi-8430*	Quarry	Low	Residential	None	None
SDi-11,675	Scatter	None	Golf Course	None	None
SDi-11,676	Quarry	Low	Future Planning	Indirect	Data Recovery
SDi-11,677	Scatter	Low	Future Planning	Indirect	Data Recovery
SDi-11,678	Quarry	Moderate	Open Space	Indirect	Preservation
SDi-11,679	Quarry	Low	Open Space	Indirect	Preservation
SDi-11,681	Quarry	None	Future Planning	None	None
SDi-11,682	Scatter	None	Future Planning	None	None
SDi-11,683	Quarry	None	Future Planning	None	None
SDi-11,684	Scatter	None	Future Planning	None	None
SDi-11,685	Scatter	None	Future Planning	None	None
SDi-11,686*	Quarry	Low	Golf Course	None	None
SDi-11,688	Scatter	None	Golf Course	None	None
SDi-11,689	Camp	Moderate	Future Planning	Indirect	Data Recovery
SDi-11,690	Quarry	None	Open Space	None	None
SDi-11,691	Scatter	None	Open Space	None	None
SDi-11,692	Milling	None	Open Space	None	None
SDi-11,693	Scatter	None	Open Space	None	None
SDi-11,694	Scatter	None	Open Space	None	None

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* Subjected to extended testing

RESEARCH SIGNIFICANCE AND DATA REQUIREMENTS

As discussed earlier, based on the archaeological data currently derived from testing of the sites within the project, the prehistoric occupants of the area were more likely what Binford (1980) distinguishes as collectors rather than foragers with most of the sites representing resource collection and initially processing field camps associated with the village complex of Hakum. However, it would not be appropriate to extrapolate from the data that all sites in the area are of this type, suggesting only a Late Prehistoric occupation of the region. For this reason, the research potential of the cultural resources existing within the Jacumba Valley Ranch project has been addressed under four research topics: cultural chronology, settlement/subsistence, technology, and exchange. These research topics, discussed below, shall provide the framework for any future cultural resource investigations within the project. Several research questions per topic have been given that could potentially be addressed using data from archaeological sites in the Jacumba Valley Ranch project. Subsequently, "data requirements" necessary to demonstrate research potential are listed.

Cultural Chronology

This is undoubtedly the objective most familiar to archaeologists, and that which has been the focus of majority of the research conducted to date in the San Diego County region. The study of cultural chronology supplies the time depth crucial to most areas of archaeological investigations forming the foundation on which higher order research rests. The construction of a cultural chronology involves two basic procedures: the classification of material remains and the derivation of absolute and relative dates. The kinds of sites encountered in the project region typically do not lend themselves well to chronometric analysis, principally due to the general paucity of datable material and the poor conditions of integrity from historic activity and other natural processes. Yet it is precisely this type of information that is sorely lacking, without which research into issues of settlement and subsistence, mobility, resource procurement and culture change cannot be investigated.

Minimally, it is desirable to obtain information delineating the range of occupation or use, i.e., the initial and terminal dates. Data relating to the temporal variability within the range would also be extremely useful. Although, based on current data, most of the material in Jacumba valley appears to be attributable to the Late Prehistoric period, the possibility of an earlier component cannot be dismissed.

Research Questions:

Is there more than one cultural period represented within the Jacumba Valley Ranch project area? If so, what identifies each?

Does variability in the artifact assemblage of a site reflect multiple occupations?

Does the linear obsidian hydration rate compare favorably with the ceramic types recovered from these sites?

When was the ceramic tradition introduced into this region?

Data Requirements:

1) Seriation of diagnostic artifacts (eg. points, bifaces, and ceramics) and non-diagnostic materials by relative frequencies of attribute clusters;
2) Obsidian in sufficient quantities from an identified source and in different spatial or temporal contexts--for use in hydration analysis;
3) Radiocarbon dates from organic materials found in association with obsidian and/or diagnostic artifacts and features;
4) A sufficient amount and variety of ceramic remains.

Settlement/Subsistence

As in most regions of North America, the settlement/subsistence and mobility dynamics in San Diego prehistory are not well known. For the late period, a shift toward more concentrated and larger permanent or semi-permanent villages is proposed (Hector 1984). This has not been empirically tested, mainly due to the lack of adequate data and theory to address the issue. While it would be impossible for a single project to remedy this problem, some progress is possible.

It has been theorized that settlement choices are closely related to subsistence resource density and predictability (Dyson-Hudson and Smith 1978; Kelly 1985; Thomas 1983). The forager-collector concept, however, by no means provides a final polished theory of hunter-gatherer social organization and settlement dynamics. Perhaps most unfortunate, is that we have very little theory and virtually no empirical evidence available to understand the long-term trajectories of various non-agriculturists (Kelly 1985). It is these very long-term strategies that determine the settlement dynamics of hunter-gatherers. The long-term settlement trajectories create the pattern of archaeological sites.

The material consequences of an occupation represent a record of the organizational aspect or phase of operation of the cultural system studied (Binford 1982). If storable resources (acorns, some marine resources, some seeds and meat) are available, and the technology is available to process the resources, then a logistic (collector) strategy is most efficient. If subsistence resources are scattered and not storable, a residential (forager) strategy is often most efficient. If a logistic strategy is being employed, patchy, non-storable resources can be procured and processed within the daily foraging radius, or by logistic task groups staying at field camps when the resources are at some distance (Binford 1982; Kelly 1985; Shackley 1984; Thomas 1983). The presence of predictable, storable resources (eg. acorns) allowed for sedentism. Sites dating to the late prehistoric period should fit this pattern of a logistic strategy, including complex residential bases, field camps, locations, and caches.

Residential bases are "the hub[s] of all subsistence activities" (Binford 1980:9). Base camps are where most processing, manufacturing, and maintenance activities occur. A residential base will consist of various housing and ceremonial structures, and processing activity areas. Since the occupation is more sedentary and the site is returned to year after year, site furniture accumulates including milling equipment, storage facilities, housing, caches, burial areas, and other redundant activity areas.

Archaeologically, this type of site is represented by high densities of all forms of cultural material, particularly fabricating tools, a diversity of raw materials, and high proportions of spent and discarded artifacts. Non-locally available raw materials are more likely to be available in residential bases since importation through exchange or direct procurement is more necessary when sedentism occurs (Binford and Stone 1985; Gould and Saggers 1985). Additionally, collector residential bases do not have to be located near resources, since logistical task groups transport the material back to the camp for processing, storage, and consumption.

Collector *field camps* can frequently appear similar to forager residential bases. A smaller range of activities occur here in both strategies. Specific raw materials are targeted and the assemblage generally reflects this. Additionally, field camps and forager residential bases are located in close proximity to resources. The lithic assemblage frequently reflects one or two tasks, and tool fabrication beyond expedient production is rare (Shackley 1984). Much of the material would be highly curated personal gear, and frequently the by-products of tool resharpening and maintenance are all that is left (Kelly 1985; Shackley 1986; Thomas 1983).

Caches are generally quite distinctive and may include ceramic caches, subsurface pits, and caches of other specific materials. *Locations* are places where the specific plant of animal was harvested. Often, there is no evidence of this beyond an isolated artifact.

Prehistoric hunter-gatherers in what is now San Diego County most probably practiced a variety of mobility strategies and settlement/subsistence poses. Due mainly to the lack of data, the level of sedentism in the area is controversial. Some see seasonal movements between the coast and inland areas in the late prehistoric, while others follow the ethnographic evidence and favor a view of sedentary residential bases. Shackley (1984) notes that protohistoric Kumeyaay practicing flood plain agriculture in the New and Alamo River valleys in northern Baja California would divide into smaller logistical groups when the rivers did not overflow enough for agriculture (Shackley 1984:37-38; see also Coues 1900:196-197). These logistical groups would travel to the desert foothills for agave and even to the coast for marine resources (Coues 1900; Shipek 1970).

Research Questions:

What types of sites are represented by their artifact assemblages?

Are site types distinctly designated by the assemblage?

Did the desiccation of Lake Cahuilla have impacts on the occupants of Jacumba Valley?

Is there evidence of environmental manipulation in Jacumba Valley?

Data Requirements:

1) Tool assemblages susceptible to functional analysis;

2) Evidence of increased occupational intensity (greater size and quantity of sites) in time periods corresponding to the desiccation of Lake Cahuilla;

3) An adequate collection of ceramics to distinguish an increase in Desert Buff wares.

Technology

The ability to discern the activities at given sites and hence its place within the mobility system is directly related to the interpretation of the technological record, particularly the dominant lithic technology. The study of technology is of central importance in any archaeological research designed to understand past cultural systems. Technological change can be a key factor in subsistence change causing more efficient exploitation of a resource or the exploitation of a new resource. These changes might in turn bring about changes in social organization as well as mobility. Technological research at Jacumba Valley is addressed through an analysis of two primary artifact classes: flaked lithics and ceramics.

Flaked Lithics

Most stone tools in hunter-gatherer tool kits are produced as tools to make wood, bone, and fiber tools (Binford 1979; Kelly 1985). Much of a hunter-gatherers personal gear consists of wood, bone, antler, and fiber tools and other articles that were created by using stone tools (knives, scrapers, utilized flakes, perforators, gravers, etc.). The stone tools and debitage recovered from hunter-gatherer sites are remnants of intermediate forms, and thus are more readily discarded than the perishable tools and containers that perform the most important tasks. The analysis of individual stone tools and tool assemblages provides a means of reconstructing the types of activities which occurred within and between sites. Stone tools comprise the most common class of archaeological remains of hunter-gatherer societies, and an elaborate range of techniques and models have been developed for their study (see Shott 1986). In general, traditional analyses have sought to assign morphological tool classes with single, rather distinct functions. Terms such as *angular hammerstone*, and *endscraper* imply that each tool was used for only that one purpose throughout the use life of that particular tool. It is becoming increasingly apparent that many tools lumped under one functional class are frequently used for more than one purpose. It is also becoming clear that the characterization of stone tool assemblages needs to reflect the settlement mobility system that produced them (Binford 1980; Bostwick and Shackley 1987; Goodyear 1979; Kelly 1985, 1988; Shackley 1986; Shott 1986). Morphological classifications are not without merit. This method can be useful for initially characterize an assemblage at survey and evaluation levels, but further analysis must be performed to address higher level research questions.

Debitage has recently become an important variable in characterizing the lithic technology of archaeological assemblages (Ahler 1988; Kelly 1985; Patterson 1982; Patterson and Solberger 1978; Prentiss and Romanski 1988; Sullivan and Rozen 1985). Debitage is the direct result of tool manufacture and core reduction, and many of the attributes observable on these flakes and angular debris pieces can be directly linked to various production activities (Ahler 1988; Shackley 1986, 1988). Attribute analysis of debitage can indicate reduction methods used and hence the technology used to produce the tools (Henry et al. 1976; Raab et al. 1979; Shackley 1988).

Ceramics

Ceramic vessel fragments constitute one of the most salient diagnostic artifact categories recovered from Late Prehistoric sites, however, analysis has been minimal considering the significant role ceramics had in Late Prehistoric adaptations in terms of subsistence and settlement. Efforts to organize ware types into a time series has been difficult because of the high variability of non-distinct clay sources, especially with residual clays (Tizon Brown). However ceramics can be used as a gross time indicator which can at least bracket the material between dates. Additionally, ceramic analysis is lacking in adequate studies regarding vessel function as inferred from vessel form. Limited analysis has been performed on rim sherds from McCain Valley indicating a correlation between temper composition and lip morphology, i.e., the very edge of the rim (Cook 1985). Although tentative, the implications for tracing group movement and contact seem to warrant continued study and application of this analytic technique to other collections throughout the County. At sites in Jacumba for instance, the presence of contemporaneous, spatially distinct deposits with roughly equivalent vessel type frequency distributions but different lip forms may imply social differentiation such as unrelated nuclear groups or clans.

Research Questions:

Can tool use seen as edge wear or damage offer information as to tool function?

Do lithic tool assemblages characterize the types of activities that occurred at a site?

Do lithic tool assemblages appear in spatial patterns designating general and specific activities in a given site?

Does ceramic material from different site types vary significantly?

Is there intrasite variability with respect to ceramics?

Is there any evidence of change over time in ceramic form or ware attributes?

Data Requirements:

1) Collection of flaked lithic artifacts encompassing all stages of reduction in tool technology;
2) Comparisons of tool assemblages found in other sites in the region;
3) Large enough samples of ceramics to control for sources of variability;
4) Ceramics in association with other datable material;
5) A sufficient quantity of sherds diagnostic of vessel form to address functional variability.

Exchange

For purposes of this research design "exchange" refers to the movement of material goods between settlements. Many Kumeyaay groups had an opportunity for material and social exchange during fall acorn harvesting which brought related groups together in a centralized location (Shackley 1980). At such times, various resources from diverse areas could be pooled and redistributed (Sahlins 1972). The Jacumba area served as a major trading area situated between the mountains and the desert where coastal or mountain groups could acquire desert resources such as pigments and obsidian in exchange for shells, acorns, tobacco, or wild greens. Well developed trade networks have been documented by ethnographic sources (Bean 1978; Cuero 1970; Luomala 1978; Shipek 1982) however, these networks are not always easy to distinguish in the archaeological record.

It is usually quite easy to identify "exotic" raw materials in an assemblage, but explaining the processes from procurement to deposition is quite difficult. One way of determining networks of exchange is by tracing goods from points of origin to points of discard, and in California obsidian is particularly well suited to this enterprise (Ericson 1977). Archaeological studies of exchange in San Diego County have focused largely on the distribution of obsidian. There are two primary known source areas, Coso and Obsidian Butte, with additional source areas in Baja and Arizona (Shackley 1981). Through x-ray fluorescence source areas can be determined indicating whether the material was derived from Obsidian Butte or a source farther away necessitating some form of exchange network. It should be noted that not all exotic materials are acquired through exchange however, so it cannot be assumed such networks existed in every site. During annual group movements, or logistical task group movements, procurement of some desired materials can be scheduled into the subsistence trips (Kelly and Todd 1988). Exchange exacts a cost, at least of reciprocity, whereas direct procurement embedded within annual movements is essentially free.

Research Questions:

Can exchange networks be discerned from the artifact assemblages recovered from the Jacumba sites?

Is there variability in the sources of obsidian found in the Jacumba sites to indicate exchange networks?

Data Requirements:

1) Marine shellfish or other exotic items in sufficient quantity to justify further study;

2) Obsidian in sufficient quantities from more than one source and in different spatial or temporal contexts.

CULTURAL RESOURCE SURVEY REPORT FORMS

The following section contains the County Resource Survey Report Form and required Resource Form for all 23 prehistoric archaeological resources evaluated during the Jacumba Valley Ranch investigation. Individual site location maps and site record forms have not been included with each form. Refer to Figure 4 in the text above for site locations. Site records are contained in Appendix E of Volume II of this report. Surface artifact collection lists by shot or square for those sites having large collections are provided in Appendix B of this volume. Lists of surface artifacts for small sites are provided on site maps in this section. Artifact catalogs and pertinent tables have been included with each resource form in this section.

County Application #
Log # 89-22-3

FORM NO. 1

CULTURAL RESOURCE SURVEY REPORT FORM

COUNTY OF SAN DIEGO

(All responses <u>must</u> be typed. Attach additional sheets if necessary. All graphics <u>must</u> meet American Antiquity Standards.)

Completed by:

John R. Cook — **Name**
Signature
2/8/91 — **Date**

Date of initial SOPA registration: 7/4/83

General Information

A. **Name of Applicant:** Jacumba Valley Ranch

Address: 2423 Camino del Rio South, Suite 212
City: San Diego **State:** CA **Zip:** 92108
Phone Number: (619)

B. **Name of Organization/Individual completing this form:**

Brian F. Mooney Associates/Carol and Drew Pallette

Address: 9903-B Businesspark Avenue
City: San Diego **State:** CA **Zip:** 92131
Phone Number: (619) 578-8964

C. **Project Location**

1. **The Property is located on the** N S [✓ E] W **(circle one) side of** Jacumba **between** Interstate 8 **and** the Mexican border.

   Street address (if any):

2. **Complete assessors parcel reference:**

	660		020		01
	660		060		12, 22
Book:	660	**Page:**	150	**Parcel(s):**	04, 07, 08, 10, 14, 17, 18
	661		010		10, 11, 12, 13, 15, 16
	614		100		15
	614		110		04

3. **Attach a current U.S.G.S. quadrangle map showing the project boundaries accurately plotted.** See Figure 2 in attached report.

Project Description

A. **Describe in detail the main features of the project. This description should adequately reflect the ultimate use of the site in terms of all construction and development, verifiable by submitted drawings/plans. If the project will be phased, the anticipated phasing schedule should be described.**

The proposed Jacumba Valley Ranch project encompasses 1,347 acres of the Ketchum Ranch and will implement the goals and objectives of the Mountain Empire Subregional Plan through the creation of a mixed-use community including residential, employment, commercial, and visitor serving land uses. The southern half of the project site is located within the Country Town Boundary of Jacumba and carries an overall residential density designator of 1.7 du/ac, allowing over 1,100 residential units. The northern portion is proposed to provide various visitor oriented commercial, employment, and recreational uses. The entire project area is designated 21 SPA. The overall project concept is to orient the development in a direction that emphasizes the history and cultural heritage of the Jacumba area and the natural environmental attributes of the country setting. The planned development under a specific plan will facilitate development design which maximizes open space and provides substantial recreational amenities in order to ensure a high quality of life for the project's residents and the surrounding area.

B. **Proposed site use:**

1. **Total area** 1,347 **acres**

2. **Number of buildings**

C. **Topography and grading**

1. **Percent of area previously graded:** 75%

2. **Slope Classification:**

Existing	
0-15%:	85.2%
16-25%:	6.4%
Over 25%:	8.4%

3. **Area to be graded if archaeological resources could be impacted:**

D. **Describe all off-site improvements necessary to implement the project, and their points of access or connection to the project site. These improvements include: new streets, street widening, extension of gas, electric, sewer, and water lines, cut and fill slopes, and pedestrian and bicycle paths.**

Development of Jacumba Valley Ranch as currently proposed will require two off-site improvements: the extension of Heber Street south of Old Highway 80 and channelization of Boundary Creek between the western property boundary and Old Highway 80. An intensive archaeological survey of the off-site improvements was conducted February 20, 1991, by John R. Cook, S.O.P.A., and Drew Pallette in order to identify existing cultural resources and assess potential impacts. In that the proposed improvement plans may be subject to change, the following is a constraints-level analysis and further study will be required.

Off-Site Improvements - continued

Heber Street Extension

This improvement consists of a 40-foot wide private road that extends south of Old Highway 80 outside the southwestern portion of the project property. From the intersection of Heber Street and the highway, the proposed road follows an existing dirt road south for a distance of approximately 1200 feet, then curves to the southeast along the base of a hillside onto the alluvial valley for another 400 feet. A 120-foot corridor centered on the road alignment was completely surveyed.

Although disturbed by the existing graded road, brush clearing, disking, and trash dumping, a very low density, discontinuous scatter of flaked lithics was observed on the western side of the road from the highway approximately 800 feet south. This scatter consisted of one porphyritic volcanic core fragment, one white chalcedony interior flake, 3 quartz flakes, and 4 porphyritic volcanic interior flakes. A cursory examination of the vacant field west of the road indicates that the scatter is probably associated with SDi-4455, the village site of Hakum which occupies some 60 acres of southern Jacumba from the International Border to Boundary Creek.

The southern 800 feet of the alignment crosses through the eastern margin of SDi-4455 out onto the valley floor. This area is also heavily disturbed, but an increased surface density is readily apparent and pockets with subsurface materials probably exist. The scatter included a bifacial mano fragment, quartz biface preform, 2 Tizon Brown Ware sherds, a flake scraper of porphyritic volcanic, and 10 porphyritic volcanic interior flakes. Subsurface testing conducted at a portion of this site, contained within the far southwestern corner of the project property, indicated the presence of a 60 cm midden deposit.

Although grading of the existing dirt access road and other recent historic modifications have compromised the integrity of the archaeological material identified within the alignment, avoidance or redesign is recommended to ensure that what remains is preserved. Specifically, potential adverse impacts can be avoided by placing the roadbed on one to two feet of compacted sterile fill. This appears most necessary along the southern portion of the alignment where the proposed road crosses the edge of SDi-4455, while to the north subsurface testing will be required to determine the need for capping. If these measures are infeasible, then an alternative alignment should be designed that avoids potential impacts.

Boundary Creek Channelization

Channelization of Boundary Creek is proposed to provide flood control and protection. As currently conceived this will involve channel excavation and widening, improvements to Railroad Street, and construction of a raised levee and bank protection. Some 5300 feet of the existing channel between the western boundary of the project property and the bridge at Old Highway 80 were surveyed at a maximum width of 200 feet centered on the present drainage course.

Attempts to channelize and divert the stream are evident along almost the entire length of the study area, and these have resulted in considerable damage to extant cultural resources. On the southeastern side of the drainage, a 10-foot high sand berm has been constructed between Railroad Street and the property boundary, an 1,000-foot section southwest of Railroad Street has been extensively graded and widened, and different fill materials containing historic trash and rubble have been deposited along the remainder of the channel to Old Highway 80. In some areas this fill has created embankments in excess of 12 feet high. On the northwestern side of the creek, the railroad has also placed fill within the channel in an attempt to stabilize the slopes adjacent to their tracks.

Both historic and prehistoric archaeological resources were identified as a result of the survey, and some of these will require additional study when a design is approved for the proposed channel. The prehistoric resources include an isolated bedrock milling slick, 4 flake isolates, a lithic scatter, and 4 loci of SDi-4455. Historic resources documented are a complex of buildings and other structures related to the Jacumba railroad station and a trash dump probably associated with the Vaughn Spa and Hotel.

With regards to the prehistoric resources, the four loci of SDi-4455 are of the greatest significance. Three of these occur on the northwestern side of the creek starting approximately 650 feet southwest of Railroad Street and continuing for a distance of 1,200 feet. The southernmost locus (SDi-8066) consists of a bedrock milling station with 8 shallow mortars and 3 slicks, a small 1x3 meter rock shelter, and an associated low density sherd and lithic scatter, while the other two are moderate density scatters with flaked lithics, groundstone, and ceramics. Localized deposits of subsurface material ranging from 10 to 50 cm are almost certainly present. The fourth locus is situated on the southeastern side of Boundary Creek, opposite the northern two loci. Although only a low density lithic scatter occurs within the study corridor, the density increases considerably to the southeast where numerous milling features and midden were observed concentrated on a low knoll between the creek and the highway. All four of the loci have been disturbed to some degree by historic land uses and grading.

The lithic scatter (probably SDi-8071) consists of 25+ flakes of porphyritic volcanic in a 5 by 10 meter area on the south side of the creek just east of Railroad Street. To the east of the site the land rises to form the aforementioned berm, possibly burying a small portion of the edge of the site. Given the nature of this site, it is doubtful that any substantial subsurface deposit exists.

The railroad station complex is located on the northern side of the creek at the foot of Railroad Street. Structures include the station or depot itself, various maintenance and repair buildings and associated facilities such as water tanks and storage yards. This complex is, however, contained within the railroad's easement, and channelization will not effect this resource.

As mentioned, fill materials containing historic trash and rubble were used to build-up and stabilize the banks of the channel throughout the study area. An examination of the historic components indicated that most was of relatively recent age, i.e., post-1940s, except for one area located on the southeastern side of the creek approximately 1,200 feet southwest of Railroad Street. This area contains a mix of both post- and pre-1940s refuse, much of which was probably derived from the Vaughn Spa and Hotel. Whether the deposit is the location of the original dump or secondarily redeposited could not be determined, though the latter is quite likely in that the area appears to have been extensively graded.

Based on the proposed design, construction of the improvements would result in direct impacts to only one site: the lithic scatter SDi-8071. It is therefore recommended that a program of site mapping and significance evaluation be conducted and mitigation be performed if determined necessary. Grading monitoring is also recommended to ensure that construction does not impact the sites located adjacent to the various improvements.

E. Additional Information

1. **Use:**

Project relationship to adjacent areas: give compass direction in blanks as appropriate:

Private dwellings: W, E	**Multiple dwellings:**
Commercial: E	**Industrial:**
Mobile Home:	**Vacant:** N, E, S, W
Agriculture:	**Indian Reservation:**

2. **Environmental setting:**

Does the project site contain any of the following physical features?

Rock Outcrops: Yes **Streams:** Yes **Oak Groves:** No

3. **Briefly describe the biological setting (note Community, Barlious and Major, 1980):** The project area contains a variety of native plant communities including semi-desert chaparral, desert saltbush scrub, desert sink scrub, valley freshwater marsh, and mesquite woodland (see Biological Resource report).

4. **What is the distance from the central portion of the property to the nearest water source:** approximately 1,000 **m**

Describe water source: A spring fed stream/marsh along the base of the mountains on the western side of the valley.

5. **Briefly describe the geologic setting:** The alluvial filled Jacumba Valley is immediately bordered on three sides by volcanic mountainous ridges formed during the Miocene. Beyond these volcanic formations, the mountains to the west are comprised of Pre-Cenozoic metasedimentary schists and quartzite intruded by pegmatite dikes and the mountains to the northeast predominantly made up of Jurassic/Cretaceous age quartz diorite.

Survey Description

Date of Survey: September 1989 (Survey)/April and October 1990 (Evaluation)
Institution/individual responsible: Brian F. Mooney Associates/ John R. Cook

Individual in charge: Michael Elling (survey)/John Cook (evaluation)

Person hours required to complete field work: 192/280

Number of acres surveyed: 1,230

1. **Intensity of Survey (Describe transect technique or submit survey route maps):** Intensive systematic survey performed by a 4 person survey team, using transects at 10 to 30 meter intervals, of the unexamined portions of the property and a reexamination of the recorded sites within the previously studied areas of the property.

2. **If area surveyed is different from project area explain:**

Number of resources found: (ATTACH A COPY OF THE RESOURCE FORM FOR EACH RESOURCE INDICATED)

Isolates:	16 (see Results Section of attached report)
Prehistoric sites:	23
Historic sites:	1 (see Historic Report)
Other resources (Specify):	2 (see Ethnographic Report)

Background research (Previous Studies within one mile):

Author	Title	Results (No. and type of Sites)
Chase, Paul G 1980	A Cultural Resource Assessment of Jacumba	14 prehistoric
McCoy, Leslie 1979	Archaeological Survey of the Mazzanti Property, Jacumba, CA. WESTEC.	2 prehistoric
Townsend, Jan 1986	Prehistoric Lifeways in the Jacumba Valley. Dames and Moore.	70 prehistoric
Whitney-Desautels, Nancy 1982	Archaeological Report Volume II Data Presentation on Re-survey, Surface Collection and Test Excavations of the Archaeological Resources on the Mazzanti Property.	8 prehistoric 14 historic

List repositories from which record checks and/or historical documents were obtained and attach copies of the results.

South Coastal Information Center at SDSU
San Diego Museum of Man

List conditions that may have affected the accuracy of the survey results.

Surface visibility was very good throughout the majority of the property.

Resource Nos.
SDi-4455
W _____

County Application No.

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3608480mN 576410mE

Size: 28,900 square meters
170 meters long (long axis)
170 meters wide (short axis)

Depth: 65-135 centimeters

State basis for determination: Excavation of 2 1x1m units and a trench.

List cultural materials observed (Estimate number if possible):

Surface: 50+ sherds, 150+ flakes, 6 cores, 1 scraper, 1 mano/hammerstone, 1 hammerstone, 1 metate fragment were observed.

Additionally, 1 small chalcedony Desert Side-notched projectile point and 3 rim sherds were collected (two serrated projectile point fragments and a Desert side notched point fragment were previously collected by a neighboring resident (Don Weaver). Other artifacts, including whole portable metates, have been collected by Jacumba residents over the years).

	Check:
Surface Only	
Midden	X
Features	X
Structures	

Briefly describe the site: The site appears to be the southeastern portion of what has been recorded as the ethnohistoric Kumeyaay village of Hakum which encompassed most of the area currently containing the town of Jacumba. The site contains 10 milling features and associated scatter of flakes, ceramics and groundstone.

Describe any features noted: 10 Bedrock milling features: **#1:** 4 slicks, 2 mortars, 1 basin; **2:** 1 large slick; **3:** 3 slicks, 1 basin; **4:** 16 slicks, 3 basins, 1 mortar; **5:** 4 slicks, 3 basins; **6:** 1 basin; **7:** 3 slicks; **8:** 1 slick; **9:** 2 slicks, 2 basins, 1 rub; **10:** 1 basin (see sketches for dimensions).

Indicate slope classification where site is located:
0-15% X
16-25% ____
Over 25% ____

What is the distance from site to the nearest water source: Currently Boundary Creek, 90m northwest. The natural drainage course that drained from Mexico into the valley has been altered in the past.

Describe previous disturbance: Area has been pot hunted for years, dirt roads cut through the site, a barbed wire fence runs along the eastern edge of the main dirt road, and cattle currently graze throughout the eastern portion along the flood plain.

Describe any previous investigations: The village site was originally recorded by Rogers (n.d.) who noted much of the large site has been obliterated. Townsend noted in 1976 that the milling features did not exhibit extensive use. Obviously this was based on milling features located in another portion of the site.

Resource Nos.
SDi-4455
W _____

Resource Form Continued

List any published references: none known

Describe site recording/collecting procedures (attach maps and tables as needed).

Site extent and milling feature locations were plotted on a 200 scale map. Two 1x1m units were excavated in upper and lower portions of the site (see site map). A projectile point and three rim sherds were collected from the surface of the (heavily disturbed) site as diagnostics. The milling features were measured and drawn.

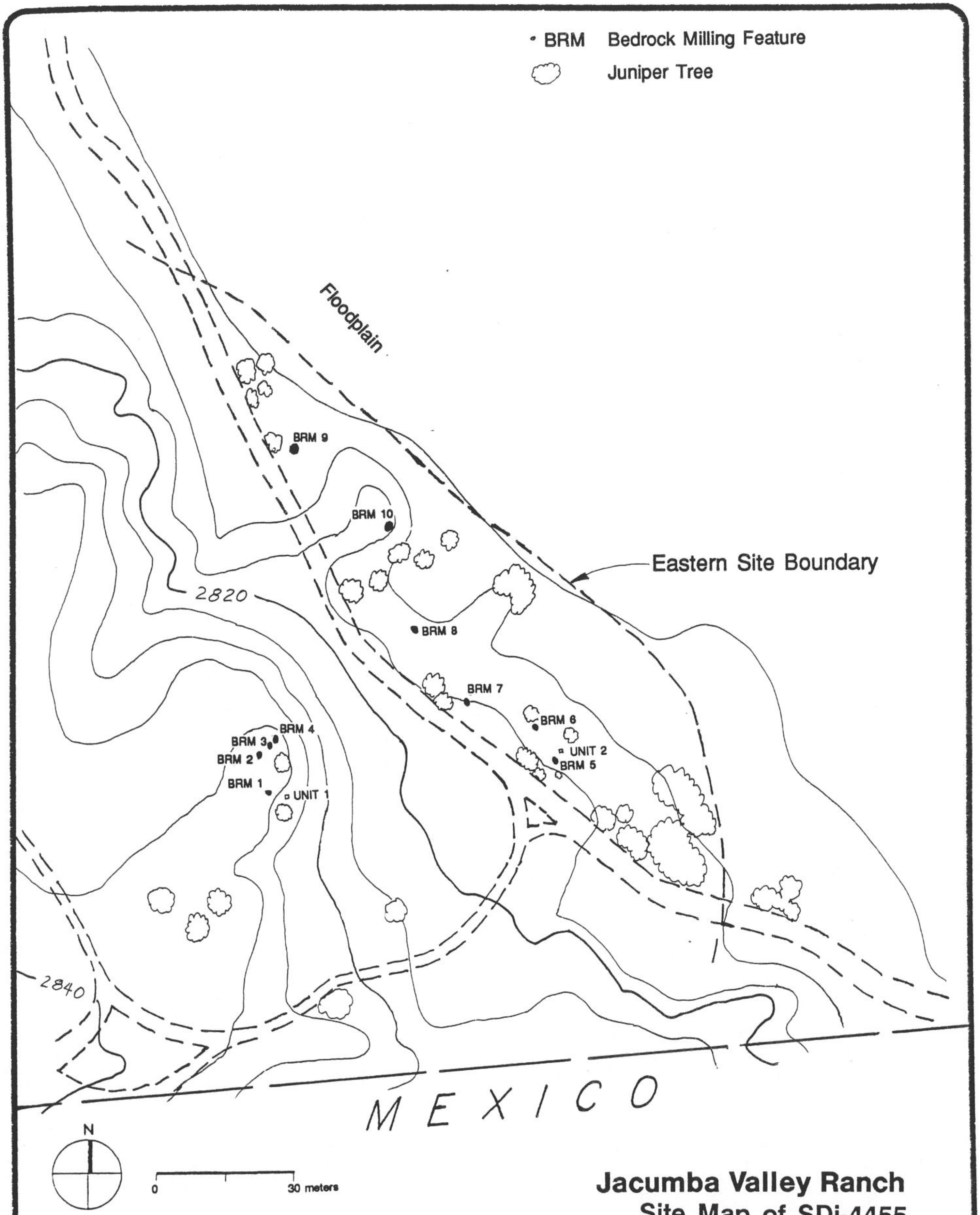
Attach completed site record forms and indicate date submitted:

Institution	Submittal date
South Coastal Information Center, SDSU	2/91

Attach additional sheets as needed in order to provide all recovered information and analytical results.

Unit 1 was excavated to 60cm (bedrock) in sandy loam resulting in the recovery of 3 point fragments, 1 "chopper", 1 utilized flake, 1 retouched flake, 1 core, 968 pieces of debitage, 66 sherds, 1 pipe fragment, 1 modified sherd, 21.8g of bone and 4.6g of shell (see attached tables and artifact catalog).

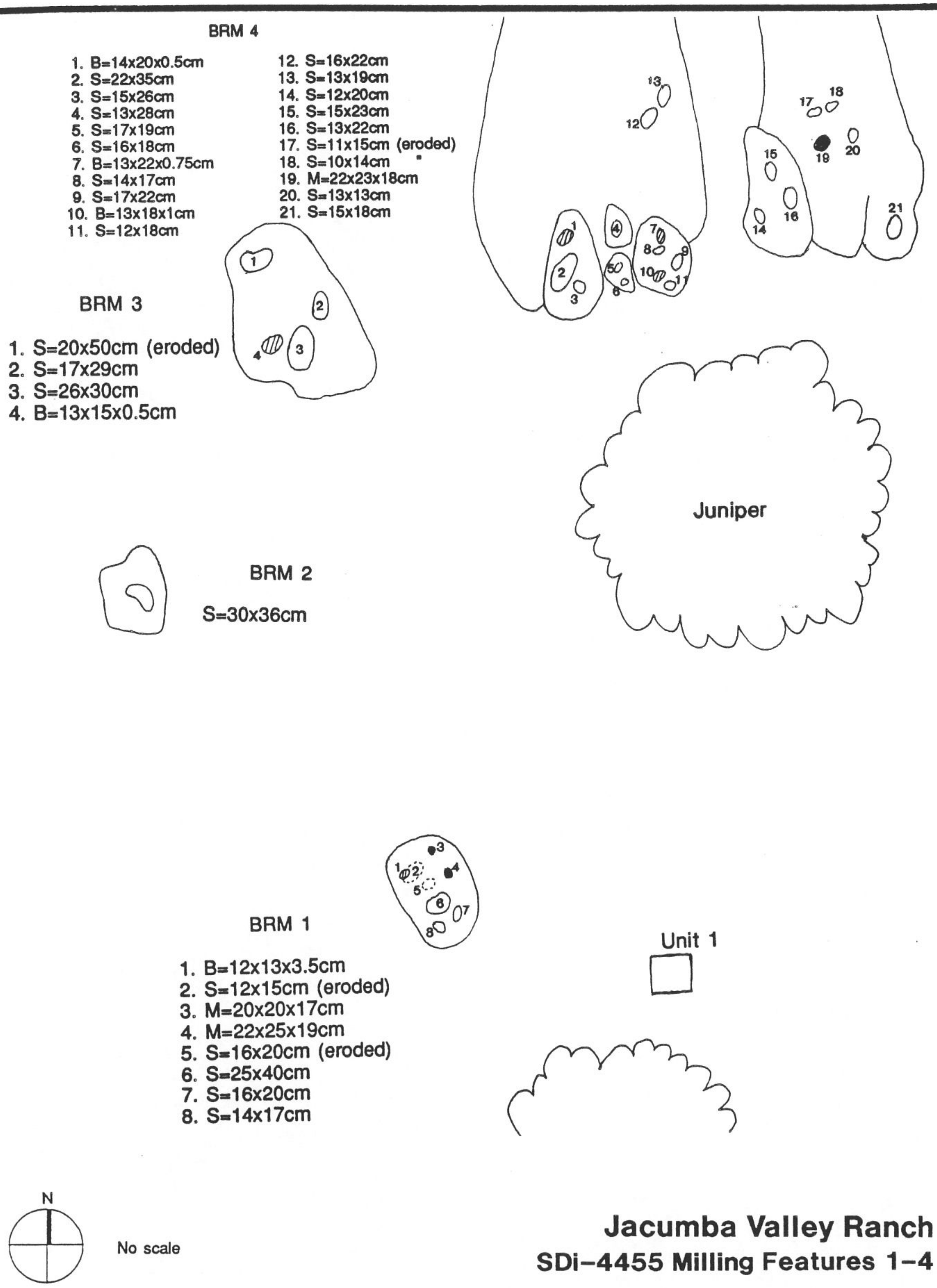
Unit 2 was excavated to 80% bedrock at 70cm and yielded 1 point preform, 2 cores, 156 flakes, 1 metate fragment, 15 sherds and 3.6g of bone.



Jacumba Valley Ranch
Site Map of SDi-4455

brian f mooney
associates
planning, design & environmental studies

Figure 9



Jacumba Valley Ranch

SDi-4455 Milling Features 1-4

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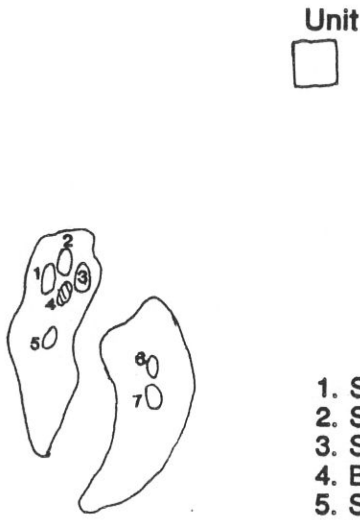
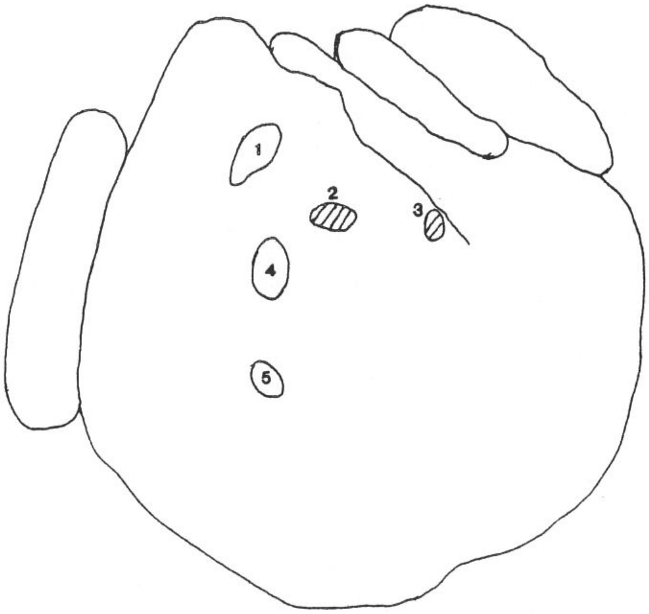
Figure 10



BRM 5

1. S=12x36cm
2. S=12x29cm
3. S=13x30cm
4. B=16x25x2cm
5. S=17x23cm
6. B=15x22x0.5cm
7. B=28x32x2.5cm



BRM 9

1. S=25x35cm
2. B=19x22x3cm
3. B=14x22x1cm
4. R=20x30cm
5. S=18x22cm

N

No scale

Jacumba Valley Ranch
SDi-4455 Milling Features 5 & 9

brian f mooney
associates
planning, design & environmental studies

Figure 11

TABLE 20

SUBSURFACE ARTIFACT RECOVERY FROM SDI-4455

	Projectile points	Preforms	Choppers	Utilized flakes	Retouched flakes	Cores	Debitage	Manos	Metates	Sherds	Pipe	Modified sherds	TOTAL
Unit 1													
0-10cm	1		1	1			151			17	1		172
10-20cm	2						233			22		1	258
20-30cm							188			3			191
30-40cm					1		266			14			281
40-50cm							39			2			41
50-60cm							28			1			29
Unit 2													
0-10cm							39			10			49
10-20cm		1					34			2			37
20-30cm						1	14		1	1			17
30-40cm							24						24
40-50cm							23						23
50-60cm							11						11
60-70cm						1	10	1					12
TOTAL	3	1	1	1	1	2	1060	1	1	72	1	1	1145

TABLE 21

SUBSURFACE FAUNAL REMAINS

(weight in grams)

	Large Mammal	Small Mammal	Bird	Chione	Laevicardium	Haliotus	Tivela
Unit 1							
0-10cm	1.3	-	-	0.1	-	-	-
10-20cm	3.6	1.0	1.0?	-	2.2	-	-
20-30cm	4.9	2.0	-	-	-	0.1	-
30-40cm	1.4	2.2	-	-	-	-	2.3
40-50cm	5.3	0.3	-	-	-	-	-
50-60cm	1.1	1.0	-	-	-	-	-
Unit 2							
10-20cm	0.9	-	-	-	-	-	-
20-30cm	-	-	-	-	-	-	-
30-40cm	1.2	-	-	-	-	-	-
40-50cm	0.5	1.0	-	-	-	-	-
50-60cm	0.4	0.6	-	-	-	-	-
TOTAL	20.6	8.1	1.0	0.1	2.2	0.1	2.3

TABLE 22

FLAKE TYPES BY RAW MATERIAL

	Porphyritic Volcanic	Volcanic	Quartz	Chal-cedony	Chert	Obsidian	Quartzite	TOTAL	%
Secondary	77	9	1	27	28		1	143	12
Interior	700	32	119	39	60	11	1	962	86
Angular debris	10		5		3	1		19	2
TOTAL	787	41	125	66	91	12	2	1124	100%
%	(70)	(4)	(11)	(6)	(8)	(1)	-		

TABLE 23

FLAKE TYPES BY UNIT/LEVEL

	UNIT 1							UNIT 2									
Flake Type	0	-10	-20	-30	-40	-50	-60	0	-10	-20	-30	-40	-50	-60	-70	TOTAL	%
Secondary	5	34	34	17	27	6	8	-	2	5	1	2	2	-	-	143	13
Interior	57	115	193	168	235	33	20	1	34	29	13	22	21	11	10	962	85
Angular debris	1	2	6	3	4	-	-	-	3	-	-	-	-	-	-	19	2
TOTAL	63	151	233	188	266	39	28	1	39	34	14	24	23	11	10	1124	100%

ARTIFACT CATALOG FOR SDI-4455 (Southeastern end)

Surface Collection (Diagnostic only)

Flaked Lithics			
	Tools		
		Projectile points: 1 chalcedony (C) Desert Side-Notched	1
Ceramics			
	Vessel sherds		
		Rims: 3 Brownware (Br)	3

Subsurface

Unit 1 Surface

Flaked Lithics			
	Debitage		
		Secondary flakes: 4 PV, 1 chert (CH)	5
		Interior flakes: 45 PV, 7 quartz (Q), 4 CH, 1 C	57
		Angular debris: 1 CH	1
Ceramics			
	Vessel sherds		
		Body: 7 Br	7
Faunal Remains			
	Bone		
		Small mammal: 0.5g	
Historics			
	Metal		
		Bottle cap: 1	1

0-10cm

Flaked Lithics			
	Tools		
		Projectile points: 1 C Desert Side notched fragment	1
		Chopping tool: 1 PV	1
		Utilized flake: 1 PV fragment	1
	Debitage		
		Secondary flakes: 20 PV, 8 CH, 5 C, 1 volcanic (V)	34
		Interior flakes: 89 PV, 7 V, 8 Q, 6 CH, 3 C, 2 obsidian (O)	115
		Angular debris: 2 PV	2
Ceramics			
	Pipes		
		Fragment: 1	1
	Vessel sherds		
		Rim: 3 Br	3
		Body: 12 Br, 2 Bf (Tumco)	14
Faunal Remains			
	Bone		
		misc. mammal: 1.3g	
	Shellfish		
		Chione sp. fragment: <.1g (burned)	

10-20cm

Flaked Lithics			
	Tools		
		Projectile points: 1 V Cottonwood Triangular Concave base fragment, 1 C midsection fragment	2
	Debitage		
		Secondary flakes: 21 PV, 2 CH, 10 C, 1 V	34
		Interior flakes: 139 PV, 4 V, 23 Q, 12 CH, 11 C, 4 O	193
		Angular debris: 1 PV, 3 Q, 1 CH, 1 O	6
Ceramics			
	Abrader (?)		
		Fragment: 1 Br	1
	Vessel sherds		
		Body: 18 Br, 1 Bf	19
		Base: 2 Br	2
Faunal Remains			
	Bone		
		Large mammal: 3.6g	
		Small mammal: 1.0g	
		Bird(?): 1.0g	
	Shellfish		
		Laevicardium elatum fragment: 2.2g	

20-30cm

Flaked Lithics			
	Debitage		
		Secondary flakes: 5 PV, 7 CH, 3 C, 1 V, 1 Q	17
		Interior flakes: 121 PV, 4 V, 18 Q, 15 CH, 8 C, 2 O	168
		Angular debris: 1 PV, 2 Q	3
Ceramics			
	Vessel sherds		
		Body: 3 Br	3
Faunal Remains			
	Bone		
		Large mammal: 4.9g	
		Small mammal: 2.0g	
	Shellfish		
		Haliotus sp. fragment: <0.1g	

30-40cm

Flaked Lithics			
	Tools		
		Retouched flakes: 1 CH	1
	Debitage		
		Secondary flakes: 13 PV, 6 CH, 7 C, 1 quartzite (QT)	27
		Interior flakes: 173 PV, 8 V, 21 Q, 19 CH, 13 C, 1 O	235
		Angular debris: 3 PV, 1 CH	4
Ceramics			
	Vessel sherds		
		Body: 14 Br	14
Miscellaneous			
	Possible tool		
		Utilized (?) small cobble	1

Faunal Remains			
	Bone		
		Large mammal: 1.4g	
		Small mammal: 2.2g	
	Shellfish		
		Tivela sp. (?) fragment: 2.3g	
	40-50cm		
Flaked Lithics			
	Debitage		
		Secondary flakes: 3 PV, 2 CH, 1 C	6
		Interior flakes: 22 PV, 2 V, 4 Q, 2 CH, 3 C	33
Ceramics			
	Vessel sherds		
		Body: 2 Br	2
Faunal Remains			
	Bone		
		Large mammal: 5.3g	
		Small mammal: 0.3g	
	50-60cm		
Flaked Lithics			
	Debitage		
		Secondary flakes: 3 PV, 3 V, 1 CH, 1 C	8
		Interior flakes: 15 PV, 2 Q, 2 CH, 1 O	20
Ceramics			
	Vessel sherds		
		Rim: 1 Br	1
Faunal Remains			
	Bone		
		Large mammal: 1.1g	
		Small mammal: 1.0g	
Unit 1 Total-Artifacts			**1042**
Unit 2	Surface		
Flaked Lithics			
	Debitage		
		Interior flakes: 1 PV	1
Ceramics			
	Vessel sherds		
		Body: 2 Br	2
	0-10cm		
Flaked Lithics			
	Debitage		
		Secondary flakes: 1 V, 1 CH	2
		Interior flakes: 27 PV, 4 Q, 1 QT, 2 V	34
		Angular debris: 3 PV	3
Ceramics			
	Vessel sherds		
		Body: 7 Bf, 3 Br	10

Historics			
	Metal		
		Ammunition casings: 3	3
		Miscellaneous fragments: 4	4
	<u>10-20cm</u>		
Flaked Lithics			
	Tools		
		Preforms: 1 Q fragment	1
	Debitage		
		Secondary flakes: 4 PV, 1 V	5
		Interior flakes: 22 PV, 6 Q, 1 O	29
Ceramics			
	Vessel sherds		
		Rim: 1 Br	1
		Base: 1 Br	1
Faunal Remains			
	Bone		
		Large mammal: 0.9g	
	<u>20-30cm</u>		
Flaked Lithics			
	Cores		
		Multidirectional: 1 Q	1
	Debitage		
		Secondary flakes: 1 PV	1
		Interior flakes: 8 PV, 4 Q, 1 V	13
Groundstone			
	Metates		
		Slab: 1 granitic fragment	1
Ceramics			
	Vessel sherds		
		Body: 1 Br	1
	<u>30-40cm</u>		
Flaked Lithics			
	Debitage		
		Secondary flakes: 2 PV	2
		Interior flakes: 13 PV, 9 Q	22
Faunal Remains			
	Bone		
		Large mammal: 1.2g	
	<u>40-50cm</u>		
Flaked Lithics			
	Debitage		
		Secondary flakes: 1 PV, 1 V	2
		Interior flakes: 11 PV, 6 Q, 4 V	21
Faunal Remains			
	Bone		
		Large mammal: 0.5g	
		Small mammal: 1.0g	

	50-60cm		
Flaked Lithics			
	Debitage		
		Interior flakes: 9 PV, 3 Q	11
Faunal Remains			
	Bone		
		Large mammal: 0.4g	
		Small mammal: 0.6g	
	60-70cm		
Flaked Lithics			
	Cores		
		Unidirectional: 1 PV	1
	Debitage		
		Interior flakes: 6 PV, 4 Q	10
	70-80cm		
Groundstone			
	Manos		
		Unifacial: 1 granitic fragment	1
Unit 2 Total-Artifacts			**176**
TOTAL for Units			**1,227**
Trench 1	135cm		
Flaked Lithics			
	Cores		
		Unidirectional: 1 Q	1

Resource Nos.
SDi: 4455
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

This portion of the village of Hakum is to be preserved in open space so research questions will not be addressed.

Resource Nos.
SDi: 4455
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

N/A

Resource Nos.
SDi: 4455
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site area is to be preserved in open space and will not receive any direct impacts from the project.

Indirect Impacts:

The site may receive indirect impacts due to the project development causing an increase in population which could result in more incidents of pot-hunting/vandalism or other forms of disturbance of and/or destruction to this portion of SDi-4455.

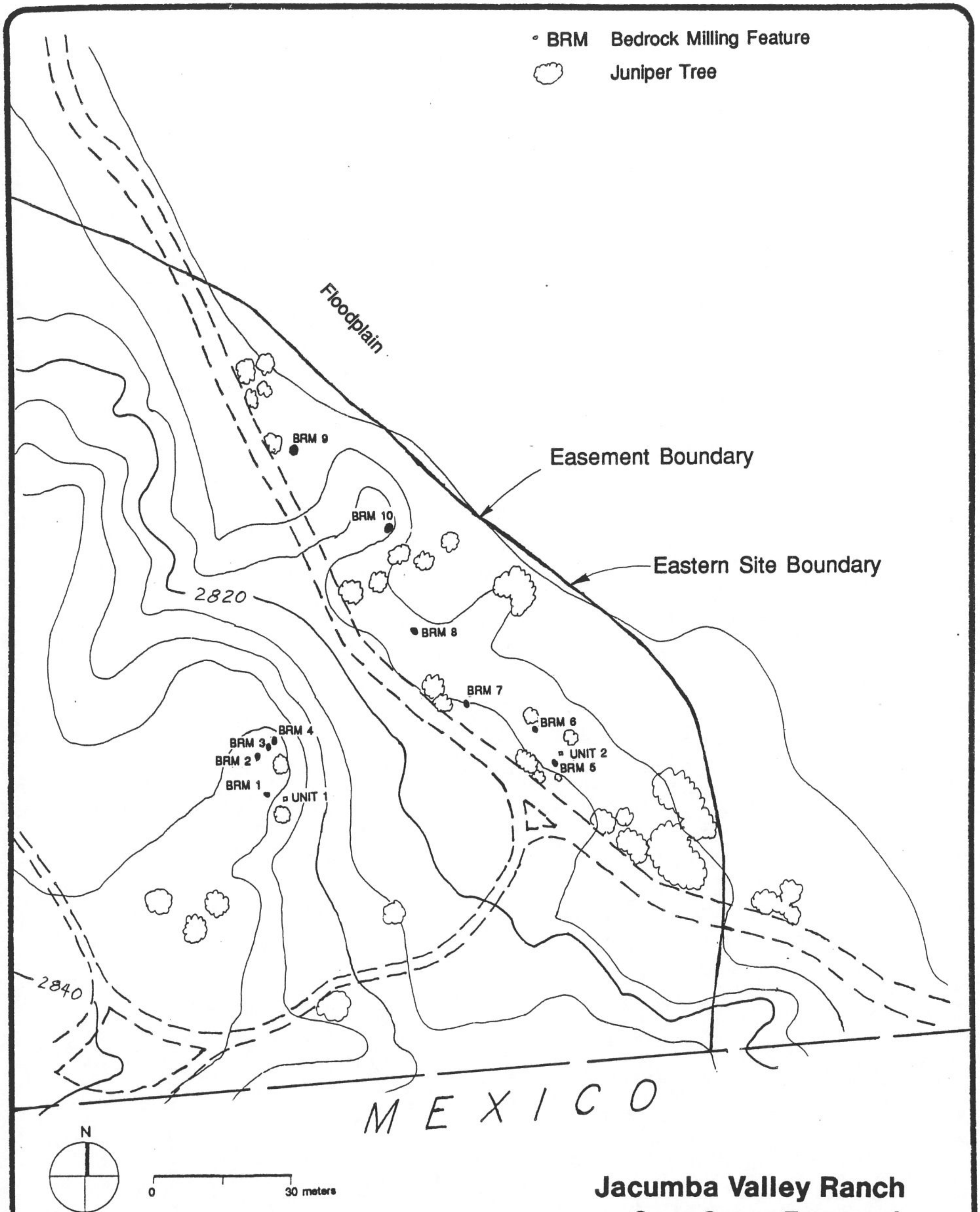
Mitigation recommendations:

Check:

_____ None
__X__ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

This portion of the significant village site of Hakum is to be preserved within an open space easement as designated on the attached open space easement map.



Jacumba Valley Ranch
Open Space Easement

brian f mooney
associates
planning, design & environmental studies

Figure 12

Resource Nos.
SDi-6741
C-385

County Application No.

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3608740N 577640E

Size: 136,800 square meters 380 meters long (long axis)
360 meters wide (short axis)

Depth: 20 centimeters

State basis for determination: Excavation of 4 1x1m units.

List cultural materials observed (Estimate number if possible):

Surface (Collected): 1 hammerstone, 1 utilized flake, 2 metate fragments, 2 manos, 2 cores, 30 flakes, 2 rim sherds, and 19 body sherds. Subsurface: 1 mano, 6 flakes, 1 sherd, and 3 fragments of glass.

Surface (Uncollected): 3 tools, 1 hammer, 1 metate, 1 utilized flake, 2 sherds, 3 cores, and 10 flakes.

	Check:
Surface Only	X
Midden	
Features	
Structures	

Briefly describe the site: The site appears to be a Late Prehistoric temporary camp (possibly for mesquite procurement) situated in an alluvial flood plain, probably associated with the large village of Hakum to the west. The site is probably associated with SDi-11,689, a similar site located to the west.

Describe any features noted: none

Indicate slope classification where site is located:
0-15% X
16-25% ____
Over 25% ____

What is the distance from site to the nearest water source: Currently, Boundary Creek, 1.05km northwest. The natural drainage course that drained from Mexico into the valley was been altered in the past.

Describe previous disturbance: Construction of an earthen reservoir (ca. 1960s) agricultural disking has destroyed portions of the site and widely dispersed surface artifacts. Alluvium is periodically deposited in the flood plain and wind erosion is extreme, covering and uncovering artifacts. Site extent and depth is probably due to both seasonal flooding and agricultural disturbances. The site most likely extends across the International Border.

Describe any previous investigations: SDi-6741 appears to be the same as SDM-C-385 which was recorded by K. Hedges based on information provided by Jordan Detzer, who collected artifacts from the site area in the early 1960s.

Resource Nos.
SDi-6741
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

Site extent was plotted on a 200 scale map. Locations of surface artifacts were shot in using a Brunton compass and permanent datum point and collected (surface artifacts were not collected within a fenced off portion of property located directly west of the landing strip). Four 1x1m units were excavated to a maximum depth of 60cm. Four 8-10m long trenches were excavated 1.5-2m deep, three in the southern portion of the site which contained the highest artifact density, and one in the northern portion (see site map).

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	2/91

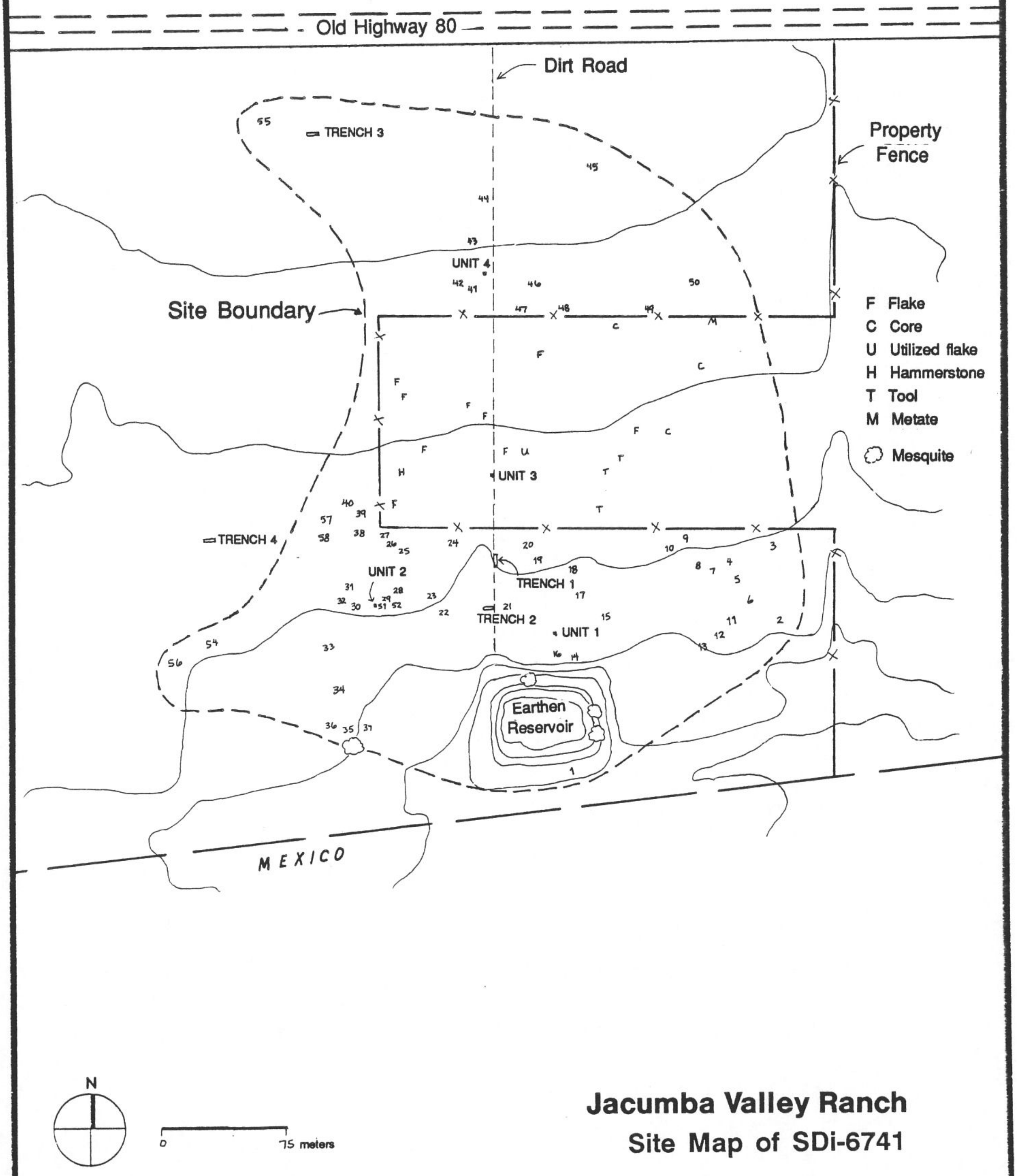
Attach additional sheets as needed in order to provide all recovered information and analytical results.

Unit 1 was excavated to 30cm in loosely compacted alluvial sand/silt beds resulting in the recovery of 2 pieces of debitage in the first level (see artifact catalog). The remaining levels were sterile.

Unit 2, excavated to 60cm, yielded 3 flakes, 1 sherd and one piece of bottle glass in the upper level. No cultural materials were recovered from the second and third levels, however, a mano, 1 flake, and two bone fragments were recovered from the 30-40cm level. The next two levels were sterile.

Unit 3, located in the central potion of the site, was excavated to 30cm with no evidence of subsurface materials.

Unit 4 reached a depth of 30cm without yielding any cultural materials.



Jacumba Valley Ranch
Site Map of SDi-6741

brian f mooney associates
planning, design & environmental studies

Figure 13

ARTIFACT CATALOG FOR SDI-6741 (SDM-C-385)

Surface Collection

Flaked Lithics			
	Tools		
		Core hammers: 1 porphyritic volcanic (PV) fragment	1
		Utilized flakes: 1 PV	1
	Cores		
		Unidirectional: 1 PV	1
		Multidirectional: 1 PV	1
	Debitage		
		Secondary flakes: 5 PV, 1 chalcedony (C),1 volcanic (V) (bipolar)	7
		Interior flakes: 21 PV, 1 V	22
		Angular debris: 1 PV	1
Groundstone			
	Metates		
		Slab: 1 granitic (G), 1 V	2
	Manos		
		Bifacial: 1 quartz	1
		Fragment: 1 V	1
Ceramics			
	Vessel sherds		
		Rims: 2 Brownware (Br)	2
		Body: 12 Br, 7 Buffware (Bf)	19
TOTAL			**59**

Subsurface

<u>Unit 1 0-10cm</u>

Flaked Lithics			
	Debitage		
		Interior flakes: 2 PV	2

<u>10-20cm</u>

Negative

<u>20-30cm</u>

Negative

<u>Unit 2 0-10cm</u>

Flaked Lithics			
	Debitage		
		Interior flakes: 3 PV	3
Ceramics			
	Vessel sherds		
		Body: 1 Bf	1
Historics			
	Glass		
		Clear: 3 fragments	3

<u>10-20cm</u>

Negative

<u>20-30cm</u>

Negative

30-40cm	
Flaked Lithics	
Debitage	
Interior flakes: 1 PV	1
Groundstone	
Manos	
Bifacial: 1 G	1
Faunal Remains	
Bone	
Large mammal: 1 burnt fragment	1
Small mammal: 1 fragment	1
40-50cm	
Negative	
50-60cm	
Negative	
Unit 3 0-10cm	
Negative	
10-20cm	
Negative	
20-30cm	
Negative	
Unit 4 0-10cm	
Negative	
10-20cm	
Negative	
20-30cm	
Negative	
TOTAL for Units	**13**

Resource Nos.
SDi: 6741
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: 6741
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: 6741
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The western portion of the site will receive direct impacts from the development of the golf course which will destroy this portion. The remaining portion of the site will not receive direct impacts until a future phase of development.

Indirect Impacts:

N/A

Mitigation recommendations:

Check:

__X__ **None**
_____ **Preservation (attach map of open space)**
_____ **Surface map (show area to be mapped)**
_____ **Initial subsurface test (nature/extent)**
_____ **Excavation program (nature and extent)**
_____ **Historic documentation (describe)**
_____ **Other special studies (describe)**

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

The site has been documented and collected so warrants no mitigation measures.

Resource Nos. **County Application No.**

SDi-7056
W _____

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM Zone 11 3610260N 577750E

Size: 54,000 square meters 300 **meters long (long axis)**
180 **meters wide (short axis)**

Depth: 0-5 centimeters

State basis for determination: Two 1x1 meter test units and 7 shovel tests.

List cultural materials observed (Estimate number if possible):

Surface (collected): 1 obsidian CT base frag., 5 "biface blanks", 2 scrapers, 2 choppers, 6 core hammers, 3 utilized flakes, 10 retouched flakes, 160 cores, 76 primary flakes, 694 secondary flakes, 678 interior flakes, 116 pieces of angular debris, 2 manos, and 25 sherds (see attached catalog).

Subsurface: 30 pieces of debitage and 1 sherd.

	Check:
Surface Only	X
Midden	
Features	
Structures	

Briefly describe the site: A Late Prehistoric lithic procurement and reduction site with evidence of some resource extraction and processing. Raw lithic materials, mostly porphyritic volcanics (i.e. andesite) are exposed throughout the site area. Large amounts of reduction material is scattered throughout the site.

Describe any features noted: None

Indicate slope classification where site is located: **0-15%** X
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: A large wash lies adjacent to the eastern edge of the terrace. The natural drainage that drained from Mexico into the Jacumba Valley was altered during historic times so the valley may have contained more water during occupation of the site.

Describe previous disturbance: The terrace has been trampled over by range cattle and an ungraded road runs along the eastern side of the site. Two of the shallow drainages along the western side of the terrace have been used as refuse dumps in historic times--mostly from the Mountain Meadow Dairy (thousands of milk bottles). At the north end, an SDG&E transmission tower has been installed (post 1987) and several bulldozed patches/piles exist.

Describe any previous investigations: Originally recorded by K.L. Crotteau in 1979. Described site as lithic scatter with 68 flakes and 2 cores.

Resource Nos.
SDi -7056
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

The site was recorded in three stages:

1. Intensive survey and mapping
2. Testing
3. Surface collection

The site was surveyed using systematic north-south and east-west transects at 20 meter intervals in accordance with County of San Diego Procedures. Site perimeters as well as artifact concentrations were determined and mapped.

Two 1x1 meter units and seven judgementally placed shovel tests were excavated. Cultural material was exhausted within 10 cm of the surface with no features being encountered.

A series of datums and collection grids were set up in the site area and collected. Approximately 50% of the site was collected. At station "A", situated in the northern portion of the terrace, a large grid of 10x10 meter squares was used to collect a large concentration of lithic material over a 140 by 70 meter area-- with alternate squares being collected. Stations "B" through "I" were judgementally positioned 40x40 grids that were 100% collected (see map).

Attach completed site record forms and indicate date submitted:

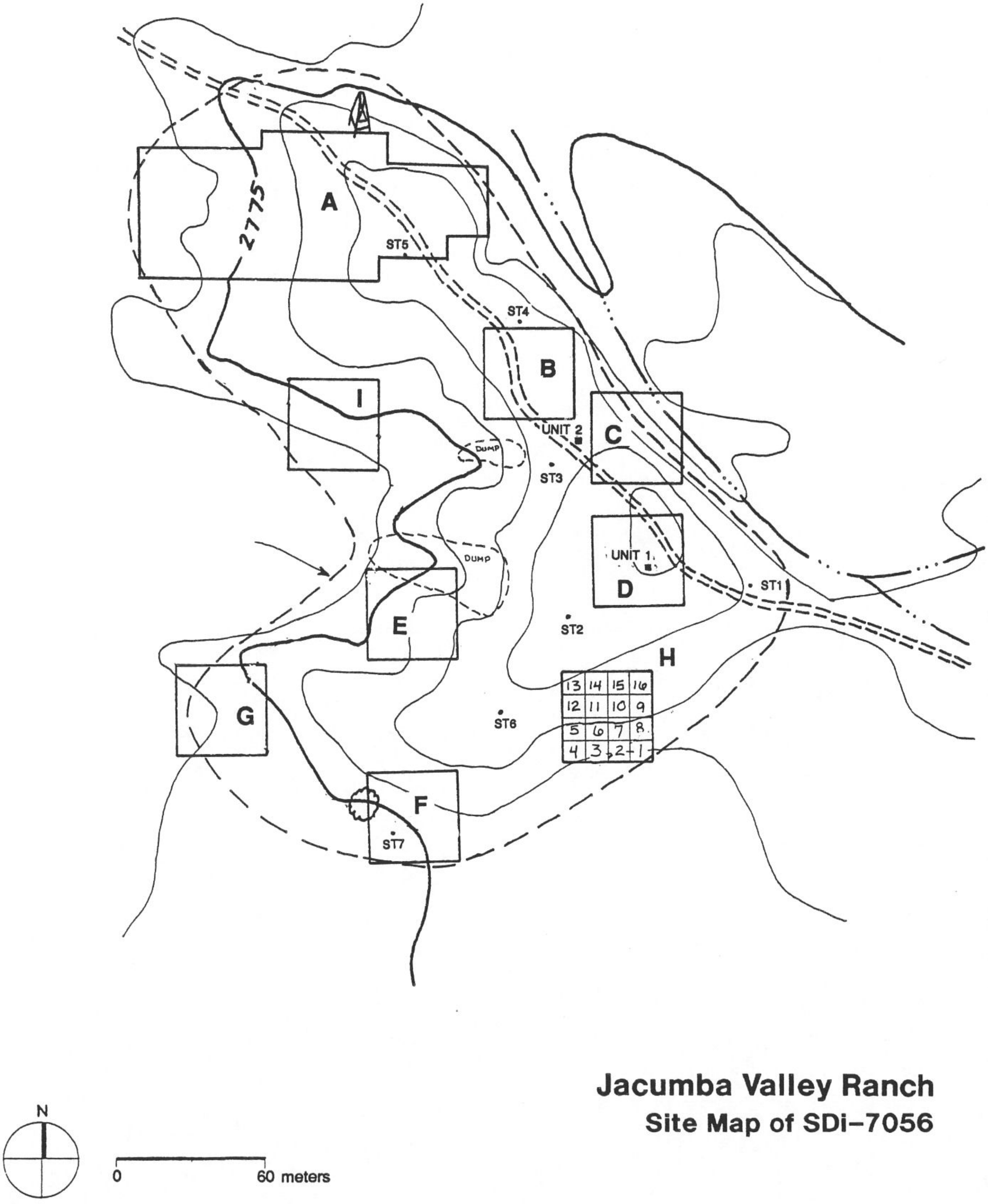
Institution	**Submittal date**
South Coastal Information Center, SDSU	2/91

Attach additional sheets as needed in order to provide all recovered information and analytical results.

Unit 1 was excavated through light brown sandy loam reaching compact orange-red sandy clay subsoil at 7cm, excavation was terminated at 10cm with the recovery of 19 pieces of debitage and 1 Tizon Brownware sherd.

Unit 2 was excavated to the same subsoil and terminated at 23cm. No evidence of a fire ring or roasting pit was encountered, as suggested by the suspiciously scattered cobbles on the surface. Only two flakes were recovered, from the 0-10cm level.

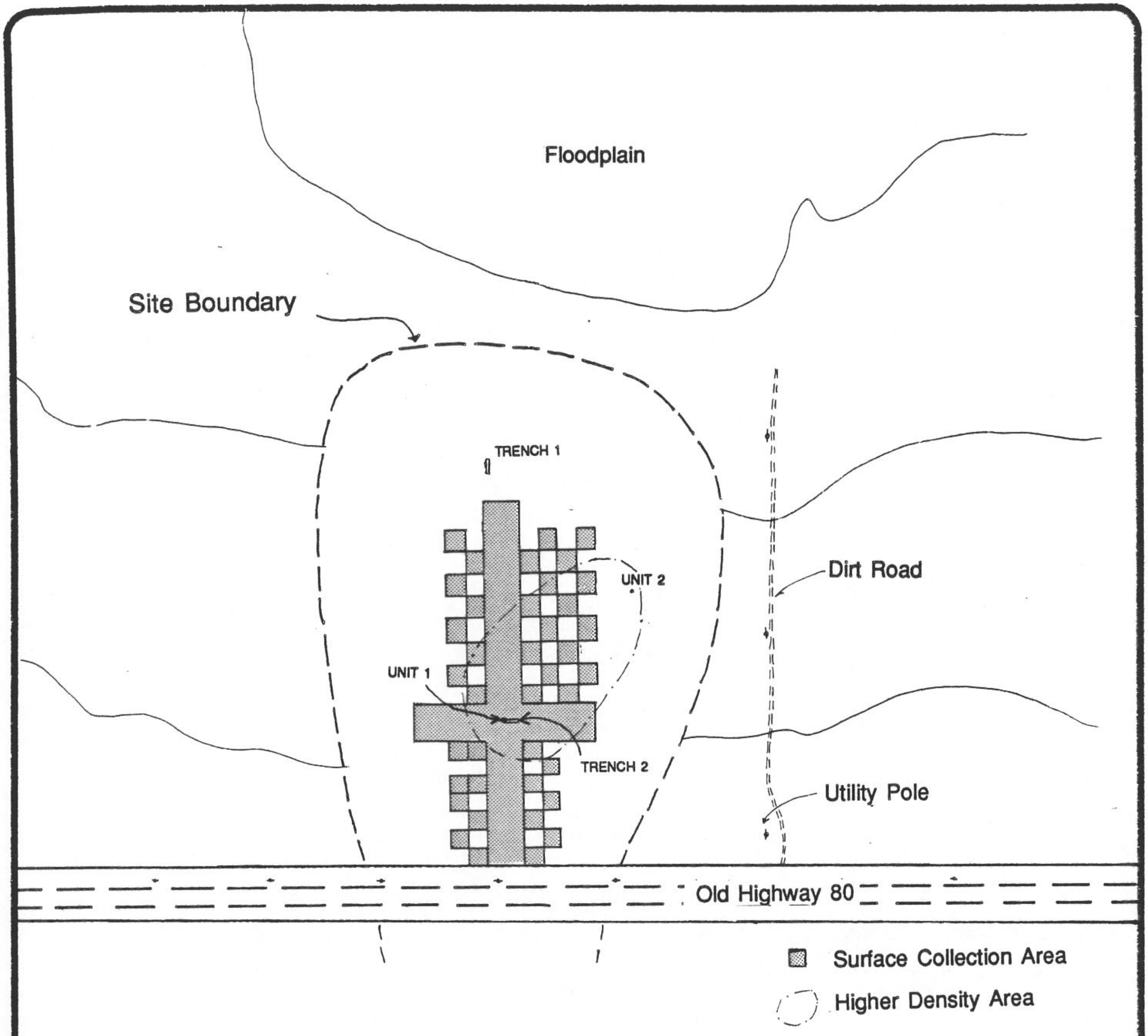
The shovel tests were excavated to sterile subsoil with maximum depth ranging from 8 to 25cm. All artifacts were recovered from the first 5-8cm (see attached catalog).

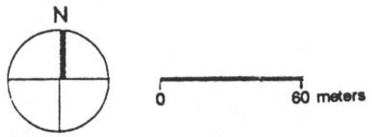


Jacumba Valley Ranch
Site Map of SDi–7056

brian f mooney
associates
planning, design & environmental studies

Figure 14





Jacumba Valley Ranch
Site Map of SDi-8072

brian f mooney
associates
planning, design & environmental studies

Figure 15

ARTIFACT CATALOG FOR SDI-7056
(Sampled Surface Collection)

Surface Collection-Station A

Flaked Lithics			
	Tools		
		Projectile points: 1 obsidian (O) Cottonwood Triangular base fragment	1
		Core hammers: 3 porphyritic volcanic (PV)	3
		Utilized Flakes: 2 PV	2
		Retouched flakes: 5 PV	5
		Biface blanks: 2 PV	2
	Cores		
		Unidirectional: 17 PV, 1 volcanic (V), 2 quartz (Q)	20
		Bidirectional: 7 PV, 1 basalt (B)	8
		Multidirectional: 16 PV	16
		Test: 5 PV	5
		Fragments: 8 PV, 1 V, 1 Q	10
	Debitage		
		Primary flakes: 14 PV, 2 V	16
		Secondary flakes: 215 PV, 12 V	227
		Interior flakes: 229 PV, 10 V, 8 Q, 7 O	254
		Angular debris: 42 PV, 1 Q, 1 O	44
Groundstone			
	Manos		
		Bifacial: 2 V with battered edges	2
Ceramics			
	Vessel sherds		
		Rims: 2 Br (Brownware)	2
		Body: 9 Br, 1 Bf (Buffware)	10
TOTAL			**627**

Surface Collection-Station B

Flaked Lithics			
	Tools		
		Retouched flakes: 1 PV	1
		Biface blanks: 1 PV	1
	Cores		
		Unidirectional: 1 PV	1
		Bidirectional: 9 PV	9
		Multidirectional: 1 PV	1
		Test: 4 PV	4
		Fragments: 1 PV	1
	Debitage		
		Primary flakes: 7 PV	7
		Secondary flakes: 87 PV, 1 V	88
		Interior flakes: 68 PV, 1 Q	69
		Angular debris: 29 PV	29
TOTAL			**211**

Surface Collection-Station C

Flaked Lithics			
	Tools		
		Retouched flakes: 1 PV	1
	Cores		
		Test: 4 PV	4
		Fragment: 7 PV	7
	Debitage		
		Primary flakes: 6 PV	6
		Secondary flakes: 26 PV, 1 B	27
		Interior flakes: 17 PV	17
		Angular debris: 3 PV	3
TOTAL			**65**

Surface Collection-Station D

Flaked Lithics			
	Tools		
		Core Hammers: 2 PV	2
		Choppers: 1 PV	1
		Retouched flakes: 1 PV	1
		Fragment: 1 PV	1
	Cores		
		Unidirectional: 3 PV, 1 V	4
		Bidirectional: 5 PV	5
		Multidirectional: 2 PV	2
		Fragment: 6 PV	6
	Debitage		
		Primary flakes: 3 PV	3
		Secondary flakes: 73 PV, 1 V, 1 B	75
		Interior flakes: 69 PV, 4 V, 1 B, 1 O	75
		Angular debris: 5 PV	5
Ceramics			
	Vessel sherds		
		Body: 11 Tizon Brownware	11
TOTAL			**191**

Surface Collection-Station E

Flaked Lithics			
	Tools		
		Biface blanks: 1 PV fragment	1
	Cores		
		Unidirectional: 1 PV	1
		Multidirectional: 3 PV	3
		Test: 2 PV	2
		Fragment: 9 PV, 1 unidentified material	10

	Debitage			
		Primary flakes: 11 PV		11
		Secondary flakes: 63 PV, 1 B		64
		Interior flakes: 64 PV, 1 B		65
		Angular debris: 16 PV		16
TOTAL				**172**

Surface Collection-Station F

Flaked Lithics				
	Cores			
		Multidirectional: 3 PV		3
		Fragment: 3 PV		3
	Debitage			
		Primary flakes: 9 PV		9
		Secondary flakes: 42 PV		42
		Interior flakes: 53 PV, 1 Q		54
		Angular debris: 5 PV		5
	Ceramics			
		Vessel sherds		
			Body: 1 Bf (Tumco)	1
TOTAL				**117**

Surface Collection-Station G

Flaked Lithics			
	Tools		
		Core Hammers: 1 PV	1
	Cores		
		Bidirectional: 1 PV , 1 B	2
		Multidirectional: 2 PV, 1 V	3
		Fragment: 3 PV	3
	Debitage		
		Primary flakes: 6 PV	6
		Secondary flakes: 70 PV, 10 V	80
		Interior flakes: 39 PV, 5 V	44
		Angular debris: 8 PV, 1 V	9
TOTAL			**148**

Surface Collection-Station H

Flaked Lithics			
	Tools		
		Scrapers: 1 PV domed (no visible utilization)	1
		Utilized flakes: 1 PV	1
		Retouched flakes: 2 PV	2
	Cores		
		Test: 3 PV	3
		Fragment: 2 PV	2
	Debitage		
		Secondary flakes: 20 PV, 2 V	22
		Interior flakes: 37 PV	14
TOTAL			**45**

Surface Collection-Station I

Flaked Lithics			
	Tools		
		Biface blanks: 1 PV	1
	Cores		
		Multidirectional: 5 PV	5
		Test: 4 PV	4
		Fragment: 12 PV	12
	Debitage		
		Primary flakes: 18 PV	18
		Secondary flakes: 69 PV	69
		Interior flakes: 85 PV, 1 B	86
		Angular debris: 5 PV	5
TOTAL			**200**
TOTAL Surface			**1755**

Subsurface - SDi-7056

Unit 1 Surface			
Flaked Lithics			
	Debitage		
		Secondary flakes: 1 PV	1
		Interior flakes: 2 PV, 1 O	3
0-10cm			
Flaked Lithics			
	Debitage		
		Secondary flakes: 3 PV, 1 B, 1 Q, 1 quartzite	6
		Interior flakes: 10 PV	10
		Angular debris: 3 PV	3
Ceramics			
	Vessel sherds		
		Body: 1 Tizon Brownware	1
Unit 2 0-10cm			
Flaked Lithics			
	Debitage		
		Interior flakes: 2 PV	2
10-20cm			
Negative			
Shovel Test 1			
Negative			
Shovel Test 2			
Flaked Lithics			
	Debitage		
		Interior flakes: 1 Q	1
Shovel Test 3			
Flaked Lithics			
	Debitage		
		Interior flakes: 1 PV	1
Shovel Test 4			
Flaked Lithics			
	Debitage		
		Secondary flakes: 1 PV	1
Shovel Test 5			
Flaked Lithics			
	Debitage		
		Interior flakes: 1 Q	1
		Angular debris: 1 PV	1
Shovel Test 6			
Negative			
Shovel Test 7			
Negative			
TOTAL Subsurface			**31**

Resource Nos.
SDi: -7056
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: -7056
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: -7056
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The majority of the site area will receive impacts from the development of the golf course, with the remaining area developed as residential which will be destroy the site.

Indirect Impacts:

N/A

Mitigation recommendations:

Check:

_X_ None
_____ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-7056 has been tested, collected and analyzed. All further research potential has been exhausted.

Resource Nos. **County Application No.**
SDi -8072
W _____

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM Zone 11 3609090mN 576820mE

Size: 39,200 square meters 280m **meters long (long axis)**
140m **meters wide (short axis)**

Depth: 40cm **centimeters**

State basis for determination: Excavation of two 1x1 units. Also trenching

List cultural materials observed (Estimate number if possible):

Surface(collected): 3 projectile points, 2 preforms, 2 bifaces, 7 core hammers, 1 core scrapper, 7 utilized flakes, 8 cores, 6 primary flakes, 76 secondary flakes, 206 interior flakes, 15 debitage, 2 manos, 3 metate frags, 513 sherds and one bead (see attached catalog).

Subsurface: 1 preform, 36 ceramics, 7 secondary flakes, 15 interior flakes, 1 angular debris.

Check:

Surface Only X
Midden
Features
Structures

Briefly describe the site: The site, located on the valley floor, appears to be a Late Prehistoric temporary camp (possibly for mesquite procurement) probably associated with the large village of Hakum to the west. Only the northern portion of the linear site occurs within the project boundaries.

Describe any features noted: none observed.

Indicate slope classification where site is located:
0-15% X
16-25% ___
Over 25% _____

What is the distance from site to the nearest water source: Currently Boundary Creek, 1.2km west. The natural drainage that drained from Mexico into the valley was altered during historic times.

Describe previous disturbance: Area has been under cultivation for many years but is currently fallow and being used for grazing cattle.

Describe any previous investigations: Paul Chase and Associates (Chase et al. 1980) conducted a survey and test evaluation of the site in 1979. The site was considered insignificant at that time due to previous direct impact based on only three auger tests.

Resource Nos.
SDi -8072
W _____

Resource Form Continued

List any published references:

Chase, Paul G.
1980 *A Cultural Resource Assessment of Jacumba, San Diego County*. Paul Chase and Associates, Escondido, California.

Describe site recording/collecting procedures (attach maps and tables as needed).

The site was recorded in three stages:

1. Intensive survey
2. Testing and trenching
3. Surface collection

The site was surveyed using systematic north-south and east-west transects at 20 meter intervals in accordance with County of San Diego procedures. Site perimeters as well as artifact concentrations were determined and mapped. Two 1x1m units were excavated in areas of surface artifact concentration. All recovered materials were washed and cataloged. Additionally, two approximately 1 by 10 meter trenches were dug by backhoe to a maximum depth of 165m in order to determine if floodplain sediments had buried any cultural resources. Prior to trenching, two perpendicular strips (20x180 and 20x100) were 100% surface collected in 10 square meter intervals, to clear the surface of all cultural materials (see site map). Subsequent to trenching, additional 10 meter collection grids were set up east and west of the north-south collection strip and alternate grids were collected.

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	2/91

Attach additional sheets as needed in order to provide all recovered information and analytical results.

Unit 1 was excavated to 40 cm with cultural material recovered from the first 20 cm (see catalog).

Unit 2 was excavated to 60 cm with no cultural material found below 35cm. No features were encountered in either unit. Artifact deposition is probably due to agricultural activity as well as burrowing rodents.

ARTIFACT CATALOG FOR SDI-8072 (North Half)

Surface Collection (sampled)

Flaked Lithics			
	Tools		
		Projectile points: 1 obsidian (O) Dos Cabezas serrated, fragment; 1 volcanic (V) Cottonwood Triangular straight base 1 quartz (Q) Cottonwood Triangular concave base	3
		Preforms: 2 chert (CH), 1 Q, 1 silicified wood (possible) fragment	4
		Bifaces: 1 porphyritic volcanic (PV) percussion fragment	1
		Core Hammers: 7 PV (1 fragment)	7
		Chopper/hammers: 1 V	1
		Core scraper: 1 PV	1
		Utilized flakes: 6 PV, 1 V	7
		Retouched flakes: 1 PV	1
	Cores		
		Unidirectional: 1 PV	1
		Bidirectional: 1 V	1
		Multidirectional: 2 PV, 1 V, 1 basalt (B), 1 Q	5
		Fragments: 1 PV	1
	Debitage		
		Primary flakes: 4 PV, 1 Q, 1 B	6
		Secondary flakes: 64 PV, 8 V, 3 chalcedony (C), 2 Q, 2 CH, 2 B	76
		Interior flakes: 146 PV, 12 V, 24 Q, 9 C, 5 CH, 7 O, 2 quartzite (QT), 1 B	206
		Angular debris: 10 PV, 4 Q, 1 V	15
Groundstone			
	Manos		
		Bifacial: 1 QT shaped	1
		Multifacial: 1 V? (unmodified cobble)	1
		Fragment: 1 granitic (G)	1
	Metates		
		Slab: 1 G, 1 PV? (fragments)	2
		Basin: 1 G	1
Ceramics			
	Vessel sherds		
		Rims: 12 Brownware (Br), 9 Buffware (Bf)	21
		Body: 331 Br, 161 Bf	492
Ornament			
	Beads		
		Shell: 1 Olivella side-wall	1
Faunal Remains			
	Bone		
		Mammal: 3 fragments, 0.2g	3
TOTAL Artifacts			**856**

Subsurface

Unit 1 0-10cm

Flaked Lithics			
	Tools		
		Utilized flakes: 1 PV	1
	Debitage		
		Interior flakes: 2 PV	2
Ceramics			
	Vessel sherds		
		Rims: 2 Br	2
		Body: 4 Bf, 2 Br	6

10-20cm	
Ceramics	
Vessel sherds	
Rims: 1 Bf	1
Faunal Remains	
Bone	
Large mammal: 1 tooth root	1
20-30cm	
Negative	
30-40cm	
Negative	
TOTAL Unit 1	**13**
Unit 2 Surface	
Ceramics	
Vessel sherds	
Body: 1 Bf, 1 Br	2
0-10cm	
Flaked Lithics	
Debitage	
Secondary flakes: 2 C	2
Interior flakes: 3 C, 2 PV, 1 basalt ? (B)	6
Angular debris: 1 PV	1
Ceramics	
Vessel sherds	
Rims: 1 Bf (incised), 1 Br	2
Body: 8 Br, 1 Bf	9
10-20cm	
Flaked Lithics	
Debitage	
Secondary flakes: 3 PV, 1 B (?)	4
Interior flakes: 3 PV, 1 C	4
Ceramics	
Vessel sherds	
Rims: 1 Br	1
Historics	
Glass	
Clear: 2 fragments	2
20-30cm	
Ceramics	
Vessel sherds	
Body: 11 Br	11
Historics	
Glass	
Clear: 1 fragment	1

30-40cm	
Flaked Lithics	
Tools	
Preforms: 1 Q	1
Debitage	
Secondary flakes: 1 PV	1
Interior flakes: 2 PV, 1 Q	3
Ceramics	
Vessel sherds	
Rims: 1 B-T	1
Body: 1 B-T	1
40-50cm	
Negative	
50-60cm	
Negative	
TOTAL Unit 2	**52**
TOTAL Subsurface	**65**

Resource Nos.
SDi: -8072
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: -8072
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: -8072
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site area will receive impacts from the development of a commercial use area and will be destroyed.

Indirect Impacts:

N/A

Mitigation recommendations:

Check:

_X_ None
_____ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-8072 has been adequately tested, collected and analyzed so warrants no further mitigation measures.

Resource Nos. **County Application No.**
SDi -8430 (loci E,F,G,H)
W _____

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM Zone 11 3609180m N 578250m E

Size: 80,000 square meters 400 meters long (long axis) (n/s)
200 meters wide (short axis) (e/w)
Depth: 5-15 centimeters
State basis for determination: Excavation of 4 1x1m units

List cultural materials observed (Estimate number if possible):

Surface (collected): 1 projectile point, 1 preform, 1 biface, 1 scraper, 1 scraper plain, 2 choppers, 17 hammers, 3 utilized flakes, 15 retouched flakes, 87 cores, 112 primary flakes, 704 secondary flakes, 717 interior flakes, one mano and 1 sherd. See catalog and tables for more detailed information.

Check:

Surface Only	X
Midden	
Features	
Structures	

Briefly describe the site: SDi-8430 is a large lithic procurement and reduction site with a limited resource procurement and processing component located on the slopes of a mountain on the east side of Jacumba Valley. Eight concentrations have been designated as separate loci (A-H). The eastern half of the site, containing loci A-D, was described in another report (Whitney-Desautels 1982). This portion of the site is not located within in the Jacumba Valley Ranch project area and was not dealt with during this study. The entire mountain contains a moderate to high density of volcanic raw material (i.e. andesite) and there is evidence of aboriginal procurement activities distributed sporadically over much of the mountain sides. The procurement activities exhibited at this site are probably associated with the Late Prehistoric habitation of the village of Hakum, located approximately one mile west of SDi-8430.

Locus E: A light-moderate lithic scatter located at the southwest base of the mountain, 140 meters north of Old Highway 80.
Locus F: Located 270 meters north of Hwy 80, on the mountain slope, adjacent to a small drainage. The locus consists of a lithic scatter including several reduction stations and three sections of rock alignments which are most likely historic in origin.
Locus G: A lithic scatter containing at least two reduction stations and a bedrock milling slick, located north of Locus F.
Locus H: Located west-northwest of Locus G on a small rise extending out from the western base of the mountain into the Jacumba Valley floodplain. It is a lithic procurement area as well as a resource procurement and processing site containing a bedrock slick and groundstone (1) and ceramics (1).

Describe any features noted: Bedrock milling at Locus G and H and rock alignments at Locus F

Indicate slope classification where site is located:
0-15% X
16-25% X
Over 25% _____

What is the distance from site to the nearest water source: Currently Boundary Creek , 1.2km to the west. The natural drainage that drained from Mexico into the Valley has been altered in historic times.

Resource Nos.
SDi -8430
W _____

Resource Form Continued

Describe previous disturbance: The lower slopes have been plowed and the entire area has been subjected to cattle grazing.

Describe any previous investigations: SRS (Whitney-Desautels 1982) describes the eastern portion of the site as containing "evidence of a large area which at one time must have been a fairly concentrated surface scatter of artifacts and debitage". Four test units proved negative. "The majority of stone items collected were comprised of by-products of quarrying activities".

List any published references:

Whitney-Desautels, Nancy
1982 *Archaeological Report, Volume II, Data Presentation on Re-survey, Surface Collection and Test Excavations of the Archaeological Resources of the Mazzanti Property Located in the Jacumba Area of the County of San Diego.* Scientific Resource Surveys, Inc. (SRS)

Describe site recording/collecting procedures (attach maps and tables as needed).

The site was recorded in three stages:

1. Intensive survey and mapping
2. Testing
3. Surface collection

The site was surveyed using systematic north-south and east-west transects at 20 meter intervals in accordance with County of San Diego procedures. Site perimeters as well as artifact concentrations were determined and mapped.

A total of four test units were excavated; one at Locus E, one at Locus F, and two at Locus H. The recovered materials were washed and cataloged.

All surface artifacts from each loci were plotted on a 100' scale orthotopo map and collected.

Attach completed site record forms and indicate date submitted:

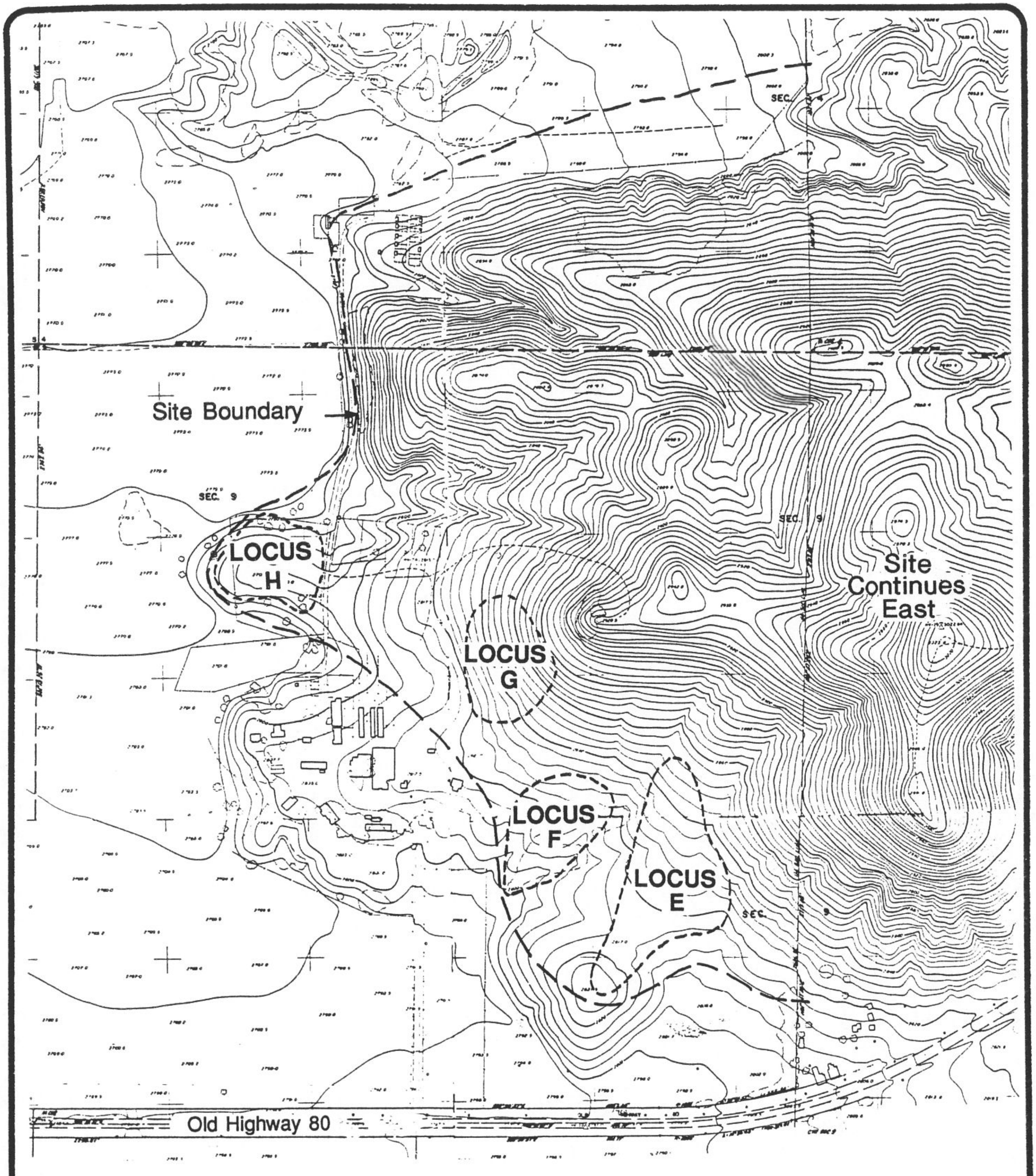
Institution	**Submittal date**
South Coastal Information Center, SDSU	2/91

Attach additional sheets as needed in order to provide all recovered information and analytical results.

Locus E: The unit was excavated to 10cm terminating in compact orange-red sandy clay loam which appeared at 7cm. Two flakes were recovered from the 0-7cm layer of light brown loamy sand (see catalog).

Locus F: The unit was excavated to 10cm terminating in compact orange-red sandy clay loam which appeared at 7cm. Four flakes were recovered from the 0-7cm layer of light brown loamy sand.

Locus H: Unit 1 was excavated to 20cm terminating in compact clay loam. 1 preform, 23 flakes, and two Tizon sherds found in 0-10cm and 9 flakes in 10-20cm. Unit 2, located on the western edge of the locus, was negative.



Jacumba Valley Ranch

Site Map of SDi-8430

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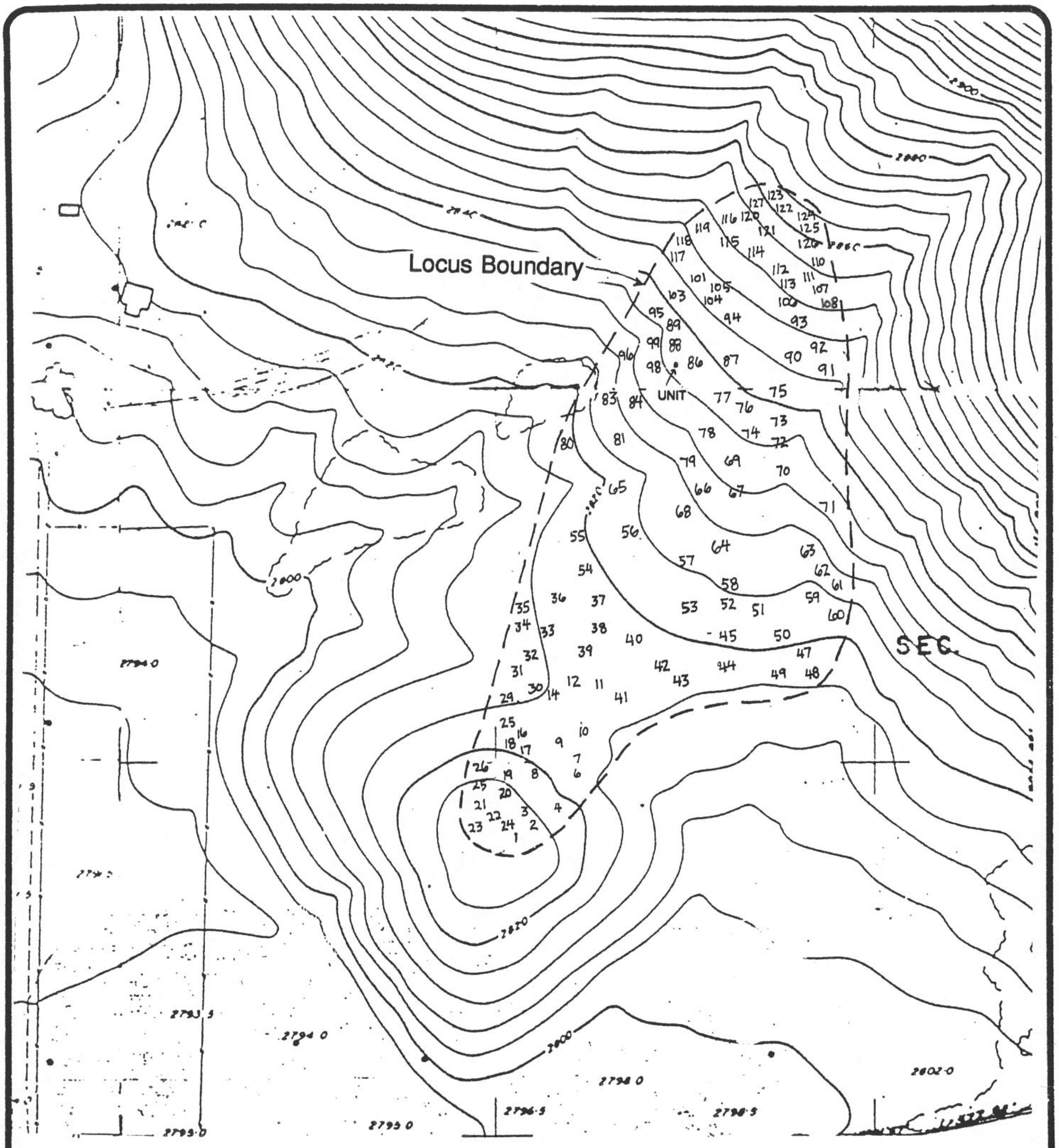
Figure 16



Jacumba Valley Ranch
Site Map of SDi–8430 Locus E

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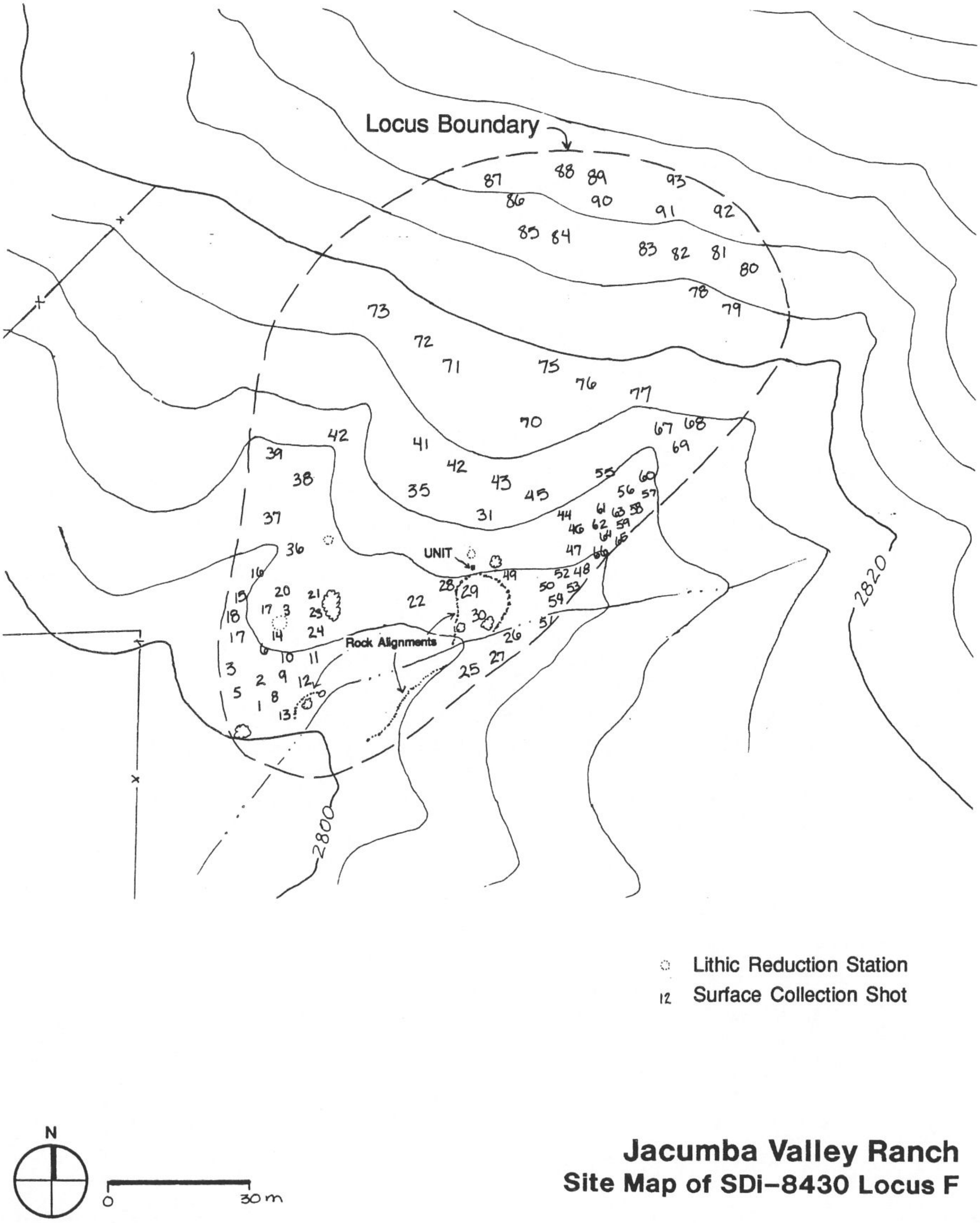
Figure 17



Jacumba Valley Ranch
Site Map of SDi-8430 Locus F

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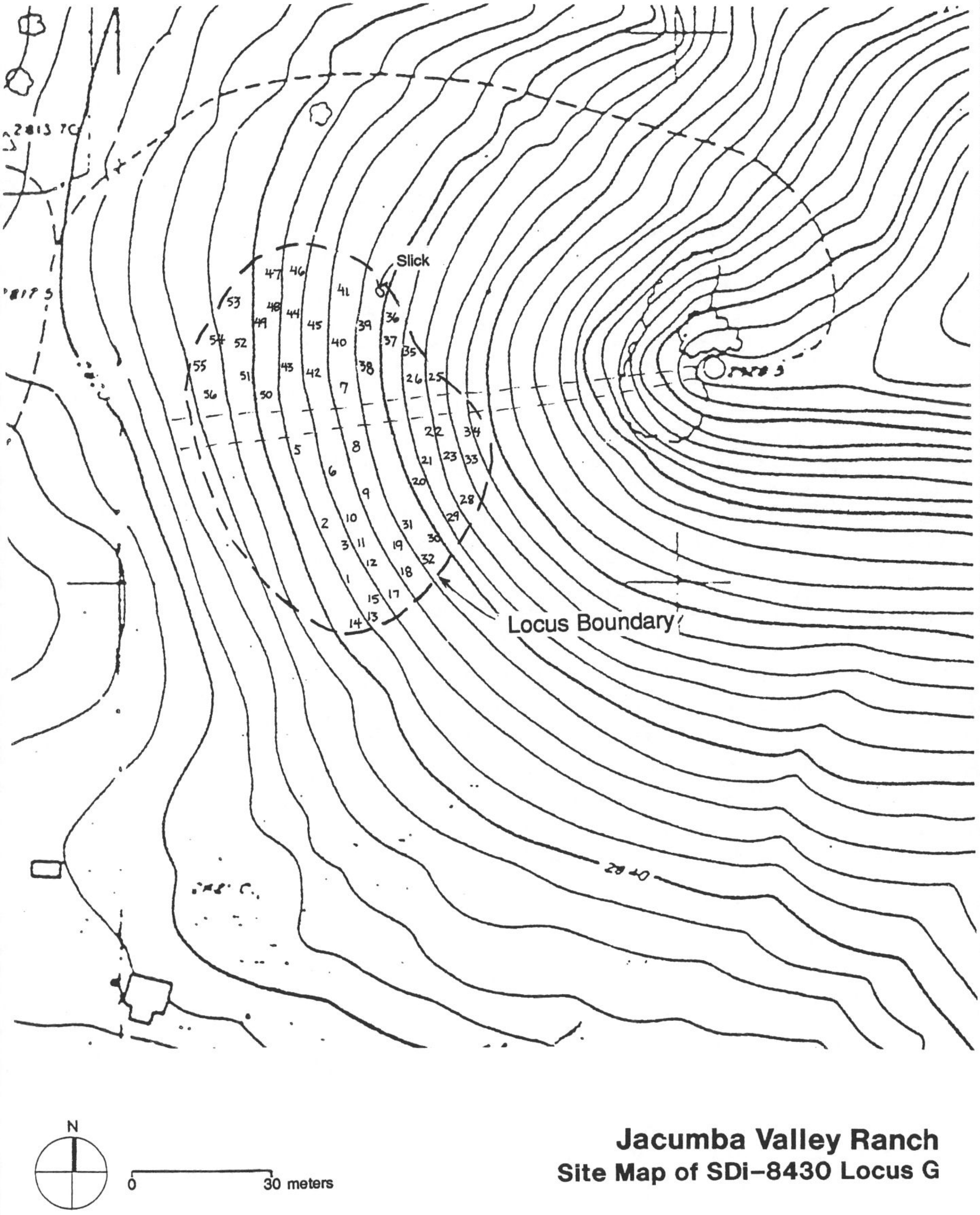
Figure 18



Jacumba Valley Ranch

Site Map of SDi-8430 Locus G

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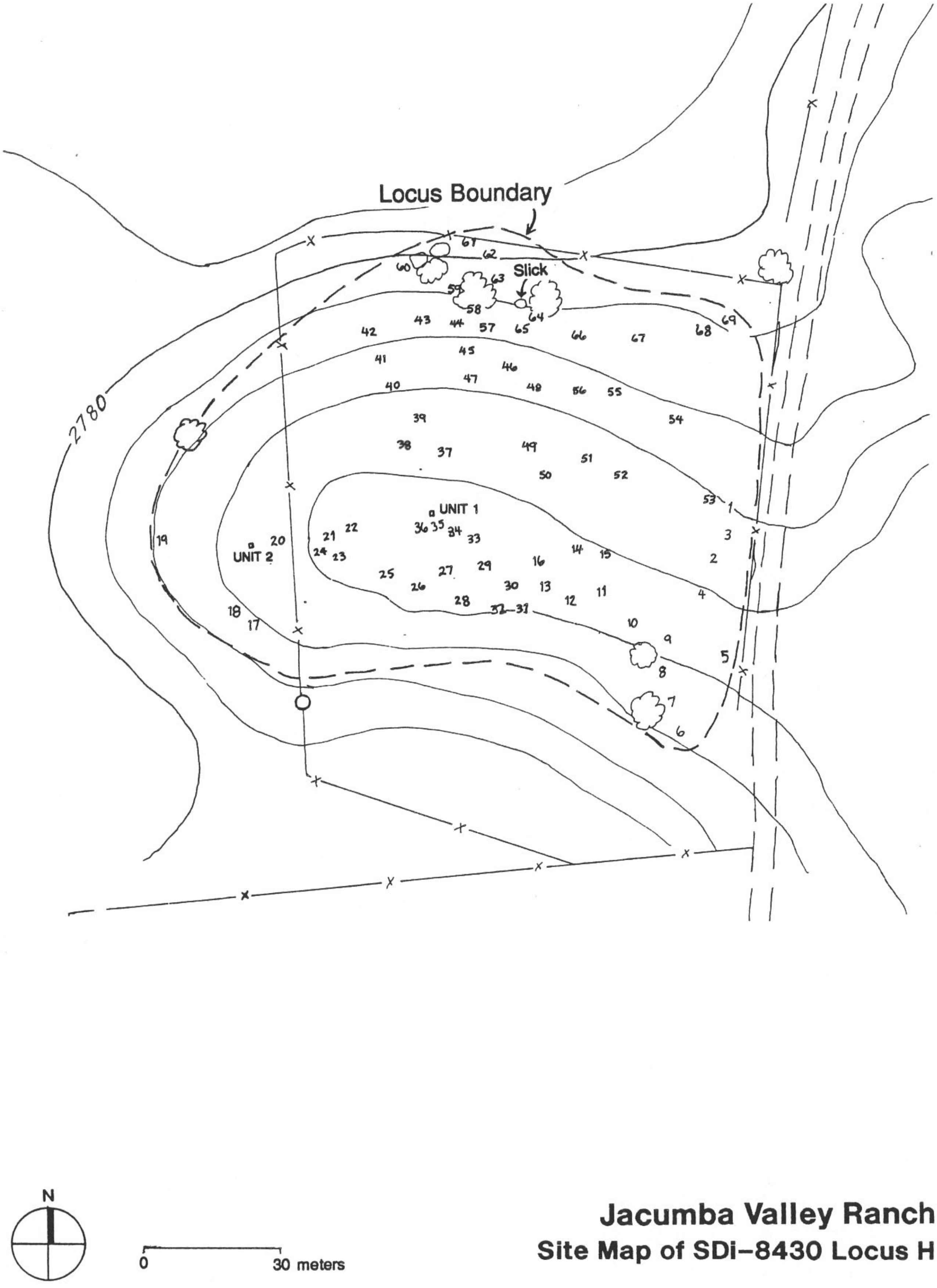
Figure 19



Jacumba Valley Ranch
Site Map of SDi-8430 Locus H

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Figure 20

ARTIFACT CATALOG FOR SDI-8430 Loci E-H

LOCUS E

Surface Collection

Flaked Lithics	
Tools	
Retouched flakes: 4 porphyritic volcanic (PV)	4
Cores	
Unidirectional: 4 PV	4
Bidirectional: 1 PV	1
Multidirectional: 8 PV	8
Test: 7 PV	7
Fragments: 12 PV	12
Debitage	
Primary flakes: 6 PV, 1 basalt (B)	7
Secondary flakes: 148 PV, 1 volcanic (V), 6 B, 1 chalcedony (C)	156
Interior flakes: 141 PV, 1 V, 2 B, 1 C	145
Angular debris: 17 PV, 1 C	18
TOTAL	**362**

Subsurface

Unit 1 0-10cm	
Flaked Lithics	
Debitage	
Secondary flakes: 1 PV, 1 V	2

LOCUS F

Surface Collection

Flaked Lithics	
Tools	
Bifaces: 1 chert (Ch) preform fragment; 1 porphyritic volcanic (PV) "biface" fragment	2
Utilized flakes: 1 PV (possible)	1
Retouched flakes: 2 PV	2
Cores	
Unidirectional: 6 PV	6
Bidirectional: 4 PV	4
Multidirectional: 2 PV	2
Test: 12 PV	12
Fragments: 7 PV	7
Debitage	
Primary flakes: 7 PV	7
Secondary flakes: 160 PV, 11 volcanic (V), 4 basalt (B)	175
Interior flakes: 209 PV, 38 V	247
Angular debris: 7 PV, 2 V	9
TOTAL	**474**

Subsurface

Unit 0-10cm	
Flaked Lithics	
Debitage	
Secondary flakes: 1 PV, 1 V	2
Interior flakes: 1 PV, 1 V	2

LOCUS G

Surface Collection

Flaked Lithics			
	Cores		
		Unidirectional: 4 PV	4
		Multidirectional: 3 PV	3
		Fragments: 2 PV	2
	Debitage		
		Primary flakes: 5 PV	5
		Secondary flakes: 36 PV	36
		Interior flakes: 33 PV	33
		Angular debris: 11 PV	11
TOTAL			**94**

LOCUS H

Surface Collection

Flaked Lithics			
	Tools		
		Preforms: 1 quartz (Q) fragment (projectile point)	1
		Scrapers: 1 PV	1
		Scraper plane: 1 PV	1
		Utilized flakes: 2 PV	2
		Retouched flakes: 9 PV	9
		Chopping tools: 1 PV, 1 volcanic (V)	2
		Core hammers: 16 PV	16
		Cobble hammers: 1 quartzite (QT)	1
		Hammer-grinders: 1 V, 1 basalt (B)	2
	Cores		
		Unidirectional: 1 PV	1
		Bidirectional: 3 PV, 1 V, 1 B	5
		Multidirectional: 5 PV	5
		Test: 2 PV	2
		Fragments: 1 V, 1 B	2
	Debitage		
		Secondary flakes: 26 PV, 2 V, 1 chalcedony (C)	29
		Interior flakes: 25 PV, 4 Q, 1 V	30
		Angular debris: 3 PV, 1 V, 1 Q, 1 C	6
Miscellaneous Lithics			
	Tools		
		Smoothing/abrading pebble: 1 QT	1
Groundstone			
	Manos		
		Bifacial: 1 V	1
Ceramics			
	Vessel sherds		
		Body: 1 Brownware (Br)	1
Faunal Remains			
	Marine shellfish		
		Fragments: 1 *Laevicardium elatum*	1
TOTAL			**119**

LOCUS H

Subsurface

Unit 1 0-10cm

Flaked Lithics			
	Tools		
		Preforms: 1 fragment, material unidentified, (possibly metavolcanic)	1
	Debitage		
		Secondary flakes: 2 PV	2
		Interior flakes: 15 PV	15
		Angular debris: 3 PV, 1 B, 1 C, 1 chert	6
Ceramics			
	Vessel sherds		
		Body: 2 Br	2

10-20cm

Flaked Lithics			
	Debitage		
		Secondary flakes: 1 PV	1
		Interior flakes: 6 PV, 1 Q	7
		Angular debris: 1 Q	1

Unit 2 0-10cm

Negative

10-20cm

Negative

TOTAL for Units	**35**
TOTAL Surface collection	**1049**

Resource Nos.
SDi: -8430_
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: <u>-8430</u>
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: -8430_
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The majority of the mountain site will be directly impacted by grading and the construction of a residential area which will destroy the entire site.

Indirect Impacts:

N/A

Mitigation recommendations:

Check:

_X__ None
_____ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

The site has been documented and collected so warrants no mitigation measures.

Resource Nos. **County Application No.**
SDi-11,675
W _____

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3611020N 578150E

Size: 396 **square meters** 22 meters long (long axis)
18 meters wide (short axis)

Depth: 0-5 centimeters

State basis for determination: Excavation of 2 shovel tests.

List cultural materials observed (Estimate number if possible):

Surface: 1 scraper, 1 core hammer, 2 retouched flakes, 4 cores, 24 flakes, 1 mano and 28 sherds. Subsurface: 1 flake and 4 sherds (see attached artifact catalog). All of the lithic material is porphyritic volcanic (andesite), except the mano which is of sandstone.

	Check:
Surface Only	**X**
Midden	
Features	**X**
Structures	

Briefly describe the site: The site is a small Late Prehistoric lithic and ceramic scatter consisting of a lithic reduction station, a pot drop, and associated scattered tools, cores and debitage.

Describe any features noted: Lithic reduction station: 3 secondary and 3 interior porphyritic volcanic flakes in a 25x25cm area. Pot drop: At least 7 sherds are of the same vessel, a straight sided bowl, 21 sherds of other vessels and types of clay occur in an 8x5m scatter.

Indicate slope classification where site is located: **0-15% _X_**
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: An intermittent drainage (wash) lies 680m SSE.

Describe previous disturbance: The site area appears only minimally disturbed, a three strand barbed wire fence bisects the long axis of the scatter.

Describe any previous investigations: none

Resource Nos.
SDi-11,675
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

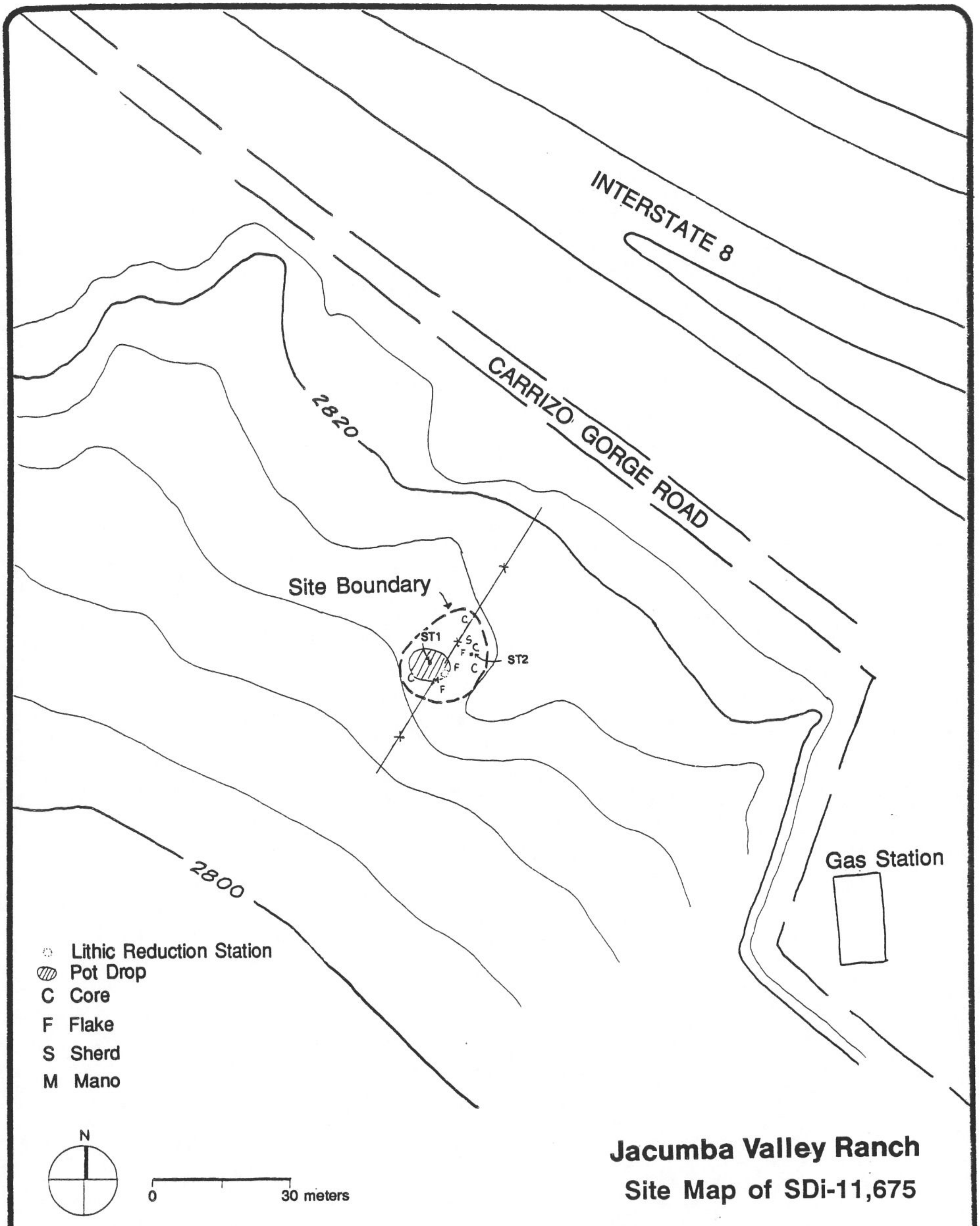
The surface scatter was plotted on a 200 scale map and all surface artifacts were collected. Two shovel tests (30x30cm) were excavated to sterile subsoil.

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

Subsurface artifacts were recovered in the loosely compacted upper 5 cm of each shovel test. Compact orange-red sandy loam was encountered within 8cm of the surface.



Jacumba Valley Ranch

Site Map of SDi-11,675

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Figure 21

ARTIFACT CATALOG FOR SDI-11,675

Surface Collection

Flaked Lithics			
	Tools		
		Scrapers: 1 porphyritic volcanic (PV), backed	1
		Retouched flakes: 2 PV	2
		Core Hammers: 1 PV	1
	Cores		
		Bidirectional: 2 PV	2
		Test: 2 PV	2
	Debitage		
		Secondary flakes: 16 PV	16
		Interior flakes: 8 PV	8
Groundstone			
	Manos		
		Bifacial: 1 sandstone	1
Ceramics			
	Vessel sherds		
		Rims: 4 Brownware (Br) (representing 2 bowls)	4
		Neck: 1 Br	1
		Body: 19 Br, 4 Buffware (Bf)	23
TOTAL			**61**

Subsurface

Shovel Test 1			
Flaked Lithics			
	Debitage		
		Interior flakes: 1 PV	1
Ceramics			
	Vessel sherds		
		Body: 3 Br	3
Shovel Test 2			
Ceramics			
	Vessel sherds		
		Body: 1 Bf	1
TOTAL Subsurface			**5**

Resource Nos.
SDi: 11,675
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: <u>11,675</u>
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: 11,675
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The entire site will receive direct impacts from the development of the golf course.

Indirect Impacts:

N/A

Mitigation recommendations:

Check:

_X__ None
_____ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,675 has been documented and collected so warrants no mitigation measures.

Resource Nos.
SDi-11,676
W _____

County Application No.

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3611080N 577980E

Size: 2,310 square meters
215 meters long (long axis)
110 meters wide (short axis)

Depth: 0-10 centimeters

State basis for determination: Excavation of 2 1x1m units.

List cultural materials observed (Estimate number if possible):

Surface(collected): 1 scraper, 3 retouched flakes, and 9 formal cores; (uncollected) a preliminary inventory of flakes on the surface includes 60 primary, 50 secondary and 40 interior, predominantly of porphyritic volcanic material.

Subsurface: 4 secondary flakes, 5 interior flakes and 2 pieces of angular debris (see attached artifact catalog).

	Check:
Surface Only	**X**
Midden	
Features	
Structures	

Briefly describe the site: The site is a widely dispersed lithic scatter representing a raw material procurement and reduction quarry/workshop, comprised of over 150 flakes, numerous test cores, and a few tools.

Describe any features noted: 1 lithic reduction station and a possible rock alignment (semi-circle).

Indicate slope classification where site is located:
0-15% _X_
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: A spring fed stream/marsh lies 760m west.

Describe previous disturbance: The site area appears only minimally disturbed, the northeast portion of the site was disturbed by road construction/grading and utility line installation.

Describe any previous investigations: none

Resource Nos.
SDi-11,676
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

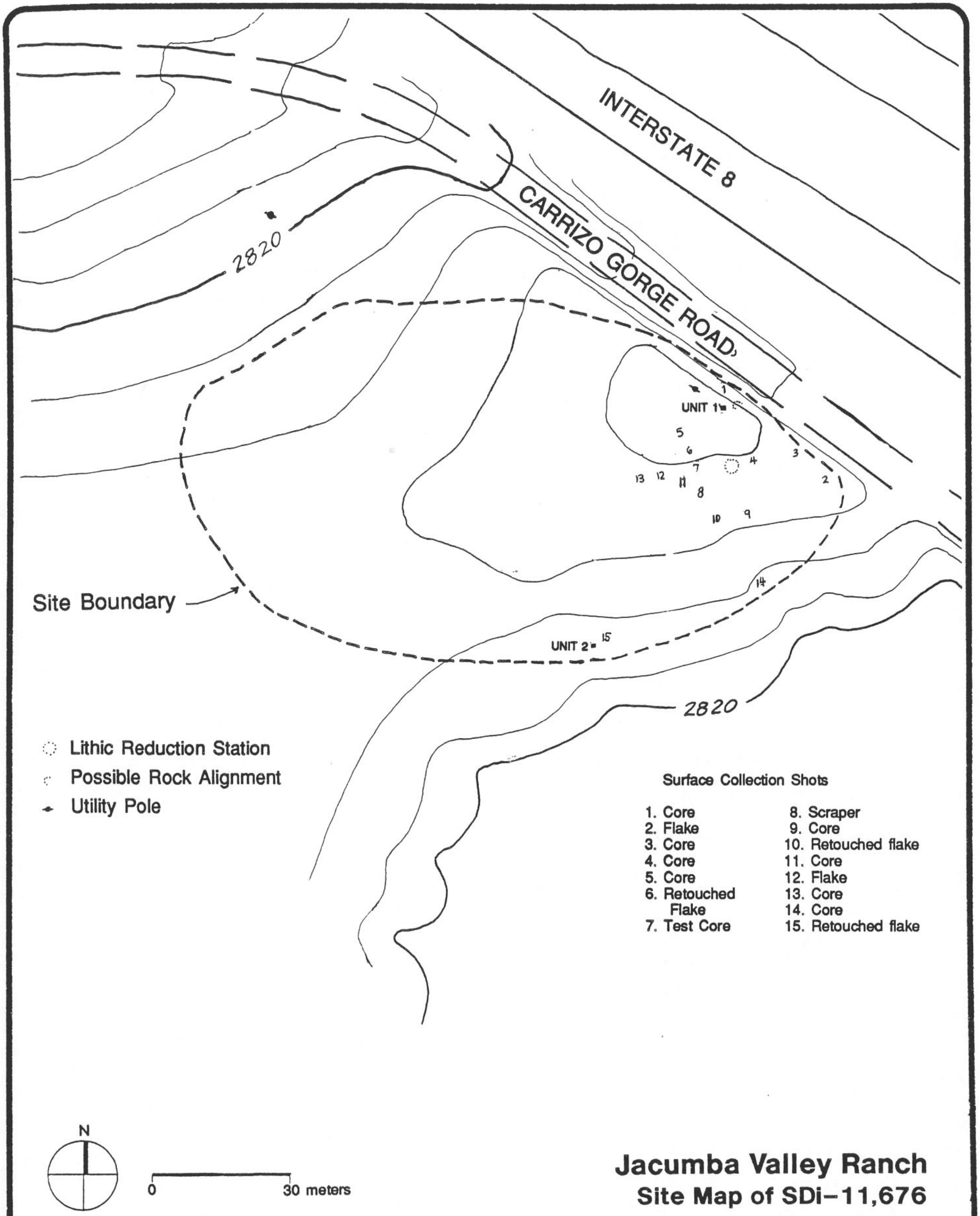
Initially the extent of the surface scatter was plotted on a 200 scale map and all cores and "tools" were plotted collected. Two 1x1m units were excavated to sterile subsoil. During the subsurface testing, the scatter was found to extend further west than originally determined. An inventory of surface artifacts was made for this portion of the site but the material was not collected.

Attach completed site record forms and indicate date submitted:

Institution	Submittal date
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

Subsurface artifacts were recovered in the upper 10 cm of each shovel test. Compact orange-red sandy loam was encountered within 12-15cm of the surface.



◌ Lithic Reduction Station
⁘ Possible Rock Alignment
◆ Utility Pole

Surface Collection Shots

1. Core
2. Flake
3. Core
4. Core
5. Core
6. Retouched Flake
7. Test Core
8. Scraper
9. Core
10. Retouched flake
11. Core
12. Flake
13. Core
14. Core
15. Retouched flake

Jacumba Valley Ranch
Site Map of SDi-11,676

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Figure 22

ARTIFACT CATALOG FOR SDI-11,676

Surface Collection/Inventory

Flaked Lithics	
Tools	
Scrapers: 1 porphyritic volcanic (PV)	1
Retouched flakes: 3 PV	3
Cores	
Bifacial: 1 PV (preform?)	1
Unidirectional: 4 PV	4
Multidirectional: 2 PV, 1 volcanic (V)	3
Test: 1 PV	1
Debitage (not collected)	
Primary flakes: 60 PV	60
Secondary flakes: 50 PV	50
Interior flakes: 40 PV	40
TOTAL	**163**

Subsurface

Unit 1 0-10cm	
Flaked Lithics	
Debitage	
Secondary flakes: 1 PV	1
Interior flakes: 3 PV	3
Angular debris: 2 PV	2
Unit 2 Surface	
Flaked Lithics	
Debitage	
Secondary flakes: 1 PV	1
Interior flakes: 1 PV, 1 quartz	2
0-10cm	
Flaked Lithics	
Debitage	
Secondary flakes: 2 PV	2
TOTAL for Units	**11**

Resource Nos.
SDi: 11,676
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

The area containing the site is to be preserved in open space at this time. Research questions pertaining to site type, chronology and settlement will be addressed during a future phase of development.

Resource Nos.
SDi: 11,676
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

N/A

Resource Nos.
SDi: 11,676
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site will not receive direct impacts at this phase of development. Direct impacts will be addressed in the future.

Indirect Impacts:

The site may receive indirect impacts due to the project development causing an increase in population
resulting in the possibility of pot-hunting/vandalism or other forms of disturbance to and/or destruction of the site prior to employing mitigation measures.

Mitigation recommendations:

Check:

_____ **None**
__X__ **Preservation (attach map of open space)**
_____ **Surface map (show area to be mapped)**
_____ **Initial subsurface test (nature/extent)**
_____ **Excavation program (nature and extent)**
_____ **Historic documentation (describe)**
_____ **Other special studies (describe)**

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,676 is to be preserved in open space until a future phase of development at which time a data recovery program will be determined. The easement boundary is to be the same as the site boundary (see site map).

Resource Nos. **SDi-<u>11,677</u>** **W ____**	**County Application No.**

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3610970N 577720E

Size: 55,000 square meters — 275 meters long (long axis), 200 meters wide (short axis)

Depth: 0 centimeters

State basis for determination: Excavation of 1 1x1m unit and 4 shovel tests.

List cultural materials observed (Estimate number if possible):

Surface(collected), Locus A: 1 hammerstone, 2 retouched flakes, 3 cores, 18 flakes, and 1 granitic unifacial mano. Locus B: 1 core, 25 pieces of debitage. Also collected from the slope between the two loci: 1 quartz biface fragment, 1 unifacial flake scraper, 1 core, and 25 flakes (see attached artifact catalog).

	Check:
Surface Only	**X**
Midden	
Features	**X**
Structures	

Briefly describe the site: The site is a widely dispersed lithic scatter/raw material procurement site comprised of two areas of concentration, Locus A and B, with a low density lithic scatter between. Locus A is located at the top of the ridge and contains 4 bedrock slicks and a mano along with the scattered lithics. Locus B, approximately half way down the northern slope from A, is a dispersed lithic reduction station.

Describe any features noted: Locus A - Slicks - Feature 1: 15x20cm, mod-heavy use; Feature 2: 13x30x.5cm, mod. use and 19x19cm, light use; Feature 3: 10x10cm, very light use. An eroded granitic mano was found at the base of Feature 1.

Locus B - Lithic Reduction Station: 1 unidirectional core, 5 secondary flakes, 16 interior flakes and 1 piece of angular debris all of the same porphyritic volcanic (andesite), plus 3 other flakes of different material in a 20 x30m area (on slope).

A second Lithic Reduction Station was found down slope to the northeast from Locus A: 1 bidirectional core, 2 secondary flakes, and 8 interior flakes.

Indicate slope classification where site is located:

0-15%	**X**
16-25%	
Over 25%	

What is the distance from site to the nearest water source: A spring fed stream/marsh lies 500m west.

Describe previous disturbance: The site area appears to be partially disturbed, a graded dirt road (no longer accessible) bisects the site and a faint jeep trail runs up the north slope (adjacent to Locus B). The southern slopes of the ridge have been cut away during historic gravel quarrying, which probably resulted in removal of scattered lithics.

Describe any previous investigations: none

Resource Nos.
SDi-11,677
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

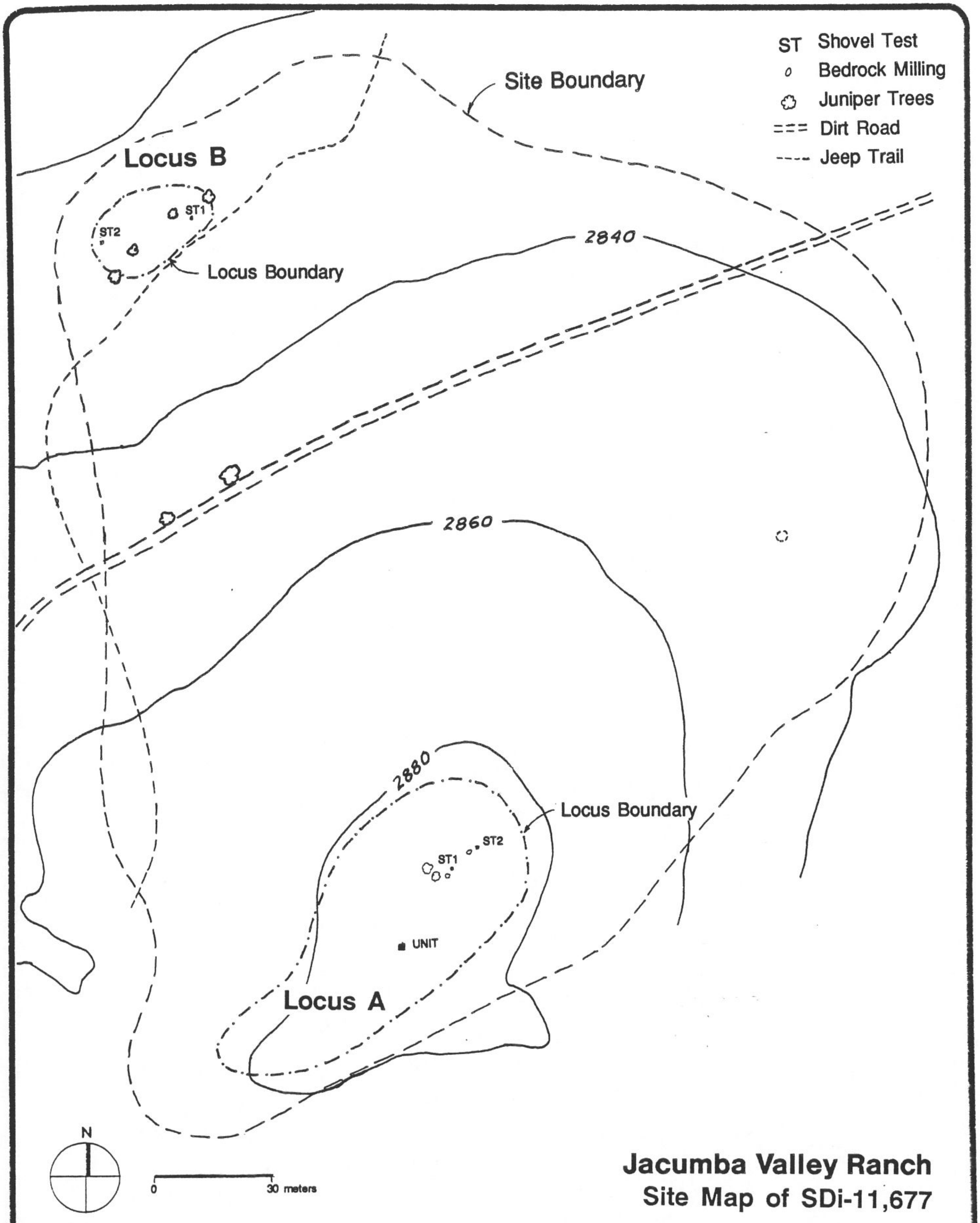
Initially the lithic reduction station at Locus B was plotted, tested (2 shovel tests) and collected as a small site. After further examination however, surface materials were found to occur, at a very low density, between the top of the ridge (Locus A) and Locus B. The extent of Locus A was determined by the higher density of surface scatter associated with the milling slicks. Locus A was tested with a 1x1m unit in the area of highest surface artifact density and a shovel test at each of the milling slicks. Dimensions of each milling feature were recorded and the surface artifacts were collected from the locus along with a biface fragment and a possible scraper from between the loci.

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

No materials were recovered subsurface



Jacumba Valley Ranch
Site Map of SDi-11,677

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Figure 23

ARTIFACT CATALOG FOR SDI-11,677

LOCUS A
Surface Collection

Flaked Lithics	
Tools	
Hammers: 1 porphyritic volcanic (PV)	1
Retouched flakes: 2 PV	2
Cores	
Bidirectional: 1 PV	1
Unidirectional: 2 PV	2
Debitage	
Secondary flakes: 4 PV, 1 vesicular basalt, 1 vesicular volcanic (VV)	6
Interior flakes: 10 PV, 1 VV, 1 quartz	12
Groundstone	
Manos	
Unifacial: 1 granitic	1

Subsurface

Unit 1
Negative

Shovel Test 1
Negative

Shovel Test 2
Negative

LOCUS B
Surface Collection

Flaked Lithics	
Cores	
Unidirectional: 1 PV	1
Debitage	
Secondary flakes: 5 PV, 1 metavolcanic (?)	6
Interior flakes: 17 PV, 1 quartz (Q)	18
Angular debris: 1 PV	1

Subsurface

Shovel Test 1
Negative

Shovel Test 2
Negative

General Site Area (partial collection)

Flaked Lithics			
	Tools		
		Bifaces: 1 Q	
		Scrapers: 1 metasedimentary ?	1
	Cores		
		Bidirectional: 1 PV	1
	Debitage		
		Secondary flakes: 5 PV	5
		Interior flakes: 15 PV, 3 Q, 1 volcanic (V), 1 metavolcanic ?	20

Lithic Reduction Station (collected)

Flaked Lithics			
	Cores		
		Bidirectional: 1 PV	1
	Debitage		
		Secondary flakes: 2 PV	2
		Interior flakes: 8 PV	8

TOTAL Collection	**89**

Resource Nos.
SDi: 11,677
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

The area containing the site is to be preserved in open space at this time. Research questions will be addressed during a future phase of development.

Resource Nos.
SDi: 11,677
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

N/A

Resource Nos.
SDi: 11,677
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site will not receive direct impacts at this phase of development. Direct impacts will be addressed in the future.

Indirect Impacts:

The site may receive indirect impacts due to the project development causing an increase in population
resulting in the possibility of pot-hunting/vandalism or other forms of disturbance to and/or destruction of the site prior to employing mitigation measures.

Mitigation recommendations:

Check:

_____ None
__X__ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,677 is to be preserved in open space until a future phase of development at which time a data recovery program will be determined. The easement boundary is to be the same as the site boundary (see site map).

Resource Nos. **County Application No.**
SDi-11,678
W _____

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3611820N 576160E

Size: 37,500 **square meters** 250 **meters long (long axis)**
150 **meters wide (short axis)**

Depth: 0-10 **centimeters**

State basis for determination: Excavation of 1 1x1m unit.

List cultural materials observed (Estimate number if possible):

Surface inventory (predominantly of porphyritic volcanic material): 8 unifaces, 1 hammerstone fragment, 41 formal cores, 56 test cores, 83 primary flakes, 131 secondary flakes, 210 interior flakes, and 1 mano.
Subsurface: 1 core and 2 secondary flakes.

	Check:
Surface Only	**X**
Midden	
Features	
Structures	

Briefly describe the site: The site is a widely dispersed lithic scatter representing a raw material procurement and reduction site (quarry/workshop).

Describe any features noted: none

Indicate slope classification where site is located: **0-15%** _X_
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: A spring fed stream lies 180m north.

Describe previous disturbance: Site area appears only minimally disturbed by slope erosion and property fencing which bisects the site.

Describe any previous investigations: none

Resource Nos.
SDi-11,678
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

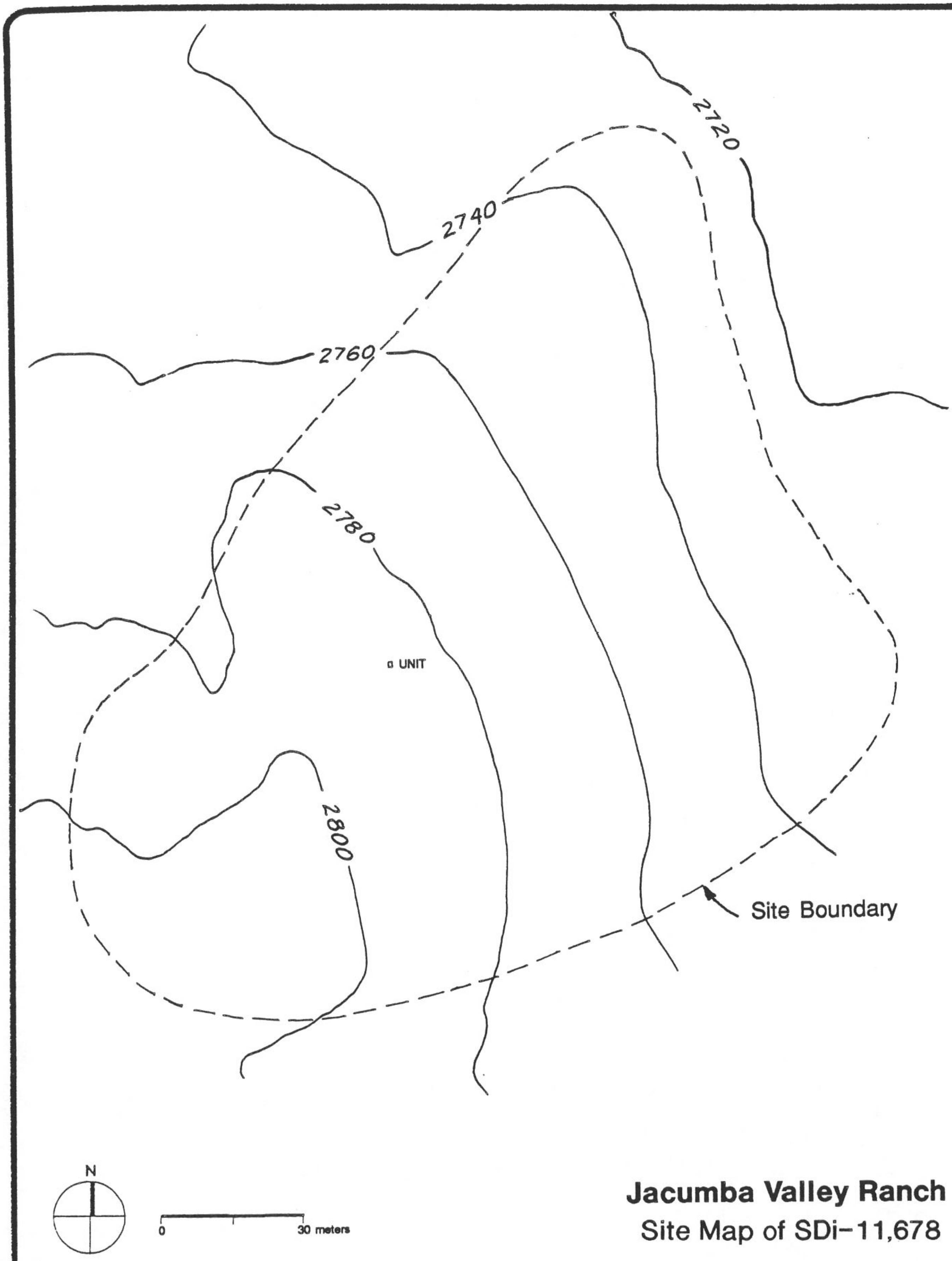
The scatter was intensively examined to determine extent and content. The dimensions of the site were plotted on a 200 scale map and an inventory of surface artifacts was taken but no materials were collected from the surface. A 1x1m test unit was excavated in a central portion of the site where highest artifact density was observed.

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

The unit reached a maximum depth of 10cm with 1 core and 2 flakes being recovered from the upper half of the level.



Jacumba Valley Ranch
Site Map of SDi-11,678

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Figure 24

ARTIFACT CATALOG FOR SDI-11,678

Surface Inventory (not collected)

Flaked Lithics			
	Tools		
		Unifaces: 8	8
		Hammerstones: 1 fragment	1
	Cores		
		Formal: 41	41
		Test: 56	56
	Debitage		
		Primary flakes: 83	83
		Secondary flakes: 131	131
		Interior flakes: 210	210
Groundstone			
		Manos: 1	1
TOTAL (estimate)			**531**

Subsurface

Unit 1 0-10cm

Flaked Lithics			
	Cores		
		Unidirectional: 1 PV	1
	Debitage		
		Secondary flakes: 1 volcanic, 1 metavolcanic (?)	2

Resource Nos.
SDi: 11,678
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

The area of the project containing SDi-11,678 will be preserved in open space so research questions will not be addressed.

Resource Nos.
SDi: <u>11,678</u>
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

N/A

Resource Nos.
SDi: 11,678
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

SDi-11,678 will not receive impacts from the project and is to be preserved in open space.

Indirect Impacts:

The site may receive indirect impacts due to the project development causing an increase in population
resulting in the possibility of pot-hunting/vandalism or other forms of disturbance to and/or destruction of the site.

Mitigation recommendations:

Check:

_____ **None**
__X__ **Preservation (attach map of open space)**
_____ **Surface map (show area to be mapped)**
_____ **Initial subsurface test (nature/extent)**
_____ **Excavation program (nature and extent)**
_____ **Historic documentation (describe)**
_____ **Other special studies (describe)**

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

The site is to be preserved as an open space easement. Easement boundary corresponds to the site boundary on site map.

Resource Nos.
SDi-11,679
W _____

County Application No.

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3611920N 576060E

Size: 9,600 square meters 160 meters long (long axis)
60 meters wide (short axis)

Depth: 0 centimeters

State basis for determination: Excavation of 3 shovel tests.

List cultural materials observed (Estimate number if possible):

Surface inventory (not collected): 1 uniface, 1 chopping tool, 1 utilized flake, 9 formal cores, 6 primary flakes, 18 secondary flakes, and 48 interior flakes (predominantly of porphyritic volcanic material).

	Check:
Surface Only	X
Midden	
Features	X
Structures	

Briefly describe the site: The site is a dispersed, low density, lithic scatter representing a raw material procurement and reduction area comprised of two lithic reduction stations and an additional 70+ flakes, 9+ formal cores, and at least 3 tools. Limited on-site tool usage is indicated by the presence of the utilized flaked lithics.

Describe any features noted: 2 lithic reduction stations, 1 is 2x2m, the second is .5x.5m.

Indicate slope classification where site is located:
0-15% X
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: A spring fed stream lies 200m northeast.

Describe previous disturbance: Site area appears only minimally disturbed by slope erosion.

Describe any previous investigations: none

Resource Nos.
SDi-11,679
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

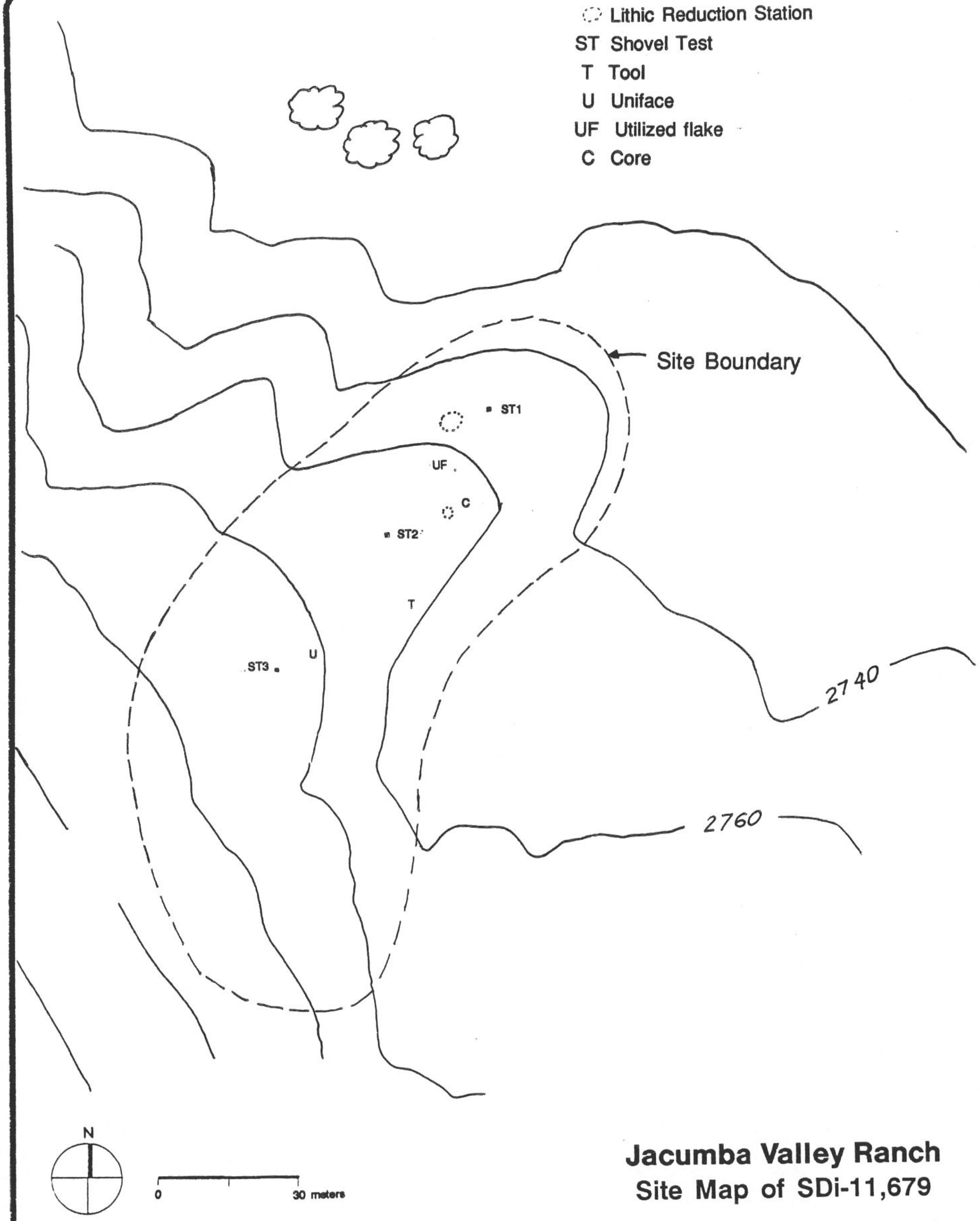
The scatter was intensively examined to determine extent and content. The dimensions of the site were plotted on a 200 scale map and an inventory of surface artifacts was taken but no materials were collected from the surface. Three shovel tests were excavated along the long axis of the scatter.

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

No materials were recovered subsurface



Jacumba Valley Ranch
Site Map of SDi-11,679

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Figure 25

ARTIFACT CATALOG FOR SDI-11,679

Surface Inventory (not collected)

Flaked Lithics	
Tools	
Unifaces: 1	1
Chopping tools: 1	1
Utilized flakes: 1	1
Cores	
Formal: 9	9
Debitage	
Primary flakes: 6	6
Secondary flakes: 18	18
Interior flakes: 48	48

Plus 2 Lithic Reduction Stations

Subsurface

Shovel Test 1
Negative

Shovel Test 2
Negative

Shovel Test 3
Negative

Resource Nos.
SDi: 11,679
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

The area of the project containing SDi-11,679 will be preserved in open space so research questions will not be addressed.

Resource Nos.
SDi: 11,679
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

N/A

Resource Nos.
SDi: 11,679
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

SDi-11,679 will not receive impacts from the project and is to be preserved in open space.

Indirect Impacts:

The site may receive indirect impacts due to the project development causing an increase in population
resulting in the possibility of pot-hunting/vandalism or other forms of disturbance to and/or destruction of the site.

Mitigation recommendations:

Check:

_____ **None**
__X__ **Preservation (attach map of open space)**
_____ **Surface map (show area to be mapped)**
_____ **Initial subsurface test (nature/extent)**
_____ **Excavation program (nature and extent)**
_____ **Historic documentation (describe)**
_____ **Other special studies (describe)**

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

The site is to be preserved as an open space easement. Easement boundary corresponds to the site boundary on site map.

Resource Nos.
SDi-11,681
W ____

County Application No.

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3611260N 577820E

Size: 37,500 square meters **250 meters long (long axis)**
150 meters wide (short axis)

Depth: 0 centimeters

State basis for determination: Excavation of 3 shovel tests.

List cultural materials observed (Estimate number if possible):

Surface(collected): 2 scrapers, 2 "scraper planes", 1 utilized flake, 1 retouched flake, 8 cores, 47 flakes (see attached artifact catalog) plus the lithic reduction station (see feature).

	Check:
Surface Only	**X**
Midden	
Features	**X**
Structures	

Briefly describe the site: The site is a widely dispersed, low density, lithic scatter representing a raw material procurement/workshop area comprised of predominantly cores and flakes, with a few tools, and one intact lithic reduction station.

Describe any features noted: Lithic Reduction Station: 2 primary flakes, 18 secondary flakes, 24 interior flakes, and 1 piece of angular debris-all grey-green porphyritic volcanic.

Indicate slope classification where site is located: **0-15% X**
16-25% ____
Over 25% ____

What is the distance from site to the nearest water source: A spring fed stream/marsh lies 580m west.

Describe previous disturbance: The northern extent of the site has been partially disturbed by freeway construction while the southern portion of the site has been disturbed from grading of Carrizo Gorge Rd.

Describe any previous investigations: none

Resource Nos.
SDi-11,681
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

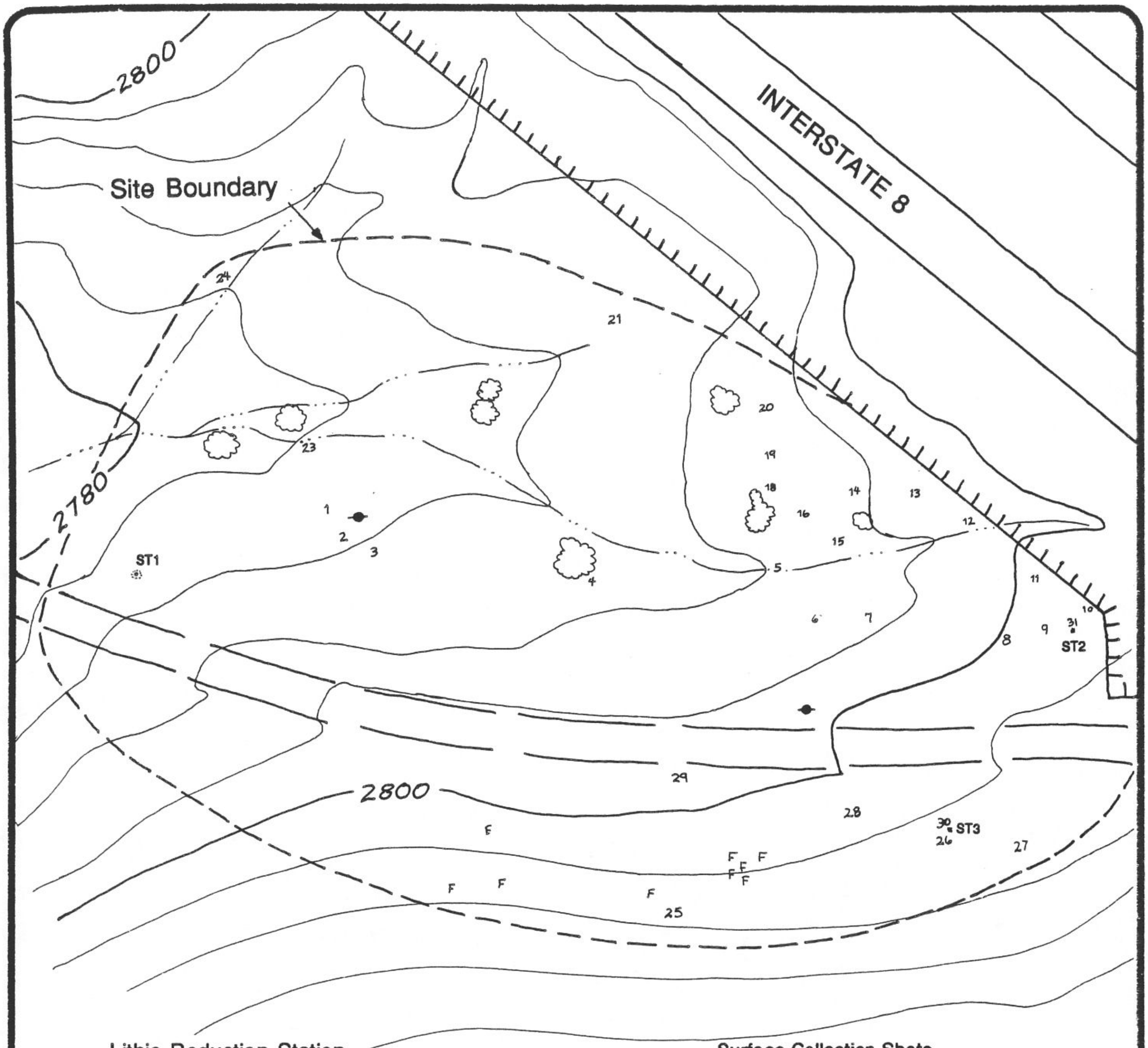
The site was recorded in two phases. Surface artifacts were located, plotted and collected within the portion of the site located north of Carrizo Gorge Rd. Subsequently, additional surface artifacts were observed (by a different investigator) south of the road, extending the dimensions of the site. Only cores and possible tools were collected from that portion of the site. Subsurface testing consisted of three shovel tests excavated in areas of higher surface artifact density.

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

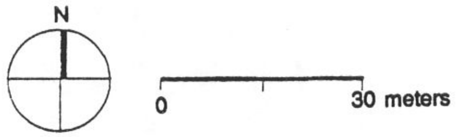
No materials were recovered subsurface. This site lies at the base of the ridge that SDi-11679 is located on and about 60m northwest of SDi-11676. Most likely lithic procurement activities took place along the entire ridge with the three site designations noting areas of higher density.



⁘ Lithic Reduction Station
ST Shovel Test
F Flake (uncollected)
● Utility Pole
✿ Juniper Tree

Surface Collection Shots

1.	Flake
2.	2 Flakes
3.	4 Flakes
4.	Retouched flake, flake
5.	Flake
6.	Flake
7.	Scraper
8.	Flake
9.	Flake
10.	Core fragment
11.	Flake
12.	Flake
13.	Flake
14.	Flake
15.	Flake
16.	Flake
17.	Angular debris
18.	Flake
19.	Flake
20.	2 Flakes
21.	Flake
22.	Test core
23.	Flake
24.	3 Flakes
25.	Uniface
26.	2 Cores, 2 Flakes
27.	Core
28.	Core
29.	Scraper plane
30.	Scraper, utilized flake, 5 flakes
31.	Flakes



Jacumba Valley Ranch
Site Map of SDi-11,681

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Figure 26

ARTIFACT CATALOG FOR SDI-11,681

Surface Collection

Flaked Lithics	
Tools	
Scrapers: 2 porphyritic volcanic (PV)	2
Scraper planes: 2 PV	2
Utilized flakes: 1 PV	1
Retouched flakes: 1 PV	1
Cores	
Bidirectional: 2 PV	2
Unidirectional: 2 PV	2
Test: 2 PV, 1 volcanic	3
Fragment: 1 PV	1
Debitage	
Primary flakes: 2 PV	2
Secondary flakes: 24 PV	24
Interior flakes: 18 PV	18
Angular debris: 2 PV, 1 quartz	3
TOTAL	**61**

Lithic Reduction Station

Flaked Lithics	
Debitage	
Primary flakes: 2 PV	2
Secondary flakes: 18 PV	18
Interior flakes: 24 PV	24
Angular debris: 1 PV	1
TOTAL	**45**

Subsurface

Shovel Test 1
Negative

Shovel Test 2
Negative

Shovel Test 3
Negative

Resource Nos.
SDi: 11,681
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: 11,681
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: 11,681
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site was not found to be significant so direct impacts have not been addressed.

Indirect Impacts:

N/A

Mitigation recommendations:

Check:

_X_ None
_____ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,681 has been documented and collected so warrants no mitigation measures.

Resource Nos.
SDi-<u>11,682</u>
W _____

County Application No.

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3610820N 578700E

Size: 300 square meters
25 meters long (long axis)
12 meters wide (short axis)

Depth: 0 centimeters

State basis for determination: Excavation of 2 shovel tests.

List cultural materials observed (Estimate number if possible):

1 unidirectional core, 1 core fragment, and 5 secondary flakes--all porphyritic volcanic material (4 slightly different types).

	Check:
Surface Only	**X**
Midden	
Features	
Structures	

Briefly describe the site: The site is a small, isolated lithic scatter with no subsurface component.

Describe any features noted: none

Indicate slope classification where site is located:
0-15% <u>X</u>
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: An intermittent drainage lies 240m southwest.

Describe previous disturbance: none apparent

Describe any previous investigations: none

Resource Nos.
SDi-11,682
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

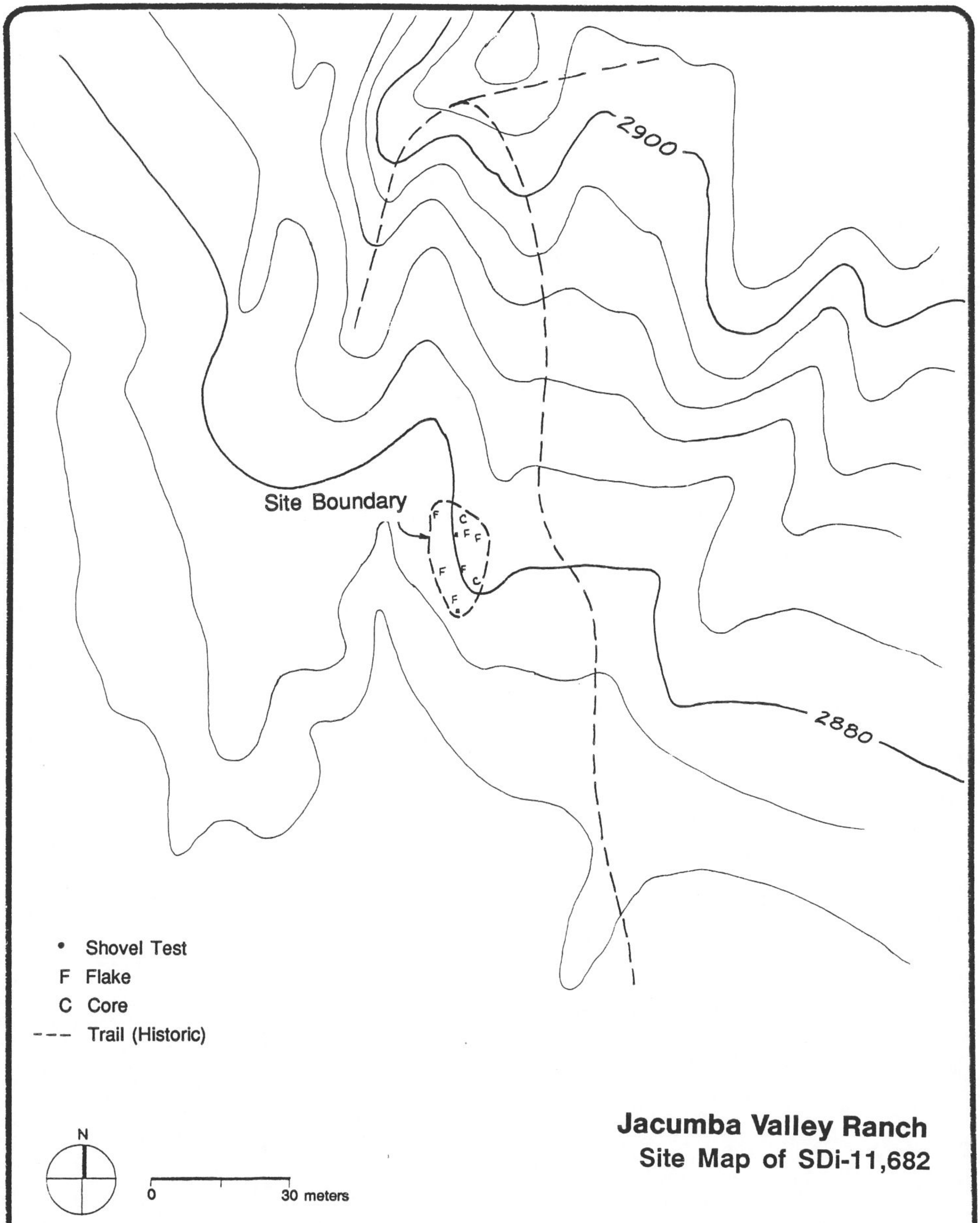
Site extent and location of surface artifacts were plotted on a 200 scale map. A shovel test was excavated to determine the existence of subsurface material and the 7 surface artifacts were collected.

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

No materials were recovered subsurface.



Jacumba Valley Ranch
Site Map of SDi-11,682

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Figure 27

Resource Nos.
SDi: 11,682
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: 11,682
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: 11,682
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site was not found to be significant so direct impacts have not been addressed.

Indirect Impacts:

N/A

Mitigation recommendations:

Check:

_X_ None
_____ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,682 has been documented and collected so warrants no mitigation measures.

Resource Nos.
SDi-11,683
W _____

County Application No.

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3610340N 578610E

Size: 4,800 square meters 80 meters long (long axis)
60 meters wide (short axis)

Depth: 0-5 centimeters

State basis for determination: Excavation of 2 1x1m units.

List cultural materials observed (Estimate number if possible):

Surface: 1 cobble hammer, 3 cores, 4 core fragments, 49 flakes, and 9 pieces of angular debris.

Subsurface: 1 flake and 5 pieces angular debris (see catalog).

	Check:
Surface Only	X
Midden	
Features	X
Structures	

Briefly describe the site: The site is a low density lithic scatter representing a raw material procurement and reduction area comprised of 4 lithic reduction stations and scattered test cores and debitage, probably associated with SDi-7055 to the south.

Describe any features noted: 4 lithic reduction stations (see map and catalog)

Indicate slope classification where site is located:
0-15% X
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: An intermittent drainage lies 75m south.

Describe previous disturbance: none apparent except recent littering.

Describe any previous investigations: see Townsend 1986 regarding SDi-7055

Resource Nos.
SDi-11,683
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

Site extent and location of surface artifacts were plotted on a 200 scale map. Two units were excavated where lithic reduction stations occurred. All the surface artifacts were collected.

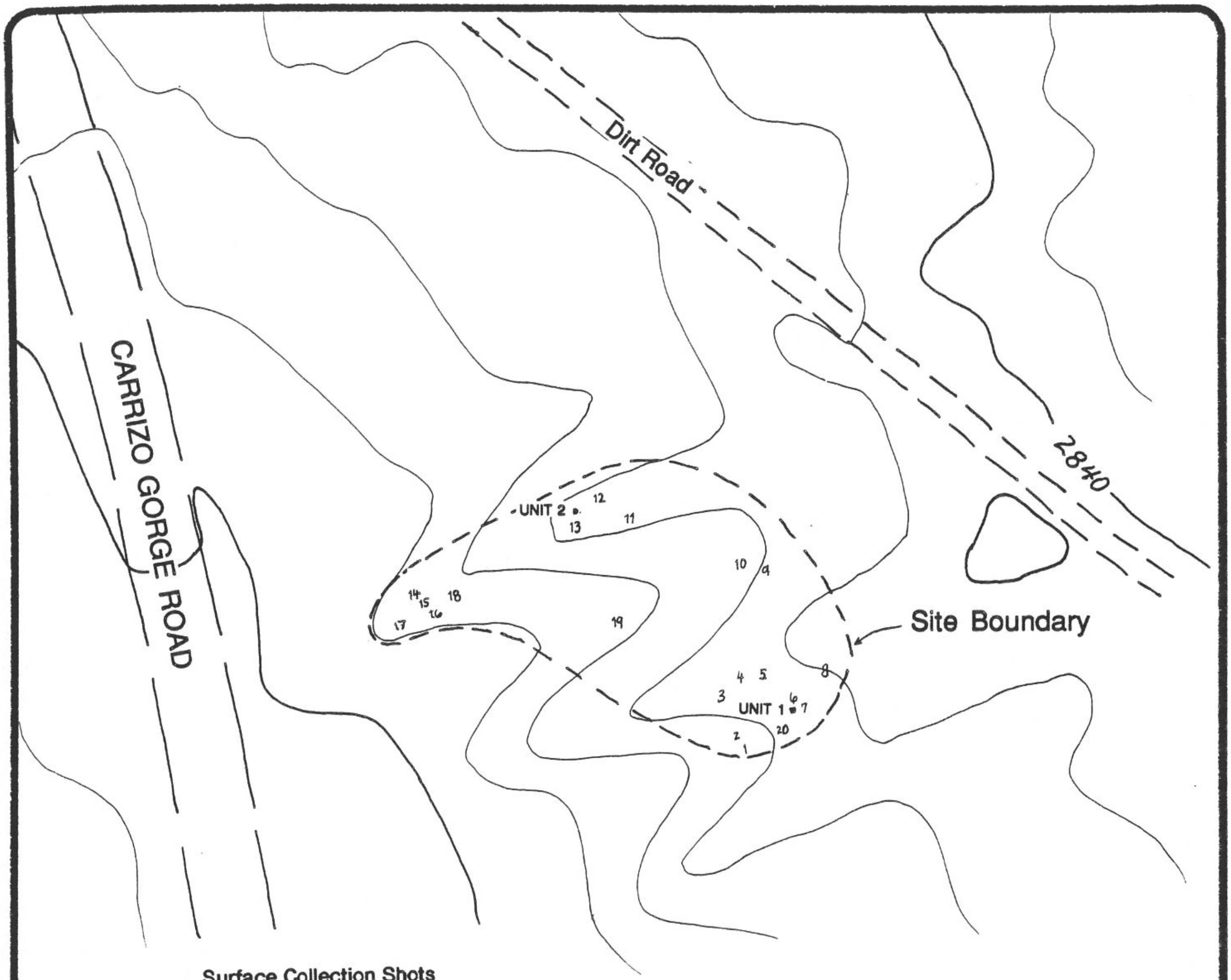
Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

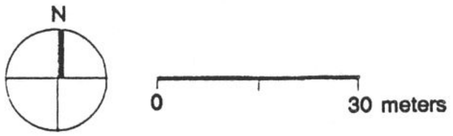
Maximum depth of recovered artifacts was 5cm, in Unit 1 which was located near the base of a small ridge where erosional soils have probably accumulated. Compact subsoil was encountered at 8cm

Compact subsoil was encountered at 5cm in Unit 2, which was excavated along the spine of a ridge. No cultural materials were recovered below the surface.



Surface Collection Shots

1. Flake
2. Flake
3. Flake
4. Flake
5. Flake
6. Hammerstone
7. Core
8. 2 Flakes
9. 2 Core fragments
10. Lithic Reduction Station: Core, 12 Flakes
11. Flake
12. Flake
13. Core, Flake
14. Flake
15. 2 Flakes
16. Flake
17. 2 Flakes
18. Flakes
19. Lithic Reduction Station: Core, 9 Flakes
20. 2 Angular debris



Jacumba Valley Ranch
Site Map of SDi-11,683

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associates
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Figure 28

ARTIFACT CATALOG FOR SDI-11,683

Surface Collection

Flaked Lithics	
Tools	
Cobble hammer: 1 quartzite	1
Cores	
Bidirectional: 1 porphyritic volcanic (PV)	1
Unidirectional: 2 PV	2
Fragments: 2 PV, 2 quartz	4
Debitage	
Primary flakes: 1 PV	1
Secondary flakes: 23 PV	23
Interior flakes: 12 PV	12
Angular debris: 4 PV	4
TOTAL	**48**

Subsurface

Unit 1 Surface - Lithic Reduction Station	
Flaked Lithics	
Debitage	
Secondary flakes: 6 PV	6
Angular debris: 2 PV	2
0-8cm (maximum depth)	
Flaked Lithics	
Debitage	
Primary flakes: 1 PV	1
Angular debris: 5 PV	5
Unit 2 Surface - Lithic Reduction Station	
Flaked Lithics	
Debitage	
Secondary flakes: 9 PV	9
Angular debris: 3 PV	3
0-5cm (maximum depth)	
Negative	
TOTAL Subsurface	**26**

Resource Nos.
SDi: 11,683
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: 11,683
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: 11,683
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site was not found to be significant so direct impacts have not been addressed.

Indirect Impacts:

N/A

Mitigation recommendations:

Check:

_X_ None
_____ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,683 has been documented and collected so warrants no mitigation measures.

Resource Nos. **County Application No.**
SDi-11,684
W _____

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3610610N 578570E

Size: 48 square meters 8 meters long (long axis)
6 meters wide (short axis)

Depth: 0 centimeters

State basis for determination: Excavation of 1 shovel test.

List cultural materials observed (Estimate number if possible):

1 bidirectional core, 1 test core and 3 secondary flakes---all porphyritic volcanic (each a different type).

	Check:
Surface Only	**X**
Midden	
Features	
Structures	

Briefly describe the site: The site is a small, isolated lithic scatter on a low terrace.

Describe any features noted: none

Indicate slope classification where site is located: **0-15% _X_**
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: An intermittent drainage (wash) lies 240m southwest.

Describe previous disturbance: none apparent, however, a dirt road lies 6m away.

Describe any previous investigations: none

Resource Nos.
SDi-11,684
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

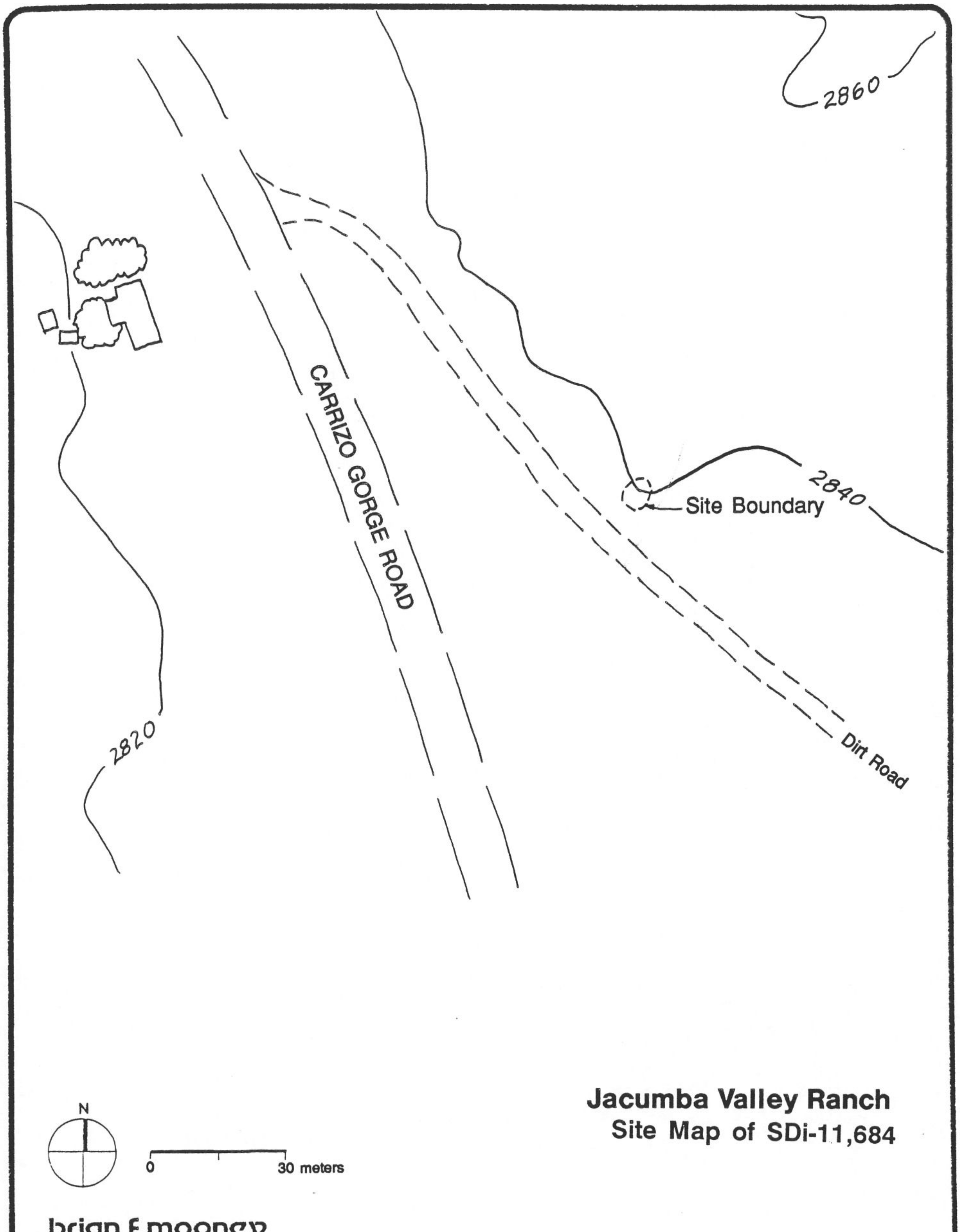
Site extent and location of surface artifacts were plotted on a 200 scale map. One shovel test was excavated to 10cm in sterile sandy loam. All the surface artifacts were collected.

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

No materials were recovered subsurface.



Jacumba Valley Ranch
Site Map of SDi-11,684

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Figure 29

Resource Nos.
SDi: 11,684
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi-11,686
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

Site extent and location of surface artifacts were plotted on a 200 scale map. Three units and 7 shovel tests were excavated to 10cm. All surface artifacts were collected and cataloged, noting reduction stations.

Attach completed site record forms and indicate date submitted:

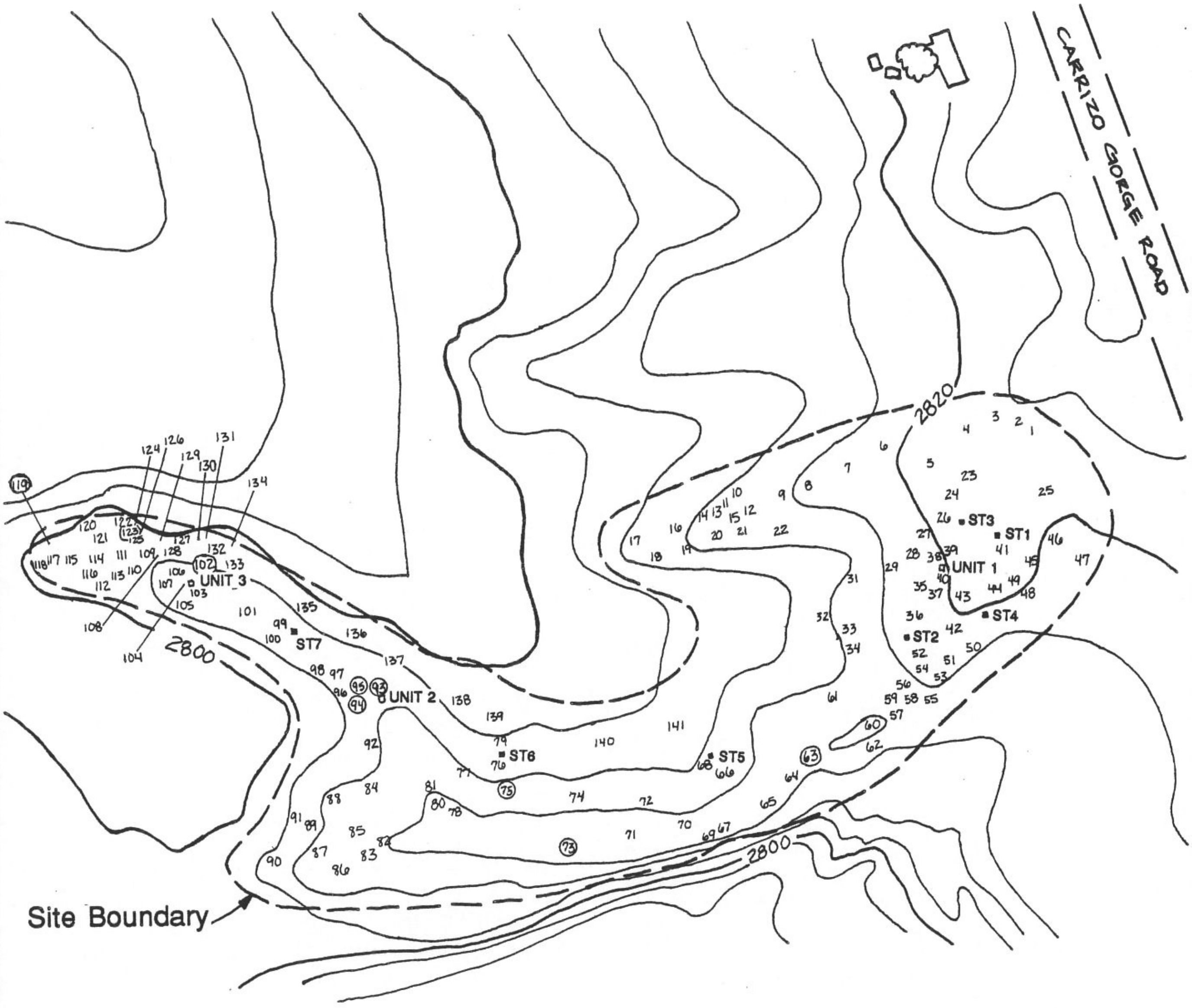
Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

All three units were sterile along with 6 of the shovel tests. Shovel Test 1 had two flakes on the surface and another two were recovered subsurface but at a depth of no more than 5cm.

Unit 2 had a core and 2 flakes on the surface. The core was originally part of one of the flakes which was subsequently flaked.

Lithic data was used for comparative analysis with 4 other sites in project area.



ST 1 Shovel Test
○ Lithic Reduction Station
74 Surface Collection Shot

N

0 30 meters

Jacumba Valley Ranch

Site Map of SDi–11,686

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Figure 31

ARTIFACT CATALOG FOR SDI-11,686

Surface Inventory

Flaked Lithics			
	Tools		
		Scrapers: 3 porphyritic volcanic (PV)	3
		Scraper planes: 3 PV (morphological)	3
		Choppers: 2 PV, 1 quartzite (QT)	3
		Bifaces: 3 PV	3
		Utilized flakes: 3 PV	3
		Retouched flakes: 2 PV	2
	Cores		
		Unidirectional: 20 PV	20
		Bidirectional: 22 PV	22
		Multidirectional: 12 PV, 1 volcanic (V)	13
		Bifacial: 2 PV	2
		Test: 2 PV	2
		Fragments: 6 PV	6
	Debitage		
		Primary flakes: 16 PV	16
		Secondary flakes: 208 PV	208
		Interior flakes: 138 PV	138
		Angular debris: 21 PV	21
Ceramics			
	Vessel sherds		
		Body: 1	1
TOTAL			**466**

Subsurface

Unit 1 0-10cm
Negative

Unit 2 Surface

Flaked Lithics			
	Cores		
		Unidirectional: 1 PV	1
	Debitage		
		Secondary flakes: 2 PV	2

Shovel Test 1 0-10cm

Flaked Lithics			
	Debitage		
		Secondary flakes: 3 PV	3
		Interior flakes: 1 PV	1

Resource Nos.
SDi: 11,684
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: 11,684
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site was not found to be significant so direct impacts have not been addressed.

Indirect Impacts:

N/A

Mitigation recommendations:

Check:

_X_ None
_____ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,684 has been documented and collected so warrants no mitigation measures.

Resource Nos. **County Application No.**
SDi-11,685
W _____

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3610810N 578380E

Size: 300 square meters 25 meters long (long axis)
12 meters wide (short axis)

Depth: 0 centimeters

State basis for determination: Excavation of 1 shovel test.

List cultural materials observed (Estimate number if possible):

1 morphological chopper (a reworked core at least), and 2 secondary flakes-all porphyritic volcanic (but not the same).

	Check:
Surface Only	X
Midden	
Features	
Structures	

Briefly describe the site: The site is a small, isolated lithic scatter on a low terrace.

Describe any features noted: none

Indicate slope classification where site is located:
0-15% X
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: An intermittent drainage (wash) lies 400m south.

Describe previous disturbance: This area has been moderately disturbed by road construction and vehicle activity associated with the road.

Describe any previous investigations: none

Resource Nos.
SDi-11,685
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

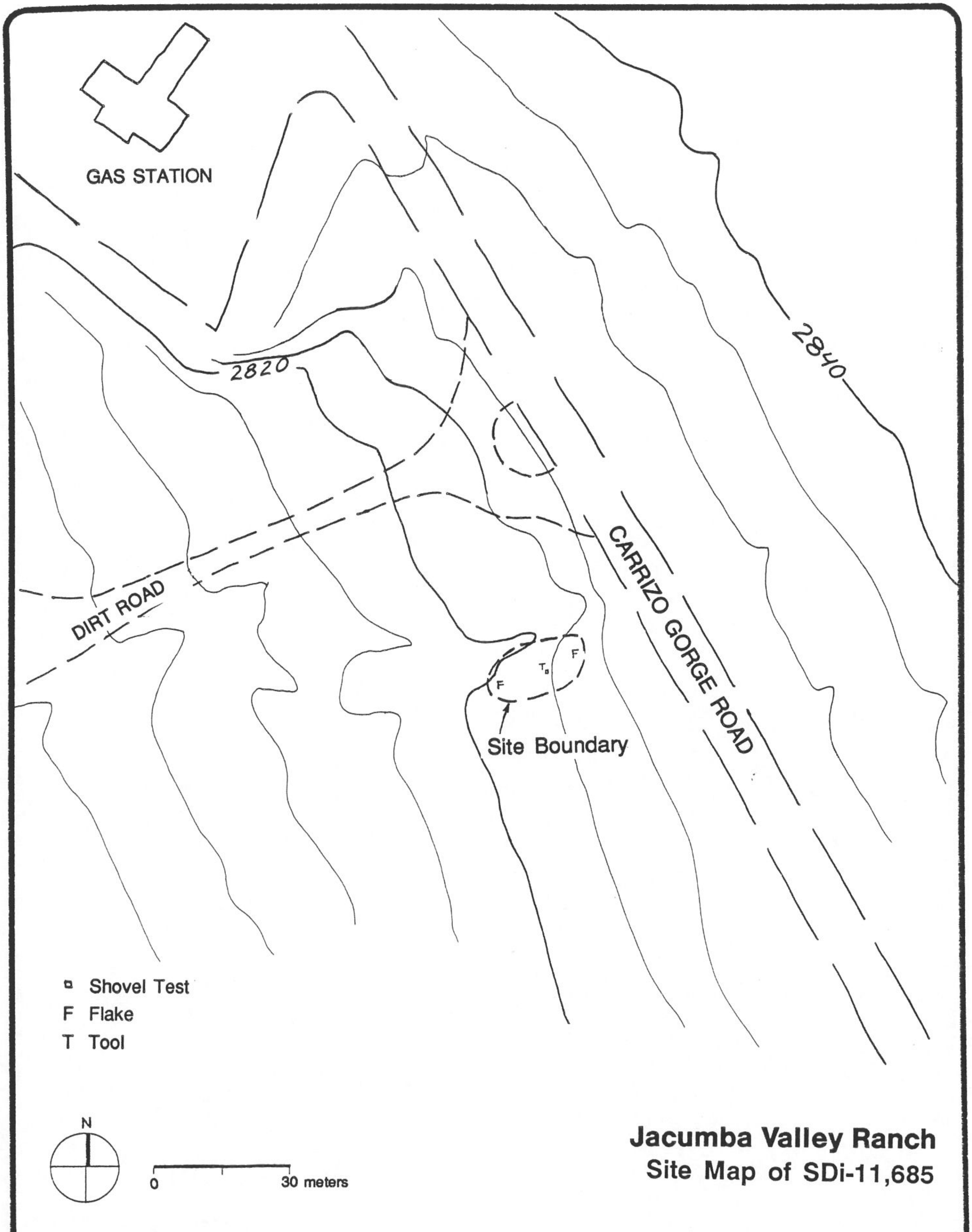
Site extent and location of surface artifacts were plotted on a 200 scale map. One shovel test was excavated to 10cm in sterile sandy loam. All surface artifacts were collected.

Attach completed site record forms and indicate date submitted:

Institution	Submittal date
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

No materials were recovered subsurface.



Jacumba Valley Ranch
Site Map of SDi-11,685

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Figure 30

Resource Nos.
SDi: 11,685
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: 11,685
W: ____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: 11,685
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site was not found to be significant so direct impacts have not been addressed.

Indirect Impacts:

N/A

Mitigation recommendations:

Check:

_X_ None
_____ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,685 has been documented and collected so warrants no mitigation measures.

Resource Nos. **County Application No.**
SDi-11,686
W _____

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3610400N 578300E

Size: 30,000 **square meters** 300 **meters long (long axis)**
100 **meters wide (short axis)**

Depth: 0-5 **centimeters**

State basis for determination: Excavation of 3 1x1m units and 7 shovel tests.

List cultural materials observed (Estimate number if possible):

Surface collection: 3 scrapers, 3 scraper planes, 3 choppers, 3 bifaces, 3 utilized flakes, 3 retouched flakes, 20 unidirectional cores, 22 bidirectional cores, 2 bifacial cores, 2 test cores, 6 core fragments, 16 primary flakes, 208 secondary flakes, 138 interior flakes, 21 angular debris, 1 sherd.

Subsurface: 2 cores, 5 secondary flakes, and 1 interior flakes.

Note: 90% of assemblage was made from porphyritic volcanic material. See catalog for more detail.

	Check:
Surface Only	X
Midden	
Features	
Structures	

Briefly describe the site: The site is a moderate density, widely dispersed lithic scatter representing a raw material procurement/reduction and resource extraction area comprised of (at least) 6 lithic reduction stations and numerous scattered test cores, reduced cores, debitage and several flaked lithic tools.

Describe any features noted: Six lithic reduction stations: **1** (shot 63): 10 flakes of 1 material, 2 flakes of another; **2** (73): 8 of 1 mat., 4 of other; **3** (75): 18 of 1 mat, 13 of another, 10 of third kind; **4** (102): 14 of same mat; **5** (119): 9 flakes and 1 core of same, 1 core of other; **6** (123): 11 of 1 mat, 6 of another, 3 of same quartzite, 1 other.

Indicate slope classification where site is located:
0-15% X
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: An intermittent drainage (wash) lies 10m south.

Describe previous disturbance: Site area is moderately disturbed by cattle grazing activity.

Describe any previous investigations: none

Shovel Test 2 Surface	
Flaked Lithics	
Cores	
Unidirectional: 1 PV (possible tool)	1

Shovel Test 3
Negative

Shovel Test 4
Negative

Shovel Test 5
Negative

Shovel Test 6
Negative

Shovel Test 7
Negative

TOTAL Subsurface	**8**

Resource Nos.
SDi: 11,686
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: 11,686
W: ____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: 11,686
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The entire site will receive direct impacts from the development of the golf course and will be destroyed.

Indirect Impacts:

N/A

Mitigation recommendations:

Check:

_X_ None
_____ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,686 has been documented and collected so warrants no mitigation measures. measures.

Resource Nos.
SDi-11,688
W ____

County Application No.

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3610045N 577880E

Size: 2,000 square meters
50 meters long (long axis)
40 meters wide (short axis)

Depth: 0 centimeters

State basis for determination: Excavation of 2 shovel tests.

List cultural materials observed (Estimate number if possible):

Surface: 2 unidirectional core, 1 bidirectional core, 1 core fragment, 2 primary flakes, 15 secondary flakes, 6 interior flakes, and 2 Brownware sherds (same vessel).

	Check:
Surface Only	X
Midden	
Features	
Structures	

Briefly describe the site: The site consists of a small lithic scatter with two associated ceramic sherds found in the adjacent flood plain.

Describe any features noted: none

Indicate slope classification where site is located:
0-15% X
16-25% ____
Over 25% ____

What is the distance from site to the nearest water source: Large intermittent drainage (wash) lies 80m northeast.

Describe previous disturbance: The grading of the dirt road on the northeast end may have removed some additional surface artifacts. Erosion appears to have transported artifacts onto the flatter portions of the floodplain.

Describe any previous investigations: none

Resource Nos.
SDi-11,688
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

Site extent and location of surface artifacts were plotted on a 200 scale map. Two shovel tests were excavated to 10cm. All surface artifacts were collected.

Attach completed site record forms and indicate date submitted:

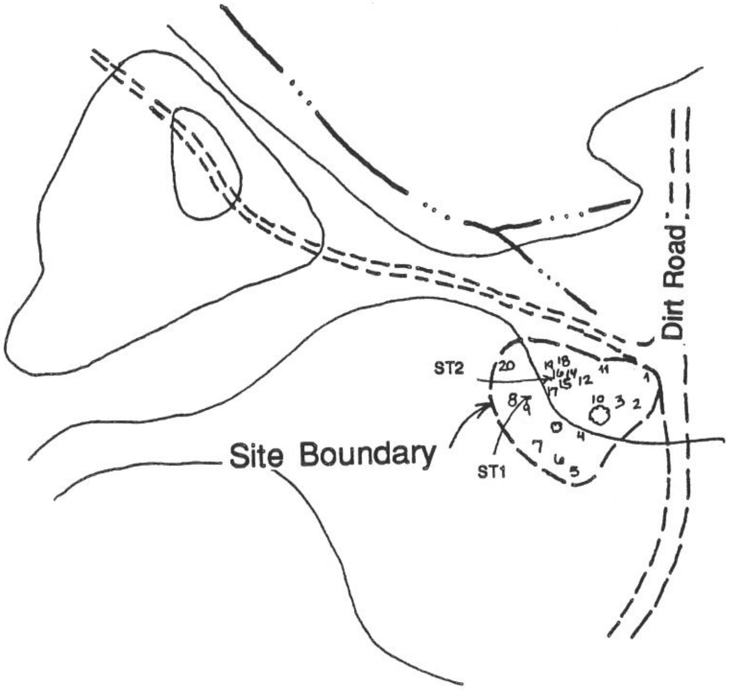
Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

Both shovel tests were sterile.

Surface Collection Shots

1. 2 Flakes
2. Core
3. 2 Flakes
4. Flake
5. Core
6. 2 Sherds
7. Core, Flake
8. Flake
9. Flake
10. Flake
11. Flake
12. Flake
13. Core, 2 Flakes
14. 2 Flakes
15. 2 Flakes
16. Flake
17. Flake
18. Flake
19. Flake
20. Flake



Jacumba Valley Ranch
Site Map of SDi–11,688

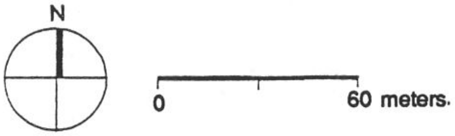


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Figure 32

Resource Nos.
SDi: 11,688
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: 11,688
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: 11,688
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site was not found to be significant so direct impacts have not been addressed.

Indirect Impacts:

N/A

Mitigation recommendations:

Check:

- _X_ None
- _____ Preservation (attach map of open space)
- _____ Surface map (show area to be mapped)
- _____ Initial subsurface test (nature/extent)
- _____ Excavation program (nature and extent)
- _____ Historic documentation (describe)
- _____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,688 has been documented and collected so warrants no mitigation measures.

Resource Nos.
SDi-11,689
W _____

County Application No.

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3608560N 576900E

Size: 44,100 square meters 210 meters long (long axis)
210 meters wide (short axis)

Depth: 25 centimeters

State basis for determination: Excavation of 2 1x1m units.

List cultural materials observed (Estimate number if possible):

Partial surface collection yielded: 5 Cottonwood Triangular projectile point fragments (4 concave base, 1 straight), 1 Desert Side-Notched point fragment, 8 point preforms, 1 "biface", 1 possible knife fragment, 4 scrapers, 8 core hammers, 1 cobble hammer, 2 hammer/abraders, 2 choppers, 7 utilized flakes, 4 retouched flakes, 5 manos, 4 metate fragments, 30 cores, 602 flakes, 591 Brownware sherds, 177 Buffware sherds, 1 pipe fragment, and 1 Olivella shell disc bead. Additional flakes, cores and sherds exist on the surface. See attached catalog.

Check:

Surface Only
Midden
Features
Structures

Briefly describe the site: The site appears to be a Late Prehistoric temporary camp (possibly for mesquite procurement and processing) situated in the valley floor (flood plain), probably associated with the large village of Hakum to the west. The site appears to be a southern extension of SDi-8072, a similar site located to the north (the area immediately north of this site is outside of the project property and was not investigated).

Describe any features noted: none

Indicate slope classification where site is located: **0-15%** X
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: Currently Boundary Creek, 1.5km west. The natural drainage course that drained from Mexico into the valley was been altered in the past.

Describe previous disturbance: Area has been plowed and cattle currently graze throughout the flood plain. Alluvium is periodically deposited in the flood plain and wind erosion is extreme, covering and uncovering artifacts.

Describe any previous investigations: none

Resource Nos.
SDi-11,689
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

Site extent was plotted on a 200 scale map. Locations of "diagnostic" surface artifacts (rim sherds, pipe fragment, a point and obsidian) were shot in using a Brunton compass and permanent datum points, and then collected. An inventory of surface artifacts was made and two 1x1m units were excavated to a maximum depth of 50cm. Three 8-10m long trenches were excavated 1.5-2m deep in the central portion of the site. Prior to trenching, two 210m long by 20m wide perpendicular strips were 100% surface collected in 10 square meter intervals, to clear the area of all cultural materials (see site map).

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

Unit 1, located 90m north of the primary datum, was excavated to 50cm in the loosely compacted alluvial silt beds resulting in the recovery of 5 pieces of debitage and 1 sherd within the upper 25cm (see artifact catalog). The soil became more reddish brown below 30cm and was sterile.

Unit 2, located 60m west of a point 120m north of the datum, was excavated to 40cm and yielded 1 sherd and one piece of angular debris in the first 20cm of silty sand only.

The pre-trench surface collection grids resulted in the recovery of 4 points, 7 preforms, 12 core tools, 4 scrapers, 1 cobble tool, 7 utilized flakes, 4 retouched flakes, 5 manos, 4 metate fragments, 29 cores, 596 pieces of debitage, 740 sherds (37 rims), 1 shell bead, 1 fragment of marine shell, and 18 fragments of bone (see attached catalog).

TABLE 24

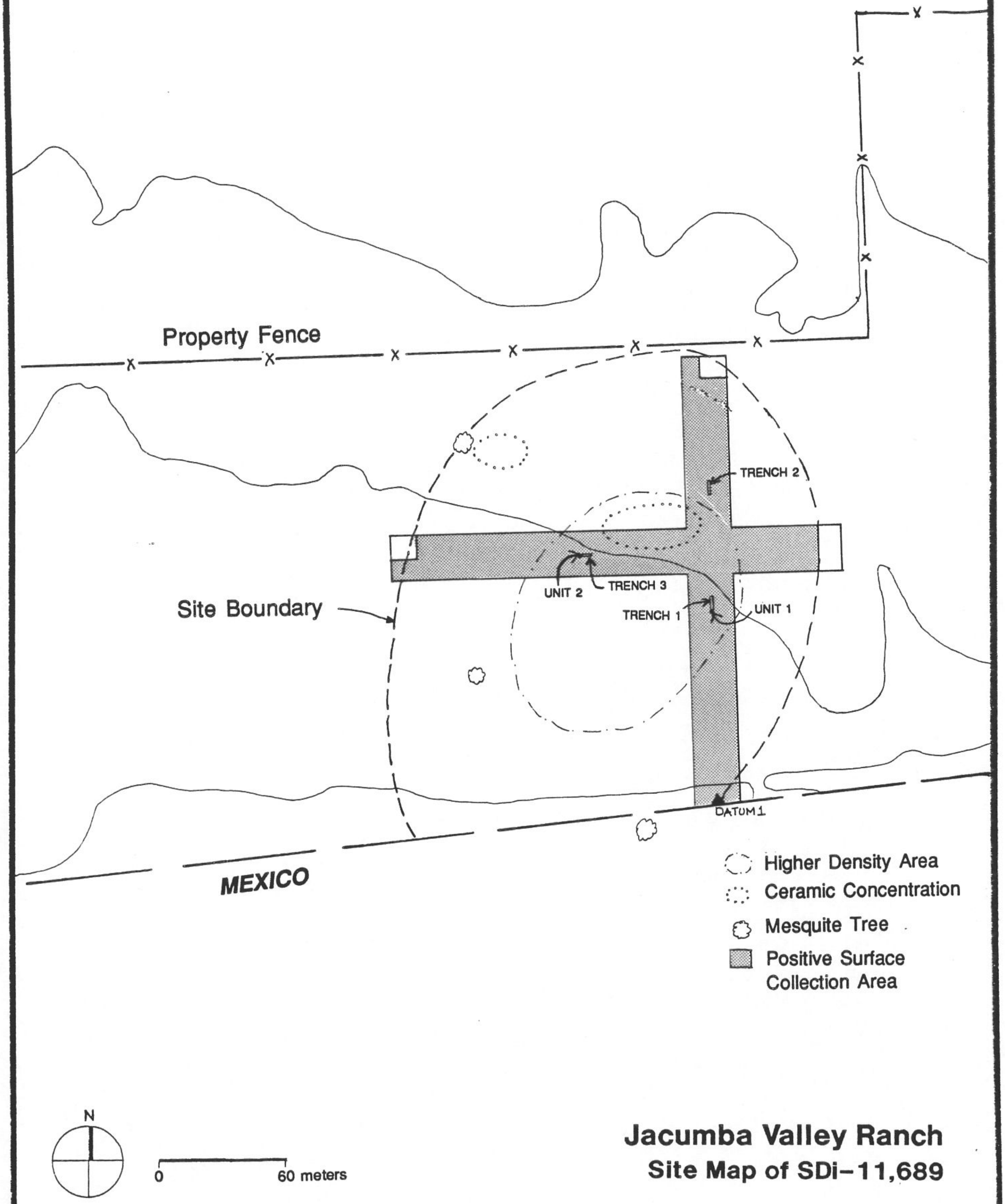
FLAKE TYPE BY RAW MATERIAL

(Surface flakes only)

	Porphyritic Volcanic	Volcanic	Quartz	Chal-cedony	Chert	Obsidian	Quartzite	Basalt*	Other+	TOTAL	%
Primary	8									8	1
Secondary	119	14		12				1	1	147	25
Interior	305	26	22	13	13	6	2	1	1	389	65
Angular debris	37	3	7	4	4					55	9
TOTAL	469	43	29	29	17	3	2	2	2	599	100%
%	(78)	(7)	(4.8)	(4.8)	(3)	(1)	(0.3)	(0.3)	(0.3)		

* Black, aphanitic, fine grained

\+ Possibly metavolcanic–smooth, grainless texture



Jacumba Valley Ranch
Site Map of SDi-11,689

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Figure 33

ARTIFACT CATALOG FOR SDI-11,689

Surface Collection (partial)

Flaked Lithics			
	Tools		
		Projectile points: 1 quartz (Q) Cottonwood Triangular concave base fragment, 1 chert (CH) Desert Side-notched fragment, 1 Q, 1 CH, 1 obsidian (O) fragments	5
		Preforms: 4 Q, 2 chalcedony (C), 1 CH, 1 O	8
		Knives(?): 1 O mid section	1
		Scrapers: 3 porphyritic volcanic (PV), 1 volcanic (V)	4
		Choppers: 2 PV	2
		Core hammers: 7 PV, 1 V	8
		Cobble Hammers: 1 PV	1
		Hammer/abraders: 2 PV	2
		Utilized flakes: 6 PV, 1 V	7
		Retouched flakes: 3 PV, 1 C	4
		Biface blanks?: 1 Q	1
	Cores		
		Unidirectional: 2 PV, 1 V	3
		Bidirectional: 3 PV	3
		Multidirectional: 5 PV, 2 C	7
		Test: 1 Q	1
		Fragments: 12 PV, 1 Q, 1 CH, 1 C, 1 unidentified (U)	16
	Debitage		
		Primary flakes: 8 PV	8
		Secondary flakes: 119 PV, 14 V, 12 C, 1 basalt (B), 1 metavolcanic? (MV)	147
		Interior flakes: 305 PV, 26 V, 22 Q, 13 CH, 13 C, 6 O, 2 quartzite (Qt) 1 B, 1 MV?	389
		Angular debris: 37 PV, 7 Q, 4 CH, 4 C, 3 V	55
Groundstone			
	Manos		
		Bifacial: 2 granitic (G), 1 Q, 1 U	4
		Unifacial: 1 U	1
	Metates		
		Slab: 2 G, 1 schist fragments	3
		Basin: 1 G fragment	1
Ceramics			
	Pipe		
		Fragments: 1 Br	1
	Vessel sherds		
		Rims: 40 Brownware (Br), 25 Buffware (Bf)	65
		Body: 551 Br, 152 Bf	703
Ornaments			
	Beads		
		Shell: 1 Olivella disk?	1
Faunal Remains			
	Bone		
		Large mammal: 18 burnt fragments, 21.2g	18
		Small mammal: 2 fragments, 0.5g	2
Historics			
		Miscellaneous: 1 lead "bead", 1 shell button	2
		Glass: 1 amethyst bottle fragment	1
TOTAL Artifacts			**1452**

Subsurface

Unit 1 0-10cm	
Flaked Lithics	
Debitage	
Interior flakes: 2 V, 1 PV	3
10-20cm	
Flaked Lithics	
Debitage	
Angular debris: 1 PV	1
20-30cm	
Flaked Lithics	
Debitage	
Angular debris: 1 PV	1
Ceramics	
Vessel sherds	
Body: 1 Br	1
Unit 2 0-10cm	
Ceramics	
Vessel sherds	
Body: 1 Br	1
10-20cm	
Flaked Lithics	
Debitage	
Angular debris: 1 PV	1
20-30cm	
Negative	
30-40cm	
Negative	
TOTAL Subsurface	**8**

Resource Nos.
SDi: 11,689
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

Refer to suggested research questions in preceding section of report.

Resource Nos.
SDi: 11,689
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

Refer to data requirements listed in preceding section of report.

Resource Nos.
SDi: 11,689
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site will not receive direct impacts at this phase of development. Direct impacts will be addressed in the future.

Indirect Impacts:

The site may receive indirect impacts due to the project development causing an increase in population resulting in the possibility of pot-hunting/vandalism or other forms of disturbance to and/or destruction of the site prior to employing mitigation measures.

Mitigation recommendations:

Check:

_____ None
_X_ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,689 is to be preserved in open space until a future phase of development at which time a data recovery program will be determined. The easement boundary is to be the same as the site boundary (see site map).

Resource Nos. **County Application No.**

SDi-11,690

W _____

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):

UTM 11 3609850N 576810E

Size: 3,000 square meters 75 meters long (long axis)
40 meters wide (short axis)

Depth: 0-5 centimeters

State basis for determination: Excavation of 1 unit and 1 shovel test.

List cultural materials observed (Estimate number if possible):

Surface collection: 1 preform fragment, 1 chopping tool, 1 utilized flake, 3 retouched flakes, 2 cores, 2 core fragments, and 125 flakes.

Subsurface: 1 flake (see attached catalog).

	Check:
Surface Only	X
Midden	
Features	X
Structures	

Briefly describe the site: The site is a lithic scatter comprised of tools, cores and flakes associated with a bedrock rub.

Describe any features noted: a 30x30cm rub worn on a volcanic bedrock boulder.

Indicate slope classification where site is located: 0-15% _X_
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: Intermittent drainage lies 150m southeast.

Describe previous disturbance: Site area appears only minimally disturbed by slope erosion.

Describe any previous investigations: none

Resource Nos.
SDi-11,690
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

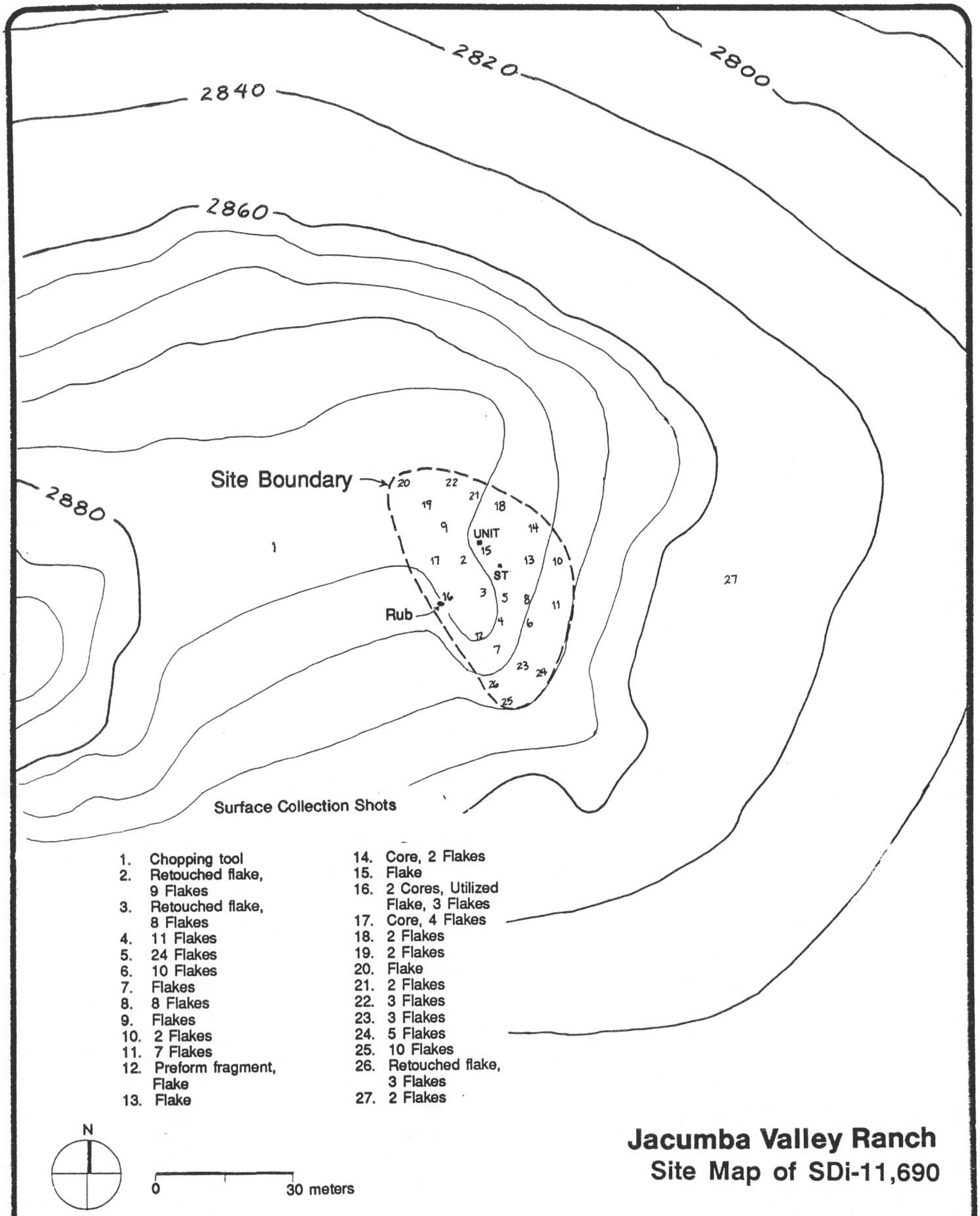
Site extent and location of surface artifacts were plotted on a 200 scale map. The unit and shovel test were excavated to 10-15cm (compact subsoil). All surface artifacts were collected.

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

Only one flake was recovered from the first 5cm of Unit 1. The shovel test was sterile.



Surface Collection Shots

1. Chopping tool
2. Retouched flake, 9 Flakes
3. Retouched flake, 8 Flakes
4. 11 Flakes
5. 24 Flakes
6. 10 Flakes
7. Flakes
8. 8 Flakes
9. Flakes
10. 2 Flakes
11. 7 Flakes
12. Preform fragment, Flake
13. Flake
14. Core, 2 Flakes
15. Flake
16. 2 Cores, Utilized Flake, 3 Flakes
17. Core, 4 Flakes
18. 2 Flakes
19. 2 Flakes
20. Flake
21. 2 Flakes
22. 3 Flakes
23. 3 Flakes
24. 5 Flakes
25. 10 Flakes
26. Retouched flake, 3 Flakes
27. 2 Flakes

Jacumba Valley Ranch
Site Map of SDi-11,690

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Figure 34

ARTIFACT CATALOG FOR SDI-11,690

Surface Collection

Flaked Lithics	
Tools	
Bifaces: 1 Q fragment (preform?)	1
Chopping tools: 1 PV	1
Utilized flakes: 1 PV	1
Retouched flakes: 3 PV	3
Cores	
Unidirectional: 2 PV fragments	2
Fragment: 2 Q	2
Debitage	
Secondary flakes: 29 PV, 6 V	35
Interior flakes: 56 PV, 19 Q, 9 V	84
Angular debris: 5 PV, 1 Q	6
TOTAL	**134**

Subsurface

Unit 1 0-10cm	
Flaked Lithics	
Debitage	
Interior flakes: 1 PV	1

Shovel Test
Negative

Resource Nos.
SDi: 11,690
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: 11,690
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: 11,690
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site will not receive any impacts from the project as proposed and is located in an area designated natural open space.

Indirect Impacts:

None, since the site has been determined to be insignificant.

Mitigation recommendations:

Check:

_X_ None
_____ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,690 has been documented and collected so warrants no mitigation measures.

Resource Nos. **County Application No.**
SDi-11,691
W _____

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3610280N 576915E

Size: 570 square meters 38 meters long (long axis)
15 meters wide (short axis)

Depth: 0 centimeters

State basis for determination: Excavation of 1 shovel test.

List cultural materials observed (Estimate number if possible):

Surface: 1 bidirectional core, 1 multidirectional core, 1 core fragment, 6 secondary flakes, and 1 interior flake--all porphyritic volcanic.

	Check:
Surface Only	**X**
Midden	
Features	
Structures	

Briefly describe the site: The site is a small lithic scatter comprised of cores and flakes.

Describe any features noted: none

Indicate slope classification where site is located:
0-15% _X_
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: A spring fed marsh lies 40m east.

Describe previous disturbance: Site area appears only minimally disturbed by slope erosion.

Describe any previous investigations: none

Resource Nos.
SDi-11,691
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

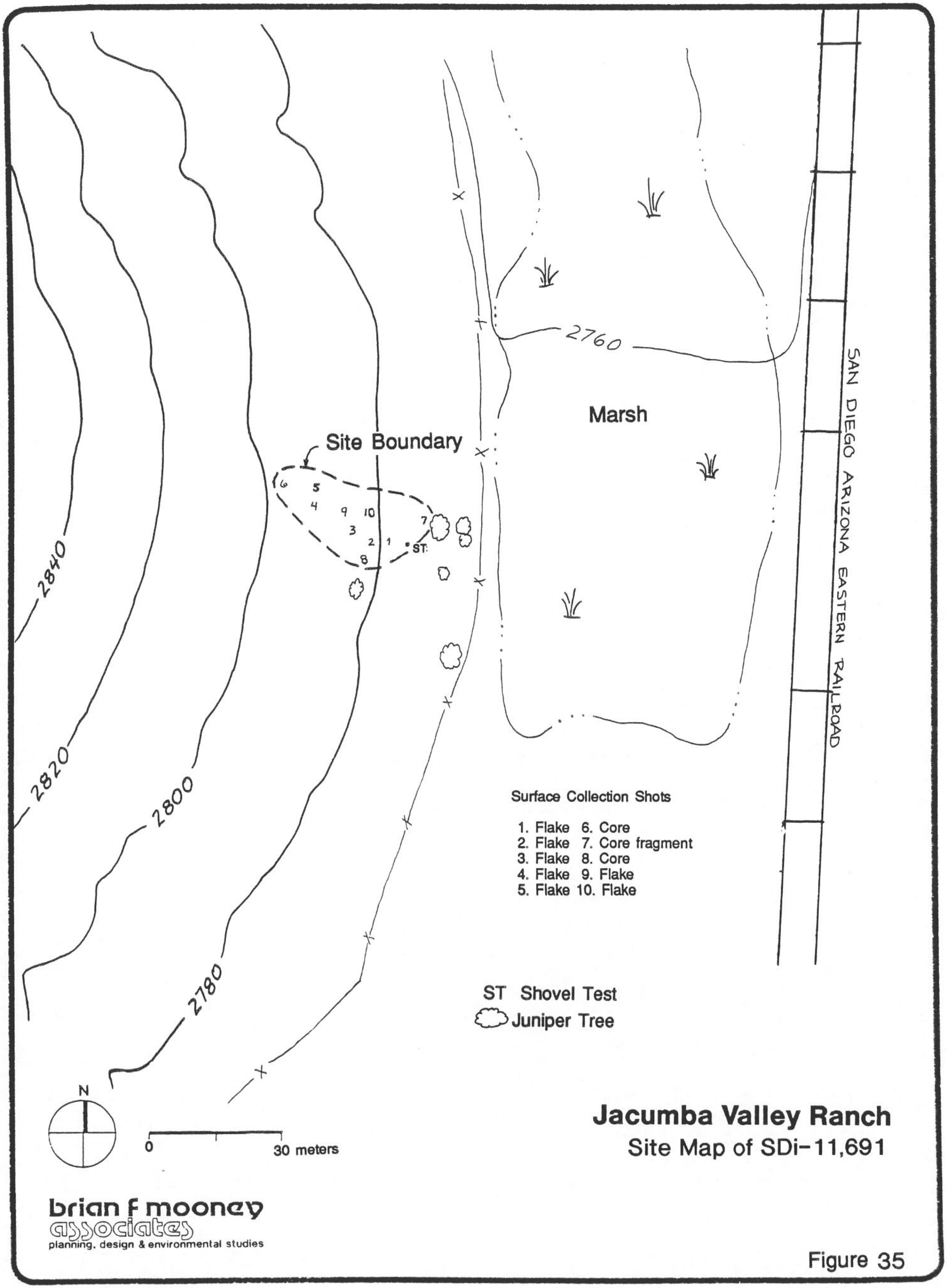
Site extent and location of surface artifacts were plotted on a 200 scale map. The shovel test was excavated to 10cm (compact subsoil). All surface artifacts were collected.

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

The shovel test was sterile.



Jacumba Valley Ranch

Site Map of SDi-11,691

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Figure 35

Resource Nos.
SDi: 11,691
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: 11,691
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: 11,691
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site will not receive any impacts from the project as proposed and is located in an area designated natural open space.

Indirect Impacts:

None

Mitigation recommendations:

Check:

__X__ **None**
_____ **Preservation (attach map of open space)**
_____ **Surface map (show area to be mapped)**
_____ **Initial subsurface test (nature/extent)**
_____ **Excavation program (nature and extent)**
_____ **Historic documentation (describe)**
_____ **Other special studies (describe)**

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,691 has been documented and collected so warrants no mitigation measures.

Resource Nos.
SDi-11,692
W _____

County Application No.

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3610420N 576830E

Size: 2 square meters
2 meters long (long axis)
1 meters wide (short axis)

Depth: 0 centimeters

State basis for determination: Excavation of 1 shovel test.

List cultural materials observed (Estimate number if possible):

No cultural materials were observed in the area.

	Check:
Surface Only	
Midden	
Features	X
Structures	

Briefly describe the site: The site is an isolated bedrock milling feature comprised of two slicks on a small boulder on the slope of a ridge, near the base.

Describe any features noted: The two slicks exhibit moderate to heavy use, worn through the desert varnish on the boulder.

Indicate slope classification where site is located:
0-15% X
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: A spring fed marsh lies 130m east, a small dry wash lies 18m south.

Describe previous disturbance: none

Describe any previous investigations: none

Resource Nos.
SDi-11,692
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

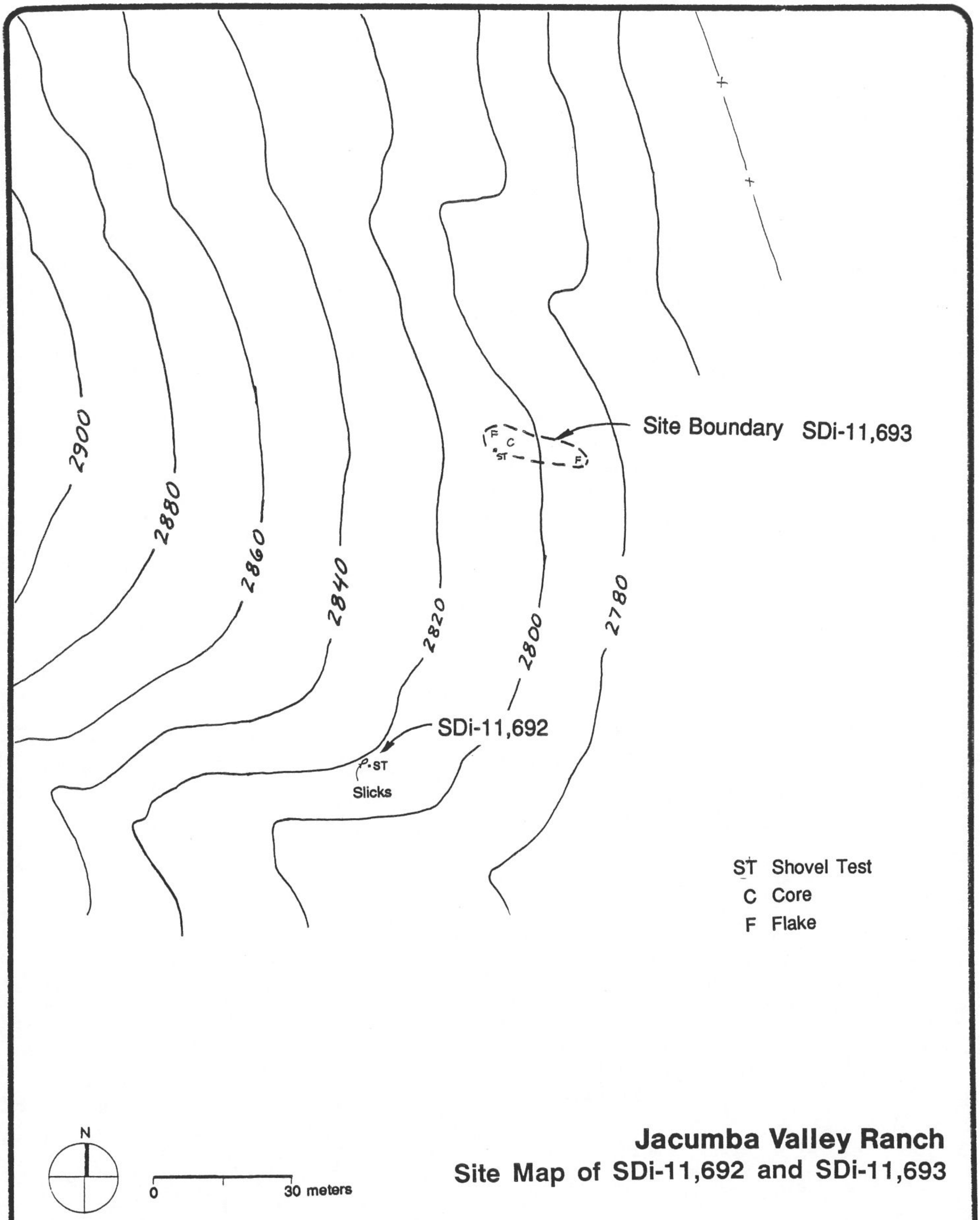
The location of the milling boulder was plotted on a 200 scale map. A shovel test was excavated to 10cm (compact subsoil).

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

The shovel test was sterile.



Jacumba Valley Ranch
Site Map of SDi-11,692 and SDi-11,693

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Figure 36

Resource Nos.
SDi: 11,692
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: 11,692
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: 11,692
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site will not receive any impacts from the project as proposed and is located in an area designated natural open space.

Indirect Impacts:

None

Mitigation recommendations:

Check:

_X_ None
_____ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,692 has been documented and collected so warrants no mitigation measures.

Resource Nos.
SDi-11,693
W _____

County Application No.

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3610520N 576885E

Size: 110 square meters 22 meters long (long axis)
5 meters wide (short axis)

Depth: 0 centimeters

State basis for determination: Excavation of 1 shovel test.

List cultural materials observed (Estimate number if possible):

Surface: 1 unidirectional core and 2 secondary flakes--each of different types of porphyritic volcanic material.

	Check:
Surface Only	X
Midden	
Features	
Structures	

Briefly describe the site: The site is a small lithic scatter near the base of a ridge.

Describe any features noted: none

Indicate slope classification where site is located:
0-15% X
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: A spring fed marsh lies 50m east.

Describe previous disturbance: none

Describe any previous investigations: none

Resource Nos.
SDi-11,693
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

The location of the scatter was plotted on a 200 scale map. The shovel test was excavated to 10cm (compact subsoil). The area was intensively examined and all surface artifacts were collected. See site map for SDi-11,692 (Figure 36).

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

The shovel test was sterile.

Resource Nos.
SDi: **11,693**
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: 11,693
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: 11,693
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site will not receive any impacts from the project as proposed and is located in an area designated natural open space.

Indirect Impacts:

None

Mitigation recommendations:

Check:

_X_ None
_____ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,693 has been documented and collected and warrants no mitigation measures.

Resource Nos.
SDi-11,694
W _____

County Application No.

Resource Form

(Attach one for each resource indicated on Survey sheet)

Location (Attach map):
UTM 11 3610805N 576765E

Size: 128 square meters
16 meters long (long axis)
8 meters wide (short axis)

Depth: 0 centimeters

State basis for determination: Excavation of 1 shovel test.

List cultural materials observed (Estimate number if possible):

Surface: 1 unidirectional core, 1 core fragment, 2 secondary, 4 interior flakes, and 1 piece of angular debris of 3 different types of porphyritic volcanic material. Also one test core of quartzite material.

	Check:
Surface Only	X
Midden	
Features	
Structures	

Briefly describe the site: The site is a small lithic scatter at the base of a ridge.

Describe any features noted: none

Indicate slope classification where site is located:
0-15% _X_
16-25% _____
Over 25% _____

What is the distance from site to the nearest water source: A spring fed marsh lies 280m east, a wide dry wash lies 6m north.

Describe previous disturbance: none

Describe any previous investigations: none

Resource Nos.
SDi-11,694
W _____

Resource Form Continued

List any published references: none

Describe site recording/collecting procedures (attach maps and tables as needed).

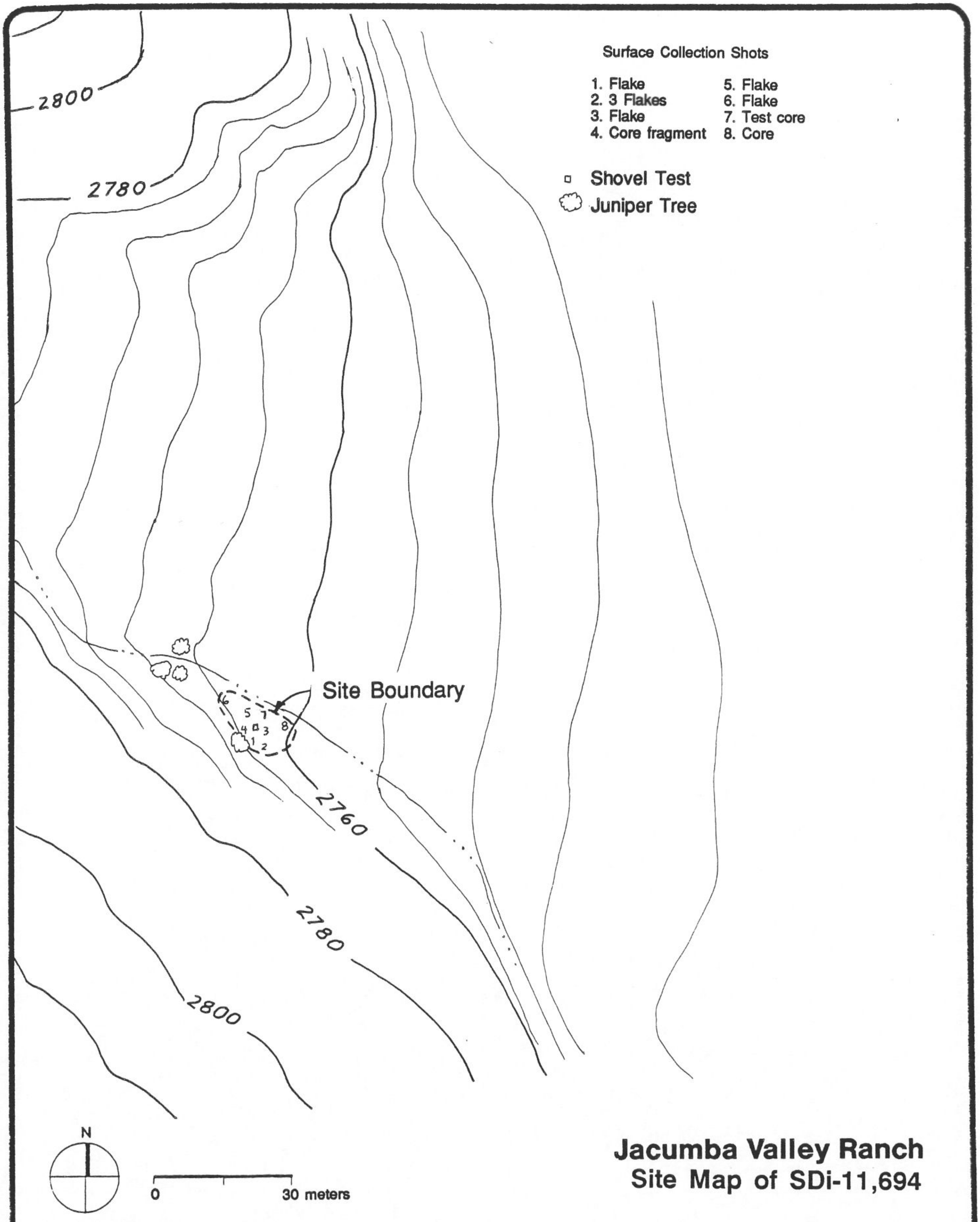
The location of the scatter was plotted on a 200 scale map. The shovel test was excavated to 10cm (compact subsoil). The area was intensively examined and all surface artifacts were collected.

Attach completed site record forms and indicate date submitted:

Institution	**Submittal date**
South Coastal Information Center, SDSU	7/90

Attach additional sheets as needed in order to provide all recovered information and analytical results.

The shovel test was sterile.



Jacumba Valley Ranch
Site Map of SDi-11,694

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Figure 37

Resource Nos.
SDi: 11,694
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant/Research Goals

Resource Number:

List and discuss research goals that would be addressed by information from this site supported by references. (Use additional sheet if needed.)

None, the documentation provided exhausts the research potential of the site.

Resource Nos.
SDi: 11,694
W: _____

(Prior to completion of this section, refer to the San Diego County Appendix of Significant Archaeological Research Questions. If proposing a research problem or issue not covered in this document, additionally complete and submit Form No. 5.)

Site Significant Data

Resource Number:

List (in correspondence with goals enumerated on proceeding page) and discuss information needed to address research goals presented above. Be as specific as possible.

The site yielded no significant data for further research.

Resource Nos.
SDi: 11,694
W: _____

Impacts and Mitigation

Direct Impacts: (Be specific; cite proposed use, grading, etc).

The site will not receive any impacts from the project as proposed and is located in an area designated natural open space.

Indirect Impacts:

None

Mitigation recommendations:

Check:

_X_ None
_____ Preservation (attach map of open space)
_____ Surface map (show area to be mapped)
_____ Initial subsurface test (nature/extent)
_____ Excavation program (nature and extent)
_____ Historic documentation (describe)
_____ Other special studies (describe)

Detail the above checklist (specifically referencing parenthetical points). Indicate relationship of recommended activity to the research potential and required information discussed above.

SDi-11,694 has been documented and collected and warrants no mitigation measures.

III. ETHNOHISTORIC AND NATIVE AMERICAN HERITAGE RESOURCES

INTRODUCTION

This ethnographic study was conducted to document the availability of culturally significant Native American resources located within the proposed boundaries of the Jacumba Valley Ranch project. The proposed project encompasses 1,347 acres in the Jacumba Valley (see Figures 1 and 2), an area known to have been one of the most important settlement and subsistence sites between the desert and the Pacific Coast for the Kumeyaay Indians. The report provides a summary of the known ethnography for the southernmost region of California, a detailed account of the ethnographic information available for the Jacumba Valley area, and a discussion of the existing cultural resources and their current importance to local Native Americans. The report concludes with specific recommendations regarding the protection and mitigation of these contemporary resources.

The methods used to prepare this report included archival research, consultation with anthropologists and archaeologists familiar with the study area, and interviews and other dialogue conducted with Native Americans living in San Diego County. The research with Native Americans was conducted by means of interviews, telephone conversations, meetings, and a site visit. Interaction with the Native American community was assisted and often conducted by Mrs. Fern Southcott, a tribal member of the Mesa Grande Reservation. The individuals contacted for this report are listed in Appendix C.

Although many Native American sites of cultural significance have vanished or been destroyed due to a variety of reasons, a few critical resources remain and are of extreme importance to Native American concerns. Round Mountain, in particular, was a major site of ritual and ceremonial activities, and should be protected from future impact in the Jacumba area.

ETHNOGRAPHIC SUMMARY

This ethnographic summary for the southernmost region of California is based upon the detailed descriptions and research findings of several important ethnohistorical and ethnographic works. Invaluable early sources that document this region's Native Americans include Sparkman's "The Culture of the Luiseño Indians" (1908), Spier's "Southern Diegueño Customs" (1923), Kroeber's *Handbook of The Indians of California* (1925), Gifford's "The Kamia of Imperial Valley" (1931), and Lee's *Indians of the Oaks* (1978 [original 1937]). More recent studies that include important ethnographic descriptions and analyses include Hedges's "Santa Ysabel Ethnobotany" (1967), Bean and Saubel's *Temalpakh* (1972), and Shipek's "History of Southern California Mission Indians" (1978). A critical source of ethnographic information is Cuero's *The Autobiography of Delfino Cuero: A Diegueño Woman* (1970). Useful overviews of local ethnography include Almstedt's "The Kumeyaay and 'lipay" (1982) and Townsend's "Prehistoric Lifeways in the Jacumba Valley" (1986), and additional bibliographical material on the Kumeyaay is available in Almstedt's *Bibliography of the Diegueño* Indians (1974) and Bean and Vane's *California Indians: Primary Sources* (1977).

At the time of European contact in the late 1700's, ancestors of the modern-day Kumeyaay (Southern Diegueño) Indians occupied an area that presently includes southern San Diego County, the southern two-thirds of Imperial County and northern Baja California. A distinction is often made between mountain and desert inhabitants, restricting use of the name "Kumeyaay" to groups living in the mountains and near the coast, and applying the term "Kamia" to the desert-oriented groups (see Hedges 1975 for a thorough discussion).[1] The closely-related Ipai or 'lipay (Northern Diegueño) were to the northwest; according to Spier, the relations of the Southern Diegueño "with the Northern Diegueño were intimate: intermarriage may have been common" (1923:298). Other Yuman-speakers, namely the Quechan and the Cocopah, lived to the east. To the northeast were the Cahuilla, a Shoshonean-language population and occasional enemy of the Diegueño groups.

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[1] Forbes does not use the term "Kumeyaay" and instead argues that the Diegueños were "Indians missionized at San Diego, almost all of whom were Kamias. The term has sometimes been used as a designation for the western Kamias, but this is unsatisfactory because some Kamias were Luiseños (missionized at San Luis Rey), some were Migueleños, Tomaseños, etc." (1965:345).

From a historical perspective, European contact represents the end of the region's archaeologically known "Late Prehistoric Period". This final period of prehistoric occupation in San Diego and Imperial counties was characterized by a hunting and gathering economy, with a heavy emphasis on the exploitation of acorns in the mountains and mesquite beans in the desert. Unlike most hunter-gatherer populations, the Yuman groups had a ceramic technology, and some made limited use of agriculture. At least a few settlements were "permanently" occupied (Wallace 1955:221), although settlement practices were clearly dictated by the distribution and availability of critical resources. The overall population density for the region was probably less than one person per square mile, based upon the observation of other forager societies.

Although contact with missionaries, explorers, settlers and others ultimately led to profound changes in adaptation, world view, and other cultural domains, the knowledge and early experiences of many contemporary Kumeyaay give valuable insight to the nature of the "traditional" Kumeyaay culture (see, for example, Cuero 1970). The following summary is an effort to describe Kumeyaay culture as it existed for several hundred years before contact and until major changes occurred in the 1800's.

The southern California region provided Native Americans a source of various foods, construction materials, medicines and other resources. Strategies for procuring wild foods included hunting, fishing, and gathering. Large game such as deer, mountain sheep, and antelope were hunted, but greater reliance was placed upon rabbits, ground squirrels, woodrats, and other small animals, and upon pigeons, doves, larks, robins, quail and other birds (a comprehensive list of faunal resources is provided in Farrell 1978), which provided most of the meat in the diet (Luomala 1978:601; Spier 1923:335, 337).

Game animals and birds were hunted by bow and arrow. Traps, clubs, throwing sticks, and nets (constructed of yucca fiber) were other important items used to capture game, especially small animals (Cuero 1970; Sparkman 1908). For example, traps baited with acorns were used to capture ground squirrels, rats, mice and other small animals, and nets were used to capture rabbits. Most hunting was done alone or by a few individuals, although communal hunts such as rabbit drives were conducted when large numbers of animals were available.

The Kumeyaay also exploited local streams and the Pacific coast. Mountain trout were caught by poisoning pools with the juice of a plant, and an unidentified smaller fresh water fish was caught with a dip net (Sparkman 1908). People living along the coast consumed large amounts of seafood. Clams, abalone, scallops, starfish, octopus and other marine life were collected from lagoons and tide pools (Cuero 1970:28-29, 56-57; Sparkman 1908; Alvarez 1976), and grunion were gathered during runs (Cuero 1970:29-30). Boats made of reeds (Cuero 1970) and wood (Sparkman 1908) were used for offshore fishing; fish were caught with abalone shell hooks and yucca fiber line, as well as with agave or yucca fiber nets and spears made with cactus thorns (Cuero 1970:29; Sparkman 1908).

In addition to exploiting local streams and the Pacific coast, southern California hunter-gatherers also procured resources from along the shoreline of Lake Cahuilla in Imperial Valley. This freshwater lake rose and fell at least three times in the last 2,000 years, with the most recent stand being about 1300-1500 A.D. (Wilke 1978:45-53), and represented an environment rich in aquatic and other resources. Shellfish and several varieties of fish were exploited, as were several varieties of economically important marshland plants (Schaefer 1986:9-10). Land animals and birds attracted to the lake were presumably hunted along the shoreline as well.

As with most forager and other subsistence-based societies, faunal foods provided the Kumeyaay with important supplies of protein and fat, but the bulk of the diet in terms of caloric intake was provided by plant foods. A wide variety of edible seeds, nuts, beans, fruits and other plant foods were available in Kumeyaay territory (see Farrell 1978 for details on plant uses by inland San Diego County Indians). As with most California Indians, the acorn (from several species of Quercus) was the single most important food source for the Kumeyaay, at least for groups in the mountains. Acorns are very high in caloric value as well as fat content (Bean and Saubel 1972:125-126), and it has been estimated that they provided the Luiseno with almost 50 percent of their diet (White 1963:121). The reliance upon acorns at any given time was largely a consequence of seasonal availability: acorns were gathered in October and November and were eaten in greatest amounts during these and subsequent months, although nuts were also stored (Spier 1923:334) and likely available for most if not the entire year.

Other major plant foods included agave (Agave deserti), pine nuts (Pinus monophylla and P. quadrifolia), and mesquite beans (Prosopis juliflora and P. pubescens). Agave is abundant in the lower foothills and on the sides of the mountains facing the desert. The plant provides several foods including the flower bud or mescal head, leaves or stalks, blossoms, and seeds. Because various parts of the plant are edible, it was exploited as a food resource for much the year, although major collecting and processing activities occurred in the early spring (Bean 1972:41).

For the Kamia Indians (and the Kumeyaay living near the desert), the mesquite bean was the major staple. The tree usually grows at elevations below 3,000 feet and in large sandy wash areas where the water table is high. The blossom, the green pod (which looks much like a pea pod) and the dried pods were all collected from the mesquite trees. Blossoms are available in June and seed pods in July and August, and "the trees yielded large quantities of food on a dependable basis year after year" (Bean 1972:38). Delfina Cuero and her family traveled every year to Mexicali, Mexico, to collect mesquite beans (1970:58).

Included among the numerous other plant foods eaten by the Kumeyaay were yucca (Y. schidigera and Y. whipple), wild plum (Condaliopsis parryi), desert apricot (Prunus fremontii), various grasses, black and white sage seeds and leaves (Salvia apiana and S. columbariae), goosefoot (Chenopodium L. spp.), beavertail cactus (Opuntia basilaris), cholla cactus (Opuntia spp.) and prickly pear cactus (Opuntia spp.) (Luomala 1978:600; Spier 1923:335-336). Additionally, manzanita and holly-leaf cherry provided a fruit and a seed that could be ground into a meal (Hedges 1967:34; Bean and Saubel 1972:41; Sparkman 1908:194-230); elderberry, toyon berries, and various greens were eaten; and beverages were made from manzanita (Cuero 1970:31; Bean and Saubel 1972:40-41), lemonadeberry (Bean and Saubel 1972:132), cana (Hedges 1967:19; Bean and Saubel 1972:70), and sugar bush and basketweed berries (Bean and Saubel 1972).

Like most hunter-gatherer peoples, the procurement of wild foods by the Kumeyaay was characterized by an opportunistic strategy. That is, whereas hunter-gatherers often set out purposefully to hunt or collect a particular variety of animal, bird, plant or other resource, such trips commonly yielded other foods or raw materials. As recalled by Cuero, "no matter what we were gathering, I always looked for herbs and other greens where ever we were" (1970:58).

The extent to which the Kumeyaay practiced agriculture at the time of European contact has not been established. Gifford (1931) felt that agriculture, which had been well established among the Colorado River groups at the time of Western influence, had diffused into the Imperial Valley and was practiced by all of the Kamia lineages. Similarly, Lawton and Bean (1968) have suggested that certain Cahuilla groups cultivated corn, beans, squash and melons, like the neighboring Colorado River tribes. There is some evidence suggesting that Indians may have planted yucca in the Sycamore Canyon area (Woods 1982:A1-5, A2-9), and crops were at some time planted and irrigated in the Jacumba Valley (Woods 1982:A1-7, A2-13).

In any case, although the Kumeyaay were dependent upon wild foods at European contact, a shift in subsistence had apparently started in the sense that at least some techniques of incipient agriculture were being practiced in some areas. Foragers have rarely practiced irrigation agriculture (the Shoshone were an exception; see Steward 1930), and it may be that the irrigation techniques used by the Kumeyaay were a post-contact influence introduced by Kumeyaay neophytes from Mission San Diego de Alcalá (Gifford 1931). Regardless of whether irrigation and other forms of agriculture were being practiced at the time of contact, agricultural food production techniques were certainly utilized by the Kumeyaay in the 1800's. Of importance, a cached pot dating to this period containing sorted seeds that presumably were intended to be planted was found near Jacumba (Treganza 1947).

Aside from depending upon the local environment for adequate supplies of nutritious food, the Kumeyaay were also dependent upon the availability of local raw materials for the manufacture of critical utilitarian items. Houses, clothes, bows and arrows, containers, and food preparation implements are but a few of the indispensable items that virtually all hunter-gatherer populations must manufacture to achieve and maintain a good quality of life, and the Kumeyaay clearly had both the knowledge and raw materials necessary to make these and other items.

Plant materials, animals, and stone provided the raw materials for most manufactured items. For example, houses, fiber and thatching were constructed from willows, oak, manzanita, deer weed, and chamise (Bean and Saubel 1972:29-31; Lee 1978:59; Cuero 1970:25; Spier 1923:338), and a very durable, multi-purpose fiber was manufactured from yucca (Cuero 1970; Bean and Saubel 1972; Lee 1978; Spier 1923). Clothing such as robes or capes for cold weather, as well as blankets, were made primarily from rabbit skins, although buckskin and sea otter skin were also used (Sparkman 1908; Spier 1923). Shoes and sandals were commonly made of agave or yucca fibers, buckskin, and, since European contact, cowhide (Cuero 1970:56; Spier 1923). Headbands were made of feathers from ravens, owls, hawks, golden eagles, bald eagle, and condors, and other adornments such as necklaces, bracelets, hairpins, and nose plugs were made variously of mammal bones, deer hoofs, bear claws, and several shells including Donax (bean clam), Chione (venus clam), Olivella, and Haliotis (abalone) (Sparkman 1908; Alvarez 1976).

Bows and arrows were indispensible for hunting and, at times, for protection from others. Bows were made from willow (Salix L.) (Curtis 1926:44; Spier 1923:350), screw bean mesquite (Prosopis pubescens), and mountain ash (Spier 1923:350). According to Spier (1923:351), arrows were "made of arrowweed provided with wooden foreshaft, or entirely of wood. The latter (being) more effective against big game." Fire-hardened greasewood was also used to make arrows for hunting big game (Curtis 1926:45), as were stone projectile points (Spier 1923:352). Quartz and metavolcanics were available throughout much of Kumeyaay territory, whereas obsidian, chert, chalcedony, steatite and other lithics occurred in more localized areas and were sometimes acquired through exchange.[2]

With a diet based upon acorns and other plant foods that required grinding and pounding as steps of food preparation, stone mortars, pestles, and other milling stones were fashioned from locally available materials. Appropriate lithic materials were generally available throughout Kumeyaay territory; as recalled by Cuero: "As I roamed the mountains looking for food, I have seen lots of grinding holes in the rocks everywhere" (1970:58). Although grinding implements often did not require elaborate preparation, many tools were portable and/or represented such significant investments of manufacture time that they were prized enough to be transported between various settlements and work sites. Again, Cuero: "We always carried some grinding stones and some other tools with us. A lot of stones you could pick up any place and make what you needed." (1970:30). Millingstones are, understandably, one of the most commonplace artifacts found in the Kumeyaay archaeological record.

Carrying devices and containers for storing water, food, and other items are critical for hunting and gathering peoples due to high settlement mobility and the need to carry foods back to the camp or home base (Lee 1979:147). The Kumeyaay made baskets and thatching from basket weed, bunch or deer grass, willow, and juncus (Merrill 1973), and made storage vessels and granaries from scrub oak, chamise, and coffeeberry (Cuero 1970; Hedges 1967; Bean and Saubel 1972; Lee 1978). Ceramics used for food preparation, storage, and transportation were made from clay obtained from various sources extending from the mountains to the Colorado River area (see Woods 1982:Appendix A, for some local sources). Throughout her autobiography, Cuero refers to an array of food preparation and carrying containers and other devices. In one passage she recounts that "we used to carry loads on our backs with bags made

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[2] According to Spier, arrowheads had another function besides killing; they were "placed under rocks about the camp to prevent its inmates being bewitched" (1923:315).

of agave fiber. We used big gourds for dishes and for storing stuff as well as ... clay dishes ... and ollas, and different shaped baskets" (1970:31).

Aside from manufactured items, another critical resource was firewood. Required for both warmth and food preparation, firewood was derived from oak timbers and bark (Bean And Saubel 1972) and from manzanita (Spier 1923). In addition, chamise roots were used in roasting pits and chamise branches were tied together to make torches (Bean and Saubel 1972:30).

All Native Americans used plants for a wide variety of medical purposes including colds, influenza, respiratory problems, fevers, gastric disorders, diarrhea, infections, sprains, sore muscles, minor cuts, and headaches. The Kumeyaay prepared medicines from white sage, California sagebrush, elderberry blossoms, holly-leaf cherry bark, buckwheat leaves and flowers, manzanita leaves, scrub oak, mistletoe, chamise, and cottonwood leaves, among other plants. Details on the medical uses of plants are provided by Hedges (1967) Bean and Saubel (1972), and also by Cuero (1970), Sparkman (1908), and Lee (1978).

As hunter-gatherers, the Kumeyaay moved around a great deal. Such movement was not aimless wandering, but rather, was dependent upon the availability of wild foods and water within one's territory. Seasonality and clan membership were therefore two major factors that influenced one's location at any given time. As described by Almstedt, "each clan was associated with a particular territory which included all the area from which the group derived subsistence during the course of an annual cycle" (1982:13). More specifically, according to Loumala, a clan's

> seasonal travel was vertical, following the ripening of major plants from canyon floor to higher mountain slopes.... After months of preserved vegetal food and limited game, March through May provided welcome buds, blossoms, and potherbs from canyons and lower foothills. Some people left in May for agave.... In early June they dried ripening cactus fruits to store in foothill caves. From June through August wild seeds ripened, and at higher altitudes wild plums and other fruits.... Men, women, and children worked far into the night from September to November in higher altitudes to gather and preserve acorns and sometimes pinon nuts (1978:599).

Although clans moved from place to place within their general territory, some locations were occupied for longer periods and by more people than others (Almstedt 1982:13). These settlements, which may be regarded as villages, "were places to which the people returned from their foraging, where they spent winter months, sometimes in association with other clans.... Some larger groups appear to have had sizable summer as well as winter villages" (Almstedt 1982:13). Within each village there was a dance floor, extensive milling stations, family living areas, and possibly a sweathouse and granary. If it was a winter camp, a house would have been set directly on the ground and a fireplace built on the ground by the door (Spier 1923:338). The Kumeyaay did not make summer houses (Spier 1923:338). Instead, "the summer village needed only a windbreak, trees, or a cave fronted with rocks" (Luomala 1978:597).

Group size and the degree of social interaction therefore varied over the course of an annual cycle. The basic unit of production was the family, which was capable of great self-sufficiency, but Kumeyaay families, like other hunter-gatherers, moved in and out of extended family camps or villages opportunistically as problems or opportunities arose. Thus, whereas single families occasionally exploited low-density, dispersed resources on their own, camps or villages of several families formed at other times, particularly when key resources (such as water) were highly localized.

Going beyond the basic social unit of the family, the Kumeyaay were organized by some form of descent system. From the available ethnographic data it is not immediately obvious as to whether they were organized into lineages or clans.[3] Indeed, their features of social organization appear to have shared some qualities of both systems, and it may be speculated that the society had begun evolving from a lineage system to a clan system prior to the time of Western contact. In any case, the Kumeyaay traced their descent patrilineally (i.e., through one's father), were exogamous at the level of the descent group (i.e., one had to marry outside one's own lineage or clan), and practiced patrilocal residence (i.e., a married woman lived with

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[3] The terms "lineage" and "clan" have often been used in different ways by different anthropologists. It is now commonly accepted that, most basically, the members of a lineage can trace their consanguineal (blood) relationship to one another through known links to a common ancestor; a lineage is generally a strong group that owns property and provides other corporate functions. In contrast, members of a clan claim consanguineal relationship with one another through a common ancestor, but cannot trace actual descent; a clan usually does not own property corporately and it lacks the residential unity that is usually characteristic of a lineage.

her husband's father's relatives). Descent groups apparently "owned" land and certain other resources. According to Kroeber, "It would appear that each "clan" owned a tract and that each locality was inhabited by members of one clan, plus their introduced wives" (1925:720). Regarding other resources, Spier observed that some "gens" (i.e., clans) owned patches of certain trees and "Each gens owned one or more aeries from which eaglets were taken for use in the mourning ceremony" (1923:307). Apparently, however, resource ownership did not extend to the oak groves in the mountains (ibid), which probably reflects the extreme importance placed upon this resource for the adaptation and survival of the entire society.

Ethnohistorical and ethnographic data available for the Kumeyaay indicate that they practiced a sexual division of labor typical for hunter-gatherer populations. Most basically, men were hunters and women were gatherers, although it is clear that men sometimes gathered wild foods and women occasionally caught small animals. The female gatherer likely provided the bulk of the calories; women in foraging societies typically provide 60-70% of the diet (Haviland 1987:157). Aside from hunting, men were likely responsible for manufacturing certain tools and other items, and for performing a variety of political, economic, and ceremonial functions. Women were especially responsible for child care, food production, and the manufacture of many indispensible items. One early visitor to Kumeyaay villages described women as the "chief laborers" (Bartlett 1854:122). For certain activities there was overlap or cooperation. For example, "the whole family helped with gathering acorns and pine nuts" (Cuero 1970:57). In any case, men and women both made valuable contributions to survival. As described by Cuero, "the women had to do their work while the men worked too. Either we do this or we starve" (1970:31-32).

Resource exploitation and subsistence includes not only the direct acquisition of raw materials and food but also the distribution of these resources within the camp or local group. Among hunter-gatherers, the extensive sharing of meat in particular serves at least two functions. First, it contributes to a high quality diet by maximizing the occasions that all members in a group are able to consume important amounts of faunal protein and fat. And second, the sharing of meat reinforces the social relationships of a group and eliminates what might otherwise be moments of intense envy and friction when one hunter's success is contrasted with another's failure. The Kumeyaay clearly placed an emphasis on sharing, particularly of meat. For example, Luomala (1978:599) claims that newly arrived families at a campsite would obtain their meat from the permanent residents or those who had been there for a while. In addition, young boys had to give away all their kills, and the first deer-kill of any hunter, even an adult, was distributed. Spier's (1923:336) informant, Jim McCarty, described his memorable hunting experiences with the distribution of big game to others who were present.

The exchange of prized foods and other items between local groups and between tribes is also economically and socially important. The Kumeyaay obtained obsidian and other highly valued lithics from their neighbors, for example. And, as described by Cuero, the Kumeyaay "down near San Diego used to take lots of salt from the bay and trade it for mesquite beans and other things from the desert. They used to go a long way to trade for what they needed. There were no roads then, just trails, and we walked and carried everything on our backs. Dried sea food, pumpkins, and dried greens were traded for gourds, acorns, agave, and honey" (1970: 33).

The Kumeyaay experienced a rich spiritual or religious life. All religions serve to reduce anxiety by explaining the unknown and making it understandable, provide comfort in the belief that supernatural aid is available in times of crisis, sanction a wide range of human conduct by providing notions of right and wrong, maintain social solidarity, and enhance the learning of oral traditions. As hunter-gatherers who saw themselves as being a part of nature rather than superior to it, the Kumeyaay maintained a belief system known as animism. Animism basically involves a belief in spirit beings which are thought to animate nature. Related to this, animals are especially important in mythology, taboos, and ceremonial practices. Specific examples of Kumeyaay supernatural beliefs and characteristics associated with particular animals and birds are provided by Sparkman (1908), Waterman (1910), Spier (1923), and Cuero (1970), but in general little is known about this society's religious beliefs and practices. It is known, however, that their religion was essential to the overall adaptation and well-being of prehistoric and historic Kumeyaay Indians, and that violations of current beliefs, practices, or sites of religious importance could impair the health and well-being of Kumeyaay living today.

JACUMBA VALLEY ETHNOGRAPHY

The Jacumba Valley played a major role in the adaptation of the Kumeyaay and Kamia to southern California. Jacumba was unique in that it provided an unusually wide range of biological and geological resources to hunter-gatherer inhabitants. Of particular importance, the area featured numerous springs and several intermittent streams, and, as a mountain/desert transitional setting, possessed several critical plant resources including oaks, pinyon pines, agave, and mesquite. Because the Jacumba area contained permanent water sources (even during the dry summer months) and relatively abundant supplies of important plant, animal, stone, and other resources, it is reasonable that the valley was a major site of Kumeyaay/Kamia occupation and exploitation. Furthermore, the valley is located near the top of a natural pass (In-ko-pah Gorge) connecting the mountains with Imperial Valley, and so was situated along a major exchange route (Gifford 1931; Shackley 1981).

Ethnographic and historic accounts indicate that members of both the mountain-oriented Kumeyaay and the desert-oriented Kamia occupied the Jacumba Valley (Gifford 1931; Spier 1923). It is difficult to portray the social identification of the inhabitants more precisely, since various observers and researchers of the Jacumba area have described its occupants as belonging to different tribal lineages or clans. For example, whereas Gifford (1918) claims that the KwatL lived at *hakwaskwak* (bitter water) in Jacumba Valley, Spier (1931) identifies three patrilineal, exogamous, patrilocal "gentes" in the area: "[The] paipa' and oswai' were immediately south and east of Jacumba. The watershed north from Boulevard held hiLmiaRp contingents" (300). Furthermore, Gifford describes the valley as being utilized by six lineage groups (kwatL, lyacharp, hiLmiarp, tumau, nixkai, and kwitaRk), only one of which (kwitaRk) was exclusively Diegueno (1931:11). Finally, Merriam claims that the Jacumba Valley was occupied by a tribe related to the Kumeyaay living primarily in Mexico who called themselves Wah^{ch}-han'yo (1966:255).

Part of the confusion over exactly which lineages (or which groups of some other social category) occupied the Jacumba Valley is perhaps cleared up by acknowledging that, at any given time, the area was likely utilized by members of more than one descent group. Indeed, for societies with a clan or lineage system it is normally inevitable that individuals from different descent groups will live together and share certain resources. Thus, Spier noted that the oswai and hiLmiaRp liked one another and commonly lived together (1923:302), and Gifford recalled that "Within memory of informants the lineages were not definitely localized. As one informant expressed it, "Next to a kwaxa house might be a hiLmiarp house"" (1931:12).

It is also important to recognize that the Jacumba Valley was likely inhabited by different social groups of Kumeyaay/Kamia over time. That is, a lineage or clan that lived in the valley in the late 1700's may well not have been there 100 years later.

It will be difficult to understand more precisely the social groups that occupied the Jacumba area until the relationship between the Kumeyaay and Kamia is better defined. While some observers treat these as two groups, there is evidence that they were one society that occupied two very different ecological zones: the mountains and the desert. As observed by Almstedt: "Gifford lists ten clans for the Kamia of Imperial Valley which correspond to ten of Spier's southern Diegueño clans. This strongly supports the position that the Kamia and Kumeyaay were one people" (1982:12).

Whatever the precise affiliation of those who occupied the Jacumba Valley, it is evident that the valley was a major place of indigenous use. Little information is available on the number of individuals that inhabited the valley, although Heintzelman (1857:16) said that it numbered fewer than 200 during his visit. Population density in the valley was probably relatively high in the summer when few reliable water sources existed throughout the region.

The extreme importance of the Jacumba area to the Kumeyaay/Kamia is reflected in the fact that no fewer than 22 villages have been documented in the ethnohistorical literature as existing in the immediate vicinity. The location of the present town of Jacumba, influenced by the presence of hot springs, was clearly established on and adjacent to village sites. Indeed, the town and valley name, "Jacumba", stems from the village name, "Jakum" (also spelled Hakum, Hakoom, Qkum, Ha'cum, Ha-coom), which has been translated from Kumeyaay as meaning "bubbling water" (Woods 1982:120), "hot bubbling water" (Woods 1982:AI-17), and, by the late Tom Lucas, "lukewarm water" (Fern Southcott, personal communication). The villages recorded for the Jacumba region are listed in Table 25. A few additional villages, "village areas", and "camp areas" have recently been documented by Woods for the Jacumba area (1982:Appendix A [confidential]).

TABLE 25

Kumeyaay/Kamia Villages Recorded In The Ethnohistoric Literature As Existing In The Vicinity Of Jacumba Valley, By Clan.

Village	Location	Reference
hiLmiaRp clan		
axmanyEha'	"south of the Jacumba valley"	Spier 1923:302
iLkiuyum	"near Jacumba"	Spier 1923:302
wikutcurap	"near Jacumba"	Spier 1923:302
sawwiya	"west of [Jacumba] town"	Spier 1923:302
hakwusku'r	"east of" Jacumba town	Spier 1923:302
hakwasax	"to the north" of Jacumba town	Spier 1923:302
hakwasil	"to the north" of Jacumba town	Spier 1923:302
extukwaihweLp	"to the north" of Jacumba town	Spier 1923:302
wihoptcotL	"five miles" north of Jacumba town	Spier 1923:302
sitcaknua'	"north of the Jacumba valley"	Spier 1923:302
matpitL	on the "northeastern side" of Jacumba valley	Spier 1923:302
pamu'	north of and near settlement of matpitL	Spier 1923:302
wiyunai'E	north of and near settlement of matpitL	Spier 1923:302
hatcuktcu'ke	"a little to the north" of Jacumba valley	Spier 1923:302
wikwin^{y}ul	"a big mountain north of Jacumba"	Spier 1923:302
kwatL clan		
hakwaskwak	in Jacumba valley, Baja California	Gifford 1918
'kwitaRk clan		
matkurkur	at "Round Mountain station west of Jacumba"	Spier 1923:303
xakwakwa's	"on the south side of Jacumba valley in Mexico"	Spier 1923:303
xasi'kwaiyarau'	"five miles southeast of [Jacumba] town"	Spier 1923:303
paipa' clan		
yaloho'	"a half-mile south of Jacumba"	Spier 1923:305
kwa'qa, Cuero, miskwis, nixhai and kwitaRk clans		
hametaay	in Jacumba	Gifford 1931:11 Harrington nd
Unspecified clan		
Qkum (or hakoom)	in Jacumba	Harrington nd
Hakum	"near the border... in or near Jacumba Pass"	Kroeber 1925:711

In addition to being an important residential area, recent archival research and interviews of Native Americans by C. Woods yielded considerable information establishing the Jacumba Valley and surrounding mountains as one of the most important Kumeyaay-Kamia resource exploitation areas between the desert and the Pacific Coast. Importantly, the area also contains sites that are sacred to the Kumeyaay. As summarized by Woods, the Jacumba region

> has been identified as a multiple resource area (673m).[4] There were major village sites (093e) in what is now the town of Jacumba and just north (387e), sacred springs (003a), a major trade area (086d) and the valley and surrounding region were utilized for agriculture (261d). There were major gathering areas for plant (040b, 051b, 056b, 260b, 321c, 324c) and mineral resources (322c, 325c,-327c). Fifteen additional villages (376e, 377e, 388e, 391e-396e, 438e-422e) were recorded in the area. Nearby was a mountain for ritual and ceremony (004a), an eagle aerie (200a) and at least one cremation and burial area (018a). A trail identified by Native Americans (147f) and in the literature (630f) connected Jacumba with Xachupai in the Imperial Valley. A similar Kumeyaay complex of villages, springs, gathering areas and sacred sites (Ha'cum) lies south of Jacumba below the International Border.
>
> East of Jacumba towards the In-Ko-Pah Gorge are several habitation sites (107e, 108e, 451e) and there is a source of clay near Carrizo (070c). To the north is a sacred mountain (023a). Nearby, an Indian/Anglo conflict (168g) took place in the 1880s. Numerous agave roasting pits (044b) are situated in the vicinity (1982:71-72).

More details on these important cultural resources are provided in the confidential appendices prepared by Woods (1982), although these appendices are not available for public review. Additionally, information on the prehistoric use of the Jacumba Valley is provided in the archaeological report prepared for the Jacumba Valley Ranch Project.

Although the Jacumba Valley was contacted by westerners over two hundred years ago, the region has avoided the extensive residential, commercial, and other types of development that characterize much of Southern California. Nevertheless, the region has experienced its share of colorful historical events. The first direct western contact was in 1775 when Pedro

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[4] The codes within parentheses are site numbers assigned by Woods (1982) to cultural resources identified in the literature and/or by Native American or other consultants.

Fages passed through the valley in search of a good route from Yuma to San Diego (Bancroft 1963 [original 1886]). Much of the early contact between Kumeyaays/Kamias, Spaniards, Mexicans, and others was characterized by conflict. In the 1830's, especially, hostilities peaked largely as a consequence of Western efforts to subdue and missionize the Indians and, conversely, of efforts by the Indians to free themselves and their territory from Spanish and Mexican control. For example, according to Forbes:

> A major revolt occurred in the fall of 1836 when the Jacumeños (Kamias of the Jacumba-Jacum area), led by Martin, Cartucho, and Pedro Pablo, joined the Christian Indians of the San Diego region, the Cahuillas, and the Quechans. The rebels (Kamias and Quechans according to one source, Kamias and Cahuillas according to another) attacked Pio Pico's rancho of Jamul, assertedly with three thousand warriors, and then scoured the countryside (1965:278-279).

Months later these rebels fled to the Jacum area where they survived attacks by hundreds of Mexicans and allied Indians (Forbes 1965:280).

In 1839, hundreds of Indians including the Jacumeños raided Rancho Otay and other ranches (Forbes 1965:283). According to Janssens, who had established a close rapport with the Jacumeños:

> the Indians of Jacum had made a plan for recovering California, which they claimed belonged to them.... I told them that they were crazy.... But the Indians replied that I didn't know the connections they had made. He said they were not alone, but that there were many others throughout California and in places where they would be least expected.... These Jacum Indians were bold and brave. They were always at war, and San Diego suffered much at their hands (1953:95-99, 103; after Forbes 1965:284-285).

The 1840's were apparently relatively quiet in the Jacumba area. With the discovery of gold in California in 1849 and the use of Jacumba pass as a mail route in the 1850's, contact between the Indians and outsiders became more extensive. Official contact was established between Jacumba Indians and the U.S. government, as evidenced by the meeting between treaty commissioner O. M. Wozencraft and representatives of the "Dieguiño Indians" (Diegueño) on

January 7, 1852 at Santa Ysabel; one of the 22 Diegueño representatives was Santiago from the village of Ha-coom (Heizer 1972).

Traffic through Jacumba increased rapidly in the 1860's. Although there was a steady increase of white prospectors, miners, teamsters, ranchers and settlers in the area, Indians still resided in the immediate vicinity of Jacumba. According to J. Elliott in a review of field notes recorded by a Mexican surveyor (Jacobo Blanco) who worked along the international boundary and surveyed the Jacumba Valley area in 1873, the Jacumba Valley area "contained a large population of Diegueños living in the mountains that enclosed the valley" (1982:95).

Hostilities between Indians and whites became inevitable and reached a peak in 1880. Indian attacks upon travelers increased on the trail up from Imperial Valley (Ford 1976), and ranchers like John McCain found horses and cattle slain or missing, suspecting the local native inhabitants (Odens 1977). Incensed by the disappearance of cattle, presumably at the hands of the Indians, a group of armed men from local ranches rode into an Indian village located near the present Interstate 8 - Jacumba turnoff on February 27 and killed about 15 villagers (Odens 1977).

Increasing numbers of people, ranches, farms and mines in southeast San Diego County and Imperial County created a demand for a railroad. Construction began in 1907 (Odens 1977), and a station was established at Jacumba Hot Springs. The town of Jacumba was established in 1919.

Interviews and site visits conducted with Native Americans for this report did not disclose the identification of any new, previously unrecorded cultural resources within or adjacent to the project area. Few Native Americans currently live in the Jacumba area, and very few of those living on nearby reservations, such as Campo, Viejas, and Manzanita, are familiar with sites documented through ethnographic or ethnohistoric research. This particular limitation for ethnographic research in southern San Diego and Imperial Counties was described by Woods almost a decade ago:

> The identification of cultural resources was complicated by a number of factors. First, and most critical, there are not many Native Americans still living who are knowledgeable regarding the study area. It was pointed out at council meetings and by numerous consultants that most of the tribal elders had passed away and

> that much of the knowledge had been lost. An elder at Campo noted that all the knowledgeable people had been "wiped out". At Manzanita another elder said, "so many of the old people have died and the young ones don't know anything". And, an 'lipay at Viejas commented (through an interpreter) that 'the old people would have given you a lot of information about that but they are about gone -- all gone". The speaker was around 90-years old (1982:66).

Similar statements are expressed today. Regarding Kumeyaay individuals who knew a considerable amount about the Jacumba Valley, one informant observed that "all the ones that knew anything, they're all buried" (Tom Hyde, personal communication). Several informants suggested that Mr. George Hyde of the Manzanita Indian Reservation knew a considerable amount about the Jacumba area. Upon contacting Mr. Hyde, however, it was learned that he has forgotten much of what he once knew. As explained by his wife, Mrs. Theresa Hyde, "he's forgetful -- he's 81 you know. He forgot everything his mother told him.... He went with Rosie [Rosalee Pinto Robertson] one time before she died, but he didn't know anything anymore about that place [Jacumba]" (personal communication).

Although several informants expressed knowledge and concern about Table Mountain, which is approximately one mile northeast of the proposed Jacumba Valley Ranch project, few were aware of resources within the project area other than the old village site in the vicinity of the town itself.

It is critical to underscore the point that, despite the current lack of precise information known by most contemporary Native Americans on the sites and other resources utilized by their ancestors in the Jacumba Valley, this region is not unimportant to the Kumeyaay living today. To the contrary, the Kumeyaay and other Native Americans are concerned with protecting their ancestral sites, and especially sacred ones as these continue to be of ongoing religious or ritual significance in many cases. For the Jacumba area, many Kumeyaay and other informants interviewed by Woods expressed particular concern for burials, sacred mountains, sacred springs, and eagle aeries in the Jacumba area (1982:81-86), and this concern was repeated by informants interviewed for this report. The sites of particular sacred significance in the Jacumba area are identified in Appendix B (not available for public review).

MITIGATION RECOMMENDATIONS

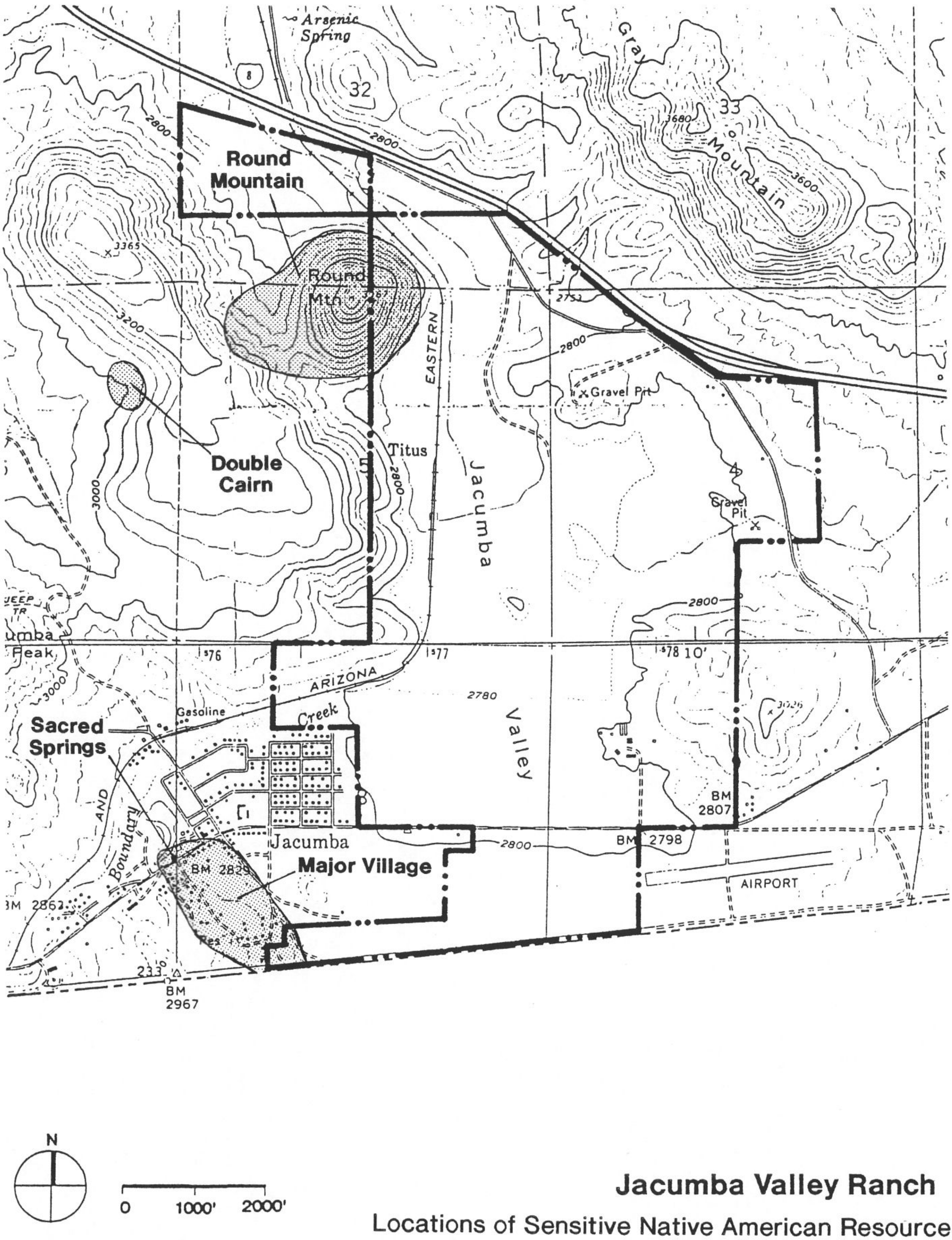
In summary of the findings of this report, the Jacumba area played a major role in Kumeyaay/Kamia adaptation. The area contained year-round water sources and relatively abundant supplies of important plant, animal, stone and other resources, and was therefore a major site of occupation and exploitation. No fewer than 22 villages have been documented in the ethnohistorical literature, and several other village and camp areas have recently been identified by Native American consultants. Several resource exploitation sites, trail sites, and sacred sites also exist throughout the region, and in general the Jacumba area has been identified as a "multiple resource area" (Woods 1982:71).

Within the Jacumba Valley project area, the major site of ethnographic significance is Round Mountain (Figure 38). This mountain has been identified as a sacred mountain by Native Americans, and it is recommended that this mountain be excluded from all development activities. All development should be restricted to the east side of the existing railroad tracks in this area. Furthermore, it is recommended that steps be taken to prevent the occurrence of indirect impacts to this mountain.

A site that has been identified as being of sacred significance to Native Americans in the past is the hot springs in Jacumba town. This site has been directly impacted for over a century, however, and, from a perspective of Native American site destruction, little physical damage could be done to this site now beyond that which has already occurred. Nevertheless, the site remains an important sacred place to the Kumeyaay and, as such, should be regarded with respect.

On the other hand, a portion of the major village that was occupied in the vicinity of Jacumba town still remains. This significant archaeological site should be excluded from all future development in the Jacumba Valley and protected from indirect impacts.

West of the Jacumba Valley Ranch property is a "double cairn" site that reportedly contains burials. The threat of indirect impacts to this sacred site would increase with implementation of a major development project in the Jacumba Valley, and we therefore recommend that steps be taken to discourage or prevent public use of the area west of the property boundary, or perhaps, west of the existing railroad line.



Jacumba Valley Ranch

Locations of Sensitive Native American Resources

Figure 38

brian f mooney associates
planning, design & environmental studies

Finally, an area of extreme importance for Native American and archaeological concerns is Table Mountain, situated to the northeast of the project area. All steps should be taken to minimize the risk of indirect impact to this area.

IV. HISTORIC RESOURCES

INTRODUCTION

The purpose of this report is to provide a background for the assessment of historic resources within the project property and to identify and evaluate potential historic resources for significance (importance) under criteria specified by the California Environmental Quality Act (CEQA). Research was conducted at the San Diego Historical Society Research Archives, San Diego County Recorders Office, the Map Collection at the San Diego State University library, and the Survey Records Department of the San Diego County Operations Center. In addition Mr. William Ketchum who has been familiar with the property since the 1930s was interviewed.

Three potential historic resources were identified. None are significant under CEQA criteria. An assemblage of antique farm machinery, however, is potentially significant and should be donated to an appropriate museum for curation and display.

HISTORIC BACKGROUND

The project property is located in Jacumba Valley in the Cuyamaca Mountains of San Diego County's back country. It was the location of a major dairy operation during the 1930s and 40s.

Historical development of San Diego County's mountainous back country differed from that of the coastal area. The isolation imposed by the mountains delayed settlement in the region and kept it rural and semi-isolated well into the 20th century.

The region remained relatively unaffected by the Spanish occupation of the California coast during the late 18th and early 19th centuries (Van Wormer 1986). As late as 1840 the area remained unsettled and the native occupants unknown. Vicente Romero, a soldier from the San Diego Presidio, reported that in 1837:

> The Indians . . . living among the Cuyamaca Mountains were still gentiles. The missions . . . could do nothing permanently with them . . . Even in going only

> as far as the Valle de las Viejas it was considered dangerous and the greatest caution was used (Hayes 1934).

The hostile reputation of the natives inhabiting the eastern mountains of present-day San Diego County had been well earned. The region was first penetrated in 1830 by Don Juan Bandini of San Diego, who established a ranch at Tecate. Bandini soon began to complain that natives were stealing livestock from his ranch. Then in 1837, the mountain tribes attacked Tecate and Jamul Ranchos. Dispatched from the San Diego Presidio, a force of 18 Mexican soldiers and 30 Christian Indians pursued the hostile mountain tribes through Tecate, Las Juntas, Milquatay and Cuyamaca, engaging in several skirmishes. A decisive battle occurred in the Jacum Mountains where the pursuing troops were ambushed and natives seized their ammunition, forcing the soldiers to abandon their horses at night and return to San Diego (Pourade 1963; Hayes 1934). Two years later, in 1839, a group of Indians who comprised eastern mountain and western Colorado Desert Kumeyaay clans attacked and burned Rancho Tia Juana. One witness reported that:

> The Indians of Jacum (Jacumba) with others of the gilenos comprised a band of about three hundred warriors. They had brought fresh scalps of Indians whom they had killed in a battle near the Colorado River (Janssens 1953).

The 1848 conquest of Alta California by the United States resulted in settlement of present day southeastern San Diego County by non-Native Americans. The mountain tribes first came into contact with American settlers at their winter campsites on the Colorado Desert. Carrizo and Vallecito Creeks formed part of a natural corridor that led from the desert into the mountains and on to the coast. The Carrizo Corridor, as it came to be called, became part of the Southern Immigrant Trail, a major route of overland travel during the 19th century (Conkling and Conkling 1947).

The first recorded contact between the natives and American frontiersmen occurred in November 1846, when General Stephen W. Kearny's Army of the West travelled through the Carrizo Corridor camping along Carrizo Creek and Vallecito (Griffin 1942). By 1849, thousands of immigrants were passing along the same route on their way to the California gold fields. Carrizo Creek, Palm Springs, and Vallecito became popular camping spots on the immigrant trail and in 1857 the Butterfield Overland Mail Company established a series of stage stations at these locations (Conkling and Conkling 1947). Meanwhile, the Army established a mail route between San Diego and Yuma by way of the Tia Juana river, Campo, and Jacumba, and established a small pack station at Jacumba in 1853 (Pourade 1963). Also during the 1850s the Army established a small stone fort at Jacumba to control the Indians. This fort had become a stage station by 1868 (Anonymous n. d.).

During the 1860s and 70s settlers began to establish ranches in the mountains. The Gaskill brothers settled in Milquatay Valley, near present-day Campo, and the McCains homesteaded a ranch north of Campo in what is now called McCain Valley. By 1872 a settler named Lawrence had settled in Jacumba Valley on the western edge of the present project area (Railroad Survey 1872). Nothing is known about Lawrence and his house appears to have disappeared by the late 1880s (Vazina 1991; Beasley 1890). By 1913 a small village had been established at the present day town of Jacumba whose spa attracted Imperial Valley farming families escaping the summer heat and health-seekers from around the state. A structure was located in the project area within the present Mountain Meadows Dairy site complex. The property was owned at that time by W. H. Purdy (Alexander 1912). Between 1917 and 1919 the San Diego and Arizona Railroad completed its lines across the northern portion of the project area, establishing Titus siding, which was named for the railroad's general manager, Harry Titus (Hamft 1984:60).

In 1927 the project property was purchased by the Keeler Milling Company which was engaged in dairy farming and stock raising (Ketchum 1991). By 1928 barns, housing and other facilities had been built at the present Mountain Meadows dairy complex (Aerial Photograph 1928) (Figure 39). In May 1930 Mountain Meadows Creameries Ltd. was incorporated (Articles of Incorporation 1930). Population growth and technological achievements during the early 20th centuries combined to allow establishment of a dairy farm in Jacumba Valley, far from major urban centers. By 1910 population growth in the city of San Diego was growing so fast that the demand for milk increased faster than it could be met, causing a dramatic increase in the number of dairy farms throughout the county (San Diego Union 1-1-1907 22:1; Van Wormer 1986). This population growth continued through the 1920s (Robinson 1942). In addition, the adoption of the automobile by American society during the first two decades of the twentieth century resulted in major road improvements throughout San Diego County during the period (Van Wormer 1986). By the late 1920s, therefore, an expanded urban population in the city of San Diego, improved roads, and motorized trucks had combined to make it possible to establish a dairy farm in Jacumba and quickly deliver the milk to San Diego markets.

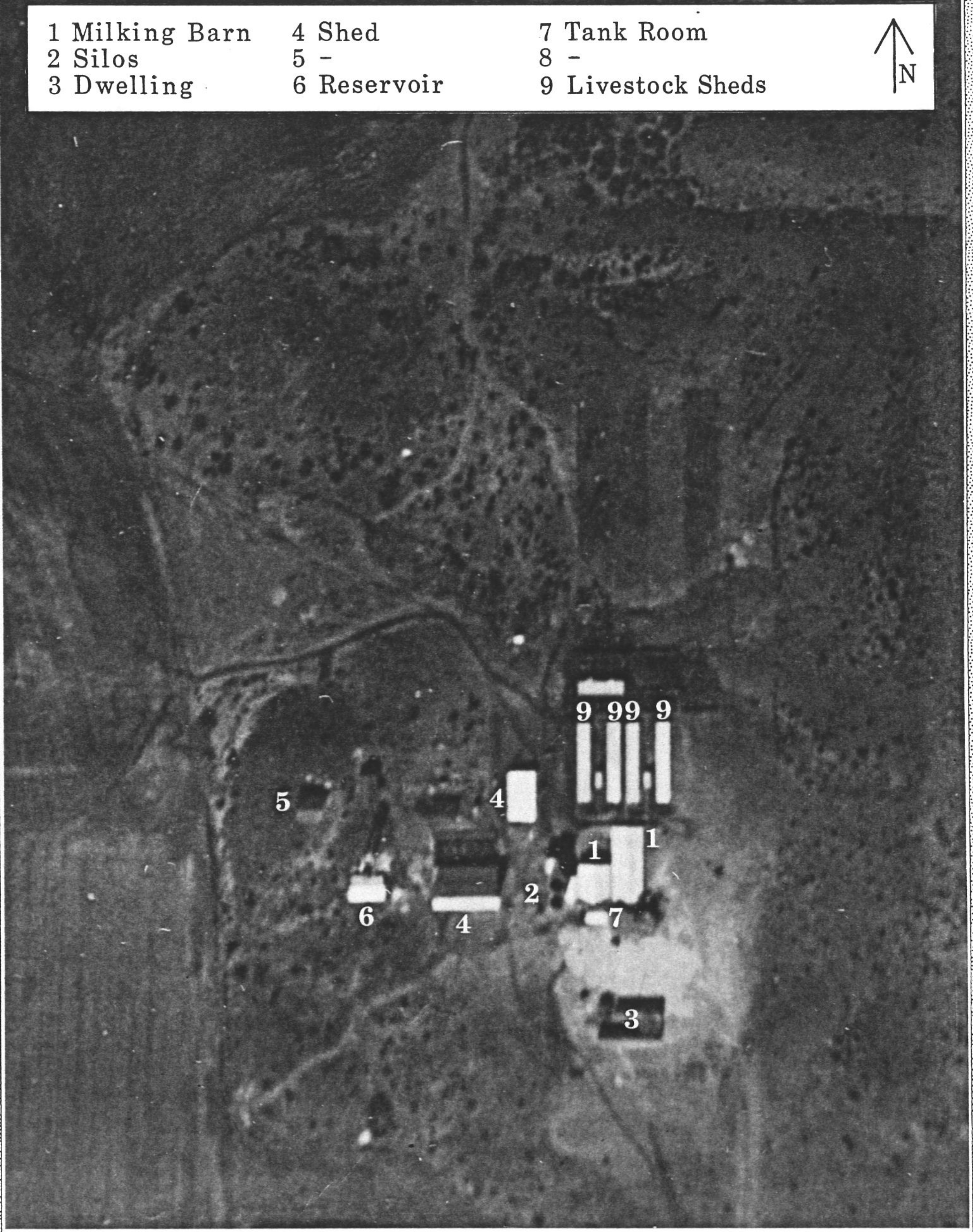


Figure 39
1928 Aerial Photograph of the Mountain Meadows Dairy Complex

The Mountain Meadows Dairy plant on the project area consisted of 750 acres. The establishment averaged about 35 employees and maintained 500 pure breed guernsey and holstein dairy cows. Horse drawn farm equipment was used to cultivate the majority of the acreage for feed. In addition the Keeler Milling Company had 2000 acres in Imperial Valley where feed was raised and trucked to the dairy at Jacumba. Facilities at the dairy included employee housing, a 60 cow concrete milking barn, refrigeration and storage facilities, power plant, bottling works, creamery, livestock sheds, feed silos, and equipment sheds. Raw milk was bottled at the Jacumba plant. The majority of the product, however, was trucked nightly to the company's plant at San Diego in Mission Valley where it was pasteurized, bottled and delivered to households in San Diego, La Jolla, and Coronado (Figure 40). The San Diego plant employed an average of 65 people and had a fleet of 13 trucks. The majority of the milk processed at the San Diego Mountain Meadows plant did not come from the Jacumba dairy but was purchased from many different locations including dairies outside the county. In 1934 Mountain Meadows grade "A" raw milk won a gold medal for the highest score at the California State Fair in Sacramento. At that time it was claimed that Mountain Meadows Dairy was the largest producer and distributor of milk in San Diego County. Mountain Meadows closed in 1945 as a result of the managements desire to retire (San Diego Union 2-5-1933; 5-7-1934; 10-8-1934; Ketchum 1991).

The plant at Jacumba was leased to Louis L. Serano until about 1951. It was reopened about 1956 under the supervision of a man named Kroon who produced milk for Foremost dairies. He closed in the early 1960s and was the last to run a commercial dairy on the premises (Ketchum 1991).

Figure 40

Mountain Meadows Dairy, San Diego Plant

Courtesy San Diego Historical Society Ticor Collection

HISTORIC RESOURCES

Potential historic resources within the project area include the 1870s Lawrence house site, The W. H. Purdy House site, and the Mountain Meadows Dairy complex (Figure 41). There is no evidence that buildings ever existed at Titus siding which is within the San Diego and Arizona Railroad right of way (U.S.G.S. 1939).

No remains were found of the Lawrence house during the field survey. The location was very near the present San Diego and Arizona Railroad tracks and possibly within the railroad right of way. Any remains of the structure, if they indeed existed at that time, may have been destroyed by railroad construction.

The W. H. Purdy house location is within the present Mountain Meadows Dairy Complex and was undoubtedly destroyed by grading and construction at the dairy site. This leaves no known historic remains within the project area except the Mountain Meadows Dairy complex (Figure 42).

The present dairy complex consists of two concrete block silos, 3 framed single story dwellings with horizontal wood siding, a concrete and frame milk barn with a corrugated tin roof, wooden and corrugated tin sheds, a corrugated tin calf barn, a tank room of unreinforced concrete block, a concrete reservoir, two large trash dumps, and miscellaneous antique farm equipment (Figures 43-50). All structures except for one dwelling and the milking barn are in serious states of disrepair.

Most of the present dairy complex existed by 1928 including two dwellings, milking barn, tank room, reservoir, and equipment and livestock sheds (Aerial Photograph 1928)(Figure 43). By 1934 The complex had been expanded by the addition of a third dwelling and livestock sheds (Figure 43 inset).

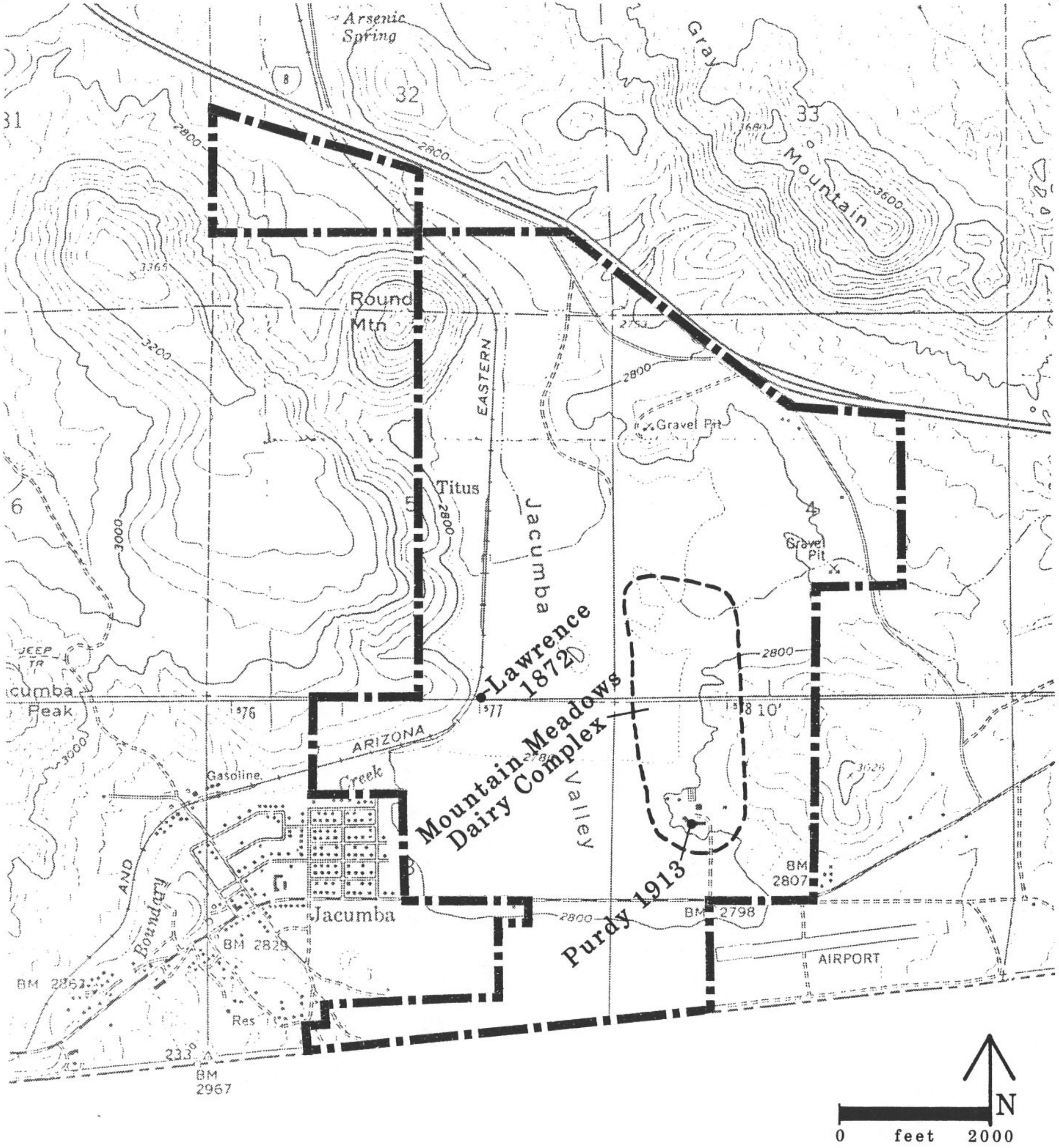


Figure 41

Potential Historic Resource Locations

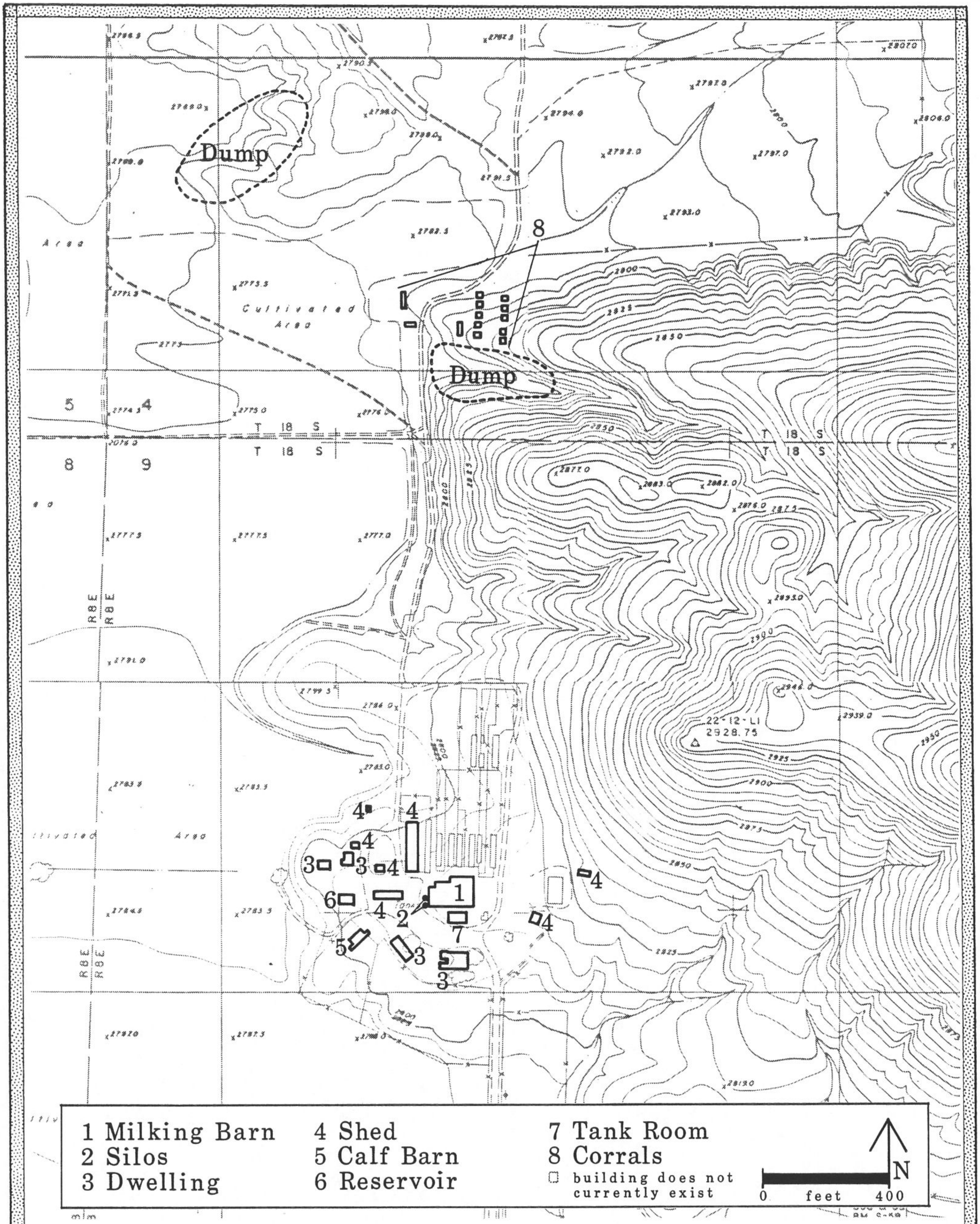


Figure 42

Mountain Meadows Dairy Complex, 1991

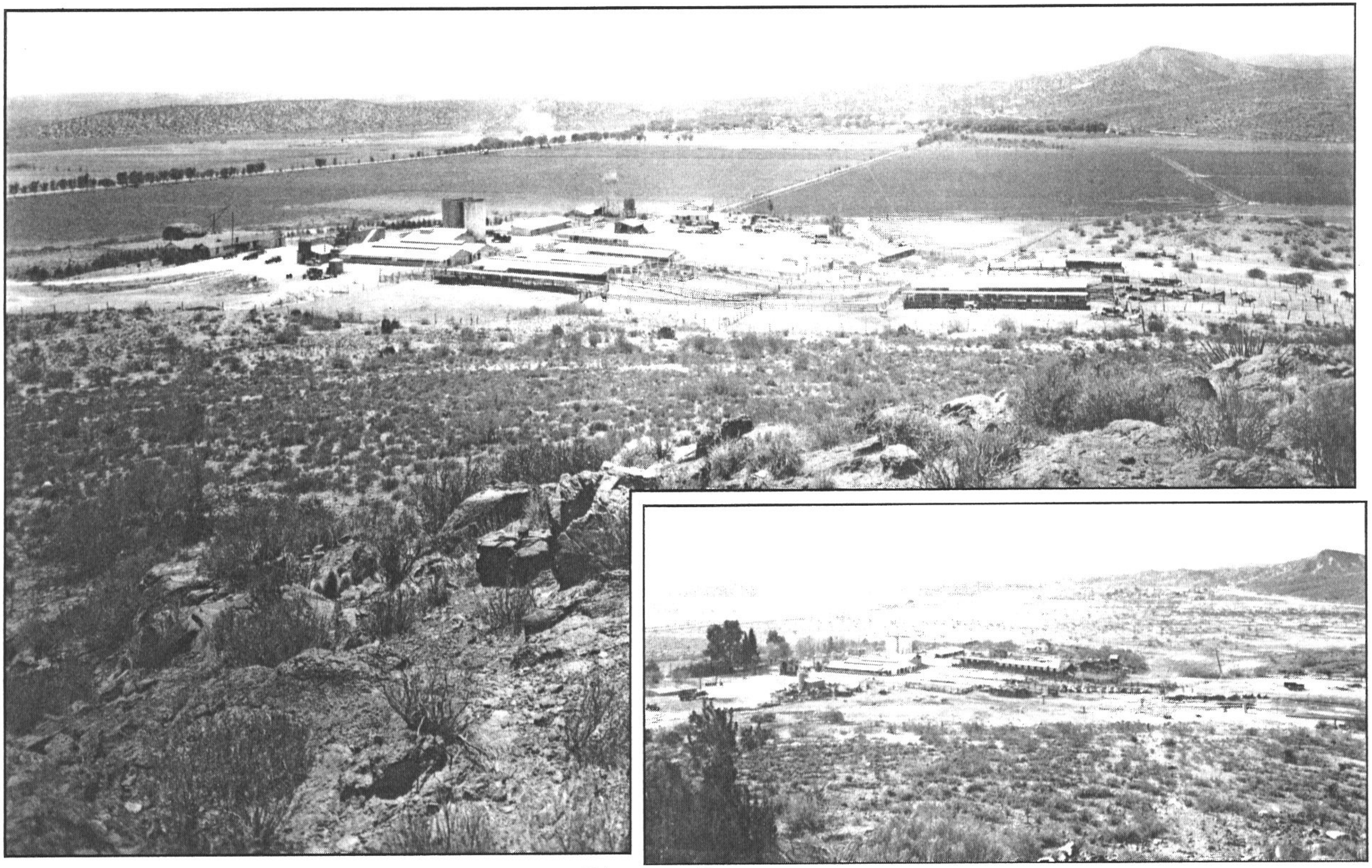
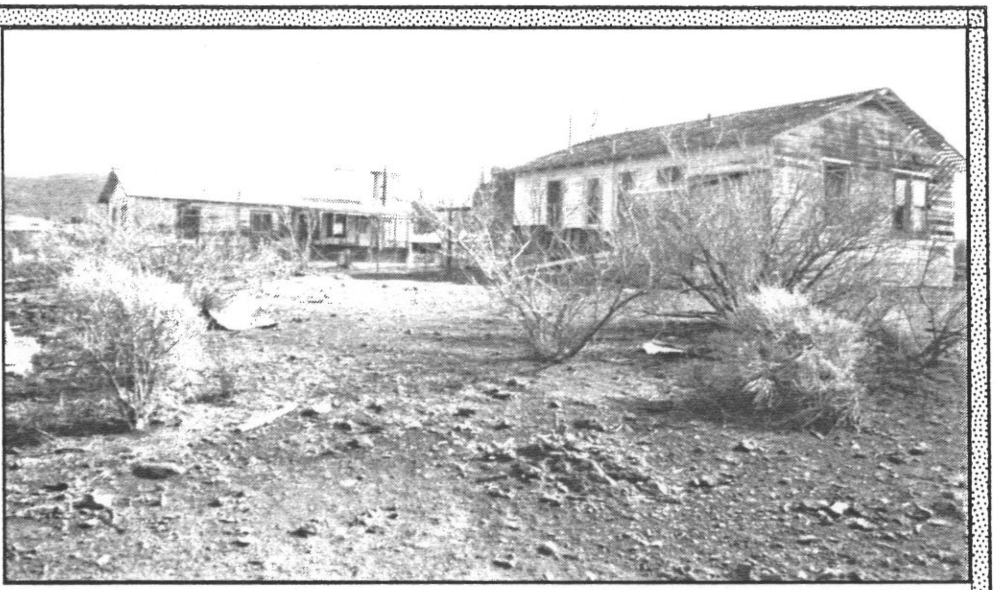


Figure 43

Overview of Mountain Meadows Dairy Complex,
1934
Looking Southwest
Courtesy San Diego Historical Society Ticor Collection

Overview of Mountain Meadows Dairy Complex,
1991
Looking Southwest

Two Abandoned Dwellings on the West End of the Complex



Equipment Shed and Abandoned Dwelling Looking North

Equipment Shed Interior

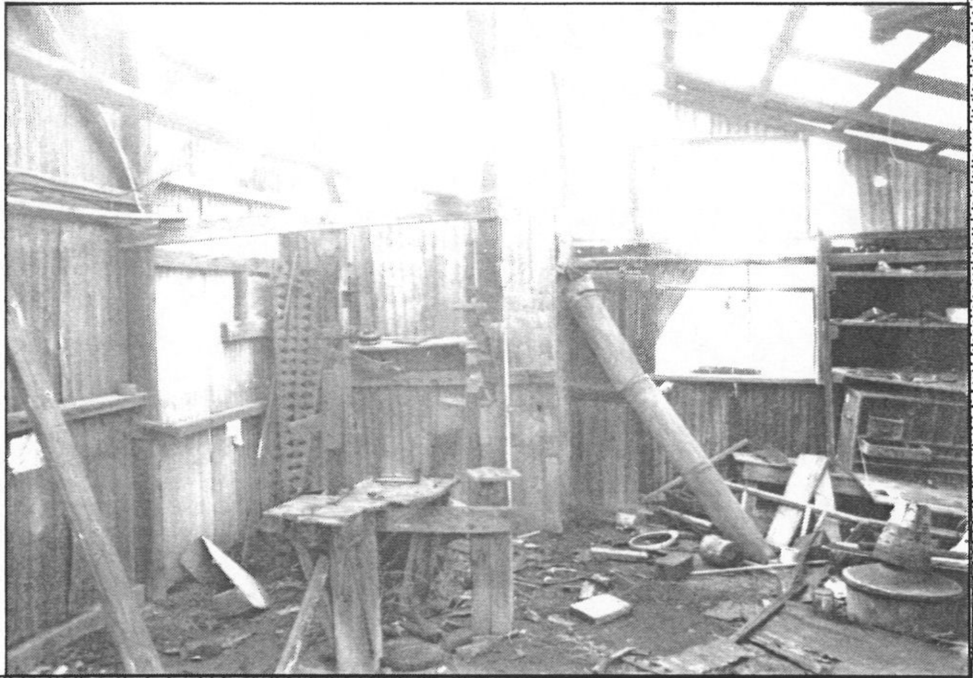
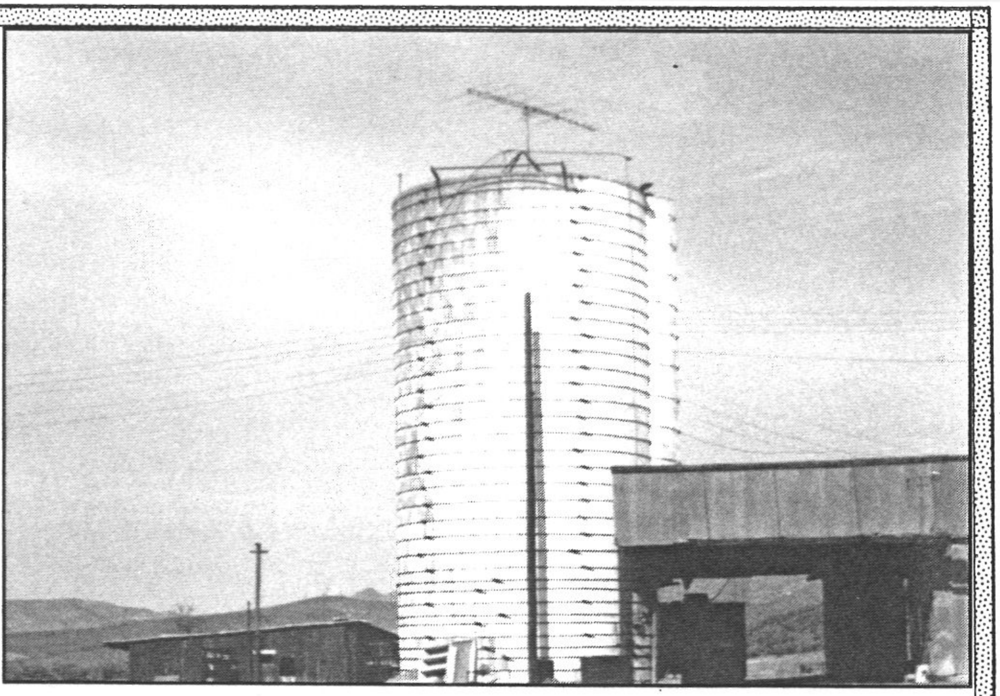


Figure 44

Silos from the South Side



Shed, Silos and Tank Room
Looking East

Silos and Sheds
Looking Northeast

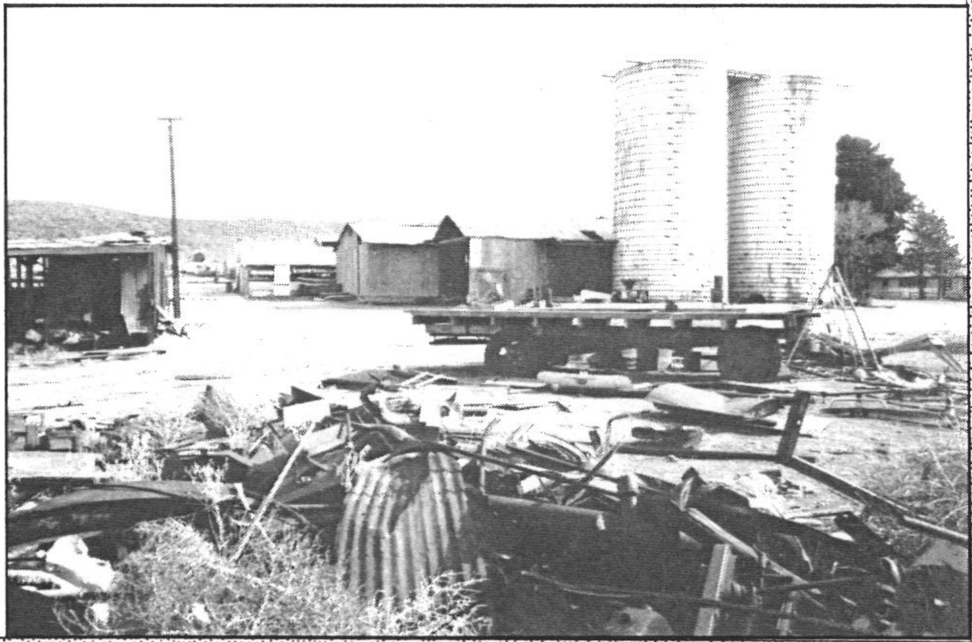
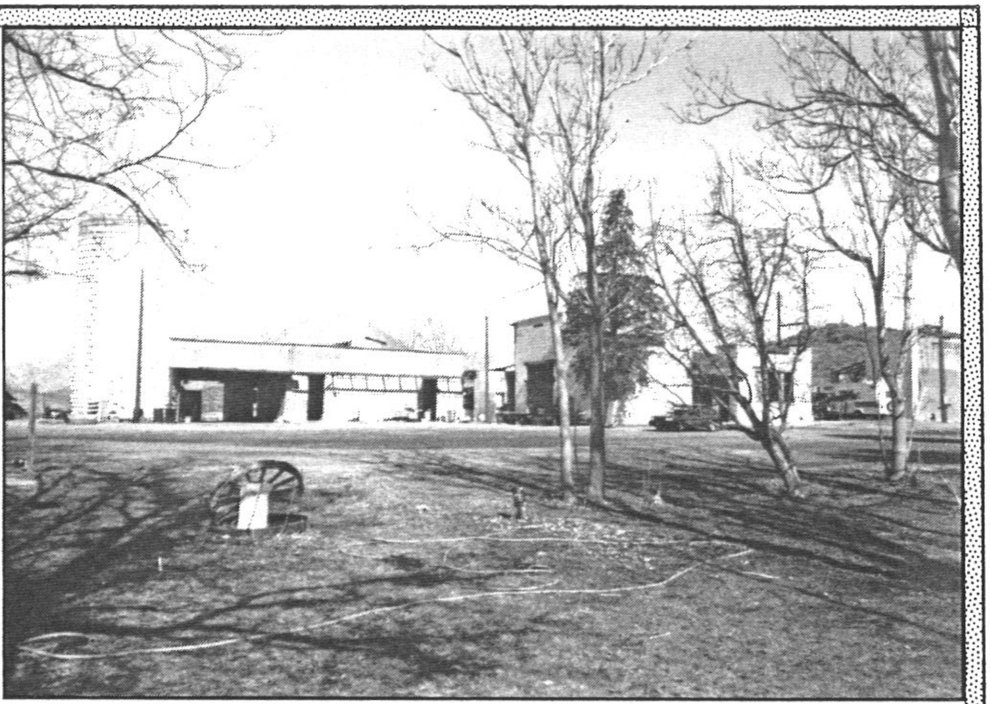
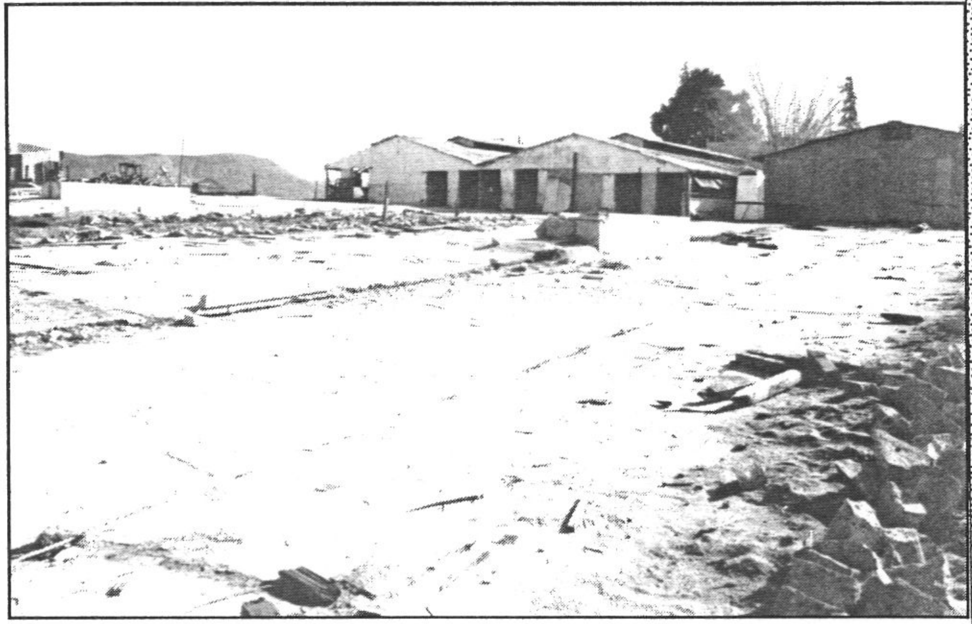


Figure 45

Milking Barn and Silos



Milking Barn from the
North Side



Milking Barn Interior

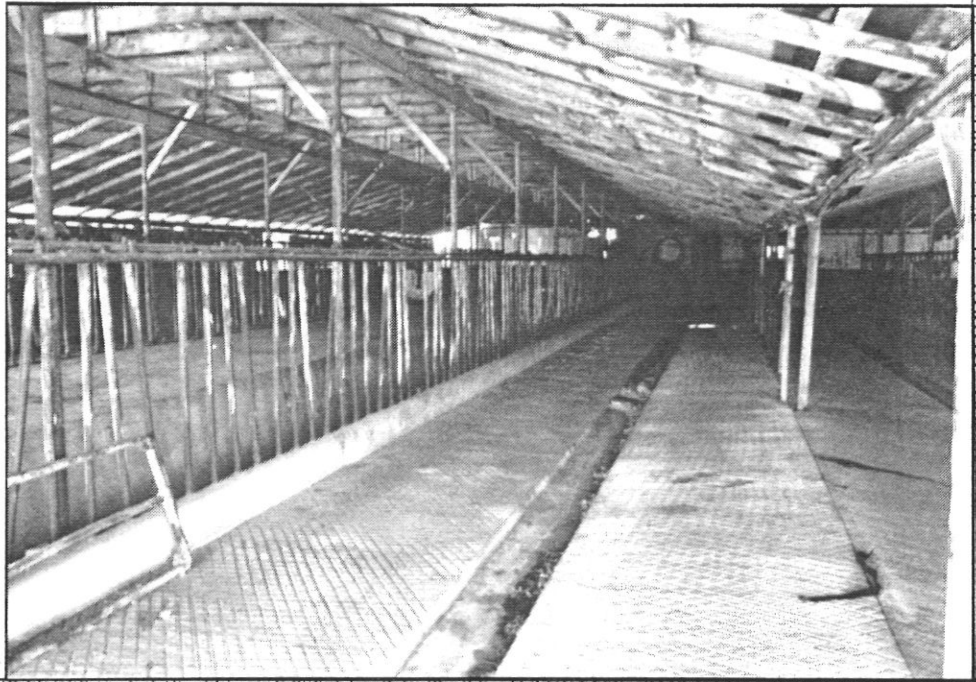
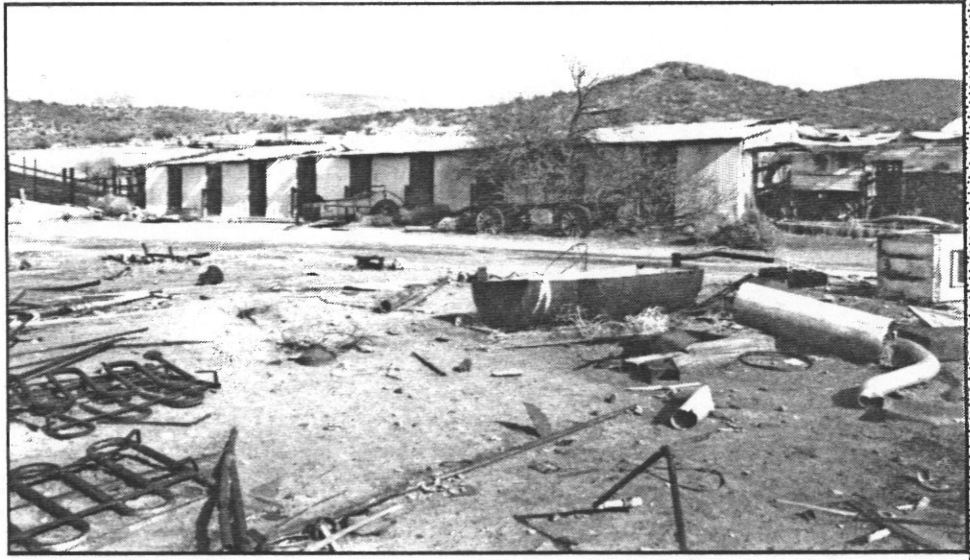
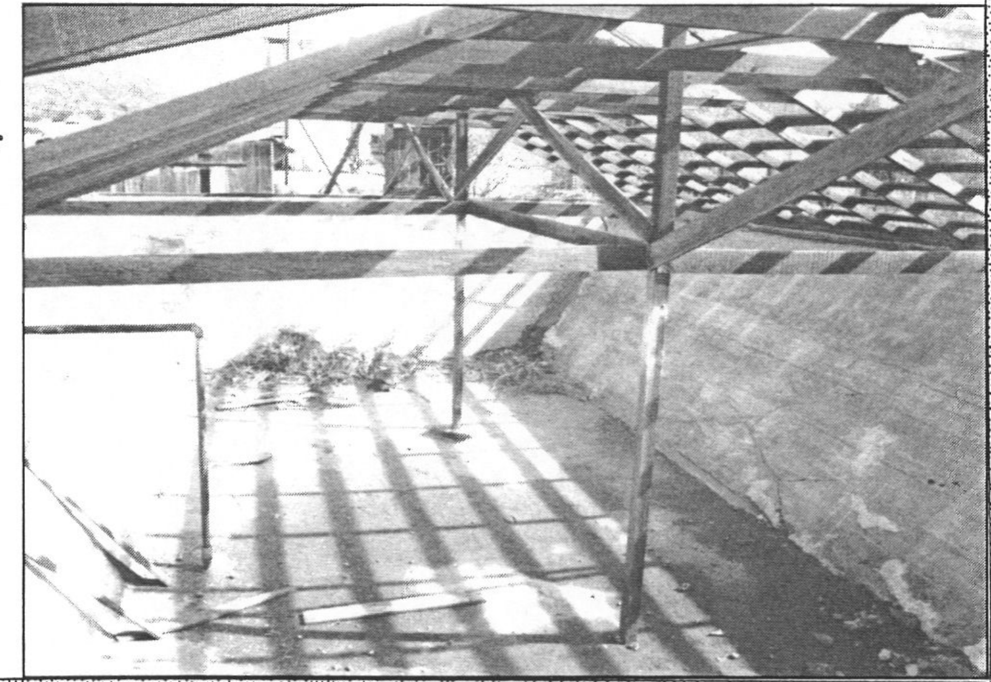


Figure 46

Abandoned Shed and Equipment



Abandoned Equipment and Shed



Concrete Reservoir Interior

Figure 47

SIGNIFICANCE

The Mountain Meadows Dairy complex was assessed for significance (importance) according to criteria specified in the California Environmental Quality Act (CEQA) legislation (Section 21083 and Appendix K). According to Appendix K, Section III of CEQA, an important resource is one which:

A. Is associated with an event or person of: 1) recognized significance in California or American history, or 2) is of recognized scientific importance in pre-history.

B. Can provide information which is both of demonstrably public interest and useful in addressing scientifically consequential and reasonable archaeological research questions.

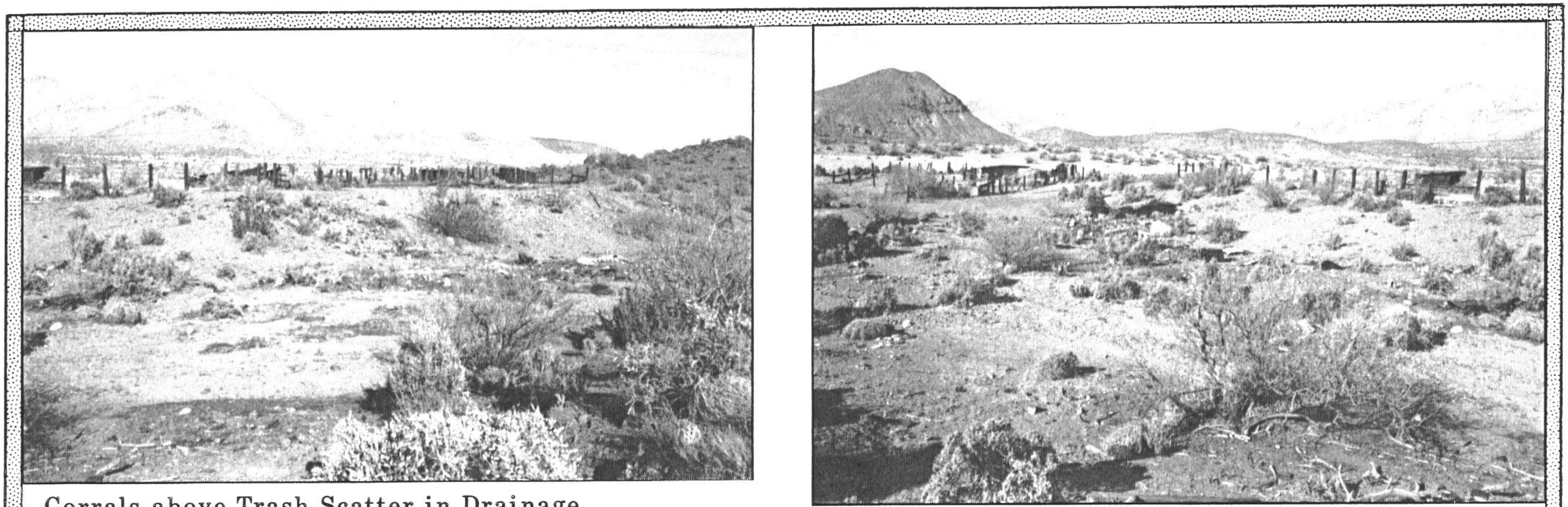
C. Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind.

D. Is at least 100 years old and possesses substantial stratigraphic integrity.

E. Involves important research questions that historical research has shown can only be answered with archaeological methods.

The structures and grounds of the Mountain Meadows Dairy complex do not meet any of the above criteria and therefore do not qualify as important (significant) under CEQA. The complex is not associated with events or persons of recognized importance in American or California history, nor does it have a special or particular quality such as being the oldest, best example, largest, or last surviving example of its kind. Numerous dairy complexes still exist throughout Southern California and operational methods of the industry are well understood and documented (Hampson et al. 1990; Swanson and Hatheway 1989; Van Wormer 1983; Mooney-Lettieri and Associates 1983:124).

In addition the two dumps (Figure 48) located in the northern portion of the complex site do not qualify as important resources. The presence of aluminum top beer cans in portions of the deposits indicates much of the material is of recent origin while the reminder consists chiefly of broken milk bottles. Due to the recent dates and homogeneous nature of the refuse, therefore, artifact assemblages from these dumps could not be used to answer important research questions that historical research has shown can only be answered with archaeological methods.



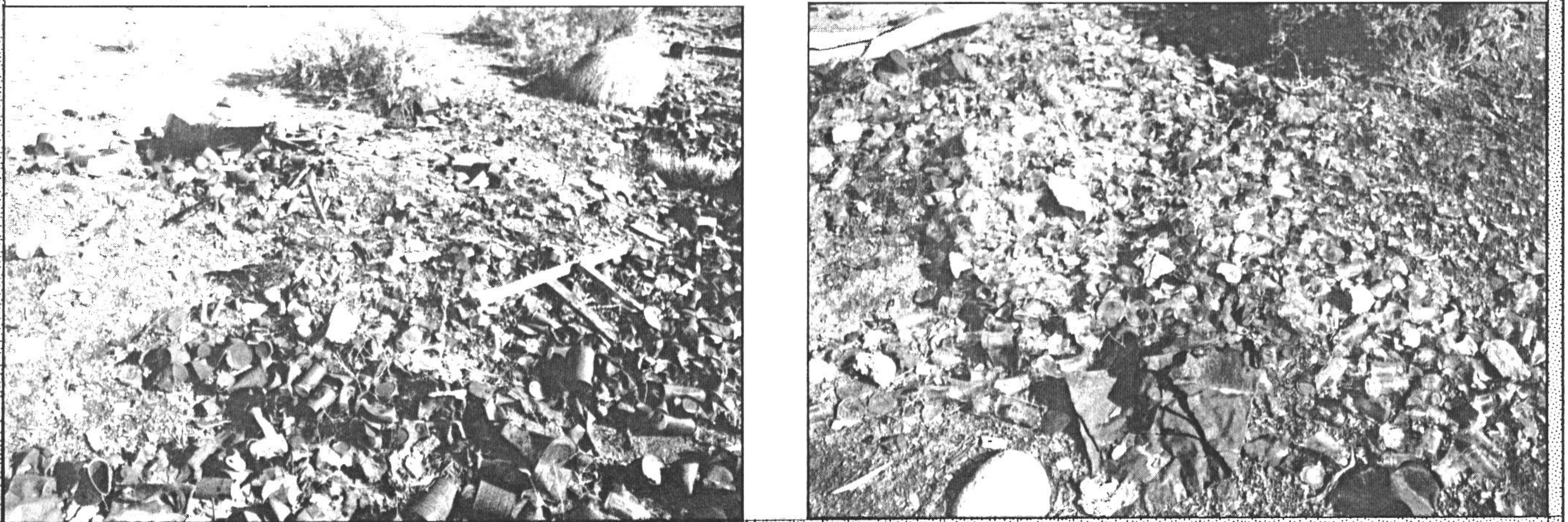
Corrals above Trash Scatter in Drainage
Looking Northwest

Corrals and Trash Scatter
Looking Southwest

Figure 48

Trash Dump with Aluminum Pull Top Beer Cans

Milk Bottle Dump



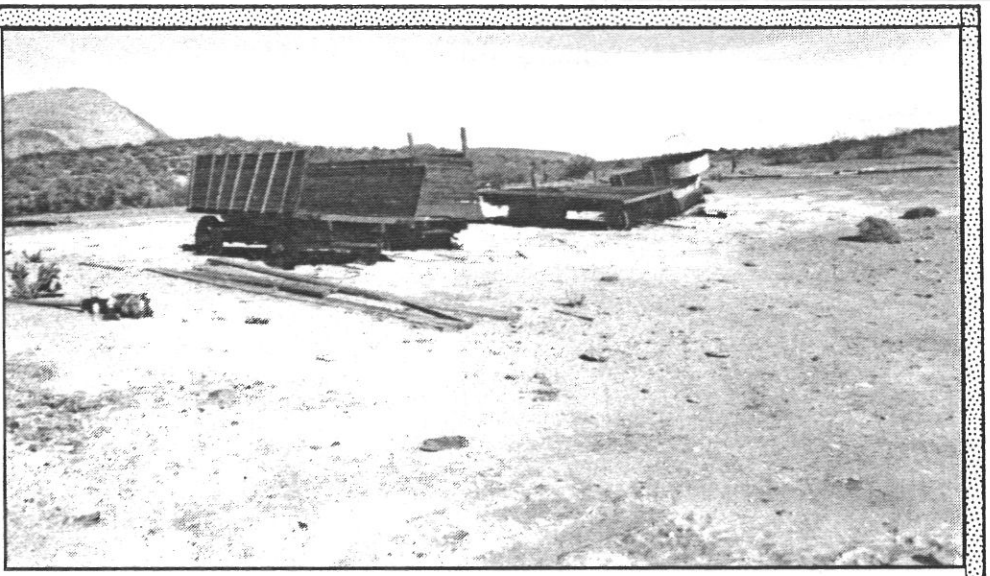
Finally, the one component of the complex that is significant under CEQA criteria is the collection of antique agricultural equipment (Figures 49 and 50). Many of these are horse drawn implements and represent farming techniques commonly used during the late 19th and early 20th centuries. Several museums exist that are interested in obtaining, curating, and displaying to the public these types of items. The antique farm implements, therefore, do qualify as significant under Criterion B in that if they are donated to a museum, they will provide information that is of public interest.

The following museums are listed in order of preference as possible institutions that should be contacted to see if they are interested in acquiring any of these items:

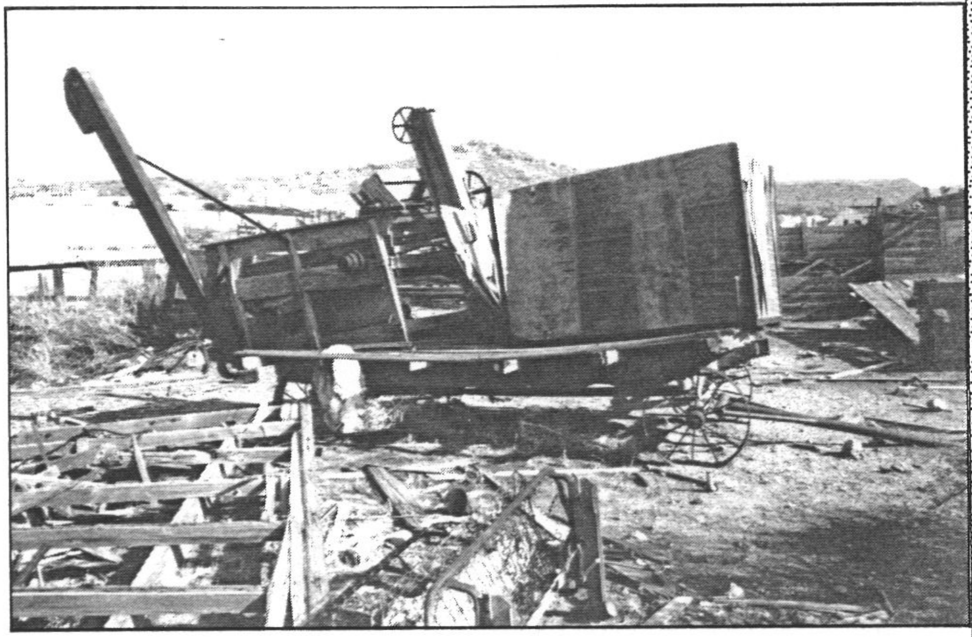
Mountain Empire Historical Society
31130 Highway 94
Campo, California 91906

Antique Gas and Steam Engine Museum
2040 North Santa Fe Avenue
Vista, California 92083

Wagons



Thrashing Machine



Cultivator

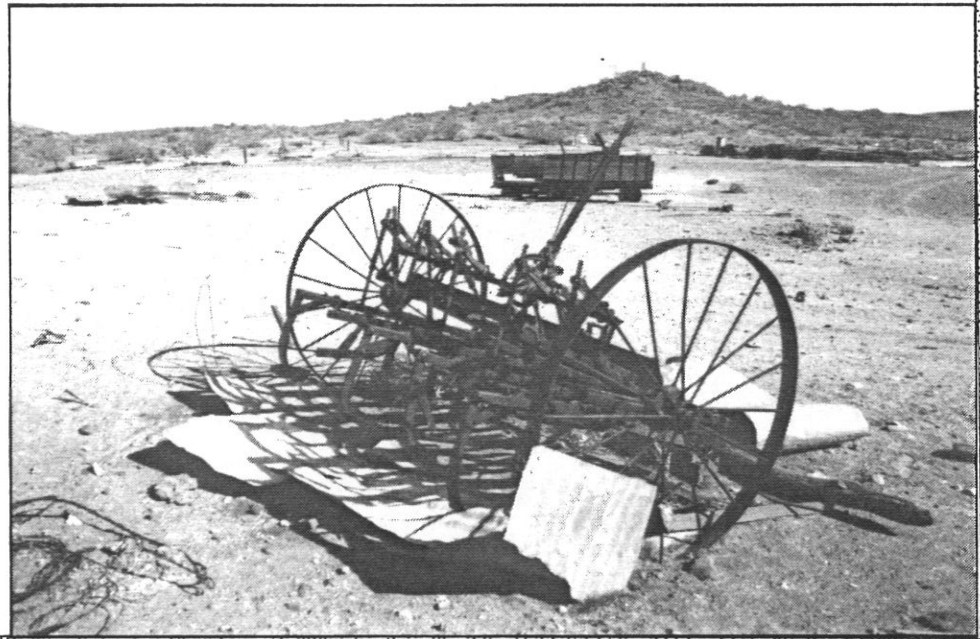
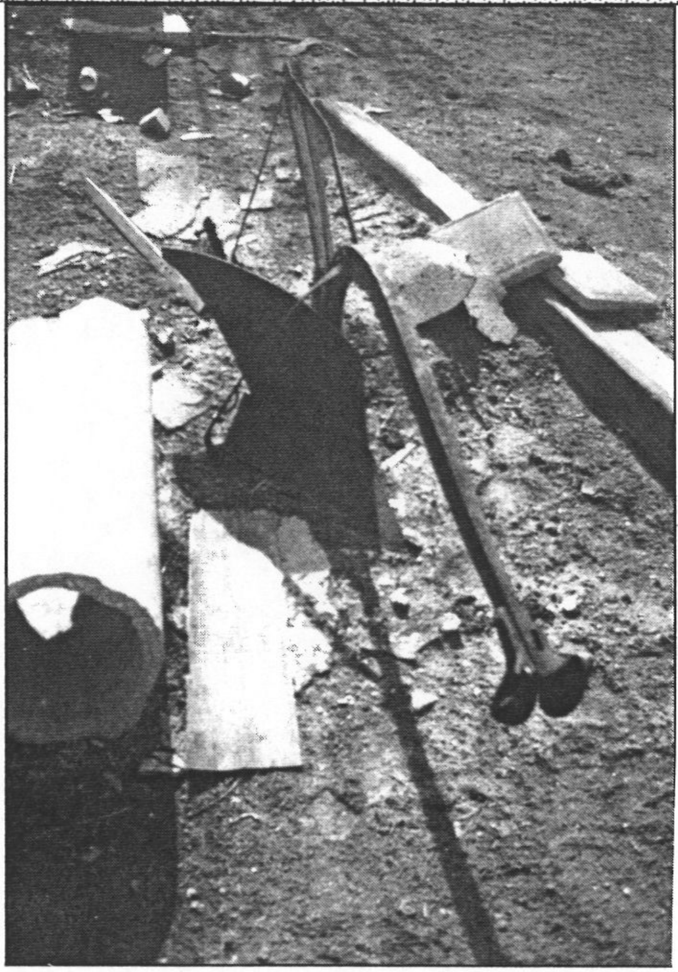
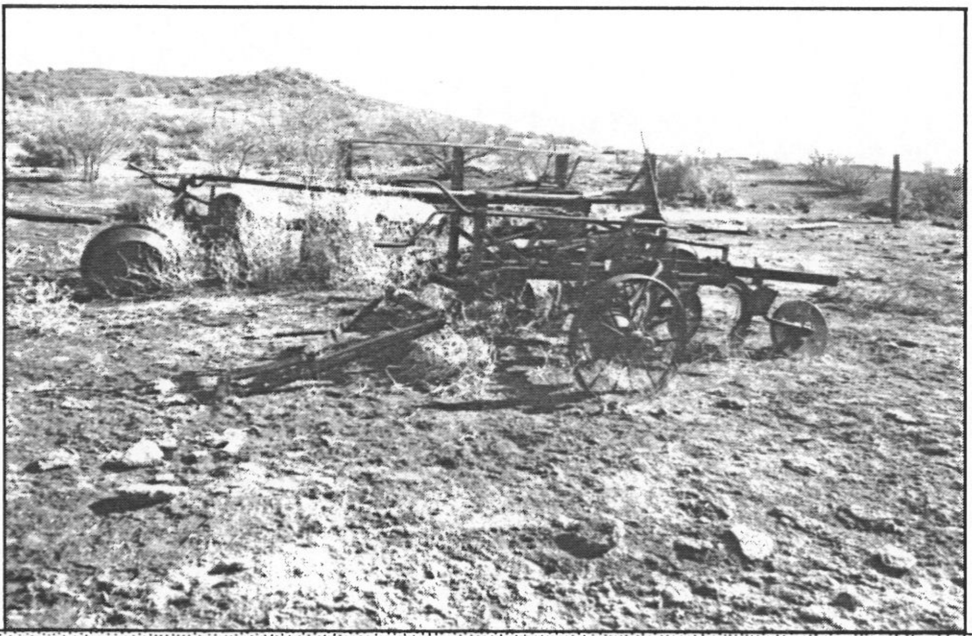


Figure 49

Figure 50



Horse Drawn Plow



Gang Plow

CONCLUSIONS

In conclusion three potential historic resources were identified: 1) the Lawrence House site, 2) the Purdy House site, and 3) the Mountain Meadows Dairy complex. The Lawrence and Purdy house sites no longer exist. With the exception of the antique farm machinery assemblage, the different components of the Mountain Meadows Dairy complex that includes dwellings, barns, sheds, other facilities and refuse dumps do not qualify as significant under CEQA. It has been recommended that appropriate museums be contacted for donation of the antique farm implements.

V. REFERENCES CITED

Aerial Photograph
1928 Survey Records Department, San Diego Operations Center.

Ahler, Stanley A.
1988 Experimental Knapping with KRF and Midcontinent Cherts: Overview and Applications. Paper Presented at the 53rd Annual Meeting of the Society for American Archaeology, Phoenix.

Alexander, W.E.
1912 Plat Book of San Diego County. W.E. Alexander Publishing Company, San Francisco (Circa).

Almstedt, Ruth F.
1982 The Kumeyaay and 'lipay. In, Clyde Woods, *APS/SDG&E Interconnection Project Native American Cultural Resources: Miguel to the Colorado River and Miguel to Mission Tap*. Submitted to San Diego Gas & Electric Company. Copies available from Wirth Environmental Services, San Diego.

1974 *Bibliography of the Diegueño Indians*. Ramona, California: Ballena Press.

Alvarez, Anita Williams
1976 Lifestyle of the Historical Southern California Indian. *The People Cabrillo Met*.

Anonymous
nd History of Jacumba. Jacumba Vertical File, San Diego Historical Society Research Archives.

Bancroft, Hubert H.
1963 *History of California*, Vol.1, 1542-1800. Santa Barbara: Wallace Hebberd. (1st ed., The History Company 1886).

Bartlett, John R.
1854 *Personal Narrative of Explorations and Incidents in Texas, New Mexico, California, Sonora, and Chihuahua*. New York: D. Appleton and Company.

Bean, Lowell John
1972 *Mukat's People: The Cahuilla Indians of Southern California*. Berkeley, California: University of California Press.

1978 Cahuilla. In *California*, edited by R.F. Heizer, Handbook of North American Indians, vol. 8. Smithsonian Institution, Washington D.C.

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

Bean, Lowell John and Sylvia B. Vane
1977 *California Indians: Primary Resources*. A Guide to Manuscripts, Artifacts, Documents, Serials, Music, and Illustrations. Ramona, California: Ballena Press.

Beasley, T.D.

n.d. Official Map of San Diego County California. San Diego Historical Society Research Archives.

Binford, Lewis R.

1979 Organization and Formation processes: Looking at Curated Technologies. *Journal of Anthropological Research* 35(3):255-273.

1980 "Willow Smoke and Dogs' Tails": Hunter-Gatherer Settlement Systems and Archaeological Site Formation. *American Antiquity* 45(1):4-20.

1982 The Archaeology of Place. *Journal of Anthropological Archaeology* 1(1):5-31.

Binford, Lewis R. and N.M. Stone

1985 "Righteous Rocks" and Richard Gould: Some Observations on Misguided "Debate". *American Antiquity* 50(1):151-153.

Bostwick, Todd W., and M. Steven Shackley

1988 Settlement Strategies and Lithic Technology: A Examination of Variability in Hunter-Gatherer and Agriculturist's Chipped Stone Assemblages in the Sonoran Desert. Paper presented at the 1987 Hohokam Symposium, Arizona State University, Tempe.

Burkenroad, David C.

1980 The Evolution of an Inland San Diego County Resort. In A Cultural Resource Assessment of Jacumba, San Diego County, by Paul G. Chase, David C. Burkenroad, Janet Hightower, and Don Laylander. Report prepared by Paul G. Chase and Associated for Jojoba Limited and Jacumba Associates.

Chase, Paul G.

1980 *A Cultural Resource Assessment of Jacumba, San Diego County*. Paul Chase and Associates, Escondido, California.

Christenson, Andrew

1981 Obsidian Hydration Analysis. In The Archaeology and History of the McCain Valley Study Area. John Cook and Scott Fulmer, eds. U.S. Department of Interior, Riverside, California.

Conkling, Rosce P. and Margaret B. Conkling

1947 The Butterfield Overland Mail 1857-1869: Its Organization and Operation (2 Volumes). The Arthur H. Clark Company, Glendale.

Cook, John R.

1985 If Tizon Could Talk. In *Casual Papers* 2(2):85-97. Cultural Resource Management Center, Department of Anthropology, San Diego State University, California.

Cook, John R. and Scott Fulmer

1980 *The Archaeology and History of the McCain Valley Study Area, Eastern San diego County, California, A Class II Cultural Resources Inventory.* Archaeological Systems Management, Inc. for USDI Bureau of Land Management.

Coues, Elliott, trans. and ed.

1900 *On the Trail of a Spanish Pioneer: The Diary and Itinerary of Francisco Garces* 2 vols. Francis P. Harper, New York.

Cuero, Delfina

1970 *The Autobiography of Delfina Cuero (as told to Florence Shipek).* Malki Museum Press, Morongo Indian Reservation, California.

Cuero, Delfina

1970 *The Autobiography of Delfina Cuero: A Diegueño Woman.* Morongo Indian Reservation, California: Malki Museum Press.

Curtis, Edward S.

1926 *The North American Indians*, 15:508-543. Cambridge, Massachusetts: Norwood Press.

Dominici, Debra Ann

1984 *Calibration of the Obsidian Butte Hydration Rate and its Implications Regarding Late Prehistoric Exchange.* Unpublished M.A. thesis, Department of Anthropology, San Diego State University.

Dyson-Hudson, Rada and Eric A. Smith

1978 Human Territoriality: An Ecological Reassessment. *American Anthropologist* 80(1):21-41.

Elliott, John F.

1982 Historic Setting. In, Nancy A. Whitney-Desautels, ed., *Archaeological Report (Vol. II) on the Re-survey, Surface Collection and Test Excavations of the Archaeological Resources on the Mazzanti Property Located in the Jacumba Area of the County of San Diego.* Prepared by Scientific Surveys, Inc., Huntington Beach, California

Ericson, Jonathon E.

1977 Evolution of *Prehistoric Exchange Systems: The Results of Obsidian Dating and Tracing.* Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles.

1978 Obsidian Hydration Dating in California. Occasional Papers in Method and Theory in California Archaeology, No. 2. Society for California Archaeology, Salinas.

Farrell, Nancy

1978 *Overview of the Prehistory and History of Inland San Diego County.* Wirth Associates, Inc. Submitted to U.S. Department of Interior, Bureau of Land Management, Riverside.

Forbes, Jack D.

1965 *Warriors of the Colorado: The Yumas of the Quechan Nation and Their Neighbors.* Norman, Oklahoma: University of Oklahoma Press.

Ford, Walter
1976 Adventuring in the Jacumbas. *Desert Magazine of the Southwest* Vol. 39, No. 6.

Forde, C. Daryll
1931 Ethnography of the Yuma Indians. *University of California Publications in American Archaeology and Ethnology* 28(4):83-278. Berkeley.

Freeman, T. A. and David Van Horn
1989 Salvage Excavations at the Walker Ranch: A Portion of a Late Prehistoric and Historic Luiseño Village (CA-Riv-333). *Pacific Coast Archaeological Society Quarterly*, 26(4):38-39.

Gallegos, Dennis
1984 Cultural Resource Data Recovery Program for SDG&E's Imperial Valley to La Rosita 230KV Transmission Line. Report prepared by WESTEC Services, Inc. for San Diego Gas and Electric Company.

Gifford, Edward W.
1931 *The Kamia of Imperial Valley.* Bureau of American Ethnology Bulletin 97, Washington.

Goodyear, Albert C.
1979 A Hypothesis for the Use of Crypto-Crystalline Raw Materials Among Paleoindian groups of North America. *Research Manuscript Series* No. 156, Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Gould, Richard A. and Sherry Saggers
1985 Lithic Procurement in Central Australia: A Closer Look at Binford's Idea of Embeddedness in Archaeology. *American Antiquity* 50(1):117-135.

Graham, William R.
1981 *A Cultural Resource Survey of the Laguna Mountain Recreation Area.* Archaeological Systems Management, Inc. for USDA Forest Service, Cleveland National Forest, San Diego County, California.

Griffin, John S.
1942 The Diary of John S. Griffin, Assistant Surgeon with Kearney's Dragons, 1846-1847, edited by George Walcott Ames, Jr. *California Historical Quarterly*, (21):193-224.

Hampson, Paul R., Roberta S. Greenwood, and Mark T. Swanson
1990 The Billingsley Dairy: A Family Enterprise in the Prado Basin: CA-Riv-3508H.

Hamft, Robert M.
1984 *San Diego and Arizona: The Impossible Railroad.* Trans-Anglo Books, Glendale, California.

Harrington, John P.
nd Unpublished Field Notes. Originals housed in the National Anthropological Archives of the Smithsonian Institution, Washington, D.C.

Haviland, William A.
1987 *Cultural Anthropology*. New York: Holt, Rinehart and Winston, Inc.

Hayes, Benjamin Ignatisus
1870 Notes on the Indians of San Diego County from the manuscript of Judge Benjamin Hayes. *Masterkey* 8(5):140-149 (September 1934). Southwest Museum, Los Angeles.

Hector, Susan M.
1984 *Late Prehistoric Hunter-Gatherer Activities in Southern San Diego County*. Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles.

Hedges, Ken
1967 Santa Ysabel Ethnobotany. Unpublished manuscript on file with San Diego Museum of Man Scientific Library, San Diego.

1975 Notes on the Kumeyaay: A Problem of Identification. *The Journal of California Anthropology* 2(1):71-83.

Heintzelman, S.P.
1857 Report of Brevet Major S.P. Heintzelman, July 15, 1853. In Indian Affairs of the Pacific. House of Representatives Executive Document No. 76. (34th Congress, 3rd Session). Washington, D.C.: U.S. Government Printing Office.

Heizer, Robert F.
1972 The Eighteen Unratified Treaties of 1851-1852 Between the California Indians and the United States Government. Archaeological Research Facility, Department of Anthropology, University of California, Berkeley.

Henry, Don O., C. Vance Haynes, and Bruce Bradley
1976 Quantitative Variations in Flaked Stone Debitage. *Plains Anthropologist* 21:57-61.

Janssens, Agustin
1953 *Life and Adventures in California*. Edited by William H. Ellison and Francis Price. San Marino, Huntington Library.

Janssens, Victor Eugene
1953 *The Life and Adventures in California of Don Agustin Janssens, 1834-1856*. Edited by William H. Ellison and Francis Price, Henry E. Huntington Library, San Marino, California.

Jelinek, Lawrence J.
1979 *The Harvest Empire, A History of California Agriculture*. Boyd and Fraser Publishing Company, San Francisco.

Kelly, Robert L.
1985 *Hunter-Gatherer Mobility and Sedentism: A Great Basin Study*. Unpublished Ph.D. dissertation, Department of Anthropology, University of Michigan.

Kelly, Robert L. and Lawrence C. Todd
1988 Coming into the Country: Early Paleoindian Hunting and Mobility. *American Antiquity* 53(2):231-244.

Ketchum, William W.
1991 Personal Communications to Stephen R. Van Wormer.

Kroeber, Alfred L.
1925 *Handbook of the Indians of California.* Bulletin 78 of the Bureau of American Ethnology. Smithsonian Institution, Washington.

Langdon, Margaret
1975 Kamia and Kumeyaay. A Linguistic Perspective. *Journal of California Anthropology* 2(1).

Lawton, Harry W., and Lowell Bean
1972 A Preliminary Reconstruction of Aboriginal Agricultural Technology Among The Cahuilla. *The Indian Historian* 1(5):18-24, 29.

Laylander, Don
1983 *Ceramic Analysis in Research Designs for the Prehistory of Southern California.* Cultural Resource Management Casual Papers 1(3):144-159. Department of Anthropology, San Diego State University, California.

Lindsay, D.E.
1973 *Out Historic Desert: The Story of the Anza-Borrego Desert.* R.F. Pourade, ed. Copley Press, San Diego.

Lee, Melicent
1978 *Indians of the Oaks.* Ramona, California: Acoma Books. [Originally Privately Published, San Diego, California; 1978]

Lee, Richard B.
1979 *The !Kung San: Men, Women, and Work in a Foraging Society.* Cambridge: Cambridge University Press.

Luomala, Katherine
1978 Tipai-Ipai. In, *California*, Robert F. Heizer, ed., pp. 592-609. *Handbook of North American Indians*, vol. 8. Smithsonian Institution, Washington.

Lyon, Nathaniel
1851 New Route to the Gala and Colorado River. San Diego Herald, June 12.

Martin, P. K.
1977 *Geology and Mineral Resources of Imperial County, California.* California Division of Mines and Geology, County Report 7.

May, Ronald
1978 A Southern California Indigenous Ceramic Typology: A Contribution to Malcolm Rogers' Research. *Archaeological Survey Association of Southern California Journal* 2(2).

McCoy, Lesley and Jay Thesken

1979 Archaeological Survey of the Mazazanti Property, Jacumba, California. WESTEC Services, Inc., San Diego.

Meighan, Clement W.

1959 Archaeological Resources of Borrego Desert State Park. Archaeological Survey Annual Report 1958-1959, pp. 27-44. University of California, Los Angeles.

1983 Obsidian Dating in California: Theory and Practice. American Antiquity 48(3):600-609.

Meighan, Clement W., L. J. Foote and P. V. Aiello

1968 Obsidian Dating in West Mexican Archaeology. *Science* 160:1069-1075.

Merriam, C. Hart

1966 *Ethnographic Notes on California Indian Tribes*. Compiled and edited by Robert F. Heizer. University of California Archaeological Survey Reports No. 68, 3 parts. Berkeley.

Merrill, Ruth Earl

1973 *Plants Used in Basketry by the California Indians*. Ramona, California: Ballena Press.

Michels, Joseph W. and C. Bebrich

1971 Obsidian Hydration Dating. In *Dating Techniques for the Archaeologist*. H.N. Michaels and E.K. Ralph, eds, pp. 164-221. MIT Press, Cambridge, Mass.

Moratto, Michael J.

1984 *California Archaeology* Academic Press, Inc., Orlando, Florida.

Odens, Peter

1977 *The Desert's Edge: Land of Fierce Beauty*. Border-Mountain Press.

Patterson, L.W.

1982 The Importance of Flaked Size Distribution. *Contract Abstracts and CRM Archaeology* 3(1):70-72.

Patterson, L.W., and J.B. Sollberger

1978 Replication and Classification of Small Size Debitage. *Plains Anthropologist* 23:103-112.

Pourade, Richard F.

1963 *The Silver Dons*. Union Tribune Publishing Company, San Diego, California.

Prentiss, William C., and Eugene J. Romanski

1988 Determining the Origins of Distinctive Debitage Assemblages: An Experimental Analysis. Paper Presented at the 53rd Annual Meeting of the Society for American Archaeology, Phoenix.

Raab, L. Mark, Robert F. Cande, and David W. Stahle

1979 Debitage Graphs and Archaic Settlement Patterns in the Arkansas Ozarks. *Mid-Continental Journal of Archaeology* 4(2):167-182.

Railroad Survey

1872 Survey of the San Diego and Gila Southern Pacific and Atlantic Railroad. San Diego Historical Society Research Archives.Robinson, W.W.

1942 The Southern California Real Estate Boom of the Twenties. *Southern California Quarterly* 24 (Winter 1942):23-28.

Rogers, Malcolm

1945 An Outline of Yuman Prehistory. *Southwestern Journal of Anthropology* 1(2):167-198.

1966 *Ancient Hunters of the Far West.* Richard F. Pourade editor, pp. 23-108. Union-Tribune Publishing Co., San Diego.

Sahlins, M. D.

1972 *Stone Age Economics.* Chicago: Aldine-Atherton.

San Diego Union

1907-1934 Various issues cited in text.

Schaefer, Jerry

1986 *Late Prehistoric Adaptations During the Final Recessions of Lake Cahuilla: Fish Camps and Quarries on West Mesa, Imperial County, California.* Report prepared by Mooney-LeVine and Associates for the USDI, Bureau of Land Management, El Centro Resource Area.

1987 *Hunter-Gatherer Adaptations to a Marginal Desert Environment. Subsistence Practices and Lithic Production in the Chocolate Mountains, Imperial County, California.* Mooney-LeVine and Associates, Inc. for Gold Fields Mining Corporation, Lakewood, Colorado.

1988 *Lowland Patayan Adaptations to Ephemeral Alkali Pans at Superstition Mountain, West Mesa, Imperial County, California.* Brian F. Mooney Associates for the USDI, Bureau of Land Management, El Centro, California.

Schiffer, Michael B.

1988 The Structure of Archaeology Theory. *American Antiquity* 53(3):41-485.

Semenov, S.A.

1970 The Forms and Functions of the Oldest Tools. *Quartar* 21:1-20. Bonn.

Shackley, M. Steven

1981 *The Late Prehistoric Exchange Network Analysis in Carrizo Gorge and the Far Southwest.* Unpublished M.A. thesis, Department of Anthropology, San Diego State University.

1982 *Phase III Archaeological Survey of the Mountain Springs (Jade) to Sand Hills Portion of the APS/SDG&E Interconnection Project 500kV Transmission Line.* Cultural Systems Research, Inc., San Diego.

1984 *Archaeological Investigations in the Western Colorado Desert: A Socioecological Approach.* Wirth Environmental Services, A Division of Dames & Moore, San Diego, California.

1985 Lithic Raw Material Procurement and Hunter-Gatherer Mobility Strategies in the Southwest Archaic. Paper Presented at the 50th Annual Meeting of the Society for American Archaeology, Denver, Colorado.

1986 Lithic Technology and Mobility Strategies at Picacho. In *Prehistoric Hunter-Gathers of South Central Arizona: The Picacho Reservoir Archaic Project*, edited by F.E. Bayham, D.H. Morris, and M.S. Shackley, pp. 109-156. Anthropological Field Studies 13. Arizona State University, Tempe.

1988 Sources of Archaeological Obsidian in the Southwest: An Archaeological, Petrological, and Geochemical Study. *American Antiquity* 53(4):752-772.

Shipek, Florence

1978 History of Southern California Mission Indians. In, *California*, Robert F. Heizer (ed). pp. 610-618. Handbook of North American Indians, Vol. 8. William C. Sturtevant, (gen. ed). Washington: Smithsonian Institution.

1982 The Kamia. In *APS/SDG&E Interconnection Project Native American Cultural Resources. Miguel to the Colorado River and Miguel to the Mission Tap: Identification and Evaluation of Native American Cultural Resources*, edited by Clyde Woods, pp. 21-34. Wirth Associates, Inc.

Shott, Michael

1986 Technological Organization and Settlement Mobility: An Ethnographic Examination. *Journal of Anthropological Research.*

Spier, Leslie

1923 Southern Diegueño Customs. *University of California Publications in American Archaeology and Ethnology* 20(16):292-358.

Sparkman, Philip Stedman

1908 The Culture of the Luiseño Indians. *University of California Publications in American Archaeology and Ethnology* 8(4):187-234.

Stahle, David W., and James E. Dunn

1982 An Analysis and Application of the Size Distribution of Waste Flakes from the Manufacture of Bifacial Stone Tools. *World Archaeology* 14:84-97.

Steward, Julian

1930 Irrigation without Agriculture. *Papers of the Michigan Society of Science, Acts, and Letters* 12:144-56.

Sullivan, Alan P. III, and Kenneth C. Rozen

1985 Debitage Analysis and Archaeological Interpretation. *American Antiquity* 50(4):755-779.

Swanson, M.T. and R.G. Hatheway

1989 The Dairy Industry of the Prado Basin. Greenwood and Associates and INFOTEC Research, Inc. Submitted to the Los Angeles District, U.S. Army Corps of Engineers, Los Angeles.

Thomas, David Hurst

1981 How to Classify the Projectile Points from Monitor Valley, Nevada. *Journal of California and Great Basin Anthropology* 3(1):15.

Thomas, David Hurst (editor and contributor)

1983 *The Archaeology of Monitor Valley: Epistemology*. Anthropological Papers at the American Museum of Natural History 58(1).

Townsend, Jan

1986a *Prehistoric Lifeways in the Jacumba Valley, California*, vol. 1. Wirth Environmental Services, Division of Dames and Moore.

1986b Ceramics. In *Archaeological Investigations in the Picacho Basin*. Wirth Environmental Services, Division of Dames and Moore.

Treganza, A. E.

1947 Possibilities of Aboriginal Agriculture among Southern Digueño. *American Antiquity* 12:169-173.

True, Delbert Leroy

1970 *Investigations of a Late Prehistoric Complex in Cuyamaca Rancho State Park, San Diego County, California*. Monograph Series of the Archaeological Survey, Department of Anthropology, University of California, Los Angeles.

Van Wormer, Stephen R.

1983 Appendix A: Historic Sites Documentation. In Appendix E: Cultural Resources Report. In Appendices to the Draft Environmental Impact Report for Daley Ranch. RBR and Associates, San Diego.

1986 An Ethnohistory of the Eastern Kumeyaay. In *The Impact of European Exploration and Settlement on Local Native Americans*. Cabrillo Historical Association, 1986.

Vazina, Meredeth (President Mountain Empire Historical Society)

1991 Personal Communication to Stephen R. Van Wormer.

Wallace, William J.

1955 A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology* 11(3):214-230.

Waters, Michael R.

1982 The Lowland Patayan Ceramic Typology. In *Hohokam and Patayan*, edited by Randall H. McGuire and Michael B. Schiffer, pp. 537-570. Academic Press, New York.

Waterman, T.T.

1910 The Religious Practices of the Diegueño Indians. *University of California Publications in American Archaeology and Ethnology* 4(6):271-358.

Wendorf, F.

1968 Site 117: A Nubian Final Paleolithic Graveyard near Jebel Shahaba, Sudan. In *The Prehistory of Nubia*, edited by F. Wendorf, pp.954-955. Fort Burgwin Research Publicatons 5, Dallas.

APPENDIX A

OBSIDIAN ANALYSES DATA

SONOMA STATE UNIVERSITY
ACADEMIC FOUNDATION, INC.

ANTHROPOLOGICAL STUDIES CENTER
CULTURAL RESOURCES FACILITY
707 664-2381

11/19/90

Drew Pallette, Associate Archaeologist
Brian F. Mooney Associates
9903-B Businesspark Avenue
San Diego, CA 92131

November 16, 1990

Dear Drew:

This letter reports hydration band measurements obtained from 23 specimens recovered at three San Diego County sites: CA-SDI-8072 (n=7); CA-SDI-11689 (n=8); and CA-SDI-7056 (n=8). This work was completed in accordance with your letter dated October 11, 1990.

The analysis was completed at the Sonoma State University Obsidian Hydration Laboratory, an adjunct of the Anthropological Studies Center, Department of Anthropology. Procedures used by our hydration lab for thin section preparation and hydration band measurement are described below.

Each specimen was examined in order to find two or more surfaces that would yield edges which would be perpendicular to the microslide when preparation of the thin section was completed. Two small parallel cuts were made at an appropriate location along the edge of each specimen with a 4 inch diameter circular saw blade mounted on a lapidary trimsaw. The cuts resulted in the isolation of a small sample with a thicknesses of approximately one millimeter. Each sample was removed from its specimen and mounted with Lakeside Cement onto permanently etched petrographic microslide.

The thickness of the samples was reduced by manual grinding with a slurry of #500 silicon carbide abrasive on a glass plate. The grinding was completed in two steps. The first grinding was terminated when the sample's thickness was reduced by approximate 1/2, thus eliminating any micro-chips created by the saw blade during the cutting process. The slides were then reheated, which liquified the Lakeside Cement, and the samples inverted. The newly exposed surfaces were then ground until the proper thickness was attained.

The correct thin section thickness was determined by the "touch" technique. A finger was rubbed across the slide, onto the sample, and the difference (sample thickness) was "felt." The second technique employed for arriving at proper thin section thickness is termed the "transparency" test. The microslide was held up to a strong source of light and the translucency of the thin section observed. The sample was sufficiently reduced in thickness when the thin section readily allowed the passage of light.

A protective coverslip was affixed over the thin sections when all grinding was completed. The completed microslides are curated at our hydration lab under File No. 90-H965.

The hydration bands were measured with a strainfree 40 power objective and a Bausch and Lomb 12.5 power filar micrometer eyepiece on a Nikon petrographic microscope. Six measurements were taken at several locations along the edge of the thin section. The mean of the measurements was calculated and listed on the enclosed table with other information. These hydration measurements have a range of +/- 0.2 due to normal limitations of the equipment.

Note that one specimen from CA-SDI-11689 showed no visible hydration band as marked by "NVB" under the "Mean" column. This could have been a freshly flaked specimen or maybe something else happened to it that made any hydration invisible.

The specimens are enclosed. If you have questions regarding this hydration work, please do not hesitate to contact me.

Cordially,

Thomas M. Origer, Director
Obsidian Hydration Laboratory

CA-SDI-8072

Submitted by: Drew Pallette - Brian F. Mooney & Associates November 1990

Lab#	Catalog #	Description	Provenience	Remarks	Readings	Mean	Source
01	01	debitage		none	3.3 3.3 3.5 3.5 3.5 3.5	3.4	O.B.
02	02	debitage		none	1.8 1.9 1.9 1.9 2.0 2.0	1.9	O.B.
03	03	debitage		none	3.0 3.0 3.0 3.0 3.0 3.1	3.1	O.B.
04	04	debitage		none	1.4 1.4 1.6 1.6 1.6 1.6	1.5	O.B.
05	05	debitage		none	2.4 2.5 2.5 2.6 2.6 2.6	2.5	O.B.
06	06	debitage		none	2.7 2.7 2.7 2.9 3.0 3.0	2.8	O.B.
07	07	debitage		w	2.3 2.4 2.4 2.4 2.4 2.4	2.4	O.B.

Lab Accession No.: 90-H965 Technician: Thomas M. Origer

CA-SDI-11689

Submitted by: Drew Pallette - Brian F. Mooney & Associates November 1990

Lab#	Catalog #	Description	Provenience	Remarks	Readings	Mean	Source
08	08	debitage		none	1.8 1.8 1.8 1.9 2.0 2.0	1.9	O.B.
09	09	debitage		w	1.7 1.7 1.7 1.8 1.8 1.9	1.8	O.B.
10	10	debitage		none	2.7 2.7 2.9 2.9 2.9 2.9	2.8	O.B.
11	11	debitage		none	4.2 4.2 4.2 4.3 4.4 4.5	4.3	O.B.
12	12	debitage		w	2.3 2.4 2.4 2.4 2.4 2.5	2.4	O.B.
13	13	debitage		none		NVB	O.B.
14	14	debitage		none	2.6 2.7 2.7 2.9 2.9 2.9	2.8	O.B.
15	15	point tip		w	2.0 2.1 2.1 2.3 2.3 2.4	2.2	O.B.

Lab Accession No.: 90-H965 Technician: Thomas M. Origer

CA-SDI-7056

Submitted by: Drew Pallette - Brian F. Mooney & Associates November 1990

Lab#	Catalog #	Description	Provenience	Remarks	Readings	Mean	Source
16	16	debitage		none	2.9 2.9 3.0 3.0 3.1 3.2	3.0	O.B.
17	17	debitage		none	2.7 2.7 2.9 2.9 2.9 2.9	2.8	O.B.
18	18	point base		none	3.0 3.0 3.0 3.1 3.1 3.1	3.1	O.B.
19	19	debitage		none	3.0 3.1 3.2 3.2 3.2 3.2	3.2	O.B.
20	20	debitage		none	2.7 2.7 2.9 2.9 2.9 3.1	2.9	O.B.
21	21	debitage		none	3.5 3.6 3.6 3.6 3.6 3.6	3.6	O.B.
22	22	debitage		none	3.0 3.0 3.0 3.1 3.2 3.2	3.1	O.B.
23	23	debitage		none	3.3 3.3 3.5 3.5 3.5 3.6	3.5	O.B.

Lab Accession No.: 90-H965 Technician: Thomas M. Origer

SOURCE DETERMINATION OF ARCHAEOLOGICAL OBSIDIAN SPECIMENS FROM CA-SDi-8072 AND CA-SDi-11,689

METHOD

The trace element analysis of the obsidian specimens listed in the accompanying table was conducted at the Department of Geology, University of California, Davis. This work was performed on a Kevex 0700 energy dispersive X-ray fluorescence unit, using a rhodium (Rh) tube with a 0.05 mm rhodium filter at 30 kilovolts and 0.05 milliamps to analyze for rubidium (Rb), strontium (Sr), yttrium (Y), zirconium (Zr), niobium (Nb), lead (Pb), and thorium (Th). (Only Rb, Sr, and Zr are reported here because those are the critical three elements used to differentiate obsidian sources in most parts of California). This unit has a Si(Li) detector and is used in conjunction with a Kevex 8000 multichannel analytical spectrometer.

Normally in controlled geological studies, a rock is crushed into a powder and pressed into a pellet. That prepared sample has a homogenous distribution of constituent elements and is perfectly flat, providing the appropriate geometry for consistent and systematic results. Archaeological materials cannot be treated in this manner, so their elemental distribution (glasses are assumed to possess homogeneous elemental distributions) and imperfect geometry (i.e., their lack of a perfectly flat surface) must be compensated through a form of "ratio" analysis.

In this procedure, samples were run for 200 live-seconds, and the resulting spectra were stripped of their backgrounds. Integrated intensities were calculated for each of the elements in each sample, and those intensities were divided by the integral of the Compton peak. In conjunction with this work, geological rock standards with known quantities of constituent elements were similarly analyzed. The rock standard ratios were used to calculate a regression formula, and the sample ratios were used to derive the parts per million values for each specimen.

The quantitative computation used in this analysis is an acceptable method, although it is not a replacement for more detailed and accurate techniques (see Andermann and Kemp 1958, Nielsen 1979). Different machines and techniques also have been found to produce slightly varying numerical results, due, in part, to particle-size effects of the variously processed rock standards. Direct comparisons between laboratories are, therefore, problematic.

DATA

Nine specimens were submitted for trace element evaluation, six from SDi-8072 and three from SDi-11,689 located in San Diego County. All nine specimens possess trace element concentrations consistent with the *Obsidian Butte* source area (Table 1).

TABLE 1

TRACE ELEMENT ANALYSES OF OBSIDIAN ARTIFACTS FROM SDi-8072 AND SDi-11,689

Sample	RBppm	SRppm	ZRppm	SUM	RB%	SR%	ZR%	Source
8072A	117.97	19.74	258.49	396.20	29.78	4.98	65.24	OB Butte
8072B	119.30	17.94	302.69	439.93	27.12	4.08	68.80	OB Butte
8072C	123.25	14.39	294.87	432.51	28.50	3.33	68.18	OB Butte
8072D	134.41	25.01	372.34	531.76	25.28	4.70	70.02	OB Butte
8072E	112.36	15.96	281.15	409.15	27.44	3.90	68.66	OB Butte
8072F	136.21	20.30	345.49	502.00	27.13	4.04	68.82	OB Butte
11689A	128.37	17.50	298.07	443.94	28.92	3.94	67.14	OB Butte
11689B	120.46	23.15	311.79	455.40	26.45	5.08	68.47	OB Butte
11689C	128.34	16.09	318.72	463.15	27.71	3.47	68.82	OB Butte

REFERENCES

Andermann, G. and J.W. Kemp
1958 Scattered X-rays as Internal Standards in X-ray Emission Spectroscopy. *Analytical Chemistry* 30:1306.

Nielsen, K.K.
1979 Progress in X-ray Fluorescence Correction Methods Using Scattered Radiation. In G.J. McCarthy, C.S. Barrett, D.E. Leyden, J.B. Newkirk, and C.O. Rund, editors, *Advances in X-ray Analysis*, volume 22:303-315. Plenum, New York.

APPENDIX B

SURFACE COLLECTION SHOT LISTS

Surface Collection Shots from SDi-6741

1. Core
2. Sherd
3. Sherd
4. Metate
5. Flake
6. Sherd
7. Sherd
8. Sherd, flake
9. Sherd
10. Sherd
11. Sherd
12. 2 Sherds
13. Sherd
14. Flake
15. Flake
16. Mano fragment
17. Flake
18. Flake
19. Flake
20. Flake
21. Flake
22. Flake
23. Flake
24. Flake
25. Flake
26. Flake
27. Flake
28. Flake
29. Utilized flake
30. Flake
31. Flake
32. Flake
33. Metate
34. Flake
35. Sherd
36. Sherd
37. Flake
38. Flake
39. Flake
40. Sherd
41. Sherd
42. Sherd
43. Sherd
44. Flake
45. Core
46. Flake
47. Flake
48. Sherd
49. Angular debris
50. 2 Sherds
51. Flake
52. Flake
53. Sherd
54. Mano
55. Sherd
56. Core
57. Tool fragment
58. Sherd

SDi-7056 Station A Surface Collection

Square number

2. 8 flakes
4. 4 cores, 1 core frag, 20 flakes
6. 1 core, 10 flakes
7. 1 mano frag
8. 2 cores, 10 flakes
11. 1 core, 1 core frag, 20 flakes, 1 angular debris
13. 3 cores, 19 flakes, 1 angular debris
15. 2 cores, 1 test core, 1 core frag,
    23 flakes, 1 angular debris
17. 13 flakes
19. 1 core, 15 flakes
22. 2 cores, 14 flakes, 1 angular debris
24. 3 cores, 19 flakes
26. 4 cores, 1 core frag, 8 flakes, 2 angular debris
28. 1 retouched flake, 4 cores, 12 flakes
31. 2 cores, 6 flakes, 3 angular debris
33. 1 retouched flake, 16 flakes
35. 1 retouched flake (?), 2 cores, 3 core frags, 21 flakes, 5 angular debris
37. 1 retouched flake, 1 core
40. 1 utilized flake, 3 cores, 10 flakes
42. 14 flakes, 2 angular debris
44. 1 core hammer, 2 cores, 16 flakes*
47. 2 flakes
49. 1 biface blank, 14 flakes
51. 1 mano, 1 core hammer, 2 cores, 13 flakes
53. 1 point base*, 1 utilized flake, 1 retouched flake, 1 core, 1 core frag,
    100 flakes*, 9 angular debris, 7 sherds
56. 1 core, 1 core frag, 64 flakes*, 6 angular debris
58. 1 core hammer, 1 core, 51 flakes*
59. 6 cores, 16 flakes
62. 2 cores, 11 flakes*, 1 angular debris, 5 sherds
64. 1 core

* squares containing obsidian

SDi 7056 Station B Surface Collection Shots

1. 1 flake
2. 1 flake
3. 1 core, 2 flakes
4. 1 core, 1 flake
5. negative
6. 1 test core
7. 2 cores, 3 flakes
8. 1 biface, 1 flake
9. 1 flake
10. 3 flakes, 2 angular debris
11. 8 flakes, 2 angular debris
12. 8 flakes, 1 angular debris
13. 7 flakes
14. 1 flake, 1 angular debris
15. 3 flakes
16. 2 flakes
17. 4 flakes, 1 angular debris
18. 1 flake
19. 1 quartz flake
20. 2 flakes
21. 2 flakes
22. 1 flake
23. 4 flakes
24. 1 test core, 5 flakes
25. 1 core, 3 flakes
26. 2 flakes
27. 1 core, 3 flakes
28. 5 flakes
29. 1 core, 7 flakes
30. 5 flakes
31. 2 flakes
32. 1 flake
33. 5 flakes
34. 3 flakes
35. 2 flakes
36. 1 flake
37. 1 flake
38. 1 flake
39. 1 flake
40. 1 flake
41. 1 core, 7 flakes, 2 angular debris
42. 1 core frag, 1 flake
43. 1 retouched flake, 47 flakes, 17 angular debris
44. 1 core, 1 flake
45. 2 flakes
46. 1 core
47. negative
48. 1 core
49. 1 core
50. 1 core, 2 flakes
51. 2 flakes
52. 1 flake
53. negative

SDi-7056 Station C Surface Collection Shots

1. 1 flake
2. 1 flake
3. 1 flake
4. 1 flake
5. 1 test core
6. 2 flakes
8. 1 flake
9. 1 core frag, 2 flakes
10. 1 test core, 3 flakes
11. 3 flakes
12. 3 flakes
13. 1 flake
15. 1 flake
16. 1 flake
17. 1 flake
18. 1 angular debris
19. 1 test core, 2 flakes
20. 3 flakes
21. 2 core frags, 8 flakes
22. 4 core frags, 10 flakes
23. 1 flake
24. 1 flake
25. 1 test core, 2 flakes
26. 1 retouched flake, 4 flakes
27. 1 flake

SDi-7056 Station D Surface Collection Shots

1. 1 flake
2. 2 flakes
3. 1 flake
4. 1 flake
5. 1 flake
6. 1 flake
7. 4 flakes
8. 1 chopper/pounder
9. 1 flake
10. 4 flakes, 1 body sherd
11. 1 core frag, 1 flake
12. 1 flake
13. 1 "tool", 1 core, 3 flakes
14. 1 flake
15. 1 flake
16. 1 core, 3 flakes
17. 6 flakes
18. 4 flakes
19. 5 flakes
20. 1 core, 1 core frag, 2 flakes
21. 1 core, 2 flakes
22. 1 retouched flake, 1 flake
23. 1 core frag, 8 flakes
24. 3 flakes
25. 2 body sherds
26. 1 hammer/chopper, 6 flakes
27. 1 flake
29. 1 flake
30. 2 flakes, 2 body sherds
31. 1 retouched flake, 4 flakes
32. 4 flakes
33. 1 core, 2 flakes
34. 3 flakes
35. 3 flakes
36. 1 flake
37. 1 core, 3 flakes, 3 body sherds
38. 1 hammer, 6 flakes*
39. 3 flakes
40. 1 rim sherd
41. 1 flake
*44. 1 body sherd
45. 1 flake
46. 1 core
47. 1 flake
48. 1 flake
49. 1 core, 1 flake
50. 2 flakes
51. 2 flakes
52. 6 flakes
53. 2 flakes
54. 1 flake
56. 2 flakes
57. 3 flakes
58. 2 flakes
59. 2 flakes
60. 1 flake
61. 1 core ?
62. 1 flake
63. 2 flakes
64. 1 flake
66. 3 flakes
67. 3 flakes
68. 1 flake
69. 2 core frags
70. 1 flake
71. 1 "chopper", 1 core
72. 1 flake
73. 1 flake
74. 1 core, 5 flakes
75. 2 flakes
76. 1 flake
77. 1 core frag
78. 3 flakes
79. 1 flake
80. 1 flake
81. 1 flake
82. 2 flakes, 1 body sherd
83. 1 body sherd
84. 2 flakes
85. 3 flakes

SDi-7056 Station E Surface Collection

<u>Square number</u>

1. 1 core frag, 9 flakes
2. 2 test cores, 9 flakes
3. 13 flakes
4. 1 core frag, 6 flakes
5. 26 flakes
6. 7 flakes
7. 22 flakes
8. 3 core frags, 4 flakes
9. 1 biface, 13 flakes
10. 2 core frags, 15 flakes
11. 1 core, 3 flakes
12. 3 flakes
13. 2 cores, 1 flake
14. 1 core frag, 3 flakes
15. 1 core frag, 2 flakes
16. 1 core, 1 core frag, 20 flakes

SDi-7056 Station F Surface Collection

Square number

1. 5 flakes
2. 1 core, 2 flakes
4. 1 flake
5. 1 flake
6. 2 flakes
7. 3 flakes
8. 1 core, 2 core frags, 42 flakes
9. 21 flakes
11. 1 core, 1 flake
12. 1 core frag, 1 flake
14. 1 angular debris
15. 2 flakes, 1 body sherd
16. 25 flakes

SDi-7056 Station G Surface Collection

Square number

1. 41 flakes
2. 1 core, 2 core frags, 29 flakes
3. 2 cores, 23 flakes
6. 2 cores, 9 flakes
7. 1 core frag, 18 flakes
8. 8 flakes
9. 1 flake
10. 2 flakes
13. 1 hammer

SDi-7056 Station H Surface Collection

Square number

2. 2 flakes
4. 1 flake
7. 1 utilized flake, 1 test core, 1 core frag
9. 1 test core, 3 flakes
10. 1 flake
11. 2 flakes
14. 1 test core, 4 flakes
15. 1 core frag, 8 flakes
16. 2 retouched flakes, 1 "scraper", 15 flakes

SDi-7056 Station I Surface Collection

Square number

1. 1 core frag, 3 flakes
2. 7 flakes
3. 1 test core, 5 flakes
4. 2 flakes
5. 2 cores, 1 core frag, 13 flakes
6. 1 biface, 2 core frags, 19 flakes
7. 9 flakes
8. 1 core, 4 flakes
9. 1 core frag, 13 flakes
10. 1 core, 12 flakes
11. 1 test core, 2 core frags, 19 flakes
12. 4 flakes
13. 1 core, 6 flakes
14. 2 cores, 3 core frags, 20 flakes
15. 1 core, 1 core frag, 25 flakes
16. 1 core frag, 18 flakes

SDi-8072 Surface Collection

Square Number

10. 10 body sherds, 2 flakes
12. 4 body sherds, 2 flakes
14. 5 body sherds
16. 1 glass fragment
18. 10 body sherds, 7 flakes
34. 10 body sherds,3 flakes
38. 1 body sherd
40. 1 body sherd
43. 1 mano, 1 rim, 4 body sherds
47. 1 body sherd, 1 flake
49. 1 rim, 19 body sherds, 6 flakes
51. 1 rim, 11 body sherds, 3 flakes
53. 1 body sherd, 2 flakes
55. 1 projectile point, 4 body sherds, 3 flakes
58. 1 "biface", 1 mano frag, 5 body sherds, 1 flake
60. 1 rim, 19 body sherds, 7 flakes
62. 1 body sherd
64. 2 hammers, 3 body sherds, 1 core, 4 flakes
65. 3 body sherds, 3 flakes
67. 7 body sherds, 5 flakes
69. 5 body sherds, 3 flakes
71. 2 body sherds, 1 flake
74. 2 body sherds,2 flakes
76. 2 flakes
78. 2 body sherds, 2 flakes
80. 1 metate frag, 5 body sherds, 4 flakes
81. 1 "chopper", 15 body sherds, 5 flakes
83. 5 body sherds, 1 flake
85. 2 body sherds, 2 flakes
87. 2 body sherds
90. 1 preform frag (?), 3 body sherds, 3 flakes
92. 1 body sherd, 3 flakes
94. 2 body sherds
96. 5 body sherds

Surface Collection Shots from SDi-11,686

1. Flake
2. Flake
3. Core
4. Flake
5. Core, 13 Flakes
6. 4 Flakes
7. Core
8. 2 Flakes
9. Core
10. Flake
11. 2 Flakes
12. 3 Flakes
13. Retouched Flake Flake
14. Core, 3 Flakes
15. Void
16. Core, Flake
17. Core
18. Flake
19. 2 Cores, Flake
20. Core, 5 Flakes
21. Core, Flake
22. 2 Flakes
23. Core
24. Flake
25. Flake
26. Void
27. Core, 2 Flakes
28. 2 Flakes
29. 2 Flakes
30. Core
31. Chopper, Flake
32. 2 Core, Flake
33. 3 Flakes
34. 3 Flakes
35. Core
36. Core, 12 Flakes
37. 4 Flakes
38. 2 Flakes
39. Flake
40. Scraper plane, flake
41. 4 Flakes
42. Flake
43. 2 Flakes
44. Core, 5 Flakes
45. Void
46. Scraper plane, Core, 2 Flakes
47. Void
48. Flake
49. Flake
50. Flake
51. Scraper plane
52. Biface blank, Core
53. 2 Flakes
54. Flake
55. Flake
56. 2 Flakes
57. Core
58. Flake
59. Core, Flake
60. 3 Flakes
61. Utilized flake
62. 3 Flakes
63*. 12 Flakes
64. 2 flakes
65. Flake
66. Core, 4 Flakes
67. 2 Flakes
68. Core, 4 Flakes
69. 3 Flakes
70. Core, 6 Flakes
71. Angular debris
72. 5 Flakes
73*. 12 Flakes
74. 5 Flakes
75*. 41 Flakes
76. Flake
77. 2 Flakes
78. Core
79. Chopper
80. Core, 5 Flakes
81. Flake
82. 3 Flakes
83. Core, Flake
84. Core, Flake
85. Flake
86. Flake
87. Scraper, Core, 2 flakes
88. Core
89. Core, Flake
90. Flake
91. Flake
92. 6 Flakes
93*. Chopper, 4 Cores, 11 Flakes
94. 2 Cores, 5 Flakes
95. Core, 16 Flakes
96. 3 Flakes
97. Flakes
98. 2 Flakes
99. Utilized Flakes Core, 6 Flakes
100. 3 Flakes
101. 4 Flakes
102*. 14 Flakes
103. 4 Flakes
104. 2 Flakes
105. Core, Flake
106. 4 Flakes
107. 2 Flakes
108. Flake
109. Utilized flake, Flake
110. 2 Cores
111. Core, 4 Flakes
112. Core
113. Core, 3 Flakes
114. Scraper, Core, 7 Flakes
115. Flake
116. Biface fragment
117. 2 Flakes
118. 2 Cores
119*. 2 Cores, 10 Flakes
120. 3 Flakes
121. 2 Cores, 2 Flakes
122. Core
123*. 21 Flakes
124. 2 Cores
125. Core
126. 2 Cores, Flake
127. Flake
128. 3 Flakes
129. 5 Flakes
130. Flakes
131. Flakes
132. Scraper, Core
133. 2 Cores, Flake
134. Core
135. Core, 2 Flakes
136. Core
137. Core
138. 2 Flakes
139. 5 Flakes
140. Core, Flake
141. Retouched flake

SDi-8430 Locus E Surface Collection Shots

1. 5 flakes
2. 2 flakes
3. 1 flake
4. 1 flake
6. 1 test core, 2 flakes
7. 1 flake
8. 1 flake
9. 1 retouched flake, 1 flake
10. 1 core, 1 core frag
11. 1 flake
12. 1 test core
14. 1 core, 25 flakes
16. 2 flakes
17. 1 test core
18. 2 flakes
19. 1 flake
20. 2 flakes
21. 1 flake
22. 6 flakes
23. 1 flake
24. 1 core frag
25. 1 flake
26. 1 test core, 5 flakes
28. 3 flakes
29. 1 flake
30. 2 test cores
31. 1 angular debris
32. 3 flakes
33. 1 flake
34. 1 core frag
35. 1 flake
36. 1 flake
37. 1 core
38. 3 flakes
39. 1 flake
40. 1 flake
41. 1 flake
42. 1 core
43. 3 flakes
44. 1 flake
45. 1 flake
46. 1 retouched flake
47. 2 flakes
48. 1 retouched flake, 3 flakes
49. 2 flakes
50. 3 flakes
51. 2 flakes
52. 7 flakes
53. 3 flakes
54. 1 core, 1 flake
55. 8 flakes
56. 7 flakes
57. 1 flake
58. 1 flake
59. 1 flake
60. 2 flakes
61. 5 flakes
62. 1 core frag, 4 flakes
63. 6 flakes
64. 1 flake
65. 1 flake
66. 4 flakes
67. 2 flakes
68. 1 core
69. 2 flakes
70. 1 core frag, 2 flakes
71. 1 flake
72. 3 flakes
73. 3 flakes
74. 4 flakes
75. 1 test core
76. 1 flake
77. 1 flake
78. 6 flakes
79. 1 core frag, 5 flakes
80. 1 core frag, 1 flake
81. 1 core, 1 flake
83. 1 core, 1 flake
84. 1 flake
85. 1 flake
86. 3 flakes
87. 2 flakes
88. 4 flakes
89. 1 core
90. 1 retouched flake, 1 flake
91. 3 flakes
92. 2 flakes
93. 3 flakes
94. 6 flakes
95. 1 flake
96. 1 core frag, 3 flakes
97. 1 flake
98. 4 flakes
99. 4 flakes
100. 2 flakes
101. 6 flakes
103. 1 core frag, 1 flake
104. 3 flakes
105. 7 flakes
106. 4 flakes
107. 3 flakes
108. 1 core frag, 6 flakes
109. 1 core, 3 flakes
110. 1 flake
111. 2 flakes
112. 2 flakes
113. 1 flake
114. 1 core, 1 flake
115. 2 flakes
116. 4 flakes
117. 1 flake
118. 6 flakes
119. 1 core, 15 flakes
120. 2 flakes
121. 1 flake
122. 1 core
123. 7 flakes
124. 1 core frag, 3 flakes
125. 2 flakes
126. 4 flakes
127. 18 flakes

SDi-8430 Locus F Surface Collection Shots

1. 1 flake
2. 1 flake
3. 2 flakes
5. 1 flake
6. 11 flakes
7. 2 flakes
8. 1 core, 3 flakes
9. 1 test core
10. 1 flake
11. 2 test cores, 1 flake
12. 1 flake
13. 2 flakes
14. 1 flake
15. 2 cores, 4 flakes
16. 4 flakes
17. 1 retouched flake
18. 1 flake
19. 1 flake
20. 1 test core, 4 flakes
21. 6 flakes
22. 1 flake
23. 1 flake
24. 1 flake
25. 1 flake
26. 1 flake
27. 1 flake
28. 1 core
29. 5 flakes
30. 2 flakes
31. 1 core frag, 2 flakes
35. 3 flakes
36. 1 retouched flake
37. 1 test core
38. 2 cores, 2 flakes
39. 1 bifacial core frag, 1 core, 4 flakes
40. 2 cores
41. 5 flakes
42. 1 test core, 29 flakes
43. 1 core frag, 3 flakes
44. 1 core frag, 1 flake
45. 4 flakes
46. 1 flake
47. 4 flakes
48. 1 flake
49. 1 test core, 4 flakes
50. 1 flake
51. 1 flake
52. 6 flakes
53. 3 flakes
54. 9 flakes
55. 3 flakes
56. 8 flakes
57. 8 flakes
58. 1 core frag, 3 flakes
59. 2 flakes
60. 2 flakes
61. 5 flakes
62. 1 core, 2 flakes
63. 3 flakes
64. 6 flakes
65. 1 core, 5 flakes
66. 2 flakes
67. 6 flakes
68. 1 core, 2 flakes
69. 9 flakes
70. 1 test core, 16 flakes
71. 7 flakes
72. 4 flakes
73. 11 flakes
75. 3 flakes
76. 7 flakes
77. 6 flakes
78. 1 preform/core, 2 core frags
79. 10 flakes
80. 11 flakes
81. 2 flakes
82. 13 flakes
83. 2 flakes
84. 1 core, 3 flakes
85. 4 flakes
86. 1 utilized flake
87. 4 flakes
88. 4 flakes
89. 2 flakes
90. 6 flakes
91. 5 flakes
92. 3 flakes
93. 4 flakes

SDi-8430 Locus G Surface Collection Shots

1. 1 core
2. 1 flake
3. 2 flakes
5. 1 core frag, 6 flakes
6. 1 flake
7. 1 flake
8. 1 flake
9. 1 flake
10. 1 flake
11. 1 flake
12. 2 flakes
13. 1 core frag, 4 flakes
14. 1 angular debris
15. 1 flake
17. 1 flake
18. 1 angular debris
19. 2 flakes
20. 1 flake
21. 3 flakes
22. 2 flakes
23. 1 flake
25. 1 core
26. 1 flake
27. 1 core
28. 1 core
29. 9 flakes
30. 1 angular debris
31. 1 flake
32. 1 angular debris
33. 1 flake
34. 1 flake
35. 1 flake
36. 1 flake
37. 1 flake
38. 4 angular debris
39. 2 flakes
40. 3 flakes
41. 2 flakes
42. 2 flakes
43. 2 flakes
44. 1 core
45. 2 flakes
46. 1 flake
47. 1 flake
48. 1 flake
49. 1 flake
50. 1 core frag, 2 flakes
51. 1 flake
52. 1 core, 1 flake
53. 1 flake
54. 4 flakes
55. 2 flakes
56. 1 flake

SDi-8430 Locus H Surface Collection Shots

1. Mano (possible)
2. Core
3. Core hammer
4. Chopper
5. Core hammer
6. Core
7. Abrader
8. Core
9. Core fragment
10. Pebble
11. Flake
12. Retouched flake
13. Flake
14. Cobble hammer
15. Retouched flake
16. Scraper ?
17. Core hammer
18. Utilized flake
19. Flake
20. Flake
21. 2 Flakes
22. Retouched flake
23. Flake
24. Flake
25. Retouched flake, flake
26. Core hammer
27. Flake
28. Core fragment
29. 2 flakes
30. Core hammer fragment
31. Flake
32. Flake
33. Flake
34. Flake
35. Angular debris
36. Core hammer fragment
37. 3 core tools, 4 retouched flakes, 2 cores, 16 flakes, 1 sherd
38. Flake
39. Core hammer fragment
40. Core hammer
41. Core, 2 flakes
42. Core
43. 2 flakes
44. Flake
45. Core hammer
46. Test core
47. Angular debris
48. Flake
49. Flake
50. Preform fragment
51. Core hammer
52. Core hammer
53. Test core
54. Core
55. Core hammer
56. Angular debris
57. Core
58. Core hammer fragment
59. Core hammer, 3 flakes, 1 shell
60. 4 flakes
61. Retouched flake
62. Flake
63. Core hammer, core, 9 flakes
64. Scraper plane, utilized flake, flake
65. Mano
66. Flake
67. Angular debris
68. Flake
69. Flake

APPENDIX C

NATIVE AMERICANS AND OTHER CONSULTANTS CONTACTED

NATIVE AMERICANS AND OTHER CONSULTANTS CONTACTED

Native American Contacts:

Reservation/Organization	Date	Medium
Mesa Grande		
Mrs. Fern Southcott, Tribal Member	12-12-90	Meeting
	12-19-90	Telephone
	01-15-91	Telephone
	01-16-91	Telephone
	01-22-91	Interview/ Site Visit
	01-24-91	Telephone
	01-28-91	Telephone
	01-31-91	Telephone
	02-04-91	Telephone
	02-07-91	Meeting
	02-08-91	Telephone
Campo		
Mr. Ralph Goff, Chairman	12-17-90	Letter*
Mr. Bill Coleman, Tribal Member	01-18-91	Telephone
	01-22-91	Interview/ Site Visit
Cuyapaipe		
Mr. Tony J. Pinto, Chairman	12-17-90	Letter*
Jamul Indian Village		
Ms. Vivian Flores, Acting Chairperson	12-17-90	Letter*
La Posta		
Ms. Gwendolyn Parada, Chairperson	12-17-90	Letter*
Manzanita		
Ms. Frances Shaw, Chairperson	12-17-90	Letter*
Ms. Judy Elliott, Tribal Member	01/16/91	Telephone
Mr. Leroy Elliott, Tribal Member	01/24/91	Telephone
Mr. George Hyde, Tribal Member	01/28/91	Telephone
	02/04/91	Telephone
Mrs. Teresa Hyde, Tribal Member	02/04/91	Telephone
Sycuan		
Ms. Anna Sandoval, Spokesperson	12-17-90	Letter*
Viegas		
Mr. Anthony Pico, Chairman	12-17-90	Letter*
Mr. Clarence Brown, Tribal Member	12-12-90	Telephone
	02-04-91	Meeting

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* Copy of letter attached.

Public Agency and Other Contacts:

Individual	Agency/Organization
Mr. Clyde Woods	Woods Cultural Resource, Inc.
Mr. Pat Welch	Bureau of Land Management (El Centro)
Mr. Russell Kaldenberg	Bureau of Land Management (Palm Springs)

APPENDIX D

NATIVE AMERICAN RESOURCES OF HIGH SENSITIVITY IN THE JACUMBA AREA

Confidential

NATIVE AMERICAN RESOURCES OF HIGH SENSITIVITY IN THE JACUMBA AREA

Five ethnographic resources of high sensitivity to contemporary Native Americans exist within the Jacumba Valley Ranch property or within such a distance that they could sustain indirect impact from project development. The location of these resources is plotted on Figure 3 (with the exception of Table Mountain which is approximately one mile northeast of the project area), which is not available for public review.

Round Mountain

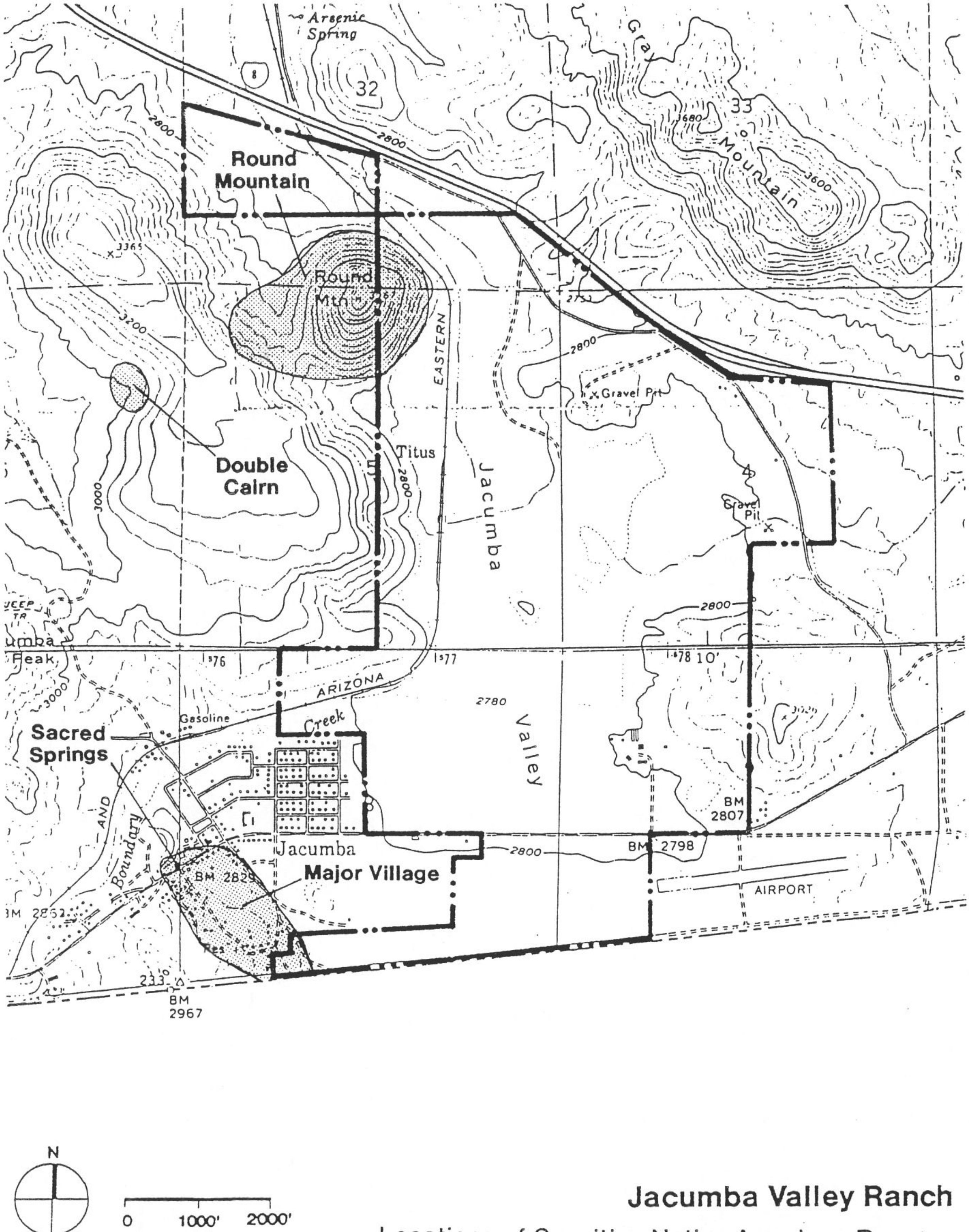
Round Mountain has been identified as a sacred mountain by Native Americans. Known by some Kumeyaay as mat kweryur, this sacred mountain was "utilized by religious specialists for spiritual purposes, curing and ceremonial dances. [It was] associated with the complex at Jacumba" (Woods 1982:A1-1 [also see A2-2]). When travelling past Round Mountain in the 1970's, the late Rosalee Robertson brought the attention of the mountain to Fern Southcott, saying "this is another important, sacred place" (Fern Southcott, personal communication).

It may be speculated that Round Mountain was the location of an eagle aerie which, in itself, constitutes an extremely important sacred site for the Kumeyaay Indians. The presence of the eagle aerie was recorded by Spier: "Each gens owned one or more aeries from which eaglets were taken for use in the mourning ceremony... HiLmiaRp gens had an aerie on a peak called hamiLtahwai' near Jacumba" (1923:307. The precise location of this aerie is not known, but the only other peak in the Jacumba vicinity is about one half mile west of Round Mountain.

Sacred Springs

As described by Woods, the hot mineral waters of sacred springs of Hametaay "were used for spiritual purification, bathing and healing. Associated with a complex containing villages, quarries, gathering areas, sacred mountains and a major trading area" (1982:A1-1). Additionally, Hametaay

> means "pumpkin" or "pumpkin shaped" and refers to the orange-colored soil and circular shape of Jacumba Valley. The mineral hot springs, located in the town of Jacumba and called Jacumba Hot Springs, were identified by several consultants as important. In the Manzanita version of the origin myth, the two brothers Tuchaipa and Yokomatis, who were creators, came out of the ground at the hot spring at Jacumba. The hill to the north of the hot spring is the house they built. The Indians used the hot springs for bathing and for their curative powers. Elderly Indians lived in the area in order to keep well. Indians also collected red oxide of iron powder from the mineral springs to use for designs in ground paintings. The brown pigment may be due to an iron-secreting vegetable organism or to carbon dioxide in the water. The hot springs have been part of a popular hotel and health spa since the 1920's. They have been capped and the water no longer flows from the ground (Woods 1982:A2-2).



Jacumba Valley Ranch

Locations of Sensitive Native American Resources

brian f mooney associates
planning, design & environmental studies

Major Village

A major village was located where the current town of Jacumba currently exists, and portions remain to the south. The village of Jacum (also spelled Qkum, Hakoom, etc.) is possibly the same as the village known as Hametaay. In any case, the village situated here has been well documented in the ethnohistorical literature. The site has been tested archaeologically, and recommendations for mitigation are available in the archaeology report for the Jacumba Valley Ranch project.

Double Cairn

A site that exists approximately three-fourths of a mile west of the Jacumba Valley Ranch property is recorded as a double cairn (archaeological site SDi-668). The site is well-known to at least some long-time residents of Jacumba town, who reported finding potholes and bone on the site in the past. A visit was made to this site with Native Americans, who expressed concern over the possibility of increased destruction of this site in the future as a consequence of Jacumba Valley development.

Table Mountain

Table Mountain, or Mat Ilapllap ("flat mountain" in Kumeyaay; Woods 1982:A1-3), is a well known Native American sacred mountain. Situated northeast of Jacumba Valley, Table Mountain was an important site for healing and ceremonial activities (Woods 1982:A1-3, A2-6). Virtually all Native Americans contacted for this study reported that Table Mountain is an important place for their heritage. The area undergone extensive archaeological study and has been found to contain numerous significant sites.