# An Archaeological Assessment of Eight Cultural Localities Along the San Onofre-Santiago 220 Kv Transmission Line

by

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Abstract

This report presents the results of an archaeological assessment of eight cultural localities previously recorded along the San Onofre-Santiago 220 Kv transmission line route. A summary of project methodology, the environmental setting, and culture history of the area are presented. The sites are described and discussed in a cultural context. Finally the sites are evaluated with regard to their eligibility for inclusion on the National Register of Historic Places.

CONTENTS

## Introduction

On 24 August 1978 ARCSEARCH was contacted by the Environmental Affairs Division of Southern California Edison to conduct an archaeological assessment of eight cultural localities previously recorded along the San Onofre-Santiago 220 Kv transmission line route. This transmission line runs from the San Onofre Nuclear Generating Station to the Santiago Substation near the El Toro Marine Corps Air Base. However, the eight archaeological sites located along this route were restricted to an area between the Santiago Substation and Trabuco Arroyo, two miles south of Mission Viejo (Figure 1). This area is within Orange County, California and can be located on U.S.G.S. topographic maps: "Tustin, Calif." and "San Juan Capistrano, Calif." (7.5 minute series).

The San Onofre-Santiago transmission line was originally constructed between 1965 and 1967. At this time transmission towers were constructed and access roads built or improved by grading. In 1974, SCE's interest in adding additional conductors to the existing transmission line precipitated an archaeological survey of line. This survey was conducted by Paul Langenwalter (n.d.).

As a consequence of the Langenwalter study, the State Historic Preservation Office, State of California, requested that SCE prepare a report on the cultural resources

assessing their significance in light of National Register criteria. The purpose of this study then is to re-evaluate these sites and assess their potential for eligibility for inclusion on the National Register of Historic Places. It should be understood from the outset that this report is merely a tool to be used by appropriate state and federal agencies in making a determination under the National Historic Preservation Act of 1966 (80 Stat 915), Executive Order 11593, and 36 CFR 63.

The regulation which sets forth basic procedures of nomination to the National Register (36 CFR Part 60) lists four main criteria for evaluation (Section 60.6). These four criteria (as summarized by King, Hickman, and Berg 1977:98) are:

> (a) (association) with events that have made a significant contribution to the broad patterns of our history; or
>
> (b) (association) with the lives of persons significant in our past; or
>
> (c) (embodiment of) the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (d) (history of, yielding, or potential) to yield information important in prehistory or history.

In considering these criteria (in particular item d) certain levels of information need to be presented which go beyond mere site descriptions. To this end, a discussion of the methodology guiding this study will be presented; as well as, a description of the environmental

setting and a summary of the culture history of the study area. By putting the sites in such a framework, it is believed that determination decisions can be facilitated.

Methodological concerns include the definition of a site and the nature of site significance. The former problem is one where there is no right or wrong answer. As pointed out by Schiffer and Gumerman (1977:184) an arbitrary definition must be devised based on local conditions, specific research problems and prior knowledge about the nature of the cultural resources.

Based on information derived from bibliographic research and site data collected on past surveys in the area, the present study defines a site as any cultural manifestation having a density of five or more artifacts per ten square metres. Allowances were made in the field which connected associated clusters of artifacts in close proximity to each other (for example, a single ridge top) even though this ration did not rigidly hold true.

The problem of assessing site significance is paramount in contemporary cultural resource management. Schiffer and Gumerman (1977:239ff) have outlined six major types of significance: scientific, historical, ethnic, public, legal, and monetary (cf. Scovill, Gordon, and Anderson 1972; Moratto and Kelly 1976).

Scientific significance is probably the most all-encompassing catagory in that it defines significance

as the ability of a site to answer current or potential research questions. This issue becomes complicated when one considers that at the most basic level of investigation all sites have some degree of research potential.

This study takes the position that all sites do possess some level of scientific significance in that they have the ability to answer research questions. However, although all sites have potential scientific significance, they are not all National Register quality. That is, it is believed that all cultural resources warrant some form of scientific investigation; however, this level of investigation may be fulfilled by the initial recording and documentation of the site.

Another type of significance, ethnic, is potentially relevant to this study. Although none of the sites are considered historic, there is the possibility that one or all of the sites may be considered important to a particular American Indian group. The identification of this significance is outside the range of this study, however, and would entail a separate study dealing with ethnological concerns.

Fieldwork was conducted on August 29th and 30th by the author. Each site location was revisited and, when possible, re-recorded using the Southern California California Edison cultural resource survey form. These completed forms and photographs on file with SCE.

In addition to the fieldwork, several days were spent in bibliographic research and examining site survey records for the area on file with the UCLA Archaeological Survey.

Environmental Setting

The project area is situated in a macro-environmental zone catagorized by Hudson (1971) as Interior Mountain/ Adjacent Foothill. This zone is represented by low, rolling foothills extending west from the Santa Ana Mountains. The Santa Ana Mountains are a part of the Peninsular Range and have elevations reaching up to 5600 feet (MSL). The western foothills on the north end of the range grade into a low-lying plain (as exemplified by the Santa Ana-Irvine area), while to the south in the Laguna Hills/Mission Viejo area the hilly terrain continues all the way to the coast, dropping off sharply at that point. The hills are generally rounded or flat-topped creating a potentially serviceable area for human use. They range in elevation in the study area from 300 to 700 feet.

Several major arroyos and numerous small drainages dissect the foothills and form many short, steep-sided canyons. The streams and rivers carry little or no water most of the year. Only during periods of heavy rainfall are large flows conspicuous. A water supply is usually maintained through springs found in the canyons or by

perennial streams found at higher elevations in the mountains.

The climate is mild, with relatively little seasonal temperature change. Moisture from the Pacific Ocean frequently occurs in the form of fog. The mean annual rainfall is between 12 and 16 inches per year; however, most of the rainfall occurs between October and May. The summer months usually bring drought conditions.

Vegetation on the hills consists primarily of grasses introduced in recent historic times as a part of ranching activities. These species are predominately of the genus Avena and Bromus. Before the introduction of these plants, the plant community was a coastal sage scrub type. Remnants of this community can still be found intermixed with the grasses and in isolated stands in canyons. Species typical of this community are listed in Table 1.

TABLE 1

Dominant Plant Species Found
in the Coastal Sage Scrub Community

Artemisia californica (California sagebrush)
Cucurbita foetidissma (wild squash)
Datura meteloides (jinsonweed)
Heteromeles arbutifolia (California holly)
Juncus sp. (rush)
Opuntia occidentalis (prickly pear cactus)
Quercus agrifolia (coastal live oak)
Rhus ovata (sugar bush)
Rhus integrifolia (lemonadeberry)
Salix sp. (willow)
Salvia apiana (white sage)
Salvia columbaria (chia)
Salvia mellifiera (black sage)
Sambucus mexicana (elderberry)

Fauna in the area include numerous small mammals such as rabbits, squirrels, and mice. Large land mammals are less abundant. Carnivores such as coyotes, foxes, badgers, and wild cats were in the past commonly found in the area.

Although little paleo-environmental data have been collected, Warren (1968:5-6) suggests that plant communities for the southern California coast have been stable for at least the past 7,000 years. Except for fluctuating ocean levels affecting the littoral zone and vegetation changes since the growth of cattle ranching, there appears to have been little change in the environmental setting of the project area since prehistoric times.

Recently the term "effective environment" has been used in the archaeological literature to describe those parts of the environmental system which are "known or (are) interpretted to have influenced or modified by groups present in the study area" (Mc Ginsey and Davis 1977:110). This concept can be useful in discussing the native plants in or near the study area and their potential for exploitation by aboriginal groups.

As will be discussed below, human occupation of this area extends back to at least 6000 B.C. It has been proposed that human groups processed local plant species as a dietetic mainstay. Ethnohistoric and historic accounts of the Gabrielano and Luiseño Indians (the two

groups historically inhabiting the project area) describe their subsistence base as the collecting of plants and shell fish, hunting small game, and fishing.

Johnston (1962:132-33) briefly discusses Gabrielino food staples describing the acorn as the main food resource. This was supplemented by grasses and the plant chia. Also collected were a variety of berries and the fruit of the prickly pear cactus.

Baumhoff (1978:16) substantiates the importance of the acorn in the diet and ranks the various oak species with regard to desirability. Coastal live oak was ranked in the mid-range of desirability by this study.

A more thorough study has been conducted by Bean and Saubel on the neighboring Cahuilla(Bean and Saubel 1972). They discuss several species used by the Cahuilla, which also occur in the Gabrielino/Luiseño area.

For acorn processing the Cahuilla prefer the California black oak (Quercus kellogii) to other species. This oak is found at higher elevations than those found within the study area. Coastal live oak was of secondary importance used only in times of shortages or as an additive to the preferred species. Bean and Saubel note that the Cahuilla have traditionally migrated a considerable distance to obtain acorns from the black oak.

The sage plants (Salvia sp.) are utilized for both food and medicinal purposes. White sage is gathered from July to September, chia from June to September, and black sage from April through May.

Berries from the sugar bush, lemonadeberry, elderberry, and California holly are picked and eaten either fresh or cooked. All the berries except the California holly are picked during the summer months. Holly berries are abundant between September and February.

Wild squash seeds are collected in the spring and used to make flour for mush. The roots and green fruit are used for medicinal purposes. The yellow blossoms are used as a dye.

Other plants used by the Cahuilla for medicinal purposes include the California sagebrush and jimsonweed.

In summary, the study area is located in an area where a number of traditional exploitable plant resources are located. In addition, the hill and ridge tops in the area provided suitable locations for processing these plants.

## Culture History

The project transects an area about which relatively little is known archaeologically. Two researchers in particular have developed cultural syntheses for the southern California coast (Wallace 1955, 1978; Warren 1968); however, the lack of well-stratified excavations have hampered such attempts.

The approach used by Wallace relies primarily upon the similarities and differences in material culture to

make up broad cultural horizons. The horizons labeled, (1) Early Man, (2) Milling Stone, (3) Intermediate, and (4) Late are defined by artifact assemblages ranging from more simple to complex which generally suggest an increasingly sophisticated level of socio-economic organization.

Warren also uses artifact assemblages (defined in terms of cultural tradition), but uses them within the conceptual framework of cultural ecology. Cultural ecology focuses its analysis of the interrelationships between cultural tradition and the surrounding environment(s) and interaction with other cultural traditions. Thus culture change is viewed as attempts by human groups to retain a symbiotic and harmonious relationship with both natural and cultural environments.

The earliest tradition, corresponding to Wallace's Early Man, is the San Dieguito. This tradition is characterized by chipped stone tools, particularly scrapers, knives, and large points. Manos and metates are missing from the assemblage. Sites from this tradition have been found in western San Diego County; however, as a whole the tradition is poorly understood (cf., Warren and True 1961; Warren 1966; M.J. Rogers 1929).

The following Encinitas Tradition corresponds and overlaps with Wallace's Milling Stone and Intermediate horizons. This tradition has also been referred to as La Jolla, Topanga, and Oak Grove cultures. The artifact

assemblage includes crudely flaked choppers, scrapers, and hammerstones. A large number of ground stone are found at Encinitas sites. Bone and shell items are rare. Sites in this tradition date from 5500 B.C. to A.D. 1 in San Diego County. A termination date for this tradition in northern Los Angeles and Santa Barbara counties is much earlier, between 3000 and 1500 B.C.

In Santa Barbara County, the Encinitas Tradition is replaced by the Campbell Tradition (also referred to as the Hunting People). Since this tradition is restricted to areas well north of the present study area, no further discussion of this or the succeeding Chumash tradition (a part of Wallace's Late horizon) will be presented (see Warren 1968:2-9).

The subsistence base of the Encinitas tradition apparently focused on the collecting of wild plant resources. This is suggested by the heavy representation of ground stone tools found in their artifact assemblage. Excavations suggest a reliance on seeds and shell fish, whereas fish and mammal bones, and projectile points are generally scarce (Warren 1964; Warren and True 1961).

Succeeding the long-lived Encinitas tradition along the southern coast is the Shoshonean and Yuman tradition. This represents an apparent intrusion of Shoshonean (Uto-Aztecan) speaking people from the interior. This group seems to have borrowed techniques for the exploitation

of maritime resources from the Chumash to the north. However, a wide range of resource exploitation is inferred by the continued use of inland resources (Meighan 1954).

Groups in the project area at the time of historic contact included the Gabrielino and the Luiseño (Juaneño). The Gabrielino territory reached north to the San Fernando Valley, east to San Bernadino, south to Aliso Creek (near Laguna Hills), and included Santa Catalina, San Nicolas and San Clemente islands (Kroeber 1925; Bean and Smith 1978). This wide-ranging territory included many diverse environmental zones all exploited by the Gabrielino (cf., Hudson 1971). The interior mountains and foothills zone is represented by settlement patterns of both primary subsistence villages and secondary gathering camps utilized seasonally according to resource exploitation demands (Hudson 1969).

With regard to the culture found historically south of Aliso Creek, I have followed Bean and Shipek (1978:550) in classifying the area as part of the Luiseño culture. Previously the Juaneño (found around the Mission of San Juan Capistrano) have been separated linguistically from the Luiseño; however, they are now believed to be one ethnic nationality (White 1963:91).

Both the Gabrielino and Luiseño relied on hunting and gathering for subsistence. Although many of the artifacts were not unlike the previous traditions exploiting

similar environments, there was an elaboration in the quality and quantity of personal ornaments and mortuary practises indicating a complexity in the social, political, and religious organization.

In summary, the culture history of the study area has groups representative of great time depth. At the same time, however, the diversity of archaeological remains may be expected to be relatively small. For although it is likely that human groups have roamed over the area for at least the past 8,000 years, their basic subsistence patterns did not change drastically and their technological development remained remarkably constant. Rather than abrupt changes in material culture there seems to be more of a gradual changeover from one artifact type to another or an elaboration in style of one artifact type. At the same time, artifacts such as the mano and metate may have been used consistantly without radical changes in style.

With such a continuum of artifact useage, the archaeologist faces a difficult task of assigning dates or cultural affiliations to sites. Unless there are present at the site artifacts sensitive to changes through time dating becomes merely speculation.

## Previous Research

The eight sites discussed in this report were all previously recorded. No new sites were discovered during this project.

In 1972 the Pacific Coast Archaeological Society recorded Ora-341. In 1973, Archaeological Research Inc. while conducting a survey of Moulton Ranch lands recorded Ora-419.

In 1974 both of these sites as well as six new sites were reported by Paul Langenwalter during an archaeological survey of the San Onofre-Santiago 220 Kv transmission line corridor conducted under contract to SCE (Langenwalter n.d.). The purpose of this survey was to identify cultural resources along the existing right-of-way in anticipation of possible additional line construction by SCE.

A records search for the area at UCLA Archaeological Survey did not show any other archaeological investigations within the SCE right-of-way. One site (Ora-161) was reported just east of the right-of-way adjacent to Ora-499 (Langenwalter's field no. 1). Ora-161 consists of four bedrock mortars and associated chipped stone.

The majority of sites along this section of the line (i.e., Laguna Canyon) are located west of the transmission line in the San Joaquin Hills (Figure 2). UCLA survey files record thirteen sites located primarily around Sand Canyon Reservoir and flanking Sand Canyon Wash. Besides three rock shelters and one open site with midden development, the sites are widely-dispersed surface scatters of ground stone and chipped stone.

In the area of Trabuco Arroyo, north of the transmission

line, are three large sites consisting of surface scatters of lithics and ground stone. No midden development was reported for these sites.

A settlement pattern which can be inferred from this information is a preference for hill tops or first terrace ridges above major drainages. Sites of similar configuration and artifact assemblage can be found all along such drainages implying a constant use of these topographic settings through time for a similar purpose, i.e., the processing of plant resources.

Results of the Study

Seven of the eight sites reported by Langenwalter (n.d.) were revisited by the author. Ora-494 (Langenwalter's field no. 6) was not included since it is located outside SCE's right-of-way and therefore is not subject to adverse impact by any future SCE projects along the existing transmission line route.

Of the remaining seven sites, four could not be located because they have been destroyed by land modification activities. These sites are: Ora-341, Ora-419, Ora-499, and Ora-497.

Ora-341 was first reported by the Pacific Coast Archaeological Society in January 1972. It consisted of an artifact scatter including hammerstones, manos, a dart point, and other lithic tools located on top of a low hill (Figure 2). It was assigned to the Milling Stone

horizon (Encinitas tradition). Langenwalter re-examined the site in 1974 and found no evidence of the site remaining. The present investigation confirms Langenwalter's findings. The hill is situated within the Irvine Wholesale Nursery and has been disced using heavy equipment. Although an SCE tower is situated on the hill, this tower was built prior to the initial recording of the site by PCAS. It is therefore unlikely that the SCE construction activity destroyed the site.

Ora-499 (Langenwalter's field no. 1) was described as a surface scatter of artifacts (manos, metate, hammerstone, chopper) situated at the base of a hill near the Poh Ranch (Figure 2). A SCE tower was said to be located on the site. An examination of the site by the author revealed only two mano fragments within a 1200 sq. metre area. This artifact density does not conform to the definition of a site established for this study. The area is part of the Irvine Ranch and there was evidence of recent discing in the area. It is likely that this activity destroyed this small artifact scatter. Once again, since the transmission line had already been constructed when the site was recorded, it is not likely that SCE was involved in the site's destruction.

Ora-419 was first recorded in 1973 by Archaeological Research Inc. A year later Langenwalter's survey confirmed its existence and reported it "to be in the same condition

as it was when first located" (Langenwalter n.d.:5). The site was reported to be a 200' x 100' scatter of five manos, a large metate fragment, and a chopper located on a ridge running down to a spring. It was classified as a Milling Stone site. The present study could find no trace of the site. However, the area had been recently plowed and planted. It is very likely that this activity destroyed the site.

Ora-497 (Langenwalter's field no. 4) was recorded in 1974 and described as a surface artifact scatter (hammerstones, core, mano, and scraper) disturbed by access road grading. Langenwalter reported the site as essentially destroyed although artifacts could still be observed. The present study confirms Langenwalter's observations and adds that no artifacts were found. The access road is used to service the SCE transmission line and apparently the construction of this road destroyed the site sometime between 1965 and 1967. Since that time re-grading of the road has resulted in the lateral displacement of artifacts to such an extent that they are no longer found near the original site location.

Three of the seven sites within the SCE right-of-way were located and re-recorded. A description of each site is presented below. An exact provenience for each site is on file with the Environmental Affairs Division of Southern California Edison.

Ora-495 (Langenwalter's field no. 2) is an artifact scatter situated on top of a long ridge above the north end of Laguna Canyon at an elevation of 400 feet (Figure 2). The artifacts are widely dispersed within a 200 x 90 metre area (Figure 3). There is no midden development or other cultural features. Artifacts can be found in small clusters near sandstone bedrock outcrops, but no mortars were observed. The artifacts are primarily bifacial manos, oval and oblong in shape. Hammerstones are present, but other chipped stone was rare. One crudely made scraper was found.

The SCE 220 Kv transmission line runs through the site, with two towers located within site boundaries. An access road transects the site from north to south and numerous artifacts were found along the road. A cluster of artifacts was also found in the vicinity of the tower to the north end of the site where a good deal of land modification had taken place during tower construction.

Ora-496 (Langenwalter's field no. 3) is a surface artifact scatter situated on top of a low hill on the west side of Laguna Canyon at an elevation of 420 feet (Figure 2). Ora-495 is located 1000 metres to the north. Artifacts within the 75 x 30 metre area include manos and metates (usually fragmentary), hammerstones, and some chipped stone. There is no midden development or cultural features visible on the surface. Although Langenwalter noted the presence of shell in 1974, none were observed during the present investigations.

A transmission line tower is located adjacent to the site on top of the hill (Figure 4). A stub road connects the tower to the main access road at the base of the hill. A few artifacts were located on the stub road indicating some disturbance of the site by road construction, and perhaps tower construction. Most of the artifacts appear to be concentrated to the south and southeast of the tower. A steep slope borders the site to the south which has probably resulted in the secondary deposition of artifacts downslope.

Ora-498 (Langenwalter's field no. 5) is a widely dispersed surface scatter of artifacts located on the first terrace above the Trabuco Arroyo at an elevation of 510 feet (Figure 2). The artifact assemblage consists entirely of ground stone and a few hammerstones. The site covers an area of approximately 120 x 60 metres.

A transmission tower is situated within the site boundaries (Figure 5). The main access road and a stub road to the tower also transect the site. A few artifacts were found along the graded stub road; however, the primary concentration is to the west and southwest of the tower towards the edge of the terrace.

## Summary of Results

Of the eight sites recorded by Langenwalter during his 1974 survey, seven site locations were visited by

the present study. One site, Ora-494, is located outside the SCE transmission line right-of-way and was not re-examined.

An investigation of the remaining seven sites revealed that four had been destroyed by land modification activities. Three sites were found and although each one has been disturbed by access roads and tower construction, they still retain a spatial patterning of artifacts which allow site definition.

All three sites are represented by a dispersed surface scatter of lithic artifacts. None of the sites contained intra-site cultural features or exhibited a midden development. The artifact patterning within the site boundaries gave no indication of site function; however, it can be surmised from the artifact types that these sites were utilized for plant processing activities. Since all the ground stone artifacts have been identified as monos or metates (as opposed to mortars and pestles) it may be suggested that these sites were involved with the processing of sage or grasses rather than acorns (Leonard 1966:235-36). This inference is supported by the fact that, historically, the more desireable species of oak trees are found at higher elevations.

The sites' small size, and lack of features or midden, suggest that they were utilized for only short periods of time and specific season(s) by small collecting groups. The location of the sites, on a hill or ridge top, close to a source of water follows a settlement pattern previously established for the area.

The artifact types found at these sites do not lend themselves to precise dating or cultural affiliation. The artifacts found were of a utilitarian type which basically remained unchanged for thousands of years. The large percentage of grinding stones within the artifact assemblage (over 80%), the style of workmanship (generally crude), and the absence of shell or bone tools or ornaments suggests an association of these sites with the Encinitas tradition as defined by Warren (1968).

Evaluation of Significance

As discussed above, the author considers all archaeological sites to have potential significance for answering research questions. However, it is believed that for various reasons all sites are not of National Register quality.

The nature of the three sites (Ora-495, -496, and -498) still in existence along the transmission line corridor; that is, surface deposits with a dispersed artifact scatter and no apparent features or midden, restrict somewhat their research potential. Much of what these sites can contribute has already been accomplished; namely, their description and provenience. From this information already collected data regarding settlement patterns in the area have been gathered.

While such recording of sites is important for investigating inter-site spatial patterns, intra-site spatial patterns are also important to the archaeologist.

From such patterns activities can often be inferred which provide a better understanding of the human behavior which took place at the site. Unfortunately, this type of patterning is usually quite fragile and subject to both natural and non-natural forces. The quality of the site's internal patterning has been referred to as site integrity; in other words, how well the spatial pattern of artifact discard has been preserved.

Of course, natural forces such as erosion affect this patterning. Human and animal behavior can also modify this pattern by the picking up or kicking of artifacts. And mechanical processes such as road construction or plowing can alter intra-site patterns.

A site's integrity is obviously important when considering site significance. It is in this area of integrity that, in this author's opinion, the sites fail to meet National Register criteria. All three sites have had their intra-site artifact patterns altered by at least two processes. First, all have been subject to erosional activity. Being located on a hill or ridge top, it is likely that artifacts within each site have been subject to some degree of sheetwash and downslope movement.

More important, however, has been the disturbance to the sites at the time of construction of the San Onofre-Santiago transmission line. The amount of disturbance varies from site to site (the greatest amount occurring at Ora-495), but none has escaped disturbance of some degree

by access road or tower construction. Access roads are a particular problem for not only was there disturbance during the time of construction, but yearly re-grading has accenuated the amount of lateral displacement.

Another type of artifact displacement has probably occured, but cannot be documented. This may have resulted from ranching activity; possibly the discing of land for grass seeding, but certainly by the movement of cattle through the area.

It is thus believed that the three sites have been substantially altered through time to such an extent that their scientific integrity has been greatly diminished. Therefore, while their description and recording are of importance, the further research potential of these sites is limited, and as such they do not warrant inclusion on the National Register.

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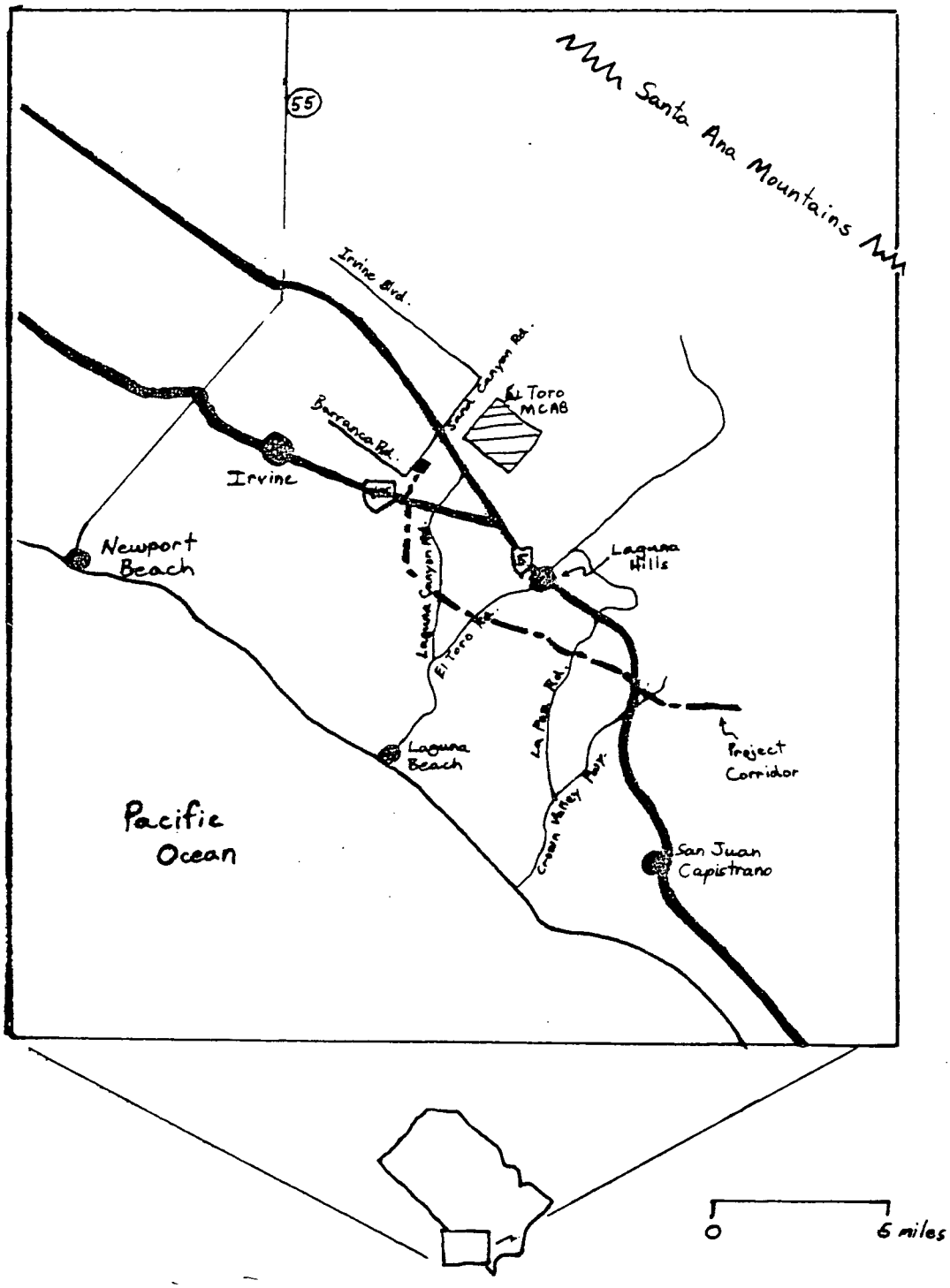
FIGURES 1 - 5

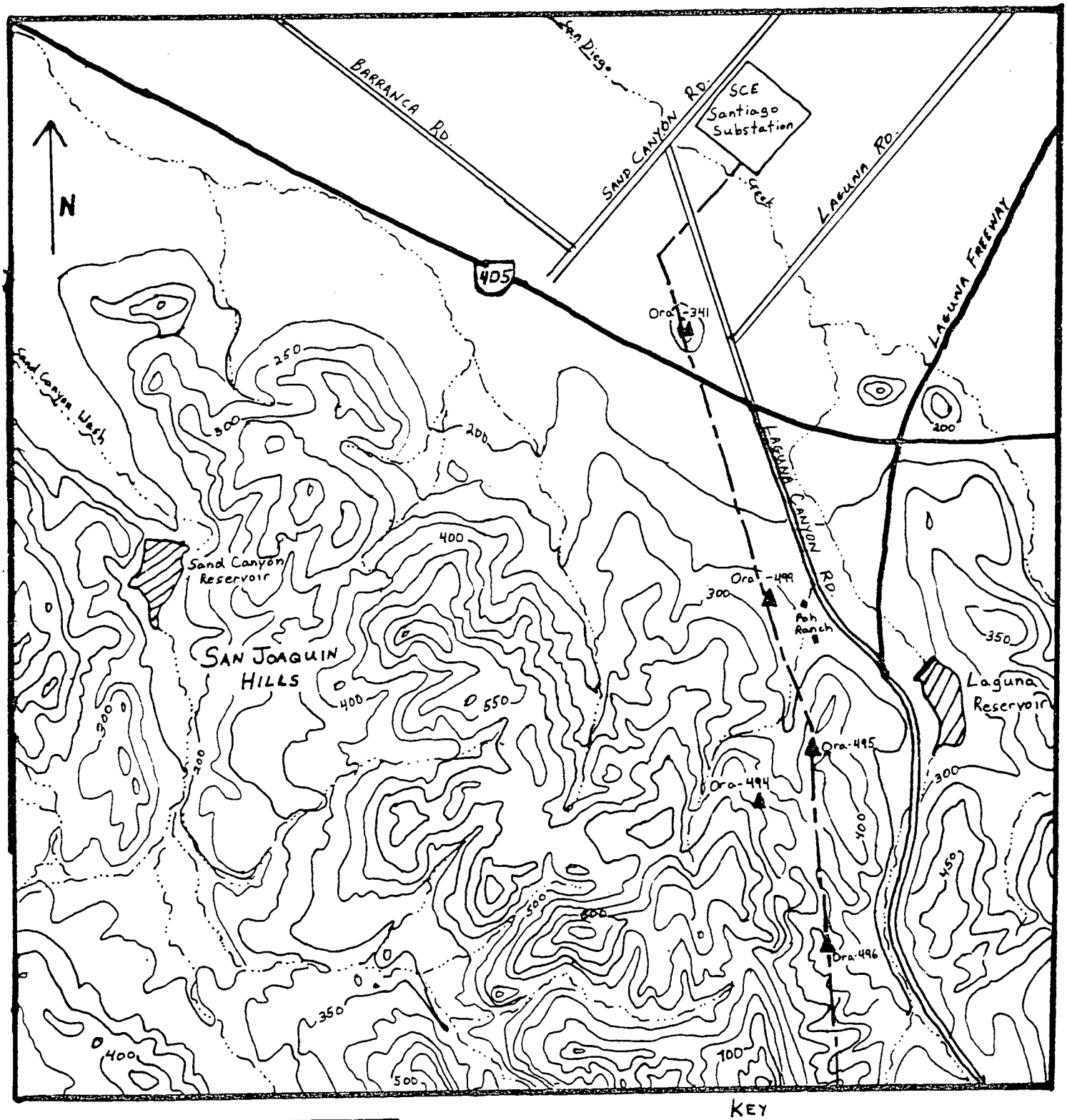
# Figure 1

GENERAL PROJECT AREA



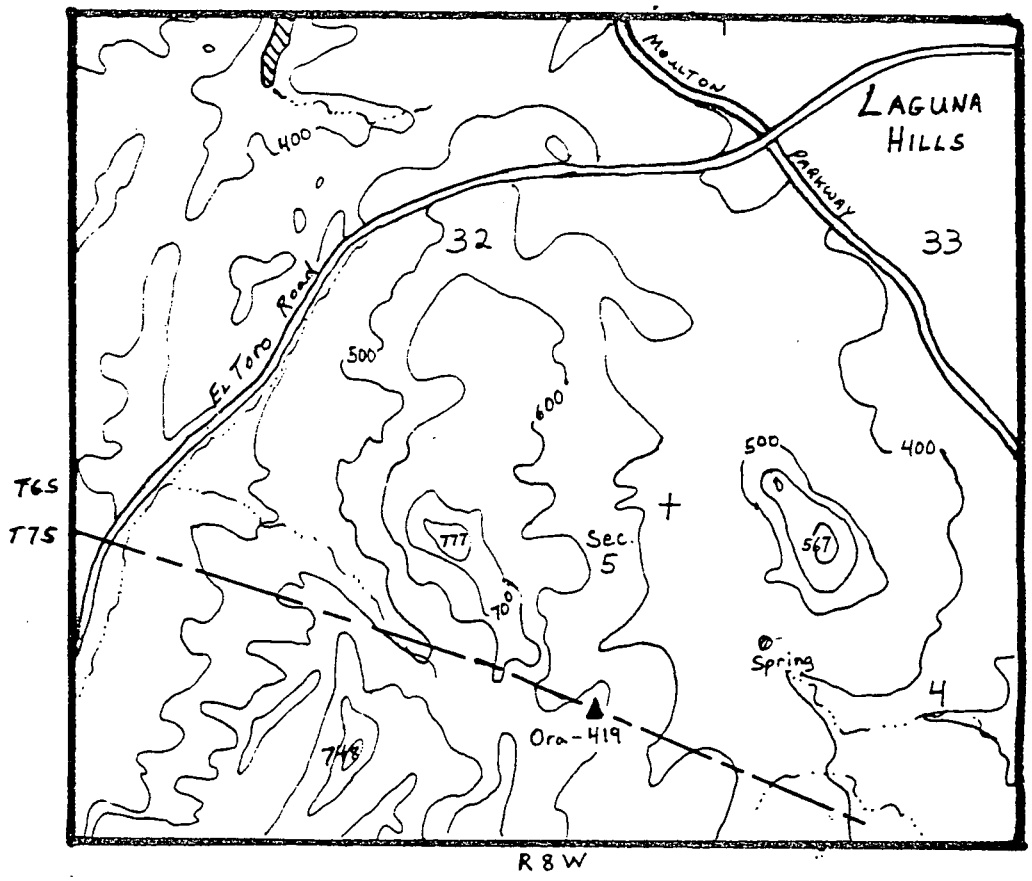
# Figure 2

SITE LOCATION &
TOPOGRAPHICAL SETTING

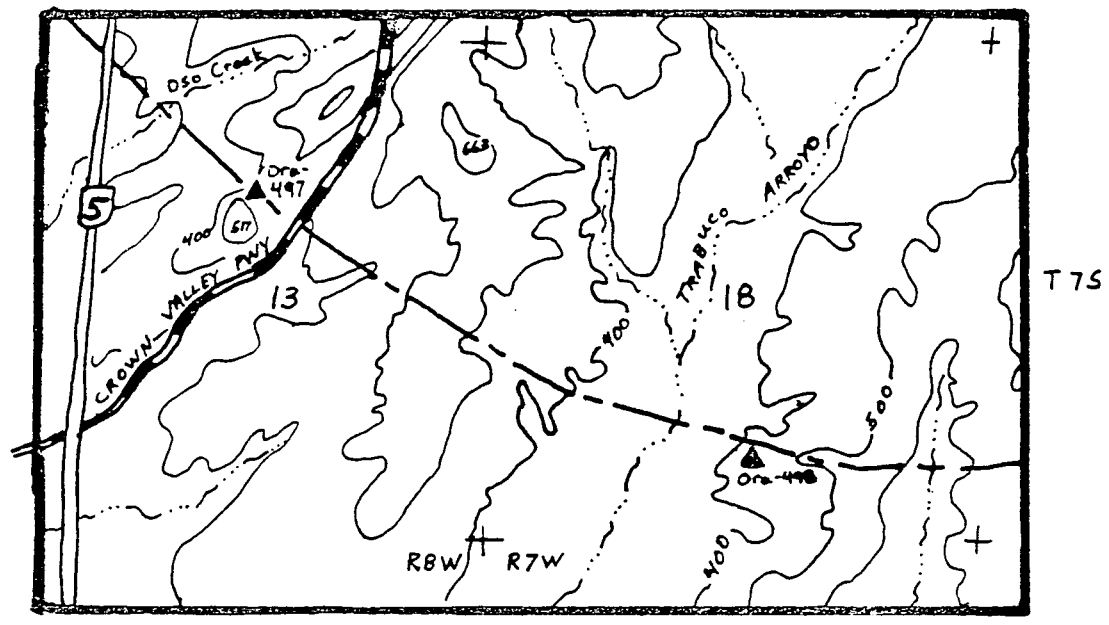



CONTOUR INTERVAL = 50 FEET

# Figure 2
# (continued)



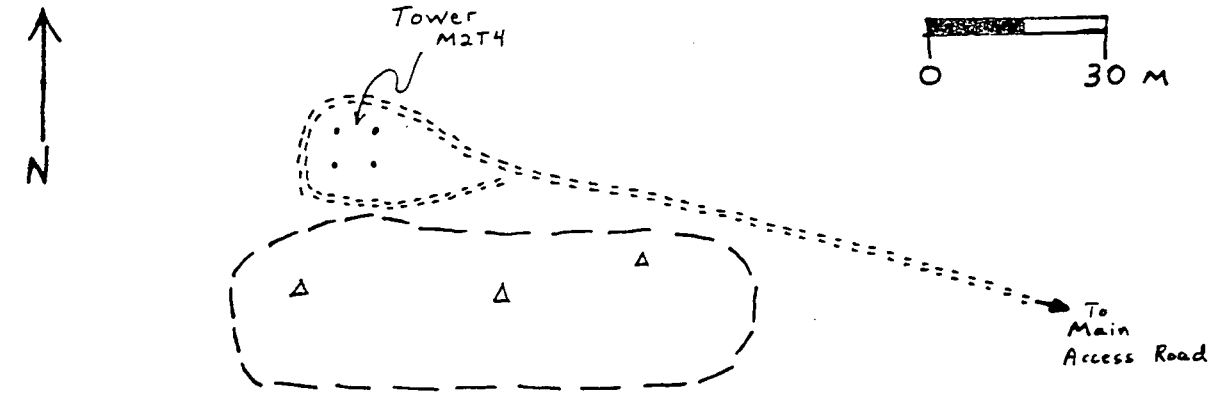

Contour Interval = 100 feet



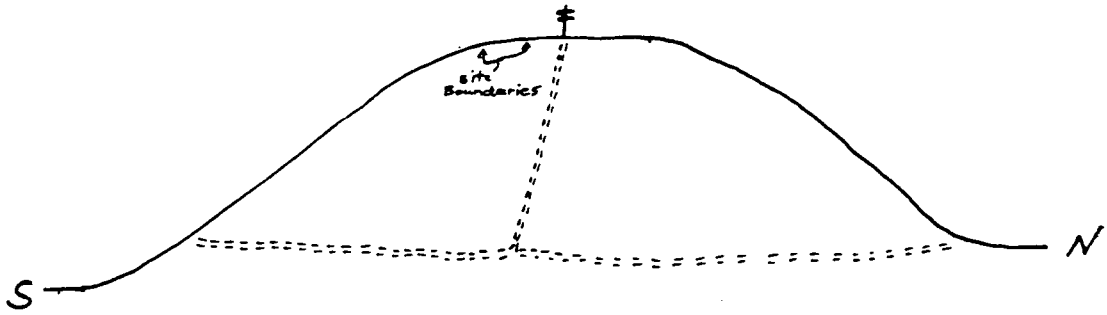

0 1 mile

# Figure 3

SITE PLAN ORA-496

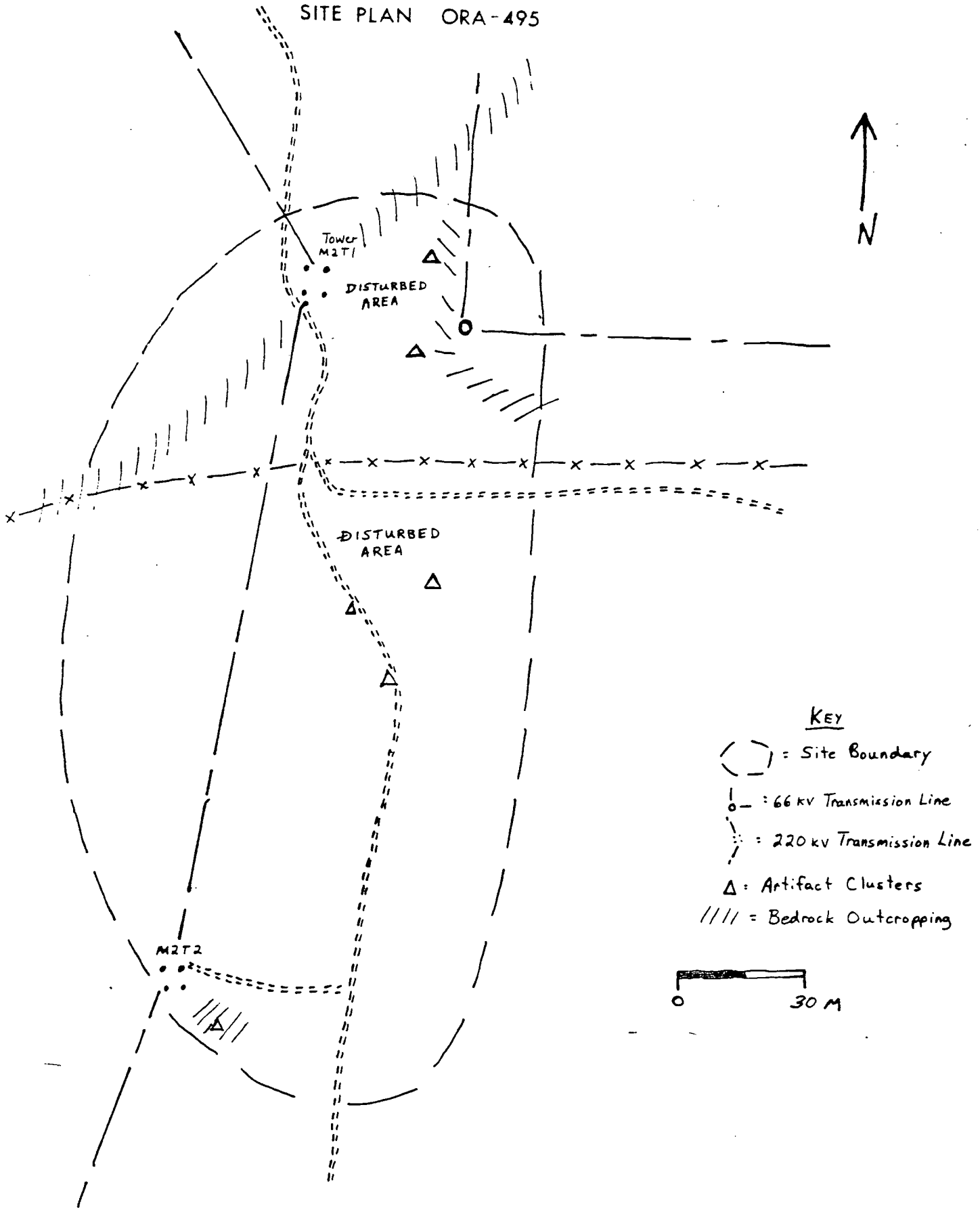



CROSS - SECTION (NOT TO SCALE)



# Figure 4

SITE PLAN ORA-495



# Figure 5

SITE PLAN ORA-498