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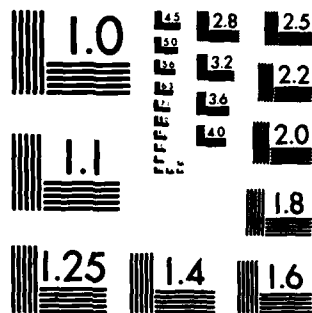
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FLOOD CONTROL STUDY AREA, KAHAWAINUI STREAM,
LAIE, OAHU, HAWAII

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by
Hamilton M. Ahlo, Jr.
&
Robert J. Hommon

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THE FLOOD CONTROL STUDY AREA, KAHAWAINUI STREAM
LAIE, OAHU, HAWAII

by
Hamilton M. Ahlo, Jr.
and
Robert J. Hommon

Prepared for
U.S. Army Engineer Division
Pacific Ocean
Fort Shafter, Hawaii

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CONTENTS

	<u>Page</u>
List of Figures	iii
INTRODUCTION	1
ENVIRONMENT	3
HISTORY	8
ARCHAEOLOGICAL SURVEY	12
CONCLUSIONS	16
REFERENCES	18

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LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1	4
2	5
3	6

INTRODUCTION

Under the auspices of the Pacific Ocean Division, Corps of Engineers, U.S. Army, Hawaii Marine Research, Inc. through its subcontractor, Science Management, Inc. conducted an archaeological reconnaissance and limited test excavations of the Flood Control Study Area along Kahawainui Stream, Laie, Oahu. The study described here is a portion of a larger study on flood control improvements for Kahawainui Stream conducted by the Corps of Engineers at the request of the City and County of Honolulu and is authorized by Section 209 of the Flood Control Act of 1962 (Public Law 87-874). The larger study is intended to determine the feasibility of improving Kahawainui Stream and the extent to which the Federal government might participate. The archaeological study described here was conducted under Contract No. DACW84-81-C-0003.

The intent of the archaeological reconnaissance reported here was to "assess the general nature of the resources probably present and the probable impact of the alternative plans under consideration for the flood control study" (Scope of Work). The archaeological study area (hereinafter referred to simply as the study area) closely parallels Kahawainui Stream for approximately one mile inland from its mouth. It then branches out into two separate segments. The study area is approximately 1,200 feet wide at the coast and 500 feet wide at its narrowest inland portion.

Several people assisted the authors in preparing this report. Mr. Fred Proby of VTN Pacific provided valuable data that he had compiled in the course of preparing a master plan for low income housing in Laie. Mr. Charles Okino of the Survey Division of the State Department of Accounting and General Services kindly assisted in the search for old maps of the Laie area. Mr. Walter Tashiro generously gave of his time and information in recounting past events and land use changes in the study area. Mr. Lyle Stone of Zion Securities arranged for access to the parcel on which the test excavations were conducted. The assistance of all of these individuals was greatly appreciated. All responsibility for errors in fact and interpretation of course, rest solely with the authors.

ENVIRONMENT

The study area lies in the Ahupua'a of Laie within the district of Ko'olauloa (Figure 1). Kahawainui Stream (also known as Laiewai) is the major stream draining the study area. The stream is a perennial which, according to local residents is subject to regular and occasionally destructive flooding. The stream flow during the period of this investigation was very low: in fact, the mouth of the stream was plugged with sand during the entire period of this investigation.

The study area can be conveniently divided into three sections based on physiographic features (Figure 2). Section A consists of that portion of the study area seaward of Kamehameha Highway. It consists of dense hau (Hibiscus tiliaceus) stands, a mangrove (Rhizophora mangle) stand north of the stream and ironwood (Casuarina equisetifolia) trees throughout. It is primarily a coastal biocarbonate sand dune area that has been substantially altered by sand mining activities in the past.

Section B is that portion of the study area inland of Kamehameha Highway composed of relatively flat alluvial plain (Figure 3). Vegetation includes cultivated taro (Colocasia esculenta) and banana (Musa sp.), as well as Koa haole (Leucaena glauca), christmas berry (Shinus terebinthifolius), coconut (Cocos nucifera), ironwood, hau and various grasses and shrubs. Land use in the area is extremely varied and includes agriculture (bananas and taro), aquaculture (prawns),

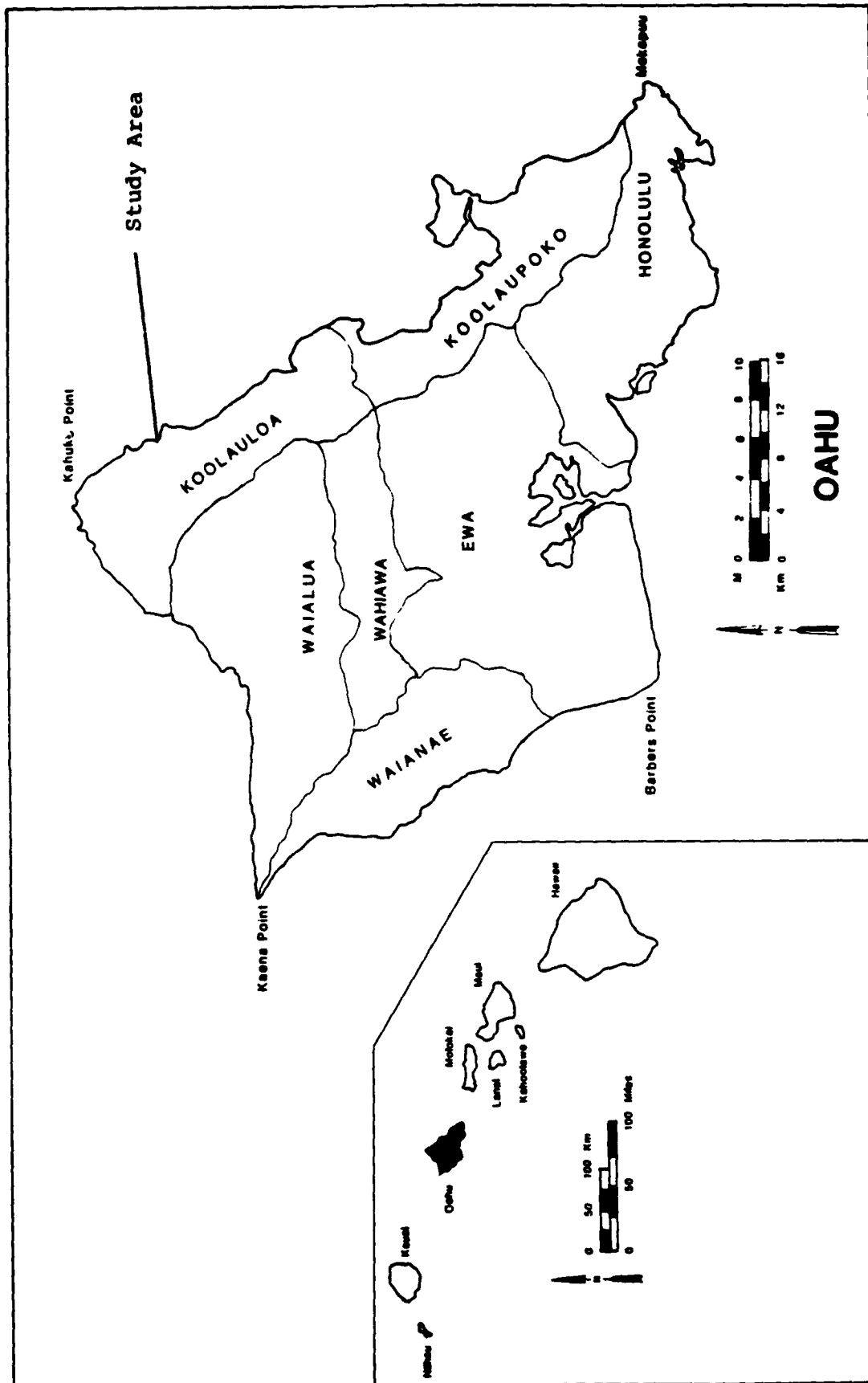


Figure 1. General Map Depicting Study Area

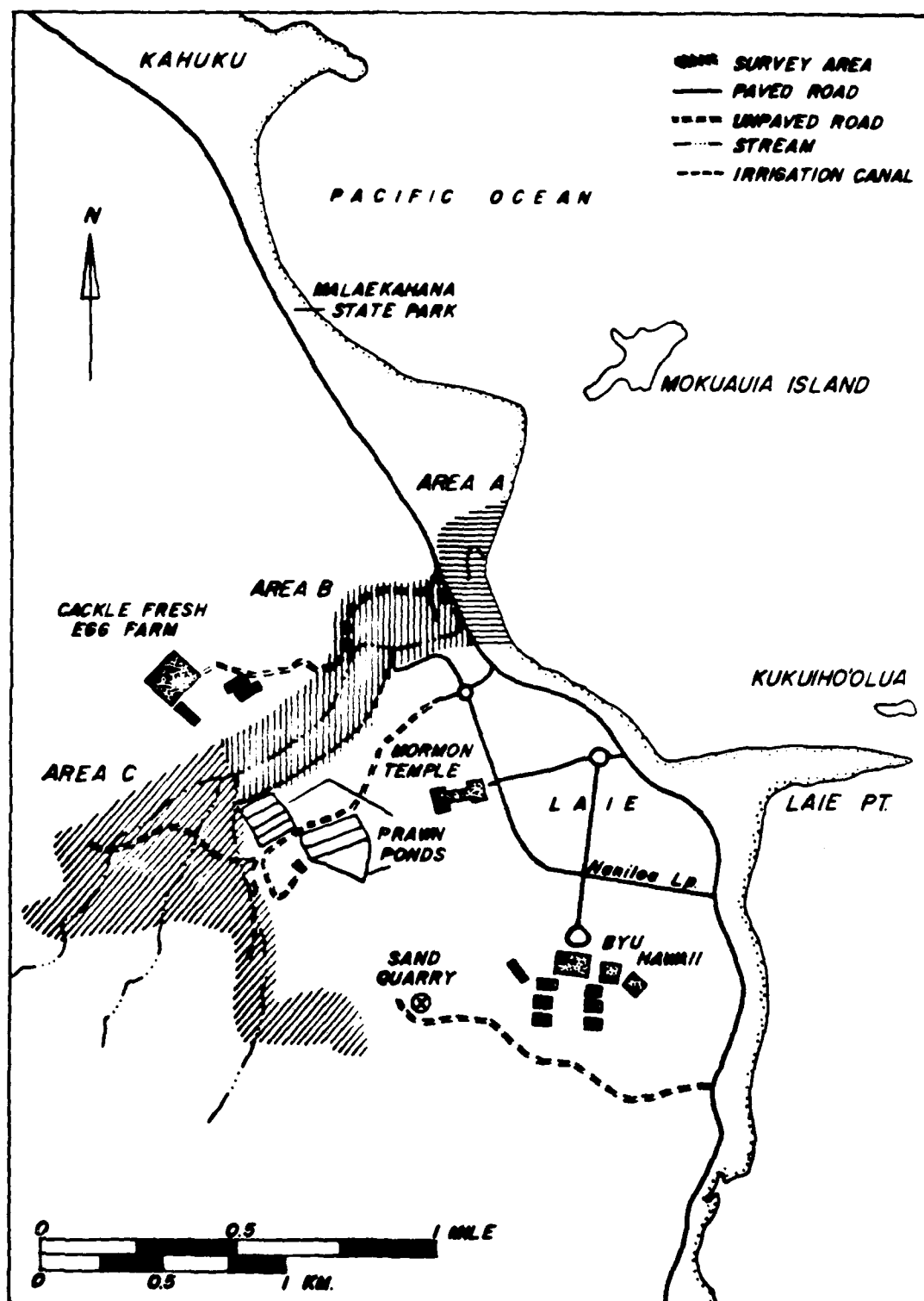


Figure 2. Plan View of Survey Area

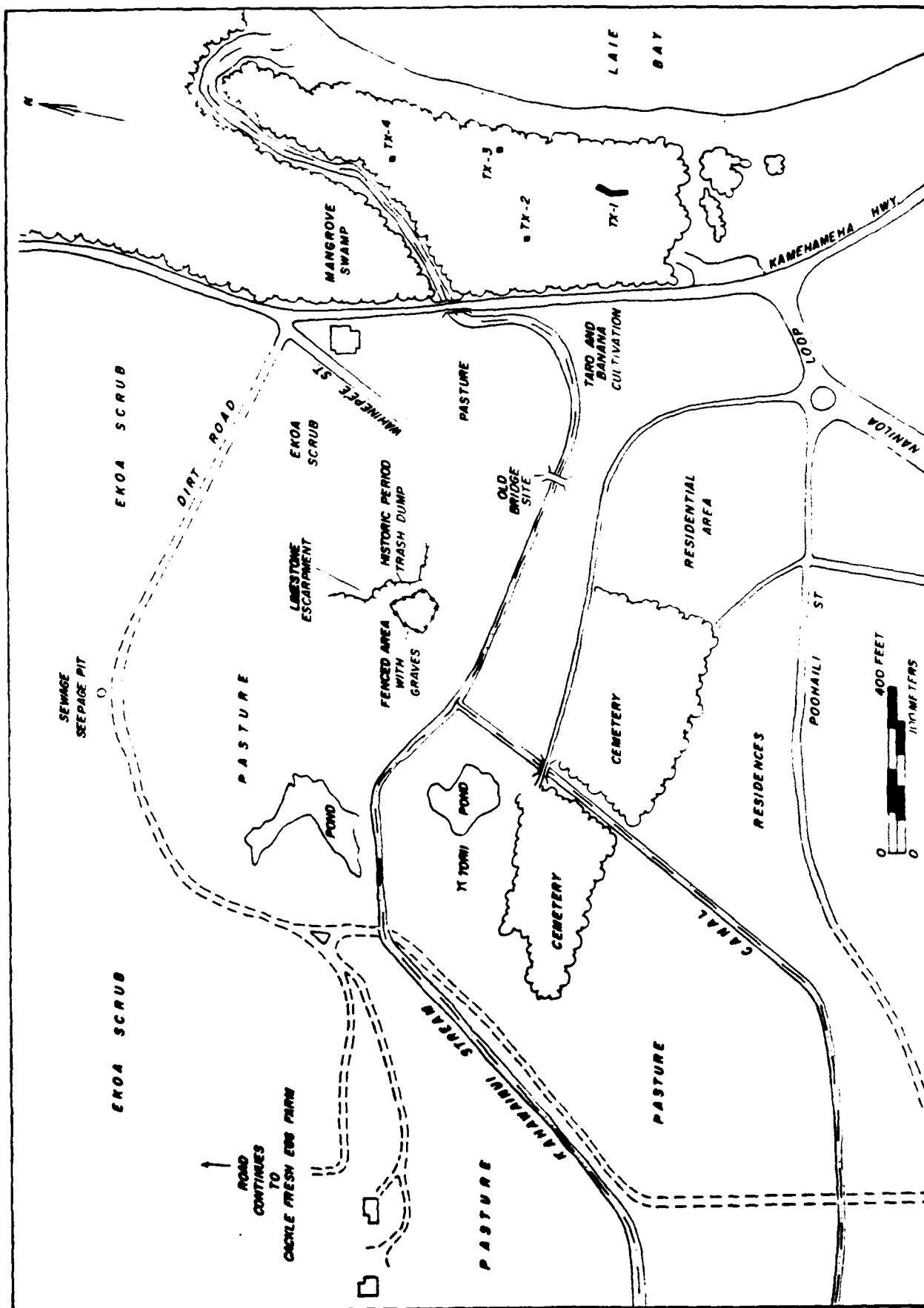


Figure 3. Detailed Plan View of Areas A & B

residences, pasturage, commercial uses and a cemetery. The area has been extensively and intensively disturbed in the last century.

Section C is that portion of the project area situated on the hills and stream valleys and gullies inland of Kamehameha Highway. The area varies greatly in topography but can generally be characterized as hilly, abandoned agricultural fields. Vegetation in the area includes ironwood, Koa haole, sugar cane (Saccharum officinarum), guava (Psidium guajava) and various shrubs and grasses.

Elevations in the project area range from sea level to 200 feet. The coastal area is comprised of unconsolidated calcareous sand while Area B, further inland, contains both consolidated calcareous sand dunes and marine limestones formed during previously higher stands of the sea. Reports of area residents as well as other published documents (Geolabs, 1980:4 and McAllister, 1933) indicate that numerous solution cavities and voids characterize the limestone formation. The portion of Area B furthest inland is composed of alluvial clays and silts. The study area is relatively wet, receiving an annual average rainfall of approximately 40 inches. Trade winds from the northeast are present about 85 percent of the year. Temperatures are characteristically mild and range between 60 and 85 degrees Fahrenheit. No detailed rainfall or stream flow records for the study area could be located.

HISTORY

Published historical accounts of the Laie area are, at best, superficial and do not deal with the study area specifically. The following account is compiled from numerous sources including conversations with area residents, extrapolations from aerial photographs and maps, field observations, as well as the little published material available.

The study area was almost certainly occupied prehistorically. McAllister (1933) noted several sites within and adjacent to the project area including Paeo fishpond, Waiku'uku'u Crevice, and the Hanapepe Shrine. The fishpond probably occupied the low lying area inland of Kamehameha Highway and north of Kahawainui Stream. No trace of the fishpond is currently visible. Two ephemeral ponds in the general vicinity result from recent ground surface modification and should not be confused with Paeo. It is very likely that municipal, military and other refuse dumping in the area have filled in the pond and completely obliterated any surface indications thereof.

The exact nature of Waiku'uku'u Crevice is unknown. McAllister (1933:157) notes that it was a narrow but deep crevice with water whose level fluctuated with the tides. The crevice has since been filled and is probably the site of an existing sewage seepage pit operated by the City and County of Honolulu and currently marked by a manhole (VTN Pacific, 1981).

The Hanapepe shrine McAllister (1933:157) described was a "very sacred place where the akua stone [a stone representing a supernatural being], Kamehaikana, was worshipped. This is said to have been a female fish god and the first fish were brought as an offering" (ibid.). The shrine was said to have been located on an elevated area near the "first bridge on the Kahuku side of Laie" (ibid.).

McAllister also reported other shrines, a heiau, and taro terraces near the project area.

Other than McAllister's descriptions, no previous archaeological report has been done in the study area. The State Parks Division of the Department of Land and Natural Resources has conducted numerous test excavations and some coring within Malaekahana State Park, north of the study area. Test corings approximately 100 meters north of Kahawainui stream did reveal a possible cultural layer about one meter below the surface (Yent and Griffin, 1980). The Malaekahana area is very similar to Area A discussed here. Yent and Griffin concluded that the Malaekahana area was probably an extensive dune site of the late prehistoric period (c. A.D. 1600-1780) and that it has been significantly modified by erosion and deposition of sand by storm surf.

Recent excavation associated with construction of residential development immediately south of the project area along the shore revealed no cultural deposits at all (Yent, personal communication).

An inspection of the site files in the Historic Sites Section of the Department of Land and Natural Resources revealed only three sites near the project area, two of which were noted by McAllister. The third is a cave site (State Historic Site Number 50-80-02-1039) approximately 1,800 feet (500 meters) north of Kahawainui Stream near the

ridge where the Cackle Fresh Egg Farm is today. It was a large (10 by 20-meter) cave with a retaining wall within it. No midden was noted. Though this area was briefly inspected during this survey (it was not within the study area) no such cave was noted.

Mr. Walter Tashiro of Laie noted that he found human skeletal material eroding out of the beach berm in Area A about 50 years ago. In addition, he recalled an akua stone at which offerings and fish were left after a day's fishing at the beach in Area A. The stone has since disappeared and no substantial material has apparently been found in the area since.

Handy and Handy (1972:461) report that in 1935 a 75-year-old informant recalled extensive taro cultivation in back of what is now the Mormon temple. Handy and Handy (ibid.) also report extensive terraces in other areas of the ahupua'a.

No information dealing with the period between contact and the arrival of the Mormons in Laie could be found. The formative role of the Church of Jesus Christ of Latter Day Saints in Laie began in 1850 when ten Mormon missionaries first settled there. By 1865 the Church had purchased 6,000 acres in the area (reportedly the entire ahupua'a) for agricultural use. Approximately 1,500 of these acres were arable land. Initially a variety of crops were cultivated on the land purchased, but pineapple and sugar cane were the predominant crops by the end of the 19th century. Agricultural utilization of the lands purchased was greatly increased by the addition of a large pump in 1898 which made possible cultivation of fields previously barren. Sugar cane, produced by Laie Plantation and later by Kahuku Plantation was the dominant cultivar in the area until about 1970 when the plantation

closed down. On isolated kuleanas (small Hawaiian land unit), long-time residents raise taro and truck crops. Currently the major land use is as pasturage for a few cattle and for aquacultural activities (owned and operated by BYU-Hawaii).

ARCHAEOLOGICAL SURVEY

During the period between March 12 and March 21, 1981, the entire study area was examined on foot by two archaeologists (both authors) to determine whether any significant archaeological or historic resources existed within the boundaries of the study area. The study area delineated in Figure 3 represents an area larger than that specified in the scope of work. The latter area did not correspond to readily identifiable features on the ground and locating the precise boundaries of it proved difficult. As a result the area was expanded sufficiently to insure that coverage of the initially specified area was achieved. The new study area boundaries corresponded more closely with physiographic features so that field locations were easily determined. The terrain in the area is relatively flat and the numerous dirt roads present easy access to all parts of the area.

The most outstanding feature of the entire study area is the degree and extent of disturbance it exhibits. Virtually all the land in Area C was once used as sugar cane and/or pineapple fields and remnant stands of cane are numerous. The area has been thoroughly plowed, roads and irrigation ditches have been constructed throughout and in general the complete disturbance of the ground surface common with commercial cane and pineapple cultivation is ubiquitous. Aerial photographs in the possession of Mr. Fred Proby of VTN Pacific confirm that virtually the entire Area C and portions of Area B were planted

with sugar cane during the first quarter of this century. As could be expected in an area subject to such land modifying activities, no cultural resources of any type could be located in Area C.

Area B has been similarly disturbed during the last century but by different forces. The area directly across Kahawainui Stream from the cemetery was used as a City and County landfill for many years and, when the landfill was closed, the entire area was covered over with sand. An existing sand "dune" in the pasture in this area is apparently a portion of the material brought in to cover the dump site. Further inland, aquaculture construction, agriculture and livestock grazing have further modified the ground surface. Only two non-recent notable cultural features were located in Area B. The first, a concrete torii located on the west side of a small body of standing water near the intersection of Kahawainui Stream and a canal built by Kahuku Plantation to channel stream flow, is the only remnant of a Shinto temple that once stood on the site. Further east, a small fenced enclosure adjacent to a limestone escarpment contains at least six and possibly more grave sites. The age of the graves is unknown but they are probably associated with a plantation camp that existed nearby early in this century (Mr. Walter Tashiro, personal communication). Three of the graves are marked by cement slabs or headstones while others are marked by rock alignments. Glass jars of recent manufacture were found on two of the graves indicating that someone may still occasionally place flowers on the site. The single grave that had a headstone apparently had an inscription on it at one time but the stone had deteriorated to the extent that the inscription was not legible.

A deposit of historic trash (presumably associated with the plantation camp mentioned above) can be seen at the foot of the limestone escarpment immediately north of the graves. The trash contains material that indicated it was used until very recently. The deposit has been extensively disturbed, probably by bottle hunters (there are no intact older bottles or ceramics present in the deposit though fragments of such bottles abound).

The remnants of an old bridge that connected Wahinepe'e Street to Naniloa Loop can be seen approximately 100 meters east-southeast of the grave sites.

Area A was originally thought to have the highest potential of yielding archaeological material. Excavations conducted by the State Department of Land and Natural Resources in the physiographically similar Malaekahana area yielded evidence of a cultural deposit. Though no surface evidence either on the ground or on the wave-cut beach face was visible, four test excavations were undertaken using a backhoe to determine if any subsurface indications of a cultural deposit might exist. All four excavation units extended to the water table which ranged from 30 centimeters to 3.5 meters below the surface. No evidence of any cultural deposits were found in any of the pits. Subsequent conversations with local residents indicate that the area was once a sand mine. The sand was removed on a temporary railroad spur that extended from the sugar cane fields into the area and was used as a fill material under the temporary track laid in the fields to harvest cane. Mr. Walter Tashiro recalled that the area was once a substantial sand dune and that the current level of the ground is many feet lower than

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it was at the beginning of the century. It is possible that archaeological deposits once existed here and that they were destroyed in the mining operation, but no evidence of any kind can be found of such a deposit today.

CONCLUSIONS

No archaeological evidence or material of any significance was found in the project area. The extensive land disturbance activities that have occurred in the area within the last 100 years would probably have obliterated any evidence that once may have existed. The only cultural deposit of any kind noted was the trash deposit adjacent to the grave sites in Area B. The deposit is shallow and has been disturbed. It does not appear to retain its integrity and does not appear to contain any information valuable in history or prehistory and thus would not qualify for inclusion on the National Register of Historic Places.

The graves in Area B are of unknown dates though it is highly improbable that they are more than 100 years old. Cemeteries, except under extraordinary circumstances, are not eligible for inclusion on the National Register of Historic Places. No evidence to suggest that this group of graves is in any way exceptional was found. As such, this cemetery does not appear to qualify for inclusion on the National Register of Historic Places.

The torii found in Area B is a very small remnant of what once was (presumably) a much larger structure. It appears to have no special architectural merit and no evidence that it was associated with prominent individuals in history could be found. It may have cultural significance to certain individuals but no evidence to that effect was noted. It does not appear to qualify for inclusion on the National Register of Historic Places.

Though no archaeological or historically significant evidence was noted during this survey, the work conducted does suggest that future reconnaissance surveys should, perhaps, be preceded by a brief but thorough literature search and conversations with local residents. It is likely that such preliminary work would have established, in this case, that land disturbance in the project area in the last 50 or 60 years was of such magnitude that the probability of any significant archaeological or historical resources being present in the study area was extremely low. In such cases, an on-the-ground reconnaissance survey may not be necessary and the cost of the planning effort for such projects could be reduced. In other cases, it may be possible to significantly reduce the cost of field work to the government by substantially reducing the size of an area to be surveyed. By contracting for a preliminary assessment, or, in the case of small projects such as this, by doing it in-house (such work to include literature reviews, conversations with local informants, inspection of old aerial photos and brief field checks) the necessity for and the scope of whatever work is deemed necessary, can be more accurately determined.

In the case of the present survey, one day talking to area residents, one or two days conducting a literature search and a maximum of one day spent field-checking the data collected would probably have been sufficient to determine that little would be gained by conducting an on-the-ground survey of the entire project area as was done in compliance with the scope of work for this study.

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