Appendix E

Archaeological Inventory Survey of 77-acres for the Proposed Construction of Kihei High School in Kihei, Ka‘ono‘ulu, Kõheo 1 & 2 and Waiohuli Ahupua‘a, Makawao District, Island of Maui, Hawai‘i

Scientific Consultant Services – December 2009
February 12, 2010

Michael F. Dega, Ph.D.
Scientific Consultant Services, Inc.
711 Kapolei Boulevard, Suite 975
Honolulu, Hawai‘i 96813

SUBJECT: Chapter 6E-8 Historic Preservation Review – REVISED
Archaeological Inventory Survey for the Proposed Kilie High School
TMK: (2) 2-2-002:016 par. (2) 2-2-002:024 par.

Thank you for the opportunity to review this revised report, which our staff received in PDF format on February 4 (Parinaeta and Dega 2009). Archaeological Inventory Survey of 77 Acres for the Proposed Construction of Kilie High School, Scientific Consultant Services, Inc.

The report was first reviewed by SHPD staff on January 30 (SHPD LOG NO: 2010.0194; DOC NO: 1001PC26), resulting in several requested revisions.

The survey area as described in the report consists of a 77 acre (30.8 hectares) portion of TMKs (2) 2-2-002:015 and (2) 2-2-002:024. Fieldwork undertaken between August 16 and September 1 of 2009, was comprised of a 100% pedestrian survey and included two manually excavated test units. One surface archaeological site (partially previously recorded) comprised of eight features (seven rock mounds and one alignment), now on record as SHIP #50-50-10-6393, was identified. All of the features are believed to have originated during the post-Contact ranching period.

The report now contains the required information as specified in HAR 13-276-5 regarding the documentation of inventory level fieldwork in general and is acceptable.

As stated in the initial review letter, we concur that SHIP #50-50-10-6393 is significant under Criterion D of the Hawai‘i and National Registers of Historic Places for its ability to yield important information related to pedology or history and that no further work with respect to the site itself is needed because it is significant solely for information content and a reasonable and adequate amount of that information was collected during the survey.

However, we are still not comfortable with the recommendation for no monitoring during any portion of ground disturbance within the 77 acre project area. While continuous monitoring does not appear to be necessary, we believe a program of intermittent monitoring during initial phases of ground preparation and build-out should be implemented. Such a program could then later be adjusted to address specific conditions within the project area. Therefore, we will reserve final comment pending review of all project related permit applications and plans.

Now that the archaeological inventory report has been accepted pursuant to HAR 13-276, please send one hardcopy, clearly marked FINAL (the revised electronic copy does not need to be sent again) to the attention of "SHPD Library" at the Kapolei SHPD office.

Aloha,

Nancy McMahon
Deputy SHPO/State Archaeologist
State Historic Preservation Division

Michael F. Dega, Ph.D.
TMKs (2) 2-2-002:015 par. and (2) 2-2-002:024 par. REVISED Kilie High School AIS Page 2 of 2

Jeff Hunt, Director, Dept. of Planning. FAX (808) 270-7634
Maui CRC, Dept. of Planning, 250 S. High Street, Wailuku, Hawai‘i 96793
TABLE OF CONTENTS

TABLE OF CONTENTS................................................................................................................ ii
LIST OF FIGURES ........................................................................................................................ ii
INTRODUCTION .................................................................................................................................. 1
ENVIRONMENTAL SETTING ............................................................................................................ 4
PROJECT AREA DESCRIPTION ........................................................................................................ 5
SOILS ................................................................................................................................................ 4
CLIMATE AND VEGETATION ......................................................................................................... 4
BARE ZONE ...................................................................................................................................... 5
HISTORICAL BACKGROUND ........................................................................................................... 6
CULTURAL HISTORICAL CONTEXT .................................................................................................. 6
PAST POLITICAL BOUNDARIES ....................................................................................................... 6
TRADITIONAL ACCOUNTS ............................................................................................................. 7
EARLY HISTORIC TO MID-1800’S ................................................................................................... 9
THE MÁ HELE 1848-1851 .................................................................................................................. 11
HISTORIC PERIOD .......................................................................................................................... 12
PREVIOUS ARCHAEOLOGICAL RESEARCH .................................................................................. 13
METHODS ...................................................................................................................................... 20
RESULTS OF FIELDWORK ............................................................................................................. 21
SUMMARY ...................................................................................................................................... 45
SIGNIFICANCE ASSESSMENTS ....................................................................................................... 45
RECOMMENDATIONS .................................................................................................................... 46
REFERENCES ................................................................................................................................... 47

LIST OF FIGURES

Figure 1: Portion of USGS Topographic Map Showing the Location of the Project Area............ 2
Figure 2: TMK (2) 3-9-09 Showing Location of Project Area....................................................... 3
Figure 3: Portion of USGS Map Showing Location of Previous Archaeological Studies in
Vicinity of Project Area..................................................................................................................... 14
Figure 4: Portion of USGS Map Showing Location of SIHP No. 50-50-10-6393....................... 22
Figure 5: Plan View of SIHP No. -6393......................................................................................... 23
Figure 6: Plan View of SIHP No. -6393 Feature A ......................................................................... 24
Figure 7: View West of SIHP No. -6393 Feature A ....................................................................... 25
INTRODUCTION

At the request of Group 70 and the State of Hawai‘i Department of Education, Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Inventory Survey for the Proposed Kʻelei High School in Kʻelei, Kāʻonoʻulu, Kēōkea 1 & 2 and Waiolua Ahupua‘a, Wailuku and Makawao District, Island of Maui, Hawai‘i (T.M.K. (2) 2-3:010/015 (par.) and 054 (par.)) (Figures 1 and 2). The archaeological inventory survey consisted of historical background and archival research, pedestrian survey and inspection of the parcel; mapping and description of site features, manual subsurface testing; and, analysis, interpretation, and reporting of all relevant data. Fieldwork was conducted between August 16 – September 1, 2009 by David Perzinski, B.A. and Brian Armstrong, B.A. under the overall direction of Michael Dega, Ph.D. (Principal Investigator).

Archaeological work in the project area was conducted to determine the presence/absence of archaeological deposits in surface and subsurface contexts through a thorough survey and representative subsurface testing. The ultimate goals of the project were to determine if significant cultural or historic resources, and/or human burials occurred on the parcel; and, to provide significance assessments and recommendations to the State Historic Preservation Division (SHPD).

The project area is planned for the development of a new high school and will include a library, auditorium, cafeteria, administration building, industrial arts building, ROTC facility, physical education and athletic buildings, gymnasium, swimming pool and bleachers. Ground disturbing activities associated with the proposed high school include mass excavation, site grading, excavation for retaining walls, landscaping, a stadium and baseball and softball fields. The project will be situated on a portion of 77 acres of undeveloped land currently owned by Kāʻonoʻulu Ranch (Parcel 13) and Haleakalā Ranch Company Pacific Rim Land Holdings, Inc. (Parcel 54).
ENVIRONMENTAL SETTING

PROJECT AREA DESCRIPTION

The project area is roughly rectangular shaped and consists of a 77-acre lot that is bounded by Kulanihakoi Gulch to the north, Waipuilani Gulch to the south, undeveloped ranch land to the east and Pi`ilani Highway to the west. The parcel is located 1 kilometer inland from KapalАОloko Park at elevations ranging from 30 feet to 100 feet above mean sea level, and is currently undeveloped.

SOILS

The project area soils are classified as “Waiakoa extremely stony silty clay loam” (Foote, et al., 1972). These soils form on smooth, low uplands, and stones cover 3 to 15 percent of the ground surface. In most areas where this soil occurs, approximately 50 percent of the surface layer has been eroded. Runoff levels are average, and the erosion hazard is severe (Foote, et al., 1972). For these reasons, soils in the project area are generally only good for pastureland and wildlife habitat. Low bedrock outcrops are commonly associated with these soils, and cultivation is usually impractical unless the stones are removed. (ibid., 127).

CLIMATE AND VEGETATION

Coastal K`aiwai, in general, is classified as a ‘Kiawe and Lowland Shrubs’ vegetation zone, and common, local plants include kiawe (Prosopis pallida), koa haole (Leucaena glauca), finger grass, and pili grass. (the latter is a native species) (Armstrong 1983). In traditional times, i.e., before the historic-era introduction of kiawe and koa haole, the project area was probably covered with indigenous grasses (Kirch 1973a). Coastal K`aiwai, in general, is classified as a ‘Kiawe and Lowland Shrubs’ vegetation zone, and common, local plants include kiawe (Prosopis pallida), koa haole (Leucaena glauca), finger grass, and pili grass. (the latter is a native species) (Armstrong 1983). In traditional times, i.e., before the historic-era introduction of kiawe and koa haole, the project area was probably covered with indigenous grasses (Kirch 1973a). Today, vegetation in the project area includes beach naupaka (Scaevola taccada), coconut palm (Cocos nucifera), beach heliotrope (Heliotropium sp.), plumeria (Plumeria acuminata), wiliwili (Erythrina sandwicensis), yellow Hibiscus (Family, Malvaceae), and bougainvillea (Bougainvilla spectabilis) as well as various other introduced tropical flowering plants and extensive grassy lawns.

Annual rainfall in the project area ranges between 22 and 33 centimeters annually and is the lowest on Maui, making this region one of the driest in the Hawaiian Islands archipelago (Armstrong 1983). At the time of the present survey, the subject parcel was exceptionally dry and dusty, consistent with a period of prolonged drought in the area. In fact, because of this combination of low rainfall and fairly unproductive soils, the general area in which the subject parcel is located has been labeled the “barren zone” (Cordy 1977), a characterization that has been supported by numerous archaeological surveys in the area.

BARREN ZONE

In geographical and physiographical terms, the barren zone is an intermediary zone between direct coastline and back beach areas, upland forests and more mountainous environments. The barren zone is a transitional zone that appears to have been almost exclusively transitory, or at best, intermittently occupied through time. Intermittent habitation loci, as defined by surface midden scatters or small architectural features (i.e., C-shapes and alignments) dominate the few documented traditional-period site types in the area through time. Post-Contact features are generally limited to walls and small alignments, respectively associated with ranching and military training in the area.

The barren zone was an intermediary region between verdant upland regions and the coastline. Apparently, agricultural endeavors were practically non-existent in the barren zone and tool procurement materials (basalt and wood) were selected from other locales as well. Sediment regimes in the area are shallow, most often overlying bedrock, and perennial water sources are virtually nonexistent.

Cordy (1977) divided the K`aiwai area (inclusive of the project area) into three environmental zones (or subzones when one considers the entire ahupua`a): coastal, transitional/barren, and inland. The current project location occurs in the transitional or barren zone: the slopes back of the coast with less than 30 inches of rainfall annually (Cordy 1977:4).

This barren zone is perceived as dry and antagonistic to permanent habitation. Use of the area would primarily have been intermittent or transitory, particularly as the zone could have contained coastal-inland trails and would have marked an intermediary point between the two more profitable eco-zones. The region remains hostile to permanent habitation, only having been “conquered” in recent times through modern adaptation (i.e., water feed systems, etc.).

Based on general archaeological and historic research, the barren zone was not subject to permanent or expansive population until recent times. This intimates that population pressure along the coast was minimal or non-existent in the K`aiwai coastal area throughout time. As such, architectural structures associated with permanent habitation sites and/or ceremonial sites are not often identified in the area. The prevailing model that temporary habitation/temporary use sites predominate in the barren zone has been authenticated further by recent research.
HISTORICAL BACKGROUND

CULTURAL HISTORICAL CONTEXT

The island of Maui ranks second in size of the eight main islands in the Hawaiian Archipelago. The island was formed by two volcanoes, Mount Kukui in the west and Haleakala in the east. The younger of the two volcanoes, Haleakala, soars 3055 m or 10,023 feet (over 30,000 feet if measured from the sea floor) above sea level and embodies the largest section of the island. Unlike the amphitheater valleys of West Maui, the flanks of Haleakala are distinguished by gentle slopes. Although it receives more rain than its counterpart in the east, the permeable lava flows of the Horonomanu and Kula Volcanic Series prevent the formation of rain-fed perennial streams. The few perennial streams found on the windward side of Haleakala originate from springs located at low elevations. Valleys and gullys were formed by intermittent water runoff.

The environment factors and resource availability heavily influenced pre-Contact settlement patterns. Although an extensive population was found occupying the uplands above the 30 inch rainfall line where crops could easily be grown, coastal settlement was also common (Kebbet al. 1997). The existence of three fishponds at Kakepo, north of the project area, and at least two heiau (shrine, temple, place of worship) identified near the shore confirm the presence of a stable population relying mainly on coastal and marine resources.

PAST POLITICAL BOUNDARIES

Traditionally, the division of Maui's lands into districts (moku) and sub-districts was performed by a kahuna (priest, expert) named Kaka'alanoo, during the time of the ali`i Kaka'alanoo (Beckwith 1979:383; Forrester places Kaka'alanoo at the end of the sixteenth century or the beginning of the seventeenth century [Forrester 1919:20, Vol. 6:248]). Land was considered the property of the king or ali`i (the ali`i who was the island district), which he held in trust for the gods. The title of ali`i was earned and not hereditary. The king kept the parcel he wanted; his higher chiefs received large parcels from him and, in turn, distributed smaller parcels to lesser chiefs. The moka'aina (commoners) worked the individual plots of land.

In general, several terms were used to delineate various land sections. A district (moku) contained smaller land divisions (ahuapa'a), which customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the ahuapa'a were able to harvest from both the land and the sea. Ideally, this situation allowed each ahuapa'a to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The 'ili were smaller land divisions next to importance to the ahupua'a and were administered by the chief who controlled the ahupua'a in which it was located (ibid:33, Lucas 1995:40). The mo'o (land strips) were narrow strips of land within an 'ili. The land holding of a tenant or kea ʻōina residing in an ahupua'a was called a kuleana (Lucas 1995:61).

The project area is located in the ahupua'a of Ka'ano'uulu, which translated means literally "the desire for breadfruit" (Puku et al. 1986). Waiohuli "water of change" (Ibid: 226, and K. heo "to show off" or "to twirl" (ibid, 115).

TRADITIONAL ACCOUNTS

There is little specific information pertaining directly to K. hei, which was originally a small area adjacent to a landing built in the 1890s (Clark 1980). Presently, K. hei refers to a six-mile section along the coast from the town of K. hei to Keaweakapu. Scattered amongst the agricultural and habitation sites were places of cultural significance to the district of the ahupua'a of the district including at least two heiau. In ancient times, there was a small village at Kakepo (located approximately 3 km west of the present study parcel) based primarily on marine resources. Occasionally, it has been recorded, that the blustery Kaumuku Winds would arrive with amazing intensity along the coast (Wilcox 1901).

There were several fishponds in the vicinity of K. hei: Waiohuli, Kake-kai, and Kalepolepo Pond (also known by the ancient name of K. hei'ele Pond; Kebbet et al. 1997). Constructed on the boundary between Ka'ono'uulu and Waiohuli Ahupua'a, these three ponds are some of the most important royal fishponds on Maui. The builder of Kakepo and two other ponds (Waiohuli and K. kea-kai) have been lost in antiquity, but they were reportedly rebuilt at least three times through history, beginning during the reign of Pi'ilani (Cordy 2000).

Oral tradition recounts the repairing of the fishponds during the reign of Kiha-Pi'ilani, the son of the great chief Pi'ilani, who had bequeathed the ponds to Umi, ruler of Hawaii Island. Umi's konohiki (land overseer or manager) ordered all the people from Maui to help repair the walls of Kalapolepo's fishponds. A man named Kikau protested that the repairs couldn't be done without the assistance of the konohiki of the great chief Pi'ilani, who had bequeathed the ponds to Umi, ruler of Hawaii Island. Umi sent for Kikau who lived in the court of Waipi'o Valley from then on. The region of K. kea-kai and Ka'onoko'ulu fishponds became known as Kalapolepo fishpond (ibid).
The Kalepolepo fishponds were rebuilt by Kekaulike, chief of Maui in the 1700s, at which time it supplied `ama`ama (mullet) to Kahekili II. Again, it was restored by Kamehameha I when he ruled as governing chief over Maui and for the last time in the 1840s when prisoners from Kaho`olawe penal colony were sent to do repairs (Kamehameha, 1961; Wilcox, 1921). At this time, stones were taken from Waiohuli-kai pond for the reconstruction of Kalepolepo. It was here at Kalepolepo that Kamehameha I reportedly beached his victorious canoes after subduing the Maui chiefs.

Agriculture on the leeward side of Maui was likely to have begun early in the early historic period (A.D. 1200–1400, Kirch, 1985). According to Handy:

On the south side of western Maui the flat coastal plain all the way from Kaho`olawe to Honokahua, in old Hawaiian times, must have supported many fishing settlements and isolated fisherman’s houses, where sweet potatoes were grown in the sandy soil or red lepo (soil) near the shore. For fishing, this coast is the most favorable on Maui, and although a considerable amount of taro was grown, I think it is reasonable to suppose that the large fishing population, which presumably inhabited this leeward coast, ate more sweet potatoes than taro with their fish... (1940:159).

Handy and Handy (1972:133) also describe the planting methods in the drier sections of Kula:

Where potatoes are planted in crumbling lava with humus, as on eastern Maui and in Kona, Hawaii, the soil is softened and heaped carelessly in little pockets and patches using favorable spots on slopes the crumbling porous lava gives ample aeration without much mounding.

At lower, drier elevations, in the so-called barren zone, agriculture was a relatively minor component of the traditional subsistence economy. In fact, the early historical accounts and archaeological evidence suggest that the barren zone, in which the subject parcel is situated, was a transitional area in which people moved resources between the coast and the uplands to heights of c. 1,000 feet (above mean annual sea level). Large, permanent settlements—with clusters of habitations, heiau, petroglyphs, and large agricultural terraces and garden enclosures—have been documented in the uplands, above the 30-inch annual rainfall line, while fishponds and coastal heiau indicate a relatively sizable coastal population relying on marine resources (Kolb et al., 1997).

**EARLY HISTORIC TO MID-1800’s**

Early records, such as journals kept by explorers, travelers and missionaries, Hawaiian traditions that survived long enough to be written down, and archaeological investigations have assisted in the understanding of past cultural activities. Unfortunately, early descriptions of this portion of the Maui coast are brief and infrequent. Captain King, Second Lieutenant on the Revolution during Cook’s third voyage briefly described what he saw from a vantage point of “eight or ten leagues” (approximately 24 miles) out to sea as his ship departed the islands in 1779 (Beaglehole, 1967). He mentions Pu`u Tila, south of K. hai, and enumerates the observed animals, thriving groves of breadfruit, the excellence of the taro, and describes the sugarcane as being of an unusual height. Seen from this distance and the mention of breadfruit suggest the uplands of K.pahulu-Kaupo and Ulupalakua were his focus.
In the ensuing years, La Pérouse (1786), Nathaniel Portlock and George Dixon, (also in 1786), sailed along the western coast, but added little to our direct knowledge of Kä`ai he`i. During the second visit of Vancouver in 1799, his expedition became in the Māʻalaea Bay close to the project area. (A marker commemorating this visit is located across from the Maui Lu Hotel). He reported:

The appearance of this side of Mowee was scarcely less forbidding than that of its southern parts, which we had passed the preceding day. The shores, however, were not so steep and rocky, and were mostly composed of a sandy beach: the land did not rise so very abruptly from the sea towards the mountains, nor was its surface so much broken with hills and deep chasms; yet the soil had little appearance of fertility, and no cultivation was to be seen. A few habitations were promiscuously scattered near the waterside, and the inhabitants who came off to us, like those seen the day before, had little to dispose of. [Vancouver 1984:852]

Archibald Menzies, a naturalist accompanying Vancouver stated, “...we had some canoes off from the latter island (Maui), but they brought no refreshments. Indeed, this part of the island appeared to be very barren and thinly inhabited” (Menzies 1920: 302). According to Kahekili, then chief of Maui, the extreme poverty in the area was the result of the continuous wars between Maui and Hawai`i Island causing the land to be neglected and human resources wasted (Vancouver 1984:856).

Cultivation of Irish potatoes in the Kula district began shortly before 1840, after which time Kula became known as “the potato district” because of its great success in their cultivation. During Kula's peak potato producing period of the 19th century, dryland gardens in the uplands extended all the way from Kula to Kaupo. The resulting deforestation adversely affected the amount of rainfall in the district and periods of drought became more common (Kolb et al. 1997). The Honolulu Advertiser describes the changes to Kula and the Kä`ai he`i area:

Before 1850 Kula was supplied with moisture naturally through the existence of a large forest. That forest was cut down when land was cleared in Kula to open farm plots in 1850. This was in answer to the demand for food in California during the gold rush...[and] by ranchers clearing for pasture. A secondary result of clearing forests was destruction of existing fresh water ponds in Kä`ai he`i on the Māʻalaea Bay coast below Kula. When forest was cleared, water was free to rush down the mountains carrying soil from Kula and filling with mud the ponds for which Kihei was once famous [1962:A15].

Ranching was also present in Kula prior to the 1840s (Land Court Awards, State Archives). Large sections of Crown Land were leased for grazing cattle, and, by the 1880s, lower Kula consisted primarily of pastureland for ranching. Archaeological evidence of ranching is present near the subject parcel (see below). In 1888, Edwin H. Baily, Lorrin A. Thurston, W.H. Baily, and Henry P. Baldwin met in Honolulu and purchased Maui ranch lands owned by Charles Alexander for $50,000. The resulting ranch included 33,877 acres with 400 to 500 acres set aside for corn cultivation. Haleakalā Ranch Company historically used the land in and around the project area for ranching activities.

THE MÄ`HELE 1848-1851

During the late Historic Period, extreme modification to traditional land tenure occurred throughout all of the Hawaiian Islands. Kame`eleihiwa (1992: 209), states that the Makawao District was the first area in Hawai`i to experiment with land sales. In January 1846, land was made available for eventual ownership to maka`ainana (commoners). According to Chinen (1961), land was sold for $2.00 per acre; this would mark the beginning of land grants. Experimental lots purchased by Hawaiians ranged from five to ten acres and if applicants met all of the requirements (and were notified of the procedures), they eventually received the title to their land.

The transition from traditional Hawaiian communal land use to private ownership and division was commonly referred to as the Mä`hele (division). The Mä`hele of 1848 set the stage for vast changes to land holdings within the islands as it introduced the foreign (western) concept of land ownership to the islands. Although it remains a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kaukaukouki (Kame`eleihiwa III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kuykendall Vol. 1, 1938:145 footnote-47, 152, 165-166, 170; Dawes 1968:11; Kelly 1963:45; Kame`eleihiwa 1992:169-170, 176).

For natives that had been cultivating and living on the lands, lengthy and costly procedures enabled them to (possibly) claim some of the plots. The first Land Commission was formed in 1845, during which time all individuals holding land were required to submit their claims or forfeit their lands. Once lands were made available and private ownership was instituted the maka`ainana were able to claim the plots on which they had been cultivating and living if they had been made aware of the foreign procedures (Kuliana lands, Land Commission Awards, LCA). These claims could not include any previously cultivated or presently fallow land, `okipapa (on O`ahu), stream fisheries or many other resources necessary for traditional survival (Kelly 1963; Kame`eleihiwa 1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed Land Commission Award (LCA), issued a Royal Patent number (RP), and could then take possession of the property (Chinen 1961: 16).

The land that maka`ainana received was less than one percent of total lands, all of which needed to be surveyed. A total of 88,000 people submitted 14,195 requests for land and of these only 8,421 were awarded. (Kame`eleihiwa 1992: 295). In 1850, it became illegal for foreigners to purchase land and they received large portions for diminutive prices. At this time, many Native Hawaiians lost access to their lands due to mortgage default.
The Māhele statute paved the way for the private ownership of land [awarded claims were called Land Commission Awards]. The portion of the present project area within Ka`ono`ulu Ahupua`a appears to have been awarded to Hewahewa (LCA 3237 Part 2) (Waihona Aina Database, 2009).

**HISTORIC PERIOD**

Ranching was present in Kula prior to the 1840's (Land Court Awards, State Archives). Large sections of Crown Lands were leased for grazing cattle and by the 1880s, lower Kula consisted primarily of pasture land for ranching. In 1885, Edwin H. Bailey, Lorrin A. Thurston, W. H. Bailey, and Henry P. Baldwin met in Honolulu and purchased Maui ranch lands owned by Charles Alexander for $50,000. The resulting ranch included 33,817 acres with 400 to 500 acres set aside for corn cultivation. The land of Kā`anapali, particularly the lowland/coastal portion, was historically used for ranching activities by Haleakalā Ranch Company.

Twentieth century activities in the Kula District included a significant WWII military presence along the beach of Mā`alaea Bay, a Combat Demolition training Station at Kā`anapali, two naval air stations at Pu`unēnē and Kāhului, and Army camps and hospitals in the Kula and Makawao area. Large acreage was used for livestock breeding and comprised the majority of the land use (Mark 1975). Rapid commercial resort development and private residences, especially in the Kā`anapali area, has occurred in the Kula coastal section since the 1970s.

Within the present project area, commercial ranching encompasses the entire project area. Several bulldozed roads exist within the makai portion of the parcel and a fence running east/west divides Haleakalā Ranch lands from Kā`ono`ulu Ranch lands.

**PREVIOUS ARCHAEOLOGICAL RESEARCH**

A substantial number of archaeological investigations have been conducted over the past few years near the present project area in the Kā`anapali area of Maui. The following presents a synthesis of studies within the transitional and "barren zone" of Kula District showing that despite a large number of studies, relatively few significant sites have been documented (Figure 3).

Work by Cordy (1977) in the Kā`anapali area resulted in a pre-Contact settlement model that divides the landscape into three environmental zones: coastal, transitional/barren, and inland. The current project area falls into the transitional/barren zone, which refers to "the slopes back of the coast with less than 30 inches of rainfall" (Cordy 1977:4). This barren zone is viewed as relatively marginal for permanent habitation because of its dryness, rocky soils, and dearth of natural resources. In general, archaeological surveys in the barren zone around Kā`anapali have confirmed these earlier suppositions about land use as there was very little evidence of pre-Contact Native Hawaiian settlement.

Cox (1976) surveyed near the project area along the corridor of the Pi`ilani Highway and failed to notice a single site or significant feature. Kirch (1985) examined similar geographic settings to the south (towards Makena) and also failed to find any evidence of traditional Native Hawaiian activities in the barren zone. In fact, as Kennedy (1986) observes, this settlement pattern of avoiding the barren zone probably continued from ancient times through the early historic period as LCAs were issued for land situated in the further upland reaches.

Just makai of the project area, within the two phases of the Pi`ilani Residential Community, four archaeological studies have been conducted. Cordy (1977), EISC (1982) and Donham (1989 and 1990) documented a total of 23 sites including wall segments, small structures, carins, historic structures, enclosures and agricultural features. The surface features were interpreted as traditional Hawaiian (with the exception of the concrete structure remnants) related to temporary habitation and agricultural pursuits. Based on similar findings in leeward East Maui, it was suggested that the "features within the survey area post date c. AD 1500" (Donham, 1990:15).
Kennedy (1986) conducted an archaeological reconnaissance of the entire 150.032 acres of the then-proposed Maui Research and Technology Park (TMK:2-2-24), situated 3 km south of the project area. Kennedy's study, which did not include subsurface testing (excavation), concluded that no archaeological sites or features were located within the proposed site.

Hammatt and Shideler (1989) conducted work across Pi’ilani Highway west of the proposed Keai Regional Park area between the highway and the coast. This project led to the identification of a historic ranch site, possible burials, a C-shaped structure, and a midden scatter.

Hammatt and Shideler (1992) also conducted an inventory survey in the makai portion of Kama‘e‘ale Ahupua‘a and documented a disturbed traditional Hawaiian site. As noted by Hammatt and Shideler (1992:10), “what is particularly striking in many archaeological reports on Keai is the general paucity of sites within the transitional or barren zone.

Theresa Donham conducted an archaeological reconnaissance of the Haleakala Greens Subdivision area (Hibbard 1994). She identified a low, circular rock mound, a historical site with multiple features on the crest of a prominent ridge, a linear rock mound or wall remnant, a rock-filled terrace outlined with a low, rock wall, and other modifications along a rock outcrop. Shell midden was observed on the surface inside an enclosure.

Chaffee et al. (1997) conducted an Archaeological Inventory Survey, including subsurface testing (excavation), of a portion of the Maui Research and Technology Park, within the area investigated by Kennedy (1986). Three sites consisting of ten archaeological features were identified. The features included remnant terraces, stone alignments, a mound, and a modified outcrop. All of the sites were interpreted as agricultural in function with the exception of a rock mound that may have functioned as a religious feature.

Mayberry and Haun (1998) conducted a survey south of the present project area. This work led to the identification of 33 sites consisting of at least 69 features, these interpreted as agricultural, habitation, and military structures.

McGerty et al. (2000) surveyed fifteen selected areas within the Elleair Maui Golf Club, and identified five archaeological sites (State Site Nos. 50-30-15-043, -5044, -5045, -5046, and -5047) containing a total of seven surface features. The surface features were interpreted as agricultural terraces, perhaps dating from the pre-Contact period, and C-shaped rock formations.
(fighting positions) built during World War IItraining. Ten excavation units placed within these features yielded no cultural material.

McDermott (2001) conducted an archaeological inventory survey for a retention basin adjacent to the project area on the south side of Waipuilani Gulch. In total, four historic properties were located within the project area and three additional located just outside the parcel. The sites consisted of stone carns, modified outcrop enclosures, terraces, stone mounds and alignments. The sites were thought to be traditional Hawaiian temporary habitations or ancillary features associated with the habitations. McDermott states that site densities are typically quite low within the "barren zone" with multiple studies having been conducted on large parcels (Kennedy 1986, Watanabe 1987, Hammatt and Shillider 2000) that did not lead to the identification any pre-Contact sites. However, military sites related to World War II training exercises have been previously documented in the area (McGerty et al. 2000), these sites often consisting of low, short alignments or walls. The few radiocarbon dates acquired from the area indicate definitive use of the landscape in later prehistory c. A.D. 1500 to 1600+.

Tome and Dega (2002) conducted an Inventory Survey on a 3.142-acre parcel located approximately 400 m inland from the Kamole coastline where one traditional archaeological site, four surface midden scatters, and a basalt alignment were identified. Interpretations of the survey reflected that the property had been utilized as a single-use site due to absence of subsurface cultural material from 14 stratigraphic trenches excavated on the parcel. Like this project, most of the ones mentioned above occurred just to the west of coastal sand deposits in what is commonly known as the "barren Zone". However, while some archaeological surveys were productive, there were those along the coast that were not. Namely, Calis’ (2002) Inventory Survey directly in sandy sediment along Kamole did not lead to the documentation of occupation or burials.

Tome and Dega (2002) also conducted an Archaeological Inventory Survey along the northeastern flank of the Elleair Maui Golf Club property. They identified a historical ranching corral and a short agricultural wall, collectively designated State Site No. 50-50-10-5233. No other structures or subsurface deposits were identified. No traditional Native Hawaiian sites or features were identified. Another Survey along the southern flank of the Elleair Maui Golf Course (Dega 2003) failed to yield any archaeological or historical site or features.

A more recent Inventory Survey (Dega and Tome 2003) conducted in Kula Town also failed to yield significant deposits or burials in sandy substrate. Recent exceptions to this rule have been seen in Waiakoa Ahupua’a (Hamada-Takatani Subdivision at TMK: 3-9-006:40) where a fairly large number of burials and possible burials have been identified (Rotunno-Haauka n.d.).

Monahan (2003) conducted an Archaeological Inventory Survey, including subsurface testing (excavation), of a 28.737-acre portion of the Maui Research and Technology Park, also within the area investigated by Kennedy (1986), situated immediately upslope (manuka) of Lot No. 3-B. Other than one surface feature—a small arrangement of stacked boulders interpreted as a "push pile," this survey yielded no evidence of historic or prehistoric significance.

Monahan (2004) also surveyed a 56 acre parcel located near Elleair Golf Course. Four surface features, consisting of stacked basalt stones, were identified and recorded as individual sites. Three of these sites were interpreted as traditional Hawaiian temporary habitation and work areas. Unfortunately two of the sites failed to yield datable materials and the other returned a modern radiocarbon date (0 +/- 50 BP).

Shefcheck, et al. (2008) conducted an Archaeological Inventory Survey of 516 acres of land in Kaulani Ranch which included a portion of the present project area. Forty new archaeological sites were identified and recorded during this work. Of the forty sites recorded during this work, eight are associated with pre-Contact activities. These pre-Contact sites consisted of temporary rock shelters with petroglyph components, and cairns, platforms, a mound and a wall. Historic sites found during this work pertained to agriculture and military training activities.

In summary, previous archaeological research has documented a fairly limited degree of human settlement in the Kula area. Within the "barren zone", archaeological reconnaissance and inventory surveys adjacent to, and nearby the subject parcel have yielded an modest amount of evidence of both historical and traditional human activities. Based on the over thirty years of archaeological study in the barren zone of the former Kula District, it is clear that the area was not a desirable location for either a permanent population or for large scale agricultural endeavors that were undertaken in the more upland locales. Whether this pattern was the result of soil development, low precipitation, or lack of population pressure that would have forced individuals to seek new areas to settle, it is likely that previous archaeological studies would have identified at least remnants of any permanent habitation or agricultural complexes that can be found in the more inland reaches of Kula.
The settlement pattern for the district of Kula (Makawao) is varied, as are the models describing such settlement patterns. From environmental deterministic models to the “exclusive upland permanent settlement model”, the “exclusive coastal permanent settlement model”, the bi-modal model—permanent habitation in the uplands and on the coast”, and the transhumance model” (Hayden in Kolb et al. 1997: 145-152), the history of Kula District has been somewhat dichotomized into a classic upland-lowland motif. All four models mentioned above are indeed directly relevant to Kula District. As is noted by Hayden (1997:157), and must be considered in any settlement pattern modeling of the islands:

“One problem with the coastal sample set is that a large amount of construction had occurred prior to the introduction or enforcement of the preservation laws, particularly in the Kula area. This development proceeded without archaeological work, and as a result little information is available, and many of the coastal Kula sites have been destroyed. Thus, we know little yet about the coastal zone of Kula.”

The prevailing “model” at this time for Kula settlement pattern analysis has been formed by Kolb et al. (1997:391) and consists of a combination of all four models. The models take into account the entire district of Kula. A more succinct model pertaining solely to coastal and near coastal reaches of Kula District has been proposed by Cordy (1977, 2000). This model provides more in-depth discussion of zones characterizing the present project area.

The settlement pattern of the Kula District would included both permanent and temporary sites near the coast, a minimal amount of ceremonial sites (heiau), dryland field and field hale, and burials, although the latter have not yet been reported in large concentrations. Proceeding upland to the current project area, the “barren zone” would have trails and associated shelters leading to the uplands. Both the barren zone and coastal areas are suggested to have a low density of sites (see Cordy 2000:2). The barren zone and far above would contain the bulk of prehistoric through historic-period sites, and temporary habitation areas and trails, among other classes. By way of comparison, while the upland field zone was occupied contemporaneously with coastal reaches of Kula, the upland zone contains a higher density of sites as well as greater diversity of site types. Again, evidence for the Kula coastal zone may have been obscured by recent residential and commercial developments.

In specific terms of the barren zone wherein the present research was conducted, this intermediary zone between direct coastline and backbeach areas to upland forests appears to have been almost exclusively transitory, or at best, intermittently occupied during traditional times. Intermittent habitation loci, as defined by surface midden scatters or small architectural features (i.e., C-shapes, alignments) dominate documented site types in the area through time. Divided within an inland-coastal dichotomy, the barren zone was a necessary area to access more productive upland regions and along the coastline. Apparently, agricultural endeavors were practically non-existent in the barren zone until historic times and tool procurement materials (basalt, wood) were selected from other locales. Based on archaeological and historic research, the barren zone was not subject to permanent or expansive population (until recently with ranching). This intimates that population pressure along the coast was minimal or non-existent along the Kula coastline through time.

As such, architectural structures associated with permanent habitation sites and/or ceremonial sites were not expected within the project area prior to the inventory survey. The prevailing model that temporary habitation—temporary use sites and later ranching-period sites predominate in the barren zone has been authenticated further by the present research.
METHODS

The Field Inspection of the parcel was conducted by SCS archaeologist David Perinski, B.A., and Brian Armstrong from August 16-September 1, 2009, under the direction of Michael Dega, Ph.D (Principal Investigator). The inventory survey covered a 100% pedestrian survey utilizing 5-30 m transects oriented roughly north/south (up/slope/down slope) depending on ground cover and visual range. The project area boundaries were clearly delineated by Pi'ilani Highway to the west, Waipuilani Gulch to the south, Kalanihakoi Gulch to the north and survey stakes to the east.

When sites were encountered, the location was flagged, noted on a project area map and later recorded. The sites were plotted on a map using site topography and visual indicators and were documented with written descriptions, photographs and plan view maps. Site boundaries were determined by their horizontal and vertical extent. In addition, 2 manually excavated units on 2 mounds were excavated for a better understanding of the function of the sites and chronological information. Site age and function were determined based on construction technique, spatial relationship to other sites and topography, presence/absence of historic indicators (i.e. introduced materials, construction techniques), and previous archaeological research.

Archival research entailed investigating the historic and archaeological background of the general project area. This examination included a documentary search of previous archaeological research conducted in this region of Maui as well as a review of archival literature relating to Land Commission Awards and local mythology. The review of historical documents was accomplished in order to understand the impact of post-Contact events on the cultural and archaeological landscape of the region. All project area records (i.e. notes, profiles, photographs, etc.) are currently being curated in the SCS Maui office.

D. Consultation with Individuals Knowledgeable About the Project Area

Informal interviews were conducted with Haleakala Ranch worker, Haleakala Ranch Vice President of Land and Resources J. Scott Meidell (in Patty Conte, SHPD Archaeologist), James Pa`anui (MLIBC Representative), Hinano Rodrigues (SHPD Cultural Historian) and Patty Conte (SHPD Maui Archaeologist) about the project area.

RESULTS OF FIELDWORK

One site was identified during the archaeological inventory survey of 77 acres in Ka`ono`ulu, Kaeo 1 & 2, and Waiahu`i Ahupua`a, Makawao District, Island of Maui, Hawaii (TMK (2) 2-2-02:15 (por.) and 54 (por.)). A 100% pedestrian survey and limited subsurface testing re-documented one site, SIHP No.: 50-50-30-6393, which consists of 8 features (7 mounds, 1 alignment) (Figure 4). Three manually excavated test units were excavated to aid in the understanding of the functional interpretation of the features.

SIHP No.: 50-50-10-6393
Site Type: Mound Complex
Function: Agriculture/Ranching
Feature (#): 8
Age: Historic

Description: Site -6393 (Figure 5) is a complex of 8 features located in the northeastern portion of the project area. The sites is located on Keonoulu Ranch lands on a relatively level portion of the project area, approximately 300 m from Pi'ilani Highway at an elevation of 20 m A.M.S.L. The eight features consist of a series of low mounds and one alignment constructed of basalt cobbles and boulders. A portion of this site was previously documented by SCS (Shefcheck et al. 2008) and was described as consisting of “three features, all of which are rock mounds that were likely constructed during bulldozer activities on the lot, due to the angular, broken up condition of stones in the features and the presence of a bulldozed area (possibly an old road) just north of Feature 3” (Shefcheck et al. 2008:23). The three features described by Shefcheck are believed to correspond to features A-C below.

Feature A is located in a dry, grassy area amid a landscape of weathered cobbles, boulders and exposed bedrock. The feature consists of a roughly constructed mound measuring 1.9 m in diameter with a maximum height of 60 cm (Figure 6 and 7). The feature is constructed of piled basalt cobbles and is not faced. The cobbles and boulders displayed relatively fresh breaks, as compared to the weathered cortex of the basalt, suggesting that the mounds are likely historic constructions. No additional cultural materials were observed on the surface. The feature is suggested to have functioned for ranching purposes.
Figure 4: Portion of USGS Map Showing Location of SIHP No. 50-50-10-6393

Figure 5: Plan View of SIHP No. 6393
Figure 6: Plan View of SIHP No. -6393 Feature A

Figure 7: View West of SIHP No. -6393 Feature A
A 1 m by 1 m test unit was excavated through Feature A to aid in determining the age and function of the mound (see Figure 8). The unit was placed in the center of the mound with all cobbles and boulders removed down to the ground surface. After the stones were removed, manual excavation continued into the underlying sediments. Stratum I consisted of dark reddish brown (5 YR ¾) dry, silt that had fine, weak, granular structure. Stratum II consisted of dark reddish brown (5 YR ¾) dry, hard silt surrounding decomposing basalt. Once sterile sediments were encountered excavation was halted. No cultural materials or midden was encountered.

Feature B consists of a low mound, roughly square in shape located 25 m north of Feature A (Figures 9 and 10). The mound measures 105 cm by 137 cm with a maximum height of 56 cm. The boulder mound is roughly stacked with broken basalt, of which the breaks look relatively fresh compared to the unbroken weathered cortex of the other boulders. No cultural materials or midden was observed on or around the mound. It is suggested that Feature B is a clearing mound.

Feature C consists of a rough alignment of basalt boulders located 11.5 m east of Feature B (Figures 11 and 12). The feature measures 4.82 m north/south by 3.60 m east/west with a maximum height of 47 cm. The north end of the alignment is marked by a small pile of basalt boulders piled 2 courses high. A small stack of stones define the eastern side of the feature. No cultural materials or midden was observed on or around the feature. The function of this alignment is indeterminate.

Feature D consists of a cobble and boulder mound located 33.8 m south of Feature C (Figures 13 and 14). The mound measures 2.1 m east/west by 1.22 m north/south with a maximum height of 60 cm. The mound is very roughly stacked with broken boulders, similar to Features A and B. No cultural materials or midden was observed and it is suggested that Feature D is a clearing mound related to ranching activities.
Figure 10: View North of SIHP No. -6393 Feature B

Figure 9: Plan View of SIHP No. -6393 Feature B
Figure 11: Plan View of SIHP No. 6393 Feature C

Figure 12: View West of SIHP No. 6393 Feature C
Figure 13: Plan View of SIHP No. -6393 Feature D

Figure 14: View North of SIHP No. -6393 Feature D
Feature E consists of a small basalt mound located 10.6 m south of Feature D and 1.5 m north of the Keonoulu Ranch and Haleakala Ranch boundary fence (Figures 15 and 16). The mound measures 120 cm north/south by 120 cm east/west and is constructed of broken basalt cobbles and boulders. No cultural materials or midden was observed on or around the feature. It is suggested that Feature E is a clearing mound related to ranching activities.

Feature F consists of a small oval basalt cobbles and boulder mound (Figures 17 and 18). The feature measures 1.6 m by 1.1 m with a maximum height of 55 cm. The mound is constructed of piled, broken basalt cobbles and boulders. No cultural materials or midden was observed and it is suggested that the feature likely functioned as a clearing mound for ranching activities.

A 1 m by 1 m test unit was excavated through Feature F to aid in determining the age and function of the mound (Figure 19). The mound was taken down to the ground surface and construction techniques were noted. In general, the mound was constructed without formal stacking, and appeared to have been built by piling the stones. Once the ground surface was exposed, a 50 cm by 50 cm test unit was manually excavated. Like Feature A, Stratum I consisted of dark reddish brown (5 YR 3/2) dry, silt that had fine, weak, granular structure to a depth of 30 cm below surface. Stratum II consisted of dark reddish brown (5 YR 3/2) dry, hard silt surrounding decomposing basalt. Once sterile sediments were encountered excavation was halted. No cultural materials or midden was encountered. Based on the informal construction technique, unweathered breaks on the cobbles and boulders, lack of cultural material and location within an active ranch, it is suggested that the feature functioned as a clearing mound or other ancillary ranching feature.

Feature G consists of a roughly triangular mound situated 30 m east-southeast of Feature F (Figures 17 and 20). The mound measures 2.5 m north/south by 1.55 m east/west with a maximum height of 51 cm. The mound is constructed of broken, angular basalt boulders. No cultural materials or midden scatters were observed and it is suggested that the feature functioned as an historic ranch related clearing mound.

Feature H consists of a small 3.2 m long by 1 m wide crescent shaped mound located approximately 90 m north of Feature A (Figures 21 and 22). The mound is constructed of weathered basalt cobbles and boulders stacked a maximum of 2 courses (33 cm). Feature H differs from the other mounds in that no shattered basalt is incorporated into the feature. No cultural material or midden scatters were observed on or around the mound.
Figure 16: View Northeast of SIHP No. -6393 Feature E

Figure 17: Plan View of SIHP No. -6393 Feature F and G
Figure 18: View West of SIHP No. -6393 Feature F

Figure 19: Profile of Stratigraphic Sequence of -6393 Feature F
Figure 20: View North of SIHP No. -6393 Feature G

Figure 21: Plan View of SIHP No. -6393 Feature H
One additional modern platform was encountered during the inventory survey. The feature consists of a rectangular shaped basalt platform located in the southwestern portion of the project area, on a flat portion of a gently sloping landscape, approximately 60 m east of Pi’ilani Highway. The feature measures 2.7 m north/south by 2.0 m east/west with a maximum height of 104 cm (Figures 23 and 24). The platform is constructed of a maximum of 7 courses of stacked, angular blue rock basalt cobbles and boulders that show evidence of relatively fresh breaks. The surface of the platform is constructed of shattered blue rock as well and is relatively flat with a slightly concave surface.

Based on conversations with Mr. Scott Meidell (Vice President of Hakeaolola Ranch) and a veteran ranch worker, it is believed that the platform was constructed for the once proposed K hel Charter School sign that was not completed. Based on its age and function, this feature was not assigned a site number.
SUMMARY

An archaeological inventory survey was conducted in advance of proposed construction of a new Kaeo'ulu High School in Ka'ono'ulu, Kaeo 1 and 2 and Waipio Aupua'a, Makawao District, Maui, Hawaii [TMK: (2) 2-2-002:035 (por.) and 054 (por.)]. An archaeological inventory survey was conducted to document and evaluate cultural resources on 77 acres of Haleakala and Ka'ono'ulu Ranch Lands. In all, one site (SIHP No. 50-50-9-6393) was documented within the study parcel consisting of historic-era rock piles and one alignment.

Previous archaeological investigations and historic documentation in the vicinity of the project area suggests that the area was marginally utilized in pre-contact times and has been used in the historic era primarily for ranching activities and WWII military training exercises. The site re-identified during this survey is associated with the historic period activities.

SIGNIFICANCE ASSESSMENTS

One site composed of eight features was documented in the project area during Archaeological Inventory Survey. The site (see below) has been evaluated for significance according to the criteria established for the State and National Register of Historic Places. The five criteria are listed below:

Criterion A: Site is associated with events that have made a significant contribution to the broad patterns of our history;
Criterion B: Site is associated with the lives of persons significant to our past;
Criterion C: Site is an excellent site type; embodies distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual construction;
Criterion D: Site has yielded or has the potential to yield information important in prehistory or history;
Criterion E: Site has cultural significance; probable religious structures or burials present (State of Hawaii criterion only).

State Site 50-50-10-6393 is (and was previously) designated under Criterion D as a site that has yielded or has the potential to yield information important in prehistory or history. The eight features have been thoroughly documented with photographs, scale plan view maps and...
written descriptions and three of the features were manually tested to gather additional information.

RECOMMENDATIONS

STATE SITE 50-50-10-6393

No further work is recommended for SHP No. 50-50-10-6393. This recommendation follows a previously accepted recommendation made by Shercheck (2008). It is believed that the features have been adequately documented and additional research focused on the site would not contribute to the interpretation of the area, region or Hawaiian prehistory and/or history. It is therefore recommended that no further archaeological work is warranted within the project area.

ARCHAEOLOGICAL MONITORING

Archaeological Monitoring is not recommended during the proposed construction for the new Kīhei High School. However, should the inadvertent discovery of significant cultural materials and/or burials occur during construction, all work in the immediate area of the find must cease and the SHPD be notified to discuss mitigation.

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