

## 7.11 CULTURAL RESOURCES

### 7.11.1 Affected Environment

#### ***Region of Influence***

The ROI for this project area is most of KTA because much of it would be affected by the proposed projects, including road construction, demolition and reuse of older buildings, construction of new buildings for the CACTF and vehicle wash, and use of the ranges for military training. The ROI for projects discussed in this section also includes KLOA and Drum Road.

#### ***Native Hawaiian History and Tradition***

The Kahuku area is on the northernmost point of the Ko‘olauloa District. One of the legends most closely associated with the area is the belief that “Kahuku, ‘āina lewa” (the unstable land) was once a separate island. The story takes several forms. One involves the demigod Maui, who is said to have hooked the two land masses together (this time more successfully than his attempt to reel in Kaua‘i). A feature story in a 1922 newspaper referred to “the first Kahuku” as “one of Maui’s land” and reported that relics or images of Maui remained in a secret cave in the hills.

Other versions state that Kahuku floated in from the sea and was inhabited by Menehune (mythical beings said to be of small stature). The Menehune had come to O‘ahu to get freshwater, until one day their island was captured using whalebone hooks strung on olonā fiber. Kahuku and O‘ahu, then two islands, were ruled by siblings who eventually linked hands and pulled the land together. The story of Lā‘iekawai and her twin sister, Lā‘ielohelohe, forms another important part of Kahuku’s legendary past. The twins’ mother, Mālaekahana, was married to Kahauokapaka, king of both the Ko‘olau districts. Legend has it that his desire for a son was so intense that he had sworn to kill any girl children born to him, and, indeed, he had already killed four daughters before Mālaekahana became pregnant with the twins. To save her babies, Mālaekahana sent her husband off for fish and gave birth in his absence, sending the newborns into hiding. Lā‘iekawai and her sister went to their grandmother, Waka, who kept them safe in a secret cave that could be entered only by diving through a pool called Waipuka. The old women guardians of legendary princess Lā‘iekawai were also reported to be the ones who hooked the floating island and tied it to O‘ahu.

The Kahuku peninsula, and the Ko‘olauloa district in general, are the setting for other legends. One legend describes the *uluu* fish that followed the gods Kāne and Kanaloa upriver to Kaipapa‘u, while another relates the story of the tapa anvil that disappeared from Kahuku and traveled along an underground waterway to resurface in Waipahu.

KTA and KLOA lie in the uplands of the eastern portion of Waialua District and the western portion of Ko‘olauloa District. Numerous ahupua‘a run inland from the North Shore coastline into the upland areas of KTA and KLOA, each generally associated with one major stream drainage. Within these stream drainages, scattered among the remains of irrigated taro terraces, sweet potato cultivation features, and other agricultural features are several stone platforms that may have been used for rituals.

While the general Kahuku area plays an important role in Hawaiian legends, most places specifically mentioned are off-shore islands and coastal areas. Research to date has not identified places close to SBCT project areas that are associated with traditional legends. Anderson researched all the Land Commission Awards (LCAs) and grants awarded in the four ahupua'a that extend into KTA (Anderson 1998). Most of these lands are along the coastal plain and none appear to lie within KTA. Three LCAs are within KLOA, and three others are recorded on the KLOA boundary (Dega and McGerty 1998, 16). The LCAs generally consist of watercourses for irrigation and land to cultivate orange trees, sweet potatoes, and kalo and to trap fish (Dega and McGerty 1998, 16). Sites of importance to Native Hawaiians (ATIs) have been identified at KTA, of which three are heiau. Two heiau, Pahipahi'ālua Heiau and Hanakaoe Platform, consist primarily of rock platforms with a few associated features. Hanakaoe Platform is listed on the NRHP. The third, Pū'ula Heiau, was documented by McAllister (1933) but listed as destroyed. A recent survey has identified a cluster of features (Site 4930) near where the Pū'ula Heiau was reported to have stood that may be remnants of the original site (Williams and Patolo 1998). The presence of the sacred Waikane Stone, associated with Native Hawaiian legends, was also documented by McAllister (1933) although it has not been identified in any archaeological surveys. It is possible that the stone was destroyed or relocated or that it is outside the boundaries of KTA. A terrace that may have been used for religious ceremonies was identified as part of a house complex found by Davis (1981), but it may have been destroyed by the construction of a windfarm turbine. There are known burials at KTA as well (Drolet 2000).

Within KLOA, previous surveys have been conducted directly within the training area (Dega and McGerty 1998). Identified sites represent wetland and dryland agriculture, temporary and permanent habitation, two burial loci, trails, and possible ceremonial structures (Dega and McGerty 1998). One habitation site and one set of agricultural features in KLOA have structures associated with them that may have been used in rituals. The Ko'olau Summit Trail that follows the Ko'olau Ridge and the Kawailoa Trail that connects the Summit Trail with the lower valleys near Pūpūkea may be historic (Dega and McGerty 1998).

Ongoing Army consultation efforts with Native Hawaiians, Army cultural resources staff field checks, and archival research have not resulted in identifying any additional ATIs or sacred sites on these installations.

### ***Historic Overview***

KTA was occupied at least seasonally from the 14<sup>th</sup> century on and was used for agriculture from the 15<sup>th</sup> century on. Evidence of occupation prior to European contact includes rock shelters, burial sites, irrigation complexes, and habitation sites (Tomonari-Tuggle 2002).

The earliest settlements were established along the coastal plain, with a heavy concentration around Waialua Bay, and these areas were to remain the most populous throughout prehistory. Regular use of the upper stream valleys seems to have begun only in the 14<sup>th</sup> century and to have involved low intensity exploitation of forest products and native birds, with temporary use of rock shelters.

Late in the 17<sup>th</sup> century a shift occurred to more intensive uses of the upper valley, with permanent habitations established, long-term use of rock shelters, raising of pigs and dogs, and probably cultivation of upland crops. At this same time irrigated taro fields were constructed in the alluvial flats along some of the upland streams, such as Kawai Iki, and Kawai Nui (Dega and Kirch 2002). The archaeological evidence from KLOA suggests that this area was abandoned after the time of contact with the West, perhaps as a result of population decrease following the introduction of new diseases.

Outside of KLOA, in the Anahulu Valley downstream of KLOA, the area was repopulated early in the 19<sup>th</sup> century. Irrigated terrace fields were developed and expanded under pressure first from Kamehameha I to grow food to support his military expeditions and later from the high chiefs to produce surplus food to support their schemes to increase their prestige. However, there is no evidence of the use of the fields in KLOA during this period. By the time of the Great Mahele (discussed in Section 3.11), with the population continuing to decline, the upland areas were largely abandoned, and almost all of the kuleana claims (claims by native tenants as opposed to rulers) were for lands along the coastal plain (Kirch and Sahlins 1992).

Kahuku appears to have been a lush and prosperous region in the precontact era, but a series of observations made by foreigners illustrates rapid changes on the peninsula after European contact. An officer on Cook's last voyage described O'ahu's northern coast this way: "Nothing can exceed the verdure of the hills, the variety of wood and lawn, and the rich cultivated valleys which the whole face of the country displayed." Captain Charles Clerke, on HMS Resolution in 1779, called Kahuku "exceeding fine and fertile" and observed a large village with, he thought, a temple. But by 1797, Captain George Vancouver remarked that "the country did not appear in so flourishing a state, nor to be so numerously inhabited." By the mid-1830s a visitor observed that "much taro land now lies waste because the diminished population ... does not require [it]." A century later, archaeologist Gilbert McAllister called the area "rather desolate" and found it hard to imagine a thriving agricultural community there.

John Papa 'Ii described a delightful visit around 1810 to the ahupua'a of Waiale'e, on the western side of Kahuku. "There was a pond there," Ii recalled, "surrounded by taro patches, and there were good fishing places inside the reef . . . . Chiefs and commoners crowded together at Pūehuehu to go diving, or board surfing at 'Ulakua." (Ii 1983, 24, 63). A generation later, however, the missionary John Emerson, who had watched with indignation as livestock from upland ranchers wreaked havoc on coastal communities in his home district of Waialua, described an even grimmer process taking place in Kahuku where the owner of one huge ranch took over the district.

Ranching in Ko'olauloa began in the 1850s with the formation of Kahuku and Mālaekahana Ranches, with ranchers raising both cattle and sheep. Eventually Herman Widemann bought both ranches and combined them, and in 1876 James Campbell purchased the combined ranch, which gave him ownership of 15 ahupua'a, including all the lands within KTA. His purchase included 3,000 head of cattle, 90 horses, and 1,700 sheep.

In 1890 Campbell, along with James Castle and Benjamin Dillingham formed the Kahuku Plantation Company. Sugarcane began to replace pasture in Kahuku, a sugar mill was established at Kahuku, and Dillingham's OR&L Railroad reached the mill in 1899, allowing easy transport of the milled sugar to Honolulu. Sugarcane was supplemented by small-scale pineapple cultivation by individual growers, who leased small parcels of land from Kahuku Plantation beginning in 1916. The leases were later acquired by the California Packing Company. Many of these former pineapple fields, along with former plantation camp sites, are found on KTA lands (Drolet 2000).

KTA was operated as a sugar plantation until the 1930s, when it was used to establish an airfield and to host a radar installation on the coast outside of KTA. After the war, additional lands were purchased to support the establishment of the training area proper, and in 1959 a Nike Hercules missile battery was constructed.

KLOA was not used as much as KTA in historic times, primarily due to its steep and heavily vegetated topography. KLOA military history is linked to the history of SBMR, and in 1930, KLOA was established as a military training area. During the 1930s and 1940s, a railroad site was constructed, as were gun mounts for 240mm guns, cement towers and numerous fox holes, helicopter pads, razor wire fences, and other training aids were constructed for use in jungle warfare training.

### ***Previous Consultations and Reports***

#### *Traditional Cultural Properties Surveys*

Anderson (1998) collected and reviewed archival information concerning traditional cultural places in and around KTA. USARHAW has begun a TCP and ATI survey of KTA and KLOA, as they are defined in Section 3.11.2, but it is not yet available for review.

#### *Archaeological Surveys*

##### *Kahuku Training Area*

Archaeological investigations at KTA include those of Anderson and Williams (1996, 1998), Davis (1981), Drolet (2000), McAllister (1933), Rosendahl (1977), Williams and Patolo (1998), and GANDA (2003). SCS (2003) completed a Phase I survey of all areas that have been determined as "Go" areas within Kahuku (SCS 2003kta). The results of these surveys are discussed below.

McAllister (1933) reported two sites, although one had been destroyed and the other could not be located. Rosendahl (1977) conducted a reconnaissance of about 10 percent of KTA, including some aerial survey, and compiled information from earlier sources. He identified nine sites: three were listed as having been destroyed, one previously identified site could not be located, and five new sites were found during the survey. Davis (1981) added three sites and one historic plantation period site, and more recent survey work has revealed additional sites in the area.

Williams and Patolo surveyed 10 areas totaling 341 acres (138 hectares), roughly eight percent of KTA. They employed a fairly intensive survey strategy systematically traversing survey areas that included a range of topographic variables: sections of the cliff and bluff edge north (seaward) of the KTA, portions of large interior valleys, small gulches, and steep, rugged interior areas and found 14 new archaeological sites (Williams and Patolo 1998). Farrell and Cleghorn surveyed KTA for historic buildings in 1995 (Farrell and Cleghorn 1995) and conducted investigations at the Punamano Communication Station recording the presence of one site consisting of primarily post-World War II structures, features, and artifacts from the Communication Station. In August 2002, field work and historical research was undertaken for the former Nike missile site at KTA (IARII 2003).

Drolet (2000) intensively surveyed the northwestern area (Area A1) at the mouth and lower portions of Kaunala and Pahipahi'ālua gulches and found an additional 13 sites, including pre- and post-European Contact Hawaiian sites and military sites.

GANDA (2003c) recorded Sites 50-80-02-6535, -6536, -6537, and -4884 at the CATCF sites in Kahuku. Site 50-80-02-4884 consists of an isolated earth oven (imu). Site 50-80-02-6535 is a historic building foundation, and 50-80-02-6537 is a poured concrete building pad associated possibly with a pineapple camp. Site 50-80-02-6535 is a linear, single course rock alignment that forms a roughly defined square enclosure.

In 2003 SCS completed the Phase I pedestrian survey of all areas at KTA that have been determined as "Go" areas (SCS 2003). SCS concentrated its survey in seven general zones, identified as A1, A2, B1, B2, C1, C2, and D1, and identified fifty-nine sites. Forty sites consisted of a single feature, while nineteen sites were composed of two or more features. Twenty-two sites were military-related structures, twenty-one were historic period sites, possibly related to plantation work, and sixteen sites were either prehistoric or historic. Seventy-three percent of the sites were historic (see Table 7-24).

#### *Drum Road*

Pacific Legacy has undertaken a survey of the proposed alignment for the construction and upgrade of Drum Road (Pacific Legacy 2002). It identified 23 sites within 15 meters of Drum Road, between KTA and HMR.

#### *Kawailoa Training Area*

At KLOA, the Bishop Museum conducted a reconnaissance survey of a few of the valleys of the tributary streams that flow into the Anahulu River and identified five sites (Rosendahl 1977). During the intensive investigations of the Anahulu River valley, the Bishop Museum identified seven sites within the boundaries of KLOA, as well as 33 additional sites in the Anahulu Valley, downstream from KLOA, with several near the KLOA boundary (Kirch and Sahlins 1992). Dega and McGerty conducted field work at KLOA, focusing on stream valleys and gulches, including several of the gulches traversed by the proposed road construction. They recorded 48 sites, 44 of them within the boundaries of KLOA (Dega and McGerty 1998, 2002).

### ***Known Prehistoric and Historic Resources***

#### ***Kahuku Training Area***

Table 7-23 provides an overview of prehistoric and historic resources identified with the ROI and their NRHP status if known. One hundred archaeological sites have been identified at KTA, including prehistoric, historic, and military era sites. These include a heiau listed on the NRHP and a hearth, dwelling, and agricultural sites. Historic sites include a house, irrigation features, and bunkers. The ‘Ōpana Mobile Radar Station is a National Historic Landmark listed in the NRHP. Only the heiau and the radar station have been evaluated for eligibility. Table 7-24 lists currently identified archaeological sites at KTA.

**Table 7-23**  
**Summary of Known Cultural Resources at KTA**

	<b>Total Archaeological Sites</b>	<b>Sites Listed, Eligible for Listing, or Needing DE</b>	<b>Area Surveyed for Archaeological Sites</b>	<b>Cold War Era Buildings</b>	<b>Buildings Listed, Eligible for Listing, or Needing DE</b>
KTA	<u>100</u>	36 (34 DE)	33%	22	22
Drum Road	23	23	27 miles <sup>1</sup> (43.5 kilometers)	0	0

Sources: IARII 2003; Pacific Legacy 2002; GANDA 2003c; SCS 2003.

<sup>1</sup>Fifteen meters on each side of 27 miles (43.5 kilometers) of road  
DE – Determination of Eligibility.

Cold War-era buildings or structures at KTA are listed in Table 7-25. These sites are composed of the former Nike missile security facility and launch sites. The missile site at KTA was one of four Nike missile sites in Hawai‘i and was active from January 1961 to March 1970. The buildings and structures are intact and are generally unaltered. The launcher area, administration area, and the control area all retain not only the original structures, but also many of the site features, such as security fencing, sidewalks, exterior stairs with metal railings, streets and curbing, flagpoles, bicycle wash/storage area, and electrical and plumbing equipment. The setting appears to be unaltered, other than the change in landscaping due to the abandonment of the site. Preserving this site was a stipulation of the Section 106 consultation on the demolition of the Nike site at DMR.

The Nike site is significant as an intact example of a Cold War Nike missile site and reflects an important development in the history of American civil air defense and as part of the Hawai‘i Nike missile program. The site is eligible for the National Register under criterion A, having been associated with events that have made a significant contribution to the broad patterns of our history, and under criterion C, as it is a relatively unaltered and intact example of Nike missile site construction (IARII 2002a).

**Table 7-24**  
**Archaeological Sites at KTA**

Site Number	Site Type	Site Description
50-80-02-0259	Spring	Waikane Stone
50-80-02-0260	Heiau	Pu'uala Heiau (4,930 terrace facing)
50-80-02-0599	Bunkers	Three bunkers at Punamanō Communication Station
50-80-02-1043	Complex	Kawela agricultural terraces
50-80-02-2357	Wall	Plantation era stone wall remnant
50-80-02-2358	Single feature	House site 13m x 10m
50-80-02-2359	Two adjacent terraces	Terraces 22.5m x 6m
50-80-02-2360	Single feature	Terrace 20m x 10m
50-80-02-2501	Heiau	Hanakaoe platform 4m x 7m
50-80-02-4882	Bunker	Military bunker 8.7m x 4.5m
50-80-02-4883	Historic house site	Plantation era house site
50-80-02-4884	Imu	Imu site 3m
50-80-02-4885	Heiau	Pahipahi'ālua Heiau 17m x 12m
50-80-02-4886	Bunker	Pentagonal military bunker 3.5m x 3m
50-80-02-4887	Terrace complex	Habitation complex with related agricultural features 24m x 14m
50-80-02-4888	Wall/depressions	Agricultural earthen depressions/rock alignment 20m?
50-80-02-4930	Linear mound	Linear rock mound (remnants Site 260?) 7m x 2m
50-80-02-5534	Rock shelter	Temporary shelter 5m x 2.5m
50-80-02-5536	Rock shelter	Temporary shelter? 15m x 3m
50-80-02-5537	Enclosure	Enclosure (pre-Contact) 62m x 40m
50-80-02-5538	Wall	Wall (pre-Contact) 15m x 1m

**Table 7-24**  
**Archaeological Sites at KTA** (continued)

Site Number	Site Type	Site Description
50-80-02-5539	Terraces	Retaining wall and stone concentration 40m x 20m
50-80-02-5540	Terraces	Terraces 15m x 15m
50-80-02-5684	Enclosure	Enclosure 50m x 25m
50-80-02-5685	Rock shelter	Temporary shelter 9m x 5m
50-80-02-5686	Ahupua'a boundary	Wall 4m x 1m
50-80-02-5688	Roadway	Historic roadway 30m x 6m
50-80-02-5689	Bunker	Underground bunker 3m x 2m
50-80-02-5690	Enclosure	Bunker 4m x 3m
50-80-02-9506	Historic irrigation	Kea'aulu Ditch (hist. stone faced irr. ditch)
50-80-02-9507	Historic (?) terrace	'O'io Stream terrace (ag. terrace)
50-80-02-9508	Platform	East 'O'io Gulch platform (stepped stone platform)
50-80-02-9509	Complex	'O'io Gulch complex (agricultural terraces)
50-80-02-9517	Terraces	Kāneali'i agricultural terraces (possible remnants)
50-80-02-9745	Landmark	'Opana Mobile Radar Site
<u>SCS Temp# 1</u>	<u>Military</u>	<u>Fox holes</u>
<u>SCS Temp# 2</u>	<u>Military</u>	<u>Fox holes with rock wall</u>
<u>SCS Temp# 3</u>	<u>Military</u>	<u>Leveled area behind outcrop</u>
<u>SCS Temp# 16</u>	<u>Military</u>	<u>Rock terrace</u>
<u>SCS Temp# 19</u>	<u>Military</u>	<u>Concrete structure</u>
<u>SCS Temp# 30</u>	<u>Military</u>	<u>Bunker</u>
<u>SCS Temp# 36</u>	<u>Military</u>	<u>Concrete slab</u>
<u>SCS Temp# 38</u>	<u>Military</u>	<u>Concrete slab</u>
<u>SCS Temp# 39</u>	<u>Military</u>	<u>Concrete blocks</u>
<u>SCS Temp# 40</u>	<u>Military</u>	<u>Concrete slabs</u>
<u>SCS Temp# 41</u>	<u>Military</u>	<u>Concrete slab</u>
<u>SCS Temp# 42</u>	<u>Military training</u>	<u>Fire pit with trash</u>
<u>SCS Temp# 43</u>	<u>Military</u>	<u>Concrete slabs</u>
<u>SCS Temp# 44</u>	<u>Military</u>	<u>Concrete Slab with metal tank</u>
<u>SCS Temp# 45</u>	<u>Military</u>	<u>Concrete slab</u>
<u>SCS Temp# 47</u>	<u>Military</u>	<u>Concrete slabs</u>
<u>SCS Temp# 48</u>	<u>Military</u>	<u>Foundations with bottle glass</u>
<u>SCS Temp# 49</u>	<u>Military</u>	<u>Concrete drainage</u>
<u>SCS Temp# 53</u>	<u>Military training</u>	<u>Collapsed concrete box</u>
<u>SCS Temp# 54</u>	<u>Military training</u>	<u>Intact concrete box</u>
<u>SCS Temp# 56</u>	<u>Military training</u>	<u>Fire pit with metal fragments and other trash</u>
<u>SCS Temp# 60</u>	<u>Military</u>	<u>Two fire pits with trash</u>

**Table 7-24**  
**Archaeological Sites at KTA** *(continued)*

<u>Site Number</u>	<u>Site Type</u>	<u>Site Description</u>
<u>SCS Temp# 4</u>	<u>Plantation/Agriculture possible</u>	<u>Boulder concentration</u>
<u>SCS Temp# 10</u>	<u>Unknown</u>	<u>Rectangular boulder platform</u>
<u>SCS Temp# 11</u>	<u>Unknown/stabilization</u>	<u>Terrace down slope of a level area</u>
<u>SCS Temp# 12</u>	<u>Pre-military</u>	<u>Multiple features, including mounds and fox holes</u>
<u>SCS Temp# 13</u>	<u>Historic</u>	<u>Linear terrace</u>
<u>SCS Temp# 20</u>	<u>Historic</u>	<u>Terrace and a road</u>
<u>SCS Temp# 21</u>	<u>Historic</u>	<u>Rock mound</u>
<u>SCS Temp# 22</u>	<u>Historic</u>	<u>Rock mound</u>
<u>SCS Temp# 24</u>	<u>Historic</u>	<u>Boulder concentration</u>
<u>SCS Temp# 25</u>	<u>Historic</u>	<u>Tow linear boulder concentrations</u>
<u>SCS Temp# 26</u>	<u>Historic</u>	<u>Rock mound</u>
<u>SCS Temp# 32</u>	<u>Historic</u>	<u>Cobble and boulder terrace</u>
<u>SCS Temp# 33</u>	<u>Historic</u>	<u>Rock mound</u>
<u>SCS Temp# 50</u>	<u>Historic</u>	<u>Linear boulder concentration</u>
<u>SCS Temp# 52</u>	<u>Historic</u>	<u>Boulder and cobble piles</u>
<u>SCS Temp# 55</u>	<u>Historic</u>	<u>Linear boulder concentration</u>
<u>SCS Temp# 57</u>	<u>Historic</u>	<u>Boulder mound and terrace</u>
<u>SCS Temp# 61</u>	<u>Historic</u>	<u>Rock mound and depression</u>
<u>SCS Temp# 63</u>	<u>Historic</u>	<u>Rock mound</u>
<u>SCS Temp# 64</u>	<u>Historic</u>	<u>Multiple rock mounds</u>
<u>SCS Temp# 5</u>	<u>Undetermined</u>	<u>Paved terrace and rock mounds</u>
<u>SCS Temp# 6</u>	<u>Undetermined</u>	<u>Terrace</u>
<u>SCS Temp# 7</u>	<u>Prehistoric</u>	<u>Enclosure and mounds</u>
<u>SCS Temp# 8</u>	<u>Undetermined</u>	<u>Mounds with glass bottles</u>
<u>SCS Temp# 9</u>	<u>Undetermined</u>	<u>Enclosure with entryway</u>
<u>SCS Temp# 14</u>	<u>Prehistoric</u>	<u>Rock mound</u>
<u>SCS Temp# 15</u>	<u>Prehistoric/Historic</u>	<u>Rock concentration</u>
<u>SCS Temp# 17</u>	<u>Undetermined</u>	<u>Modified outcrop, rock mounds</u>
<u>SCS Temp# 18</u>	<u>Agriculture/undetermined</u>	<u>Linear rock mound</u>
<u>SCS Temp# 29</u>	<u>Traditional</u>	<u>Tow fire pits</u>
<u>SCS Temp# 34</u>	<u>Undetermined</u>	<u>Wall with sub-features</u>
<u>SCS Temp# 46</u>	<u>Undetermined</u>	<u>Large retaining terrace</u>
<u>SCS Temp# 51</u>	<u>Undetermined</u>	<u>Terraces and rock mounds</u>
<u>SCS Temp# 58</u>	<u>Prehistoric</u>	<u>Lithic scatter</u>
<u>SCS Temp# 59</u>	<u>Prehistoric</u>	<u>Rock mound, possible trail marker</u>
<u>SCS Temp# 65</u>	<u>Traditional</u>	<u>Fire pit</u>

Source: IARII 2003 ; GANDA 2003c; SCS 2003.

**Table 7-25  
Historic Military Buildings at KTA**

<b>Facility No.</b>	<b>Description (original use)</b>	<b>Year Built</b>	<b>Historical Period</b>
0001	Administrative building	1961	Cold War
0003	Flagpole (gone)	1961	Cold War
0004	Pump house (water supply/treatment building)	1961	Cold War
0005	Barracks and mess hall	1961	Cold War
0008	Water storage tank	1961	Cold War
0009	Water supply/treatment building; pump house	1961	Cold War
0013	Control station; air/fallout shelter	1961	Cold War
0014	Control station; air/fallout shelter	1961	Cold War
0018	Control station; air/fallout shelter	1961	Cold War
00020	Sentry box	1961	Cold War
0022	Protective barrier	1961	Cold War
0023	Protective barrier	1961	Cold War
0026	Protective barrier	1961	Cold War
0027	Protective barrier	1961	Cold War
0028	Sentry control station	1961	Cold War
0030	Protective barrier	1961	Cold War
0036	Protective barrier	1961	Cold War
0037	Warhead building	1961	Cold War
0045	Missile assembly and test building	1961	Cold War
0047	Generator building	1961	Cold War
0048	Transformer building	1955	Cold War
0060	Sentry box	1961	Cold War
0061	ACQ tower (gone)		Cold War
0063	Administration building	1961	Cold War
0064	Flagpole	1961	Cold War
0067	Barracks and mess hall	1961	Cold War
0070	Generator building	1961, 1963	Cold War
0071	Transformer pad	1963	Cold War
0075	MTR & TTR pad	1963	Cold War
<u>0078</u>	<u>MTR &amp; TTR pad</u>	<u>1963</u>	<u>Cold War</u>
<u>0079</u>	<u>MTR &amp; TTR pad</u>	<u>1963</u>	<u>Cold War</u>
<u>0080</u>	<u>Interconnecting corridor</u>	<u>1961</u>	<u>Cold War</u>
<u>0081</u>	<u>Pad for control vans</u>	<u>1961</u>	<u>Cold War</u>
<u>0082</u>	<u>Pad for control vans</u>	<u>1961</u>	<u>Cold War</u>
<u>0083</u>	<u>Pad for control vans</u>	<u>1961</u>	<u>Cold War</u>
<u>0087</u>	<u>HIPAR tower (gone)</u>	<u>1961</u>	<u>Cold War</u>
<u>0089</u>	<u>Water tank</u>	<u>1961</u>	<u>Cold War</u>
<u>0090</u>	<u>Bore site mast (gone)</u>	<u>1961</u>	<u>Cold War</u>
<u>T-150</u>	<u>Guard tower</u>	<u>c. 1961</u>	<u>Cold War</u>
<u>T-151</u>	<u>Guard tower</u>	<u>c. 1961</u>	<u>Cold War</u>

Source: IARII 2003

Kawailoa Training Area

Archaeological surveys have been conducted of selected areas within KLOA, primarily in the gulches in the west portion of the project area, and 55 archaeological sites have been identified. All sites have been recommended as eligible for listing on the NRHP, and several also might be considered ATIs. Table 7-26 lists the currently identified sites within KLOA that are recommended as eligible for the NRHP.

Drum Road

Pacific Legacy has surveyed the proposed alignment for the construction and upgrade of Drum Road and found 23 archaeological sites within or near the area of impact of the Drum Road upgrade in KTA (Pacific Legacy 2002).

Drum Road starts from the northwest area of HMR. Fankhauser recorded three historic sites in Helemanō Gulch just north of HMR (Fankhauser 1987).

**Potential for Unknown Resources**Kahuku Training Area

The site probability model presented by Williams and Patolo (1998, 77-81; see also Williams and Patolo 1998, 79, Figure 23) offers a low probability for archaeological sites in low elevation areas because they have been subjected to extensive land-altering disturbances from sugarcane and pineapple farming and military use. Areas in the rugged interior of KTA, above the 800-foot (244-meter) elevation, which have seen no modern land use alterations and which Native Hawaiians could have used for resource exploitation (e.g., farming), have no surface visibility. Areas of medium site location probability include narrow gulches and the lower elevations between 600 and 800 feet (183 and 244 meters). These areas have had less modern land use alterations and are closer to the populated coastal flatland bordering KTA. Areas of high site location probability include bluff slopes and edges and the mouths of narrow gullies because these areas have suffered less modern land disturbances and they border the coastal flatlands. Through archival research, Williams and Patolo (1998, 81) discovered that bordering coastal flatlands were the primary settlement areas in the past.

The proposed sites for constructing the CACTF at KTA lie in areas designated as sensitive for archaeological resources (IARII 2003; Davis 1981). Figures 7-27 and 7-28 show areas of archaeological sensitivity at KTA and KLOA.

Kawailoa Training Area

Some of KLOA has not been surveyed for cultural resources due to the difficulty of access. The very rugged steeply sloped terrain has a low site location probability. Unsurveyed areas with similar topography as those areas known to contain archaeological sites, however, have a high probability of unrecorded sites. Because the type of use or use areas are not going to change, there is a low probability for unrecorded cultural resources to be disturbed.

**Table 7-26**  
**Archaeological Sites at KLOA**

<b>State Site No.</b>	<b>Site Type</b>	<b>Description</b>
50-80-04-5634	Wall complex	Three retaining walls/ one align
50-80-04-5635	Single lava tube	Lava tube
50-80-04-5637	Single trail	Kawailoa Trail
50-80-04-5638	Single trail	Ko‘olau Summit Trail
50-80-05-5605	Path, terraces	Historic path, dryland agriculture
50-80-05-5606	Multiuse complex	Agriculture/habitation/ceremonial complex
50-80-05-5607	Terrace complex	Four alignments/auwai
50-80-05-5608	Two align	alignments
50-80-05-5609	Terrace/lo‘i fields	Alignments/earth berms/lo‘i fields
50-80-05-5610	Terrace/lo‘i fields	Three alignments/lo‘i fields
50-80-05-5611	Terrace complex	“Island” ag site in Kawainui Stream
50-80-05-5612	Terrace complex	
50-80-05-5613	Terrace/platform complex	Two temporary habitations, platforms/align/planting areas
50-80-05-5614	Terrace complex	Align/platform
50-80-05-5615	Terrace complex	
50-80-05-5616	Terrace complex	
50-80-05-5617	Terrace system	Good species indicators
50-80-05-5618	Wall	15m wall
50-80-05-5619	Terrace system	Wall and three terraces
50-80-05-5620	Terrace complex	four terraces/planting areas
50-80-05-5621	Terrace complex	Three terraces/one long mound
50-80-05-5622	Terrace complex	Large lo‘i system
50-80-05-5623	Terrace complex	Large lo‘i system
50-80-05-5624	Single imu	Imu
50-80-05-5625	Terrace complex	Terrace walls/mounds/‘auwai
50-80-05-5626	Terrace complex	
50-80-05-5627	Terrace complex	
50-80-05-5628	Terrace complex	
50-80-05-5629	single platform	Possible burial
50-80-05-5630	Terrace complex	Nine+ walls/two enclosures/several clearing mounds
50-80-05-5631	Single rock shelter	Rock shelter: possible burial
50-80-05-5632	Terrace complex	Small alignments
50-80-05-5633	Terrace complex	Small terrace walls
50-80-05-9510	Platform	Kawainui Platform
50-80-05-9511	Terraces	Kawaiiki Agricultural Complex
50-80-05-9512	Complex	Kawailoa Complex
50-80-05-9513	Enclosure	Kawainui Enclosure
50-80-05-9514	Platforms	Kawaiiki Platform
50-80-04-5717	Alignment, planting areas	Dryland agriculture
50-80-04-5718	Terrace remnant	Irrigated agriculture
50-80-04-5719	Pumping station	Sugarcane industry

**Table 7-26**  
**Archaeological Sites at KLOA** (continued)

State Site No.	Site Type	Description
50-80-04-5720	Terrace remnants, ahu	Dryland agriculture, marker
50-80-04-5721	Walls, trail	Dryland agriculture, animal pen, transportation
50-80-04-5722	Concrete slab, terrace	Gauging station
50-80-04-5723	Road facing, road	Transportation
50-80-04-5724	Alignment	Dryland agriculture
50-80-04-5725	Stacked wall, modified slope	Pool; unknown
50-80-04-5730	Alignment	Retaining wall
D6-32	Terraces	
D6-33	Terrace	
D6-34	Complex	Kainiki's house (LCA)
D6-40	House site	Mailou's house (LCA)
D6-41	Irrigation complex	pondfield system
D6-42	Small pondfield system	'Ili Koilau System
D6-43	Irrigation pondfield system	'Ili Pulepule System

Source: IARII 2003

### Drum Road

There is a high probability that archaeological sites will be discovered during road construction of the segment traversing KLOA.

## 7.11.2 Environmental Consequences

### ***Summary of Impacts***

Cultural resources impacts related to the Proposed Action at KTA vary, depending on the location and the nature of the project. Significant impacts are likely for historic buildings from construction and demolition. Significant impacts mitigable to less than significant involve impacts on archaeological resources from range and facility construction (Table 7-27). As explained in the mitigation sections below, these impacts could be mitigated by compliance with the PA the Army has developed in consultation with the Hawai'i SHPO, the ACHP, Native Hawaiians, and other parties. The PA is provided in Appendix J. The three less than significant impacts identified are the risk to archaeological resources from training activities, the risk to unidentified ATIs, and impacts on archaeological resources from road use. These impacts will be mitigated by compliance with the PA and the IDP and monitoring by installation personnel.

**Figure 7-27**

Archaeological Sensitivity Areas, Kahuku Training Area

**Figure 7-28**  
Archaeological Sensitivity Areas, Kawaihoa Training Area



However a stepped stone platform (site 50-80-02-9508) is in the gulch immediately northeast of the project area, and a heiau (site 50-80-02-2501) is only a short distance to the northwest.

Facility construction involves grubbing vegetation, grading site surfaces, excavating the subsurface, and moving heavy construction equipment. All of these activities could result in direct destruction of or damage to archaeological resources or indirect damage by contributing to soil erosion. Sites 9508 and 2501 could be indirectly affected by runoff and erosion during construction of the tactical vehicle wash. USARHAW will conduct the mitigations described below, which will reduce impacts to less than significant.

Regulatory and Administrative Mitigation 2. Before construction, the Army will complete evaluating any archaeological sites within areas subject to range and facility construction. Sites determined to be eligible for the NRHP will be flagged for avoidance. The projects will be designed to avoid all eligible and unevaluated archaeological sites, to the full extent practicable. GIS and GPS information will be given to project designers and range control to ensure that sites are considered in project design. If it is not possible to avoid archaeological sites, the Army will consult in accordance with the PA to determine the appropriate mitigation for the damage to the sites, such as data recovery or other mitigation measures. To address the accidental discovery of archaeological sites, human remains, or cultural items, the Army has developed an inadvertent discovery plan as part of the PA.

#### Less than Significant Impacts

Impacts on archaeological resources from training activities. There are not likely to be significant increased impacts on archaeological resources on the KTA training areas from off-road tactical vehicle maneuvers and other military training activities. Known archaeological sites have a buffer area delineated as a no use area. Possible impacts would include accidental discoveries of unknown archaeological resources and damage to them as a result of training activities on the range. Additionally, as discussed under geological resources, Strykers exert a greater amount of force on the ground than do vehicles previously used on training areas. Off road mounted maneuvers with Strykers could result in greater indirect impacts through contribution to erosion.

These impacts will be mitigated by regular monitoring by cultural resources personnel, and compliance with the IDP developed as part of the PA, as described above. If sites were discovered as a result of erosion or training exercises, the PA provides for compliance with the provisions of NAGPRA and ARPA in case of accidental discovery of human remains, cultural items, or archaeological materials. All known sites will be evaluated for eligibility to the NRHP and flagged for avoidance.

Impacts on Areas of Traditional Importance. The ATIs that have been identified at KTA are outside the boundaries of the project areas for the construction and use of the CACTF and tactical vehicle wash. However, further oral historical and archival research might result in the identification of ATIs that could be affected by these projects. Any identified ATIs will be avoided where feasible. Construction or training area uses will be designed to avoid identified traditional places and to minimize visual impacts on traditional cultural landscapes by site location, design, and orientation, where feasible.

If identified ATIs cannot be avoided because of interference with the military mission or risk to public safety, USARHAW will consult to identify impacts and to develop appropriate mitigation measures. Such mitigation will be developed in consultation with the SHPO and Native Hawaiians, in accordance with the provisions of the PA.

The Army has identified Native Hawaiian burial sites in the Proposed Action's ROI. The Army completed notification and consultation for these burial sites in accordance with NAGPRA and left these human remains in place. If impacts are identified that may affect any burial sites, or if there is an inadvertent discovery of Native Hawaiian human remains or funerary objects, the Army will abide by all notification and consultation requirements, as outlined in NAGPRA.

Impacts from road use. Archaeological sites have been identified within the area of impact of the Drum Road upgrade in KTA (Pacific Legacy 2002). Construction impacts on Drum Road sites will be covered by the EA addressing that construction project. Impacts to sites along Drum Road and Helemanō Trail from use of these roads under the Proposed Action could include erosion and possible vandalism or human access. These impacts are likely to be less than significant and will be mitigated by regular monitoring by installation cultural resources personnel.

#### No Impacts

Impacts from FTI tower construction. The FTI project at KTA would involve constructing four antennas, which would require a 20-foot (6.1-meter) by 25-foot (7.6 -meter) concrete pad supporting an equipment tower and shed. The towers would be erected on disturbed sites in the middle of the KTA training area, which is identified as having moderate sensitivity for archaeological resources. Construction would not require any additional ground disturbance and is therefore unlikely to have any impact on archaeological resources.

#### **Reduced Land Acquisition Alternative**

The RLA Alternative would produce the same impacts as those under the Proposed Action.

#### **No Action Alternative**

##### Less than Significant Impacts

Impacts to archaeological resources from training activities. Current force training activities would continue at current levels under No Action. This would result in ongoing impacts on cultural resources from training activities, particularly ground troop activities, off-road vehicle movement, and subsurface excavations. Certain archaeological resources on the training areas are monitored following exercises to document adverse effects on the sites. Under No Action, current training would continue, and there would be no additional impacts on cultural resources or changes in cultural resources management policies. USARHAW will continue efforts to inventory eligible historic properties, in compliance with Section 110 of the NHPA, and project planning will comply with Section 106 and its implementing regulations. Impacts to cultural resources would be mitigated, in compliance with these regulatory requirements.