

## CHAPTER 5: CLOSED CIRCUIT TELEVISION CAMERA (CCTV) INSTALLATION ON THE H-1 FREEWAY AT THE MCCULLY STREET OVERPASS

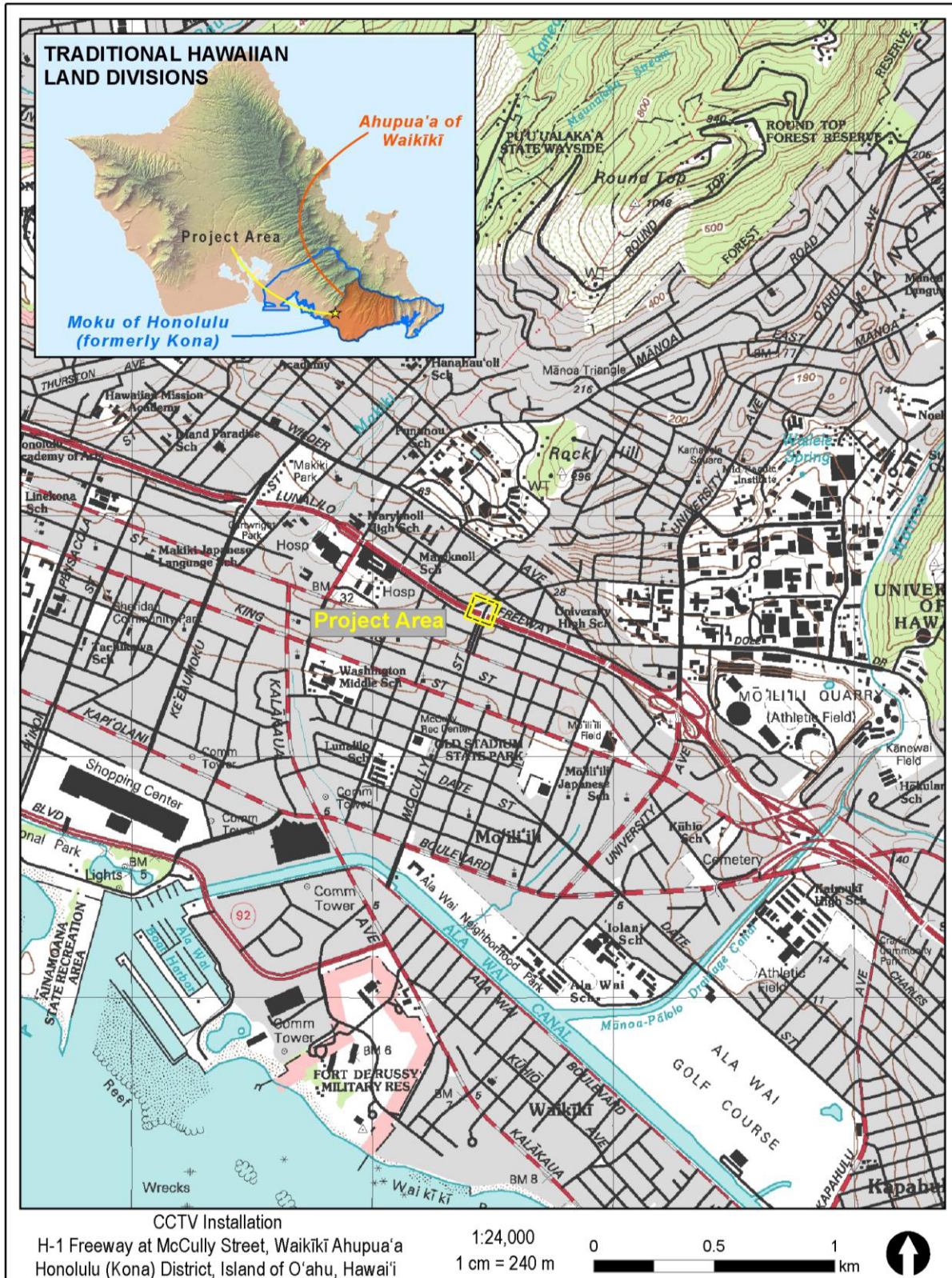
### PROJECT AREA LOCATION AND DESCRIPTION

The location of the current undertaking is the north side of H-1 Freeway at McCully Street overpass in Waikīkī Ahupua'a, Honolulu District (previously Kona District) (Figure 5-1). The project area is approximately 2.2 acres roughly 1.6 kilometers (km) *mauka* (inland, or toward the mountains), or northeast, of Ala Wai Harbor. All ground-disturbing activities will occur within the City and County of Honolulu Right-of-Ways. Because roadways are not assigned Tax Map Key (TMK) parcel numbers, the TMKs for adjacent properties were compiled based on proximity to ground-disturbing activities (Table 5-1; Figure 5-2)

**Table 5-1. TMK References for Properties Adjacent to the CCTV Project Area.**

TMK	Owner/Leasee
(1) 2-8-013:003	Tuyet T. Ables; Joseph W. Ables
(1) 2-8-013:004	Iris T. Okamura; Dale M. Okamura
(1) 2-8-013:005	Amy K. Okamura Trust; Kenneth M Okamura Trust
(1) 2-8-013:006	Minnie S. Yang Trust

The project area is approximately 0.9 hectares (ha) (2.22 acres) and geographically the same as the Area of Potential Effect (APE). The CCTV will be installed on a 50-foot stand-alone pole with a footing at grade. The steel tube pole will be anchored to a drilled shaft footing and a controller cabinet will be installed adjacent to the pole. These ground-disturbing activities will occur on the triangular remnant parcel on the north side of the H-1 Freeway, west of the overpass, which is bordered by Metcalf and McCully Streets (see Figure 5-2). Electrical and communication service will be obtained from existing HECO and Hawaiian Telcom poles along Metcalf Street. It is anticipated that less than 20 meters (m) of trenching will occur.



**Figure 5-1. Project Area Location on 7.5-Minute Series USGS Honolulu Quadrangle (1998).**



Figure 5-2. CCTV Project Area and Adjacent TMK Parcels.

## ENVIRONMENTAL BACKGROUND

Waikīkī Ahupua'a is located on the leeward side of O'ahu and extends from the Ko'olau mountain range through the coastal plain to the shoreline. The study area is immediately *makai* (towards the sea), or south, of the mouth of Mānoa Valley.

### Topography and Soils

The project area is situated on moderately sloping land approximately 20 m above mean sea level (amsl). Soils consist of Makiki clay loam with 0 to 2 percent slopes (MkA) (Figure 5-3). The Makiki series are well-drained soils on alluvial fans and terraces that formed in material weathered from alluvium mixed with ash and cinders (Soil Survey Staff 2014). These soils are almost entirely in urban use and do not have any native vegetation.

### Rainfall and Vegetation

Annual rainfall in this part of leeward O'ahu averages about 850.8 millimeters (33.5 inches) per year, with most rain falling in the winter months between November and March (Giambelluca et al. 2013). The project area is in a developed urban environment with limited landscaping that includes manicured exotic grasses and trees. The modern development includes residential homes, H-1 Freeway, streets, sidewalks, and utility infrastructure.

## HISTORICAL BACKGROUND

This section presents the ethno-historical and archaeological background information of the project area. Data from the background research were compiled to create an overview of traditional Hawaiian and historic-era land use and subsistence practices. Previous archaeological research in the study area is reviewed and anticipated archaeological findings are discussed.

### Traditional History

The Hawaiian cultural landscape can be described through *mo'ōlelo* and *wahi pana* (significant Hawaiian place names). *Mo'ōlelo* may be myths, legends, proverbs, and events surrounding well-known individuals in Hawaiian history (Pukui and Elbert 1986:254). The following is a discussion of the mythological, traditional, and early historic accounts from in and around the study area.

The study area is situated in the *makai* portion of Mānoa formerly known as Kapunahou. The name Mānoa is a contraction of *monoanoa*, which means "thick or solid----deep as a substance having breadth and depth" (Manoa School PTA 1952:6 in Hammatt and Schiedler 2008:8). An alternative origin of the name is from the story of Kahalaopuna and the creation of natural elements of Mānoa Valley (Nakuina 1907:118-132). Kahalaopuna was a chiefess betrothed to Kauhi, a Ko'olau chief. Kauhi killed Kahalaopuna after hearing she was unfaithful to him; however, Kahalaopuna was still a virgin. According to Pukui et al., *'ili mānoa* is the Hawaiian term for hymen (1974:79). Corresponding to this meaning, the mouth of Mānoa Valley is blocked by several geological landforms (Hammatt and Schiedler 2008:8). In the end of the story, Kahalaopuna's family hears of what has befallen her:

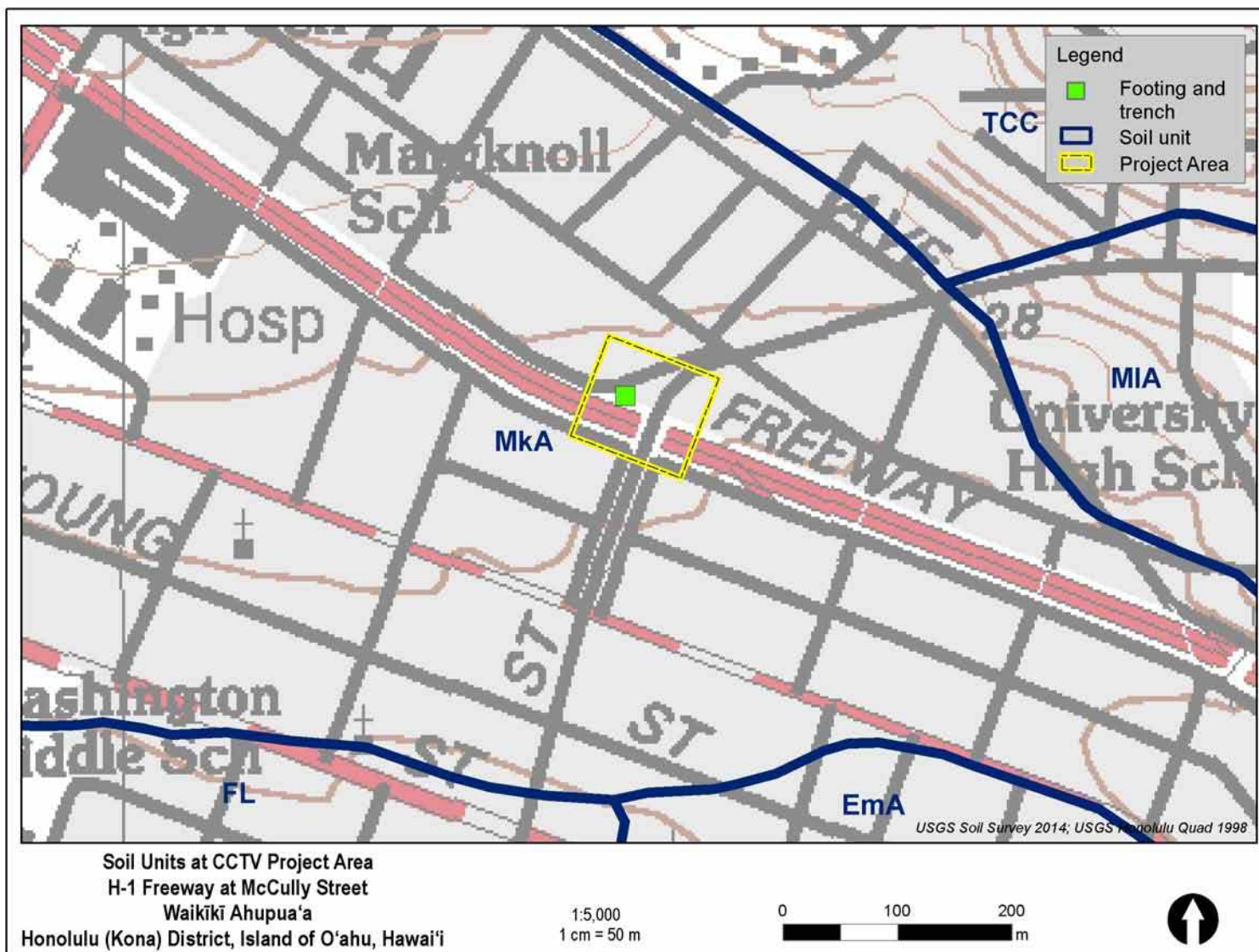


Figure 5-3. Soil Units at the CCTV Project Area.

Her parents, on hearing of her end, retired to Manoa Valley, and gave up their human life, resolving themselves into their supernatural elements. Kahaukani, the father, is known as the Manoa wind, but his usual and visible form is the grove of ha-u (hibiscus) trees, below Kahaia mano. Kauakuahine, the mother, assumed her rain form, and is very often to be met with about the former home of her beloved child.

The grandparents also gave up their human forms, and returned, the one to his mountain form, and the other into the lehua bushes still to be met with on the very brow of the hill, where they keep watch over the old home of their petted and adored grandchild [Nakuina 1907:132].

Kapunahou, the site of Punahou School today, is associated with the story of the Punahou Spring. During a drought in Mānoa there was an elderly couple, Mūkākā and Kealoha, who lived at the foot of Rocky Hill. The man would walk up the valley for ferns and *tī* roots to eat and the woman would walk down to Ka-Mo'ili'ili for water. On separate occasions Kealoha and Mūkākā were visited by a man in a dream who told them of a spring under the *hala* tree (*Pandanus* spp.) near their house. At home one night, Mūkākā told his friend of the dream. They then went outside to try to pull up the *hala* tree:

The two men grasped the *hala* tree. Their muscles strained, and sweat poured down their bodies. They stopped for breath then pulled again, but still the tree stood firm. The friend looked at the dry earth. "No water here!" he said. "You dreamed of water because of your great thirst."

"The dream was true!" Mūkākā answered. "Twice the god stood by our mats. He spoke to Kealoha and to me. His words were true." The old man prayed again. "Let us try once more," he said. "This time we shall succeed."

Once more they struggled with the tree. "It moves!" they shouted and pulled again with more strength than before. The tree came from the ground, and they saw water moistening the earth—a little water. Mūkākā ran for his digging stick and cleared away earth and stones. A tiny stream gushed out.

For a moment the three stared in wonder. Then Kealoha shouted, "Ka puna hou! The new spring!"

Now there was water for all that neighborhood. No more long walks to the Kamō'ili'ili spring! Water flowed steadily. Men dug and let the water soak the ground. They built walls and planted taro. Through these taro patches the spring water flowed, and fish were brought to flourish there. Fish and taro grew, and so the spring gave food as well as water. The people thanked the gods that now their life was good.

Long afterward a school was built beside that spring. It bears the name that Kealoha gave in her glad cry, and its seal is a *hala* tree. "This school shall be a spring of wisdom," said its founders. "As the *hala* tree stands firm through wind or storm, so shall the children of this school stand strong and brave through joy and sorrow. As the *hala* has many uses, so shall these children be useful to Hawai'i" [Pukui and Curtis 1985:82–3].

A more recent story tells of Pohakuloa, a legendary stone at Punahou during the 19<sup>th</sup> century:

At the time when Boki gave to the missionaries that section of land called New Spring (Kapunahou) for the founding of the Punahou school, a stone was sought large enough to serve as a boundary mark. On the north-eastern slope of the Manoa hill now called Rock hill, a suitable stone was found nine feet in length and standing seven feet above ground and two feet below. An overseer and his men were sent to move it to the required spot.

The first day the men dug hard, thinking that the second day would see it dislodged. But after they had left for home, the stone worked its way more firmly into the ground than before; on their return they were amazed to see that their labor had been in vain. They discussed the marvel and came to the conclusion that this was a kupua stone. The chief consulted a kahuna. He said, "This is not a stone, it is a man. He is not to be forced, but coax him and he will go." The kahuna proposed that a feast be prepared consisting of black pig, black awa, green coconut, black fowl, red fish, and pink poi, and the workmen and a number of others be invited to attend. After the feast the digging began again and the stone was soon out of the ground. This done, the question arose "Who shall lift it up and set it in place?" The chief Paki was a very powerful man, said to have been seven feet in height. He took hold of the stone and lifted it upright. With men supporting it on either side, it moved of its own accord to the place prepared for it.

Some years later, Pohaku-loa was broken up. Annie Harris thinks that a part of it was removed to the Kapiolani Maternity Home and that the remainder is still to be seen standing at the front gate of the Punahou campus [Legend of Kawelo as told by Annie Harris, in Sterling and Summers 1978:283].

In another account of Pohakuloa it is said that prior to it being transferred to the wall at Punahou School in 1830, women would pray for their children to have wisdom and strength (Sterling and Summers 1978:283). At this time there was a taboo against anyone moving it; but, Kamehameha III challenged this taboo by sitting on the stone and his presence allowed the Hulumanu, or bodyguard of the king, to carry the stone to the wall.

### **Traditional Land Use**

During the pre-Contact period Mānoa valley contained extensive *lo'i* (irrigated taro terraces) and supported a large population (Handy 1940:77). The 1817 map by Otto von Kotzebue, commander of the Russian ship *Rurick*, depicts *lo'i* around streams descending from Nu'uuanu and Mānoa Valleys with houses nearby (Figure 5-4). In Handy's account of Mānoa he describes the *lo'i* and the potential for a much larger system:

In upper Manoa the whole of the level land in the valley bottom was developed in broad taro flats. The terraces extended along Manoa Stream as far as there is a suitable land for irrigating...About 100 terraces are still being cultivated, but these do not constitute more than one tenth of the total area capable of being planted...Bennett...described the upper valley as "checquered with taro patches" [Handy 1940:77].

Mānoa was home to both *ali'i* (chiefs) and *maka'āinana* (commoners). Kamehameha I had a house near Roundtop and used the agricultural resources in the valley to support his army:



Figure 5-4. South O'ahu Map Dated 1817 by Otto Van Kotzebue (Kotzebue 1817).

The places Kamehameha farmed and the houses he lived in at those farms were show places. His farmhouses in Nuuanu stood several hundred fathoms away from the right side of Kapahala, a knoll on the western side of Nuuanu Street and Hanaiakamalama House. Perhaps the location was chosen to enable him to look both inland and seaward to his food patches. Some elevated houses seem to have been for that purpose. So it was with Puupueo [Roundtop, in west Mānoa Valley], directly below Ualakaa [‘Ī‘Ī 1959:69].

Mānoa Valley was also spoken of as an important place for the *ali‘i* by Thrum:

It is evident that Manoa has for several generations past, been held in high esteem by Hawaiians of rank. Kamehameha I was no stranger to the valley, and it early became the favorite resort of his immediate household and followers [Thrum 1892:113].

The land of Mānoa was given to the Maui chief Kame‘eiamoku by Kamehameha I after his conquest of O‘ahu (Bouslog et al. 1994:14-15). Later the land was inherited by Kame‘eiamoku’s son Ulumaheihie, also known as Hoapili. Hoapili was the governor of Maui during the reigns of Kamehameha II and Kamehameha III. His daughter Liliha inherited Mānoa in 1811. She married the high chief Boki, governor of O‘ahu, and they lived at Punahou. Later, Boki gave the land of Punahou to missionaries.

#### Historic Land Use

Traditional land divisions of the fifteenth and sixteenth centuries persisted until the 1848 Māhele, which introduced private property into Hawaiian society (Kamakau 1991:54). During the Māhele, the Land Commission required the Hawaiian chiefs and *konohiki* (land agent for the *ali‘i*) to present their claims to the Land Commission. In return they were granted awards for the land quit-claimed to them by Kamehameha III. The remaining unclaimed land was then sold publicly, “subject to the rights of the native tenants” (Chinen 1958:29). The new western system of ownership resulted in many losing their land. Often claims would be made for discontinuous cultivated plots with varying crops, but only one parcel would be awarded.

Following the Kuleana Act of 1850 that granted individual *kuleana* (commoner) lots, records of the Land Commission Awards (LCA) associated with Punahou (formerly known as Kapunahou) indicate that a portion of the project area was in LCA 387 (see Appendix A). The remainder of the study was in Royal Patent Grant (RP) 153. In 1860 an act was passed that assigned RP numbers to land of to the *konohiki* listed in the 1848 Māhele Book that had failed to apply for their claims (Groza & Hammatt 2013:A-4).

There were 74 Land Commission Awards (LCA) throughout 21 *‘ili* in Mānoa. The largest LCA in Mānoa went to the American Board of Commissioners for Foreign Missions (ABCFM). The 122.09 hectare (ha) LCA 387 included Punahou Spring and one house. This land is now the campus of Punahou School (Bath and Kawachi 1990:3-5). Chief Boki gave Hiram Bingham the parcel in 1829 (DeLeon 1978:3). According to John Papa ‘Ī‘Ī (1959:70), Ka‘ahumanu requested that Boki give the land to Bingham for the purpose of starting a school for chiefs' children and missionary children.

1874 and 1882 maps of the Punahou area are inconsistent regarding R.P. 153 (Figure 5-5 and Figure 5-6). Most sources, including the 1882 map, agree that R.P. 153 was received by E.W. Clark. Reverend Clark was an instructor at the Lahainaluna Seminary on Maui. The 1874 map indicates that the land belonged to H.M. Whitney, who was a journalist and postmaster in Hawai‘i. Neither of these maps indicate a residence

on the parcel, but by 1897 the property was being used for rice cultivation, and a mill was present (Figure 5-7).

Looking at the project area in 1927 (Figure 5-8), the area transformed from a rural suburb into an urban grid of roads and structures. Based on aerial photography from 1952 (Figure 5-9), residential patterns in the vicinity of the project area remained static. Then, in the 1959, the Lunalilo Freeway, today's H-1 Freeway, appears traversing the CCTV project area (Figure 5-10).

### **Recent Land Use**

The McCully overpass was constructed in 1955 and in 1960 the Lunalilo became the H-1 Freeway, which was when federal money was first used for the freeway system in Hawaii (Stine et al. 2011:30). Today the project area includes a portion of the H-1 Freeway that traverses a mixed residential and commercial zone.

### **PREVIOUS ARCHAEOLOGICAL RESEARCH**

There is no record of previous survey or other historic preservation work at the CCTV project area; however, several archaeological investigations have been conducted in the vicinity. Previous work has included historical literature and document review, archaeological inventory survey, archaeological assessment, and archaeological monitoring. Several instances of the inadvertent discovery human remains have also occurred. The following section focuses on projects conducted within approximately 1.0 kilometer (km) of the current study parcel in order to compare previous findings of land use (Figure 5-11). Table 5-2 summarizes these projects, while a detailed discussion is presented for projects with significant findings in the immediate vicinity of the study area.

Mau'oki Heiau, State Inventory of Historic Places (SIHP) No. 50-80-14-0062, was destroyed in 1883. The former location was 0.8 km southeast of the current study area. McAllister (1933) reported the following information on the history of the *heiau* (traditional Hawaiian ritual structure):

Regarding this heiau Thrum (79, 14) says: "It is said to have been of traditional Menehune construction with stones brought one by one from Kawiwi, Waianae. It was a heiau of good size, walled on three sides and open to the west that stood at the foot of the slope dividing the Manoa and Palolo valleys, Kamoiliili. It was torn down in ... 1883 and its stones used for street work." Kamakau (49) remarks: After his birth at Apuakehau, Waikiki, Kihapiilani was taken to this temple" [McAllister 1933:78].

In 1979, two historic burials (SIHP No. 50-80-14-2298) were inadvertently discovered during construction at the former Hawai'i Sugar Planters Association Experimental Station (now Makiki District Park), approximately 0.9 km northwest of the current study area. The burials were re-located, but no further information is available on the location of the original find within the park (Sinoto 1979). The NAGPRA notification reads as follows:

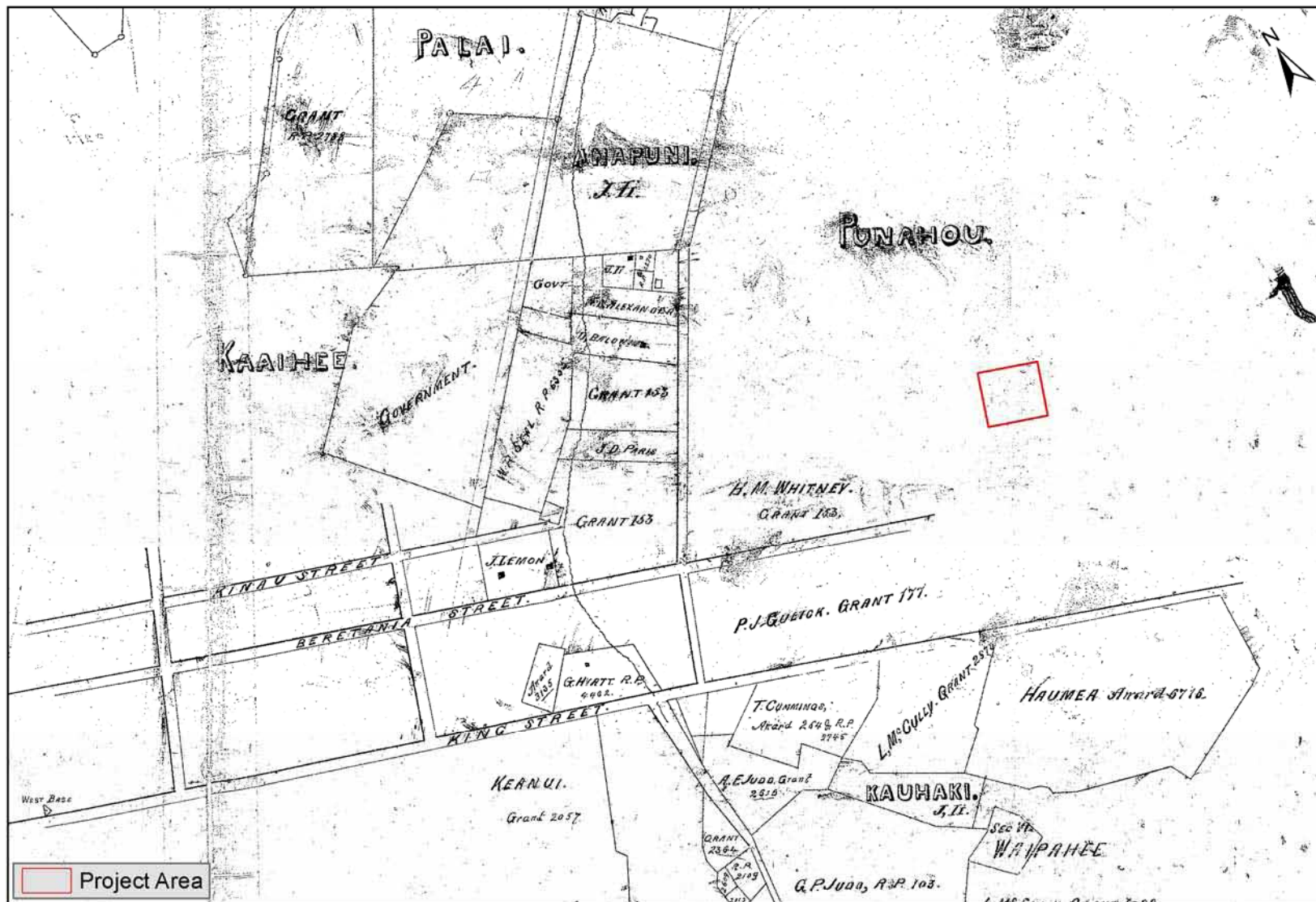


Figure 5-5. Map of the Estate of Kamehameha V Dated 1874 by W.D. Alexander (Alexander 1874, Hawaii Land Survey Division).

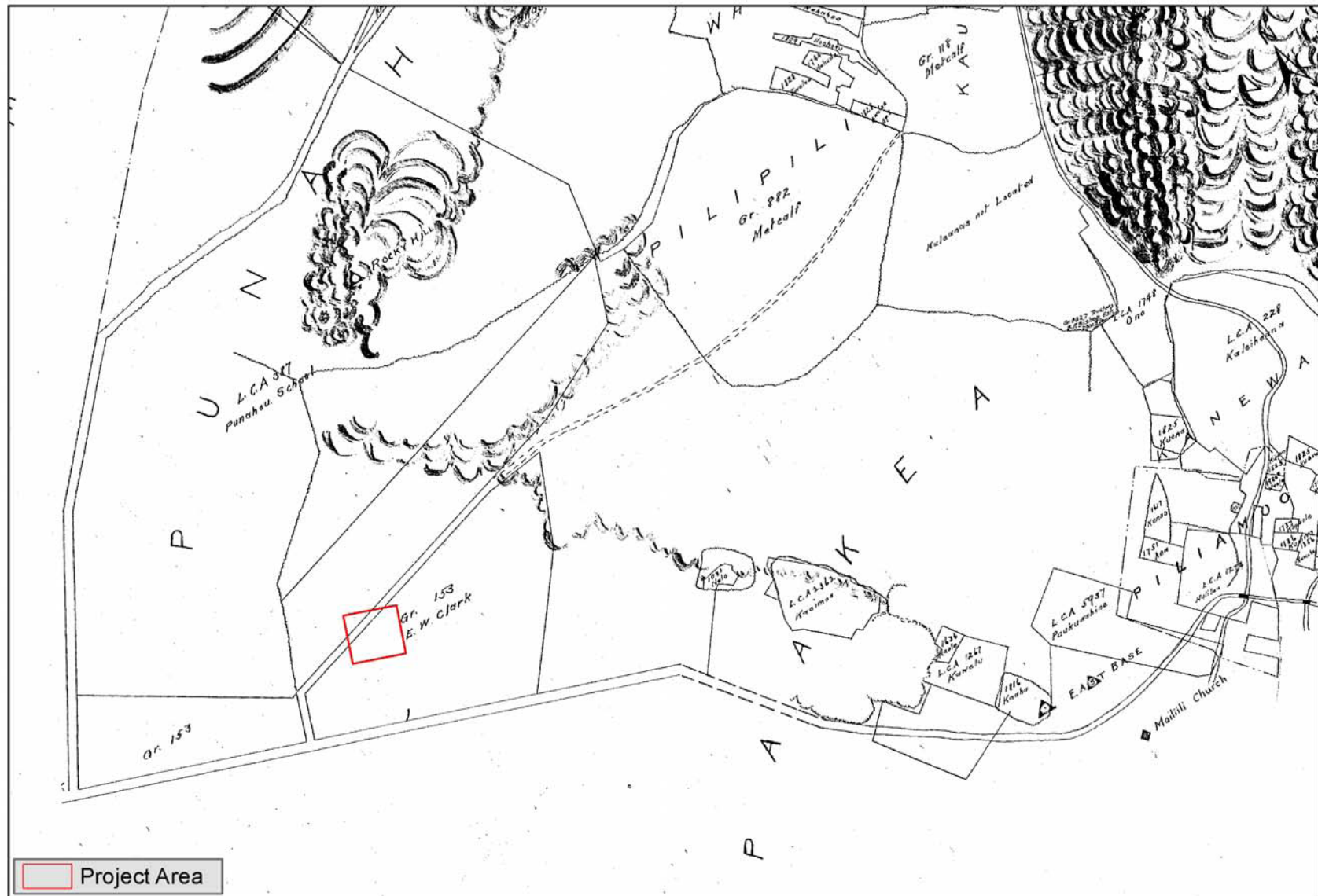


Figure 5-6. Map of Manoa Valley Dated 1882 by W.A. Wall (Wall 1882, Hawaii Land Survey Division).

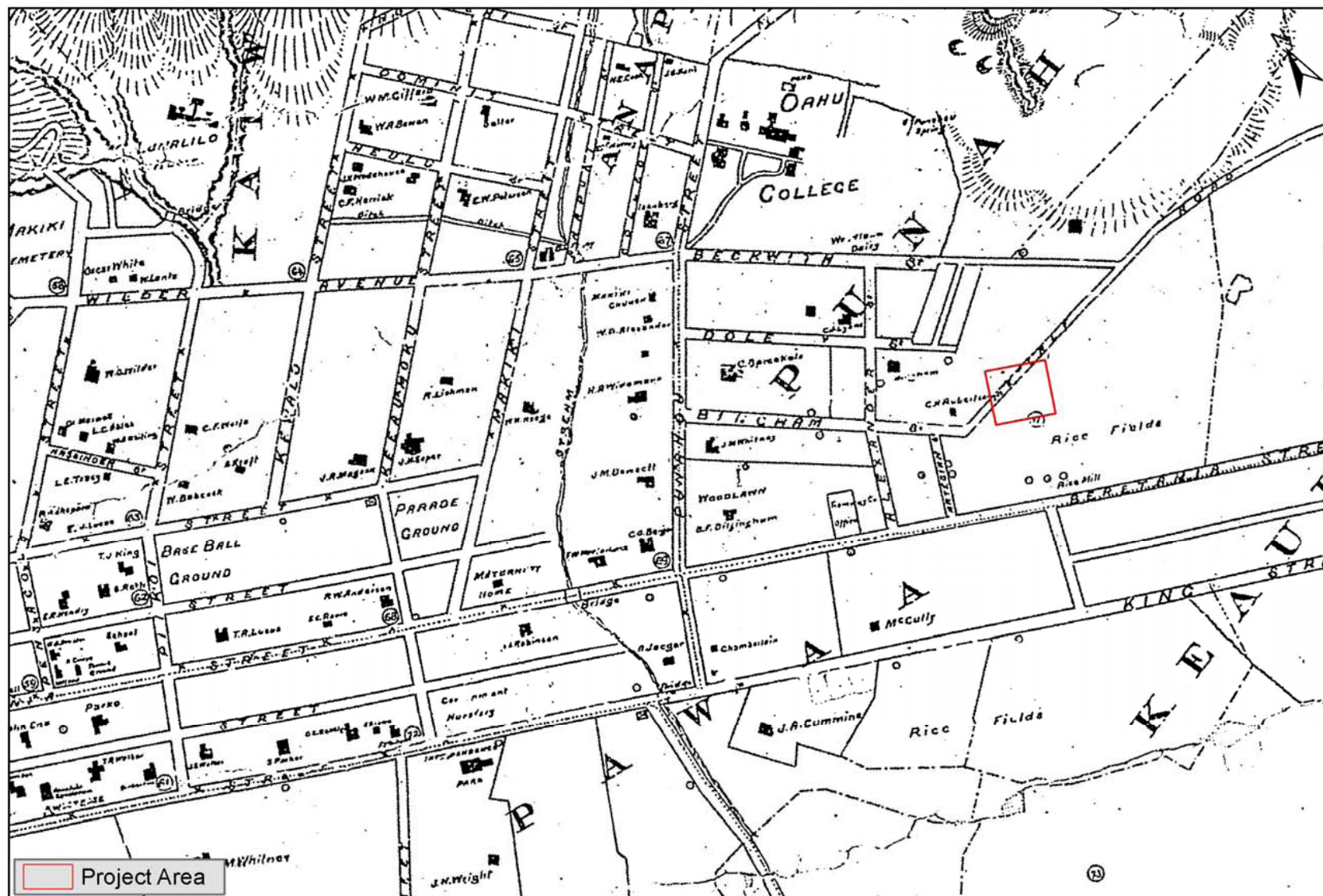
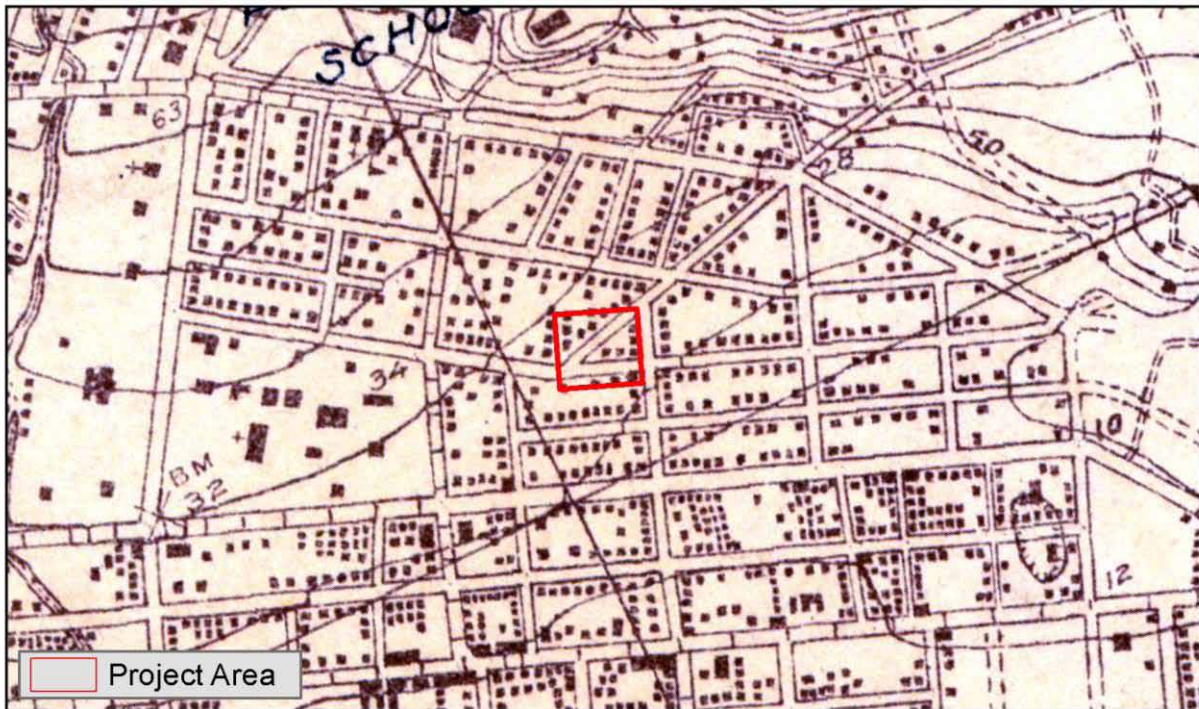


Figure 5-7. Map of Honolulu Dated 1897 by M.D. Monsarrat (Monsarrat 1897, Hawaii Land Survey Division).



**Figure 5-8. O'ahu Topographic Map Dated 1927-1928 by the U.S. Geological Survey (U.S. Geological Survey 1927-1928).**



**Figure 5-9. 1952 Aerial Photograph with the Project Area Overlain (USGS 1952).**



**Figure 5-10. 1959 Aerial Photograph with the Project Area Overlain (USGS 1959).**

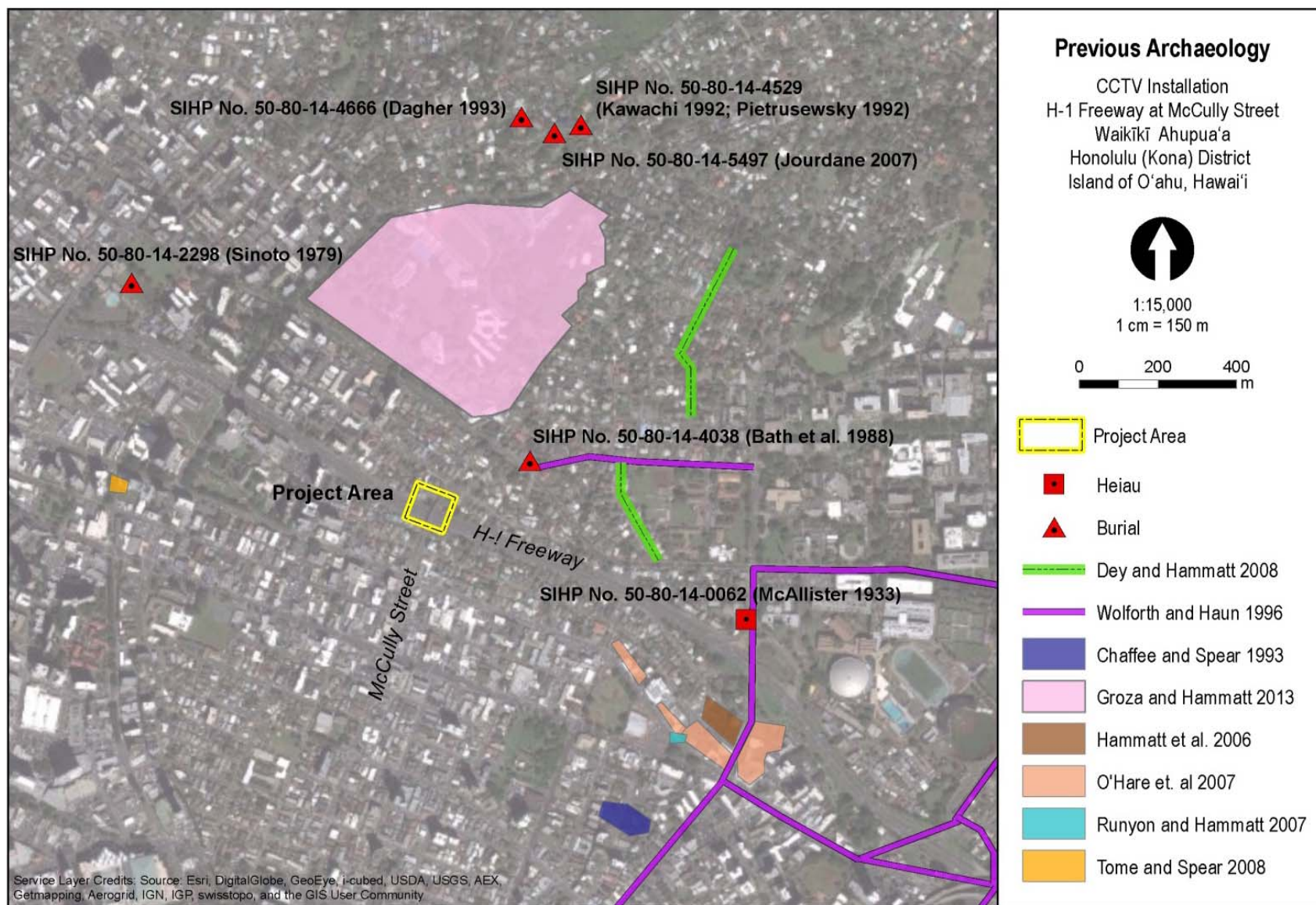


Figure 5-17. Locations of Previous Archaeological Studies and SIHP Sites in the Vicinity of the Current Project Area.

**Table 5-2. List of Previous Archaeological Studies and Burial Finds within 1 km of the Project Area.**

<b>Author Year</b>	<b>TMK(s)</b>	<b>Nature of Study</b>	<b>SIHP1 No. 50-80-14-</b>	<b>Results</b>
McAllister 1933	Island-wide survey	Archaeological Survey	0062	Mau'oki Heiau
Sinoto 1979	2-4-022:001	Inadvertent Discovery of Human Remains	2298	Two historic period burials.
Bath et al. 1988	2-8-007:006 (formerly 007)	Inadvertent Discovery of Human Remains	4038	Pre-Contact or early post-Contact primary interment.
Pietrusewsky 1992; Kawachi 1992	2-5-004:044	Inadvertent Discovery of Human Remains	4529	Human skeletal remains.
Dagher 1993	Parcel 13	Inadvertent Discovery of Human Remains	4666	Human skeletal remains; reburied in same area.
Chaffee and Spear 1993	2-8-16:27,29	Archaeological Assessment	-	No significant cultural resources identified.
Wolforth and Haun 1996	TMK: 2-7, 2-8, 2-9, 3-2, 3-3, 3-4	Archaeological Inventory Survey	5463*	Remains of agricultural area.
Hammatt et al. 2006	2-8-006:032	Archaeological Literature Review and Field Inspection	-	No significant cultural resources identified.
Jourdane 1997	2-5-004:044	Inadvertent Discovery of Human Remains	5497	Skeletal remains are of undetermined age and ethnicity.
O'Hare et al. 2007	2-8-006:001, 020, 023,025,032,036,038–043,048,052,057,058; 2-8-024:013,030–034; 2-8-025:047–,054)	Literature Review and Field Inspection	-	No significant cultural resources identified.
Runyon and Hammatt 2007	2-8-006	Archaeological Monitoring	-	No significant cultural resources identified.
Dey and Hammatt 2008	2-8-014, -015, -016, -017, -020, -021, and -022: var. parcels	Archaeological Monitoring	-	No significant cultural resources identified.

**Table 5-2. List of Previous Archaeological Studies and Burial Finds within 1 km of the Project Area.**

<b>Author Year</b>	<b>TMK(s)</b>	<b>Nature of Study</b>	<b>SIHP1 No. 50-80-14-</b>	<b>Results</b>
Tome and Spear 2008	2-4-006:017 & 018	Archaeological Assessment	-	No significant cultural resources identified.
Groza and Hammatt 2013	2-8-018:001	Archaeological Monitoring	-	No significant cultural resources identified.

<sup>1</sup> SIHP (Statewide Inventory of Historic Places)  
 \* Denotes archaeological site located more than 1 km from the project area

In 1979, human remains representing three individuals from Makiki, Oahu were recovered by Eric Komori during the Bishop Museum Archaeology Project 222. Project documentation indicates these human remains were recovered from the former Hawaii Sugar Planters Association Experiment Station. No known individuals were identified. The one associated funerary object is glass bead. [National Park Service 1998: 4283]

In 1988, a human burial (SIHP No. 50-80-14-4038) was inadvertently discovered during construction of a Circle K gas station at the intersection of Metcalf and Wilder Streets, located approximately 0.25 km north of the current study area. The burial was a primary interment recovered by SHPD staff. The burial was interpreted as “prehistoric or early historic” (Bath et al. 1988). There were no associated cultural materials with the remains, nor was there any dating.

The Punahou School Campus (SIHP No. 50-80-14-9911) was placed on the National Register of Historic Places (NRHP) in 1972. It is approximately 0.64 km north of the CCTV project area. No portion of the proposed undertaking will include the school campus, nor will the characteristics that make it eligible for the NRHP be affected.

### **GEOTECHNICAL STUDIES IN THE PROJECT AREA**

Geolabs, Inc. recently explored subsurface conditions at the CCTV project area conducting geotechnical coring and sampling (Mimura and Berut 2014). Results were as follows:

The boring drilled near the McCully CCTV generally encountered fill consisting of medium stiff to very stiff silty clay extending to a depth of about 4.5 feet below the existing ground surface. The fill was underlain by alluvial deposits such as loose to medium dense silty and clayey sand and very stiff silty clay extending to a depth of about 20.8 feet below the existing ground surface. Below the alluvial deposits, medium dense lagoonal deposits were encountered extending to the maximum depth explored of about 21.5 feet below the existing ground surface [Mimura and Berut 2014:4].

### **ANTICIPATED FINDS**

During McAllister’s archaeological survey of O’ahu in the early 1930s, he was unable to locate many sites in Honolulu that were mentioned in historic documentation (McAllister 1933:80–81). This is probably due to the extensive land modification that began at the turn of the twentieth century in today’s Honolulu. Prior to this occurrence,

the land containing the CCTV project area was likely an area of traditional Hawaiian settlement and agriculture.

Previous finds in the vicinity of the project area include isolated historic and possible pre-Contact or early post-contact human burials (Sinoto 1979; Bath et al. 1988). With the exception of Kotzue's 1817 map, formal historic cemeteries were not present in the vicinity of the current study area. Until the late historic period when a large portion of the CCTV project area was used for rice farming, historic maps indicate the current study area was not in use. This suggests that there is a low probability for encountering historic period burials. However, the inadvertent discovery of two possibly pre-Contact or early post-contact human burials recorded 0.25 km north of the current project area does suggest that such encounters are unpredictable. Therefore, anticipated finds may include clusters of burials, individual burials, or isolated skeletal fragments.

### **EXTENT OF ARCHAEOLOGICAL MONITORING**

All archaeological monitoring will be closely coordinated with construction crews. The archaeologist(s) will conduct on-site or on-call monitoring of all ground-disturbing activities below existing base course, which is defined as the compacted construction fill directly underlying existing asphalt and/or concrete surfaces. Table 5-3 presents a list of ground-disturbing activities and estimated excavation depths in meters (m) and feet (ft) at the CCTV project area. Figure 5-12 shows the location of these activities on modified design plans.

**Table 5-3. Proposed Ground-disturbing Activities.**

<b>Proposed Ground-disturbing Activity</b>	<b>Estimated Excavation Depth</b>	<b>On-Call/On-Site Monitoring Necessary</b>
CCTV Pole Footing	4.6-6.1 m (15-20ft)	Yes; On-site
Conduit Trenching*	1.2-1.8 m (4-6ft)	Yes; On-site
Pull Boxes	0.9-1.8 m (3-4ft)	Yes; On-site
Controller Cabinet	0.6 m (2ft)	Yes; On-call

\*Conduit trench excavations may exceed estimated depth where conduits conflict with existing utility lines and may be excavated up to 4.3 m (12.0-14.0ft) below ground surface.

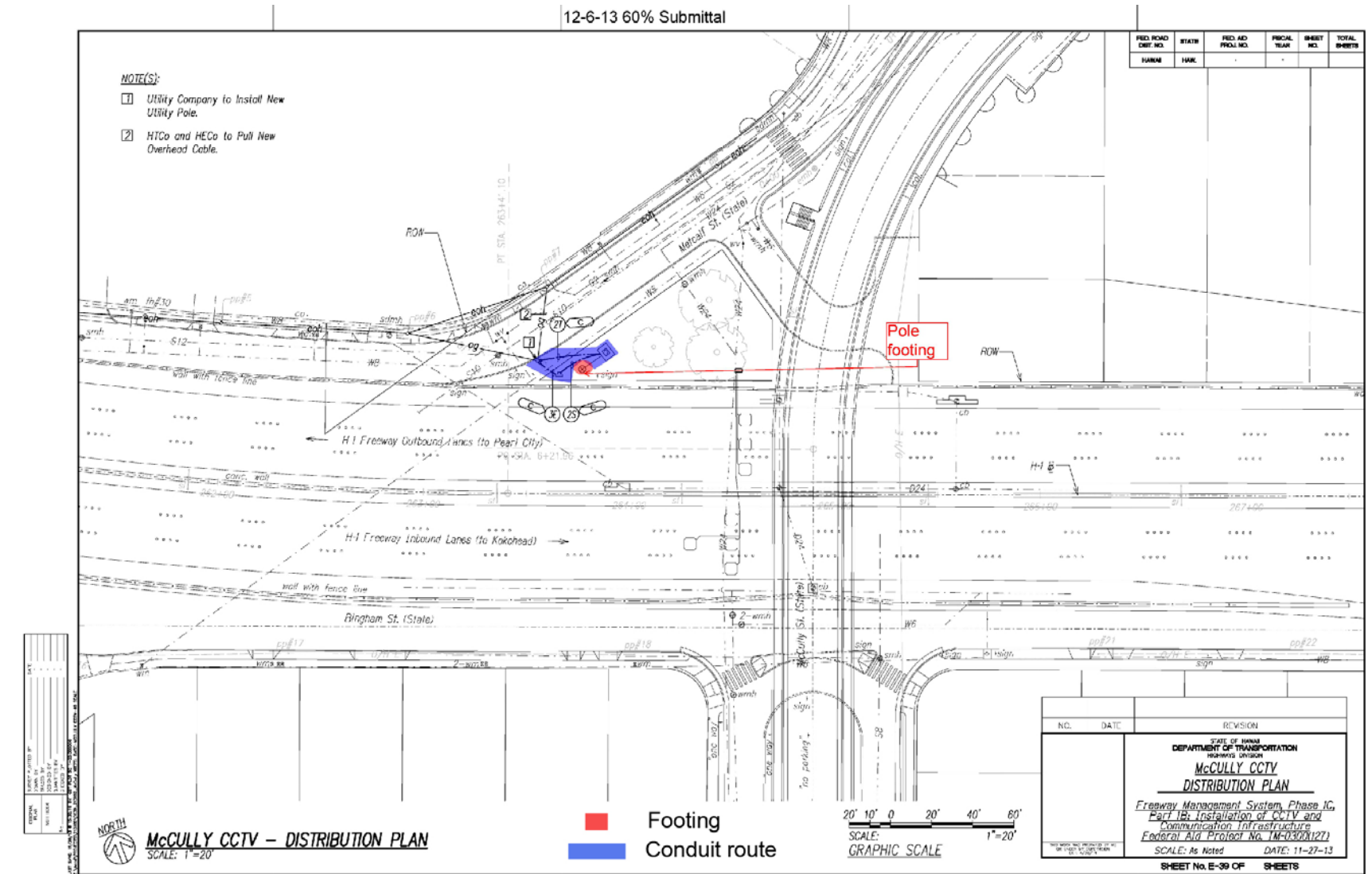


Figure 5-12. Design Plan for CCTV Installation and Associated Conduit Trenching.

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