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## Section 5 Results

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### 5.1 Pedestrian Inspection

Pedestrian inspection/surface survey of the City Center AIS study area was completed with 100 percent coverage. Pedestrian inspection of the City Center AIS study area was conducted at three separate times:

- 1) in May 2011 to support the preparation of the City Center AISP (Hammatt et al. 2011); this inspection was carried out by David Shideler and documented with photographs;
- 2) in November 2011 when the City Center AIS fieldwork began; this inspection was carried out by Matt McDermott, M.A. and documented with photographs; and,
- 3) in February 2013 when the AIS subsurface testing program was complete, this inspection was carried out by Nifae (Mana) Hunkin, B.A. and Michael (Pablo) Rivera, B.A., and documented with photographs.

The pedestrian inspection was carried out by systematically walking the roadways, sidewalks and other pedestrian areas, parking areas, and building interiors that make up the 13.87-acre City Center archaeological APE/study area. The only factor that limited the pedestrian inspection was the small number of privately-owned building interiors where pedestrian access was not possible, prior to individual landowner's granting right of entry. The inspection of these areas took place at the start of subsurface testing.

The City Center AIS study area is completely developed and it is not surprising that no surface archaeological cultural resources were observed during the pedestrian inspection. Figure 114 through Figure 125 are representative photographs of the HHCTCP guideway alignment and associated utility relocation corridor. These photographs, taken in February 2013, are presented from west to east to provide an overview of the City Center AIS study area's surface conditions and level of development at the time of the AIS fieldwork. Additional location photographs for individual test excavations presented in Volumes IVA, IVB, IVC, and IVD, provide a more comprehensive photographic record of surface conditions during the AIS fieldwork.

### 5.2 Excavation Summaries

Two hundred-fifty (T-001 through T-232A) test excavations and seven geotechnical cores were investigated in the City Center study area. An overview of the geographic distribution of these test excavations was provided in the detailed discussion in Section 3 (above) of this volume. A detailed discussion of each test excavation including reference to a location map, photographs of the excavation location and stratigraphy, an illustrated profile, a tabulated description of the stratigraphy, and a descriptive summary of the excavation conditions and results is presented in Volumes IVA, IVB, IVC, and IVD. Volume IVA contains the results of Test Excavations 001–047, Volume IVB contains the results of Test Excavations 048–095, Volume IVC contains the results of Test Excavations 096–178, and Volume IVD contains the results of Test Excavations 179–232A. Results of six of the seven geotechnical cores carried out at the locations of Test Excavations 098, 099, and 101 in the Chinatown Station footprint, are



Figure 114. *Mauka* portion of the Middle Street Transit Center Station location at Kalihi Stream Bridge, view to north across Kamehameha Highway



Figure 115. Location of *mauka* Kalihi Station at the intersection of Dillingham Boulevard and Mokauea Street, view to northeast



Figure 116. HHCTCP alignment through Kalihi, taken at the intersection of Kalihi Street and Dillingham Boulevard, view to southeast



Figure 117. View to east across the intersection of Dillingham Boulevard and Kokea Street at the location of *mauka* portion of Kapalama Station at Honolulu Community College



Figure 118. Location of the Iwilei Station, west portion, near the intersection of Dillingham Boulevard and Kaaahi Street, view to southeast



Figure 119. View to southeast of the HHCTCP alignment at the Diamond Head-end of Ka'aahi Street, between the Iwilei and Chinatown Stations



Figure 120. Location of the Chinatown Station, at the intersection of Nimitz Highway and Kekaulike Street, view to northeast



Figure 121. View to south of the HHCTCP alignment along Nimitz Highway at Honolulu Harbor, looking towards the intersection of Nimitz Highway and Fort Street



Figure 122. View to west of the HHCTCP utility relocation corridor at the intersection of Ala Moana Boulevard and Punchbowl Street



Figure 123. View to southeast of the HHCTCP alignment at the intersection of Halekauwila Street and Keawe Street, the location of the City Center Station is at right foreground



Figure 124. View to east of the HHCTCP alignment along Queen Street, between Kamake'e Street and Waimanu Street



Figure 125. View to east across Pi'ikoi Street and down Kona Street towards the Ala Moana Station

summarized in the archaeological cultural resource description for SIHP #50-80-14-7427 (see Section 4.3). The seventh geotechnical core, carried out in the vicinity of Test Excavation 124 on Halekauwila Street between Punchbowl and South Streets, is described in the archaeological cultural resource description for SIHP #50-80-14-2963 (see Section 4.3).

The stratigraphic sequences are described following USDA soil description terminology (Natural Resources Conservation Service/USDA 2002). Observations included color, texture, structure, consistency, plasticity, cementation (if appropriate), sediment origin (marine or terrigenous), inclusions such as cultural materials and/or roots, lower boundary distinctiveness, and topography. The use of these standardized descriptive observations allowed for stratigraphic comparisons with nearby excavation areas. They also facilitated comparison with other data to develop the historic context of each test excavation, including information about general setting, geomorphology, depositional history, past land use, and identification of buried archaeological cultural resources (sites, features, deposits) within individual excavations and across the City Center study area.

The entire City Center study area has been extensively developed and is characterized by streets, sidewalks, parking areas, buildings, and landscaped areas. There are multiple historic (pre-1960) and modern deposits characterized by asphalt, base course fill, reworked fill, introduced fill, or locally-procured fill. Within this portion of the project corridor, these fills generally relate to reclamation projects and/or construction projects involving roads, utilities, or other infrastructure. An important aspect of documenting the stratigraphic sequences within the corridor focused on identifying the impacts to (e.g., truncation), and the nature of the boundaries (e.g., smooth and distinct) between, these fill episodes and any underlying natural strata (e.g., wetland sediments) or cultural strata (e.g., former A-horizons) associated with pre- and/or early post-Contact land use.

The strata within the City Center study area included the following:

- Natural: sediment deposited by natural processes (e.g., coral bedrock, beach sand).
- Cultural: sediment deposited by various processes and that included cultural materials (e.g., artifacts) or evidence of cultural activities (e.g., features, living surfaces). Most commonly, these deposits are identified as buried A-horizons with evidence of features and/or artifacts.
- Reworked Fill: sediment consisting primarily of local parent material of limited human spatial transport often characterized by an admixture of historic or modern construction debris with previously-deposited natural and/or cultural sediments.
- Introduced Fill: sediment consisting primarily of parent material that is distinct from locally-available sediments and was transported by humans from another location. These fills may include dredged material, terrestrial material, and/or some admixture of historic or modern debris.
- Locally-Procured Fill: sediment consisting of local parent material, but often involving a broader area of human transport than Reworked Fill.
- Top Soil Fill: sediment of higher organic content imported by humans to support historic or modern landscaping (often loams).

- Base Course: sediment consisting of homogenous material such as crushed coral or basalt gravel imported and compacted by humans to provide a support base for overlying construction (e.g., building foundations or roads).

Limitations and important documentation procedures (if applicable) for each test excavation are summarized in the “Documentation Limitations” section of each individual test excavation summary. Where possible, excavation was carried out to 3 m below surface (mbs), the maximum depth possible due to safety concerns, the available shoring system, and the limits of the mechanical excavator’s reach. Reaching bedrock or the water table before this depth halted excavation at shallower depths. Sometimes there were utilities in the excavation sidewalls or loose fill, often with boulders, that made excavation sidewalls unstable and unshorable. In these instances, safety concerns often limited depth of excavation and trench recording procedures—for example, if shoring could not be used because of loose, unstable excavation sidewalls, then archaeologists could not enter the excavations to take samples and draw stratigraphy. In these instances, documentation proceeded in the best, most thorough manner available given the limitations—in consultation with the on-site safety consultant.

In some test excavations, concrete slabs, concrete utility jackets containing live utilities, or other paving layers were encountered. On-site safety was a primary consideration and the archaeologists complied with the on-site safety consultant’s decisions regarding whether excavation could safely extend and/or continue through such paving layers. As such, some test excavations were halted due to these safety hazards.

### 5.3 Archaeological Cultural Resource Descriptions

Nineteen (19) archaeological cultural resources were identified within, or immediately adjacent to, the City Center AIS study area (Figure 126). Twelve of these resources were previously identified and documented, and some have already had their Hawai‘i and/or National Register-eligibility determined. Where this eligibility has not yet been determined for these previously-identified cultural resources, or where reassessment was warranted, eligibility recommendations are given based on available information. The remaining seven were newly-identified and documented during the City Center AIS and their Hawai‘i and National Register-eligibility is presented here as a recommendation. All 19 archaeological cultural resources have been assigned Hawai‘i State Inventory of Historic Properties (SIHP) numbers. They are listed and summarized in Table 8 in geographic order from west to east, to correspond with Figure 126; the seven bold SIHP #s in the first column of Table 8 are newly identified as part of the City Center AIS. **However, for ease of understanding, the text describes the 19 archaeological cultural resources in numerical order.**

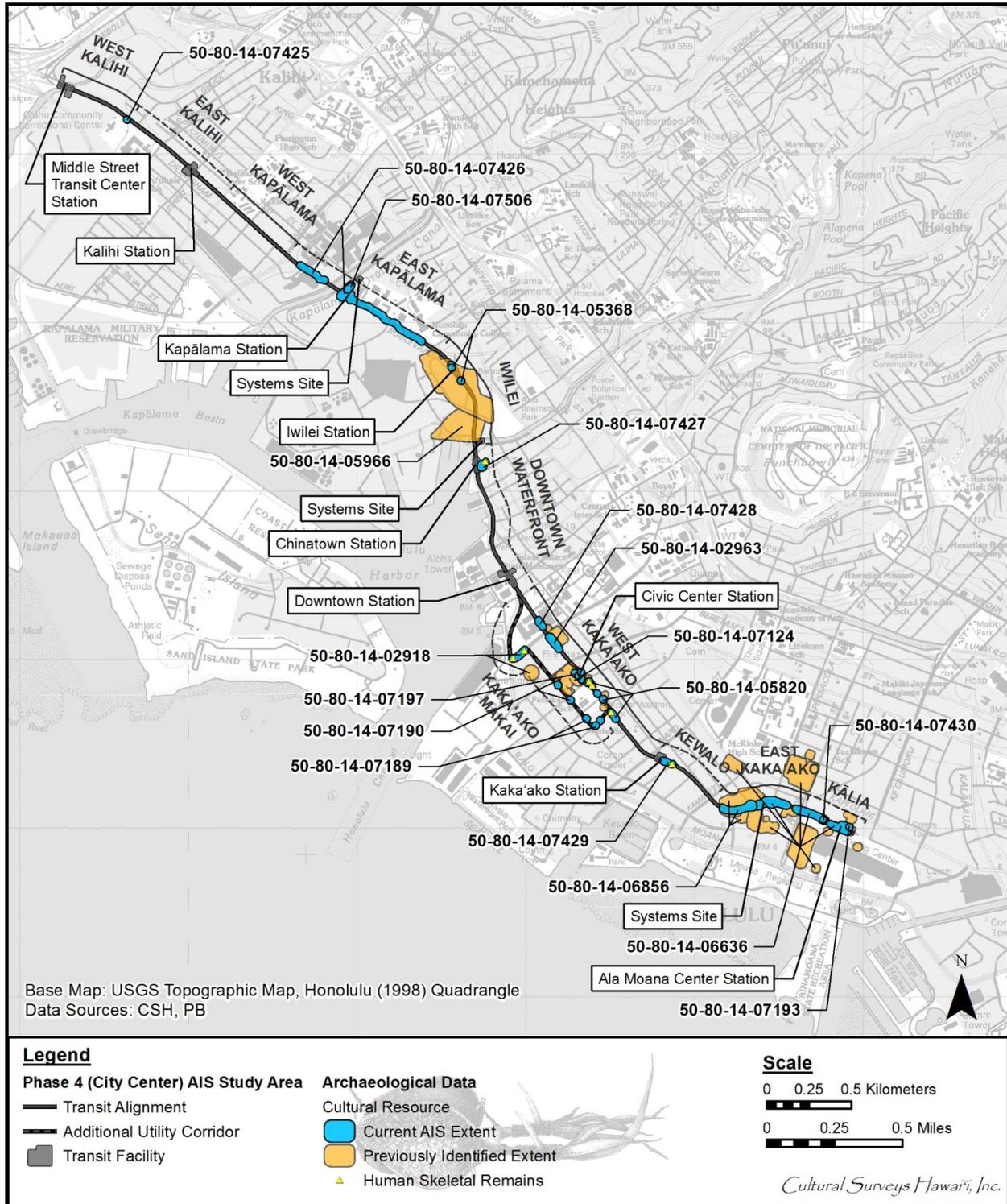


Figure 126. The archaeological cultural resources identified within, or immediately adjacent to, the City Center AIS study area (Base Map: U.S.G.S. 1998 Topographic Map of Honolulu Quadrangle)

Table 8. Summary of Archaeological Cultural Resources Located in, or Immediately Adjacent to the City Center AIS Study Area (Bold SIHP #s Newly Identified in this Study)

SIHP #	CSH Temp. #	City Center Excavation #(s)	Location	Formal Type /Description	Function	Age	Previous Reference	Significance / Eligibility <sup>1</sup>		Integrity <sup>2</sup> (Yes/No)							Mitigation
								Hawaii Register	National Register	Location	Design	Setting	Materials	Workmanship	Feeling	Association	
<b>50-80-14-7425</b>	1	T-020	Kamehameha Hwy. Right-of-Way, 60 m southwest of the Laumaka St. intersection	Subsurface fire feature remnant (interpreted as the remains of a single <i>imu</i> or earth oven)	Cooking	Pre-Contact	N/A	D	D	Y	Y	N	Y	Y	N	N	Monitoring
<b>50-80-14-7426</b>	2	T-054 through T-082, and T-085	Dillingham Blvd. between Waiakamilo Rd. to near Kaaahi St.	Subsurface wetland deposit	Agriculture	Pre- and post-Contact	N/A	D	D	Y	N	N	Y	N	N	N	Monitoring
<b>50-80-14-7506</b>	N/A	T-064, T-066, and T-067	Southern bank of Kapālama Drainage Canal at the corner of Dillingham Blvd. and Kokea St.	Subsurface incinerated trash deposit	Land reclamation	Post-Contact	N/A	D	D	Y	N	N	Y	N	N	N	Monitoring
50-80-14-5368	N/A	T-088, 091, 092, 093, and 094	West of King St. between Dillingham Blvd. and Iwilei Rd.	Subsurface remnants of Kūwili Fishpond	Aquaculture	Pre- through post-Contact	McGerty et al. 1997, Athens and Ward 1997, Hammatt et al. 2008	<u>D</u>	<u>D</u>	Y	N	N	Y	Y	N	N	Monitoring
50-80-14-5966	N/A	T-095 within fishpond boundaries but no fishpond sediments observed	West of Nimitz Hwy. between Iwilei Rd. and Awa St.	Subsurface remnants of Kawa Fishpond	Aquaculture	Pre- and post-Contact	McDermott and Mann 2001	<u>D</u>	<u>D</u>	Y	N	N	Y	Y	N	N	Data Recovery and Monitoring
<b>50-80-14-7427</b>	3	T-096 through T-101, and Test Bores C-1 to C-6	Corner of Nimitz Hwy. and Kekaulike St. intersection	Subsurface infrastructure remnants, cultural deposits, and human skeletal element	Habitation and commercial infrastructure	Post-Contact	N/A	D and E	D	Y	N	N	Y	Y	N	N	Data Recovery, Monitoring, and Burial Treatment
<b>50-80-14-7428</b>	4	T-119, 119A, 120, 120A, and 120B	Northeast of Halekauwila St. between Punchbowl St. and Mililani St.	Subsurface cultural deposit and historic building foundation	Habitation and Commerce	Pre- and post-Contact	N/A	D	D	Y	Y	N	Y	Y	N	N	Data Recovery and Monitoring
50-80-14-2963	N/A	T-122, T-123, T-124, and Test Bore T-124A	Halekauwila St. at the intersection of Punchbowl St. and between Punchbowl St. and South St.	Subsurface cultural deposit, pond sediments, human burials, animal burials	Aquaculture, habitation, and burial interment	Pre- and post-Contact	Ota and Kam 1982, Clark 1987	D and E <sup>3</sup>	D	Y	N	N	Y	Y	N	N	Data Recovery and Monitoring
50-80-14-7124	N/A	T-132	Southwest of Halekauwila St. between South St. and Keawe St.	Subsurface infrastructure remnants	Habitation and commercial infrastructure	Post-Contact	Pammer et al. 2011	<u>Previous: A and D</u> Recommended: D only	D	Y	N	N	Y	Y	N	N	Monitoring
50-80-14-7189	N/A	T-130, 132,134, 138, 140, 231A, 232, and 232A	The block bounded by Halekauwila, Keawe, Pohukaina, and South Sts.	Subsurface burnt trash deposit	Land reclamation and refuse disposal	Post-Contact	Pammer et al. 2011	<u>Previous: A and D</u> Recommended: D only	D	Y	Y	N	Y	N	N	N	Monitoring
50-80-14-7190	N/A	T-229 and T-230	Southwest of Halekauwila St. between South St. and Keawe St.	Subsurface salt pan remnants	Salt production	Potentially pre- and post-Contact	Pammer et al. 2011	<u>Previous: A and D</u> Recommended: D only	D	Y	N	N	Y	Y	N	N	Data Recovery and Monitoring

SIHP #	CSH Temp. #	City Center Excavation #(s)	Location	Formal Type /Description	Function	Age	Previous Reference	Significance / Eligibility <sup>1</sup>		Integrity <sup>2</sup> (Yes/No)							Mitigation
								Hawaii Register	National Register	Location	Design	Setting	Materials	Workmanship	Feeling	Association	
50-80-14-7197	N/A	Not observed in current AIS, but potentially affected by project construction due to close proximity	Southwest of Halekauwila St. between South St. and Keawe St.	Subsurface cultural deposit and fire pit feature	Habitation and former land surface	Late pre- to early post- Contact	Pammer et al. 2011	<u>Previous: A</u> and <u>D</u> Recommended: D only	D	Y	Y	N	Y	N	N	N	Monitoring
50-80-14-5820	N/A	T-141, 142, 145, 146A, 150, 151, and 151A ;T-140, T-143, T-144, T-146, T-147, T-148, T-148A, T-149, and T-152 are included in the SIHP #-5820 interpolated boundary	Halekauwila St. from Keawe St. to east of Ohe St.	Subsurface cultural deposit, human burials	Habitation and burial interment	Pre- and post-Contact	Winieski and Hammatt 2000	D and E	D	Y	Y	N	Y	Y	N	N	Data Recovery, Monitoring, and Burial Treatment
<b>50-80-14-7429</b>	5	T-167, 168, 168A, 168B, 169, 170, and 170A	Near corner of Ward Ave. and Queen St.	Subsurface cultural deposit, human skeletal element	Habitation	Undetermined, potentially pre- and post-Contact	N/A	D and E	D	Y	Y	N	Y	N	N	N	Data Recovery, Monitoring, and Burial Treatment
50-80-14-6856	N/A	T-181 through T-185	Queen St. between Kamakee St. and Waimanu St.	Subsurface remnants of Kolowalu Fishpond	Aquaculture	Pre- and post-Contact	Bell et al. 2006, O'Hare et al. 2006, Thurman et al. 2009	D	D	Y	Y	N	Y	Y	N	N	Monitoring
50-80-14-6636	N/A	T-186 through T-193, 195, 196, 198 through T-200, 202, 202A, 203, 205, 207, 208, T-210 through T-212, 214, 219, and T-220	Bounded by Keeaumoku St., Ala Moana Blvd., Cummins St., and Hoolai St.	Subsurface Kewalo wetland remnants	Agriculture, aquaculture, and habitation	Pre- and post-Contact	O'Hare et al. 2003, O'Hare et al. 2004, Tulchin and Hammatt 2005, Clark and Gosser 2005, Altizer et al. 2011, Runyon et al. 2011, Morriss et al. 2013	<u>Previous: A</u> and <u>D</u> Recommended: D	D	Y	N	N	Y	N	N	N	Monitoring
<b>50-80-14-7430</b>	6	T-202	Eastbound lane of Kona St., mauka of Ala Moana Shopping Center	Subsurface privy remnant	Toilet	Post-Contact	N/A	D	D	Y	Y	N	Y	Y	N	N	Monitoring
50-80-14-7193	N/A	T-214	Bounded by Kapiolani Blvd., Kona, Kona Iki, and Keeaumoku Sts.	Subsurface trash deposit	Refuse disposal and possible land reclamation	Post-Contact	Burke and Hammatt 2012	<u>Previous: Ineligible</u> Recommended: D	D	Y	Y	N	Y	N	N	N	Monitoring
50-80-14-2918	N/A	T-226A, B, C, and D, T-227 and T-227A	Punchbowl St. near the Ala Moana Blvd. intersection	Subsurface cultural deposit, human burials	Habitation and burial interment	Pre- and post-Contact	Yent 1985	D and E	D	Y	Y	N	Y	Y	N	N	Data Recovery, Monitoring, and Burial Treatment

<sup>1</sup>Underlined criteria indicates already determined eligible based on past historic preservation review, no underlining indicates recommended eligibility based on past documentation and/or current AIS investigation.

<sup>2</sup>Assessed based on the guidance and definitions from National Register Bulletin #15, "How to Apply the National Register Criteria for Evaluation."

<sup>3</sup>(For burials described in Clark 1987, no human remains/burials documented for SIHP #-2963 in the current City Center AIS).

**5.3.1 SIHP #50-80-14-2918**

<b>FORMAL TYPE:</b>	Subsurface cultural deposit, human burials
<b>FUNCTION:</b>	Habitation and burial interment
<b>PREVIOUS DOCUMENTATION:</b>	Yent (1985)
<b>AGE:</b>	Pre- and post-Contact
<b>NUMBER OF FEATURES:</b>	30
<b>TYPES OF FEATURES:</b>	29 pits (including 1 human burial pit, 1 dog burial pit, 4 postmolds, 1 trash pit, and 22 indeterminate) and 1 human skeletal remains
<b>DISTRIBUTION:</b>	0.33 acres within current project area, 8.4 acres total
<b>LOCATION:</b>	Along Punchbowl Street near the Ala Moana intersection (Kaka'ako Makai Geographic Zone)
<b>TAX MAP KEY:</b>	TMK [1] 2-1-027 (Punchbowl Street ROW por.); and [1] 2-1-029:001
<b>LAND JURISDICTION:</b>	City and County of Honolulu
<b>TEST EXCAVATIONS:</b>	T-226A, T-226B, T-226C, T-226D, T-227, and T-227A; T-226 abandoned

SIHP #50-80-14-2918 is a previously-identified subsurface cultural deposit and 30 features that is located along Punchbowl Street near the Ala Moana intersection, and *makai* of Pohukaina Street between Punchbowl and South Streets. This archaeological cultural resource was first identified in 1985 by Martha Yent of State Parks as consisting of at least five burial pits located at the Honolulu Ironworks construction site (Yent 1985). The Honolulu Ironworks was located at the corner of Punchbowl Street and Pohukaina Street and includes TMK [1] 2-1-029:001. The location of the five burial pits, which included a total of six burials is unknown. Figure 127 provides an approximate location for the five burial pits identified by Yent (1985) as the center point of the parcel with an interpolated site boundary that includes all of TMK [1] 2-1-029:001.

Yent (1985) provides basic stratigraphic and contextual information on Burial #5 and #6 as follows:

The burial pits are exposed on the face of a construction pit about 10 feet on a side with 3 pilings already placed in the center of the pit. The burials are in the sand deposit which underlies at least [a] meter of the ironworks fill. Because of the extensive overburden, all [of] the excavations to expose the burials was into the face. Burial #5 became burial #5 and #6 as the excavation extended into the face. Burial #5 was recognized as the 2 femurs exposed in cross-section in the pit face. Approximately 20cm into the face, a cranium was exposed which did not correspond to the anatomical position of the femurs. Therefore, the cranium became designated burial #6. [Yent 1985:1]

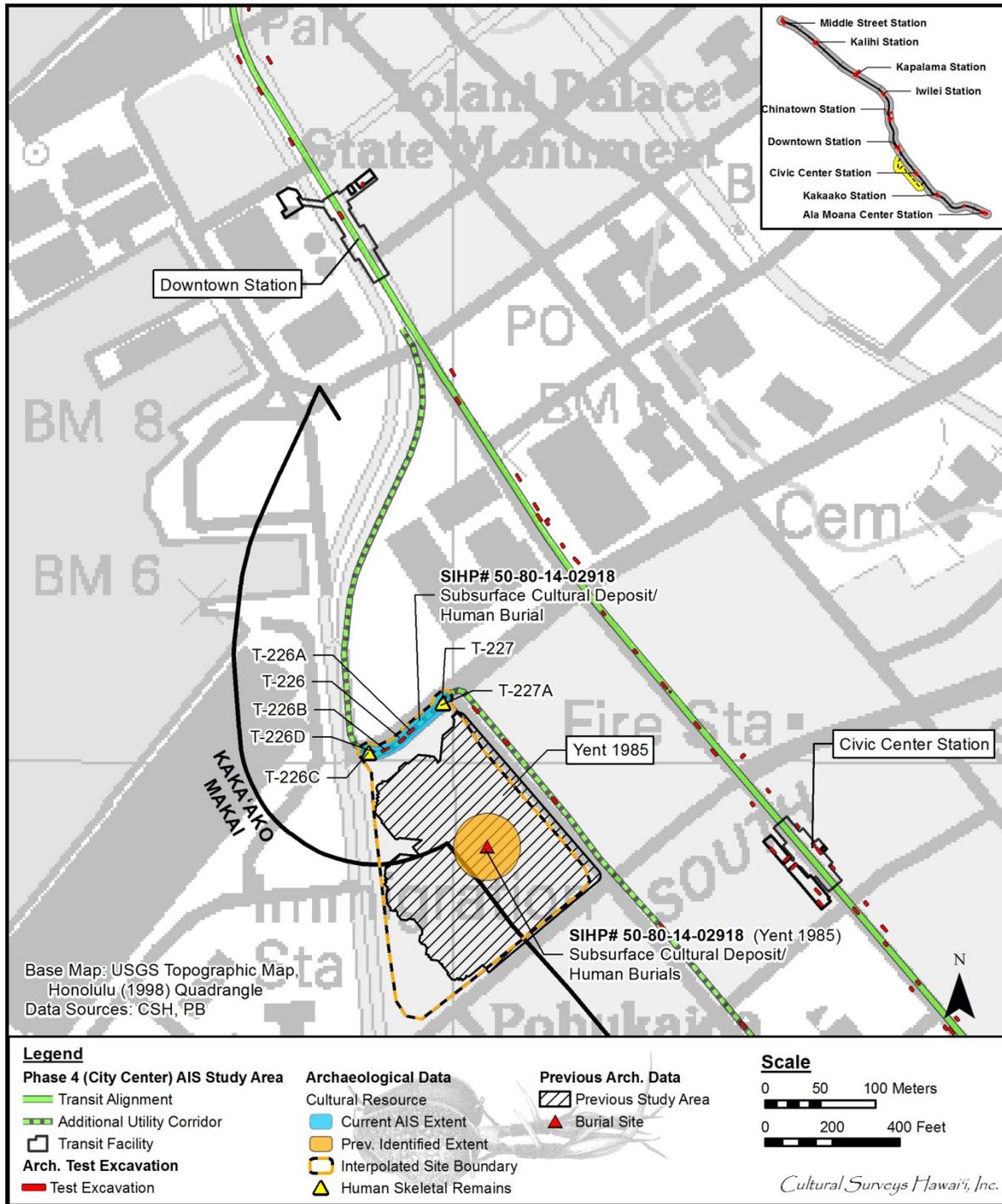


Figure 127. Location of SIHP #50-80-14-2918 within Kaka'ako Makai Zone (Base Map: USGS 1998 Topographic Map of Honolulu Quadrangle)

Additional information is provided on the burial position and burial pit dimensions for Burials #5 and #6 as follows:

Burial #5:

The femurs of burial #5 are located to the right and slightly above the cranium of burial #6. Continued excavation into the face of the pit exposed the femurs, patellas, and the tibia and fibula of both legs. The burial appears to have been extended with only the leg portion now intact – the upper portion of the body would have been disturbed during the excavation of the pit. A pelvis was located to the right of the tibia and fibula suggestive of a third burial, again because the remains were out of anatomical position. The pelvis was removed but no other associated remains were located. The pelvis appears to be from a secondary burial or was disturbed when burial #5 was placed in the ground.

The bone was fragile due to the moisture content in the sand. The pit measured about 50cm in width and went into the exposed face at least 70cm. The base of [the] burial pit was defined by a thin, dark band that separated the sandy fill of the pit from the consolidated, white sand/weathering coral below.

Burial #6:

The back of the cranium was exposed about 20cm into the excavation of the pit face. The cranium was located at the base of the pit fill. Burial #6 is extended and the chin was resting on the chest. The teeth of the cranium and mandible suggested an adult and older individual – there had been tooth loss and bone resorption prior to death. The small size of the cranium suggested a female. The excavation extended 70cm into the face which exposed the vertebrae, ribs, and arms (humerus). Additional excavation was difficult because of the overburden and therefore, was discontinued at the point. Burial #6 also appears to be extended, laying on the back with the arms straight along the side of the body and the right hand atop the pelvic area. Several other bones, probably dog, were found in the pit fill but were not articulated and not associated with the human burial. [Yent 1985:1]

The age and ancestry of the human remains were not determined, however both Burial #5 and #6 were considered to be in the extended position (Yent 1985).

Sketch maps of the stratigraphic profile associated with Burials #4 and #5, and a sketch plan map for Burial #4, are provided (Figure 128 and Figure 129). The stratigraphic profile for Burial #4 indicates that this burial was identified within a cultural layer beneath a meter of “black dump” fill overlying white fill. A black charcoal lens was located along the upper boundary of the cultural layer overlying the burial pit. The adjacent location of the Burial #3 pit also is provided. The stratigraphic profile for Burial #5 appears to indicate that this burial pit was an intrusive feature that was excavated through a grayish, medium-coarse sand and charcoal-stained layer and into white, compacted sand and weathering coral. The Burial #3 pit was overlain by a red silt lens followed by the deposition of a layer of coarse, white sand and coral pebbles, fill associated with the Honolulu Ironworks, a concrete slab, and construction fill.

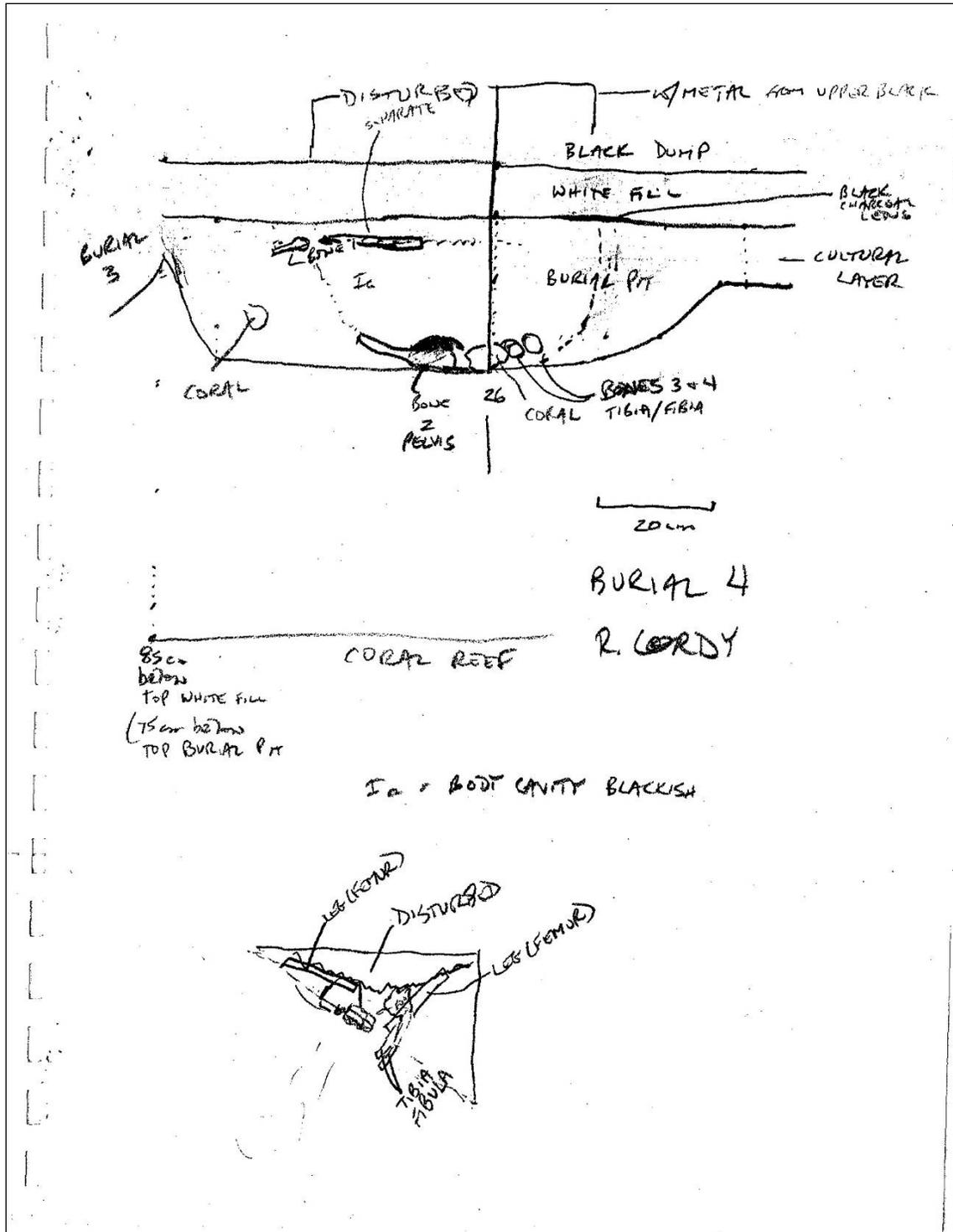


Figure 128. Stratigraphic profile and plan view map of Burial #4 from Yent (1985:3)

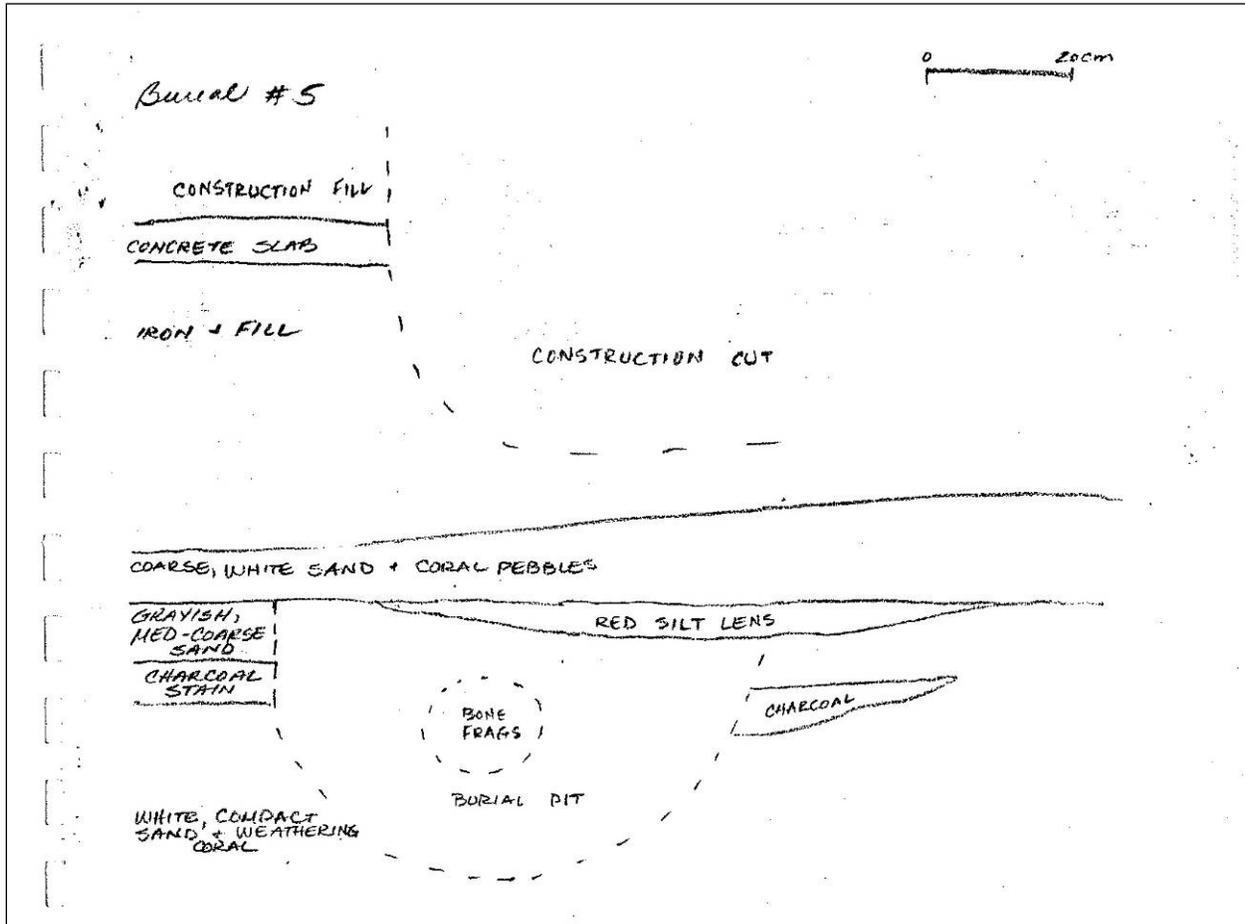


Figure 129. Stratigraphic profile of Burial #5 from Yent (1985:2)

During the current AIS, a buried, culturally-enriched loamy sand A-horizon containing 26 archaeological features was identified in six test excavations (T-226A, T-226B, T-226C, T-226D, T-227, and T-227A).

The depositional sequence in each of the six test excavations was generally similar (Figure 130). The buried Late Pleistocene calcareous reef (coral reef) and overlying natural gley sediment was identified at the base of excavation in T-226A, T-227, and T-227A, and is presumed to be beneath the water table and base of excavation within T-226B, C, and D.

Natural calcareous sand, termed Jaucas sand and designated Stratum III, was present at the base of excavation in each of the six test excavations and was overlying the coral shelf and gley sediments in T-226A, T-227, and T-227A.

The culturally-enriched sandy loam A-horizon, exhibiting both pre- and post-Contact land usage and designated Stratum II, developed on the natural Jaucas sand surface. The 26 features originating from the A-horizon were observed to be intrusive into the underlying Jaucas sand (Figure 131). The 26 features (Feature 1–23 and 25–27) consist of 1 human burial pit, 1 dog burial pit, 3 postmolds, and 21 indeterminate pits. Four additional features (Features 24 and 28–30), which are not associated with the A-horizon, were also identified. The 30 features were designated as Features 1–30 of SIHP #50-80-14-2918.

**SIHP #-2918 Feature 1** was identified within T-226A originating from the base of Stratum II at 0.92 mbs and terminating at 1.04 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 1 was irregularly shaped in plan and measured more than 0.58 m long and 0.75 m wide, extending beyond the width of the excavation and beyond the south end of the excavation. The sediment matrix of SIHP #-2918 Feature 1 was sandy loam with similar characteristics to Stratum II. A 5.5-liter bulk sediment sample was collected from Feature 1 that contained charcoal (5.0 g), burned *kukui* nutshell (0.7 g), shell midden (24.9 g), naturally-occurring marine shell (0.6 g), unidentified medium mammal bone fragments (1.3 g), and an unidentified burned fish bone (0.1 g). The charcoal (5.0 g) was submitted for wood taxa identification, which identified native and Polynesian-introduced taxa. SIHP #-2918 Feature 1 is interpreted as a pit of indeterminate function.

**SIHP #-2918 Feature 2** was identified within T-226A originating from the base of Stratum II at 0.82 mbs and terminating at 0.96 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 2 was irregularly shaped in plan and measured 0.23 m long by more than 0.20 m wide, extending into one excavation sidewall. The sediment matrix of Feature 2 was sandy loam with similar characteristics to Stratum II. A 6-liter bulk sediment sample was collected from SIHP #-2918 Feature 2 that contained charcoal (2.9 g), shell midden (16.9 g), naturally-occurring marine shell (0.8 g), a rusted nail (4.8 g), a white ceramic fragment (0.5 g), unidentified medium mammal bone fragments (0.8 g), unidentified fish bones (0.2 g), and a pig (*Sus scrofa*) molar fragment (0.1 g). The charcoal (2.9 g) was submitted for wood taxa identification, which identified native, Polynesian-introduced, and historically-introduced taxa. SIHP #-2918 Feature 2 is interpreted as a pit of indeterminate function.



Figure 130. T-226A northeast wall profile showing the general depositional sequence observed in the vicinity, view to north



Figure 131. T-226B Stratum II excavation floor showing pit Features 4–11 which were intrusive into the underlying Jaucas sand, view to southwest

**SIHP #-2918 Feature 3** was identified within T-226A originating from the base of Stratum II at 0.82 mbs and terminating at 1.02 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 3 was irregularly shaped in plan and measured 0.43 m long by more than 0.75 m wide, extending beyond the width of the excavation. The sediment matrix of SIHP #-2918 Feature 3 was sandy loam with similar characteristics to Stratum II. A 5-liter bulk sediment sample was collected from SIHP #-2918 Feature 3 that contained charcoal (13.3 g), shell midden (67.7 g), naturally-occurring marine shell (0.2 g), a carbonized *kukui* nut shell (2.7 g), a piece of volcanic glass (0.1 g), an unidentified fish bone (0.1 g), unidentified medium mammal bone (1.1 g), and burned medium mammal bone (0.3 g). The charcoal (13.3 g) was submitted for wood taxa identification, which identified native and Polynesian-introduced taxa. SIHP #-2918 Feature 3 is interpreted as a pit of indeterminate function.

**SIHP #-2918 Feature 4** was identified within T-226B originating from the base of Stratum II at 0.70 mbs and terminating at 0.96 mbs as an intrusive pit within Stratum III. Feature 4 was irregularly shaped in plan and measured 0.52 m long by more than 0.75 m wide, extending beyond the width of the excavation. The sediment matrix of SIHP #-2918 Feature 4 was sandy loam with similar characteristics to Stratum II. A 19-liter screened sample and a 4.5-liter bulk sample were collected from SIHP #-2918 Feature 4, which contained charcoal (2.3 g), fish bone (0.1 g), a shark tooth (0.1 g), a *Rattus sp.* (rat) tooth (0.1 g), fire-cracked rock (10.8 g), naturally-occurring marine shell (2.7 g), and shell midden (17.0 g). The charcoal (2.3 g) was submitted for wood taxa identification, which identified native and Polynesian-introduced taxa. SIHP #-2918 Feature 4 is a pit of indeterminate function.

**SIHP #-2918 Feature 5** was identified within T-226B originating from the base of Stratum II at 0.75 mbs and terminating at 0.95 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 5 was oval-shaped in plan and measured 0.35 m long by 0.24 m wide. The sediment matrix of SIHP #-2918 Feature 5 was sandy loam with similar characteristics to Stratum II. A 9.5-liter screened sample and a 2-liter bulk sample were collected from SIHP #-2918 Feature 5, which contained charcoal (0.4 g), volcanic glass (0.1 g), *Rattus sp.* (rat) bones (0.1 g), naturally-occurring marine shell (1.3 g), and shell midden (8.6 g). The charcoal (0.4 g) was submitted for wood taxa identification, which identified native and Polynesian-introduced taxa. SIHP #-2918 Feature 5 is a pit of indeterminate function.

**SIHP #-2918 Feature 6** was identified within T-226B originating from the base of Stratum II at 0.80 mbs and terminating at 1.10 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 6 was irregularly shaped in plan and measured 1.23 m long by more than 0.75 m wide, extending beyond the width of the excavation. The sediment matrix of SIHP #-2918 Feature 6 was sandy loam with similar characteristics to Stratum II. A 19-liter screened sample, a 4-liter bulk sample, and an intact large piece of charcoal were collected from SIHP #-2918 Feature 6. The combined samples contained charcoal (1.6 g), volcanic glass (1.1 g), *Canis lupus familiaris* (dog) premolar tooth (0.3 g), vesicular basalt (14.5 g), naturally-occurring marine shell (0.3 g), and marine shell midden (38.1 g). The charcoal (1.6 g) was submitted for wood taxa identification and radiocarbon dating. All of the identified wood taxa were considered to be native or Polynesian-introduced trees or shrubs. The charcoal identified as *Kukui* nutshell (0.26 g) was submitted for radiocarbon dating analysis, which yielded four possible date ranges, with a calibrated 2-sigma

date of AD 1720 to AD 1820 (52.2%) being the most probable. SIHP #-2918 Feature 6 is a pit of indeterminate function.

**SIHP #-2918 Feature 7** was identified within T-226B originating from the base of Stratum II at 0.80 mbs and terminating at 0.95 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 7 was circular-shaped in plan, located within the central portion of SIHP #-2918 Feature 6, and measured 0.27 m long by 0.28 m wide. The sediment matrix of SIHP #-2918 Feature 7 was sandy loam with similar characteristics to Stratum II. One 3-liter bulk sediment sample was collected from SIHP #-2918 Feature 7 that contained charcoal (0.2 g), naturally-occurring marine shell (0.2 g), and marine shell midden (10.4 g.). The charcoal (0.2 g) was submitted for wood taxa analysis, which identified coconut palm, a Polynesian-introduced tree and an unknown wood. SIHP #-2918 Feature 7 is interpreted as a pit of indeterminate function.

**SIHP #-2918 Feature 8** was identified within T-226B originating from the base of Stratum II at 0.76 mbs and terminating at 0.90 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 8 was irregularly-shaped in plan and measured 1.09 m long by more than 0.75 m wide, extending beyond the width of the excavation. The sediment matrix of SIHP #-2918 Feature 8 was sandy loam with similar characteristics to Stratum II. A 19-liter screened sample, a 4-liter bulk sample, one charcoal sample, and one possible fire-cracked rock fragment were collected from SIHP #-2918 Feature 8. Collectively these samples contained charcoal (6.9 g), volcanic glass (1.1 g), small/medium mammal remains (0.5 g), Tinker's Butterflyfish bone (*Chaetodon tinkeri*; 0.4 g), fire-cracked rock (184.5 g), a basalt fragment (0.1 g), naturally-occurring marine shell (0.3 g), and marine shell midden (37.5 g). A portion of the charcoal (0.9 g) was submitted for wood taxa identification and radiocarbon dating. All of the identified wood taxa were considered to be native or Polynesian-introduced trees or shrubs. The charcoal identified as coconut nutshell (0.06 g) was submitted for radiocarbon dating analysis, which yielded three possible date ranges, with a calibrated 2-sigma date of AD 1630 to AD 1690 (44.7%) being the most probable. SIHP #-2918 Feature 8 is a pit of indeterminate function.

**SIHP #-2918 Feature 9** was identified within T-226B originating from the base of Stratum II at 0.76 mbs and terminating at 0.85 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 9 was circular shaped in plan and measured 0.16 m long by 0.13 m wide. The sediment matrix of SIHP #-2918 Feature 9 was sandy loam with similar characteristics to Stratum II. One bulk sediment sample was collected from SIHP #-2918 Feature 9 that contained charcoal (0.1 g) and marine shell midden (8.3 g). The charcoal (0.1 g) was submitted for wood taxa identification, which was unable to determine the represented plant species. SIHP #-2918 Feature 9 is a pit of indeterminate function.

**SIHP #-2918 Feature 10** was identified within T-226B originating from the base of Stratum II at 0.75 mbs and terminating at 0.87 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 10 was irregularly-shaped in plan and measured 0.43 m long by more than 0.30 m wide, extending into one excavation sidewall. The sediment matrix of SIHP #-2918 Feature 10 was sandy loam with similar characteristics to Stratum II. One bulk sediment sample was collected from SIHP #-2918 Feature 10 that contained charcoal (0.2 g), waterworn basalt (5.3 g), a *Rattus sp.* (rat) long bone (0.1 g), medium mammal remains (0.1 g), a trace amount of naturally-occurring marine shell, and marine shell midden (4.7 g). The charcoal (0.2 g) was submitted for

wood taxa identification, which identified all native taxa. Feature 10 is a pit of indeterminate function.

**SIHP #-2918 Feature 11** was identified within T-226B originating from the base of Stratum II at 0.78 mbs and terminating at 0.94 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 11 was irregularly shaped in plan view and measured 1.02 m long by more than 0.75 m wide, extending beyond the width of the excavation. The sediment matrix of SIHP #-2918 Feature 11 was sandy loam with similar characteristics to Stratum II. A complete articulated *Canis lupus familiaris* (dog) skeleton was identified and collected from the sediment matrix of SIHP #-2918 Feature 11. A 19-liter screened sample and a 4-liter bulk sample were collected, which yielded charcoal (1.7 g), fish bone (0.2 g), basalt gravel (9.2 g), naturally-occurring marine shell (0.4 g), and marine shell midden (41.3 g). The charcoal (1.7 g) was submitted for wood taxa identification and radiocarbon dating. All of the identified wood taxa were considered to be native or Polynesian-introduced trees or shrubs. The charcoal identified as coconut nutshell (0.15 g) was submitted for radiocarbon dating analysis, which yielded four possible date ranges, with a calibrated 2-sigma date of AD 1720 to AD 1820 (52.2%) being the most probable. SIHP #-2918 Feature 11 is a pit containing *Canis lupus familiaris* (dog) skeletal remains.

**SIHP #-2918 Feature 12** was identified within T-226C as a pit truncated by Stratum Id, a sand fill, at 1.14 mbs, and which was intrusive into Stratum III, Jaucas sand. The pit base terminated at 1.37 mbs (Figure 132). SIHP #-2918 Feature 12 was oval shaped in plan and measured 0.30 m long by more than 0.07 m wide, extending into the south sidewall. The remaining portion of the pit was clearly defined with straight sides and a rounded base. SIHP #-2918 Feature 12 is associated with the culturally-enriched sandy loam A-horizon (Stratum II), which was likely removed in this area prior to, or during, the deposition of Stratum Id (see Figure 132). A 1-liter bulk sediment sample was collected from SIHP #-2918 Feature 12. It yielded charcoal (0.1 g), fish bone (0.1 g), and naturally-occurring marine shell (0.5 g). SIHP #-2918 Feature 12 is a truncated pit of indeterminate function.

**SIHP #-2918 Feature 13** was identified within T-226C as a truncated pit containing human skeletal remains. Feature 13 was truncated by Stratum Id, a sand fill, at 1.15 mbs and was not excavated below the human skeletal remains (1.17 mbs). SIHP #-2918 Feature 13 is associated with the culturally-enriched sandy loam A-horizon (Stratum II), which was likely removed in this area prior to, or during, the deposition of Stratum Id (see Figure 132, Figure 133 and Table 9). SIHP #-2918 Feature 13 was circular shaped in plan and measured 0.45 m long by more than 0.23 m wide, extending into the south sidewall. Excavation of SIHP #-2918 Feature 13 ceased upon the discovery of human skeletal remains consisting of a pelvis with no articulating leg elements. The sediment matrix of SIHP #-2918 Feature 13 was loamy sand, which appeared to be a mixture of Jaucas sand (Stratum III) and sediment with similar characteristics to the culturally-enriched sandy loam A-horizon (Stratum II) encountered in nearby excavations. SIHP #-2918 Feature 13 is a burial pit containing human skeletal remains.

**SIHP #-2918 Feature 14** was identified within T-227 originating from the base of Stratum II at 0.90 mbs and terminating at 1.07 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 14 was irregular in plan and measured more than 1.2 m long by more than 0.7 m wide, extending beyond the width of excavation and into the northeast end of the excavation. The sediment



Figure 132. T-226C south wall profile showing the horizontal truncation of Features 12 and 13 by Stratum Id, view to southeast

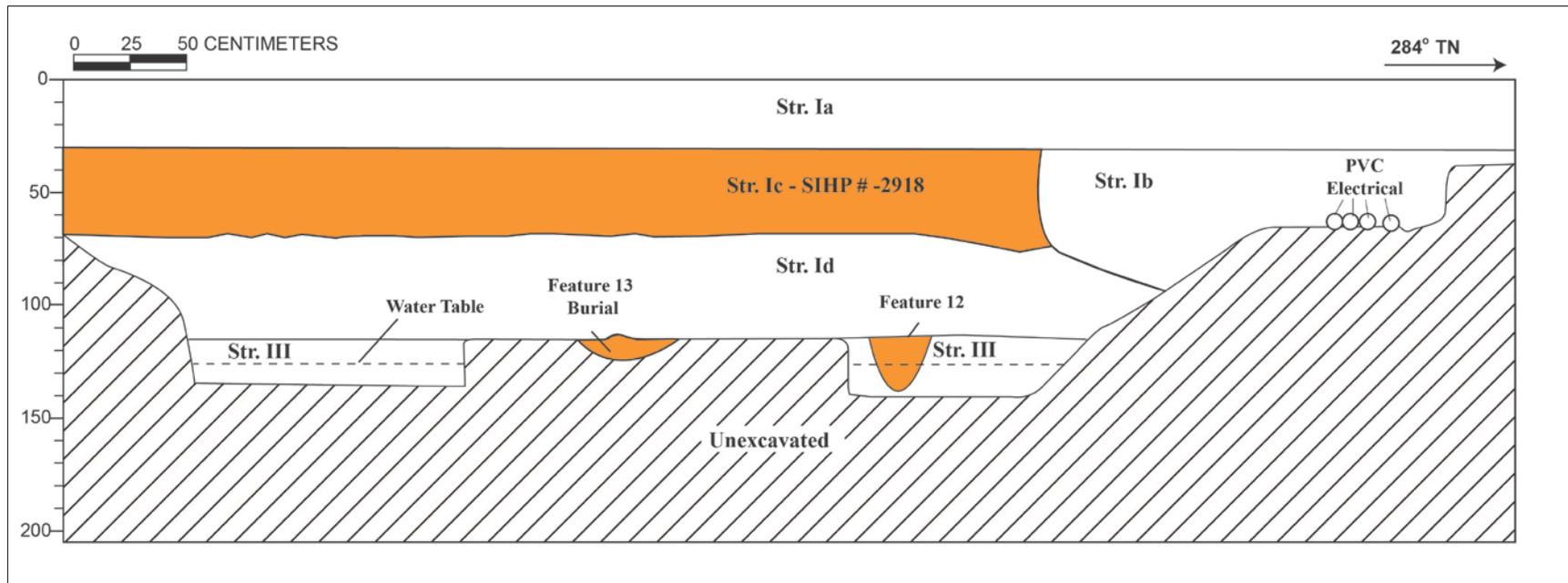


Figure 133. T-226C south wall profile showing SIHP #-2918 Features 12 and 13

Table 9. T-226C Stratigraphic Description, south wall profile

Stratum	Depth (cmbs)	Description
Ia	0–31	Asphalt; road surface
Ib	30–93	Fill; 5 YR 3/3 (dark reddish brown); gravelly clay loam; weak, fine, crumb structure; moist, weakly coherent consistency; non-plastic; abrupt, broken/discontinuous lower boundary; utility trench fill
Ic	30–75	Fill; 10 YR 3/3 (dark brown) mottled with 10 YR 5/6 (yellowish brown); extremely gravelly loamy sand; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; clear, broken/discontinuous lower boundary; mixed fill with crushed coral; may be locally procured and re-deposited A-horizon sediment with mixed fill; fill deposit which became a cultural A-horizon; considered a component of SIHP #50-80-14-2918
Id	68–115	Fill; 10 YR 5/4 (light yellowish brown); coarse grain sand; structureless, single-grain; moist, loose consistency; non-plastic; clear, smooth lower boundary; contained glass bottle and fragment, faunal bone (collected); redeposited sand
SIHP # -2918 Feature 12	114-137	Pit feature; 10 YR 5/3 (brown); sandy loam; structureless; moist, very friable consistency; non-plastic; mixed origin; truncated pit feature that likely originated from a former sandy loam A-horizon (Stratum II) that has been removed; SIHP #50-80-14-2918 Feature 12
SIHP # -2918 Feature 13	115-117 (BOE)	Pit feature; 10 YR 5/3 (brown); sandy loam; structureless; moist, very friable consistency; non-plastic; mixed origin; truncated pit feature that likely originated from a former sandy loam A-horizon (Stratum II) that has been removed; human burial; SIHP #50-80-14-2918 Feature 13
III	115–139 (BOE)	Natural; 10 YR 6/4 (light yellowish brown); medium-grain sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not observed; Jaucas sand

matrix of SIHP #-2918 Feature 14 was sandy loam with similar characteristics to Stratum II. One bulk sediment sample was collected from SIHP #-2918 Feature 14 that contained charcoal (3.5 g), naturally-occurring marine shell (1.7 g), bottle glass (0.7 g), and fish remains (0.1 g). SIHP #-2918 Feature 14 also contained a single *Bos taurus* rib that had been butchered with a metal saw blade. SIHP #-2918 Feature 14 is a pit of indeterminate function.

**SIHP #-2918 Feature 15** was identified within T-227 originating from within SIHP #-2918 Feature 14 at 0.93 mbs and terminating at 1.13 mbs as an intrusive pit within Stratum III and SIHP #-2918 Feature 14. SIHP #-2918 Feature 15 was circular in plan with a diameter of approximately 0.22 m. The sediment matrix of SIHP #-2918 Feature 15 was sandy loam with similar characteristics to Stratum II. SIHP #-2918 Feature 15 is a postmold.

**SIHP #-2918 Feature 16** was identified within T-227 originating from the base of Stratum II at 1.01 mbs and terminating at 1.17 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 16 was roughly circular in plan and measured 0.6 m long by more than 0.4 m wide, extending into the northwest excavation sidewall. The sediment matrix of SIHP #-2918 Feature 16 was sandy loam with similar characteristics to SIHP #-2918 Stratum II. One bulk sediment sample was collected from SIHP #-2918 Feature 16 that contained charcoal (0.3 g), naturally-occurring marine shell (0.8 g), rusted metal (0.9 g), and bottle glass fragments (0.2 g). SIHP #-2918 Feature 16 also contained unmodified medium mammal diaphysis fragments. SIHP #-2918 Feature 16 is a pit of indeterminate function.

**SIHP #-2918 Feature 17** was identified within T-227 originating from the base of Stratum II at 1.05 mbs and terminating at 1.16 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 17 was oval-shaped in plan and measured 0.37 m wide by more than 0.7 m long, extending into the southeast excavation sidewall. The sediment matrix of SIHP #-2918 Feature 17 was sandy loam with similar characteristics to Stratum II. One bulk sediment sample was collected from SIHP #-2918 Feature 17. It yielded charcoal (0.4 g), naturally-occurring marine shell (0.3 g), rusted metal (4.8 g), aqua-colored bottle glass (2.6 g), medium mammal remains (0.5 g), fish remains (0.1 g), and midden (3.3 g). SIHP #-2918 Feature 17 also contained unmodified *Sus scrofa* (pig) molar fragments. Feature 17 is a pit of indeterminate function.

**SIHP #-2918 Feature 18** was identified within T-227 originating from the base of Stratum II at 1.0 mbs and terminating at 1.05 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 18 was oval-shaped in plan and measured 0.25 m long by more than 0.25 m wide, extending into the northwest excavation sidewall. The sediment matrix of SIHP #-2918 Feature 18 was sandy loam with similar characteristics to Stratum II. One bulk sample was collected from SIHP #-2918 Feature 18 that contained charcoal (0.1 g), naturally-occurring marine shell (0.5 g), and fish remains (0.1 g). SIHP #-2918 Feature 18 is a pit of indeterminate function.

**SIHP #-2918 Feature 19** was identified within T-227 originating from the base of Stratum II at 1.0 mbs and terminating at 1.22 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 19 was circular in plan with a diameter of approximately 0.15 m. The sediment matrix of SIHP #-2918 Feature 19 was sandy loam with similar characteristics to Stratum II. One bulk sample was collected from SIHP #-2918 Feature 19 that contained charcoal (1.0 g), naturally-occurring

marine shell (0.2 g), and marine shell midden (2.9 g). SIHP #-2918 Feature 19 is a pit of indeterminate function.

**SIHP #-2918 Feature 20** was identified within T-227 originating from the base of Stratum II at 0.98 mbs and terminating at 1.02 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 20 was circular in plan, measuring 0.20 m wide and extending 0.12 m from the northwest excavation sidewall. The sediment matrix of SIHP #-2918 Feature 20 was sandy loam with similar characteristics to Stratum II. SIHP #-2918 Feature 20 is a pit of indeterminate function.

**SIHP #-2918 Feature 21** was identified within T-227 originating from the base of Stratum II at 1.00 mbs and terminating at 1.19 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 20 was irregular in plan and measured 0.65 m long by more than 0.7 m wide, extending into the northwest and southeast excavation sidewalls. The sediment matrix of SIHP #-2918 Feature 21 was sandy loam with similar characteristics to Stratum II. One bulk sample was collected from SIHP #-2918 Feature 21 and contained charcoal (0.8 g), naturally-occurring marine shell (0.5 g), ceramic fragments (0.3 g), and marine shell midden (2.6 g). SIHP #-2918 Feature 21 is a pit of indeterminate function.

**SIHP #-2918 Feature 22** was identified within T-227A originating from the base of Stratum II at 1.03 mbs and terminating at 1.08 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 22 was roughly square-shaped in plan and measured 0.27 m long by 0.25 m wide. The sediment matrix of Feature 22 was sandy loam with similar characteristics to Stratum II. A 6.0-liter screened sample was collected from SIHP #-2918 Feature 22 that contained marine shell midden (1.7 g), fish bones (0.4 g), fire-cracked rocks and a brick fragment (106.3 g), and a basalt fragment (13.1 g). SIHP #-2918 Feature 22 is a pit of indeterminate function.

**SIHP #-2918 Feature 23** was identified within T-227A originating from the base of Stratum II at 1.08 mbs and terminating at 1.31 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 23 was circular in plan and measured approximately 0.20 m in diameter. The sediment matrix of SIHP #-2918 Feature 23 was sandy loam with similar characteristics to Stratum II. A 4-liter screened sample and a 2-liter bulk sample were collected from SIHP #-2918 Feature 23, which contained charcoal (<0.1 g), volcanic glass (0.7 g), gastropods (0.3 g), limpets (0.5 g), miscellaneous shell fragments (0.3 g), and 9.2 g of marine shell midden material. The charcoal (<0.1 g) was submitted for wood taxa identification, which identified native taxa. Feature 23 is a postmold.

**SIHP #-2918 Feature 24** was identified within T-227A originating from within Stratum III at 1.17 mbs and terminating at 1.30 mbs as an intrusive pit within Stratum IV. SIHP #-2918 Feature 24 was oval-shaped in plan and measured 0.17 m long by 0.12 m wide. The sediment matrix of SIHP #-2918 Feature 24 was sandy loam. One bulk sample was collected from SIHP #-2918 Feature 24 that contained naturally-occurring marine shell (3.8 g), unidentified osseous remains of a medium mammal (0.1 g), and a shark tooth (0.1 g). SIHP #-2918 Feature 24 is a pit of indeterminate function.

**SIHP #-2918 Feature 25** was identified within T-227A originating from within Stratum II at 0.94 mbs and terminating at 1.08 mbs as an intrusive pit into stratum III. SIHP #-2918 Feature 25 was circular in plan with a diameter of approximately 0.2 m. The sediment matrix of SIHP #-



Figure 134. T-227A Feature 26, a postmold with a loamy sand sediment matrix considered to be a combination of Stratum II and III, view to southwest



Figure 135. T-226D Feature 28, an infilled pit containing historic structural remains, view to west

2918 Feature 25 was sandy loam with similar characteristics to Stratum II. One bulk sample was collected from SIHP #-2918 Feature 25 that contained naturally-occurring marine shell (1.0 g), volcanic glass (0.2 g), and fish bone (0.1 g). SIHP #-2918 Feature 25 is a pit of indeterminate function.

**SIHP #-2918 Feature 26** was identified within T-227A originating from the base of Stratum II at 1.12 mbs and terminating at 1.37 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 26 was circular in plan with a diameter of approximately 0.20 m. The sediment matrix of SIHP #-2918 Feature 26 was loamy sand which appeared to be a mixture of Stratum II and III (Figure 134). One bulk sample was collected from Feature 26 that contained faunal remains (0.5 g) consistent with a medium mammal (*cf. Canis lupus familiaris*), naturally-occurring marine shell (0.7 g), and marine midden consisting of *Nerita picea* (0.8 g). SIHP #-2918 Feature 26 is a postmold.

**SIHP #-2918 Feature 27** was identified within T-227A within Stratum III (Jaucas sand) at 1.25 mbs extending into Stratum IV (natural gley). The sediment matrix surrounding the burial was Jaucas sand (Stratum III) with no discernible pit outline. SIHP #-2918 Feature 27 consisted of human skeletal remains that were identified as an infant between 0–3 years based on the size and growth development of the remains. Ancestry determination on infant remains is not possible. SIHP #-2918 Feature 27 is a human burial.

**SIHP #-2918 Feature 28** was identified within T-226D as a truncated pit, extending from the base of Stratum Ia, the asphalt road surface, at 0.35 mbs and terminating at 0.82 m as an intrusive pit within Stratum Ib, an extremely gravelly loamy sand fill. SIHP #-2918 Feature 28 was irregular shaped in plan and measured 2.2 m long by more the 0.8 m wide, extending beyond the width of the test excavation. The sediment matrix of SIHP #-2918 Feature 28 was loamy sand with similar characteristics to Stratum Ib without the basalt gravel content. Metal rails (I-beams) and numerous yellow bricks and brick fragments were encountered within the sediment matrix (Figure 135). SIHP #-2918 Feature 28 is an infilled pit containing historic structural remains.

**Feature 29** was identified within T-226C as a pit. The feature originated near the base of Stratum Ic, a locally-procured, culturally-enriched fill. It was identified at 0.73 mbs and terminated at 1.22 mbs within Stratum III, Jaucas sand (Figure 136 and Table 10). SIHP #-2918 Feature 29 was circular shaped in plan and measured 0.42 m long by more than 0.21 m wide, extending into the northern excavation sidewall. The sediment matrix of Feature 29 consisted of loamy sand with similar characteristics to Stratum Ic. A 19-liter screened sample and one bulk sample were collected from SIHP #-2918 Feature 29 and contained charcoal (4.3 g); midden, including Crustacea (1.3 g); and burned medium mammal bone (0.1 g); naturally-occurring shell, including *Brachidontes crebristriatus* (0.1 g) and other worn shells and gastropods; burned wood (0.4 g); a green bottle glass fragment (0.8 g); and fire-cracked basalt rock (275.4 g). SIHP #-2918 Feature 29 is located in fill deposited directly atop the culturally-enriched A-horizon. SIHP #-2918 Feature 29 is a historic pit of unknown function.

**Feature 30** was identified within T-226C as a pit containing a preserved wooden post and fire-cracked rocks. Feature 30 pit originated within a fill deposit (Stratum Ic) at 0.78 mbs and terminated at 1.13 mbs within redeposited sand (Stratum Id) (see Figure 136 and Table 10). The

wooden post (0.70-1.10 mbs) and the western edge of the pit appear to have been truncated by Stratum Ib, a utility trench consisting of redeposited sand. Feature 30 was circular-shaped in plan and measured 0.30 m long by more than 0.15 m wide. It extended into the northern excavation sidewall. The sediment matrix of Feature 30 is loamy sand with similar characteristics to Stratum Ic, a locally-procured, culturally-enriched fill. Feature 30 is a postmold containing a preserved post and fire-cracked rocks.

Detailed information regarding the location, age, type, function and content of each archaeological feature is provided in Table 11.

The buried A-horizon (Stratum II; SIHP #-2918) has been capped by layers of locally-procured and imported fill, base course, and the modern asphalt surface of Punchbowl Street, all of which have been sub-designated under Stratum I. The fill sediments that cap the former land surface are considered to be late-nineteenth century to modern deposits related to land reclamation, grading, and the construction of Punchbowl Street.

The buried culturally-enriched A-horizon (SIHP #-2918) identified in T-226A, T-226B, T-226C, T-226D, T-227, and T-227A contained both traditional and post-Contact cultural material, human skeletal remains, vertebrate and invertebrate faunal material, and charcoal.

Traditional Hawaiian cultural material identified within the buried culturally-enriched A-horizon (SIHP #-2918) included ten pieces of volcanic glass debitage, which were recovered from a total of six features ((SIHP #-2918) Features 3, 5, 6, 8, 23, and 25) and the A-horizon itself in T-226B. Also a dog bone (*Canis lupus familiaris*) pick for removing the meat from gastropods was collected from T-226A at the interface between Stratum Ic and Stratum II (Figure 137).

Historic cultural material within the buried culturally-enriched A-horizon (SIHP #-2918) included glass bottles, ceramics, and metal fragments, bricks and brick fragments, and miscellaneous household refuse. The historic artifacts date from the late nineteenth century through the late twentieth century. The historic artifacts collected from three pit features (SIHP #-2918 Features 14, 16, and 17) within T-227 included bottle glass fragments, a machine-drilled ivory bead (Acc. #227-A-30), a nail, and a possible candleholder (Acc. #227 A-29) (Figure 138 and Figure 139). Historic artifacts were also collected from SIHP #-2918 Feature 28 (T-226D) including a rail beam and a spike (possible remnants of the Honolulu streetcar system) and brick fragments. Fragmentary historic remains were also recovered from bulk samples in SIHP #-2918 Features 2 (T-226A); 14, 16, 17, and 21 (T-227); and 22 (T-227A).

Both traditional Hawaiian and historic cultural material occurred together throughout the buried culturally-enriched A-horizon (Stratum II; SIHP #-2918) and within numerous pit features. The co-occurrence of traditional Hawaiian and historic cultural material reflects the continuity of use and/or occupation of the former land surface (Stratum II) from the pre-Contact period into the early twentieth century.

Human skeletal remains were observed in SIHP #-2918 Features 13 (T-226C) and 27 (T-227A). (SIHP #-2918) Feature 13 is considered to be a burial pit containing human skeletal remains that once extended from the base of the former land surface (A-horizon), but later was horizontally truncated by fill deposits. The observed skeletal remains included a pelvis with no

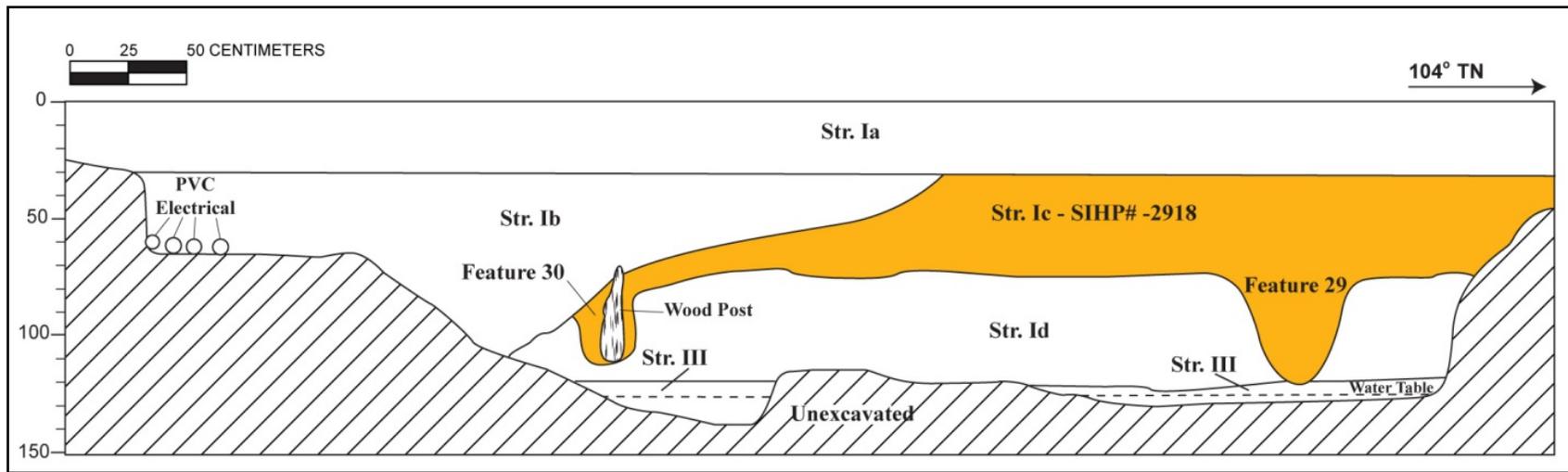


Figure 136. T-226C north wall profile showing SIHP #-2918 Features 29 and 30; Stratum Ic is also a component of SIHP #-2918

Table 10. T-226C Stratigraphic Description, north wall profile

Stratum	Depth (cmbs)	Description
Ia	0–31	Asphalt; road surface
Ib	31–110	Fill; 5 YR 3/3 (dark reddish brown); gravelly clay loam; weak, fine, crumb structure; moist, weakly coherent consistency; non-plastic; abrupt, broken/discontinuous lower boundary; utility trench fill
Ic	32–97	Fill; 10 YR 3/3 (dark brown) mottled with 10 YR 5/6 (yellowish brown); extremely gravelly loamy sand; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; clear, broken/discontinuous lower boundary; mixed fill with crushed coral; may be locally procured and re-deposited A-horizon sediment with mixed fill; fill deposit which became a cultural A-horizon; contains pit features 29 and 30; component of SIHP #50-80-14-2918
SIHP # -2918 Feature 29	73–122	Pit feature; 10 YR 3/3 (dark brown) mottled with 10 YR 5/6 (yellowish brown); extremely gravelly loamy sand; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; pit feature that originated from the base of locally-procured fill and re-deposited A-horizon sediment (Stratum Ic) and terminated within Jaucas sand (Stratum III); SIHP #50-80-14-2918 Feature 29
SIHP # -2918 Feature 30	78–113	Pit feature; 10 YR 3/3 (dark brown) mottled with 10 YR 5/6 (yellowish brown); extremely gravelly loamy sand; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; pit feature that containing a preserved wooden post and fire-cracked rocks; originated within a fill deposit (Stratum Ic) at 0.78 mbs and terminated at 1.13 mbs within redeposited sand (Stratum Id); SIHP #50-80-14-2918 Feature 30
Id	73–120	Fill; 10 YR 5/4 (light yellowish brown); coarse grain sand; structureless, single-grain; moist, loose consistency; non-plastic; clear, smooth lower boundary; contained glass bottle and fragment, faunal bone (collected); redeposited sand
III	120–139 (BOE)	Natural; 10 YR 6/4 (light yellowish brown); medium-grain sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not observed; Jaucas sand

Table 11. Archaeological Features of SIHP #-2918 Identified during the City Center Section 4 AIS

Feature	Test Excavation	Depth (cmbs)	Radiocarbon Age (C14)	Type/Function	Contents
1	T-226A	92-104	-	Pit/Indeterminate	Charcoal ( <i>kolomona</i> , 'ilima, <i>kōpiko</i> , 'ōhi'a lehua, <i>ipu</i> , <i>hau</i> , <i>kukui</i> , 'āheahea, <i>hala</i> , 'akoko), burned <i>kukui</i> nut shells, naturally-occurring marine shell, shell midden, faunal bone (fish, medium mammal)
2	T-226A	82-96	-	Pit/Indeterminate	Charcoal ( <i>kukui</i> , <i>niu</i> , 'ōhi'a lehua, <i>hau</i> , 'ulu), rusted nail, ceramic fragment, naturally-occurring marine shell, shell midden, faunal bone (fish, <i>Sus scrofa</i> molar fragment, medium mammal)
3	T-226A	82-102	-	Pit/Indeterminate	Charcoal ( <i>kōpiko</i> , <i>kukui</i> , <i>kī</i> , 'akoko, 'ōhi'a lehua, 'āheahea, 'ulu, 'ūlei, 'ilima, <i>lama</i> , grass, <i>kolomona</i> , <i>ipu</i> ), naturally-occurring marine shell, shell midden, burned <i>kukui</i> nut shells, volcanic glass (1 debitage), faunal bone (fish, <i>Rattus</i> sp., small mammal)
4	T-226B	70-96	-	Pit/Indeterminate	Charcoal ('ōhi'a lehua, 'āheahea, <i>kukui</i> , 'ulu, and <i>maiapilo</i> ), naturally-occurring marine shell, shell midden, faunal bone (fish, a shark tooth, a <i>Rattus</i> sp. tooth), fire-cracked rock
5	T-226B	75-95	-	Pit/Indeterminate	Charcoal ('akoko, <i>kolomona</i> , and <i>kukui</i> ), naturally-occurring marine shell, shell midden, faunal bone ( <i>Rattus</i> sp.), volcanic glass (1 debitage)

Feature	Test Excavation	Depth (cmbs)	Radiocarbon Age (C14)	Type/Function	Contents
6	T-226B	80-110	AD 1720-1820	Pit/Indeterminate	Charcoal (‘ōhi‘a lehua, kukui, hau, niu, and kī), naturally-occurring marine shell, shell midden, faunal bone ( <i>Canis lupus familiaris</i> premolar tooth), vesicular basalt, volcanic glass (3 debitage)
7	T-226B	80-95	-	Pit/Indeterminate	Charcoal ( <i>niu</i> ), naturally-occurring marine shell, shell midden
8	T-226B	76-90	AD 1630-1810	Pit/Indeterminate	Charcoal ( <i>niu</i> , ‘akoko, kolomona, ‘ilima, ‘āheahea, kī, kukui, and lama), naturally-occurring marine shell, shell midden, faunal bone (fish, small/medium mammal), fire-cracked rock, volcanic glass (1, debitage)
9	T-226B	76-85	-	Pit/Indeterminate	Charcoal, shell midden
10	T-226B	75-87	-	Pit/Indeterminate	Charcoal (‘ōhi‘a lehua and ‘ilima), naturally-occurring marine shell, shell midden, faunal bone ( <i>Rattus</i> sp., medium mammal), water-worn basalt
11	T-226B	78-94	AD 1720-1820	Pit/Dog burial	Charcoal ( <i>kolomona</i> , <i>niu</i> , ‘ilima, and <i>kukui</i> ), naturally-occurring marine shell, shell midden, faunal bone (fish)
12	T-226C	114-137	-	Pit/Indeterminate	Charcoal, naturally-occurring marine shell, faunal bone (fish)
13	T-226C	115-117	-	Pit/Human burial	Observed skeletal remains consisted of a pelvis with no articulating leg elements
14	T-227	90-107	-	Pit/ Indeterminate	Charcoal, naturally-occurring marine shell, faunal bone (fish, <i>Bos taurus</i> ), a bottle glass fragment
15	T-227	93-113	-	Pit/Postmold	Possible postmold

Feature	Test Excavation	Depth (cmbs)	Radiocarbon Age (C14)	Type/Function	Contents
16	T-227	101-117	-	Pit/Indeterminate	Charcoal, naturally-occurring marine shell, faunal bone (medium mammal), metal, bottle glass fragment
17	T-227	105-116	-	Pit/Indeterminate	Charcoal, naturally-occurring marine shell, faunal bone (fish, medium mammal, 2 <i>Sus scrofa</i> molars), metal, bottle glass fragment, glass candleholder, and an ivory bead
18	T-227	100-105	-	Pit/Indeterminate	Charcoal, shell midden, faunal (fish)
19	T-227	100-122	-	Pit/Indeterminate	Charcoal, shell midden
20	T-227	98-102	-	Pit/Indeterminate	No sample collected, no cultural material observed
21	T-227	100-119	-	Pit/Indeterminate	Charcoal, shell midden, ceramic fragment
22	T-227A	103-108	-	Pit/Indeterminate	Shell midden, faunal bone (fish), fire-cracked rock, a brick fragment
23	T-227A	108-131	AD 1720-1810	Pit/ Postmold	Charcoal ( <i>kōpiko</i> and <i>lama</i> ), naturally-occurring marine shell, volcanic glass (2 debitage)
24	T-227A	117-130	-	Pit/Indeterminate	Naturally-occurring marine shell, faunal bone (medium mammal, a shark tooth)
25	T-227A	94-108	-	Pit/Indeterminate	Naturally-occurring marine shell, faunal bone (fish), volcanic glass (1 debitage)
26	T-227A	112-137	-	Pit/ Postmold	Naturally-occurring marine shell, faunal bone ( <i>Canis lupus familiaris</i> )
27	T-227A	125	-	Skeletal remains/Human burial	A partial infant burial (0-3 years); no visible pit outline

<b>Feature</b>	<b>Test Excavation</b>	<b>Depth (cmbs)</b>	<b>Radiocarbon Age (C14)</b>	<b>Type/Function</b>	<b>Contents</b>
28	T-226D	35-82	-	Pit/Trash pit	Contains a wood beam, metal rails (I-beams), and numerous yellow bricks and brick fragments; possible railway or streetcar system structural remains
29	T-226C	73-122	-	Pit/Indeterminate	Contains former culturally-enriched sand A-horizon sediment and fill sediments, charcoal, burned wood, a green bottle glass fragment, burned faunal bone (medium mammal), and fire-cracked rock
30	T-226C	78-113	-	Pit/Postmold	A preserved wooden post and fire-cracked rocks



Figure 137. Bone pick found in T-226A, at the interface of Strata Ic and II (Acc. # 226A-H-1)



Figure 138. T-227 pressed glass artifact, possible candlestick holder, (Acc. #227-A-29) from SIHP #-2918 Feature 17



Figure 139. T-227 machine-drilled ivory bead (Acc. #227-A-30) from SIHP #-2918 Feature 17

articulating leg elements. The sex and ancestry of the skeletal remains could not be determined. SHIP #-2918 Feature 27 is a partial infant burial that was observed within Jaucas sand underlying the culturally enriched A-horizon. The burial was determined to be an infant between 0-3 years based on the size and growth development of the remains. The stratigraphic context and the form of the burial pits are consistent with traditional Hawaiian burial practices.

Vertebrate faunal remains were collected from the buried culturally-enriched A-horizon and SHIP #-2918 Features 3, 11, 14, and 17. Some of these faunal remains exhibit evidence of butchering (i.e., cut with a metal saw blade). Faunal remains collected from the buried A-horizon (SHIP #-2918) include *Bos taurus* (butchered), *Sus scrofa* (butchered), *Capra aegagrus hircus* (unmodified), and *Canis lupus familiaris* (unmodified). Faunal remains collected from SHIP #-2918 Features 3, 11, 14, and 17 consist of *Rattus* sp. (unmodified), *Bos taurus* (butchered), *Sus scrofa* (unmodified), and *Canis lupus familiaris* (unmodified), and a variety of unidentified fish remains.

Invertebrate faunal remains were predominately collected from screened and bulk sediment samples of the buried culturally-enriched A-horizon and associated features (all designated SHIP #-2918). Invertebrate fauna include non-cultural shell and shell midden (see Table 11).

Radiocarbon analysis on charcoal samples from SHIP #-2918 Features 6, 8, 11, and 23 provided a date range for SHIP #-2918 of late pre to early post-Contact (see Table 11).

The buried culturally-enriched A-horizon with 26 associated features (Features 1–23 and 25–27) and four additional features (Features 24, 28–30) documented during this AIS in T-226A through T-226D, T-227, and T-227A are combined into SIHP #-2918, previously described by Yent (1985) (see Figure 127). Although poorly documented, the Yent (1985) study identified six human burials within pits and were truncated by or associated with a cultural layer and/or charcoal staining, and were intrusive into underlying sand. The depositional sequence described by Yent (1985) is similar to the depositional sequence observed within T-226A, T-226B, T-226C, T-226D, T-227, and T-227A. In both studies, the cultural layer or buried culturally-enriched A-horizon (SIHP #-2918) is truncated and/or capped with up to 1.0 m of fill deposition. The association of human burials extending from or intrusive of a cultural layer, which is documented by Yent (1985) on two profile maps also correlates with the identification of SIHP #-2918 Feature 13 burial in T-226C and SIHP #-2918 Feature 27 in T-227A. In addition, similarities in the depositional environment, location in the stratigraphic column, geographic location, cultural layers or culturally-enriched A-horizon and associated burials provide the basis for a combination of the findings of Yent (1985) with the findings within T-226A, T-226B, T-226C, T-226D, T-227, and T-227A.

SIHP #-2918 is a buried, culturally-enriched sandy loam A-horizon and 30 newly-identified archaeological features (Features 1–30) as well as six burials (Burial #1-6) that were previously identified by Yent (1985). Of the 30 newly-identified features, 26 features (Feature 1–23 and 25–27) are associated with the subsurface, culturally-enriched sandy loam A-horizon and consist of 1 human burial pit, 1 dog burial pit, 3 postmolds, and 21 indeterminate pits. Four additional features (Features 24 and 28–30), which are not associated with the A-horizon, also were identified. SIHP #-2918 Features 24 and 29 are pits of unknown function. SIHP #-2918 Feature 28 is an infilled pit containing historic structural remains and SIHP #-2918 Feature 30 is a

postmold containing a preserved post. SIHP #-2918 Features 29 and 30 originate from a the base of Stratum Ic in T-226C, a deposit of mixed locally-procured fill and redeposited A-horizon sediment. SIHP #-2918 contained both traditional and post-Contact cultural material, human skeletal remains, vertebrate and invertebrate faunal material, and charcoal. Laboratory analysis of material collected from SIHP #-2918 indicates that the former land surface (culturally-enriched A-horizon, Stratum II) was utilized from the pre- and/or early post-Contact period to the early twentieth century, prior to being capped by historic fill deposits.

Based on the guidance of National Register Bulletin No. 15, SIHP #-2918 retains its integrity of location, design, materials, and workmanship. Based on past documentation and the results of this investigation, CSH recommends that this cultural resource maintains the integrity to support its historic significance under Criterion D (has yielded, or is likely to yield, information important for research on prehistory or history) for its information potential, and E (has cultural significance to an ethnic group) of the Hawai'i Register.

SIHP #-2918 has provided information, and has potential to provide additional information, on late pre- to early post-Contact habitation, historic land use, and burial practices within Kaka'ako. The potential for additional research warrants the implementation of a data recovery program. Data recovery at SIHP #-2918 will focus on data collection from the buried, culturally-enriched sandy loam A-horizon and associated features, and any discrete post-Contact features within the overlying fill layers. Data recovery will include a more intensive regime of strata- and feature-specific radiocarbon, palynological, and botanical analysis. The analysis will seek to indicate use and function of culturally-enriched strata and features, and attempt to temporally categorize subsurface deposits to distinguish between traditional Hawaiian versus historic deposition. Data recovery will identify additional non-burial features as well as any burials or human skeletal remains that may be present at SIHP #-2918, including their stratigraphic association and chronology. Following the data recovery program, an archaeological monitoring program is recommended for SIHP #-2918. Archaeological monitoring will recover additional data on the nature, depositional sequence, and extent of SIHP #-2918. The previously-identified burials associated with SIHP #-2918 will be treated in accordance with HAR §13-300 and HRS §6E-43. In order to alleviate the project's effect on human burials, a project-specific burial treatment plan (a requirement of HAR §13-300) will be prepared for consideration of the OIBC and recognized descendants. The agreed upon treatment is preservation in place, the details of which will be documented in the burial treatment plan submitted to SHPD for review and acceptance.

**5.3.2 SIHP #50-80-14-2963**

<b>FORMAL TYPE:</b>	Subsurface cultural deposit, subsurface pond sediments, human burials, animal burials
<b>FUNCTION:</b>	Aquaculture, habitation, and burial
<b>PREVIOUS DOCUMENTATION:</b>	Ota and Kam 1982, Clark 1987
<b>AGE:</b>	Pre- and post-Contact
<b>NUMBER OF FEATURES:</b>	47 total; 35 previously identified and 12 newly identified
<b>TYPES OF FEATURES:</b>	16 pits, 8 trash pits, 7 human burials, 5 animal burials, 4 possible postmolds, 2 building foundations, 2 areas containing animal bone in a disturbed context, 1 burial land surface, 1 posthole, and 1 burned soil area
<b>DISTRIBUTION:</b>	2.1 acres total; 0.44 acres (within current project area)
<b>LOCATION:</b>	Along Halekauwila Street at the intersection of Punchbowl Street and between Punchbowl Street and South Street (West Kaka'ako Geographic Zone)
<b>TAX MAP KEY:</b>	TMK [1] 2-1-030 (Halekauwila Street ROW por.); [1] 2-1-026:001; and [1] 2-1-031:010
<b>LAND JURISDICTION:</b>	City and County of Honolulu (current project area), [1] 2-1-026:001 and [1] 2-1-031:010 (previously identified)
<b>TEST EXCAVATIONS:</b>	T-122, T-122A, T-123, T-124, and Test Bore T-124A

SIHP #50-80-14-2963 consists of a previously-identified subsurface cultural deposit, subsurface pond sediments, human burials, and animal burials located along Halekauwila Street, at the intersection of Punchbowl Street and between Punchbowl Street and South Street (Figure 140). This archaeological resource was first identified by Ota and Kam (1982) approximately 16 m northeast of the current City Center project APE as human skeletal remains representing six incomplete skeletons (Figure 141). The cultural resource was subsequently identified by Clark (1987) immediately adjacent to the northeast boundary of the current City Center project APE as consisting of the following 35 features: 8 pits, 8 trash pits, 7 human burials, 5 animal burials, 2 building foundations, 2 areas containing animal bone in a disturbed context, 1 burial land surface, 1 posthole, and 1 burned soil area (Figure 142 and Table 12). Clark (1987) also identified buried pond sediments. The 1881 Brown map of Honolulu depicts three ponds at this location, with one pond labeled "Auwaiolimu Crown Land" located within the interpolated boundary of SIHP #-2963 including the western portion of the Clark (1987) study area and a section of the current project's APE (Figure 143). SIHP #-2963 was identified within T-122 through T-124A of the current City Center study.

Ota and Kam (1982) conducted an osteological analysis on human skeletal remains representing six incomplete skeletons that were collected from the northeastern corner of Punchbowl Street and Halekauwila Street. The skeletal remains were disturbed during construction of the State Office Building #2 and were collected by personnel from Borthwick Mortuary who produced a sketch plan map of the burial locations (see Figure 141).

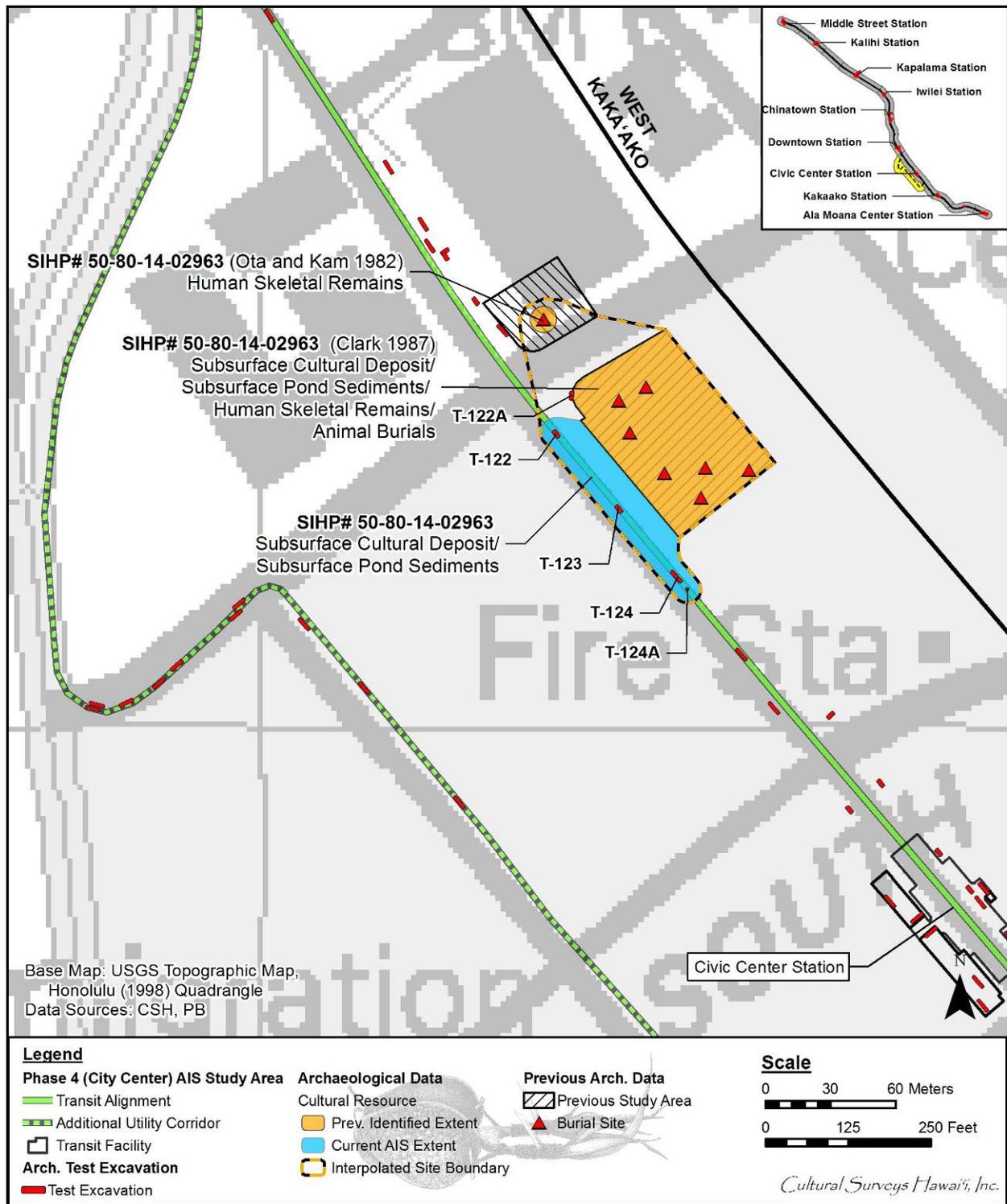


Figure 140. Location of SIHP # 50-80-14-2963 in the West Kaka'ako Zone (Base Map: USGS 1998 Topographic Map of Honolulu Quadrangle)

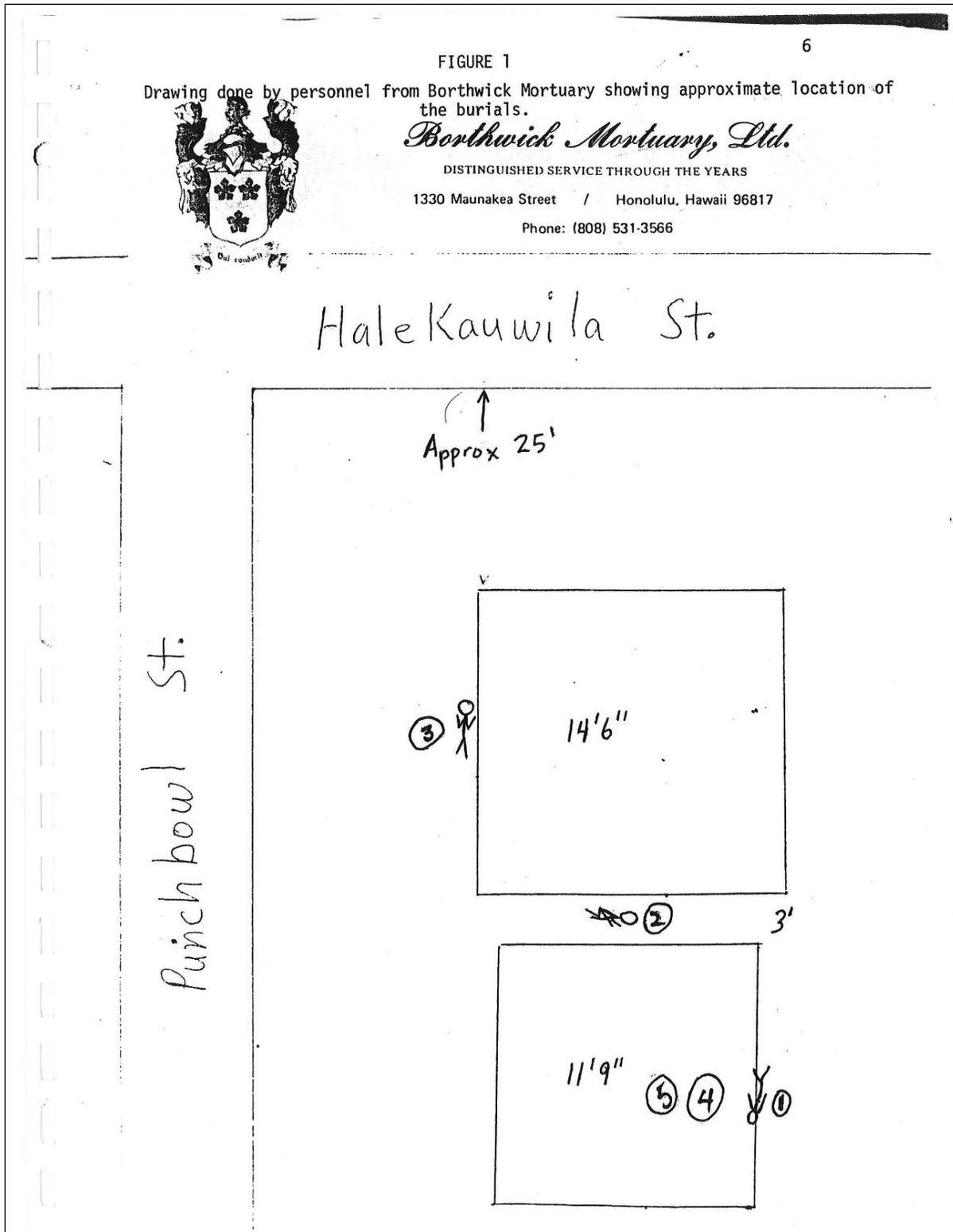


Figure 141. Location of burials disinterred during the construction of the State Office Building #2 and associated with SIHP # 50-80-14-2963 (Ota and Kam 1982:6)

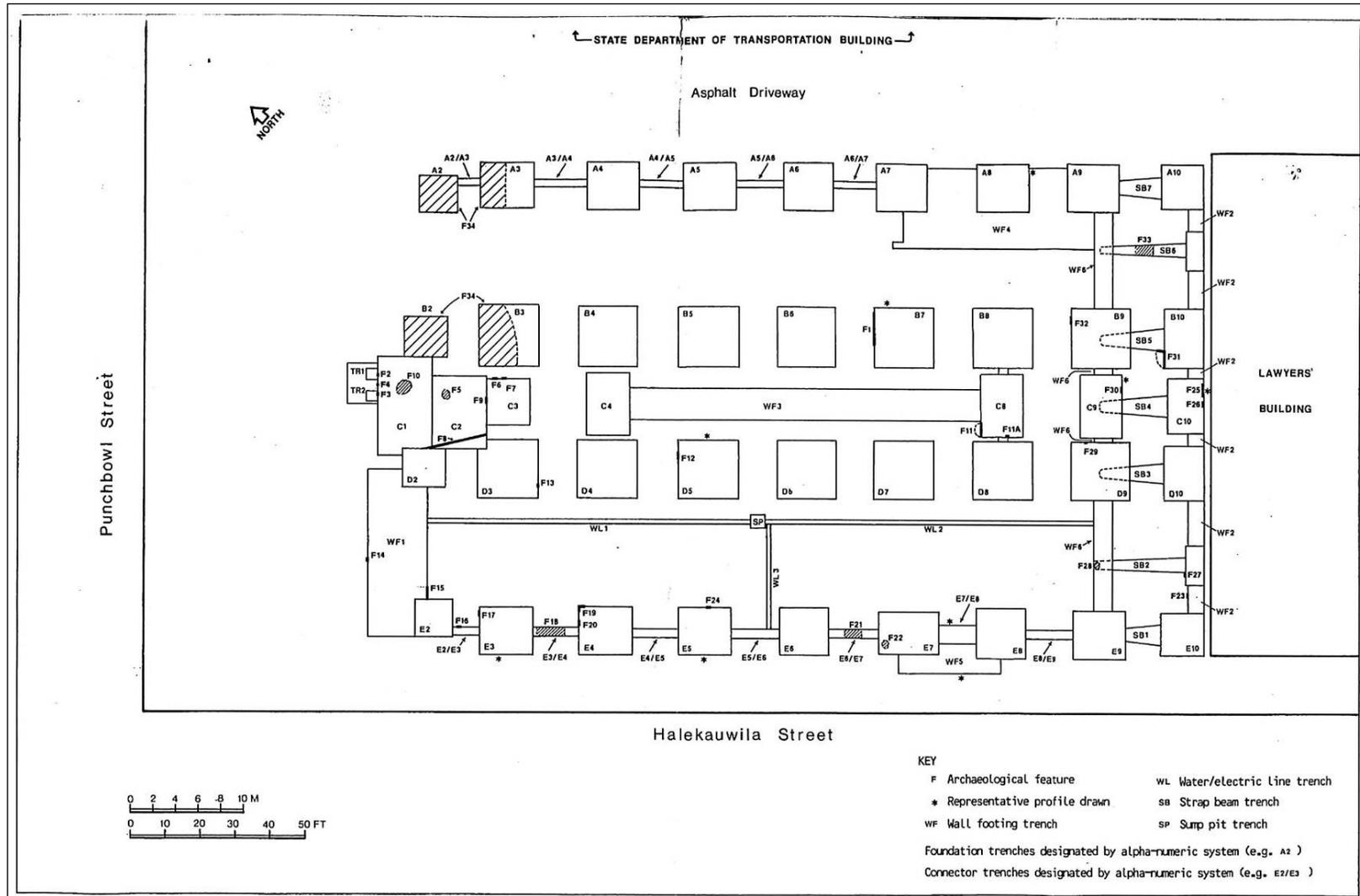


Figure 142. Location of previously-identified archaeological features of SIHP # 50-80-14-2963 (Clark 1987:27)

Table 12. Summary of Previously-Identified Archaeological Features of SIHP # 50-80-14-2963 (adapted from Clark 1987)

Feature	Stratum	Depth (cmbs)	Radiocarbon Date (C14)	Type/Function	Description
1	Fill E	60-130	-	Trash pit	Deep historic pit; base not exposed; contains cement fragments, plastic, wire, wood, auto parts, and saw blade; pit matrix is mixed deposits of fills F through H.
2	I	73-88	-	Trash pit	Roughly rectangular in plan view; contains shell and bone (rat, medium and large mammal and fish) midden, volcanic glass, adze, flake, coral file, and historic artifacts (glass and metal); layer I fill.
3	I	75-89	-	Animal burial	Articulated skeleton of infant, advanced artiodactyl (goat or sheep); coral found next to cranium area; layer I fill.
4	I	70-75	-	Burned soil area	Reddish color to layer I soil; burned area with charcoal staining; situated between Features 2 and 3.
5	I	70-90	-	Trash pit	Roughly oval in plan view; contains a rusted metal fragment, nail, basalt flake, marine shell and turtle bone midden; layer I fill.
6	I	75-85	-	Pit	Pit deeper on south side; layer I fill; adjacent to Feature 7 pit.
7	I	72-90	-	Pit	Pit deeper on north side; charcoal staining present at base; layer I fill.
8	Fill H	40-45	-	Foundation	Portion of squared cement foundation or wall base.
9	I	65-100	-	Trash pit	Deep historic pit containing historic artifacts (glass bottles, ceramics, and cut cow bone); base of pit not exposed; layer I fill.
10	I	75-118	-	Human burial	Oval-shaped burial pit; remains disturbed by fill H; Hawaiian male in flexed position; 50-70 yrs.; volcanic glass in pit; cranium broken by backhoe blade; layer I and II fill.
11	I	40-100	-	Human burial	Two-thirds of burial removed by backhoe; legs in flexed position; Hawaiian female 30+ years; layer I and II fill.

Feature	Stratum	Depth (cmbs)	Radiocarbon Date (C14)	Type/Function	Description
11a	I	25-50	-	Animal burial	Small pit with rounded base and narrow width in cross section; contains articulated remains of pig; layer I fill.
12	I	20-70	-	Pit	Roughly rectangular in cross section; traditional basalt artifacts (adze, hammerstone, poi pounder top, and basalt flakes) recovered in backfill from Feature 12 area; layer I fill.
13	I	20-50	-	Animal burial	Roughly oval in cross section; articulated skeleton of a medium sized mammal (pig or dog) partly recovered; layer I fill.
14	I	15-37	-	Human burial	Bundle burial in irregular-shaped pit; layer I fill; Hawaiian female, 25-30 yrs.
15	I	20-40	-	Trash pit	Long pit with historic artifacts (glass bottles, ceramics, nail, and cut cow bone; base of pit not exposed; layer I fill.
16	I	20-30	-	Isolated animal bone	Bone (pig, dog, and cow) and historic artifacts (glass and ceramic) collected from disturbed layer I deposits; feature type not defined.
17	I	20-45	-	Trash pit	Roughly rectangular in cross section; contains historic artifacts (glass and ceramics) and charcoal fragments; layer I fill.
18	Unknown	20-40	-	Human burial	Scattered human skeletal remains associated with Feature 21; burial previously disturbed by bulldozing; Hawaiian male, 20-30 yrs; burial pit not found; advanced artiodactyl remains collected from same area.
19	I	50-100	-	Pit	Deep pit containing historic artifacts (glass and ceramic fragments) and sparse charcoal; pit disturbed by fill H; base of pit not exposed; layer I and II fill.
20	I	45-90	-	Pit	Deep pit containing sparse historic bottle glass fragments; vertical sides on pit; mottled layer I and II fill.

Feature	Stratum	Depth (cmbs)	Radiocarbon Date (C14)	Type/Function	Description
21	Unknown	45-50	-	Human burial	Isolated human cranium associated with Feature 18 remains; remains of unidentified large mammal collected in same area.
22	Fill J	40-50	-	Trash pit	Oval-shaped pit containing wood, glass bottles, glass and ceramic fragments, rusted metal objects, metal light fixture; contains fill layers J, K, and L.
23	I	50-85	-	Pit	Small pit with rounded base; contains sparse <i>kukui</i> shell; layer I fill
24	I	50-80	-	Trash pit	Roughly rectangular in cross section; contains remains of two individual <i>aku</i> ( <i>Katsuwonus pelamis</i> ) and charcoal; layer I fill.
25	II	50-53	A.D. 430-905	Buried surface	Thin (3-5 cm) lens of loamy sand with charcoal.
26	I	30-60	-	Pit	Pit with rounded base adjacent to Feature 25; mixed layer I and II fill.
27	I	Unknown	-	Isolated animal bone	One isolated piece of medium mammal bone in disturbed layer I deposit.
28	I	10-40	A.D. 1270-1410	Human burial	Burial greatly disturbed by backhoe; Hawaiian male, 20-25 yrs; probably disturbed prior to present construction; concentrated charcoal in burial pit.
29	I	05-30	-	Posthole	Probably posthole 25 cm deep; basalt rock in feature matrix; no midden observed; layer I fill.
30	I	30-50	-	Animal Burial	Articulated pig skeleton in pit (cranium, upper torso removed by backhoe); mottled layer I and II fill.
31	I	13-190	-	Animal burial	Articulated cow skeleton in large pit; cranium, upper torso and legs removed and identified; layer I and II fill.
32	I	150-220	-	Pit	Large pit with sparse historic artifacts (rusted metal, slate pencil fragment, bottle glass fragments) and charcoal flecking; layer I fill.
33	Unknown	Unknown	-	Human burial	Isolated human femur (left side) found in backhoe dirt pile; pit feature not found.

<b>Feature</b>	<b>Stratum</b>	<b>Depth (cmbs)</b>	<b>Radiocarbon Date (C14)</b>	<b>Type/Function</b>	<b>Description</b>
34	Fill H/layer I	55-65	-	Foundation	Red clay bricks in fairly level layers in these trenches; possible building foundation/floor, or bulldozed remnants; situated under fill H and over layer I.

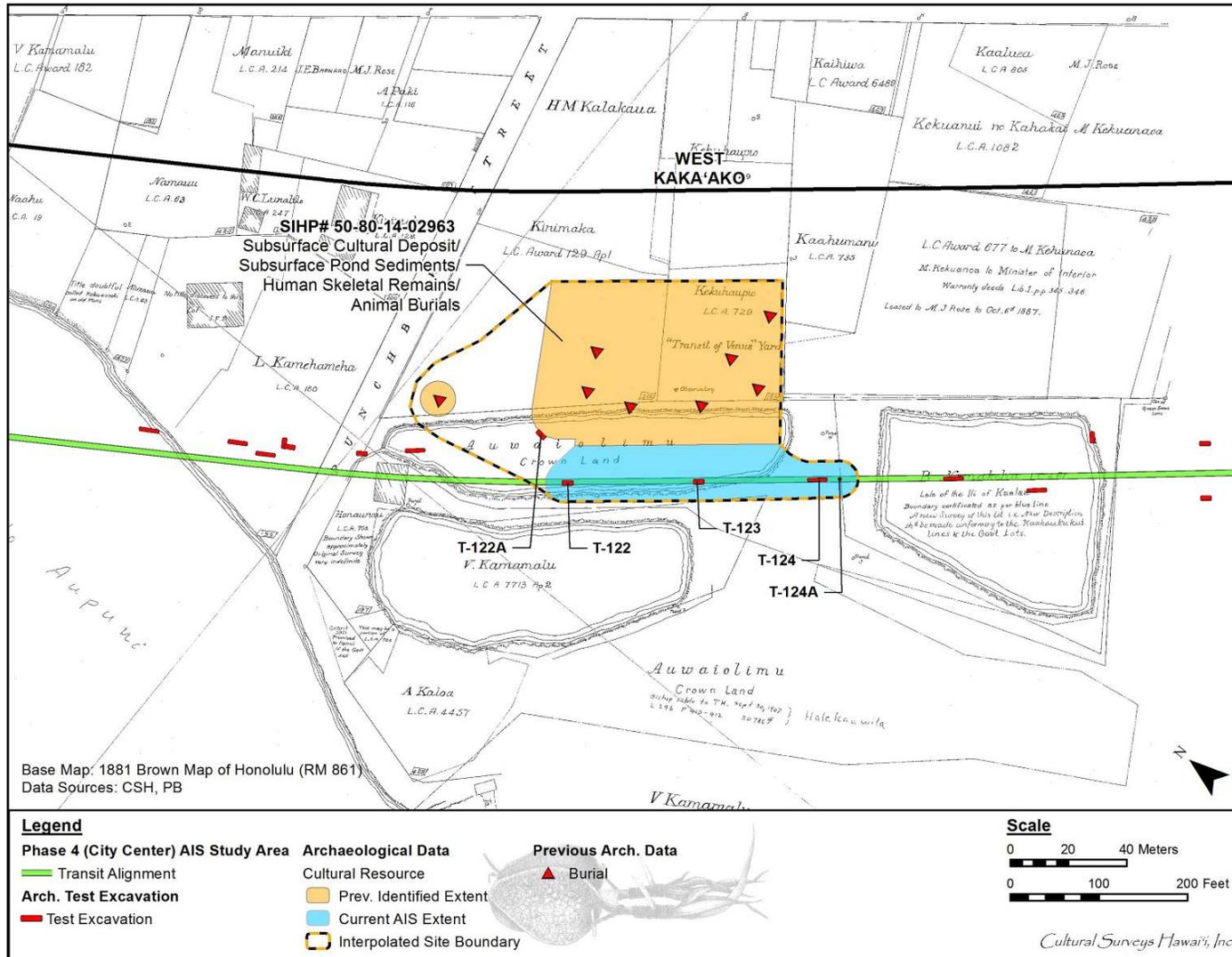


Figure 143. Portion of the 1881 Map of Honolulu by Brown (RM 861) showing the location of three ponds at the location of SIHP # 50-80-14-2963

Ota and Kam (1982) received the skeletal remains in bags with no recorded provenience, stratigraphic association, or associated cultural material, which minimized the possibility for data analysis. Ota and Kam (1982:4) summarize the osteological analysis as follows:

Six fragmented individuals were examined and an attempt was made to distinguish age at time of death, sex, and pathological conditions, if any at time of death. The remains were incomplete (except for the possible exception of #2) and fragile. Since no long bone measurements could be taken, metrical data could not be composed to those done on other population studies in Hawaii. Skull measurements done on burial #3 were compared to a study done in Kalahuipua'a, but since it is just a comparison of one individual, the variability exhibited traits from both the male and female sample. No definite race determination could be made on any of the remains. It appears however that burial 2 and 3 could be of Hawaiian extraction based on the evulsed incisors. There are written accounts as well as physical evidence of the Hawaiians using tooth evulsion as part of their mourning rites. It is not believed that this cultural practice was done by the Oriental population living in Hawaii. Admittedly, this is not an absolute method to determine the race of an individual, but known cultural practices that are done in one population can be used to differentiate it from another. It should be noted that this is taking into account that the incisors were evulsed observing a cultural practice, not due to an unintentional loss such as fighting.

The general appearance of the remains of #2 tend to support the idea that this individual was Hawaiian due to the robustness and size of the bones.

Only one individual exhibited any pathological conditions (#2). Osteoarthritis was evident on the vertebrae of this burial.

Clark (1987) describes the depositional environment at SIHP #-2963 as involving three overlying types of deposits (Figure 144, Figure 145, and Table 13). The deepest deposits consisted of natural strata identified as follows: a culturally-enriched marine sand and terrigenous sediment containing prehistoric and historic features (Layer I), beach sand (Layer II), pond sediments (Pond Layer I and II), and volcanic cinder (Layer III) overlying coral bedrock (Clark 1987:43-45). Two fill sequences were overlain atop the natural strata and involved parking lot fills (Fills A-H) and fishpond fills (Fills J-N). The parking lot fill sequence consisted of basalt pebbles in loam (Fill A), coral gravel in clay loam (Fill B), sandy clay loam with sparse coral pebbles (Fill C), coral sand with coral gravel and pebbles (Fill D), strongly cemented medium sand (Fill E), sand with coral gravel, pebbles, and cobbles (Fill F), clay with charcoal staining and bottle glass fragments (Fill G), and sand with coral gravel, pebbles, cobbles, and sparse boulders (Fill H) (Clark 1987:39). The fishpond fills were observed in the western portion of the project area in Trenches E2 through E10 and WF5 (see Figure 142). The fishpond fill sequence consisted of possibly oil-stained sand (Fill J), coarse sand with marine shell and historic artifacts (Fill K), fine sand (Fill L), very fine coral silt with gleyed mottles (Fill M), and coarse sand with rounded marine shell fragments and dark greenish gray mottles (Fill N) (Clark 1987:43).

The 35 features of SIHP #-2963 identified by Clark (1987) consisted of 3 features associated with the parking lot fill sequence, 1 feature associated with the fishpond sequence, 27

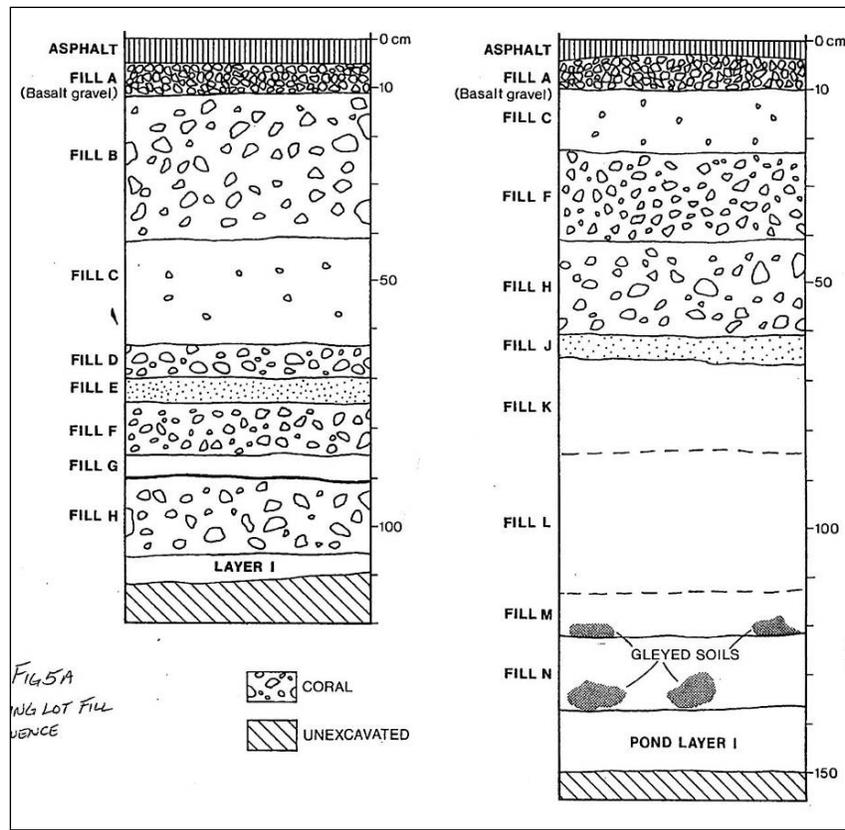


Figure 144. The parking lot fills (A–H; left) and fishpond fills (J–N; right) stratigraphic sequences (Clark 1987:38)

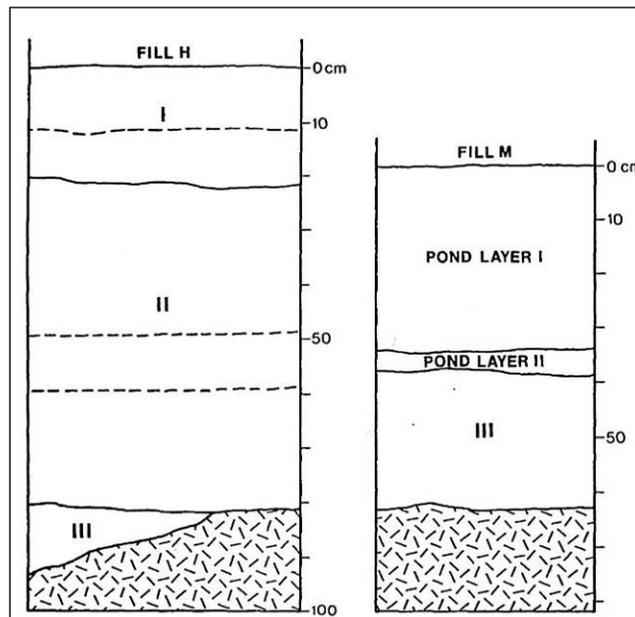


Figure 145. The natural beach (I–III; left) and pond (Pond Layer I–II; right) stratigraphic sequences (Clark 1987:44)

Table 13. Depositional Sequences Observed by Clark (1987:39-44)

<b>Stratum</b>	<b>Description</b>
<b>Parking Lot Fills</b>	
Fill A	Angular basalt pebbles in a brown loam matrix; directly underlies asphalt paving of parking lot; 5 to 10 cm thickness range
Fill B	Pale brown clay loam with coral gravel, pebbles, and sparse cobbles; strongly cemented; 15 to 35 cm thickness range
Fill C	Dark brown sandy clay loam with sparse coral pebbles; 20 to 25 cm thickness range
Fill D	Very pale brown to white coral sand with coral gravel and pebbles; strongly cemented; 5 to 10 cm thickness range
Fill E	Light gray to gray, medium coral sand; strongly cemented; 3 to 8 cm thickness range
Fill F	Pale brown coral sand with coral gravel, pebbles, and cobbles; strongly cemented; 8 to 12 cm thickness range
Fill G	Dark reddish brown clay; thin zone of charcoal staining at base of fill; contains sparse broken bottle glass in matrix; 3 to 9 cm thickness range
Fill H	Pale brown coral sand with coral gravel, pebbles, cobbles, and sparse boulders; strongly cemented; 10 to 25 cm thickness range; first parking lot layer to be deposited in project area; directly overlies layer I
<b>Fishpond Fills</b>	
Fill J	Gray to light gray, medium coral sand; possibly oil-stained; 5 to 8 cm thickness
Fill K	Very pale brown coarse coral sand with rounded marine shell fragments; contains historic artifacts; 10 to 23 cm thickness
Fill L	Very pale brown fine to very fine coral sand; 15 to 28 cm thickness
Fill M	Very pale brown fine to very fine coral silt; sparse light greenish gray, gleyed mottled areas in lower proveniences; 8 to 12 cm thickness range
Fill N	Coarse coral sand with greenish gray and dark yellowish brown colors; contains rounded marine shell fragments; dark greenish gray mottled areas in lower proveniences; 10 to 15 cm thickness range; directly overlies pond layer I
<b>Natural Beach Strata</b>	
I	Very dark brown sandy clay loam; less clay in lower proveniences; contains traditional Hawaiian and historic artifacts, pit features, human and animal burials
II	Brownish yellow, very fine to coarse coral sand; discontinuous very pale brown central band with very fine to medium coral sands and silts
III	Black and dark reddish brown volcanic cinder
<b>Natural Pond Strata</b>	
Pond Layer I	Black silty mud with high organic content; contains historic artifacts and preserved vegetation materials
Pond Layer II	Dark greenish gray silty mud; gleyed; contains sparse historic artifacts

features associated with Layer I, 1 feature associated within Layer II, and 3 features with unknown stratigraphic association (see Table 13).

The identified parking lot sequence features consisted of a large pit (Feature 1), a cement building foundation (Feature 8), and a red brick layer or possible building foundation (Feature 34). The features associated within Layer I consisted of eight pits (Features 6, 7, 12, 19, 20, 23, 26, and 32) six trash pits (Features 2, 5, 9, 15, 17, and 24), five animal burials (Features 3, 11a, 13, 30, and 31), four human burials (Features 10, 11, 14, and 28), two isolated animal bone areas (Feature 16 and 27), one burned soil area (Feature 4), and one posthole (Feature 29). The Layer II feature was a buried land surface (Feature 25). The three features of unknown stratigraphic association (Features 18, 21, and 33) were all previously-disturbed human burials with no associated burial pits or strata.

Layer I of the Clark (1987) study is interpreted as a buried, culturally-enriched A-horizon or former land sand based on the stratigraphic description, the depositional sequence and association with development on marine sand, and the types and amounts of associated archaeological features. Radiocarbon analysis of charcoal collected from the Feature 28 burial pit dated from AD 1270 to 1410.

The buried land surface (Feature 25) within the Layer II beach sand of Trench C10 is particularly interesting. This land surface is overlain by natural beach sand which predates the overlying culturally-enriched A-horizon (Layer 1) (Figure 146). Radiocarbon analysis of charcoal collected from Feature 25 dated from AD 430 to 905. Clark (1987:109) notes:

Although no Hawaiian cultural materials or features were found in association with this buried surface, it is worth reporting because the age of the buried surface falls into the age range of Hawaiian occupation of O'ahu.

Feature 25 was identified within Trench C10 which was located along the southeastern edge of the Clark (1987) study area and adjacent to the "Lawyer's Building".

Beneath the fishpond fill sequence, two natural strata (Pond Layer I and II) were identified by Clark (1987:50) as being associated with a fishpond micro-environment. Pond Layer I is described by Clark (1987:50) as follows:

This is a deposit of black silty mud mixed with a high organic content. It ranges from 20 to 45 cm thick and is moderately compact. Pond layer I directly underlies Fill N and directly overlies pond layer II. Pond layer I contains thick concentrations of well preserved vegetation matter (leaves, twigs, and seeds). Vegetation materials identified in this layer include *kukui* nuts (*Aleurites moluccana*), Pandanus keys (*Pandanus* spp.), and coconuts (*Cocos nucifera*). In fact numerous well preserved coconuts (with and without fibrous husks) and several coconut tree stumps with root systems were found preserved in this layer. Samples of pond layer II were collected for further identification of organic materials.

Numerous historic artifacts were found in this layer. These include items such as glass bottles (whole and fragments), ceramic fragments, leather shoes, and pieces of cut wood.

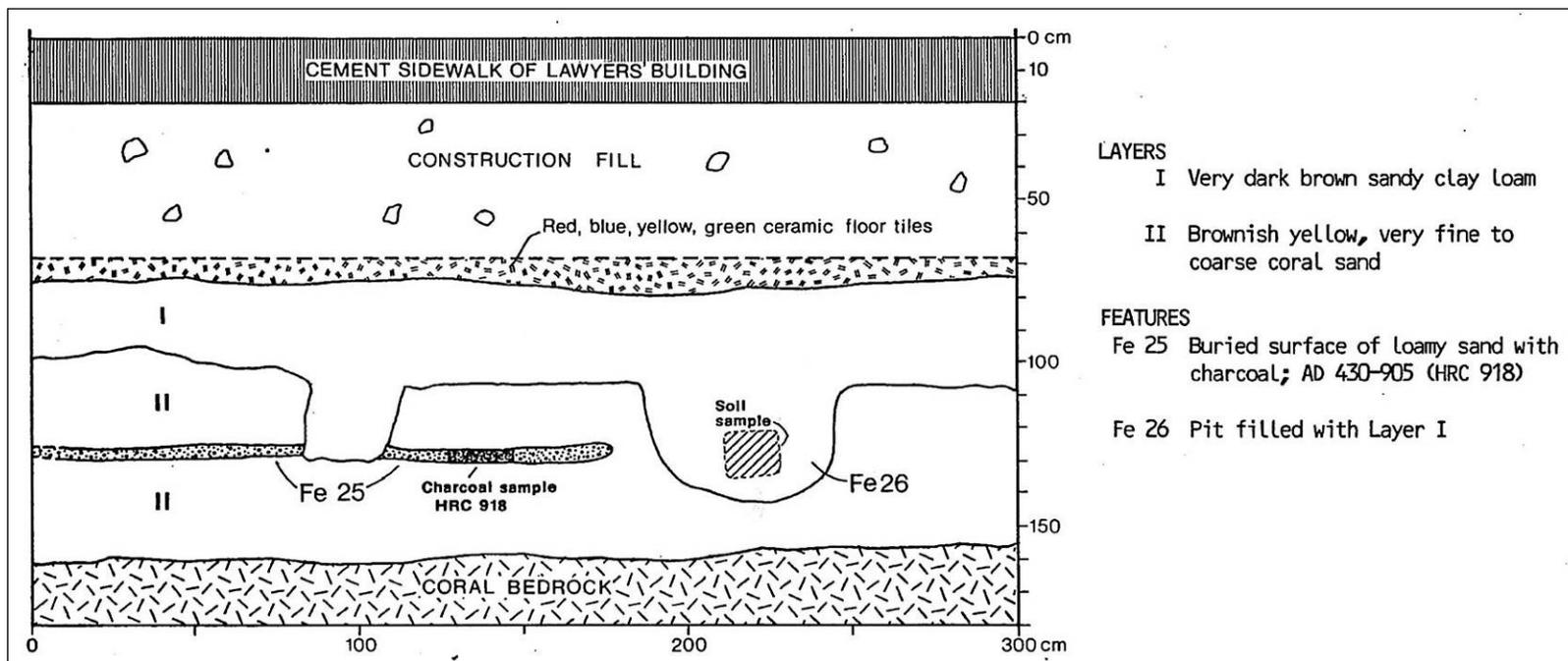


Figure 146. Trench C10 stratigraphic profile showing Feature 25 (buried surface) and Feature 26 (pit) (Clark 1987:48)

Pond Layer II is described by Clark (1987:51) as follows:

This layer consists of gleyed, fine-textured, silty mud. It is dark greenish gray in color and ranges from 3 to 5 cm thick. It directly overlies layer III volcanic cinder and contains sparse historic artifacts, primarily broken glass.

Similar depositional sequences, culturally-enriched strata, and archaeological features as those described by Clark (1987) were identified during the current City Center AIS within T-122 through T-124A. A buried, culturally-enriched A-horizon with 12 associated archaeological features (Features 1–12) was identified within T-124 (Table 14). Three features (Features 1–3) extended from the base of Stratum IIa, the upper sandy loam portion of the buried A-horizon (Figure 147 through Figure 149 and Table 15). The remaining nine features (Features 4–12) extended from the base of Stratum IIb, the lower loamy sand portion of the buried A-horizon (see Figure 147 through Figure 149 and Table 15). Stratum IIa was considered to be the historically disturbed or modified upper portion of the former land surface (buried A-horizon) within T-124. Stratum IIb was considered to be the in situ pre- and/or early post-Contact lower portion of the former land surface. Both Strata IIa and IIb were designated as components of SIHP #50-80-14-2963, also identified within T-122 and T-123. The twelve features within T-124 were designated as Features 1–12 of SIHP #-2963.

**SIHP #-2963 Feature 1** was interpreted to be a possible postmold with straight sides and a slightly rounded base. SIHP #-2963 Feature 1 originated in the lower portion of Stratum IIa and extended from 1.16 mbs to 1.36 mbs. It was irregular shaped in plan view and measured 0.42 m long by 0.62 m wide. SIHP #-2963 Feature 1 was exposed in plan view near the southeastern end of the excavation and did not extend into any of the sidewalls. A single traditional Hawaiian artifact (Acc. #124-H-1) consisting of seven fragments of volcanic glass debitage was collected from SIHP #-2963 Feature 1 within a bulk sample obtained between 1.16 and 1.36 mbs.

**SIHP #-2963 Feature 2** was a shallow discoloration that was interpreted to be a pit of indeterminate function. SIHP #-2963 Feature 2 originated in the lower portion of Stratum IIa and extended from 1.16 mbs to 1.25 mbs. SIHP #-2963 Feature 2 was irregular shaped in plan view near the southeast end of the excavation and measured 0.40 m long and 0.55 m wide. SIHP #-2963 Feature 2 was only visible in plan view and did not extend into the excavation sidewalls.

**SIHP #-2963 Feature 3** was interpreted as a possible postmold with angled sides and an angled, slightly rounded base. SIHP #-2963 Feature 3 originated in the lower portion of Stratum IIa and extended from 1.16 mbs to 1.40 mbs. SIHP #-2963 Feature 3 was intrusive into Stratum IIb and partially into Stratum III. SIHP #-2963 Feature 3 was oval shaped in plan view and measured 0.44 m long by 0.20 m wide and extended into the northeast sidewall.

**SIHP #-2963 Feature 4** was a shallow circular discoloration that was interpreted to be a pit of indeterminate function. SIHP #-2963 Feature 4 originated in the lower portion of Stratum IIb and extended from 1.40 mbs to 1.45 mbs. It was observed near the southeast end of the excavation and was circular in shape with a 0.15 m diameter. SIHP #-2963 Feature 4 was only visible in plan view and was not observed in the excavation sidewalls.

**SIHP #-2963 Feature 5** was a circular discoloration that contained charcoal and was interpreted as a pit of indeterminate function. SIHP #-2963 Feature 5 originated in the lower portion of Stratum IIb and extended from 1.40 mbs to 1.63 mbs. It was near the southeast end of the

excavation and was circular in shape with a 0.25 m diameter. SIHP #-2963 Feature 5 was only visible in plan view and was not observed in the excavation sidewalls.

**SIHP #-2963 Feature 6** was an oval-shaped and straight-sided discoloration and measured 0.30 m long by 0.22 m wide. It was interpreted to be a pit or possible postmold. SIHP #-2963 Feature 6 originated in the lower portion of Stratum IIb and extended from 1.40 mbs to the coral shelf at 1.75 mbs. It was intrusive into Strata III, IV, and V. SIHP #-2963 Feature 6 was observed in plan view and extended into the northeast sidewall.

**SIHP #-2963 Feature 7** was a circular discoloration that was interpreted to be a pit of indeterminate function. SIHP #-2963 Feature 7 originated in the lower portion of Stratum IIb and extended from 1.44 mbs to 1.50 mbs. It was observed near the northwest end of the excavation and was circular in shape with a 0.12 m diameter. SIHP #-2963 Feature 7 was only visible in plan view and was not observed in the excavation sidewalls.

**SIHP #-2963 Feature 8** was a discoloration with charcoal and was interpreted to be a pit of indeterminate function. SIHP #-2963 Feature 8 was identified in the lower portion of Stratum IIb and extended from 1.44 mbs to 1.62 mbs. SIHP #-2963 Feature 8 was observed near the northwest end of the excavation and was circular in shape with a 0.20 m diameter. The discoloration was only visible in plan view and did not extend into the excavation sidewalls. A single traditional Hawaiian artifact (Acc. #124-H-2) consisting of a volcanic glass debitage fragment was collected from SIHP #-2963 Feature 8 within a bulk sample obtained between 1.44 mbs and 1.62 mbs.

**SIHP #-2963 Feature 9** was a 0.20-m diameter oval-shaped discoloration that was interpreted to be a pit of indeterminate function. SIHP #-2963 Feature 9 originated in the lower portion of Stratum IIb and extended from 1.44 mbs to 1.50 mbs. It was observed near the northwest end of the excavation. SIHP #-2963 Feature 9 was only visible in plan view and was not observed in the excavation sidewalls.

**SIHP #-2963 Feature 10** was a deep, circular-shaped discoloration that was interpreted to be a pit or possible postmold with straight sides and a flat bottom. SIHP #-2963 Feature 10 originated in the lower portion of Stratum IIb and extended from 1.30 mbs to 1.70 mbs to the upper boundary of Stratum V. SIHP #-2963 Feature 10 was observed near the southeast end of the excavation, measured 0.30 m long by 0.22 m wide, and extended into the southwest sidewall.

**SIHP #-2963 Feature 11** was a shallow, oval-shaped dark discoloration that was interpreted to be a pit of indeterminate function. SIHP #-2963 Feature 11 originated within the lower portion of Stratum IIb and extended from 1.23 mbs to 1.32 mbs. SIHP #-2963 Feature 11 was not visible in plan view and was only observed within the southwest sidewall.

**SIHP #-2963 Feature 12** was a circular discoloration that had downward-sloping sides and a narrow, rounded base. SIHP #-2963 Feature 12 was interpreted to be a pit of indeterminate function. SIHP #-2963 Feature 12 originated in the lower portion of Stratum IIb and extended from 1.35 mbs to 1.53 mbs. SIHP #-2963 Feature 12 was not visible in plan view and was only documented in the northeast sidewall.

Table 14. Summary of Newly-Identified Archaeological Features of SIHP #-2963

Feature	Test Excavation	Stratum	Depth (cmbs)	Radiocarbon Date (C14)	Type/Function	Description
1	T-124	IIa	116–136	AD 1810-1920	Pit/Possible postmold	Possible postmold with straight sides and a slightly rounded base. The feature contained charcoal (18.4g), midden (47.3g), naturally-occurring marine shell (39.8g), volcanic glass fragments (0.7g), basalt fragments (158.1g), medium mammal remains (2.7 g), unidentified fish remains (2.9 g), a shark tooth (0.1 g), a small mammal cf. <i>Rattus</i> sp. (0.3 g), and <i>Pervagor pilosoma</i> remains (0.1 g, Fantail file fish). A subsample of the charcoal from the feature was submitted for wood taxa identification and radiocarbon dating. Wood taxa identification results included <i>Ki</i> (cf. <i>Cordyline terminalis</i> ), <i>Āheahea</i> ( <i>Chenopodium oahuense</i> ), <i>Kolomona</i> (cf. <i>Senna</i> sp.), 'Ōhi 'a 'ai/roseapple/Java plum (cf. <i>Syzygium</i> sp.), <i>Niu</i> ( <i>Cocos nucifera</i> ), Palm (Arecaceae), 'Akoko ( <i>Chamaesyce</i> sp.), and three unidentified species.

Feature	Test Excavation	Stratum	Depth (cmbs)	Radiocarbon Date (C14)	Type/Function	Description
2	T-124	IIa	116–125	AD 1790-1950	Pit/Indeterminate function	Pit with indeterminate function. The feature contained charcoal (2.5g), midden (13.4g), naturally-occurring marine shell (4.4g), , medium mammal remains (1.8 g), small mammal remains (0.1 g), and fish remains (0.3 g). A sample of the charcoal from the feature was submitted for wood taxa identification and radiocarbon dating. Wood taxa identification results included <i>Kolomona</i> (cf. <i>Senna</i> sp.), 'Ōhi 'a 'ai/roseapple/ Java plum (cf. <i>Syzygium</i> sp.), <i>Hau</i> ( <i>Hibiscus tiliaceus</i> ), 'Akoko (cf. <i>Chamaesyce</i> sp.), 'Āheahea ( <i>Chenopodium oahuense</i> ), 'Ilima (cf. <i>Sida fallax</i> ), <i>Lama</i> ( <i>Diospyros sandiwickensis</i> ), monocot, and seven unidentified species.
3	T-124	IIa	116–140	-	Pit/Possible postmold	Possible postmold with angled sides and a slightly rounded base.
4	T-124	IIb		-	Pit/Indeterminate function	Pit with indeterminate function. The feature was a shallow circular discoloration.

Feature	Test Excavation	Stratum	Depth (cmbs)	Radiocarbon Date (C14)	Type/Function	Description
5	T-124	Iib		AD 1490-1670	Pit/Indeterminate function	The feature contained charcoal (6.4g), midden (16.4g), naturally-occurring marine shell (3.6g), medium mammal remains (0.1 g), unidentified fish remains (2.2 g), <i>Chelonia mydas</i> remains (0.7 g, Green sea turtle), and <i>Seriola</i> cf. <i>dumerili</i> remains (0.2 g, Greater Amberjack fish). A sample of the charcoal from the feature was submitted for wood taxa identification and radiocarbon dating. Wood taxa identification results included <i>Lama</i> ( <i>Diospyros sandwicensis</i> ), 'A'ali'i (cf. <i>Dodonaea viscosa</i> ), 'Āheahaē/ 'āweoweo ( <i>Chenopodium oahuense</i> ), <i>Kukui</i> (cf. <i>Aleurites moluccana</i> ), and an unidentified wood fragment
6	T-124	Iib		-	Pit/Possible postmold	Possible postmold that is oval-shaped and has straight sides.
7	T-124	Iib		-	Pit/Indeterminate function	The feature was a circular discoloration that was considered to be a pit of indeterminate function.
8	T-124	Iib		-	Pit/Indeterminate function	The feature contained charcoal (0.1g), midden (4.6g), naturally-occurring marine shell (0.7g), volcanic glass (0.1g), <i>Rattus</i> sp. remains (0.1 g), and fish remains (0.2 g).
9	T-124	Iib		-	Pit/Indeterminate function	The feature was an oval-shaped discoloration that was considered to be a pit of indeterminate function.
10	T-124	Iib		-	Pit/Possible postmold	Possible postmold that is circular-shaped with straight sides and a flat bottom.

Feature	Test Excavation	Stratum	Depth (cmbs)	Radiocarbon Date (C14)	Type/Function	Description
11	T-124	Iib		AD 1450-1640	Pit/Indeterminate function	Pit with indeterminate function. The feature contained charcoal (6.9g), midden (1.4g), naturally-occurring marine shell (0.5g), and small mammal remains (0.1 g). A sample of the charcoal from the feature was submitted for wood taxa identification and radiocarbon dating. Wood taxa identification results included <i>Lama</i> ( <i>Diospyros sandiwickensis</i> ), and <i>Hō'awa</i> (cf. <i>Pittosporum</i> sp.) as well as one unidentified species
12	T-124	Iib		-	Pit/Indeterminate function	Pit with indeterminate function. It is circular in shape with downward-sloping sides and a narrow, rounded base.



Figure 147. T-124 southwest profile wall, showing SIHP #-2963 Feature 11, view to west

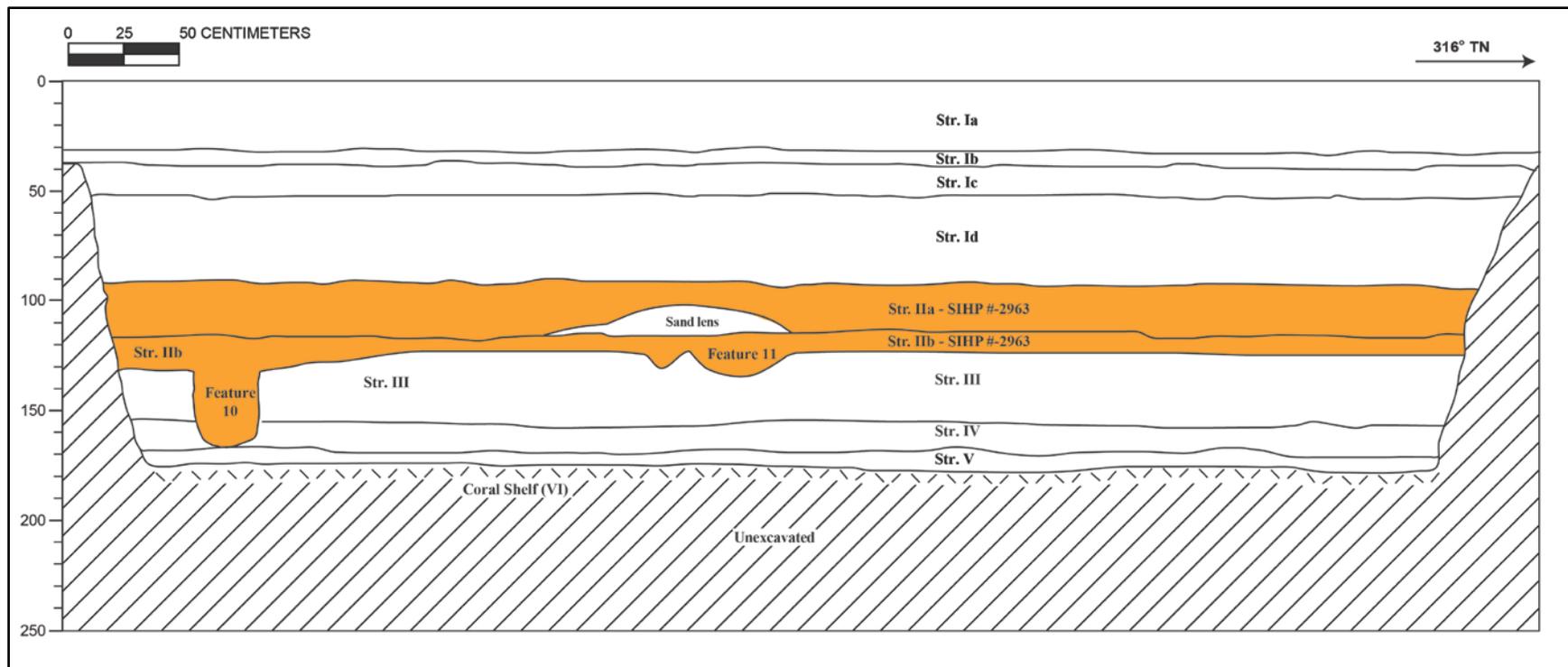


Figure 148. T-124 stratigraphic profile of the southwest wall showing SIHP #-2963 Features 10 and 11

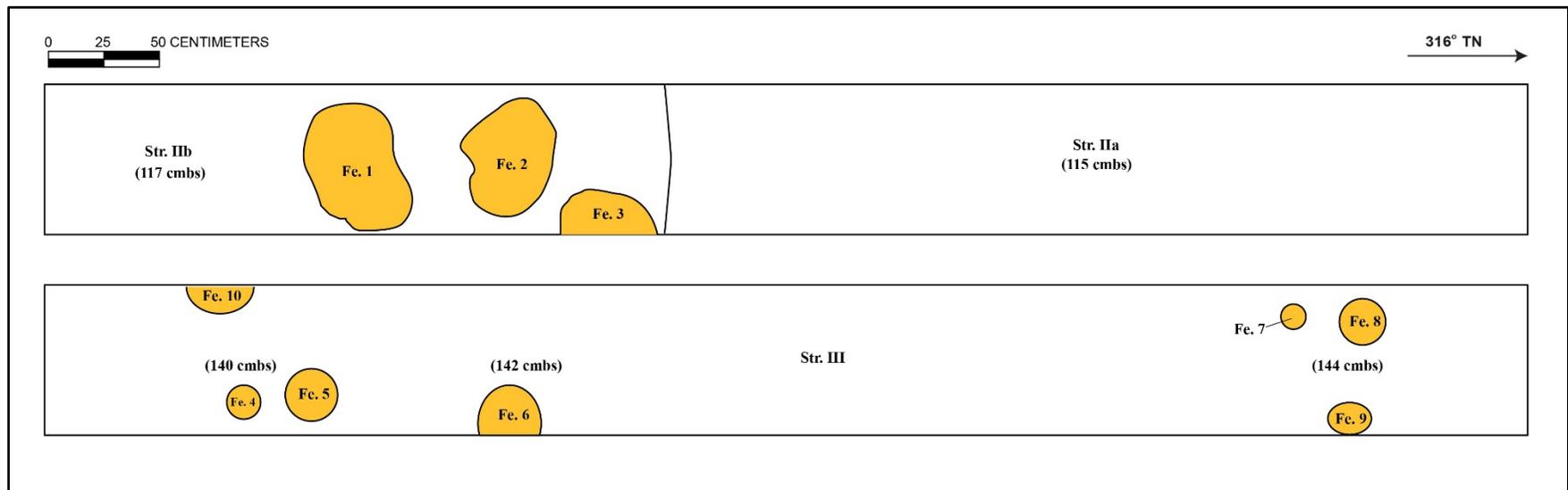


Figure 149. T-124 plan view showing SIHP #-2963 Features 4–10

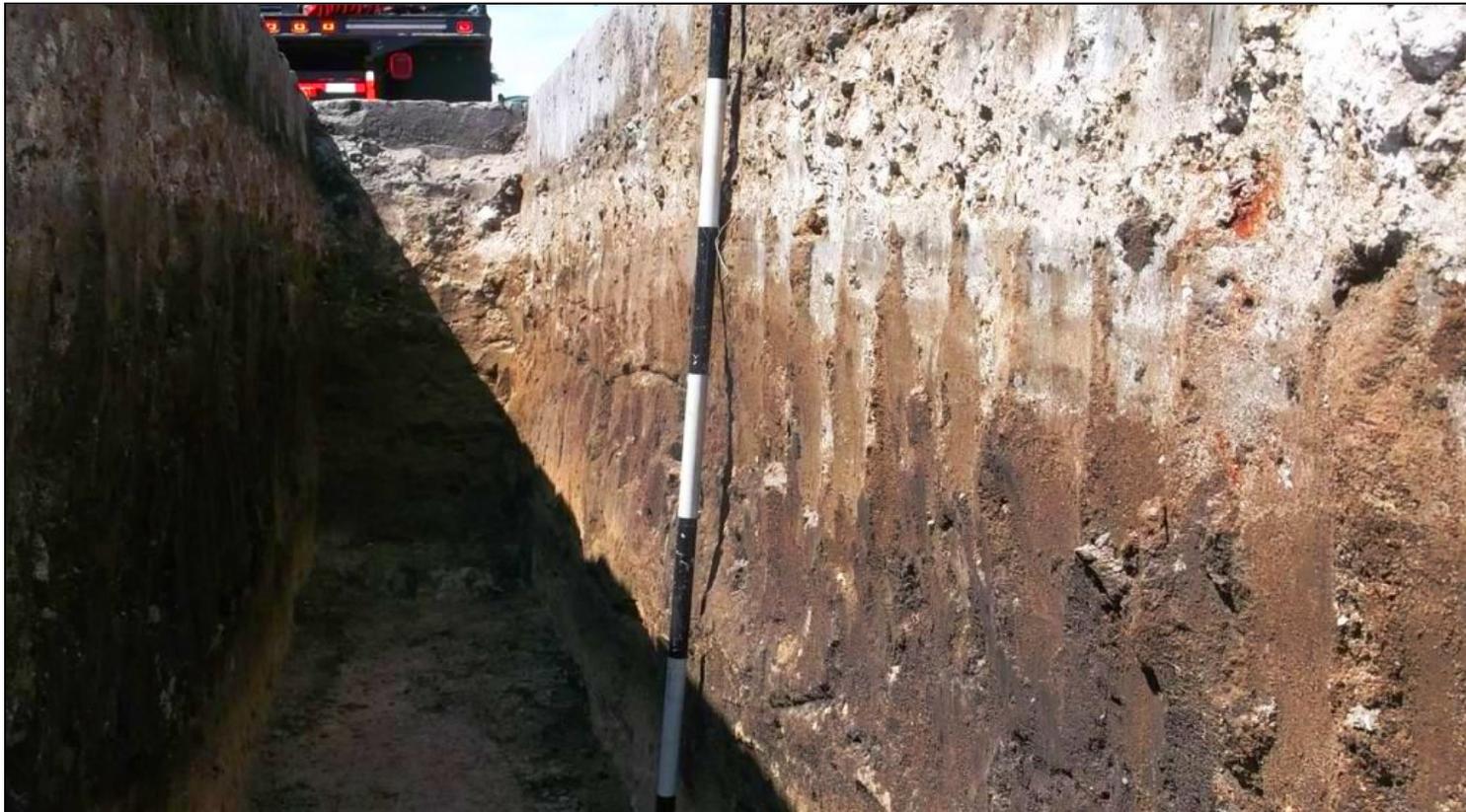


Figure 150. T-124 northeast profile wall, view to north

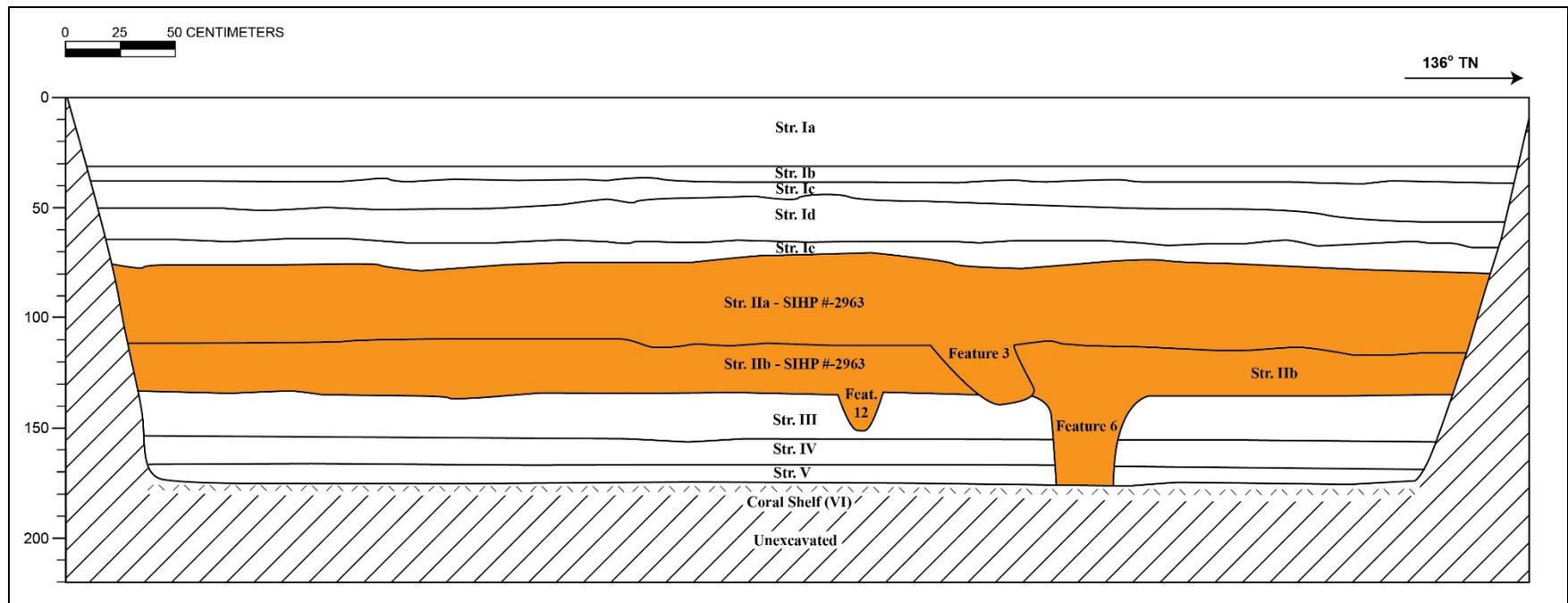


Figure 151. T-124 stratigraphic profile of the northeast wall showing SIHP #-2963 Features 3, 6, and 12

Table 15. T-124 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–32	Asphalt
Ib	32–38	Fill; 2.5 Y 3/1 (very dark gray); extremely gravelly sandy loam; structureless; moist, friable consistency; slightly plastic; terrigenous origin; very abrupt, smooth lower boundary; fill layer underlying road surface containing ~ 70% small basalt gravels
Ic	38–56	Fill; 10 YR 8/3 (very pale brown); very gravelly sand; structureless, single-grain; moist loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; crushed coral base course
Id	47–67	Fill; 10 YR 4/3 (brown); sandy loam; structureless; moist, very friable consistency; non plastic; mixed origin, clear lower boundary; contained glass bottle fragments, a brick fragment, cut faunal bone, ceramic fragments, nails, wire (not collected), marine shell, cane slag (not collected), a basalt sheath tile (not collected), and a pipe stem or cigarette holder (collected)
Ie	67–80	Fill; 10 YR 3/3 (dark brown); loam; structureless; moist, friable consistency; slightly plastic; terrigenous origin; clear to diffuse lower boundary; few, very fine to medium roots; fill seen only in NE excavation wall
IIa	70–140	Natural, 10 YR 3/2 (very dark grayish brown); sandy loam; structureless; moist, loose consistency; non-plastic; mixed origin; clear lower boundary; contained abundant charcoal; buried A-horizon; likely the historically-disturbed or modified upper portion of the former land surface
SIHP #-2963 Feature 1	116–136	Natural, 10 YR 3/2 (very dark grayish brown); sandy loam; structureless; moist, loose consistency; non-plastic; mixed origin; possible post mold feature originating from Stratum IIa; contained seven pieces of volcanic glass debitage, charcoal, marine shell midden, a shark tooth, fish bone (including <i>Pervagor spilosoma</i> , or fantail filefish), rat bone, medium mammal bone, naturally-occurring marine shell; SIHP #-2963 Feature 1
SIHP #-2963 Feature 2	116–125	Natural, 10 YR 3/2 (very dark grayish brown); sandy loam; structureless; moist, loose consistency; non-plastic; mixed origin; pit feature originating from Stratum IIa; bulk sample taken; sample contained charcoal, marine shell midden, fish bone, small and medium mammal bone, naturally-occurring marine shell midden; SIHP #-2963 Feature 2
SIHP #-2963 Feature 3	116–140	Natural, 10 YR 3/2 (very dark grayish brown); sandy loam; structureless; moist, loose consistency; non-plastic; mixed origin; possible post mold feature originating from Stratum IIa; SIHP #-2963 Feature 3

Stratum	Depth (cmbs)	Description
Iib	117–177	Natural; 10 YR 4/3 (brown); loamy sand; fine structure; moist, loose consistency; non-plastic; mixed origin; clear lower boundary; contained Features 4-12; likely the in situ pre- and/or early post-contact lower portion of the former land surface
SIHP #-2963 Feature 4	140–145	Natural; 10 YR 4/3 (brown); loamy sand; fine structure; moist, loose consistency; non-plastic; mixed origin; pit feature originating from Stratum Iib; SIHP #-2963 Feature 4
SIHP #-2963 Feature 5	140–163	Natural; 10 YR 4/3 (brown); loamy sand; fine structure; moist, loose consistency; non-plastic; mixed origin; pit feature originating from Stratum Iib; sample contained charcoal, marine shell midden, fish bone ( <i>Seriola cf. dumerili</i> , or Greater amberjack fish), Green sea turtle bone ( <i>Chelonia mydas</i> ), medium mammal bone, naturally-occurring marine shell; SIHP #-2963 Feature 5
SIHP #-2963 Feature 6	140–175	Natural; 10 YR 4/3 (brown); loamy sand; fine structure; moist, loose consistency; non-plastic; mixed origin; pit or possible post mold feature originating from Stratum Iib
SIHP #-2963 Feature 7	144–150	Natural; 10 YR 4/3 (brown); loamy sand; fine structure; moist, loose consistency; non-plastic; mixed origin; pit feature originating from Stratum Iib; SIHP #-2963 Feature 6
SIHP #-2963 Feature 8	144–162	Natural; 10 YR 4/3 (brown); loamy sand; fine structure; moist, loose consistency; non-plastic; mixed origin; pit feature originating from Stratum Iib; sample contained one piece volcanic glass debitage, charcoal, marine shell midden, fish bone, rat bone, naturally-occurring marine shell; SIHP #-2963 Feature 7
SIHP #-2963 Feature 9	144–150	Natural; 10 YR 4/3 (brown); loamy sand; fine structure; moist, loose consistency; non-plastic; mixed origin; pit feature originating from Stratum Iib; SIHP #-2963 Feature 9
SIHP #-2963 Feature 10	130–170	Natural; 10 YR 4/3 (brown); loamy sand; fine structure; moist, loose consistency; non-plastic; mixed origin; pit or possible post mold feature originating from Stratum Iib; SIHP #-2963 Feature 10
SIHP #-2963 Feature 11	123–132	Natural; 10 YR 3/2 (very dark grayish brown); loamy sand; fine structure; moist, loose consistency; non-plastic; mixed origin; pit feature originating from Stratum Iib; sample contained charcoal, shell midden, small mammal bone; SIHP #-2963 Feature 12
SIHP #-2963 Feature 12	135–153	Natural; 10 YR 4/3 (brown); loamy sand; fine structure; moist, loose consistency; non-plastic; mixed origin; pit feature originating from Stratum Iib; SIHP #-2963 Feature 13
III	135–155	Natural; 10 YR 7/4 (very pale brown); sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt lower boundary; Jaucas sand

Stratum	Depth (cmts)	Description
IV	155–167	Natural; 2.5 YR 8/3 (pale yellow); clay loam; structureless, massive; moist, friable consistency; slightly plastic; marine origin; abrupt lower boundary; many, very fine roots; marine sediment containing abundant very fine roots, organics
V	167–175	Natural; 10 YR 7/4 (very pale brown) with common fine mottles 10 YR 6/6 to 10 YR 5/8 (brownish yellow to yellowish brown); coarse sand; structureless; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; contained naturally-deposited marine shells; marine sediment overlying coral shelf
VI	175 (BOE)	Natural; 10 YR 7/4 (very pale brown); bedrock-limestone; structureless, massive; moist, weakly to strongly cemented; discontinuous consistency; non-plastic; marine origin; lower boundary not observed; Pleistocene coral shelf

The buried A-horizon (Stratum II; SIHP #-2963) was also identified in a geotechnical test bore located southeast of T-124 (see Figure 140). The geotechnical test bore was designated as T-124A. The buried A-horizon (Stratum II) within T-124A did not exhibit a clear upper and lower portion and thus could not be accurately associated with either Stratum IIa or IIb of T-124 (Figure 152 and Table 16). The buried A-horizon in T-124A was capped by two fill strata (Ia-Ib) that correspond with Stratum Ib and Ic observed in T-124. Fill layers corresponding to Stratum Id and Ie within T-124 were not present in T-124A.

Selected charcoal samples collected from pit features within T-124 were submitted for wood taxa identification and radiocarbon analysis. All of the charcoal submitted for identification from SIHP #-2963 Features 1, 2, 5, and 11 in T-124 represented either native or Polynesian-introduced taxa (see Table 14). These include *kī* or *ti*, *āheahea*, *ōhi'a ai*, coconut, *akoko*, *hau*, *ilima*, *lama*, *a'ali'i*, *kukui*, and *hō'awa*. Radiocarbon analysis indicated broad date ranges for the submitted charcoal samples. The youngest dates were derived from the charcoal in SIHP #-2963 Feature 1 (AD 1810 to 1920) and SIHP #-2963 Feature 2 (AD 1790 to 1950). Radiocarbon analysis placed the charcoal samples collected from SIHP #-2963 Features 1 and 2 within the post-Contact period (post-1778). The oldest dates were derived from SIHP #-2963 Feature 5 (AD 1490 to 1670) and Feature 11 (AD 1450 to 1640). Radiocarbon analysis placed the charcoal samples collected from SIHP #-2963 Features 5 and 11 within the pre-Contact period.

Pond sediment, similar to Pond Layer I and II designated by Clark (1987) was encountered near the base of excavation within T-122 and T-123. Both T-122 and T-123 are located within the pond labeled "Auwaiolimu Crown Land" on the 1881 Brown map of Honolulu (see Figure 143).

The pond sediment within T-122, designated Stratum II (SIHP #-2963), was clay loam that contained metal and a complete porcelain teapot with an Asian design (Figure 153 through Figure 155 and Table 17). The metal was not collected from the excavation. A 3-liter bulk sample was collected from Stratum II at 1.65-1.70 mbs. The sample contained charcoal (0.3 g), naturally-occurring shell (5.0 g), seeds (3.4 g), plant fibers (2.3 g), small pods (0.1 g), porcelain (7.3 g), metal (0.2 g), Aves remains (0.2 g), fish remains (0.1 g), and midden (3.1 g). Midden collected included Neritidae *Nerita picea* operculum (1.8 g), Tellinidae *Tellina palatam* (1.1 g), burned crustacean (0.1 g), and Echinoidea *mathaei* sp. (0.1 g).

The pond sediment within T-123, designated Stratum II (SIHP #-2963), was a gleyed, coarse sandy clay that contained a ceramic electrical insulator (Figure 156, Figure 157, and Table 18). A 5-liter bulk sample was collected from Stratum II (SIHP #-2963) at 1.73-1.80 mbs. The sample contained charcoal (0.2 g), naturally-occurring marine shell (12.5 g), *Ruppia maritima* seeds (0.2 g), wood (7.3 g), bottle glass (167.5 g), fish bone (0.1 g), medium mammal skeletal remains (0.1 g), and abundant small freshwater-brackish snails (607.7 g). The pond sediment within T-123 designated Stratum III (SIHP #-2963) was a loamy sand that contained one piece of volcanic glass. A 3-liter bulk sample was collected from Stratum III (SIHP #-2963) at 1.80-1.92 mbs. The sample contained charcoal (0.9 g), naturally-occurring marine shell (2.0 g), *Ruppia maritima* seeds (0.1 g), burned *kukui* (1.0 g), wood (0.2 g), a volcanic glass fragment (0.3 g), medium mammal skeletal remains (0.3 g), fish bone (0.1 g), small freshwater-brackish snails (~84.0 g), and marine shell midden consisting of *Conus* spp. (27.0 g), *Nerita picea* (3.1 g), *Brachidontes crebristriatus* (2.9 g), *Tellina palatam* (1.1 g), *Trochus intextus* (0.2 g), *Isognomon* sp. (0.1 g), and crustacean (0.3 g).

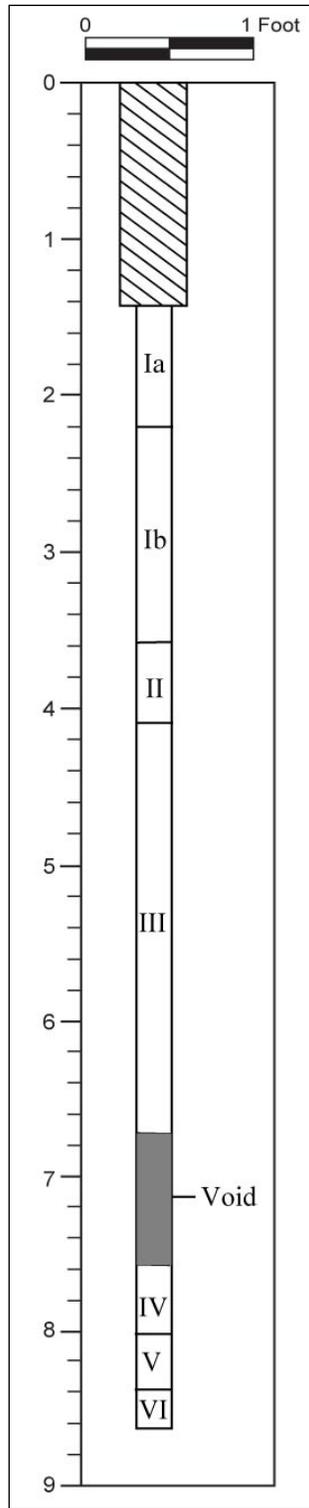


Figure 152. T-124A geotechnical test bore (note: hatched area represents drill through)

Table 16. T-124A Stratigraphic Description

<b>Stratum</b>	<b>Depth (cmbs)</b>	<b>Description</b>
N/A	0-43	Drill Through
Ia	43-67	Fill; 2.5 Y 3/1 (very dark gray); extremely gravelly sandy loam; structureless; moist, friable consistency; slightly plastic; terrigenous origin; very abrupt, smooth lower boundary; fill layer underlying road surface containing ~ 70% small basalt gravels
Ib	67-110	Fill; 10 YR 8/3 (very pale brown); very gravelly sand; structureless, single-grain; moist loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; crushed coral base course
II	110-125	Natural, 10 YR 3/2 (very dark grayish brown); sandy loam; structureless; moist, loose consistency; non-plastic; mixed origin; clear lower boundary; buried A-horizon, identified as SIHP #-2963
III	125-204	Natural; 10 YR 7/4 (very pale brown); sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt lower boundary; Jaucas sand
N/A	204-232	Void
IV	232-244	Natural; 2.5 YR 8/3 (pale yellow); clay loam; structureless, massive; moist, friable consistency; slightly plastic; marine origin; abrupt lower boundary; many, very fine roots
V	244-256	Natural; 10 YR 7/4 (very pale brown) with common fine mottles 10 YR 6/6 to 10 YR 5/8 (brownish yellow to yellowish brown); coarse sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; contained naturally-deposited marine shells; marine sediment overlying coral shelf
VI	256-265	Natural; 10 YR 7/4 (very pale brown); bedrock-limestone; structureless, massive; moist, weakly to strongly cemented; discontinuous consistency; non-plastic; marine origin; lower boundary not observed; Pleistocene coral shelf



Figure 153. T-122 southwest profile wall, view to southwest

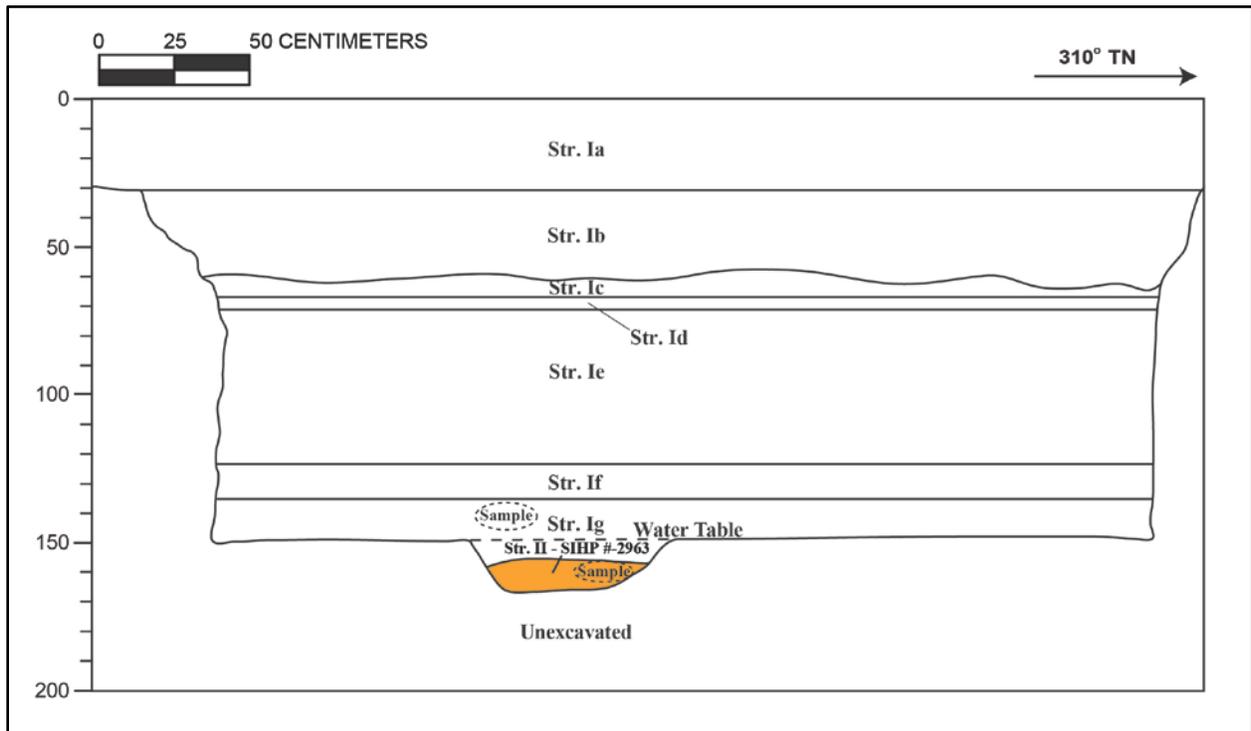


Figure 154. T-122 southwest profile



Figure 155. T-122 ceramic tea pot (Acc. # 122-A-1) collected from Stratum II (SIHP # -2963)

Table 17. T-122 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-30	Asphalt
Ib	30-61	Fill; 10 YR 8/2 (very pale brown); very cobbly sand; structureless, single-grain; dry, loose consistency; non-plastic; marine origin; abrupt, wavy lower boundary; imported fill, coral cobble 60%
Ic	61-68	Fill; 10 YR 5/2 (grayish brown); fine sand; structureless, single-grain; dry, loose consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; fine sand, imported fill, compact
Id	68-72	Fill; 10 YR 8/2 (very pale brown); fine sand; structureless, single-grain; dry, loose consistency; non-plastic; marine origin; abrupt, smooth boundary; imported fill, fine sand, compact
Ie	72-125	Fill; 10 YR 7/4 (very pale brown); medium to coarse sand; structureless, single-grain; dry, loose consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; contained red brick (collected); coarse grain sand, locally procured beach sand fill
If	125-137	Fill; 10 YR 7/2 (light gray); fine sand; structureless, single-grain; wet, non-sticky consistency; non-plastic; marine origin; very abrupt lower boundary; fine sand used as fill
Ig	136-160	Fill; GLEY 2 8/5BG (light greenish gray); sandy clay; structureless, single-grain; wet, slightly sticky consistency; slightly plastic; marine origin; abrupt, smooth lower boundary; possible hydraulic fill
II	160-165 (BOE)	Natural; 10 YR 3/1 (very dark gray); clay loam; structureless, single-grain; mixed origin; lower boundary not visible, contained metal (not collected) and a single ceramic (collected); wetland possible agricultural with organic matting; component of SIHP #-2963



Figure 156. T-123 northeast profile wall, view to north

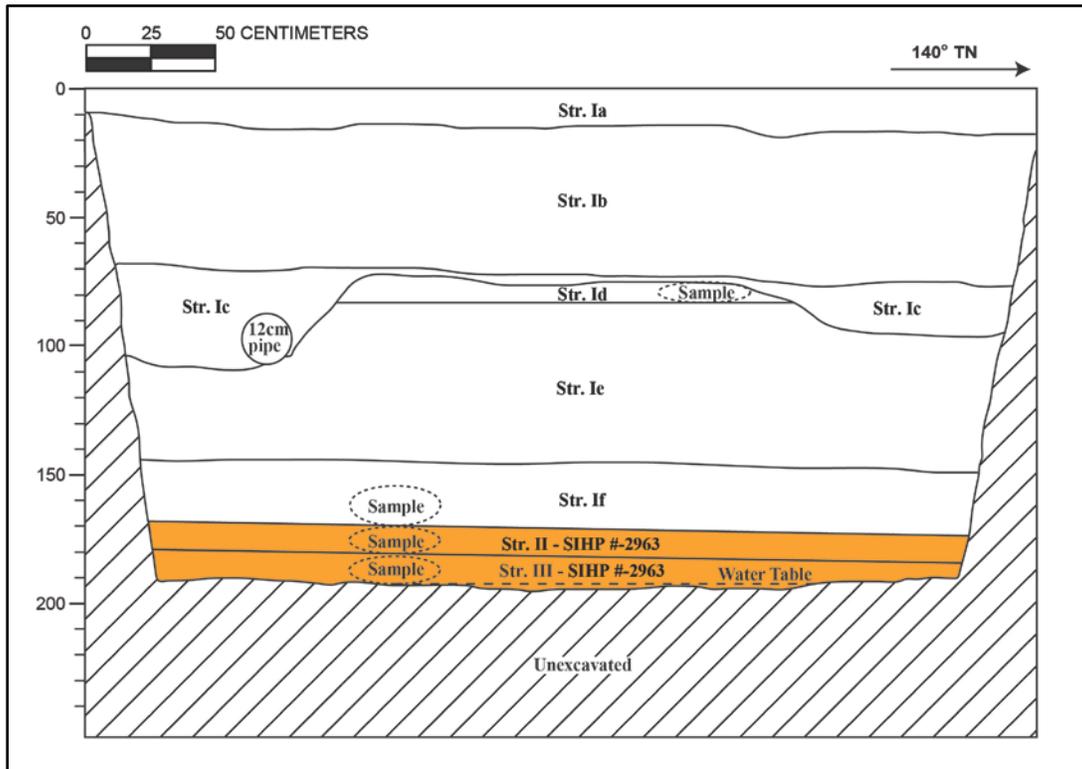


Figure 157. T-123 stratigraphic profile

Table 18. T-123 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–15	Fill; asphalt
Ib	15–72	Fill; 10 YR 4/1 (dark gray); extremely gravelly coarse sand; structureless, massive; dry, loose consistency; non-plastic; mixed origin; abrupt, smooth lower boundary; crushed basalt gravel with 90% gravel and 10% sand matrix
Ic	72–110	Fill; 2.5 Y 6/2 (light brownish gray); very gravelly fine sand; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; clear, irregular lower boundary; contained 0.12 m diameter utility pipe; 40% crushed coral gravel
Id	76–85	Fill; 10 YR 6/2 (light brownish gray); fine grain sand; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; clear, smooth lower boundary; disturbed sand stratum
Ie	85–145	Fill; 10 YR 8/4 (very pale brown); fine grain sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; diffuse, smooth lower boundary; contained case gin bottle glass (collected) and ceramic fragments (not collected); locally procured sand fill
If	145–173	Fill; GLEY 1 7/5GY (light greenish gray); sandy clay; structureless, massive; moist, firm consistency; plastic; marine origin; abrupt, smooth lower boundary; possible hydraulic fill
II	173–180	Natural; GLEY 1 3/10Y (very dark greenish gray); coarse sandy clay; weak, medium, crumb structure; moist, friable consistency; slightly plastic; mixed origin; clear, smooth lower boundary; common, coarse roots; contained bottle glass (not collected), porcelain insulator (collected); 80% small freshwater-brackish snails, agricultural/wetland sediment; component of SIHP #-2963
III	180–194 (BOE)	Natural; 2.5 Y 3/1 (very dark gray); loamy sand; weak, fine, crumb structure; wet, slightly sticky consistency; non-plastic; mixed origin; lower boundary not visible; contained volcanic glass (collected) and small freshwater-brackish snails; gleyed sand at water table and just above coral shelf; component of SIHP #-2963

The buried, culturally-enriched A-horizon along with the 12 associated features identified in T-124, and the pond sediment strata identified in T-122 and T-123 have been combined into SIHP #-2963, previously identified by Clark (1987) (see Figure 140). The culturally-enriched marine sand and terrigenous sediments containing both pre- and post-Contact features that was designated Layer I by Clark (1987) is consistent with the culturally-enriched sandy loam (Stratum IIa) and loamy sand (Stratum IIb) containing traditional Hawaiian and historic cultural material, and a total of 12 archaeological features within T-124 and T-124A. The beach sand that was designated Layer II by Clark (1987) is consistent with the Jaucas sand (Stratum III) within T-124 and T-124A. The organic-rich black silty mud and gleyed, fine-textured, silty mud deposits that were designated Pond Layer I and II, respectively by Clark (1987) are similar to the clay loam with organic matting (Stratum II) of T-122 and the gleyed, culturally-enriched coarse sand (Stratum II) and the loamy sand (Stratum III) of T-123. The two fill sequences described by Clark (1987) as parking lot fills and fishpond fills could not be accurately compared to the fill sequences observed within T-122 through T-124A. However, the similarities in the depositional sequence, geographic location, and the presence of both a culturally-enriched buried A-horizon with associated features and pond sediments in both study areas provide the basis for a combination of the findings of Clark (1987) with the findings within T-122 through T-124A.

SIHP # 50-80-14-2963 is a subsurface cultural deposit consisting of a buried, culturally-enriched A-horizon with 39 associated features, pond sediments, and 8 other archaeological features associated with other fills or natural strata. The 39 features of the buried, culturally-enriched A-horizon consist of 27 previously-identified features and 12 newly-identified features. Collectively, they consist of 16 pits, 6 trash pits, 5 animal burials, 4 human burials, 4 possible postmolds, 2 isolated animal bone areas, 1 burned soil area, and 1 posthole. The 27 previously-identified by Clark (1987), and the 12 newly-identified features encountered during the excavation of T-124. The buried A-horizon was also identified within T-124A, a geotechnical test bore located southeast of T-124. Pond sediments were identified along the western edge of the Clark (1987) study area and within T-122 and T-123. The pond sediments identified in the two studies are considered to be the buried remnants of the pond labeled "Auwaiolimu Crown Land" on the 1881 Brown map of Honolulu (see Figure 143). The other 8 archaeological features identified by Clark (1987) consist of a large pit, a cement building foundation, a red brick layer or possible building foundation within parking lot fill, a buried land surface within marine sand, and three human burials with no associated burial pits or strata. A total of 13 human burials are associated with SIHP # 50-80-14-2963, of which six were identified by Ota and Kam (1982) and seven were identified by Clark (1987). No human burials associated with SIHP # 50-80-14-2963 were located in the current City Center project APE.

Based on the guidance of National Register Bulletin No. 15, SIHP # 50-80-14-2963 retains its integrity of location, materials, and workmanship. Based on past documentation and the results of this investigation, CSH recommends that this cultural resource maintains integrity to support its historic significance under Criterion D (has yielded, or is likely to yield, information important for research on prehistory or history) and E (has cultural significance to an ethnic group) of the Hawai'i Register, and Criterion D of the National Register, exclusively for its information potential.

SIHP # 50-80-14-2963 has provided information, and has potential to provide additional information, on late pre- to early post-Contact habitation, historic land use including pond

infilling, pre- and/or post-Contact burial practices, and pond aquaculture within Kaka‘ako. The potential for additional research warrants the implementation of a data recovery program. Data recovery at SIHP #-2963 will focus on data collection from the buried, culturally-enriched A-horizon and associated features, and from discrete features within fill layers. Data recovery will include a more intensive regime of strata- and feature-specific radiocarbon, palynological, and botanical analysis. The analysis will examine use and function of culturally-enriched strata and features, and will differentiate, where possible, traditional Hawaiian and historic deposits and their relatively chronological associations. Data recovery also will identify any burials or human skeletal remains that may be present within SIHP #-2963, along with their stratigraphic associations. Following the data recovery program, an archaeological monitoring program is recommended for SIHP #-2963. Archaeological monitoring will recover additional data on the nature, or depositional sequence, and extent of SIHP #-2963.

**5.3.3 SIHP #50-80-14-5368**

<b>FORMAL TYPE:</b>	Subsurface remnants of Kūwili Fishpond
<b>FUNCTION:</b>	Aquaculture
<b>PREVIOUS DOCUMENTATION:</b>	McGerty et al.1997; Athens and Ward 1997; Hammatt et al. 2008
<b>AGE:</b>	Pre-Contact through post-Contact
<b>NUMBER OF FEATURES:</b>	12 (previously identified by McGerty et al. 1997)
<b>TYPES OF FEATURES:</b>	Disarticulated human skeletal remains, 2 rock walls, 3 metal pipes, 2 foundations/structures, 1 concrete jacket, 1 concrete drain, 1 backfilled pit, 1 drainage/dredge channel
<b>DIMENSIONS:</b>	0.02 acres (within current project area), 17.12 acres (total area)
<b>LOCATION:</b>	West of King Street between Dillingham Boulevard and Iwilei Road (Iwilei Geographic Zone)
<b>TAX MAP KEY:</b>	[1] 1-5-007; [1] 1-5-007:001, 002, 009, 014, 015, 016, 018, 021, 023, 024, 026, 028 through 033, 036, 037, 041, 042; [1] 1-5-008; [1] 1-5-009; [1] 1-5-009:007, 009, 014, 015, 016, 019, 020; and [1] 1-5-015:001, 003, 004
<b>LAND JURISDICTION:</b>	Hawaiian Electric, Nu‘uanu Auto Company, and the City and County of Honolulu (current project area excavations)
<b>TEST EXCAVATIONS:</b>	T-091, T-092, T-093; not found in T-088 or T-094

SIHP #50-80-14-5368 consists of the previously-identified remnants of Kūwili Fishpond in the Iwilei Geographic Zone (Figure 158). Kūwili Fishpond appears on historic maps and in photographs and documents. The geographic extent of Kūwili Fishpond (17.12 acres) used in this historic property description is based on the fishpond’s depiction on J.F. Brown’s 1885 map of Kalihi and Kapālama (Figure 159). SIHP #5368 was originally designated as buried remnants of Kūwili Fishpond during the AIS for the proposed Liliha Civic Center (McGerty et al. 1997). Further investigation of SIHP #5368 was performed by Athens and Ward (1997) during a paleoenvironmental coring study of the proposed Liliha Civic Center. Hammatt et al. (2008) also described Kūwili Fishpond during data recovery for the Iwilei Senior Housing Project.

Few oral traditions, legends, or other ethnographic information exist regarding Kūwili Fishpond. Kūwili literally means “stand swirling” (Pukui et al. 1974:125). Kūwili Fishpond is mentioned in the legend of Kū‘ula (the fish god of Hawai‘i). Kū‘ula’s son, ‘Ai‘ai, gave a sacred fishhook to his son, Puniaiki, who used it to summon a substantial school of *aku* to Honolulu Harbor (Manu 1998:247-248). The location of Kūwili Fishpond is shown on an 1885 map by J. F. Brown and an 1887 map by W.A. Wall (see Figure 159 and Figure 160). Although the time of construction and the use history of Kūwili Fishpond remain unclear, Kūwili Fishpond is considered to be an aquacultural site constructed in pre-Contact times with continued use into the second half of the nineteenth century (Figure 161). Early historic maps show taro fields surrounding the fishpond illustrating the area’s use as an important agricultural and aquacultural resource (Athens and Ward 1997). Kikuchi, in his 1973 study of Hawaiian fishponds, classified Kūwili Fishpond as a Type II pond, or a *loko pu‘uone* or a *loko haku‘one*, “an isolated shore fishpond usually formed by the development of barrier beaches building a single, elongated sand ridge [*pu‘uone* or *haku‘one*] parallel to the coast and containing one or more ditches and sluice

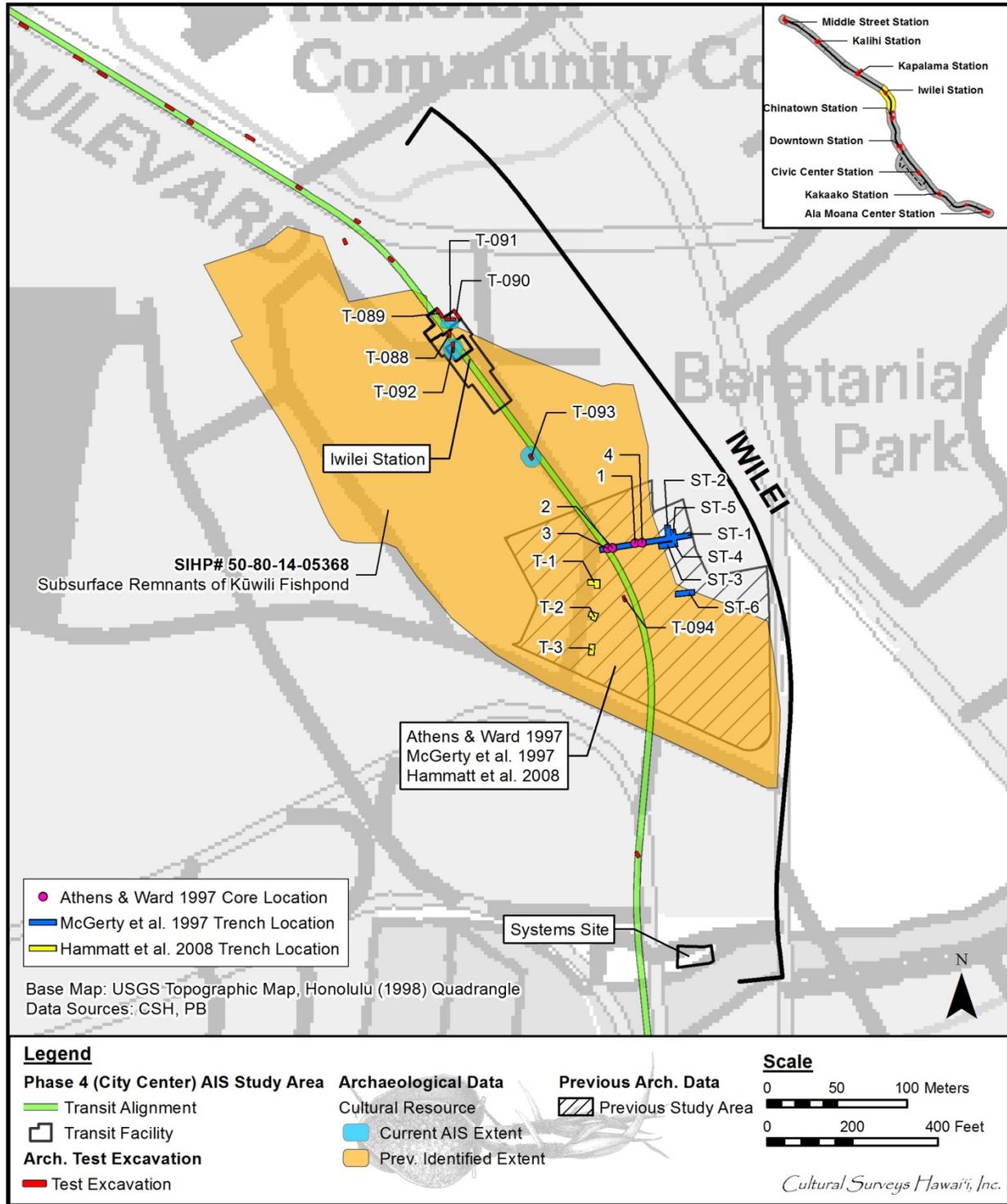


Figure 158. Locations of former- and newly-identified extents of SIHP # 50-80-14-5368, Kūwili Fishpond, showing locations of AIS excavations T-088 through T-094 along the Iwilei Zone corridor and previous study areas (base map: 1998 U.S. Geological Survey topographic map, Honolulu Quadrangle)

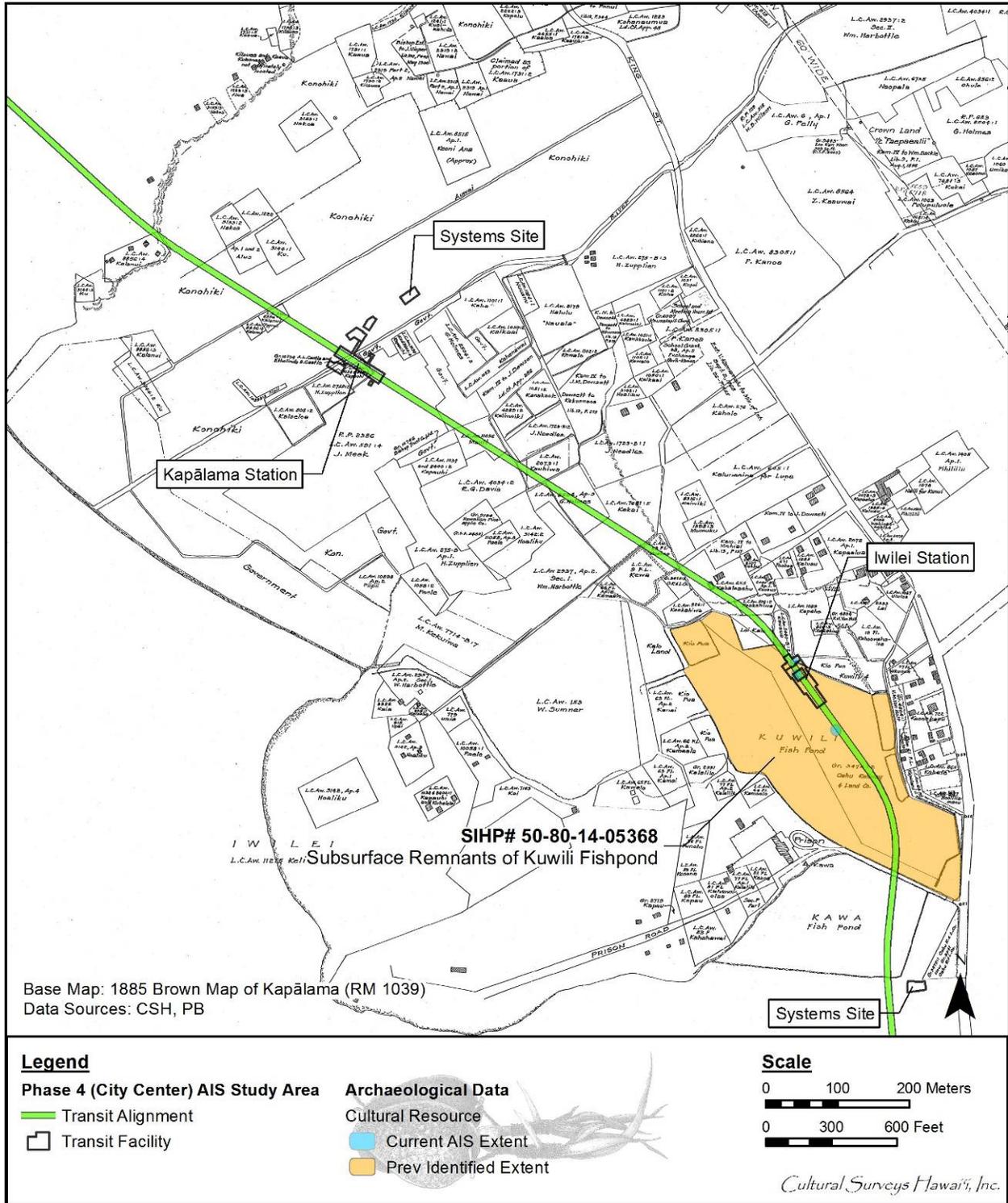


Figure 159. A portion of the 1885 map of Kalihi and Kapālama, *makai* sections, by J. F. Brown depicting the general location of Kūwili Fishpond within the Iwilei Geographic Zone

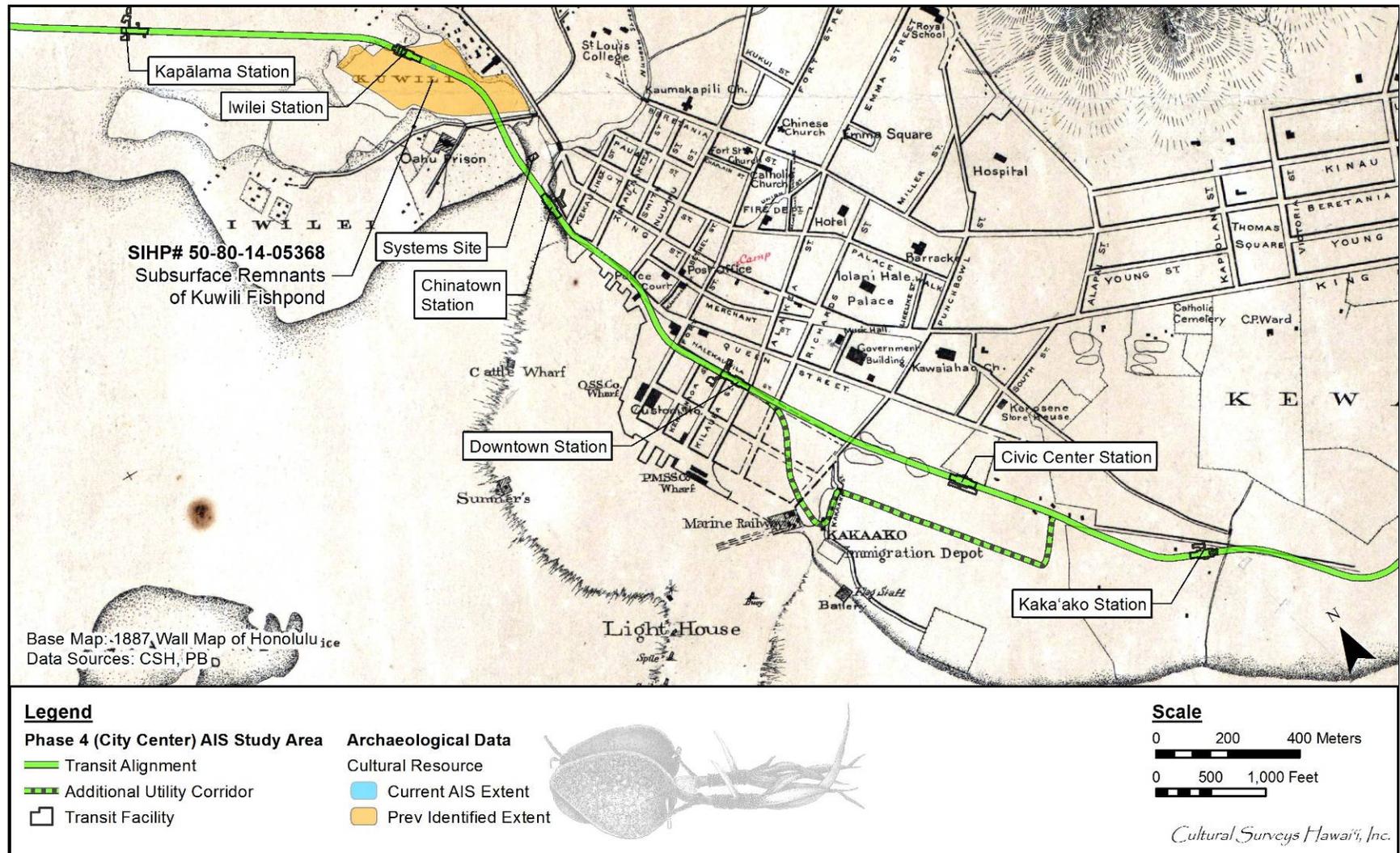


Figure 160. 1887 W. A. Wall Hawaiian Government Survey Map of Honolulu and Vicinity, showing the location of Kūwili Fishpond within the Iwilei Geographic Zone

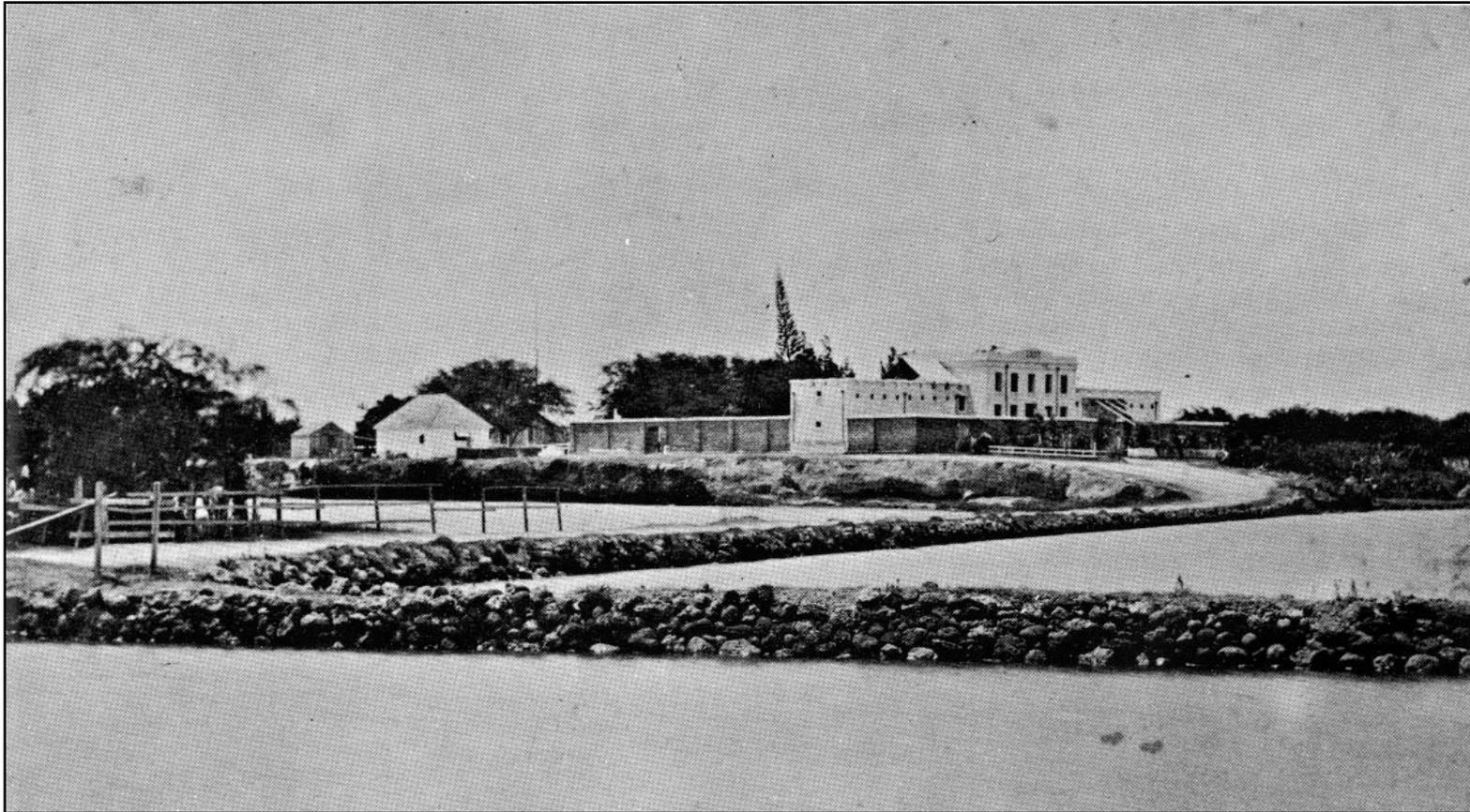


Figure 161. 1857 Photograph showing the O'ahu Prison in Iwilei with Kūwili Fishpond to the right of the causeway extending to the Prison and Kawa Fishpond to the left (Hawai'i State Archives)

grates” (Kikuchi 1973:228). The fishpond itself was built within shallow lagoon waters and may have been constructed as early as AD 1100 (McGerty et al. 1997).

Filling of the fishpond in the 1890s was due to both health concerns and the development and urbanization of Honolulu (Figure 162). An outbreak of cholera centered on both sides of Nu‘uanu Stream, prompted the Honolulu Board of Health to recommend the infilling of the adjoining Kawa Fishpond and a good portion of Kūwili Fishpond; this was completed by 1901 (McGerty et al. 1997:23). Following its purchase by the O‘ahu Railway and Land Company (OR&L) in 1890, the remainder of Kūwili Fishpond was filled to accommodate the new railroad and its facilities (Figure 163). The reclamation of this portion of the fishpond occurred from 1895 through 1901 and incorporated dredged materials from Honolulu Harbor:

In making Harbor improvements, 6,000,000 cubic yards of mud, sand, and loose coral had been dredged, and several thousand cubic yards of hard coral had been blasted by O.R. & L. Co, in 1901. All of this material was used in reclaiming and filling in low land near the harbor and terminal. (McGerty et al. 1997:21)

The 1914 Sanborn Fire Insurance Map (Figure 164) shows the extensive OR&L facilities that were constructed within Kūwili Fishpond’s infilled footprint. These facilities included the roundhouse, car barn, a corral, numerous track alignments, and the depot building itself (labeled waiting area and office on the 1914 Sanborn Fire Insurance Map).

The depositional stratigraphic sequence recorded within Kūwili Fishpond is characterized by multiple fill layers overlying sediments associated with pond use, and earlier underlying natural estuary sediments. Typically the uppermost fill layers represent modern events while deeper fill layers are associated with historic events dating to reclamation infilling of the fishpond (Hammatt et al. 2008). Remnants of the OR&L railroad (including rail spikes, wooden ties, and rails) were observed in some recent fills post-dating dismantling of the railroad system between 1948 and 1951 (McGerty et al. 1997). Beneath the historic fills and underlying Kūwili Fishpond sediments, the lower-most layers consist of natural sediments predating construction of the fishpond. This generalized stratigraphic sequence characterizes the nature, extent and/or use of Kūwili Fishpond.

Kūwili Fishpond sediments are generally represented by gleyed silty and sandy clays, with abundant snail shells and organics. McGerty et al. (1997) identified fishpond sediments from 1.61 to 2.60 mbs. Athens and Ward (1997) identified similar sediments from 1.45 to 2.35 mbs, and Hammatt et al. (2008) identified fishpond sediments from 1.80 to 2.70 mbs. McGerty et al. (1997) and Athens and Ward (1997) concluded that fishpond sediments generally occurred in situ between 1.50 and 2.40 mbs (Figure 165 through Figure 170).

McGerty et al. (1997) designated marine and fluvial type sediments as Stratum III-IIIj. These strata (III-IIIj) were described as well sorted silty to silty clay, gleyed sediments containing rounded cobbles and gravel, and terrestrial snail (Rissoacea). Generally, these deposits did not contain artifacts. The lowest layer indicated was Stratum IV, a very fine silty clay. Hammatt et al. (2008) designated the Stratum III (IIIa-IIIc) natural silty to sandy clay sediments as pond deposits below hydraulic fills. Their lowest layer consisted of natural clays designated as Stratum IV (IVa-IVb). Athens and Ward (1997) analyzed two of their five cores and identified Stratum III, a gleyed silty clay with terrestrial snails, as fishpond sediment directly overlying Stratum IV

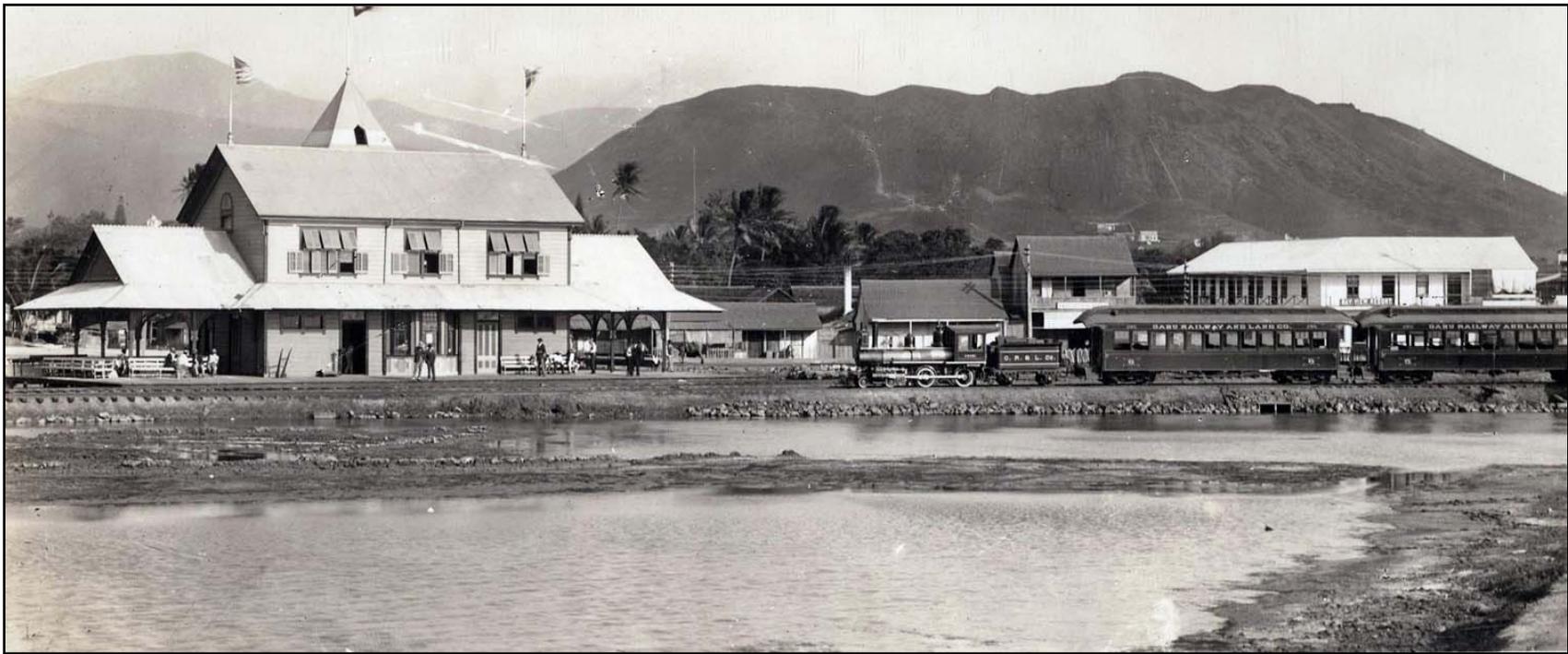


Figure 162. 1890 photograph showing a partially filled Kūwili Fishpond and the OR&L Depot (Scott 1968:859)

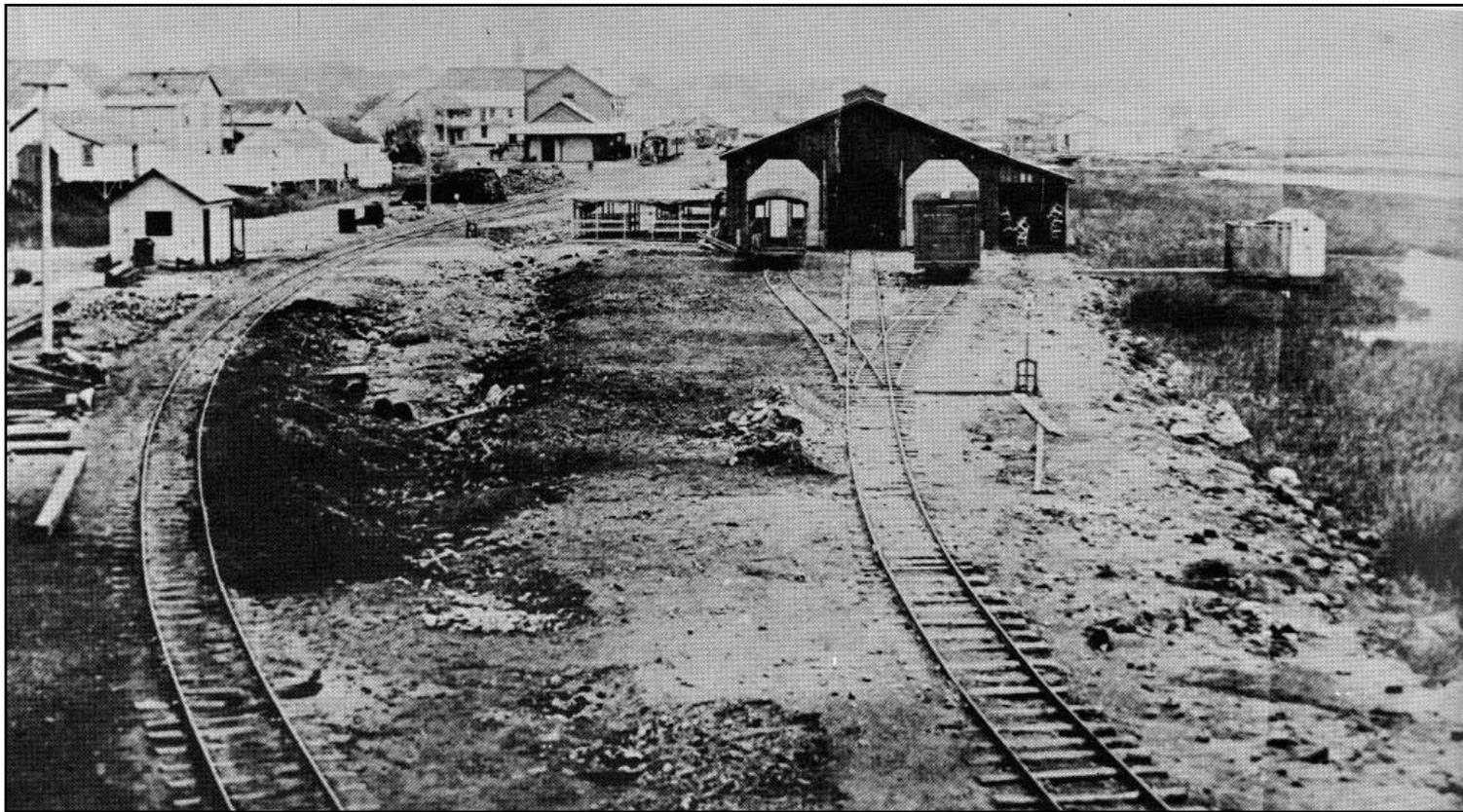


Figure 163. 1890 photograph showing the OR&L Depot situated atop the partially filled Kūwili Fishpond (Scott 1968:858)

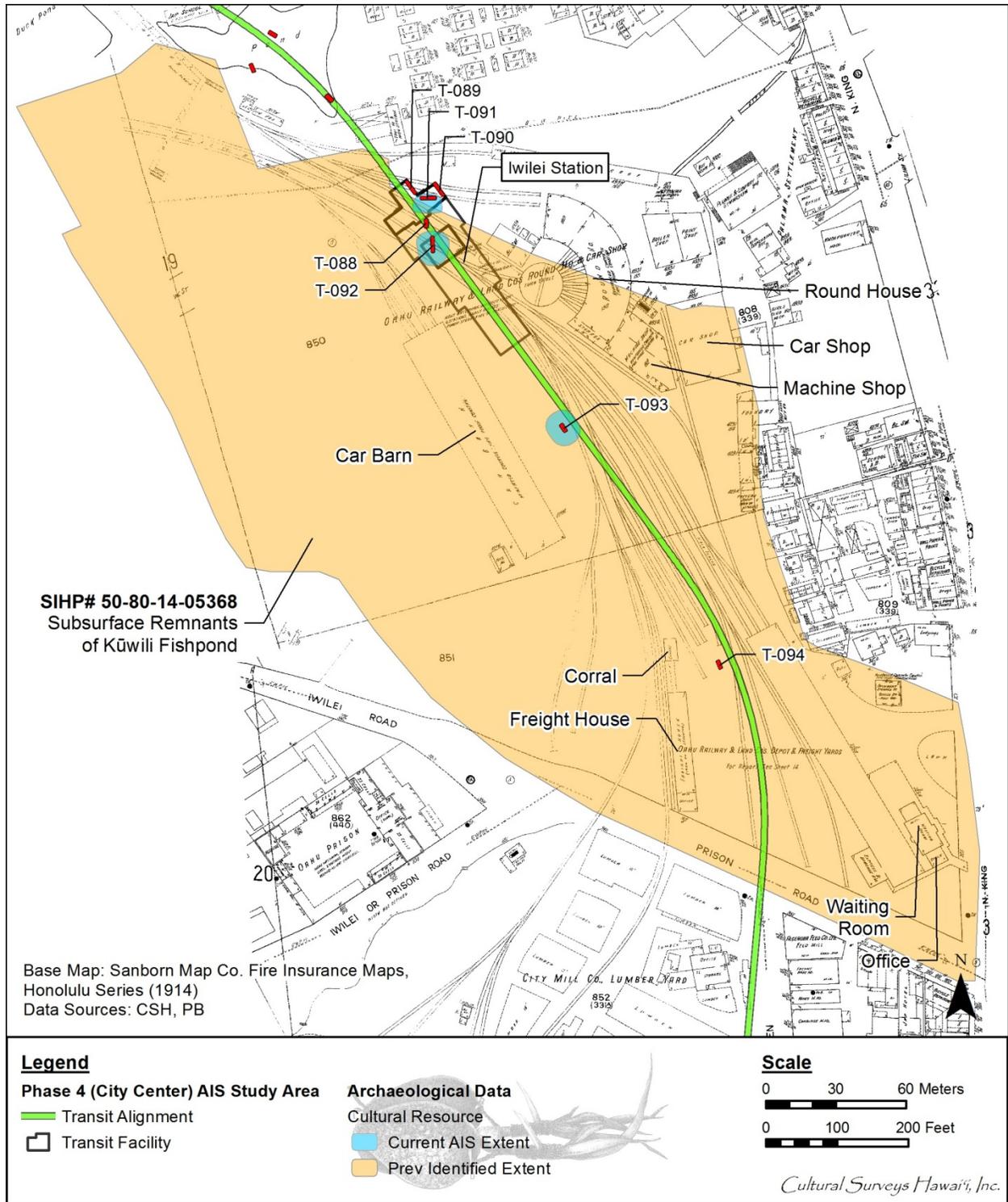


Figure 164. 1914 Sanborn Series map (Sanborn Map Company 1914) with an overlay of Kūwili Fishpond showing the extensive OR&L facilities constructed atop the infilled fishpond footprint

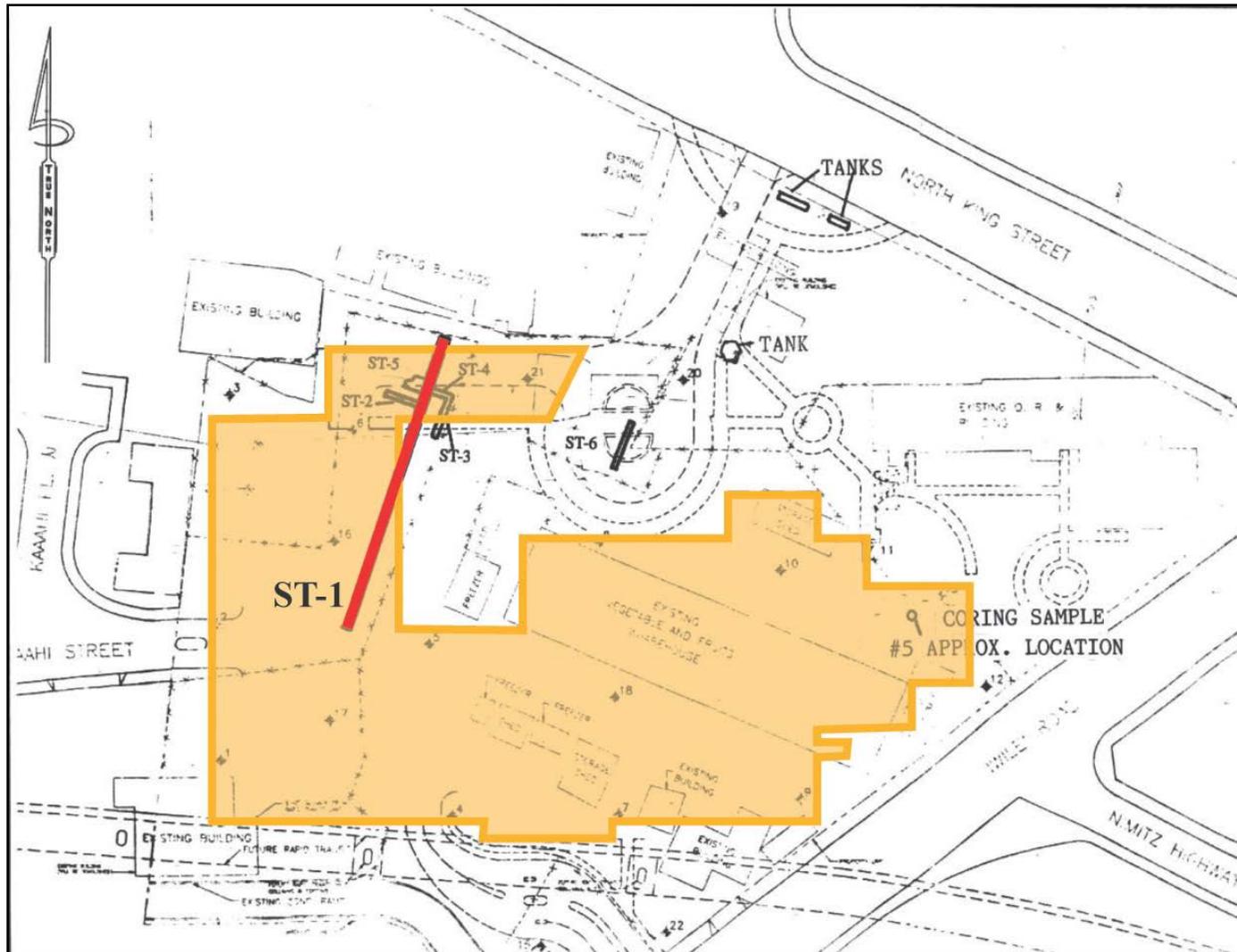


Figure 165. Plan view of McGerty et al. (1997:4) project area showing excavation locations within the former Kūwili Fishpond footprint; see Figure 158 for location of previous studies

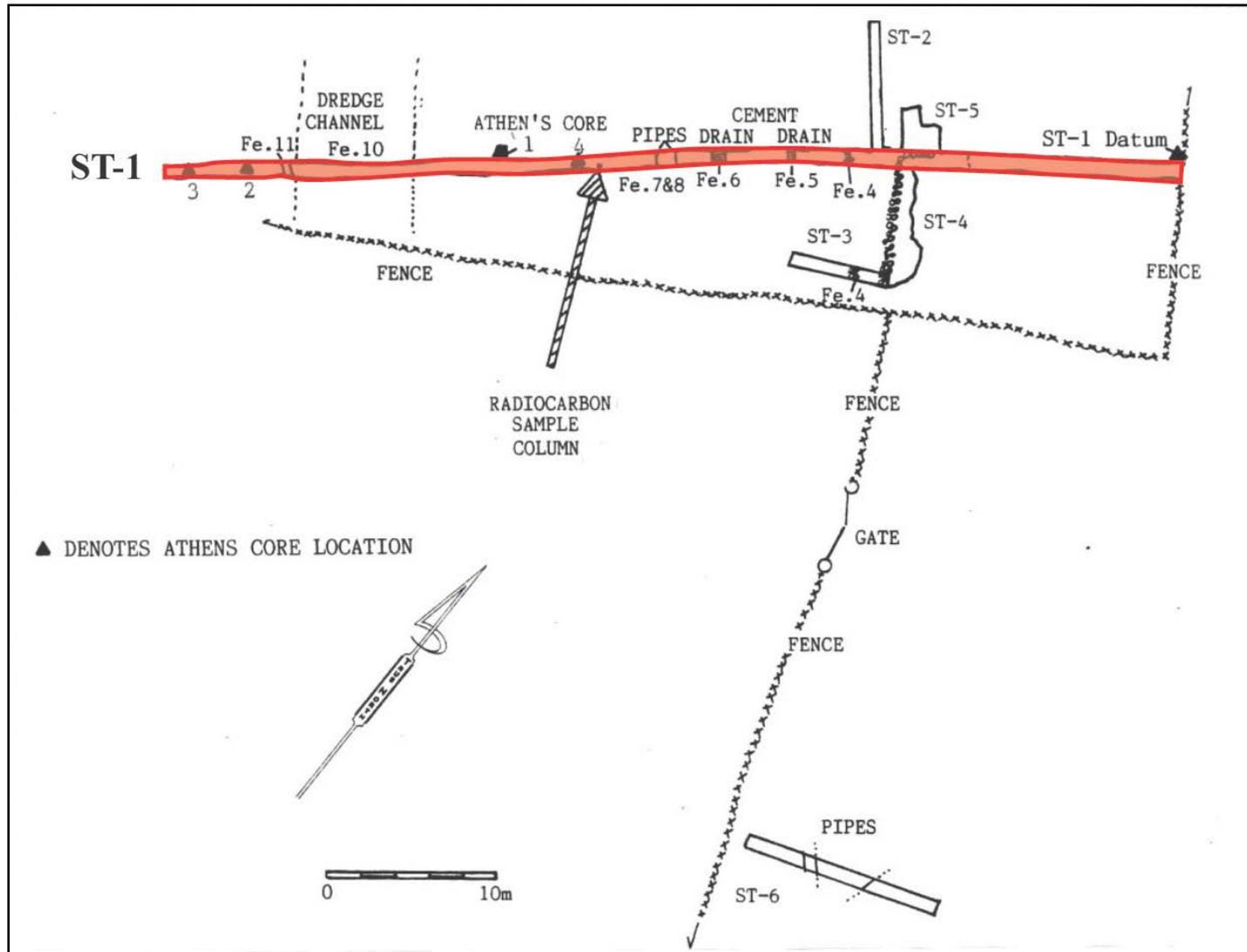


Figure 166. Plan view of McGerty et al. (1997:28) excavation areas and features and location of Athens and Ward (1997) cores; see Figure 158 for locations of previous project study areas

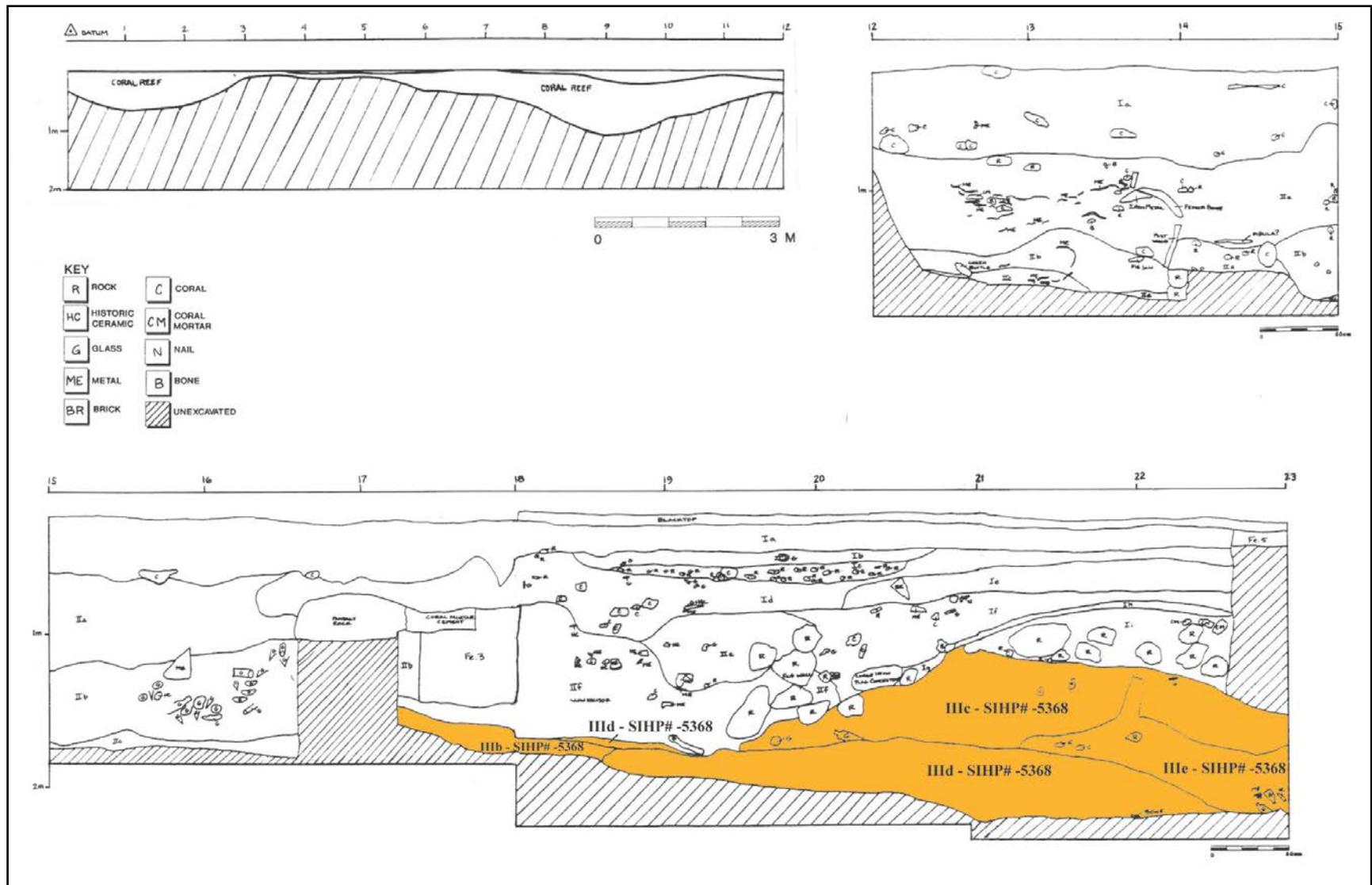


Figure 167. Profile of ST-1 south wall showing Kūwili Fishpond sediments (SIHP #-5368) (adapted from McGerty et al. 1997:39)

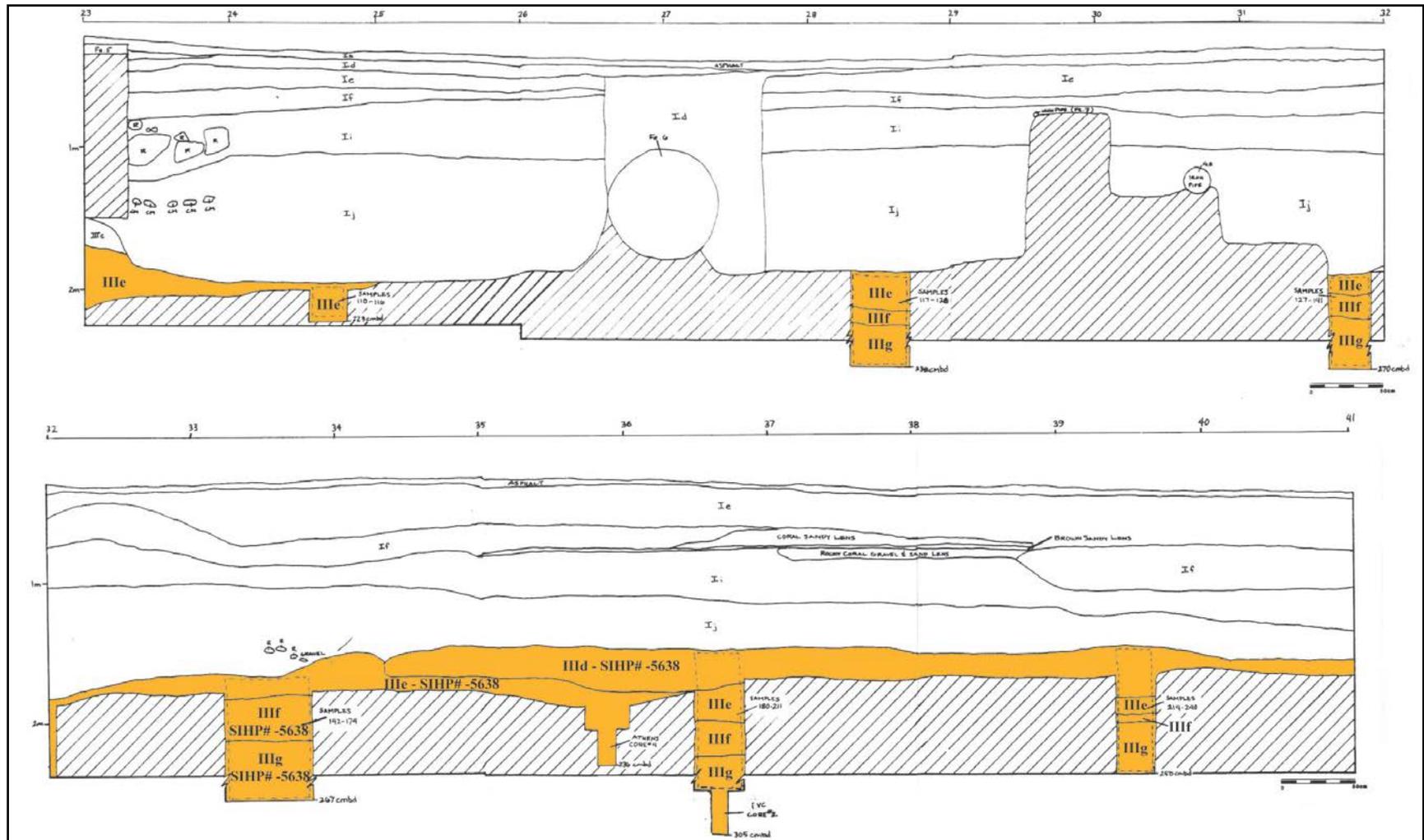


Figure 168. Profile of ST-1 south wall showing Kūwili Fishpond sediments (SIHP #-5368; Strata IIIe through IIIg); also shown is the column sample illustrated in Figure 170 (adapted from McGerty et al. 1997:40)

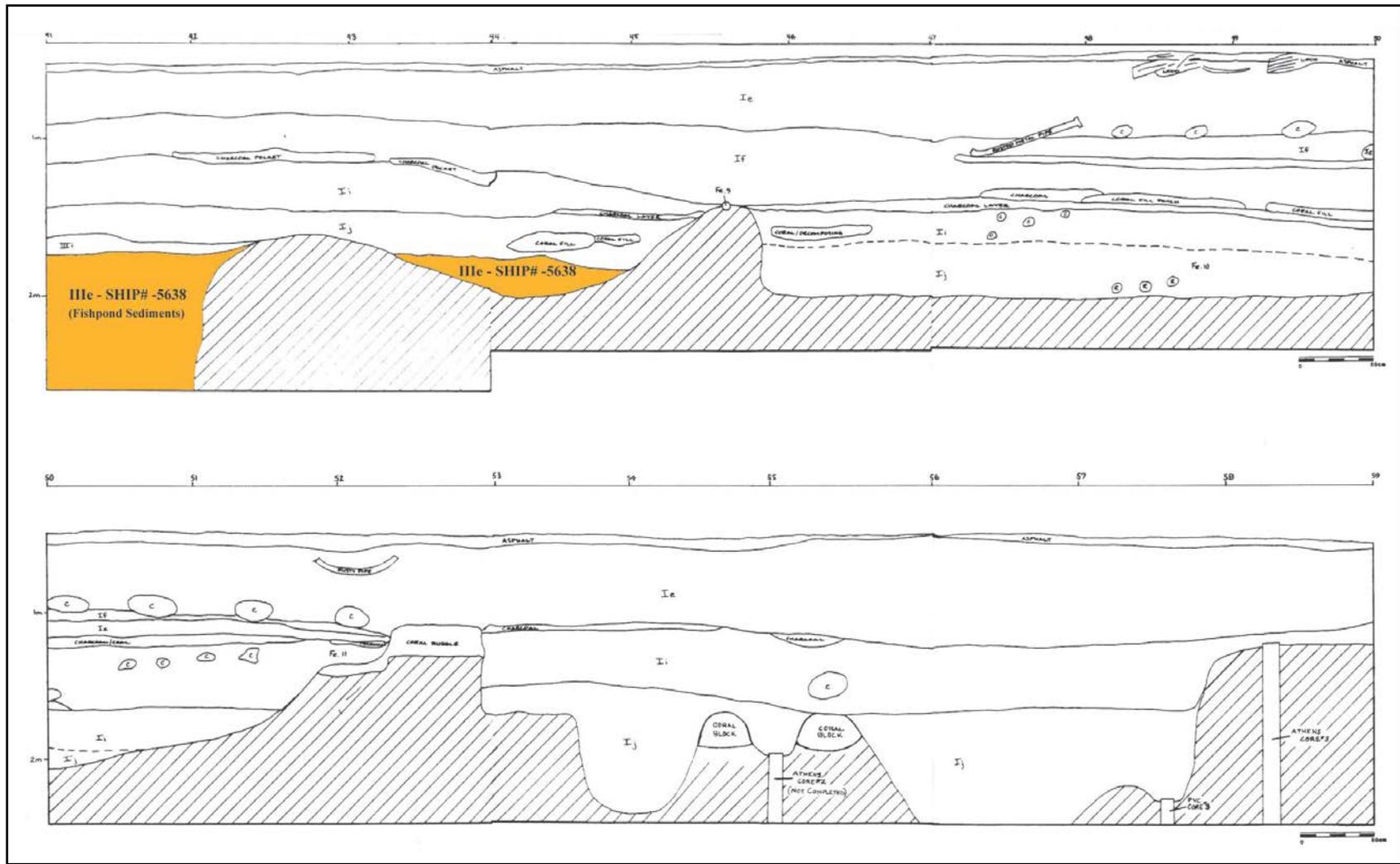


Figure 169. Profile of ST-1 south wall, showing Kūwili Fishpond sediments (SIHP #-5368; Strata IIIe (adapted from McGerty et al. 1997:41)

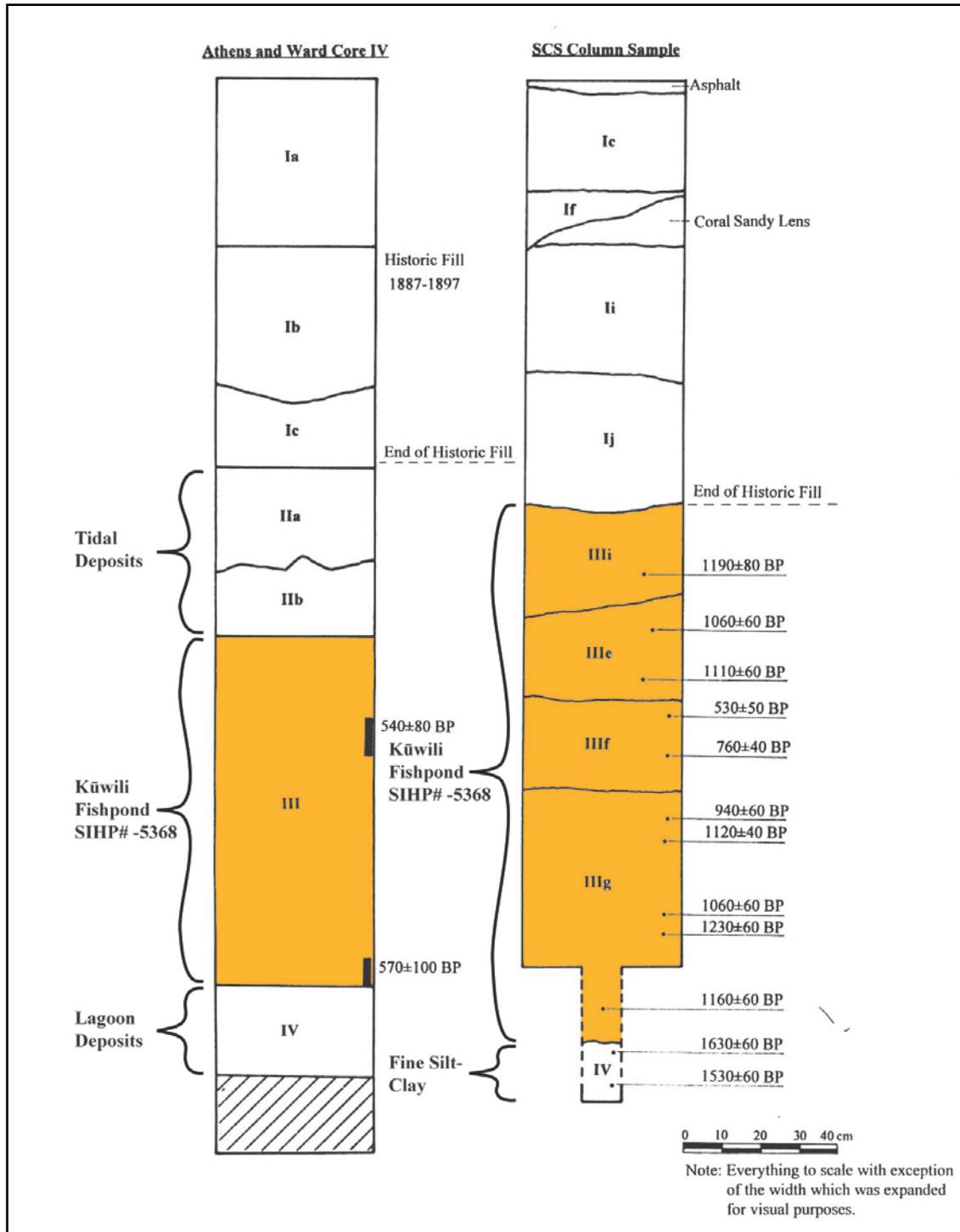


Figure 170. Figure showing comparison of the Athens and Ward (1997) Core IV to column sample collected during McGerty et al. (1997:65) AIS—labeled “SCS” on figure; column sample location is shown in Figure 168.

a sandy loam lagoonal deposit. Athens and Ward (1997) also recorded silty clay tidal sediments (Stratum IIa-IIb) directly below historic fill deposits.

The remnants of Kūwili Fishpond were located beneath thick historic fill layers. McGerty et al. (1997) designated Stratum II as fill strata (II-IIf), which contained abundant 19th century refuse. These sediments varied from gravels to silty loams and often contained bottles, glass and metal fragments, animal remains, charcoal, brick and ceramic pieces. Athens and Ward (1997) identified Strata Ia-Ic deposited above their Stratum II as representing historic fills. Athens and Ward (1997) indicated much of the fill appeared to date from 1887 to 1897. Hammatt et al. (2008) recorded multiple fill sediments, with deposits (Strata If-Ij and Stratum II) extending below approximately 0.50 mbs being identified as historic.

The uppermost fill layers were considered to be associated with more modern fill events. McGerty et al. (1997) considered strata Ia-Ij to be fills associated with railroad demolition and recent parking lot developments. Historic material included bottle glass and few brick and ceramic fragments. Hammatt et al. (2008) reported upper fill strata (Ia-Ie) as being related to modern construction activities.

During AIS work for the proposed Liliha Civic Center (TMK: (1) 1-5-007:001, 014, 015, 018, 057, 058, 060-078) McGerty et al. (1997) documented 12 subsurface features associated with SIHP #-5368. The AIS involved six trench excavations, ST-1 through ST-6. In conjunction with the McGerty et al. (1997) AIS, Athens and Ward (1997) collected five sediment cores (Cores 1-5), four from within excavation ST-1 and one from the eastern corner of the project area. McGerty et al. (1997) indicate four features (Features 4 and 10-12) represent the construction and/or use of the fishpond, while eight (Features 1-3, and 5-9) correlate with historic infilling of the fishpond. McGerty et al. (1997) provided feature descriptions and summarized them further in their text, presented in Table 19. Depths recorded in Table 19, profile figures, and their text vary. The following SIHP #-5368 feature summaries are derived from McGerty et al. (1997:31-36):

**Feature 1** was a partial human femur uncovered at the eastern end of ST-1. Feature 1 was within fill containing debris dating to the twentieth century. A probable human femur fragment was identified in the south sidewall of the trench. No burial pit, coffin outline, or articulated remains were identified in the fill surrounding Feature 1. Feature 1 was interpreted to be a previously-disturbed burial and was incorporated into the trash fill. The human skeletal remains were reburied within ST-1 and the excavation was backfilled.

**Feature 2** was a basalt rock wall constructed of rounded to subangular basalt rocks. Feature 2 was observed in ST-1 north wall profile between 15.0 and 17.0 m west of ST-1 datum string. Feature 2 was a faced wall, two to three courses high, with coral mortar present between the basalt rocks. The base of Feature 2 was constructed on Stratum II domestic refuse fill. At 17.0 m from the datum, Feature 2 turned ninety degrees to the south and extended into the south wall of ST-1. Feature 2 was interpreted as a foundation built atop fill deposits that accumulated within the *ki'o pua* (fry pond).

**Feature 3** was a previously-backfilled trench present in ST-1. Feature 3 was perpendicular to ST-1, extending from the northwest to the southeast and containing dark reddish brown silty clay sediment. Feature 3 was present 17.40 m west of the ST-1 datum and was approximately 0.40 m

Table 19. Previously Identified Archaeological Features of SIHP #-5368 (adapted from McGerty et al. 1997)

Feature	Trench Excavation	Depth (cmbs)*	Stratum	Type/Function	Contents/Description
1	ST-1	100-125	Iia	Skeletal remains/Previously disturbed burial	Single partial human femur and probable femur fragment. No burial pit or coffin outline was visible. Remains were identified in fill and considered previously disturbed.
2	ST-1	-	-	Wall/Foundation	Basalt rock wall. Wall was two to three courses high with coral mortar between subangular to rounded basalt stones. Constructed on historic fill (Stratum II).
3	ST-1; ST-2; ST-3	52-64	Iib	Pit/Indeterminate	Previously-backfilled excavation that contained dark reddish brown silty clay and a single green glass bottle fragment.
4	ST-1; ST-3	100-185	Iie/IIf	Wall/ <i>ki'o pua</i> wall	Loosely built wall of basalt, burned brick and imported stone. Constructed above gleyed deposits of Stratum IIIa and IIIb.
5	ST-1	8-22	Ia	Concrete jacket/Historic infilling	Concrete jacket within Stratum Ia. Interpreted as associated with infilling of the pond during construction of the OR&L Railway.
6	ST-1	100-180	Id	Concrete drain/Drainage	Concrete drain considered to be late 19th or 20th century structure.
7	ST-1	60	Ii	Metal pipe/Utility line	Iron pipe considered to be late 19th or 20th century pipe.
8	ST-1	130-140	Ij	Metal pipe/Utility line	Iron pipe considered to be late 19th or 20th century pipe.
9	ST-1	155	If/Ii	Metal pipe/Utility line	Iron pipe considered to be late 19th or 20th century pipe.

Feature	Trench Excavation	Depth (cmts)*	Stratum	Type/Function	Contents/Description
10	ST-1	175-200	Ij	Channel/Drainage	Possible drainage channel comprised of silty sand sediments. Truncated lower gleyed deposits of IIIa-IIIe. Interpreted as a hydraulic dredge drainage channel.
11	ST-1	120-160	Ii	Coral rubble /Indeterminate possible temporary foundation	Loose scatter of coral rubble overlying Stratum Ii. Possibly functioned as temporary foundation during hydraulic dredging.
12	ST-6	100-125	IIIh	Coral block platform with basalt alignment/ Foundation or structure	Basalt boulder alignment overlying coral-filled platform. Alignment was a single course high. Interpreted a post-Contact structure or foundation constructed at the edge of the fishpond.

\*Depths are reported from McGerty et al. (1997) profile figures and may not correspond with their in text descriptions.

wide and ranged from 0.52 to 0.64 mbs. The excavation of ST-2 exposed Feature 3 for seven meters to the northwest. Feature 3 was also observed in ST-3 six meters to the south. A single green glass bottle mouth fragment was collected from Feature 3 at 0.92 mbs. Feature 3 was interpreted as a trench of indeterminate function.

**Feature 4** was a loosely-built wall and consisted of basalt, burned brick, and possible imported stone material. Feature 4 was approximately 0.70 m high and was 20.0 m west of ST-1 datum. It also was present in ST-3. Feature 4 was constructed atop Stratum IIIa or Stratum IIIb sediments. Late 19th-century bottles were observed below Feature 4, while red and yellow bricks and iron slag were observed atop and around Feature 4. Historic maps depict a *ki'o pua* wall in the vicinity of ST-1 and ST-3. Feature 4 was interpreted as the wall edge of a historic-period *ki'o pua* (fry pond).

**Feature 5** was a concrete jacket. Feature 5 was observed at a depth of approximately 0.08 mbs. Feature 5 measured approximately 0.65 by 0.10 m and was 22.5 m west of ST-1 datum. Feature 5 was directly below the asphalt within Stratum Ia which consisted of coral gravel and sand. Upper fill strata and Feature 5 were interpreted as being associated with the infilling of Kūwili Pond in advance of the construction of the OR&L Railway; infilling began before 1890 and finished by 1899 (see Figure 163).

**Feature 6** was a concrete drain located approximately 27 m west of ST-1 datum. Feature 6 had a diameter of 0.76 m and was exposed at 0.60 mbs. Feature 6 was within Stratum Id which consisted of coral rubble and sand. Feature 6 was interpreted as a late late nineteenth- to twentieth-century utility drain.

**Feature 7** was a small iron pipe located 29.6 m west of the ST-1 datum. Feature 7 was present at 0.40 mbs within Stratum Ii. Feature 7 was interpreted as a late late nineteenth- to twentieth-century utility pipe based on its association with the upper fill layers.

**Feature 8** was an iron pipe located 30.55 m west of the ST-1 datum. Feature 8 was identified at 0.79 mbs within Stratum Ij. Feature 8 had a diameter of 0.19 m. Feature 8 was interpreted as a late 19th- to 20th-century utility pipe based on its association with the upper fill layers.

**Feature 9** was a rusted metal pipe located 45.55 m west of the ST-1 datum. Feature 9 was identified at 0.94 mbs within Stratum If. Feature 9 was interpreted as a late nineteenth- to twentieth-century utility pipe based on its association with the upper fill layers.

**Feature 10** was a channel comprised of silty sand located between 45.50 m and 52.00 m west of the ST-1 datum. Feature 10 was observed at approximately 1.44 mbs within Stratum Ij. Feature 10 was approximately 7.0 m wide and truncated the gleyed deposits (IIIa-IIIe) near the base of excavation within ST-1. Feature 10 was interpreted as a possible drainage channel prior to hydraulic dredging and infilling.

**Feature 11** was a loose scatter of coral rubble located 52.0 m west of the ST-1 datum. Feature 11 overlay the gleyed pond deposits at 1.10 to 1.30 mbs (Stratum Ii). Feature 11 was interpreted as an indeterminate feature; also suggested was Feature 11 possibly served as a temporary foundation for hydraulic dredging during the removal of Feature 10.

**Feature 12** was a basalt boulder alignment directly above a low coral-filled platform at the base of ST-6. Feature 12 was one course high at the edge of the reef. A number of angular coral

blocks were observed near the northern end. Feature 12 appeared to be a low, coral block-filled platform lined with basalt boulders. A small clamshell deposit directly atop Feature 12 was collected for possible radiocarbon dating. Early photographs of the fishpond show that several structures existed along its edge. Feature 12 was considered to be a post-Contact structure.

More recently, Hammatt et al. (2008) conducted archaeological data recovery work within Kūwili Fishpond as part of the Iwilei Senior Housing project (TMK: (1) 1-5-007:002). Hammatt et al. (2008) excavated three trenches (see Figure 158) and fishpond sediments were documented within two of the three excavations below numerous fill deposits. No features were observed in any of the excavations.

All three previous studies conducted radiocarbon analysis to determine possible date ranges for the fishpond sediments. McGerty et al. (1997) and Hammatt et al. (2008) suggest an early, pre-Contact construction date for the fishpond. McGerty et al. (1997) analyzed 12 samples collected from strata IIIi-IIIg and Stratum IV within ST-1. Radiocarbon results from Stratum IIIi and Stratum IIIe presented older age ranges than those of strata directly beneath. McGerty et al. (1997) interpreted these strata as being redeposited pond sediments used as fill material. Results of Stratum IIIf and IIIg indicated dates of AD 1310 to 1350 and AD 1220 to 1300, respectively. Hammatt et al. (2008) analyzed four samples from Trench 1 and three samples from Trench 2 and reported a somewhat earlier date range, with pond sediments deposited ca. AD 1020 to 1120. Athens and Ward (1997) conducted radiocarbon analysis of two samples collected from their Core 4 Stratum III. The upper sample yielded a range of AD 1461 to 1643, and the lower sample yielded a range of AD 1489 to 1648. Based on available information, Kūwili Fishpond was constructed in the pre-Contact period, possibly as early as ca. AD 1100 or as late as ca. AD 1600.

Athens and Ward (1997) and Hammatt et al. (2008) also conducted pollen analysis. Athens and Ward (1997) analyzed the fishpond sediment (Stratum III) present within Core 4. Results indicated the presence of *Cheno-am* pollen, *Cheriodendron*, *Coprosma*, *Myrsine*, *Melicope*, sedge pollen, Pteridophyte spores. Polynesian-introduced species included *Aleurites moluccana* (*kukui*), *Cocos nucifera* (*nui*), and *Cordyline fruticosa* (*ti*), and a single pollen grain of *Kanaloa kahoolawensis* was present. Hammatt et al. (2008) analyzed fishpond sediment samples collected from Stratum III in Trench 1 and Trench 2 and Stratum IV pre-fishpond sediments. Both strata III and IV contained *Cyperaceae* (sedge), *Cheno-am*, *Poacea* (grass), and *Pritchardia* (*loulou palm*), with small quantities of *Araliaceae*, *Anacardiaceae*, *Myrsine*, *Myrtaceae*, and *Euphorbia* pollen. Stratum III contained a greater variety of pollen including four Polynesian-introduced and ten endemic species. Pollen results indicated a gradual shift in the area's flora from pre-fishpond coastal wetland, to post-fishpond wetland dominated by sedges and grasses, with nearby shrubs and trees (Hammatt et al. 2008).

The current AIS investigation conducted five test excavations within the Kūwili Fishpond boundary (SIHP #-5368) as shown on J.F. Brown's 1885 map of Kalihi and Kapālama (see Figure 158). Pond sediments associated with Kūwili Fishpond were identified within three test excavations (T-091, T-092, and T-093) and two additional test excavations (T-088 and T-094) were included as being within the previously-identified fishpond footprint based on historic maps.

Test excavations T-088 and T-094 yielded neither fishpond sediments nor natural sediments. Instead, fill deposits extended to the base of excavation in both trenches. A total of seven fill

strata (Stratum Ia-Ib, IIa-IIc, and III-IV) were observed within T-088 (Figure 171) while a total of six fill strata (Stratum Ia-If) were observed in T-094 (Figure 182, Table 24). T-088 Stratum Ib contained narrow wooden planks, a railroad spike, rail metal cylinders, and red brick fragments. These historic materials suggest that the upper fill within T-088 may be associated with the demolition of the OR&L railroad in the late 1940s and early 1950s. Fill sediments from T-094 contained concrete, angular cobbles, glass fragments, and asphalt. Seven machine-made brick fragments also were collected from Stratum Id. The sequence of fill deposits observed in T-088 and T-094 indicate fill deposition within the fishpond footprint continued after the fishpond was infilled in the late nineteenth century, including fills deposited as part of, or subsequent to, the demolition of the OR&L facilities in the late 1940s to early 1950s.

Test excavations T-091, T-092, and T-093 encountered buried pond sediments beneath multiple fill layers (Figure 173 through Figure 180; Table 21 through Table 23). In each of these test excavations, natural sediments were located beneath ten fill strata (Ia-Ij). Within fill Stratum Ij of T-091 and T-092, wooden planks and metal fragments were observed. In contrast, Stratum Ij in T-093 appeared to be redeposited coastal sediment that contained non-cultural shell fragments, charcoal flecking, and gravel. Stratum Ij may have been readily available and utilized as a fill during land reclamation; potentially this consists of harbor dredge sediments noted above in the quote from McGerty et al. (1997:21). Additionally, Stratum Ii of T-093 was a silty clay hydraulic fill similar to the dredge deposit observed overlying pond sediments by Hammatt et al. (2008). The fill layers present within T-091, T-092, and T-093 were sometimes observed to be broken and discontinuous. This suggests that smaller, localized fill events occurred between larger, broadly distributed events and is consistent with the fishpond being filled over the course of at least several years.

Beneath fill strata were clay-rich, very dark to dark greenish gray sediments that contained abundant non-cultural marine and terrestrial snail shells. These sediments were between 0.1 to 0.4 m thick and observed at 1.65 to 1.90 mbs. The depths are within the 1.50 to 2.40 mbs range described by McGerty et al. (1997) and Athens and Ward (1997) as containing in situ pond deposits. During excavation of T-091 and T-092 only a single natural layer was observed (Stratum II). T-093 contained two natural layers, Stratum IIa and Stratum IIb. Stratum IIa contained slightly more organics and may have represented the upper region of settling.

Bulk sediment samples were collected from T-092 and T-093. One bulk sediment sample was collected for T-092 Stratum II at 1.73-1.83 mbs (5 L). The sample contained burned *Naticidae* (1.1 g), charcoal (0.6 g), a burned seed pod fragment (0.4 g), *Ruppia maritima* seeds (1.7 g), wood (3.0 g), and non-cultural water-rounded marine shell (2.4 g). Three bulk sediment samples were collected from T-093. One sample was collected from Stratum IIa at 1.95-2.2 mbs (4 L), and two from Stratum IIb, one each from 2.29 to 2.5 mbs (0.5 L) and from 2.5 to 2.74 mbs (0.5 L). The sample from Stratum IIa contained charcoal (0.3g), wood organics (0.9g), *Ruppia maritima* seeds (0.1g), and non-cultural shell. The Stratum IIb sample from 2.29 to 2.5 mbs contained terrestrial snail shell (35.3 g), charred organics (0.1 g), *Ruppia maritima* seeds (0.3 g), and charred fish vertebrae (0.1g). The Stratum IIb sample from 2.5 to 2.74 mbs contained non-cultural shell, and *Ruppia maritima* seeds (0.4 g). These results indicate organics, non-cultural shells, and terrestrial snail shells are characteristic of the remnant Kūwili Fishpond sediments (SIHP #-5368). Based on these findings, Stratum II in T-092 and Strata II and IIb in T-093 are designated as components of SIHP #-5368.

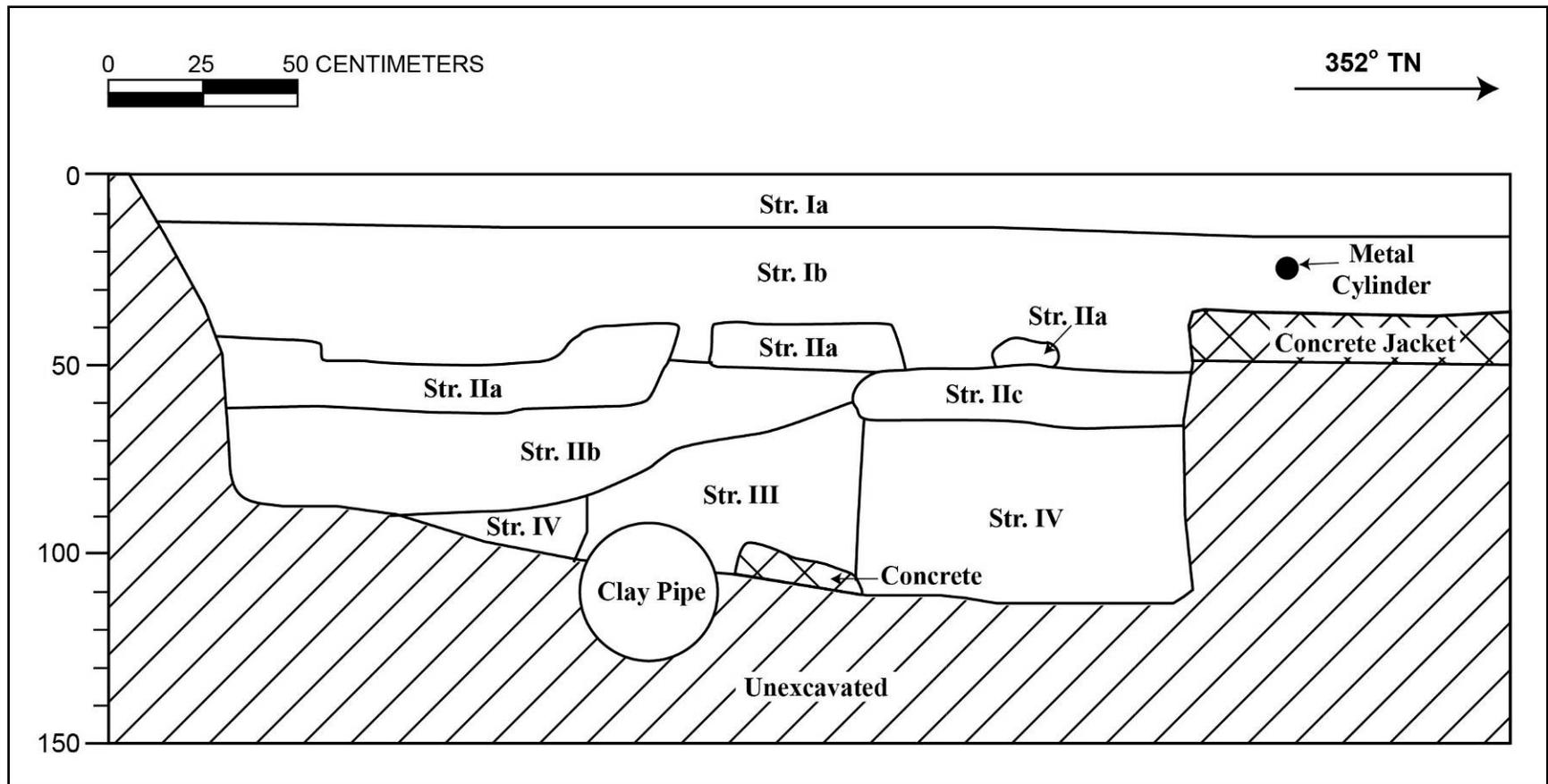


Figure 171. T-088 southwest wall profile

Table 20. T-088 Stratigraphic Description

<b>Stratum</b>	<b>Depth (cmbs)</b>	<b>Description</b>
Ia	0-11	Concrete; driveway surface
Ib	11-50	Fill; 10 YR 3/4 (dark yellowish brown); very gravelly cobbly sandy loam; weak, fine crumb structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; contained narrow wooden planks, railroad spike, rail metal cylinders, and red brick fragment (not collected); flakes of burnt wood
IIa	36-60	Fill; asphalt; buried asphalt surface
IIb	50-87	Fill; 10 YR 8/2 (very pale brown); very gravelly silty sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; very abrupt, wavy and broken/discontinuous lower boundary; contained 50% crushed coral gravel, possible base course fill for Stratum IIa
IIc	48-62	Fill; 10 YR 4/4 (dark yellowish brown); very gravelly, cobbly loamy sand; moderate, fine crumb structure; moist, very friable consistency; non-plastic; mixed origin; abrupt, smooth/broken, discontinuous lower boundary
III	60-105	Fill; 10 YR 2/1 (black); with few clay mottles of 10 YR 5/4 yellowish brown; sandy loam and clay loam mix; weak, fine crumb structure; moist, friable consistency; slightly plastic; terrigenous IIa origin; lower boundary not visible; churned fill surrounding clay pipe
IV	62-110 (BOE)	Fill; 10 YR 8/2 (very pale brown); extremely stony sand; structureless, single-grain; moist, loose consistency; non-plastic; terrigenous origin; lower boundary not visible; basalt boulders