Subsequent investigations by O’Hare et al. (2004) during an AIS for the Ko‘olani Condominium Project; Tulchin and Hammatt (2005) during an addendum AIS for the Ko‘olani Condominium Project; Clark and Gosser (2005) during an AIS of TMK 2-3-003:075, 085, and 086; Hammatt (2008) during archaeological monitoring for the Ko‘olani Condominium Project; Altizer, Borthwick, and Hammatt (2011) during archaeological monitoring for the Kapi‘olani Area Revised Sewer System Project; Runyon et al. (2011) during an AIS for the Ko‘olani Condominium Project; and Morriss et al. (2013; draft) during an AIS for the Ala Moana Center ‘Ewa Mall Expansion Project have identified additional portions of SIHP # -6636 throughout the Kewalo/greater Kaka‘ako area. It is likely that additional components of this cultural resource exist in undocumented portions within the Kewalo/greater Kaka‘ako area and adjacent to the City Center project area.

During the current City Center AIS, buried remnants of the Kewalo wetlands were identified in AIS test excavations T-186 through T-193, T-195, T-196, T-198 through T-200, T-202, T-202A, T-203, T-205, T-207, T-208, T-210 through T-212, T-214, T-219, and T-220, located mostly along Kona Street within the East Kaka‘ako and Kālia Geographic Zones. The O’Hare, Borthwick, and Hammatt (2003) study documented two layers of original wetland deposits designated SIHP # -6636 in 22 of their 24 test excavations. These layers were identified as very dark colored sandy clay loams and loamy clays with various high percentages of organic material. They also contained terrestrial gastropods and few marine bivalves. The wetland sediments ranged in depth from 0.90 to 2.20 mbs, beneath thick historic and modern fill layers. An artificially constructed sand berm that crossed the southeast corner of their project area was identified as a feature of SIHP # -6636. The sand berm consisted of dark-colored sandy clay and clay loam layers containing charcoal, marine gastropods, and fish scales. The berm was associated with a concentration of coral boulders, which may represent a retaining wall for the berm, and a wooden fence post, which may suggest some type of fence lining the berm. Radiocarbon analysis of the sand berm produced a two-sigma calibrated date of AD 1660 to 1890 (78.1% probability), indicating it could have been constructed in the late pre- or early post-Contact period.

The O’Hare et al. (2004) study documented SIHP # -6636 in 10 of their 13 test excavations. The wetland sediments were described as ranging from gray, brown, and black sandy clay loams with various high percentages of organic material to fine, well-sorted, light-colored coralline sands. A limited amount and variety of marine invertebrates and charcoal flecking was also observed within these sediments. The wetland sediments ranged in depth from 0.85 to 2.35 mbs, beneath thick historic and modern fill layers.

In the Tulchin and Hammatt (2005) study, SIHP # -6636 was documented within all eight of their test excavations. The wetland sediments consisted mostly of gleyed, gray sandy clay to clay sediments, immediately overlying the coral shelf. In one of their test excavations, the sediments consisted of dark gray loam, with abundant organic material and land snail shells. The wetland sediments ranged in depth from 1.65 to 2.6 mbs. Thick modern and historic fill layers covered the wetland sediments.

Clark and Gosser (2005) identified a small pond measuring approximately 65.5 by 58.2 m. They documented the pond as “a culturally modified feature within the natural wetland environment” (Clark and Gosser 2005:52). The pond sediment was described as a very dark

brown to black organic deposit (peat) in a sandy silt matrix, which contained abundant organic material and freshwater mollusks. This layer was found at or below the water table (generally between 1.0 and 2.0 mbs) and was discontinuous throughout their project area, likely due to disturbance during the deposition of later historic fill layers. Radiocarbon analysis of the pond sediment yielded calibrated (two sigma) date ranges of AD 1530-1560, AD 1630-1690, AD 1730-1810, and AD 1920-1950, suggesting that the pond sediment had begun accumulating as early as AD 1530-1560 (Clark and Gosser 2005:43). The pond sediment was found beneath thick historic and modern fill layers.

The Hammatt (2008) study documented wetland sediments associated with SIHP # -6636 in their project area, although the extent of the deposits was not made clear in the report. Hammatt (2008) reported that they followed the wetland sediment description given by O'Hare et al. (2004) during a previous investigation for the same project:

> Stratum III represents the original ground surface before the Kewalo area was filled with marine and other sediments in the early part of the twentieth century. It was divided into two substrata. It contained a limited amount and variety of charcoal flecking and marine invertebrates. This wetland stratum has been given the designation of State Site 50-80-14-6636 [Hammatt 2008:37].

The Altizer, Borthwick, and Hammatt (2011) study documented two layers of former wetland sediments, possibly pond sediments, identified as SIHP # -6636. The documented wetland sediments consisted of very dark gray silt loam and black clay loam, both with abundant land snail shells. The wetland sediments ranged in depth from 1.8 to 2.2 mbs and were located beneath thick historic and modern fill layers.

The Runyon et al. (2011) study documented a portion of SIHP # -6636 throughout the southern portion of their project area. The wetland sediments were identified as dark grayish brown, dark gray, and very dark brown clay loam sediments with a high organic (peat) content, abundant land snail shells, and charcoal flecking. The wetland sediments ranged from 1.30 to 2.05 mbs and were located beneath thick historic and modern fill layers.

The Morriss et al. (2013; draft) study documented wetland sediments associated with SIHP # -6636 throughout most of their project area. The wetland sediments consisted primarily of greenish-gray sandy clays containing decomposing organics, charcoal, and snail shells. Peat was observed as distinct layers, usually directly above the sandy clays, and as inclusions within the sandy clays. These wetland sediments were documented at depths ranging from 0.99 to 1.90 mbs, with an average upper boundary of 1.41 mbs. They were located beneath thick historic and modern fill layers. A natural sand berm located in the southern boundary of their project area was identified as a component of SIHP # -6636. The berm consisted of natural Jaucas sand overlying natural sandy clay.

Allen (1997) conducted a paleoenvironmental coring and augering program of the Kewalo Wetlands, located at Symphony Park (near the intersection of Kapi‘olani Boulevard and Ward Avenue). A single deep core/auger sample was obtained and analyzed. The sample revealed several successive layers of wetland sediment. Lagoon formation and growth of grasses began in Layer VIII (2.53-3.03 mbs). This layer was not radiocarbon dated. Pollen analysis indicates the presence of *loulu*, coconut, Cheno-ams, and grasses. In Layer VII (2.43-2.53 mbs), the lagoon

became a landlocked wetland, ca. AD 340 to 600 (radiocarbon dated). Pollen analysis indicates the presence of Cheno-ams, sedges, grasses, coconut, and markedly lower amounts of *loulu*. Layers V (1.83-2.26 mbs), IV (1.71-1.83 mbs), III (1.69-1.71 mbs), and II (1.55-1.69 mbs) showed increasing stabilization of the wetlands. Pollen analysis of a sample from Layer V indicated the presence of Cheno-ams, sedges, grasses, coconut, starches, *loulu*, *‘uhaloa*, ferns, and the contaminant *Cardiospermum*. Layer V was radiocarbon dated to AD 350 to 605. Pollen analysis of a sample from Layer IV indicated the presence of sedges, grasses, Cheno-ams, *loulu*, *hala*, coconut, and the contaminant *kiawe*. This layer was not radiocarbon dated. Pollen analysis of a sample from Layer III indicated the presence of sedges, *kiawe*, grasses, *loulu*, *hāpu‘u*, *kōlea*, and coconut. This sample produced radiocarbon dates of AD 1435 to 1665. Pollen analysis of a sample from Layer II indicated the presence of sedges, Cheno-ams, *loulu*, *māmane*, ferns, and grasses. No post-Contact pollen types were observed in this stratum. This sample produced two radiocarbon date ranges: AD 1400 to 1520 and AD 1570 to 1630.

Allen’s (1997) findings correspond with the laboratory results obtained from by Morriss et al. (2013). During a 2013 archaeological inventory survey for the Ala Moana Shopping Center (AMC), pollen and phytolith analysis indicated that the wetland sediments within the AMC project area were indicative of a sedge marshland. The margins of the marsh were dominated by grasses, sedges, and *kolea* trees. A variety of sea grass known as, *Ruppia maritima*, made up the aquatic vegetation within the marsh. The local vegetation in the vicinity included: native *‘ahea*, *kolokolo*, *ahakea lau li’i* or *‘akupa*, coconut, *loulu* palm, *‘a’ali’i*, legumes, kadua, *aulu*, *‘ihi*, and a variety of grasses and ferns. This wetland environment was modified at some point during the nineteenth or twentieth century based on the presence of alien (introduced) *kiawe* pollen and the lack of sedge and non-wind dispersed pollen. This may have been related to making the region viable for agriculture, aquaculture, salt pan operations, and/or land reclamation efforts.

During the current investigation, subsurface wetland sediments representing the natural wetland surface of the Kewalo area were identified within 25 AIS test excavations within the East Kaka‘ako and Kālia Geographic Zones (T-186 through T-193, T-195, T-196, T-198 through T-200, T-202, T-202A, T-203, T-205, T-207, T-208, T-210 through T-212, T-214, T-219, and T-220). Figure 166 is a representative profile of a trench (T-186) containing wetland sediments identified as part of SIHP # -6636. Table 22 describes the stratigraphy of the trench, and Figure 167 is a photograph of the profile wall. In general, the wetland sediments were documented as variations of brown and gray silty clays, sandy clays, clay loams, and black silt loam peat layers. The wetland sediments ranged in depth from 0.78 mbs to 2.38 mbs, and were covered with thick, historic and modern fill deposits. The wetland sediments generally contained organic material and freshwater snail shells and/or marine shells. A single fragment of volcanic glass debitage (Acc. # 189-H-1) was documented in the wetland sediment from T-189. EDXRF analysis indicates that the sample is from a local O‘ahu provenience.

Pollen analysis on six samples from T-191 and T-207 indicates that the wetland sediments in these two test excavations represent sedge marshland. *‘Aheahea* likely grew along the drier margins of the wetlands. The presence of *Acacia* pollen in the uppermost samples from T-191 and T-207 indicates that *koa* trees grew in the vicinity. The pollen record from T-207 suggests that the marsh environment in this area grew drier during the time period represented by the three column samples. A decreasing concentration of Cyperaceae (sedge) pollen appears to correspond

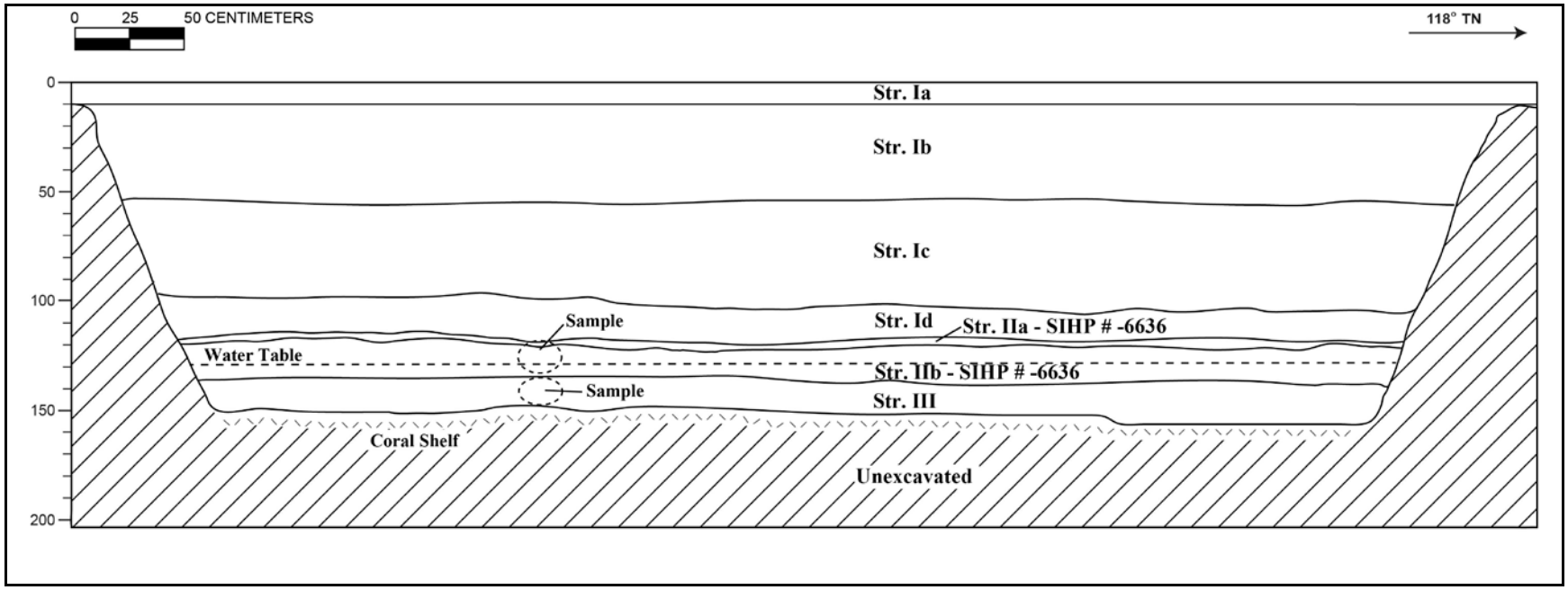

Figure 166. Profile drawing of the northeast wall in T-186

Table 22. T-186 Stratigraphic description for the northeast profile in T-186

Stratum	Depth (cmbs)	Description
Ia	0–10	Asphalt
Ib	10–56	Fill; 5 Y 4/1 (dark gray); very gravelly loam; structureless; moist, friable consistency; non-plastic; terrigenous origin; very abrupt, smoother lower boundary; gravel base course
Ic	45–101	Fill; 5 Y 8/1 (white); extremely gravelly sand; structureless, single-grain; moist, friable consistency; non-plastic; abrupt, smooth lower boundary; crushed coral base course
Id	95–118	Fill; GLEY 1 7/1 5 GY (light greenish gray); silty clay; moderate, fine, platy structure; moist, firm consistency; very plastic; mixed origin; very abrupt, smooth lower boundary; hydraulic fill
IIa	112–121	Natural, 5 Y 2.5/2 (black); gravelly clay loam; weak, fine, platy structure; moist, friable consistency; non-plastic; mixed origin; clear, wavy lower boundary; former O-horizon; abundant decaying organic matter overlying wetland sediment associated with SIHP # -6636
IIb	115–136	Natural; 5 Y 5/1 (gray); gravelly loam; moderate, very fine, crumb structure; slightly plastic; mixed origin; clear, smoother lower boundary; wetland sediment associated with SIHP # -6636
III	131–155	Natural; GLEY 1 7/10 Y (light greenish gray); loamy sand; moderate, medium, granular structure; wet, slightly sticky consistency; non-plastic; mixed origin; lower boundary not visible; natural marine lagoonal sediment

Figure 167. T-186 northeast profile wall

with an increase in the quantities of Poaceae (grass) and Cheno-am (*‘aheahea*) pollen. As the marsh became drier, ferns became more abundant. Microscopic charcoal was also present in the uppermost samples in T-191 and T-207. The presence of charcoal in these deposits corresponds with the region being inhabited throughout the pre- and post-Contact periods.

Taxa analysis on seven charcoal samples from the wetland sediments in T-189 identified three native and Polynesian introduced species. They include: *hao* (cf. *Rauvolfia sandwicensis*), *kukui* (cf. *Aleurites moluccana*), and *‘a‘ali‘i* (cf. *Dodonaea viscosa*). Palm (cf. Aracaceae) was also identified, however, its variety was not determined. The taxa results support a pre- or late post-Contact utilization of the wetland environment.

Analysis of the fresh and brackish water snails collected from T-186, T-189, T-207, and T-219 identified estuarine, strandline, and shoreline-dwelling species (*A. parvula*, *Melampus* sp., and *B. gracilis*) consistent with a coastal location. The presence of *M. tuberculata* indicates a permanent fresh or brackish water environment, typical of marshland. The uppermost sample from T-219 contained two historically introduced species (*Physa* sp. and *P. duryi*). The presence of these gastropods indicates that this sample dates to the historic period and would be consistent with mid- to late-nineteenth century (or later) rice cultivation.

All of the documented wetland deposits (part of SIHP # -6636), including those in the current City Center AIS study area, are located beneath thick, imported fill layers. The wetland sediments consist of sandy clay loams, sandy silts, sands, silt loams, clay loams, loamy clays, and sandy clays. These deposits were observed on average between of 1.16 and 2.21 mbs. Several defining characteristics of these wetland deposits are the presence of sedge and Cheno-am pollen (dominating the pollen record), charcoal, marine invertebrates, land snails, and a high percentage of organic material, largely peat. Although fish scales were not observed in the wetland deposits from the current study area, they were identified in similar deposits from two previous studies (Clark and Gosser 2005 and O’Hare et al. 2004). Radiocarbon and pollen analysis of the Kewalo wetland sediments suggests that the wetlands began forming as early as c. AD 340-600, prior to Polynesian colonization. These analyses also indicate that the wetlands remained in the Kewalo area through post-Contact times, with cultural use of the area, until they were filled during land reclamation activities in the late nineteenth and early twentieth centuries.

Based on the guidance of National Register Bulletin No. 15, this archaeological cultural resource retains its integrity of location and materials. The components of this cultural resource have provided, and can potentially provide, additional information regarding the geographic distribution/extent, land use/modification, and paleoenvironment of the pre- and post-Contact Kewalo wetlands. SIHP # -6636 was previously determined eligible to the Hawai‘i and National Registers under Significance Criteria A (associated with events that have made an important contribution to the broad patterns of our history) and D (has yielded, or is likely to yield information important for research on prehistory or history). Based on the results of the current AIS, CSH recommends that SIHP # -6636 does not have the integrity to convey its significance under Criterion A of both the Hawai‘i and National Register. The former land surface and its potential features (i.e., berms, ponds, and other cultural components) are buried and their surroundings have been completely altered by modern development since their time of construction and period of use. Accordingly, these features do not maintain the integrity of setting, feeling, and association that might convey their significance under significance Criteria

A, B, or C of the Hawai‘i or National Registers. Based on the results of this investigation, CSH recommends that this cultural resource maintains the integrity to support its historic significance under Criterion D of the Hawai‘i Register and recommends eligibility to the National Register under Criterion D, exclusively for its information potential.

4.3.7 SIHP # 50-80-14-6856

FORMAL TYPE:	Buried Remnants of Kolowalu Fishpond
FUNCTION:	Aquaculture
PREVIOUS DOCUMENTATION:	Bell and McDermott, and O'Leary (2006), O'Hare, Bush, and Hammatt (2006), and Thurman et al. (2009)
AGE:	Pre- and post-Contact
DISTRIBUTION:	Approximately 0.98 acres (within current project area), 7.17 acres (total area)
LOCATION:	Along Queen Street between Kamake‘e and Waimanu Streets (East Kaka‘ako Geographic Zone)
TAX MAP KEY:	[1] 2-3-004; [1] 2-3-004:076, :080; [1] 2-3-005:013; [1] 2-3-006:014
LAND JURISDICTION:	Hawai‘i Community Development Authority; Cody Properties, LLC; Kaka‘ako Associates, LLC; and the City and County of Honolulu

SIHP # 50-80-14-6856 was originally designated by Bell, McDermott, and O'Leary (2006) during an AIS for the Victoria Ward Village Shops Project to refer to the buried remnants of Kolowalu Fishpond. Further investigation of SIHP # -6856 was performed by O'Hare, Bush, and Hammatt (2006) during archaeological monitoring for the Kaka‘ako Community Improvement District 10 Project and by Thurman et al. (2009) during an AIS for the Queen Street Parks Project. The entire former footprint of Kolowalu Fishpond (7.17 acres; footprint determined from historic maps and documents) has been identified as the cultural resource. During the current archaeological inventory survey, buried remnants of Kolowalu Fishpond were identified in Test Excavations 181 through 185 located within the former Kolowalu Fishpond footprint, within the East Kaka‘ako Geographic Zone (Figure 168 and Figure 169).

Background research indicates that Kolowalu Fishpond was part of Land Commission Grant 3194, known as "Kolowalu," awarded to Kalae and Ka‘aua. The general location of this pond in relation to the East Kaka‘ako Zone can be seen on an 1897 map by M. D. Monsarrat (Figure 170) and a 1927 aerial photograph (Figure 171). Kolowalu Fishpond may have been constructed during the pre-Contact period, though its use continued into historic times. Due to its location inland, the pond was likely freshwater, or partially brackish. According to historic documents and maps, Kolowalu Fishpond was not completely filled in until the late 1920s or early 1930s, probably during the Waikīkī Reclamation Project.

Remnants of Kolowalu Fishpond were documented during three previous archaeological studies (Bell, McDermott, and O'Leary 2006; O'Hare, Bush, and Hammatt 2006; and Thurman et al. 2009). The fishpond deposits generally consisted of sand, clay, and sandy clay sediments that were usually overlying the Pleistocene coral shelf. These deposits were observed below historic fill deposits, at an average depth of 1.10 to 2.17 mbs. Thurman et al. (2009) documented

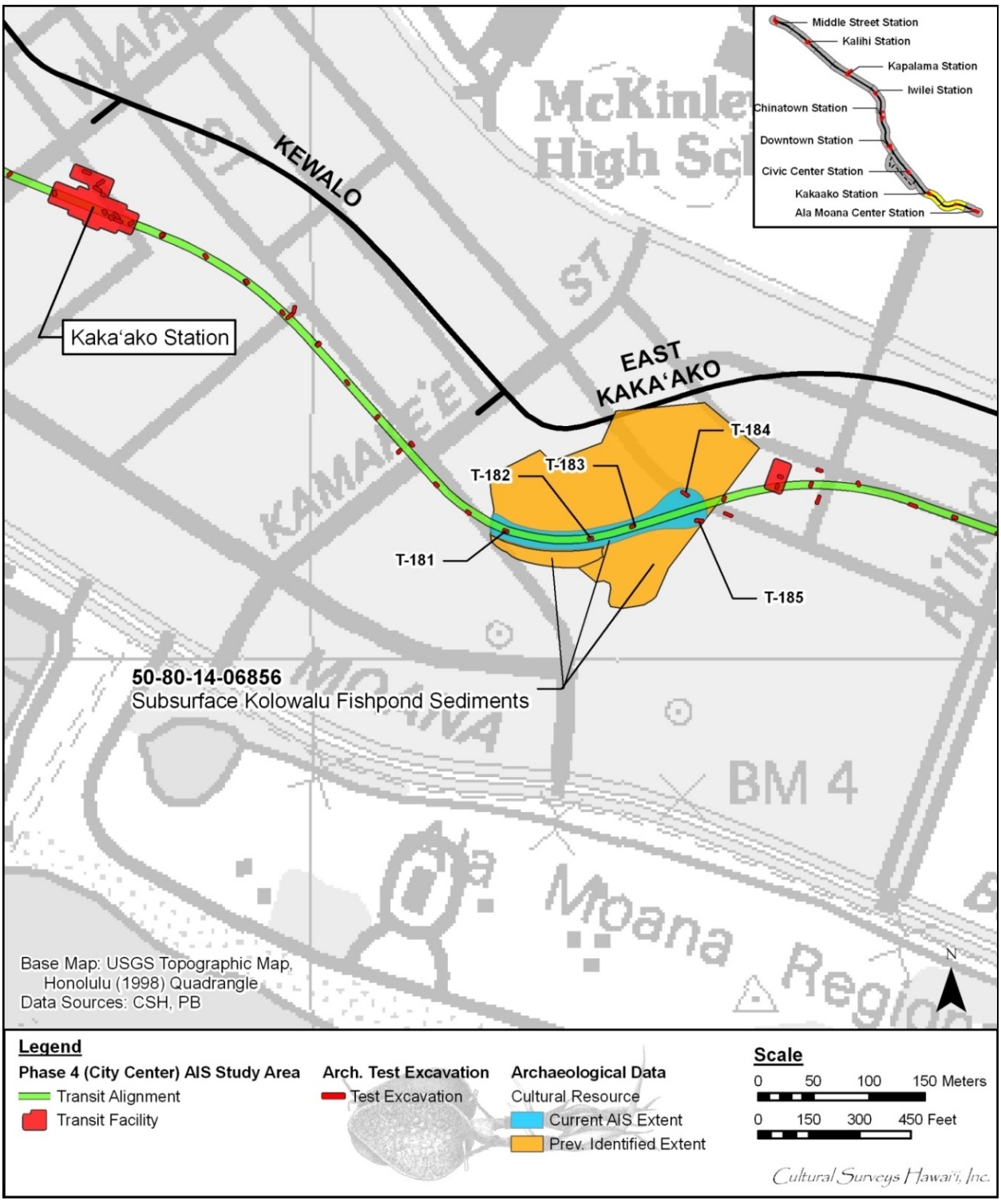

Figure 168. Location and extent of SIHP # -6856, Kolowalu Fishpond, with locations of AIS excavations T-181 through T-185 along the East Kaka‘ako Zone corridor (base map: 1998 U.S. Geological Survey topographic map, Honolulu Quadrangle)

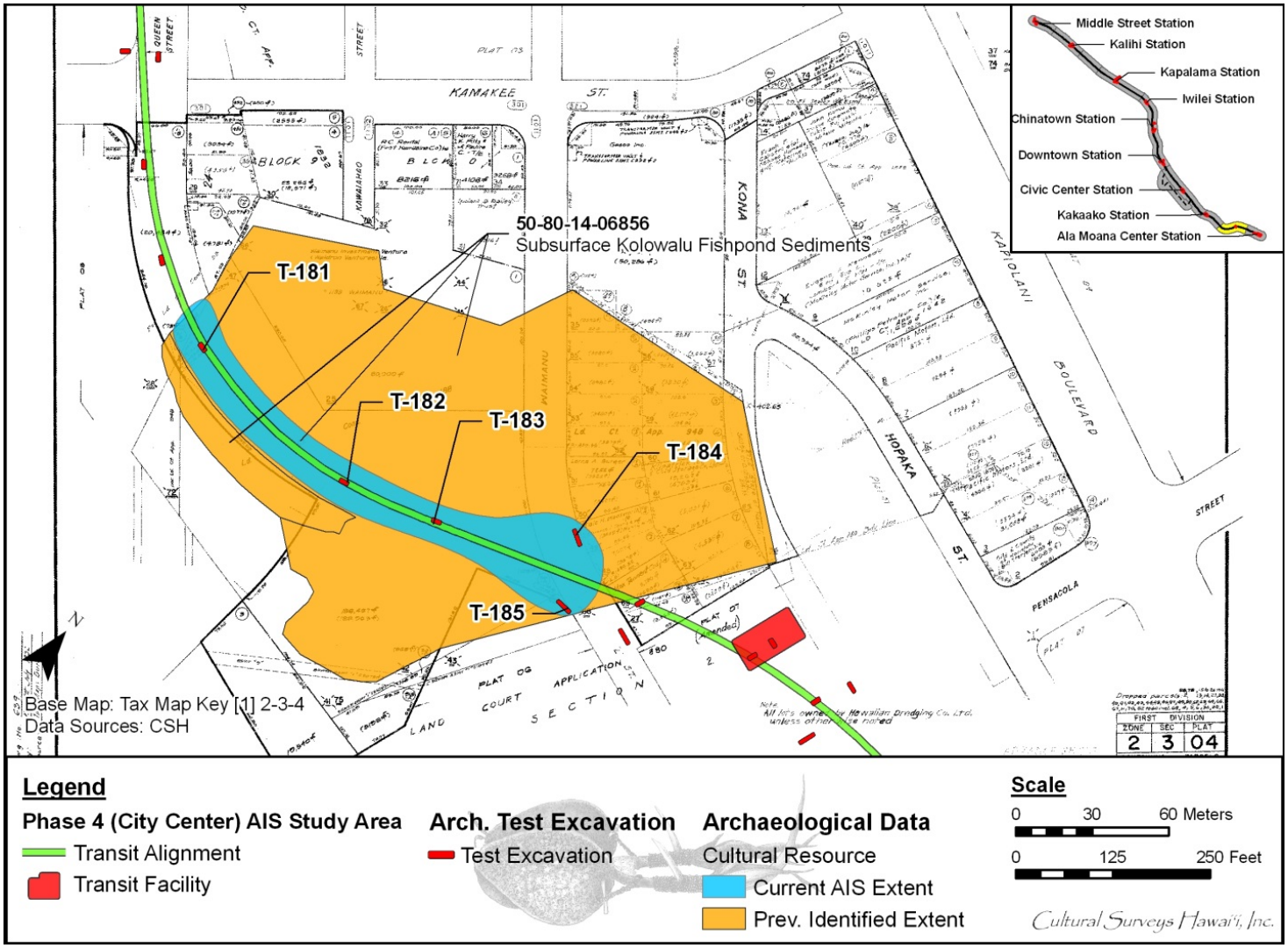

Figure 169. Location and extent of SIHP # -6856, Kolowalu Fishpond, with locations of AIS excavations T-181 through T-185 along the East Kaka‘ako Zone corridor (base map: Tax Map Key [1] 2-3-04)

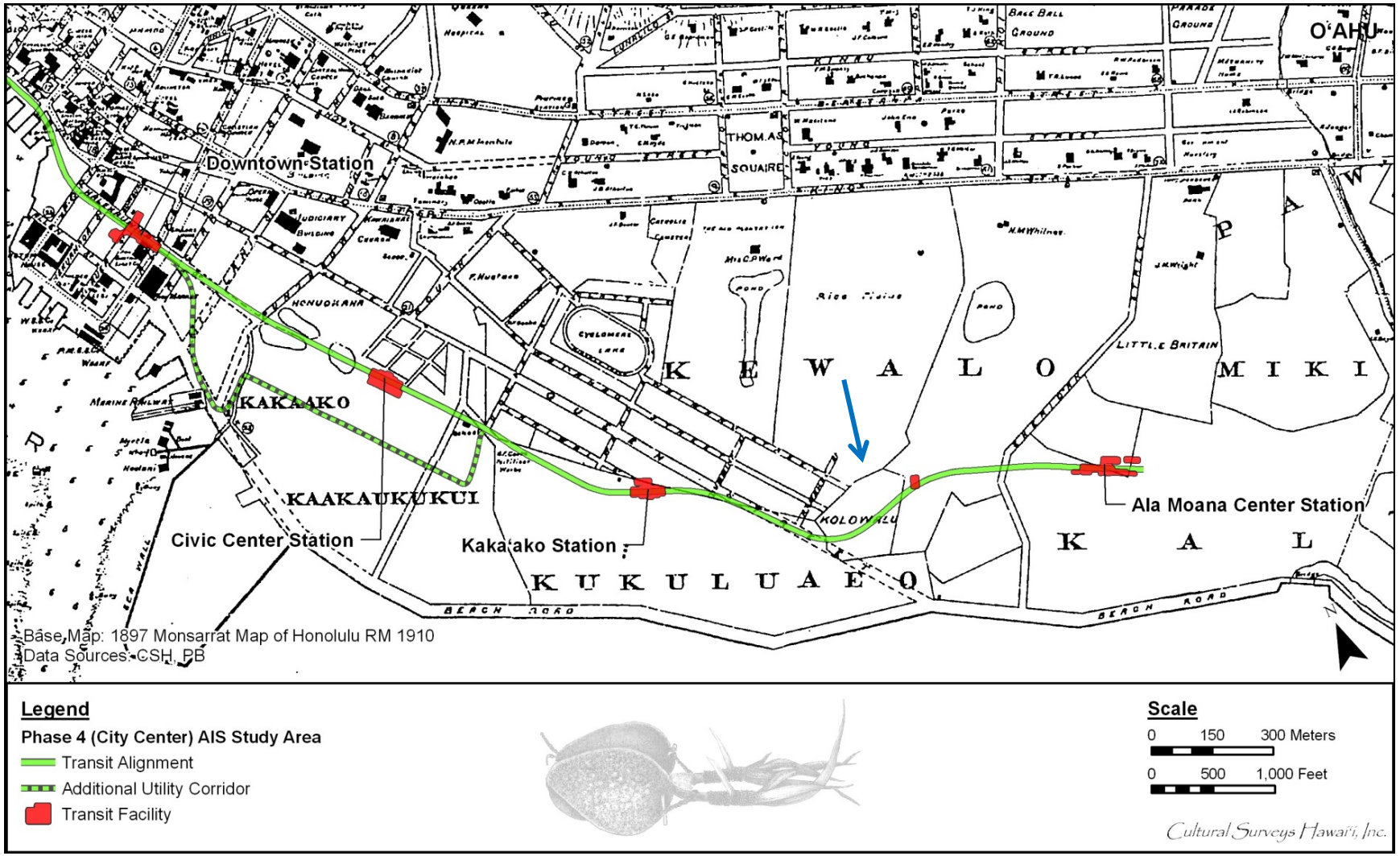

Figure 170. 1897 Map of Honolulu by M. D. Monsarrat (Reg. Map 1910) showing the general location of Kolowalu Fishpond (blue arrow)

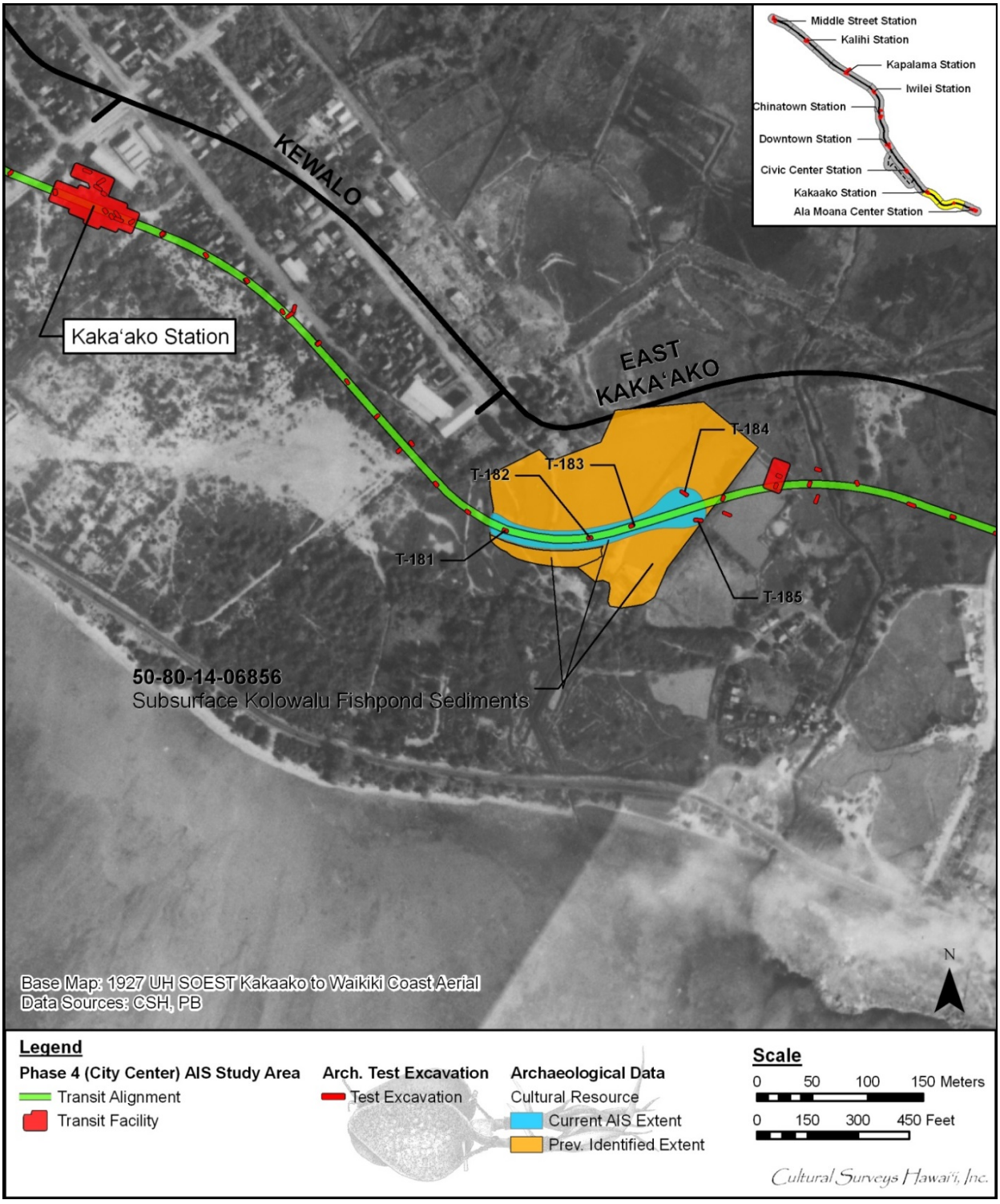

Figure 171. Portion of a 1927 aerial photograph (source: UH SOEST) depicting Kolowalu Fishpond (SIHP # -6856)

a peat layer at the bottom of the fishpond sediments that contained land snails and decomposing flora and fauna. Documented components of Kolowalu Fishpond included an elevated berm and a natural sandbar (Bell, McDermott, and O'Leary 2006; O'Hare, Bush, and Hammatt 2006). These elements may be associated with the boundary of the fishpond.

During the current investigation, buried sediments associated with Kolowalu Fishpond were identified within five AIS test excavations (T-181 through T-185). According to historic maps, these test excavations are located within the former footprint of Kolowalu Fishpond. The fishpond sediments consist of greenish and bluish gray sandy clay, loamy sand, and silty clay sediments. Potential berms that may correspond to the edges of the fishpond were documented in three test excavations (T-181, T-184, and T-185). These suspected berms consisted of light-colored sandy clay that was deposited over the fishpond sediments. The fishpond sediments ranged in depth from 1.10 mbs to 1.70 mbs, while the berm sediments were observed from 0.60 to 1.39 mbs. Abundant snail shells were present within the fishpond sediments from T-183 and T-185 and within the berm sediments from T-181. Figure 172 is a representative profile of a trench containing pond sediments (T-185), Table 23 describes the stratigraphy, and Figure 173 is a photograph of the profile wall. The figures and table depict few thick fill deposits overlying berm sediments (identified as Stratum If), which overlie Kolowalu Pond sediments (identified as Stratum II).

Kolowalu Fishpond functioned as an aquacultural site beginning in pre-Contact times and continuing through early post-Contact times. Based on the guidance of National Register Bulletin No. 15, this archaeological cultural resource retains its integrity of location, design, materials, and workmanship. The components of this cultural resource have provided, and can potentially provide, additional information regarding the fishpond's original construction and design, its geographical distribution/extent, as well as broader patterns of the fishpond's use for aquaculture throughout the pre- and post-Contact eras. SIHP # -6856 was previously recommended eligible to the Hawai‘i Register under Significance Criterion D (has yielded, or is likely to yield information important for research on prehistory or history) by Bell, McDermott, and O'Leary (2006). The archaeological remnants of Kolowalu Fishpond are buried and their surroundings have been completely altered by modern development since their time of construction and period of use. Accordingly, these features do not maintain the integrity of setting, feeling, and association that might convey their significance under significance Criteria A, B, or C of the Hawai‘i or National Register. Based on the results of this investigation, CSH recommends that this cultural resource maintains the integrity to support its historic significance under Criterion D of the Hawai‘i Register and recommends eligibility to the National Register under Criterion D, exclusively for its information potential.

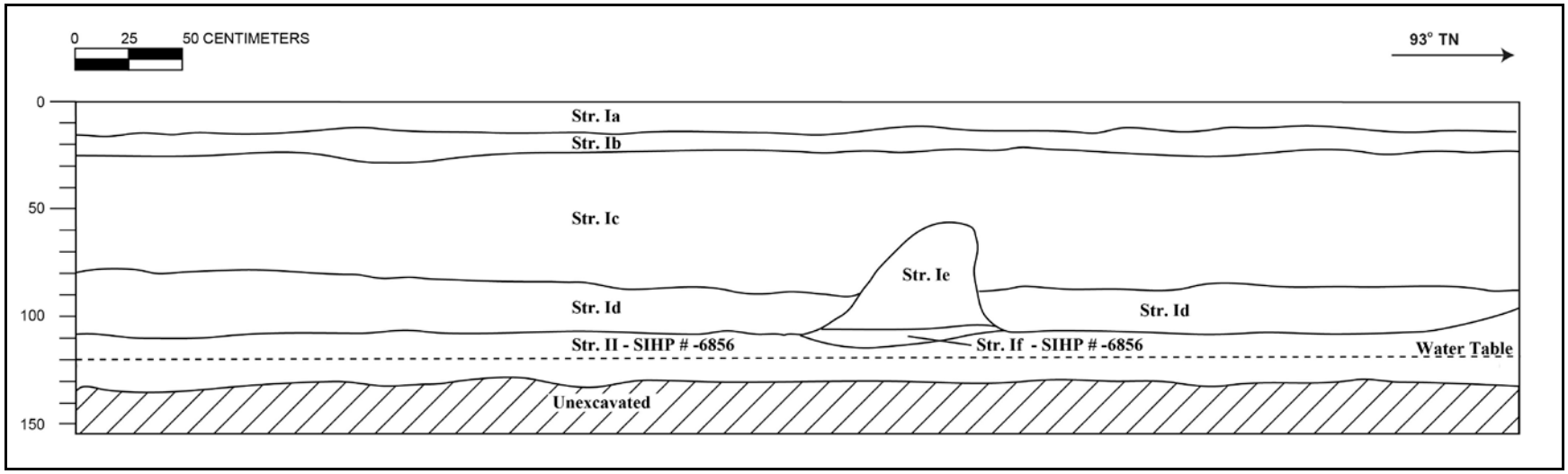

Figure 172. Profile drawing of the north wall in T-185

Table 23. Stratigraphic description for north profile in T-185

Stratum	Depth (cmbs)	Description
Ia	6–15	Asphalt
Ib	15–25	Fill; 10 YR 5/1 (gray); very gravelly loam; structureless, single-grain; moist, loose consistency; non-plastic, terrigenous origin; abrupt, smooth lower boundary; gravel base course
Ic	25–90	Fill; 10 YR 5/2; (grayish brown); very gravelly loam; structureless, single-grain; moist, loose consistency; non-plastic, terrigenous origin; abrupt, smooth lower boundary
Id	80–110	Fill; 10 YR 5/1; (gray); very gravelly loam; structureless, single-grain; moist, very friable consistency; non-plastic, terrigenous origin; abrupt, smooth lower boundary; fill inside of filter fabric
Ie	55–110	Fill; 10 YR 6/2 (light brownish gray); silty loam; weak, fine, crumb structure; moist, firm consistency; slightly plastic, mixed origin; abrupt, broken/discontinuous lower boundary
If	100–117	Fill; 10 YR 6/4 (light yellowish brown); sandy clay loam; weak, fine blocky structure; moist, friable, non-sticky consistency; non-plastic; mixed origin; clear, broken discontinuous lower boundary; locally-procured wetland sediment used as berm material associated with SIHP # -6856
II	110–135	Natural; 10 YR 4/1 (dark gray); gravelly sandy clay; weak, fine, blocky structure; moist, firm consistency; slightly plastic; mixed origin; lower boundary not visible; contained freshwater snail shell; pond sediment associated with SIHP # -6856

Figure 173. Photograph of T-185 north profile wall

4.3.8 SIHP # 50-80-14-7124

FORMAL TYPE:	Buried building remnants
FUNCTION:	Habitation
PREVIOUS DOCUMENTATION:	Pammer, Fong, and Hammatt (2011)
AGE:	Post-Contact (1910s to 1990s)
DIMENSIONS:	Approximately 0.05 acres (within current project area), 1.49 acres (total area)
LOCATION:	AIS test excavation T-132 located *makai* of Halekauwila Street between South and Keawe Streets, within the West Kaka‘ako Geographic Zone
TAX MAP KEY:	[1] 2-1-030:001 (Pammer, Fong, and Hammatt 2011); [1] 2-1-030 and [1] 2-1-030:001 (within current project area)
LAND JURISDICTION:	Kamehameha Schools (Pammer, Fong, and Hammatt 2011); Bishop Estate (Waterpark Towers) and the City and County of Honolulu (within current project area)

SIHP # 50-80-14-7124 was originally designated by Pammer, Fong, and Hammatt (2011) during an AIS for the Block 2 Parking Lot Project to refer to buried, historic-era building remnants. These remnants were documented in a 1.49-acre area within the block bounded by Pohukaina, Halekauwila, Keawe, and South Streets (between the West Kaka‘ako and Kaka‘ako Makai Geographic Zones).

During the current AIS, buried building remnants associated with SIHP # -7124 were identified in Test Excavation 132, located *makai* of Halekauwila Street between South and Keawe Streets, within the West Kaka‘ako Geographic Zone (Figure 174 and Figure 175).

Pammer, Fong, and Hammatt (2011) documented elements of SIHP # -7124 in 31 of their test excavations. Based on background research and historic maps, components of SIHP # -7124 date as far back as 1914 and as recent as 1991. The buildings that used to be present on the property were demolished over time due to changes in land usage and leasing. During demolition, much of the building foundations and demolition debris were left ‘on-site’ and buried beneath various modern and historic fill layers, at depths ranging from 0.15 to 1.60 mbs. Several of the larger foundation structures extended down to, or through, the coral shelf. The demolition material included foundations composed of misshapen concrete and metal masses, red clay brick and mortar footings, concrete footings, and basalt and concrete flooring. Pammer, Fong, and Hammatt (2011) noted that the site was discontinuous and likely extended outside of their project area boundary.

The 31 trenches containing components of SIHP # -7124 from the Pammer, Fong, and Hammatt (2011) study contained Features A through EE. In their report, each of the features was

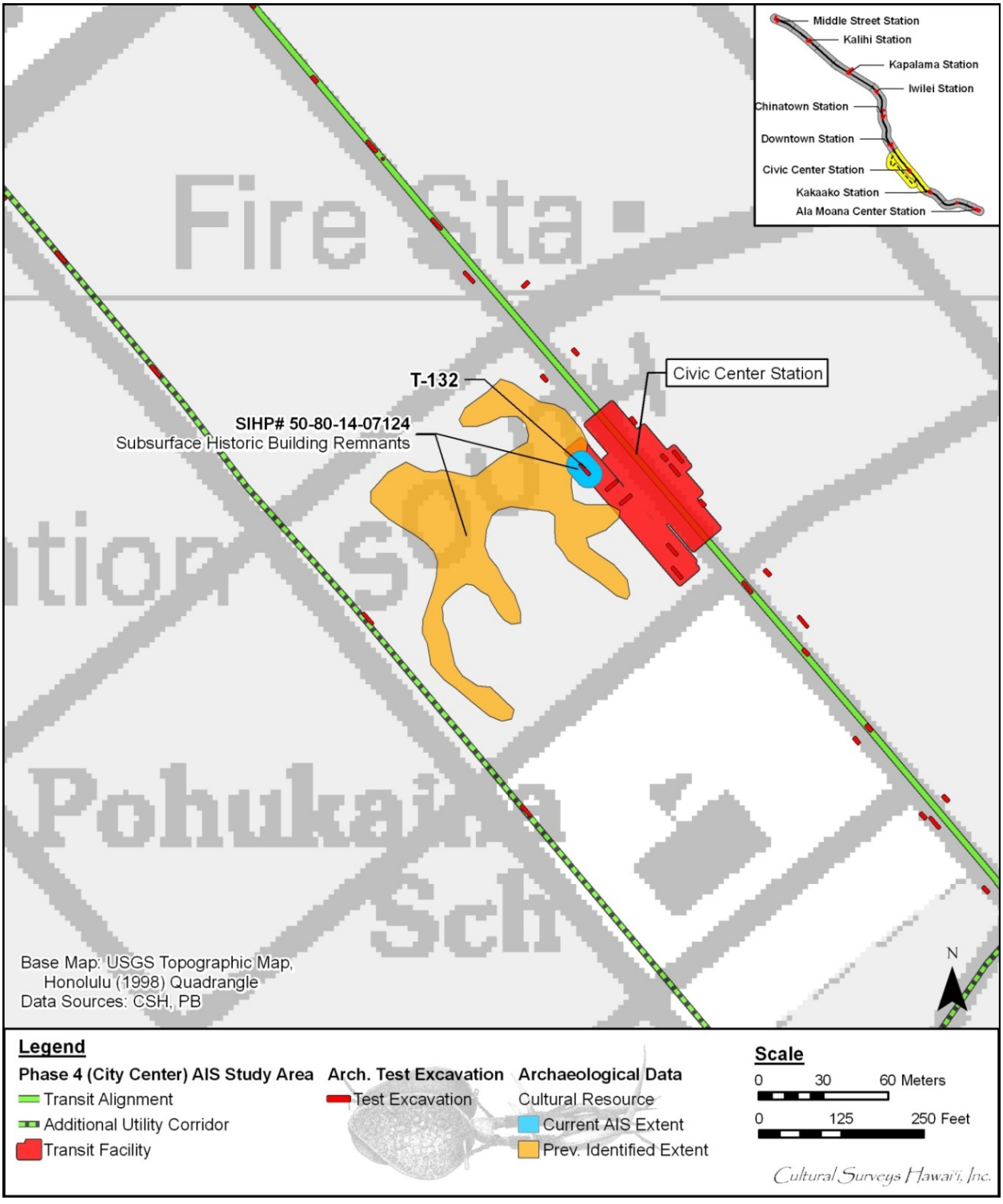

Figure 174. Locations of former and newly identified extents of SIHP # -7124 and AIS test excavations along the West Kaka‘ako Zone corridor (base map: 1998 U.S. Geological Survey topographic map, Honolulu Quadrangle)

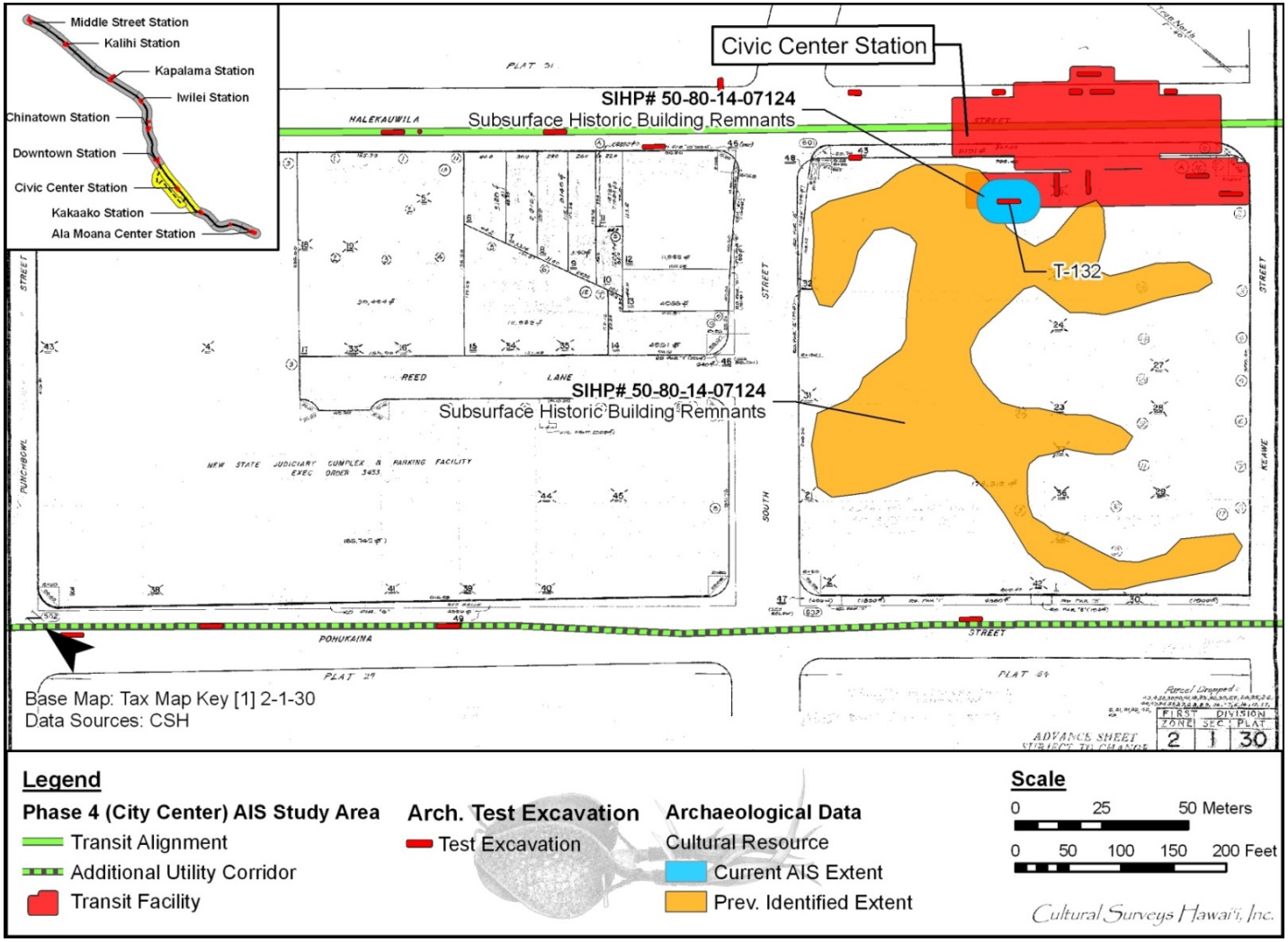

Figure 175. Locations of former and newly identified extents of SIHP # -7124 and AIS test excavations along the West Kaka‘ako Zone corridor (base map: Tax Map Key [1] 2-1-30)

analyzed and compared to historic maps in an attempt to identify which building the debris and remnants most likely originated from. Below are descriptions of each feature, including the type of remnants observed, the previous buildings that were located closest to the trench, and which building is most likely associated with the feature based on the observed material (derived from Pammer, Fong, and Hammatt 2011:135-236). It is of note that the majority of the building remnants are within the northwest half of their project area. This is likely due to the fact that the northwest half contained more substantial industrial style buildings, while the southeast half, particularly the eastern portion, contained residential homes that required less subsurface disturbances.

Feature A was observed within Test Excavation 5. Feature A consisted of two sub-features (A-1 and A-2) containing modern and historic debris (glass and metal) including demolition debris from historic buildings (concrete, red brick, mortar). Feature A-2 consisted of a historic disturbance of the natural sand layer and contained metal and charred wood. Based on the Sanborn Fire Insurance maps, the demolition debris likely originates from the demolition of the Pacific Engineering Co. Lt. Mill Work, or the Pacific Welding and Machine Works. The Feature A-2 debris likely originates from the filling of the project area for the Pacific Engineering Co. Lt. Mill Work and surrounding buildings.

Feature B was observed within Test Excavation 7. Feature B consisted of terrigenous fill containing building demolition debris including brick, a concrete block, glass fragments, and ceramic fragments. The concrete block was likely a building foundation. Some brick was still observed in the sidewall of the trench and several bricks appeared to be beside the concrete block. Based on the Sanborn Fire Insurance maps, the demolition debris is likely associated with the northwest portion of the Pacific Welding and Machine Works building. The portion of this building observed within Test Excavation 7 is labeled ‘Office’ on the 1914 and 1927 Sanborn maps.

Feature C was observed within Test Excavation 8. Feature C consisted of coral cobbles, concrete chunks, and various modern and historic debris, as well as remnants of historic building foundations. The observed historic building debris included concrete, red bricks, iron rebar, broken glass, and ceramics. A layer of basalt blocks also was located within this feature, which was likely an old floor, walkway surface, or old building foundation. Based on the 1914 and 1927 Sanborn Fire Insurance maps, the debris and building footing are likely associated with the Pacific Engineering Co. Lt. Mill Work.

Feature D was observed within Test Excavation 9. Feature D consisted of historic debris and a building foundation constructed of brick and mortar. The observed historic building debris included nails, gravel, concrete bricks, and glass. Based on the Sanborn Fire Insurance maps, the debris and brick and mortar remnants do not align with a documented building. The debris is likely related to a building marked ‘CARPP’ on the 1914 map or one marked ‘D’ (for dwelling) on the 1927 map. The mortared brick foundation may be from an outdoor driveway or patio associated with the surrounding buildings, such as the Pacific Engineering Co. Lt. Mill Work or the Pacific Welding and Machine Works, or possibly a walkway from the nearby old Keauhou Lane, which ran parallel to the trench.

Feature E was observed within Test Excavation 11. Feature E consisted of fill composed of a mixture of cinder, basalt gravel, and crushed coral cobbles. This fill material also contained red

bricks, likely from demolition of previous structures. Based on the Sanborn Fire Insurance maps, this debris is likely associated with the dwellings previously located in the southwest portion of the project area, as seen on the 1914, 1927, 1950, and 1956 maps.

Feature F was observed within Test Excavation 12. Feature F consisted of two concrete footings. They likely represent remnant foundation structures from historic buildings. The observed debris included glass and ceramic fragments, although it is likely that this was imported with the soils brought in to fill in a remediation pond that was previously located in the area. These footings do not match any structures depicted on the Sanborn Fire Insurance maps.

Feature G was observed within Test Excavation 15. Feature G consisted of concrete block flooring located at 0.3 mbs. The concrete blocks likely represent flooring from an old historic building. Based on the Sanborn Fire Insurance maps, only the 1927 map shows a structure present within the Test Excavation 15 location. This building is relatively small, labeled ‘A’ (for ‘auto house or private garage’), and may have been associated with the Chinese Laundry, located just northwest of Test Excavation 15.

Feature H was observed within Test Excavation 21. Feature H consisted of fill containing domestic and demolition debris. The debris included iron rebar, clay pipe fragments, and glass and ceramic fragments. Based on the Sanborn Fire Insurance maps, this debris is most likely associated with dwellings previously located in the area, seen on the 1927, 1950, and 1956 maps.

Feature I was observed within Test Excavation 24. Feature I consisted of historical building remnants including steel cable and wiring, metal rebar, concrete chunks, and a concrete jacket. Based on the Sanborn Fire Insurance maps, the buildings previously located in this area consisted of private dwellings. Two separate buildings were located around this trench, a single dwelling at the southeast end, and a building containing two dwellings at the northwest side. The observed concrete jacket appears to run between these two buildings.

Feature J was observed within Test Excavation 27. Feature J consisted of demolition debris including clay pipe, bricks, and concrete. Based on the Sanborn Fire Insurance maps, this demolition debris is likely associated with a furniture warehouse. This building was only observed on the 1950 and 1956 Sanborn maps. The 1927 Sanborn map depicts an auto repair shop abutting this trench. This shop may also be the source of the demolition debris, although it is unlikely based on the type of debris observed.

Feature K was observed within Test Excavation 28. Feature K consisted of backfill material from the former building foundation excavation which covers a large, eroding, concrete foundation or flooring. The fill material surrounding this eroding concrete flooring also contained some trash, including unidentified bottle glass fragments. Based on the Sanborn Fire Insurance maps, this concrete flooring is most likely associated with a machine shop building, part of an auto repair garage seen on the 1927 map. The auto repair shop is labeled on the 1927 map as having concrete flooring and electric power. Feature K may also be associated with the furniture warehouse observed on the 1950 and 1956 maps.

Feature L was observed within Test Excavation 29. Feature L consisted of four separate layers showing evidence of historic building remnants. The topmost layer consisted of grading fill containing demolition debris including clay pipe, brick, and concrete fragments. The underlying layer consisted of fill containing red brick fragments, metal implements (nails, bars), glass

fragments, and gravel. The third layer down contained an old building foundation/flooring that was composed of compacted, brittle, melted metal. Directly underlying the metal flooring was a historic fill layer likely associated with the overlying metal flooring. The metal flooring may have been imported from scraps from the nearby Honolulu Iron Works. The distribution of this flooring is contained primarily to the north corner of the project area. The melted metal scraps flooring may have been used by many of the buildings within this industrial and commercial portion of the project area as both flooring inside of buildings as well as outside for access areas and driveways.

The 1914 Sanborn map shows that a stable was located in the area of Test Excavation 29. The size of the stable depicted on the figure is 558 ft. The 1927 map places a new building in this area which is labeled ‘Autos’ and is likely associated with the nearby auto repair garage. The 1950 and 1956 maps show either the same building relabeled ‘STGE.’ (for ‘storage’) or a building of relatively the same size and in the same location as the ‘Autos’ building. The storage building may be associated with the furniture warehouse located where the auto repair shop previously was, although it is more likely that it is associated with the truck repair garage. The truck repair garage is labeled as having an earth floor. The 1956 map also labels the open area west of this storage shed as ‘Contractors Equipt.’

Feature M was observed within Test Excavation 30. Feature M consisted of a layer of historic fill mixed with historic demolition debris and a pocket of backfill material containing a large cable and rusted metal fragments. The layer of debris contained clay bricks, concrete, metal, and historic refuse including glass bottles and ceramics.

Similar to Feature L, Feature M contains some evidence of melted metal flooring within the demolished building debris. This metal may have been imported from scraps from the nearby Honolulu Iron Works. The distribution of this flooring is contained primarily to the north corner of the project area. The melted metal scraps flooring may have been used by many of the buildings within this industrial and commercial portion of the project area as both flooring inside of buildings as well as outside for access areas and driveways.

The 1927 Sanborn map shows two storage sheds on either side of Test Excavation 30. The 1950 and 1956 maps also show the trench between two buildings, a storage shed and an auto parking building (1950)/auto repair garage (1956). This trench is also located near the auto body shop as seen on the 1927, 1950, and 1956 maps, suggesting that much of the debris may also be buried debris from the shop.

Feature O was observed within Test Excavation 32. Feature O consisted of an amalgamation of melted metal used to create a floor surface or foundation. The old building foundation/flooring is located beneath multiple fill layers and is composed of compacted, brittle, melted metal, basalt, and cinder. This metal may have been imported from scraps from the nearby Honolulu Iron Works and is similar to what has been observed in previous features (Features L, M, and N). Underlying this flooring was a thin layer of clay that was likely placed as a base for the melted metal. The distribution of this flooring is contained primarily to the north corner of the project area. The melted metal scraps flooring may have been used by many of the buildings within this industrial and commercial portion of the project area as both flooring inside of buildings as well as outside for access areas and driveways.

The 1927 Sanborn map places Test Excavation 32 just outside a storage shed, within an area associated with an auto repair shop. The 1950 map locates the trench within an auto body works building (within a section of the building labeled ‘Auto Spray Painting’), while on a 1957 map this portion of the building was used for welding.

Feature P was observed within Test Excavation 33. Feature P consisted of an amalgamation of melted metal and two associated fill layers. The old building foundation/flooring, composed of compacted, brittle, melted metal, basalt, and cinder, is located below a layer of fill composed of clay material mixed with cinder. The old flooring was only observed in the southwest end of the trench, contiguous with a fill layer similar to the fill overlying the flooring. The overlying fill contains clay brick fragments observed only in the portion overlying the old metal flooring. This suggests that the metal may have been a base with the actual floor consisting of bricks that were removed during building demolition. Underlying this flooring was a thin layer of clay that may have been a base for the melted metal. The melted metal was likely constructed with imported scraps from the nearby Honolulu Iron Works and is similar to what has been observed in previous features (Features L through O).

The 1927 Sanborn map places the northeast end of Test Excavation 33 within an ‘autos’ building, while the 1950 and 1957 maps locate the trench within a furniture warehouse. The northeast end of the trench does not contain any part of Feature P, which suggests that the metal flooring is not associated with the autos building flooring. The distribution of this flooring is contained primarily to the north corner of the project area. The melted metal scraps flooring may have been used by many of the buildings within this industrial and commercial portion of the project area as both flooring inside of buildings as well as outside for access areas and driveways.

Feature Q was observed within Test Excavation 36. Feature Q consisted of fill mixed with demolition debris. The observed debris included structural debris (clay bricks, cinder) and domestic debris (glass, faunal bone). Based on the Sanborn Fire Insurance maps, this demolition debris likely originates from the demolition of the Pacific Engineering Co. Lt. Mill Work or the Pacific Welding and Machine Works.

Feature R was observed within Test Excavation 45. Feature R consisted of boulders arranged as a previous surface or layer, likely remnants of an old flooring. The Sanborn Fire Insurance maps do not show any buildings in the area; therefore, these boulders may actually represent a paved area outside of a dwelling, used as a patio or a walkway between houses.

Feature S was observed within Test Excavation 48. Feature S consisted of a utility trench containing an electric line and an old concrete pylon with rebar reinforcement from an old building foundation. The Sanborn Fire Insurance maps do not show a building in this area, and the concrete pylon does not line up with anything nearby. A modified figure from a 1996 Ogden report on the remediation efforts in this area and underground storage tanks before their removal and demolition in the 1990s, however, shows a building labeled ‘Former Fire Extinguisher Service’ within the southeastern half of the trench. It is likely that this building is the source of the concrete pylon. The electrical utility line observed in the trench could be associated with any of the buildings within the project area, industrial or residential.

Feature T was observed within Test Excavation 51. Feature T consisted of two separate disturbances, an area containing backfill material (modern disturbance) and a pit containing an old building wall or foundation as well as historic bottles, ceramics, and faunal bone. Both of these disturbances intruded into an underlying trash fill layer (SIHP # -7189), and it appears that the historic material (bottles, ceramics, faunal bone) originates from this layer. The concrete flooring is located only in the northeast end of the test excavation. A concrete block is approximately 50 cm from this floor and is likely a wall remnant associated with the flooring. Based on the Sanborn Fire Insurance maps, it is most likely that these remnants are associated with the A. F. Stubenberg Refrigeration & Air Conditioning Shop and Warehouse as seen on the 1950 map. The map describes this building as having concrete floors, a steel frame, and trusses.

Feature U was observed within Test Excavation 52. Feature U consisted of demolition debris from historic buildings, including an abundance of ceramics and glass fragments. An old sewer line and associated concrete jacket also were observed. Based on the Sanborn Fire Insurance maps, this debris likely originated from the demolition of the Chinese Laundry, A. F. Stubenberg Refrigeration & Air Conditioning Shop and Warehouse, or the multiple dwellings observed on the 1914 and 1927 Sanborn maps. The old sewer line observed may be associated with any of the buildings within the project area, industrial or residential.

Feature V was observed within Test Excavation 64. Feature V consisted of imported cinder fill overlying a layer of large coral boulders in the northeast end of the trench. The coral boulders, as well as the construction debris (i.e., bricks) are likely remnants of an old demolished building flooring. Based on the Sanborn Fire Insurance maps, the debris and old flooring are likely associated with the Pacific Engineering Co. Lt. Mill Work or the Pacific Welding and Machine Works buildings.

Feature W was observed within Test Excavation 65. Feature W consisted of a concrete footing observed near the bottom of the trench (at approximately 1.20 mbs) and extending across the trench. The footing extends into the coral to an unknown depth, and is associated with a large disturbed area. Based on the Sanborn Fire Insurance maps, the location of this footing suggests that it is likely associated with the Pacific Welding and Machine Works building, observed on the 1950 and 1956 maps. This building is observed bisecting Test Excavation 65, with the edge lining up perfectly with the location of the concrete footing.

Feature X was observed within Test Excavation 66. Feature X consisted of a layer of cinder, cobbles, boulders, and debris (ceramics and glass) likely associated with an old demolished building foundation. Based on the Sanborn Fire Insurance maps, the debris and old foundation are likely associated with the Pacific Engineering Co. Lt. Mill Work or the Pacific Welding and Machine Works.

Feature Y was observed within Test Excavation 67. Feature Y consisted of demolition debris. The observed debris included window pane glass, limestone/coral chunks, cinder blocks, bricks, metal scraps, and trash (e.g., coke bottles, saw-cut faunal bone, and a rubber tire). Based on the Sanborn Fire Insurance maps, the debris likely originated from the demolition of the Pacific Engineering Co. Lt. Mill Work or the Pacific Welding and Machine Works. The 1950 and 1956 Sanborn maps depict this trench within a storage building associated with the Pacific Welding and Machine Works.

Feature Z was observed within Test Excavation 69. Feature Z consisted of imported cinder containing brick, ceramics, glass, metal scraps, and other historic building demolition debris. The observed debris included a modern feature containing additional debris, likely used as an area to bury leftover demolition debris. Based on the Sanborn Fire Insurance maps, Test Excavation 69 is located adjacent to the old Pacific Engineering Co. Lt. Mill Work and the Pacific Welding and Machine Works buildings, and it is likely that this debris originates from the demolition of one or the other company's buildings.

Feature AA was observed within Test Excavation 71. Feature AA consisted of a layer of mixed lenses of various materials including reddish sand, cinder, and clay. An amalgamation of melted metal was observed in the southwest end of the trench, as well as portions of the northeast end. This old flooring is similar to that seen in Features L through P, although the flooring observed within this trench was more brittle and the backhoe was able to successfully excavate through it. The associated fill layer contained clay brick fragments, which were commonly observed within the fill layers associated with the old metal flooring. The continued presence of the brick fragments associated with the metal flooring suggests that the metal may have been a base for brick flooring that was removed during demolition. The melted metal was likely constructed from imported scraps from the nearby Honolulu Iron Works. The distribution of this flooring is contained primarily to the north corner of the project area. The melted metal scraps flooring may have been used by many of the buildings within this industrial and commercial portion of the project area as both flooring inside of buildings as well as outside for access areas and driveways.

The 1914 Sanborn map places the southwest end of Test Excavation 71 within a storage building likely associated with the Pacific Engineering Co. Lt. This building is also observed on the 1927 Sanborn map, as is a storage shed in the northeast end of the trench. The 1950 and 1957 maps locate the northeast end of the trench within an auto body works building.

Feature BB was observed within Test Excavation 73. Feature BB consisted of an amalgamation of melted metal and two associated fill layers. The old building foundation/flooring composed of compacted, brittle, melted metal, basalt, and cinder is underlying a layer of fill composed of clay material mixed with cinder. The old flooring was observed along the entire length of the trench and had been broken up and disturbed previously in the northeast end, likely during demolition. The undisturbed portions of Feature BB were extremely hard. Underlying this flooring is a thin layer of loam that was likely placed as a base for the melted metal. The melted metal was likely constructed with imported scraps from the nearby Honolulu Iron Works and is similar to those observed in previous features (Features L through P and AA). The distribution of this flooring is contained primarily to the north corner of the project area. The melted metal scraps flooring may have been used by many of the buildings within this industrial and commercial portion of the project area as both flooring inside of buildings as well as outside for access areas and driveways.

The 1914 Sanborn map places the northeast end of Test Excavation 73 within a storage building (likely associated with the Pacific Engineering Co. Lt.) and the southwest end in the Pacific Engineering Co. building. The northeast end of the trench is still within the Pacific Engineering Co. Lt. building on the 1927 Sanborn map. On the 1950 and 1957 maps, the trench

is within an open area surrounded by Pacific Welding and Machine Works buildings, a truck repair garage, and an auto body works garage.

Feature CC was observed within Test Excavation 75. Feature CC consisted of an amalgamation of melted metal and an associated fill layer. The old building foundation/flooring composed of compacted, brittle, melted metal, basalt, and cinder is located below a layer of fill composed of clay material mixed with cinder. The fill material contained chunks of cement and likely represents demolition material. The old flooring was observed along the entire length of the trench. The flooring was extremely hard and was unable to be excavated in the northwest end of the trench. The melted metal was likely constructed with imported scraps from the nearby Honolulu Iron Works and is similar to that observed in previous features (Features L through P, AA, and BB). The distribution of this flooring is contained primarily to the north corner of the project area. The melted metal scraps flooring may have been used by many of the buildings within this industrial and commercial portion of the project area as both flooring inside of buildings as well as outside for access areas and driveways. Based on the Sanborn maps, this trench was in an open area used by an auto body shop and a furniture warehouse.

Feature DD was observed within Test Excavation 76. Feature DD consisted of an amalgamation of melted metal and an associated fill layer. The fill layer contains red bricks, glass, and some cinder within a loamy soil above and below the old melted metal flooring. The clay brick fragments were observed only above the old metal flooring. This suggests that the metal may have been a base for a brick floor that was removed during building demolition. The old building foundation/flooring was composed of compacted, brittle, melted metal, basalt, and cinder, and it was observed along the entire length of the trench. The melted metal was likely imported scraps from the nearby Honolulu Iron Works and is similar to what has been observed in previous features (Features L through P and AA through CC). The distribution of this flooring is contained primarily to the north corner of the project area. The melted metal scraps flooring may have been used by many of the buildings within this industrial and commercial portion of the project area as both flooring inside of buildings as well as outside for access areas and driveways. Based on the Sanborn maps, this trench was located in an open area used by an auto body shop and a furniture warehouse.

Feature EE was observed within Test Excavation 78. Feature EE consisted of an amalgamation of melted metal and two associated fill layers. The fill layer overlying the old melted metal flooring contained concrete boulders and slabs within an area of disturbance (possibly from a building foundation), as well as red brick. The upper boundary of the metal flooring was partially disturbed by the area of disturbance from the overlying fill layer. The clay brick fragments appear to be associated with the old metal flooring. This suggests that the metal may have been a base with the actual floor consisting of bricks, which were removed during building demolition. The old building foundation/flooring was composed of compacted, brittle, melted metal, basalt, and cinder. Underlying this flooring was a thin layer of loam that was likely placed as a base for the melted metal. The old flooring was observed along the entire length of the trench. The melted metal was likely imported scraps from the nearby Honolulu Iron Works and is similar to that observed in previous features (Features L through P and AA through DD). The distribution of this flooring is contained primarily to the north corner of the project area. The melted metal scraps flooring may have been used by many of the buildings within this industrial and commercial portion of the project area as both flooring inside of buildings as well as outside

for access areas and driveways. The 1927 Sanborn map places this trench within an auto repair garage, which had concrete flooring. On the 1950 and 1957 maps, the trench is within a furniture warehouse.

During the current City Center AIS, a historic fill deposit associated with SIHP # -7124 was identified in one test excavation, T-132. SIHP # -7124 was identified in Stratum Id, and described as a dark brown gravelly to stony clay ranging in depth from 0.30 mbs to 1.36 mbs. Stratum Id was located beneath few fill layers and overlaid a buried fill layer containing burnt historic-era trash (part of SIHP # -7189). Figure 176 is the northeast wall profile of T-132, Table 24 describes the stratigraphy, and Figure 177 is a photograph of the profile wall. Stratum Id contained several red bricks, metal, ceramic and glass fragments, and faunal remains (one cat bone). Four diagnostic brick fragments were manufactured between 1918 and 1978. These items are thought to be related to the demolition of historic buildings previously located in the area, as well as general historic refuse (such as that noted in adjacent Test Excavation 28 from the Pammer, Fong, and Hammatt 2011 study). It is unclear if the metal from T-132 is the same melted metal flooring that is associated with a red brick floor described in many test excavations (including adjacent Test Excavation 78) from the Pammer, Fong, and Hammatt (2011) study. The 1927 Sanborn map places the location of T-132 within an auto repair garage, which had concrete flooring (Figure 178). By 1950, T-132 is located within the footprint of a furniture warehouse (Figure 179). The fill deposit identified during the current study may be related to the demolition of one or both of these two historic buildings.

The buried, building remnants documented by Pammer, Fong, and Hammatt (2011) and during the current City Center AIS represent historic-era habitation. Based on the guidance of National Register Bulletin No. 15, this archaeological cultural resource retains its integrity of location and materials. The components of this cultural resource have provided, and can potentially provide, additional information regarding the geographic distribution/extent and materials of the buried historic building remnants. SIHP # -7124 was previously determined eligible to the Hawai‘i Register under Significance Criteria A (associated with events that have made a significant contribution to the broad patterns of our history) and D (has yielded, or is likely to yield information important for research on prehistory or history) by Pammer, Fong, and Hammatt (2011). Based on the results of the current AIS, CSH recommends that SIHP # -7124 does not have the integrity to convey its significance under Criterion A of both the Hawai‘i and National Registers of Historic Places. The components of this cultural resource are buried and their surroundings have been completely altered by modern development since their time of construction and period of use. Accordingly, these features do not maintain the integrity of setting, feeling, and association that might convey their significance under significance Criteria A, B, and C of the Hawai‘i or National Registers. CSH recommends that this cultural resource maintains the integrity to support its historic significance under Criterion D of the Hawai‘i Register and recommends eligibility to the National Register under Criterion D, exclusively for its information potential.

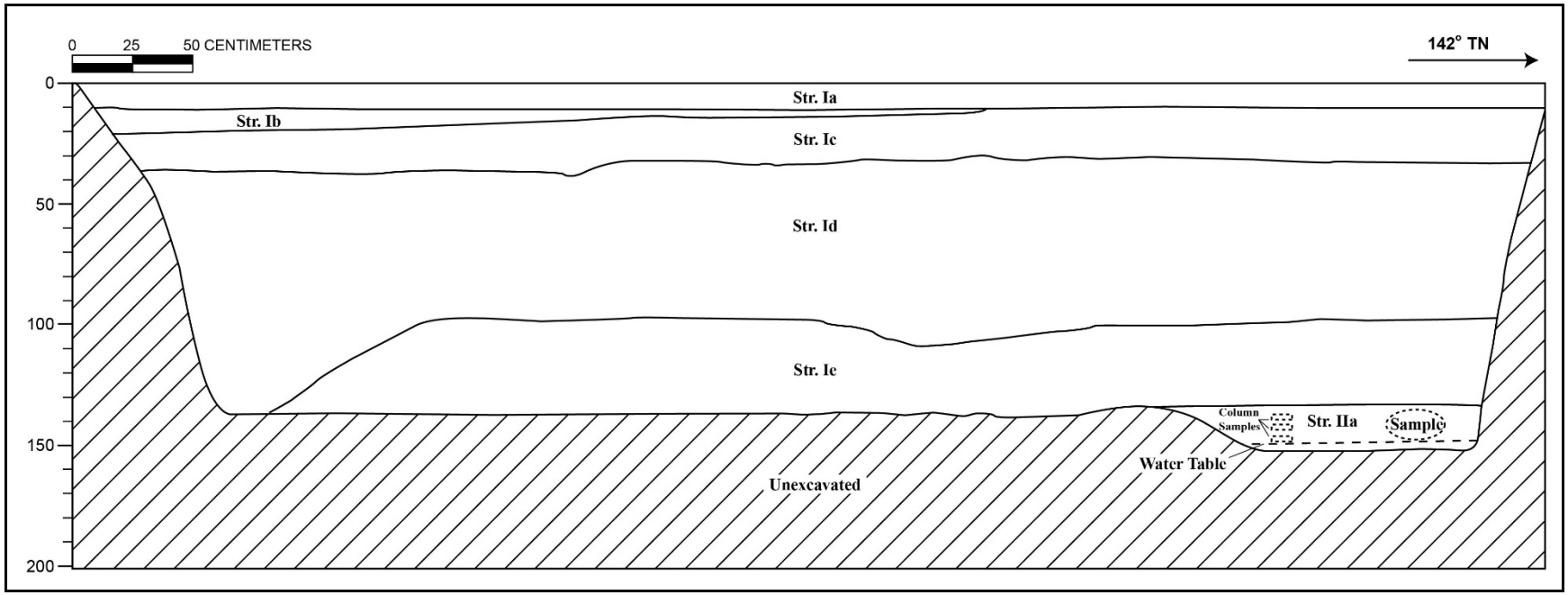

Figure 176. Profile drawing of the northeast wall in T-132

Table 24. T-132 Stratigraphic description for the northeast profile in T-132

Stratum	Depth (cmbs)	Description
Ia	0-10	Asphalt
Ib	10-20	Fill; 10 YR 4/2 (dark grayish brown); very gravelly sandy clay; weak, fine, crumb structure; dry, loose consistency; slightly plastic; terrigenous origin; very abrupt, broken/discontinuous lower boundary; base course, present only in northwestern half, crushed basalt in clay loam matrix
Ic	10-38	Fill; 10 YR 8/2 (very pale brown); extremely gravelly sand; structureless, single-grain; dry, weakly coherent consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; crushed coral fill
Id	30-136	Fill; 7.5 YR 3/3 (dark brown); gravelly to stony clay; weak, fine, blocky structure; moist, firm consistency; very plastic; terrigenous origin; clear, smooth lower boundary; contained many burnt red bricks and basalt gravel to cobbles; red bricks likely from historic building (SIHP # -7124); contained bands, striations black mixed fill
Ie	97-139	Fill; 10 YR 2/1 (black); clay loam, medium, blocky structure; moist, friable consistency; plastic; terrigenous origin; lower boundary not visible; contained ceramic fragments, shoes, glass bottles, leather pouch, coconut husks, round wooden bases, non-diagnostic metal pieces, cut wood, synthetic roof tile, old telephone wire; contained burnt trash (SIHP # -7189) used to cover Kaka‘ako wetlands from late 1800s-early 1900s: faunal bones, lauhala mat at Ie/II
II	139-151	Natural; 2.5 Y 5/1 (gray); sandy silty clay; weak, medium, blocky structure; wet, sticky consistency; plastic; marine origin; lower boundary not visible; marine sediment contained organics, shells

Figure 177. Photograph of T-132, northeast profile wall

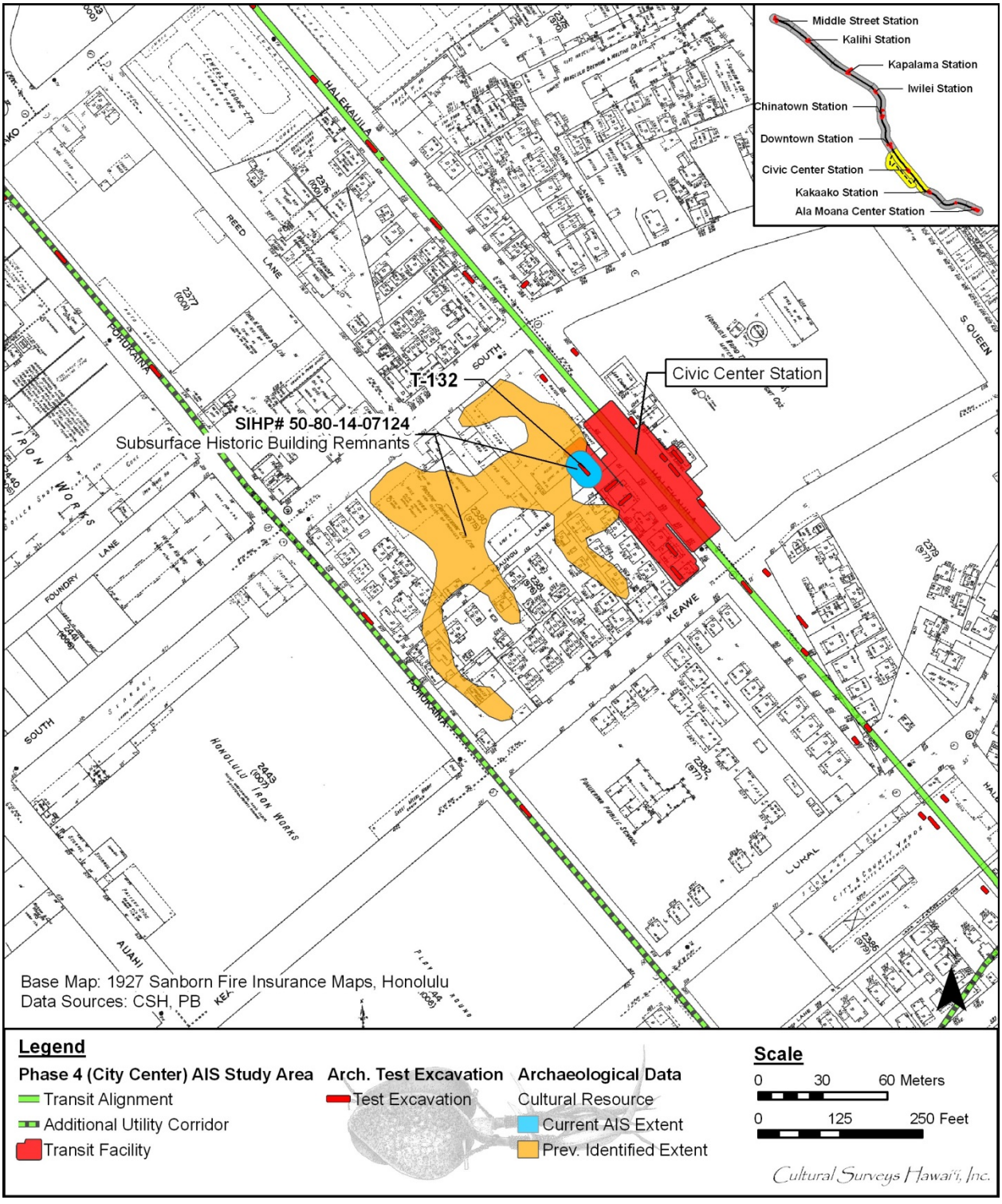

Figure 178. Portion of the 1927 Sanborn Fire Insurance Map depicting T-132 within the footprint of an Auto Repair Garage

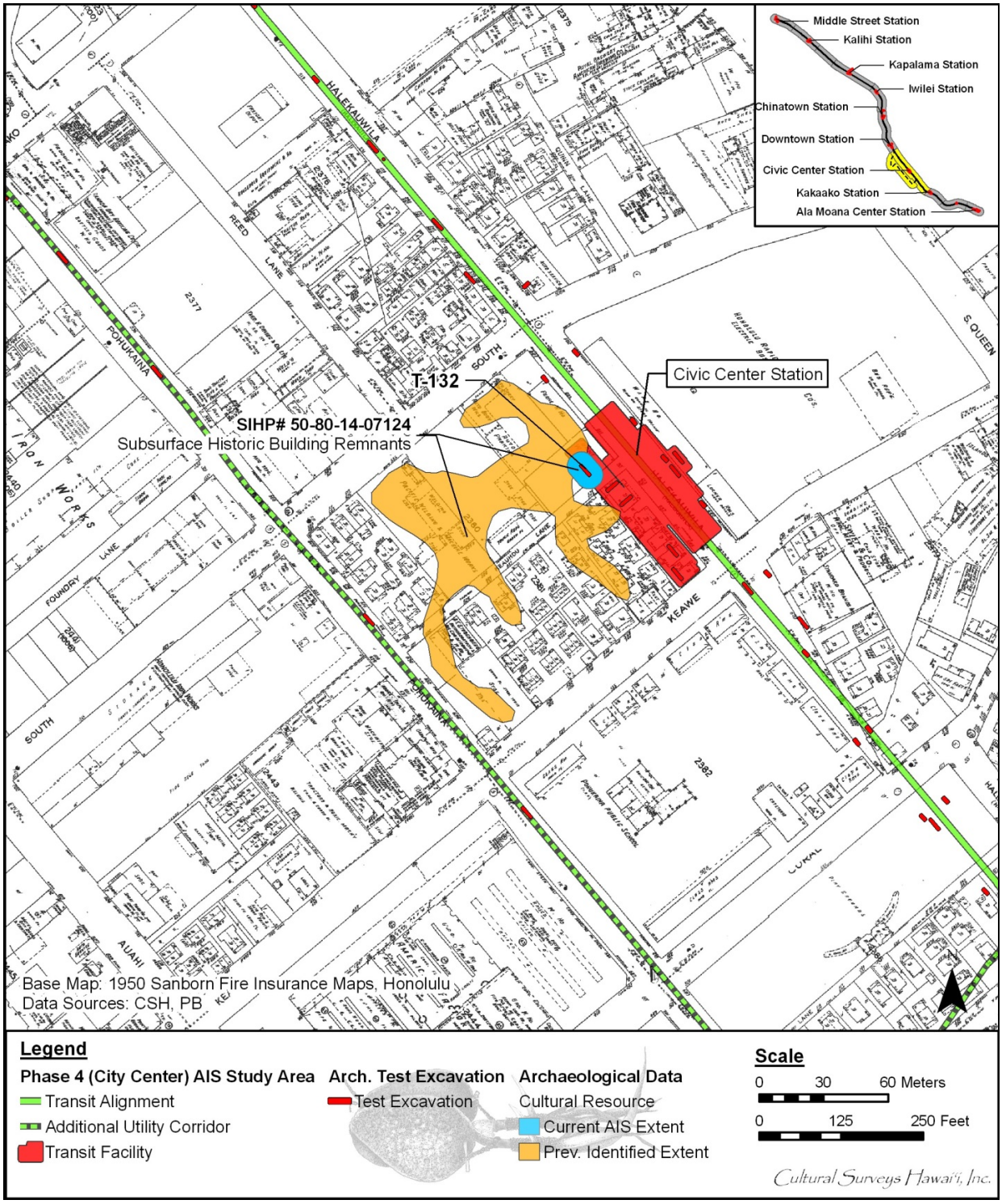

Figure 179. Portion of the 1950 Sanborn Fire Insurance Map depicting T-132 within the footprint of a furniture warehouse

4.3.9 SIHP # 50-80-14-7189

FORMAL TYPE:	Subsurface fill deposit containing burnt historic trash from open burning
FUNCTION:	Land reclamation and refuse disposal
PREVIOUS DOCUMENTATION:	Pammer, Fong, and Hammatt (2011)
AGE:	Post-Contact
DISTRIBUTION:	Approximately 0.05 acres (within current project area), 2.56 acres (total area)
LOCATION:	*Makai* of Halekauwila Street, between Keawe and South Streets (West Kaka‘ako and Kaka‘ako Makai Geographic Zones)
TAX MAP KEY:	[1] 2-1-030:001 (Pammer, Fong, and Hammatt 2011); [1] 2-1-030, [1] 2-1-030:001, [1] 2-1-031, [1] 2-1-051, and [1] 2-1-052 (within current project area)
LAND JURISDICTION:	Kamehameha Schools (Pammer, Fong, and Hammatt 2011); Bishop Estate (Waterpark Towers) and the City and County of Honolulu (within current project area)

SIHP # 50-80-14-7189 was originally designated by Pammer, Fong, and Hammatt (2011) to refer to a subsurface deposit of burnt historic debris (Figure 180). The cultural resource was first documented in 2011 by Pammer, Fong, and Hammatt, *makai* of Halekauwila Street and between Keawe and South Streets. During the current AIS, burnt historic debris associated with SIHP # -7189 was identified in eight Test Excavations (T-130, T-132, T-134, T-138, T-140, T-231A, T-232, and T-232A) located within the West Kaka‘ako and Kaka‘ako Makai Geographic Zones (see Figure 180).

Pammer, Fong, and Hammatt (2011:283) describe SIHP # -7189 as “a layer of burnt historic debris, used to fill the unwanted wetlands of Kewalo, Kaka‘ako, and Waikīkī, both to remove pest habitation/breeding areas and to create additional developmental areas.” During the 2011 study (Pammer, Fong, and Hammatt 2011:239) these culturally-enriched deposits were observed within 49 test excavations. The deposits consisted of an amalgamation of burnt household refuse that included glass bottles, ceramics, wood, metal, and saw-cut faunal bone. Diagnostic bottles provided a relative date of no later than 1920 for the burnt trash deposits, and the ceramic assemblage largely consisted of British and Asian exported items. Both the historic artifact concentration and the thickness of the layer varied throughout their project area. The historic material was typically underlying varying layers of modern and historic fill, and overlying natural wetland/marine sediments, including SIHP # -7190 (salt pan remnants). In general, the depth of SIHP # -7189 ranged from 0.4 to 1.8 mbs.

SIHP # -7189 is associated with the 1920s open-air burning of urban trash which occurred within the former Honolulu waterfront area. This open-air burning of trash predated the use of incinerators, such as the Kewalo and Kaka‘ako Incinerators, which would later produce layers of incinerated trash that were also used as fill materials. Based on historic documentation and

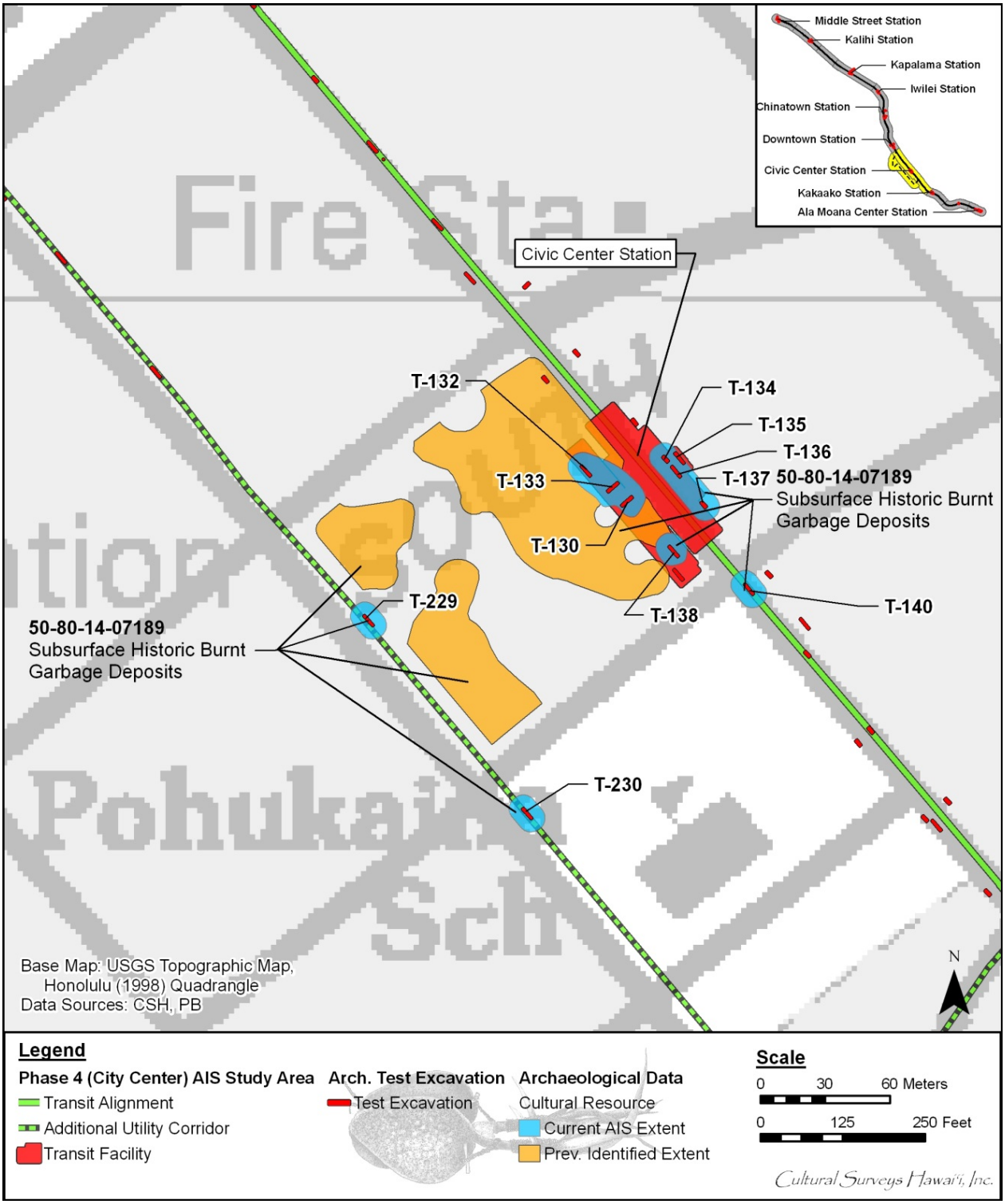

Figure 180. Former and newly identified extents of SIHP # 50-80-14-7189 with locations of AIS excavations within the West Kaka‘ako and Kaka‘ako Makai Geographic Zones (base map: USGS 1998 Topographic Map of Honolulu Quadrangle)

photographs, localized waste from the Honolulu area was collected and transported to the Honolulu garbage dump. This trash was then continually burned, and the remains were used to fill the unwanted wetlands of Kewalo, Kaka‘ako, and Waikīkī.

During the current AIS investigation, similar subsurface burnt deposits were identified within eight test excavations: T-130, T-132, T-134, T-138, T-140, T-231A, T-232, and T-232A. These trash layers appear to have derived from open-air burning rather than incinerators, as evidenced by the numerous intact bottles and ceramics and the lack of liquefied ferrous material and melted glass (Figure 181, Figure 182, and Figure 183). In general, these deposits were observed at an average depth of 0.79 to 1.21 mbs (Figure 184 and Table 25). The historic refuse largely included glass bottles, ceramics, metal, and cut faunal bone. Rarer items included fabric (T-232), and leather shoe soles (T-232). Diagnostic glass bottles consisted of beverage (beer, spirits, soda), medicine, ink, boot polish, and condiment bottles dated between 1820 and 1920. The ceramic assemblage included a variety of types, such as dinnerware, flatware, hollowware, a bottle, a crock, a just, and an ink pot. Twenty-four of the ceramic pieces were identified as Asian-types, while four were identified as English-types. CSH recommends that the burnt historic trash deposits that were identified during the City Center AIS should be considered components of SIHP # -7189 based on their similarity and proximity to the burnt trash deposits documented by Pammer, Fong, and Hammatt (2011). The previously and newly identified subsurface trash deposits (SIHP #-7189) encompass an area of approximately 2.56 acres. Additional components of SIHP # -7189 may exist in the undocumented portions within and adjacent to the City Center project area.

Coastal Kaka‘ako consisted of extensive wetlands that were traditionally used for aquaculture and salt production. By 1914, most of the fishponds and salt pans were eliminated as Kaka‘ako lands were filled to accommodate the expanding urbanization of Honolulu. SIHP # -7189 is likely associated with these land reclamation activities. Based on the guidance of National Register Bulletin No. 15, this archaeological cultural resource retains its integrity of location, design, and materials. These subsurface deposits have provided, and can potentially provide, additional information related to the geographic distribution/extent and materials of eighteenth and nineteenth century refuse disposal and land reclamation efforts in Kaka‘ako. SIHP # -7189 was previously determined eligible to the Hawai‘i Register under Significance Criteria A (associated with events that have made a significant contribution to the broad patterns of our history) and D (has yielded, or is likely to yield, information important for research on prehistory or history) by Pammer, Fong, and Hammatt (2011). Based on the results of the current AIS, CSH recommends that SIHP # -7189 does not have the integrity to convey its significance under Criterion A of both the Hawai‘i and National Register. These historic trash deposits are buried and have been removed from their original context. Accordingly, these deposits do not maintain the integrity of setting, feeling, and association that might convey their significance under significance Criteria A, B, or C of the Hawai‘i or National Registers. Based on the results of this investigation, CSH recommends that this cultural resource maintains the integrity to support its historic significance under Criterion D of the Hawai‘i and the National Register, exclusively for its information potential.

Figure 181. Photograph of the burnt historic trash deposit (SIHP # 50-80-14-7189) in T-231A

Figure 182. Photograph of a representative sample of historic material collected from the burnt trash deposits in T-130 (SIHP # -7189)

Figure 183. Photograph of a representative sample of historic material collected from the burnt trash deposits in T-132 (SIHP # -7189)

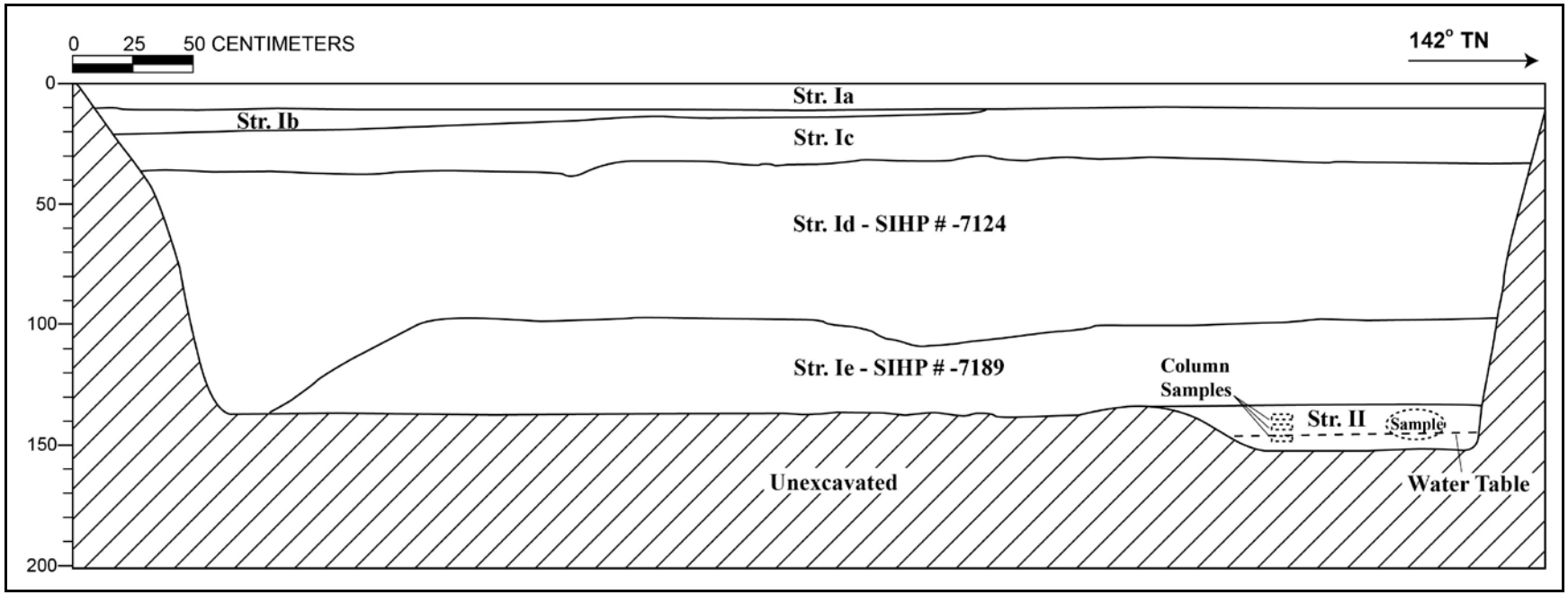

Figure 184. Profile drawing of the northeast wall in T-132 depicting the historic burnt trash deposit (Stratum Ie)

Table 25. Stratigraphic description for the northeast profile of T-132

Stratum	Depth (cmbs)	Description
Ia	0-10	Asphalt
Ib	10-20	Fill; 10 YR 4/2 (dark grayish brown); very gravelly sandy clay; weak, fine, crumb structure; dry, loose consistency; slightly plastic; terrigenous origin; very abrupt, broken/discontinuous lower boundary; base course, present only in northwestern half, crushed basalt in clay loam matrix
Ic	10-38	Fill; 10 YR 8/2 (very pale brown); extremely gravelly sand; structureless, single-grain; dry, weakly coherent consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; crushed coral fill
Id	30-136	Fill; 7.5 YR 3/3 (dark brown); gravelly to stony clay; weak, fine, blocky structure; moist, firm consistency; very plastic; terrigenous origin; clear, smooth lower boundary; contained many burnt red bricks and basalt gravel to cobbles; red bricks likely from historic building (SIHP #50-80-14-7124); contained bands, striations black mixed fill
Ie	97-139	Fill; 10 YR 2/1 (black); clay loam, medium, blocky structure; moist, friable consistency; plastic; terrigenous origin; lower boundary not visible; contained ceramic fragments, shoes, glass bottles, leather pouch, coconut husks, round wooden bases, non-diagnostic metal pieces, cut wood, synthetic roof tile, old telephone wire; contained burnt trash (SIHP #-7189) used to cover Kaka‘ako wetlands from late 1800s-early 1900s: faunal bones, *lauhala* mat at Ie/II
II	139-151	Natural; 2.5 Y 5/1 (gray); sandy silty clay; weak, medium, blocky structure; wet, sticky consistency; plastic; marine origin; lower boundary not visible; marine sediment contained organics, shells

4.3.10 SIHP # 50-80-14-7190

FORMAL TYPE:	Buried salt pan remnants
FUNCTION:	Salt production
PREVIOUS DOCUMENTATION:	Pammer, Fong, and Hammatt (2011)
AGE:	Potentially pre- and post-Contact
DISTRIBUTION:	Approximately 0.05 acres (within current project area), 1.15 acres (total area)
LOCATION:	*Makai* of Halekauwila Street, between Keawe and South Streets (Kaka‘ako Makai Geographic Zone)
TAX MAP KEY:	Plat 030
LAND JURISDICTION:	City and County of Honolulu

SIHP # 50-80-14-7190 is a previously identified cultural resource that consists of pre- and post-Contact salt pan deposits located *makai* of Halekauwila Street, between Keawe and South Streets (Figure 185). The cultural resource was originally identified in 2011 during an AIS in the vicinity of the West Kaka‘ako Geographic Zone (Pammer, Fong, and Hammatt 2011).

Pammer, Fong, and Hammatt (2011) identified subsurface salt pan deposits within twenty-three test excavations. Pammer, Fong, and Hammatt (2011:280) described these deposits as “an approximately 5 cm thick layer of alternating peat and clay striations.” In general, they were observed at the same level or just below the water table, at an average depth of 1.3 to 1.47 mbs. Wet screening analysis revealed that the salt pan deposits contained terrestrial snails, marine shells, roots and rootlets, and other plant material, including seeds of the *‘ākulikuli* or *olonā* plants (*Touchardia latifolia*) (Pammer, Fong, and Hammatt 2011:281).

Similar salt pan remnants, as well as two potential sand berms, were identified during the City Center AIS. These subsurface deposits were located beneath imported fill material, likely associated with early twentieth century land reclamation efforts in Kaka‘ako. Gray clay containing thick lenses of peat were observed in Test Excavation 230 at a depth of 1.1 to 1.37 mbs (Figure 186, Figure 187, and Table 26). These deposits may indicate that the salt pans extend much further southeast than previously documented. T-229 revealed evidence of two elevated strata consisting of sandy clay (Figure 188 and Figure 189). These sediments were observed at depths of 0.78 to 1.35 mbs and 0.85 to 1.48 mbs, and may represent berms associated with the salt pans. The orientation of the two suspected berms within T-229 suggests that they may vertically traverse the previously identified salt pans (SIHP # -7190). One suspected berm contained organic inclusions, while the other contained shells and faunal bone. These deposits may represent natural wetland sediment that was ‘pushed’ to form artificial berms. Pammer, Fong, and Hammatt (2011:280) documented similar artificial berms, consisting of natural Jaucas

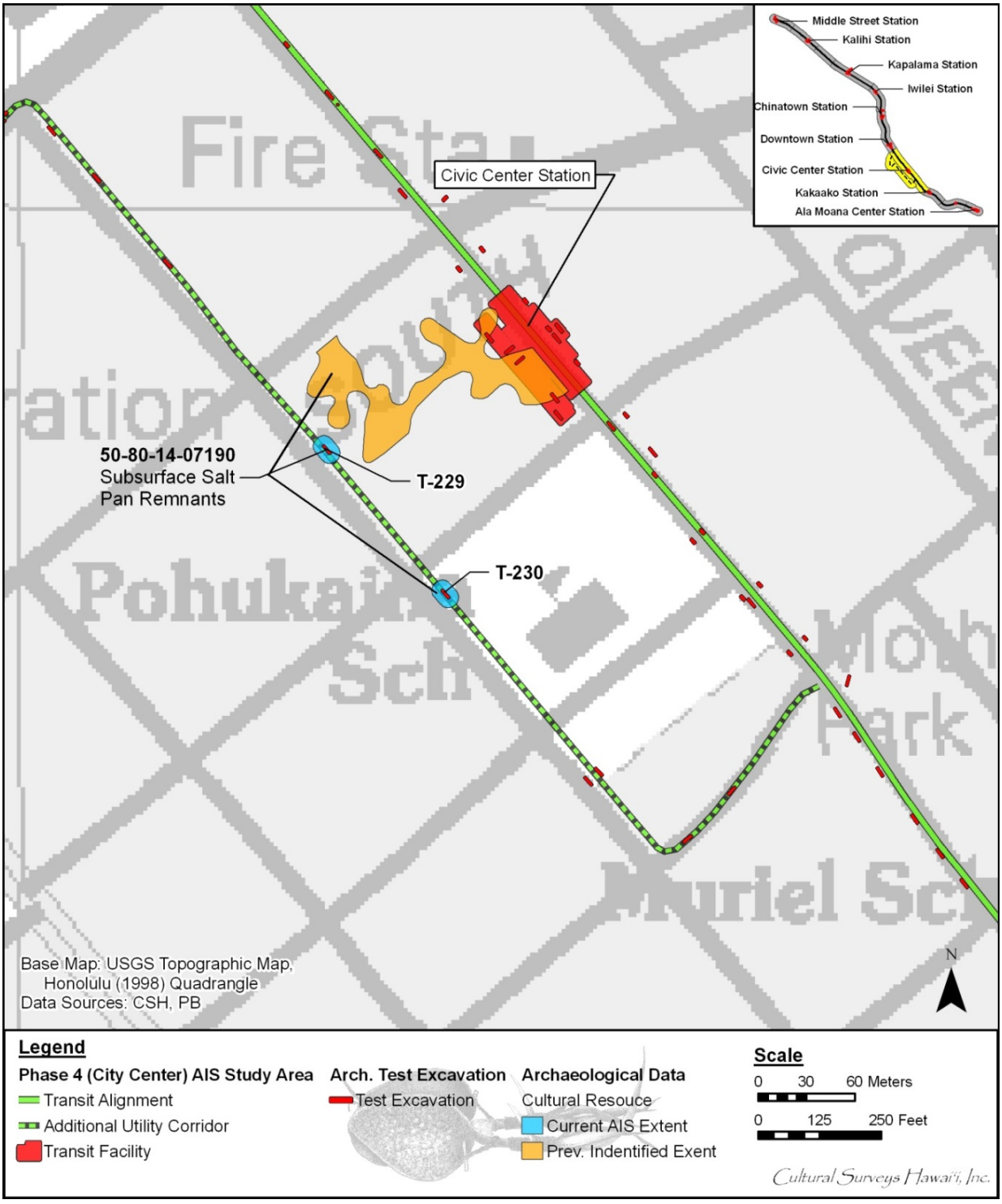

Figure 185. Previous and current extant of the subsurface salt pan remnants (SIHP # 50-80-14-7190) that are located within the Kaka‘ako Makai Geographic Zone (base map: USGS 1998 Topographic Map of Honolulu Quadrangle)

Figure 186. Clay layer (Stratum II) in T-230 that may be associated with SIHP # -7190

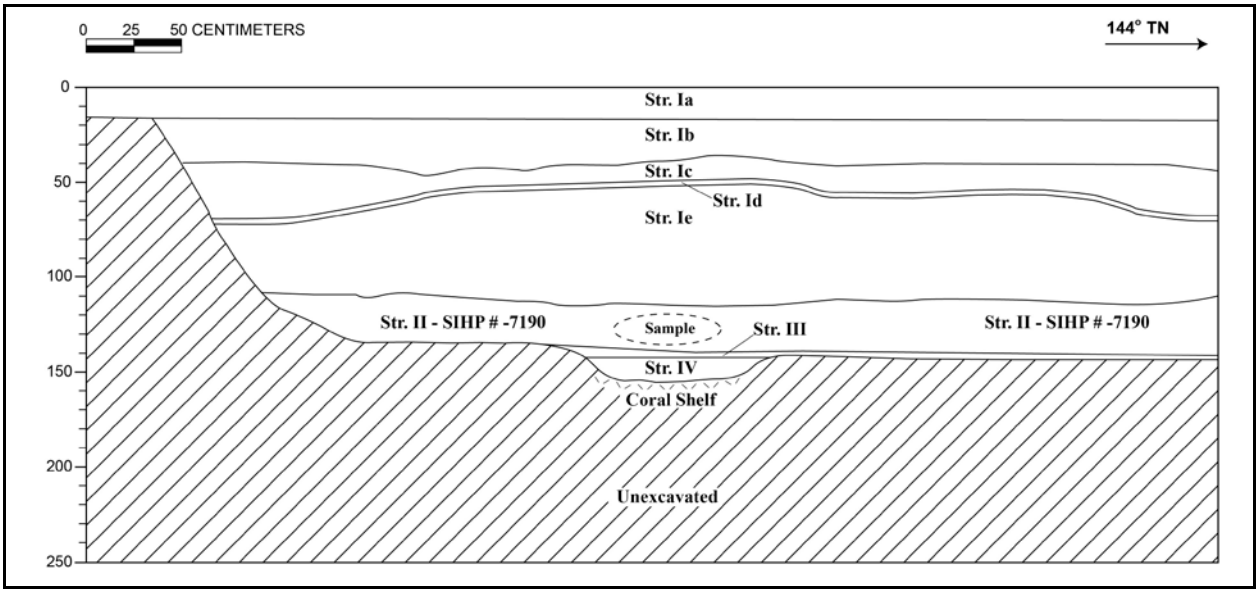

Figure 187. Profile drawing of northeast wall in T-230 depicting the clay layer (Stratum II) that may be associated with SIHP # -7190

Table 26. Stratigraphic description for northeast profile in T-230

Stratum	Depth (cmbs)	Description
Ia	0–16	Asphalt
Ib	16–46	Fill; 10 YR 5/1 (gray); extremely gravelly loam; structureless, single-grain; moist, loose consistency; non-plastic, terrigenous origin; abrupt, smooth lower boundary; gravel base course
Ic	37–70	Fill; 10 YR 6/2 (light brownish gray), extremely gravelly sand; structureless; moist, loose consistence; non-plastic; marine origin; abrupt smooth lower boundary; crushed coral fill
Id	47–70	Fill; 10 YR 7/2 (light gray); clay; structureless, massive; moist, friable consistency; plastic; marine origin; abrupt smooth lower boundary; hydraulic fill and clay lens
Ie	50–115	Fill; 10 YR 5/2 (grayish brown); extremely gravelly sand; structureless, single-grain; moist, loose consistency; slightly plastic; mixed origin; abrupt lower boundary; crushed coral basalt fill with faunal remains
II	110–137	Natural; GLEY 1 6/N (gray); silty clay; weak, very fine, blocky structure; moist, friable consistency; plastic; mixed origin; clear lower boundary; common, fine roots; low energy marshland sediments, contained lenses of peat. Associated with SIHP # -7190
III	135–145	Natural; 10 YR 7/2 (light gray) sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; clear smooth lower boundary
IV	145–155	Natural; decomposing coral shelf

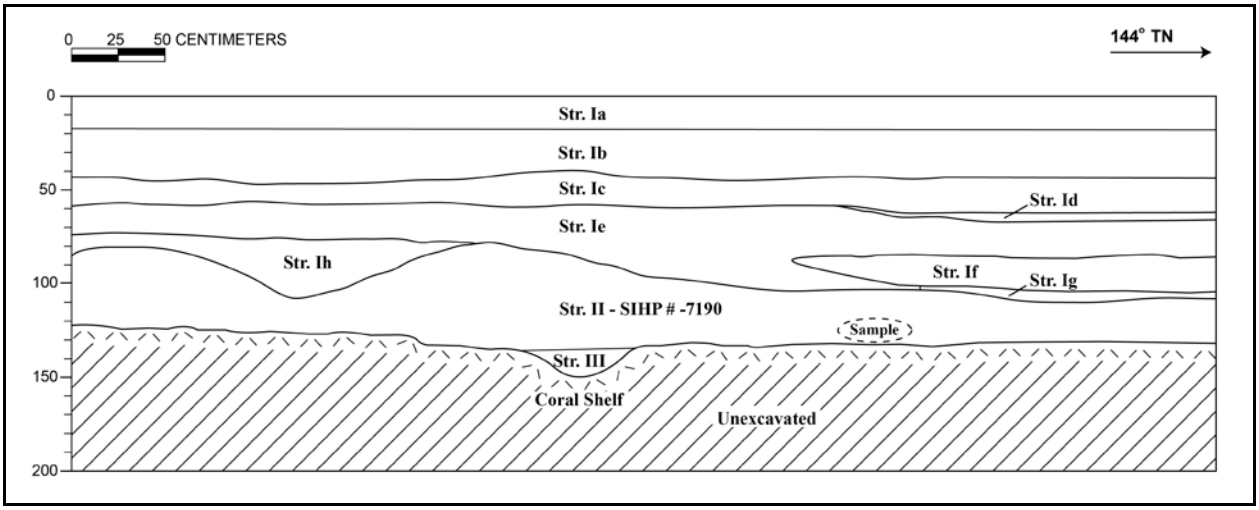

Figure 188. Profile drawing of the northeast wall in T-229 depicting two potential berms (Stratum II)

Figure 189. Photograph of one of the potential berms in T-229 associated with SIHP # 50-80-14-7190

sand that was ‘pushed’ to create the elevated boundaries between salt beds. CSH recommends that the potential salt pan remnants that were identified during the City Center AIS should be considered components of SIHP # -7190 based on their similarity and proximity to the salt pan deposits documented by Pammer, Fong, and Hammatt. (2011). The previously and newly identified subsurface salt pan remnants (SIHP #-7190) encompass an area of approximately 1.15 acres. Additional components of SIHP # -7190 may exist in the undocumented portions within and adjacent to the City Center project area.

Historic maps suggest that by the late nineteenth century, the salt pans within the West Kaka‘ako and Kaka‘ako Makai Zones were abandoned. The 1876 Lyons map depicts a grid of contiguous squares, which presumably represent salt pans that extend into the City Center AIS study area (Figure 190). By 1883, the salt pans are located in the southeastern end of the Kaka‘ako Makai Zone (Figure 191). SIHP # -7190 is located within a portion of the Land Commission Award (LCA) 7713, known as Pu‘unui (lit., “big hill”). This place name may be a reference to an area in upland Honolulu where the Pu‘unui Community Park is located today. One traditional account indicates that “the matriarch of all *mo‘o* supernaturals lived here (Pu‘unui) in a clay pit that was later filled in by Caucasians to prevent animals from falling in” (Pukui 1974: 202). The ‘clay pit’ in this account provides a tantalizing allusion to a clay-lined salt bed. This particular portion of LCA 7713 may have, therefore, derived its name from the salt beds of Kaka‘ako. By 1919, the Kaka‘ako salt beds were filled in to accommodate the expanding urbanization of Honolulu.

Based on the guidance of National Register Bulletin No. 15, this archaeological cultural resource retains its integrity of location, materials, and workmanship. Background research and historic maps indicate that the West Kaka‘ako Geographic Zone was formerly utilized in both pre- and post-Contact times for salt production. The components of this cultural resource have provided, and can potentially provide additional, information regarding the geographic distribution/extent and features of the pre- and post-Contact salt works in West Kaka‘ako. SIHP # -7190 was previously determined eligible to the Hawai‘i Register under Significance Criteria A (associated with events that have made an important contribution to the broad patterns of our history) and D (has yielded, or is likely to yield information important for research on prehistory or history) by Pammer, Fong, and Hammatt 2011. Based on the results of the current AIS, CSH recommends that SIHP # -7190 does not have the integrity to convey its significance under Criterion A of both the Hawai‘i and National Registers of Historic Places. The remnant salt pans are buried and their surroundings have been completely altered by modern development since their time of construction and period of use. Accordingly, they do not maintain the integrity of setting, feeling, and association that might convey their significance under any significance Criteria A, B, or C of the Hawai‘i or National Registers. Based on the results of this investigation, CSH recommends that this cultural resource maintains the integrity to support its historic significance under Criterion D of the Hawai‘i and the National Registers, exclusively for its information potential.

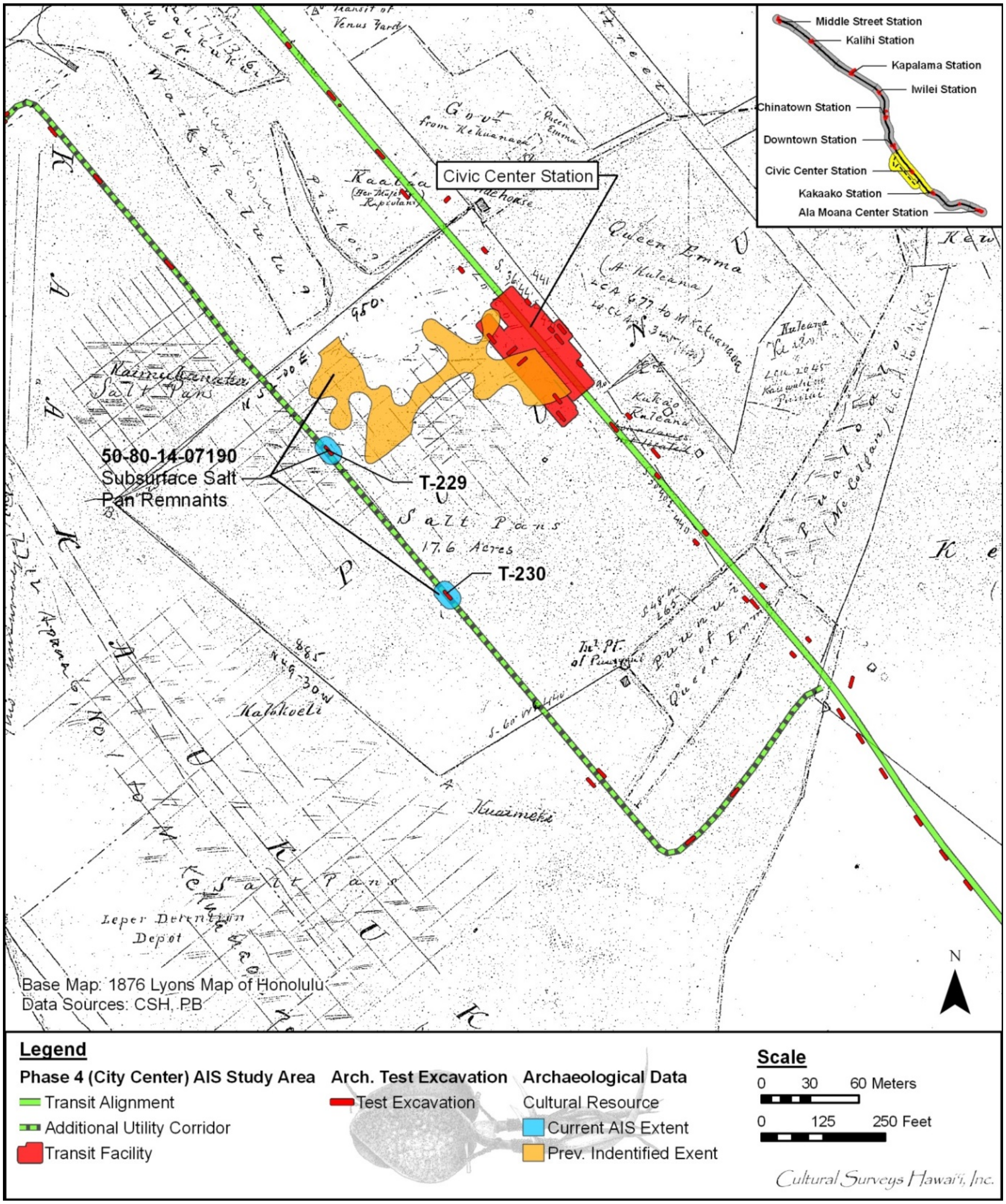

Figure 190. Portion of the 1876 Lyons Map of Honolulu depicting the former salt pans that extended throughout the City Center AIS study area

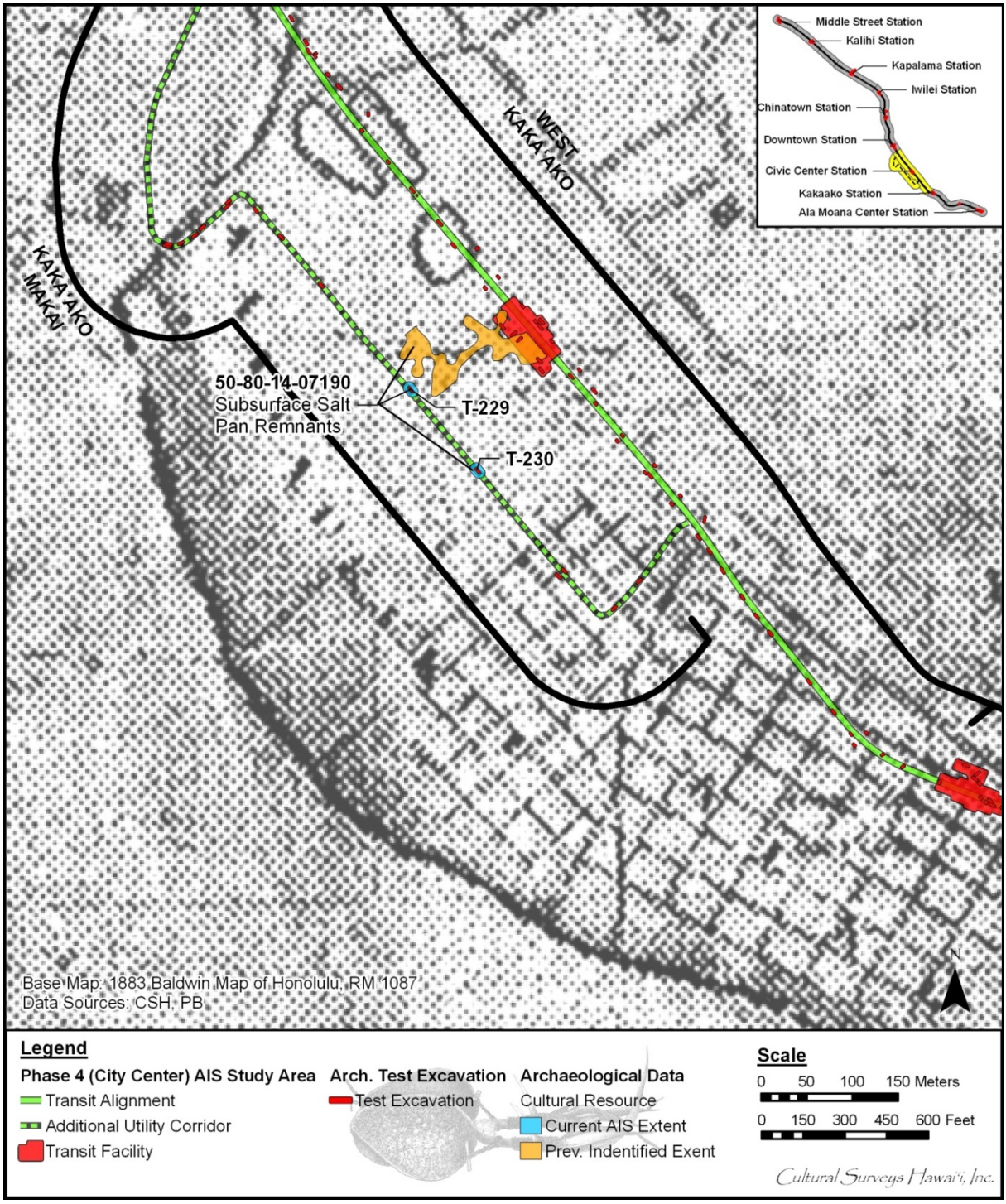

Figure 191. Portion of the 1883 Baldwin Map of Honolulu (RM 1087) depicting the shift of salt pans to the southeast

4.3.11 SIHP # 50-80-14-7193

FORMAL TYPE:	Buried, refuse-enriched fill deposit
FUNCTION:	Refuse disposal
PREVIOUS DOCUMENTATION:	Burke and Hammatt (2012)
AGE:	Historic (ca. 1930s to 1950s)
DISTRIBUTION:	Approximately 0.03 acres (within current project area), 0.43 acres (total area)
LOCATION:	AIS test excavation T-214, *mauka* of Kona Street, located within the Kālia Geographic Zone, Honolulu Ahupua‘a
TAX MAP KEY:	[1] 2-3-039:011
LAND JURISDICTION:	Private, Samkoo Pacific, LLC

SIHP # 50-80-14-7193 was originally designated by Burke and Hammatt (2012) during an AIS for a parcel located at 1391 Kapi‘olani Boulevard to refer to a buried, refuse-enriched fill deposit that was identified within the eastern half and northern extent of their project area (Figure 192 and Figure 193). Five test excavations from the Burke and Hammatt (2012) study have been included as part of the current City Center AIS. Trenches 1, 2, 3, 4, and 5 from the Burke and Hammatt (2012) study correspond to AIS test excavations T-214, T-213, T-211, T-210, and T-209, respectively. Of these AIS test excavations, a buried, refuse-enriched fill deposit was documented in T-214.

During the Burke and Hammatt (2012) study, a considerable amount of material from within the SIHP # -7193 trash layer was unearthed. Due to the lack of diversity and considerable duplication of artifacts, only a sample of artifacts was collected from each trench. The majority of the collected items were complete bottles or diagnostic (identifiable or datable) fragments. A substantial amount of additional non-diagnostic historic artifacts, such as miscellaneous unidentifiable metal pieces, lumber, cinder blocks, red bricks, red brick tiles, ceramic tiles, and unmarked bottle glass fragments were observed and briefly described during subsurface excavations, but were not collected.

The sediment matrix of the refuse deposits, when present, consisted of a variety of dark red, brown, and gray silt loams, loamy sands, loamy clays, and clays. These deposits ranged in depth from 0.20 to 1.71 mbs and were overlaid by historic and modern fill layers. Figure 194is the profile of T-214, Table 27 describes the stratigraphy, and Figure 195 is a photograph of the profile wall. A total of 115 artifacts were recovered from SIHP # -7193 during Burke and Hammatt’s (2012) study. The artifacts consisted of 93 glass bottles/containers, one champagne glass stem, one glass jar lid, two glass telephone mouthpieces, one metal spike, one metal washer, one metal table spoon, one ceramic bowl fragment, and 14 ceramic tiles. Bottle types appeared to be

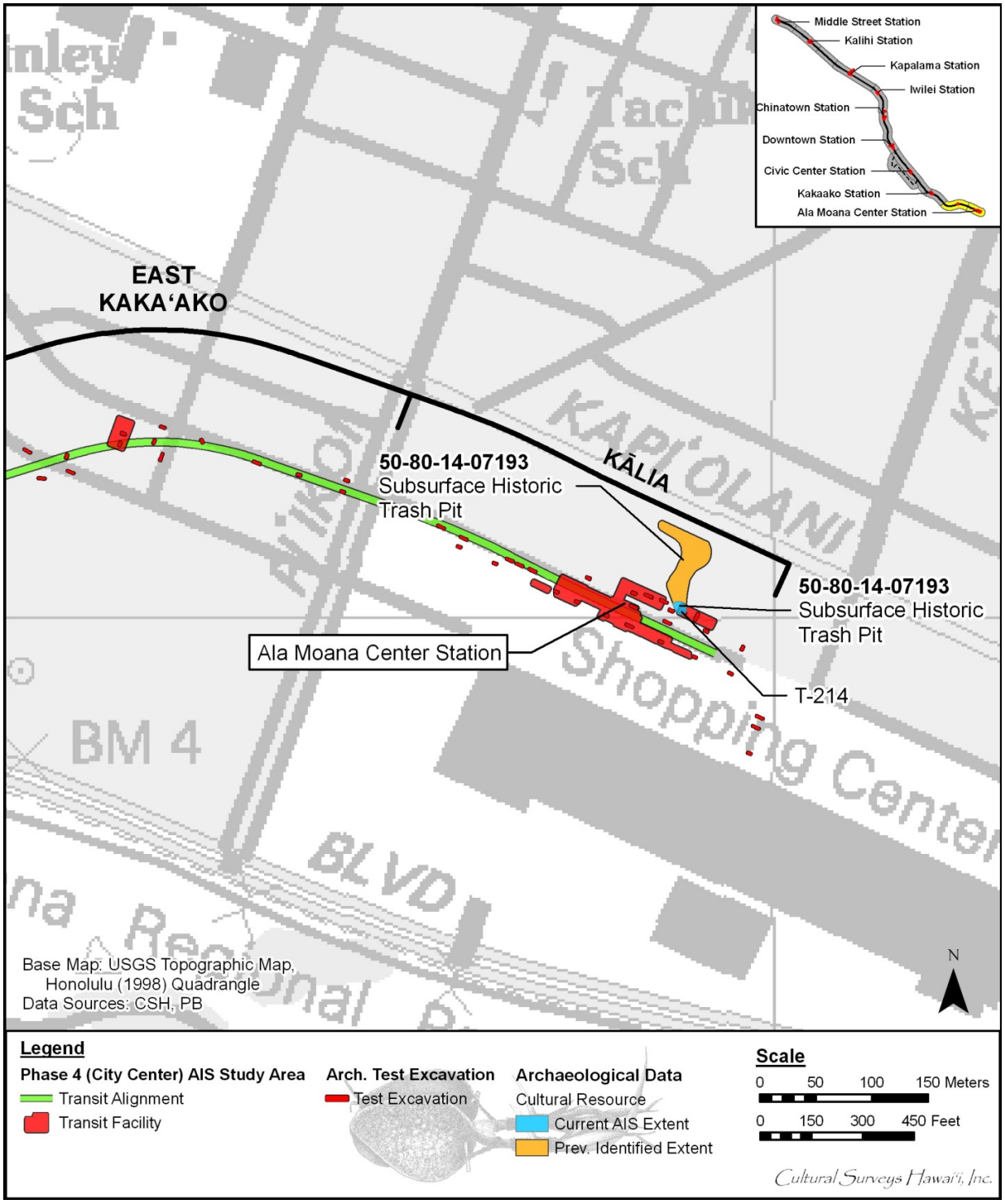

Figure 192. Locations of former and newly identified extents of SIHP # -7193 and the location of AIS test excavation T-214 in the Kālia Geographic Zone (base map: 1998 U.S. Geological Survey topographic map, Honolulu Quadrangle)

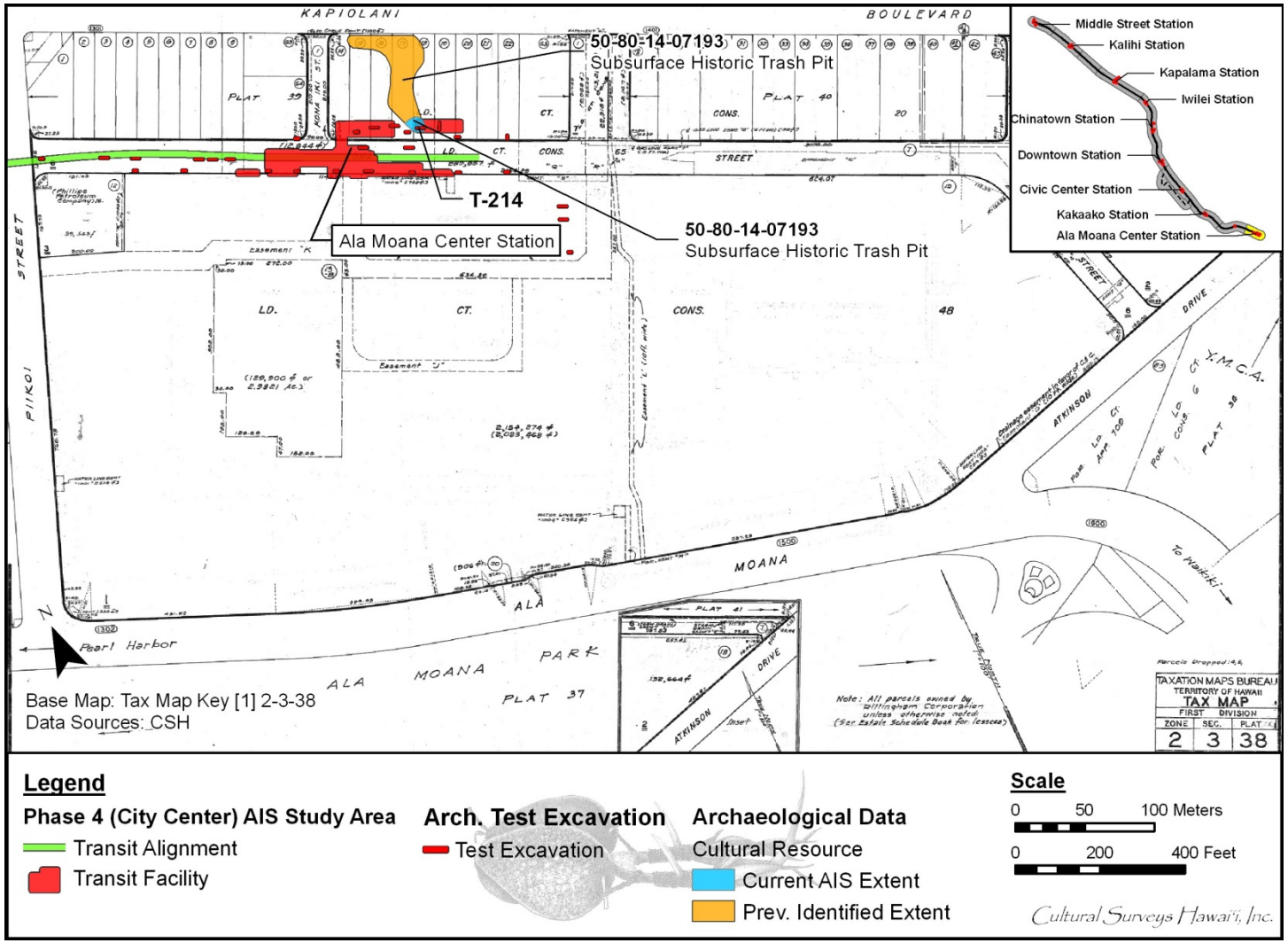

Figure 193. Locations of former and newly identified extents of SIHP # -7193 and location of AIS test excavation T-214 in the Kālia Geographic Zone (base map: Tax Map Key [1] 2-3-38)

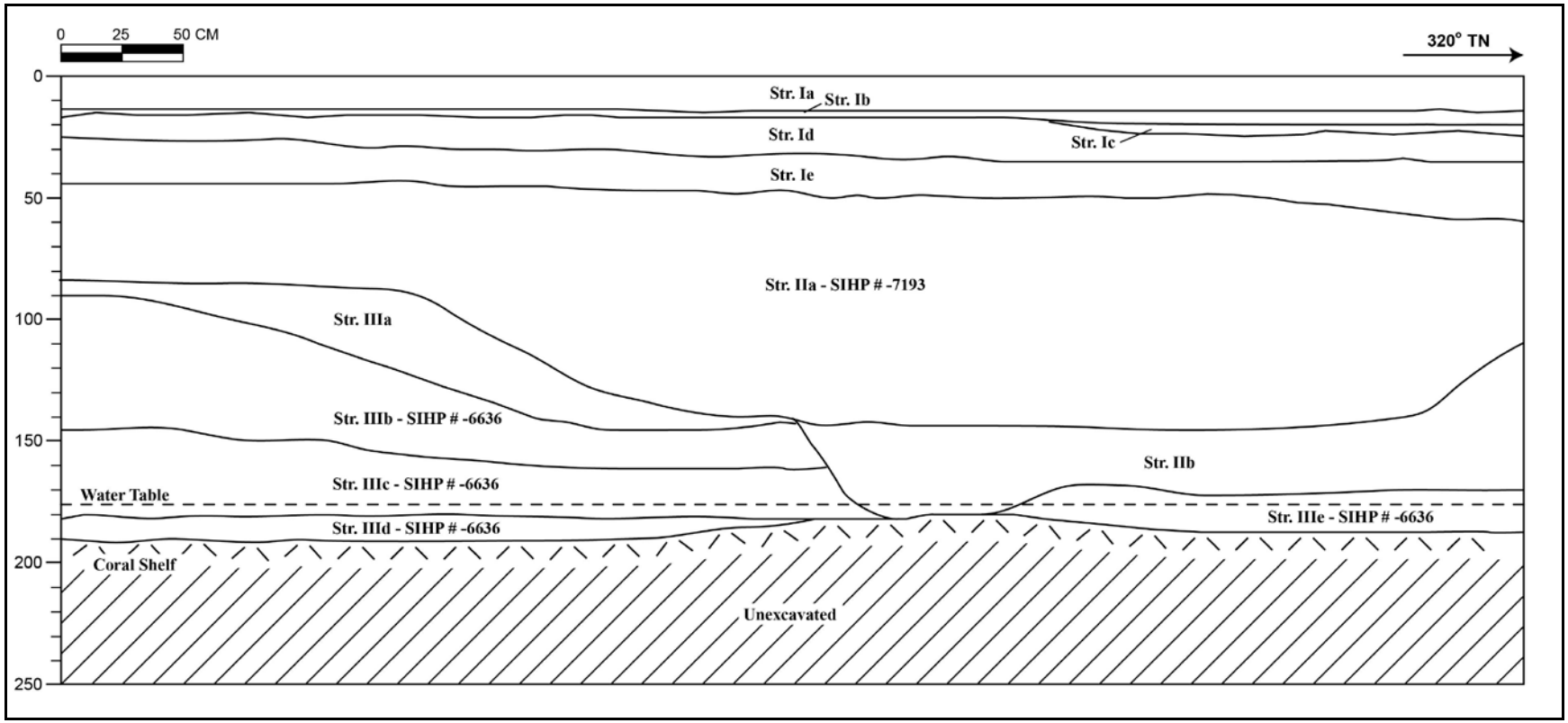

Figure 194. Profile drawing of the southwest wall in T-214

Table 27. T-214 Stratigraphic description of the southwest profile in T-214

Stratum	Depth (cmbs)	Description
Ia	0–14	Concrete
Ib	25–59	Fill; 7.5 YR 3/3, dark brown; silt loam; weak, fine, crumb structure; moist, friable consistency; non-plastic; terrestrial origin; very abrupt, wavy lower boundary; crushed coral inclusions; grading fill.
Ic	19–24	Asphalt
Id	15–35	Fill; 5 Y 8/2 (very pale brown); extremely gravelly sand; structureless, single-grain; moist, friable consistency; non-plastic; abrupt, smooth lower boundary; crushed coral base course
Ie	14–19	Fill; 5 YR 3/3, dark reddish brown; gravelly silt loam; weak, very fine, crumb structure; moist, very friable consistency; slightly plastic; terrestrial origin; abrupt, wavy lower boundary; imported fill.
IIa	42–144	Fill; 5 YR 4/2, dark reddish gray; gravelly sand; fine to coarse; single-grain; moist, loose consistency; non-plastic; marine origin; clear, wavy lower boundary; contains red brick tiles, metal fragments, ceramic tiles, glass jars, red bricks, cinder blocks, and wires; part of SIHP # -7193, buried, historic, refuse-enriched fill deposit.
IIb	109–180	Fill; 5 YR 3/3, dark reddish brown; gravelly silt loam; moderate, fine, crumb structure; moist, friable consistency; slightly plastic; terrestrial origin; diffuse, wavy lower boundary; imported fill.
IIIa	83–145	Natural; 10 YR 6/3, pale brown; sand; fine; single-grain; moist, loose consistency; non-plastic; marine origin; diffuse, wavy lower boundary; partially disturbed.
IIIb	89–161	Natural; 10 YR 5/2, grayish brown; clay; moderate, medium, platy structure; moist, friable consistency; very plastic; mixed origin; diffuse, wavy lower boundary. Associated with SIHP # -6636
IIIc	144–180	Natural; Gley 2 6/10 G, greenish gray; clay; weak, medium, platy structure; moist, very friable consistency; plastic; mixed origin; diffuse, smooth lower boundary; gley. Associated with SIHP # -6636
IIId	180–190	Natural; Gley 1 7/5 GY, light greenish gray; sandy clay; fine; weak, medium, platy structure; moist, friable consistency; slightly plastic; mixed origin; lower boundary not visible; gley; overlies coral shelf. Associated with SIHP # -6636
IIIe	168–186	Natural; 10 YR 2/1, black; silt loam; weak, fine, platy structure; wet, slightly sticky consistency; non-plastic; terrestrial origin; abrupt, wavy lower boundary; many fine to medium roots; consists of decaying organic material; peat; old A-horizon; overlies coral shelf. Associated with SIHP # -6636

Figure 195. Photograph of the southwest profile wall in T-214

clustered geographically; several of the trenches contained an overwhelming percentage of a certain type of bottle. All 115 artifacts were considered historic period artifacts. The collected artifacts provided temporally diagnostic information indicating that SIHP # -7193 was utilized as a trash disposal area and/or as fill material during land reclamation activities during the early to mid-twentieth century.

Seventeen of the 115 accessioned artifacts from SIHP # -7193 were recovered from AIS Test Excavation 214 (Trench 1 from the Burke and Hammatt [2012] study). These artifacts consisted of a cosmetic jar (dated to 1920 to 1964), a sauce jar (dated to 1938), a jar (dated to 1951), and 14 ceramic tiles (undated). Additional artifacts observed in the trash layer from T-214, but not collected, included red brick tiles, metal fragments, red bricks, cinder blocks, and wires.

The extent of the buried, refuse-enriched deposit is largely unknown. Burke and Hammatt (2012) identified it within the eastern half and northern extent of the 1391 Kapi‘olani Boulevard parcel (measuring approximately 0.43 acres). Available data from other projects indicate that SIHP # -7391 is part of trash disposal and/or land reclamation activities that were broad in aerial extent. Similar deposits that are probably related to SIHP # -7391 have been identified during previous studies (e.g., see O’Hare, Borthwick, and Hammatt 2003; O’Hare, Bush, Borthwick, and Hammatt 2004; O’Hare, Bush, and Hammatt 2006; Thurman et al. 2009; Tulchin and Hammatt 2005).

SIHP # -7193 was previously determined ineligible to the Hawai‘i Register by Burke and Hammatt (2012). The historic-era (c. 1930s to 1950s) archaeological remnants of SIHP # -7193 lacks potential for information gain. Although the deposits contained certain diagnostic elements, they are completely removed from their original context. Accordingly, this buried refuse deposit does not maintain the integrity of design, setting, workmanship, feeling, or association that might convey its significance under Criteria A, B, C, or D of the Hawai‘i or National Registers. Based on the results from Burke and Hammatt’s (2012) study, CSH recommends this cultural resource as ineligible to the Hawai‘i and the National Register.

4.3.12 SIHP # 50-80-14-7197

FORMAL TYPE:	Buried culturally enriched A-horizon
FUNCTION:	Habitation
PREVIOUS DOCUMENTATION:	Pammer, Fong, and Hammatt (2011)
AGE:	Late pre-Contact to early post-Contact
NO. FEATURES	1
DISTRIBUTION:	Approximately 0.03 acres (previously identified)
LOCATION:	*Makai* of Halekauwila Street, between South and Keawe Streets (West Kaka‘ako Geographic Zone)
TAX MAP KEY:	[1] 2-1-030: 001
LAND JURISDICTION:	Kamehameha Schools

SIHP # 50-80-14-7197 is a previously identified cultural resource that consists of a late pre-Contact/early post-Contact former land surface (A-horizon) and one associated fire pit feature (Feature 1). This subsurface deposit is located makai of Halekauwila Street, between South and Keawe Streets (Figure 196). It was originally identified in 2011 by Pammer, Fong, and Hammatt. Additional components of SIHP # -7197 may exist in undocumented areas within the West Kaka‘ako Geographic Zone.

Pammer, Fong, and Hammatt (2011) documented a portion of a subsurface sandy A-horizon in one test excavation (T-26). They also identified one feature within the A-horizon. Feature 1 consists of a fire pit containing fire-cracked rock, a small amount of shell, and a high concentration of charcoal (Pammer, Fong, and Hammatt 2011:243). Wood taxa analysis on a charcoal sample from the fire pit identified lama and either fern or palm. Lama is a small endemic tree. Its wood was often used by the Native Hawaiians for houses (Pukui and Elbert 1986:192), enclosures for idols (Malo 1951:21), chisel handles (Buck 1957:38), and as offerings (Rock 1974:395). These various uses apparently did not preclude use of Lama for fuel. The presence of a native species in the charcoal sample may indicate that the sample predates the introduction of alien woody plants.

Although several of the City Center test excavations (T-130, T-132, and T-133) were located within the vicinity of SIHP #-7197, no A-horizon deposits or fire pit features were observed. It is possible, however, that additional components of this cultural resource are present in the areas outside of the City Center’s AIS subsurface testing program. The cultural resource will potentially be affected by the proposed City Center Project’s construction. Based on the guidance of National Register Bulletin No. 15, this archaeological cultural resource retains its integrity of location, design, and materials. This cultural resource has provided, and could potentially provide additional, information regarding the style and use of pre- to early post-Contact *imu* pits. The *imu* is also an indicator for the pre- to early post-Contact habitation of coastal Kaka‘ako. SIHP # - 7197 was previously determined eligible to the Hawai‘i Register under significance Criteria A (associated with events that have made an important contribution to the broad patterns of our history) and D (has yielded, or is likely to yield information important for research on

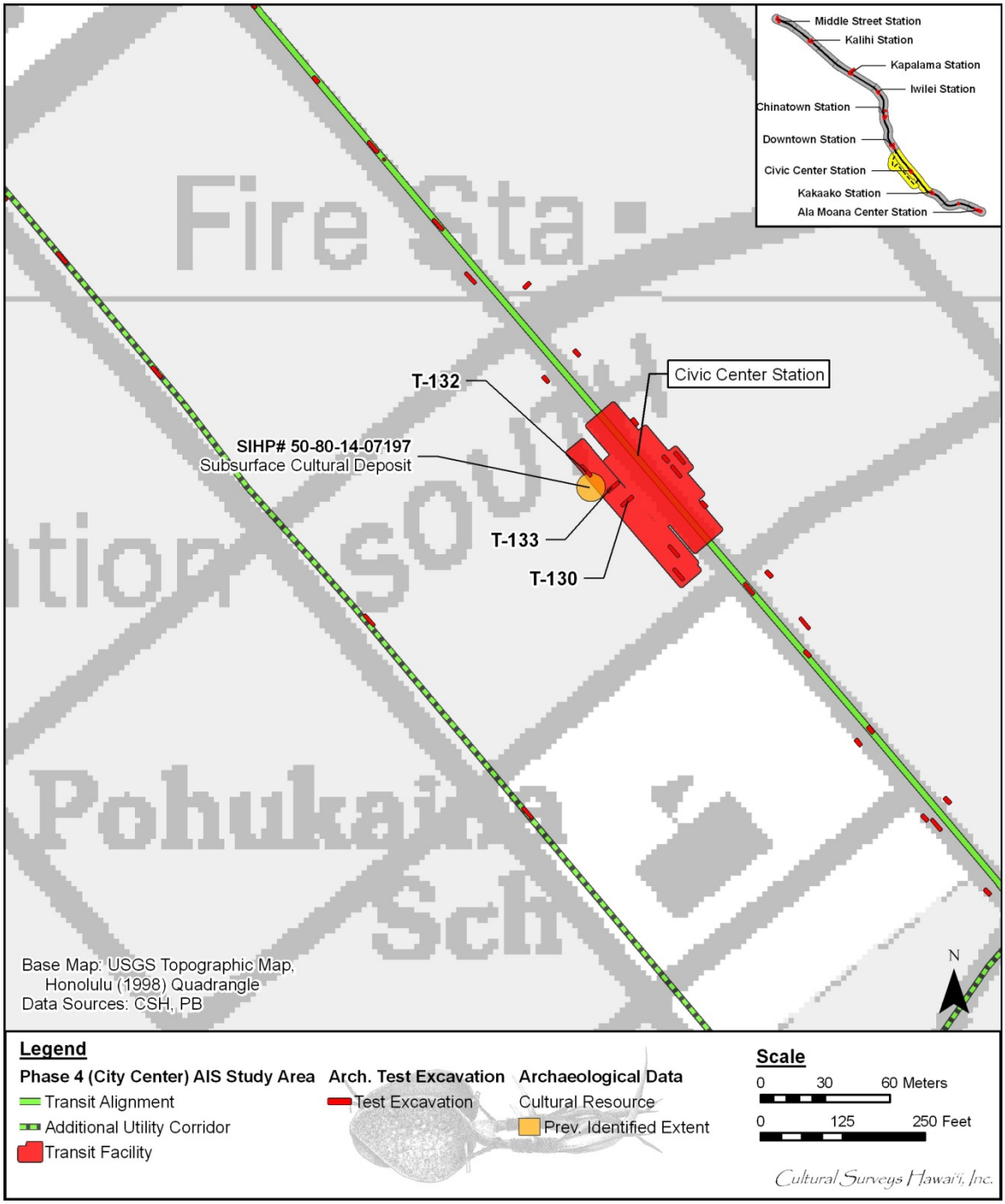

Figure 196. Geographical extent of SIHP # 50-80-14-7197 with locations of AIS excavations along the West Kaka‘ako Zone corridor (base map: USGS 1998 Topographic Map of Honolulu Quadrangle)

prehistory or history). Based on the results of the current AIS, CSH recommends that SIHP # -7197 does not have the integrity to convey its significance under Criterion A of both the Hawai‘i and National Registers of Historic Places. Based on the results of Pammer, Fong, and Hammatt’s (2011) investigation, CSH recommends that this cultural resource maintains the integrity to support its historic significance under Criterion D of the Hawai‘i and National Register of Historic places, exclusively for its information potential.

4.3.13 SIHP # 50-80-14-7425

FORMAL TYPE:	Buried single *imu* (earth oven)
FUNCTION:	Cooking
AGE:	Pre-Contact
DISTRIBUTION:	Point feature in T-020. Approximate dimensions are 90 cm in length and 10 cm in thickness
LOCATION:	Located in the right lane of the eastbound lanes of Kamehameha Highway in the easternmost section of the West Kalihi Geographic Zone
TAX MAP KEY:	TMK Plat 013
LAND JURISDICTION:	City and County of Honolulu

SIHP # 50-80-14-7425 consists of a single *imu* (earth oven) feature located in the Kamehameha Highway Right-of-Way, approximately 60 m southwest of the Laumaka Street intersection (Figure 197). This pit feature was discovered during subsurface testing (Test Excavation 20—refer to Volume IVA) for the City Center AIS. The shape and contents of the pit are consistent with Hartzell and McPherron's (1997:223) definition of an *imu*:

> "…a pit with the following characteristics: diameter of at least a meter, substantial amount of charcoal, substantial amount of fire-affected rock (usually in cobble to small boulder range), and burned earth lining. An *imu* can have a variety of profile shapes, the most common being bowl-shaped…Artifacts may or may not be present."

The *imu* pit was located between 2.35 and 2.50 meters below the ground surface (mbs) within a thick, naturally-deposited silty clay loam matrix (Stratum II) that contained charcoal flecking, two bottle glass fragments, and metal debris (Figure 198 and Table 28). The *imu's* approximate dimensions are 0.90 cm in length and 10 cm in thickness. The historic material was collected from the upper boundaries of this stratum. Also present within the surrounding matrix were naturally-deposited marine shell, terrestrial snails, and fish vertebrae. The pit was bowl-shaped in profile and it contained a 10 cm lens of charcoal, as well as 11 small to medium water-rounded basalt cobbles (Figure 199 and Figure 200). The cobbles exhibit a reddish color, typical in rocks that are repeatedly heated by fire. The form and composition of the subsurface cultural resource is consistent with a cooking function.

Taxa analyses on collected charcoal fragments from the *imu* pit identified five species of native Hawaiian trees and shrubs. They include: *lama* (*Diospyros sandwicensis*), *ʻakoko* (*Chamaesyce* sp.), *ʻaʻaliʻi* (cf. *Dodonaea viscosa*), *ʻūlei* (cf. *Osteomeles anthyllidifolia*), and *hōʻawa* (cf. *Pittosporum* sp.). *Lama* is a small endemic tree. Its wood was often used by the Native Hawaiians for houses (Pukui and Elbert 1986:192), enclosures for idols (Malo 1951:21),

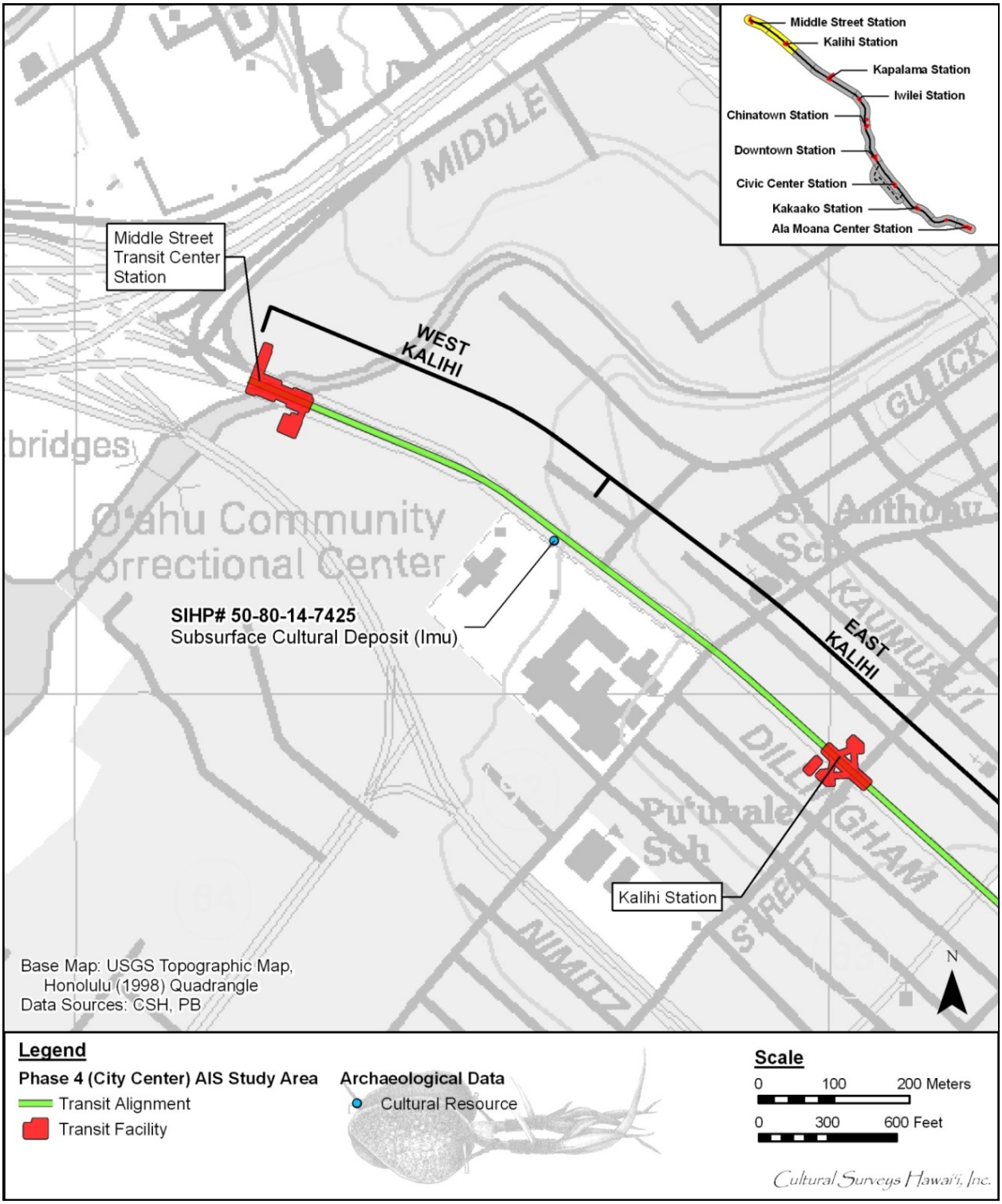

Figure 197. Location of the *imu* pit (SIHP # 50-80-14-7425) in the West Kalihi Geographic Zone (Base Map: USGS 1998 Topographic Map of Honolulu Quadrangle)

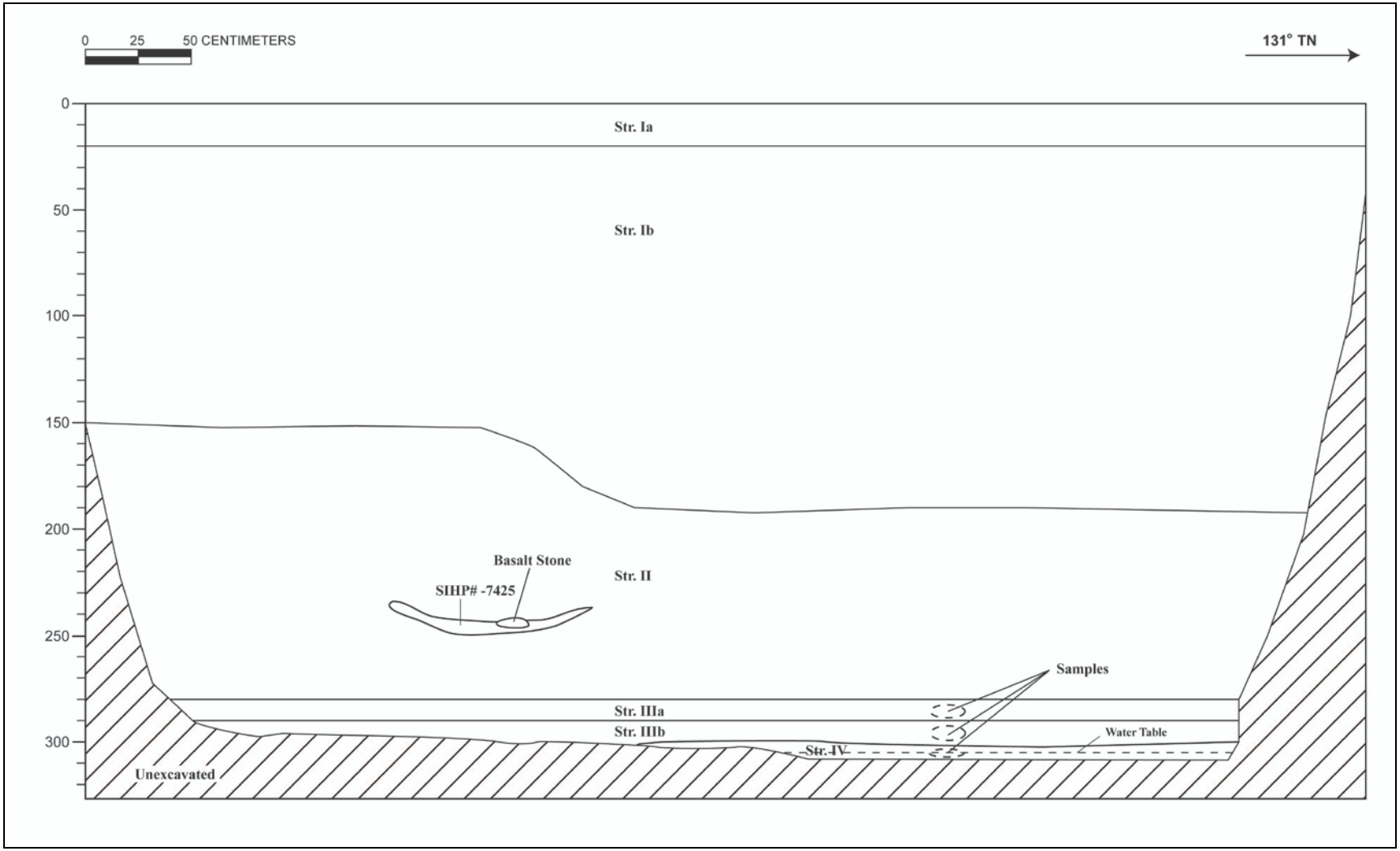

Figure 198. Profile drawing of the northeast wall depicting the subsurface *imu* (SIHP # 50-80-14-7429) in T-020

Table 28. Stratigraphic description of the northeast profile in T-020

Stratum	Depth (cmbs)	Description
Ia	0-20	Asphalt; road surface
Ib	20-195	Fill; 10 YR 7/4 (very pale brown); extremely gravelly cobbly sand; structureless, single-grain, coarse; dry, very hard consistency; non-plastic; marine origin; abrupt lower boundary; imported crushed coral fill consisting of gravel and cobbles
II	150-280	Natural; 10 YR 4/2 (dark grayish brown); silty clay loam; weak, very fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; contains moderate charcoal flecking
IIIa	280-290	Natural; 2.5 YR 4/2 (dark grayish brown); gravelly clay loam; structureless, massive; moist, friable consistency; plastic; mixed origin; clear, smooth lower boundary; few, fine roots
IIIb	290-300	Natural; 2.5 YR 4/2 (dark grayish brown); clay loam; structureless, massive, moist, friable consistency; plastic; mixed origin; clear, smooth lower boundary; few, fine roots
IV	300-310	Natural; 10 YR 7/4 (very pale brown); cobbles and gravels; structureless, massive; moist, extremely firm consistency; non-plastic; marine origin; lower boundary not visible; decomposing coral shelf

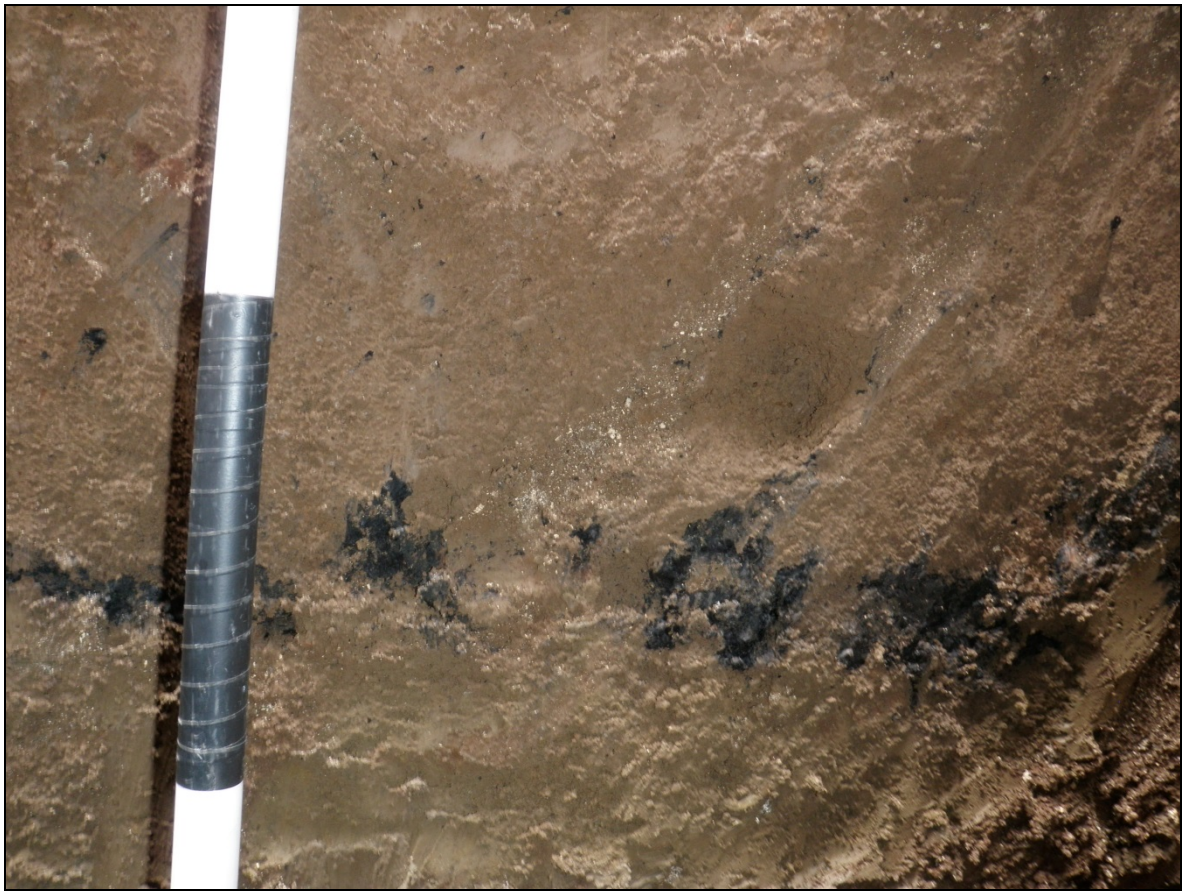

Figure 199. Photograph of the *imu* deposits in T-020

Figure 200. Water-rounded basalt cobbles discovered in the *imu* pit (SIHP # 50-80-14-7425)

chisel handles (Buck 1957:38), and as offerings (Rock 1974:395). *‘Akoko* is an endemic shrub and small tree that was highly valued as firewood (Hillebrand 1888:396). *‘A‘ali‘i* is an indigenous shrub or small tree that produced a hard wood that was often used by the Native Hawaiians for digging sticks, house posts, and weapons (Abbott 1992:68; Krauss 1993:56; Lamb 1981:78). *‘Ūlei* is an indigenous woody shrub to small tree that was often utilized for a variety items, including digging sticks, spears, and scoop-net handles (Neal 1965:387). *Hō‘awa* is an endemic small tree that was used for medicinal purposes to ward off evil spirits (Ka‘aiakamanu and Chun 2003).

While many of these species were utilized for a variety of purposes, it appears that these did not preclude the use of these types of wood as fuel for everyday use. The presence of only native and Polynesian-introduced species in the charcoal samples indicates that the samples probably predate the introduction of alien woody plants. Radiocarbon analysis on a charcoal sample from the *imu* pit provided a calibrated 2-sigma date of AD 1440 to 1530 (61.6%). Similar wood taxa and radiocarbon results were obtained from a corresponding silty clay loam matrix (Stratum II) in an adjacent test excavation (T-020A). Three species of native Hawaiian trees and shrubs were identified in T-020A. They included *pūkiawe* (*Styphelia tameiameiae*), *‘a‘ali‘i* (cf. *Dodonaea viscosa*), and *‘ūlei* (cf. *Osteomeles anthyllidifolia*). Radiocarbon analysis on a single charcoal fragment from T-020A also provided a calibrated 2-sigma date of AD 1480 to 1650. While the upper boundaries of Stratum II, in both T-020 and T-020A, appear to be disturbed or reworked with historic debris, the lower portions which contain the *imu* pit feature (SIHP # 50-80-14-7425) are likely pre-Contact deposits.

Background research and historic maps indicate that the coastal environs of Kalihi Ahupua‘a consisted of a mix of marine resource cultivation, occasional houses, and farm land. The presence of this subsurface *imu* pit may be an indicator of a permanent or temporary habitation site. Based on the guidance of the National Register Bulletin No.15, this archaeological cultural resource retains its integrity of location, design, materials, and workmanship. This cultural resource has provided, and could potentially provide additional, information regarding the style and use of pre-Contact *imu* pits. The *imu* is also an indicator for the pre-Contact habitation of coastal Kalihi. The *imu* is buried and its surroundings have been completely altered by modern development since its time of construction and period of use. Accordingly, SIHP # -7425 does not maintain the integrity of setting, feeling, and association that might convey its significance under significance Criteria A, B, or C of the Hawai‘i or National Register. Based on 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) of the Hawai‘i Register and the National Register, exclusively for its information potential.

4.3.14 SIHP # 50-80-14-7426

FORMAL TYPE:	Buried Agricultural Sediments
FUNCTION:	Agriculture
AGE:	Pre- and post-Contact
DISTRIBUTION:	Approximately 2.47 acres (total area)
LOCATION:	Located along Dillingham Boulevard between Waiakamilo Road to near Ka‘ahi Street (East Kapālama Geographic Zone)
TAX MAP KEY:	[1] 1-5-015:008, [1] 1-5-017:006, [1] 1-5-020:003, and Plats 007, 015, 017, 020, and 022 (within current project area)
LAND JURISDICTION:	City and County of Honolulu, Bishop Estate, the University of Hawai‘i, and DTC Investments LLC (within current project area)

SIHP # 50-80-14-7426 is a wetland surface containing agricultural sediments that spans most of the East Kapālama Geographic Zone (Test Excavations 54 to 85) (Figure 201). This archaeological cultural resource was identified during the City Center AIS. The cultural resource extends approximately 2.47 acres within the City Center project area, and is bounded in the east and west by a Pleistocene shelf. The total extent of these wetland agricultural sediments is largely unknown. Similar deposits were documented by Pammer and Monahan (2011) and Tulchin and Hammatt (2013).

In 2011, Cultural Surveys Hawai‘i completed a limited subsurface testing program (Pammer and Monahan 2011) for the Kapālama Shopping Center Redevelopment Project (see Figure 201). During this study Pammer and Monahan (2011:97) documented “natural *lo‘i* (taro patch) sediments” in five test excavations at depths ranging between 1.85 to 2.40 mbs, with an average upper boundary of 2.03 mbs. These deposits were represented primarily by “very dark terrestrial clays” containing decomposing organic material , typical of sediment that has been modified by agricultural activity. (Pammer and Monahan 2011:97-98).

Similar deposits were observed north of the City Center project area during current subsurface testing for Kamehameha Schools (see Figure 201) (Tulchin and Hammatt 2013). Sediments consisted primarily of dark alluvial clays observed at depths ranging from 0.50 to 2.70 mbs, with an average upper boundary of 1.49 mbs. Tulchin and Hammatt (2013:77, 84) describe these deposits as a “former land surface consisting of wetlands which, based on historic research, were utilized by pre-Contact Hawaiians for the cultivation of taro and then utilized by post-Contact populations for the cultivation of rice.” Tulchin and Hammatt’s (2013) subsurface testing also revealed a limestone bedrock ridge northwest of the documented wetland deposits. The presence of historic trash, charcoal, fire-cracked rock, and shell midden in the natural sediments suggest this low ridge may represent “an area in which pre- to post-Contact cultural deposits associated with traditional Hawaiian and western influenced habitation may be present (Tulchin and Hammatt 2013:77).”

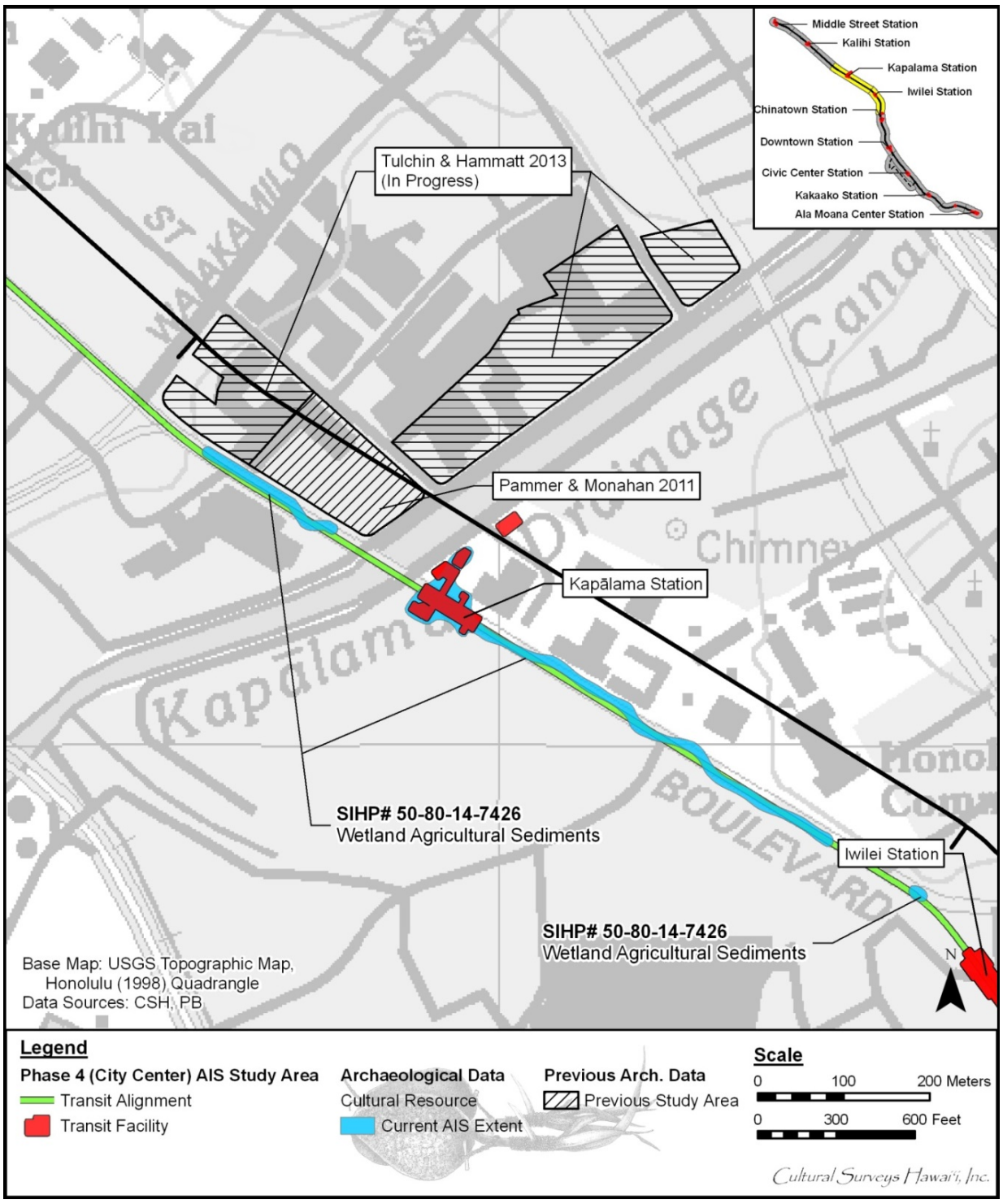

Figure 201. Location of the subsurface wetland deposits (SIHP # 50-80-14-7426) and previous archaeological studies in the East Kapālama Geographic Zone (Base Map: USGS 1998 Topographic Map of Honolulu Quadrangle)

The raised ridge documented by Tulchin and Hammatt (2013) is likely part of a Pleistocene limestone shelf that is exposed at either end of the East Kapālama Geographic Zone (Figure 202). Accordingly, the recommended wetland surface (SIHP # 50-80-14-7426) is bounded in the east and west by this Pleistocene shelf. Wetland sediments were not observed during the City Center AIS in T-083 and T-084, presumably because these test excavations are located on the eastern portion of this shelf, which bisects a section of the transit alignment (see Figure 202). According to the 1914 Sanborn Fire Insurance Map (Figure 203), T-085 is located within the middle of an unnamed pond that is located south of the Pleistocene shelf. Despite its apparent location in a former pond, the observed stratigraphy within T-085 is consistent with the wetland deposits observed throughout the East Kapālama Geographic Zone. T-085 is, therefore, included in the recommended wetland cultural resource (SIHP # 50-80-14-7426).

All of the documented wetland agricultural deposits within the vicinity of the East Kapālama Zone are located beneath imported fill layers (Figure 204, Figure 205, Figure 206, and Table 29). Based on background research, these fill layers are likely associated with land reclamation activities during the early- to mid-twentieth century when the former wetland surface was presumably filled in for urban development. The wetland sediments generally consist of clay and clay loam. These deposits appear to be related to agricultural activity. Several defining characteristics of these wetland agricultural deposits are the presence of marine invertebrates, land snails, and a high percentage of organic material, including peat. The overall extent of the recommended cultural resource is largely unknown. During the current City Center AIS , CHS documented approximately 2.47 acres of wetland agricultural deposits that are consistent with the sediments described by Pammer and Monahan (2011) and Tulchin and Hammatt (2013).

The subsurface wetland sediments observed within the East Kapālama Zone consist primarily of very dark gray to black clays and silty clays containing fine roots, decomposing organics, and shells (Figure 207 and Figure 208). The composition of these sediments is consistent with taro and/or rice cultivation. These sediments were documented at depths ranging from 1.10 to 2.45 mbs, with an average upper boundary of 1.46 mbs. A single glass medicine bottle (Acc. # 060-A-1) was collected from the former wetland surface in T-060 (Figure 209). The medicine bottle was manufactured for a drug store in Manila, Philippines which was open in the 1930s, and possibly earlier.

Snail shells were identified in T-057, T-075, and T-078. The presence of an estuarine, strandline, and shoreline-dwelling species (*A. parvula*), is consistent with a coastal location (Figure 210). A fresh or brackish water environment was present with the presence of *M. tuberculata* indicating permanent water (Figure 211). The presence of truly terrestrial mollusks (*H. minuscula* and *B. similaris*) suggests these specimens may have been washed in from adjacent dry land localities (Figure 212 and Figure 213). The presence of historically introduced alien species (*L. viridis* and *H. minuscula*) indicates that two of the samples (from T-057 and T-078) date to the historic period (or were subject to contamination from more recent sediments) and would be consistent with mid- to late-nineteenth century (or later) rice cultivation (see Figure 213 and Figure 214).

Pollen analysis on six column samples (T-067 Sample No. 1, 2, 3 and T-080 Sample No. 1, 4, 6) indicates that the East Kapālama Zone and adjacent areas formerly consisted of a wetland

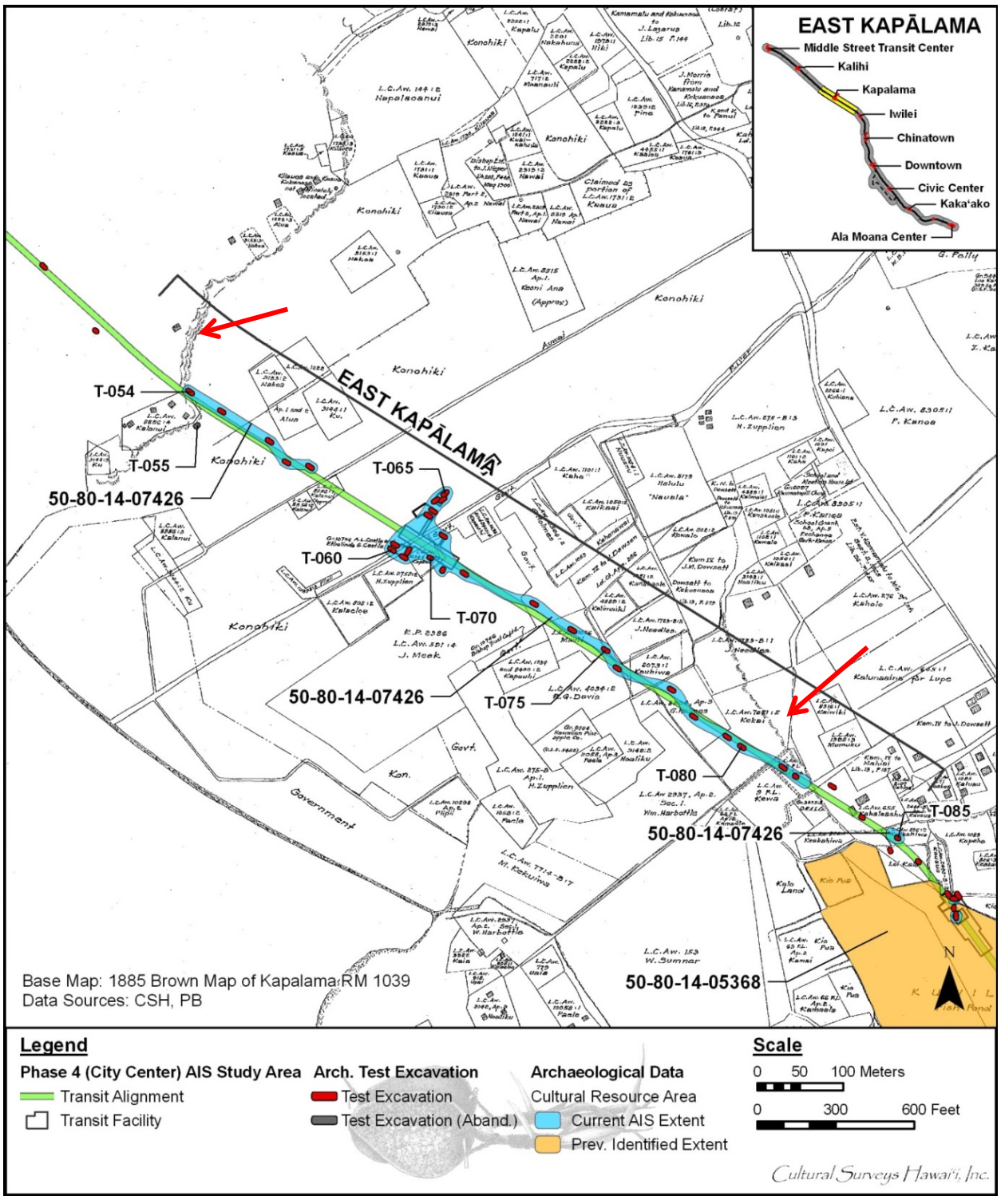

Figure 202. 1885 map of Kapālama by J. F. Brown (RM 1039), depicting the Pleistocene shelf (red arrows) in the east and west boundaries of the East Kapālama Geographic Zone

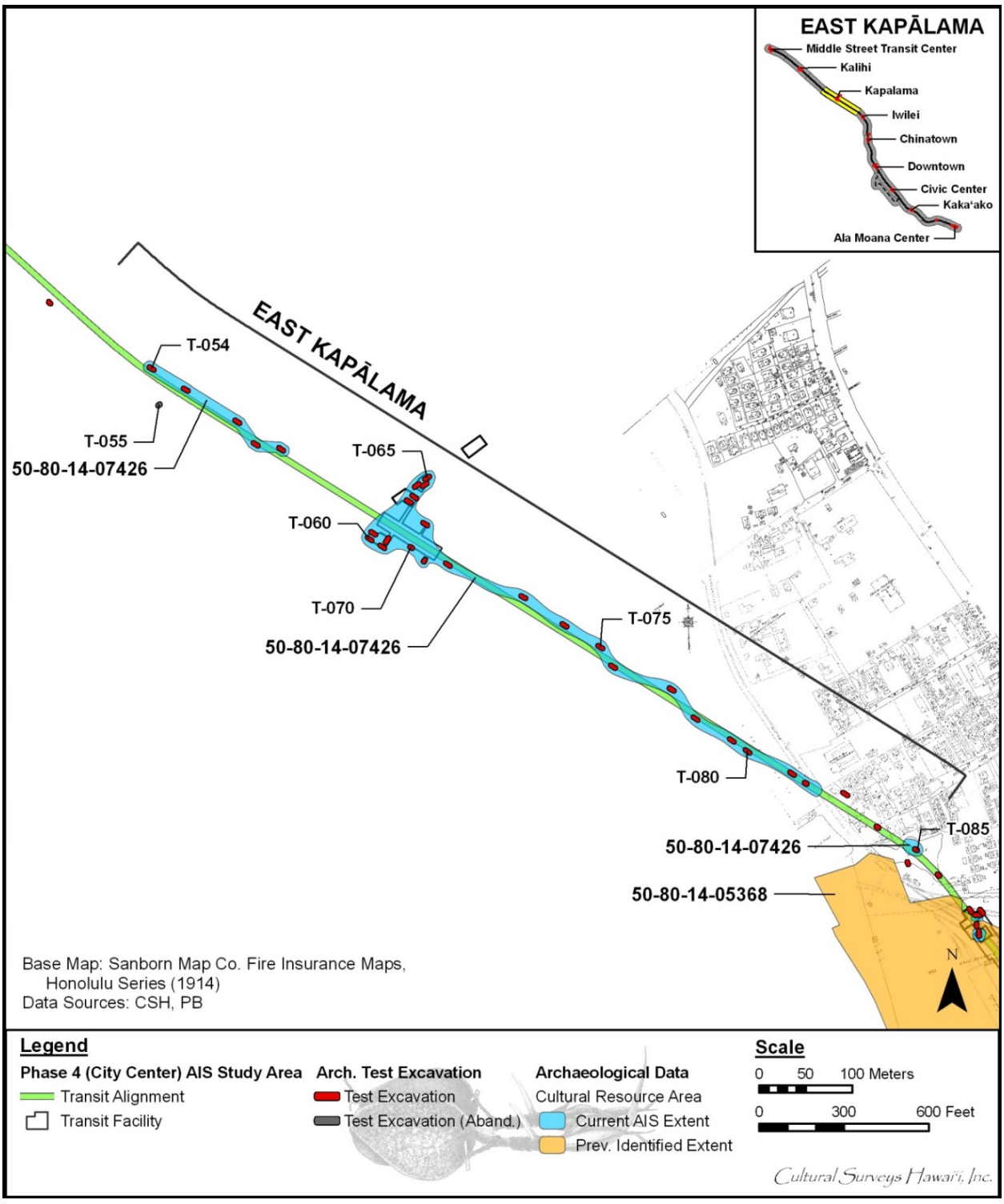

Figure 203. 1914 Sanborn Series map showing the unnamed pond in the vicinity of T-085

Figure 204. Northwest profile of T-067 depicting two imported fill layers overlying the wetland agricultural sediments (Stratum II)

Figure 205. Southeast profile of T-068 depicting several imported fill deposits overlying the natural wetland agricultural sediments (Strata IIa and IIb)

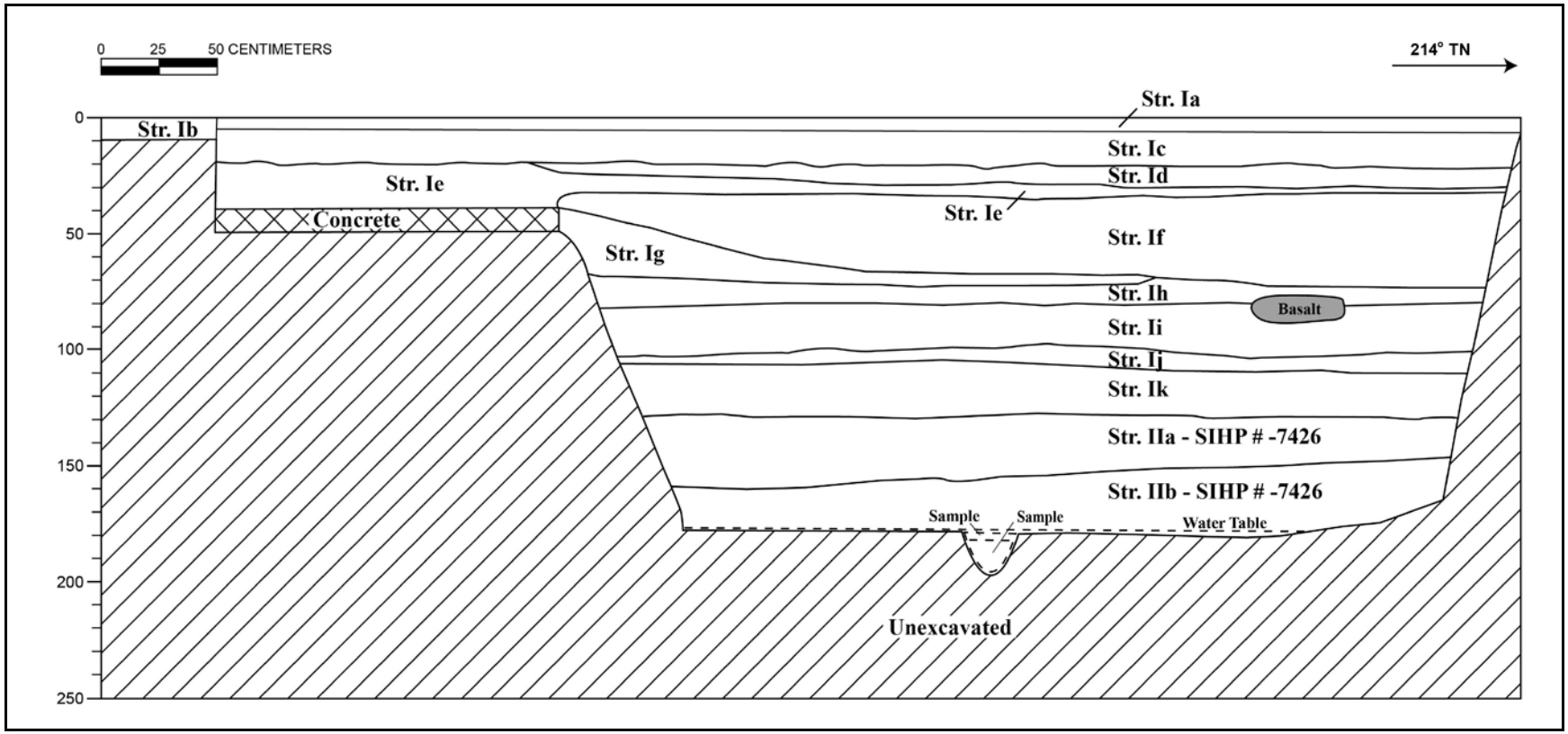

Figure 206. Profile drawing of the southeast wall in T-068 depicting several imported fill deposits overlying the natural wetland agricultural sediments (Strata IIa and IIb)

Table 29. Stratigraphic description of the southeast profile in T-068

Stratum	Depth (cmbs)	Description
Ia	0-6	Fill; 10 YR 2/1 (black); asphalt; structureless, massive; dry, extremely hard, indurated consistency; non-plastic; terrigenous origin; very abrupt, smooth lower boundary; surface pavement for parking lot
Ib	0-10	Fill; 10 YR 2/2 (very dark brown); silty loam; structureless, single-grain; moist, very friable consistency; slightly plastic; terrigenous origin; very abrupt, broken/discontinuous lower boundary; many, very fine to fine roots
Ic	6-20	Fill; 10 YR 4/2(dark grayish brown); extremely gravelly sandy loam; structureless, single-grain; dry, loose; slightly plastic; very abrupt, smooth lower boundary; basalt gravel base course
Id	20-40	Fill; 10 YR 4/3 (brown); sandy clay loam; structureless, single-grain; moist, friable to firm consistency; slightly plastic; mixed origin; very abrupt, broken/discontinuous lower boundary; contained very coarse sand, coral and basalt gravel overlying (Id)
Ie	20-35	Fill; 10 YR 8/2 (very pale brown); extremely cobbly sandy loam; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; crushed coral
If	32-74	Fill; 5 YR 3/3 (dark reddish brown); extremely gravelly to cobbly loam; structureless, single-grain; moist, very friable consistency; slightly plastic; very abrupt, smooth lower boundary; contained basalt gravel and cobbles, coral gravel or coral flecking
Ig	40-73	Fill; 10 YR 6/3 (pale brown); medium grain sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; very abrupt, broken/discontinuous lower boundary
Ih	68-84	Fill; 10 YR 7/3 (very pale brown); very sandy gravel; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; crushed coral, contained part of a basalt stone
Ii	80-92	Fill; Gley 1 10Y (greenish black); silty clay; structureless, massive; moist, firm; plastic; terrigenous origin; very abrupt, broken/discontinuous lower boundary; contained part of basalt stone
Ij	97-110	Fill; 10 YR 2/2 (very dark brown); loam; weak, fine, platy structure; moist, very friable consistency; plastic; terrigenous origin; very abrupt, smooth lower boundary; many, very fine roots
Ik	104-130	Fill; 10 YR 5/4 (yellowish brown) with common, very fine mottles of 10 YR 6/6 (brownish yellow); gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; crushed coral fill
IIa	130-160	Natural; 10 YR 4/1 (dark gray) silty clay; with few, fine mottles of 10 YR 3/3 (dark brown); weak, fine, prismatic structure; wet, sticky consistency; very plastic; terrigenous origin; diffuse, smooth lower boundary; few, very fine roots; contained organics. Associated with SIHP # -7426
IIb	145-195	Natural; Gley 1 3N (very dark gray); silty clay; structureless, massive; very sticky consistency; very plastic; terrigenous origin; lower boundary not visible. Associated with SIHP # -7426

Figure 207. Subsurface wetland agricultural sediments (Stratum II) observed in T-062

Figure 208. Subsurface wetland agricultural sediments (Stratum II) observed in T-065

Figure 209. A medicine bottle (Acc. # 060-A-1), dated to the 1930s, that was collected from the subsurface wetland sediments in T-060.

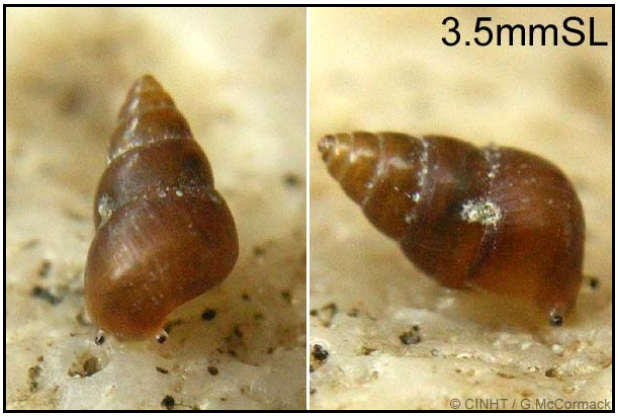

Figure 210. *Assiminea parvula*, semi-amphibious mollusk (Photo credit: McCormack, G. 2007)

Figure 211. *Melanoides tuberculata*, fresh/brackish water species (Photo credit: Poppe, G. and P. Poppe 2013)

Figure 212. *Hawaiia minuscula*, terrestrial mollusk (Photo credit: Poppe, G. and P. Poppe 2013)

Figure 213. *Bradybaena similaris*, terrestrial mollusk (Photo credit: Poppe, G. and P. Poppe 2013)

Figure 214. An example of a gastropod from the Lymnaea family (photo of *Lymnaea viridis* not available (Photo credit: Poppe, G. and P. Poppe 2013)

environment that may have been modified for agriculture. Cyperaceae pollen was dominant in the T-067 samples, suggesting that this location was a well-developed wetland with a large sedge population. Small quantities of *Vigna sinensis* (cowpea) pollen may indicate that the area was used for the cultivation of these edible beans. The pollen record also included significant quantities of *Oryza*-type pollen, indicating that rice fields were probably located in this wetland environment. Charred grass pollens (Poaceae) may represent the burning of rice or sugar cane fields in the vicinity. Non-agricultural wetland vegetation included cattails (*Typha angustifolia*) and an abundance of ferns.

The pollen record from T-080 is also indicative of a wetland environment dominated by sedges and a variety of marsh grasses (Poaceae). Cattails (*Typha*), a variety of endemic vine (*Sicyos*), and an array of ferns made up the local vegetation of the marsh. Coconut (*Cocos nucifera*) and either sugarcane or *pili* grass (Poaceae) grew in the vicinity, while *‘āheahea* shrubs probably grew in the drier areas of the landscape. The presence of *honohono* (*Commelina*), a non-native plant that flourishes in disturbed areas such as agricultural fields, provides a possible date of mid-to late- nineteenth century or later for the middle sample (Sample 4). The uppermost sample from this test excavation contained *Colocasia* pollen, suggesting that this portion of the wetland was used in more recent times for taro cultivation. *Kiawe* (*Prosopis*) pollen in the upper two samples supports a historic date for the agricultural activity in this wetland environment. The quantities of microscopic charcoal in the samples also appear to increase through time, perhaps indicating the burning of agriculture fields.

Macro remains from several wetland samples from T-068, T-073, and T-076 included *Ruppia maritima* seeds, indicating that this variety of sea grass was part of the aquatic vegetation. The seeds were collected from depths ranging between 1.30 and 1.91 mbs, with an average upper depth of 1.63 mbs. This sea grass was also documented in the pollen record from the sedge wetlands in Waikiki (SIHP # -6636) (Morriss et al. 2013).

Taxa identification on charcoal fragments collected from wetland deposits along Dillingham Boulevard (T-075 and T-078) identified a mix of native and introduced trees. T-075 contained fragments of *naio*, *‘ōhi‘a lehua*, and conifer trees, while the T-078 fragments consisted of *‘ōhi‘a lehua*, *niu* or coconut, and conifer trees. The presence of conifer in the wetland sediment from both trenches may be indicative that the wetland surface, or at least the uppermost portion of it, dates to the historic period. Conifer (Pinaceae) trees are wind-pollinated and their pollen is very resilient and can travel long distances. The virtual absence of Pinaceae in the pollen record indicates that these trees were not part of the local vegetation.

Background research and historic maps indicate that the coastal environs of Kapālama Ahupua‘a formerly consisted of low-lying wetlands, agricultural fields (*lo‘i*), and fishponds. The current investigation in the East Kapālama Geographic Zone has confirmed the presence of the former wetland surface, and provided paleoenvironmental data about the pre-historic and historic landscape and its modification for the cultivation of rice, taro, and possibly cow peas. Preliminary laboratory results (i.e. pollen, macro remains, charcoal taxa identification, and EDXRF analysis) from the current investigation indicate that these wetland deposits yield a high potential for future environmental and land use/modification studies.

Based on the guidance of the National Register Bulletin No.15, this archaeological cultural resource retains its integrity of location and materials. This cultural resource has provided, and

could potentially provide additional, information regarding the geographic distribution/extent, paleoenvironment, and cultural modification of the pre- and post-Contact wetlands of coastal Kapālama. The wetland agricultural sediments are buried and their surroundings have been completely altered by modern development since their period of use. Accordingly, SIHP # -7426 does not maintain the integrity of setting, feeling, and association that might convey its significance under significance Criteria A, B, or C of the Hawai‘i or National Register. Based on 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) of the Hawai‘i and the National Registers, exclusively for its information potential.

4.3.15 SIHP # 50-80-14-7427

FORMAL TYPE:	Buried historic building foundations, culturally enriched sediments, and one isolated human skeletal remain
FUNCTION:	Habitation and commerce
AGE:	Pre- and post-Contact
NO. FEATURES	16
DISTRIBUTION:	Approximately 0.25 acres (total area)
LOCATION:	Located at the corner of Nimitz Highway and Kekaulike Street intersection (Downtown Waterfront Geographic Zone)
TAX MAP KEY:	[1] 1-5-002: 026
LAND JURISDICTION:	902 Partners LLC

SIHP # 50-80-14-7427 consists of a collection of 16 subsurface features associated with the historic Honolulu waterfront. The recommended cultural resource is located 3 m *mauka* of Nimitz Highway near the Kekaulike Street intersection (see Figure 215 and Figure 216). The total extent of this recommended subsurface cultural resource is largely unknown. Based on the results of the City Center AIS, SIHP # -7427 extends 0.25 acres within the City Center project area.

During a 1992 data recovery program (Landrum and Dixon) at the corner of River Street and Nimitz Highway, a subsurface cultural deposit (SIHP # 50-80-14-4192) was discovered. The cultural resource consists of a single pre-Contact human burial, as well as four refuse pits and one brick and mortar building foundation (Landrum and Dixon 1992:17, 27). The numerous artifacts discovered within the refuse pits were deposited between the 1840s and 1920s (Landrum and Dixon 1992:25). The pre-Contact burial was found within inundated marsh sediments, which preserved some soft-tissue remains, as well as burial goods consisting of braided cordage and matted *pandanus.* The subsurface deposits documented by Landrum and Dixon (1992) are consistent with the historic building foundations and refuse pit that were identified during the City Center AIS.

Sixteen subsurface archaeological features (SIHP # -7427) were discovered during the current AIS in Test Excavations 96 through 101. Based on the results of the current investigation, the recommended cultural resource extends approximately 0.25 acres within the City Center project area. The archaeological features of SIHP # -7427 consist of buried historic-era building foundations, culturally enriched sediments, a historic refuse pit, and one isolated human bone (Table 30). These features are discussed in further detail below:

Feature 1 A portion of a red brick wall with an underlying concrete and basalt boulder foundation in T-096. This feature may be a remnant foundation for the City Mill Company facilities seen in a 1914 Sanborn fire insurance map (Figure 217).

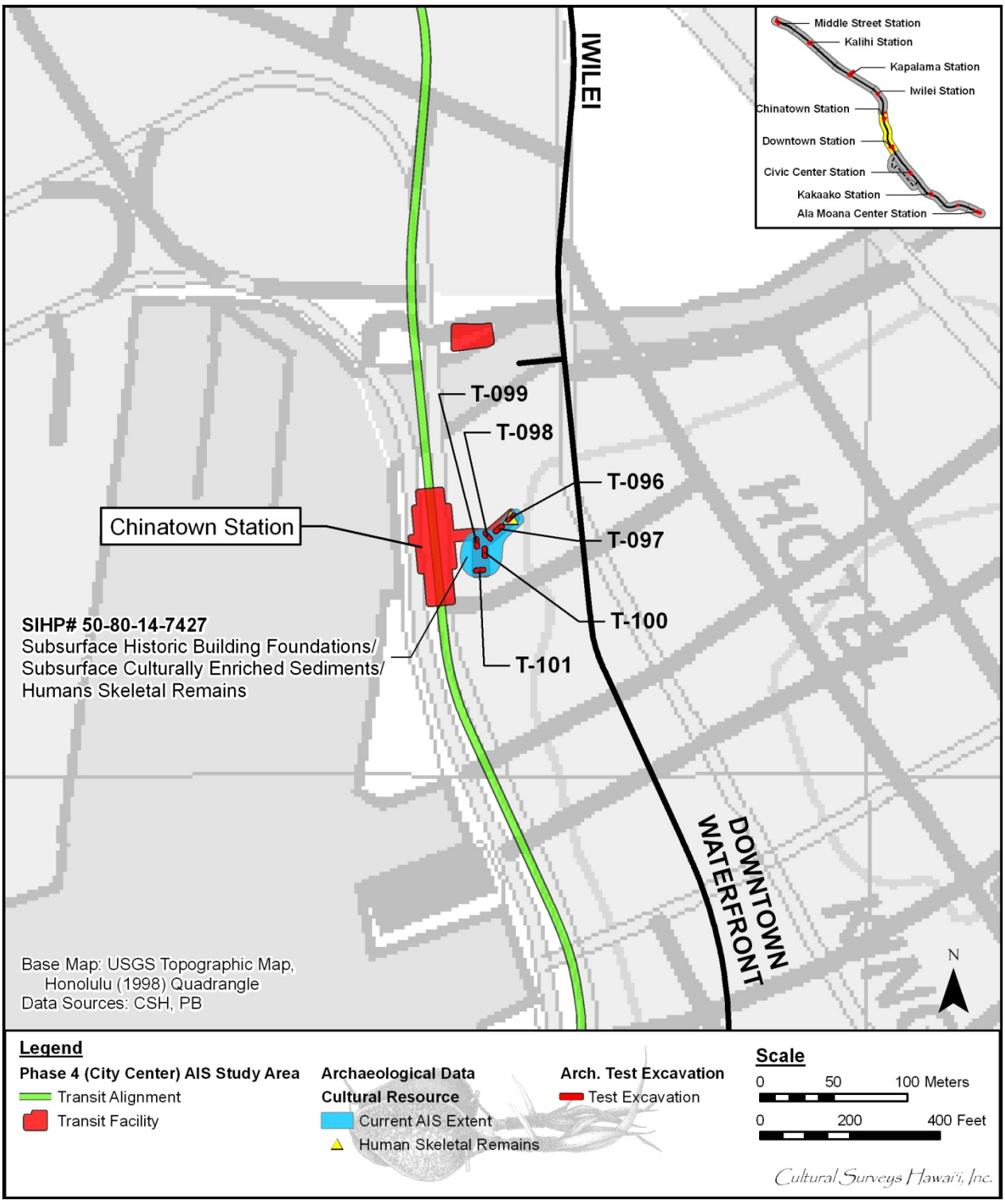

Figure 215. Location of the subsurface cultural deposits (SIHP # 50-80-14-7427) located in the vicinity of the Chinatown Transit Station (Base Map: 1998 USGS Topographic Map of Honolulu)

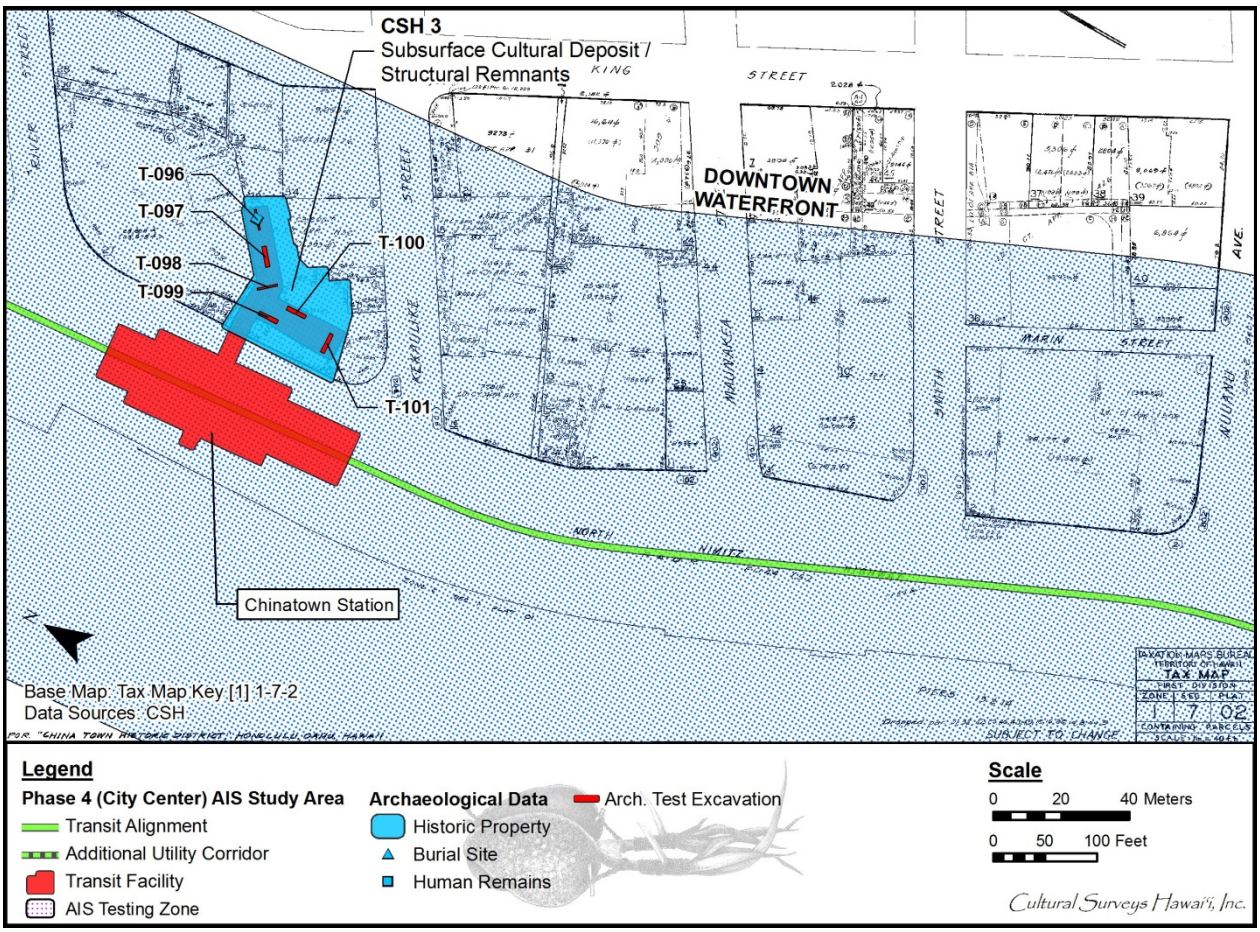

Figure 216. Location of the subsurface cultural deposits (SIHP # 50-80-14-7427) located in the vicinity of the Chinatown Transit Station (Base Map: Tax Map Key [1] 1-7-2)

Table 30. Features of SIHP # 50-80-14-7427

SIHP Feature	Test Excavation	Depth (cmbs)	Description
1	T-096	27-110	Possible building foundation. Consists of two courses of mortared red brick overlying and secured to a concrete pad or foundation. Measured more than 1.4 m long by more than 0.15 m wide.
2	T-096	27-43	Possible building foundation. Consists of a concrete slab
3	T-096	115-135	Culturally enriched fill material containing primarily historic debris (faunal bone fragments, burnt and rusted metal fragments, glass fragments, ceramic fragments and slag).
4	T-096	70	Single human talus bone.
5	T-097	55-100	Possible building foundation. Consists of red brick and mortar wall overlying a concrete slab. Measured 0.91 m long by more than 0.20 m wide.
6	T-097	50-65	Possible building foundation. Consists of concrete slab that abuts Feature 5. Measured 3.23 m long by more that 1.22 m wide.
7	T-097	90-136	Possible building foundation. Consists of concrete slab underlying Feature 5. Measured 1.47 m long by more than 1.22 m wide.
8	T-097	80-143	Possible building foundation. Consists of stacked basalt cobbles overlying a fragment of concrete slab. Measured more than 0.87 m long by more than 1.22 m wide.
9	T-098	45-105	Possible building foundation. Consists of a concrete slab and an adjacent concrete structure. Measured 2.70 m long by more that 0.62 m wide.
10	T-099	5-46	Possible building foundation. Consists of a concrete block overlying a composite slab composed of tile and concrete. Measured more than 6.10 m long by more than 1.22 m wide.
11	T-100	19-28	Possible building foundation. Consists of concrete slab. Measured more than 2.74 m long by more than 1.24 m wide.
12	T-100	24-50	Possible building foundation. Consists of concrete drainage channel. Measured more than 0.08 m long by more than 1.24 m wide.
13	T-100	55-60	Possible building foundation. Mortared and cut basalt stone slab. Measured more than 0.29 m long by more than 0.26 m wide.

SIHP Feature	Test Excavation	Depth (cmbs)	Description
14	T-101	15-28	Possible building foundation. Consists of concrete slab. Measured more than 1.80 m long by more than 1.20 m wide.
15	T-101	50-127	A historic refuse pit. Measured 2.91 m long by more than 1.20 m wide.
16	T-096, T-097, T-098, T-099, T-100, T-101	ca. 121-186	Culturally enriched and/or potentially reworked natural sediment containing primarily charcoal, marine shell midden, and faunal bone

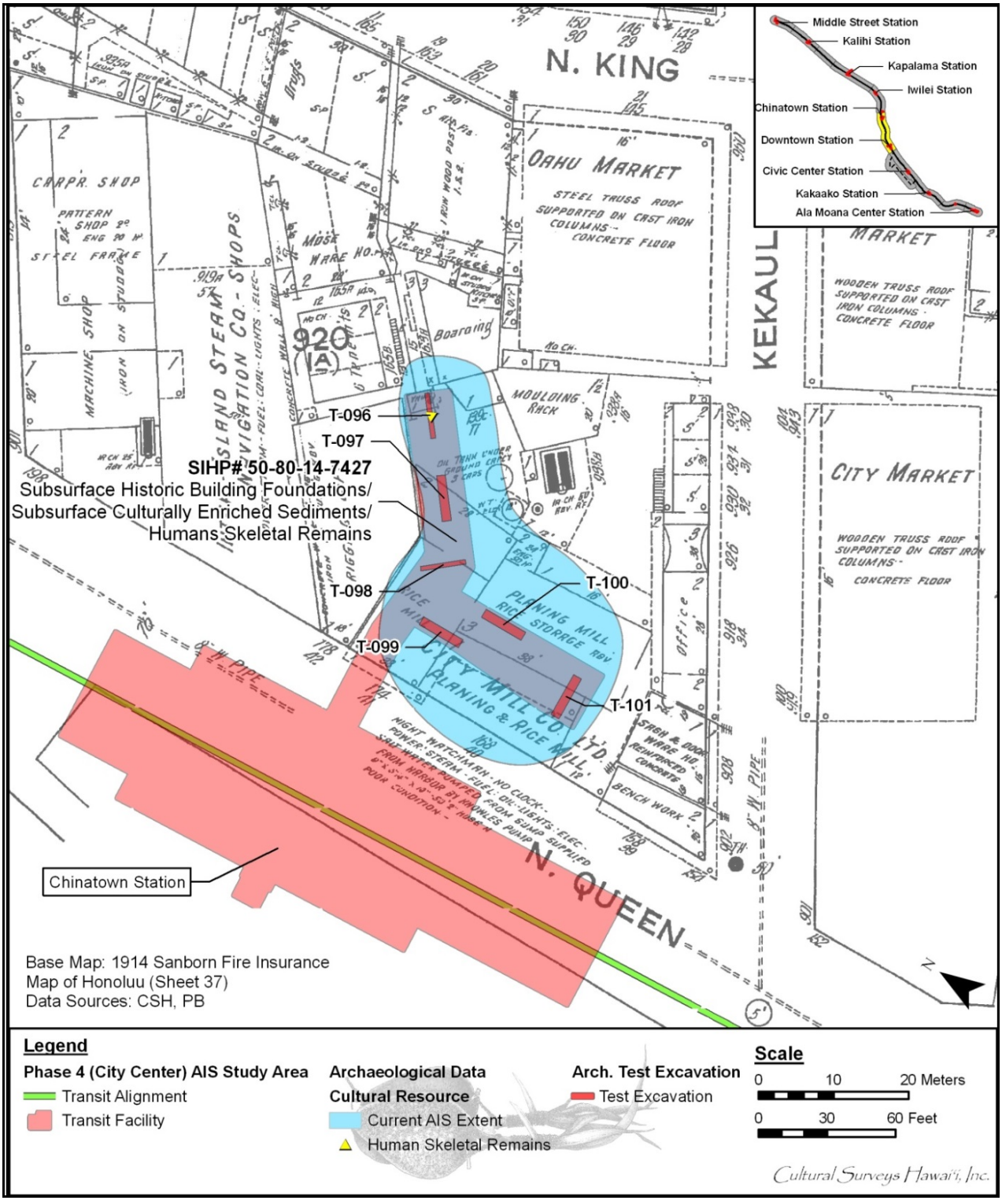

Figure 217. Portion of 1914 Sanborn Fire Insurance Map of Honolulu depicting the locations of T-096 to T-101

Feature 2 A concrete slab in T-096. Historic building materials (bricks and nails) were found in the surrounding sediment matrix (Stratum Id).These items date between the late-1800s and early-1900s. This feature may also be a remnant foundation or pavement for the City Mill Company facilities seen in a 1914 Sanborn fire insurance map (see Figure 217).

Feature 3 Culturally enriched fill material containing faunal bones (*Canis lupus familiaris, Sus scrofa, Bos taurus* and medium mammal skeletal elements), rusted metal, slag, ceramic shards, bottle glass fragments, and charred material in T-096 (based on test excavation results). A single piece of volcanic glass was collected from this feature. Energy-Dispersive X-ray Fluorescence (EDXRF) analysis indicates that the volcanic glass is from a local O‘ahu provenance. Collected bottle glass fragments from this feature are post-1800 and post-1870 and ceramic fragments (Asian type) are dated between the late-1800s and early-1900s.

Feature 4 A human talus bone that was discovered in an imported fill layer containing historic debris in T-096. The talus bone was an isolated find that does not appear to be in its primary context.

Feature 5 Red brick and mortar wall with underlying concrete slab in T-097. A machine-made brick dated between 1918 and 1978 and a post-1903 glass jar, were collected from the vicinity of Feature 5. This feature may be the remnant foundation of a Joss House shown on the 1891 and 1899 Dakin fire insurance maps (Figure 218 and Figure 219) Alternatively, these may be the remnant foundations for City Mill’s warehouse depicted on the 1906 Dakin fire insurance map (Figure 220), and on the 1914 Sanborn fire insurance map (see Figure 217). This building appears to be adjoined to the company’s Rice Mill.

Feature 6 A portion of a concrete slab underlying Feature 5 in T-097. This feature may be the remnant foundation or pavement for the Joss House shown on the 1891 and 1899 Dakin fire insurance maps (see Figure 218 and Figure 219) Alternatively, this slab may be the remnant foundations for City Mill’s warehouse depicted on the 1906 Dakin fire insurance map (see Figure 220), and on the 1914 Sanborn fire insurance map (see Figure 217). This building appears to be adjoined to the company’s Rice Mill.

Feature 7 A portion of a concrete slab in T-097. This feature may be the remnant foundation or pavement for the Joss House shown on the 1891 and 1899 Dakin fire insurance maps (see Figure 218 and Figure 219) Alternatively, this slab may be the remnant foundations for City Mill’s warehouse depicted on the 1906 Dakin fire insurance map (see Figure 220), and on the 1914 Sanborn fire insurance map (see Figure 217). This building appears to be adjoined to the company’s Rice Mill.

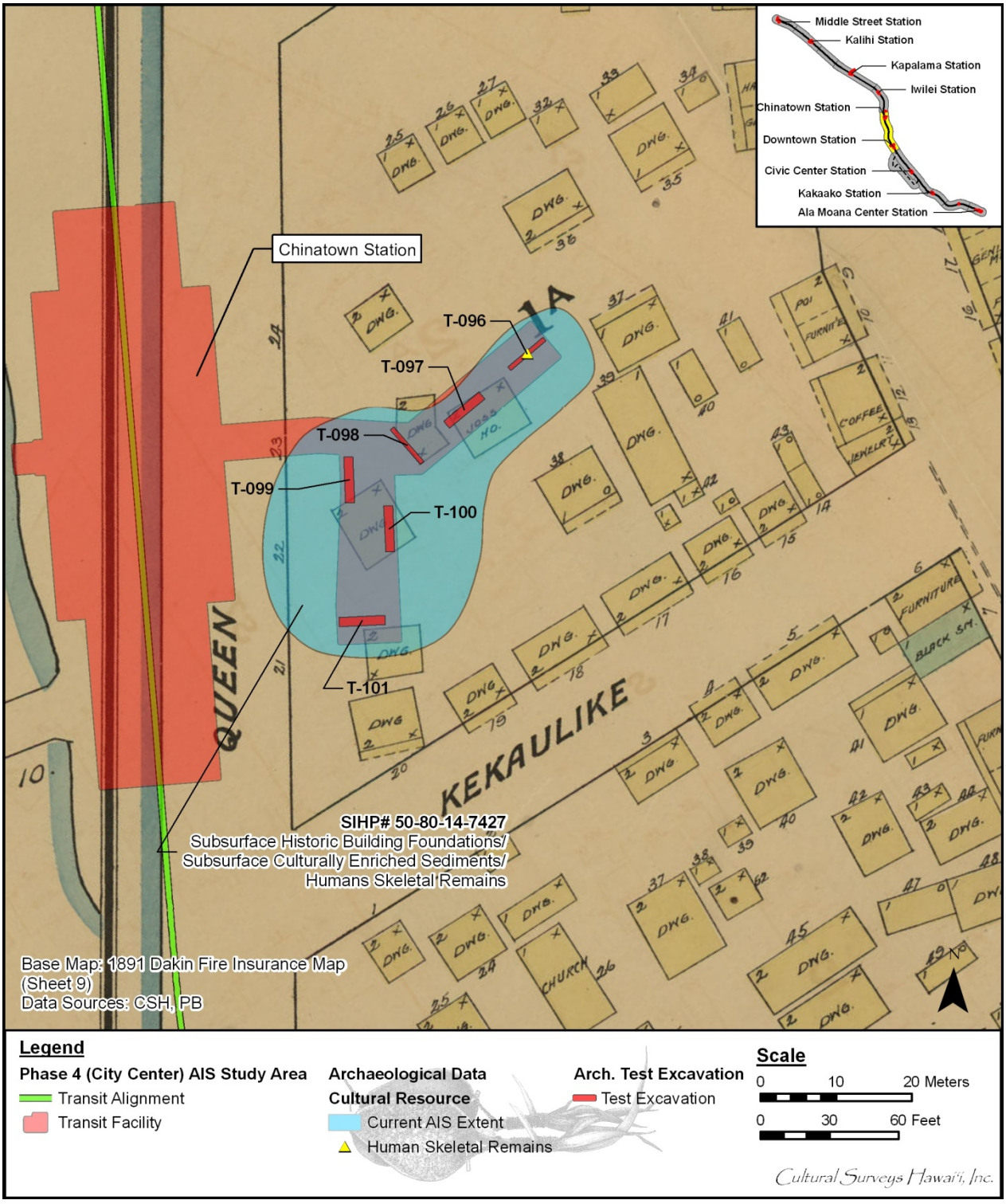

Figure 218. Portion of 1891 Dakin Fire Insurance Map of Honolulu depicting the locations of T-096 to T-101

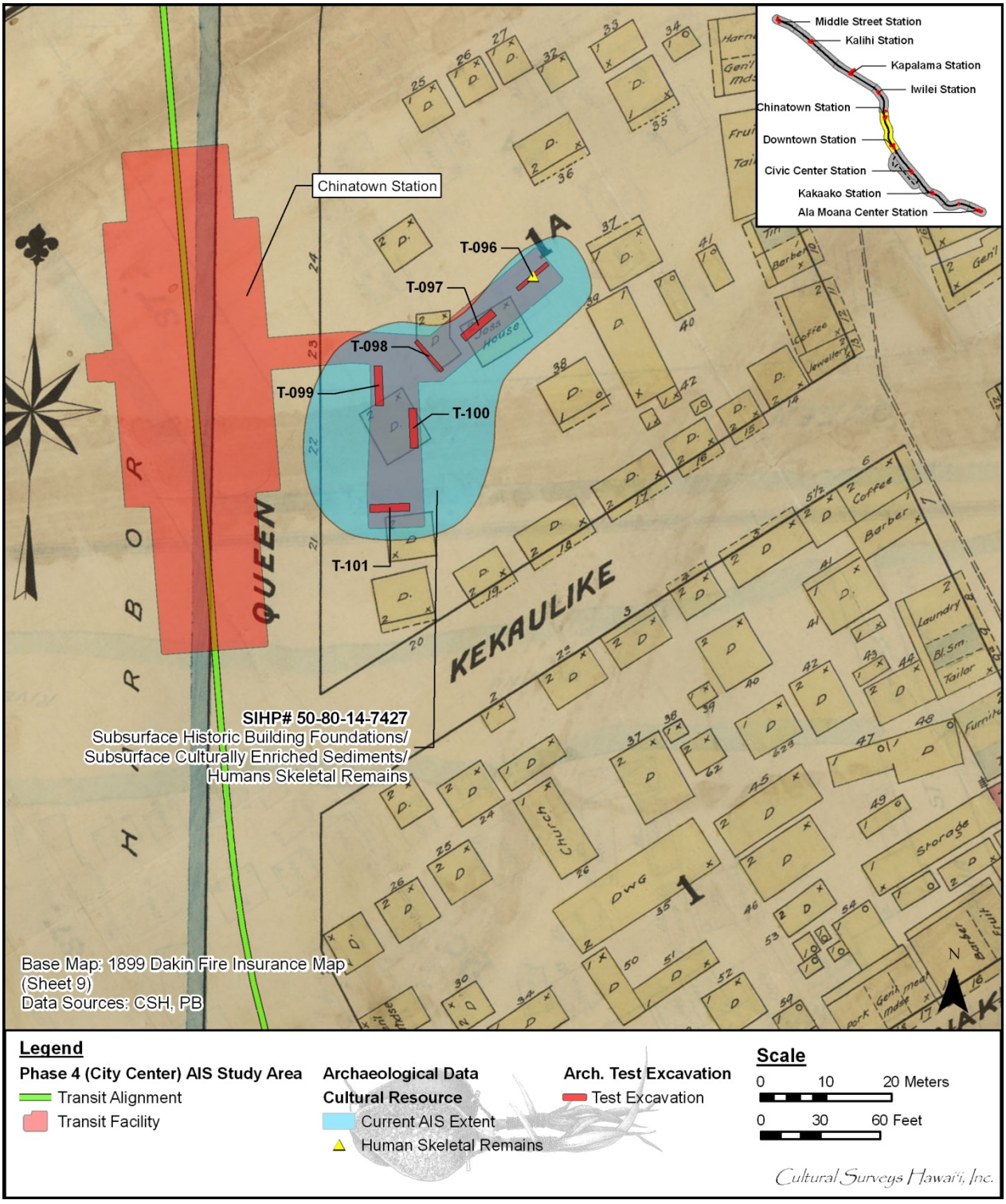

Figure 219. Portion of 1899 Dakin Fire Insurance Map of Honolulu depicting the locations of T-096 to T-101

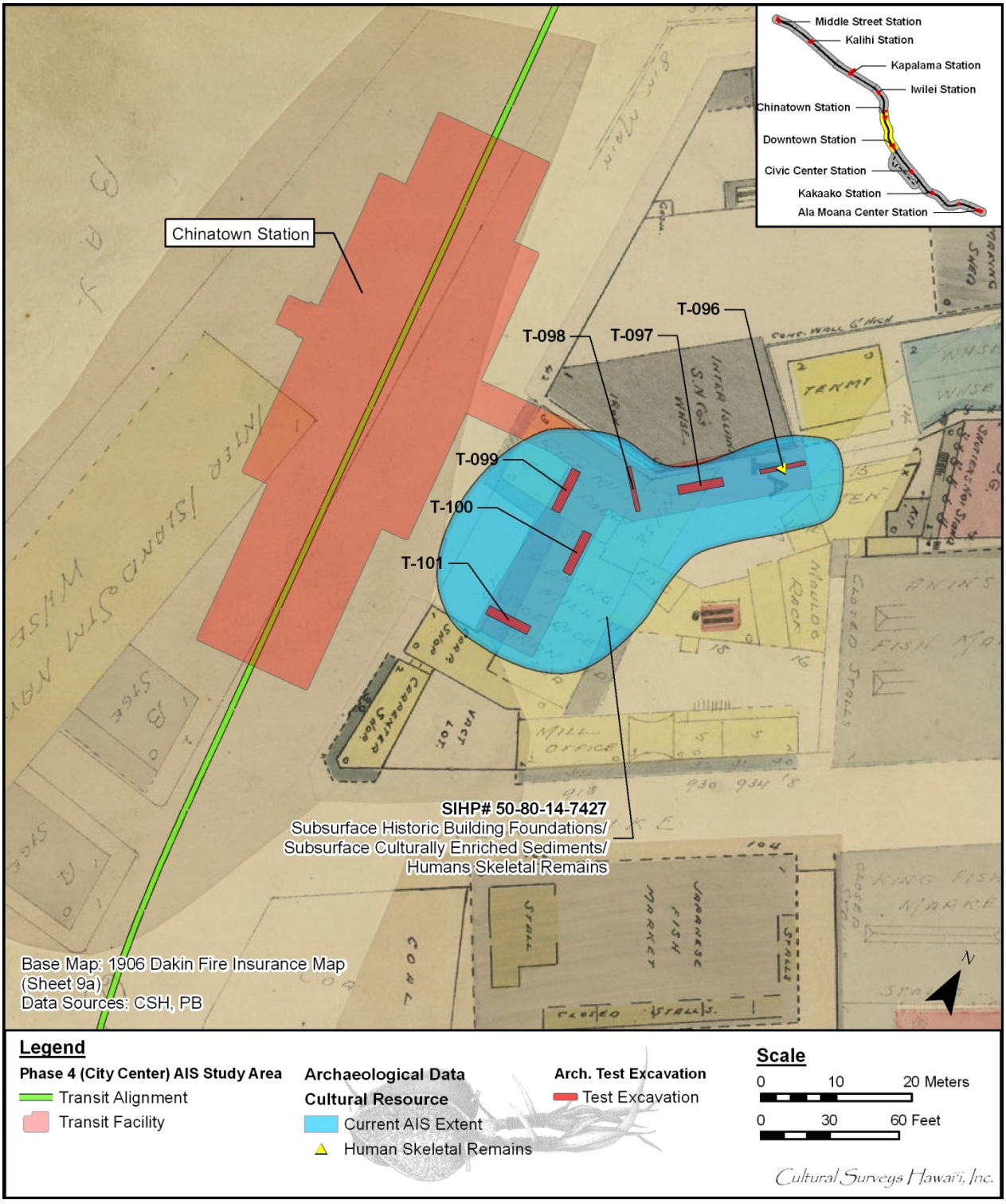

Figure 220. Portion of 1906 Dakin Fire Insurance Map of Honolulu depicting the locations of T-096 to T-101

Feature 8 Stacked basalt cobbles overlying a fragment of concrete slab in T-097. This feature may be the remnant foundation or pavement for the Joss House shown on the 1891 and 1899 Dakin fire insurance maps (see Figure 218 and Figure 219) Alternatively, this slab may be the remnant foundations for City Mill's warehouse depicted on the 1906 Dakin fire insurance map (see Figure 220), and on the 1914 Sanborn fire insurance map (see Figure 217). This building appears to be adjoined to the company's Rice Mill.

Feature 9 Two fragments of concrete slabs in T-098. These may be remnant foundations for the building depicted on the 1914 Sanborn fire insurance map (see Figure 2). Alternatively, they may be associated with City Mill's warehouse depicted on the 1906 Dakin fire insurance map (see Figure 220), and on the 1914 Sanborn fire insurance map (see Figure 217). This building appears to be adjoined to the company's Rice Mill.

Feature 10 A concrete block overlying a composite slab composed of tile and concrete in T-099. Several metal pipes were exposed underneath the southern portion of this feature. This feature may be a remnant foundation or pavement for City Mill's Rice Mill depicted on the 1914 Sanborn fire insurance map (see Figure 217), or with a Feed Warehouse shown on the 1950 Sanborn Fire Insurance map (Figure 221).

Feature 11 Portions of a concrete slab in T-100. One fragment of this slab has a metal post in the middle of it. This feature may be the remnants of a sidewalk or foundation associated with City Mill's Planning Mill/Rice Storage building depicted on the 1914 Sanborn fire insurance map (see Figure 217).

Feature 12 A portion of a concrete drainage channel in T-100. This feature may be associated with City Mill's Planning Mill/Rice Storage building depicted on the 1914 Sanborn fire insurance map (see Figure 217).

Feature 13 A mortared and cut basalt stone slab in T-100. This feature may have functioned as a cap or a lid. It may be related to City Mill's Planning Mill/Rice Storage building depicted on the 1914 Sanborn fire insurance map (see Figure 217).

Feature 14 A portion of a concrete slab in T-101. This feature may be the remnant pavement or foundation associated with City Mill's Rice Mill facilities depicted on the 1914 Sanborn fire insurance map (see Figure 217). Alternatively, this feature may be related to the Gym building shown on the 1950 Sanborn Fire Insurance map (see Figure 221).

Feature 15 A historic refuse pit containing faunal bone, bottle glass, red brick, ceramic shards, and metal fragments within a charred sediment matrix in T-101.Thirteen artifacts were collected from this pit feature. Four bottle glass fragments date between 1860 and the 1920s, two beer bottles date between 1885 and 1900 and between 1883 and 1896, and one ceramic cup (Asian-type) pre-dates 1921.

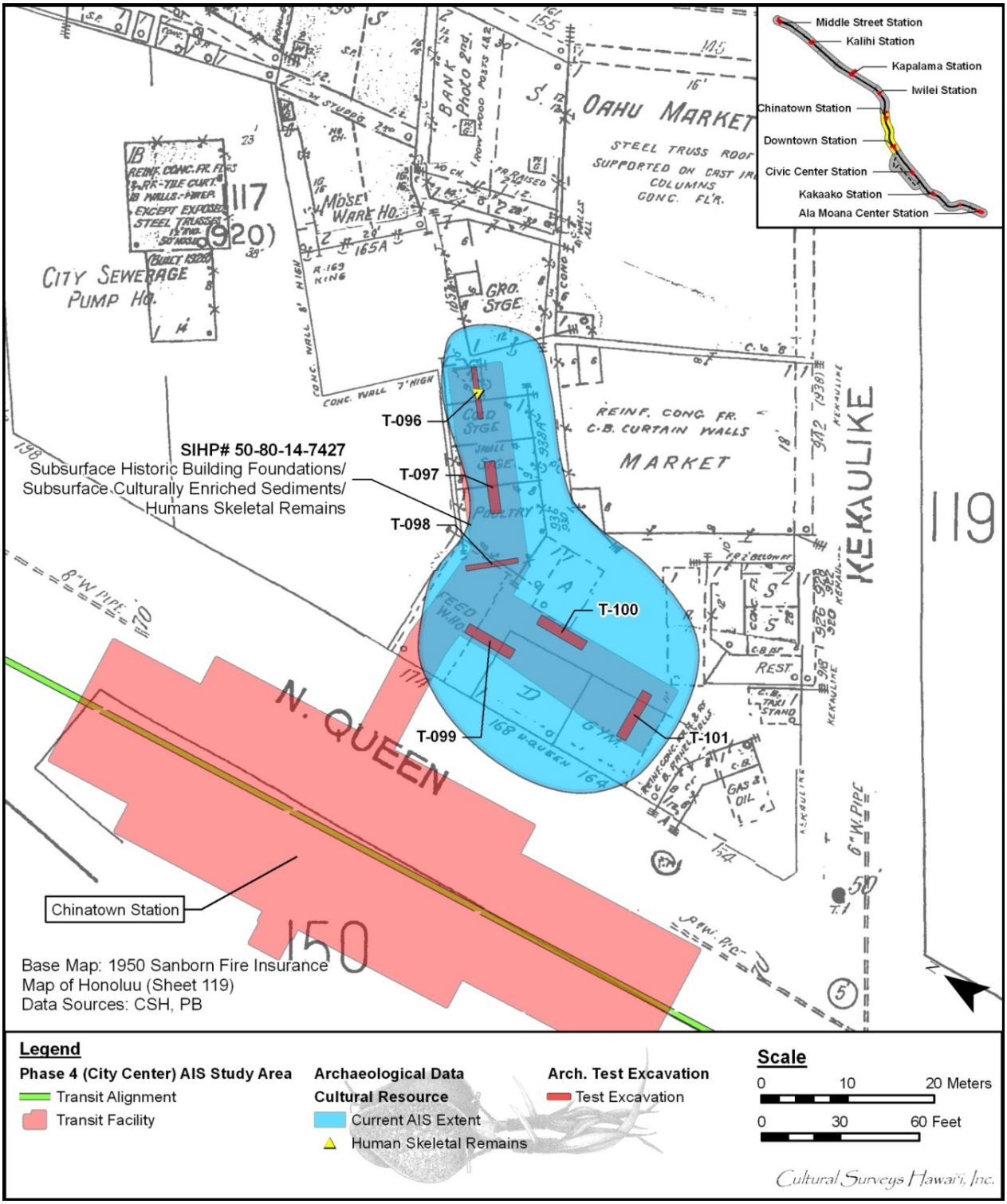

Figure 221. Portion of 1950 Sanborn Fire Insurance Map of Honolulu depicting the locations of T-096 to T-101

Feature 16 Culturally enriched and/or potentially reworked natural sediment, containing charcoal, faunal bone, and shell midden in T-096, T-097, T-098, T-099, T-100, and T-101 (based on boring and test excavation results)

Documentation of Test Excavations 98, 99 and 101 was limited by unstable sidewalls and the presence of utilities. In light of these limiting factors, and to ensure that these test areas were thoroughly examined for potential archaeological cultural resources, a total of two geotechnical bores were collected from three test excavations (T-098, T-099, and T-101) (Figure 222). The cores were collected from outside the test excavation boundaries, at either end. Each core was drilled in increments of 3 ft, and a total of 37 sediment samples were collected and described according to the U.S. Department of Agriculture (USDA) Soil Survey Designation and Munsell Color Book. Preliminary coring results identified four distinct strata (Figure 223, Figure 224, and Figure 225). Two strata consisting of culturally enriched sediment were identified between 0.90 to 1.53 mbs and 1.53 to 2.13 mbs. Based on their content and depths, these two strata appear to correspond with Feature 16 of SIHP # -7427 (Figure 226 and Table 31). Natural sediments containing a high organic content were encountered between the depths of 1.53 to 2.13 mbs and 2.13 to 2.75 mbs. Estuary sediments were located between the depths of 2.13 and 2.75 mbs. The coring results indicate that the sediments below Feature 16 are natural and do not contain cultural material.

At the time of Western contact, the area that comprises SIHP # -7427 was known as the settlement of Kou. Background research indicates that this coastal landscape consisted of house sites, agricultural fields, and gaming areas for the chiefs. The culturally enriched deposits (Feature 16) in the City Center study area, and the human burial identified by Landrum and Dixon (1992) may correspond to the pre- and/or early post-Contact settlement of Kou. Following the discovery of Honolulu Harbor in 1793 by Captain William Brown, Kou rapidly evolved into a bustling port town. As Honolulu became more populated throughout the twentieth century, the areas surrounding Honolulu Harbor became increasingly important for commercial construction, and major development ensued. According to historic maps and datable artifact assemblages, the majority of the features in this recommended cultural resource date between the mid- nineteenth and mid- twentieth centuries.

Twelve of the features that were identified during the current AIS are structural elements that appear to be remnant building foundations (Figure 227 through Figure 232). Background research and historic maps indicate that several buildings, including a Joss House, existed in the vicinity of the cultural resource during the 1890s (see Figure 218 and Figure 219). Features 9 through 13 are located in the footprints of two unidentified structures, while Features 5 through 8 are within the Joss House footprint. In mid-1899, City Mill, a lumber importing and rice milling business, was established on the corner of Queen and Kekaulike Streets (City Mill 2010). In response to the outbreak of the bubonic plague in late-1899, the Hawai‘i Board of Health ordered a series of ‘controlled’ fires to rid Chinatown of the disease. One such fire on January 20, 1900 quickly got out of control, and spread throughout Chinatown. City Mill was among the casualties.

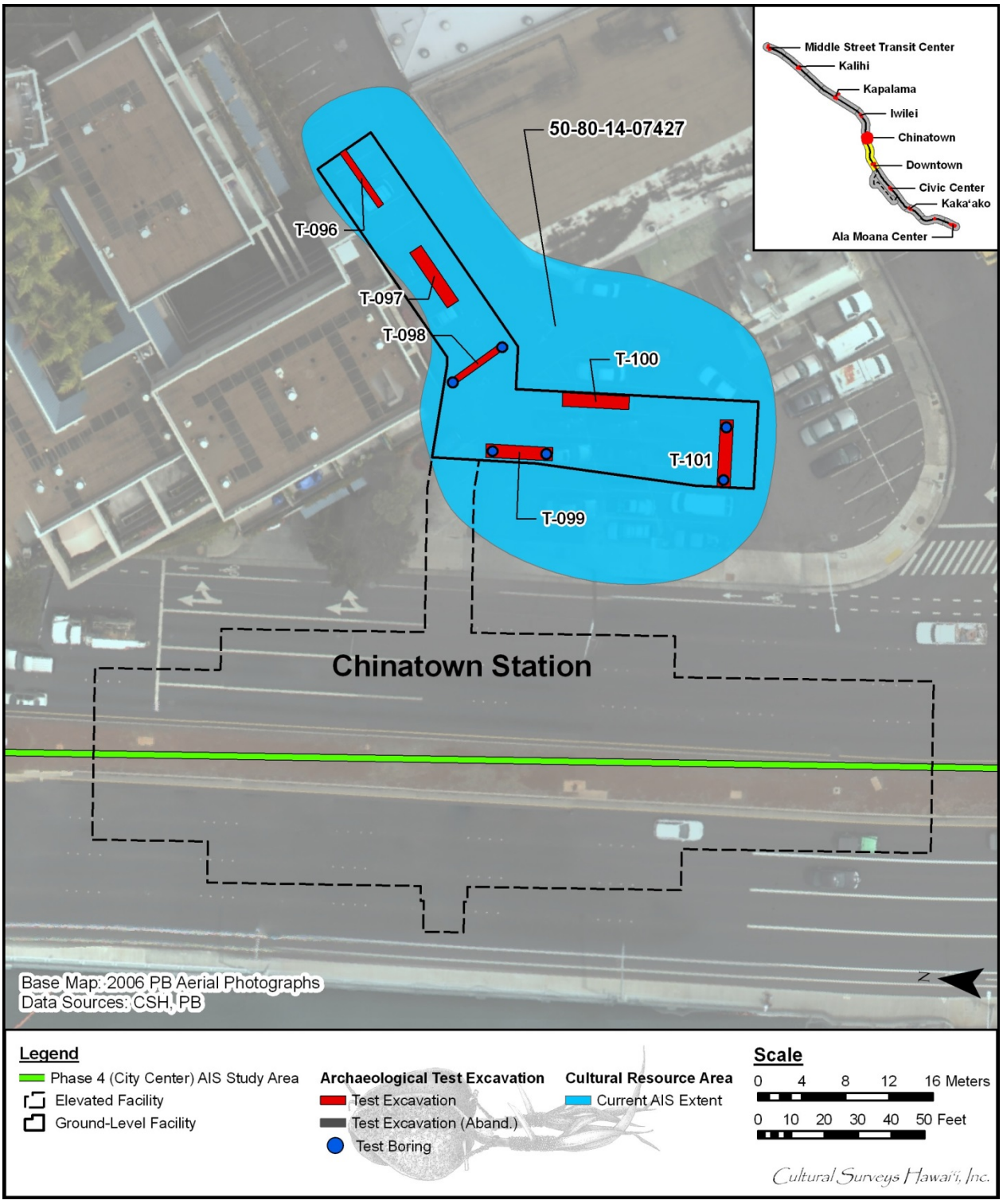

Figure 222. Location of the six test cores collected from T-098, T-099, and T-101 (Base Map: 2006 PB Aerial Photograph)

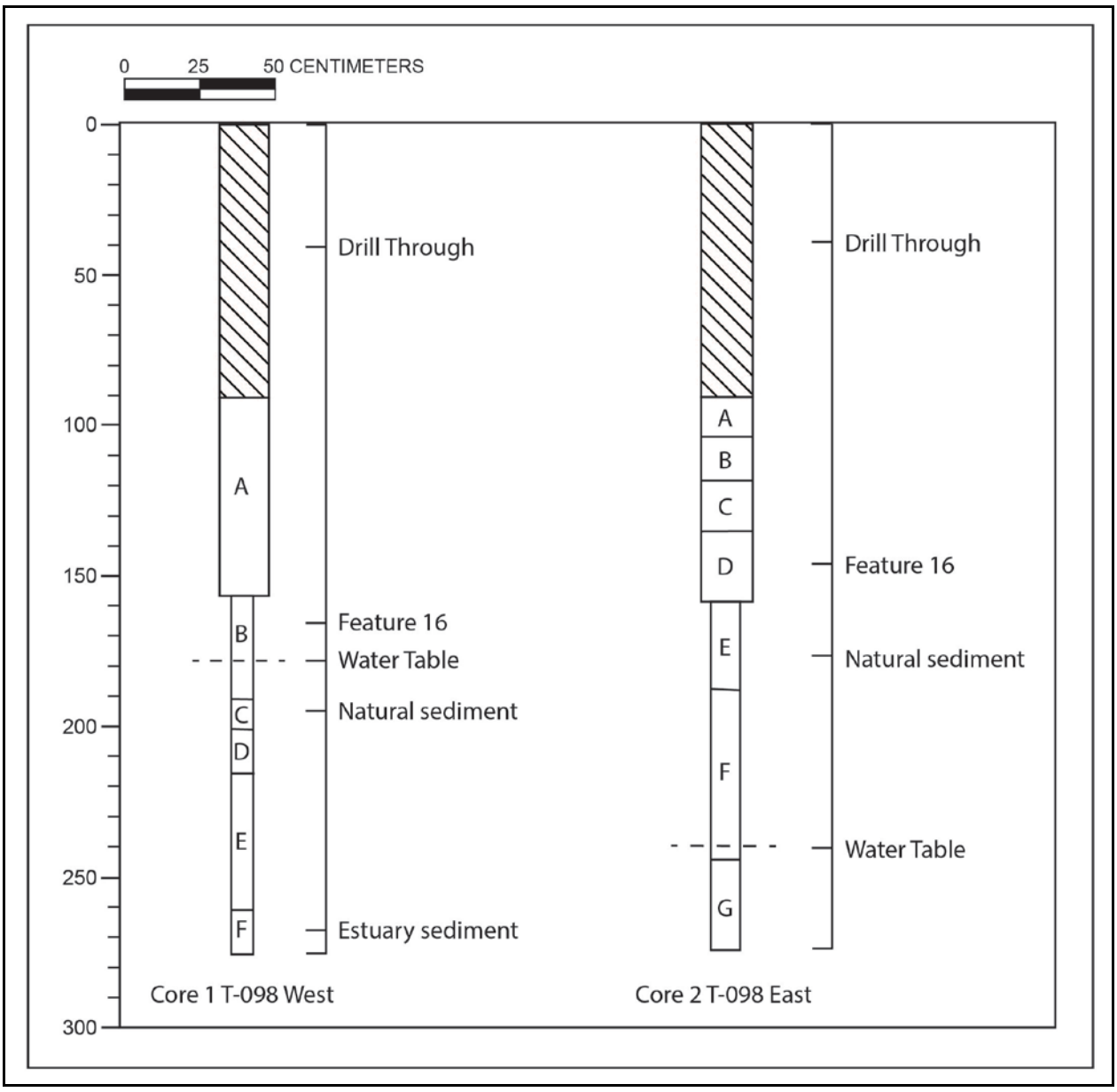

Figure 223. Profiles of the two test bores collected from the east and west boundaries of T-098