# Draft

# Archaeological Data Recovery Plan for Eight Historic Properties (SIHP #s 50-80-14-2918, -2963, -5820, -5966, -7190, -7427, -7428, and -7429) in the City Center (Section 4) of the Honolulu High-Capacity Transit Corridor Project, Honolulu Ahupua‘a, Honolulu (Kona) District, Island of O‘ahu TMKs: [1] Sections: 1-5, 2-1, and 2-3 (Various Plats and Parcels)

**Prepared on behalf of**
**PB Americas, Inc.**

**Prepared for**
**The Federal Transit Administration**
**and**
**The City and County of Honolulu**

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**Kailua, Hawai‘i**

**(Job Code: HONOLULU 42)**

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# Management Summary

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| **Reference** | Archaeological Data Recovery Plan for Eight Historic Properties (SIHP #s 50-80-14-2918, -2963, -5820, -5966, -7190, -7427, -7428, and -7429) in the City Center (Section 4) of the Honolulu High-Capacity Transit Corridor Project, Honolulu Ahupua‘a, Honolulu (Kona) District, Island of O‘ahu, TMKs: [1] 1-5, 2-1, and 2-3 (Various Plats and Parcels) (Yucha et al. 2013) |
| **Date** | October 2013 |
| **Project Number (s)** | Cultural Surveys Hawai‘i, Inc. (CSH) Job Code: HONOLULU 42 |
| **Investigation Permit Number** | The planned data recovery fieldwork will likely be carried out under CSH’s annual archaeological research permit, number 13-06, issued by the Hawai‘i State Historic Preservation Division (SHPD), per Hawai‘i Administrative Rules (HAR) §13-13-282. |
| **Project Location** | The Honolulu High-Capacity Transit Corridor (HHCTCP) extends approximately 20 miles (32.0 km) from Kapolei in the west to the Ala Moana Center in the east. The project was divided into four construction sections, with Section 1 towards Kapolei and Section 4 towards Ala Moana. This City Center data recovery plan focuses on the eastern-most 4.3 miles (6.9 km) of the overall HHCTCP area. This data recovery plan study area includes all of the City Center (Section 4) and the eastern-most portion of the Airport (Section 3) of the HHCTCP. This data recovery plan study is depicted on the 1998 Honolulu USGS 7.5-minute topographic quadrangle. |
| **Agencies** | Honolulu Authority for Rapid Transportation (HART) of the City and County of Honolulu (City); SHPD; Federal Transit Administration (FTA) |
| **Land Jurisdiction** | City; and Private<br>The eight data recovery sites of the HHCTCP Section 4 (City Center) are primarily located within existing road rights-of-way owned by the City. |
| **Area of Potential Effect (APE)** | The HHCTCP APE for archaeological cultural resources is defined in the HHCTCP Programmatic Agreement Final–January 2011 (PA) (Stipulation III.A.1.) as all areas of direct ground disturbance. For the City Center study area (all of Section 4 and the eastern portion of Section 3), HHCTCP project engineers estimate that the project’s area of direct ground disturbance is approximately 604,289 square feet (or 13.87 acres). |
| **Historic Preservation Regulatory Context** | Due to federal (FTA) funding and the use of federal (U.S. Navy) lands (in Section 3), this project is a federal undertaking, requiring compliance with Section 106 of the National Historic Preservation Act (NHPA), the National Environmental Policy Act (NEPA), and Section 4(f) of the Department of Transportation Act. Through the Section 106 historic preservation review process, the project’s lead |

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| | federal agency, FTA, has determined that the project will have an adverse effect on historic properties currently listed, or eligible for listing, on the National Register of Historic Places (National Register). The Hawai‘i State Historic Preservation Officer (SHPO) concurred with this undertaking effect determination (refer to the project’s programmatic agreement [PA] for further documentation).<br><br>To mitigate the undertaking’s potential adverse effect, a PA was executed January 18, 2011, with FTA, Hawai‘i SHPO, the United States Navy, and the Advisory Council on Historic Preservation as signatories, and the City as an invited signatory. PA Stipulation III requires that an archaeological inventory survey plan (AISP) be prepared and accepted by the SHPD for each of the four HHCTCP construction sections.<br><br>An AISP for City Center (Hammatt et al. 2011) was prepared to fulfill PA Stipulation III and was accepted in the SHPD Section 106 review letter of October 25, 2011 (Log No. 2011.2379, Doc. No. 1110NN08).<br><br>Subsequently, consideration was given to an alternate site (Alternate A) for the Kaka‘ako Station located approximately 50 m northeast (*mauka*) of the Kaka‘ako Station location addressed in the Hammatt et al. (2011) AISP for City Center. This alternate station site, and associated minor changes to the immediately adjacent guideway alignment, were addressed in an Addendum AISP (Hammatt et al. 2013). The Addendum AISP was accepted in the SHPD Section 106 review letter of March 1, 2013 (Log No. 2013.1958, Doc. No. 1302SL28).<br><br>Following the SHPD-accepted City Center AISP (Hammatt et al. 2011), as amended in the City Center AISP Addendum (Hammatt et al. 2013), the City Center AIS investigation was completed.<br><br>The City Center (Section 4) AIS investigation (Hammatt 2013) identified a total of 19 archaeological cultural resources[1] within, or immediately adjacent to, the City Center AIS study area. Eight archaeological cultural resources, State Inventory of Historic Properties (SIHP) #s 50-80-14-2918, -2963, -5820, -5966, -7190, -7427, -7428, and -7429 were recommended for data recovery to mitigate the project’s effect on significant cultural resources.<br><br>Following AIS fieldwork, an Interim Protection Plan (IPP) for the HHCTCP was completed (Hammatt and Shideler 2013). The plan addressed interim protection measures for all the cultural resources identified within the four sections of the project.<br><br>The City Center AIS report was accepted in the SHPD Section 106 review letter of August 26, 2013 (Log No. 2013,2564, 2013.4338, |

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| | Doc. No. 1308SL21). The AIS report for all four sections of the HHCTCP construction sections was accepted in the SHPD Section 106 review letter of August 27, 2013 (Log No. 2013.4987, Doc. No. 1308SL23). The IPP was accepted in the SHPD review letter of August 29, 2013 (Log No. 2013.5066A, Doc. No. 1308PA01).<br><br>CSH has prepared this archaeological data recovery plan in consideration of the *Secretary of the Interior's Guidelines for Archeology and Historic Preservation*, and in accordance with HAR §13-278 governing standards for archaeological data recovery studies and reports. This plan was prepared in consideration of the project's final January 2011 PA Stipulation III.E.2. that describes data recovery programs. |
| **Cultural Resources/ Historic Properties[2] Addressed** | This data recovery plan addresses the following eight historic properties (bold numbers were newly identified during the City Center AIS):<br><br>SIHP # -2918, a subsurface cultural deposit and human burials, determined significant under Hawai‘i significance Criteria D and E and eligible for the National Register under Criterion D. Documented within AIS Test Excavations T-226A, B, C, and D, T-227, and T-227A.<br><br>SIHP # -2963, a subsurface cultural deposit, subsurface pond sediments, human burials, and animal burials, determined significanct under Hawai‘i significance Criteria D and E and eligible for the National Register under Criterion D. Documented within AIS Test Excavations T-122, T-123, and T-124.<br><br>SIHP # -5820, a subsurface cultural deposit and human burials, determined significant under Hawai‘i significance Criteria D and E and eligible for the National Register under Criterion D. Documented within AIS Test Excavations T-141, T-142, T-145, T-146A, T-150, T-151, and T-151A.<br><br>SIHP # -5966[3], the subsurface remnants of Kawa Fishpond, determined eligible for both the Hawai‘i and National Registers under Criterion D. T-095 is within fishpond boundaries but no fishpond sediments were observed.<br><br>SIHP # -7190, subsurface salt pan remnants, determined eligible for both the Hawai‘i and National Registers under Criterion D. Documented within AIS Test Excavations T-229 and T-230.<br><br>SIHP # -**7427**, subsurface infrastructure remnants, subsurface cultural deposits, and a human skeletal element, determined significant under Hawai‘i significance Criteria D and E and eligible for the National Register under Criterion D. Documented within AIS Test |

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| | Excavations T-096 through T-101 and test bores C-1 through C-6.<br><br>SIHP # -**7428**, a subsurface cultural deposit and subsurface infrastructure remnants, determined eligible for both the Hawai‘i and National Registers under Criterion D. Documented within AIS Test Excavations T-119, T-119A, T-120, T-120A, and T-120B.<br><br>SIHP # -**7429**, subsurface cultural deposit and human skeletal element, determined significant under Hawai‘i significance Criteria D and E and eligible to the National Register under Criterion D. Documented within AIS Test Excavations T-167, T-168, T-168A, T-168B, T-169, T-170, and T-170A. |
| **Data Recovery Plan Summary** | Data recovery fieldwork will be performed in order to answer the following cultural resource-specific research questions:<br><br><u>SIHP # -5966</u><br>1. Do subsurface remnants of Kawa Fishpond exist within the City Center AIS study area?<br>2. Do subsurface Kawa Fishpond sediments exhibit a depositional chronology and/or environmental change?<br>3. What is the relationship between Kawa Fishpond (SIHP # -5966) and Kūwili Fishpond (SIHP # -5368)?<br><br><u>SIHP # -7427</u><br>1. What are the characteristics of the pre- and/or early post-Contact cultural deposits beneath buried structural remnants?<br><br><u>SIHP # -7428</u><br>1. Can systematic excavation and data collection assist in the determination of archaeological pit feature function and interrelationship?<br>2. Do buried A-horizon sediments exhibit a depositional chronology and/or environmental change?<br><br><u>SIHP # -2963</u><br>1. Can data recovery excavation at SIHP # -2963 identify the stratigraphic transition between pond sediment and the former land surface?<br>2. Do subsurface “Auwaiolimu Crown Land” pond sediments exhibit a depositional chronology and/or environmental change?<br>3. Do buried A-horizon sediments exhibit a depositional chronology and/or environmental change?<br><br><u>SIHP # -7190</u><br>1. How does the construction and depositional sequence of modern salt pans compare to the depositional sequence of salt pan remnants identified at SIHP # -7190? |

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| | 2. Can resistivity analysis be used to identify subsurface salt pan remnants?<br>3. Do subsurface salt pan remnants exhibit a depositional chronology and/or environmental change?<br><br>SIHP # -5820<br>1. Can systematic excavation and data collection assist in the determination of archaeological pit feature function and interrelationship?<br>2. Do buried A-horizon sediments exhibit a depositional chronology and/or environmental change?<br><br>SIHP # -7429<br>1. Can systematic excavation and data collection assist in the determination of archaeological pit feature function and interrelationship?<br>2. Do buried A-horizon sediments exhibit a depositional chronology and/or environmental change?<br><br>SIHP # -2918<br>1. Can systematic excavation and data collection assist in the determination of archaeological pit feature function and interrelationship?<br>2. Do buried A-horizon sediments exhibit a depositional chronology and/or environmental change? |

[1]In historic preservation parlance, cultural resources are the physical remains and/or geographic locations that reflect the activity, heritage, and/or beliefs of ethnic groups, local communities, states, and/or nations. Generally, they are at least 50 years old, although there are exceptions that include buildings and structures; groupings of buildings or structures (historic districts); certain objects; archaeological artifacts, features, sites, and/or deposits; groupings of archaeological sites (archaeological districts); and, in some instances, natural landscape features and/or geographic locations of cultural significance.

[2]Historic properties, as defined in 36 CFR 800.16, are any prehistoric or historic districts, sites, buildings, structures, or objects included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This includes artifacts, records, and remains that are related to and located within such properties, as well as properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria. Determinations of eligibility are generally made by a federal agency official in consultation with the SHPO. Under federal legislation, a project's (undertaking's) potential effect on historic properties must be evaluated and potentially mitigated. Under Hawai‘i State historic preservation legislation, historic properties are defined as any cultural resources that are 50 years old, regardless of their historic/cultural significance under state law, and a project's effect and potential mitigation measures are evaluated based on the project's potential impact to "significant" historic properties (those historic properties determined significant, based on their integrity and established significance criteria). Determinations of historic property significance result when a state agency

official’s historic property “significance assessment” is accepted by SHPD, or when SHPD itself makes a significance determination for a historic property.

[3]Although Test Excavation 95 was excavated within the footprint of SIHP # 50-80-14-5966, Kawa Fishpond, actual pond sediments or structural remains were not observed during the City Center AIS fieldwork; only fill sediments related to the pond’s infilling were observed. Because the City Center construction will extend through Kawa Fishpond, there is potential for the project to affect this archaeological cultural resource. Accordingly, discussion and evaluation of significance, project effect, and project mitigation related to SIHP # 50-80-14-5966 are included in this City Center data recovery plan.

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# Section 1 Introduction

Cultural Surveys Hawai‘i, Inc. (CSH) prepared this archaeological data recovery plan for City Center (Section 4) of the Honolulu High-Capacity Transit Corridor Project (HHCTCP) for the Honolulu Authority for Rapid Transportation (HART) of the City and County of Honolulu (City), and for the Federal Transit Administration (FTA), and on behalf of PB Americas, Inc. (PB). The entire proposed HHCTCP project corridor extends approximately 20 miles (32 km) from East Kapolei in the west to Ala Moana Center in the east. The HHCTCP corridor is divided into four sections. From west to east these are Section 1, West-O‘ahu/Farrington Highway, extending from East Kapolei to approximately Leeward Community College; Section 2, Kamehameha Highway, extending from Leeward Community College to Aloha Stadium; Section 3, Airport, extending from Aloha Stadium to approximately the Middle Street Interchange; and, Section 4, City Center, extending from Middle Street to Ala Moana Center (Figure 1).

The focus of this archaeological data recovery plan is the eastern-most 6.9 km (4.3 miles) of the overall HHCTCP project corridor, City Center. The City Center study area includes all of Section 4, and, in order to provide continuity, the eastern-most portion of Section 3 (Airport). The City Center study area extends from Kalihi Stream in the west to Ala Moana Center in the east, within Kalihi, Kapālama, Honolulu, and Waikīkī Ahupua‘a, Honolulu (Kona) District, Island of O‘ahu, Tax Map Key (TMK) [1] 1-5, 2-1, and 2-3 (Various Plats and Parcels).

## 1.1 Historic Preservation Regulatory Context

Due to federal (FTA) funding and the use of federal (U.S. Navy) lands (in Section 3), this project is a federal undertaking, requiring compliance with Section 106 of the National Historic Preservation Act (NHPA), the National Environmental Policy Act (NEPA), and Section 4(f) of the Department of Transportation Act. Through the Section 106 historic preservation review process, the project’s lead federal agency, FTA, has determined that the project will have an adverse effect on historic properties currently listed, or eligible for listing, on the National Register of Historic Places (National Register). The Hawai‘i State Historic Preservation Officer (SHPO) concurred with this undertaking effect determination (refer to the project’s Programmatic Agreement [PA] for further documentation).

To mitigate the undertaking’s potential adverse effect, a PA was executed January 18, 2011 with FTA, Hawai‘i SHPO, the United States Navy, and the Advisory Council on Historic Preservation as signatories, and the City as an invited signatory. PA Stipulation III requires that an archaeological inventory survey plan (AISP) be prepared and accepted by the SHPD for each of the four HHCTCP construction sections.

An AISP for City Center (Hammatt et al. 2011) was prepared to fulfill PA Stipulation III and was accepted in the SHPD Section 106 review letter of October 25, 2011 (Log No. 2011.2379, Doc. No. 1110NN08).

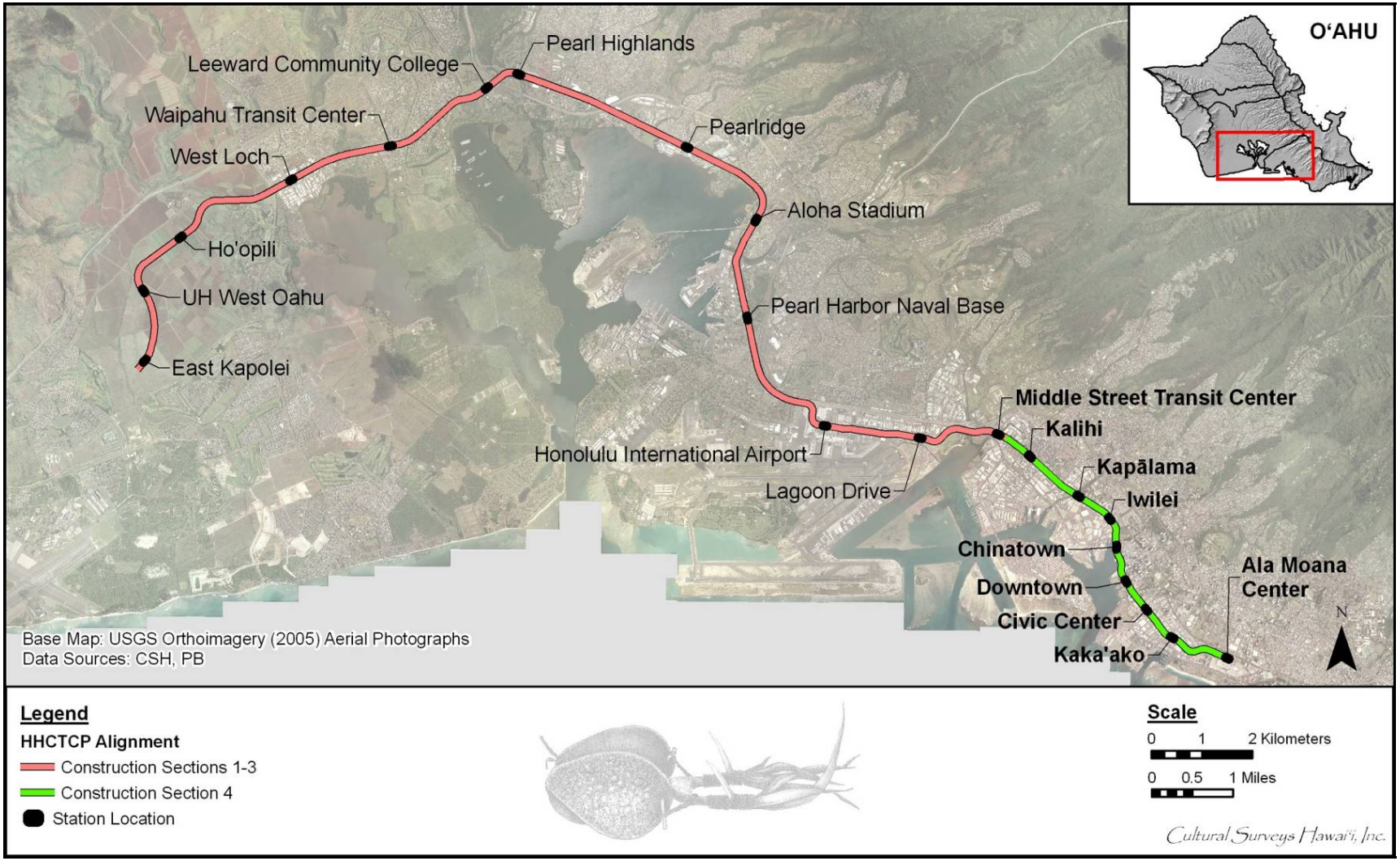


Figure 1. Aerial photograph (source: USGS orthoimagery 2005) showing the entire HHCTCP corridor, from East Kapolei to Ala Moana Center, including station locations, with the City Center AIS study area called out in green

Subsequently, consideration was given to an alternate site (Alternate A) for the Kaka‘ako Station located approximately 50 m northeast (*mauka*) of the Kaka‘ako Station location addressed in the Hammatt et al. (2011) AISP for City Center. This alternate station site, and associated minor changes to the immediately adjacent guideway alignment, were addressed in an Addendum AISP (Hammatt et al. 2013). The Addendum AISP was accepted in the SHPD Section 106 review letter of March 1, 2013 (Log No. 2013.1958, Doc. No. 1302SL28).

Following the SHPD-accepted City Center AISP (Hammatt et al. 2011), as amended in the City Center AISP Addendum (Hammatt et al. 2013), the City Center AIS investigation was completed.

The City Center (Section 4) AIS investigation (Hammatt 2013) identified a total of 19 archaeological cultural resources within, or immediately adjacent to, the City Center AIS study area. Eight archaeological cultural resources, State Inventory of Historic Properties (SIHP) #s 50-80-14-2918, -2963, -5820, -5966, -7190, -7427, -7428, and -7429 were recommended for data recovery to mitigate the project's effect on significant cultural resources.

Following AIS fieldwork, an Interim Protection Plan (IPP) for the HHCTCP was completed (Hammatt and Shideler 2013). The plan addressed interim protection measures for all of the cultural resources identified within the four sections of the project.

The City Center AIS report was accepted in the SHPD Section 106 review letter of August 26, 2013 (Log No. 2013,2564, 2013.4338, Doc. No. 1308SL21). The AIS report for all four sections of the HHCTCP construction sections was accepted in the SHPD Section 106 review letter of August 27, 2013 (Log No. 2013.4987, Doc. No. 1308SL23). The IPP was accepted in the SHPD review letter of August 29, 2013 (Log No. 2013.5066A, Doc. No. 1308PA01).

CSH has prepared this archaeological data recovery plan in consideration of the *Secretary of the Interior's Guidelines for Archeology and Historic Preservation*, and in accordance with HAR §13-278 governing standards for archaeological data recovery studies and reports. This plan was prepared in consideration of the project's final January 2011 PA Stipulation III.E.2. that describes data recovery programs.

The planned data recovery fieldwork will likely be carried out under CSH's annual archaeological research permit, number 13-06, issued by the Hawai‘i State Historic Preservation Division (SHPD), per HAR §13-13-282.

## 1.2 Scope of Work

This plan details the proposed data recovery of eight archaeological cultural resources identified within the City Center (Phase 4) AIS study area. Specific research goals and the appropriate types of data, as well as the appropriate methods for collecting these data, are outlined in the following requirements taken directly from HAR §13-278-4, the Hawai‘i State rules governing archaeological data recovery plans:

1. Identification of historic properties to be studied;
2. Identification of research objectives to be addressed;
3. Identification of data needed to address research objectives;
4. Identification of field methods to be used to acquire and analyze the data;

5. Identification of necessary laboratory work;

6. Identification of procedures for the disposition of collections upon the conclusion of the data recovery action;

7. If burials are to be disinterred, a written data recovery plan is not required for inadvertent discoveries. For burials the procedures of section HAR §6E-43, and Hawai‘i Revised Statute (HRS) §13-300 shall be followed.

HART has commited and SHPD has concurred that if human skeletal remains are encountered during data recovery investigations, these human skeletal remains will be considered previously identified per HRS §13-300.

## 1.3 Additional Information

This data recovery plan draws upon information already presented in the SHPD-accepted City Center (Section 4) AIS report (Hammatt 2013). The following information, incorporated by reference, can be found in the Hammatt (2013) archaeological inventory survey report sections listed below:

- AIS background: Volume I, Section 1.1
- Overview of proposed project construction: Volume I, Section 1.3
- Environmental setting: Volume I, Section 1.6
- Cultural, historical, and archaeological background: Volume II
- Historical background by geographic zone: Volumes IVA through IVD.
- Archaeological inventory survey results: Volume I, Section 5.

## 1.4 Archaeological Cultural Resources Selected for Data Recovery

The City Center (Section 4) AIS investigation identified a total of 19 archaeological cultural resources within, or immediately adjacent to, the City Center AIS study area. Eight archaeological cultural resources, SIHP #s 50-80-14-2918, -2963, -5820, -5966, -7190, -7427, -7428, and -7429 were recommended for data recovery to mitigate the project’s effect on significant cultural resources (Table 1 and Figure 2). Table 1 also includes additional mitigation recommendations for each cultural resource that will be addressed in separate documents.

Table 1. Archaeological Cultural Resources Selected for Data Recovery

| SIHP # | City Center Test Excavation # | Tax Map Key # | Description/Formal Type | Significance | | Additional Mitigation Recommendations |
|---|---|---|---|---|---|---|
| | | | | Hawai‘i | National | |
| 50-80-14-2918 | T-226A, B, C, and D, T-227 and 227A | TMKs: [1] 2-1-027 (Punchbowl Street ROW por.) and [1] 2-1-029:001 | Subsurface cultural deposit, human burials | d and e | D | Monitoring and burial treatment |
| 50-80-14-2963 | T-122, 123, and 124 | TMKs: [1] 2-1-030 (Halekauwila Street ROW por.), [1] 2-1-026:001, and [1] 2-1-031:010 | Subsurface cultural deposit, subsurface pond sediments, human burials, animal burials | d and e | D | Monitoring |
| 50-80-14-5820 | T-141, 142, 145, 146A, 150, 151, 151A | TMKs: [1] 2-1-050:067, [1] 2-1-050 (Halekauwila Street ROW por.), [1] 2-1-051 (Halekauwila Street ROW por.), [1] 2-1-031 (Keawe Street ROW por.), [1] 2-1-051:003, and :038 | Subsurface cultural deposit, human burials | d and e | D | Monitoring and burial treatment |
| 50 80-14-5966 | T-095 within fishpond boundaries but no fishpond sediments observed | TMKs: [1] 1-5-008:001, :004, :005, :014, :015, :018, :020; [1] 1-5-039; [1] 1-5-039:001, :007, :010; [1] 1-5-040:002, :004; and [1] 2-1-001 | Subsurface remnants of Kawa Fishpond | d | D | Monitoring |
| 50-80-14-7190 | T-229 and T-230 | TMKs: [1] 2-1-030 (Pohukaina Street ROW por.), [1] 2-1-051 (Pohukaina Street ROW por.), [1] 2-1-030:001 and :043 | Subsurface salt pan remnants | d | D | Monitoring |

| SIHP # | City Center Test Excavation # | Tax Map Key # | Description/Formal Type | Significance | | Additional Mitigation Recommendations |
|---|---|---|---|---|---|---|
| | | | | Hawai‘i | National | |
| 50-80-14-7427 | T-096 through T-101, C-1 to C-6 | TMKs: [1] 1-5-002:026 and [1] 1-5-002 (Nimitz Highway ROW por.) | Subsurface infrastructure remnants, subsurface cultural deposits/human skeletal element | d and e | D | Monitoring and burial treatment |
| 50-80-14-7428 | T-119, 119A, 120, 120A, 120B | TMKs: [1] 2-1-026:001, :022 and [1] 2-1-026 (Halekauwila Street ROW por.) | Subsurface cultural deposit, subsurface infrastructure remnant | d | D | Monitoring |
| 50-80-14-7429 | T-167, 168, 168A, 168B, 169, 170, and 170A | TMKs: [1] 2-3-002:001 and :059 | Subsurface cultural deposit, human skeletal element | d and e | D | Monitoring and burial treatment |

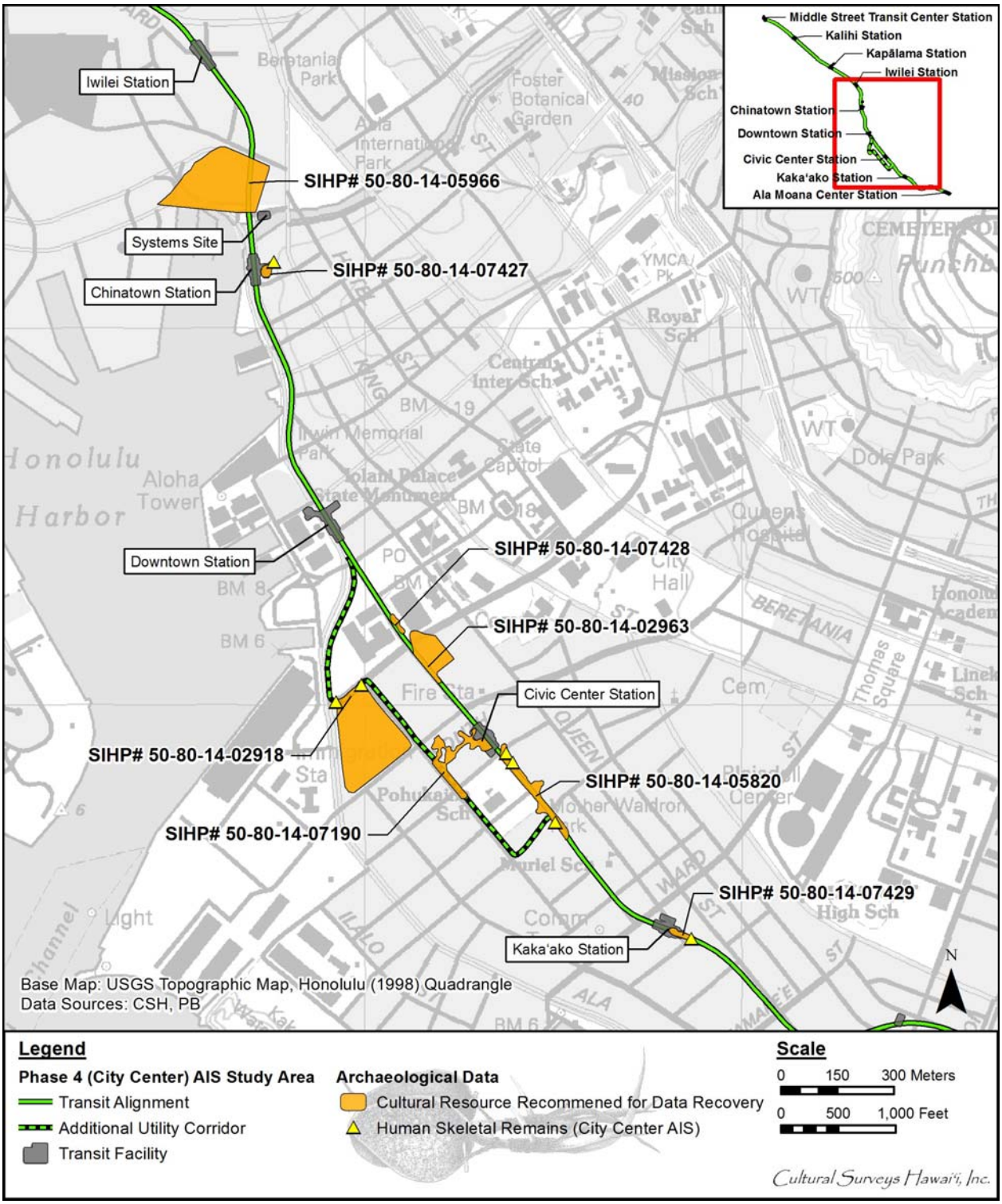


Figure 2. Cultural resources recommended for data recovery within the City Center AIS study area

# Section 2 Consultation

Community, agency, and native Hawaiian consultation was an important component of the preparation and implementation of the archaeological data recovery plan for this study area. CSH pursued consultation with recognized cultural descendants, SHPD, the O‘ahu Island Burial Council (OIBC), and the Office of Hawaiian Affairs (OHA). This consultation involved receiving input on the scope and design of the City Center (Section 4) data recovery plan. A summary of these activities is outlined below.

## 2.1 Cultural Descendants

On September 5, 2013, Matt McDermott of CSH led a PowerPoint presentation and detailed discussion concerning the ongoing mitigation efforts planned for the HHCTCP City Center project area including burial treatment, data recovery, interim protection, and monitoring to cultural descendants. Also in attendance were the two OIBC Kona representatives, Jonathan Scheuer and Hinaleimoana Wong-Kalu. McDermott summarized the approach of the data recovery plan including research objectives, types of documentation, and test excavation locations. McDermott also described interim protection measures that will be implemented for any *iwi kūpuna* identified during data recovery fieldwork.

Following the presentation by CSH, a discussion of all of the ongoing mitigation efforts was initiated. Regardingdata recovery plan and fieldwork, the discussion focused on the treatment of any *iwi kūpuna* identified during data recovery fieldwork. It was confirmed by HART that the SHPD acceptance letter for the project AIS specified that all *iwi* found during the data recovery (in all historic properties regardless of whether they have previously been identified as containing *iwi* or burials) will be classified as “previously identified” and therefore under the jurisdiction of the OIBC. Additionally, Race Randle, a representative of the Howard Hughes Corporation (HHC), requested additional information on the type of equipment and extent of excavation involved for data recovery work on HHC property.

## 2.2 SHPD

On September 6, 2013, Matt McDermott presented an update on the data recovery excavation strategy to Dr. Susan Lebo of SHPD. Project maps and GIS data were used to identify possible test excavation locations within each data recovery site. Limiting factors of excavation such as existing subsurface utilities were discussed. Dr. Lebo recommended that these limiting factors be displayed within the data recovery plan.

On September 27, 2013, McDermott presented another update on the data recovery excavation strategy to Dr. Lebo of SHPD. As recommended, excavation limiting factors were added to planned test excavation maps and reviewed by Dr. Lebo. Each data recovery site was reviewed and research objectives were briefly discussed. Dr. Lebo recommended describing the excavation limiting factors within the data recovery plan. Dr. Lebo discussed an approach to EDXRF research using comparative samples from previous archaeological studies in the vicinity of the project area. Dr. Lebo also recommended the use of historic artifact analysis to provide better chronological information on specific deposits or archaeological features.

## 2.3 OIBC

On September 11, 2013, McDermott of CSH and Dawn Chang of Ku‘iwalu presented a summary of the ongoing mitigation efforts planned for the HHCTCP City Center to the OIBC. The summary was based upon the detailed presentation to cultural descendants made on September 5, 2013. The two OIBC Kona representatives, Jonathan Scheuer and Hinaleimoana Wong Kalu, were in attendance at the detailed cultural descendants presentation and OIBC summary presentation.

## 2.4 OHA

On September 16, 2013, McDermott presented a summary of the ongoing mitigation efforts planned for the HHCTCP City Center based upon the detailed presentation that was given to cultural descendants on September 5, 2013.

Following the presentation by CSH, a discussion of all of the ongoing mitigation efforts was initiated. No particular concerns were raised over the data recovery plan or data recovery fieldwork within the City Center project area.

# Section 3 Archaeological Data Recovery Plan

This section provides the details of the data recovery plan for the eight archaeological cultural resources (SIHP # 50-80-14-2918, -2963 -5820, -5966, -7190, -7427, -7428, and -7429) that were identified within the City Center (Section 4) AIS study area and recommended for data recovery. Detailed descriptions of each of these historic properties are provided in Appendix A. Research objectives, including the research question, research orientation, data requirements, and sampling strategy are provided for each cultural resource. Information on field methodology, data recovery report production, and disposition of materials is also provided. While the prior discussion (and the presentation of historic property descriptions in the Appendices) have been ordered numerically, the presentation below is given geographically (SIHP # 50-80-14-5966, -7427, -7428, -2963, -7190, -5820, -7429, and -2918) from northwest to southeast for greater continuity of the archaeological data recovery discussion. Limiting factors affected the placement of planned data recovery excavations within the HHCTCP City Center project area. A detailed discussion of limiting factors is presented in Section 4.1.1.

## 3.1 SIHP # 50-80-14-5966

SIHP # -5966 is a previously identified cultural resource that consists of the subsurface remnants of Kawa Fishpond. Based on historic maps and documents, the former footprint of Kawa Fishpond consists of 8.13 acres. Today the Kawa Fishpond footprint is largely bounded by Iwilei Road, Sumner Street, Awa Street, and North Nimitz Highway within the Iwilei Geographic Zone.

### 3.1.1 SIHP # -5966 Research Objective 1 – Identification

**Research Question:** Do subsurface remnants of Kawa Fishpond exist within the City Center AIS study area?

**Research Orientation:** Historic maps indicate that the City Center AIS study area extends through the former Kawa Fishpond footprint. A previous archaeological study has also identified subsurface fishpond sediment immediately adjacent to the current study area (McDermott and Mann 2001). However, subsurface Kawa Fishpond sediments were not encountered in T-095, the only test excavation located within the former Kawa Fishpond footprint during the City Center AIS. No additional test excavations within the fishpond footprint were attempted due to the presence of existing numerous subsurface utilities and the potential to disrupt vehicular traffic and adjacent business access. Thus Research Objective 1 will consist of the identification of the presence of subsurface remnants of Kawa Fishpond within the current project APE

**Data Requirements:** Data requirements for addressing Research Objective 1 are minimal. Data will involve establishing the presence or absence of subsurface Kawa Fishpond remnants, most likely buried fishpond sediment, in each data recovery excavation within the current project APE.

**Sampling Strategy:** Three 6-m-long data recovery excavations will be excavated within the former footprint of Kawa Fishpond at the location of a project column or utility relocation (Figure 3 and Figure 4). The excavations will be completed using a backhoe and will range in

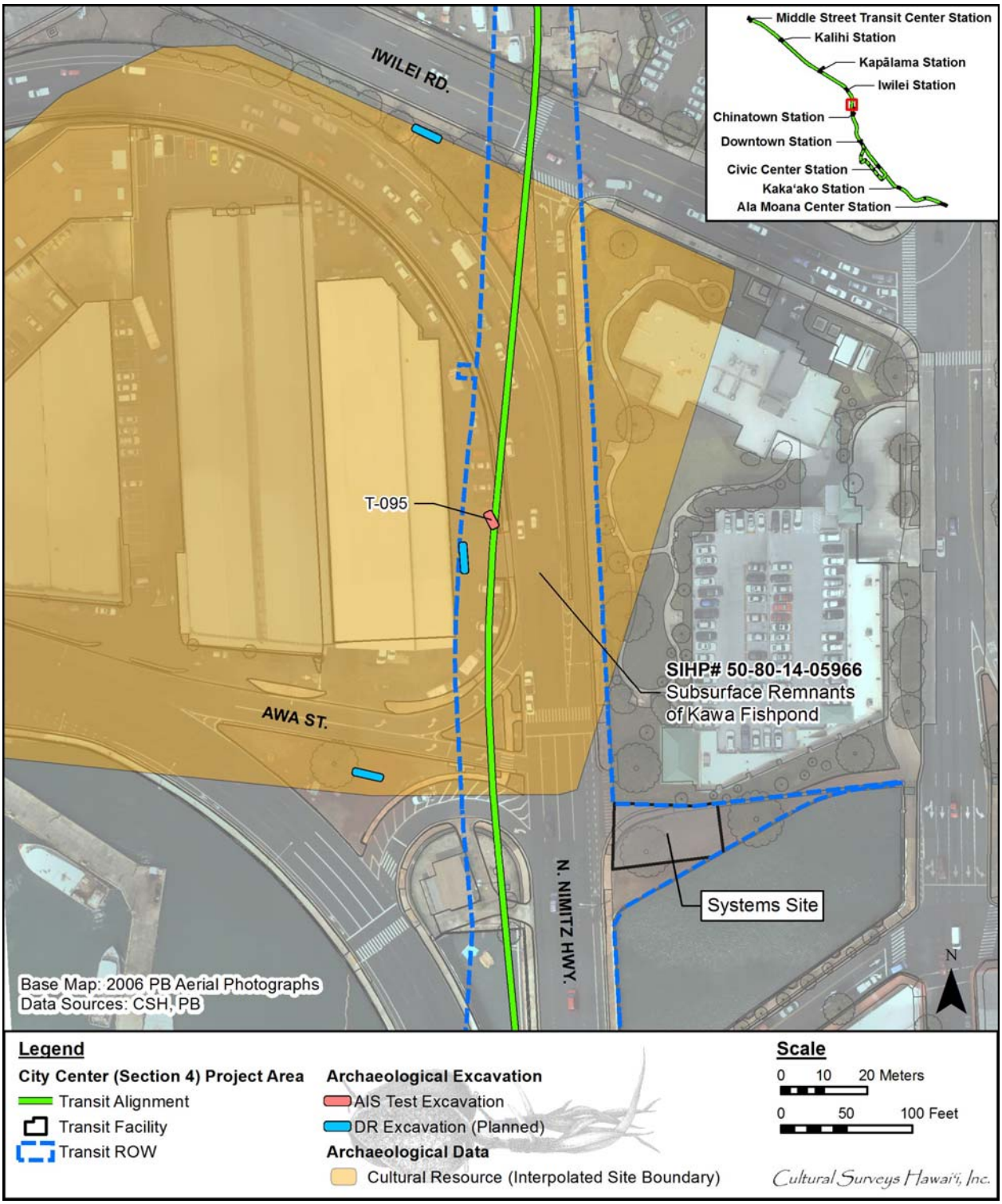


Figure 3. Aerial photograph depicting planned data recovery excavations (in blue) within the SIHP # -5966 cultural resource boundary (in yellow)

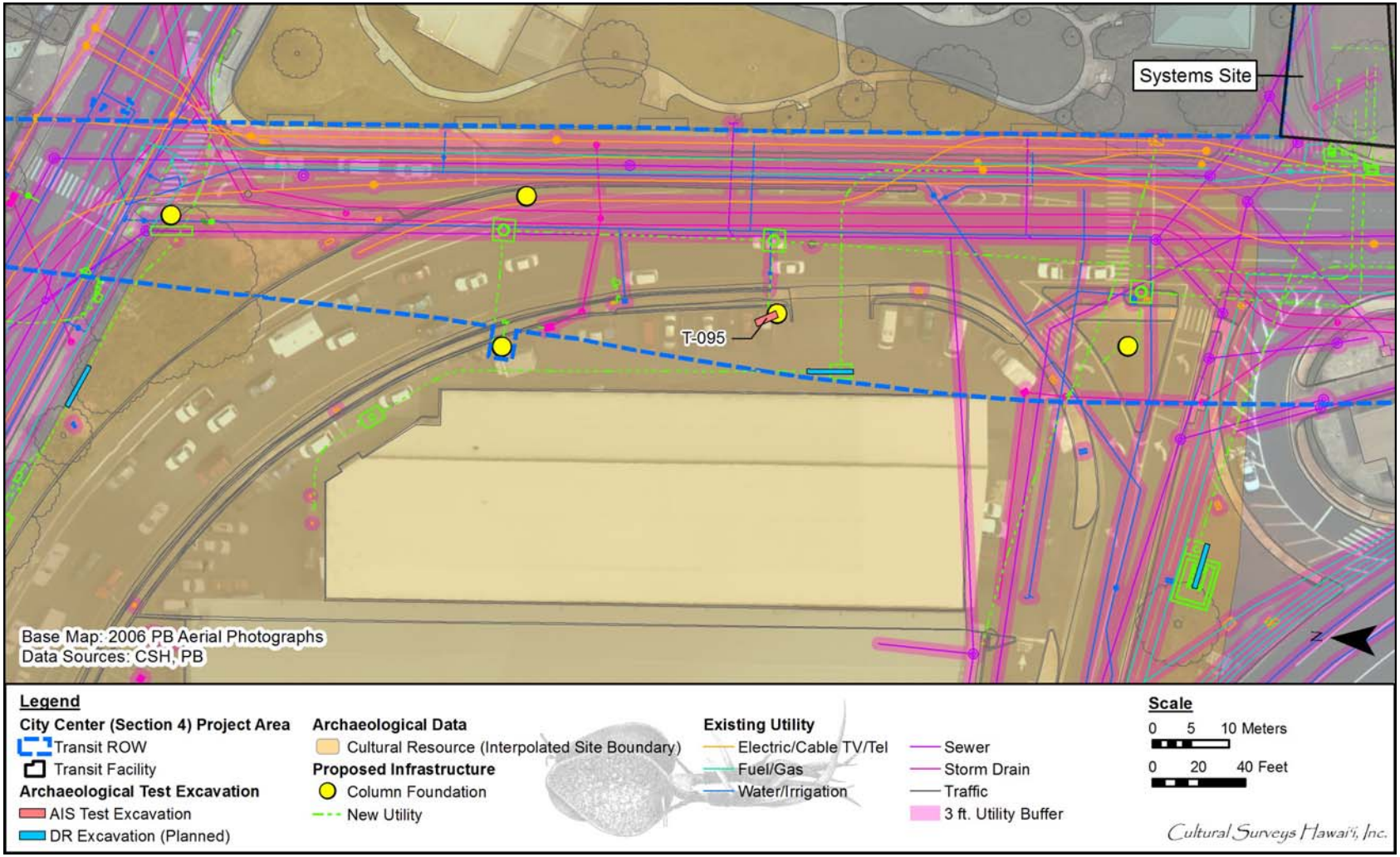


Figure 4. Aerial photograph showing the extent of existing utilities with buffers (in pink) and proposed infrastructure (in green/yellow) in relation to planned data recovery excavations (in blue) at SIHP # -5966

width from 0.8 to 1.6 m. This data recovery excavation will serve to address each data recovery research objective for SIHP # -5966.

### 3.1.2 SIHP # -5966 Research Objective 2 – Chronology/Content

**Research Question:** Do subsurface Kawa Fishpond sediments exhibit a depositional chronology and/or environmental change?

**Research Orientation:** Documentation of Trench 3 in the McDermott and Mann (2001) study identifies Kawa Fishpond sediments as Stratum XIII (204-230 cmbs). A total of four samples were collected from the Kawa Fishpond sediments within Trench 3 for radiocarbon, micro-charcoal, and palynomorph analysis. The two samples depicted on the Trench 3 profile include Beta 157193 (AD 1450 to 1650, 95.4% probability) and Beta 157454 (AD 1670 to 1770, 30.3% probability/AD 1800 to 1960, 61.5% probability). No samples were analyzed from Trench 1 as the deepest layers of the excavation were considered to be heavily contaminated with petroleum (McDermott and Mann 2001:45).

McDermott and Mann (2001) attempted to provide data on the age of construction of Kawa Fishpond and summarize the radiocarbon results as follows:

> The radiocarbon dating evidence, albeit tentative, combined with indisputable historic evidence, indicate that the low-energy, finely-sorted Stratum XIII, presumed to be the floor of Kawa Fishpond, was extant from between the period A.D. 1150-1350 and c. A.D. 1890. [McDermott and Mann 2001:59]

Micro-charcoal particle counts and palynomorph analysis of Kawa Fishpond sediments identified only native and Polynesian-introduced taxa, with no historically-introduced taxa present. These results were considered anomalous considering the known historic use of the fishpond (McDermott and Mann 2001:60). In addition, glass bottle fragments dating to the mid- to late nineteenth century were recovered from within the fishpond sediments.

**Data Requirements:** Data requirements for addressing Research Objective 2 include obtaining in situ column samples of Kawa Fishpond sediment for radiocarbon/palynological analysis. The data will indicate the extent of chronological and/or environmental change within the fishpond sediment.

**Sampling Strategy:** Three 6-m-long data recovery excavations will be excavated within the former footprint of Kawa Fishpond at the location of a project column or utility relocation (see Figure 3 and Figure 4). The excavations will be completed using a backhoe and will range in width from 0.8 to 1.6 m. This data recovery excavation will serve to address each data recovery research objective for SIHP # -5966.

### 3.1.3 SIHP # -5966 Research Objective 3 – Interrelationship

**Research Question:** What is the relationship between Kawa Fishpond (SIHP # -5966) and Kūwili Fishpond (SIHP # -5368)?

**Research Orientation:** Few oral traditions, legends, or other ethnographic information exist regarding Kawa Fishpond and Kūwili Fishpond. The Hawaiian word "*kawa*," however, literally translates as a precipice or leaping place, or as the pool below a precipice into which swimmers leap (Pukui and Elbert 1986:139). Kūwili literally means "stand swirling" (Pukui et al. 1974:125). Kūwili Fishpond is mentioned in the legend of Kū‘ula (the fish god of Hawai‘i). Kū‘ula's son, ‘Ai‘ai, gave a sacred fishhook to his son, Puniaiki, who used it to summon a substantial school of *aku* to Honolulu Harbor (Manu 1998:247-248). The locations of Kawa Fishpond, Kūwili Fishpond, and the narrow causeway that separated the ponds are seen the 1885 J.F. Brown Map of Kapālama. Historically, both fishponds coexisted within a shared environment and likely served a similar purpose. However, with no ethnographic or historical accounts of the construction or use of Kawa and Kūwili Fishpond the age, origin, and interrelationship remain unclear.

**Data Requirements:** Data requirements for addressing Research Objective 3 include a synthesis of additional historical and ethnographic archival research, previous archaeological research, and radiocarbon/palynological data collected for the completion of Research Objective 2. Additional archival research will attempt to compile new or supplemental historic and/or prehistoric oral or written records and historic maps or photographs of Kawa and Kūwili Fishponds. Previous archaeological research on Kawa and Kūwili Fishponds as well as general information on Hawaiian fishponds will be compiled. This information will be synthesized with radiocarbon/palynological data collected for the completion of Research Objective 2 in order to discuss and interpret the interrelationship of Kawa and Kūwili Fishponds.

**Sampling Strategy:** Three 6-m-long data recovery excavations will be excavated within the former footprint of Kawa Fishpond at the location of a project column or utility relocation (see Figure 3 and Figure 4). The excavations will be completed using a backhoe and will range in width from 0.8 to 1.6 m. This data recovery excavation will serve to address each data recovery research objective for SIHP # -5966.

## 3.2 SIHP # 50-80-14-7427

SIHP # -7427 consists of subsurface infrastructure remnants, subsurface cultural deposits, and a human skeletal element that is located 3 m east of Nimitz Highway near the Kekaulike Street intersection. The cultural resource includes 14 archaeological features that were identified within six test excavations (T-096 through T-101) and six geotechnical test bores (C-1-6).

### 3.2.1 SIHP # -7427 Research Objective 1 – Characterization of Cultural Deposits

**Research Question:** What are the characteristics of the pre- and/or early post-Contact cultural deposits beneath buried structural remnants?

**Research Orientation:** At the time of Western contact, the area that comprises SIHP # -7427 was known as part of the settlement of Kou. Background research indicates this coastal landscape consisted of house sites, agricultural fields, and gaming areas for the chiefs. Stratum II, the culturally-enriched sandy loam or clay loam sediment identified during the AIS study within T-096, 097, 100, and 101 and C-1 to C-6, may correspond to the pre- and/or early post-Contact settlement of Kou. Following the Western 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. The buried structural remnants within SIHP # -7427 are evidence of mid-nineteenth to mid-twentieth century habitation and commercial infrastructure development surrounding Honolulu Harbor. However, the buried structural remnants of SIHP # -7427 have restricted or prohibited the excavation of underlying deposits or strata, which may contain additional pre- or early post-Contact cultural material.

**Data Requirements:** Data requirements for addressing Research Objective 1 include the establishment of the presence or absence of cultural deposits or culturally-enriched strata beneath the buried structural remnants of SIHP # -7427. If present, data requirements will include the collection of cultural material and sediment samples for identification and analysis. Analysis of culturally-enriched sediment and/or associated in situ charcoal will include radiocarbon analysis. Data recovery will focus on the deeper, potentially pre-Contact to early post-Contact deposits at SIHP # -7427, however, additional documentation and/or data collection may also be performed on deposits related to the historic Chinatown fires and overlying building remnants.

**Sampling Strategy:** Three 4-m-long data recovery excavations will be excavated within the SIHP # -7427 cultural resource boundary (Figure 5 and Figure 6). The excavations will be completed using a backhoe and will range in width from 0.8 to 1.6 m. The backhoe will be used to remove any buried structural remnants that overlie deeper strata or deposits. The removal of buried structural remnants may require the expansion of the width of the test excavation or the use of a shoring box to permit safe continued excavation.

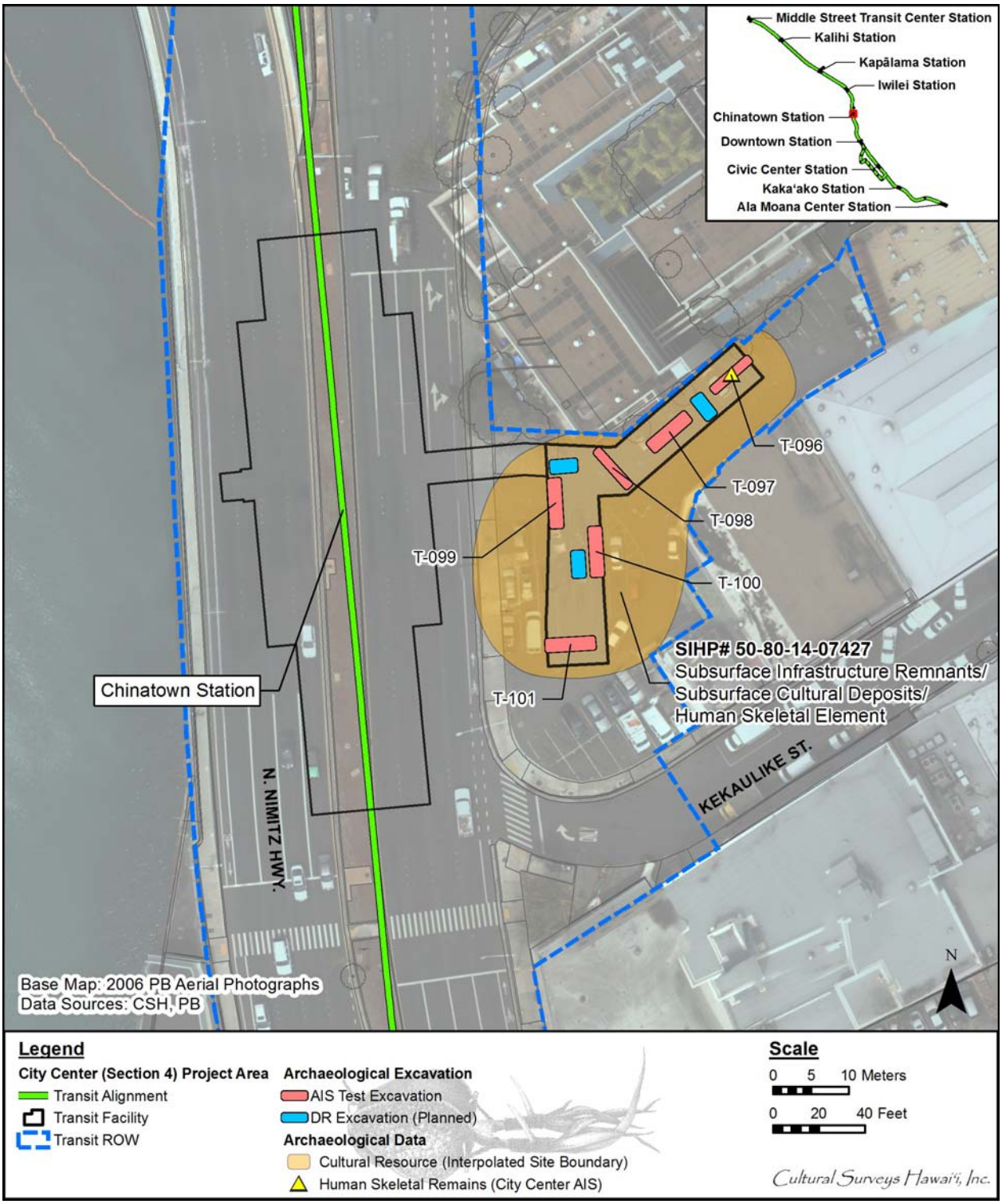


Figure 5. Aerial photograph depicting planned data recovery excavations (in blue) within the SIHP # -7427 cultural resource boundary (in yellow)

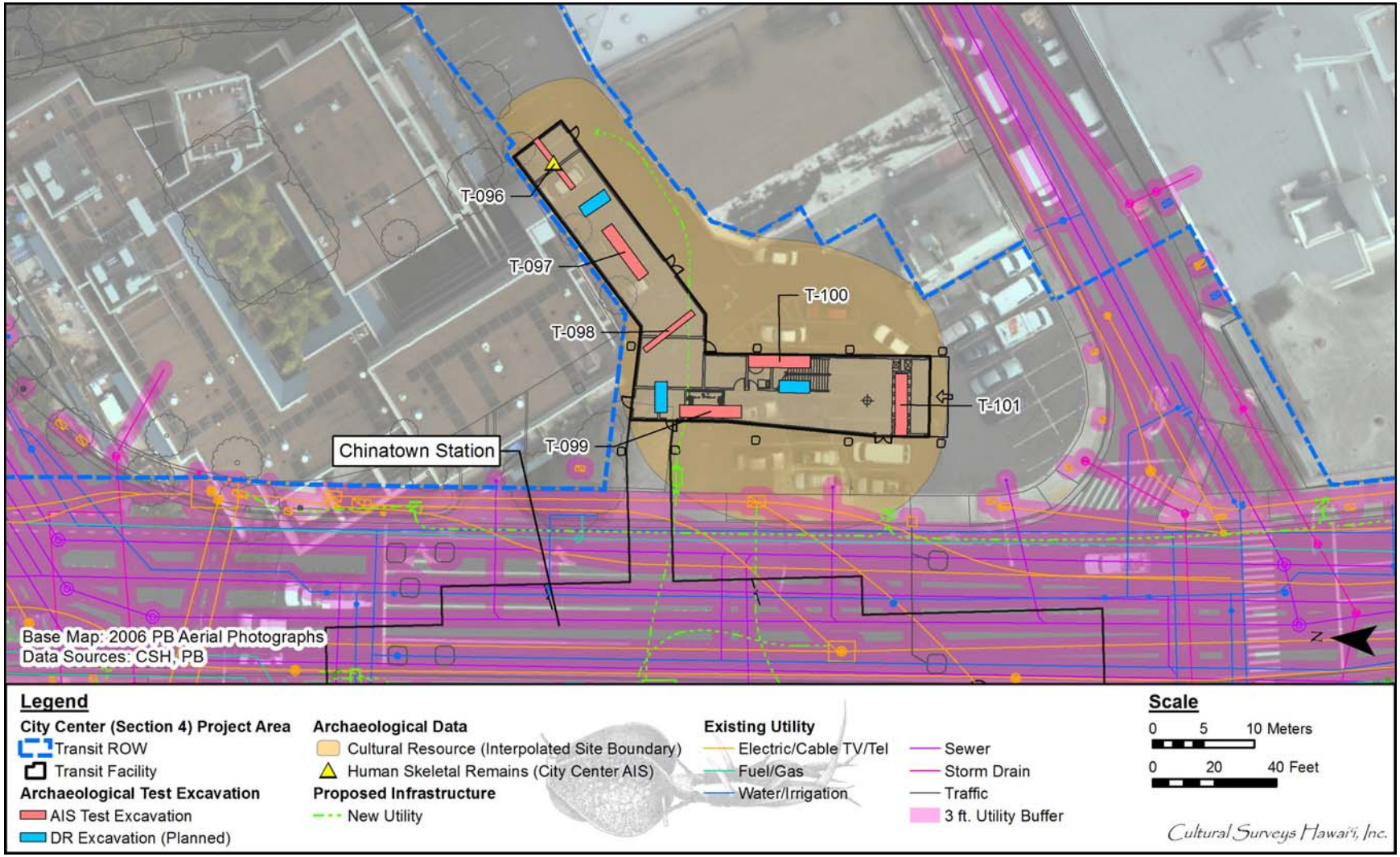


Figure 6. Aerial photograph showing the extent of existing utilities with buffers (in pink) and proposed infrastructure (in green/yellow) in relation to planned data recovery excavations (in blue) at SIHP # -7427

## 3.3 SIHP # 50-80-14-7428

SIHP # -7428 consists of a subsurface cultural deposit and subsurface infrastructure remnants and is located northeast (*mauka*) of Halekauwila Street between Punchbowl and Mililani Streets. This archaeological cultural resource includes 14 archaeological features and was identified within five test excavations during the project AIS study.

### 3.3.1 SIHP # -7428 Research Objective 1 – Pit Feature Function/Interrelationship

**Research Question:** Can systematic excavation and data collection assist in the determination of archaeological pit feature function and interrelationship?

**Research Orientation:** SIHP # -7428 contained a total of 14 archaeological features. Of the 14 features, 12 originated from a buried culturally-enriched A-horizon and intruded into underlying Jaucas sand. The 12 features (Features 2-13) included three post molds and nine indeterminate pits. The archaeological pit features of SIHP # -7428 were identified during hand excavation of the buried A-horizon. Each of the 12 pits were minimally documented on plan or stratigraphic profile maps and sampled with a focus on content analysis. Plan view maps typically documented the interface between the buried A-horizon and underlying Jaucas sand. Stratigraphic profile maps included archaeological features that were present in excavation sidewalls. Samples from archaeological pit features varied in size, location within the pit, and processing technique (dry- versus wet-screened). The data obtained from the AIS study accurately documented the content of archaeological pit features, however, additional interpretive data regarding pit feature function and interrelationship may not be apparent using content analysis alone. Archaeological data recovery fieldwork at SIHP # -7428 will use controlled excavation methodology and laboratory analysis in an effort to gather interpretive data from archaeological pit features.

**Data Requirements:** Data requirements for addressing Research Objective 1 include the establishment and implementation of systematic excavation and sampling methodology for data recovery of the buried A-horizon and associated archaeological features of SIHP # -7428. This controlled excavation methodology and sampling strategy will facilitate the detailed recordation of pit feature origin, termination, content, shape, dimension, and stratigraphic context. This data will be used to assess feature function and interrelationships based on variations in content per volume and dimensions in plan, profile, and cross-section. The results of data recovery fieldwork at SIHP # -7428 will then be compared to the results of the AIS study excavation of SIHP # -7428 with a discussion on the effectiveness of systematic excavation and data collection in the determination of archaeological pit feature function and interrelationship.

**Sampling Strategy:** Three 6-m-long data recovery excavations will be excavated within or adjacent to the SIHP # -7428 cultural resource boundary (Figure 7 and Figure 8). The excavations will be initiated using a backhoe to remove fill deposits. Systematic excavation will then be initiated through the buried A-horizon in accordance with the data requirements of Research Objective 1. The remainder of the Jaucus sand will be hand-excavated to the water table. The width of the data recovery excavations will range from 0.8 to 1.6 m. These three data recovery excavations will serve to address each data recovery research objective for SIHP # -7428.

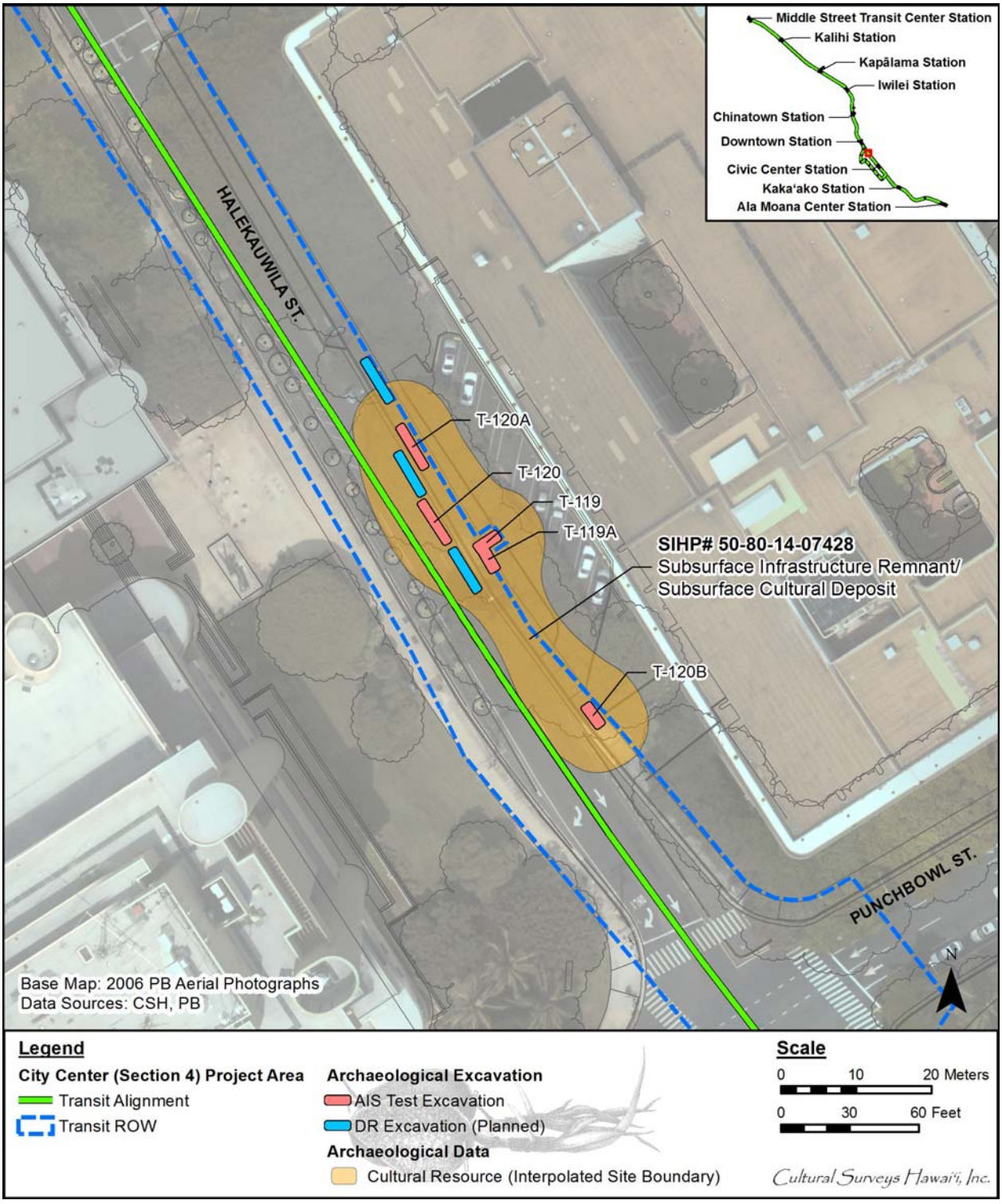


Figure 7. Aerial photograph depicting planned data recovery excavations (in blue) within the SIHP # -7428 cultural resource boundary (in yellow)

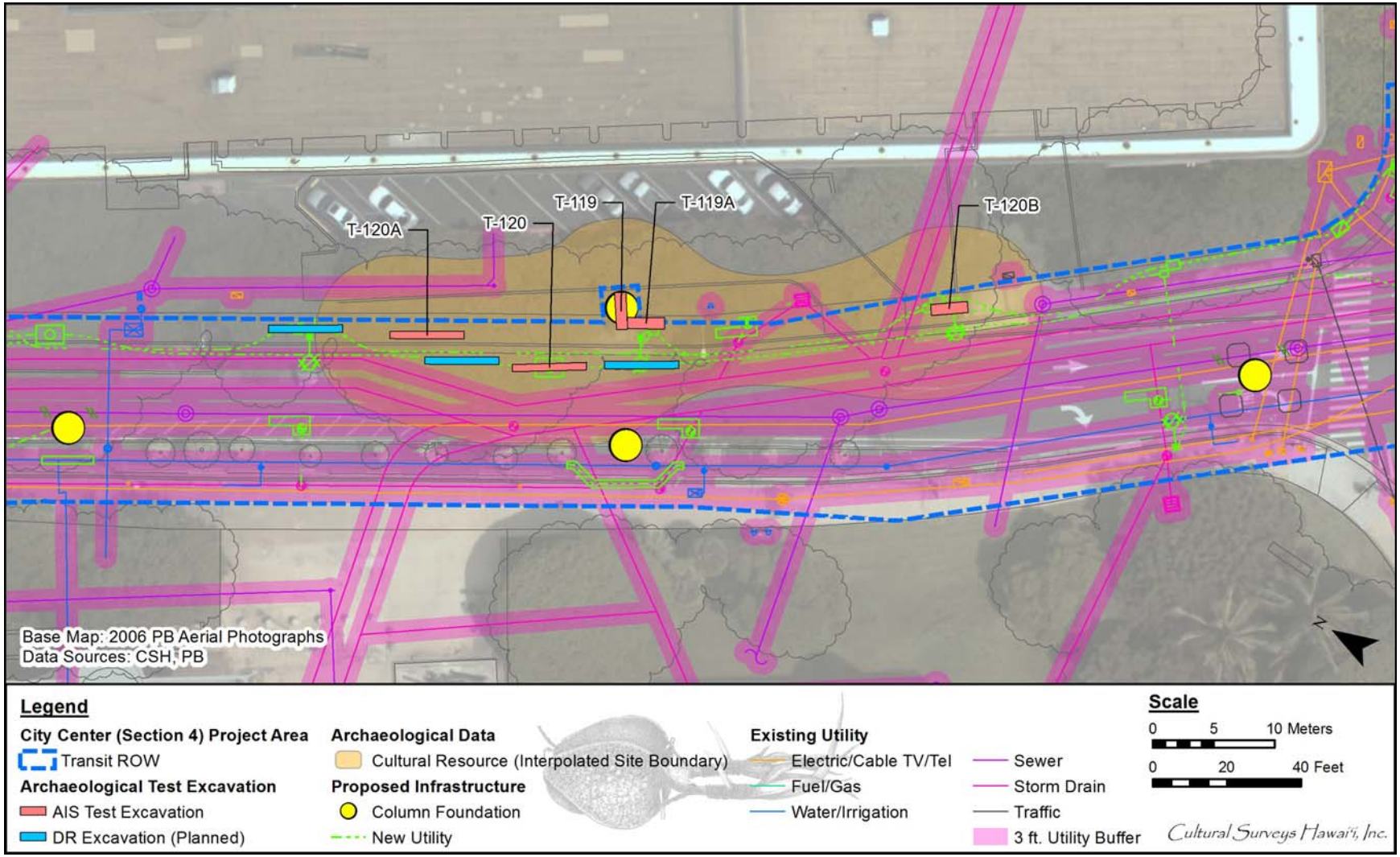


Figure 8. Aerial photograph showing the extent of existing utilities with buffers (in pink) and proposed infrastructure (in green/yellow) in relation to planned data recovery excavations (in blue) at SIHP # -7428

### 3.3.2 SIHP # -7428 Research Objective 2 – Chronology/Content

**Research Question:** Do buried A-horizon sediments exhibit a depositional chronology and/or environmental change?

**Research Orientation:** A buried culturally-enriched A-horizon (former land surface), exhibiting both pre- and post-Contact land usage, has developed on natural Jaucas sand and was designated Stratum II within T-119, T-120, T-120A, and T-120B, and Stratum IIa within T-119A. The texture of the culturally-enriched A-horizon varied from loamy silt and loamy sand in T-119 and T-120 to sandy loam in T-119 and T-120A and sandy clay loam in T-120B. The buried culturally-enriched A-horizon contained both traditional Hawaiian and post-Contact cultural material, vertebrate and invertebrate faunal material, and charcoal. The AIS study of SIHP # -7428 focused on the documentation of the content of the buried A-horizon with a specific focus on the 12 pit features that originated from the base of the A-horizon and intruded into underlying Jaucas sand. Radiocarbon analysis was limited to material collected from pit features. No palynological analysis of the buried A-horizon was performed. The results of the AIS study suggested that the buried A-horizon was a dynamic land surface with mixed use from pre-Contact to the early twentieth century. However, the study focused on the analysis of feature fill contents that, by nature, contain mixed excavated sediment, and did not collect analytical data on unmodified, in situ portions of the buried A-horizon.

**Data Requirements:** Data requirements for addressing Research Objective 2 include the collection of two to four column samples from unmodified, in situ portions of the buried A-horizon within data recovery excavations. Subsamples of the column samples will be submitted for radiocarbon/palynological analysis. The data will indicate the extent of chronological and/or environmental change through time of the former land surface. This data will be compared to the data collected from the systematic excavation of the buried A-horizon outlined in Research Objective 1. The pre-Contact, traditional Hawaiian, and post-Contact cultural content of each 10 cm increment of the buried A-horizon collected for Research Objective 1 will be compared to the chronological and/or environmental data collected for Research Objective 2.

**Sampling Strategy:** Three 6-m-long data recovery excavations will be excavated within or adjacent to the SIHP # -7428 cultural resource boundary (see Figure 7 and Figure 8). The excavations will be initiated using a backhoe to remove fill deposits. Systematic excavation will then be initiated through the buried A-horizon in accordance with the data requirements of Research Objective 1. The remainder of the Jaucus sand will be hand-excavated to the water table. The width of the data recovery excavations will range from 0.8 to 1.6 m. These three data recovery excavations will serve to address each data recovery research objective for SIHP # -7428.

## 3.4 SIHP # 50-80-14-2963

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

### 3.4.1 SIHP # -2963 Research Objective 1 – Stratigraphic Land Use Transition

**Research Question:** Can data recovery excavation at SIHP # -2963 identify the stratigraphic transition between pond sediment and the former land surface?

**Research Orientation:** During the project AIS, a buried, culturally-enriched A-horizon (former land surface) was identified within one test excavation (T-124) and one geotechnical test bore (T-124A) in the southern portion of the SIHP # -2963 cultural resource boundary and project APE. Pond sediments were identified beneath fill deposits in T-122 and T-123 in the western portion of the SIHP # -2963 cultural resource boundary and project APE. The results of subsurface testing support the depicted extent of the "Auwaiolimu Crown Land" pond in relation to the project APE on the 1881 Brown Map of Honolulu. Based on the 1881 map, the southern edge of the pond crosses the project APE within 20 m of the southeastern end of T-123.

**Data Requirements:** Data requirements for addressing Research Objective 1 involve the use of historic maps and test excavation documentation from the project AIS to place data recovery excavations at or near the transition between pond sediment and the former land surface. The data recovery excavations will be plotted using the 1881 Brown Map of Honolulu depiction of the edge of the "Auwaiolimu Crown Land" pond (Figure 9). The data recovery excavations will be placed southeast of T-123 and south of T-122 within the project APE. If both pond sediment and former land surface sediment are identified during data recovery excavation, data recovery will proceed with the implementation of Research Objective 2 (for pond sediment) and Research Objective 3 (for the former land surface) below.

**Sampling Strategy:** Two 6-m-long data recovery excavations will be excavated within the SIHP # -2963 cultural resource boundary (Figure 10 and Figure 11). The placement of the data recovery excavation will be implemented using information based on the 1881 Brown Map of Honolulu depiction of the edge of the "Auwaiolimu Crown Land" pond. The excavation will be placed in an effort to expose the transition between pond sediment and the former land surface,

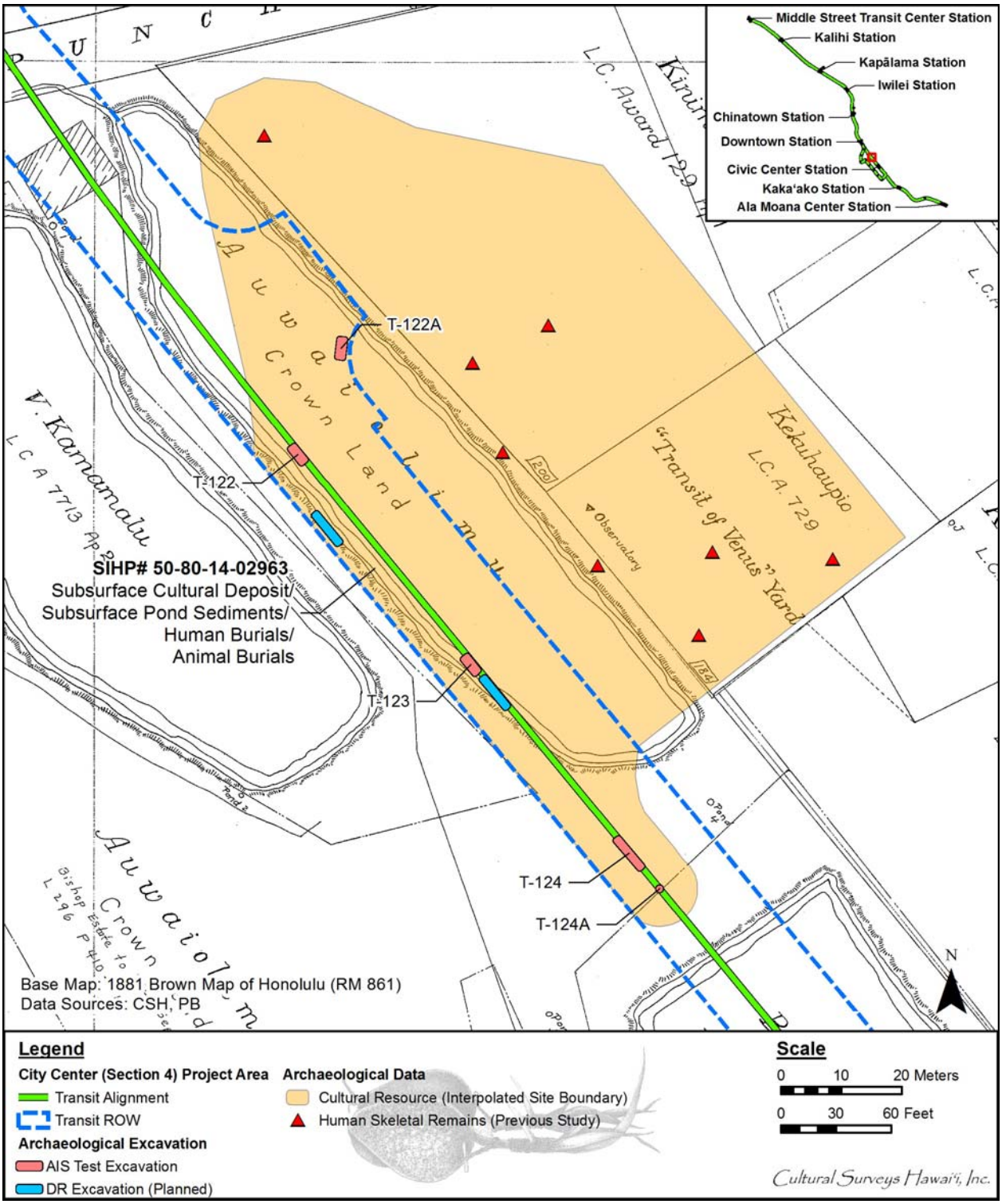


Figure 9. 1881 Brown Map of Honolulu (RM 861) showing the location of the two planned data recovery excavations along the edges of “Auwaiolimu Crown Land” pond

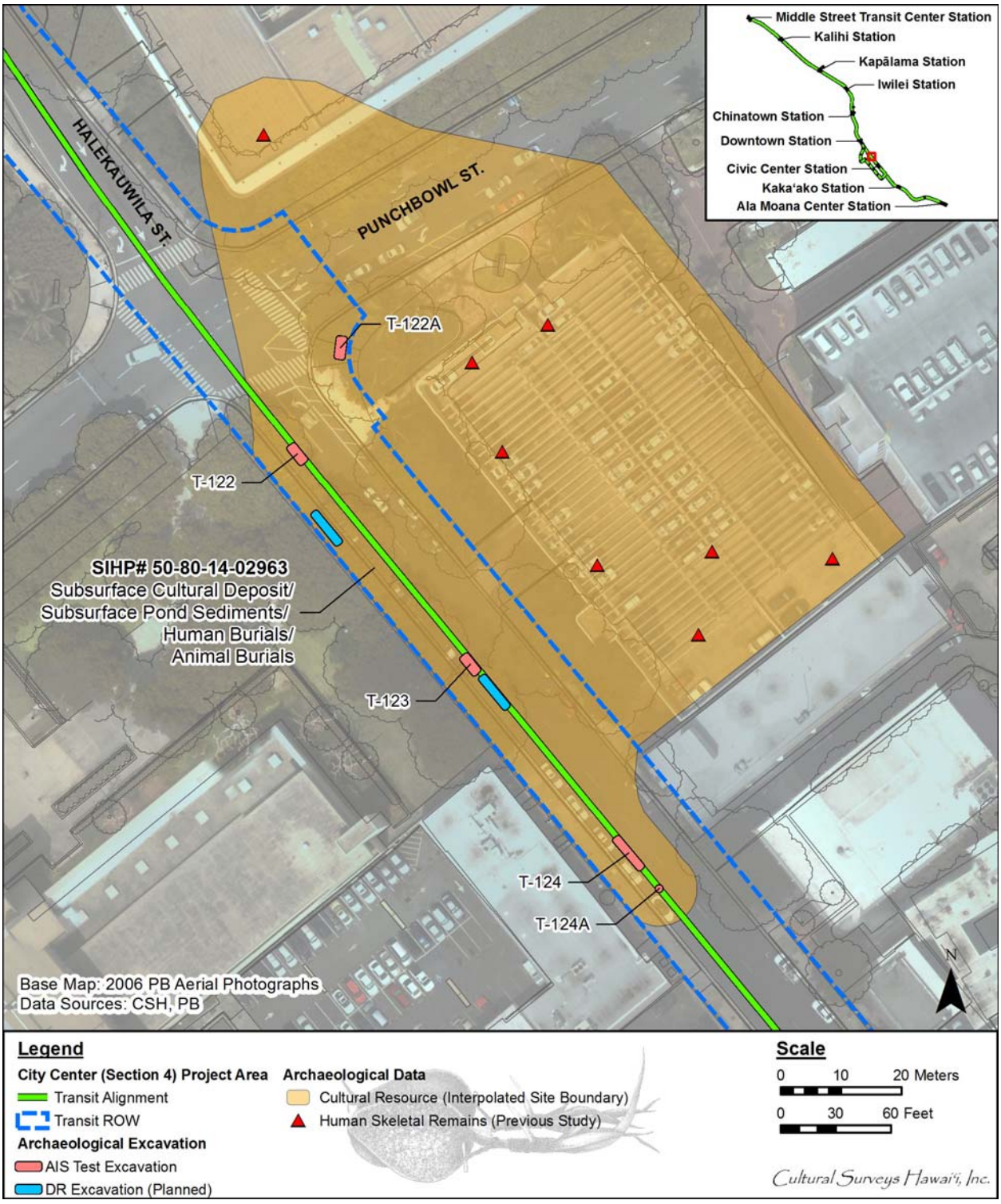


Figure 10. Aerial photograph depicting planned data recovery excavations (in blue) within the SIHP # -2963 cultural resource boundary (in yellow)

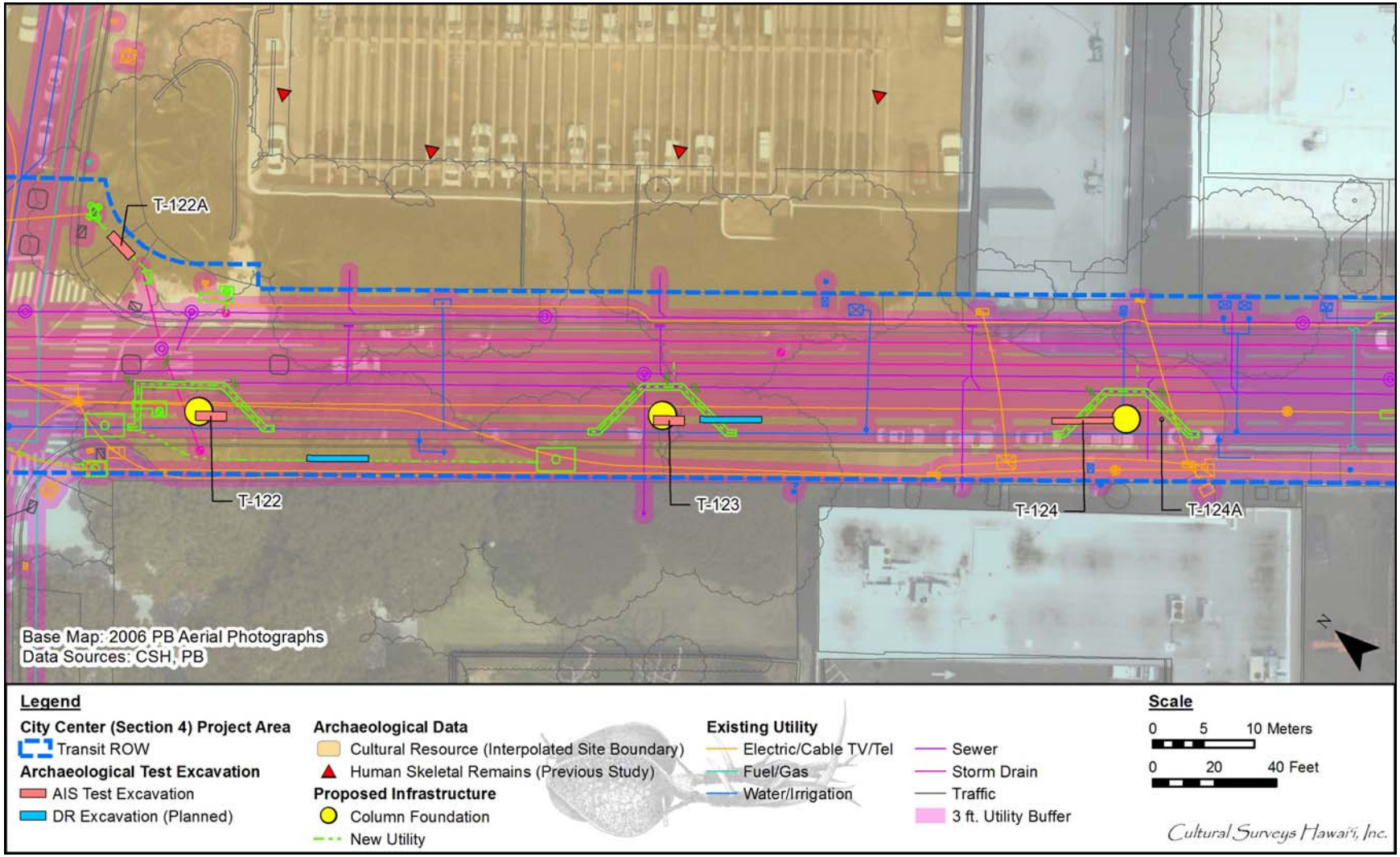


Figure 11. Aerial photograph showing the extent of existing utilities with buffers (in pink) and proposed infrastructure (in green/yellow) in relation to planned data recovery excavations (in blue) at SIHP # -2963

and to include both depositional events. The excavation will be completed using a backhoe and will range in width from 0.8 to 1.6 m. The data recovery excavation will serve to address each data recovery research objective for SIHP # -2963.

### 3.4.2 SIHP # -2963 Research Objective 2 – Pond Sediment Chronology/Content

**Research Question:** Do subsurface "Auwaiolimu Crown Land" pond sediments exhibit a depositional chronology and/or environmental change?

**Research Orientation:** Pond sediments at SIHP # -2963 were initially identified by Clark (1987) as consisting of two natural strata designated Pond Layer I and II. Pond Layer I is described by Clark (1987) as follows:

> This is a deposit of black silty mud mixed with a high organic content. It ranges from 20 to 45 cm thick and is moderately compact. Pond layer I directly underlies Fill N and directly overlies pond layer II. Pond layer I contains thick concentrations of well preserved vegetation matter (leaves, twigs, and seeds). Vegetation materials identified in this layer include *kukui* nuts (*Aleurites moluccana*), Pandanus keys (*Pandanus* spp.), and coconuts (*Cocos nucifera*). In fact numerous well preserved coconuts (with and without fibrous husks) and several coconut tree stumps with root systems were found preserved in this layer. Samples of pond layer II were collected for further identification of organic materials.
>
> Numerous historic artifacts were found in this layer. These include items such as glass bottles (whole and fragments), ceramic fragments, leather shoes, and pieces of cut wood. [Clark 1987:50]

Pond Layer II is described by Clark (1987:51) as follows: "This layer consists of gleyed, fine-textured, silty mud. It is dark greenish gray in color and ranges from 3 to 5 cm thick. It directly overlies layer III volcanic cinder and contains sparse historic artifacts, primarily broken glass."

Pond sediment, similar to Pond Layer I and II designated by Clark (1987) was encountered near the base of excavation within T-122 and T-123 during the project AIS study. The pond sediment in T-122 and T-123 could not be identified as either Pond Layer I or II.

**Data Requirements:** Data requirements for addressing Research Objective 2 include obtaining in situ column samples of pond sediment for radiocarbon/palynological analysis. The data will indicate the extent of chronological and/or environmental change within the pond sediment. This data will also be compared to data collected during Research Objective 3.

**Sampling Strategy:** Two 6-m-long data recovery excavations will be excavated within the SIHP # -2963 cultural resource boundary (see Figure 10 and Figure 11). The placement of the data recovery excavation will be implemented using information based on the 1881 Brown Map of Honolulu depiction of the edge of the "Auwaiolimu Crown Land" pond. The excavation will be placed in an effort to expose the transition between pond sediment and the former land surface, and to include both depositional events. The excavation will be completed using a backhoe and will range in width from 0.8 to 1.6 m. The data recovery excavation will serve to address each data recovery research objective for SIHP # -2963.

### 3.4.3 SIHP # -2963 Research Objective 3 – Former Land Surface Chronology/Content

**Research Question:** Do buried A-horizon sediments exhibit a depositional chronology and/or environmental change?

**Research Orientation:** A buried, culturally-enriched A-horizon with 12 associated archaeological features (Features 1 through 12) was identified within T-124. Three features (Features 1 through 3) extended from the base of Stratum IIa, the upper sandy loam portion of the buried A-horizon. The remaining nine features (Features 4 through 12) extended from the base of Stratum IIb, the lower loamy sand portion of the buried A-horizon. Visible sediment characteristics allowed for the division of the buried A-horizon into two separate depositional events. Radiocarbon analysis of charcoal collected from Feature 1 and Feature 2 that extend from the upper portion of the buried A-horizon (Stratum IIa) yielded post-Contact date ranges (AD 1810 to 1920 and 1790 to 1950, respectively). Radiocarbon analysis of charcoal collected from Feature 5 that extended from the lower portion of the buried A-horizon (Stratum IIb) yielded a pre-Contact date range (AD 1490 to 1670). No palynological analysis of the buried A-horizon was performed. While chronological data from the AIS was collected from pit features, it appears to indicate a depositional chronology is represented by the buried A-horizon in T-124. However, the study focused on the analysis of feature fill contents that, by nature, contain mixed excavated sediment, and did not collect analytical data on unmodified, in situ portions of the buried A-horizon.

**Data Requirements:** Data requirements for addressing Research Objective 3 include the collection of two to four column samples from unmodified, in situ portions of the buried A-horizon within data recovery excavations. Subsamples of the column samples will be submitted for radiocarbon/palynological analysis. The data will indicate the extent of chronological and/or environmental change through time of the former land surface. This data will be compared to the data collected during Research Objective 2.

**Sampling Strategy:** Two 6-m-long data recovery excavations will be excavated within the SIHP # -2963 cultural resource boundary (see Figure 10 and Figure 11). The placement of the data recovery excavation will be implemented using information based on the 1881 Brown Map of Honolulu depiction of the edge of the “Auwaiolimu Crown Land” pond. The excavation will be placed in an effort to expose the transition between pond sediment and the former land surface, and to include both depositional events. The excavation will be completed using a backhoe and will range in width from 0.8 to 1.6 m. The data recovery excavation will serve to address each data recovery research objective for SIHP # -2963.

## 3.5 SIHP # 50-80-14-7190

SIHP # 50-80-14-7190 consists of subsurface salt pan remnants that are located southwest (*makai*) of Halekauwila Street, between South and Keawe Streets. This archaeological cultural resource was first identified by Pammer et al. (2011) during an archaeological inventory survey for the Block 2 Parking Lot located between the HHCTCP alignment along Halekauwila Street and an additional HHCTCP utility corridor along Pohukaina Street and including a portion of the Civic Center Station footprint. SIHP # -7190 was also identified within T-229 and T-230 of the current archaeological inventory survey.

### 3.5.1 SIHP # -7190 Research Objective 1 – Identification (Comparative/Stratigraphic)

**Research Question:** How does the construction and depositional sequence of modern salt pans compare to the depositional sequence of salt pan remnants identified at SIHP # -7190?

**Research Orientation:** During the Pammer et al. (2011) study and the current project AIS study, alternating layers of peat and clay were identified as subsurface salt pan remnants. Pammer et al. (2011:239) suggests that this unique depositional sequence is "the result of repeated flooding, drying, scraping and removal of salt during salt production." The interpretation of this depositional sequence as salt pan remnants was largely based on historic maps and background information that depict or document salt pans within this portion of Kaka‘ako. While salt production in Kaka‘ako ceased by the early twentieth century, traditionally-constructed salt pans are still in use at Pu‘olo Point in Hanapepe. Bennett (1931) describes the account of Mr. Alexander McBryde's experience with traditional salt production along the south shore of Kaua‘i:

> Mr. Alexander McBryde reports that in his youth he helped the Hawaiian make salt in the beds next to the Nomilu fish pond (Site 67). He remembers that the water was let in from the large fish pond into the small pans where it was allowed to stand for a long time while some of the water evaporated. Special drying pans were used, walled off from the others and paved with clay which the sun baked dry. Over this, just before using, was spread a thin layer of oily clay brought from some special locality. The concentrated salt water was then run into the drying pan. Two kinds of salt resulted; that which crystallized on the top and was blown to one side by the breeze, and that which crystallized on the bottom. The salt was then pounded until fine, and often mixed with red dirt. [Bennett 1931:24]

Similar methods of salt production are practiced today on Pu‘olo Point, an area that may have been used for traditional salt production since prior to European Contact. It seems likely that subsurface stratigraphic evidence of repeated use of the Pu‘olo Point area for salt production may be present beneath the modern land surface. While the sediment colors and texture may vary between Hanapepe and Kaka‘ako, the method and depositional sequence may remain similar. A study of the construction and depositional sequence of modern traditionally-constructed salt pans in Hanapepe, Kaua‘i may provide a comparative method for the identification of remnant salt pan stratigraphy and deposition.

**Data Requirements:** Data requirements for addressing Research Objective 1 include the documentation of modern traditionally-constructed salt pans and potentially associated

subsurface stratigraphy at Pu‘olo Point in Hanapepe, Kaua‘i. The documentation will proceed under the permission and guidance of the land owner and salt pan caretaker(s). Documentation will include surface recordation of one or more active salt pans with hand-drawn maps, written description, and photographs. If permissible, a minimum of two small controlled excavations will be completed within the salt pan area in an effort to expose portions of the depositional sequence associated with repeated construction and use of salt pans. The excavations will be documented with stratigraphic profile maps, sediment descriptions, and photographs. If permissible, a minimum of two column samples will be collected, one for reflectivity analysis (see Research Objective 2) and one for chronology/content analysis (see Research Objective 3). This data may provide a comparative method for the identification of remnant salt pan stratigraphy and deposition, and will be compared to the findings of data recovery excavations at SIHP # -7190. If subsurface excavation cannot be completed within the Hanapepe salt pan area, additional background research on salt pan construction is required for the interpretation of remnant salt pan stratigraphy.

**Sampling Strategy:** A minimum of two 1-m-long excavations will be excavated within the salt pan area at Pu‘olo Point in Hanapepe, Kaua‘i. The test excavations will be completed using a flat-bladed shovel and/or trowel. The width of the excavation will be no more than 0.5 m, and the depth of the excavation will be dependent upon findings. One or more 12-m-long data recovery excavations will be excavated within the SIHP # -7190 interpolated boundary in the vicinity of T-229 and T-230 within the project APE (Figure 12 and Figure 13). The excavation will be initiated using a backhoe to remove fill deposits. Hand excavation will then be initiated through portions of the salt pan remnants and all natural sand deposits. The backhoe will then be used to complete the excavation to the water table. The width of the data recovery excavation will range from 0.8 to 1.6 m.

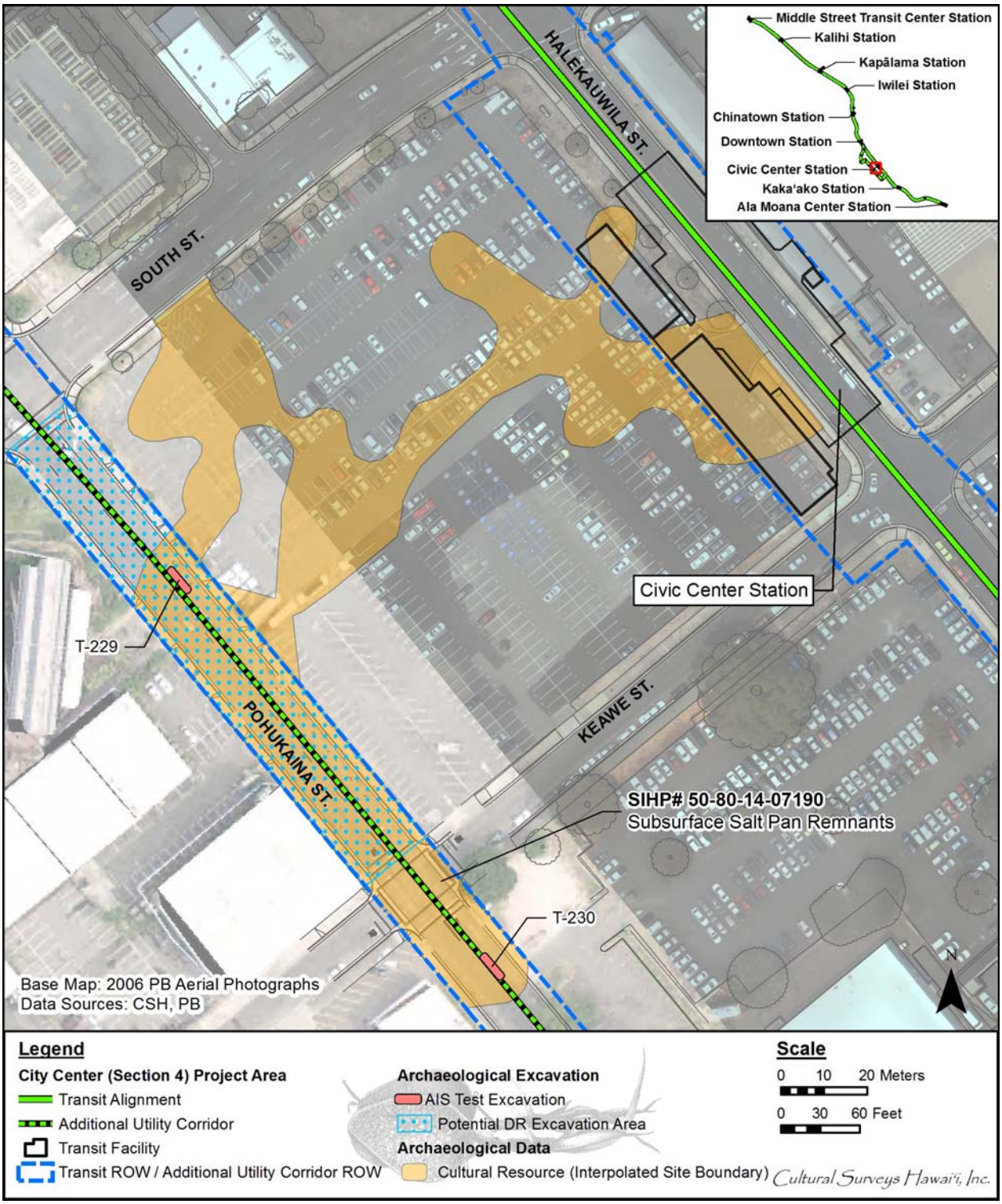


Figure 12. Aerial photograph depicting the planned data recovery excavation area (dotted light blue) within or adjacent to the SIHP # -7190 cultural resource boundary (in yellow)

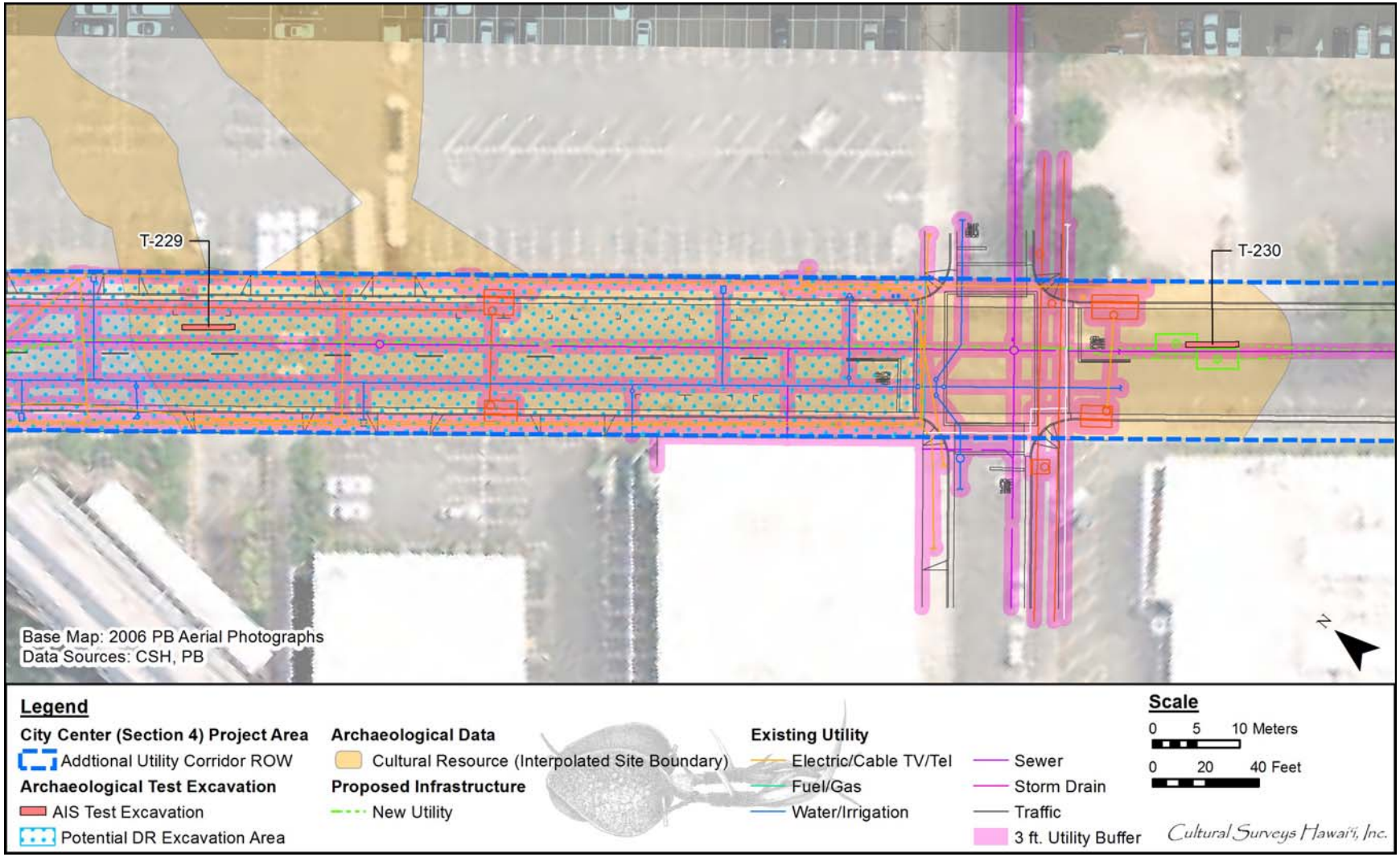


Figure 13. Aerial photograph showing the extent of existing utilities with buffers (in pink) and proposed infrastructure (in green/yellow) in relation to the planned data recovery excavation area (dotted light blue) at SIHP # -7190

### 3.5.2 SIHP # -7190 Research Objective 2 – Identification (Resistivity Analysis)

**Research Question:** Can resistivity analysis be used to identify subsurface salt pan remnants?

**Research Orientation:** During the Pammer et al. (2011) study and the current project AIS study, alternating layers of peat and clay were identified as subsurface salt pan remnants. Pammer et al. (2011:239) suggests that this unique depositional sequence is "the result of repeated flooding, drying, scraping and removal of salt during salt production." The interpretation of this depositional sequence as salt pan remnants was largely based on historic maps and background information that depict or document salt pans within this portion of Kaka‘ako. While the interpretation of the depositional sequence appears accurate, testable analytical methodology is required. Resistivity study may be the analytical method for the identification of salt pan remnants. Cummings et al. (2012) explains resistivity study for salt pans as follows:

> The principle of a resistivity study is to identify the quantities of electrolytes that were concentrated in the sediments. Sediments with a larger electrolyte load are more conductive when wet. Sediments that are more conductive will have less resistivity. Resistivity is measured as ohms of resistance. Using resistivity to gauge the quantity of electrolytes, or in this case salts, in sediments thought to represent salt pans provides a fast assessment of the concentration of salts within specific deposits, with smaller resistivity numbers reflecting greater concentration of salts.[ Cummings et al. 2012:4]

This quantitative analysis has the potential to detect elevated levels of electrolytes or salts within individual sediment samples from salt pan remnants when compared to sediment control samples collected from above and below the salt pan remnants.

**Data Requirements:** Data requirements from addressing Research Objective 2 include the collection of two to four column samples of in situ sediment collected from cleaned test sidewalls of data recovery test excavations at SIHP # -7190. Additional column samples may also be collected from modern salt pans during fieldwork for Research Objective 1 for comparative analysis. Column samples will minimally include five subsamples of three to five cm increments collected from the fill overlying the salt pan remnants (one subsample), the alternating layers of peat and clay representing salt pan remnants (three subsamples), and the natural marine sediment underlying the salt pan remnants (one subsample). The subsamples will be submitted for resistivity study. The subsamples collected from the overlying fill and underlying natural sediment will be used as control samples to compare with the resistivity of salt pan remnants.

**Sampling Strategy:** One or more 12-m-long data recovery excavations will be excavated within the SIHP # -7190 interpolated boundary in the vicinity of T-229 and T-230 within the project APE (see Figure 12 and Figure 13). The excavation will be initiated using a backhoe to remove fill deposits. Hand excavation will then be initiated through portions of the salt pan remnants and all natural sand deposits. The backhoe will then be used to complete the excavation to the water table. The width of the data recovery excavation will range from 0.8 to 1.6 m.

### 3.5.3 SIHP # -7190 Research Objective 3 – Chronology/Content

**Research Question:** Do subsurface salt pan remnants exhibit a depositional chronology and/or environmental change?

**Research Orientation:** During the Pammer et al. (2011) study and the current project AIS study, alternating layers of peat and clay were identified as subsurface salt pan remnants. Pammer et al. (2011:239) suggests that this unique depositional sequence is "the result of repeated flooding, drying, scraping and removal of salt during salt production." The depositional sequence of the SIHP # -7190 appears to represent multiple phases of salt production indicating the potential to document a depositional chronology and environmental change through radiocarbon and palynological analysis of each alternating stratigraphic layer.

**Data Requirements:** Data requirements from addressing Research Objective 3 include the collection of two to four column samples of in situ sediment collected from cleaned test sidewalls of data recovery test excavations at SIHP # -7190. Additional column samples may also be collected from modern salt pans during fieldwork for Research Objective 1 for comparative analysis. Column samples will include subsamples divided by stratigraphic layer (peat, clay) and subdivided by three to five cm increments. The subsamples will be submitted for radiocarbon/palynological analysis. The data will indicate the extent of chronological and/or environmental change between each alternating layer of salt pan sediment.

**Sampling Strategy:** One or more 12-m-long data recovery excavations will be excavated within the SIHP # -7190 interpolated boundary in the vicinity of T-229 and T-230 within the project APE (see Figure 12 and Figure 13). The excavation will be initiated using a backhoe to remove fill deposits. Hand excavation will then be initiated through portions of the salt pan remnants and all natural sand deposits. The backhoe will then be used to complete the excavation to the water table. The width of the data recovery excavation will range from 0.8 to 1.6 m.

## 3.6 SIHP # 50-80-14-5820

SIHP # 50-80-14-5820 is a subsurface cultural deposit including 41 features in the vicinity of Mother Waldron Park and Halekauwila Street from Keawe Street to east of Ohe Street. This archaeological cultural resource was first reported by Winieski and Hammatt (2000) as consisting of 11 human burials encountered within and near Mother Waldron Park and Halekauwila Street. SIHP # -5820 was identified within T-141, T-142, T-145, T-146A, T-150, T-151, and T-151A during the project AIS study.

### 3.6.1 SIHP # -5820 Research Objective 1– Pit Feature Function/Interrelationship

**Research Question:** Can systematic excavation and data collection assist in the determination of archaeological pit feature function and interrelationship?

**Research Orientation:** SIHP # -5820 contained a total of 41 archaeological features. Eleven features were human burial previously identified by Winieski and Hammatt (2000). Of the remaining features, 25 were documented as originating from a buried, culturally-enriched A-horizon. The 25 features (Features 1 through 25) included one horse burial pit with disarticulated and scattered human remains, one pit containing two dog burials, one *imu* pit, and 22 indeterminate pits. The archaeological pit features of SIHP # -5820 were identified during hand excavation of the buried A-horizon. Each of the 25 pits were minimally documented on plan or stratigraphic profile maps and sampled with a focus on content analysis. Plan view maps typically documented the interface between the buried A-horizon and underlying Jaucas sand. Stratigraphic profile maps included archaeological features that were present in excavation sidewalls. Samples from archaeological pit features varied in size, location within the pit, and processing technique (dry- versus wet-screened). The data obtained from the AIS study accurately documented the content of archaeological pit features, however, additional interpretive data regarding pit feature function and interrelationship may not be apparent using content analysis alone. Archaeological data recovery fieldwork at SIHP # -5820 will use controlled excavation methodology and laboratory analysis in an effort to gather interpretive data from archaeological pit features.

**Data Requirements:** Data requirements for addressing Research Objective 1 include the establishment and implementation of systematic excavation and sampling methodology for data recovery of the buried A-horizon and associated archaeological features of SIHP # -5820. This controlled excavation methodology and sampling strategy will facilitate the detailed recordation of pit feature origin, termination, content, shape, dimension, and stratigraphic context. This data will be used to assess feature function and interrelationships based on variations in content per volume and dimensions in plan, profile, and cross-section. The results of data recovery fieldwork at SIHP # -5820 will then be compared to the results of the AIS study excavation of SIHP # -5820 with a discussion on the effectiveness of systematic excavation and data collection in the determination of archaeological pit feature function and interrelationship.

**Sampling Strategy:** Three 6-m-long data recovery excavations will be excavated within the SIHP # -5820 cultural resource boundary (Figure 14 to Figure 16). The excavations will be initiated using a backhoe to remove fill deposits. Systematic excavation will then be initiated

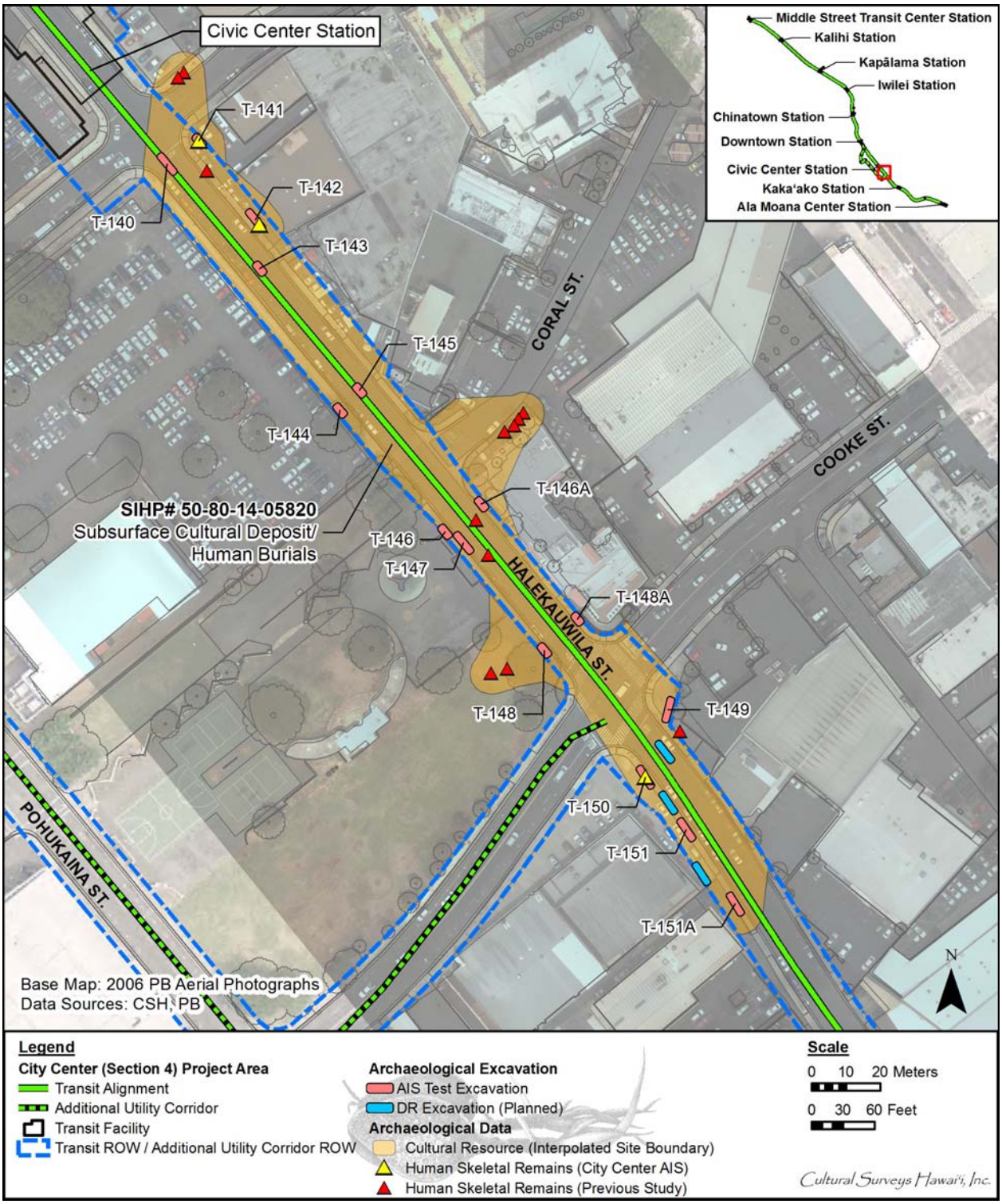


Figure 14. Aerial photograph depicting planned data recovery excavations (in blue) within the SIHP # -5820 cultural resource boundary (in yellow)

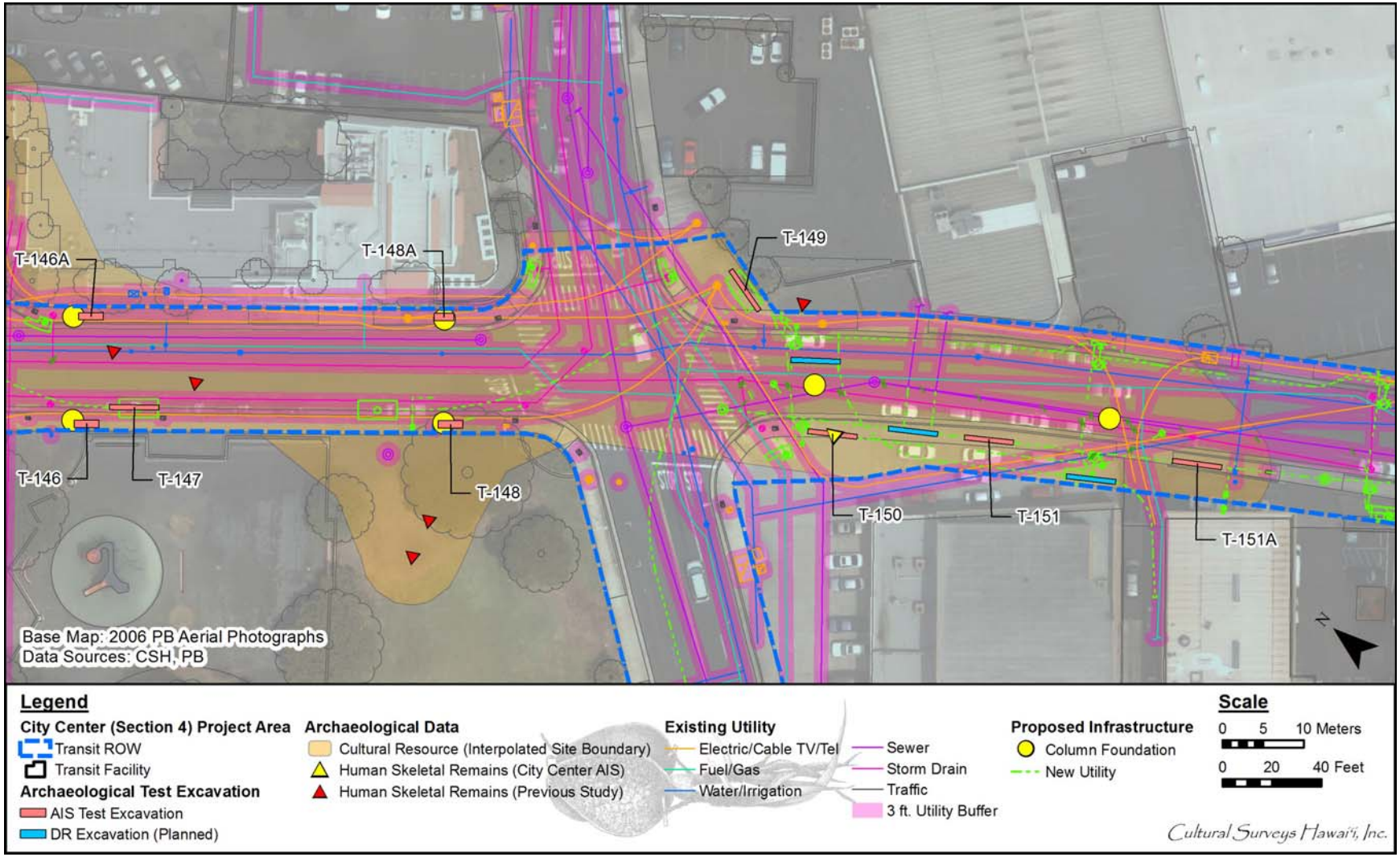


Figure 15. Aerial photograph showing the extent of existing utilities with buffers (in pink) and proposed infrastructure (in green/yellow) in relation to planned data recovery excavations (in blue) within the northwestern portion of SIHP # -5820

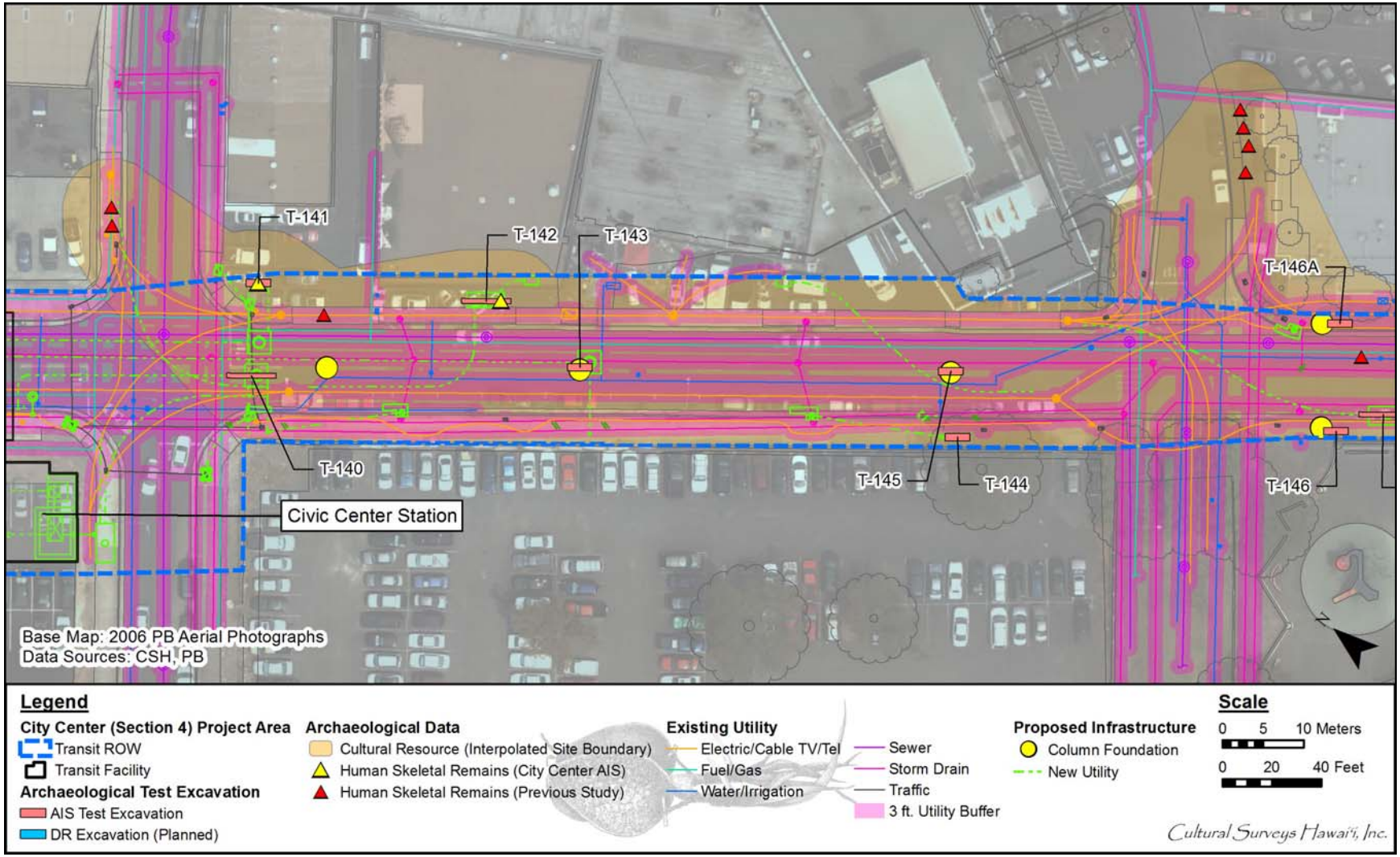


Figure 16. Aerial photograph showing the extent of existing utilities with buffers (in pink) and proposed infrastructure (in green/yellow) in relation to planned data recovery excavations (in blue) within the southeastern portion of SIHP # -5820

through the buried A-horizon in accordance with the data requirements of Research Objective 1. The remainder of the Jaucus sand will be hand-excavated to the water table. The width of the data recovery excavations will range from 0.8 to 1.6 m. These two data recovery excavations will serve to address each data recovery research objective for SIHP # -5820.

### 3.6.2 SIHP # -5820 Research Objective 2 – Chronology/Content

**Research Question:** Do buried A-horizon sediments exhibit a depositional chronology and/or environmental change?

**Research Orientation:** During the City Center Section 4 AIS, a buried, culturally-enriched A-horizon was identified in seven test excavations (T-141, T-142, T-145, T-146A, T-150, T-151, and T-151A). Six additional City Center Section 4 AIS test excavations were conducted in the vicinity of SIHP # -5820 (T-144, T-146, T-147, T-148, T-148A, and T-149); however, due to the presence of either concrete jackets or the water table, these excavations did not reach depths sufficient to determine if a subsurface cultural layer was present. The culturally-enriched silty sand or loamy sand A-horizon, exhibiting both pre- and post-Contact land usage and designated Stratum II, developed on the natural Jaucas sand surface. The AIS study of SIHP # -5820 focused on the documentation of the content of the buried A-horizon with a specific focus on the 25 newly identified pit features that originated from the base of the A-horizon and intruded into underlying Jaucas sand. Radiocarbon analysis was limited to material collected from pit features. No palynological analysis of the buried A-horizon was performed. The results of the AIS study suggested that the buried A-horizon was a dynamic land surface with mixed use from pre-Contact to the early twentieth century. However, the study focused on the analysis of feature fill contents that, by nature, contain mixed excavated sediment, and did not collect analytical data on unmodified, in situ portions of the buried A-horizon.

**Data Requirements:** Data requirements for addressing Research Objective 2 include the collection of two to four column samples from unmodified, in situ portions of the buried A-horizon within data recovery excavations. Subsamples of the column samples will be submitted for radiocarbon/palynological analysis. The data will indicate the extent of chronological and/or environmental change through time of the former land surface. This data will be compared to the data collected from the systematic excavation of the buried A-horizon outlined in Research Objective 1. The pre-Contact, traditional Hawaiian, and post-Contact cultural content of each 10 cm increment of the buried A-horizon collected for Research Objective 1 will be compared to the chronological and/or environmental data collected for Research Objective 2.

**Sampling Strategy:** Three 6-m-long data recovery excavations will be excavated within the SIHP # -5820 cultural resource boundary (see Figure 14 to Figure 16). The excavations will be initiated using a backhoe to remove fill deposits. Systematic excavation will then be initiated through the buried A-horizon in accordance with the data requirements of Research Objective 1. The remainder of the Jaucus sand will be hand-excavated to the water table. The width of the data recovery excavations will range from 0.8 to 1.6 m. These two data recovery excavations will serve to address each data recovery research objective for SIHP # -5820.

# 3.7 SIHP # 50-80-14-7429

SIHP # 50-80-14-7429 is a subsurface cultural deposit including seven features in a former land surface (buried A-horizon) that extends throughout a portion of the Ross Dress for Less store parking lot and an adjacent throughway parking lot, located near the intersection of Ward Avenue and Queen Street. This archaeological cultural resource was identified during the City Center AIS within T-167, T-168, T-168A, T-168B, T-169, T-170, and T-170A.

### 3.7.1 SIHP # -7429 Research Objective 1– Pit Feature Function/Interrelationship

**Research Question:** Can systematic excavation and data collection assist in the determination of archaeological pit feature function and interrelationship?

**Research Orientation:** SIHP # -7429 contained a total of seven archaeological features including six pit features and one human skeletal element. The six pit features (Features 1 through 5 and Feature 7) originated from the A-horizon and were observed to be intrusive into the underlying Jaucas sand. Two pit features were interpreted as possible post molds (Features 2 and 4), and the other four pits (Features 1, 3, 5, and 7) were of indeterminate function. Feature 6, an isolated human cranial fragment, was contained within the buried A-horizon with no indication of a pit outline. The archaeological pit features of SIHP # -7429 were identified during hand excavation of the buried A-horizon. Each of the six pits were minimally documented on plan or stratigraphic profile maps and sampled with a focus on content analysis. Plan view maps typically documented the interface between the buried A-horizon and underlying Jaucas sand. Stratigraphic profile maps included archaeological features that were present in excavation sidewalls. Samples from archaeological pit features varied in size, location within the pit, and processing technique (dry- versus wet-screened). The data obtained from the AIS study accurately documented the content of archaeological pit features, however, additional interpretive data regarding pit feature function and interrelationship may not be apparent using content analysis alone. Archaeological data recovery fieldwork at SIHP # -7429 will use controlled excavation methodology and laboratory analysis in an effort to gather interpretive data from archaeological pit features.

**Data Requirements:** Data requirements for addressing Research Objective 1 include the establishment and implementation of systematic excavation and sampling methodology for data recovery of the buried A-horizon and associated archaeological features of SIHP # -7429. This controlled excavation methodology and sampling strategy will facilitate the detailed recordation of pit feature origin, termination, content, shape, dimension, and stratigraphic context. This data will be used to assess feature function and interrelationships based on variations in content per volume and dimensions in plan, profile, and cross-section. The results of data recovery fieldwork at SIHP # -7429 will then be compared to the results of the AIS study excavation of SIHP # -7429 with a discussion on the effectiveness of systematic excavation and data collection in the determination of archaeological pit feature function and interrelationship.

**Sampling Strategy:** Two 6-m-long data recovery excavations will be excavated within the SIHP # -7429 cultural resource boundary (Figure 17 and Figure 18). The excavations will be initiated using a backhoe to remove fill deposits. Systematic excavation will then be initiated through the buried A-horizon in accordance with the data requirements of Research Objective 1.

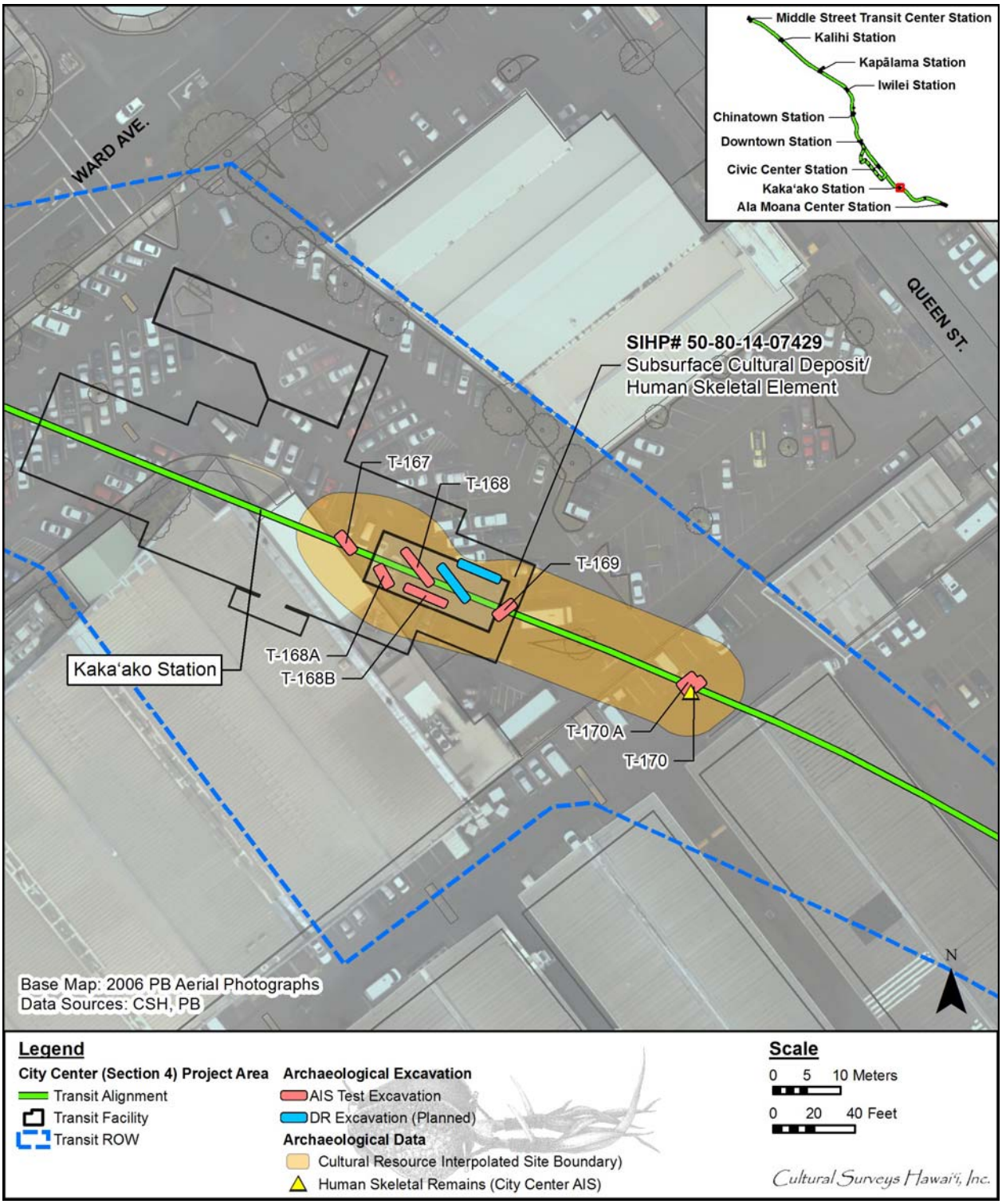


Figure 17. Aerial photograph depicting planned data recovery excavations (in blue) within the SIHP # -7429 cultural resource boundary (in yellow)

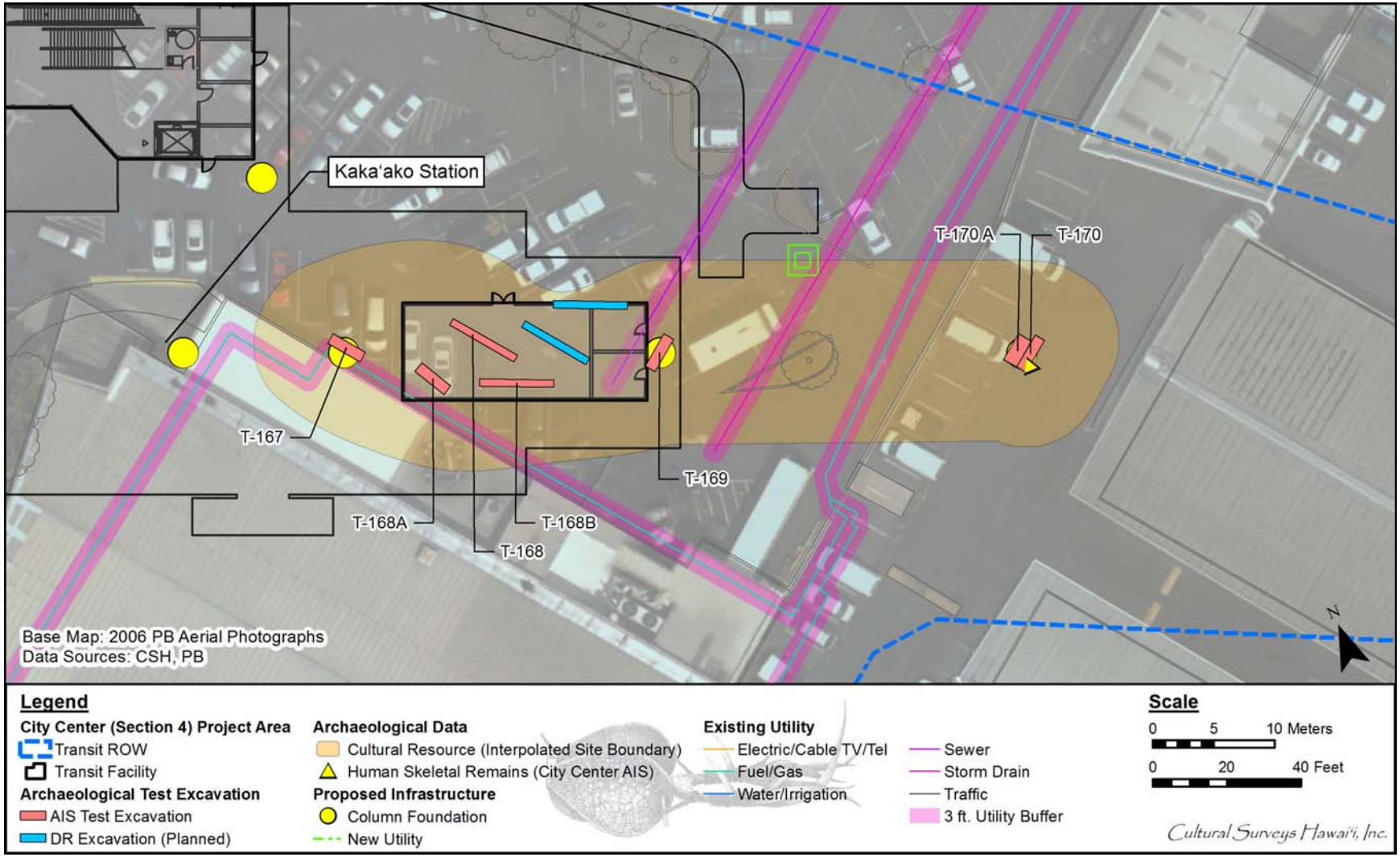


Figure 18. Aerial photograph showing the extent of existing utilities with buffers (in pink) and proposed infrastructure (in green/yellow) in relation to planned data recovery excavations (in blue) at SIHP # -7429

The remainder of the Jaucus sand will be hand-excavated to the water table. The width of the data recovery excavations will range from 0.8 to 1.6 m. These two data recovery excavations will serve to address each data recovery research objective for SIHP # -7429.

### 3.7.2 SIHP # -7429 Research Objective 2 – Chronology/Content

**Research Question:** Do buried A-horizon sediments exhibit a depositional chronology and/or environmental change?

**Research Orientation:** During the City Center Section 4 AIS, a buried, culturally-enriched A-horizon containing seven archaeological features was identified in seven test excavations (T-167, T-168, T-168A, T-168B, T-169, T-170, and T-170A). The archaeological features included six pits and one isolated human cranial fragment. The buried culturally-enriched silty sand or loamy sand A-horizon (SIHP # -7429), exhibiting both pre- and post-Contact land usage and designated Stratum II, was developed over the natural Jaucas sand surface in the seven test excavations. The AIS study of SIHP # -7429 focused on the documentation of the content of the buried A-horizon with a specific focus on the six pit features that originated from the A-horizon and intruded into underlying Jaucas sand. Radiocarbon analysis was limited to material collected from pit features. No palynological analysis of the buried A-horizon was performed. The results of the AIS study suggested that the buried A-horizon was a dynamic land surface with mixed use from pre-Contact to the early twentieth century. However, the study focused on the analysis of feature fill contents that, by nature, contain mixed excavated sediment, and did not collect analytical data on unmodified, in situ portions of the buried A-horizon.

**Data Requirements:** Data requirements for addressing Research Objective 2 include the collection of two to four column samples from unmodified, in situ portions of the buried A-horizon within data recovery excavations. Subsamples of the column samples will be submitted for radiocarbon/palynological analysis. The data will indicate the extent of chronological and/or environmental change through time of the former land surface. This data will be compared to the data collected from the systematic excavation of the buried A-horizon outlined in Research Objective 1. The pre-Contact, traditional Hawaiian, and post-Contact cultural content of each 10 cm increment of the buried A-horizon collected for Research Objective 1 will be compared to the chronological and/or environmental data collected for Research Objective 2.

**Sampling Strategy:** Two 6-m-long data recovery excavations will be excavated within the SIHP # -7429 cultural resource boundary (see Figure 17 and Figure 18). The excavations will be initiated using a backhoe to remove fill deposits. Systematic excavation will then be initiated through the buried A-horizon in accordance with the data requirements of Research Objective 1. The remainder of the Jaucus sand will be hand-excavated to the water table. The width of the data recovery excavations will range from 0.8 to 1.6 m. These two data recovery excavations will serve to address each data recovery research objective for SIHP # -7429.

# 3.8 SIHP # 50-80-14-2918

SIHP # 50-80-14-2918 is a subsurface cultural deposit consisting of 30 features that is located along Punchbowl Street near the Ala Moana intersection, and *makai* of Pohukaina Street between Punchbowl and South Streets. This archaeological cultural resource was first identified in 1985 by Martha Yent of State Parks as consisting of at least five burial pits located at the Honolulu Ironworks construction site (Yent 1985). This archaeological cultural resource was identified during the City Center AIS within T-226A, T-226B, T-226C, T-226D, T-227, and T-227A.

### 3.8.1 SIHP # -2918 Research Objective 1– Pit Feature Function/Interrelationship

**Research Question:** Can systematic excavation and data collection assist in the determination of archaeological pit feature function and interrelationship?

**Research Orientation:** SIHP # -2918 contained a total of 26 archaeological features. The 26 features (Features 1 through 23 and 25 through 27) include one human burial pit, one dog burial pit, three post molds, and 21 indeterminate pits. Four additional features (Features 24 and 28 through 30), which are not associated with the A-horizon, were also identified. The archaeological pit features of SIHP # -2918 were identified during hand excavation of the buried A-horizon. Each of the 26 pits were minimally documented on plan or stratigraphic profile maps and sampled with a focus on content analysis. Plan view maps typically documented the interface between the buried A-horizon and underlying Jaucas sand. Stratigraphic profile maps included archaeological features that were present in excavation sidewalls. Samples from archaeological pit features varied in size, location within the pit, and processing technique (dry- versus wet-screened). The data obtained from the AIS study accurately documented the content of archaeological pit features, however, additional interpretive data regarding pit feature function and interrelationship may not be apparent using content analysis alone. Archaeological data recovery fieldwork at SIHP # -2918 will use controlled excavation methodology and laboratory analysis in an effort to gather interpretive data from archaeological pit features.

**Data Requirements:** Data requirements for addressing Research Objective 1 include the establishment and implementation of systematic excavation and sampling methodology for data recovery of the buried A-horizon and associated archaeological features of SIHP # -2918. This controlled excavation methodology and sampling strategy will facilitate the detailed recordation of pit feature origin, termination, content, shape, dimension, and stratigraphic context. This data will be used to assess feature function and interrelationships based on variations in content per volume and dimensions in plan, profile, and cross-section. The results of data recovery fieldwork at SIHP # -2918 will then be compared to the results of the AIS study excavation of SIHP # -2918 with a discussion on the effectiveness of systematic excavation and data collection in the determination of archaeological pit feature function and interrelationship.

**Sampling Strategy:** Three 6-m-long data recovery excavations will be excavated within the SIHP # -2918 cultural resource boundary (Figure 19 and Figure 20). The excavations will be initiated using a backhoe to remove fill deposits. Systematic excavation will then be initiated through the buried A-horizon in accordance with the data requirements of Research Objective 1. The remainder of the Jaucus sand will be hand-excavated to the water table. The width of the data recovery excavations will range from 0.8 to 1.6 m. These two data recovery excavations will serve to address each data recovery research objective for SIHP # -2918.

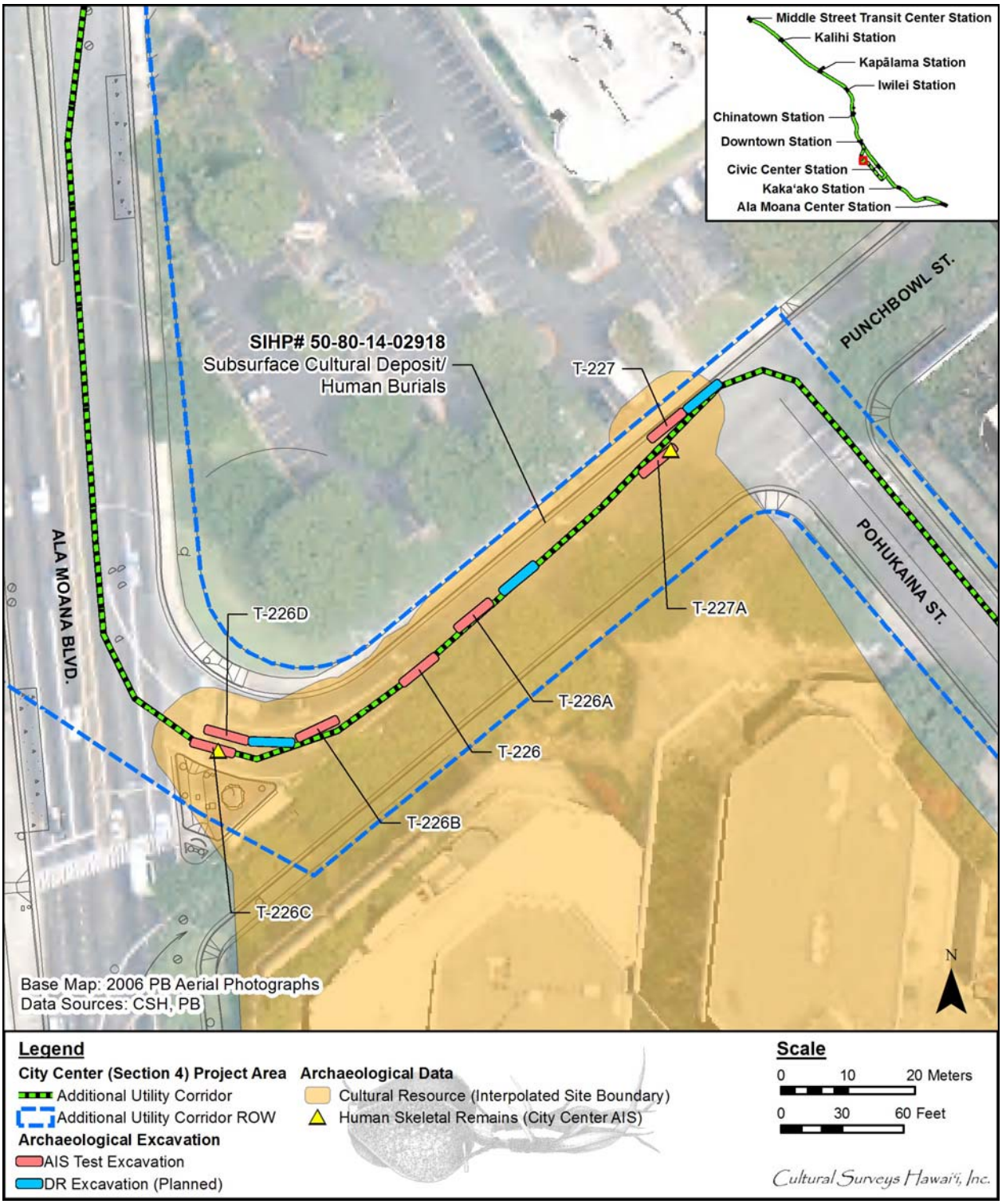


Figure 19. Aerial photograph depicting planned data recovery excavations (in blue) within the SIHP # -2918 cultural resource boundary (in yellow)

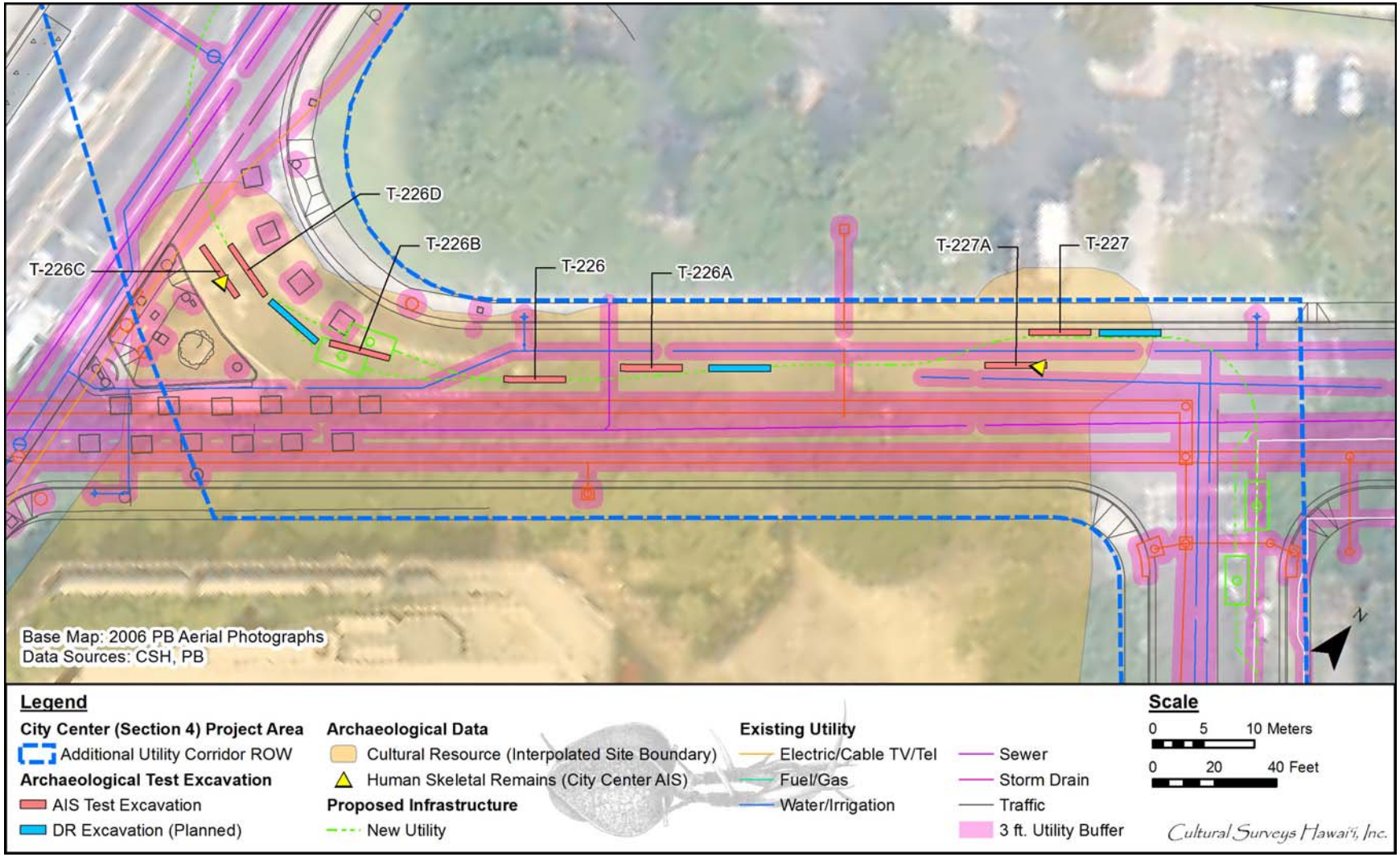


Figure 20. Aerial photograph showing the extent of existing utilities with buffers (in pink) and proposed infrastructure (in green/yellow) in relation to planned data recovery excavations (in blue) at SIHP # -2918

### 3.8.2 SIHP # -2918 Research Objective 2 – Chronology/Content

**Research Question:** Do buried A-horizon sediments exhibit a depositional chronology and/or environmental change?

**Research Orientation:** During the City Center Section 4 AIS, a buried, culturally-enriched loamy sand A-horizon containing 26 archaeological features was identified in six test excavations (T-226A, T-226B, T-226C, T-226D, T-227, and T-227A). The 26 features (Features 1 through 23 and 25 through 27) include one human burial pit, one dog burial pit, three post molds, and 21 indeterminate pits. Four additional features (Features 24 and 28 through 30), which are not associated with the A-horizon, were also identified. The AIS study of SIHP # -2918 focused on the documentation of the content of the buried A-horizon with a specific focus on the 26 pit features that originated from the A-horizon and intruded into underlying Jaucas sand. Radiocarbon analysis was limited to material collected from pit features. No palynological analysis of the buried A-horizon was performed. The results of the AIS study suggested that the buried A-horizon was a dynamic land surface with mixed use from pre-Contact to the early twentieth century. However, the study focused on the analysis of feature fill contents that, by nature, contain mixed excavated sediment, and did not collect analytical data on unmodified, in situ portions of the buried A-horizon.

**Data Requirements:** Data requirements for addressing Research Objective 2 include the collection of two to four column samples from unmodified, in situ portions of the buried A-horizon within data recovery excavations. Subsamples of the column samples will be submitted for radiocarbon/palynological analysis. The data will indicate the extent of chronological and/or environmental change through time of the former land surface. This data will be compared to the data collected from the systematic excavation of the buried A-horizon outlined in Research Objective 1. The pre-Contact, traditional Hawaiian, and post-Contact cultural content of each 10 cm increment of the buried A-horizon collected for Research Objective 1 will be compared to the chronological and/or environmental data collected for Research Objective 2.

**Sampling Strategy:** Three 6-m-long data recovery excavations will be excavated within the SIHP # -2918 cultural resource boundary (see Figure 19 and Figure 20). The excavations will be initiated using a backhoe to remove fill deposits. Systematic excavation will then be initiated through the buried A-horizon in accordance with the data requirements of Research Objective 1. The remainder of the Jaucus sand will be hand-excavated to the water table. The width of the data recovery excavations will range from 0.8 to 1.6 m. These two data recovery excavations will serve to address each data recovery research objective for SIHP # -2918.

# Section 4 Data Recovery Methods

## 4.1 Field Methods

### 4.1.1 Limiting Factors

Limiting factors affected the placement of planned data recovery excavations within the HHCTCP City Center project area. A graphic composite depicting limiting factors was produced using: 1) existing subsurface utility locations and project APE boundaries supplied in CAD files by project engineers; 2) GIS data maintained by CSH; and 3) excavation safety requirement information provided by project engineers and created in GIS by CSH. Limiting factors were then overlayed on aerial photographs of each cultural resource recommended for data recovery within Section 3 (see Figure 4, Figure 6, Figure 8, Figure 11, Figure 13, Figure 15, Figure 16, Figure 18, and Figure 20). Data recovery excavations were generally limited to areas within established interpolated cultural resource boundaries (depicted in yellow) and within the project's proposed infrastructure (depicted in green/yellow). Furthermore, the presence of numerous existing subsurface utilities with associated 3-ft excavation safety buffers (depicted in pink) within the APE severely limited excavations areas.

The cultural resource boundary of SIHP # -2963 is an example of the limiting factors affecting the location of planned data recovery excavations. At SIHP # -2963, the project APE is minimal and is surrounded by numerous existing subsurface utilities that require a minimum 3-ft buffer. These limiting factors only allowed for the placement of two data recovery excavations at SIHP # -2963, both of which are located within the area of pond sediments identified within AIS excavations T-122 and T-123 and away from the sand sediments identified within T-124 and T-124A.

The use of limiting factors to plan data recovery excavations resulted in the identification of 17 test locations within the eight cultural resources recommended for archaeological data recovery.

### 4.1.2 Mechanically Assisted Excavation

The excavation of each planned data recovery excavation will be assisted by the use of backhoes and track excavators. Mechanical assistance will be used to remove surface material such as asphalt, concrete, and sod as well as underlying fill material where appropriate. In the majority of data recovery excavations, mechanical assistance may be used to excavate to near the upper boundary of each subsurface cultural resource that is being targeted for further research. CSH archaeologists will closely monitor the mechanical excavation process. Working within safety constraints, archaeologists will stop the mechanical excavation to enter the excavation and clean off the sidewalls and base to inspect for cultural resources. In areas where unstable sidewalls or depth limit the entrance of personnel into excavations, a trench shoring box may be used to access subsurface cultural resources.

Data recovery methodology has been designed to eliminate mechanical excavation through sand deposits including Jaucas sand and culturally enriched sand A-horizons above the water table. These sand deposits will be hand-excavated, in some cases using controlled excavation

methodology, to beneath the water table. During hand excavation through sand deposits, the backhoe may assist with the removal of already hand-excavated sediments. For example, if the archaeologists piled the hand-excavated sand into one corner of the excavation, the backhoe may remove this already excavated sand.

### 4.1.3 Controlled Excavation

Controlled excavation methodology will be implemented for all cultural resources containing a buried, culturally-enriched sand A-horizon component. Excavation will begin with the mechanical removal of fill deposits down to the upper boundary of the buried A-horizon. The upper boundary of the buried A-horizon will be scraped clean using a flat-bladed shovel and any exposed potential feature outlines or in situ artifacts or manuports will be mapped in plan with specific depths recorded below surface. The upper boundary will be photographed from multiple angles. Artifacts and/or manuports will be collected and bagged by provenience. If no pit features are identified, excavation of the surface will continue in 10 cm increments or by strata, stopping at each increment to clean, photograph, and map the excavation surface and to inspect for potential pit feature outlines. The excavation by 10 cm increments or strata will be accomplished using both flat-bladed shovels and trowels. All in situ artifacts or cultural material will be mapped in plan and/or profile. All pit feature fill will be collected. A 25% screening sampling strategy will be employed for the culturally-enriched strata, that is, one in every four buckets of sediment removed from the excavation will be screened and all of the contents of the sediment will be collected. Controlled excavation will cease upon the full exposure of culturally-sterile Jaucas sand or marine sediment, whereby hand excavation will continue to beneath the water table.

### 4.1.4 Subsurface Feature Documentation

Potential subsurface features such as pits, post molds, charcoal lenses, or stains will be bisected to termination. The initial bisected portion of the feature will be collected, bagged, and labeled with provenience information. The in situ portion of the bisected feature will be photographed and measured. Measurements of the bisected pit feature face will include depth of origin below surface, depth of base below surface, length in plan, and width or diameter. Each bisected pit feature face will be documented with a profile drawing that incorporates stratigraphic associations and can be referenced to a datum. If isolated charcoal fragments or artifacts are present within the bisected pit feature face they will be depicted on profile maps and removed and bagged individually with associated provenience information. The remainder of the pit feature fill will then be removed, collected, bagged, and labeled with provenience. The remaining 100% excavated feature mold will be photographed and measured. Measurements of the 100% excavated feature mold will include depth of origin below surface, depth of base below surface, length in plan, and width or diameter. Following the controlled collection and recordation of each pit feature, the remainder of the buried A-horizon will be excavated in 10 cm increments to termination. The collected feature fill, which represents 100%of the content of each feature will be weighed and dry-screened through 1/8-inch or finer wire mesh in a laboratory setting. The contents of each feature will be identified, sorted, and weighed.

### 4.1.5 Field Screening

While screening of sediments may be utilized throughout the excavation process, a specific screening sampling strategy will be employed during controlled excavation of culturally-enriched sediment. A 25% sample of culturally-enriched sediment will be collected and screened on site during excavation. The 25% sampling strategy will be maintained by selecting one out of every four buckets of culturally-enriched sediment that is removed from the excavation for screening. Screening will be performed through 1/8-inch wire mess. If finer mesh is used to screen particular samples, this information will be recorded. All of the material collected from each screened sample will be bagged and labeled with provenience information. The provenience information will not only include test excavation, stratum, and depth, but also the approximate location or quadrant of the bucket sample (e.g. northeast end, central, western quadrant). Culturally-enriched sediment that is not sampled and screened will be thoroughly inspected by archaeologists for the presence of cultural material.

### 4.1.6 Collection of Bulk Sediment Samples

In addition to screened samples and 100% collection of feature fill, periodic bulk sediment samples will be collected from culturally-enriched sediment for laboratory analysis. The purpose of bulk sediment sample collection and analysis is to identify and quantify small fraction material such as charcoal, seeds, fishhook fragments, or volcanic glass debitage that may be missed during screening through 1/8-inch wire mesh. The location of each bulk sediment sample will be indicated on plan and/or profile maps and the sample will be labeled with provenience information. Bulk sediment samples will be screened through 1/16-inch mesh in a laboratory setting. An additional stage of wet-screening may be used in certain cases to further remove the sediment matrix.

### 4.1.7 Collection of Column Samples

Column samples will be collected to fulfill data recovery research objectives with additional analysis requirements such as palynological, radiocarbon, or resistivity analysis. The collection of a continuous vertical column of horizontally-thin sediment samples is intended to indicate paleoenviromental, chronological, and/or salinity changes or similarities within a deposit or between depositional events. The column samples will be collected from cleaned excavation sidewalls. The location of each column sample will be documented on stratigraphic profile maps and photographed. Column samples will include three or more subsamples of 3-5 cm increments collected from the upper boundary, center, and lower boundary of the targeted deposit. The samples will be collected, bagged, and labeled with provenience information in accordance with the intended laboratory analysis (palynological, radiocarbon, resistivity) that is to be performed. In some instances, column subsamples may be halved or split for multiple analyses.

### 4.1.8 Collection of Palynological Samples

Palynological samples will originate from sediment that will be collected from all or part of a column subsample. As per column sample collection methodology, the excavation sidewall at the location of the sample will be cleaned. The sediment intended for pollen analysis will be handled with a trowel that has been cleaned in distilled water and wiped with a clean paper towel. The trowel will be used to extract approximately 100 cc or 1/2 cup of sediment to be immediately

placed and sealed within a plastic bag. The sample bag will be double-bagged and redundantly labeled with provenience information. The sample can then be directly submitted for palynological analysis.

### 4.1.9 Collection of Radiocarbon Samples

Radiocarbon samples will originate from in situ charcoal concentrations, lenses, or fragments as well as from sediment collected from all or part of a column subsample. Individual charcoal fragments collected during excavation will be handled as little as possible and preferably only with a trowel or tweezers. Individual charcoal will be placed securely within a pocket of aluminum foil and within a sample bag labeled with provenience information. These samples will then be submitted for wood taxa identification. Short-lived plant species that were identified by taxa will then be selected for radiocarbon analysis using the Accelerator Mass Spectrometry (AMS) technique. Large samples of charcoal concentrations or the organic sediment collected from a column subsample can be placed directly within a plastic bag and submitted for AMS radiocarbon analysis. Individual charcoal specimens will range from 10 to 50 milligrams. Organic sediment samples will range from 2 to 10 grams.

### 4.1.10 Collection of Artifacts

All traditional Hawaiian and historic artifacts associated with cultural resources that have been selected for data recovery will be collected, sorted by type if applicable, and bagged by provenience. In situ artifacts will be included on plan and/or profile maps. All of the artifacts will be returned to the laboratory for type-specific processing and curation. Analysis will include a comparison of the City Center AIS and data recovery artifact assemblage to other substantial and well-documented artifacts assebmleges in the vicinity of the project area (Lebo 1997; Lebo 2002; Lebo and McGuirt 2000a; Lebo and McGuirt 2000b).

### 4.1.11 Collection of Faunal Remains

All terrestrial and marine vertebrates and invertebrates associated with cultural resources that have been selected for data recovery will be collected, sorted by type if applicable, and bagged by provenience. Non-human vertebrate remains will be identified by an on-site osteologist trained in human and non-human skeletal identification prior to collection.

### 4.1.12 Cultural Monitoring

CSH completed the City Center archaeological inventory survey fieldwork under a cultural monitoring program that was established and implemented by HART and the Native Hawaiian Community. Cultural monitoring will continue during data recovery fieldwork.

## 4.2 Laboratory Methods

In addition to providing data for cultural resource research objectives, laboratory analyses will seek to provide useful information for interpreting historical accounts, traditions, and storied places as described in the project’s Traditional Cultural Properties Study (Maly and Maly 2013).

### 4.2.1 Feature Fill/Bulk Sediment Sample Analysis

Bulk sediment samples or feature fill samples that were collected during excavation will be weighed in grams and sifted through 1/16-inch wire mesh screen. The contents of the samples will then be sorted. Charcoal will be removed using tweezers, weighed in grams, and bagged in aluminum foil packets for potential wood taxa identification and radiocarbon analysis. Artifacts will be identified and accessioned for further analysis. Vertebrate faunal material will be identified to the lowest possible taxa by an osteologist trained in human and non-human skeletal identification, weighed in grams, and catalogued. At this stage, an additional process of wet-screening may be implemented in order to remove the remaining sediment matrix. Shell midden will then be separated from non-midden shell. Shell midden will be identified to the lowest possible taxa, weighed in grams, and catalogued. Non-midden shell will be weighed in grams as a bulk total with no additional analysis warranted. A master catalogue showing the content of each feature and bulk sediment sample will be produced. In addition to content analysis, the catalogue will indicate the relative percentages of each class of cultural material in relation to the weight of the sample.

### 4.2.2 Palynological Analysis

Palynology is the branch of science concerned with the study of pollen, spores, phytoliths, and other palynomorphs. Palynomorphs are often preserved in sediment samples and, following physical and chemical extraction, can be identified using light microscopy. This information can potentially identify the types of plants that made up the local environment, or the local watershed, at the time the sediment was deposited. A large amount of palynological research has been conducted on O‘ahu to examine human impacts on native vegetation. The majority of this research has been focused on wetland environments and pond sediments. Data recovery research for the current project will attempt to provide paleoenviromental data using palynological analysis of samples collected from five culturally-enriched sand A-horizons, potential salt pans, and Kawa fishpond. Sediment samples collected during fieldwork will be handled as little as possible in the laboratory before submission to PaleoResearch Institute, Inc. for palynological analysis.

### 4.2.3 Wood Taxa Identification

Appropriate charcoal samples will be prepared, weighed, and submitted for species identification. Samples will be submitted to the International Archaeological Research Institute, Inc. (IARII) for taxa identification. The samples will be analyzed under magnification of a dissecting microscope and then compared with anatomical characteristics of known woods in the Pacific Islands Wood Collection at the Department of Botany, University of Hawai‘i at Mānoa, as well as published descriptions. Taxa identification of wood samples will provide useful information for interpreting the environmental and cultural history of the project area. Wood taxa identification is also intended to provide useful information for interpreting historical accounts, traditions, and storied places as described in the project’s Traditional Cultural Properties Study (Maly and Maly 2013). Analysis by IARII will also identify short-lived plant species, which can be used for radiocarbon analysis.

### 4.2.4 Radiocarbon Analysis

Charcoal samples from identified plant species will be handled as little as possible in the laboratory and submitted to Beta Analytic, Inc. of Miami, Florida, for radiocarbon dating analysis. The samples will be analyzed using the Accelerator Mass Spectrometer method. The conventional radiocarbon age determined by Beta Analytic, Inc. will be calibrated to calendar ages using the OxCal calibration program, Version 4.1, developed by the University of Oxford Radiocarbon Accelerator Unit and available as share-ware over the internet.

### 4.2.5 Resistivity Analysis

Sediment collected from column samples at SIHP # -7190 will be handled as little as possible in the laboratory and submitted to PaleoResearch Institute, Inc. for resistivity analysis. This quantitative analysis has the potential to detect elevated levels of electrolytes or salts within individual sediment samples from salt pan remnants when compared to sediment control samples collected from above and below the salt pan remnants.

### 4.2.6 Artifact Analysis

All traditional Hawaiian and historic artifacts from cultural resources selected for data recovery will be collected and returned to the laboratory. Artifact processing within the laboratory will be class-specific and may include dry-brushing, washing, drying, and refitting. Artifacts will be accessioned based upon provenience and class. Traditional Hawaiian artifacts will be identified by form and function. Lithics may be submitted for Energy-Dispersive X-Ray Fluorescence (EDXRF) analysis. Historic artifacts will be identified using standard reference material. Artifact analysis will produce a master catalogue to be presented in the data recovery report. The analysis will be used to better refine the chronology of specific deposits and archaeological features as well as provide information on land use and potential cultural affiliation.

### 4.2.7 EDXRF Analysis

Selected lithic artifacts or debitage may be submitted to Dr. Peter Mills at the X-Ray Fluorescence (XRF) Laboratory at the University of Hawai‘i at Hilo for EDXRF analysis. EDXRF analysis is an effective way to determine elemental composition of archaeological material, and in some instances the origin of the material can be determined. X-ray spectrometry emissions produce an energy spectrum that is observable as peaks of high and low concentrations of trace elements. These trace elements are measured as value ranges. These value ranges are compared to other known value sets and to a constant geological standard (BHVO-2) used as the control sample. Samples are analyzed non-destructively with an accuracy of less than 1% of relative error and comparable reproducibility (Shackley 2010). This analysis does not relate to a specific data recovery research objective, but may assist in the characterization of settlement patterns, trade, lithic utilization, and craft specialization. This data will be compared with EDXRF data and groupings collected during the project’s AIS as well as other sources. Following analysis, artifacts will be returned to the CSH laboratory for curation.

### 4.2.8 Faunal Analysis

Vertebrate faunal material will be identified to the lowest possible taxa by an osteologist trained in human and non-human skeletal identification, weighed in grams, and catalogued. Shell midden will be separated from non-midden shell. Shell midden will be identified to the lowest possible taxa, weighed in grams, and catalogued. Non-midden shell will be weighed in grams as a bulk total with no additional analysis warranted. A master catalogue of faunal material will be produced and included in the data recovery report.

## 4.3 Data Recovery Report Production

In compliance with HAR §13-278-4 (a), the final data recovery report will contain the following:

1. An in-depth management summary that presents concise information including information about the site(s) studied and general findings relevant to research objectives;
2. An introduction, including reasons for conducting research and the location of the project area. A standard topographic map, as produced by the U.S. Geological Survey, shall be used to delineate the project area and the site(s) investigated. The introduction will include text that specifies the *ahupua‘a*, district, island, and Tax Map Key (TMK) of the project parcel;
3. An in-depth presentation of the research questions incorporating prior archaeological and historic studies;
4. An archaeological field methods section which identifies the date the work was performed and the number of personnel assigned to the investigation, with names and qualifications of the principal investigator and field director. The field methods will also specify any deviations from the data recovery plan, including sampling strategies and techniques used;
5. Scale maps of sediment profiles and any other features exposed by trench excavations;
6. A section on radiocarbon analysis methodology and reported results;
7. A section on sediment textural analysis, paleolimnology, and palynology analysis. The palynomorph analysis will include identification of pollen and spores, and counts of micro-charcoal particles. This information will be explained in the text, and also presented in the form of tables and graphs;
8. A separate section on any other types of cultural material found, possibly including historic trash (i.e. glass bottles), traditional Hawaiian artifacts, (i.e. fish hooks or other fishing gear), macro-wood particles, marine or terrestrial shell, and vertebrate bone;
9. A summary chapter which re-evaluates the findings relative to each research question and reviews and analyzes earlier data collected during the inventory survey;

10. References; and
11. Appendices:
    - Beta Analytic Radiocarbon Sheets
    - Palynomorph Report by a qualified analyst
    - Other specialized analysis, such as fossilized shell analysis, or vertebrate bone analysis, if appropriate.

An end of field work letter will be submitted within 30 days of the fieldwork's completion to the SHPD, the City, FTA, and PB. Once FTA and the City are satisfied with the draft data recovery report, the report will be submitted to SHPD for their concurrence with the content of the data recovery report and the successful implementation of this data recovery program. SHPD will have 30 days to comment on the data recovery report. A final report shall then be produced, incorporating any recommended revisions as agreed upon by all reviewing parties.

Under HAR §13-275-9(d) the City and FTA can provide documentation to SHPD that the data recovery fieldwork has been successfully completed and ask for SHPD's concurrence that, with the understanding that the complete data recovery report is forthcoming, construction can start at the data recovery site. Based on this documentation, SHPD has 30 days to concur with the City/FTA's request.

## 4.4 Disposition of Collections

Upon conclusion of the project, all collected materials and associated records will be temporarily curated at the CSH office in Waimānalo, O‘ahu until a permanent curation facility is determined by the project proponents and SHPD. In compliance with the project's Programmatic Agreement, Stipulation III.F "Curation," the City will curate recovered materials in accordance with applicable laws, including HAR §13-278 and 36 CFR 79. The project proponents are currently developing a curation program that will include the collection generated by this data recovery program.

In the event that human remains are encountered, the temporary disposition of human skeletal remains and associated burial goods will be determined by the SHPD Burials Program. Final disposition will be determined per the procedures of HAR §13-300 through the actions and decisions of the SHPD Burials Program.

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# Appendix A Descriptions of Sites for Data Recovery

The following summaries of eight cultural resources (presented in numeric order) selected for data recovery are drawn from the HHCTCP City Center Section AIS Volume 1. Some formatting changes (such as figure and table numbering and placement) have been made for the purpose of this summary presentation but otherwise the summaries are the same as in the AIS.

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

| | |
|---|---|
| **FORMAL TYPE:** | Subsurface cultural deposit, human burials |
| **FUNCTION:** | Habitation and burial interment |
| **PREVIOUS DOCUMENTATION:** | Yent (1985) |
| **AGE:** | Pre- and post-Contact |
| **NUMBER OF FEATURES:** | 30 |
| **TYPES OF FEATURES:** | 29 pits (including 1 human burial pit, 1 dog burial pit, 4 postmolds, 1 trash pit, and 22 indeterminate) and 1 human skeletal remains |
| **DISTRIBUTION:** | 0.33 acres within current project area, 8.4 acres total |
| **LOCATION:** | Along Punchbowl Street near the Ala Moana intersection (Kaka‘ako Makai Geographic Zone) |
| **TAX MAP KEY:** | TMK [1] 2-1-027 (Punchbowl Street ROW por.); and [1] 2-1-029:001 |
| **LAND JURISDICTION:** | City and County of Honolulu |
| **TEST EXCAVATIONS:** | T-226A, T-226B, T-226C, T-226D, T-227, and T-227A; T-226 abandoned |

SIHP #50-80-14-2918 is a previously-identified subsurface cultural deposit and 30 features that is located along Punchbowl Street near the Ala Moana intersection, and *makai* of Pohukaina Street between Punchbowl and South Streets. This archaeological cultural resource was first identified in 1985 by Martha Yent of State Parks as consisting of at least five burial pits located at the Honolulu Ironworks construction site (Yent 1985). The Honolulu Ironworks was located at the corner of Punchbowl Street and Pohukaina Street and includes TMK [1] 2-1-029:001. The location of the five burial pits, which included a total of six burials is unknown. Figure 21 provides an approximate location for the five burial pits identified by Yent (1985) as the center point of the parcel with an interpolated site boundary that includes all of TMK [1] 2-1-029:001.

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

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

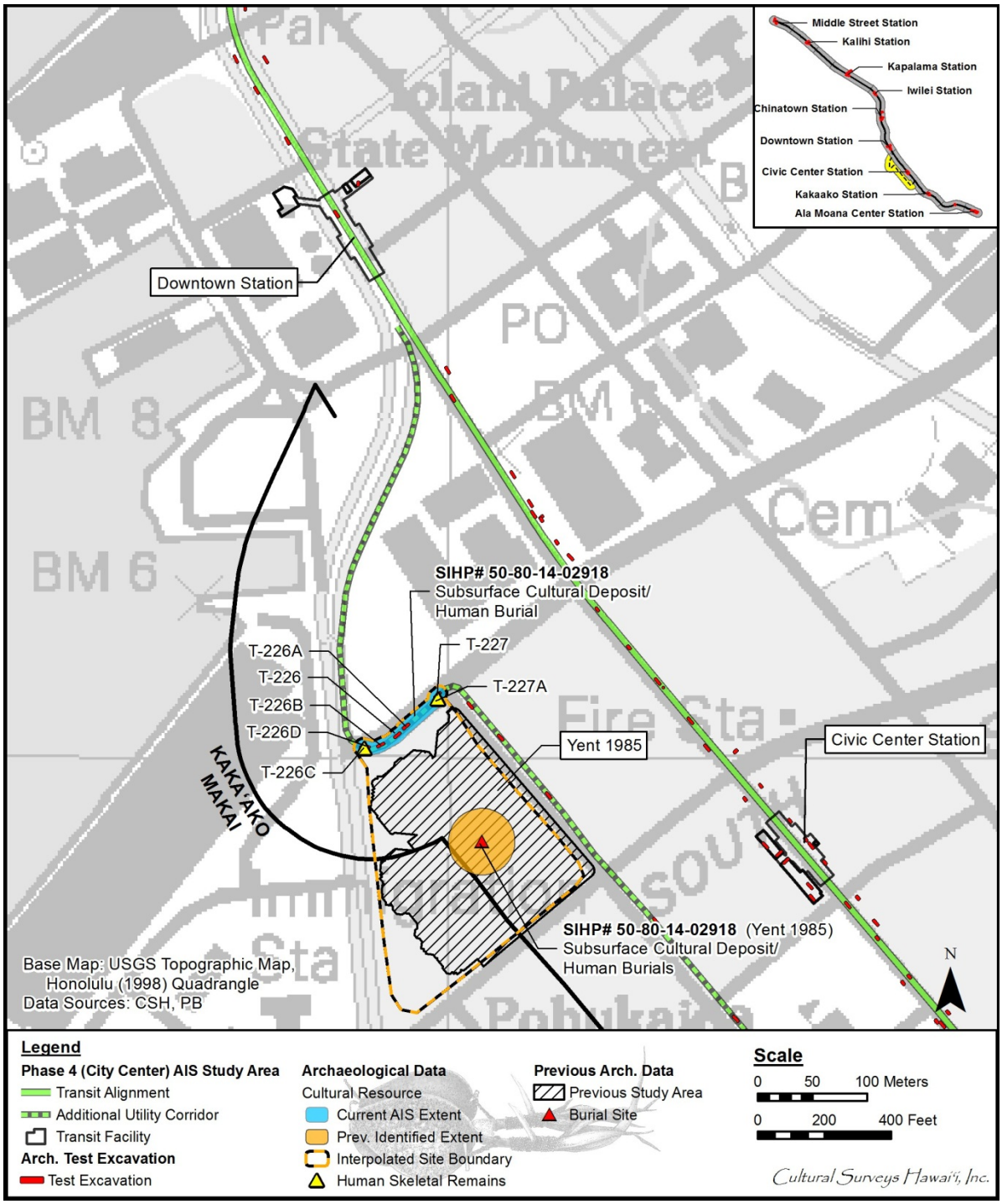


Figure 21. Location of SIHP #50-80-14-2918 within Kaka‘ako Makai Zone (Base Map: USGS 1998 Topographic Map of Honolulu Quadrangle)

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

> Burial #5:
>
> The femurs of burial #5 are located to the right and slightly above the cranium of burial #6. Continued excavation into the face of the pit exposed the femurs, patellas, and the tibia and fibula of both legs. The burial appears to have been extended with only the leg portion now intact – the upper portion of the body would have been disturbed during the excavation of the pit. A pelvis was located to the right of the tibia and fibula suggestive of a third burial, again because the remains were out of anatomical position. The pelvis was removed but no other associated remains were located. The pelvis appears to be from a secondary burial or was disturbed when burial #5 was placed in the ground.
>
> The bone was fragile due to the moisture content in the sand. The pit measured about 50cm in width and went into the exposed face at least 70cm. The base of [the] burial pit was defined by a thin, dark band that separated the sandy fill of the pit from the consolidated, white sand/weathering coral below.
>
> Burial #6:
>
> The back of the cranium was exposed about 20cm into the excavation of the pit face. The cranium was located at the base of the pit fill. Burial #6 is extended and the chin was resting on the chest. The teeth of the cranium and mandible suggested an adult and older individual – there had been tooth lose and bone resorption prior to death. The small size of the cranium suggested a female. The excavation extended 70cm into the face which exposed the vertebrae, ribs, and arms (humerus). Additional excavation was difficult because of the overburden and therefore, was discontinued at the point. Burial #6 also appears to be extended, laying on the back with the arms straight along the side of the body and the right hand atop the pelvic area. Several other bones, probably dog, were found in the pit fill but were not articulated and not associated with the human burial. [Yent 1985:1]

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

Sketch maps of the stratigraphic profile associated with Burials #4 and #5, and a sketch plan map for Burial #4, are provided (Figure 22 and Figure 23). The stratigraphic profile for Burial #4 indicates that this burial was identified within a cultural layer beneath a meter of “black dump” fill overlying white fill. A black charcoal lens was located along the upper boundary of the cultural layer overlying the burial pit. The adjacent location of the Burial #3 pit also is provided. The stratigraphic profile for Burial #5 appears to indicate that this burial pit was an intrusive feature that was excavated through a grayish, medium-coarse sand and charcoal-stained layer and into white, compacted sand and weathering coral. The Burial #3 pit was overlain by a red silt lens followed by the deposition of a layer of course, white sand and coral pebbles, fill associated with the Honolulu Ironworks, a concrete slab, and construction fill.

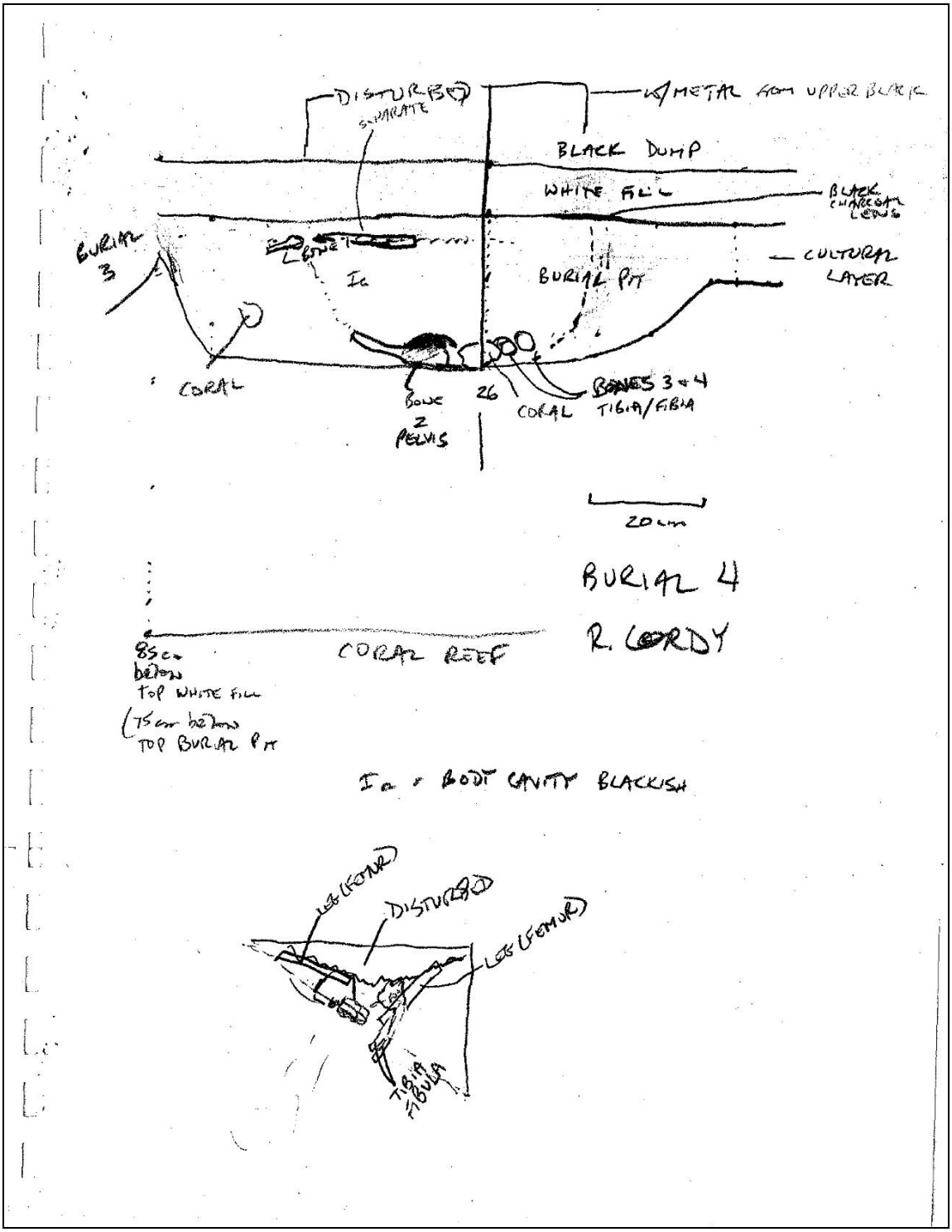


Figure 22. Stratigraphic profile and plan view map of Burial #4 from Yent (1985:3)

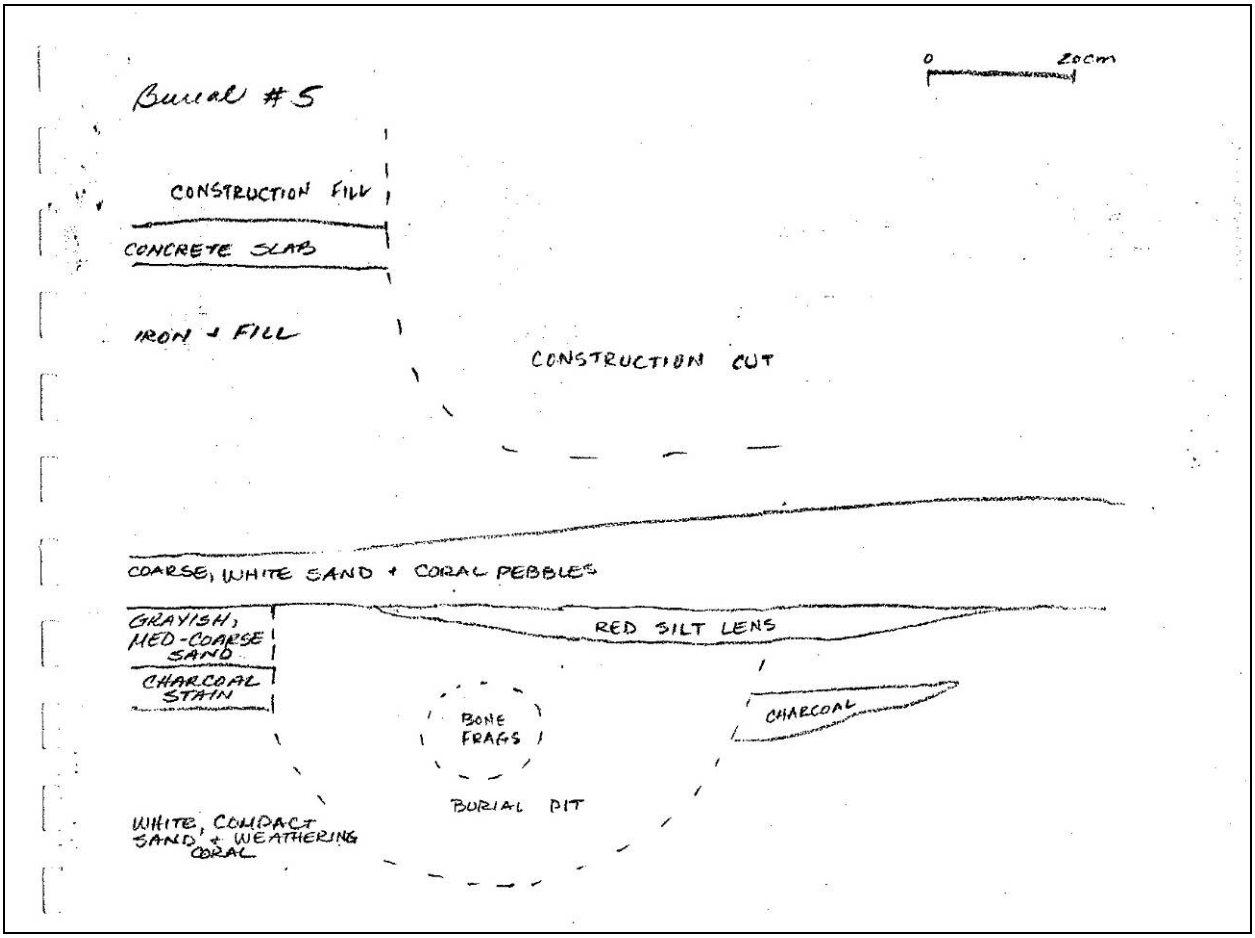


Figure 23. Stratigraphic profile of Burial #5 from Yent (1985:2)

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

The depositional sequence in each of the six test excavations was generally similar (Figure 24). The buried Late Pleistocene calcareous reef (coral reef) and overlying natural gley sediment was identified at the base of excavation in T-226A, T-227, and T-227A, and is presumed to be beneath the water table and base of excavation within T-226B, C, and D.

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

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

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

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

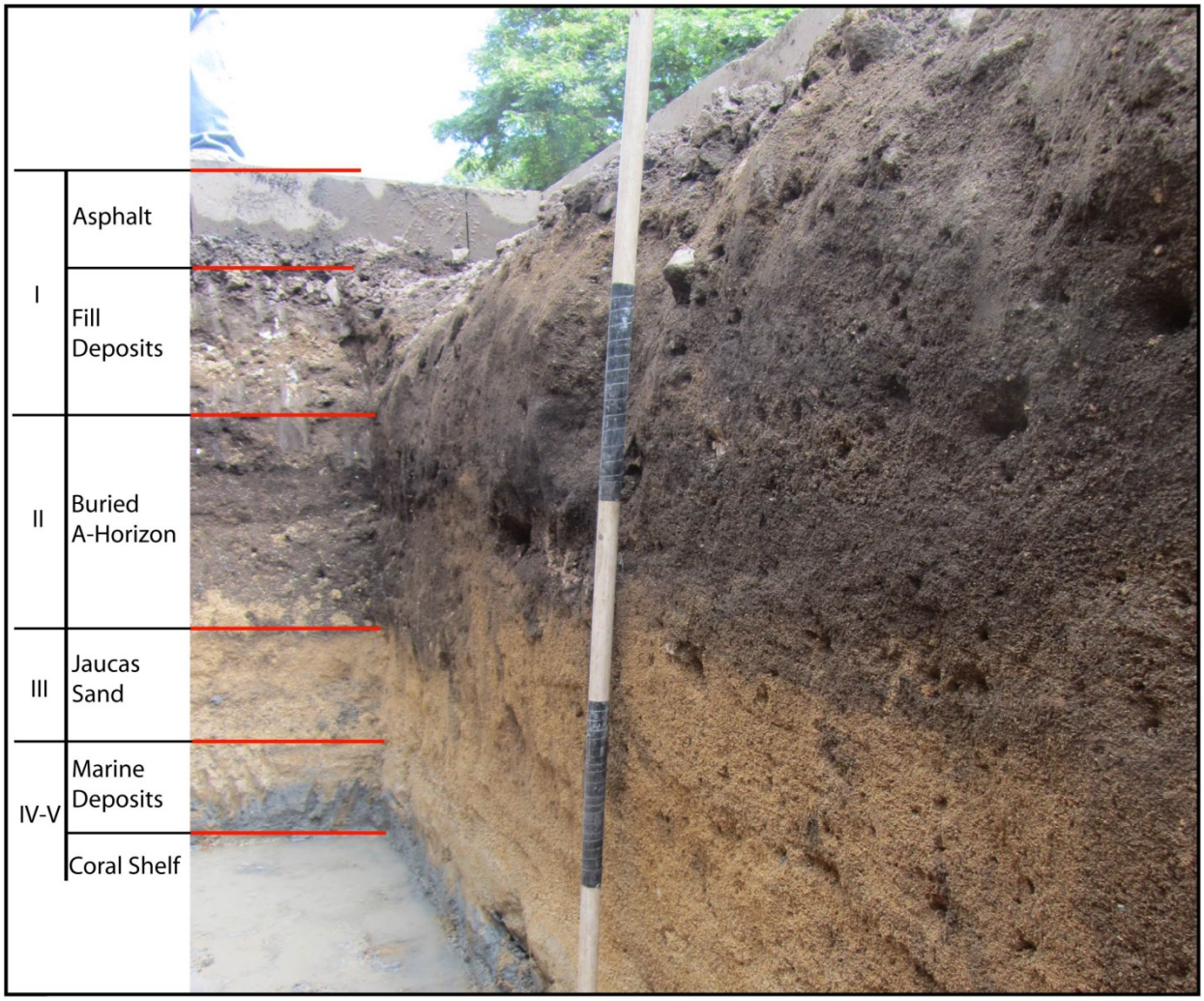


Figure 24. T-226A northeast wall profile showing the general depositional sequence observed in the vicinity, view to north

Figure 25. T-226B Stratum II excavation floor showing pit Features 4–11 which were intrusive into the underlying Jaucas sand, view to southwest

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

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

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

**SIHP #-2918 Feature 6** was identified within T-226B originating from the base of Stratum II at 0.80 mbs and terminating at 1.10 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 6 was irregularly shaped in plan and measured 1.23 m long by more than 0.75 m wide, extending beyond the width of the excavation. The sediment matrix of SIHP #-2918 Feature 6 was sandy loam with similar characteristics to Stratum II. A 19-liter screened sample, a 4-liter bulk sample, and an intact large piece of charcoal were collected from SIHP #-2918 Feature 6. The combined samples contained charcoal (1.6 g), volcanic glass (1.1 g), *Canis lupus familiaris* (dog) premolar tooth (0.3 g), vesicular basalt (14.5 g), naturally-occurring marine shell (0.3 g), and marine shell midden (38.1 g). The charcoal (1.6 g) was submitted for wood taxa identification and radiocarbon dating. All of the identified wood taxa were considered to be native or Polynesian-introduced trees or shrubs. The charcoal identified as *Kukui* nutshell (0.26 g) was submitted for radiocarbon dating analysis, which yielded four possible date ranges, with a calibrated 2-sigma date of AD 1720 to AD 1820 (52.2%) being the most probable. SIHP #-2918 Feature 6 is a pit of indeterminate function.

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

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

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

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

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

**SIHP #-2918 Feature 12** was identified within T-226C as a pit truncated by Stratum Id, a sand fill, at 1.14 mbs, and which was intrusive into Stratum III, Jaucas sand. The pit base terminated at 1.37 mbs (Figure 26). SIHP #-2918 Feature 12 was oval shaped in plan and measured 0.30 m long by more than 0.07 m wide, extending into the south sidewall. The remaining portion of the pit was clearly defined with straight sides and a rounded base. SIHP #-2918 Feature 12 is associated with the culturally-enriched sandy loam A-horizon (Stratum II), which was likely removed in this area prior to, or during, the deposition of Stratum Id (see Figure 26). A 1-liter bulk sediment sample was collected from SIHP #-2918 Feature 12. It yielded charcoal (0.1 g), fish bone (0.1 g), and naturally-occurring marine shell (0.5 g). SIHP #-2918 Feature 12 is a truncated pit of indeterminate function.

**SIHP #-2918 Feature 13** was identified within T-226C as a truncated pit containing human skeletal remains. Feature 13 was truncated by Stratum Id, a sand fill, at 1.15 mbs and was not excavated below the human skeletal remains (1.17 mbs). SIHP #-2918 Feature 13 is associated with the culturally-enriched sandy loam A-horizon (Stratum II), which was likely removed in this area prior to, or during, the deposition of Stratum Id (see Figure 26, Figure 27 and Table 2). SIHP #-2918 Feature 13 was circular shaped in plan and measured 0.45 m long by more than 0.23 m wide, extending into the south sidewall. Excavation of SIHP #-2918 Feature 13 ceased upon the discovery of human skeletal remains consisting of a pelvis with no articulating leg elements. The sediment matrix of SIHP #-2918 Feature 13 was loamy sand, which appeared to be a mixture of Jaucas sand (Stratum III) and sediment with similar characteristics to the culturally-enriched sandy loam A-horizon (Stratum II) encountered in nearby excavations. SIHP #-2918 Feature 13 is a burial pit containing human skeletal remains.

**SIHP #-2918 Feature 14** was identified within T-227 originating from the base of Stratum II at 0.90 mbs and terminating at 1.07 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 14 was irregular in plan and measured more than 1.2 m long by more than 0.7 m wide, extending beyond the width of excavation and into the northeast end of the excavation. The sediment matrix of SIHP #-2918 Feature 14 was sandy loam with similar characteristics to Stratum II. One bulk sediment sample was collected from SIHP #-2918 Feature 14 that contained charcoal (3.5 g), naturally-occurring marine shell (1.7 g), bottle glass (0.7 g), and fish remains (0.1 g). SIHP #-


Figure 26. T-226C south wall profile showing the horizontal truncation of Features 12 and 13 by Stratum Id, view to southeast

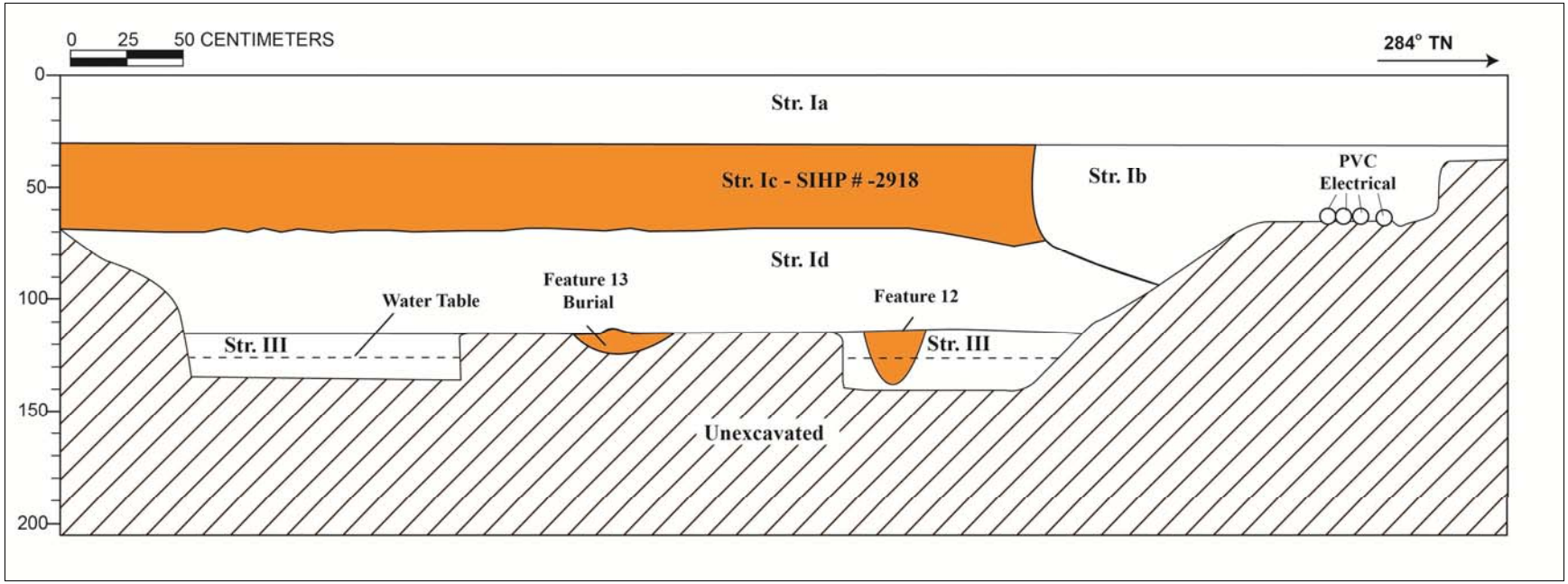


Figure 27. T-226C south wall profile showing SIHP #-2918 Features 12 and 13

Table 2. T-226C Stratigraphic Description, south wall profile

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

2918 Feature 14 also contained a single *Bos taurus* rib that had been butchered with a metal saw blade. SIHP #-2918 Feature 14 is a pit of indeterminate function.

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

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

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

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

**SIHP #-2918 Feature 19** was identified within T-227 originating from the base of Stratum II at 1.0 mbs and terminating at 1.22 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 19 was circular in plan with a diameter of approximately 0.15 m. The sediment matrix of SIHP #-2918 Feature 19 was sandy loam with similar characteristics to Stratum II. One bulk sample was collected from SIHP #-2918 Feature 19 that contained charcoal (1.0 g), naturally-occurring marine shell (0.2 g), and marine shell midden (2.9 g). SIHP #-2918 Feature 19 is a pit of indeterminate function.

**SIHP #-2918 Feature 20** was identified within T-227 originating from the base of Stratum II at 0.98 mbs and terminating at 1.02 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 20 was circular in plan, measuring 0.20 m wide and extending 0.12 m from the northwest

excavation sidewall. The sediment matrix of SIHP #-2918 Feature 20 was sandy loam with similar characteristics to Stratum II. SIHP #-2918 Feature 20 is a pit of indeterminate function.

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

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

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

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

**SIHP #-2918 Feature 25** was identified within T-227A originating from within Stratum II at 0.94 mbs and terminating at 1.08 mbs as an intrusive pit into stratum III. SIHP #-2918 Feature 25 was circular in plan with a diameter of approximately 0.2 m. The sediment matrix of SIHP #-2918 Feature 25 was sandy loam with similar characteristics to Stratum II. One bulk sample was collected from SIHP #-2918 Feature 25 that contained naturally-occurring marine shell (1.0 g), volcanic glass (0.2 g), and fish bone (0.1 g). SIHP #-2918 Feature 25 is a pit of indeterminate function.

Figure 28. T-227A Feature 26, a postmold with a loamy sand sediment matrix considered to be a combination of Stratum II and III, view to southwest

Figure 29. T-226D Feature 28, an infilled pit containing historic structural remains, view to west

**SIHP #-2918 Feature 26** was identified within T-227A originating from the base of Stratum II at 1.12 mbs and terminating at 1.37 mbs as an intrusive pit within Stratum III. SIHP #-2918 Feature 26 was circular in plan with a diameter of approximately 0.20 m. The sediment matrix of SIHP #-2918 Feature 26 was loamy sand which appeared to be a mixture of Stratum II and III (Figure 28). One bulk sample was collected from Feature 26 that contained faunal remains (0.5 g) consistent with a medium mammal (*cf. Canis lupus familiaris*), naturally-occurring marine shell (0.7 g), and marine midden consisting of *Nerita picea* (0.8 g). SIHP #-2918 Feature 26 is a postmold.

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

**SIHP #-2918 Feature 28** was identified within T-226D as a truncated pit, extending from the base of Stratum Ia, the asphalt road surface, at 0.35 mbs and terminating at 0.82 m as an intrusive pit within Stratum Ib, an extremely gravelly loamy sand fill. SIHP #-2918 Feature 28 was irregular shaped in plan and measured 2.2 m long by more the 0.8 m wide, extending beyond the width of the test excavation. The sediment matrix of SIHP #-2918 Feature 28 was loamy sand with similar characteristics to Stratum Ib without the basalt gravel content. Metal rails (I-beams) and numerous yellow bricks and brick fragments were encountered within the sediment matrix (Figure 29). SIHP #-2918 Feature 28 is an infilled pit containing historic structural remains.

**Feature 29** was identified within T-226C as a pit. The feature originated near the base of Stratum Ic, a locally-procured, culturally-enriched fill. It was identified at 0.73 mbs and terminated at 1.22 mbs within Stratum III, Jaucas sand (Figure 30 and Table 3). SIHP #-2918 Feature 29 was circular shaped in plan and measured 0.42 m long by more than 0.21 m wide, extending into the northern excavation sidewall. The sediment matrix of Feature 29 consisted of loamy sand with similar characteristics to Stratum Ic. A 19-liter screened sample and one bulk sample were collected from SIHP #-2918 Feature 29 and contained charcoal (4.3 g); midden, including Crustacea (1.3 g); and burned medium mammal bone (0.1 g); naturally-occurring shell, including *Brachidontes crebristriatus* (0.1 g) and other worn shells and gastropods; burned wood (0.4 g); a green bottle glass fragment (0.8 g); and fire-cracked basalt rock (275.4 g). SIHP #-2918 Feature 29 is located in fill deposited directly atop the culturally-enriched A-horizon. SIHP #-2918 Feature 29 is a historic pit of unknown function.

**Feature 30** was identified within T-226C as a pit containing a preserved wooden post and fire-cracked rocks. Feature 30 pit originated within a fill deposit (Stratum Ic) at 0.78 mbs and terminated at 1.13 mbs within redeposited sand (Stratum Id) (see Figure 30 and Table 3). The wooden post (0.70-1.10 mbs) and the western edge of the pit appear to have been truncated by Stratum Ib, a utility trench consisting of redeposited sand. Feature 30 was circular-shaped in plan and measured 0.30 m long by more than 0.15 m wide. It extended into the northern excavation sidewall. The sediment matrix of Feature 30 is loamy sand with similar characteristics to Stratum Ic, a locally-procured, culturally-enriched fill. Feature 30 is a postmold containing a preserved post and fire-cracked rocks.

Detailed information regarding the location, age, type, function and content of each archaeological feature is provided in Table 4.

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

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

Traditional Hawaiian cultural material identified within the buried culturally-enriched A-horizon (SIHP #-2918) included ten pieces of volcanic glass debitage, which were recovered from a total of six features ((SIHP #-2918) Features 3, 5, 6, 8, 23, and 25) and the A-horizon itself in T-226B. Also a dog bone (*Canis lupus familiaris*) pick for removing the meat from gastropods was collected from T-226A at the interface between Stratum Ic and Stratum II (Figure 31).

Historic cultural material within the buried culturally-enriched A-horizon (SIHP #-2918) included glass bottles, ceramics, and metal fragments, bricks and brick fragments, and miscellaneous household refuse. The historic artifacts date from the late nineteenth century through the late twentieth century. The historic artifacts collected from three pit features (SIHP #-2918 Features 14, 16, and 17) within T-227 included bottle glass fragments, a machine-drilled ivory bead (Acc. #227-A-30), a nail, and a possible candleholder (Acc. #227 A-29) (Figure 32 and Figure 33). Historic artifacts were also collected from SIHP #-2918 Feature 28 (T-226D) including a rail beam and a spike (possible remnants of the Honolulu streetcar system) and brick fragments. Fragmentary historic remains were also recovered from bulk samples in SIHP #-2918 Features 2 (T-226A); 14, 16, 17, and 21 (T-227); and 22 (T-227A).

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

Human skeletal remains were observed in SIHP #-2918 Features 13 (T-226C) and 27 (T-227A). (SIHP #-2918) Feature 13 is considered to be a burial pit containing human skeletal remains that once extended from the base of the former land surface (A-horizon), but later was horizontally truncated by fill deposits. The observed skeletal remains included a pelvis with no articulating leg elements. The sex and ancestry of the skeletal remains could not be determined. SHIP #-2918 Feature 27 is a partial infant burial that was observed within Jaucas sand underlying the culturally enriched A-horizon. The burial was determined to be an infant between 0-3 years based on the size and growth development of the remains. The stratigraphic context and the form of the burial pits are consistent with traditional Hawaiian burial practices.

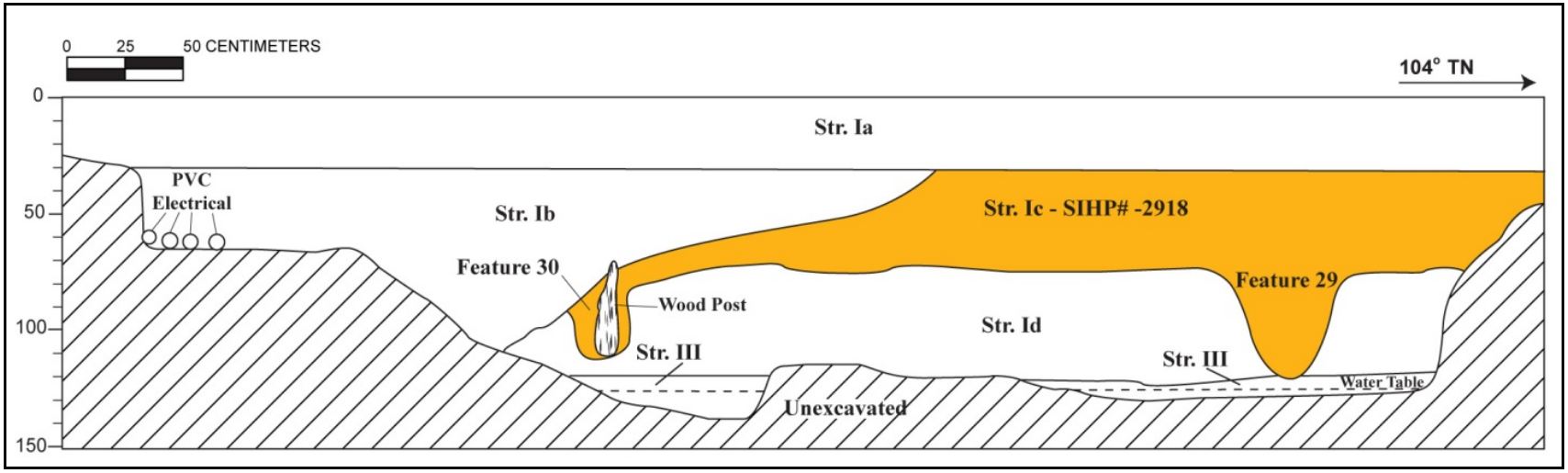


Figure 30. T-226C north wall profile showing SIHP #-2918 Features 29 and 30; Stratum Ic is also a component of SIHP #-2918

Table 3. T-226C Stratigraphic Description, north wall profile

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

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

| Feature | Test Excavation | Depth (cmbs) | Radiocarbon Age (C14) | Type/Function | Contents |
|---|---|---|---|---|---|
| 1 | T-226A | 92-104 | - | Pit/Indeterminate | Charcoal (*kolomona*, *‘ilima*, *kōpiko*, *‘ōhi‘a lehua*, *ipu*, *hau*, *kukui*, *‘āheahea*, *hala*, *‘akoko*), burned *kukui* nut shells, naturally-occurring marine shell, shell midden, faunal bone (fish, medium mammal) |
| 2 | T-226A | 82-96 | - | Pit/Indeterminate | Charcoal (*kukui*, *niu*, *‘ōhi‘a lehua*, *hau*, *‘ulu*), rusted nail, ceramic fragment, naturally-occurring marine shell, shell midden, faunal bone (fish, *Sus scrofa* molar fragment, medium mammal) |
| 3 | T-226A | 82-102 | - | Pit/Indeterminate | Charcoal (*kōpiko*, *kukui*, *kī*, *‘akoko*, *‘ōhi‘a lehua*, *‘āheahea, ‘ulu*, *‘ūlei*, *‘ilima*, *lama*, grass, *kolomona*, *ipu*), naturally-occurring marine shell, shell midden, burned *kukui* nut shells, volcanic glass (1 debitage), faunal bone (fish, *Rattus* sp., small mammal) |
| 4 | T-226B | 70-96 | - | Pit/Indeterminate | Charcoal (*‘ōhi‘a lehua*, *‘āheahea*, *kukui*, *‘ulu*, and *maiapilo*), naturally-occurring marine shell, shell midden, faunal bone (fish, a shark tooth, a *Rattus* sp. tooth), fire-cracked rock |
| 5 | T-226B | 75-95 | - | Pit/Indeterminate | Charcoal (*‘akoko*, *kolomona*, and *kukui*), naturally-occurring marine shell, shell midden, faunal bone (*Rattus* sp.), volcanic glass (1 debitage) |
| 6 | T-226B | 80-110 | AD 1720-1820 | Pit/Indeterminate | Charcoal (*‘ōhi‘a lehua*, *kukui, hau, niu*, and *kī*), naturally-occurring marine shell, shell midden, faunal bone (*Canis lupus familiaris* premolar tooth), vesicular basalt, volcanic glass (3 debitage) |

| Feature | Test Excavation | Depth (cmbs) | Radiocarbon Age (C14) | Type/Function | Contents |
|---|---|---|---|---|---|
| 7 | T-226B | 80-95 | - | Pit/Indeterminate | Charcoal (*niu*), naturally-occurring marine shell, shell midden |
| 8 | T-226B | 76-90 | AD 1630-1810 | Pit/Indeterminate | Charcoal (*niu*, *‘akoko*, *kolomona*, *‘ilima*, *‘āheahea*, *kī*, *kukui*, and *lama*), naturally-occurring marine shell, shell midden, faunal bone (fish, small/medium mammal), fire-cracked rock, volcanic glass (1, debitage) |
| 9 | T-226B | 76-85 | - | Pit/Indeterminate | Charcoal, shell midden |
| 10 | T-226B | 75-87 | - | Pit/Indeterminate | Charcoal (*‘ōhi‘a lehua* and *‘ilima*), naturally-occurring marine shell, shell midden, faunal bone (*Rattus* sp., medium mammal), water-worn basalt |
| 11 | T-226B | 78-94 | AD 1720-1820 | Pit/Dog burial | Charcoal (*kolomona*, *niu*, *‘ilima*, and *kukui*), naturally-occurring marine shell, shell midden, faunal bone (fish) |
| 12 | T-226C | 114-137 | - | Pit/Indeterminate | Charcoal, naturally-occurring marine shell, faunal bone (fish) |
| 13 | T-226C | 115-117 | - | Pit/Human burial | Observed skeletal remains consisted of a pelvis with no articulating leg elements |
| 14 | T-227 | 90-107 | - | Pit/ Indeterminate | Charcoal, naturally-occurring marine shell, faunal bone (fish, *Bos taurus*), a bottle glass fragment |
| 15 | T-227 | 93-113 | - | Pit/Postmold | Possible postmold |
| 16 | T-227 | 101-117 | - | Pit/Indeterminate | Charcoal, naturally-occurring marine shell, faunal bone (medium mammal), metal, bottle glass fragment |
| 17 | T-227 | 105-116 | - | Pit/Indeterminate | Charcoal, naturally-occurring marine shell, faunal bone (fish, medium mammal, 2 *Sus scrofa* molars), metal, bottle glass fragment, glass candleholder, and an ivory bead |

| Feature | Test Excavation | Depth (cmbs) | Radiocarbon Age (C14) | Type/Function | Contents |
|---|---|---|---|---|---|
| 18 | T-227 | 100-105 | - | Pit/Indeterminate | Charcoal, shell midden, faunal (fish) |
| 19 | T-227 | 100-122 | - | Pit/Indeterminate | Charcoal, shell midden |
| 20 | T-227 | 98-102 | - | Pit/Indeterminate | No sample collected, no cultural material observed |
| 21 | T-227 | 100-119 | - | Pit/Indeterminate | Charcoal, shell midden, ceramic fragment |
| 22 | T-227A | 103-108 | - | Pit/Indeterminate | Shell midden, faunal bone (fish), fire-cracked rock, a brick fragment |
| 23 | T-227A | 108-131 | AD 1720-1810 | Pit/ Postmold | Charcoal (*kōpiko* and *lama*), naturally-occurring marine shell, volcanic glass (2 debitage) |
| 24 | T-227A | 117-130 | - | Pit/Indeterminate | Naturally-occurring marine shell, faunal bone (medium mammal, a shark tooth) |
| 25 | T-227A | 94-108 | - | Pit/Indeterminate | Naturally-occurring marine shell, faunal bone (fish), volcanic glass (1 debitage) |
| 26 | T-227A | 112-137 | - | Pit/ Postmold | Naturally-occurring marine shell, faunal bone (*Canis lupus familiaris*) |
| 27 | T-227A | 125 | - | Skeletal remains/Human burial | A partial infant burial (0-3 years); no visible pit outline |
| 28 | T-226D | 35-82 | - | Pit/Trash pit | Contains a wood beam, metal rails (I-beams), and numerous yellow bricks and brick fragments; possible railway or streetcar system structural remains |
| 29 | T-226C | 73-122 | - | Pit/Indeterminate | Contains former culturally-enriched sand A-horizon sediment and fill sediments, charcoal, burned wood, a green bottle glass fragment, burned faunal bone (medium mammal), and fire-cracked rock |
| 30 | T-226C | 78-113 | - | Pit/Postmold | A preserved wooden post and fire-cracked rocks |


Figure 31. Bone pick found in T-226A, at the interface of Strata Ic and II (Acc. # 226A-H-1)


Figure 32. T-227 pressed glass artifact, possible candlestick holder, (Acc. #227-A-29) from SIHP #-2918 Feature 17


Figure 33. T-227 machine-drilled ivory bead (Acc. #227-A-30) from SIHP #-2918 Feature 17

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

Invertebrate faunal remains were predominately collected from screened and bulk sediment samples of the buried culturally-enriched A-horizon and associated features (all designated SHIP #-2918). Invertebrate fauna include non-cultural shell and shell midden (see Table 4).

Radiocarbon analysis on charcoal samples from SHIP #-2918 Features 6, 8, 11, and 23 provided a date range for SHIP #-2918 of late pre to early post-Contact (see Table 4).

The buried culturally-enriched A-horizon with 26 associated features (Features 1–23 and 25–27) and four additional features (Features 24, 28–30) documented during this AIS in T-226A through T-226D, T-227, and T-227A are combined into SIHP #-2918, previously described by Yent (1985) (see Figure 21). Although poorly documented, the Yent (1985) study identified six human burials within pits and were truncated by or associated with a cultural layer and/or charcoal staining, and were intrusive into underlying sand. The depositional sequence described by Yent (1985) is similar to the depositional sequence observed within T-226A, T-226B, T-226C, T-226D, T-227, and T-227A. In both studies, the cultural layer or buried culturally-enriched A-horizon (SIHP #-2918) is truncated and/or capped with up to 1.0 m of fill deposition. The association of human burials extending from or intrusive of a cultural layer, which is documented by Yent (1985) on two profile maps also correlates with the identification of SIHP #-2918 Feature 13 burial in T-226C and SIHP #-2918Feature 27 in T-227A. In addition, similarities in the depositional environment, location in the stratigraphic column, geographic location, cultural layers or culturally-enriched A-horizon and associated burials provide the basis for a combination of the findings of Yent (1985) with the findings within T-226A, T-226B, T-226C, T-226D, T-227, and T-227A.

SIHP #-2918 is a buried, culturally-enriched sandy loam A-horizon and 30 newly-identified archaeological features (Features 1–30) as well as six burials (Burial #1-6) that were previously identified by Yent (1985). Of the 30 newly-identified features, 26 features (Feature 1–23 and 25–27) are associated with the subsurface, culturally-enriched sandy loam A-horizon and consist of 1 human burial pit, 1 dog burial pit, 3 postmolds, and 21 indeterminate pits. Four additional features (Features 24 and 28–30), which are not associated with the A-horizon, also were identified. SIHP #-2918 Features 24 and 29 are pits of unknown function. SIHP #-2918 Feature 28 is an infilled pit containing historic structural remains and SIHP #-2918 Feature 30 is a postmold containing a preserved post. SIHP #-2918 Features 29 and 30 originate from a the base of Stratum Ic in T-226C, a deposit of mixed locally-procured fill and redeposited A-horizon sediment. SIHP #-2918 contained both traditional and post-Contact cultural material, human skeletal remains, vertebrate and invertebrate faunal material, and charcoal. Laboratory analysis of material collected from SIHP #-2918 indicates that the former land surface (culturally-

enriched A-horizon, Stratum II) was utilized from the pre- and/or early post-Contact period to the early twentieth century, prior to being capped by historic fill deposits.

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

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

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

| | |
|---|---|
| **FORMAL TYPE:** | Subsurface cultural deposit, subsurface pond sediments, human burials, animal burials |
| **FUNCTION:** | Aquaculture, habitation, and burial |
| **PREVIOUS DOCUMENTATION:** | Ota and Kam 1982, Clark 1987 |
| **AGE:** | Pre- and post-Contact |
| **NUMBER OF FEATURES:** | 47 total; 35 previously identified and 12 newly identified |
| **TYPES OF FEATURES:** | 16 pits, 8 trash pits, 7 human burials, 5 animal burials, 4 possible postmolds, 2 building foundations, 2 areas containing animal bone in a disturbed context, 1 burial land surface, 1 posthole, and 1 burned soil area |
| **DISTRIBUTION:** | 2.1 acres total; 0.44 acres (within current project area) |
| **LOCATION:** | Along Halekauwila Street at the intersection of Punchbowl Street and between Punchbowl Street and South Street (West Kaka‘ako Geographic Zone) |
| **TAX MAP KEY:** | TMK [1] 2-1-030 (Halekauwila Street ROW por.); [1] 2-1-026:001; and [1] 2-1-031:010 |
| **LAND JURISDICTION:** | City and County of Honolulu (current project area), [1] 2-1-026:001 and [1] 2-1-031:010 (previously identified) |
| **TEST EXCAVATIONS:** | T-122, T-122A, T-123, T-124, and Test Bore T-124A |

SIHP #50-80-14-2963 consists of a previously-identified subsurface cultural deposit, subsurface pond sediments, human burials, and animal burials located along Halekauwila Street, at the intersection of Punchbowl Street and between Punchbowl Street and South Street (Figure 34). This archaeological resource was first identified by Ota and Kam (1982) approximately 16 m northeast of the current City Center project APE as human skeletal remains representing six incomplete skeletons (Figure 35). The cultural resource was subsequently identified by Clark (1987) immediately adjacent to the northeast boundary of the current City Center project APE as consisting of the following 35 features: 8 pits, 8 trash pits, 7 human burials, 5 animal burials, 2 building foundations, 2 areas containing animal bone in a disturbed context, 1 burial land surface, 1 posthole, and 1 burned soil area (Figure 36 and Table 5). Clark (1987) also identified buried pond sediments. The 1881 Brown map of Honolulu depicts three ponds at this location, with one pond labeled “Auwaiolimu Crown Land” located within the interpolated boundary of SIHP #-2963 including the western portion of the Clark (1987) study area and a section of the current project’s APE (Figure 37). SIHP #-2963 was identified within T-122 through T-124A of the current City Center study.

Ota and Kam (1982) conducted an osteological analysis on human skeletal remains representing six incomplete skeletons that were collected from the northeastern corner of Punchbowl Street and Halekauwila Street. The skeletal remains were disturbed during construction of the State Office Building #2 and were collected by personnel from Borthwick Mortuary who produced a sketch plan map of the burial locations (see Figure 35).

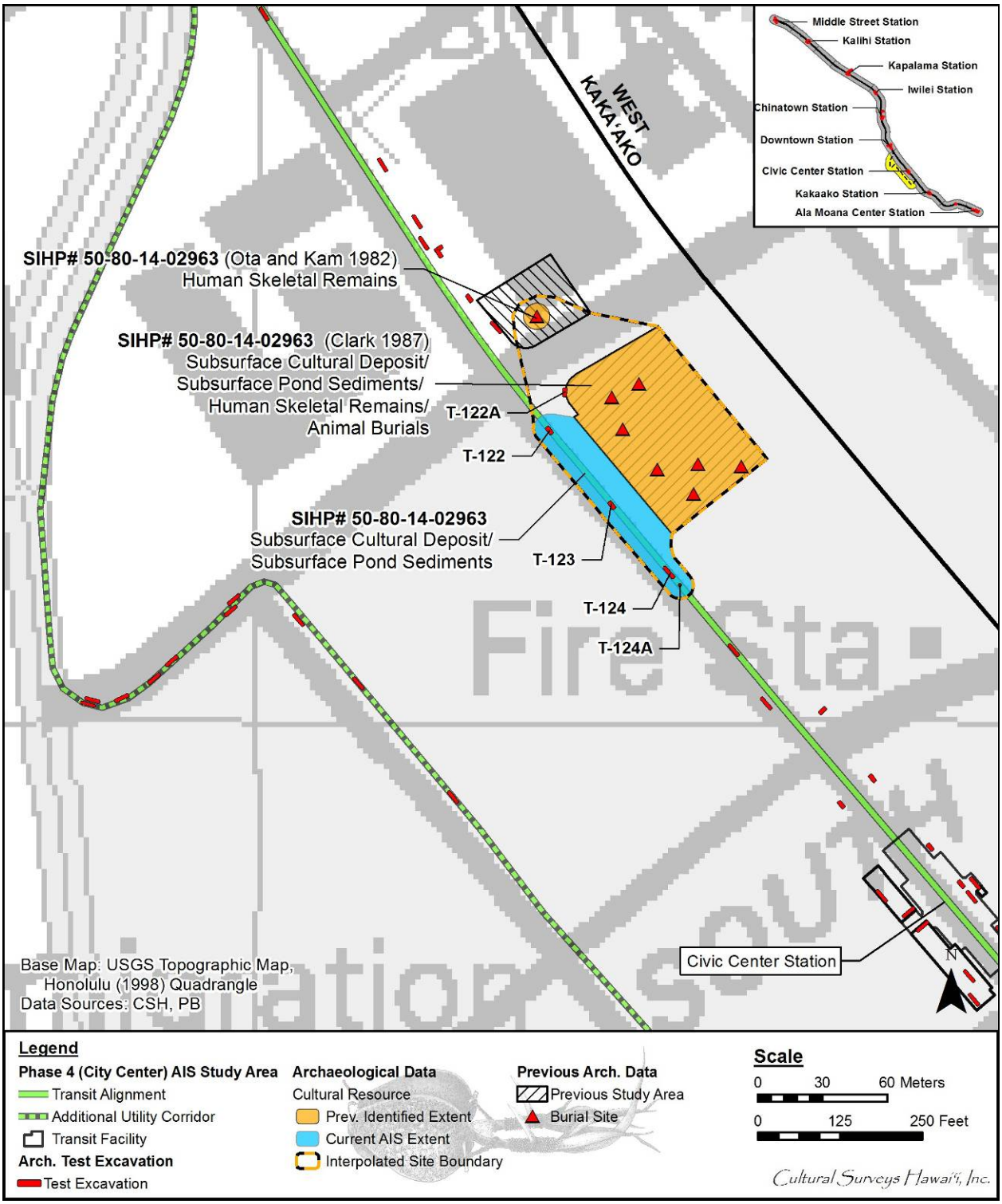


Figure 34. Location of SIHP # 50-80-14-2963 in the West Kaka‘ako Zone (Base Map: USGS 1998 Topographic Map of Honolulu Quadrangle)

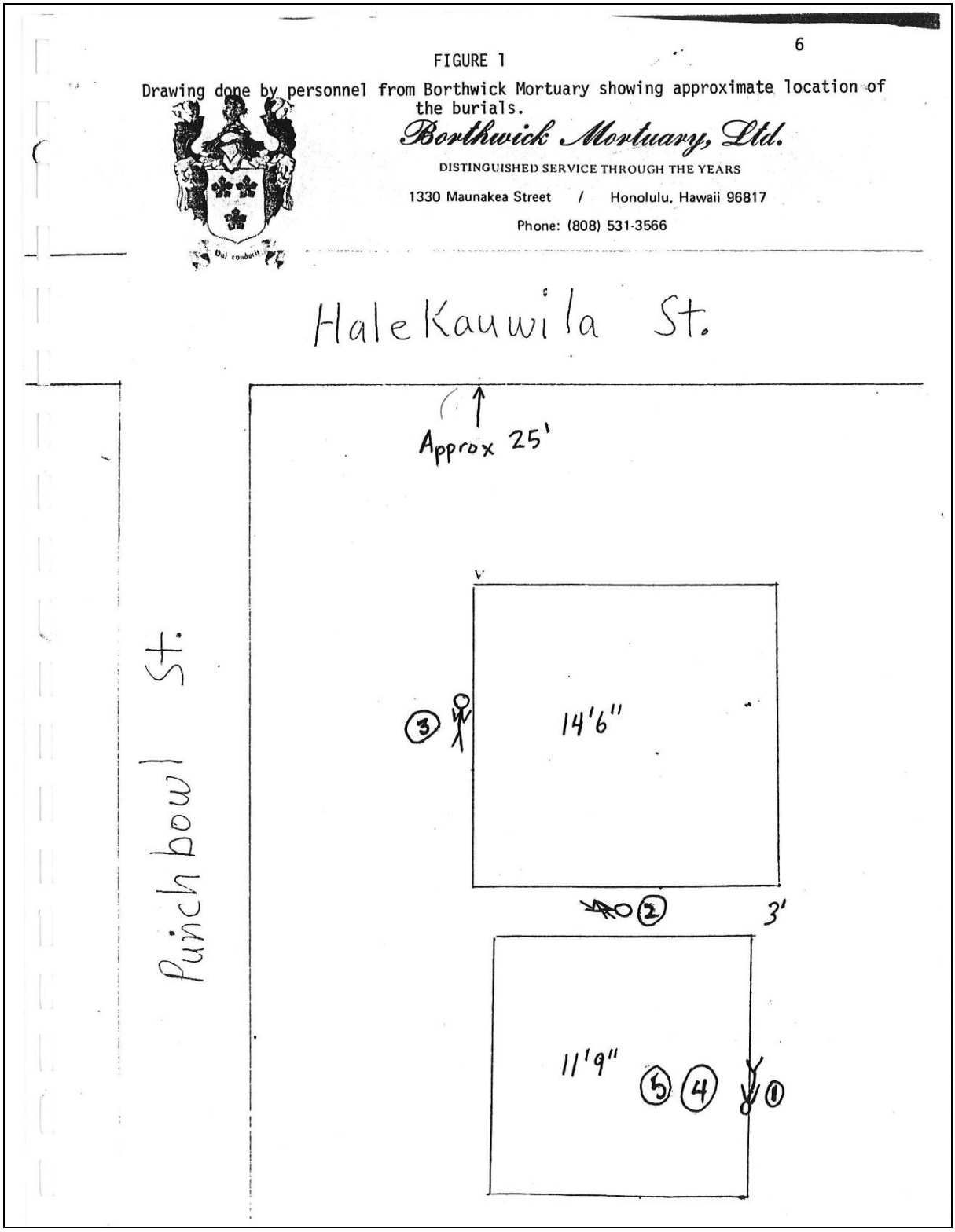


Figure 35. Location of burials disinterred during the construction of the State Office Building #2 and associated with SIHP # 50-80-14-2963 (Ota and Kam 1982:6)

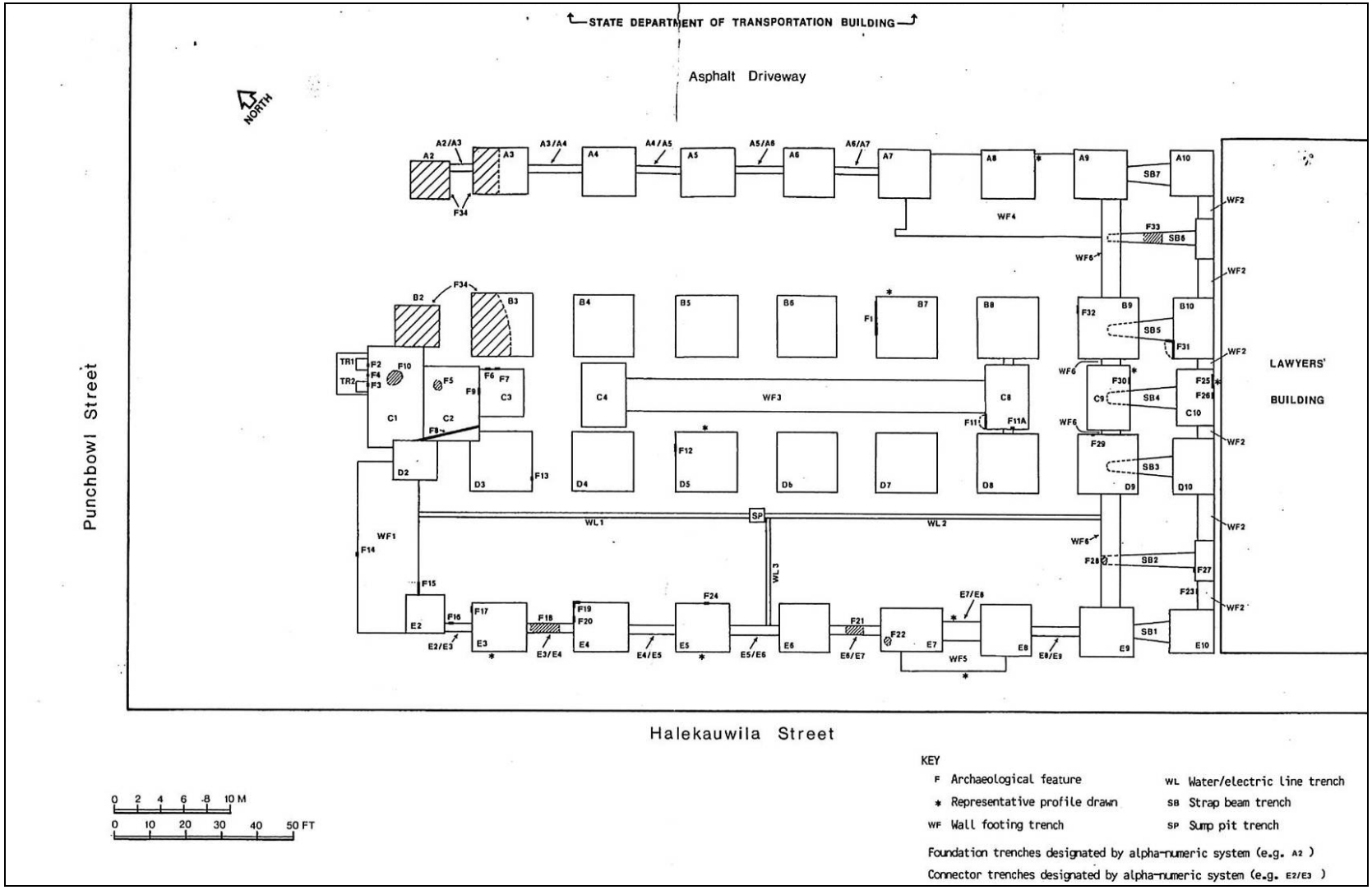


Figure 36. Location of previously-identified archaeological features of SIHP # 50-80-14-2963 (Clark 1987:27)

Table 5. Summary of Previously-Identified Archaeological Features of SIHP # 50-80-14-2963 (adapted from Clark 1987)

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

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

| Feature | Stratum | Depth (cmbs) | Radiocarbon Date (C14) | Type/Function | Description |
|---|---|---|---|---|---|
| 20 | I | 45-90 | - | Pit | Deep pit containing sparse historic bottle glass fragments; vertical sides on pit; mottled layer I and II fill. |
| 21 | Unknown | 45-50 | - | Human burial | Isolated human cranium associated with Feature 18 remains; remains of unidentified large mammal collected in same area. |
| 22 | Fill J | 40-50 | - | Trash pit | Oval-shaped pit containing wood, glass bottles, glass and ceramic fragments, rusted metal objects, metal light fixture; contains fill layers J, K, and L. |
| 23 | I | 50-85 | - | Pit | Small pit with rounded base; contains sparse *kukui* shell; layer I fill |
| 24 | I | 50-80 | - | Trash pit | Roughly rectangular in cross section; contains remains of two individual *aku* (*Katsuwonus pelamis*) and charcoal; layer I fill. |
| 25 | II | 50-53 | A.D. 430-905 | Buried surface | Thin (3-5 cm) lens of loamy sand with charcoal. |
| 26 | I | 30-60 | - | Pit | Pit with rounded base adjacent to Feature 25; mixed layer I and II fill. |
| 27 | I | Unknown | - | Isolated animal bone | One isolated piece of medium mammal bone in disturbed layer I deposit. |
| 28 | I | 10-40 | A.D. 1270-1410 | Human burial | Burial greatly disturbed by backhoe; Hawaiian male, 20-25 yrs; probably disturbed prior to present construction; concentrated charcoal in burial pit. |
| 29 | I | 05-30 | - | Posthole | Probably posthole 25 cm deep; basalt rock in feature matrix; no midden observed; layer I fill. |
| 30 | I | 30-50 | - | Animal Burial | Articulated pig skeleton in pit (cranium, upper torso removed by backhoe); mottled layer I and II fill. |
| 31 | I | 13-190 | - | Animal burial | Articulated cow skeleton in large pit; cranium, upper torso and legs removed and identified; layer I and II fill. |

| Feature | Stratum | Depth (cmbs) | Radiocarbon Date (C14) | Type/Function | Description |
|---|---|---|---|---|---|
| 32 | I | 150-220 | - | Pit | Large pit with sparse historic artifacts (rusted metal, slate pencil fragment, bottle glass fragments) and charcoal flecking; layer I fill. |
| 33 | Unknown | Unknown | - | Human burial | Isolated human femur (left side) found in backhoe dirt pile; pit feature not found. |
| 34 | Fill H/layer I | 55-65 | - | Foundation | Red clay bricks in fairly level layers in these trenches; possible building foundation/floor, or bulldozed remnants; situated under fill H and over layer I. |

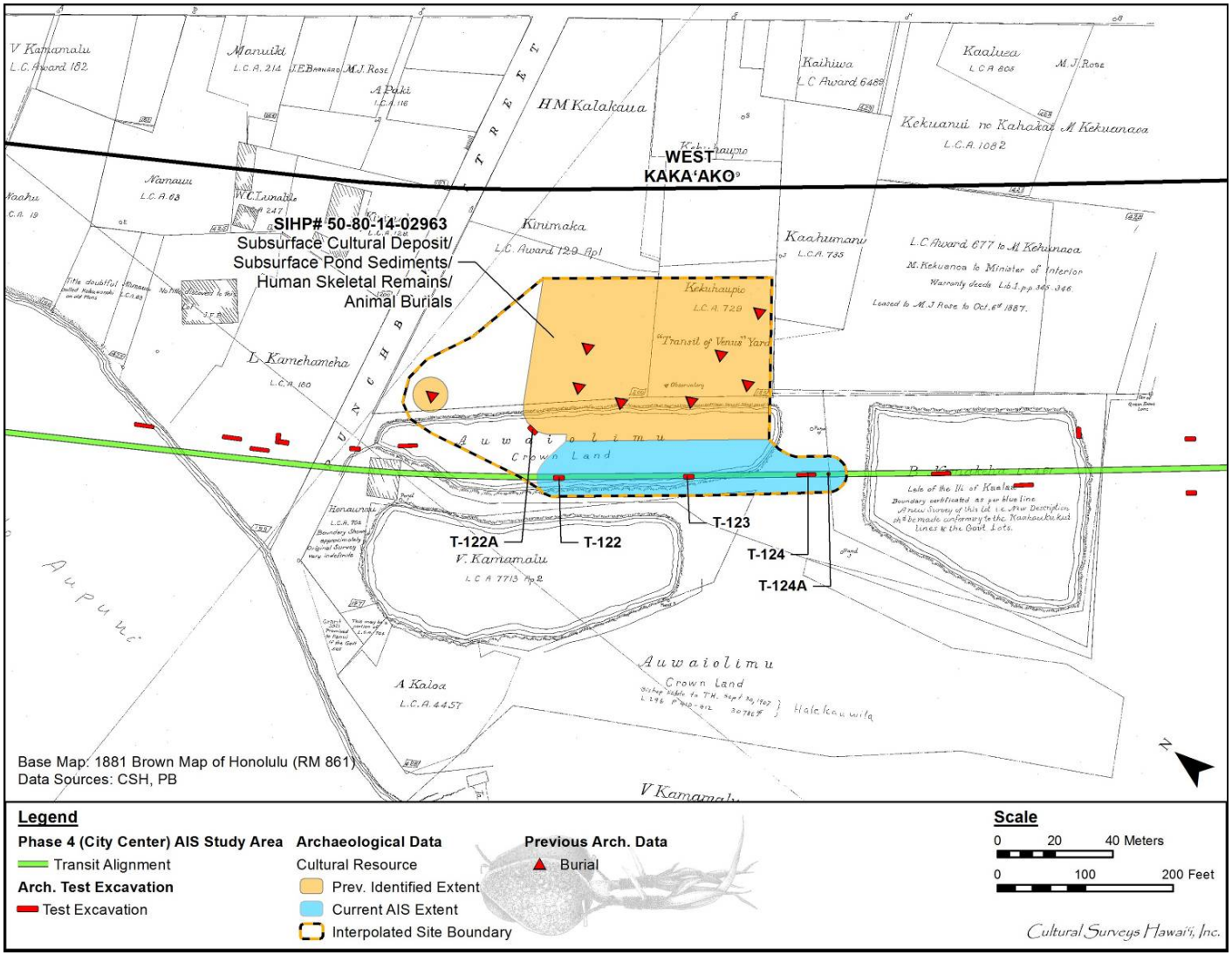


Figure 37. Portion of the 1881 Map of Honolulu by Brown (RM 861) showing the location of three ponds at the location of SIHP # 50-80-14-2963

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

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

Clark (1987) describes the depositional environment at SIHP #-2963 as involving three overlying types of deposits (Figure 38, Figure 39, and Table 6). The deepest deposits consisted of natural strata identified as follows: a culturally-enriched marine sand and terrigenous sediment containing prehistoric and historic features (Layer I), beach sand (Layer II), pond sediments (Pond Layer I and II), and volcanic cinder (Layer III) overlying coral bedrock (Clark 1987:43-45). Two fill sequences were overlain atop the natural strata and involved parking lot fills (Fills A–H) and fishpond fills (Fills J–N). The parking lot fill sequence consisted of basalt pebbles in loam (Fill A), coral gravel in clay loam (Fill B), sandy clay loam with sparse coral pebbles (Fill C), coral sand with coral gravel and pebbles (Fill D), strongly cemented medium sand (Fill E), sand with coral gravel, pebbles, and cobbles (Fill F), clay with charcoal staining and bottle glass fragments (Fill G), and sand with coral gravel, pebbles, cobbles, and sparse boulders (Fill H) (Clark 1987:39). The fishpond fills were observed in the western portion of the project area in Trenches E2 through E10 and WF5 (see Figure 36). The fishpond fill sequence consisted of possibly oil-stained sand (Fill J), coarse sand with marine shell and historic artifacts (Fill K), fine sand (Fill L), very fine coral silt with gleyed mottles (Fill M), and coarse sand with rounded marine shell fragments and dark greenish gray mottles (Fill N) (Clark 1987:43).

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

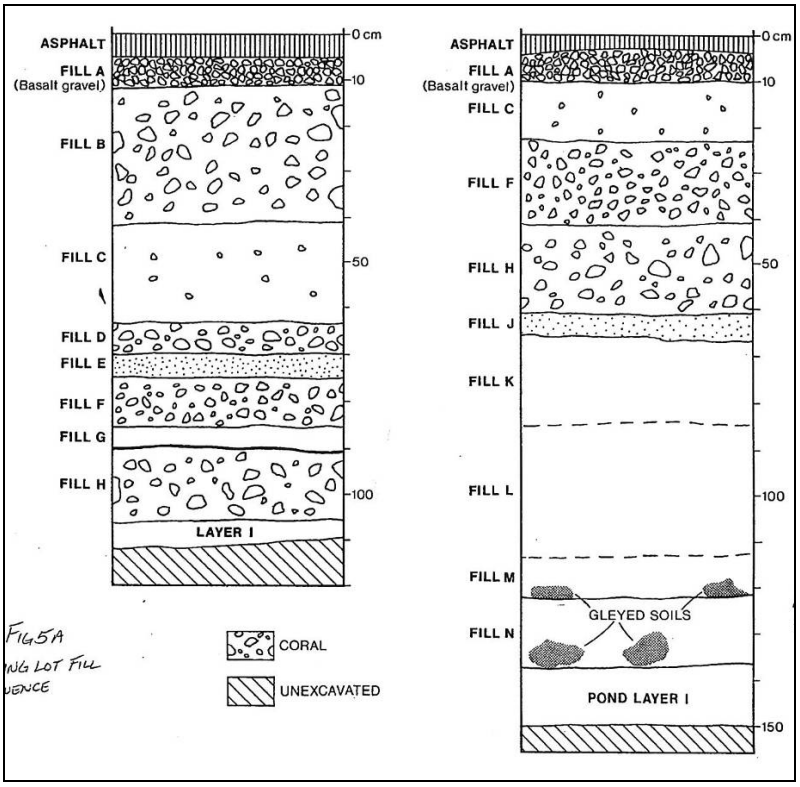


Figure 38. The parking lot fills (A–H; left) and fishpond fills (J–N; right) stratigraphic sequences (Clark 1987:38)

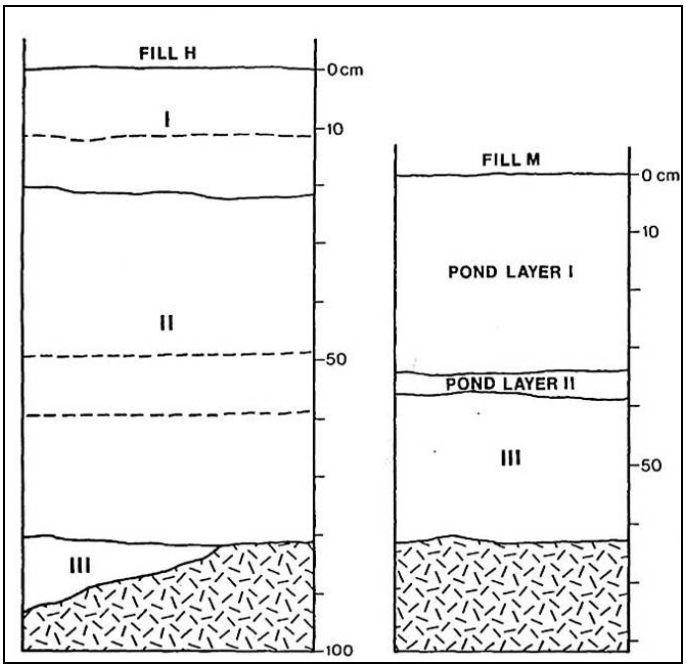


Figure 39. The natural beach (I–III; left) and pond (Pond Layer I–II; right) stratigraphic sequences (Clark 1987:44)

Table 6. Depositional Sequences Observed by Clark (1987:39-44)

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

features associated with Layer I, 1 feature associated within Layer II, and 3 features with unknown stratigraphic association (see Table 6).

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

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

The buried land surface (Feature 25) within the Layer II beach sand of Trench C10 is particularly interesting. This land surface is overlain by natural beach sand which predates the overlying culturally-enriched A-horizon (Layer 1) (Figure 40). Radiocarbon analysis of charcoal collected from Feature 25 dated from AD 430 to 905. Clark (1987:109) notes:

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

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

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

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

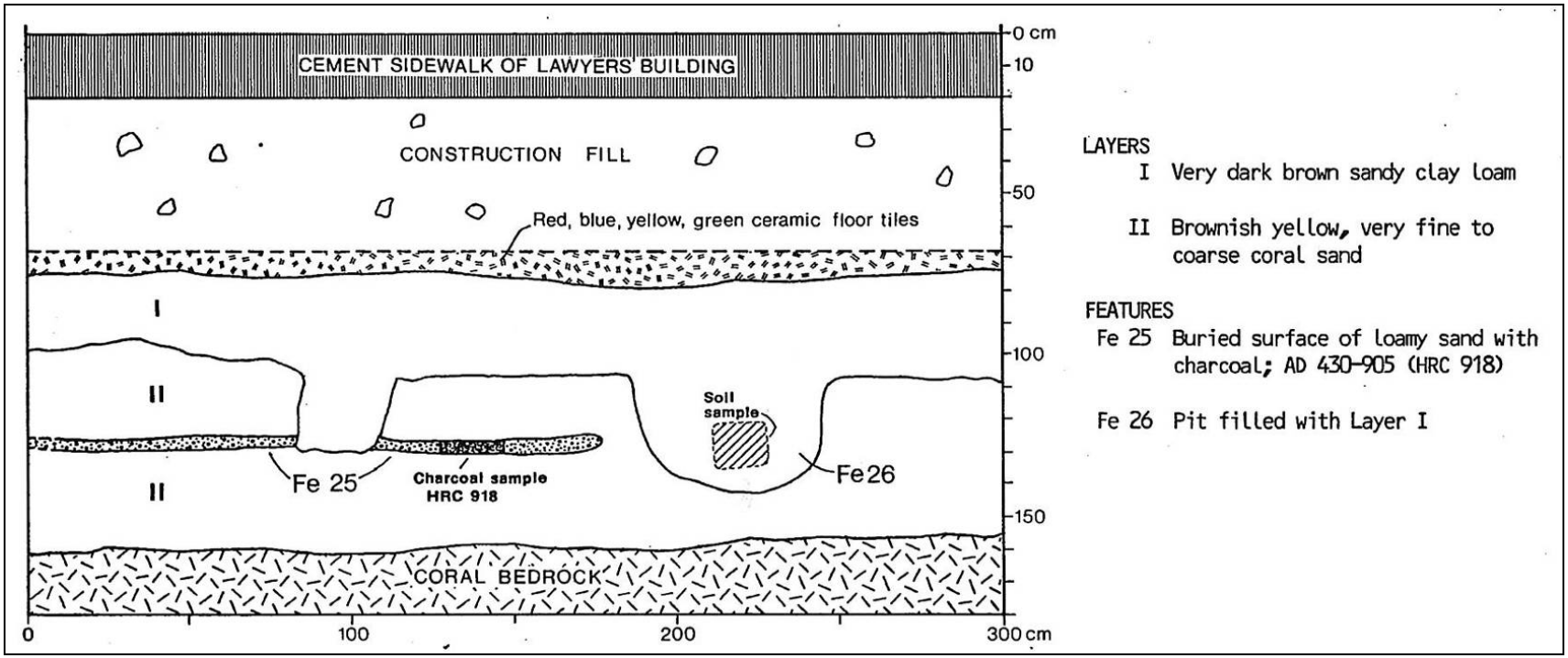


Figure 40. Trench C10 stratigraphic profile showing Feature 25 (buried surface) and Feature 26 (pit) (Clark 1987:48)

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

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

Similar depositional sequences, culturally-enriched strata, and archaeological features as those described by Clark (1987) were identified during the current City Center AIS within T-122 through T-124A. A buried, culturally-enriched A-horizon with 12 associated archaeological features (Features 1–12) was identified within T-124 (Table 7). Three features (Features 1–3) extended from the base of Stratum IIa, the upper sandy loam portion of the buried A-horizon (Figure 41 through Figure 43 and Table 8). The remaining nine features (Features 4–12) extended from the base of Stratum IIb, the lower loamy sand portion of the buried A-horizon (see Figure 41 through Figure 43 and Table 8). Stratum IIa was considered to be the historically disturbed or modified upper portion of the former land surface (buried A-horizon) within T-124. Stratum IIb was considered to be the in situ pre- and/or early post-Contact lower portion of the former land surface. Both Strata IIa and IIb were designated as components of SIHP #50-80-14-2963, also identified within T-122 and T-123. The twelve features within T-124 were designated as Features 1–12 of SIHP #-2963.

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

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

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

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

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

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

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

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

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

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

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

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

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

Table 7. Summary of Newly-Identified Archaeological Features of SIHP #-2963

| Feature | Test Excavation | Stratum | Depth (cmbs) | Radiocarbon Date (C14) | Type/Function | Description |
|---|---|---|---|---|---|---|
| 1 | T-124 | IIa | 116–136 | AD 1810-1920 | Pit/Possible postmold | Possible postmold with straight sides and a slightly rounded base. The feature contained charcoal (18.4g), midden (47.3g), naturally-occurring marine shell (39.8g), volcanic glass fragments (0.7g), basalt fragments (158.1g), medium mammal remains (2.7 g), unidentified fish remains (2.9 g), a shark tooth (0.1 g), a small mammal cf. *Rattus* sp. (0.3 g), and *Pervagor spilosoma* remains (0.1 g, Fantail file fish). A subsample of the charcoal from the feature was submitted for wood taxa identification and radiocarbon dating. Wood taxa identification results included *Ki* (*cf. Cordyline terminalis*), *Āheahea* (*Chenopodium oahuense*), *Kolomona* (cf. *Senna* sp.), *‘Ōhi‘a ‘ai*/roseapple/ Java plum (cf. *Syzygium* sp.), *Niu* (*Cocos nucifera*), Palm (Arecaceae), *‘Akoko* (*Chamaesyce* sp.), and three unidentified species. |

| Feature | Test Excavation | Stratum | Depth (cmbs) | Radiocarbon Date (C14) | Type/Function | Description |
|---|---|---|---|---|---|---|
| 2 | T-124 | IIa | 116–125 | AD 1790-1950 | Pit/Indeterminate function | Pit with indeterminate function. The feature contained charcoal (2.5g), midden (13.4g), naturally-occurring marine shell (4.4g), ), medium mammal remains (1.8 g), small mammal remains (0.1 g), and fish remains (0.3 g). A sample of the charcoal from the feature was submitted for wood taxa identification and radiocarbon dating. Wood taxa identification results included *Kolomona* (cf. *Senna* sp.), *‘Ōhi‘a ‘ai*/roseapple/ Java plum (cf. *Syzygium* sp.), *Hau* (*Hibiscus tiliaceus*), ‘*Akoko* (*cf. Chamaesyce sp.*), ‘*Āheahea* (*Chenopodium oahuense*), ‘*Ilima* (*cf. Sida fallax*), *Lama* (*Diospyros sandiwicensis*), monocot, and seven unidentified species. |
| 3 | T-124 | IIa | 116–140 | - | Pit/Possible postmold | Possible postmold with angled sides and a slightly rounded base. |
| 4 | T-124 | IIb | | - | Pit/Indeterminate function | Pit with indeterminate function. The feature was a shallow circular discoloration. |

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

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


Figure 41. T-124 southwest profile wall, showing SIHP #-2963 Feature 11, view to west

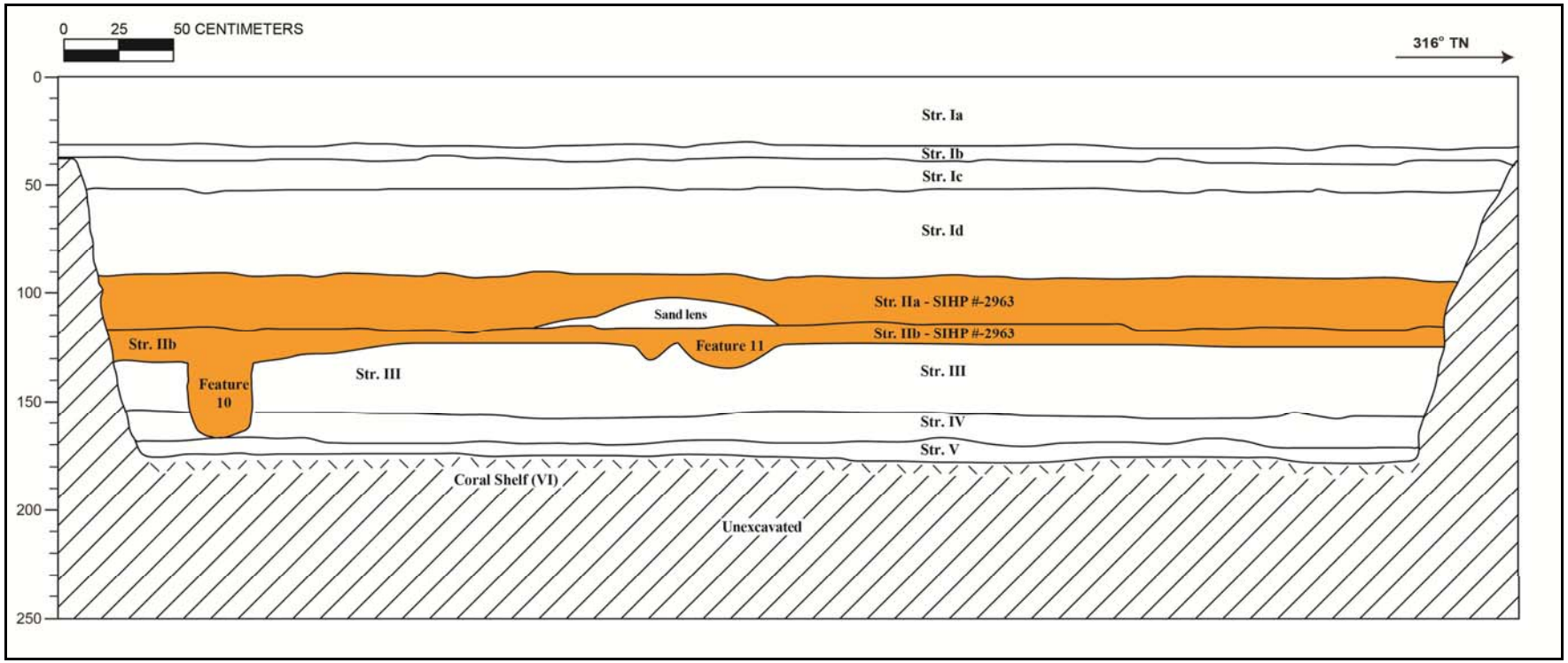


Figure 42. T-124 stratigraphic profile of the southwest wall showing SIHP #-2963 Features 10 and 11

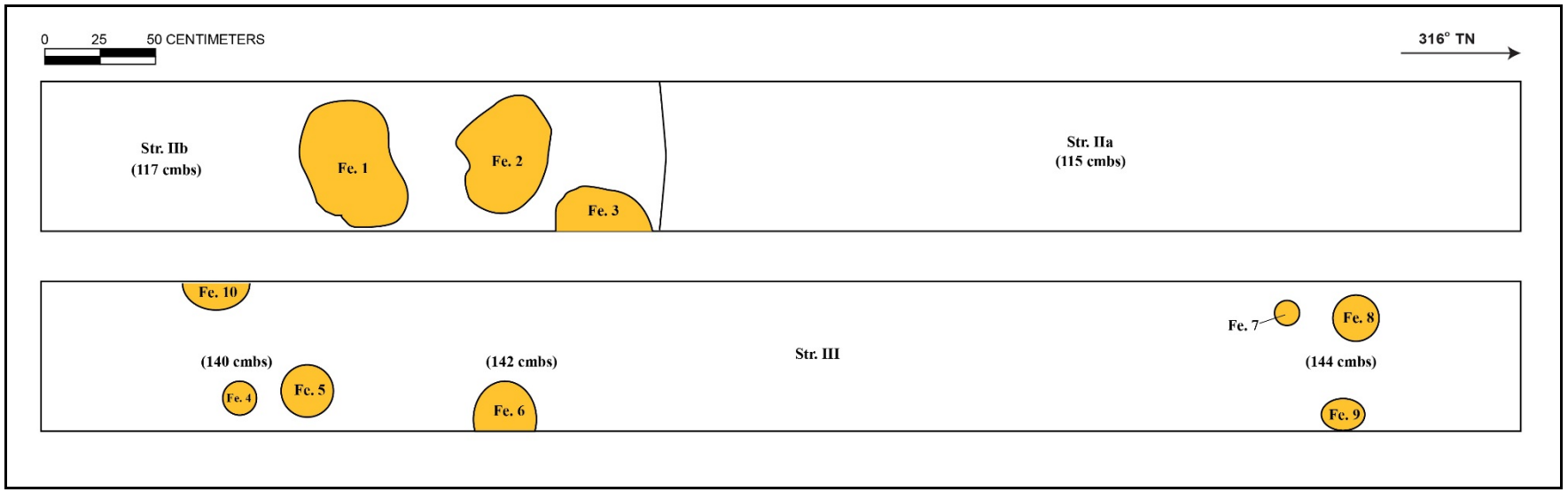


Figure 43. T-124 plan view showing SIHP #-2963 Features 4–10

Figure 44. T-124 northeast profile wall, view to north

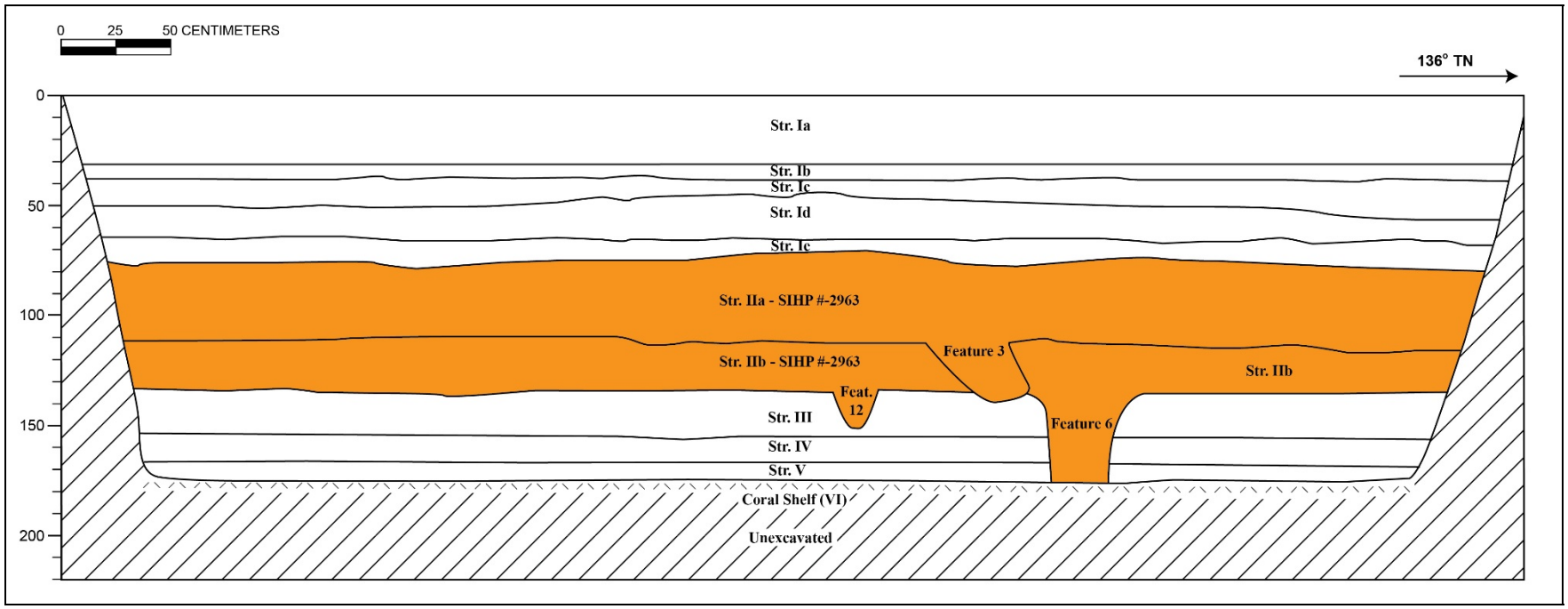


Figure 45. T-124 stratigraphic profile of the northeast wall showing SIHP #-2963 Features 3, 6, and 12

Table 8. T-124 Stratigraphic Description

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

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

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

The buried A-horizon (Stratum II; SIHP #-2963) was also identified in a geotechnical test bore located southeast of T-124 (see Figure 34). The geotechnical test bore was designated as T-124A. The buried A-horizon (Stratum II) within T-124A did not exhibit a clear upper and lower portion and thus could not be accurately associated with either Stratum IIa or IIb of T-124 (Figure 46 and Table 9). The buried A-horizon in T-124A was capped by two fill strata (Ia-Ib) that correspond with Stratum Ib and Ic observed in T-124. Fill layers corresponding to Stratum Id and Ie within T-124 were not present in T-124A.

Selected charcoal samples collected from pit features within T-124 were submitted for wood taxa identification and radiocarbon analysis. All of the charcoal submitted for identification from SIHP #-2963 Features 1, 2, 5, and 11 in T-124 represented either native or Polynesian-introduced taxa (see Table 7). These include *kī* or ti, *‘āheahea*, *‘ōhi‘a ‘ai*, coconut, *‘akoko*, *hau*, *‘ilima*, *lama*, *‘a‘ali‘i*, *kukui*, and *hō‘awa*. Radiocarbon analysis indicated broad date ranges for the submitted charcoal samples. The youngest dates were derived from the charcoal in SIHP #-2963 Feature 1 (AD 1810 to 1920) and SIHP #-2963 Feature 2 (AD 1790 to 1950). Radiocarbon analysis placed the charcoal samples collected from SIHP #-2963 Features 1 and 2 within the post-Contact period (post-1778). The oldest dates were derived from SIHP #-2963 Feature 5 (AD 1490 to 1670) and Feature 11 (AD 1450 to 1640). Radiocarbon analysis placed the charcoal samples collected from SIHP #-2963 Features 5 and 11 within the pre-Contact period.

Pond sediment, similar to Pond Layer I and II designated by Clark (1987) was encountered near the base of excavation within T-122 and T-123. Both T-122 and T-123 are located within the pond labeled “Auwaiolimu Crown Land” on the 1881 Brown map of Honolulu (see Figure 37).

The pond sediment within T-122, designated Stratum II (SIHP #-2963), was clay loam that contained metal and a complete porcelain teapot with an Asian design (Figure 47 through Figure 49 and Table 10). The metal was not collected from the excavation. A 3-liter bulk sample was collected from Stratum II at 1.65-1.70 mbs. The sample contained charcoal (0.3 g), naturally-occurring shell (5.0 g), seeds (3.4 g), plant fibers (2.3 g), small pods (0.1 g), porcelain (7.3 g), metal (0.2 g), Aves remains (0.2 g), fish remains (0.1 g), and midden (3.1 g). Midden collected included Neritidae *Nerita picea* operculum (1.8 g), Tellinidae *Tellina palatam* (1.1 g), burned crustacean (0.1 g), and Echinoidea *mathae*i sp. (0.1 g).

The pond sediment within T-123, designated Stratum II (SIHP #-2963), was a gleyed, coarse sandy clay that contained a ceramic electrical insulator (Figure 50, Figure 51, and Table 11). A 5-liter bulk sample was collected from Stratum II (SIHP #-2963) at 1.73-1.80 mbs. The sample contained charcoal (0.2 g), naturally-occurring marine shell (12.5 g), *Ruppia maritima* seeds (0.2 g), wood (7.3 g), bottle glass (167.5 g), fish bone (0.1 g), medium mammal skeletal remains (0.1 g), and abundant small freshwater-brackish snails (607.7 g). The pond sediment within T-123 designated Stratum III (SIHP #-2963) was a loamy sand that contained one piece of volcanic glass. A 3-liter bulk sample was collected from Stratum III (SIHP #-2963) at 1.80-1.92 mbs. The sample contained charcoal (0.9 g), naturally-occurring marine shell (2.0 g), *Ruppia maritima* seeds (0.1 g), burned *kukui* (1.0 g), wood (0.2 g), a volcanic glass fragment (0.3 g), medium mammal skeletal remains (0.3 g), fish bone (0.1 g), small freshwater-brackish snails (~84.0 g), and marine shell midden consisting of *Conus* spp. (27.0 g), *Nerita picea* (3.1 g), *Brachidontes crebristriatus* (2.9 g), *Tellina palatam* (1.1 g), *Trochus intextus* (0.2 g), *Isognomon* sp. (0.1 g), and crustacean (0.3 g).

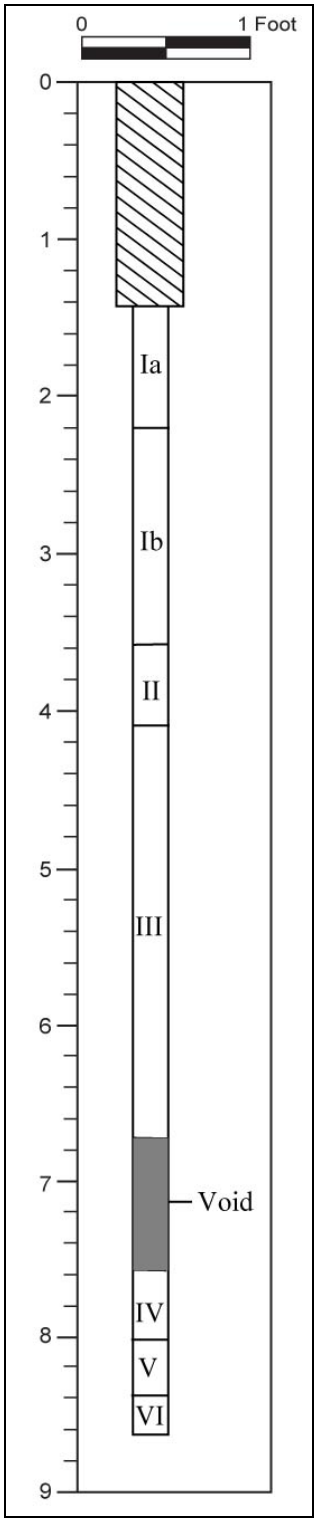


Figure 46. T-124A geotechnical test bore (note: hatched area represents drill through)

Table 9. T-124A Stratigraphic Description

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

Figure 47. T-122 southwest profile wall, view to southwest

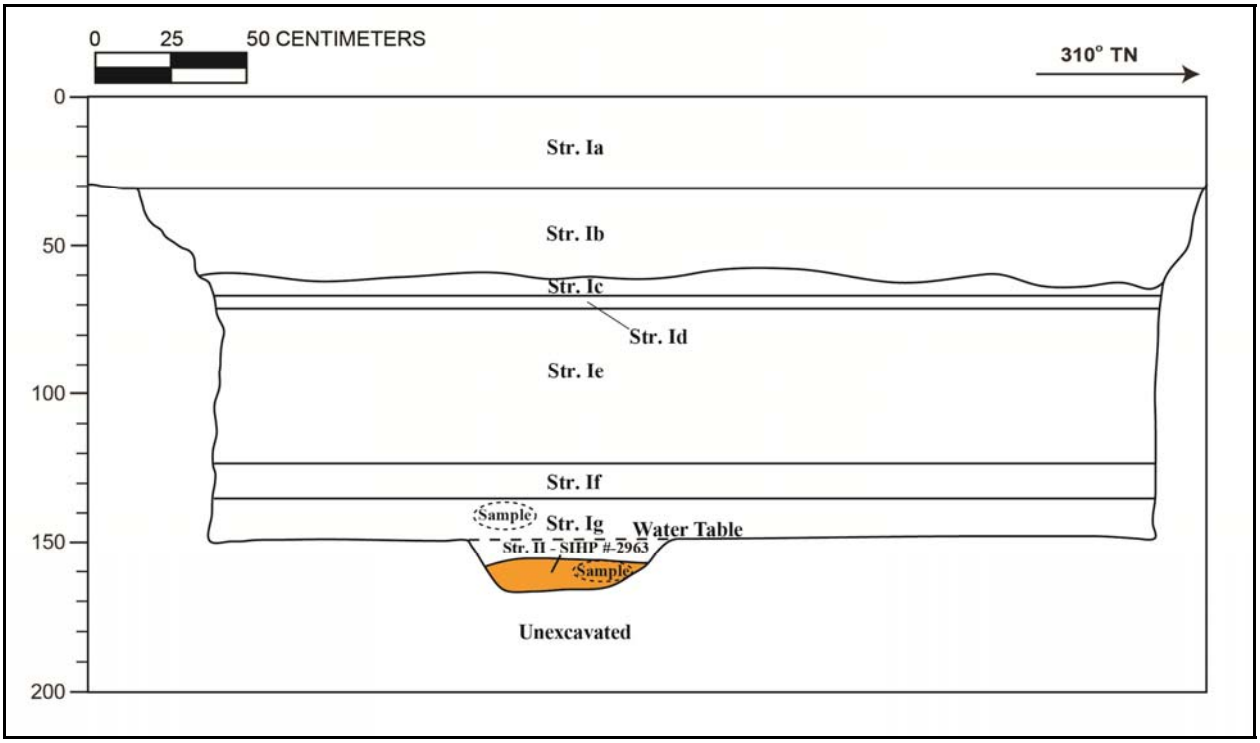


Figure 48. T-122 southwest profile

Figure 49. T-122 ceramic tea pot (Acc. # 122-A-1) collected from Stratum II (SIHP # -2963)

Table 10. T-122 Stratigraphic Description

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

Figure 50. T-123 northeast profile wall, view to north

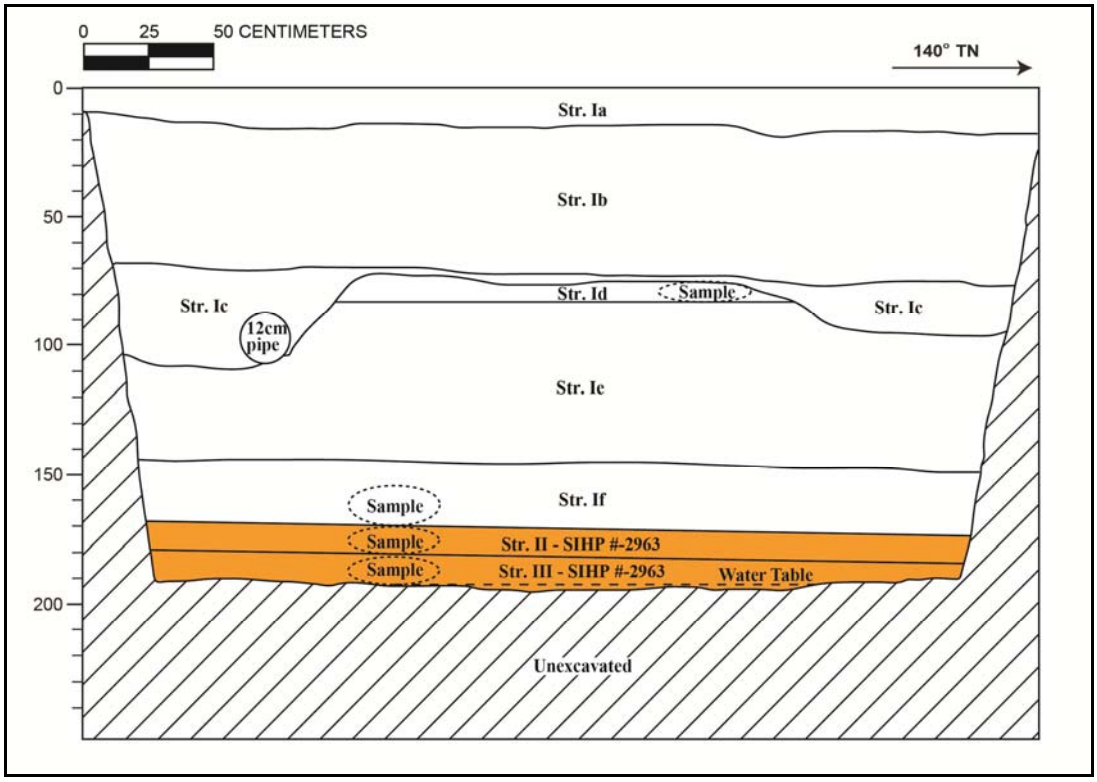


Figure 51. T-123 stratigraphic profile

Table 11. T-123 Stratigraphic Description

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

The buried, culturally-enriched A-horizon along with the 12 associated features identified in T-124, and the pond sediment strata identified in T-122 and T-123 have been combined into SIHP #-2963, previously identified by Clark (1987) (see Figure 34). The culturally-enriched marine sand and terrigenous sediments containing both pre- and post-Contact features that was designated Layer I by Clark (1987) is consistent with the culturally-enriched sandy loam (Stratum IIa) and loamy sand (Stratum IIb) containing traditional Hawaiian and historic cultural material, and a total of 12 archaeological features within T-124 and T-124A. The beach sand that was designated Layer II by Clark (1987) is consistent with the Jaucas sand (Stratum III) within T-124 and T-124A. The organic-rich black silty mud and gleyed, fine-textured, silty mud deposits that were designated Pond Layer I and II, respectively by Clark (1987) are similar to the clay loam with organic matting (Stratum II) of T-122 and the gleyed, culturally-enriched coarse sand (Stratum II) and the loamy sand (Stratum III) of T-123. The two fill sequences described by Clark (1987) as parking lot fills and fishpond fills could not be accurately compared to the fill sequences observed within T-122 through T-124A. However, the similarities in the depositional sequence, geographic location, and the presence of both a culturally-enriched buried A-horizon with associated features and pond sediments in both study areas provide the basis for a combination of the findings of Clark (1987) with the findings within T-122 through T-124A.

SIHP # 50-80-14-2963 is a subsurface cultural deposit consisting of a buried, culturally-enriched A-horizon with 39 associated features, pond sediments, and 8 other archaeological features associated with other fills or natural strata. The 39 features of the buried, culturally-enriched A-horizon consist of 27 previously-identified features and 12 newly-identified features. Collectively, they consist of 16 pits, 6 trash pits, 5 animal burials, 4 human burials, 4 possible postmolds, 2 isolated animal bone areas, 1 burned soil area, and 1 posthole. The 27 previously-identified by Clark (1987), and the 12 newly-identified features encountered during the excavation of T-124. The buried A-horizon was also identified within T-124A, a geotechnical test bore located southeast of T-124. Pond sediments were identified along the western edge of the Clark (1987) study area and within T-122 and T-123. The pond sediments identified in the two studies are considered to be the buried remnants of the pond labeled “Auwaiolimu Crown Land” on the 1881 Brown map of Honolulu (see Figure 37). The other 8 archaeological features identified by Clark (1987) consist of a large pit, a cement building foundation, a red brick layer or possible building foundation within parking lot fill, a buried land surface within marine sand, and three human burials with no associated burial pits or strata. A total of 13 human burials are associated with SIHP # 50-80-14-2963, of which six were identified by Ota and Kam (1982) and seven were identified by Clark (1987). No human burials associated with SIHP # 50-80-14-2963 were located in the current City Center project APE.

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

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

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

**SIHP # 50-80-14-5820**

| | |
|---|---|
| **FORMAL TYPE:** | Subsurface cultural deposit, human burials |
| **FUNCTION:** | Habitation and burial interment |
| **PREVIOUS DOCUMENTATION:** | Winieski and Hammatt (2000) |
| **AGE:** | Pre- and post-Contact |
| **NUMBER OF FEATURES:** | 42 total; 31 newly identified and 11 previously documented |
| **TYPES OF FEATURES:** | 12 human burials, 1 *imu* pit, 1 pit containing two dog burials, 1 pit containing a horse burial and disturbed human remains, and 27 indeterminate pits |
| **DISTRIBUTION:** | Approximately 0.04 acres within the current project area, 0.08 acres total area |
| **LOCATION:** | Halekauwila Street from Keawe Street to east of Ohe Street (West Kaka‘ako Geographic Zone) |
| **TAX MAP KEY:** | TMK [1] 2-1-050:067; [1] 2-1-050 (Halekauwila Street ROW por.); [1] 2-1-051 (Halekauwila Street ROW por.); [1] 2-1-031 (Keawe Street ROW por.); [1] 2-1-051:003 and 038 |
| **LAND JURISDICTION:** | Hawai‘i Community Development Authority and the City and County of Honolulu (within current project area) |
| **TEST EXCAVATIONS:** | T-141, T-142, T-145, T-146A, T-150, T-151, and T-151A; T-140, T-143, T-144, T-146, T-147, T-148, T-148A, T-149, and T-152 are included in the SIHP #-5820 interpolated boundary |

SIHP #50-80-14-5820 is a previously-identified subsurface cultural deposit including 42 features in the vicinity of Mother Waldron Park and Halekauwila Street from Keawe Street to east of Ohe Street. This archaeological cultural resource was first reported by Winieski and Hammatt (2000) as consisting of 11 human burials encountered within and/or near Mother Waldron Park and Halekauwila Street (Figure 52).

Winieski and Hammatt (2000) conducted archaeological monitoring between 1990 and 1992 by CSH for the Kaka‘ako Improvement District 3 (ID-3) project which included infrastructure improvements to utility and drainage systems along Mother Waldron Park and Halekauwila Street. Of the 11 burials designated by Winieski and Hammatt (2000) as part of SIHP #-5820, five were located along Halekauwila Street, two were within Keawe Street, and four burials were within Mother Waldron Park. All 11 burials were recovered and reinterred within Mother Waldron Park. The project also included construction of the Pohulani Elderly Rental Housing facility along Queen Street; however, the archaeological findings from that location are not a component of SIHP #-5820.

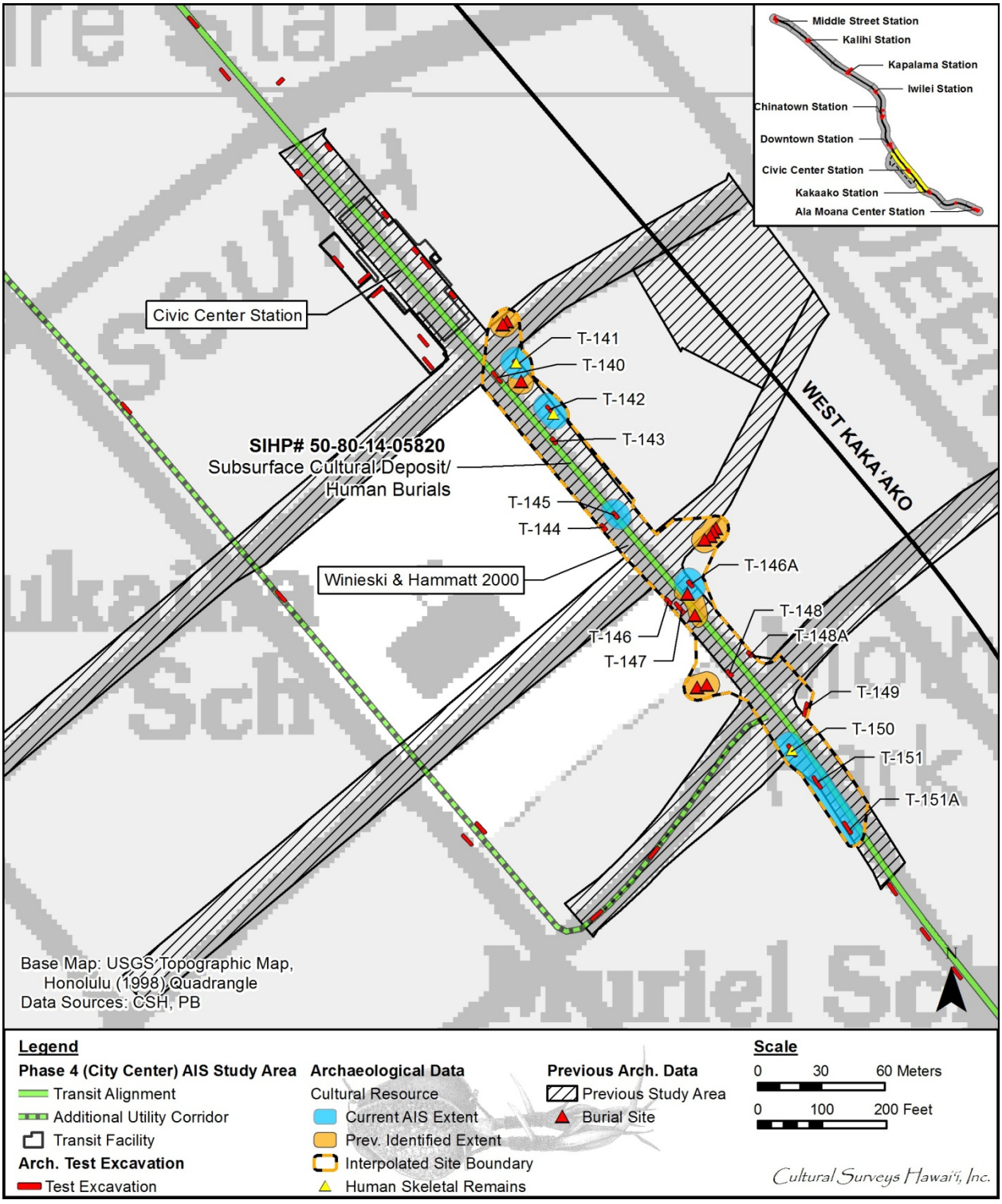


Figure 52. Location of SIHP # 50-80-14-5820 in the Kaka‘ako West Geographic Zone (Base Map: 1998 USGS Topographic Map of Honolulu Quadrangle)

According to Winieski and Hammatt (2000), the general stratigraphic sequence recorded at the burial sites consisted of beach sand deposits overlain by a discontinuous buried A-horizon and/or fill layers. Archaeological monitoring of the project mostly involved on-call monitoring or response to an inadvertent discovery. Therefore, the extent and distribution of the cultural A-horizon across the project area was not recorded, and the A-horizon initially was not included as a component of SIHP #-5820.

The buried A-horizon documented by Winieski and Hammatt (2000) ranged from a very dark grayish brown to dark brown silty sand to sandy clay. It was identified at depths from 0.4 mbs to 1.25 mbs. At least eight of the 11 human burials encountered during the project were located within the A-horizon (Table 12). In most cases, the burial pits intruded into the underlying sterile beach sand.

Of the 11 burials identified by Winieski and Hammatt (2000), eight had identifiable burial pits, seven were either intact or partially intact, and six were in a fully flexed position characteristic of traditional Hawaiian burial practices (see Table 12). Mother Waldron Park Burial 4 was the deepest of the confirmed flexed finds. It was uncovered between 1.45 mbs and 1.50 mbs in gleyed sandy clay directly at the water table. The damp environment surrounding this burial preserved a sennit cord wrapped around the remains. It was probably a remnant of the cordage used to bind the body into a flexed position (Winieski and Hammatt 2000).

The remaining flexed burials originated in the A-horizon and extended into the underlying sterile layer of beach sand. Winieski and Hammatt (2000) documented the depths of the burials as ranging from 1.15 mbs to 1.40 mbs, except for one burial encountered at 0.60 mbs.

Winieski and Hammatt (2000) recorded osteological information from Mother Waldron Park Burial 1, recovered from a depth of 1.25 mbs to 1.35 mbs. The remains were flexed in a burial pit with the arms tight against the upper torso, the hands near the shoulders, and the skull oriented to the north. Osteological analyses suggested that the burial was an adult female of Polynesian ancestry between approximately 40 to 45 years of age. The cranium exhibited artificial deformation known to have been practiced in Hawai‘i.

A whole pig (*Sus scrofa*) was found buried at the base of the trench directly adjacent to the skull of Mother Waldron Park Burial 1. The pig burial was within a well-defined pit extending from the cultural layer and intruding into the white beach sand layer. Additionally, a small pit approximately 0.50 m east of the human and pig burials contained the charred partial remains of another pig (Figure 53). This latter pit intruded into the beach sand layer from the base of the overlying cultural layer. The pig bones were bundled in the base of the pit at a depth of 1.70 mbs.

Keawe Street Burial 2 was also of particular note. It was discovered at depth of 0.60 mbs to 0.70 mbs, making it the shallowest of the confirmed fully-flexed burials. The 0.85-m oval pit extended from the A-horizon into sterile beach sand and contained the in situ remains of a juvenile female. The remains were lying on their left side with the skull toward the north, and the arms were flexed with the hands in front of the face. Cowrie and tellina species shells were found in association with the burial, near the elbows.

The only confirmed extended burial was Halekauwila Street and Coral Street Burial 3. The remains were located in a disturbed pit at the base of the A-horizon, at a depth of 1.2 mbs to 1.3 mbs. The articulated portion of the burial was in an extended position, with the fragmented

Table 12. Detail of 11 Burials Documented as SIHP # 50-80-14-5820 by Winieski and Hammatt (2000)

| Burial # | Condition | Position | Head Direction | Depth (cmbs) | Stratum | Notes |
|---|---|---|---|---|---|---|
| Mother Waldron Park Burial 1 | Intact pit burial | Flexed, supine | North | 125-135 | Sand A-horizon | Female, Polynesian descent, aged 40 to 45 years; artificial cranial deformation. Associated with a whole pig burial in an adjacent pit, and charred partial remains of a second pig |
| Mother Waldron Park Burial 2 | Disturbed/ fragmented | - | - | - | - | Right ulna and radius, and hand fragments. No in situ location identified. |
| Mother Waldron Park Burial 3 | Intact pit burial | Flexed, right | Southeast | 110-115 | Sand A-horizon | No osteological analysis provided |
| Mother Waldron Park Burial 4 | Intact pit burial | Flexed, right | East | 145-150 | Gleyed sandy clay | Recovered a sennit cord used to bind the remains in a flexed position; preservation due to location at the water table |
| Keawe St. Burial 1 | Disturbed/ fragmented | - | - | - | - | Skull and long bones recovered from backdirt. No in situ location identified. |
| Keawe St. Burial 2 | Intact pit burial | Flexed, left | North | 60-70 | Beach sand | Juvenile female with hands positioned in front of face, charcoal near the hands, associated cowrie and tellina shells |
| Halekauwila St. & Coral St. Burial 1 | Disturbed/ fragmented | - | - | 140 | Silty sand A-horizon | Heavy disturbance from project-related excavation |
| Halekauwila St. & Coral St. Burial 2 | Disturbed pit burial | - | North | 140-160 | Silty sand A-horizon | In situ portions included an ulna and radius, and a torso and scapulae. Disturbance from project-related excavation. |
| Halekauwila St. & Coral St. Burial 3 | Disturbed pit burial | Extended, supine | Southeast | 120-130 | Silty sand A-horizon | In situ portions included right ulna and radius, pelvis, vertebrae, and ribs. Disturbance from project-related excavation. |
| Halekauwila St. & Coral St. Burial 4 | Intact pit burial | Flexed, right | East | 130-140 | Silty sand A-horizon | Complete in situ except for the skull |
| Halekauwila St. & Keawe St. Burial 1 | Disturbed pit burial | Flexed | South | 80-115 | Silty sand A-horizon | In situ portion included femur, patella, tibia, fibula and mandible fragment. Disturbance from project-related excavation. |

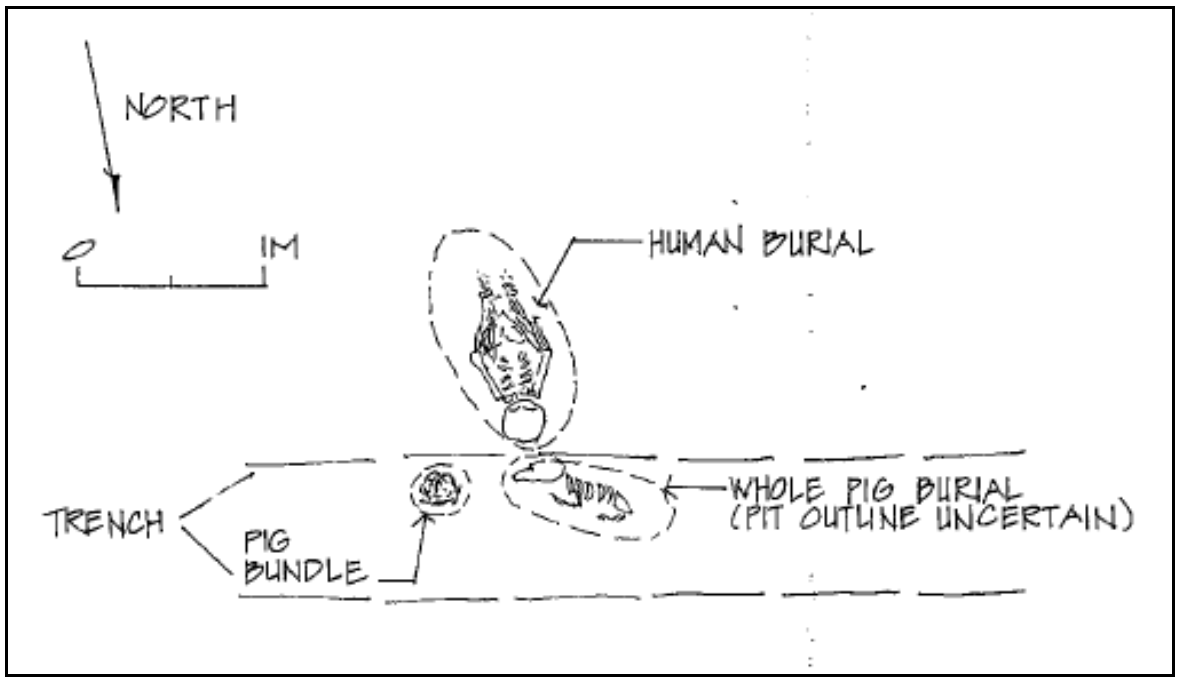


Figure 53. Winieski and Hammatt (2000:26) plan view of Mother Waldron Park Burial 1

skull oriented toward the southeast. The in situ portion of the burial consisted of the articulated right ulna and radius, pelvis, vertebrae, and ribs. Disturbance was due to project-related excavations.

In 2012, Scientific Consulting Services, Inc. (SCS) recovered a human burial at the intersection of Halekauwila Street and Cooke Street, across from Mother Waldron Park (Dagher and Spear 2013). The burial location is approximately 5 m east of the City Center Section 4 AIS T-149, and 15 m northeast of T-150. The cultural resource was designated as SIHP # 50-80-14-7260. The in situ remains had been displaced by construction activity, and no burial pit was identified. Based on the sand context of the burial and the lack of historic materials, it was identified as a pre-Contact burial. Traditional Hawaiian artifacts associated with the burial consisted of five fragments of volcanic glass (1 core, 1 flake, and 3 fragments of debitage) and possible midden material (e.g., pig, fish, marine invertebrates) (Dagher and Spear 2012:15). However, historic artifacts were collected from the backfill material and included 1 clay pipe stem fragment, 1 ferrous square nail, 5 ceramic fragments, and 1 brass military button. Preliminary analysis of the skeletal elements indicated a single individual of Polynesian ancestry between 16 to 19 years of age (Dagher and Spear 2013:17).

During the City Center archaeological inventory survey, two cultural layers were identified as components of SIHP #-5820. The lower cultural layer is an in situ culturally-enriched A-horizon identified as Stratum II in T-141, T-142, T-145, T-146A, T-150, and T-151. It was capped by multiple fill layers consisting of either locally-procured material or imported sediments, subsequently capped by the modern Halekauwila Street asphalt surface and underlying base course. The upper cultural layer (Stratum Id) was identified in T-151 and T-151A. Stratum Id consisted of re-deposited culturally-enriched fill, and was likely a re-worked former A-horizon. It was separated from the lower cultural layer (Stratum II) by an approximately 20 to 50 cm thick fill deposit (Stratum Ie). The upper cultural layer was also capped by multiple fill layers consisting of either locally-procured material or imported sediments.

A general sequence for the stratigraphy within the interpolated boundaries of SIHP #-5820 indicates the lower A-horizon (Stratum II) is overlain by a series of historic and modern fills and is underlain by Jaucas sand. This sequence was documented in T-141, T-142, T-145, T-146A, T-150, and T-151. A generalized profile of this sequence is shown in Figure 54 based on data from T-146A. The coral reef was exposed below the Jaucas sand in T-141 and, although not reached, is presumed to be present within the other test excavations dug within the interpolated boundaries of SIHP #-5820. In T-141, T-142, and T-151, marine deposits were identified below the Jaucas sand to the base excavation. These marine deposits are described as silty sand (T-141), sand (T-142), and sand with clay mottles (T-151).

Due to historic/modern disturbances and/or excavation limitations (e.g., concrete jackets, water table), these culturally-enriched strata (Stratum II and Id) were not exposed in another nine test excavations (T-140, T-143, T-144, T-146, T-147, T-148, T-148A, T-149, and T-152) dug within the interpolated boundaries of SIHP #-5820. However, available stratigraphic data suggest the A-horizon likely was previously present in each of these nine test excavations.

Pit features are associated with both the lower cultural layer (II) and the upper cultural layer (Id in T-151 and T-151A only). The features associated with the lower cultural layer are as follows: Features 2 and 4 in T-141, Features 5-8 in T-142, Features 9 and 10 in T-145, Features

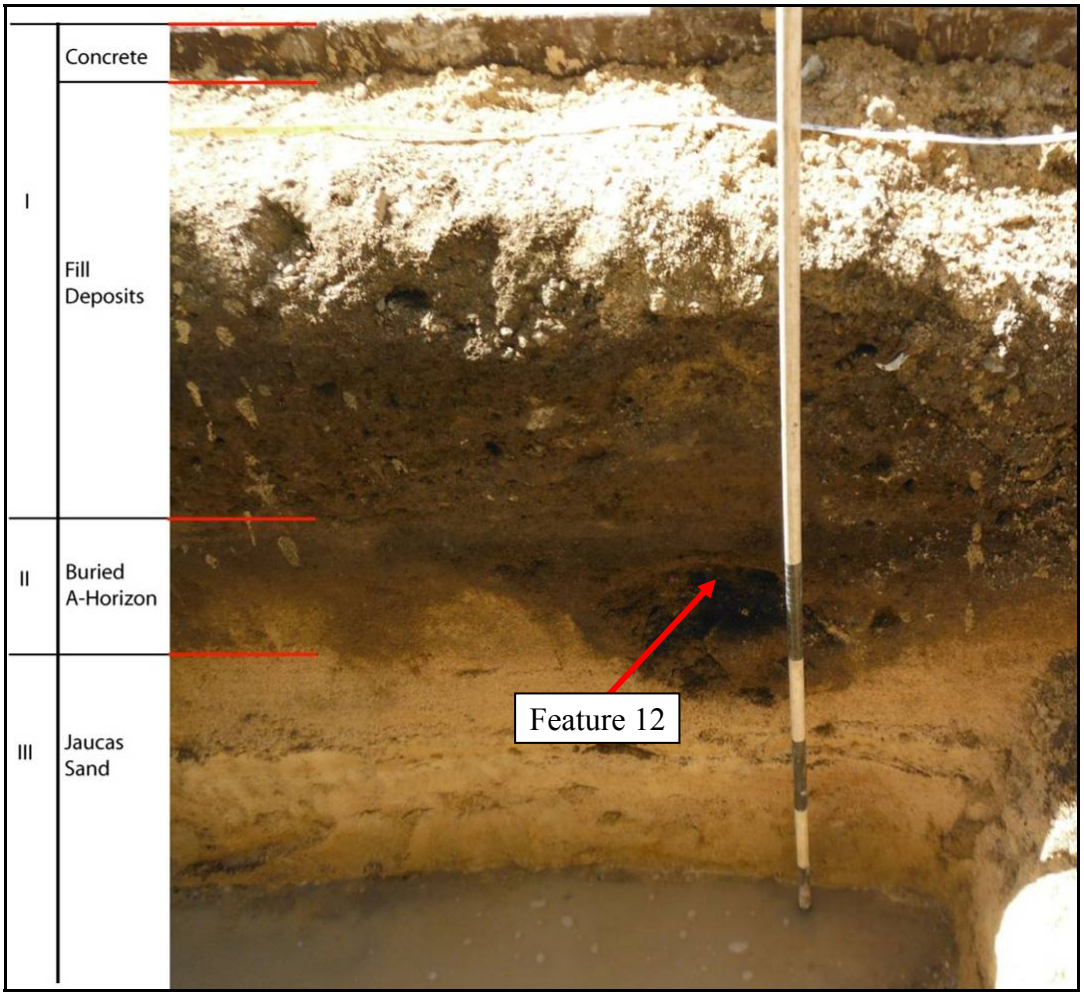


Figure 54. T-146A southwest wall profile representing the general depositional sequence observed in the vicinity, also shown is SIHP #-5820 Feature 12, view to southwest

11-17 in T-146A, Features 18-20 in T-150, and Feature 25 in T-151. The features associated with the localized upper cultural layer (Stratum Id) consist of SIHP #-5820 Features 21-24 in T-151 and Features 26-29 in T-151A.

Four additional pit features (Features 1, 3, 30, and 31) not associated with either the lower or upper cultural layers were identified within SIHP #-5820. Feature 1 is a pit in T-141 that was truncated by sandy loam fill (Stratum Ie) and that is intrusive into the buried A-horizon (Stratum II) and the underlying natural Jaucas sand (Stratum III). Feature 3 is a second pit in T-141 that was truncated by sandy loam fill (Stratum Ie) and that is intrusive into the buried A-horizon (Stratum II), the underlying natural Jaucas sand (Stratum III), and the lagoonal sediment (Stratum IV). Feature 30 is an in situ human burial exposed in the Jaucas sand (Stratum III) below the lower cultural layer in T-142. Feature 31 is a large pit intrusive through two fill strata (Id-Ie), the lower cultural layer (Stratum II), the underlying Jaucas sand (Stratum III) and natural marine/lagoonal sediments (Stratum IV), terminating just above the coral shelf.

The 31 pit features identified as components of the SIHP #-5820 consist of 1 horse burial pit with disarticulated and scattered human remains (Feature 1), 26 indeterminate pits (Features 2-8, 10-22, 25-29, and 31), 1 *imu* (Feature 9), 1 possible postmold (Feature 23), two infant dog burials (Feature 24), and 1 traditional Hawaiian human burial (Feature 30). These features are summarized in Table 13 and briefly described below.

**SIHP #-5820 Feature 1** was identified within T-141 as a pit extending from the lower boundary of Stratum Ie at 0.55 mbs and terminating within Stratum III at 1.15 mbs (Figure 55 and Table 14). The pit was truncated by overlying fill layers and was intrusive into both the buried A-horizon (Stratum II) and underlying natural Jaucas sand (Stratum III). The upper portion (0.55-0.77 mbs) contained isolated and disarticulated human skeletal elements (Figure 56). Human skeletal elements were also found within SIHP #-5820 Feature 31 (an adjacent pit feature of mixed fill), and along the upper boundary of Stratum III. The presence of historic artifacts within both SIHP #-5820 Feature 1 and Feature 31 indicates the features post-date the A-horizon and Stratum III.

Terrestrial faunal remains individually collected from SIHP #-5820 Feature 1 consisted of a pig (*Sus scrofa*) molar, dog (*Canis lupus familiaris*) bones, and bird (Aves) bones. A basalt stone sinker (Acc. # 141-H-1) was found at 0.70 mbs immediately adjacent to the pit outline visible at the upper limit of Stratum III (Jaucas sand) (Figure 57). Beneath the human skeletal remains within the pit, a complete, in situ horse (*Equus ferus caballus*) burial was encountered between 0.77 mbs and 1.15 mbs (Figure 58). All of the sediment within pit was screened in order to complete the recovery of human skeletal remains. A 11-liter bulk sample of sediment within the pit was collected from 0.83-1.15 mbs. The screened bulk sediment sample yielded charcoal (0.1 g), possible marine shell midden (20.6 g), naturally-occurring marine shell (9.4 g), and one medium mammal bone fragment (0.8 g). The possible marine shell midden included *Tellina palatam* (12.1 g), *Brachidontes crebristriatus* (3.2 g), Isognomidae (1.8 g), *Nerita picea* (1.8 g), crustacean (1.5 g), and Echinoidea (0.2 g).

The human skeletal remains identified within SIHP #-5820 Feature 1 represented a minimum number of three individuals. Skeletal elements noted as either juvenile or adult included a second cervical vertebra, a thoracic vertebra, several unspecified vertebrae, several rib fragments, a manubrium, a right third metacarpal, two left second metacarpals, a proximal hand phalanx, an

Table 13. Archaeological Features of SIHP #-5820 Identified during the City Center Section 4 AIS

| Feature | Test Excavation | Depth (cmbs) | Radiocarbon Age (C14) | Type/Function | Contents |
|---|---|---|---|---|---|
| 1 | T-141 | 55-115 | - | Pit/Horse burial/ Disarticulated human skeletal remains | *In situ* horse burial, previously disturbed and scattered human skeletal remains (incomplete remains of at least 1 infant, 1 adult, and a possible juvenile or adult), faunal remains (pig, dog, bird, and medium-sized mammal), charcoal, shell midden, and no naturally-occurring marine shell |
| 2 | T-141 | 71-89 | - | Pit/Indeterminate | Marine shell and a pig bone fragment |
| 3 | T-141 | 63-150 | - | Pit/Indeterminate | Ceramic fragments and rusted metal, possible midden |
| 4 | T-141 | 75-95 | - | Pit/Indeterminate | Charcoal (*kukui and unidentified monocot*) |
| 5 | T-142 | 44-75 | - | Pit/Indeterminate | Basalt game stone; a fire-cracked, water-worn basalt cobble, several flakes from fire-cracked rock, two ceramic fragments and rusted metal pieces, charcoal, naturally-occurring shell, midden, and faunal remains (cow, medium mammal, and fish). |
| 6 | T-142 | 56-75 | - | Pit/Indeterminate | A traditional Hawaiian shell fishhook and historic artifacts including a possible ceramic fragment, a clear glass fragment, and a piece of rusted metal. Charcoal, shell midden, naturally-occurring marine shell, water-worn rocks, faunal remains (cow, medium mammal, fish, and rat), and human skeletal remains (two teeth and cancellous bone) also present. |
| 7 | T-142 | 50-90 | - | Pit/Indeterminate | Charcoal, shell midden, naturally-occurring marine shell, a fragment of vesicular basalt, faunal remains (bird, fish, cow, medium mammal, and pig), earthenware ceramic, metal, and glass fragments |
| 8 | T-142 | 55-70 | AD 1610-1670 | Pit/Indeterminate | Charcoal (coconut, *kukui*, and *kōpiko*), shell midden, naturally-occurring marine shell, and faunal remains (fish, pig, medium and small mammal) |

| Feature | Test Excavation | Depth (cmbs) | Radiocarbon Age (C14) | Type/Function | Contents |
|---|---|---|---|---|---|
| 9 | T-145 | 74-92 | AD 1480-1650 (95.4%) | *Imu* pit | Charcoal (*‘ōhi‘a lehua, ‘ilima*, *lama,* and an unidentified monocot), thermally-altered basalt stones, shell midden, naturally-occurring marine shell, and bottle glass fragments |
| 10 | T-145 | 70-110 | - | Pit/Indeterminate | Charcoal (*kukui,* conifer, and monocot), shell midden, naturally-occurring marine and faunal remains of a medium-sized mammal |
| 11 | T-146A | 67-76 | - | Pit/Indeterminate | Charcoal, shell midden, naturally-occurring marine shell, and burned fish bone |
| 12 | T-146A | 75-95 | AD 1630-1690 (51.3%) | Pit/Indeterminate | Charcoal (*kukui*, *hau*, *‘akoko*, *niu*, and *‘a‘ali‘i*), shell midden, naturally-occurring marine shell, volcanic glass, basalt, and vesicular fire-cracked rock |
| 13 | T-146A | 83-97 | AD 1630-1690 (51.3%) | Pit/Indeterminate | Charcoal (*kukui*, *hau*, *kolomona*, and *‘ōhi‘a lehua*), shell midden, fire-cracked rock, and faunal remains (fish and medium-sized mammal) |
| 14 | T-146A | 84-95 | AD 1490-1670 (95.4%) | Pit/Indeterminate | Charcoal (*niu* and *‘ōhi‘a lehua*), shell midden, naturally-occurring marine shell, burned wood, volcanic glass, fire-cracked rock and fish bones |
| 15 | T-146A | 84-92 | AD 1720-1820 (53.5%) | Pit/Indeterminate | Charcoal (*kukui* and *pilo*), shell midden, naturally-occurring marine shell, basalt fragments, and faunal remains (pig, dog, fish, medium mammal) |
| 16 | T-146A | 93-100 | - | Pit/Indeterminate | Shell midden, naturally-occurring shell, and fish bones |
| 17 | T-146A | 121-135 | - | Pit/Indeterminate | SIHP #-5820 Feature 17 was subsequently interpreted as natural. As such no sediment samples were collected for analysis.- |
| 18 | T-150 | 75-105 | - | Pit/Indeterminate | Worked human bone (proximal tibia shaft), basalt tool fragment, fire-cracked rock, shell midden, naturally-occurring marine shell, and fish remains. |

| Feature | Test Excavation | Depth (cmbs) | Radiocarbon Age (C14) | Type/Function | Contents |
|---|---|---|---|---|---|
| 19 | T-150 | 53-95 | AD 1810-1920 (67.1%) | Pit/Indeterminate | Charcoal (*kukui*, *kolomana*, *‘ōhi‘a lehua*, *‘ilima*, and *‘āheahea* or *‘āweoweo*), shell midden, naturally-occurring shell, and fish remains |
| 20 | T-150 | 90-130 | AD 1630-1690 (51.3%) | Pit/Indeterminate | Charcoal (*kukui,* monocot, and one unidentified species), shell midden, naturally-occurring marine shell, a small fragment of volcanic glass debitage, and fish bones |
| 21 | T-151 | 48-85 | - | Pit/Indeterminate | Shell midden and fire-cracked rock |
| 22 | T-151 | 60-90 | - | Pit/Indeterminate | Shell midden, cement fragments, 2 fragments of volcanic glass debitage, naturally-occurring marine shell, and medium mammal bone |
| 23 | T-151 | 60-99 | - | Pit/Possible Postmold | Shell midden, naturally-occurring marine shell, a red brick fragment (dated 1918-1978), possible coal fragments, glass fragments, fish and medium mammal bones, vesicular basalt fragments, and fire-cracked basalt |
| 24 | T-151 | 70-83 | - | Dog burials | 2 *in situ* infant dog burials |
| 25 | T-151 | 90-119 | AD 1480-1660 (95.4%) | Pit/Indeterminate | Charcoal (*kukui*, *ko‘oko‘olau,* and one unidentified species), shell midden, and rat bones |
| 26 | T-151A | 74-80 | - | Pit/Indeterminate | Basalt, a fragment of volcanic glass debitage, shell midden, naturally-occurring marine shell, and fish bones |
| 27 | T-151A | 65-72 | - | Pit/Indeterminate | Charcoal, shell midden, naturally-occurring marine shell, white and pink glass fragments, and fish bones |
| 28 | T-151A | 60-80 | - | Pit/Indeterminate | Charcoal, shell midden, naturally-occurring marine shell, ceramic and glass fragments, medium mammal bone, and possible fire-cracked rock |
| 29 | T-151A | 47-58 | - | Pit/Indeterminate | Naturally-occurring shell and fish bone |

| Feature | Test Excavation | Depth (cmbs) | Radiocarbon Age (C14) | Type/Function | Contents |
|---|---|---|---|---|---|
| 30 | T-142 | 100 | - | Human burial | *In situ* human burial. Adult or adolescent, traditional Hawaiian burial in a flexed or partially flexed position. Located in the natural Jaucas sand underlying the A-horizon with a faint burial pit outline. No grave goods were observed. |
| 31 | T-141 | 25-135 | - | Pit/Indeterminate | Scattered, disarticulated human skeletal remains, faunal remains (pig and chicken) |

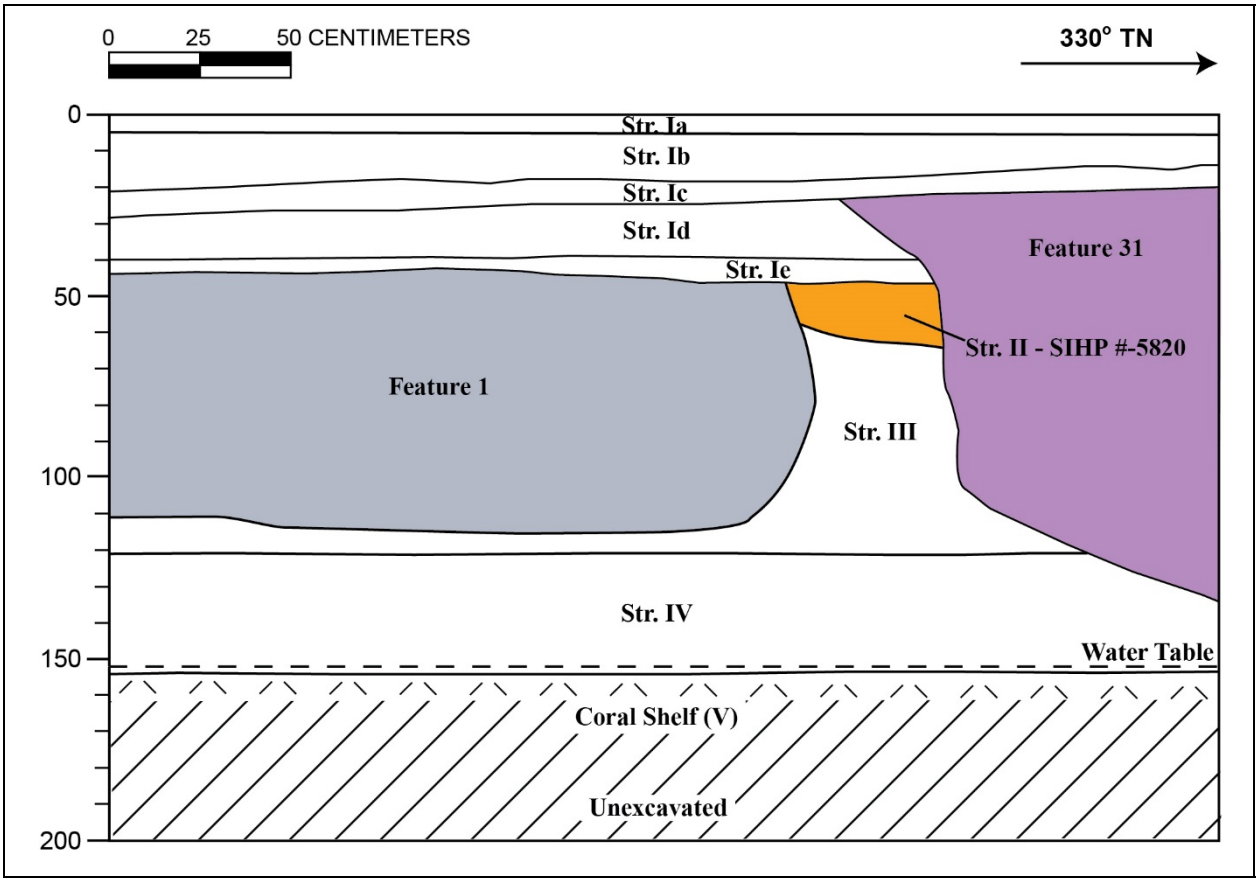


Figure 55. T-141 southwest wall profile showing SIHP #-5820 Feature 1 which contained scattered human skeletal elements and an articulated horse burial

Table 14. T-141 Stratigraphic Description of Southwest Profile

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-6 | Asphalt |
| Ib | 6-20 | Fill; 2.5 YR 5/4 (reddish brown); very gravelly silt loam; weak, very fine, blocky structure; dry, weakly coherent consistency; non-plastic; terrigenous origin; abrupt, smooth lower boundary; imported basalt base course |
| Ic | 15-35 | Fill; 7.5 YR 3/2 (dark brown); sandy loam; weak, very fine, crumb structure; moist, firm consistency; non-plastic; mixed origin; clear, smooth lower boundary; fill material |
| SIHP #-5820 Feature 31 | 25-135 | Pit feature originating at the lower boundary of Stratum Ic; gravelly sandy loam mixed fill; contained glass fragments and metal fragments (not collected), and ceramic fragments (collected), and previously disturbed, disarticulated and scattered human skeletal remains; SIHP #-5820 Feature 31 |
| Id | 25-40 | Fill; 2.5 Y 8/3 (pale yellow); extremely gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, broken/discontinuous lower boundary; fill material |
| Ie | 40-50 | Fill; 7.5 YR 3/2 (dark brown); sandy loam; weak, very fine, crumb structure; moist, firm consistency; non-plastic; mixed origin; clear, smooth lower boundary; fill material; contained red brick fragment (collected) |
| SIHP #-5820 Feature 1 | 55-115 | Pit feature truncated at upper boundary; loamy sand; contained *in situ* horse burial, previously disturbed and scattered human skeletal remains (incomplete remains of at least 1 infant, 1 adult, and a possible juvenile or adult), charcoal, shell midden, non-cultural shell, and faunal remains of a medium-sized mammaln; SIHP #-5820 Feature 1 |
| SIHP #-5820 Feature 3 | 63-150 | Pit feature originating from Stratum Ie; loamy sand; contained rusted metal and ceramic fragments; SIHP #-5820 Feature 3 |
| II | 43-72 | Natural, 10 YR 6/2 (light brownish gray); loamy sand; weak, very fine, crumb structure; moist, very friable consistency; slightly plastic; mixed origin; diffuse, broken/discontinuous lower boundary; buried A-horizon; former land surface; designated SIHP # -5820, includes SIHP # -5820 Features 2 and 4 |
| SIHP #-5820 Feature 2 | 71-89 | Pit feature originating from Stratum II; loamy sand; contained marine shell and faunal fragments; SIHP #-5820 Feature 2 |
| SIHP #-5820 Feature 4 | 75-95 | Pit feature originating from Stratum II; loamy sand; contained charcoal (*kukui* nutshell); SIHP #-5820 Feature 4 |

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| III | 53-121 | Natural; 10 YR 6/4 (light yellowish brown); very fine sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; diffuse, smooth lower boundary; Jaucas sand |
| IV | 121-152 | Natural; 2.5 Y 8/4 (pale yellow); silty sand; structureless, single-grain; wet, non-sticky consistency; non-plastic; marine origin; abrupt, smooth lower boundary; lagoonal sediment |
| V | 152 (BOE) | Natural; 10 YR 7/4 (very pale brown); bedrock-limestone; structureless, massive; moist, weakly to strongly cemented; discontinuous consistency; non-plastic; marine origin; lower boundary not observed; Pleistocene coral shelf |

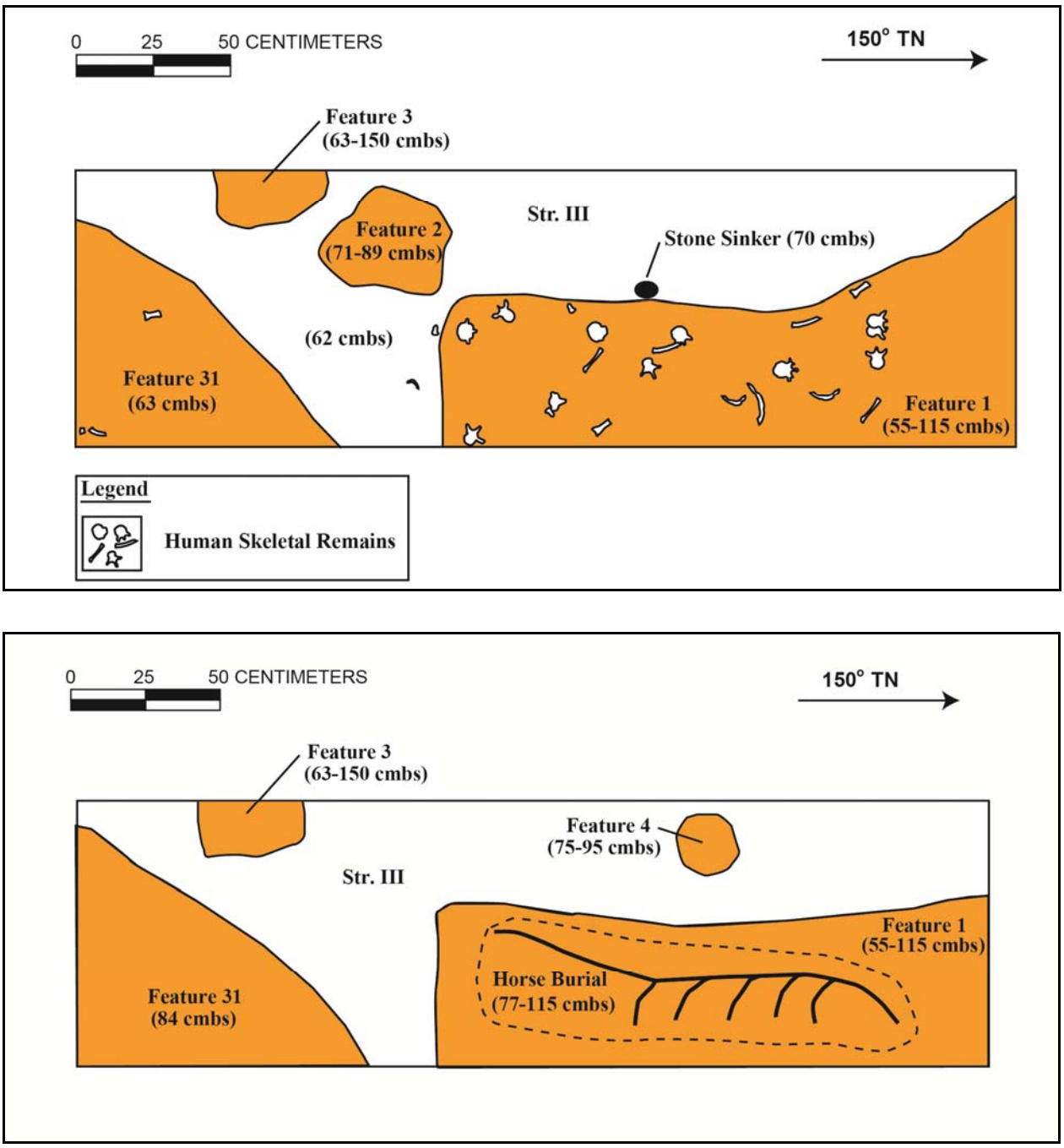


Figure 56. T-141 plan view showing the upper boundary of SIHP #-5820, Feature 1 with scattered and disarticulated human skeletal remains (top) and the lower portion of Feature 1 with an articulated horse burial (bottom); also note SIHP #-5820 Features 2 through 4 and Feature 31


Figure 57. Basalt stone sinker (Acc. # 141-H-1) collected from the natural Jaucas sand adjacent to SIHP #-5820 Feature 1 in T-141

Figure 58. T-141, articulated horse burial in SIHP #-5820 Feature 1 extending into southwest sidewall, view to south

intermediate hand phalanx, two distal hand phalanges, an unsided innominate, and a left calcaneus. The skeletal elements identified as either child or infant remains included mandible fragments, multiple rib fragments, a left radius, and a right innominate. An unidentified long bone was noted as either infant or fetal. The minimum number of individuals (MNI) was based on the age differences and reported duplication of the left second metacarpal. Sex and ancestry were not determined. SIHP #-5820 Feature 1 is interpreted as a pit containing a horse burial and previously disturbed and disarticulated human skeletal remains.

**SIHP #-5820 Feature 2** was identified as a pit within the central portion of T-141. It originated from the base of Stratum II at 0.71 mbs and terminated at 0.89 mbs within Stratum III. The feature was irregularly-shaped in plan view, measured a maximum of 0.42 m long by 0.35 m wide, but did not extend into any of the excavation sidewalls (see Figure 56). The sediment matrix within the pit was loamy sand with similar characteristics to Stratum II. A single unmodified pig (*Sus* scrofa) cranial fragment was collected from SIHP #-5820 Feature 2. A 10-liter screened sample was collected from within the pit at 0.89 mbs which yielded *Echinothrix diadema* sp. (0.5 g). SIHP #-5820 Feature 2 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 3** was identified within T-141 at the lower boundary of Stratum Ie at 0.63 mbs. The pit appeared truncated by overlying fill layers. It was intrusive into the buried A-horizon (Stratum II) and the underlying natural sands (Strata III and IV), and terminated at the coral shelf at 1.50 mbs. The feature was elongated and irregular-shaped in plan view, measured approximately 0.17 m long by 0.36 m wide, and extended into the northeast sidewall. The sediment matrix within the pit was loamy sand with similar characteristics to Stratum II. The feature contained historic material including rusted metal and ceramic fragments. SIHP #-5820 Feature 3 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 4** was identified within the central portion of T-141. The pit originated at or near the base of Stratum II at 0.75 mbs, intruded into Stratum III, and terminated at 0.95 mbs. The feature was largely circular-shaped in plan view and measured approximately 0.20 m in diameter. It did not extend into the excavation sidewalls. The sediment matrix within the pit was loamy sand with similar characteristics to Stratum II. No cultural material was identified within the pit fill. SIHP #-5820 Feature 4 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 5** was identified within T-142. The pit originated at or near the base of Stratum II at 0.44 mbs and terminated within Stratum III at 0.75 mbs. The feature was irregular-shaped in plan view, measured 0.80 m long by 0.30 m wide, and extended into the northeast sidewall (Figure 59). The previously backfilled excavation (probable utility trench) observed within T-142 appeared to crosscut and remove a portion of SIHP #-5820 Feature 5. The sediment matrix with the pit was loamy sand with similar characteristics to Stratum II. A 2-liter bulk sediment sample (0.50–0.75 mbs) and a 7.5-liter field screened bulk sediment sample (0.44–0.52 mbs) were collected for analysis. The combined samples contained charcoal (4.1 g), possible marine shell midden (39.6 g), naturally-occurring marine shell (0.3 g), a rounded vesicular basalt game stone (180.5 g), refined earthenware fragments (23.2 g), rusted metal fragments (7.6 g), an unidentified fish bone (0.1 g), a fragment of a fire-cracked waterworn cobble (>500 g), and fire-cracked vesicular basalt rocks and rock fragments (540.4 g). The shell midden included *Nerita picea* shell (11.2 g) and three opercula (1.7 g), *Nassarius gaudiosus* (1.0 g), *Turbo sandwicensis* (17.2 g), burned shell (4.4 g), *Tellina palatam* (0.5 g), *Isognomon* sp. (0.2 g), Echinoidea (0.3 g),

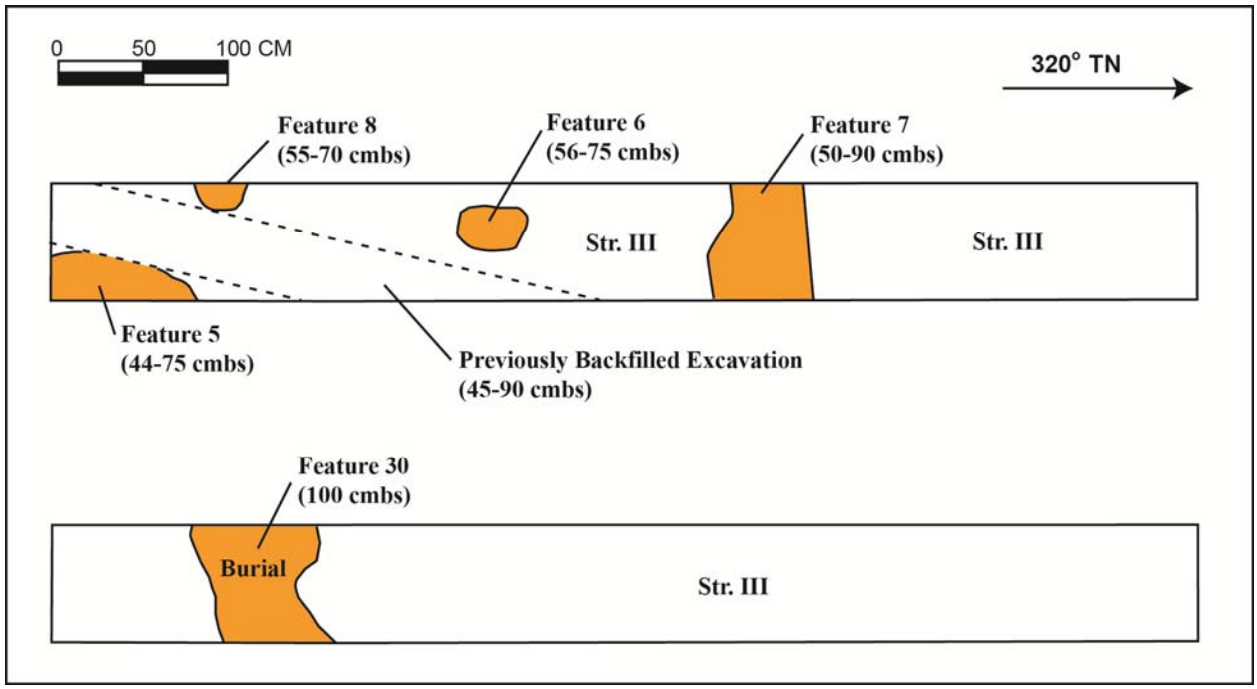


Figure 59. T-142 plan views showing SIHP #-5820 Features 5-8 at the Strata II/III interface (top), and SIHP #-5820 Feature 30 within Stratum III (bottom)

and crustacean (0.1 g). The basalt game stone (Acc. # 142-H-1) is considered a traditional Hawaiian artifact (Figure 60). The basalt game stone was sent for EDXRF analysis, and although specific source material was not available, the results indicated that it had a high ratio of Strontium to Zirconium which does not match O‘ahu Island volcanic source samples (see EDXRF discussion in Volume V). SIHP #-5820 Feature 5 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 6** was identified within T-142 as originating at or near the base of Stratum II at 0.56 mbs. This pit feature was intrusive into Stratum III and terminated at 0.75 mbs. The feature was irregular shaped in plan view and measured approximately 0.40 m long by 0.25 m wide (see Figure 59). The pit was observed in plan view near the central portion of the excavation and it did not extend into either sidewall. The sediment matrix within the pit was loamy sand with similar characteristics to Stratum II. A 2-liter bulk sample (0.560.64 mbs) was collected from within the pit. The screened bulk sample yielded charcoal (6.0 g), possible marine shell midden (226.3 g, see SIHP #-5820 Feature 6 Midden Results Table located at the end of this section), naturally-occurring marine shell (3.1 g), a shell fishhook (0.5 g), rusted metal fragments (0.5 g), glass fragments (1.7 g), possible ceramic fragment (0.7 g), angular basalt gravel (171.6 g), water-worn basalt gravel (32.7 g), unidentified medium mammal bones (17.9 g), an unidentified fish bone (0.6 g), rat (*Rattus* sp.) bone (0.5 g), and human skeletal remains. The shell midden consisted of *Isognomon* sp. (157.2 g), *Nerita picea* (21.7 g), Echinoidea spp. (18.7 g), *Conus* sp. (17.4 g), *Theodoxus neglectus* (8.8 g), *Brachidontes crebristriatus* (1.6 g), and crustacean (0.9 g). The marine shell fishhook (Acc. # 142-H-2) is considered a traditional Hawaiian artifact (Figure 61). Human skeletal remains also were encountered within the bulk sediment sample. The human skeletal remains were identified as a mandibular right lateral incisor with a broken tooth root, an additional tooth crown fragment, and a small cancellous bone fragment. Minimal attrition was noted on the occlusal surface. The biological profile and context (pre- versus post-Contact) of the human skeletal remains is indeterminate, especially as the feature contained artifacts from both periods. The human remains (two teeth and cancellous bone) were reinterred in the nearby excavation T-141. SIHP #-5820 Feature 6 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 7** was identified within T-142 as originating at or near the base of Stratum II at 0.50 mbs. This pit feature was intrusive into Stratum III and terminated at 0.90 mbs (Figure 62 and Table 15). The feature was irregularly shaped in plan view, measured 0.60 m long by over 0.70 m wide, and extended beyond the width of the excavation into both the southwest and northeast sidewalls (see Figure 59). The sediment matrix within the pit was loamy sand with similar characteristics to Stratum II. A 2-liter bulk sediment sample (0.50–0.60 mbs), a 17-liter field-screened bulk sample (0.60 mbs), and a 9.5-liter field-screened bulk sample (0.55–0.70 mbs) were collected from within the pit. The combined samples contained charcoal (1.8 g), possible marine shell midden (361.4 g, see SIHP #-5820 Feature 7 Midden Results Table located at the end of this section), naturally-occurring marine shell (23.5 g), stoneware fragments (157.0 g), refined earthenware fragments (75.8 g), rusted metal fragments and debris (31.8 g), glass fragments (14.0 g), an unidentified bird (Aves) bone (0.9 g), unidentified medium mammal bone (0.4 g), unidentified burnt medium mammal bones (7.8 g), fish bones (0.2 g), and a vesicular basalt stone (1.1 g). The shell midden consisted of *Isognomon* sp. (281.6 g), *Nerita picea* shell (46.9 g) and an operculum (0.1 g), *Conus* sp. (11.0 g), Echinoidea (10.8 g), *Tellina palatam*

Figure 60. Basalt game stone (Acc. # 142-H-1) collected from SIHP #-5820 Feature 5 in T-142 (scale blocks are in cm)

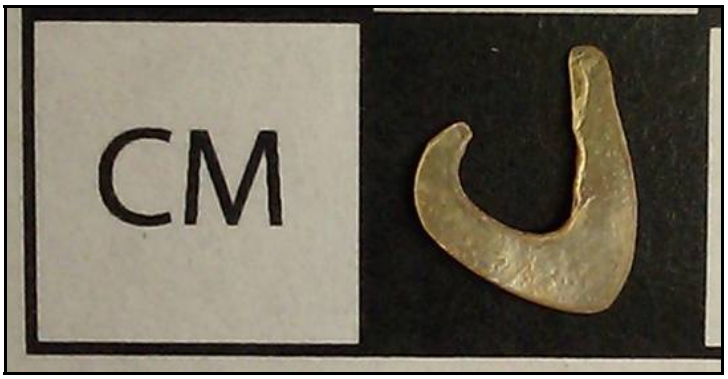


Figure 61. Marine shell fishhook (Acc. # 142-H-2) collected from SIHP #-5820 Feature 6 in T-142

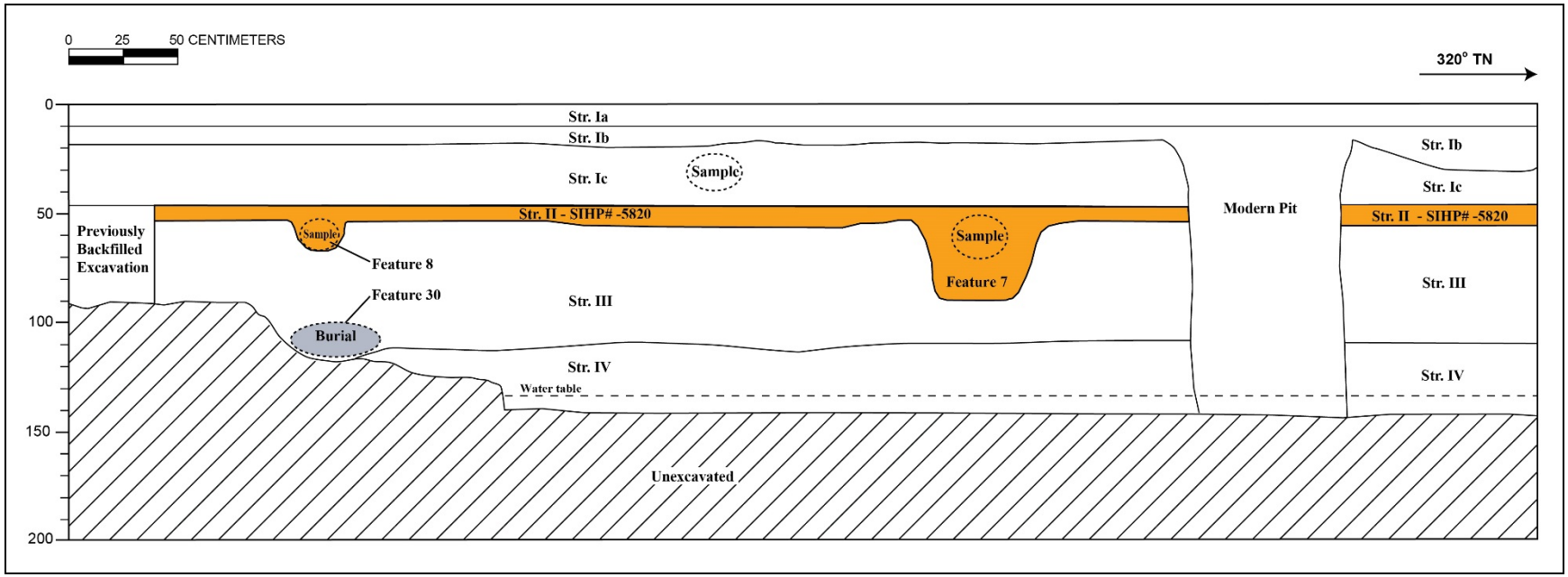


Figure 62. T-142 southwest profile showing SIHP #-5820 Features 7, 8, and 30

Table 15. T-142 Stratigraphic Description of Southwest Profile

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-10 | Asphalt |
| Ib | 10-30 | Fill; 2.5 YR 2.5/4 (dark reddish brown); very gravelly silty loam; structureless, single-grain; moist, loose consistency; non-plastic; terrigenous origin; abrupt smooth lower boundary; gravel base coarse |
| Ic | 18-47 | Fill; 2.5 YR 8/3 (pale yellow); gravelly cobbly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; contained faunal bone (collected), ceramic fragments; crushed coral |
| II | 47-90 | Natural; 10 YR 4/2 (dark grayish brown); sandy loam; weak, fine, crumb structure; moist, very friable consistency; mixed origin; abrupt smooth lower boundary; contained multiple historics: glass, ceramics, faunal bone (collected), marine shell, tar vine from possible old road way; mixed use of A-horizon, top portion historically used and impacted. Bottom more pre-contact/Hawaiian land use; designated SIHP #-5820, includes SIHP #-5820 Features 5-8 |
| SIHP #-5820 Feature 5 | 44-75 | Pit feature originating from Stratum II; loamy sand; contained a traditional Hawaiian basalt game stone, fire-cracked rock, a water-worn basalt cobble, ceramic fragments, metal pieces, charcoal, fish bones, and naturally-occurring marine shell; SIHP #-5820 Feature 5 |
| SIHP #-5820 Feature 6 | 56-75 | Pit feature originating from Stratum II; loamy sand; contained a traditional Hawaiian shell fishhook, ceramic and glass fragments, metal, charcoal, shell midden, naturally-occurring marine shell, water-worn rocks, fish bone, mammal bone, and human skeletal elements (two teeth and cancellous bone); SIHP #-5820 Feature 6 |
| SIHP #-5820 Feature 7 | 50-90 | Pit feature originating from Stratum II; loamy sand; contained charcoal, shell midden, naturally-occurring marine shell, fish bone, bird bone, ceramic, glass and metal fragments; SIHP #-5820 Feature 7 |
| SIHP #-5820 Feature 8 | 55-70 | Pit feature originating from Stratum II; loamy sand; contained charcoal, shell midden, fish bone, and mammal bone; SIHP #-5820 Feature 8 |
| III | 60-115 | Natural; 10 YR 8/6 (yellow); very fine to fine grained sand; structureless single-grain; moist, loose consistency; non-plastic; marine origin; diffuse lower boundary; Jaucas sand; Features 5-8 intrude into layer; includes human burial, SIHP #-5820 Feature 30 |
| SIHP #-5820 Feature 30 | 100 | In situ human burial within Jaucas sand (Stratum III); faint burial pit; flexed or partially flexed; SIHP #-5820 Feature 30 |
| IV | 110-143 (BOE) | Natural; 10 YR 8/4 (very pale brown); sand; structureless single-grain; moist, loose consistency; non-plastic; marine origin; diffuse lower boundary; common fine roots; increasing clay content toward the base |

adhered to corroded metal (4.7 g), *Brachidontes crebristriatus* (3.4 g), burned shell (2.1 g), *Ostrea sandwicensis* (2.0 g), *Turbo sandwicensis* (2.8 g), and burned crustacean (0.7 g). Feature 7 faunal remains consist of *Bos taurus* skeletal elements, unmodified *Sus scrofa* skeletal elements, and unmodified medium mammal (possible *Bos taurus* or *Sus scrofa*) irregular bone fragments. The *Bos taurus* radius and vertebrae had been butchered with a metal saw blade, indicating an historic origin. SIHP #-5820 Feature 7 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 8** was identified within T-142 originating from near or at the base of Stratum II at 0.55 mbs. The pit feature was intrusive into Stratum III and terminated at 0.70 mbs (see Figure 62 and Table 15). The feature was a small, oval shape in plan view. It measured approximately 0.30 mbs long and 0.18 mbs wide, and extended into the southwest sidewall. A 0.25-liter bulk sediment sample was collected from within the pit between 0.55 mbs and 0.70 mbs. The sample yielded charcoal (0.6 g), possible marine shell midden (10.3 g; see SIHP #-5820 Feature 7 Midden Results Table located at the end of this section), naturally-occurring marine shell (3.7 g), pig (*Sus scrofa*) bone (0.5 g), unidentified medium mammal bone (0.4 g), unidentified fish bone (0.1 g), and unidentified small mammal bone (0.1 g). The charcoal was submitted for wood taxa identification and radiocarbon analysis. Wood taxa analysis identified native and Polynesian-introduced trees consisting of *Cocos nucifera* (*Niu,* coconut), *Aleurites moluccana* (*Kukui*), *Psyotria* sp. (*Kōpiko*), and unidentified monocot. Radiocarbon analysis yielded five possible date ranges, with a calibrated 2-sigma date of A.D. 1610 to 1670 (46.7%) being the most probable. SIHP #-5820 Feature 8 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 9** was identified within T-145 a possible *imu* pit originating from the base of Stratum II at 0.74 mbs. The pit was intrusive into Stratum III, terminating at 0.92 mbs (Figure 63 and Table 16). The feature was generally circular in plan view. It measured 0.50 m long by over 0.47 m wide and extended into the southwest sidewall. The sediment matrix within the pit was silty sand with similar characteristics to Stratum II. Several thermally-altered basalt cobbles, charcoal flecking, and faunal bone were observed within the pit fill. A 2.5-liter bulk sample collected from SIHP #-5820 Feature 9 (0.81-0.92 mbs) yielded charcoal (1.4 g), naturally-occurring marine shell (1.6 g), and possible marine shell midden consisting of *Strombus* sp. (0.8 g), burned crustacean (1.8 g), burned gastropod (1.6 g), and *Ethinometra mathaei* sp. (1.4 g).

Wood taxa analysis of the charcoal and identified only native taxa consisting of consisting of cf. *Metrosideros polymorpha* (*‘ōhi‘a lehua*), cf. *Sida fallax* (*‘ilima*), *Diospyros sandwicensis* (*lama*), and an unidentified monocot. Radiocarbon analysis performed on the *‘ilima* yielded three possible date ranges, with a calibrated 2-sigma date of AD 1480 to 1650 (95.4%) being the most probable. SIHP #-5820 Feature 9 is interpreted as a possible *imu* pit.

**SIHP #-5820 Feature 10** was identified within the southeast end of T-145. The pit feature originated at or near the base of Stratum II at 0.70 mbs. It was intrusive into Stratum III and terminated at 1.10 mbs (see Figure 63 and Table 16. The feature was not documented in plan view. In profile view, SIHP #-5820 Feature 10 was visible in the southwest sidewall. It had straight to slightly sloping walls and a flat base, with a maximum length of 0.40 m. The sediment matrix within the pit consisted of darker-colored silty sand and appeared to be previously disturbed by the overlying fill deposition. A 2-liter bulk sample collected within SIHP #-5820

Figure 63. T-145 southwest profile showing SIHP #-5820 Feature 9, a possible *imu* pit with basalt cobbles visible near the base, view to west

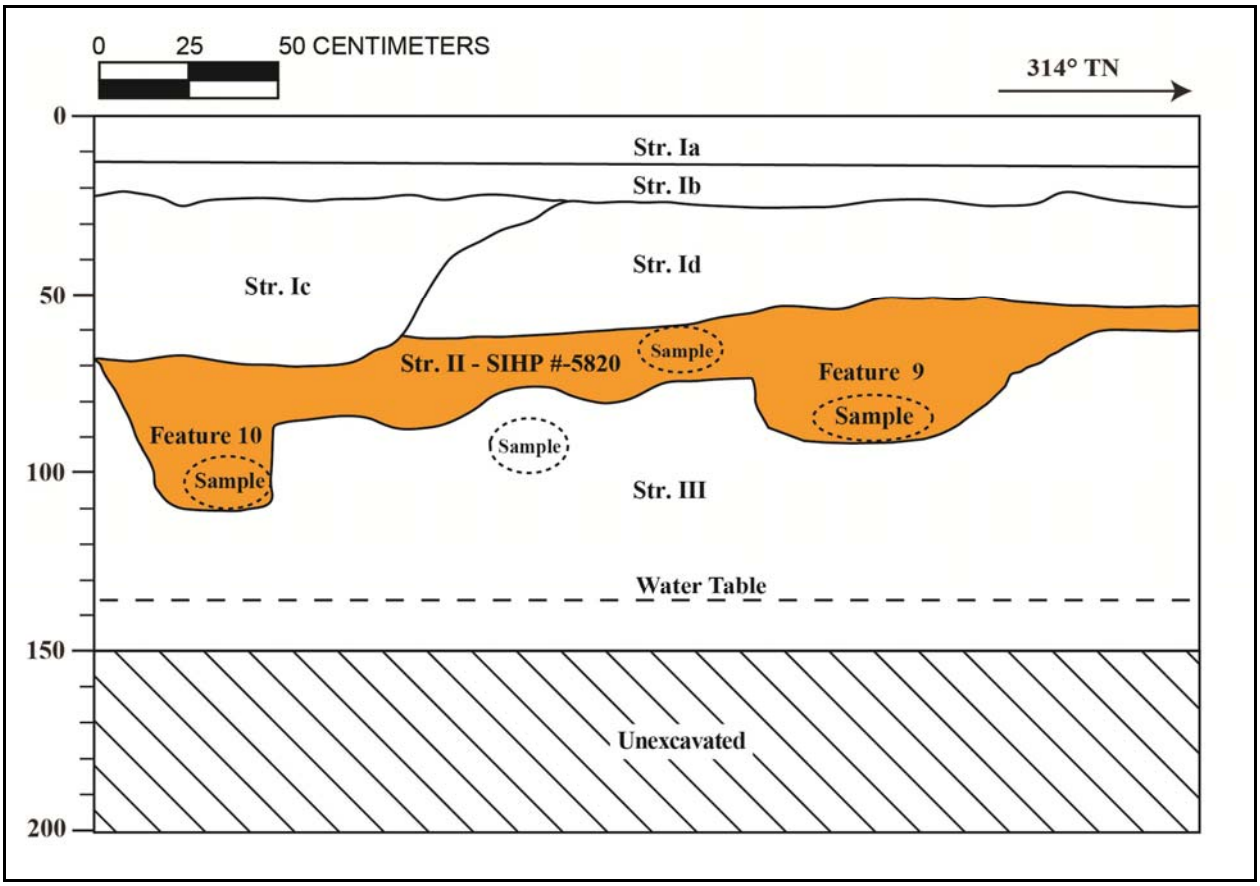


Figure 64. T-145 southwest profile, showing SIHP #-5820 Features 9 and 10

Table 16. Stratigraphic Description, southwest profile

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-14 | Asphalt |
| Ib | 14-25 | Fill; 10 YR 4/2 (dark grayish brown); extremely gravelly loam; structureless, single-grain; moist, very friable consistency; non-plastic; terrigenous origin; abrupt, smooth lower boundary; imported fill |
| Ic | 23-70 | Fill; 10 YR 4/2 (dark grayish brown) with mottles (inclusion, sand) 10.5Y 7/6 (yellow); very gravelly loam; structureless, single-grain; moist, very friable consistency; non-plastic; terrigenous origin; diffuse, broken/discontinuous lower boundary; contains bottle glass, and faunal bone (collected), marine shell; imported fill, sand inclusions |
| Id | 25-64 | Fill; 10 YR 8/2 (very pale brown); extremely gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; imported crushed coral fill |
| II | 50-87 | Natural; 10 YR 4/3 (brown); silty sand; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; diffuse, wavy lower boundary; natural sediment; buried A-horizon (SIHP #50-80-14-5820) including SIHP #-5820 Features 9 and 10 |
| SIHP #-5820 Feature 9 | 74-92 | Possible imu feature originating in Stratum II; silty sand; contained fire-cracked rock, charcoal, faunal bone, and marine shell midden; SIHP #-5820 Feature 9 |
| SIHP #-5820 Feature 10 | 70-110 | Pit feature originating in Stratum II; silty sand; contained charcoal, faunal bone, and marine shell midden; SIHP #-5820 Feature 10 |
| III | 75-150 (BOE) | Natural; 10.5 YR 7/6 (yellow); medium to coarse grain sand; structureless, single-grain; wet, non-sticky consistency; non-plastic; marine origins; lower boundary not visible; natural sediment |

Feature 10 (0.95-1.10 mbs), yielded charcoal (0.2 g), unidentified medium mammal bone (1.3 g), naturally-occurring marine shell (4.4 g), and marine shell midden consisting of crustacean (1.4 g), *Nerita picea* (1.3 g), *Brachidontes crebristriatus* (0.8 g), *Strombus* sp. (0.7 g), and Echinoidea (0.1 g). Wood taxa analysis of the charcoal identified both native and historically-introduced taxa consisting of *Aleurites moluccana* (*kukui*) and Conifer (i.e., pine, fir, or other cone-bearing variety) as well as unidentified monocot. SIHP #-5820 Feature 10 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 11** was identified in T-146A as originating within Stratum II at 0.67 mbs (Figure 65). The pit was intrusive into Stratum III and terminated at 0.76 mbs. The feature had an irregular shape in plan view, measured 2.50 m long by more than 0.48 m wide, and extended into the southwest sidewall. The sediment matrix within SIHP #-5820 Feature 11 was loamy sand with similar characteristics to Stratum II. Two 5-liter bulk sediment samples were collected from the east and west ends of the pit between 0.67-0.76 mbs. These samples yielded charcoal (1.1 g), naturally-occurring marine shell (1.0 g), unidentified burnt shell fragments (1.2 g), burnt *Tellina palatam* (0.7 g), burnt Neritidae (0.6 g), *Tonna dolium* (0.5 g), *Brachidontes crebristriatus* (0.1 g), burnt crustacean (0.1 g), *Echinothrix diadema* sp./*Echinometra mathaei* sp. (0.1 g), and burned fish bone (0.1 g). SIHP #-5820 Feature 11 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 12** was identified within T-146A as originating at or near the base of Stratum II at 0.75 mbs. The pit was intrusive into Stratum III and terminated at 0.95 mbs (see Figure 54 and Figure 65). The feature was irregular shaped in plan view, measured 0.78 m long by over 0.17 m wide, and extended into the northeast sidewall. The sediment matrix within the pit was loamy sand with similar characteristics to Stratum II. The installation of a subsurface concrete utility jacket immediately adjacent to SIHP #-5820 Feature 12 may have disturbed or truncated the northeast portion of the feature. A 5-liter bulk sediment sample collected within the pit between 0.75-0.90 mbs contained charcoal (1.2 g), two pieces of volcanic glass (0.2 g), naturally-occurring marine shell (2.7 g), and marine shell midden consisting of *Strombus* sp. (0.3 g), *Brachidontes crebristriatus* (0.2 g), *Tellina* spp. (0.1 g), crustacean (0.7 g), unidentified burnt shell (0.4 g), *Echinothrix diadema* sp./*Echinometra mathaei* sp. (0.4 g), basalt (788.2 g), and a vesicular fire-cracked rock fragment (176.4 g). The volcanic glass pieces were submitted for EDXRF analysis. The results indicated that the volcanic glass clearly does not match sources from the island of Hawai‘i. The sample is from “Group 1,” one of two distinct geochemical groups identified from the 35 City Center Section 4 AIS EDXRF volcanic glass samples, likely representing different volcanic sources on O‘ahu (see EDXRF discussion in Volume V). The charcoal was submitted for wood taxa analysis and was identified as native and Polynesian-introduced taxa consisting of *kukui* (*Aleurites moluccana*), *hau* (*Hibiscus tiliaceus*), *niu* (*Cocos nucifera*), *‘a‘ali‘i* (cf. *Dodonaea viscose*), and *‘akoko* (cf. *Chamaesyce* sp.). The *niu* charcoal sample submitted for radiocarbon analysis yielded six possible date ranges, with a calibrated 2-sigma date of AD 1630 to 1690 (51.3%) being the most probable. SIHP #-5820 Feature 12 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 13** was identified within T-146A as originating near the base of Stratum II at 0.83 mbs (see Figure 65, Figure 66 and Table 17). This pit was intrusive into Stratum III and terminated at 0.97 mbs. The feature was an elongated and irregular-shaped in plan view. It measured over 1.11 m long by 0.31 m wide and extended into the northwest end of the

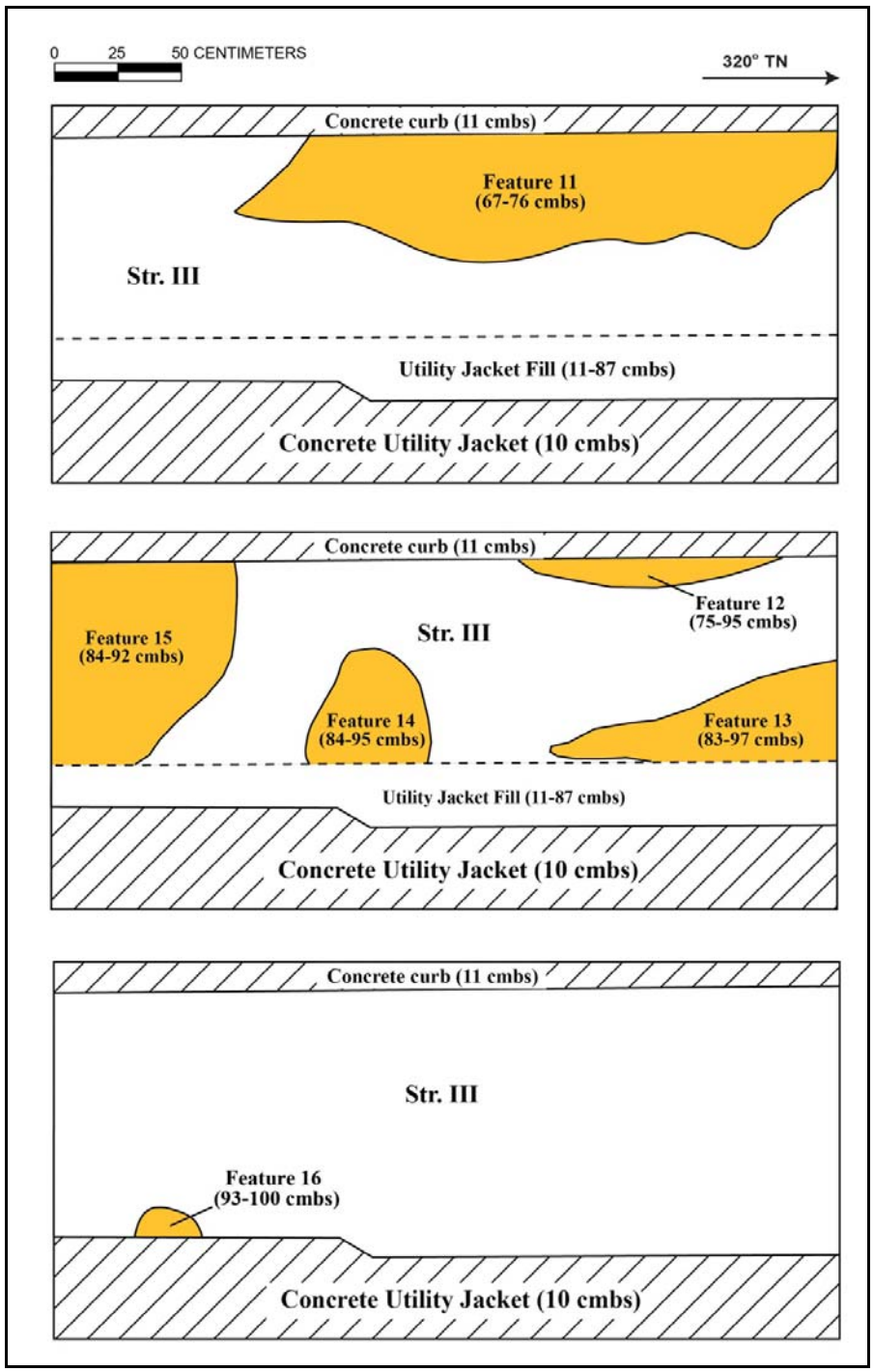


Figure 65. T-146A plan view of the upper boundary of Stratum III showing SIHP #-5820 Features 11-16 (originating within Stratum II and extending into Stratum III)

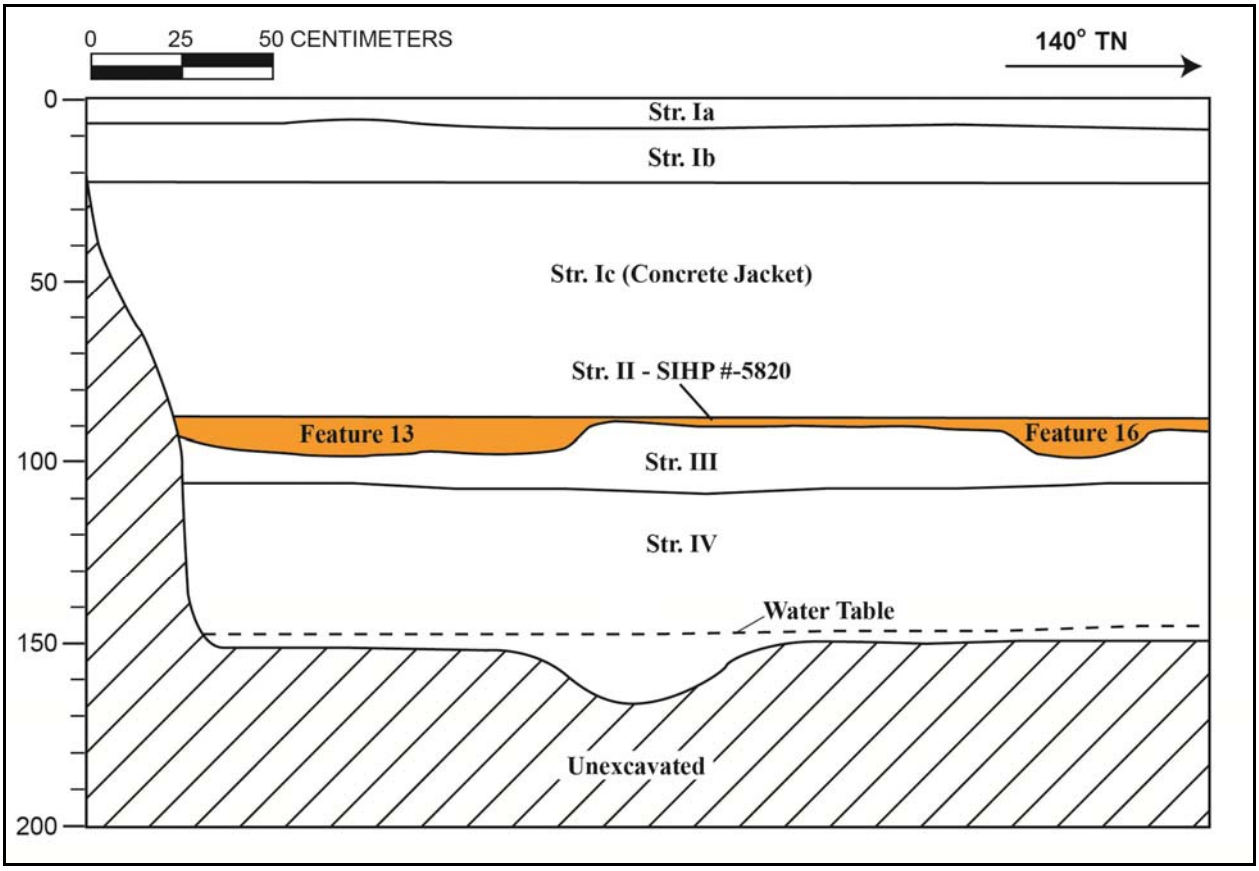


Figure 66. T-146A northeast wall profile

Table 17. T-146A Stratigraphic Description

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-9 | Concrete sidewalk |
| Ib | 9-23 | Fill; 10 YR 2/2 (very dark brown); gravelly sandy loam; weak, fine, blocky structure; moist, friable consistency; non-plastic; terrigenous origin; very abrupt, smooth lower boundary |
| Ic | 23-87 | Concrete utility jacket ( |
| II | 87-110 | Natural; 10 YR 3/2 (very dark gray); fine to medium very sandy loam; weak, fine, crumb structure; moist, friable consistency; non-plastic; mixed origin; diffuse, wavy lower boundary; buried A-horizon (SIHP #50-80-14-5820) including SIHP #-5820 Features 11-17 |
| SIHP #-5820 Feature 11 | 67-76 | Pit feature originating in Stratum II; loamy sand; contained charcoal, burnt marine shell fragments, and burnt fish bone; SIHP #-5820 Feature 11 |
| SIHP #-5820 Feature 12 | 75-95 | Pit feature originating in Stratum II; loamy sand; contained charcoal, burnt marine shell, a fire-cracked rock fragment, and volcanic glass; SIHP #-5820 Feature 12 |
| SIHP #-5820 Feature 13 | 83-97 | Pit feature originating in Stratum II; loamy sand; contained charcoal, fish bone, mammal bone, marine shell midden, and fire-cracked rock; SIHP #-5820 Feature 13 |
| SIHP #-5820 Feature 14 | 84-95 | Pit feature originating in Stratum II; loamy sand; contained charcoal, marine shell midden, burned wood, fish bone, fire-cracked rock, and volcanic glass; SIHP #-5820 Feature 14 |
| SIHP #-5820 Feature 15 | 84-92 | Pit feature originating in Stratum II; loamy sand; contained charcoal, marine shell midden, fish bone, and mammal bone; SIHP #-5820 Feature 15 |
| SIHP #-5820 Feature 16 | 93-100 | Pit feature originating in Stratum II; loamy sand; contained fish bone and marine shell midden; SIHP #-5820 Feature 16 |
| III | 90-110 | Natural; 10 YR 7/4 (very pale brown); medium to coarse sand; structureless, single-grain; moist, friable consistency; non-plastic; marine origin; lower boundary not visible |
| SIHP #-5820 Feature 17 | 121-135 | Pit feature originating in Stratum III; loamy sand; SIHP #-5820 Feature 17; subsequently determined to be natural rather than cultural in origin |
| IV | 108-167 (BOE) | Natural; 2.5 Y 8/4 (pale yellow); silty sand; structureless, single-grain; moist, firm consistency; non-plastic; marine origin; lower boundary not visible; increasing gravel content toward base |

excavation. The sediment matrix within the pit was loamy sand with similar characteristics to Stratum II. A 5-liter bulk sediment sample and a 19-liter screen were collected from SIHP #-5820 Feature 13 between 0.83 and 0.94 mbs. The samples contained charcoal (1.2 g), *Melampus* sp. (0.2 g), unidentified fish bone (0.2 g), unidentified medium mammal bone (0.2 g), fire-cracked rock (63.2 g), and marine shell midden consisting of crustacean (0.2 g), *Echinothrix diadema* sp. (0.1 g), *Brachidontes crebristriatus* (0.9 g), *Natica* sp. (0.5 g), *Tellina* sp. (0.5 g), *Theodoxus neglectus* (0.3 g), *Isognomon* sp. (0.1 g.). The charcoal was submitted for wood taxa analysis and identified as native and Polynesian-introduced taxa consisting of *kolomona* (cf. *Senna sp.*), *kukui* (*Aleurites moluccana*), *‘ōhi‘a lehua* (cf. *Metrosideros polymorpha*), and *hau* (*Hibiscus tiliaceus*). Two unknown taxa were also represented. A *kukui* charcoal sample submitted for radiocarbon analysis yielded six possible date ranges, with a calibrated 2-sigma date of AD 1630 to 1690 (51.3%) being the most probable. SIHP #-5820 Feature 13 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 14** was identified within the central portion of T-146A (see Figure 65). This pit originated from near the base of Stratum II at 0.84 mbs. It was intrusive into Stratum III and terminated at 0.95 mbs. SIHP #-5820 Feature 14 was an irregular-shaped pit in plan view and measured a maximum of 0.38 m long by 0.40 m wide. The feature was observed in plan view only near the central portion of the excavation and did not extend into the excavation sidewalls. The sediment matrix within the pit was loamy sand with similar characteristics to Stratum II. A 5-liter bulk sediment sample and 19-liter screened sample were collected from SIHP #-5820 Feature 14 between 0.84 to 0.95 mbs. The samples contained charcoal (0.1 g), naturally-coccurring marine shell (0.5 g), burned wood (0.1 g), unidentified fish bone (0.2 g), fire-cracked rock (9.0 g), volcanic glass (1.0), and marine shell midden consisting of *Tellina palatam* (0.9 g), crustacean (0.2 g), *Echinothrix diadema* sp./*Echinometra mathaei* sp. (0.2 g), *Brachidontes crebristriatus* (0.2 g), *Strombus* sp. (2.3 g), and Cypraeidae (0.1 g). The volcanic glass was submitted for EDXRF analysis, and the results clearly indicated that the material does not match sources from Hawaii County. The sample is from “Group 1,” which is one of two distinct geochemical groups identified from the 35 City Center AIS EDXRF volcanic glass samples, likely representing different volcanic sources on O‘ahu (see EDXRF discussion in Volume IV). The charcoal was submitted for wood taxa analysis and identified as native taxa including *niu* (coconut, *Cocos nucifera*) and *‘ōhi‘a lehua* (cf. *Metrosideros polymorpha*). The *niu* charcoal sample was submitted for radiocarbon analysis and yielded three possible date ranges, with a calibrated 2-sigma date of AD 1490 to 1670 (95.4%) being the most probable. SIHP #-5820 Feature 14 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 15** was identified in the southeast end of T-146A as originating from near the base of Stratum II at 0.84 mbs (see Figure 65). This pit was intrusive into Stratum III and terminated at 0.92 mbs. The feature was an irregular-shaped pit in plan view and measured 0.75 m in length by more than 1.05 m wide. The sediment matrix within the pit was loamy sand with similar characteristics to Stratum II. Faunal remains encountered during excavation of SIHP #-5820 Feature 15 consisted unmodified *Sus scrofa*, *Canis lupus familiaris* and medium mammal skeletal elements. None of the remains showed any indication of cultural modification. Both identified species (*Sus scrofa* and *Canis lupus familiaris*) are Polynesian introductions common in both pre- and post-Contact contexts. Two 5-liter bulk sediment samples were collected from within the feature between 0.84-0.92 mbs. The samples contained charcoal (2.3 g), unidentified

fish bone (0.1 g), basalt fragments (135.9 g), naturally-occurring marine shell (3.0 g), and marine shell midden consisting of *Strombus* sp. (3.1 g), *Tellina palatam* (2.2 g), *Nerita picea* (2.4 g), *Theodoxus neglectus* (0.5 g), crustacean (1.0 g), Echinoidea (0.7 g), *Echinothrix diadema* sp. (0.2 g), and *Brachidontes crebristriatus* (0.1 g). The faunal remains collected from SIHP #-5820 Feature 15 consisted unmodified *Sus scrofa*, *Canis lupus familiaris* and medium mammal skeletal elements. None of the remains showed any indication of cultural modification.The charcoal was submitted for wood taxa analysis and identified as native and Polynesian-introduced taxa including *kukui* (*Aleurites moluccana*) and *pilo* (cf. *Coprsma* sp.). Three unknown taxa also were represented. The *pilo* charcoal sample was submitted for radiocarbon analysis and yielded six possible date ranges, with a calibrated 2-sigma date of AD 1720 to 1820 (53.5%) being the most probable. SIHP #-5820 Feature 15 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 16** was identified in T-146A as originating from at or near the base of Stratum II at 0.93 mbs and terminating at 1.00 mbs within Stratum III (see Figure 65). This pit was oval shaped in plan view, measured 0.17 m long by over 0.12 m wide, and extended into the southwest sidewall. The sediment matrix within the feature was loamy sand with similar characteristics to Stratum II. A 5-liter bulk sediment sample was collected from within the pit between 0.93-1.00 mbs. This sample yielded gastropods (0.5 g), unidentified fish bone (0.1 g), and marine shell midden consisting of *Brachidontes crebristriatus* (1.1 g), crustacean (0.3 g), and *Isognomon* sp. (0.1 g). SIHP #-5820 Feature 16 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 17** was identified in T-146A. Feature 17 is a circular-shaped pit identified within Stratum III at 1.21 mbs. It intruded into Stratum IV to a depth of 1.35 mbs. It was observed in plan view at the southeastern end of the excavation and did not extend into the excavation sidewalls. SIHP #-5820 Feature 17 was subsequently interpreted as natural. As such no sediment samples were collected for analysis (see Figure 65).

**SIHP #-5820 Feature 18** was identified within T-150 as originating from at or near the base of Stratum II at 0.75 mbs. The pit intruded into Stratum IIIa and terminated at 1.05 mbs (Figure 67 and Table 18). SIHP #-5820 Feature 18 was an irregular-shaped pit in plan view. It measured approximately 0.75 m long by over 0.75 m wide and extended beyond the width of the excavation and into both the northeast and southwest sidewalls. The sediment matrix within the pit consisted of loamy sand with similar characteristics to Stratum II, except for additional charcoal flecking, marine shell midden, fish bone and fire-cracked rock. A modified human bone fragment (Acc. # 150-H-1) and a basalt tool fragment (Acc. # 150-H-2) were found within SIHP #-5820 Feature 18. The human bone fragment was discovered at 0.95 mbs. The fragment measured approximately 9.0 cm long, 2.5 cm wide, and 0.5 cm to 1.0 cm thick. The fragment was most consistent with a posterior-proximal portion of a human tibia. The distinguishing features included a mostly flattened shape, a sharp lateral edge, and an oblique muscle marking indicative of the soleal line. The morphology of the fracture margins suggested perimortem fragmentation, meaning the bone fractured when it was still in a fresh state and produced the comminuted fragment. The inferior portion of the fragment appeared to be filed (i.e., polished from a repetitive saw-like motion), likely for use as a tool. Based on the stratigraphic context of the fragment, including the association of the cultural material with Stratum II, the bone fragment was most likely Native Hawaiian and is considered to be a traditional Hawaiian human

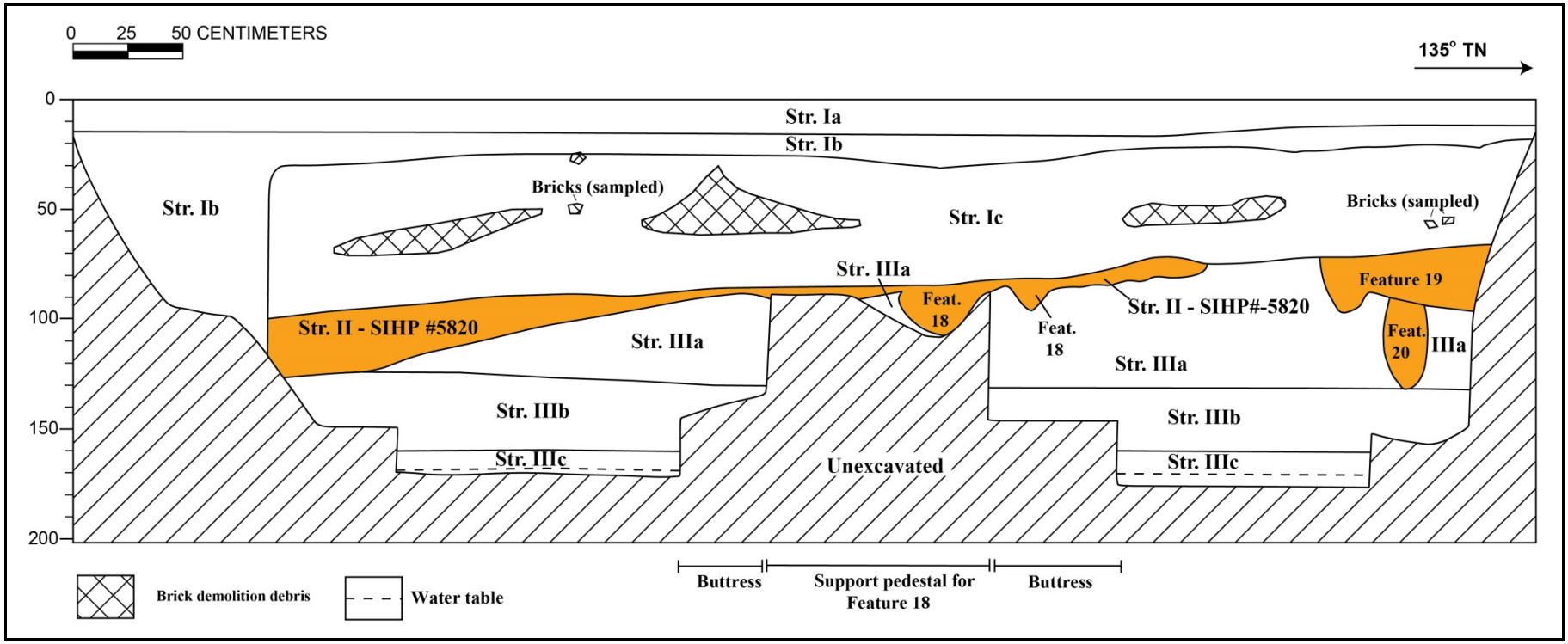


Figure 67. T-150 northeast profile showing SIHP #-5820 Features 18–20

Table 18. T-150 Stratigraphic Description of Northeast Profile

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-15 | Asphalt |
| Ib | 10-116 | Fill; 5 YR 5/1 (gray); extremely gravelly silty clay; weak, medium, crumb structure; moist, very friable consistency; plastic; mixed origin; clear, wavy lower boundary; gravel base course |
| Ic | 16-100 | Fill; 7.5 YR 4/2 (brown); gravelly silt loam; structureless, single-grain; dry, loose consistency; non-plastic; mixed origin; diffuse, wavy lower boundary; contained brick (collected), metal (not collected), coral inclusions, some shell; disturbed upper boundary |
| II | 70-127 | Natural; 10 YR 6/3 (pale brown); loamy sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; clear, broken/discontinuous lower boundary; contained midden, fire-cracked rock; buried A-horizon (SIHP #50-80-14-5820) with three features (Feature 18-20) |
| SIHP #-5820 Feature 18 | 75-105 | Pit feature originating in Stratum II; loamy sand; contained charcoal, marine shell midden, fish bone, a fragment of a stone tool, and a fragment of a possibly worked human proximal tibia and fire-cracked rock |
| SIHP #-5820 Feature 19 | 53-95 | Pit feature within Stratum II and intrusive into Stratum IIIa and truncated by Stratum Ic; loamy sand; contained charcoal, marine shell midden, fish bone, and fire-cracked rock |
| SIHP #-5820 Feature 20 | 90-130 | Pit feature within Stratum II and intrusive into Stratum IIIa; loamy sand; contained charcoal, marine shell midden, fish bone, and volcanic glass |
| IIIa | 75-130 | Natural; 10 YR 8/4 (very pale brown); fine to coarse grained sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; contained few small shells; Jaucas sand |
| IIIb | 125-165 | Natural; 10 YR 7/4 (very pale brown); very fine to fine grained sand; structureless, single-grain; wet, non-sticky consistency; non-plastic, marine origin; diffuse, smooth lower boundary; Jaucas sand |
| IIIc | 160-175 (BOE) | Natural; 2.5 Y 6/3 (light yellowish brown); medium to very coarse grained sand; structureless, single-grain; wet, slightly sticky consistency; weakly cemented; non-plastic; marine origin; lower boundary not visible; contained larger shells; Jaucas sand |

bone artifact. A 49-liter screened sample was collected from Stratum II (SIHP #-5820) Feature 18 at 0.70-1.04 mbs. The sample contained charcoal (2.3 g), fish remains (0.3 g), naturally-occuring marine shell (0.8 g), and marine shell midden consisting of *Cypraea caputserpentis* (0.4 g), *Brachidontes crebristriatus* (1.9 g), *Nerita picea* (12.4 g), *Theodoxus neglectus* (1.9 g), Strombidae (2 g), burned Strombidae (2.4 g), Tellinidae (0.1 g), *Tellina palatam* (3.0 g), *Tonna dolium* (0.2 g), Trochidae (0.1 g), *Turbo sandwicensis* (10.5 g), *Echinometra mathaei* sp. (0.1 g), and crustacean (0.8 g). SIHP #-5820 Feature 18 was interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 19** is a pit identified in the southeast end of T-150 at 0.53 mbs. Historic fill Stratum Ic horizontally truncated the upper limit of Stratum II and associated Features 18 and 19. SIHP #-5820 Feature 19 was intrusive into Stratum IIIa and truncated the upper limit of SIHP #-5820 Feature 20. The pit terminated at 0.95 mbs within Stratum II (see Figure 67 and Table 18; Figure 68). SIHP #-5820 Feature 19 was an irregular-shaped pit in plan view. It measured 1.25 m long by over 0.75 m wide and extended beyond the width of excavation in both the northeast and southwest sidewalls. The sediment matrix within the pit was loamy sand with similar characteristics to Stratum II. A 4-liter bulk sediment sample and a 34-liter screened sample were collected from SIHP #-5820 Feature 19 at 0.70–0.95 mbs. The samples were wet screened and contained charcoal (4.5 g), fish remains (0.2 g), *Hipponix* sp. (0.1 g), *Melampus castaneus* (0.3 g), Naticidae (0.1 g), and marine shell midden consisting of *Nerita picea* (35.3 g), Neritidae operculum (4.3 g), *Strombus* sp. (20.5 g), Strombidae (2.4 g), *Brachidontes crebristriatus* (11.2 g), burned shell (10.1 g), *Tellina* spp. (7.1 g), *Isognomon* sp. (1.3 g), Cypraeidae (1.3 g), Cymatiidae (1.5 g), *Trochus* sp. (0.4 g), *Turbo* sp. (5.8 g), crustacean (3.0 g), and *Echinothrix diadema* sp./*Echinometra mathaei* sp. (0.2 g). The charcoal was submitted for wood taxa analysis and identified as native and Polynesian-introduced species including *kukui* (*Aleurites moluccana*), *kolomona* (cf. *Senna* sp.), *ʻōhiʻa lehua* (cf. *Metrosideros polymorpha*), ʻ*ilima* (cf. *Sida fallax*), ʻ*āheahea*/ʻ*āweoweo* (*Chenopodium oahuense*), and monocot. Two unidentified species were also noted. The *kukui* sample was submitted for radiocarbon analysis and yielded seven possible date ranges for SIHP #-5820 Feature 19, with a calibrated 2-sigma date of AD 1810 to 1920 (67.1%) being the most probable. SIHP #-5820 Feature 19 was interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 20** was identified in the southeast end of T-150 as having been truncated by SIHP #-5820 Feature 19. It likely originated within Stratum II was visible at 0.90 mbs. The lower limit extended to the base of Stratum IIIa at 1.30 mbs (see Figure 67, Table 18, and Figure 68). The feature was not documented in plan view. In profile, SIHP #-5820 Feature 20 was an elongated pit in the northeast sidewall with tapering walls and a rounded base. The sediment matrix within the pit was loamy sand with similar characteristics to Stratum II with the addition of charcoal flecking. A 3-liter bulk sediment sample was collected from SIHP #-5820 Feature 20 at 0.90-1.3 mbs. The sample was wet screened and contained charcoal (0.7 g), a volcanic glass fragment (0.1 g), fish remains (0.2 g), naturally-occurring marine shell (10.2 g), and marine shell midden consisting of *Nerita picea/Theodoxus neglectus* (1.3 g), *Tellina palatam* (0.8 g), *Strombus* sp. (1.2 g), *Brachidontes crebristriatus* (0.3 g), Cymatiidae (0.1 g), *Echinometra mathaei* sp. (0.1 g), and crustacean (0.8 g). The volcanic glass was sent for EDXRF analysis. The results indicated that the volcanic glass clearly does not match sources from the island of Hawai‘i. The sample is from “Group 1,” one of two distinct geochemical groups identified from


Figure 68. T-150 northeast profile showing SIHP #-5820 Features 19 and 20, view to east

the 35 City Center Section 4 AIS EDXRF volcanic glass samples, likely representing different volcanic sources on O‘ahu (see EDXRF discussion in Volume V). The charcoal was submitted for wood taxa analysis and identified as Polynesian-introduced *kukui* (*Aleurites moluccana*), a monocot, and one unidentified species. The *kukui* sample was submitted for radiocarbon analysis and yielded six possible date ranges, with a calibrated 2-sigma date of AD 1630 to 1690 (51.3%) being the most probable. SIHP #-5820 Feature 20 was interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 21** was identified as a pit near the middle of T-151. It originated within fill Stratum Id at 0.48 mbs and was intrusive into fill Stratum Ie (fill) and the underlying Stratum II (buried A-horizon), where it terminated at 0.85 mbs (Figure 69 and see Table 19); both Strata Id and II are designated components of SIHP #-5820. The pit was oval in plan, measured 0.20 m wide by more than 0.40 m long, and extended into the southwest excavation sidewall. The sediment matrix within the pit feature was loam with similar characteristics to Stratum Id. A 5.5-liter bulk sediment sample and a 7.6-liter screened sample collected from SIHP #-5820 Feature 21 were combined, screened, and yielded charcoal (4.6 g), naturally-occurring marine shell (3.9 g), fish remains (1.6 g), fire-cracked rock (253.9 g), and marine shell midden consisting of burned shell (4.9 g), *Brachidontes crebristriatus* (5.7 g), Echinoidea (1.8 g), *Nerita picea* (1.8 g), crustacean (0.4 g), and *Tellina palatam* (0.1 g). SIHP #-5820 Feature 21 was interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 22** was identified near the middle of T-151. The pit originated within fill Stratum Id at 0.60 mbs. It was intrusive into both Stratum Ie (fill) and Stratum II (buried A-horizon), where it terminated at 0.90 mbs (see Figure 69 and see Table 19). SIHP #-5820 Feature 22 was oval in plan and measured 0.30 m wide by more than 0.66 m long. The feature extended into the southwest excavation sidewall. The sediment matrix within the pit feature was loam with similar characteristics to Stratum Id. A 5.5-liter bulk sediment sample and a 15.2-liter screened sample from SIHP #-5820 Feature 22, collectively yielded charcoal (0.2 g), two pieces of volcanic glass (0.4 g), unidentified medium mammal bone (0.3 g), cement fragments (4.2 g), naturally-occurring marine shell (0.7 g), and marine shell midden consisting of *Nerita picea/Theodoxus neglectus* (7.2 g), *Nerita picea* (49.4 g), *Strombus* sp. (9.1 g), unidentified burned shell (0.6 g), crustacean (0.5 g), *Echinothrix diadema* sp./*Echinometra mathaei* sp. (0.3 g), *Brachidontes crebristriatus* (0.3 g), *Tellina* sp. (0.1 g), and *Turbo* sp. operculum (0.7 g). Two pieces of volcanic glass were sent for EDXRF analysis. The results indicated that the volcanic glass clearly does not match sources from Hawaii County. The sample is from “Group 1,” one of two distinct geochemical groups identified from the 35 City Center Section 4 AIS EDXRF volcanic glass samples, likely representing different volcanic sources on O‘ahu (see EDXRF discussion in Volume V). SIHP #-5820 Feature 22 was interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 23** was identified near the middle of T-151. The pit feature originated within Stratum Id at 0.60 mbs, intruded through Stratum II (buried A-horizon) and into Stratum III (Jaucas sand). The feature terminated at 0.99 mbs (see Figure 69 and see Table 19). SIHP #-5820 Feature 23 was oval-shaped in plan and measured 0.49 m wide by more than 0.42 m long. The pit extended into the southwest excavation sidewall. SIHP #-5820 Feature 23 contained marine shell midden, coal, glass, medium mammal bone, and fire-cracked rock. A 5.5-liter bulk sediment sample and a 11.4-liter screened sample from SIHP #-5820 Feature 23 collectively

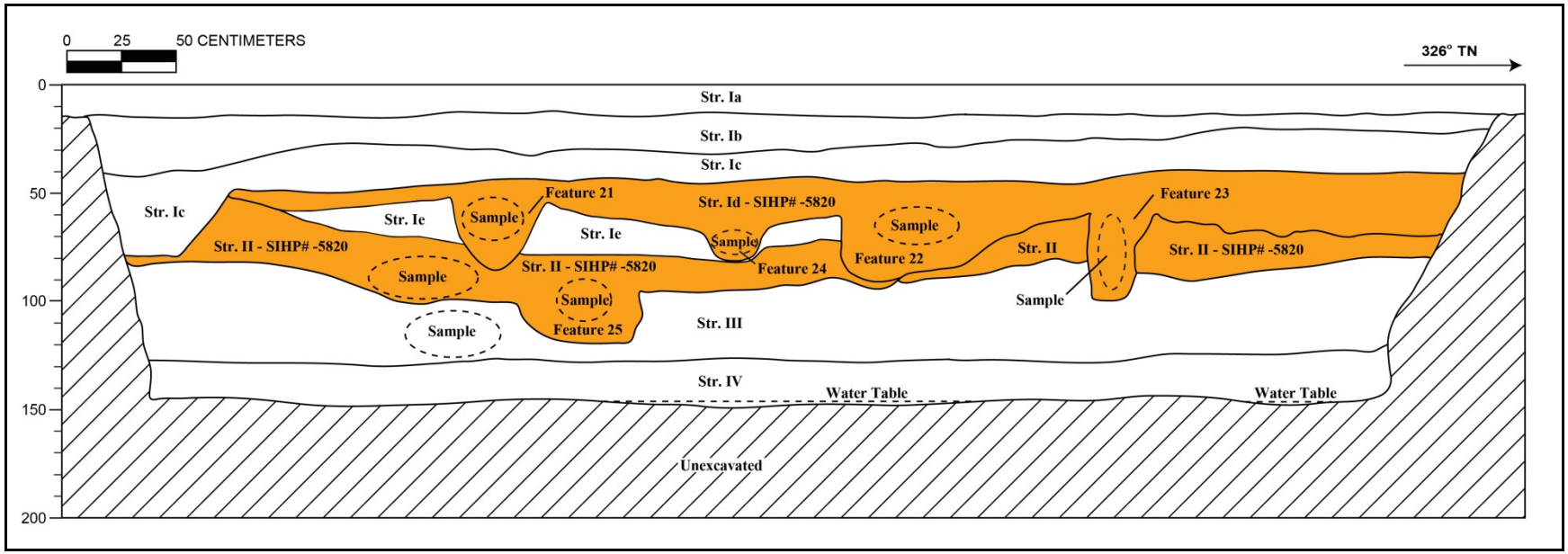


Figure 69: T-151 southwest profile showing SIHP #-5820 Features 21–25

Table 19: T-151 Stratigraphic Description of Southwest Profile

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-14 | Asphalt |
| Ib | 14-42 | Fill; 2.5 Y 5/2 (grayish brown); very gravelly sandy loam; structureless, single-grain; moist, very friable consistency; non plastic; terrigenous origin; clear, smooth lower boundary; contained some wire—possibly from construction; gravel base course fill |
| Ic | 20-79 | Fill; 2.5 Y 8/2-7/2 (pale yellow to light gray); extremely gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; clear, smooth lower boundary; crushed coral base course/grading fill |
| Id | 40-98 | Fill; 7.5 YR 2.5/1 (black); gravelly loam; weak, fine, crumb structure; dry, weakly coherent consistency; non-plastic; terrigenous origin; contained *pipipi* (Neritidae) shells, fish remains, burnt metal fragments, 1 red brick fragment (collected); truncated by Stratum Ic; previously disturbed A-horizon (SIHP #-5820); contained Features 21-23 |
| SIHP #-5820 Feature 21 | 48-85 | Pit feature originating from Stratum Id; intrusive into Stratum Ie and Stratum II; loam; contained charcoal, marine shell midden, and fish bone; SIHP #-5820 Feature 21 |
| SIHP #-5820 Feature 22 | 60-90 | Pit feature originating from Stratum Id; intrusive into Stratum Ie and Stratum II; loam; contained charcoal, marine shell midden, fish bone, volcanic glass, medium mammal bone, metal and cement fragments; SIHP #-5820 Feature 22 |
| SIHP #-5820 Feature 23 | 60-99 | Possible post mold originating from Stratum Id; intrusive into Stratum II and Stratum III; contained marine shell midden, coal, glass, medium mammal bone, and fire-cracked rock; SIHP #-5820 Feature 23 |
| SIHP #-5820 Feature 24 | 70-83 | Two small pits, each containing an infant dog burial, originating from Stratum Id; SIHP #-5820 Feature 24 |
| Ie | 57-80 | Fill, 2.5 Y 7/2 (light gray); loamy sand; weak, medium, crumb structure; moist, friable consistency; non-plastic; mixed origin; clear, wavy lower boundary; contained Feature 24 |
| II | 51-118 | Natural, 2.5 Y 4/2 (dark grayish brown); fine grained silty sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; diffuse, irregular lower boundary; contained shells, charcoal, pig and fish remains (collected); truncated by Stratum Ic; former A-horizon (SIHP #-5820); contained Feature 25 |
| SIHP #-5820 Feature 25 | 90-119 | Pit originating from Stratum II and intrusive into Stratum III; contained charcoal and faunal bone; SIHP #-5820 Feature 25 |
| III | 81-127 | Natural; 10 YR 6/4 (light yellowish brown); fine grained sand; structureless, single-grain; moist, very friable consistency; non-plastic; mixed origin; clear, smooth lower boundary; Jaucas sand |

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| IV | 125-150 (BOE) | Natural; 10 YR 7/3 (very pale brown) with clay mottles of 10 YR 7/3 very pale brown; medium-grain sand, structureless, single-grain; very friable consistency; non-plastic; marine origin; Jaucas sand |

yielded possible coal fragments (33.0 g), glass fragments (0.1 g), unidentified fish bone (0.3 g), unidentified medium mammal bone (0.1 g), fire-cracked basalt rock (344.8 g), vesicular basalt fragments (15.4 g), naturally-occurring marine shell (1.0 g), and marine shell midden consisting of *Nerita picea* (8.0 g), burned shell (2.3 g), *Cymatium* sp. (0.7 g), *Tellina palatam* (1.4 g), *Brachidontes crebristriatus* (0.4 g), *Echinothrix diadema* sp./*Echinometra mathaei* sp. (0.3 g), and crustacean (0.6 g). SIHP #-5820 Feature 23 was interpreted as a possible postmold.

**SIHP #-5820 Feature 24** was identified near the middle of T-151. The pit originated within Stratum Id (fill) at 0.70 mbs and terminated within Stratum Ie at 0.83 mbs (see Figure 69 and see Table 19). SIHP #-5820 Feature 24 consisted of two oval-shaped pits; one measured 0.30 m wide by 0.50 m long, while the second measured 0.30 m wide, was more than 0.15m long, and extended into the sidewall. Each pit contained the in situ skeletal remains of an infant dog (*Canis lupus familiaris*, one with incompletely formed permanent dentition and one with deciduous dentition. Additional faunal remains were hand collected during excavation from Stratum II at 0.98 mbs, near and below SIHP #-5820 Feature 24. These remains consisted of juvenile *Sus scrofa* fragments and a Fantail Filefish fragment (0.1 g). None of the remains showed any evidence of cultural modification. SIHP #-5820 Feature 24 was interpreted as two dog burials.

**SIHP #-5820 Feature 25** was identified near the middle of T-151. The pit originated at or near the base of Stratum II at 0.90 mbs. It intruded into Stratum III and terminated at 1.19 mbs (see Figure 69 and see Table 19). SIHP #-5820 Feature 25 was not recorded in plan view, but was observed in the southwest profile wall. A 5.5-liter bulk sediment sample was collected from within the pit at 0.90–1.07 mbs. The sample was wet screened and contained charcoal (0.5 g), rat (*Rattus* sp.) bone (0.1 g), burned crustacean (0.8 g), and Echinoidea (0.1 g). Charcoal samples from SIHP #-5820 Feature 25 were submitted for wood taxa identification, and the results indicated the presence of native, Polynesian-introduced, and/or historically- introduced species consisting of *kukui* (*Aleurites moluccana*), *ko‘oko‘olau* (cf. *Bidens* sp.), and one unidentified species. The *ko‘oko‘olau* charcoal sample was submitted for C14 radiocarbon analysis and yielded three possible date ranges, with a calibrated 2-sigma date of AD 1480 to 1660 (95.4%) being the most probable.

**SIHP #-5820 Feature 26** was identified near the southeast end of T-151A. The pit originated at or near the base of Stratum Id at 0.74 mbs. It intruded into Stratum Ie and terminated at 0.80 mbs (, Figure 71, and Table 20). SIHP #-5820 Feature 26 was an irregular-shaped pit in plan view, measured approximately 0.90 m long by over 0.45 m wide, and extended into the southwest sidewall. The sediment matrix within the pit was consistent with that of Stratum Id. A 2-liter bulk sediment sample and a 9.5-liter screened bulk sediment sample collected from SIHP #-5820 Feature 26 collectively yielded charcoal (0.7 g), naturally-occurring marine shell (1.1 g), volcanic glass (0.1 g), fish remains (0.1 g), basalt (0.6 g), and marine shell midden consisting of *Nerita picea* (6.8 g), *Strombus* sp. (4.6 g), *Echinothrix diadema* sp./*Echinometra mathaei* sp. (0.1 g), *Brachidontes crebristriatus* (0.4 g), crustacean (0.7 g), and burned shell (0.2 g). SIHP #-5820 Feature 26 is interpreted as a pit of indeterminate function.

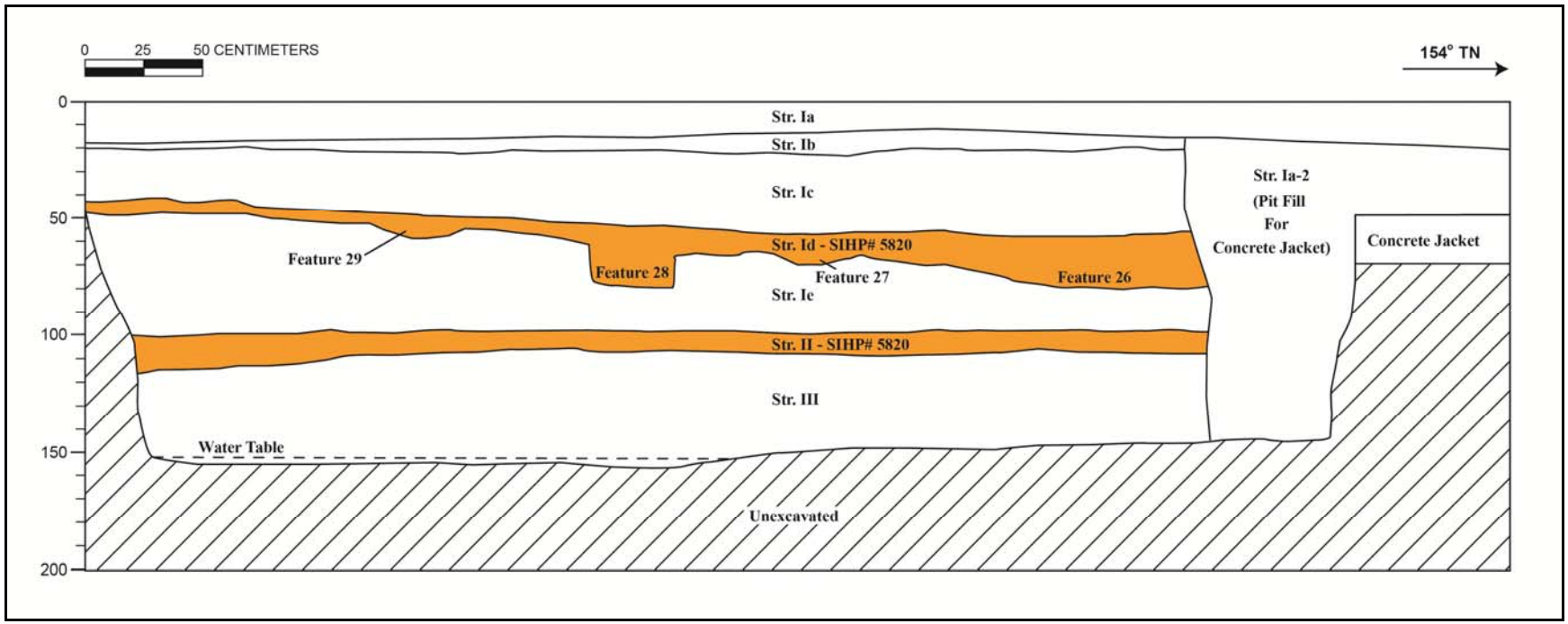


Figure 70. T-151A northeast profile, showing SIHP # -5820 Features 26-29

Table 20. T-151A Stratigraphic Description

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-19 | Asphalt |
| Ia–2 | 16-145 | Fill; 10 YR 4/1 (dark gray); very gravelly sandy loam; structureless; moist, friable consistency; non-plastic; terrigenous origin; lower boundary not visible; fill for concrete jacket |
| Ib | 12-22 | Fill; 5 YR 5/1 (gray); very gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; abrupt, smooth lower boundary; gravel base course |
| Ic | 19-57 | Fill; 2.5 Y 8/3 (pale yellow), very gravelly sand; structureless, single-grain; moist, friable consistency; non-plastic; marine origin; abrupt, smooth lower boundary; contained PVC utility at 0.46 mbs on the northeast sidewall |
| Id | 40-80 | Fill; 10 YR 3/2 (very dark grayish brown); gravelly silty sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; abrupt, irregular lower boundary; contained historics, shell material, and faunal remains (collected); locally procured fill; based its on texture and contents it was likely procured from the buried A-horizon sediments in the vicinity (SIHP #-5820); includes Features 26-29 |
| SIHP #-5820 Feature 26 | 74-80 | Pit feature originating from Stratum Id; silty sandy loam; contained marine shell midden, basalt flakes, volcanic glass, and fish remains; SIHP #-5820 Feature 26 |
| SIHP #-5820 Feature 27 | 65-72 | Pit feature originating from Stratum Id; silty sandy loam; contained marine shell midden, glass, charcoal, and fish remains; SIHP #-5820 Feature 27 |
| SIHP #-5820 Feature 28 | 60-80 | Pit feature originating from Stratum Id; silty sandy loam; contained marine shell midden, glass, ceramics, charcoal, medium mammal remains, and possible fire-cracked rock; SIHP #-5820 Feature 28 |
| SIHP #-5820 Feature 29 | 47-58 | Pit feature originating from Stratum Id; silty sandy loam; no cultural material observed; SIHP #-5820 Feature 29 |
| Ie | 49-100 | Fill; 10 YR 6/3 (pale brown); silty sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; abrupt, smooth lower boundary |
| II | 98-115 | Natural, 10 YR 3/2 (very dark grayish brown); silty loamy sand; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; clear, smooth lower boundary; contained shell material; faunal remains; buried A-horizon; a component of SIHP #-5820 |
| III | 105-155 (BOE) | Natural; 10 YR 6/3 (pale brown); silty sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; marine origin; lower boundary not visible |

**SIHP #-5820 Feature 27** was identified near the middle of T-151A. The pit originated from at or near the base of Stratum Id at 0.65 mbs. The feature intruded into Stratum Ie and terminated at 0.72 mbs (see Figure 70, Figure 71 and Table 20). SIHP #-5820 Feature 27 was irregular-shaped in plan view. The pit measured approximately 0.38 m long by over 0.35 m wide and extended into the northeast sidewall. The sediment matrix within the feature was consistent with that of Stratum Id. A 1-liter bulk sediment sample and a 3.8-liter screened bulk sediment sample collected from SIHP #-5820 Feature 27 collectively yielded charcoal (0.1 g), naturally-occurring marine shell (2.1 g), white and pink glass fragments (4.8 g), fish remains (0.1 g), and marine shell midden consisting of *Nerita picea* (1.0 g), crustacean (0.4 g), *Brachidontes crebristriatus* (0.2 g), and *Echinometra mathaei* sp. (0.1 g). SIHP #-5820 Feature 27 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 28** was identified near the middle of T-151A. The pit originated from at or near the base of Stratum Id at 0.60 mbs and terminated at 0.80 mbs within Stratum Ie (see Figure 70, Figure 71 and Table 20). SIHP #-5820 Feature 28 was mostly linear in plan view, measured approximately 0.30 m long by over 0.74 m wide, and extended beyond the width of the excavation into both the northeast and southwest sidewalls. The sediment matrix of SIHP #-5820 Feature 28 was consistent with that of Stratum Id. A 2-liter bulk sediment sample and a 3.8-liter screened bulk sediment sample collected from within the pit feature yielded charcoal (16.5 g), naturally-occurring marine shell (0.8 g), ceramics (1.5 g), glass (0.6 g), medium mammal remains (0.2 g), medium mammal remains cut with a metal saw blade (14.7 g), possible fire-affected rock (9.7 g), and marine shell midden consisting of *Nerita picea* (4.6 g), crustacean (0.1 g), Echinoidea (0.1 g), and *Brachiodontes crebristriatus* (0.3 g). SIHP #-5820 Feature 28 is interpreted as a pit of indeterminate function.

**SIHP #-5820 Feature 29** was identified near the northwest end of T-151A. The pit originated at or near the base of Stratum Id at 0.47 mbs. It was intrusive into Stratum Ie where it terminated at 0.58 mbs (see Figure 70, Figure 71 and Table 20). SIHP #-5820 Feature 29 was not documented in plan view. It was identified in the northeast profile wall, where it measured approximately 0.40 m in length. The sediment matrix within the pit feature was consistent with that of Stratum Id (locally-procurred A-horizon). 1-liter bulk sediment sample collected from SIHP #-5820 Feature 29 contained naturally-occurring limpets and gastropods (0.4 g), crustacean (0.2 g), *Echinothrix diadema* sp. (0.1 g), and fish remains (0.1 g). SIHP #-5820 Feature 29 is interpreted as a pit of indeterminate function.

Two additional pit features (Features 30 and 31) not associated with either the culturally-enriched A-horizons (Stratum Id Stratum II) were identified within SIHP #-5820. SIHP #-5820 Feature 30 is an in situ human burial exposed in the Jaucas sand (Stratum III) below the lower cultural layer in T-142. SIHP #-5820 Feature 31 is a large pit intrusive through two fill strata (Id-Ie), the lower cultural layer (Stratum II), the underlying Jaucas sand (Stratum III) and natural marine/lagoonal sediments (Stratum IV), terminating just above the coral shelf.

**SIHP #-5820 Feature 30** was identified near the southeast end of T-142 as an in situ human burial within Stratum III (Jaucas sand) and only partially exposed between 1.00 mbs and 1.12 mbs (see Figure 59, Figure 62, and Table 15). A faint, irregular-shaped pit outline was indiscernible until hand excavation was extended to a depth of 1.00 mbs. The SIHP #-5820 Feature 30 pit most likely extended from the lower boundary of the former A-horizon (II), but

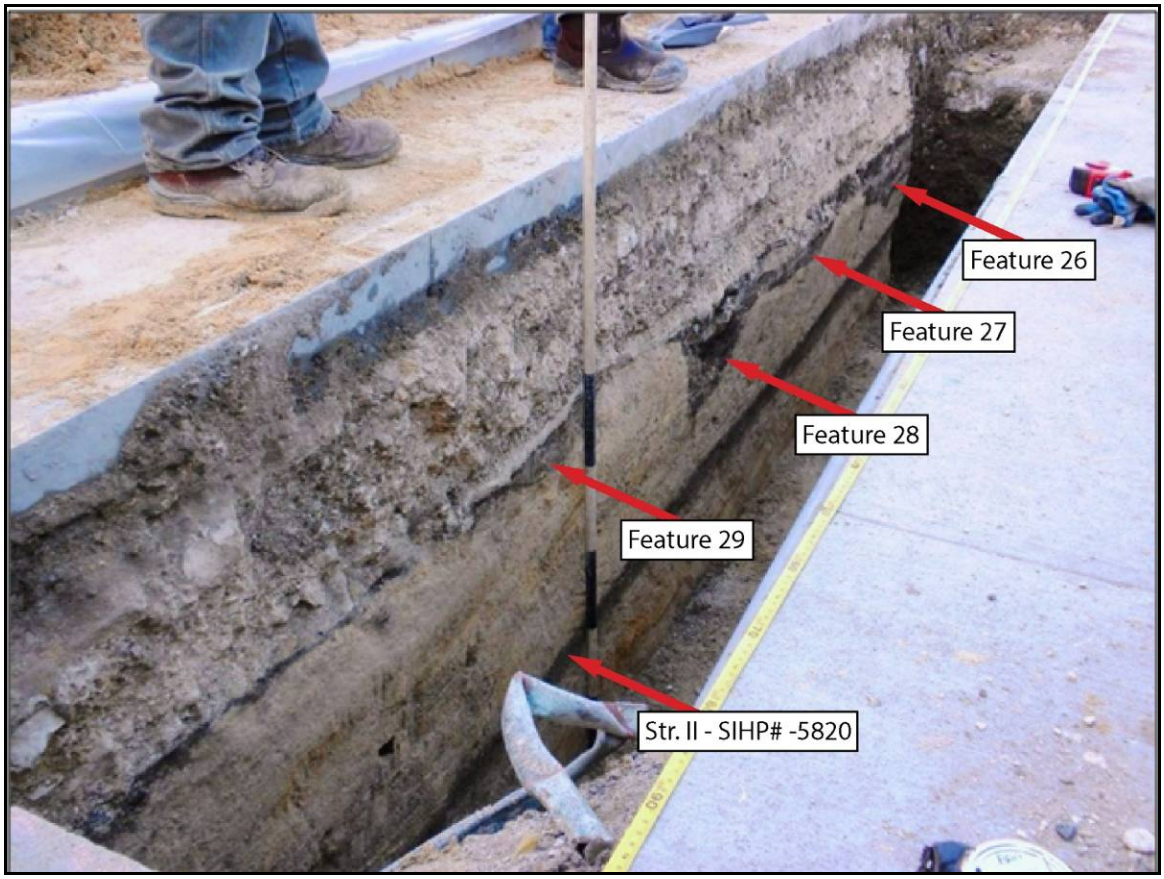


Figure 71. T-151A northeast profile showing SIHP #-5820 (Stratum II) and Features 26-29, view to east

was crosscut by a previously backfilled excavation that terminated at 0.90 mbs. SIHP #-5820 Feature 8, which overlies SIHP #-5820 Feature 30, does not appear to be associated. The burial pit outline was approximately 0.60 m long and over 0.70 mbs wide, extending beyond the width of the excavation into the southwest and northeast sidewalls. The excavation of T-142 resulted in minimal disturbance to the human remains, and all of the sediment from the immediate vicinity of SIHP #-5820 Feature 30 was screened in an effort to recover any fragmented or disturbed human skeletal remains. No grave goods were observed within the feature. The burial was in a flexed position, which typifies traditional Hawaiian practices. The burial was preserved in place, and therefore, a detailed assessment of the remains was not conducted. SIHP #-5820 Feature 30 is identified as a traditional Hawaiian human burial.

**SIHP #-5820 Feature 31** appeared to be an intrusive pit feature that was identified at the interface of Strata Ic and Id in T-141 (see Figure 55 and Table 14). SIHP #-5820 Feature 31 originated at the lower boundary of Stratum Ic at 0.25 mbs and intruded into Strata Id through IV and terminated at approximately 1.35 mbs. SIHP #-5820 Feature 31 appeared truncated by overlying fill layers (Strata Ia-Ic) but was intrusive into two fill layers (Strata Id and Ie), the buried A-horizon (Stratum II), and underlying natural sands (Strata III and IV). SIHP #-5820 Feature 31 was only observed in the southwest sidewall in the northwestern end of the excavation. A total of seven historic artifacts (Acc. #s 141-A-1 to A-7) were collected from SIHP #-5820 Feature 31 and consisted of Chinese, Japanese, and Euro-American ceramic vessels. The presence of historic material with SIHP #-5820 Feature 31 indicates that the feature post dates the A-horizon and Stratum III. SIHP #-5820 Feature 31 also contained scattered, disarticulated human skeletal remains.

Traditional Hawaiian cultural material identified within the buried culturally-enriched A-horizon included a basalt game stone (SIHP #-5820 Feature 5) (see Figure 60), a shell fishhook (SIHP #-5820 Feature 6) (see Figure 61), volcanic glass pieces (SIHP #-5820 Features 12, 14, 20 and a bulk sediment sample from Stratum II of T-151), a worked human tibia bone fragment likely for use as a tool (SIHP #-5820 Feature 18), and a basalt tool fragment (SIHP #-5820 Feature 18). Notably, SIHP #-5820 Features 22 and 26 and a bulk sediment sample from Stratum Id of T-151 also contained a pieces of volcanic glass; although, these features and the bulk sample originated from fill material postdating the A-horizon. In addition, a basalt stone sinker was found in Stratum III (Jaucas sand) of T-141 adjacent to SIHP #-5820 Feature 1 (see Figure 56 and Figure 57).

Historic cultural material was identified within both the lower (Stratum II) and upper (Stratum Id in T-151 and T-151A) cultural layers (SIHP #-5820). Nine ceramic fragments from three Euro-American and one German (pre-1820) vessel were collected from Feature 7 within the buried A-horizon (Stratum II). The upper cultural layer (Stratum Id) contained one machine-made brick fragment dated between 1918 and 1978 (SIHP #-5820 Feature 23) as well as ceramic and glass fragments collected from bulk sediment samples (Features 27 and 28). Additional historic artifacts were collected from the fill material overlying the cultural layers. They include stone, plastic, and metal (SIHP #-5820 Feature 1), eight Chinese, Euro-American, and Japanese ceramic fragments from seven artifacts (SIHP #-5820 Feature 31), and one small red brick fragment collected from Stratum Id in T-141.

Human skeletal remains were observed in SIHP #-5820 Feature 1 of T-141, Feature 6 of T-142, and SIHP #-5820 Feature 30 of T-142. SIHP #-5820 Feature 1 appears to have been truncated by the overlying fill layer (Stratum Ie). The human skeletal remains associated with SIHP #-5820 Feature 1 were previously disturbed and scattered beyond the boundaries of the feature. The remains were disarticulated and partially represented a minimum of three individuals. The human skeletal remains from SIHP #-5820 Feature 6 were collected from a bulk sediment sample, from the base of Stratum II, and identified as a tooth (mandibular right lateral incisor), a tooth fragment, and a small piece of cancellous bone. SIHP #-5820 Feature 30 was identified as an in situ human burial within the Jaucas sand (Stratum III) and predating the buried culturally-enriched A-horizon. A pit outline was only visible at the level of the human remains; although it is possible that the outline had extended from the base of Stratum II. The burial appeared to be in a flexed position which is indicative of traditional Hawaiian burial practices. SIHP #-5820 Feature 30 was preserved in place, and the general biological profile of the burial was not assessed.

Test excavations comprising SIHP #50-80-14-5820 contained invertebrate and vertebrate faunal material expressing a strong midden signature. This strong midden content was identified within the lower (Stratum II) and upper (Stratum Id in T-151 and T-151A) cultural layers and within SIHP #-5820 Features 1-29. In general, the faunal remains that were collected were either unmodified, or they exhibited evidence of butchering (i.e., cut with a metal saw blade). Faunal remains identified within the features included a horse (*Equus ferus caballus*) burial (SIHP #-5820 Feature 1), two infant dog (*Canis lupus familiaris*) burials (SIHP #-5820 Feature 24), and skeletal elements identified as cow (*Bos taurus*), pig (*Sus scrofa*), chicken (*Gallus gallus*), bird (Aves), rat (*Rattus* sp.), fish, and small/medium-mammal. T-150 also included osseous material identified as a possible cat (*Felis catus*) within the lower cultural layer (Stratum II).

Invertebrate faunal remains predominately were collected from screened and bulk sediment samples of the SIHP #-5820 buried culturally-enriched A-horizon and associated features. Invertebrate fauna included non-cultural shell and shell midden (see Table 13).

Radiocarbon analysis on charcoal samples from SIHP #-5820 Features 8, 9, 12–15, 19, 20, and 25 provided a date range between the late pre-Contact and early post-Contact periods, from as early as AD 1480 to as late as 1920 (see Table 13).

The two culturally-enriched cultural layers (Stratum II and Stratum Id) and the 31 archaeological features identified during the City Center AIS have been combined into SIHP #-5820, previously described by Winieski and Hammatt (2000) (see Figure 52). Winieski and Hammatt (2000) reported 11 burials inadvertently discovered along Mother Waldron Park and Halekauwila Street during archaeological monitoring that occurred between 1990 and 1992. At least eight of the 11 human burials encountered during the project were located within the buried culturally-enriched A-horizon intruding into the underlying natural sand (see Table 12). The general depositional sequence recorded at the burial sites indicated beach sand deposits overlain by a discontinuous buried A-horizon and/or fill layers, similar to the seven City Center Section 4 AIS test excavations designated as SIHP #-5820. In both studies, the cultural layer(s) are capped with one meter or less of fill deposition. Similarities in the depositional environment, location in the stratigraphic column, geographic location, and association with a cultural layer or culturally-

enriched A-horizon provide the basis for a combination of the findings of Winieski and Hammatt (2000) with the findings within T-141, T-142, T-145, T-146A, T-150, T-151, and T-151A.

SIHP #-5820 consists of two buried, culturally-enriched layers. SIHP #-5820 includes a total of 31 newly-identified archaeological features (Features 1-31) as well as 11 burials previously identified by Winieski and Hammatt (2000). Of the 31 newly-identified features, 19 features (SIHP #-5820 Features 2, 4-20, and 25) are associated with the lower, culturally-enriched A-horizon (Stratum II) and include 1 *imu* pit and 18 indeterminate pits. Eight features (SIHP #-5820 Features 21-24 and 26-29) were identified within the upper cultural layer (Stratum Id in T-151 and T-151A) and include 1 pit containing two dog burials, 1 possible postmold, and 6 indeterminate pits. Three additional features (SIHP #-5820 Features 1, 3, and 31) that were truncated by fill material postdating the buried A-horizon were considered to be part of SIHP #-5820 based on proximity. They include 1 horse burial pit with disarticulated and scattered human remains, and 2 indeterminate pits. SIHP #-5820 Feature 30 was identified as a traditional Hawaiian burial within the Jaucas sand (Stratum III), which predated the buried A-horizon. SIHP #-5820 contained both traditional and post-Contact cultural material, human skeletal remains, vertebrate and invertebrate faunal material, and charcoal. Laboratory analyses of material collected from SIHP #-5820 indicate that the former land surface was utilized from the pre- and/or early post-Contact period to the twentieth century, prior to being capped by historic fill deposits.

Based on the guidance of National Register Bulletin No. 15, SIHP #50-80-14-5820 retains its integrity of location, design, materials, and workmanship. Based on past documentation and the results of this investigation, CSH recommends that this cultural resource maintains the integrity to support its historic significance under Criterion D (has yielded, or is likely to yield, information important for research on prehistory or history) and E (has cultural significance to an ethnic group) of the Hawai‘i Register, and Criterion D of the National Register, exclusively for its information potential.

SIHP #50-80-14-5820 has provided, and can potentially provide, additional information on late pre- to early post-Contact habitation, historic land use, and pre- and post-Contact burial practices and distribution within Kaka‘ako. The potential for additional research warrants the implementation of a data recovery program. Data recovery at SIHP #-5820 will focus on data collection from the buried, culturally-enriched sandy loam A-horizon and associated features. Additionally, discrete features within fill layers will be identified and documented. Data recovery will include a more intensive regime of strata- and feature-specific radiocarbon, palynological, and botanical analysis. The analysis will seek to indicate use and function of culturally-enriched strata and features, and attempt to temporally categorize subsurface deposits to distinguish between traditional Hawaiian versus historic deposition. Data recovery will also seek to identify additional burials or human skeletal remains that may be present at SIHP #50-80-14-5820. Data recovery will include detailed stratigraphic documentation of identified burial pits or human skeletal remains. Following the data recovery program, an archaeological monitoring program at SIHP #-5820 is recommended. Archaeological monitoring will seek to recover data on the depositional sequence and extent of SIHP #-5820 as well as document culturally-enriched strata and features through recordation and sample collection. The previously identified burial and human remains associated with SIHP #-5820, will be treated in accordance with HAR §13-300 and HRS §6E-43. In order to alleviate the project’s effect on human burials, a project specific

burial treatment plan (a requirement of HAR §13-300) will be prepared for consideration of the OIBC and recognized descendants. The agreed upon treatment is preservation in place, the details of which will be documented in the burial treatment plan.

**SIHP # 50-80-14-5966**

| | |
|---|---|
| **FORMAL TYPE:** | Subsurface Kawa Fishpond Sediments |
| **FUNCTION:** | Aquaculture |
| **PREVIOUS DOCUMENTATION:** | McDermott and Mann 2001 |
| **AGE:** | Pre- and post-Contact |
| **NUMBER OF FEATURES:** | N/A |
| **TYPES OF FEATURES** | N/A |
| **DISTRIBUTION:** | Approximately 8.13 acres (previously identified) |
| **LOCATION:** | West of N Nimitz Highway between Iwilei Road and Awa Street (Iwilei Geographic Zone) |
| **TAX MAP KEY:** | TMK [1] 1-5-008:001, 004, 005, 014, 015, 018, 020; [1] 1-5-039; [1] 1-5-039:001, 007, 010; [1] 1-5-040:002, 004; and [1] 2-1-001 |
| **LAND JURISDICTION:** | Jiriochi Otani Family, Ltd. and the State of Hawai‘i |
| **TEST EXCAVATIONS:** | T-095 |

SIHP #50-80-14-5966 is a previously-identified cultural resource that consists of subsurface pond sediments associated with Kawa Fishpond (Figure 72). The SIHP #-5966 cultural resource boundary was established based on the 1885 J. F. Brown map of Kapālama (Figure 73). It remains unknown whether fishpond wall(s) exist below the multiple fill deposits documented in this area. Based on historic maps and documents, the former footprint of Kawa Fishpond consists of 8.13 acres. Today the Kawa Fishpond footprint is largely bounded by Iwilei Road, Sumner Street, Awa Street, and N. Nimitz Highway within the Iwilei Geographic Zone. Initial documentation of the fishpond was performed by McDermott and Mann (2001) during an archaeological inventory survey for the Nimitz Highway Water System Improvements, Part I, Project (see Figure 72).

Few oral traditions, legends, or other ethnographic information exist regarding Kawa Fishpond. The Hawaiian word “*kawa*,” however, literally translates as a precipice or leaping place, or as the pool below a precipice into which swimmers leap (Pukui and Elbert 1986:139). The earliest information about the pond comes from historic maps of Honolulu. The location of Kawa Fishpond can be seen in an 1885 map by J. F. Brown and an 1897 map by M. D. Monsarrat (see Figure 73 and Figure 74). Whether Kawa Fishpond dates prior to European Contact or dates to early nineteenth century efforts to feed Kamehameha’s royal court remains unclear as no ethnographic or historical accounts of the construction or use of Kawa Fishpond were found.

Historic photographs dating to the mid 1860s indicate that portions of the Kawa Fishponds walls included approximately four to seven courses of exposed dry-stacked, basalt and/or coral boulders (Figure 75 to Figure 77). The northwestern edge of the pond, nearest to Iwilei Prison, consists of a natural limestone bank (Figure 78). Kikuchi, in his 1973 study of Hawaiian fishponds, classified Kawa Fishpond as a Type I pond or *loko kuapā*. Kikuchi (1973:227) describes this type as “a fishpond of littoral water whose side or sides facing the sea consist of a stone or coral wall containing one or more sluice grates.”

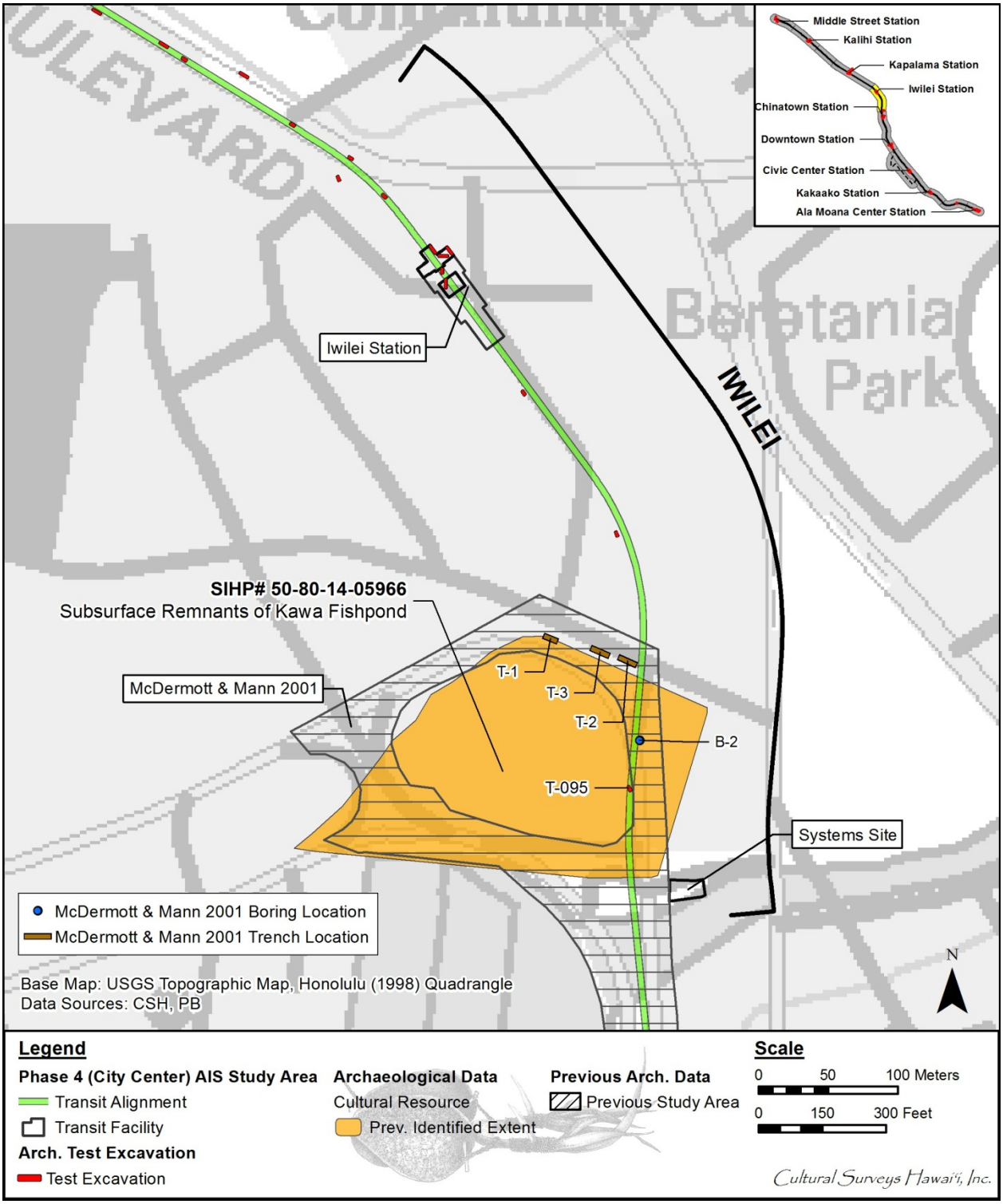


Figure 72. Location and extent of Kawa Fishpond AIS test excavation T-095 and previous archaeological investigations (Trenches T-1 through T-3 and Bore 2) (base map: 1998 U.S. Geological Survey topographic map, Honolulu Quadrangle)

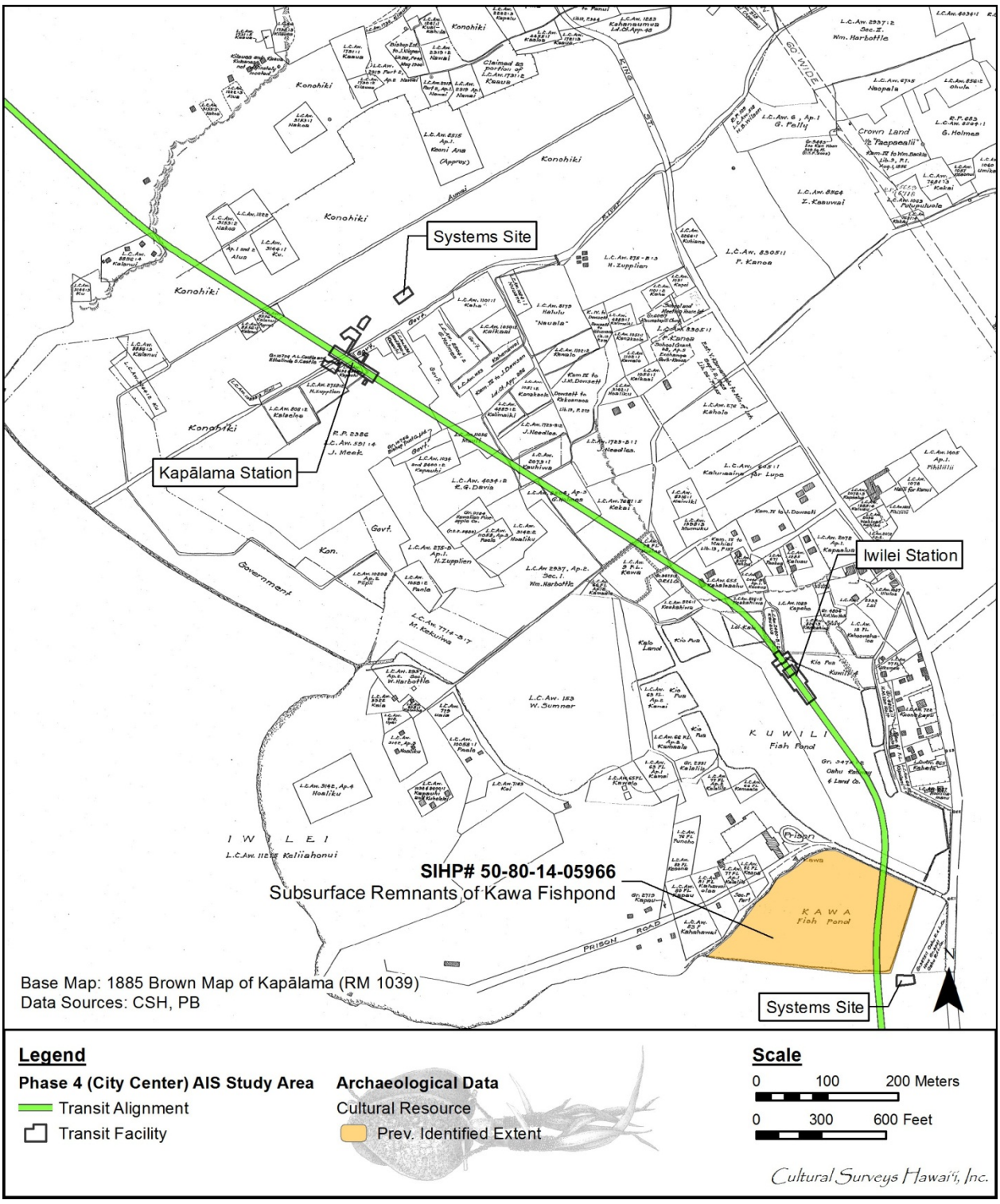


Figure 73. *Makai* sections of the 1885 map of Kalihi and Kapālama by J. F. Brown showing the general location of Kawa Fishpond (shown in yellow)

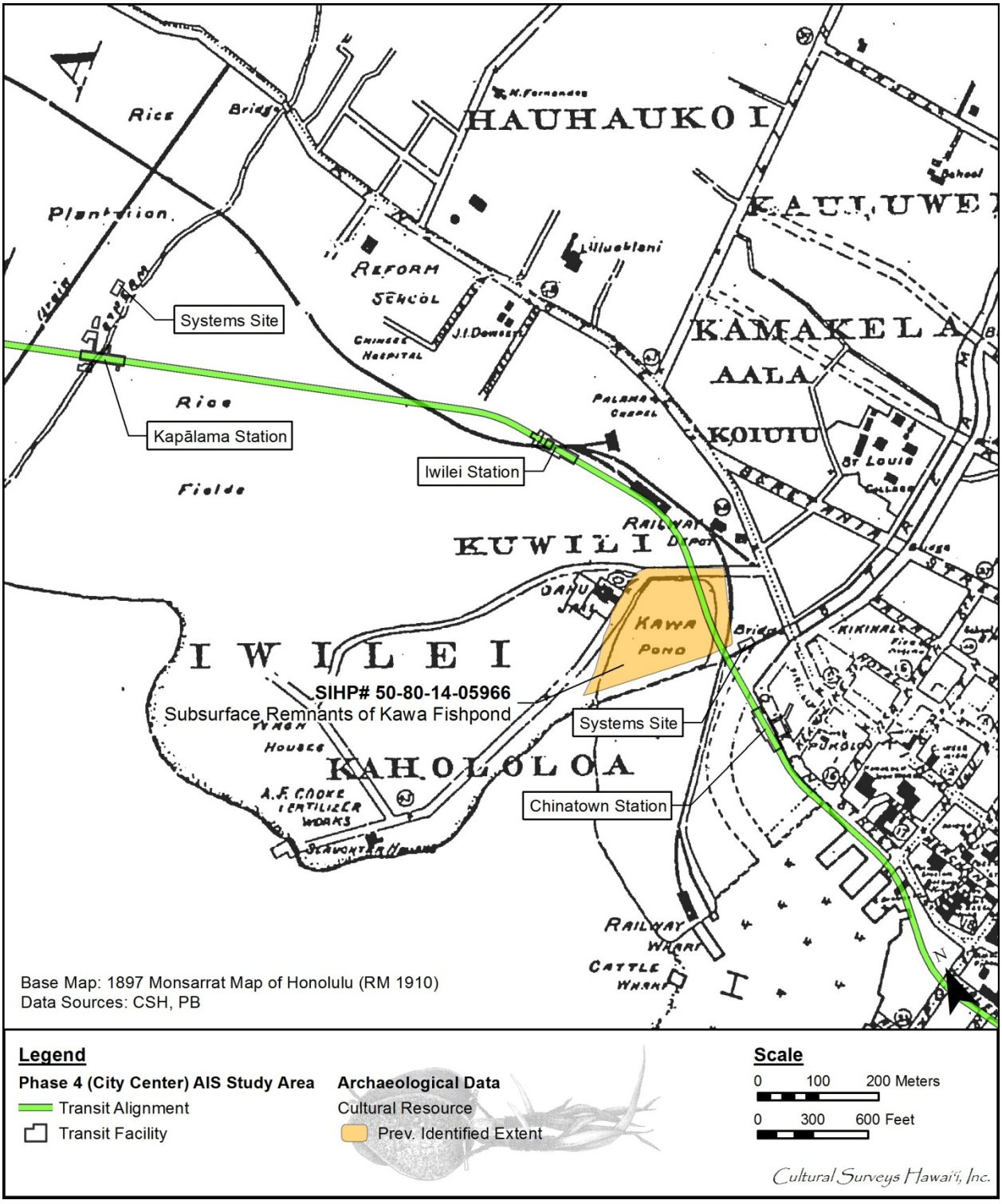


Figure 74. Portion of the 1897 Map of Honolulu by M. D. Monsarrat (Reg. Map 1910) showing the general location of Kawa Fishpond (shown in yellow)

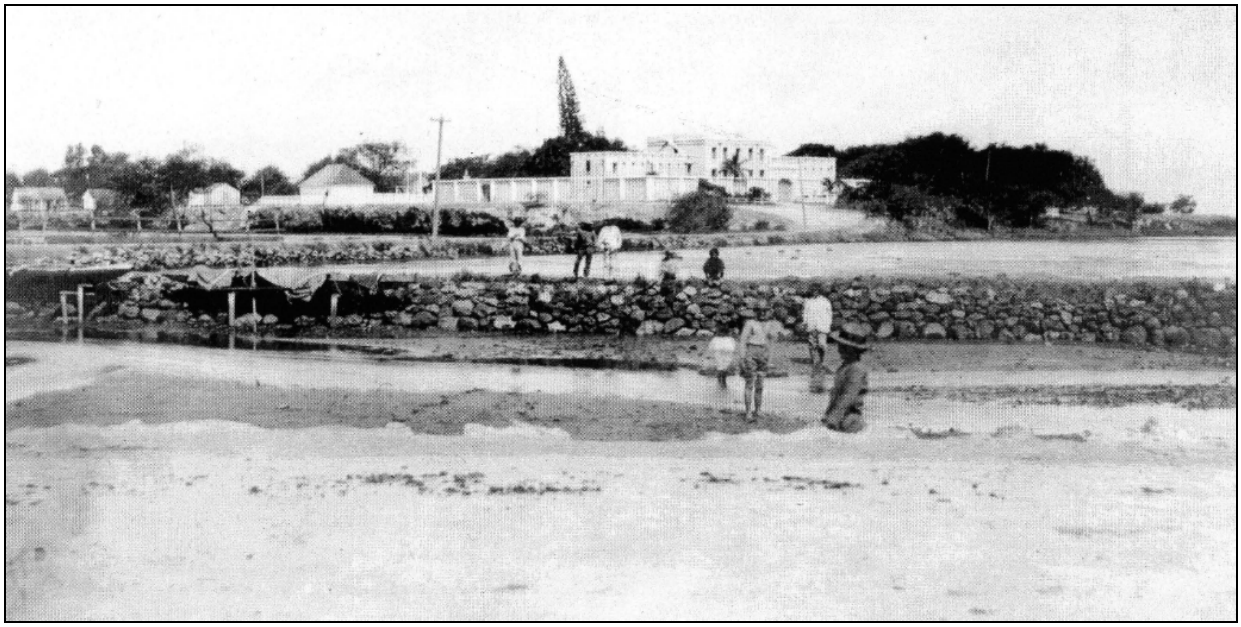

Figure 75. 1860s photograph, shot to the west, of Kawa Fishpond (foreground), Kūwili Fishpond (far right), Iwilei (Prison) Road, and Iwilei Prison, taken at low tide (Hawai‘i State Archives)

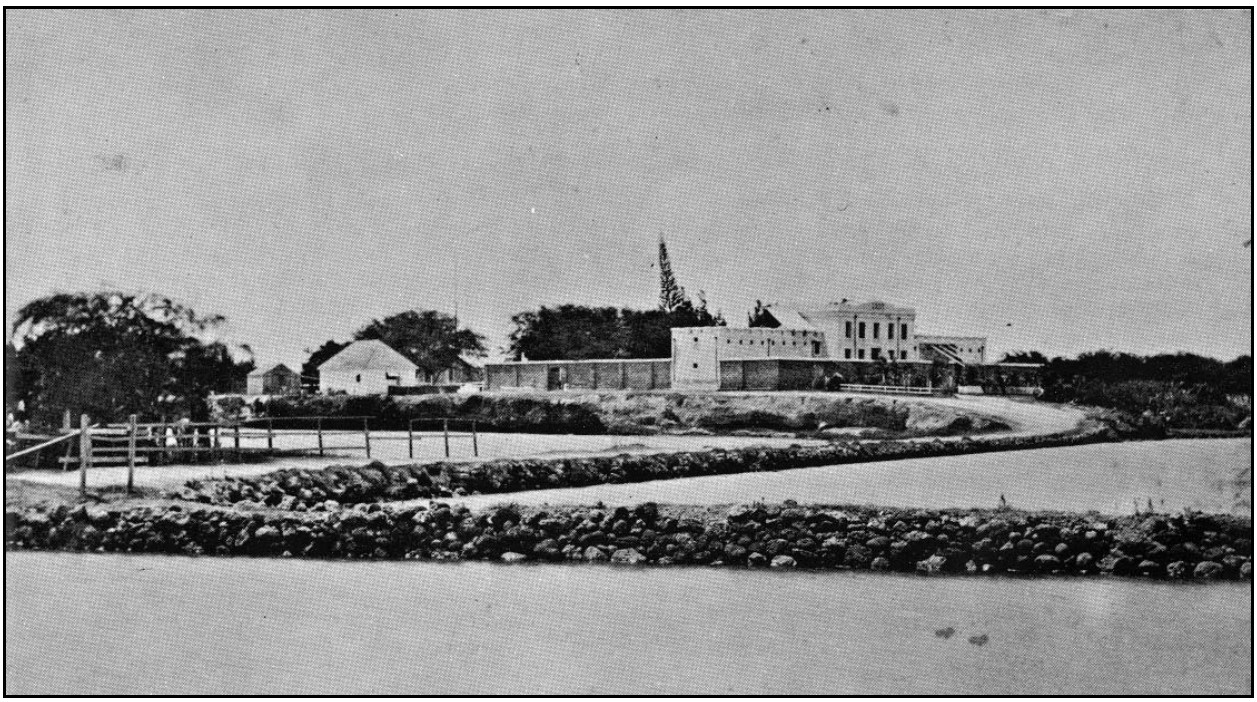

Figure 76. 1860s photograph, shot to the west, of Kawa Fishpond (foreground), Kūwili Fishpond (right), Iwilei (Prison) Road (left), and Iwilei Prison (Hawai‘i State Archives)

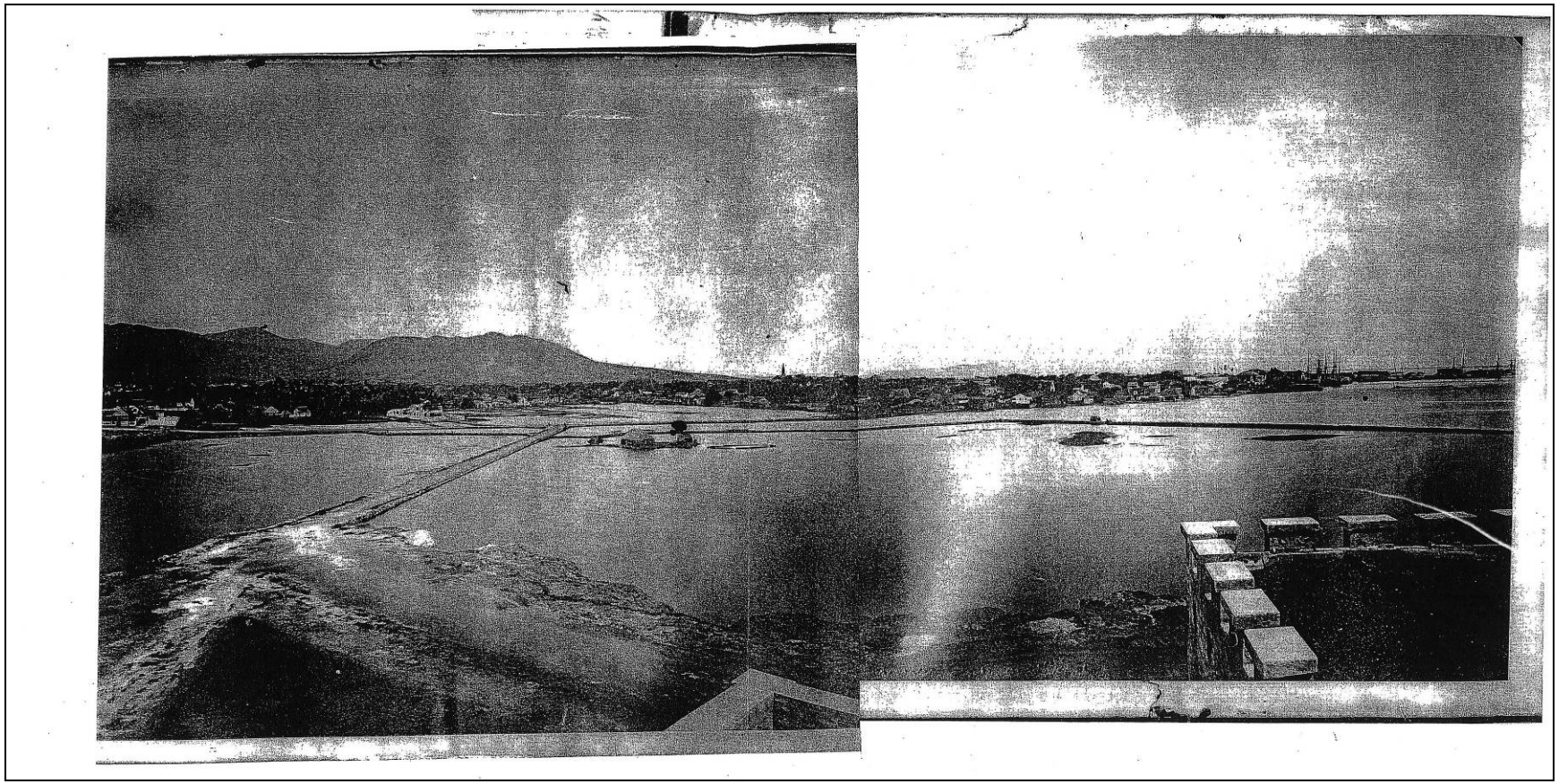

Figure 77. Three 1865 photographs taken from Iwilei Prison ramparts showing a panorama of Kūwili (left) and Kawa (right) Fishponds with Iwilei (Prison) Road (adapted from McDermott and Mann 2001:20)


Figure 78. 1860s photograph of northern portion of Kawa Fishpond with Iwilei Prison in background. A natural limestone bank of the fishpond is clearly visible (Hawai‘i state Archives)

Historic maps indicate that the location and shape of Kawa Fishpond remained relatively unchanged into the late 1800s. An outbreak of cholera centered on both sides of the Nu’uanu Stream, however, prompted the Honolulu Board of Health on September 28, 1895, to recommend the infilling of the fishpond (*Pacific Commercial Advertiser*, 2:2).

McDermott and Mann (2001) identified Kawa Fishpond sediments within two of three backhoe test excavations (Trench 1 and Trench 3) and one geotechnical test bore (B-2) performed during the archaeological inventory survey for the Nimitz Highway Water System Improvements, Part I, Project. These fishpond sediments were identified ranging in depth from 2.04 mbs to 3.50 mbs. They described them as “fine grained, relatively homogenous, dark gray silty sediments” underlying fill deposits (McDermott and Mann 2001:43).

Documentation of Trench 3 in the McDermott and Mann (2001) study identifies Kawa Fishpond sediments as Stratum XIII (204-230 cmbs) (Figure 79, Figure 80, and Table 21). A total of four samples were collected from the Kawa Fishpond sediments within Trench 3 for radiocarbon, micro-charcoal, and palynomorph analysis. The two samples depicted on the Trench 3 profile include Beta 157193 (AD 1450 to 1650, 95.4% probability) and Beta 157454 (AD 1670 to 1770, 30.3% probability/AD 1800 to 1960, 61.5% probability) (see Figure 80). No samples were analyzed from Trench 1 as the deepest layers of the excavation were considered to be heavily contaminated with petroleum (McDermott and Mann 2001:45).

McDermott and Mann (2001:59) attempted to provide data on the age of construction of Kawa Fishpond and summarized the radiocarbon results as follows:

> The radiocarbon dating evidence, albeit tentative, combined with indisputable historic evidence, indicate that the low-energy, finely-sorted Stratum XIII, presumed to be the floor of Kawa Fishpond (in Trench 3), was extant from between the period A.D. 1150-1350 and c. A.D. 1890.

Micro-charcoal particle counts and palynomorph analysis of Kawa Fishpond sediments identified only native and Polynesian-introduced taxa, with no historically-introduced taxa present. These results were considered anomalous considering the known historic use of the fishpond (McDermott and Mann 2001:60). In addition, glass bottle fragments dating to the mid- to late-nineteenth century were recovered from within the fishpond sediments.

Subsurface Kawa Fishpond sediments were not encountered in T-095, the only test excavation located within the former Kawa Fishpond footprint during the current archaeological inventory survey (Figure 81, Figure 82, and Table 22). No additional test excavations within the fishpond footprint were attempted due to the presence of existing numerous subsurface utilities and the potential disruption to vehicular traffic and adjacent business access. The observed stratigraphy within T-095 consisted of fill layers down to 1.45 mbs, where excavation was halted due to the presence of contaminated sediment. The lower fill deposits likely are associated with the initial late-nineteenth century infilling of Kawa Fishpond, as McDermott and Mann (2001) indicate they encountered fishpond sediments only 20 cm below this, at 2.04 mbs in Trench 3. However, since pond sediments were not encountered within (T-095), it is unknown how many more fill layers may exist below the contaminated layer. In addition, it remains unknown if buried fishpond sediments occur below the lowest fill deposits.

Figure 79. Trench 3 sidewall, view to northeast (McDermott and Mann 2001:53)

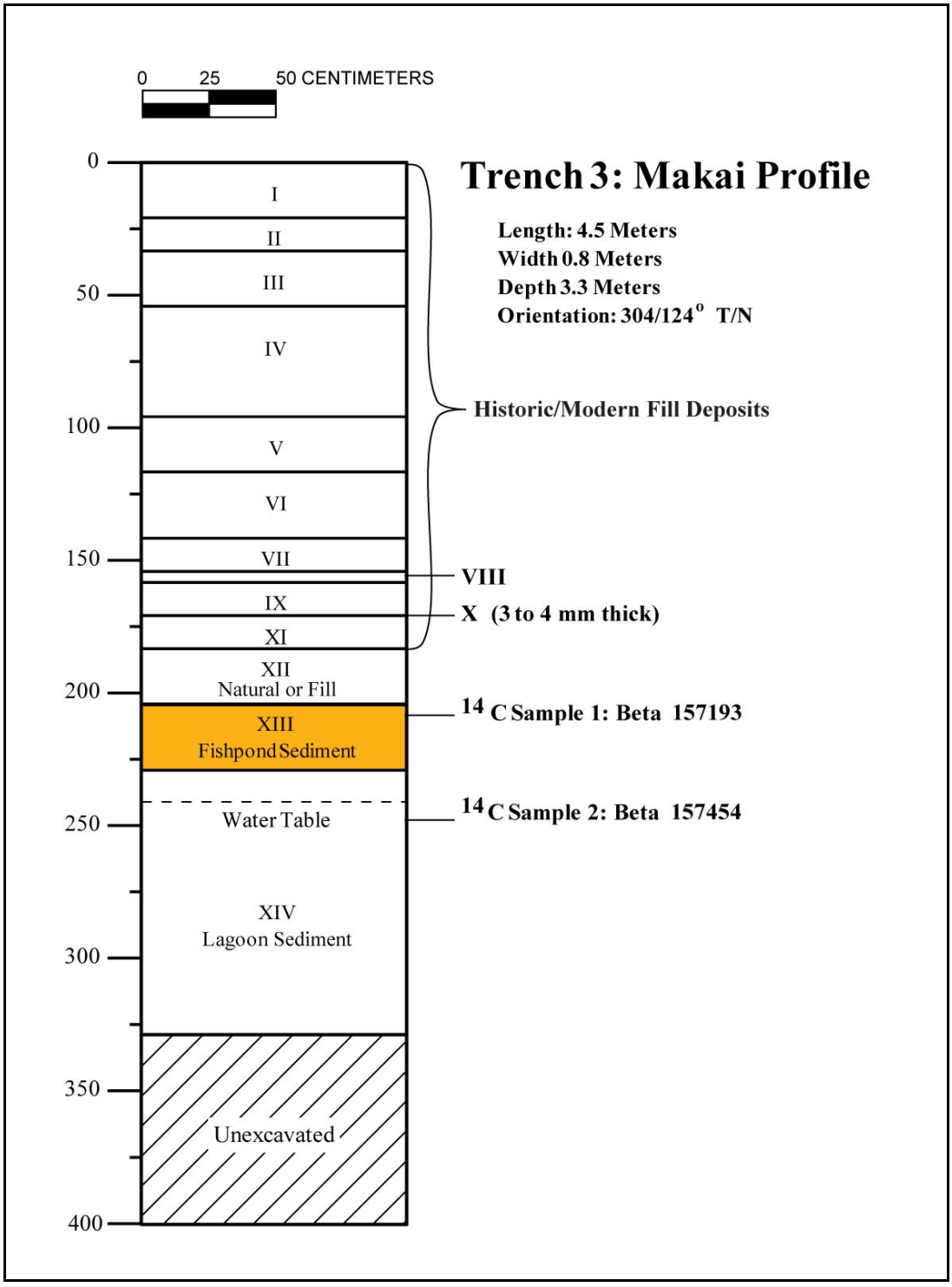


Figure 80. Trench 3 (T-3) Profile showing fishpond sediment (Layer XIII) below natural or fill sediment (Layer XII) and atop natural lagoonal sediments (Layer XIV) (adapted from McDermott and Mann 2001:54)

Table 21. Trench 3 Stratigraphic Description (adapted from McDermott and Mann 2001)

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| I | 0-20 | (Dry) 5YR 3/3 dark reddish brown; non-coherent; clay loam; weak, fine, subangular blocky structure; contains roots and rootlets, some construction gravels and modern trash; L/B abrupt/smooth; modern landscaping fill sediment |
| II | 20-30 | Crushed coral fill material |
| III | 30-55 | Basalt construction gravel, 5-10 cm diameter, in a sandy loam matrix, bed for overlying crushed coral surface |
| IV | 55-90 | (Dry) 10YR 5/4 yellowish brown; slightly hard; loamy sand; structureless; contains basalt and coral construction gravel, a few roots and rootlets; L/B clear smooth; modern fill material |
| V | 90-115 | (Dry) 10YR 4/2 dark grayish brown; slightly hard; medium sand; structureless; contains a few subangular coral cobbles; L/B abrupt smooth; fill material |
| VI | 138-156 | (Dry) 7.5YR 4/4 brown; slightly hard; gravelly loamy sand; structureless; contains some roots, a piece of shell; L/B abrupt wavy; fill layer |
| VII | 138-156 | (Dry) 7.5YR 3/3 dark brown; slightly hard; sandy loam; structureless; contains roots and rootlets and some pockets of marine sand with shell fragments; L/B abrupt/smooth; fill layer. |
| VIII | 156-161 | (Moist) 5YR 4/4 brown; very friable; very fine silty sand; structureless; contains charcoal fragments; L/B very abrupt/smooth; fill layer |
| IX | 161-174 | (Moist) 10YR 4/1 dark gray; very friable; very fine microstratigraphy (layers c. 2 mm-3 cm thick) consisting of interbedded layers of clay and silty clay, some of the layers are heavily enriched with decomposing organic material; structureless; L/B very abrupt/smooth; fill material, most likely that result of the settling of pumped, very fine sediments |
| X | 174 | (Moist) 10YR 5/1 gray; slightly sticky; sandy clay; structureless; layer only approximately 3-4 mm thick; L/B very abrupt/smooth; fill material, similar to the overlying Stratum IX |
| XI | 174-176 | (Wet) 7.5YR 4/3 brown; slightly sticky; coarse sand; structureless; contains small shell fragments; L/B very abrupt smooth; fill material |
| XII | 176-204 | (Wet) dark gray; non sticky; medium to fine sand; structureless; contains shell fragments and some whole shells, also water rounded basalt gravels; L/B abrupt/smooth; Dr. Ward found micro-charcoal particles within this sediment, a low concentration of 2.3 $mm^2$/cc; it is not clear whether this well-sorted sand is a natural sediment or fill layer. Based on superposition it post-dates the silty clay fishpond sediments immediately below (Strata XIII). It apparently contains no historically-introduced palynomophs |

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| XIII | 204-230 | (Wet) 10YR 4/1 dark gray; slightly sticky; silty clary; structureless; contains a coconut shell fragment, and fragments of two glass bottles manufactured between 1870 and 1900; charcoal particles were collected from this sediment during wet screening with 1/16 inch mesh; also Dr. Ward calculated a micro-charcoal particle concentration of 54.6 mm²/cc for this sediment; good palynomorph preservation; L/B abrupt/smooth; natural fishpond sediment; Kawa Fishpond sediment; component of SIHP #-5966 |
| XIV | 230-330 | (Wet) 10YR 4/1 dark gray; slightly sticky; cobbly, gravelly, silty clay; structureless; contains subangular to rounded coral gravels and cobbles, also water rounded basalt gravels and cobbles, and angular shell fragments and whole shells; charcoal particles were collected from this sediment during wet screening with 1/16 inch mesh; also Dr. Ward calculated a micro-charcoal particle concentration of 38.3 mm²/cc for this sediment; palynomorph preservation was good; natural lagoonal sediment |

Figure 81. T-095 northeast wall profile, showing fill deposits only, view to northeast

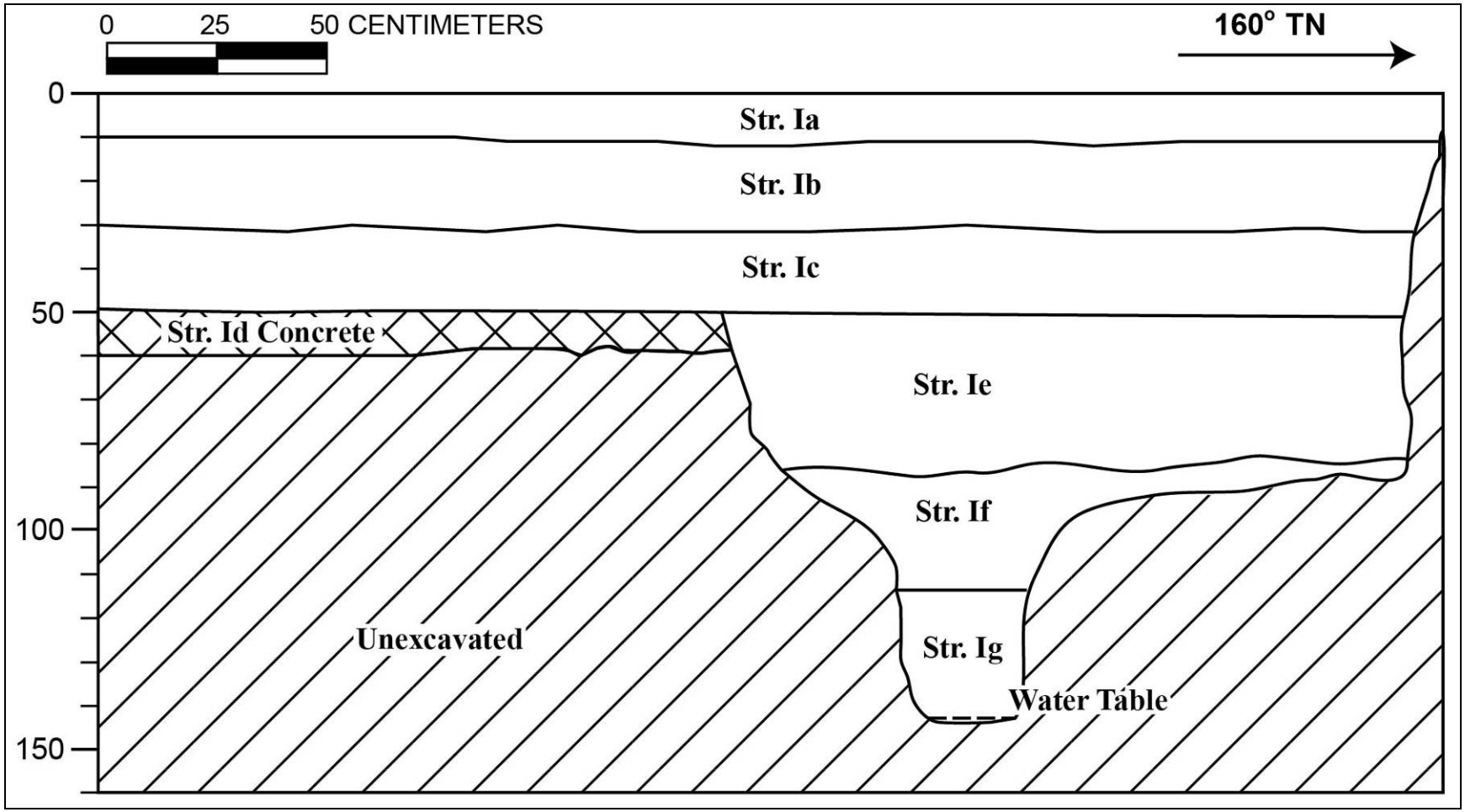


Figure 82. T-095 northeast wall profile

Table 22 T-095 Stratigraphic Description

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-11 | Asphalt |
| Ib | 11-31 | Fill; 10 YR 7/3 (very pale brown); gravelly cobbly coarse sand; structureless, single-grain; dry, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; crushed coral base course |
| Ic | 31-50 | Fill; 10 YR 3/3 (dark brown); clay loam; weak, very fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; imported fill layer with coral gravel inclusions |
| Id | 50-60 | Fill; 2.5” concrete slab, possible sidewalk |
| Ie | 50-87 | Fill; 10 YR 3/2 (very dark grayish brown); sandy loam; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; diffuse, smooth lower boundary; contained construction debris fill, ABM bottle fragment, ceramic plate fragment, bakelite fragment, and red brick chunks (not collected), coral and basalt chunks |
| If | 85-115 | Fill; 10 YR 4/2 (dark grayish brown); clay loam; weak, very fine, blocky structure; moist, friable consistency; plastic; terrigenous origin; abrupt lower boundary; contained some charcoal flecking ~5%; imported fill, 0.5 m x 0.5 m x 0.3 m coral block |
| Ig | 115-145 (BOE) | Fill; 10 YR 2/1 (black); very fine sandy loam; structureless, single-grain; moist, friable consistency; plastic; terrigenous origin; lower boundary not visible; contaminated fill layer |

SIHP #-5966 (Kawa Fishpond) is an aquacultural locality that, based on background research and previous archaeological studies, may have been constructed pre-Contact or in the early nineteenth century with continued use to the end of the nineteenth century. Kikuchi (1973:227) classified Kawa Fishpond as a Type I pond or *loko kuapā*, and photographs from the 1860s document the presence of fishpond walls consisting of about four to seven exposed courses of dry-stacked, basalt and/or coral boulders. McDermott and Mann (2001) identified Kawa Fishpond sediments within two of three backhoe test excavations (T-1 and T-3) and one geotechnical test bore (B-2). Radiocarbon analysis of fishpond pond sediment samples collected by McDermott and Mann (2001) provided evidence for pre-Contact deposition. One test excavation (T-095) was excavated within the footprint of Kawa Fishpond during the current archaeological inventory survey. The observed stratigraphy within T-095 consisted of fill layers down to 1.45 mbs, where excavation was halted due to the presence of contaminated sediment. Although direct evidence of Kawa Fishpond was not encountered during the current investigation, there is a possibility that fishpond sediments are present below the documented fill deposits in T-095 based on findings reported in McDermott and Mann (2001).

Based on the guidance of National Register Bulletin No. 15, SIHP # 50-80-14-5966 (Kawa Fishpond) retains its integrity of location and possibly also of materials and workmanship. SIHP #-5966 was previously determined eligible to the Hawai‘i and National Registers under significance Criterion D (has yielded, or is likely to yield information important for research on prehistory or history) by McDermott and Mann (2001).

SIHP #-5966 has provided information, and has potential to provide additional information, on the construction and use history of Kawa Fishpond, as well as the nature and sequence of sedimentation within the fishpond and its subsequent infilling near the end of the nineteenth century. The potential for additional research warrants the implementation of a data recovery program. Data recovery will compare previous and current data in an attempt to provide information on the relationship between Kawa Fishpond (SIHP #-5966) and adjacent Kūwili Fishpond (SIHP #-5368). In addition, data recovery will focus on identifying Kawa Fishpond sediments within the HHCTCP project APE and establishing a more refined chronology of the fishpond through intensive sampling of sediments for micro- and macro-botanical, radiocarbon, and other analytical studies. Sediment column samples and/or sediment cores will be incrementally partitioned (1-3 cm increments) and submitted for palynological and radiocarbon analysis. Following the data recovery program, an archaeological monitoring program is recommended at SIHP #-5966. Archaeological monitoring will seek to obtain additional data on the depositional sequence and extent of SIHP #-5966 as well as document any potential structural remnants of Kawa Fishpond such as fishpond walls that may be encountered during construction. Archaeological monitoring will involve additional intensive sampling of any exposed Kawa Fishpond sediments for palynological and radiocarbon analysis for comparison to data from previous archaeological research within Kawa fishpond and with data from other Hawaiian fishponds, especially the adjacent Kūwili Fishpond.

**SIHP # 50-80-14-7190**

| | |
|---|---|
| **FORMAL TYPE:** | Subsurface salt pan remnants |
| **FUNCTION:** | Salt production |
| **PREVIOUS DOCUMENTATION:** | Pammer et al. (2011) |
| **NUMBER OF FEATURES:** | N/A |
| **TYPES OF FEATURES:** | N/A |
| **AGE:** | Potentially pre- and post-Contact |
| **DISTRIBUTION:** | Approximately 0.05 acres (within current project area), 1.15 acres (total area) |
| **LOCATION:** | Southwest (*makai*) of Halekauwila Street, between Keawe and South Streets (West Kaka‘ako and Kaka‘ako Makai Geographic Zones) Pammer et al. (2011), within City and County road way of Pohukaina Street (current investigation) |
| **TAX MAP KEY:** | TMK [1] 2-1-030 (Pohukaina Street ROW por.); [1] 2-1-051 (Pohukaina Street ROW por.); [1] 2-1-030:001 and :043 |
| **LAND JURISDICTION:** | Kamehameha Schools; City and County of Honolulu |
| **TEST EXCAVATIONS:** | T-229 and T-230 |

SIHP #50-80-14-7190 consists of previously-identified subsurface salt pan remnants (including possible berms) located southwest (*makai*) of Halekauwila Street, between South and Keawe Streets within the West Kaka‘ako and Kaka‘ako Makai Geographic Zones (Figure 83). This archaeological cultural resource was first identified by Pammer et al. (2011) during an archaeological inventory survey for the Block 2 Parking Lot located between the HHCTCP alignment along Halekauwila Street and an additional HHCTCP utility corridor along Pohukaina Street, as well as a portion of the Civic Center Station footprint (Figure 84). SIHP #-7190 was also identified within T-229 and T-230 of the current City Center AIS.

Background information and historic maps indicate early historic salt production in Kaka‘ako and the use of salt pans. Captain Cook was the first to note the method of making salt in prepared salt pans.

> Amongst their arts, we must not forget that of making salt, with which we were amply supplied, during our stay at these islands, and which was perfectly good of its kind. Their saltpans are made of earth, lined with clay; being generally six or eight feet square, and about eight inches deep. They are raised upon a bank of stones near the high-water mark, from whence the salt water is conducted to the foot of them, in small trenches, out of which they are filled, and the sun quickly performs the necessary process of evaporation. . . . Besides the quantity we used in salting pork, we filled all our empty casks, amounting to sixteen puncheons, in the Resolution only. [Cook 1784:151]

An 1838 sketch by Auguste Borget titled “Honolulu Salt Pan, near Kaka‘ako,” illustrates long, linear salt pans adjacent to habitation structures (Figure 85).

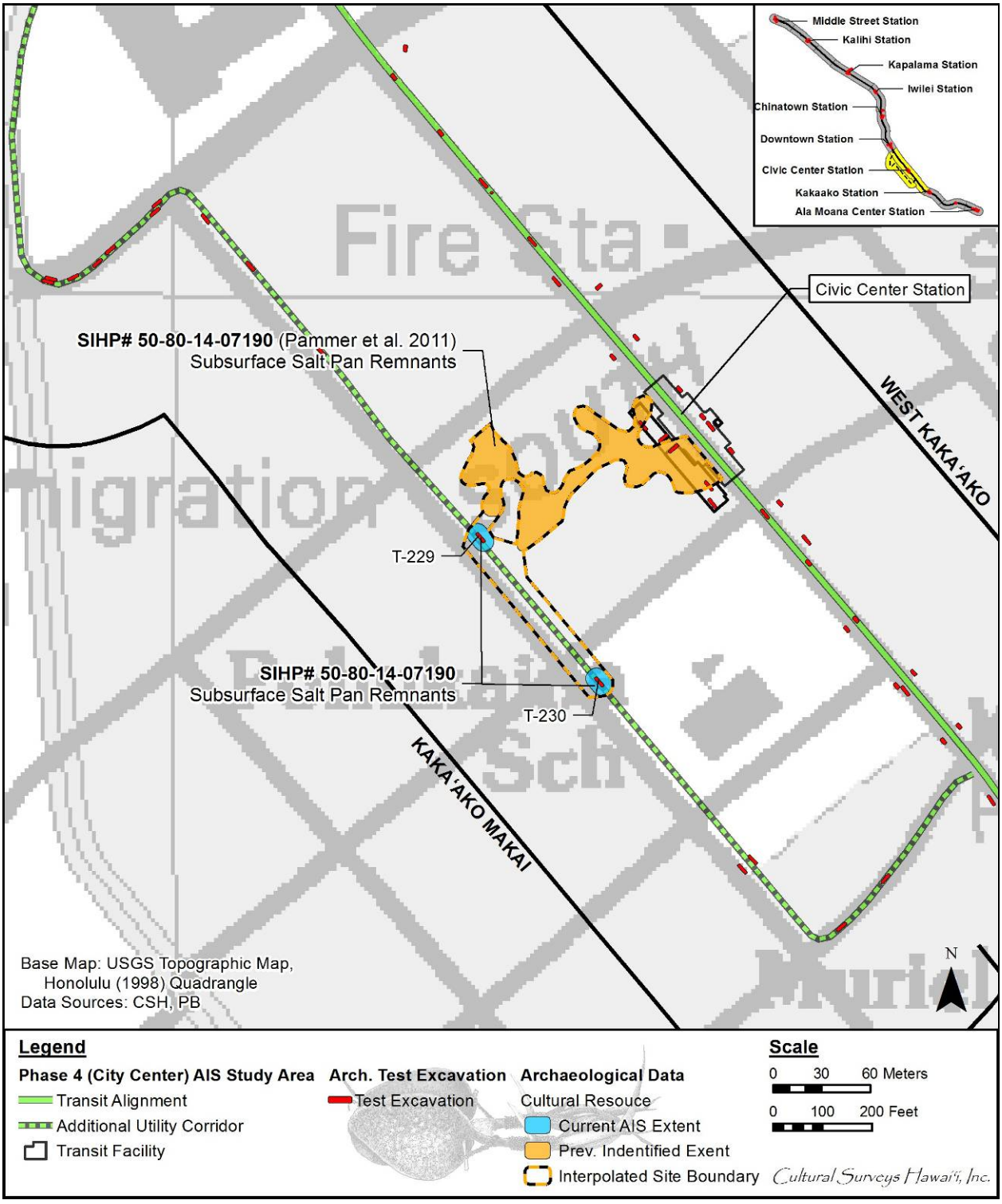


Figure 83. Location of SIHP #-7190 within the West Kaka‘ako and Kaka‘ako Makai Geographic Zones (base map: USGS 1998 Topographic Map of Honolulu Quadrangle)

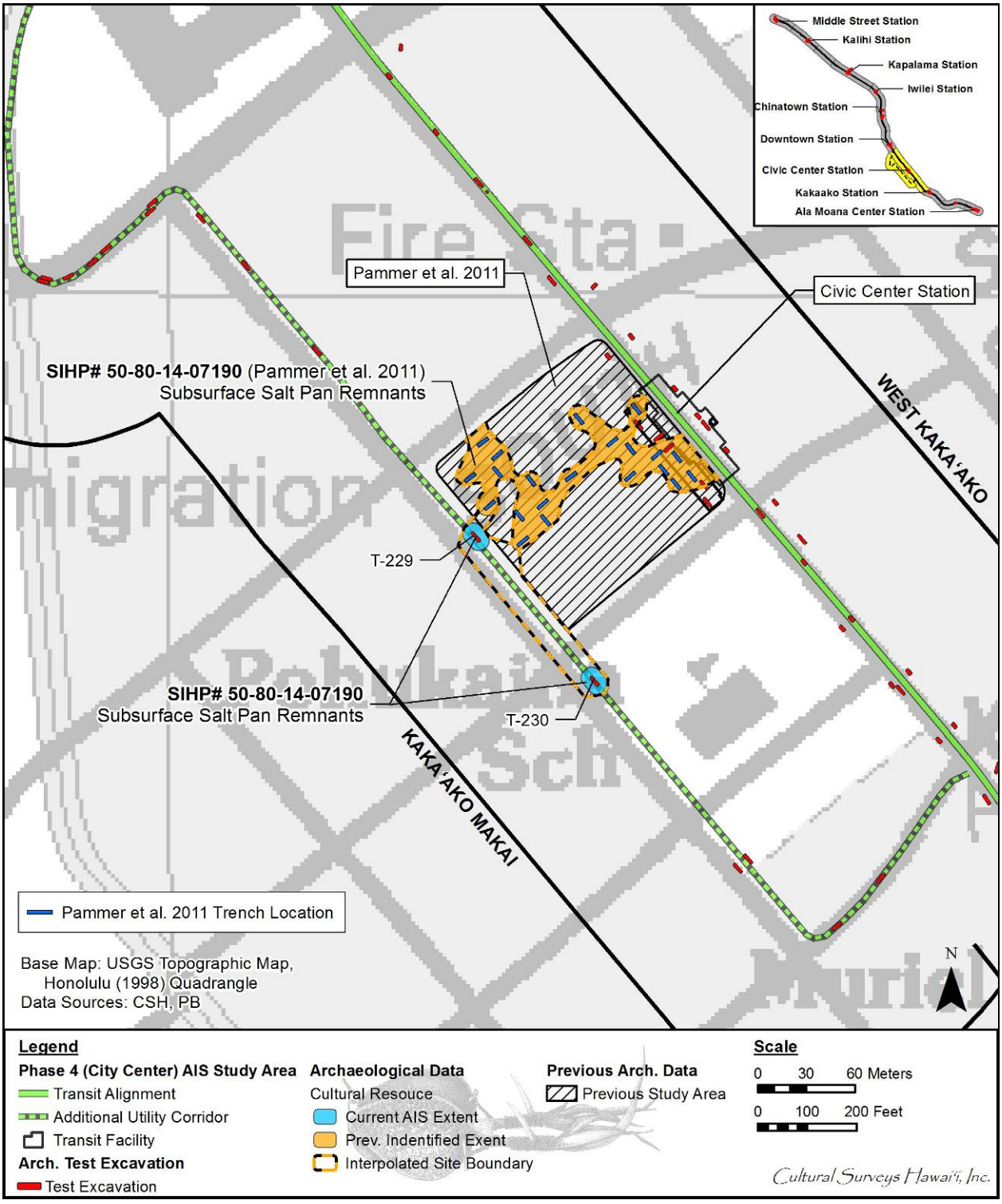


Figure 84. Location of SIHP #-7190 and the Pammer et al. (2011) study area within the West Kaka‘ako and Kaka‘ako Makai Geographic Zones (base map: USGS 1998 Topographic Map of Honolulu Quadrangle)

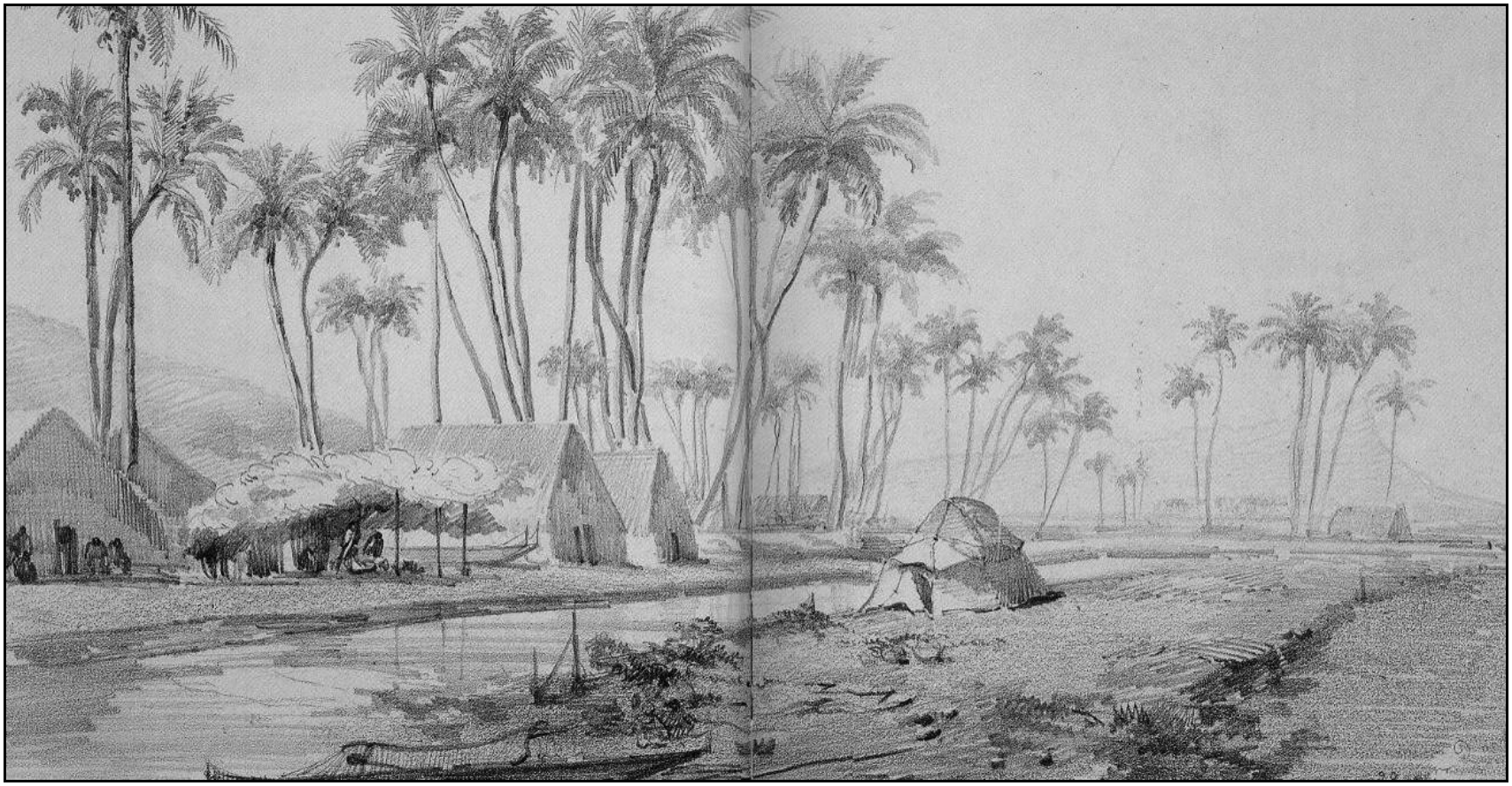

Figure 85. 1838 sketch of “Honolulu Salt Pan, near Kaka‘ako” drawn by a French visitor, Auguste Borget (original sketch at Peabody Essex Museum, Salem, Massachusetts; reprinted in Grant 2000:64-65)

The 1876 Lyons map of Honolulu depicts 17.6 acres of salt pans that include the majority of the SIHP #-7190 interpolated boundary (Figure 86). Salt pans also are depicted to the northwest and southwest of SIHP #-7190, indicating extensive salt production in the immediate vicinity. In an article on Hawaiian salt works, Thomas Thrum mentions a salt works in Kaka‘ako:

> Honolulu had another salt-making section in early days, known as the Kakaako salt works, the property of Kamehameha IV, but leased to and conducted by E. O. Hall, and subsequently E. O. Hall & Son, until comparatively recent years. This enterprise was carried on very much after the ancient method of earth saltpans as described by Cook and Ellis. [Thrum 1924:116]

Pammer et al. (2011) identified buried salt pan remnants in 21 of 78 test excavations (Figure 87 and Figure 88). The buried salt pan remnants were designated Stratum II in Trench 62; Stratum III in Trenches 11, 24, 25, 27, 28, 30, 47, 60, 63, 64, and 67; Stratum IIIa in Trench 42; Stratum IIIb in Trenches 8, 9, and 20; Stratum IIIc in Trench 45; and Stratum IV in Trenches 23, 44, 49, 61. The salt pan remnants occurred at depths ranging from approximately 1.3 mbs to 1.65 mbs.

The general depositional sequence within test excavations containing SIHP #-7190 consisted of hydraulic fill, and numerous fill strata related to historic and modern land reclamation and urban development atop a burnt trash deposit (SIHP #-7189), atop salt pan remnants (SIHP #-7190), atop the coral shelf and marine sand or lagoonal deposits. Trench 25 by Pammer et al. (2011) illustrates the general depositional sequence above and below the salt pan sediments designated SIHP #-7190 (Figure 89, Figure 90, and Table 23).

Pammer et al. (2011:239) described SIHP #-7190 as follows:

> SIHP #50-80-14-7190 consists of alternating layers of clay and peat, associated with the pre and post-contact salt pans previously located within the project area. The exact extent of SIHP #50-80-14-7190 is unclear, as the layer is broken and discontinuous, and it is likely that it extends outside of the project area boundary.
>
> This A-horizon was typically observed directly overlying the natural marine clay (gley) and commonly at the same level as the water table, if not slightly below it. The striations of clay and peat suggest that this area was repeatedly used as a land surface which was exposed long enough to accumulate organic debris before being covered with clay. Based on research of the project area, it is suggested that this A-horizon is the result of the repeated flooding, drying, scraping and removal of salt during salt production. The clay observed within the peat may have been deliberately placed on the bottom of the salt bed to prevent the salty water from soaking into the ground.

Pammer et al. (2011) reported that wet screening of samples collected from the peat portion of the salt pan remnants yielded organics including two terrestrial snail shells, rootlets, small seeds, and other miscellaneous plant material. They also indicated the small black seeds appeared to come from the *‘Akulikuli* plant or the *olonā* plant (*Touchardia latifolia*).

During the current City Center AIS, a natural silty clay deposit containing lenses of peat was identified within T-230 between 1.10 mbs and 1.37 mbs (Figure 91, Figure 92, and Table 24). T-230 was located approximately 76 meters southeast of the SIHP #-7190 cultural resource

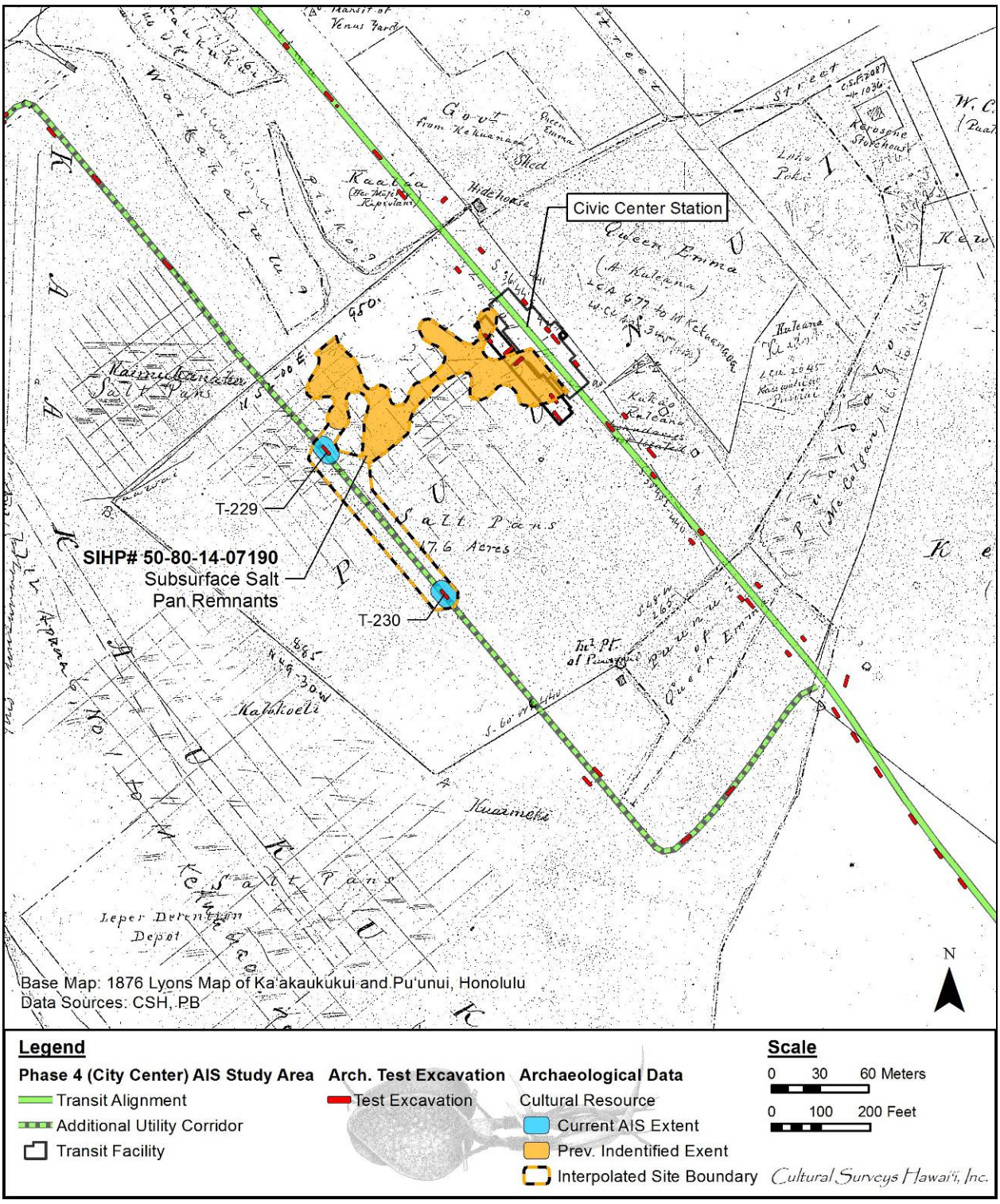


Figure 86. 1876 Lyons map of Honolulu showing salt pans within the SIHP #-7190 cultural resource boundary as well as within the surrounding area

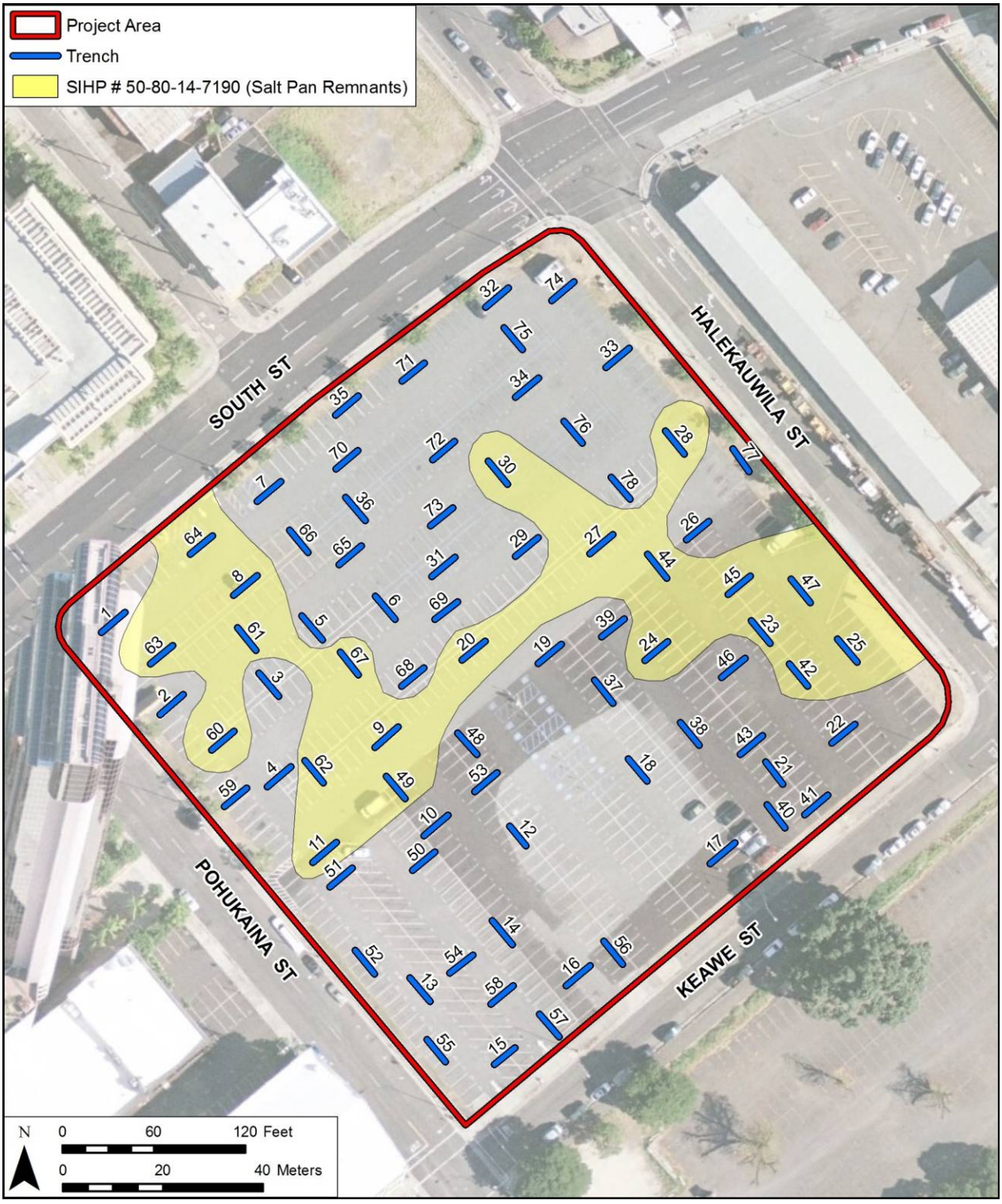


Figure 87. An aerial photograph (source: USGS Orthoimagery 2005) with an overlay of the estimated locations of SIHP #-7190 based on the Pammer et al. (2011, Vol. I:240) study

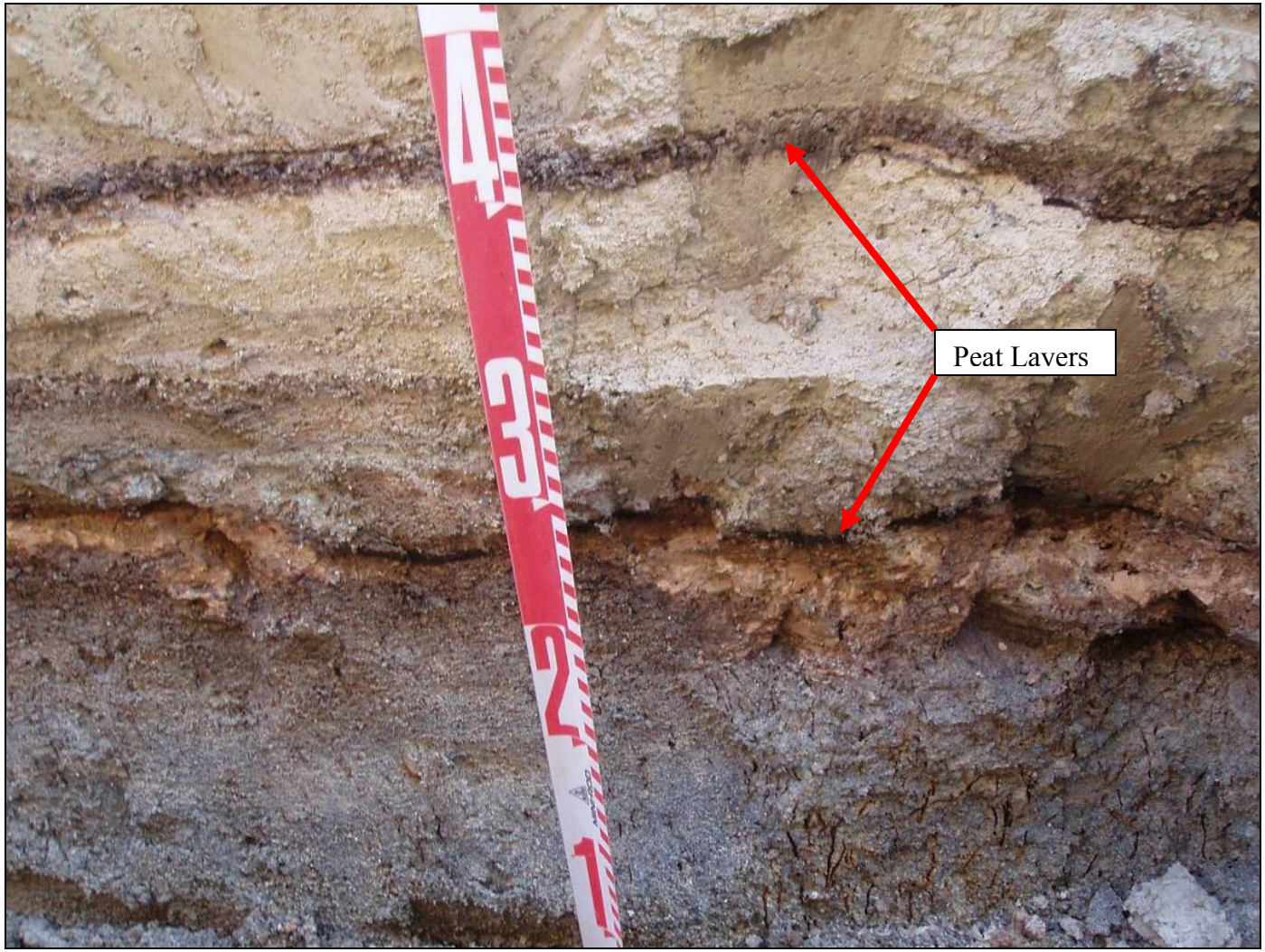


Figure 88. Representative photograph showing alternating clay and peat layers within Trench 45, view to northwest (Pammer et al. 2011, Vol. I:241)

Figure 89. Test Trench 25 southwest wall, view to northwest (Pammer et al. 2011,Vol. II:106)

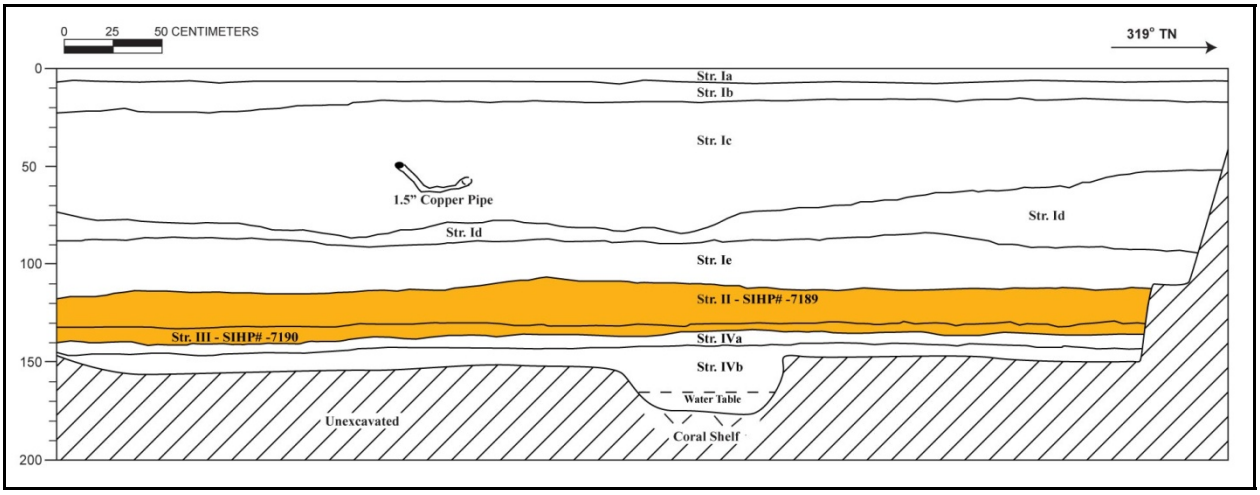


Figure 90. Pammer et al. (2011, Vol. II:104; color not in original) Test Trench 25 southwest wall profile, showing salt pan deposit (SIHP # -7190) overlying natural clay deposits (Strata IVa and IVb)

Table 23. Stratigraphic Description of Test Trench 25 (adapted from Pammer et al. 2011)

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-6 | Asphalt; 10 YR 5/1 gray; structureless (massive); extremely hard dry consistency; indurated cementation; non-plastic; terrestrial origin; very abrupt, smooth lower boundary. Surfacing for parking lot |
| Ib | 6-23 | Fill; 10 YR 6/1 gray asphalt; structureless (massive); dry extremely hard consistency; indurated cementation; non-plastic; terrigenous origin; abrupt, smooth lower boundary. Former asphalt surfacing |
| Ic | 15-86 | Fill; 10 YR 5/3 brown silty clay loam; weak, fine, crumb structure; dry hard, moist friable consistency; non-plastic; mixed origin; abrupt, wavy lower boundary. Grading fill contains crushed coral, gravel and modern construction and domestic debris |
| Id | 52-94 | Fill; 10 YR 8/2 very pale brown crushed coral and very coarse sand; structureless (single-grain); dry loose, wet loose consistency; non-plastic; marine origin; abrupt, wavy lower boundary. Marine based fill material |
| Ie | 86-118 | Fill; 10 YR 7/3 very pale brown sandy clay with multiple mottling of 10 YR 6/1 gray clay and 10 YR 7/6 yellow sand; structureless (single-grain); moist firm, wet sticky consistency; slightly plastic; marine origin; very abrupt, smooth lower boundary. Hydraulic fill likely associated with dredging of Honolulu Harbor area for covering over Kaka‘ako wetlands |
| II | 106-134 | Fill; 10 YR 3/2 very dark grayish brown ash, clay, and burnt debris; weak, fine, crumb structure; moist firm, wet sticky consistency; plastic; terrigenous origin; abrupt, smooth lower boundary. Burnt waste possibly from open air burned debris from 1920s; used as landfill material for covering over Kaka‘ako wetlands; component of SIHP # -7189 |
| III | 130-144 | A-Horizon; 10 YR 3/4 dark yellowish brown clay loam ‘peat’; weak, very fine, crumb structure; moist firm, wet slightly sticky consistency; non-plastic; mixed origin; diffuse, smooth lower boundary; contains high amount of fine roots. Possible former historic surface layer associated with the salt pans; component of SIHP # 7190 |
| IVa | 134-148 | Gley 2 4/5BG dark greenish gray clay; moderate, fine, crumb structure; moist firm, wet sticky consistency; plastic; marine origin; diffuse, smooth lower boundary. Natural marine deposited clay |
| IVb | 140-175 (BOE) | Gley 2 5/5BG greenish gray clayey sand; structureless (single-grain); moist very friable, wet non-sticky consistency; non-plastic; marine origin; abrupt, smooth lower boundary. Natural (marine) clayey sand deposit overlying hard coral shelf, groundwater level at 178 cmbs |


Figure 91. T-230, Stratum II clay and peat salt pan sediments (SIHP #-7190), view to northeast

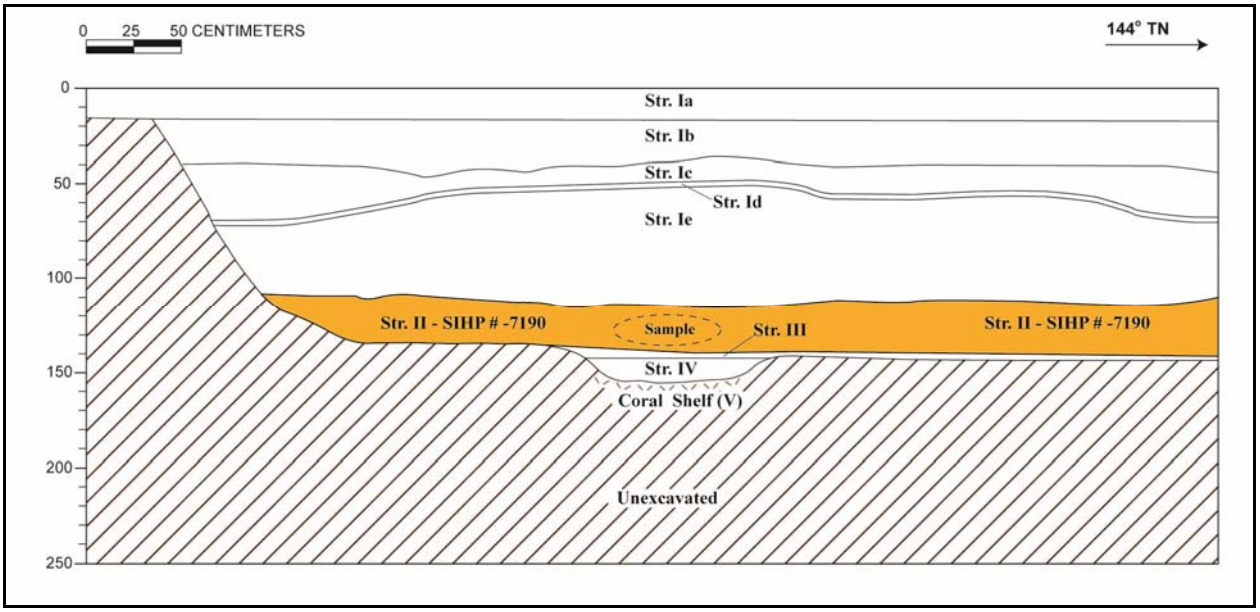


Figure 92. T-230 northeast wall profile, showing Stratum II salt pan sediments (SIHP #-7190)

Table 24. 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 and clay; component of 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; 10 YR 7/4 (very pale brown); bedrock-limestone; structureless, massive; moist, weakly to strongly cemented; discontinuous consistency; non-plastic; marine origin; lower boundary not observed; decomposing coral; Pleistocene coral shelf |

boundary established by Pammer et al. (2011) (see Figure 84). The silty clay with lenses of peat was designated Stratum II. This marshy deposit overlies marine sand (Stratum III) and the underlying decomposing coral shelf (Stratum IV) and coral shelf substrate (Stratum V). Numerous fill strata (Stratum Ia-Ie) overlie Stratum II. Stratum II of T-230 is consistent with the salt pan remnants described by Pammer et al. (2011).

During the current City Center AIS, a berm of sandy clay with root inclusions was identified within T-229 between 0.78 mbs and 1.35 mbs (Figure 93, Figure 94, and Table 25). T-229 was located approximately 15 m southwest of the SIHP #-7190 cultural resource boundary established by Pammer et al. (2011) (see Figure 84). The sandy clay berm was designated Stratum II and was observed overlying the coral shelf substrate (Stratum III). Asphalt and numerous fill strata (Stratum Ia-Ih) were observed overlying Stratum II. The sandy clay berm within T-229 is interpreted as a remnant salt pan-berm.

The silty clay with lenses of peat (Stratum II) in T-230 and the berm of sandy clay with root inclusions (Stratum II) in T-229 have been included within SIHP # 50-80-14-7190, the previously-identified remnants of salt pans first identified by Pammer et al. (2011). The 1876 Lyons map of Honolulu depicts salt pans present in the location of T-229 and in close proximity to T-230 (see Figure 86). The silty clay with lenses of peat (Stratum II) within T-230 is similar to the “alternating layers of clay and peat” described by Pammer et al. (2011:239) as evidence of repeated salt pan use. The depositional sequence and location of the salt pan remnants in the stratigraphic column are similar in T-229, T-230, and the Pammer et al. (2011) study. T-229 and T-230 have been combined into SIHP #-7190 based on historic documentation of salt pans in the vicinity of both test excavations and similarities to the findings of Pammer et al. (2011) including sediment description and depositional sequence.

SIHP # 50-80-14-7190 consists of previously-identified subsurface salt pan remnants identified in 21 test excavations during the Pammer et al. (2011) study and in two test excavations (T-229 and T-230) during the current City Center AIS. The salt pan remnants include alternating layers of clay and organic peat and one sandy clay berm. SIHP #-7190 was identified at depths ranging from 1.3 mbs to 1.65 mbs during the Pammer et al. (2011) study and between 0.78 mbs and 1.37 mbs during the current City Center AIS. Multiple fill strata were observed overlying the salt pan remnants including burnt trash fill and hydraulic fill strata associated with historic land reclamation as well as urban development. The salt pan remnants occur above the water table and overlie natural marine sediments and the coral shelf.

Based on the guidance of National Register Bulletin No. 15, SIHP # 50-80-14-7190 retains its integrity of location, materials, and workmanship. SIHP # 50-80-14-7190 was previously determined eligible to the Hawai‘i Register under Criterion 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 City Center AIS, and in consultation with the SHPD, CSH recommends that SIHP # 50-80-14-7190 does not possess significance under Criterion A of either the Hawai‘i or National Registers. The salt pan remnants have been altered by historic and modern land reclamation and urban development activities. Accordingly, CSH recommends that this cultural resource maintains integrity to support historic significance only under Criterion D of the Hawai‘i Register and recommends eligibility to the National Register under Criterion D, exclusively for its information potential.

Figure 93. Photograph of T-229, showing possible salt pan berm (component of SIHP #-7190)

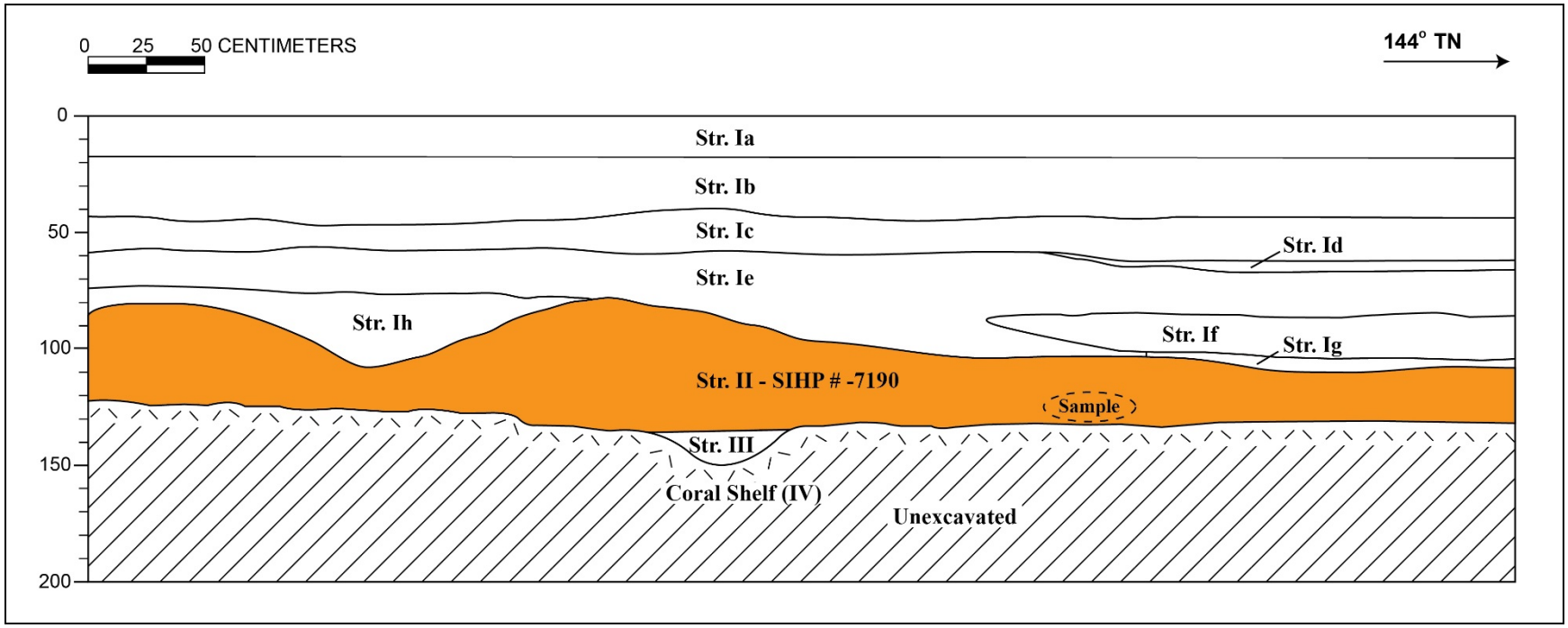


Figure 94. T-229 profile, showing a possible salt pan berm (Stratum II) designated as a component of SIHP #-7190

Table 25. Stratigraphic Description for Northeast Profile in T-229

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-17 | Asphalt |
| Ib | 17-47 | Fill; basalt gravel; single-grain structure; abrupt, smooth lower boundary; base course |
| Ic | 40-63 | Fill; 10 YR 3/1 (very dark gray); gravelly sandy loam; structureless, single-grain; moist, very friable consistency; non-plastic; mixed origin; clear, smooth lower boundary; contained charcoal, glass and ceramic fragments, red brick; gravel and cobble inclusions, consisted of coral and basalt |
| Id | 63-68 | Fill; 10 YR 2/1 (black); structureless; burned layer; moist, very friable consistency; non-plastic; terrigenous origin; abrupt, broken/ discontinuous lower boundary; similar texture to trash layer observed in T-232 |
| Ie | 60-104 | Fill; 10 YR 3/3 (dark brown); sandy clay loam; weak, fine, blocky structure; friable consistency; slightly plastic; mixed origin; clear, wavy lower boundary; contained red brick; contained small coral boulders, cobbles, and gravel |
| If | 85-105 | Fill; 10 YR 5/6 (yellowish brown) with 40%, small mottles 10 YR 3/3 (dark brown); extremely cobbly stony sandy silt; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; clear, smooth lower boundary; contained coral cobbles and small boulders, red brick, glass and ceramic fragments |
| Ig | 100-110 | Fill; GLEY 1 3/5GY (very dark greenish gray); sandy clay; massive structure; slightly sticky consistency; plastic; terrigenous origin; clear lower boundary; contained charcoal/incinerated inclusions; interface with incinerated fill layers with natural gley clay |
| Ih | 73-107 | Fill; 2.5 Y 4/3 (olive brown) with 50% very large mottles of 7.5 YR 8/2 (pinkish white), 5% mottles of GLEY 1 3/2 (very dark grayish green clay), and 5% mottles of 5 YR 4/6 (yellowish red); clay loam sandy clay; moderate, medium, blocky structure; wet, slightly stick consistency; plastic; mixed origin; abrupt lower boundary; contained wood, 2 pieces of metal pipe; fill surrounding old pipe containing coral cobbles and boulder, and burn wood; GPR read-out showed old excavation, likely for pipe |
| II | 78-135 | Natural; 2.5 Y 6/2 (light grayish brown) with mottles of GLEY 1 6/5GY (greenish gray); sandy clay; structureless, massive; moist, firm consistency; plastic; marine origin; clear, broken/discontinuous lower boundary; possible sand berm, natural layer overlying coral shelf with organic (roots) inclusions; component of SIHP #-7190 |
| III | 135-148 | Natural, C-horizon; 2.5 Y 6/2 (light grayish brown); decomposing coral shelf; structureless, massive; indurated consistency; non-plastic; marine origin; lower boundary not visible; coral shelf-level |

SIHP # 50-80-14-7190 has provided information, and can potentially provide additional information, related to the construction, content, and distribution of buried salt pan remnants within Kaka‘ako. The potential for additional research of SIHP # 50-80-14-7190 warrants the implementation of a data recovery program. Data recovery will emphasize further identification of the buried salt pans including a long, linear excavation within the interpolated boundary of SIHP #-7190. This linear excavation will serve to potentially expose, in profile or cross-section, the full hozizontal extent of one or more salt pans including associated raised berms (or partitions) and interior central pans or depressions. The salt pan topography exposed in the excavation walls will be mapped in detail and photographed. Data recovery also will include intensive sampling of salt pan sediments, including separate sampling of alternating layers of clay and peat. Sampling will include the collection of sediment column samples and/or sediment cores that will be incrementally partitioned (1-3 cm increments) and submitted for radiocarbon, palynological analysis, and resistivity testing. The radiocarbon data and/or palynological analysis will be used to interpret the age, content, and duration of use of the salt pan remnants comprising SIHP # 50-80-14-7190. Column samples submitted for resistivity testing will represent the uppermost, middle, and lowermost sections of salt pan sediments and, where possible, separate testing of clay and peat sediments. The uppermost, or evaporative surface, of the salt pan sediments are expected to yield a higher salinity content than the middle and lowermost sections. Following the data recovery program, an archaeological monitoring program at SIHP # 50-80-14-7190 is recommended. Archaeological monitoring will involve recovery of additional data on the depositional sequence and extent of SIHP # 50-80-14-7190 as well as of any exposed raised berms, partitions, or stratigraphic anomalies.

**SIHP # 50-80-14-7427**

| | |
|---|---|
| **FORMAL TYPE:** | Subsurface infrastructure remnants, cultural deposits, human skeletal element |
| **FUNCTION:** | Habitation and commercial infrastructure |
| **PREVIOUS DOCUMENTATION** | N/A |
| **AGE:** | Post-Contact |
| **NUMBER OF FEATURES:** | 14 |
| **TYPES OF FEATURES:** | 12 buried structural remnants, 1 historic refuse pit, and 1 human talus bone |
| **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:** | TMK [1] 1-5-002:026; and [1] 1-5-002 (Nimitz Highway ROW por.) |
| **LAND JURISDICTION:** | City and County of Honolulu |
| **TEST EXCAVATIONS:** | T-096 through T-101 and C-1 through C-6 |

SIHP #50-80-14-7427 is a newly-identified cultural resource consisting of subsurface infrastructure remnants, cultural deposits, and a human skeletal element located 3 m east of Nimitz Highway near the Kekaulike Street intersection (Figure 95). The cultural resource includes archaeological features and deposits that were identified within six test excavations (T-096 through T-101) and six geotechnical test bores (C-1 through C-6) dug within the Chinatown Transit Station footprint (Figure 96).

The depositional sequence observed throughout SIHP #-7427 generally consists of a buried late Pleistocene calcareous reef (coral reef) identified at the base of T-096, T-097, C-1, and C-3 through C-6. Natural sandy loam or clay loam sediment was observed overlying the coral shelf within T-096 and T-097, at the base of excavation within T-100 and T-101, and at or above the water table within each of the cores (C-1 through C-6). The natural sediment was designated Stratum II within each of the test excavations except within T-097 where the sediment is sub-divided into Stratum II (previously-disturbed upper portion) and Stratum III (in situ lower portion).

Multiple fill strata overlie the natural sediment in each of the test excavations (T-096 through T-101) and cores (C-1 through C-6), ranging from four fill deposits within T-098 and T-099 to eleven fill deposits within T-100. Three of the fill strata (Id, If, and Ii in T-096) were identified as culturally-enriched deposits and were considered, along with the natural sediment, to be components of SIHP #-7427. In addition, the 14 archaeological features (1–14) identified within fill deposits above the natural sediment were designated as components of SIHP #-7427. These features consist of 12 historic structural remains (mainly concrete slabs, walls, and foundation remnants), 1 historic refuse pit, and 1 human skeletal element.

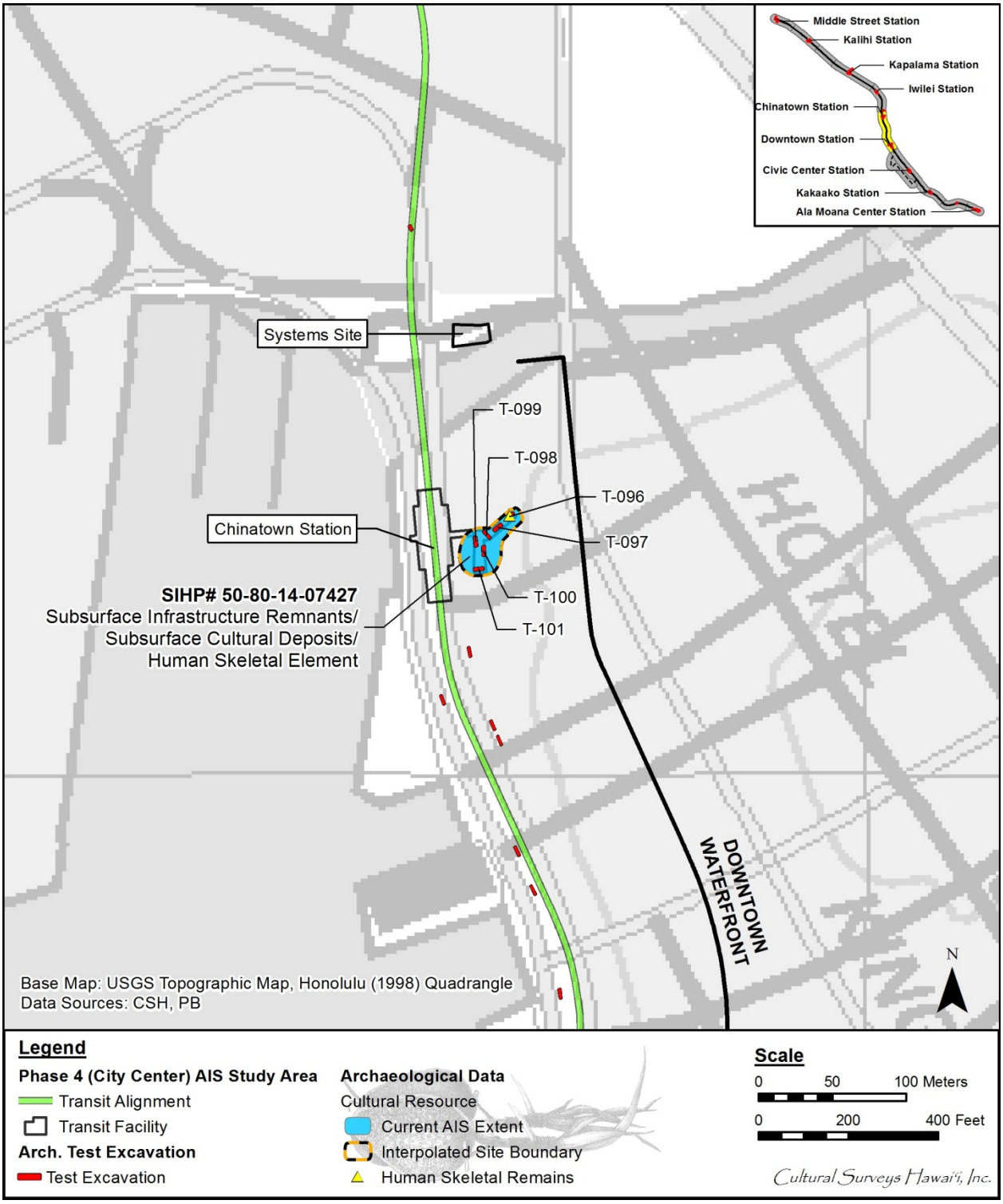


Figure 95. Location of SIHP # -7427 within the Chinatown Transit Station footprint (Base Map: 1998 USGS Topographic Map of Honolulu)

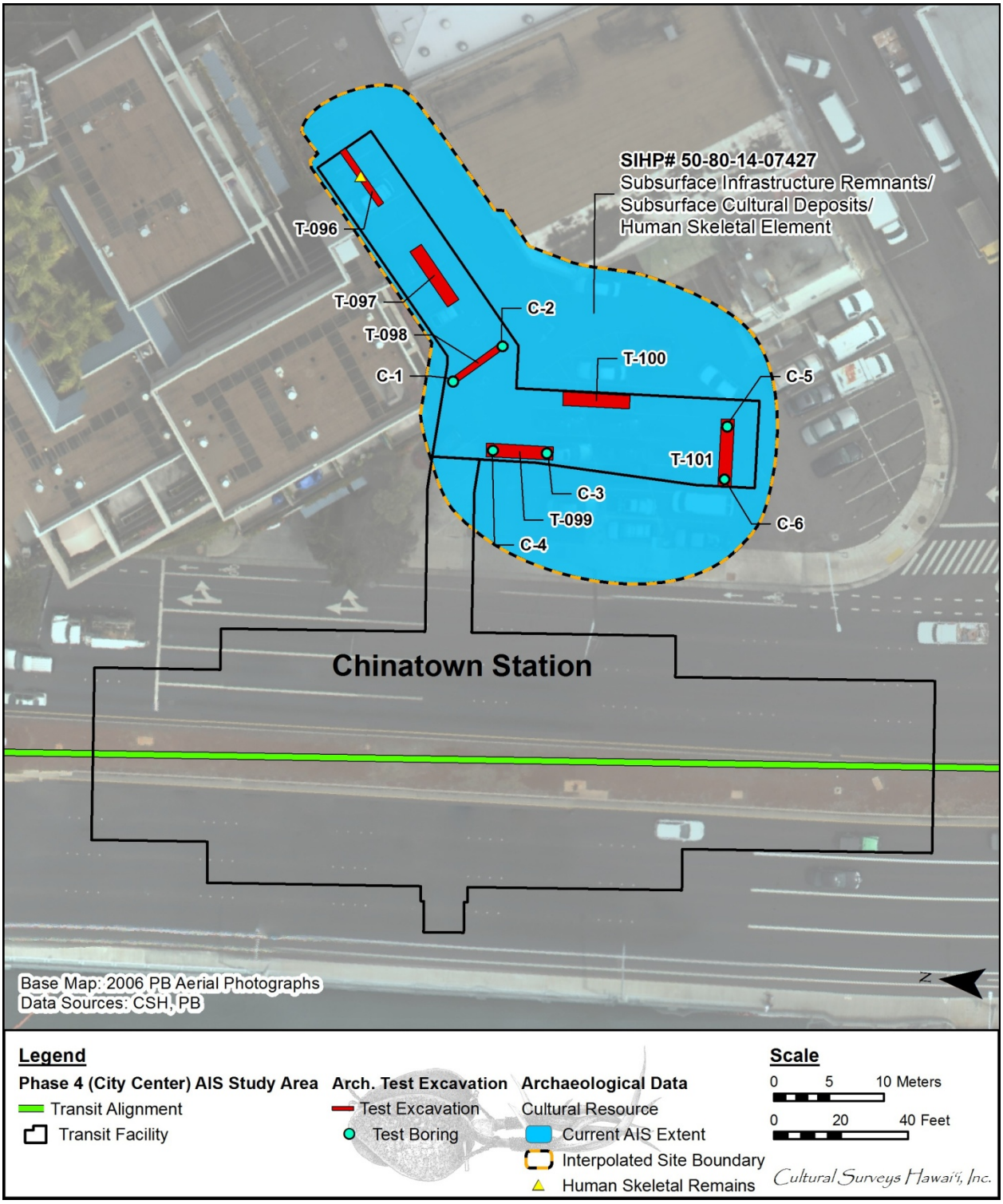


Figure 96. Location of the test excavations (T-096 through T-101) and geotechnical test bores (C-1 through C-6) where SIHP # -7427 was identified within Chinatown Transit Station footprint (Base Map: 2006 PB Aerial Photograph)

In T-096, SIHP #-7427 consists of the natural sediment (Stratum II), three culturally-enriched fill strata (Id, If, and Ii), two structural features (Features 1 and 2) and a single human skeletal element (Feature 3). Feature 1 (wall and foundation remnant) predates Stratum Ig and may be contemporaneous with Stratum Ih, however the base of the wall was not fully exposed. Feature 2 was identified within the culturally-enriched Stratum Id, while Feature 3, found in the backdirt, is believed to be from Stratum If.

In T-097, SIHP #-7427 consists of the natural sediments (Strata II and III) and four structural features (Features 4–7). Feature 4 (wall and slab) is founded in Stratum Ie and appears to have been constructed immediately atop Feature 6. Feature 5 (slab) abuts the Feature 4 wall, postdates deposition of Stratum Ie, and thus appears to postdate Feature 4. Feature 6 (slab) possibly was constructed atop Stratum II, however the base of the slab was not fully exposed. Feature 7 (wall and slab) may have been constructed during deposition of Stratum If, but this is uncertain as the base was not fully exposed.

In T-098, SIHP #-7427 consists only of a single structural feature (Feature 8). Although assumed present, excavation was terminated prior to exposing the natural sediment in T-098. Feature 8 consists of two components, a concrete wall remnant and a concrete slab remnant. The wall appears to predate the slab remnant, having been constructed possibly prior to the initial deposition of Stratum Ie. In contrast, the concrete slab is founded in the upper Stratum Ie deposit.

In T-099, SIHP #-7427 consists of a single structural feature (Feature 9). Like T-098, excavation was terminated prior to exposing the natural sediment. Feature 9 consists of a concrete slab and a concrete block that sits atop a possibly uplifted section of the slab. Along its length, several fill strata (Ie-Ig) underlie the concrete slab.

In T-100, SIHP #-7427 consists of natural sediment (Stratum II) and three structural features (Features 10–12). Feature 12 (basalt pavement) predates Features 10 (slab) and 11 (drainage channel). Feature 12 was constructed during the deposition of Stratum Ig. Feature 11 was constructed during deposition of Stratum Ie and predates Feature 10 which is situated in the upper portion of Stratum Ie.

In T-101, SIHP #-7427 consists of natural sediment (Stratum II), one structural element (Feature 13), and a large infilled trash pit (Feature 14). Feature 13 (slab) underlies Stratum Ib, the base course below the modern asphalt parking surface (Stratum Ia). Feature 14 is intrusive into the natural sediment (Stratum II) and likely was truncated by later fill strata Ie and Ic.

In Cores C–1 through C–6, SIHP #-7427 consists only of natural sediment (Stratum II). These six geotechnical test bores were drilled near the west (C–1) and east (C–2) ends of T-098, the south (C–3) and north (C–4) ends of T-099, and the east (C–5) and west (C–6) ends of T-101 (Figure 102 and Table 28). No structural remnants were identified and the diameter of the cores was too small to identify possible culturally-enriched fills below the upper “drill through” section. The culturally-enriched natural sediment (SIHP #-7427) and additional fill deposits were also documented

The culturally-enriched natural sediment (SIHP #-7427) within T-096, T-097, T-100, T-101, and Cores C–1 through C–6 contained both traditional Hawaiian and historic artifacts, faunal remains, shell midden, and charcoal. The artifacts collected during excavation consist of four pieces of volcanic glass debitage, one bone net mender, one boar tusk ornament, six Asian and

Euro-American ceramic fragments, and 17 bottle glass fragments from T-096; one basalt adze flake, four basalt flakes, and a complete spirits bottle with an applied lip from T-100; and three Asian and Euro-American ceramic fragments and eight bottle/bottle fragments from T-101. Artifacts collected from the Stratum II bulk sediment samples consist of ceramic fragments (T-096 and T-097) and bottle glass fragments (T-097). The bulk samples collected from the natural sediment also yielded shell midden and charcoal. Faunal remains collected from Stratum II of T-096 include *Sus scrofa, Canis lupus familiaris,* and other medium mammal skeletal elements. Faunal remains collected from the Stratum II/III interface of T-097 consisted of *Equus ferus caballus*.

The three culturally-enriched fill strata designated as components of SIHP #-7427 consist of Strata Id, If, and Ii in T-096. Stratum Id occurs below the modern asphalt surface (Ia) and gravel base course (Ib); a crushed coral grading fill (Ic) is present within the boundaries of Id. It is identified as dark gray (2.5 Y 4/1) very gravelly sandy loam containing historic artifacts and architectural and a single structural remnant, a poured concrete slab (Feature 2). The architectural items collected from Stratum Id consist of red, yellow, and tan-yellow machine-made bricks, a large possible iron spike, and machine-cut nail fragments. Also collected was a ceramic architectural item fragment.

Stratum If in T-096 immediately underlies fill Stratum Ie, a gravelly sandy loam, and overlies fill Stratum Ig, a gravelly silty loam, and a portion of fill Stratum Ih, a silty clay loam. No structural remains were identified within Stratum If which contained historic artifacts and debris, and a single human talus bone (Feature 3). Although not collected, the artifacts and debris were recorded as including ceramic and glass fragments, as well as nails and burnt inclusions. The human skeletal element, found in the backdirt, is believed to be from the Stratum If deposit. Because of this probable association, fill Stratum If was designated as a culturally-enriched deposit and as a component of SIHP #-7427.

Stratum Ii in T-096 underlies fill Stratum Ih, a silty clay loam, and overlies both portions of fill Stratum Ij, a very gravelly loam, and Stratum II, natural gravelly sandy loam. Fill Stratum Ii contained both historic artifacts and mammal faunal remains suggestive of habitation or possible commercial activities (e.g., grocery, butchery). The artifacts collected from Stratum Ii include two Euro-American yellowware vessel fragments, one undecorated whiteware vessel fragment, and two Chinese porcelain vessel fragments. Also collected are 17 fragments from amber, clear, and dark olive bottles. The artifacts date from the late nineteenth to early twentieth century. Faunal remains collected from Stratum Ii include *Canis lupus familiaris, Sus scrofa, Bos taurus* and medium mammal skeletal elements.

The fourteen features (Features 1–14) identified as components of SIHP #-7427 consist of 12 historic building foundations, 1 historic refuse pit, and 1 human talus bone (Table 29). These features are briefly described in numerical order below.

**SIHP #-7427 Feature 1** is a structural remnant identified in T-096 between 0.30 mbs and 1.10 mbs. Although the base was not exposed, this feature appears to correlate with the deposition of the lower portion of fill Stratum Ih. SIHP #-7427 Feature 1 consists of the following three components: (1) two courses of mortared, machine-made red brick overlying and secured to (2) a poured concrete foundation that overlies (3) dry-laid basalt boulders (Figure 103). The exposed portion measured more than 1.4 m long by more than 0.15 m wide. This structural remnant

extended into the northwest sidewall of the excavation. SIHP #-7427 Feature 1 is a possible late nineteenth century building foundation.

**SIHP #-7427 Feature 2** is a structural remnant identified in T-096 between 0.27 mbs and 0.43 mbs. This poured concrete slab occurs within culturally-enriched Stratum Id, a very gravelly sandy loam fill. Stratum Id was designated a component of SIHP #-7427. The exposed portion of the slab measured over 2.33 m in length and more than 0.65 m in width. It extended into both the northwest and southeast side walls. SIHP #-7427 is a possible building floor, walkway, or foundation remnant, believed to date to the late 1800s or early 1900s.

**SIHP #-7427 Feature 3** is an isolated human talus bone identified during excavation within the backfill pile from T-096. The talus bone was estimated to have originated from approximately 0.70 mbs – possibly from a gravelly sandy loam layer (Stratum If). The artifacts observed but not collected from Stratum If include nails, small ceramic vessel sherds, and bottle glass fragments; as noted above, fill Stratum If was designated a component of SIHP #-7427 due to the presence of the human skeletal element.

**SIHP #-7427 Feature 4** is a structural remnant identified within T-097. This structural remnant consists of two components. The upper portion is a mortared, machine-made red brick wall, while the lower portion is a poured concrete slab. In turn, the lower portion of SIHP #-7427 Feature 4 sits directly atop a second concrete slab designated SIHP #-7427 Feature 6. The base of SIHP #-7427 Feature 4 (concrete slab) dates to the deposition of Stratum Ie. The exposed portion of the structural remnant components collectively measured 0.91 m in length and 0.20 m in width. The feature continues into the southeast sidewall. A machine-made brick fragment collected from Feature 4 dated from the 1918 to 1978 period. Feature 4 is a possible building foundation.

**SIHP #-7427 Feature 5** is a structural remnant identified within T-097. This structural remnant consists of a poured concrete slab that abuts the upper brick wall portion of SIHP #-7427 Feature 4 (Figure 106). The exposed portion of the slab measured 3.23 m long by more that 1.22 m wide; the slab extended beyond the width of the test excavation. SIHP #-7427 Feature 5 is a possible building floor or foundation.

**SIHP #-7427 Feature 6** is a structural remnant identified within T-097. Although the base of this poured concrete slab was not exposed, this structural remnant likely was constructed atop the culturally-enriched natural sediment (Stratum II; SIHP #-7427). The exposed portion of the slab measured 1.47 m long by more than 1.22 m wide; the slab extended beyond the width of the test excavation. SIHP #-7427 Feature 6 is a possible building foundation.

**SIHP #-7427 Feature 7** is a structural remnant identified within T-097. Although the base of the lower portion was not exposed, SIHP #-7427 Feature 7 appears to date to Stratum If. The feature consists of two components, the upper is two courses of dry-stacked subangular cobbles, while the lower consists of a basalt slab (Figure 108). The exposed portion measured more than 0.87 m long by more than 1.22 m wide. The remainder extended beyond the width of the excavation and into the southern end of T-097. SIHP #-7427 Feature 7 is a displaced remnant of a possible building foundation.

**SIHP #-7427 Feature 8** is a structural remnant identified within T-098. It consists of a poured concrete slab and a nearby concrete wall (Figure 109). The concrete slab occurs within the upper

portion of Stratum Ie between 0.60 mbs and 0.75 mbs. The base of the concrete wall was not reached at the base of excavation at 1.05 mbs. The wall extends to at least the lower portion of Stratum Ie, possibly earlier. It remains unknown whether the slab and wall remnants are components of a single building. SIHP #-7427 Feature 8 is a possible building floor and foundation wall.

**SIHP #-7427 Feature 9** is a structural remnant identified within T-099. It consists of a concrete slab and a concrete block that overlies an uplifted section of the slab (Figure 110). The slab overlies several fill strata, the lowest of which is Stratum Ig, while the concrete block is overlain only by Stratum Ia, the modern asphalt parking lot surface. The exposed portion measured over 6.10 m long and 1.22 m wide; the feature extended beyond the T-099 excavation in all directions. SIHP #-7427 Feature 9 is a possible building foundation.

**SIHP #-7427 Feature 10** is a structural remnant identified within T-100. This poured concrete slab dates to the upper deposition of fill Stratum Ie (Figure 111). It postdates both SIHP #-7427 Feature 11 (drainage channel) also founded in Stratum Ie and SIHP #-7427 Feature 12 (basalt pavement) founded in underlying fill Stratum Ig. The exposed portion of SIHP #-7427 measured over 2.74 m long by more than 1.24 m wide; the feature extended beyond the T-100 excavation in all directions. SIHP #-7427 Feature 10 is a possible building foundation.

**SIHP #-7427 Feature 11** is a structural remnant identified within T-100. This poured concrete drainage channel predates SIHP #-7427 Feature 10, also founded in fill Stratum Ie, and postdates SIHP #-7427 Feature 12 identified in underlying fill Stratum Ig (Figure 112). The concrete drainage channel measured 0.15 m long by over 1.24 m wide; it continued beyond the width of the test excavation. SIHP #-7427 Feature 11 is a former building drainage channel.

**SIHP #-7427 Feature 12** is a structural remnant identified within T-100. It is identified as a mortared, cut basalt pavement exposed in fill Stratum Ig (Figure 113). It predates SIHP #-7427 Features 10 (concrete slab) and 11 (concrete drainage channel), both exposed in overlying fill Stratum Ie. The exposed portion of SIHP #-7427 Feature 12 measured over 0.29 m long by 0.26 m wide; the pavement extened into the west excavation sidewall. SIHP #-7427 Feature 12 is a possible building foundation, floor, or walkway.

**SIHP #-7427 Feature 13** is a structural remnant identified within T-101. This concrete slab was overlain by Strata Ia (modern asphalt pavement) and Ib (base course). This small exposed poured concrete slab remnant overlies fill Stratum Id in the southern portion of T-101 (Figure 114). The exposed slab remnant measured over 1.80 m long by 1.20 m wide; it extended beyond the width of the excavation and into the southern wall. SIHP #-7427 Feature 13 is a possible building foundation.

**SIHP #-7427 Feature 14** is a historic refuse pit identified within T-101 between 0.60 and 1.15 mbs (Figure 115, Figure 116, and Table 30). SIHP #-7427 Feature 14 is intrustive into the natural sediment (Stratum II; SIHP #-7427). The upper limits of SIHP #-7427 Feature 14 likely was truncated by both fill Strata Ic and Ie. The exposed portion of the historic refuse pit measured 2.91 m long by over 1.20 m wide; it extended beyond the width of the test excavation. Historic artifacts collected above the feature from within Stratum Ic included an aqua bottle fragment with a possible Asian character stamped on the base. Historic artifacts observed within Stratum Ie, also above the pit, included red brick, charcoal, and faunal bone, of which only the

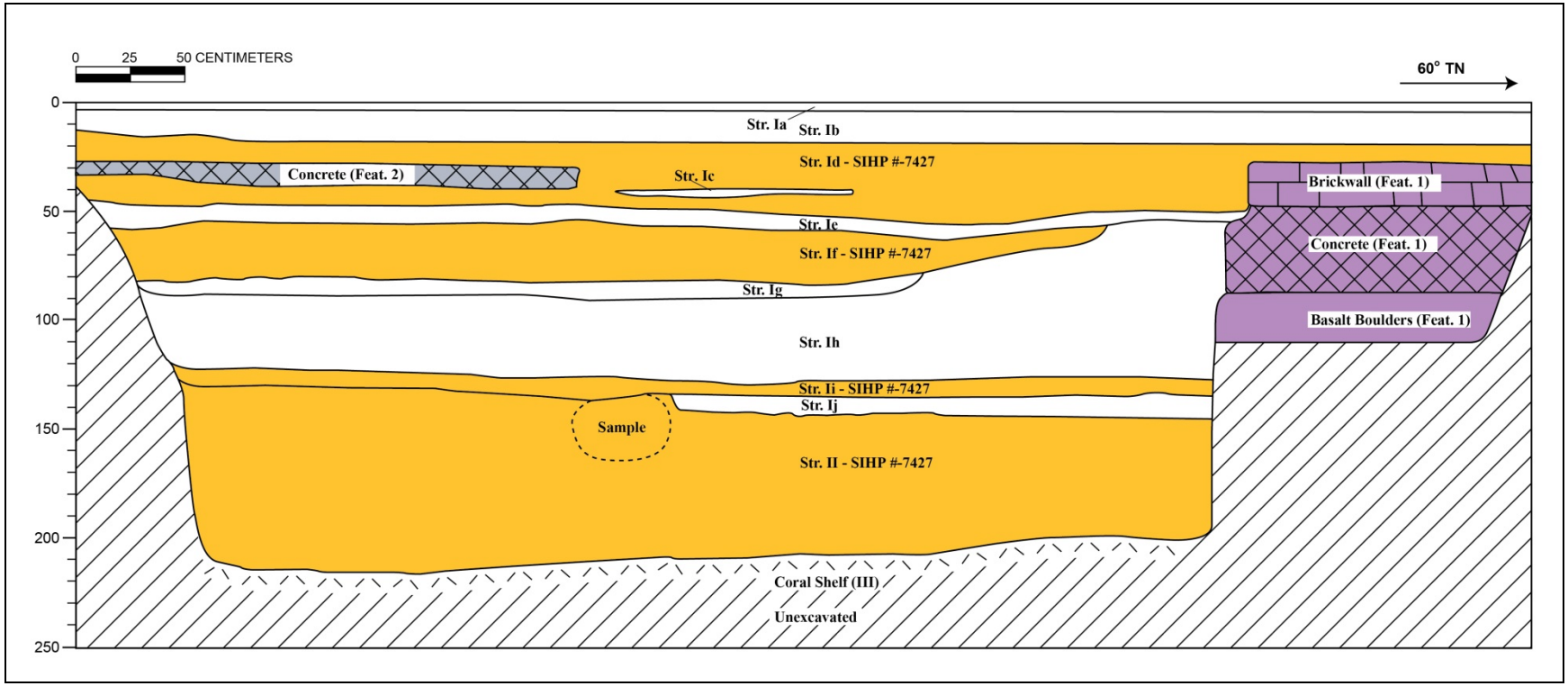


Figure 97. T-096 northwest wall profile

Table 26. T-096 Stratigraphic Description, northwest wall

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-3 | Asphalt |
| Ib | 3-20 | 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 | 35-40 | Fill; 2.5 Y 8/1 (white); very gravelly loam; weak, medium, blocky structure; moist, friable consistency; non-plastic; mixed origin; abrupt, broken/discontinuous lower boundary; crushed coral grading fill with concrete fragments |
| Id | 20-46 | Fill; 2.5 Y 4/1 (dark gray); very gravelly sandy loam; weak, fine, crumb structure; moist, loose consistency; non-plastic; mixed origin; abrupt, broken/discontinuous lower boundary; contained concrete and brick wall structures (SIHP #-7427 Feature 1), and concrete slab in southwest end (SIHP #-7427 Feature 2) |
| SIHP #-7427 Feature 2 | 27-43 | Concrete slab; SIHP #-7427 Feature 2 |
| Ie | 46-55 | Fill; 2.5 Y 8/1 (white); very gravelly loam; week, medium, blocky structure; moist, friable consistency; non-plastic; mixed origin; abrupt, broken/discontinuous lower boundary; crushed coral fill |
| If | 55-81 | Fill; 2.5 Y 4/1 (dark gray); gravelly sandy loam; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; abrupt, broken/discontinuous lower boundary; contained nails, and very small glass and ceramic fragments (not collected); |
| SIHP #-7427 Feature 3 | ~70 | A single human talus bone; found within backdirt believed to belong to Stratum If; SIHP #-7427 Feature 3 |
| Ig | 81-90 | Fill; 10 YR 2/2 (very dark brown); gravelly silty loam; weak, medium, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; contained nails, glass, ceramics and burnt inclusions (not collected) |
| Ih | 90-126 | Fill; 7.5 YR 3/3 (dark brown); silty clay loam; structureless, single-grain; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; had bands of stream-deposited soil—some very sandy, some more clayey |
| SIHP #-7427 Feature 1 | 30-110 | Building remnant consisting of a brick wall overlying concrete and a layer of basalt boulders; SIHP #-7427 Feature 1 |

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ii | 126-140 | Fill; 10 YR 2/2 (very dark brown); gravelly silty clay loam; weak, medium, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; contained faunal remains, rusted metal, slag inclusions, ceramic and glass (collected); designated as a component of SIHP #-7427 |
| Ij | 135-145 | Fill; 2.5 Y 8/1 (white); very gravelly loam; weak, medium, blocky structure; moist, friable consistency; non-plastic; mixed origin; abrupt, broken/discontinuous lower boundary; crushed coral |
| II | 129-216 | Natural; 10 YR 2/2 (very dark brown); gravelly sandy loam; weak, fine, crumb structure; moist, friable consistency; non-plastic; mixed origins; contained faunal bone and light shell midden (collected); previously disturbed natural sediment; designated as a component of SIHP #-7427 |

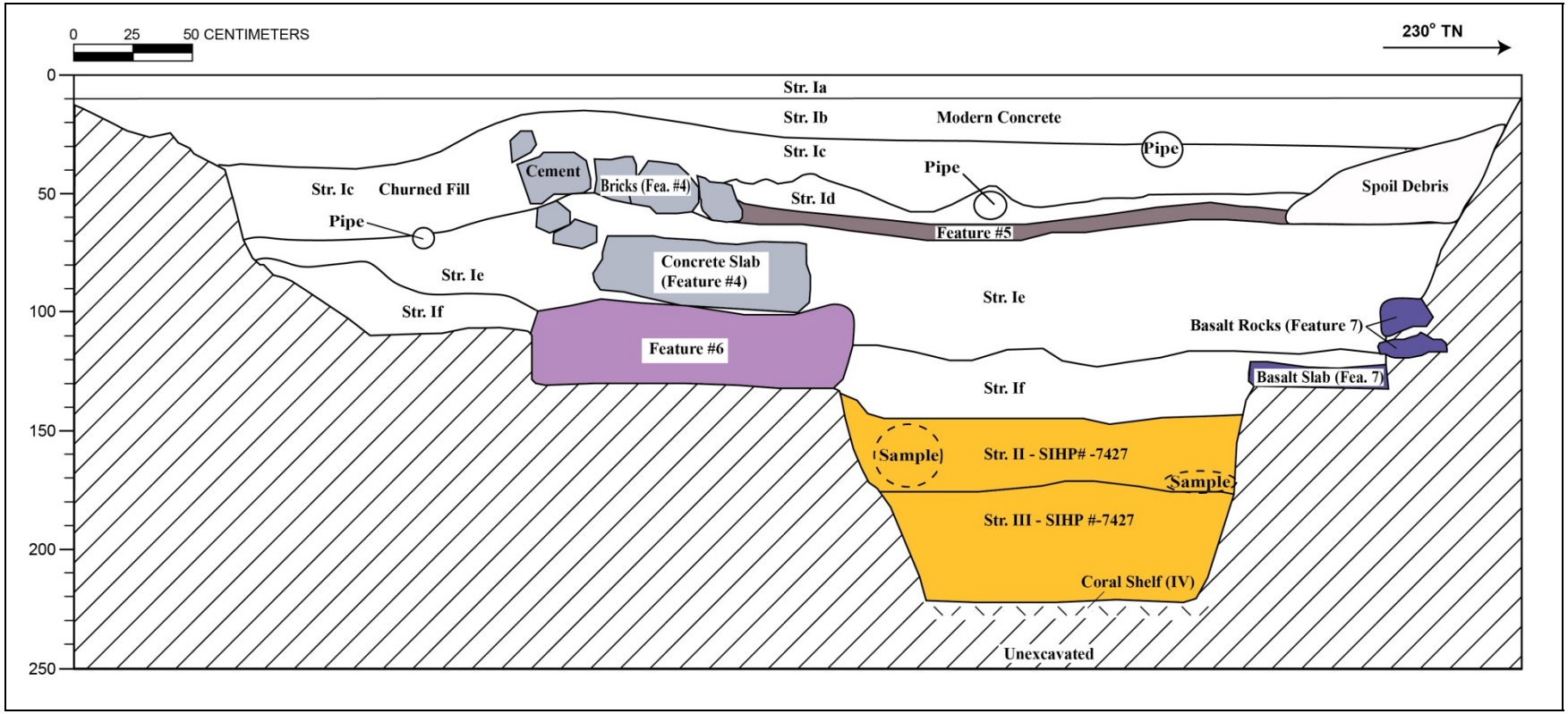


Figure 98. T-097 southeast profile wall

Table 27. T-097 Stratigraphic Description

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0–10 | Asphalt |
| Ib | 10–35 | Fill; 5 YR 4/1 (dark gray); extremely gravelly sandy loam; structureless, single-grain; dry loose consistency; non-plastic; terrigenous origin; abrupt, wavy lower boundary; contained concrete utility jacket; base course imported fill |
| Ic | 35–60 | Fill; 10 YR 4/2 (light gray); gravelly sandy loam; weak, medium, blocky structure; moist, friable consistency; non-plastic; mixed origin; broken/discontinuous lower boundary; appeared to be associated with metal pipe remains; contained ceramics, bottle glass, and miscellaneous historics (collected) |
| Id | 40–60 | Fill; 10 YR 3/2 (very dark gray brown); gravelly sandy loam; weak, fine, crumb structure; moist, loose consistency; non-plastic; contained ceramics and glass jar (collected), bottle glass fragments and metal (not collected); upper boundary consisted of a thin layer of burnt trash |
| SIHP #-7427 Feature 5 | 50–65 | Concrete slab; possible building foundation remnant; SIHP #-7427 Feature 5 |
| Ie | 60–123 | Fill; 10 YR 3/3 (dark brown); very gravelly sandy loam; weak, medium to coarse, crumb structure; moist, very friable consistency; non-plastic; mixed origin; abrupt, wavy lower boundary; contained glass and ceramics; includes SIHP #-7427 Feature 4 |
| SIHP #-7427 Feature 4 | 35–70 | Mortared red brick wall overlying a concrete slab; possible building foundation remnant underlying Stratum Id; SIHP #-7427 Feature 4 |
| If | 80–145 | Fill; 7.5 YR 3/3 (dark brown); silty clay loam; structureless, massive; moist, very firm consistency; plastic; terrigenous origin; abrupt, smooth lower boundary; contained metal, a rounded fiberglass dish (bowl/cup); distinct striations present, possibly caused by water; includes SIHP #-7427 Feature 6 and Feature 7 |
| SIHP #-7427 Feature 6 | 70–136 | Concrete slab; possible building foundation remnant; SIHP #-7427 Feature 6 |
| SIHP #-7427 Feature 7 | 95–130 | Stacked basalt cobbles overlying a basalt slab; possible building foundation remnant; SIHP #-7427 Feature 7 |
| II | 135–180 | Natural; 10 YR 2/2 (very dark brown); sandy loam; structureless, single-grain; moist, firm consistency; non-plastic; mixed origin; clear, smooth lower boundary; contained abundant charcoal and shell fragments, faunal bone; previously disturbed or reworked natural sediment; component of SIHP #-7427 |

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| III | 175–222 | Natural; 10 YR 4/3 (brown); sandy loam; structureless, single-grain; moist, loose to very friable consistency; non-plastic; mixed origin; abrupt lower boundary; in situ natural sediment; designated a component of SIHP #-7427 |
| IV | 222 (BOE) | Natural; 10 YR 7/4 (very pale brown); bedrock-limestone; structureless, massive; moist, weakly to strongly cemented; discontinuous consistency; non-plastic; marine origin; lower boundary not observed; Pleistocene coral shelf |

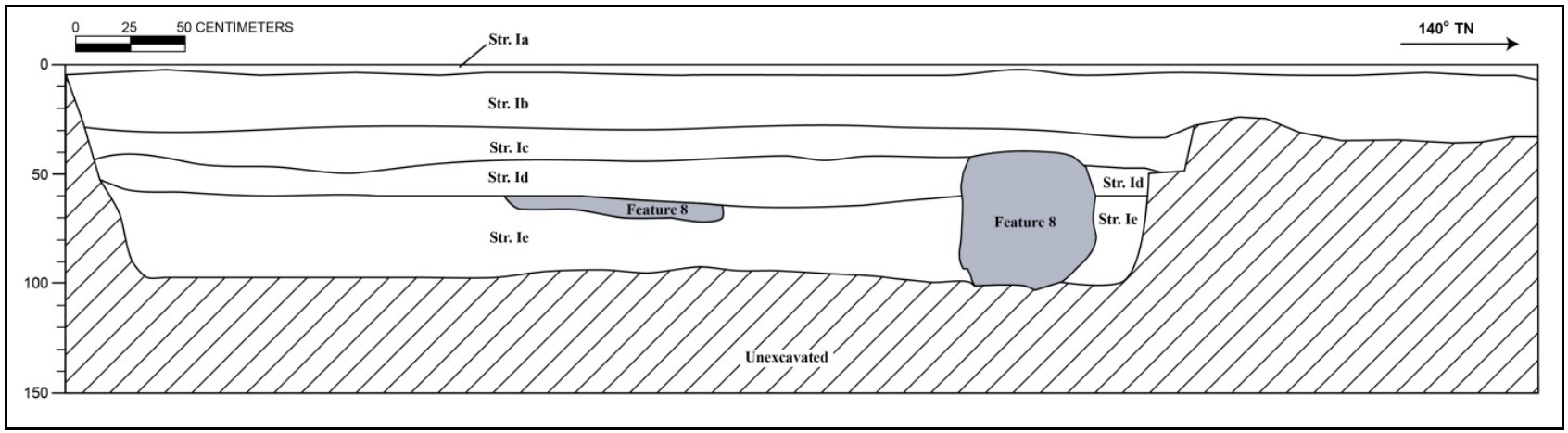


Figure 99. T-098 northeast profile wall

T-098 Stratigraphic Description, northeast wall

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0–5 | Asphalt |
| Ib | 5–30 | Fill; 5 YR 4/1 (dark gray); extremely gravelly sandy loam; structureless, single-grain; dry loose consistency; non-plastic; terrigenous origin; abrupt, wavy lower boundary |
| Ic | 30–45 | Fill; 7.5 YR 3/2 (dark brown) with mottles of 7.5 YR 8/1 (white); gravelly loam; moderate, medium, crumb structure; moist, very friable consistency; slightly plastic; terrigenous origin; diffuse, smooth lower boundary; contained construction gravel |
| Id | 40–65 | Fill; 2.5 YR 3/3 (dark reddish brown), with mottles of 10 YR 2/1 (black); clay; moderate, fine, blocky structure; moist, firm consistency; slightly plastic; terrigenous origin; diffuse, smooth lower boundary |
| Ie | 55–110 (BOE) | Fill; 2.5 YR 2.5/1 (reddish black), with mottles of 7.5 YR 8/1 (white); very gravelly clay loam; medium, crumb structure; moist, very friable consistency; slightly plastic; terrigenous origin; contained red brick fragments, cement fragments, and a rusted metal nail; included SIHP #-7427 Feature 8 |
| SIHP #-7427, Feature 8 | 45–105 | Concrete slab and formed conscrete structure; possible building foundation remnants; SIHP #-7427 Feature 8 |

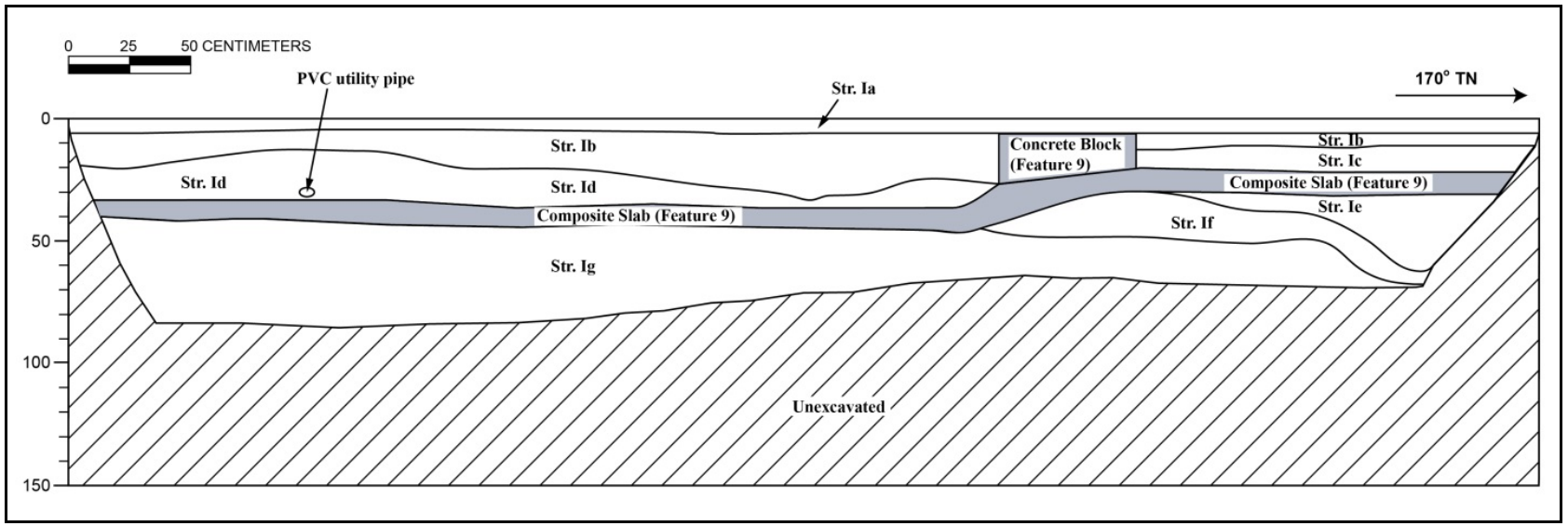


Figure 100. T-099 east profile wall

T-099 Stratigraphic Description, east wall

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0–5 | Asphalt |
| Ib | 5–26 | Fill; 5 YR 4/1 (dark gray); extremely gravelly sandy loam; structureless, single-grain; dry loose consistency; non-plastic; terrigenous origin; abrupt, wavy lower boundary; contained concrete utility jacket; base course imported fill |
| Ic | 12–23 | Fill; 10 YR 4/2 (dark grayish brown); extremely gravelly sandy loam; structureless, single-grain; moist, loose consistency; non-plastic; terrigenous origin; imported fill |
| Id | 12-35 | Fill; 7.5 YR 4/2 (brown); extremely stony clay; structureless, massive; moist, firm consistency; very plastic; terrigenous origin; lower boundary not visible; contained coral cobbles and small boulders |
| SIHP #-7427 Feature 9 | 5–46 | Composite tile and concrete slab and overlying concrete block; possible building foundation remnants; SIHP #-7427 Feature 9 |
| Ie | 40-60 | Fill; 10 YR 4/2 (dark grayish brown); extremely gravelly sandy loam; structureless, single-grain; moist, loose consistency; non-plastic; terrigenous origin; imported fill |
| If | 30–68 | Fill; 7.5 YR 4/2 (brown); extremely stony clay; structureless, massive; moist, firm consistency; very plastic; terrigenous origin; lower boundary not visible; contained coral cobbles and small boulders |
| Ig | 40–88 (BOE) | Fill; 10 YR 4/3 (brown); extremely stony silt loam; structureless, single-grain; moist, loose structure; non-plastic; terrigenous origin; lower boundary not visible; imported fill |

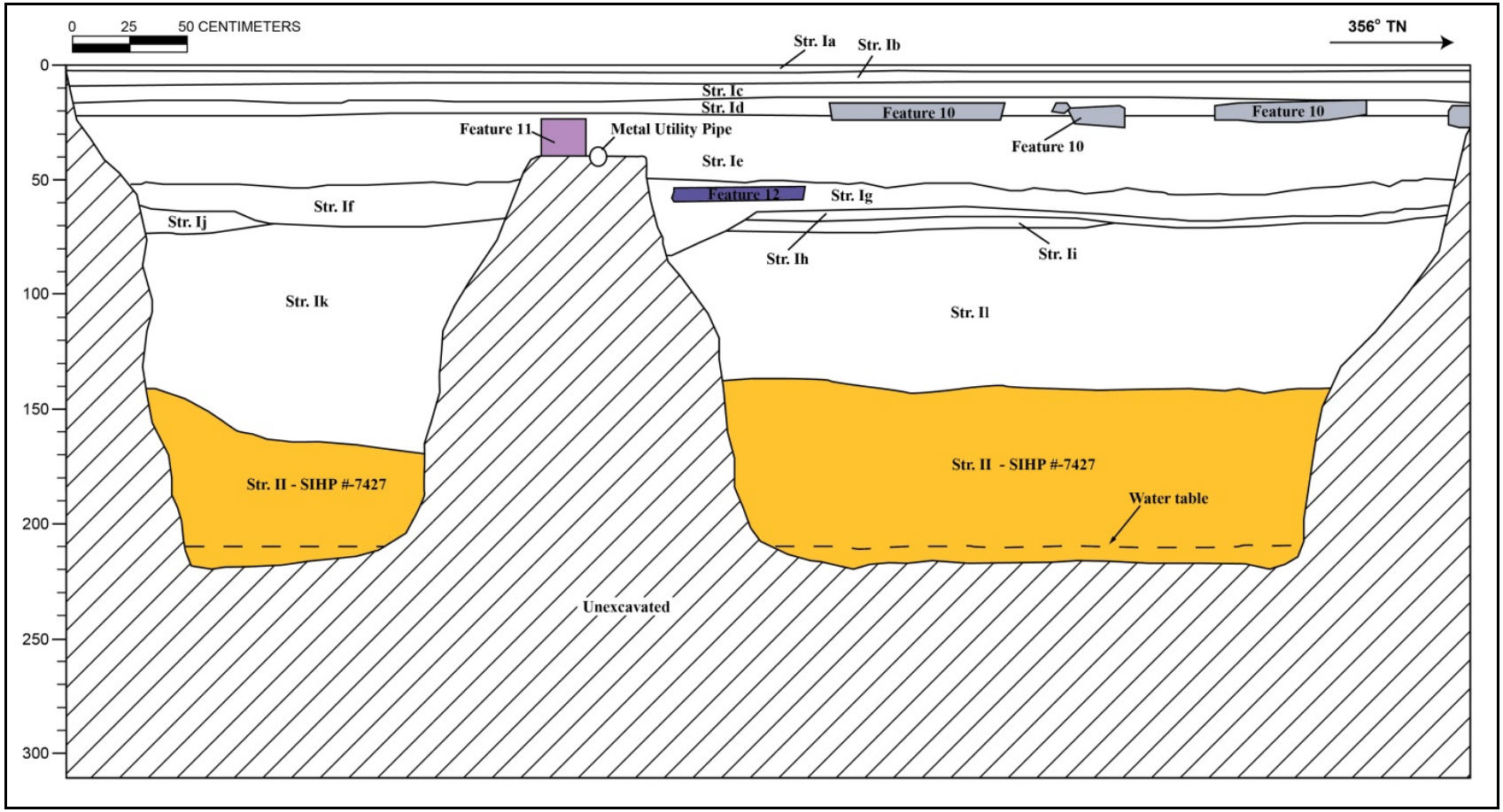


Figure 101. T-100 west profile wall

T-100 Stratigraphic Description

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-3 | Asphalt |
| Ib | 3-9 | Fill; 5 YR 4/1 (dark gray); extremely gravelly sandy loam; structureless, single-grain; dry loose consistency; non-plastic; terrigenous origin; abrupt, wavy lower boundary; contained concrete utility jacket; base course imported fill |
| Ic | 9-17 | Buried asphalt surface |
| Id | 15-23 | Fill; 5 YR 4/1 (dark gray); extremely gravelly sandy loam; structureless, single-grain; dry loose consistency; non-plastic; terrigenous origin; abrupt, wavy lower boundary; base course imported fill; contains SIHP #-7427 Feature 10 |
| SIHP # -7427 Feature 10 | 19-28 | Concrete slab; possible building foundation remnant; SIHP #-7427 Feature 10 |
| Ie | 23-58 | Fill; 10 YR 8/2 (very pale brown) with mottles of 10 YR 4/2 (dark grayish brown); very gravelly sandy loam; strong, fine, blocky structure; moist, firm, strong consistency; non-plastic; mixed origin; diffuse, smooth lower boundary; contained utilities; includes SIHP #-7427 Feature 11 |
| SIHP # -7427 Feature 11 | 24-40 | Concrete drainage channel; possible building foundation remnant; SIHP #-7427 Feature 11 |
| If | 52-71 | Fill; 10 YR 3/2 (very dark grayish brown) with mottles of 10 YR 8/2 (very pale brown); very gravelly loam; weak, fine, granular structure; moist, very friable, weak consistency; slightly plastic; mixed origin; lower boundary visible; contained rusted nail and charcoal (not collected); ceramic (collected) |
| Ig | 51-84 | Fill; 10 YR 3/1 (very dark gray); loam; weak, fine, crumb structure; moist, very friable, weak consistency; slightly plastic; terrigenous origin; very abrupt, smooth lower boundary; includes SIHP #-7427 Feature 12 |
| SIHP # -7427 Feature 12 | 55-60 | Mortared cut basalt stone slab; possible building foundation remnant; SIHP #-7427 Feature 12 |
| Ih | 59-70 | Fill; 10 YR 3/1 (very dark gray) with (C, 1) mottles 10 YR 8/2 (very pale brown); loam; weak, fine, crumb structure; moist, friable, weak consistency; slightly plastic; mixed origin; abrupt, smooth lower boundary |
| Ii | 64-86 | Fill; 7.5 YR 4/4 (brown); loam; weak, fine, crumb structure; moist, very friable, weak consistency; slightly plastic; mixed origin; diffuse, smooth lower boundary |

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ij | 62-75 | Fill; 10 YR 4/4 (dark yellowish brown); gravelly sandy clay loam; weak, fine, crumb structure; moist, very friable, weak consistency; non-plastic; terrigenous origin |
| Ik | 70-170 | Fill; 2.5 Y 3/2 (very dark grayish brown); very gravelly sandy loam; weak, fine, crumb structure; moist, very friable, weak consistency; non-plastic; mixed origin; clear, wavy lower boundary; marine shell fragments |
| Il | 65-145 | Fill; 10 YR 3/2 (very dark grayish brown) with mottles of 10 YR 8/2 (very pale brown); sandy loam; moderate, coarse, blocky structure; moist, firm, strong consistency; slightly plastic; clear, smooth lower boundary; contained ceramic fragments (collected), bottle glass (not collected) |
| II | 141-220 (BOE) | Natural; 10 YR 4/2 (dark grayish brown); gravelly sandy loam; structureless, single-grain; moist, friable consistency; slightly plastic; mixed origin; abrupt, smooth lower boundary; contained glass bottle, rusted metal, glass (collected), charcoal flecks; previously disturbed natural sediment; component of SIHP #-7427 |

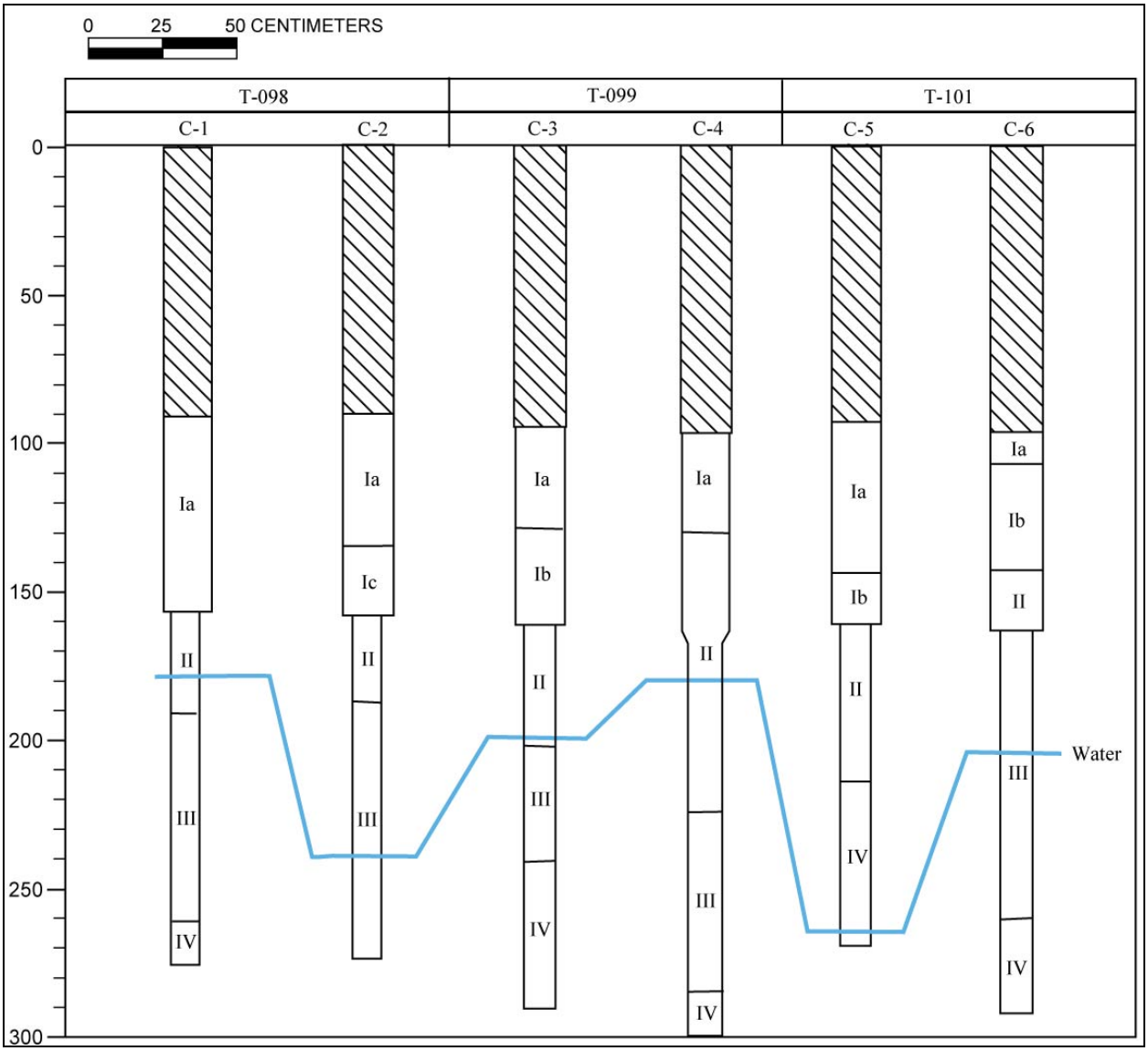


Figure 102. Stratigraphic profiles collected from C-1 to C-6 from T-098, T-099, and T-101 (note: hatched area represents drill through above strata and blue line represents the water table)

Table 28. C-1 through C-6 Stratigraphic Description

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| N/A | 0-95 | Drill Through |
| Ia | 90-157 | Fill; 10 YR 5/2 (grayish brown); extremely gravelly silty sand; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; contains 80% angular basalt gravel; possible basalt gravel base course |
| Ib | 109-162 | Fill; 10 YR 8/2 (very pale brown); very gravelly sandy loam; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; contains 40% angular coral gravel and sparse charcoal flecking; possible crushed coral fill |
| Ic | 136-160 | Fill; 10 YR 3/2 (very dark grayish brown); clay; structureless, massive; wet, sticky consistency; slightly plastic; terrigenous origin |
| II | 130-225 | Natural; 10 YR 3/2 (very dark grayish brown); sandy loam; weak, medium, crumb structure; moist, firm consistency; slightly plastic; mixed origin; contained charcoal flecking and shell fragments (not collected); subsurface culturally-enriched deposit; designated a component of SIHP #-7427 |
| III | 167-288 | Natural; 10 YR 3/1 (very dark grey); loamy clay; strong, medium, crumb structure; moist, firm consistency; plastic; terrigenous origin; contained organic material (peat) |
| IV | 215-300 | Natural; decomposed coral shelf |

Table 29. Features of SIHP # -7427

| Feature | Test Excavation | Depth (mbs) | Description |
|---|---|---|---|
| 1 | T-096 | 0.30-1.10 | Structural Remnant; in situ building foundation comprised of two courses of mortared, machine-made red brick overlying and secured to a poured concrete foundation atop dry-laid basalt boulders |
| 2 | T-096 | 0.27-0.43 | Structural Remnant; in situ poured concrete slab |
| 3 | T-096 | 0.70 | Human Remain; a single isolated human talus bone in backfill |
| 4 | T-097 | 0.35-1.00 | Structural Remnants; in situ mortared, machine-made red brick wall overlying a poured concrete slab |
| 5 | T-097 | 0.50-0.65 | Structural Remnant; in situ poured concrete slab that abuts Feature 4 |
| 6 | T-097 | 0.90-1.36 | Structural Remnant; in situ poured concrete slab underlying Feature 5 |
| 7 | T-097 | 0.95-1.30 | Structural Remnants; displaced, dry-stacked, subangular basalt cobbles overlying a basalt slab |
| 8 | T-098 | 0.45-1.05 | Structural Remnants; in situ poured concrete slab and an adjacent in situ concrete wall |
| 9 | T-099 | 0.05-0.46 | Structural Remnant; in situ concrete block overlying an in situ poured concrete slab |
| 10 | T-100 | 0.19-0.28 | Structural Remnant; fragmented in situ poured concrete slab |
| 11 | T-100 | 0.24-0.50 | Structural Remnant; in situ poured concrete drainage channel |
| 12 | T-100 | 0.55-0.60 | Structural Remnant; in situ mortared, cut basalt pavement |
| 13 | T-101 | 0.10-0.28 | Structural Remnant; in situ poured concrete slab |
| 14 | T-101 | 0.60-1.15 | Refuse pit; contained late nineteenth century artifacts, charcoal, and faunal bone |


Figure 103. SIHP # -7427 Feature 1 (wall and concrete slab remnants) within T-096, view to east


Figure 104. SIHP # -7427 Feature 2 (concrete slab) within T-096, view to southwest

Figure 105. SIHP # -7427 Feature 4 (red brick wall and concrete slab remnants) within T-097, view to southeast


Figure 106. SIHP # -7427 Feature 5 (concrete slab remnant) within T-097, view to northeast


Figure 107. SIHP # -7427 Features 5 and 6 (concrete slabs) within T-097, view to southeast

Figure 108. SIHP # -7427 Feature 7 (dry-stacked basalt cobbles atop concrete slab) within T-097, view to southwest

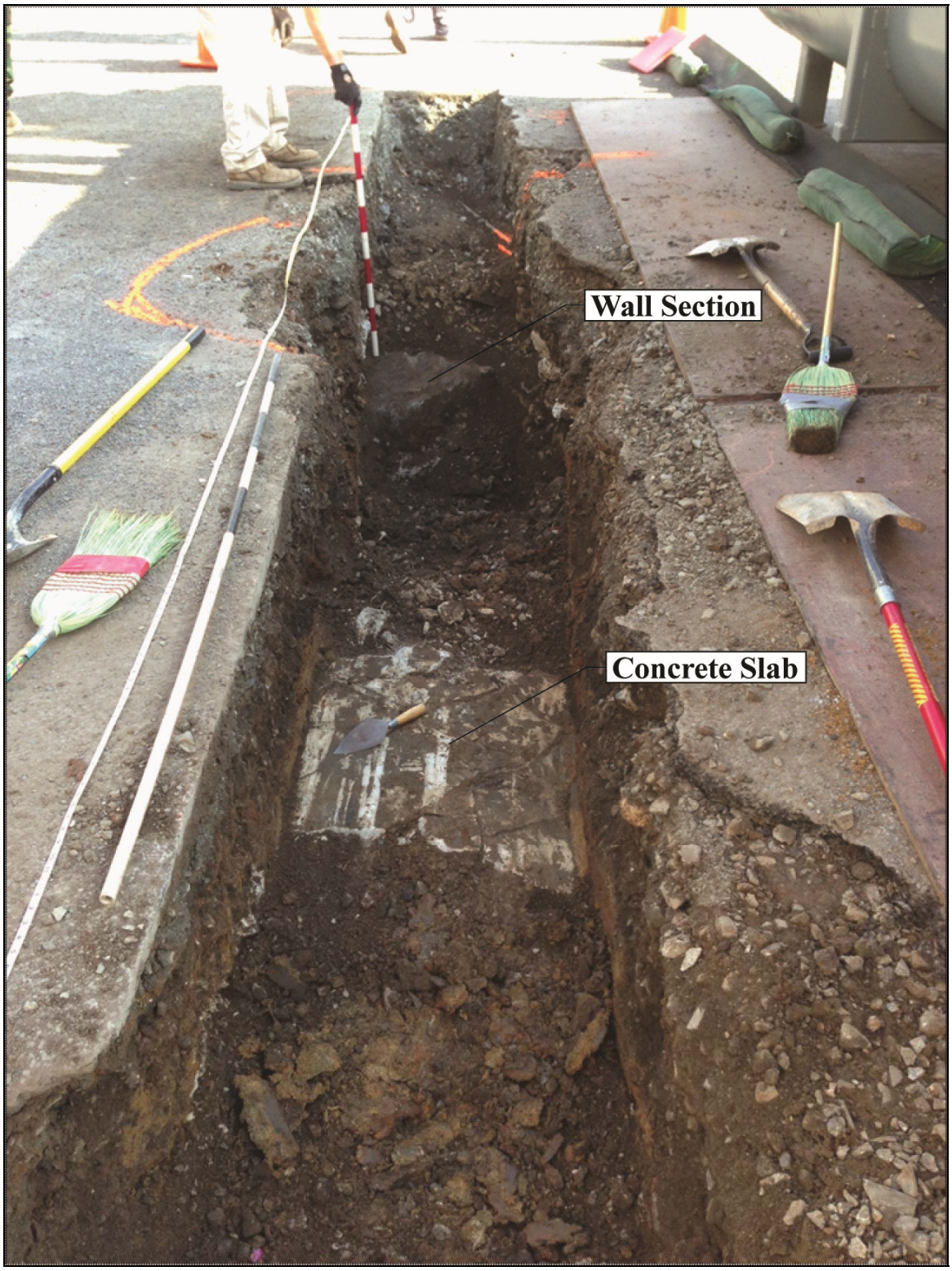


Figure 109. SIHP # -7427 Feature 8 (concrete slab and wall section) within T-098, view to southeast


Figure 110. SIHP # -7427 Feature 9 (concrete slab and concrete block) within T-099, view to north

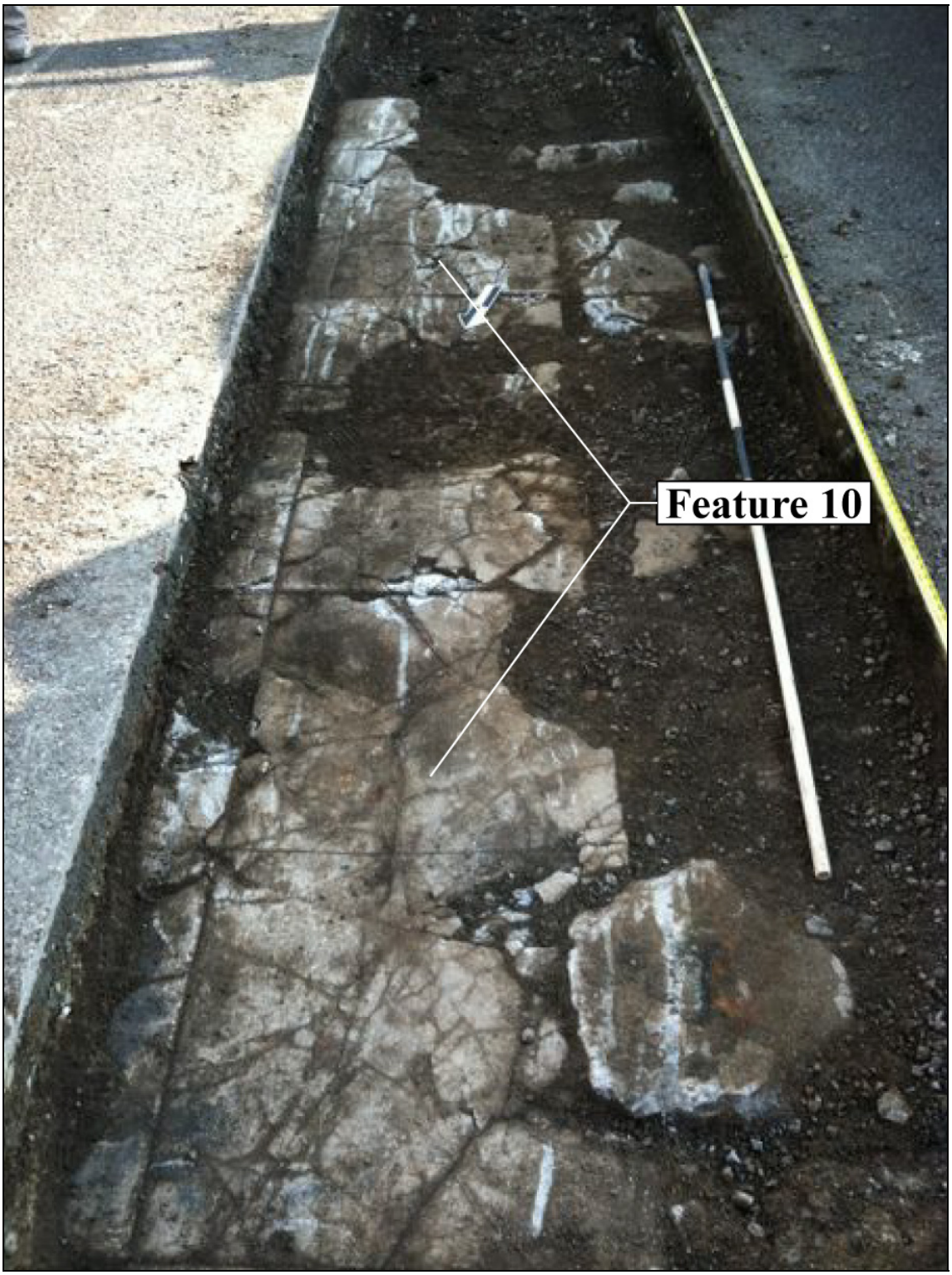


Figure 111. SIHP # -7427 Feature 10 (concrete slab) within T-100, view to south

Figure 112. SIHP # -7427 Feature 11 (concrete drain) within T-100, view to north

faunal bone was collected. Fourteen historic artifacts were collected from within SIHP #-7427 Feature 14. They include a Japanese cup with a “Dashed Line” transferprint Phoenix design, two Euro-American whiteware fragments, four bottles/bottle fragments dated between the 1860s and the 1920s, one bottle fragment embossed with a trademark used from 1885 to 1900, one bottle fragment dated between 1883 and 1896, one bottle fragment dated post-1800s, a bone bead, a fired brick, a metal strap, and a fragment of window glass. The sediment matrix within the pit was gravelly sandy loam. SIHP #-7427 Feature 14 is late nineteenth- to early twentieth- century historic refuse pit.

SIHP #-7427 consists of 12 buried structural remnants, 1 human talus bone, 1 historic refuse pit, and three culturally-enriched strata. The 12 buried structural remnants include SIHP #-7427 Features 1, 2, and 4 through 13, which were identified within T-096 through T-101. The human talus bone was identified as an isolated human skeletal element within the backfill pile of T-096 and was designated as SIHP #-7427 Feature 3. The talus bone was estimated to have originated from approximately 0.70 mbs from a very gravelly sandy loam fill layer (Stratum If). The historic refuse pit was identified within T-101 was designated SIHP #-7427 Feature 14. Three culturally-enriched fill strata were designated as components of SIHP #-7427: Strata Id, If and Ii in T-096. The natural sediment (Stratum II) was identified within T-096, T-097, T-100, T-101 and C-1 through C-6. Both Stratum II and the additional natural sediment (Stratum III) within T-097, were designated as components of SIHP #-7427.

At the time of Western contact, the area that comprises SIHP #-7427 was known as part of the settlement of Kou. Background research indicates that this coastal landscape consisted of house sites, agricultural fields, and gaming areas for the chiefs. Stratum II (and Stratum III in T-096), the culturally-enriched sandy loam or clay loam sediment identified within T-096, 097, 100, and 101 and C-1 through C-6, may correspond to the pre- and/or early post-Contact settlement of Kou. Kou rapidly evolved into a bustling port following Captain William Brown’s Westerm discovery of Honolulu Harbor in 1793. Honolulu became more populated during the nineteenth century as the areas surrounding Honolulu Harbor increased in commercial importance. The buried structural remnants, historic refuse pit, associated culturally-enriched natural and fill strata, and datable artifacts within SIHP # -7427 are evidence of mid-nineteenth to early twentieth century habitation and commercial infrastructure development near Honolulu Harbor.

Based on the guidance of the National Register Bulletin No.15, SIHP # 50-80-14-7427 retains its integrity of location, materials, and workmanship. Based on the results of the current City Center archaeological inventory survey, CSH recommends that this cultural resource maintains sufficient integrity to support its significance under Criterion D (has yielded, or is likely to yield information important for research on prehistory or history) and E (has cultural significance to an ethnic group) of the Hawai‘i Register. Additionally, this cultural resource meets Criterion D of the National Register, exclusively for its information potential.

SIHP # 50-80-14-7427 has provided information, and can potentially provide additional information, on nineteenth and twentieth century habitation at the previous settlement of Kou and historic development of Chinatown near Honolulu Harbor. The potential for additional research warrants the implementation of a data recovery program. The primary focus of data recovery at SIHP #-7427 will be on the in situ deposits present beneath the structural remnants in an effort to better define land use in the pre- and/or early post-Contact periods. Data recovery

will include exposing and mapping, in plan and profile, any additional buried structural remnants in an effort to correlate these remnants and associated fill strata with historic maps and specific historic events. Data recovery will involve screening efforts aimed at identifying any additional human skeletal remains that may be present at SIHP #-7427. In addition, data recovery will involve further excavation of in situ cultural deposits and features that may be identified as possible components of SIHP #-7427. Following the data recovery, archaeological monitoring will be conducted during construction to further collect data on the nature and distribution of additional buried structural remnants, the extent of culturally-enriched strata associated with SIHP # 7427, and related features through mapping, recordation, and sample collection. The previously-identified human remain associated with SIHP #50-80-14-7427, will be treated in accordance with HAR §13-300 and HRS §6E-43. In order to alleviate the project's effect on human burials, a project-specific burial treatment plan (a requirement of HAR §13-300) will be prepared for consideration of the OIBC and recognized descendants. The agreed upon treatment is preservation in place, the details of which will be documented in the burial treatment plan.

Figure 113. SIHP # -7427 Feature 12 (mortared cut-basalt pavement) within T-100, view to north

Figure 114. SIHP # -7427 Feature 13 (poured concrete slab) within T-101, view to southwest

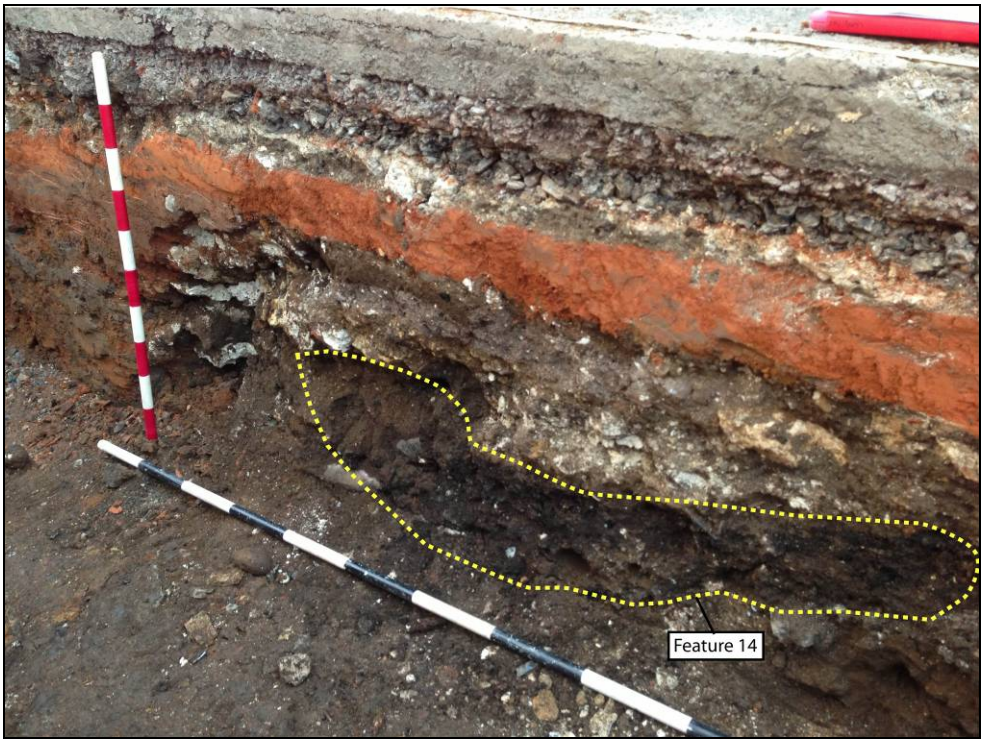


Figure 115. SIHP # -7427 Feature 14 (historic refuse pit) within T-101, view to northwest

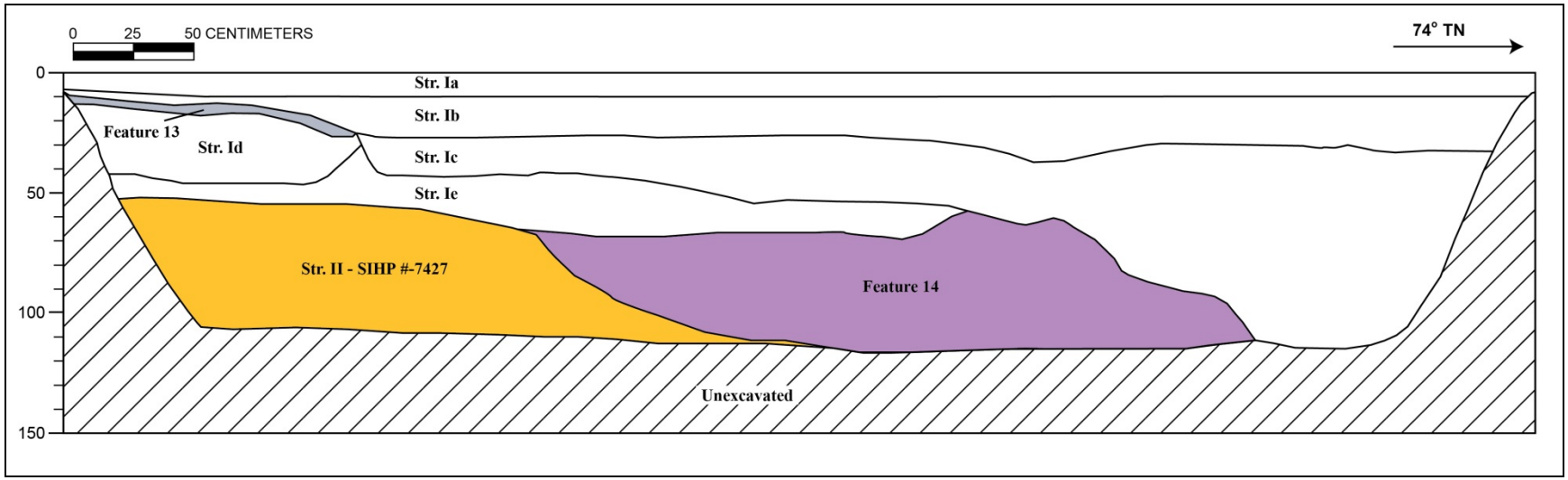


Figure 116. T-101 northwest wall profile

Table 30. T-101 Stratigraphic Description

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-11 | Asphalt |
| Ib | 11-37 | Fill; 5 YR 4/1 (dark gray); extremely gravelly sandy loam; structureless, single-grain; dry loose consistency; non-plastic; terrigenous origin; abrupt, wavy lower boundary; contained concrete utility jacket; imported base course fill; insulator and brick (collected) |
| Ic | 26-115 | Fill; 2.5 YR 4/1 (dark reddish gray), with common, fine mottles of 2.5 YR 4/8 (red); clay; structureless, massive; moist, very firm consistency; very plastic; terrigenous origin; diffuse, irregular lower boundary; clay fill; bottle glass, porcelain insulator, faunal (collected); SIHP #-7427 Feature 13 overlies Stratum Id |
| SIHP #-7427 Feature 13 | 10-28 | Building remnant consisting of an in situ poured concrete slab; likely a building floor or foundation |
| Id | 15-47 | Fill; 7.5 YR 3/2 (dark brown), with mottles of 7.5 YR 6/3 (light brown); sandy loam; structureless, single-grain; friable consistency; non-plastic; mixed origin; diffuse lower boundary; coral inclusion |
| Ie | 30-69 | Fill; 5 YR 3/1 (very dark gray), with mottles of 5 YR 8/1 (white); sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; clear lower boundary; contained red brick (not collected), charcoal flakes, fill deposit |
| SIHP #-7427 Feature 14 | 50-127 | Fill; 10 YR 5/1 (gray), gravelly sandy loam; weak, fine, crumb structure; moist, loose consistency; non-plastic; mixed origin; lower boundary not observed; truncated by Strata Ic and Ie; intrusive into Stratum II; contained historic refuse; designated SIHP #-7427 Feature 14 |
| II | 52-112 | Natural; 5 YR 2.5/1 (black); loamy clay; moderate, medium, blocky structure; moist, firm consistency; slightly plastic; mixed origin; lower boundary not visible; contains charcoal flaking; natural sediment; designated a component of SIHP #-7427 |

**SIHP # 50-80-14-7428**

| | |
|---|---|
| **FORMAL TYPE:** | Subsurface cultural deposit and historic building foundations |
| **FUNCTION:** | Habitation, Commercial Infrastructure |
| **PREVIOUS DOCUMENTATION:** | None |
| **AGE:** | Pre- and post-Contact |
| **NUMBER OF FEATURES:** | 14 |
| **TYPES OF FEATURES:** | 12 pits (including 3 postmolds, and 9 indeterminate),1 buried wall remnant, 1 builder’s trench |
| **DISTRIBUTION:** | 0.2 acres (total area) |
| **LOCATION:** | Located northeast (*mauka*) of Halekauwila Street between Punchbowl Street and Mililani Street (West Kaka‘ako Geographic Zone) |
| **TAX MAP KEY:** | TMK [1] 2-1-026:001, 022; and [1] 2-1-026 (Halekauwila Street ROW por.) |
| **LAND JURISDICTION:** | State of Hawai‘i and the City and County of Honolulu |
| **TEST EXCAVATIONS:** | T-119, T-119A, T-120, T-120A, and T-120B |

SIHP #50-80-14-7428 is a newly-identified subsurface culturally-enriched deposit and fourteen associated features located northeast (*mauka*) of Halekauwila Street between Punchbowl Street and Mililani Street within the West Kaka‘ako Geographic Zone (Figure 117). This archaeological cultural resource was identified within five test excavations (T-119, T-119A, T-120, T-120A, and T-120B) during the current City Center archaeological inventory survey.

The depositional sequence was similar in each of the five test excavations in which SIHP # -7428 was identified (Figure 118). The buried Late Pleistocene calcareous reef (coral reef) was identified at the base of excavation in T-119, T-119A, T-120A, and T-120B, and is presumed to be beneath the water table and base of excavation within T-120. Where present in the excavation sidewall, the coral reef was designated Stratum IV. Natural calcareous Jaucas sand was present at the base of the excavation in each of the five test excavations, overlying the coral shelf. The Jaucas sand was designated Stratum III.

A culturally-enriched A-horizon, exhibiting both pre- and post-Contact land usage, directly atop the natural Jaucas sand surface, was designated Stratum II. The texture of this A-horizon varied from loamy silt and loamy sand in T-119 and T-120 to sandy loam in T-119A and T-120A and sandy clay loam in T-120B. The culturally-enriched A-horizon was designated SIHP #50-80-14-7428.

Fourteen features were identified as components of SIHP #-7428 (Table 31). Of these, 12 (SIHP #-7428 Features 2–13)originated in the A-horizon and intruded into the underlying Jaucas sand. They consist of 3 postmolds and 9 indeterminate pits. Two additional features were identified in T-119 and T-119A. They are a buried basalt stone and mortar wall (SIHP #-7428 Feature 1) with an associated builder’s trench (SIHP #-7428 Feature 1a).

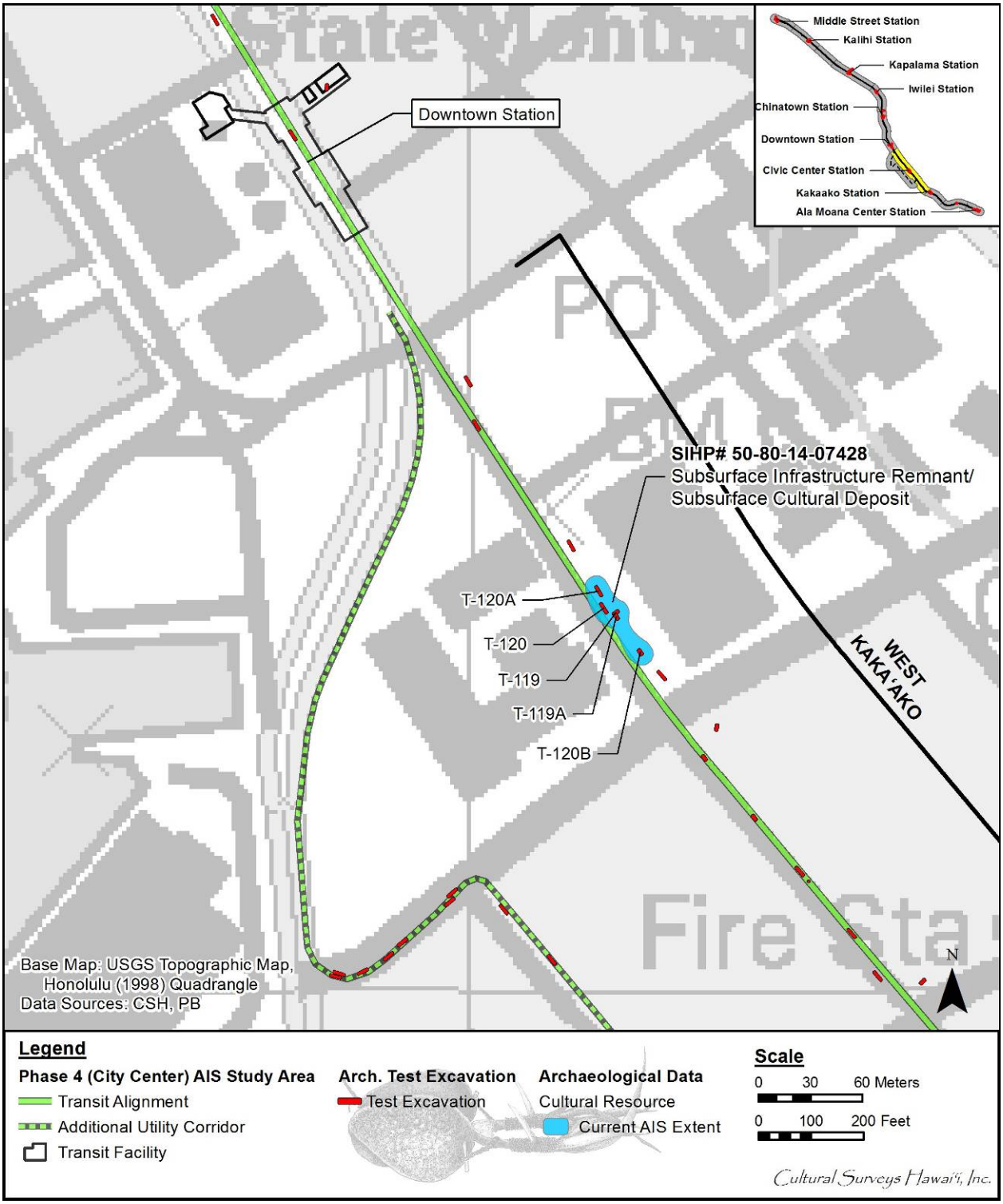


Figure 117. Location of subsurface cultural deposits (SIHP #-7428) in the West Kaka‘ako Geographic Zone (Base Map: 1998 USGS Topographic Map of Honolulu)

Table 31. Archaeological features of SIHP #-7428 Documented During the Current AIS

| Feature | Test Excavation | Depth (cmbs) | Radiocarbon Date (C14) | Type/Function | Contents |
|---|---|---|---|---|---|
| 1 | T-119, T-119A | 130-190 | - | Buried Wall Remnant/Structural Foundation | Historic wall constructed of basalt stone and mortar |
| 1a | T-119A | 47-168 | AD 1160-1890 (78.2%) and AD 1800-1940 (65.6%) | Builder's Trench/Excavation | Builder's trench associated within the construction of Feature 1;contained charcoal (*kolomona, ‘ōhi‘a lehua, kukui, kōpiko, ipu, ‘āheahea*, *‘āweoweo,* and *‘ōhi‘a ai*), naturally-occuring marine shell, marine shell midden, organics, ceramics, metal tag, possible bone pipe stem, bottle glass, metal, slag, vesicular basalt, coral gravel, and faunal bone (*Canis lupus familiaris*, medium mammal, and fish) |
| 2 | T-120 | 112-129 | - | Pit/Postmold | Charcoal, naturally-occurring marine shell, marine shell midden, faunal bone (shark tooth, fish) |
| 3 | T-120 | 112-116 | - | Pit/Postmold | Charcoal, naturally-occurring marine shell, marine shell midden, and faunal bone (medium mammal, fish) |
| 4 | T-120 | 112-126 | AD 1790-1940 (62.7%) | Pit/Indeterminate | Charcoal (*kukui*, *kolomona*, *kōpiko*, roseapple/Java plum/*‘ōhi‘a ‘ai*, *hau*, *‘ilima*, *loulu, ‘ākia ipu*, *pilo*, *akoko*, *‘ahakea*, *‘āheahea*, *‘āweoweo*, *‘ūlei*), naturally-occurring marine shell, marine shell midden, organics, volcanic glass, basalt manuport fragment, and faunal remains (medium mammal, *Rattus* sp., fish) |
| 5 | T-120 | 110-118 | AD 1810-1920 (67.1%) | Pit/Indeterminate | Charcoal (*kukui*, *akoko*, *‘ōhi‘a lehua*, *hau*, *‘ilima*, roseapple/Java plum/*‘ōhi‘a ‘ai*, *pilo*), naturally-occurring marine shell, marine shell midden, organics, volcanic glass, burned *kukui* nut shell, and faunal bone (medium mammal, burned *Canis* |

| Feature | Test Excavation | Depth (cmbs) | Radiocarbon Date (C14) | Type/Function | Contents |
|---|---|---|---|---|---|
| | | | | | *lupus familiaris*, burned Aves, *Rattus* sp., fish, shark tooth) |
| 6 | T-120 | 107-120 | - | Pit/Indeterminate | Charcoal (*kukui*, fern, *kolomona*, ‘*ilima*, ‘*āheahea*, ‘*āweoweo*, ‘*a‘ali‘i*), burned *kukui* nut shell, organics, basalt fragment, fire-cracked rock, volcanic glass, plastic filament, and faunal bone (three shark teeth, burned *Canis lupus familiaris*, *Sus scrofa*, *Rattus* sp., fish) |
| 7 | T-120 | 104-107 | AD 1800-1930 (68.9%) | Pit/Indeterminate | Charcoal, naturally-occurring marine shell, marine shell midden, fire-cracked rock, vesicular basalt, and faunal bone (*Canis lupus familiaris*, *Rattus* sp., shark tooth, fish) |
| 8 | T-120 | 104-117 | - | Pit/Indeterminate | Charcoal, naturally-occurring marine shell, marine shell midden, burned *kukui* nut shell, and faunal bone (*Canis lupus familiaris*, *Rattus* sp., shark tooth, fish) |
| 9 | T-120A | 118-136 | AD 1660-1890 (77.3%) | Pit/Indeterminate | Charcoal (*kōpiko*, *hau*, *pilo*), naturally-occurring marine shell, and marine shell midden |
| 10 | T-120A | 128-137 | AD 1660-1890 (77.3%) | Pit/Postmold | Charcoal (‘*āheahea*, ‘*āweoweo*, roseapple/Java plum/‘*ōhi‘a ‘ai*, *kukui*, *lama*, *kolomona*, *kōpiko*, ‘*a‘ali‘i*), shell midden, *kukui* nut shell, coral fragments, and faunal bone (fish) |
| 11 | T-120A | 130-140 | - | Pit/Indeterminate | Charcoal, naturally-occurring marine shell, marine shell midden, organics, glass, ceramic fragment, water-worn basalt cobble, and faunal bone (medium mammal, shark tooth) |
| 12 | T-120A | 128-132 | AD 1720-1820 (50.7%) | Pit/Indeterminate | Charcoal (*akoko*, *kolomona*, ‘*a‘ali‘i*, ‘*ōhi‘a lehua*, ‘*ulu*, palm, *kukui*, grass), naturally-occurring marine shell, marine shell midden, volcanic glass, and fire-cracked rock |
| 13 | T-120A | 128-132 | - | Pit/Indeterminate | Charcoal and marine shell midden |

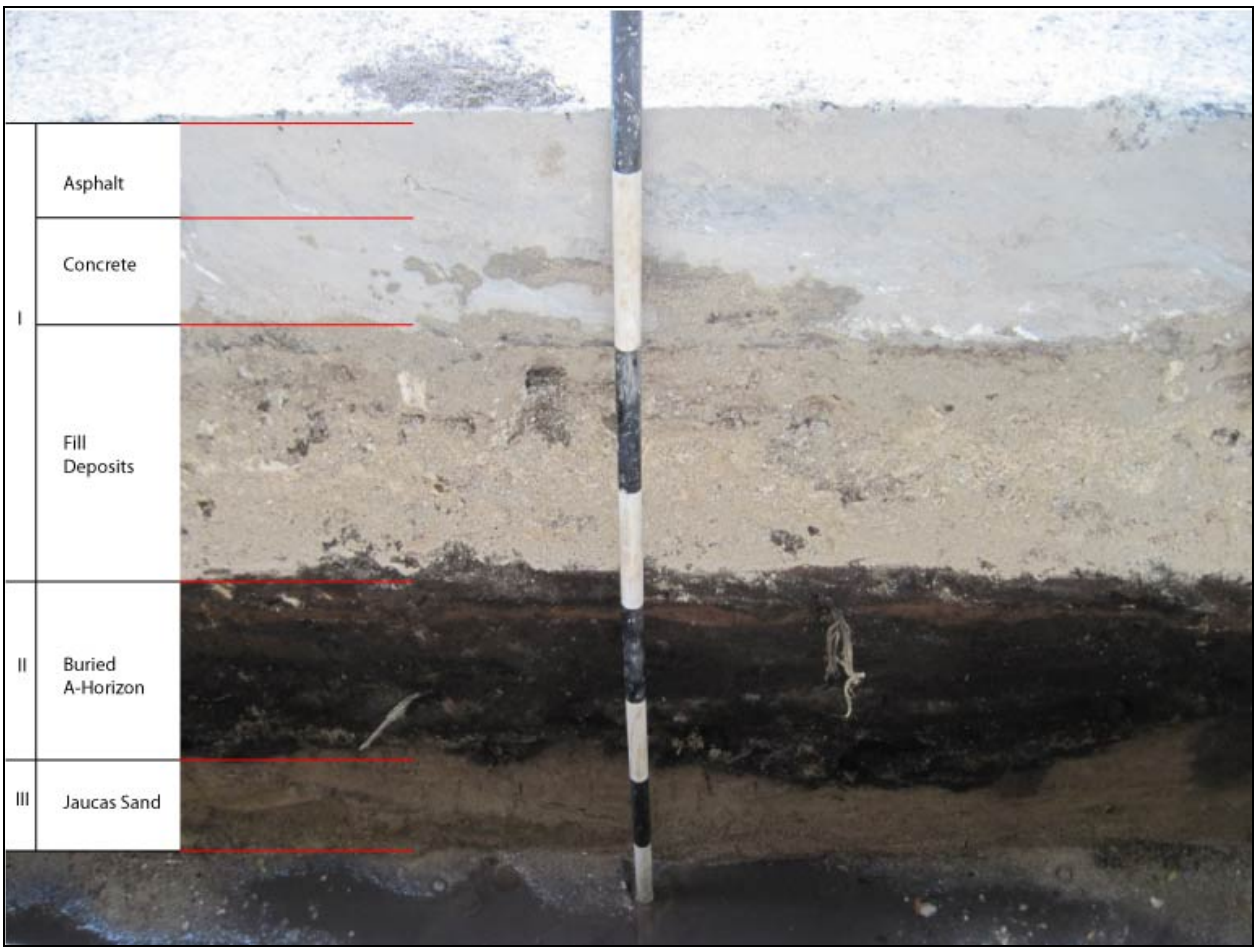


Figure 118. T-120 northeast wall profile, showing the general depositional sequence observed in T-120 and nearby T-119, T-119A, T-120A, and T-120B, view to northeast

**SIHP #-7428 Feature 1** was identified within T-119 and T-119A (Figure 119, Figure 120, Table 32, Figure 121 through Figure 123, and Table 33). SIHP #-7428 Feature 1 was the remnants of a historic wall constructed of basalt stone and mortar. Sections of this wall were observed down to the coral shelf, at depths of 1.30-1.90 mbs (T-119) and 0.47-1.68 mbs (T-119A). In both test excavations, the wall was observed below multiple fill layers and a culturally enriched A-horizon. The physical dimensions of the wall in T-119 were 0.6 m high, 0.5 m wide, and 1.0 m in length, extending into both the northeast and southwest walls. The physical dimensions of the portion of wall in T-119A were approximately 1.20 m high, 0.20 m wide, and 2.60 m in length. Several red brick fragments dated ca. 1807–1860 were collected from the fill deposits directly overlying the wall in T-119 (Stratum Ic) and T-119A (Stratum Id). In addition to these red bricks, two fragments of Asian dinnerware (Acc. # 119A-A-1 and A-2) were collected from Stratum Id in T-119A at depths of 0.40 and 0.90 mbs. The wall appears to correspond with the *makai* foundation a storage warehouse depicted on the 1914 Sanborn fire insurance map (Figure 124). SIHP #7428 Feature 1 is a buried wall remnant.

**SIHP #-7428 Feature 1a** was identified in T-119A. This feature is an infilled trench of mixed sediment (sandy loam) containing historic material, shell midden, and faunal remains. The trench abuts the SIHP #-7428 Feature 1 wall. The northern portion of the wall was originally recorded within T-119. Feature 1a originates at 0.47 mbs at the interface of Strata Ib and Ic and terminates at 1.68 mbs at the coral shelf (see Figure 123 and Table 33). The exposed dimensions of SIHP #-7428 Feature 1a were 2.85 m in length and 0.70 m in width. The trench, however, extends beyond the northeast profile wall. Artifacts collected from the trench include two Chinese porcelain flatware vessels. One exhibits an “Om” motif (Sino-Sanskrit Om) and the other exhibits an “Allah” (Sino-Islamic Allah) motif. Also collected from inside the trench was a metal tag with a “Body Fisher” logo from the Fisher Body (automobile) Company, dating post-1908. A 3.0-liter bulk sample was collected from within SIHP #-7428 Feature 1a at 1.25–1.55 mbs. The sample yielded charcoal (2.8 g), shell midden (11.6 g), naturally-occurring shell (0.3 g) and medium mammal remains (0.1 g). SIHP #7428 Feature 1a was interpreted as an infilled builder’s trench.

**SIHP #-7428 Feature 2** was identified within T-120. This pit originated at the base of Stratum II at 1.12 mbs and terminated at 1.29 mbs (Figure 126 and Table 34). The feature was circular in plan view, measured 0.25 m in diameter, and extended into the northeast sidewall. The sediment matrix within the pit was fine loamy sand with similar characteristics to Stratum II. An 11.4-liter screened sample was collected from SIHP #-7428 Feature 2 at 1.12-1.29 mbs. The sample contained charcoal (1.9 g), naturally-occurring shell (10.5 g), fish remains (0.1 g), a shark tooth (0.1 g), and shell midden (8.2 g). SIHP #7428 Feature 2 was interpreted as a possible postmold.

**SIHP #-7428 Feature 3** was identified within T-120. This pit originated at the base of Stratum II at 1.12 mbs and terminated at 1.16 mbs (see Figure 126, Figure 127, and Table 34). The feature was circular in plan view. It measured 0.4 m long by 0.15 m wide and extended into the northeast sidewall. The sediment matrix within the pit was fine loamy sand with similar characteristics to Stratum II. An 11.4-liter screened sample was collected from SIHP #-7428 Feature 3 at 1.12-1.16 mbs. The sample yielded charcoal (6.9 g), naturally-occurring shell (1.8 g), fish remains (0.1 g), medium mammal remains (0.1 g), and shell midden (6.4 g). SIHP #7428 Feature 3 was interpreted as a possible postmold.


Figure 119. SIHP #-7427 Feature 1, a portion of the basalt stone and mortar wall within T-119, view to southwest

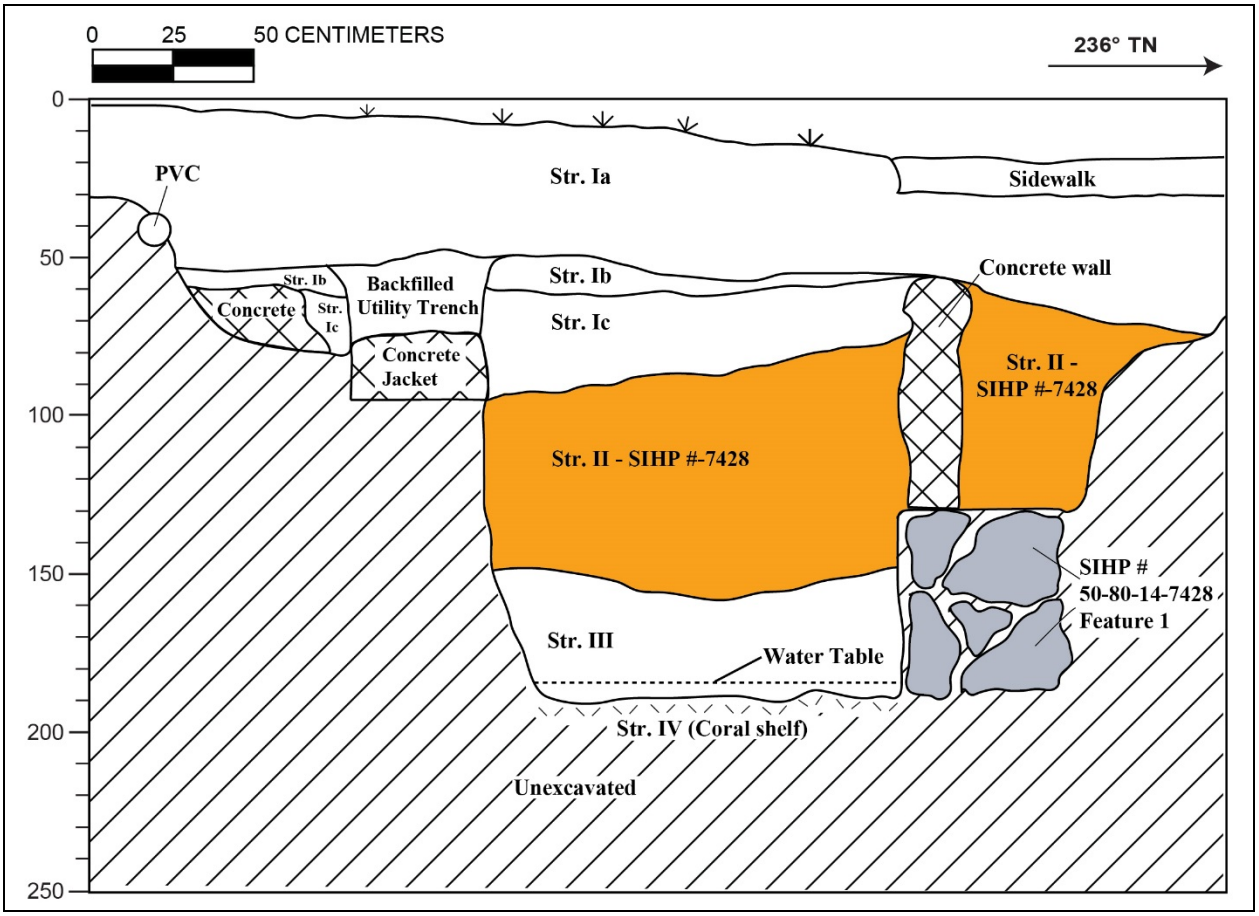


Figure 120. T-119 northwest wall profile, showing the basalt stone and mortar wall, SIHP #-7428 Feature 1

Table 32. T-119 Stratigraphic Description

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0–75 | Fill; 7.5 YR 2.5/2 (very dark brown); silty clay; moderate, medium to coarse, blocky structure; moist, firm consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; common, fine roots; landscape, top soil |
| Utility | 30–95 | PVC pipe, modern concrete wall, utility trench, and concrete jackets |
| Ib | 50–60 | Fill; 10 YR 7/4 (very pale brown); very gravelly sandy loam; weak, fine, crumb structure; moist, loose consistency; non-plastic; abrupt, smooth lower boundary; crushed coral fill |
| Ic | 60–95 | Fill; 10 YR 6/1 (gray); gravelly sand; weak, medium crumb structure; dry, loose, strong consistency; non-plastic; mixed origin; abrupt, smooth lower boundary; red bricks; pea pebble fill, cement |
| II | 65–157 | Natural; 10 YR 2/2 (very dark brown); loamy silt; weak, fine crumb structure; moist, loose consistency; non-plastic; terrigenous origin; clear, smooth lower boundary; fire-cracked rock, charcoal staining, cane slag, marine shell midden; re-worked cultural layer, designated a component of SIHP #-7428 |
| SIHP #-7428 Feature 1 | 130–190 | Historic mortared basalt stone wall; SIHP #-7428 Feature 1 |
| III | 145–190 | Natural; 10 YR 5/4 (yellowish brown); medium sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; natural sand over coral shelf, water table |
| IV | 190 (BOE) | Natural; 10 YR 7/4 (very pale brown); bedrock-limestone; structureless, massive; moist, weakly to strongly cemented; discontinuous consistency; non-plastic; marine origin; lower boundary not observed; Pleistocene coral shelf |

Figure 121. SIHP #-7428 Feature 1, basalt stone and mortar wall within T-119A, view to northwest

Figure 122. SIHP #-7428 Feature 1, basalt stones in T-119, view to northeast

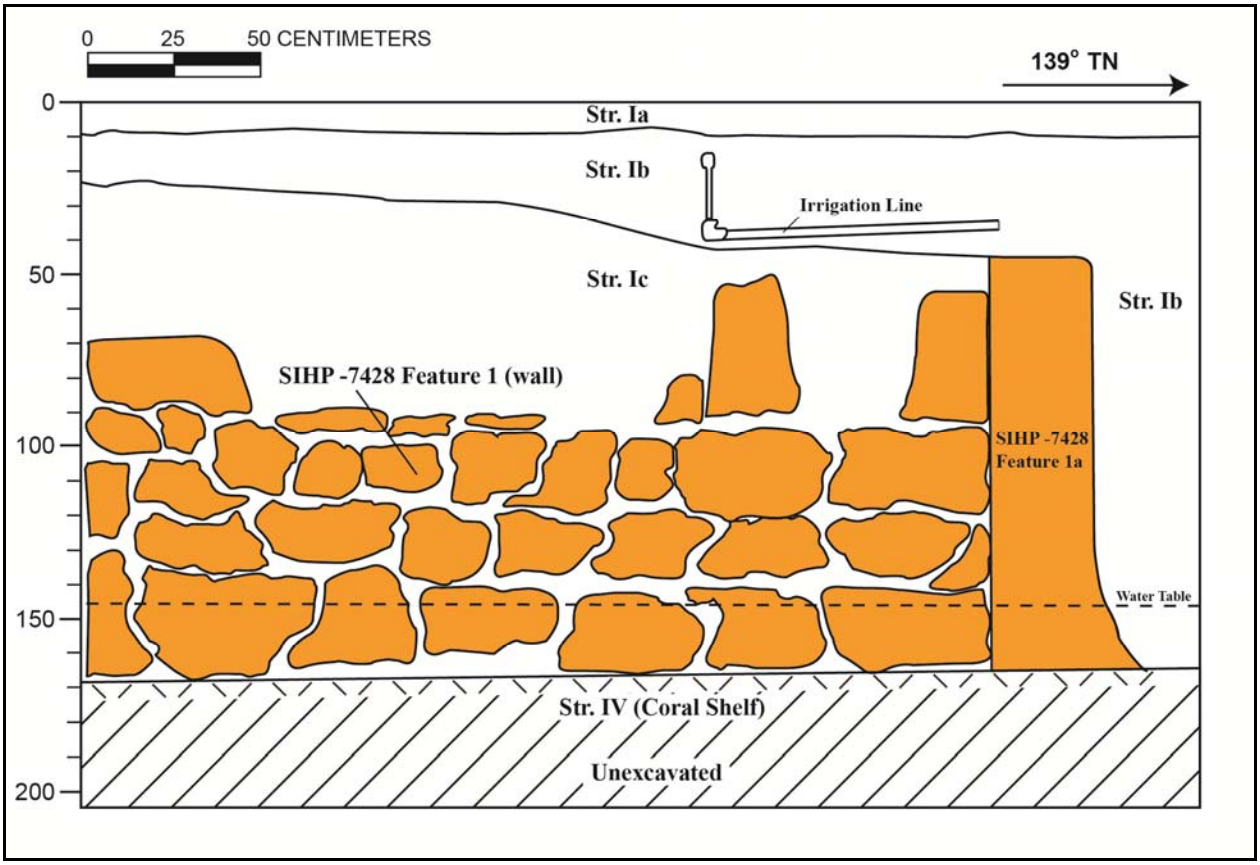


Figure 123. T-119A northeast profile showing SIHP # -7428 Features 1 and 1a

Table 33. T-119A Stratigraphic Description

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-10 | Fill; 10 YR 2/2 (very dry brown); loam; weak, medium, granular structure; dry, weakly coherent consistency; non-plastic; terrigenous origin; abrupt, smooth lower boundary; few fine to coarse roots; imported fill, basalt gravel, inclusions |
| Ib | 10-165 | Fill; 10 YR 3/2 (very dark gray brown); loam; weak, medium, granular structure; dry, weakly coherent consistency; non-plastic; terrigenous origin; abrupt, smooth lower boundary; few, fine to coarse roots; contained irrigation line; imported fill, basalt gravel inclusions |
| Ic | 25-90 | Fill; 10 YR 5/3 (brown); gravelly, medium sand; structureless, single-grain; loose, dry consistency; non-plastic; marine origin; abrupt, smooth lower boundary; crushed coral and sand fill |
| SIHP #-7428 Feature 1 | 47-165 | Historic mortared basalt boulder wall; SIHP #-7428 Feature 1 |

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| SIHP #-7428 Feature 1a | 45-165 | Builders trench; 10 YR 3/2 (very dark grayish brown); sandy loam; weak, medium, granular structure; moist, loose consistency; non-plastic; terrigenous origin; abrupt lower boundary; few fine, medium and coarse roots; contained ceramics , a metal tag (collected), and red brick (not collected);sample contained charcoal, marine shell midden , naturally-occurring shell, organics, burned bottle glass, rusted metal fragments, vesicular basalt, coral gravel, faunal (*Canis lupus familiaris* and *Pervagor spilosoma* (Fantail Filefish); infilled builders trench consisting of likely locally procured A-horizon utilized as fill; SIHP #-7428 Feature 1a |
| IV | 165 (BOE) | Natural; 10 YR 7/4 (very pale brown); bedrock-limestone; structureless, massive; moist, weakly to strongly cemented; discontinuous consistency; non-plastic; marine origin; lower boundary not observed; Pleistocene coral shelf |

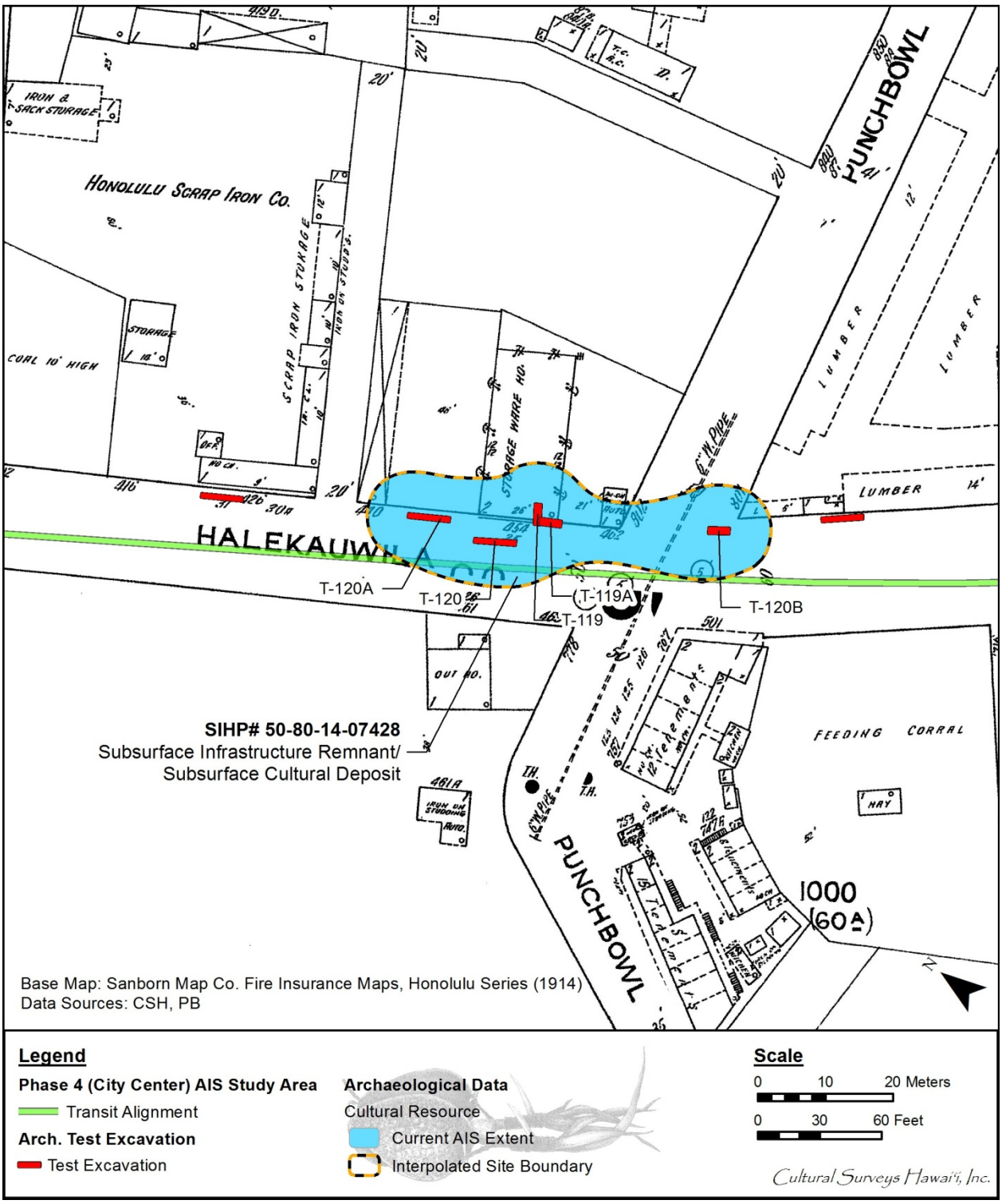


Figure 124. Portion of the 1914 Sanborn Fire Insurance Map depicting the relationship between the wall remnant (SIHP #-7428 Feature 1) and associated builder's trench (SIHP #-7428 Feature Ia) within T-119 and T-119A and the southwestern edge of a former storage warehouse

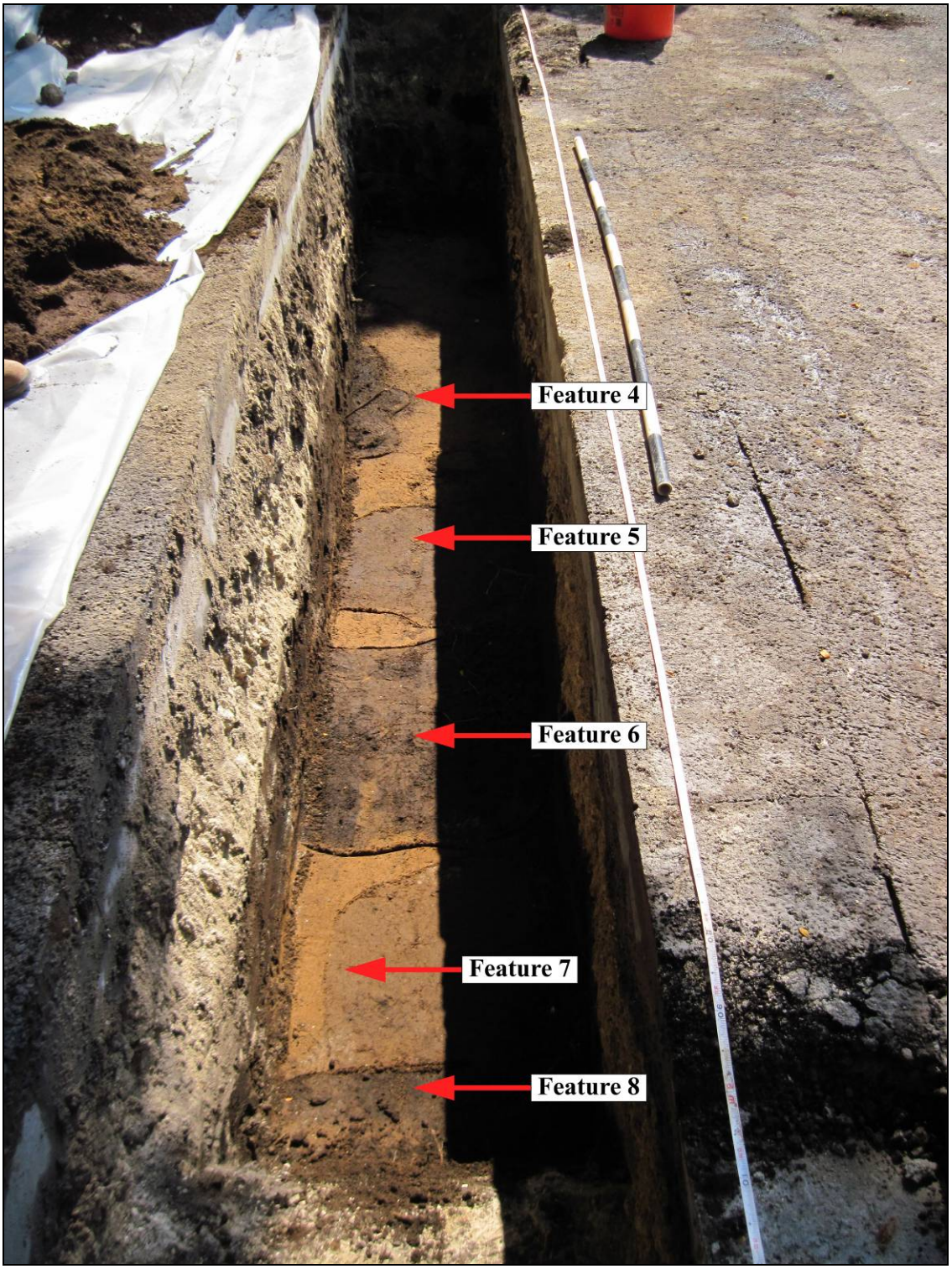


Figure 125. Overview of T-120 showing SIHP # -7428 Features 4–8, view to southeast

Figure 126. T-120 northeast wall profile, view to east

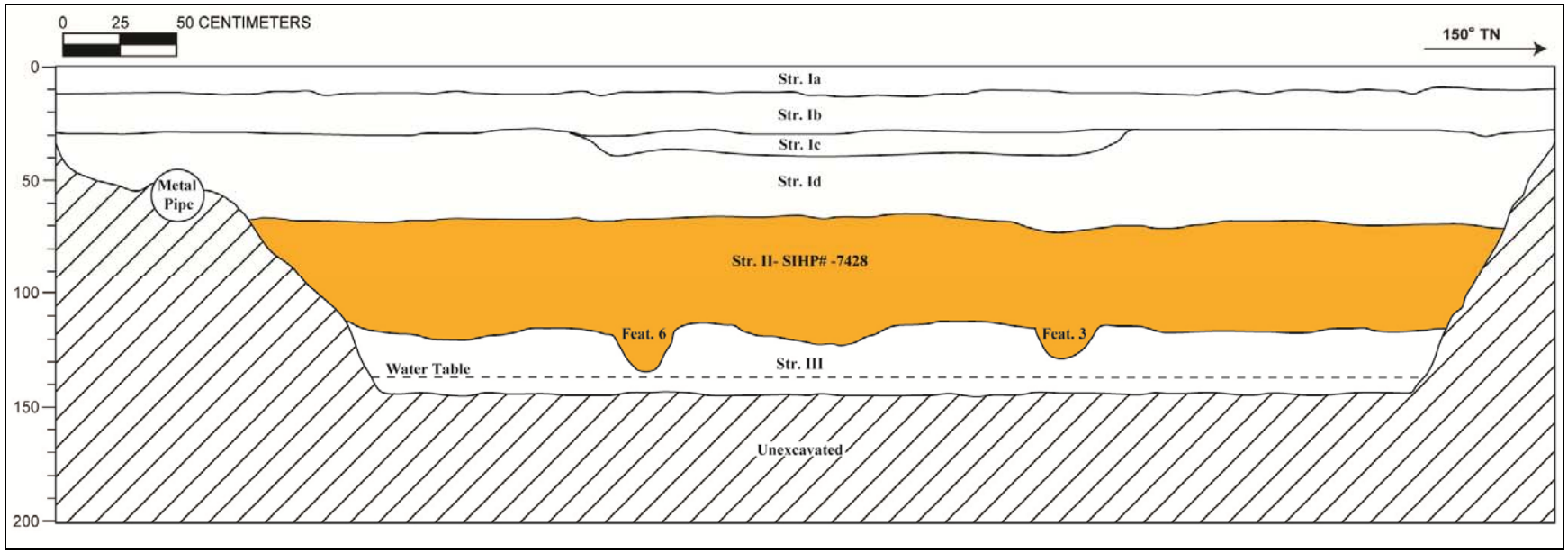


Figure 127. T-120 northeast wall profile

Table 34. T-120 Stratigraphic Description, northeast wall

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0–14 | Asphalt |
| Ib | 14–30 | Concrete |
| Ic | 30–40 | Fill; 10 YR 4/1 (dark gray); gravelly sandy clay; weak, fine, crumb structure; moist, friable consistency; plastic; mixed origin; clear, broken/discontinuous lower boundary; fill, crushed coral gravel |
| Id | 30–73 | Fill; 10 YR 7/3 (very pale brown); extremely gravelly sand; structureless, single-grain; moist, friable consistency; non-plastic; marine origin; very abrupt, smooth lower boundary |
| II | 65–135 | Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; wavy lower boundary; common, fine, medium roots; contained Features 2-8, faunal remains, ceramic, marine shells (collected); buried A-horizon; designated a component of SIHP # -7428 |
| SIHP #-7428 Feature 2 | 112–129 | Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; possible postmold originating in Stratum II; sample contained charcoal, marine shell midden, fish bone, a shark tooth, and naturally-occurring marine shell; SIHP #-7428 Feature 2 |
| SIHP #-7428 Feature 3 | 112–116 | Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; pit feature originating in Stratum II; sample contained charcoal, marine shell midden, fish bone, medium mammal bone, and naturally-occurring marine shell; SIHP #-7428 Feature 3 |
| SIHP #-7428 Feature 4 | 112–126 | Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; pit feature originating in Stratum II; sample contained one piece of volcanic glass debitage, a basalt manuport fragment, charcoal, marine shell midden, fish bone (including *Pervagor spilosoma*, or Fantail Filefish), rat bone, medium mammal bone, and naturally-occurring marine shell; SIHP #-7428 Feature 4 |
| SIHP #-7428 Feature 5 | 110–118 | Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; pit feature originating in Stratum II; sample contained one piece of volcanic glass debitage, charcoal, marine shell midden, pig bone, medium mammal bone, dog bone, rat bone, bird bone, fish bone (*Pervagor spilosoma*, or Fantail Filefish, and *Scarus perspicillatus*, or Spectacled parrotfish), a shark tooth, burned *kukui* nutshell, and naturally-occurring marine shell; SIHP #-7428 Feature 5 |

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| SIHP #-7428 Feature 6 | 107–120 | Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; pit feature and sub-feature originating in Stratum II; sample contained one piece of volcanic glass debitage, basalt, charcoal, marine shell midden, three shark teeth, pig bone, dog bone, rat bone, fish bone (*Pervagor spilosoma*, or Fantail Filefish), burned *kukui* nutshell, fire-cracked rock, a plastic filament, and naturally-occurring marine shell; SIHP #-7428 Feature 6 |
| SIHP #-7428 Feature 7 | 104–107 | Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; pit feature originating in Stratum II; sample contained charcoal, marine shell midden, dog bone, rat bone, a shark tooth, fish bone (*Pervagor spilosoma*, or Fantail Filefish, and *Bilunulatus albotaeniatus*, or Hawaiian hogfish), fire-cracked rock, and naturally-occurring marine shell; SIHP #-7428 Feature 7 |
| SIHP #-7428 Feature 8 | 104–117 | Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; pit feature originating in Stratum II; sample contained charcoal, marine shell midden, dog bone, rat bone, a shark tooth, fish bone (*Pervagor spilosoma*, or Fantail Filefish), burned *kukui* nutshell, and naturally-occurring marine shell; SIHP #-7428 Feature 8 |
| III | 113–145 (BOE) | Natural; 10 YR 5/4 (yellowish brown); fine grain sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; natural Jaucas sand |

**SIHP #-7428 Feature 4** was identified within T-120. It originated from the base of Stratum II at 1.12 mbs and terminated at 1.26 mbs (Figure 125 to Figure 127 and Table 34). The pit was irregularly shaped in plan view, measured 0.95 m long by 0.22 m wide, and extended into the northeast sidewall. The sediment matrix within the pit was fine loamy sand with similar characteristics to Stratum II. An 11.4-liter screened sample was collected from SIHP #-7428 Feature 4 at 1.12-1.26 mbs. The sample yielded charcoal (7.2 g), naturally-occurring shell (18.3 g), small roots (0.1 g), a piece of volcanic glass debitage (0.3 g), a basalt manuport fragment (0.2 g), medium mammal remains (0.9 g), *Rattus* sp. remains (0.1 g), unidentified fish remains (0.3 g), Monacanthidae *Pervagor spilosoma* (Fantail Filefish; 0.1 g), and shell midden (50.6 g). SIHP #-7428 Feature 4 was interpreted as a pit of indeterminate function.

**SIHP #-7428 Feature 5** was identified within T-120 originating from the base of Stratum II at 1.10 mbs and terminating at 1.18 mbs (see Figure 125 to Figure 127 and Table 34). The pit was irregularly shaped in plan view, measured 0.65 m long by more than 0.75 m wide, and extended into the northeast and southwest excavation sidewalls. The sediment matrix within the pit was fine loamy sand with similar characteristics to Stratum II. An 18.9-liter screened sample collected from SIHP #-7428 Feature 5 yielded charcoal (66.2 g), naturally-occuring marine shell (1.3 g), volcanic glass (1.5 g), burned *kukui* (1.6 g), roots and leaves (0.4 g), medium mammal long bone fragments (2.2 g), burned *Canis lupus familiaris* long bone (0.6 g), burned Aves remains (0.1 g), *Rattus* sp. remains (0.1 g), *Scarus perspicillatus* (Parrot fish) and *Pervagor spilosoma* (Fantail file fish ) (0.3 g), a shark tooth (0.1 g), and marine shell midden (64.3 g). SIHP #-7428 Feature 5 was interpreted as a pit of indeterminate function.

**SIHP #-7428 Feature 6** was identified within T-120 originating from the base of Stratum II at 1.07 mbs and terminating at 1.20 mbs. The pit contained a circular component that extend into the northeast wall between 1.17–1.37 mbs (see Figure 125 to Figure 127 and Table 34). SIHP #-7428 Feature 6 was irregularly shaped in plan view. It measured 0.85 m long by more than 0.75 m wide and extended into the northeast and southwest excavation sidewalls. The sediment matrix of within the pit was fine loamy sand with similar characteristics to Stratum II. An 18.9-liter screened sample collected from SIHP #-7428 Feature 6 contained charcoal (28.1 g), burned *kukui* nut shell (1.8 g), organic filaments (0.5 g), a basalt fragment (3.9 g), volcanic glass debitage (<0.1 g), a plastic filament (<0.1 g), fire-cracked rock fragments (148.3 g), *Canis lupus familiaris* juvenile molars, metatarsus, burned fragments (8.3 g), *Sus scrofa* molar fragments (0.5 g), *Rattus* sp. mandible, long bone, and other fragments (0.9 g), *Pervagor spilosoma* (Fantail Filefish; 5.5 g), and marine marine shell midden (236.5 g). SIHP #-7428 Feature 6 was interpreted as a pit of indeterminate function.

**SIHP #-7428 Feature 7** was identified within T-120. It originated from the base of Stratum II at 1.04 mbs and terminated at 1.07 mbs (see Figure 125 to Figure 127 and Table 34). The pit was irregularly shaped in plan view, measured 0.5 m long by more than 0.53 m wide, and extended into the southwest sidewall. The sediment matrix within the feature was fine loamy sand with similar characteristics to Stratum II. An 18.9-liter screened sample collected from SIHP #-7428 Feature 7 contained charcoal (8.6 g), naturally-occurring shell (3.3 g), fire-cracked rock and vesicular basalt (17.9 g), *Canis lupus familiaris* molar and long bone fragments (1.2 g), *Rattus* sp. maxilla and long bone fragments (0.1 g), a shark tooth (0.1 g), *Bilunulatus albotaeniatus* (Hawaiian hogfish) and *Pervagor spilosoma* (Fantail Filefish; 0.6 g), and marine shell midden (129.5 g). SIHP #-7428 Feature 7 was interpreted as a pit of indeterminate function.

**SIHP #-7428 Feature 8** was identified within T-120 originating from the base of Stratum II at 1.04 mbs and terminating at 1.17 mbs (see Figure 125 to Figure 127 and Table 34). The pit was irregularly shaped in plan, and measured 0.45 m long by more than 0.75 m wide, and extended into the northeast and southwest sidewalls. The sediment matrix within the feature was fine loamy sand with similar characteristics to Stratum II. An 18.9-liter screened sample collected from SIHP #-7428 Feature 8 yielded charcoal (15.1 g), naturally-occurring marine shell (2.1 g), burned *kukui* nut (3.6 g), *Canis lupus familiaris* (13.6 g), *Rattus* sp. (0.1 g), a shark tooth (0.1 g), *Pervagor spilosoma* (Fantail Filefish) and *Scarus* sp. (Parrotfish; 0.3 g,), and marine shell midden (38.0 g). SIHP #-7428 Feature 8 was interpreted as a pit of indeterminate function.

**SIHP #-7428 Feature 9** was identified within T-120A originating from the base of Stratum II at 1.18 mbs and terminating at 1.36 mbs (Figure 128 to Figure 130 and Table 35). The pit was oval shaped in plan, measured 0.30 m by more than 0.15 m, and extended into the northeast side wall of T-120A. The sediment matrix within the feature was gravelly sandy loam with similar characteristics to Stratum II. A 1-liter screened sample collected from SIHP #-7428 Feature 9 contained charcoal (0.3 g), marine shell midden (1.9 g), and naturally-occurring marine shell (0.4 g). SIHP #-7428 Feature 9 is interpreted as a pit of indeterminate function.

**SIHP #-7428 Feature 10** was identified within T-120A originating from the base of Stratum II at 1.28 mbs and terminating at 1.37 mbs (see Figure 128 to Figure 130 and Table 35). The pit was circular in plan and measured 0.25 m in diameter. The sediment matrix within the pit was gravelly sandy loam with similar characteristics to Stratum II. A 3-liter bulk sample collected from SIHP #-7428 Feature 10 contained charcoal (2.9 g), marine shell midden (10.5 g), *kukui* nutshell (0.1 g), fish fragments (2.2 g), and coral fragments (12.8 g). SIHP #-7428 Feature 10 is interpreted as a pit of indeterminate function or a possible postmold.

**SIHP #-7428 Feature 11** was identified within T-120A. It originated from the base of Stratum II at 1.30 mbs and terminated at 1.40 mbs (see Figure 128 to Figure 130 and Table 35). The pit was linear in shape in plan view, measured 0.67 m long by more than 0.65 m wide, and extended into both the northeast and southwest excavations sidewalls. The sediment matrix within the feature was gravelly sandy loam with similar characteristics to Stratum II. A 6-liter bulk sample and a 9.5-liter screened sample collected from SIHP #-7428 Feature 11 collectively yielded charcoal (45.1 g), marine shell midden (12.2 g) naturally-occurring marine shell (0.1 g), roots (1.2 g), glass (0.2 g), a white ceramic fragment (14.1 g), medium mammal remains (0.3 g), a shark tooth (0.1 g), and a basalt water worn cobble (18.8 g). SIHP #-7428 Feature 11 is interpreted as a pit of indeterminate function.

**SIHP #-7428 Feature 12** was identified within T-120A originating from the base of Stratum II at 1.28 mbs and terminating at 1.32 mbs (see Figure 128 to Figure 130 and Table 35). The pit was irregular shaped in plan. It measured 1.75 m in length by more than 0.40 m wide and extended into the southwest excavation sidewall. The sediment matrix within the feature was gravelly sandy loam with similar characteristics to Stratum II. A 2-liter bulk sample was collected from SIHP #-7428 Feature 12. It contained charcoal (16.1 g), marine shell midden (37.7 g), naturally-occurring marine shell (1.8 g), volcanic glass (0.1 g), and fire-cracked rock (17.7 g). SIHP #-7428 Feature 12 is interpreted as a pit of indeterminate function.

**SIHP #-7428 Feature 13** was identified within T-120A. The pit originated the base of Stratum II at 1.28 mbs and terminated at 1.32 mbs (see Figure 128 to Figure 130 and Table 35). The circular pit measured approximately 0.15 m in diameter and slightly extended into the northeast


Figure 128. Overview of T-120A showing SIHP # -7428 Features 9 through 13, view to southeast

Figure 129. T-120A northeast wall profile, view to southeast

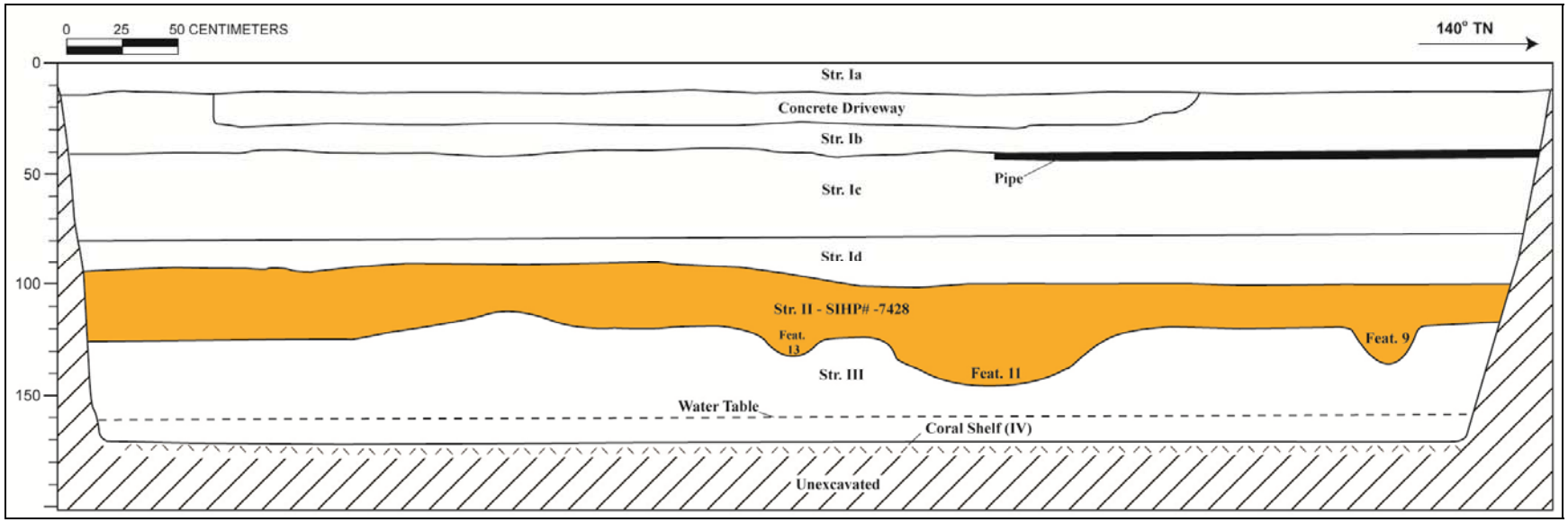


Figure 130. T-120A northeast wall profile

Table 35. T-120A Stratigraphic Description, northeast wall

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0–15 | Asphalt; fill |
| Ib | 15–40 | Fill; 10 YR 7/4 (very pale brown); very gravelly sandy loam; medium, crumb structure; moist, loose, weak consistency; non-plastic; mixed origin; clear, smooth lower boundary; common, fine roots; coral gravel, large coral cobbles, very gravelly sandy loam |
| Ic | 40–80 | Fill; 10 YR 7/4 (very pale brown); very gravelly loamy sand; structureless, single-grain; weak, fine, medium, granular structure; moist, loose, weak consistency; non-plastic; mixed origin; clear, smooth lower boundary; common, fine roots; coral gravel, large coral cobbles, very gravelly loamy sand |
| Id | 80–100 | Fill; 10 YR 2/2 (very dark brown); gravelly loamy sand; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; abrupt, smooth lower boundary; bulk sample contained faunal, midden, charcoal (collected) |
| II | 90–125 | Natural; 10 YR 2/2 (very dark brown); gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; abrupt, smooth lower boundary; common, fine roots; bulk and/or screened samples contained bovine, glass, marine mollusk shell, *Mytilidae, Neritidae, Tellinidae* (collected); contains five pit features (Features 9-13) designated as components of SIHP #-7428 |
| SIHP #-7428 Feature 9 | 118–136 | Natural; 10 YR 2/2 (very dark brown); gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; pit feature; sample contained charcoal, marine shell midden, and naturally-occurring marine shell; SIHP #-7428 Feature 9 |
| SIHP #-7428 Feature 10 | 128–137 | Natural; 10 YR 2/2 (very dark brown); gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; pit feature; sample contained charcoal, marine shell midden, *kukui* nutshell, and fish bone; SIHP #-7428 Feature 10 |
| SIHP #-7428 Feature 11 | 130–140 | Natural; 10 YR 2/2 (very dark brown); gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; pit feature; sample contained charcoal, marine shell midden, glass fragments, one white ceramic fragment, one basalt water-worn cobble, medium mammal bone, one shark tooth, and naturally-occurring marine shell; SIHP #-7428 Feature 11 |
| SIHP #-7428 Feature 12 | 128–132 | Natural; 10 YR 2/2 (very dark brown); gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; pit feature; sample contained charcoal, marine shell midden, one piece of volcanic glass debitage, fire-cracked rock, and naturally-occurring marine shell; SIHP #-7428 Feature 12 |

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| SIHP #-7428 Feature 13 | 128–132 | Natural; 10 YR 2/2 (very dark brown); gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; pit feature; sample contained charcoal and marine shell midden; SIHP #-7428 Feature 13 |
| III | 125–170 | Natural; 10 YR 5/4 (yellowish brown); sand; structureless, single-grain; moist, friable consistency; non-plastic; marine origin; abrupt, smooth lower boundary |
| IV | 170 (BOE) | Natural; 10 YR 7/4 (very pale brown); bedrock-limestone; structureless, massive; moist, weakly to strongly cemented; discontinuous consistency; non-plastic; marine origin; lower boundary not observed; Pleistocene coral shelf |

excavation sidewall. The sediment matrix within the feature gravelly sandy loam with similar characteristics to Stratum II. A 1-liter bulk sample collected from the pit yielded charcoal (0.1 g) and marine shell midden (1.0 g). SIHP #-7428 Feature 13 is interpreted as a pit of indeterminate function.

The buried A-horizon (Stratum II; SIHP #-7428) has been capped by layers of locally-procured and imported fill, and the modern asphalt road and cement sidewalk, all of which have been sub-designated under Stratum I. The fill sediments that cap the former land surface are considered to be late-nineteenth century to modern deposits related to land reclamation, grading, and the construction of Halekauwila Street.

The buried culturally-enriched A-horizon (SIHP #-7428) identified in T-119, T-119A, T-120, T-120A, and T-120B contained both traditional Hawaiian and post-Contact cultural material, vertebrate and invertebrate faunal material, and charcoal.

Traditional cultural material within the buried culturally-enriched A-horizon (SIHP #-7428) included a single slingstone (Acc. # 119A-H-1; Figure 131) within T-119A, two volcanic glass flakes (120A-H-1, H-2) within T-120A, and two basalt flakes and one volcanic glass flake (120B-H-1 to H-3) within T-120B. Energy-Dispersive X-ray Fluorescence (EDXRF) analysis of the volcanic glass flakes indicates that these fragments are from a local O‘ahu provenance.

Historic cultural material within the buried culturally-enriched A-horizon included historic glass bottle fragments (21 total), dated between 1800 and 1920, ceramics, and other miscellaneous artifacts (Table 36).

Vertebrate faunal remains were collected from the buried culturally-enriched A-horizon (Stratum II) and SIHP #-7428 Features 1a, 2, 3, 4, 5, 6, 7, 8, 10, and 11. In general, the faunal remains that were collected were either unmodified, or they exhibited evidence of butchering (i.e. metal saw blade). The faunal remains consist of *Canis lupus familiaris*, *Bos taurus*, *Sus scrofa*, *Equus ferus caballus*, and several varieties of fish. Several of the *Bos Taurus* and *Sus scrofa* elements display evidence of butchering with a metal saw blade. This particular butchering practice is specific to the historic time period. Horses (*Equus ferus caballus*) were not introduced to Hawai‘i until the early 1800s.

Invertebrate faunal remains were predominately collected from screened and bulk sediment samples of the buried culturally-enriched A-horizon. Invertebrate fauna included naturally-occuring shell and shell midden similar in quantity and taxa to the naturally-occuring shell and shell midden described within SIHP #-7428 Features 2, 3, 5, and 7-13.

Wood taxa analysis on select charcoal fragments from SIHP #-7428 Features 1a, 4, 5, 7, 9, 10, and 12 identified 19 species of trees and shrubs including 14 native species, 3 Polynesian-introduced species, and 2 historically-introduced species (see Table 31). While the analysis indicated a predominance of native and Polynesian-introduced species, the presence of historically-introduced species reflects the continued use or occupation of the buried A-horizon (SIHP #-7428) during the post-Contact era. Radiocarbon results of taxa-identified charcoal fragments include date ranges that span form the pre-Contact to the mid-twentieth century (see Table 31).

SIHP #-7428 is a buried, culturally-enriched A-horizon and 14 associated archaeological features. Twelve of these features (SIHP #-7428 Features 2–13) consist of 3 postmolds, and 9


Figure 131. Photograph of slingstone (Acc. # 119A-H-1) collected from Stratum IIa in T-119A

Table 36. Historic Cultural Material Identified From SIHP #-7428

| Acc. # | Prov. | Ceramic Vessel Type | Portion | No. | Paste | Origin; Age | Comments |
|---|---|---|---|---|---|---|---|
| 119A-A-1 | T-119A, SIHP #-7428 Feature 1a | Flatware -plate or dish | Body and rim | 2 | Porcelain | Chinese | “Om” motif, blue painted underglaze; two blue bands (int.) |
| 119A-A-2 | T-119A, SIHP #-7428 Feature 1a | Flatware -plate or dish | Base | 1 | Porcelain | Chinese | “Allah” motif, blue painted underglaze |
| 119A-A-3 | T-119A, SIHP #-7428 St. IIa | Hollowware - rice bowl | Body | 1 | Porcelain | Asian, probably Japanese | Asian style, blue floral exterior design |
| **Acc. #** | **Prov.** | **Misc. Type** | **Portion** | **No.** | **Material** | **Origin; Age** | **Comments** |
| 119A-A-6 | T-119A, SIHP #-7428 Feature 1a | Tag | Complete | 1 | Metal | Post-1908 | Thin oval metal plate with two holes; has a picture of a carriage and “FISHER” (post-1908) |
| 119A-A-7 | T-119A, SIHP #-7428 St. IIa | Cobble | Complete | 1 | Stone | - | Waterworn cobble, tabular, polished; possible cobblestone or ballast stone? |
| 119A-A-8 | T-119A, SIHP #-7428 St. IIa | Pebble, rounded | Complete | 1 | Stone | - | Waterworn pebble, unpolished, round |

| Acc. # | Prov. | Ceramic Vessel Type | Portion | No. | Paste | Origin; Age | Comments |
|---|---|---|---|---|---|---|---|
| 119A-A-9 | T-119A, SIHP #-7428 St. IIa | Pebble, rounded | Complete | 1 | Stone | - | Waterworn pebble, slightly polished, oblate |
| 119A-A-10 | T-119A, SIHP #-7428 St. IIa | Stone/ Marble mass | Fragment | 1 | Stone | - | - |
| 120A-A-1 | T-120A, SIHP #-7428 Feature 11 | Glass, worked | Fragment | 1 | Glass | Post-1870 | Glass chipped for cutting edge; clear glass; post-1870 |

indeterminate pits. The other two were identified in T-119 and T-119A and consist of a basalt stone and mortar wall (SIHP #-7428 Feature 1) with an associated builder's trench (SIHP #-7428 Feature 1a). SIHP # -7428 contained both traditional Hawaiian and post-Contact cultural material, vertebrate and invertebrate faunal material, and charcoal. Laboratory analysis of the material collected from SIHP #-7428 indicated that the former land surface was utilized from the pre-and/or early post-Contact period to the mid-twentieth century, prior to being capped by historic fill deposits.

Based on the guidance of the National Register Bulletin No.15, SIHP #50-80-14-7428 retains its integrity of location, design, materials, and workmanship. Based on the results of this investigation, CSH recommends that this cultural resource maintains sufficient 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.

SIHP #50-80-14-7428 has provided information, and can potentially provide additional information, on late pre- to early post-Contact habitation and historic land use within Kaka‘ako. The potential for additional research warrants the implementation of a data recovery program. Data recovery at SIHP # -7428 will focus on data collection from the buried, culturally-enriched sandy loam A-horizon and associated features, and any discrete features within fill layers, such as wall remnants. It also will include a more intensive regime of strata- and feature-specific radiocarbon, palynological, and botanical analyses to further clarify use and function of the culturally-enriched strata and features, and to temporally distinguish between traditional Hawaiian versus historic deposition. Following the data recovery program, archaeological monitoring program will be conducted to collect further data on the nature, content, sequence, and extent of SIHP #50-80-14-7428.

**SIHP # 50-80-14-7429**

| | |
|---|---|
| **FORMAL TYPE:** | Subsurface cultural deposit, human skeletal element |
| **FUNCTION:** | Habitation |
| **PREVIOUS DOCUMENTATION:** | N/A |
| **AGE:** | Undetermined, potentially pre- and post-Contact |
| **NUMBER OF FEATURES:** | 7 |
| **TYPES OF FEATURES:** | 6 pits (2 possible postmolds, 4 indeterminate) and 1 human skeletal element |
| **DISTRIBUTION:** | 0.05 acres (total area) |
| **LOCATION:** | Located near the corner of Ward Avenue and Queen Street (Kewalo Geographic Zone) |
| **TAX MAP KEY:** | TMK [1] 2-3-002:059 and 001 |
| **LAND JURISDICTION:** | Victoria Ward Ltd. |
| **TEST EXCAVATIONS:** | T-167, T-168, T-168A, T-168B, T-169, T-170, and T-170A |

SIHP #50-80-14-7429 is a newly-identified subsurface cultural deposit (A horizon) and seven associated features identified in the Ross Dress for Less store parking lot and adjacent throughway parking lot near the intersection of Ward Avenue and Queen Street (Figure 132 and Figure 133). This archaeological cultural resource was identified in the Kewalo Geographic Zone during the current City Center archaeological inventory survey.

The buried, culturally-enriched A-horizon containing seven archaeological features was identified in seven test excavations (T-167, T-168, T-168A, T-168B, T-169, T-170, and T-170A). The features consist of six pits and one isolated human cranial fragment.

The depositional sequence in each of the seven test excavations was generally similar (Figure 134). The buried Late Pleistocene calcareous reef (coral shelf) was reached in T-168A and T-168B and is presumed to be beneath the water table and base of excavation within T-167, T-168, T-169, T-170, and T-170A. The coral shelf was overlain by natural gleyed marine sand at the water table in T-168, T-170, and T-170A.

Natural calcareous sand, termed Jaucas sand and designated Stratum III, was present at the base of excavation in each of the seven test excavations and overlying the coral shelf and gleyed sediments in T-168, T-168A, T-168B, T-170, and T-170A.

The buried culturally-enriched silty sand or loamy sand A-horizon (SIHP # -7429), exhibited both pre- and post-Contact land usage, and was designated Stratum II. It overlies the natural Jaucas sand surface in all seven test excavations. The six pit features (Features 1–5 and 7) originated from the A-horizon and were observed to be intrusive into the underlying Jaucas sand. Two pit features were interpreted as possible postmolds (Features 2 and 4), while the other four pits (Features 1, 3, 5, and 7) were of indeterminate function. Feature 6, an isolated human cranial fragment, was identified in T-170 within the buried A-horizon; no pit outline was evident.

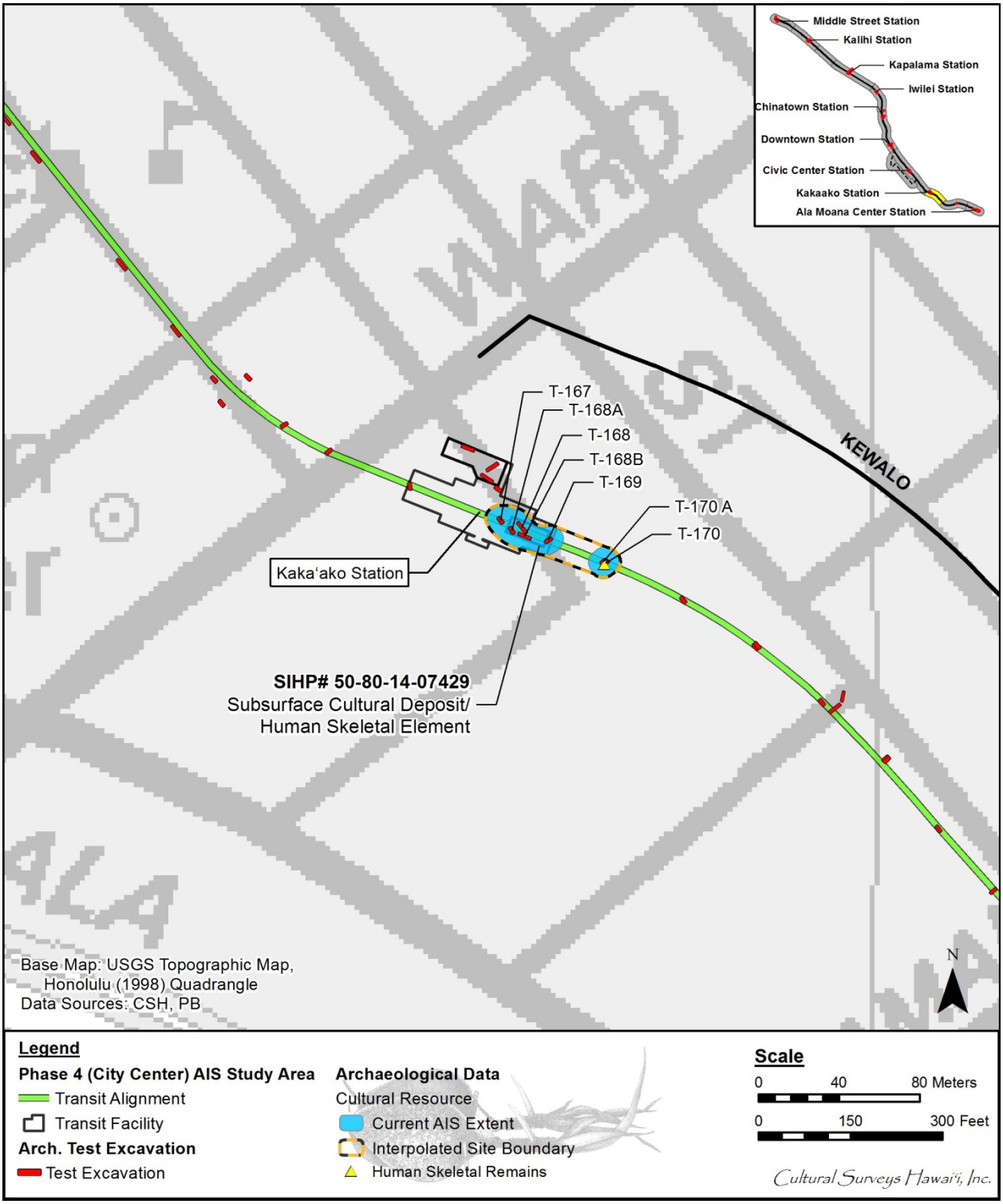


Figure 132. Location of the subsurface cultural deposits (SIHP # -7429) in the Kewalo Geographic Zone (Base Map: 1998 USGS Topographic Map of Honolulu)

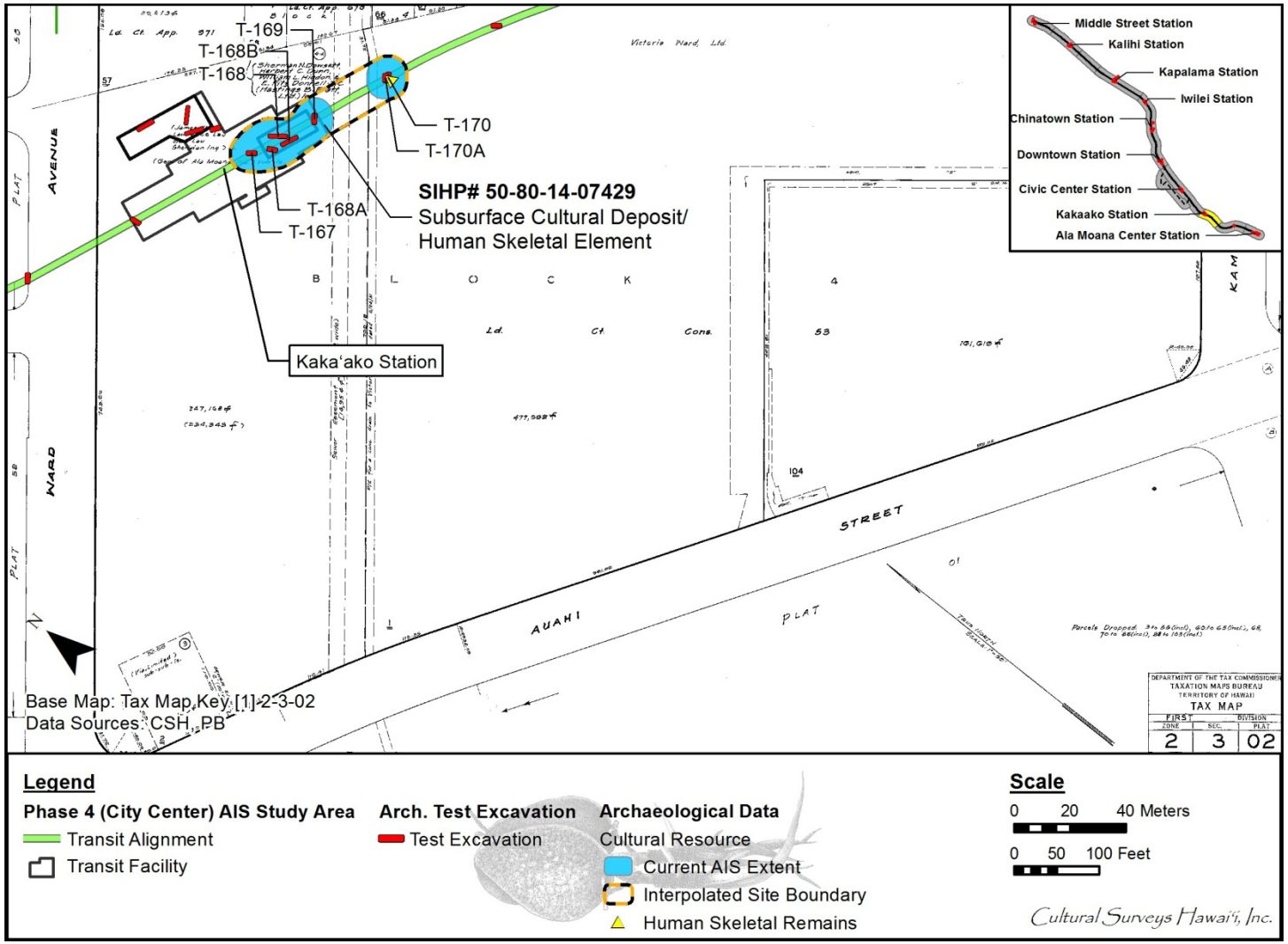


Figure 133. Location of the subsurface cultural deposit and isolated human remains (SIHP # -7429) in the Kewalo Geographic Zone (Base Map: Tax Map Key [1] 2-3-2)


Figure 134. T-170A northwest wall profile, showing the general depositional sequence observed in the vicinity, including the buried culturally-enriched sand A-horizon (SIHP # -7429), view to west

T-170A Stratigraphic Description

| Stratum | Depth (cmbs) | Description |
|---|---|---|
| Ia | 0-15 | Asphalt |
| Ib | 12-25 | Fill; 10 YR 3/3 (dark brown); very gravelly loam; weak, fine, crumb structure; moist, friable consistency; non-plastic; terrigenous origin; abrupt, smooth lower boundary; basalt base course |
| Ic | 25-30 | Fill; 10 YR 8/2 (very pale brown); extremely gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; crushed coral fill |
| Id | 30-52 | Fill; 10 YR 7/2 (light gray); very fine sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary |
| II | 52-60 | Natural, 10 YR 4/2 (dark grayish brown); silty sand; structureless, single-grain; moist, loose consistency; non-plastic; diffuse, smooth lower boundary; buried A-horizon; contained glass, marine shells, and faunal bone (collected); SIHP #-50-80-14-7429; contains Feature 7 |
| SIHP #-7429 Feature 7 | 56-60 | Pit feature originating in Stratum II; silty sand; contained marine shell midden, fish bone, faunal remains, fire-cracked rock, and glass fragments; SIHP #-7429 Feature 7 |
| III | 60-123 | Natural; 10 YR 7/4 (very pale brown); medium to coarse grain sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; diffuse, smooth lower boundary; natural Jaucas sand |
| IV | 123-132 (BOE) | Natural; GLEY 1 5GY 7/1 (light greenish gray); coarse sand; structure-less, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; natural marine sand |

**SIHP #-7429 Feature 1** was identified within T-167 at or near the base of Stratum II at 1.40 mbs. The pit was intrusive into Stratum III where it terminated at 1.45 mbs. The feature was irregularly shaped in plan view and measured a over 0.94 m long and 0.87 m wide. It was observed at the northwestern end of the excavation and extended beyond the excavation sidewalls (Figure 135). The sediment matrix within the pit was silty sand with similar characteristics to Stratum II. An osseous fragment from a medium mammal was collected from during excavation. A 4-gallon bulk sediment sample collected from within the pit was screened and yielded charcoal (0.2 g), *Nerita picea* (1.9 g), possibly burned crustacean (0.7 g), naturally-occurring, water-rounded marine shell (non-midden) (0.8 g), and a metal fragment (0.4 g). SIHP #-7429 Feature 1 is interpreted as a pit of indeterminate function.

**SIHP #-7429 Feature 2** was identified within T-167 at or near the base of Stratum II at 1.41 mbs. The pit was intrusive into Stratum III where it terminated at 1.49 mbs. The feature was ovoid in plan view, measured 0.32 m long and over 0.15 m wide, and extended into the south sidewall (see Figure 135). The sediment matrix with the pit was silty sand with similar characteristics to Stratum II. Burned osseous fragments from an unidentified medium mammal were collected from Feature 2 during excavation. A 1.5 gallon screened bulk sediment sample from SIHP #-7429 Feature 2. It contained charcoal (0.3 g), naturally-occurring, water-rounded marine shell (2.8 g), rusted metal fragments (4.1 g), and fish bone (0.1 g). SIHP #-7429 Feature 2 is interpreted as a possible postmold.

**SIHP #-7429 Feature 3** was identified within T-167 at or near the base of Stratum II at 1.32 mbs. The pit was intrusive into Stratum III where it terminated at 1.48 mbs. The feature was roughly rectangular in plan view. It measured over 0.95 m long and over 0.64 m wide and extended into the south and southeast sidewalls (Figure 136). The sediment matrix within the pit was silty sand with similar characteristics to Stratum II. Burned osseous fragments from an unidentified medium mammal and *Sus scrofa* (pig) were collected from the upper portion of SIHP #-7429 Feature 3 during excavation. One of the fragments, a pig rib, also exhibited cut marks characteristic of butchering. Two glass insulator fragments also were collected from the upper portion of the pit feature during excavation. The insulator was embossed with a “B” referring to Bushwick/Brookfield Glass Works, which was in operation from 1864-1921 (Whitten 2013). A canine tooth from a *Canis lupus familiaris* (dog) with a drilled hole through the end of the root (Acc. # 167-H-1) was discovered near the faunal remains and glass fragments. The drilled tooth is considered a Traditional Hawaiian artifact and may have been part of a dog tooth necklace (*lei ‘ilio*) or leg ornament (*kupe‘e niho ‘ilio*). A 12-gallon screened bulk sediment sample collected from within the pit yielded charcoal (0.2 g), rusted metal fragments (4.1g), an unidentified fish bone (0.1 g), unidentified medium mammal bone (0.3 g), and marine shell midden consisting of *Nerita picea* (4.7 g), Isognomidae (1.2 g), *Isognomon* sp. (0.3 g), burned *Conus* sp. (0.9 g), *Strombus* sp. (0.3 g), Mitridae (0.3 g), crustacean (2.2 g), Echinoidea spp. (1.7), and *Brachidontes crebristriatus* (1.3 g). The charcoal collected from Feature 3 was submitted for wood taxa analysis identified cf. Conifer (pine, fir), a historically-introduced tree, as well as cf. *Metrosideros polymorpha* (*‘ōhi‘a lehua*), a native tree, and four unidentified species. The contents of Feature 3 indicate post-Contact influence. SIHP #-7429 Feature 3 is interpreted as a pit of indeterminate function.

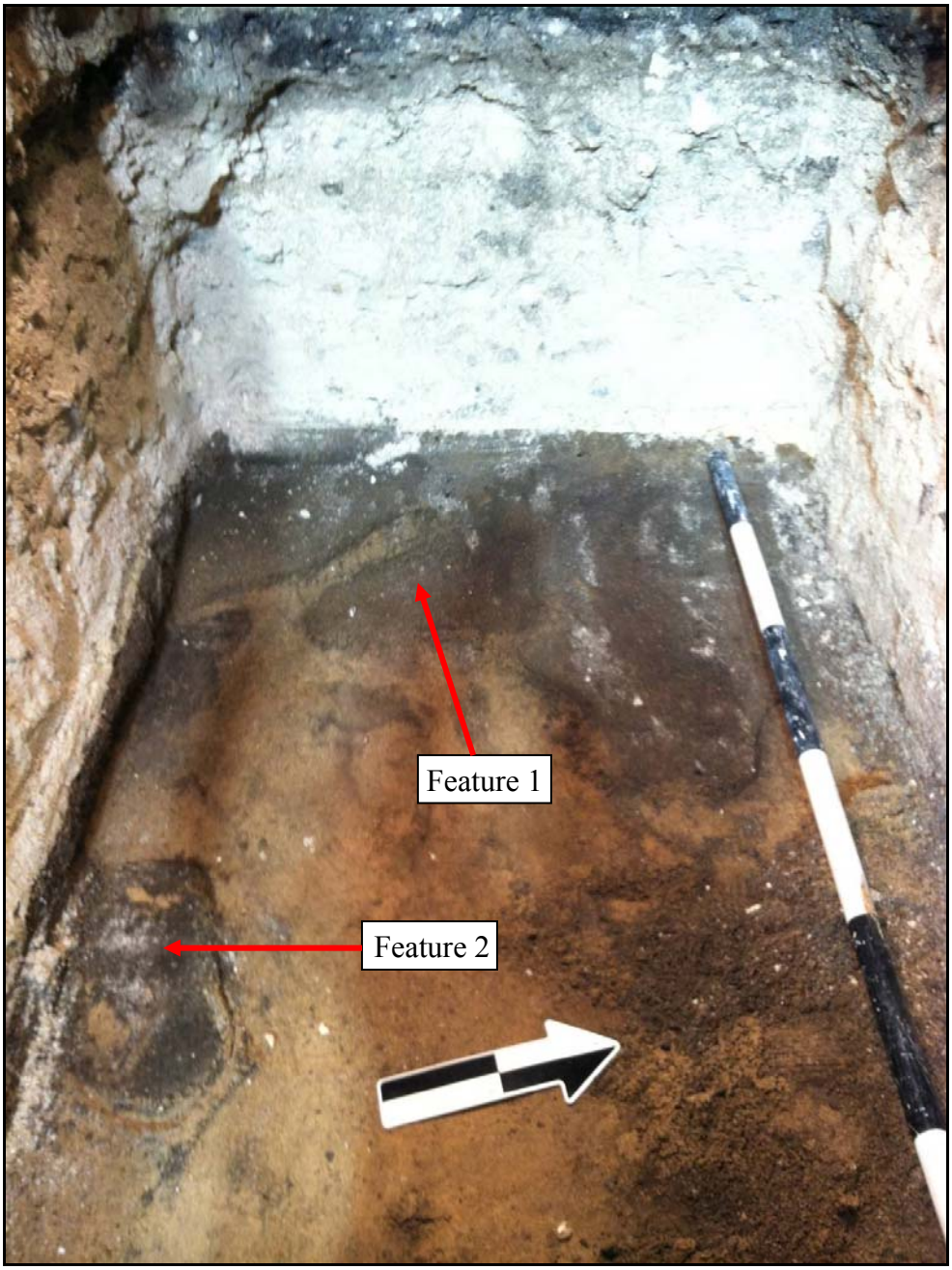


Figure 135. T-167 interface of Strata II/III, showing SIHP # -7429 Features 1 and 2, view to northwest

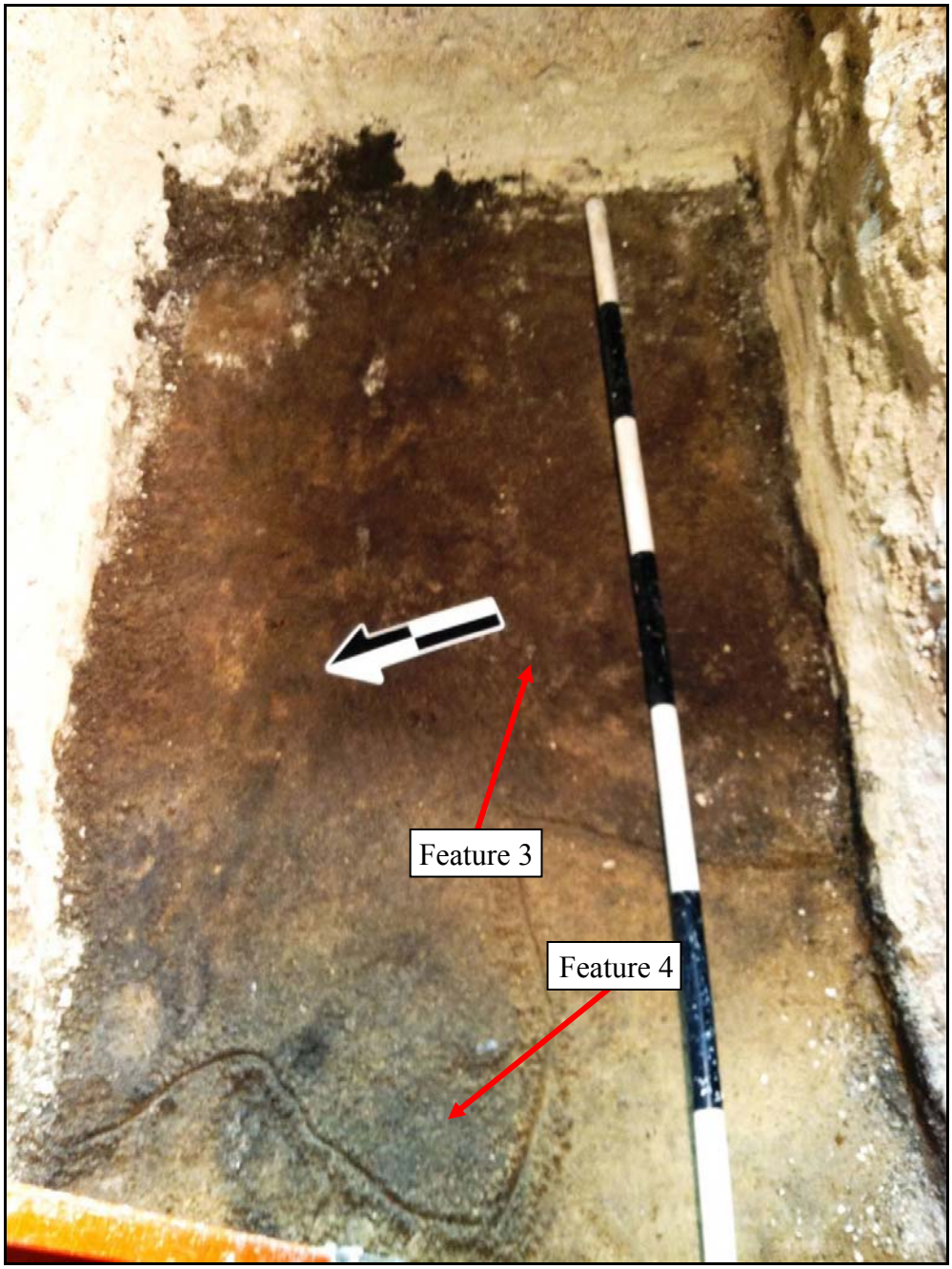


Figure 136. T-167 interface of Strata II/III, showing SIHP # -7429 Features 3 and 4, view to southeast

**SIHP #-7429 Feature 4** was identified within the central portion of T-167, originating from the base of Stratum II at 1.54 mbs and terminating at 1.66 mbs within Stratum III. This pit was mostly circular in plan view and measured 0.31 m long and 0.28 m wide (see Figure 136). The sediment matrix within the feature was silty sand with similar characteristics to Stratum II. No bulk sample was collected, and no artifacts or faunal remains were observed, during the excavation of the feature. SIHP #-7429 Feature 4 is interpreted as a possible postmold.

**SIHP #-7429 Feature 5** was identified in the western portion of T-168B, originating from the base of Stratum II at 1.50 mbs and terminating at 1.65 mbs within Stratum III. This pit was ovoid in plan view, measured over 0.60 m long and 0.30 m wide, and extended into the south sidewall (Figure 137). The sediment matrix within the feature was loamy sand with similar characteristics to Stratum II. SIHP #-7429 Feature 5 contained a noticeable deposit of charcoal flecking. A 4-liter bulk sediment sample and a 3-gallon screened sediment sample collected from SIHP #-7429 yielded charcoal (43.2 g), various shell midden (5.4 g), various non-cultural shell (2.5 g), rusted metal (3.0 g), *Rattus* sp. (rat) bone (0.1 g), and fire-cracked rock (43.1 g), and possible marine shell midden. The possible marine shell midden included crustacean (1.6 g), *Nerita picea* (1.5 g), *Isognomon* sp. (1.4 g), Echinoidea (0.2 g), *Ctena bella* (0.1 g), *Brachidontes crebristriatus* (0.1 g), and *Strombus* sp. (0.5 g). A sample of charcoal (4.2 g) was submitted for wood taxa analysis and identified as cf. *Metrosideros polymorpha* (*‘ōhi‘a lehua*) and conifer (i.e., pine, fir, or other cone-bearing variety). SIHP #-7429 Feature 5 is interpreted as a pit of indeterminate function.

**SIHP #-7429 Feature 6** was identified in T-170. Feature 6 consists of a single isolated human cranial fragment, identified as a left temporal bone portion, including the mastoid process and the root of the zygomatic arch. The previously-disturbed human cranial fragment was discovered in situ within the buried A-horizon (Stratum II) near the southern end of the southeast sidewall and at 0.65 mbs (Figure 138). A limited investigation was performed by an osteologist to identify the remains discovered in situ, and no additional human remains were detected. The fracture margins of the fragment were of similar color as the adjacent bone, which indicates that the temporal portion was not fractured recently. The mastoid process was notably gracile which suggests a possible female or young adult individual. An assessment of ancestry was indeterminate due to the lack of supporting traits. SIHP #-7429 Feature 6 is interpreted as a human skeletal fragment.

**SIHP #-7429 Feature 7** was identified in T-170A, originating within Stratum II at 0.56 mbs and terminating at 0.60 mbs near the base of Stratum II. Feature 7 was mostly square shaped in plan view and measured 0.35 m long and 0.25 m wide (Figure 139). The sediment matrix of discovered SIHP #-7429 Feature 7 was silty sand with similar characteristics to Stratum II. A 2-liter screened bulk sediment sample yielded various shell midden (13.5 g), bottle glass fragments (0.3 g), a fish spine (0.1 g), and fire-cracked rock (25.8 g). The shell midden was identified as *Strombus* sp. (8.5 g), *Nerita picea* (2.6 g), burned *Natica* sp. (2.0 g), burned crustacean (0.3 g), and *Isognomon* sp. (0.1 g). Faunal remains from the screened bulk sediment sample were identified as *Canis lupus familiaris* (dog), *Rattus* sp. (rat), and an unknown medium mammal, not consistent with human. The presence of historic material indicates post-Contact influence to the feature. SIHP #-7429 Feature 7 is interpreted as a pit of indeterminate function.

Detailed information regarding the location, type, function and content of each archaeological feature is provided in Table 37. No radiocarbon dating analysis was performed on the contents from SIHP # -7429.

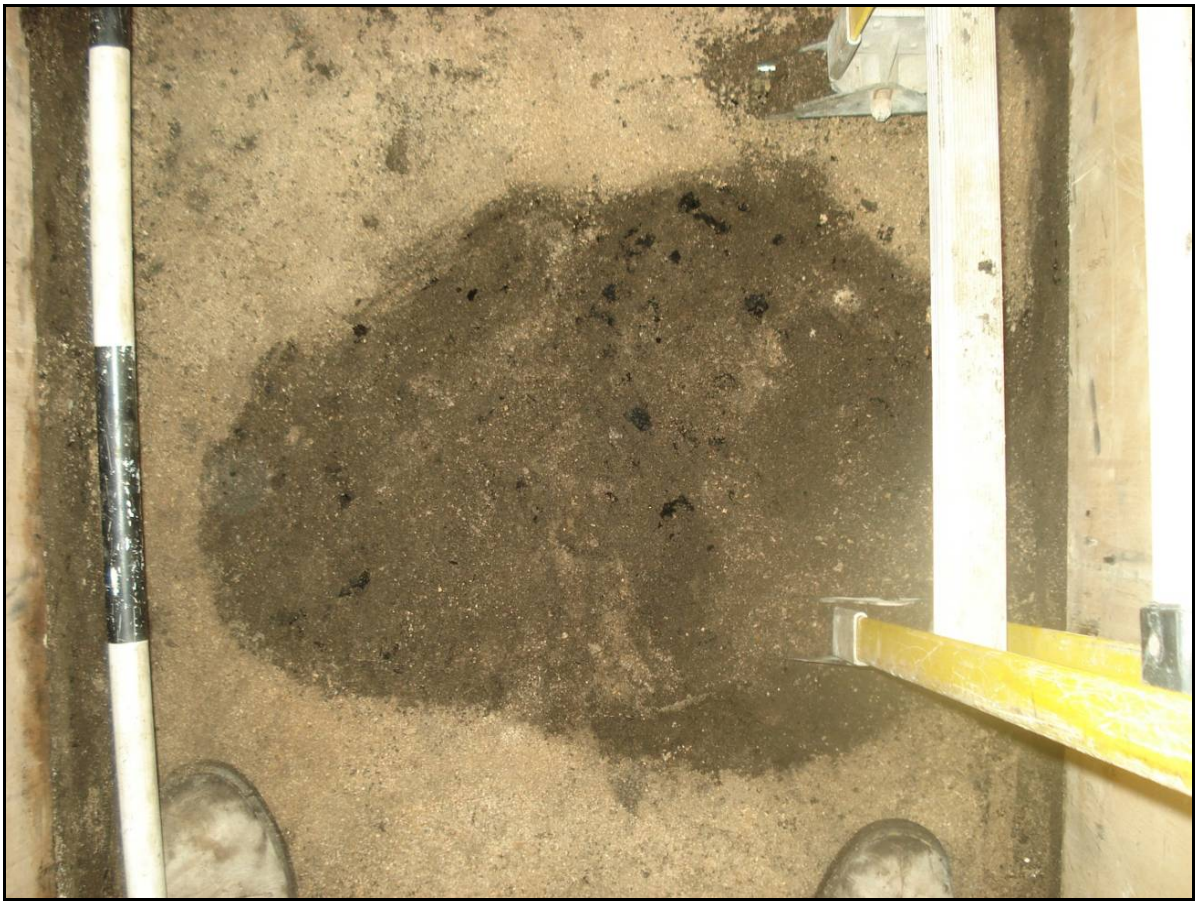

Figure 137. T-168B interface of Strata II/III, showing SIHP # -7429 Feature 5; note charcoal flecking within feature, view to southeast

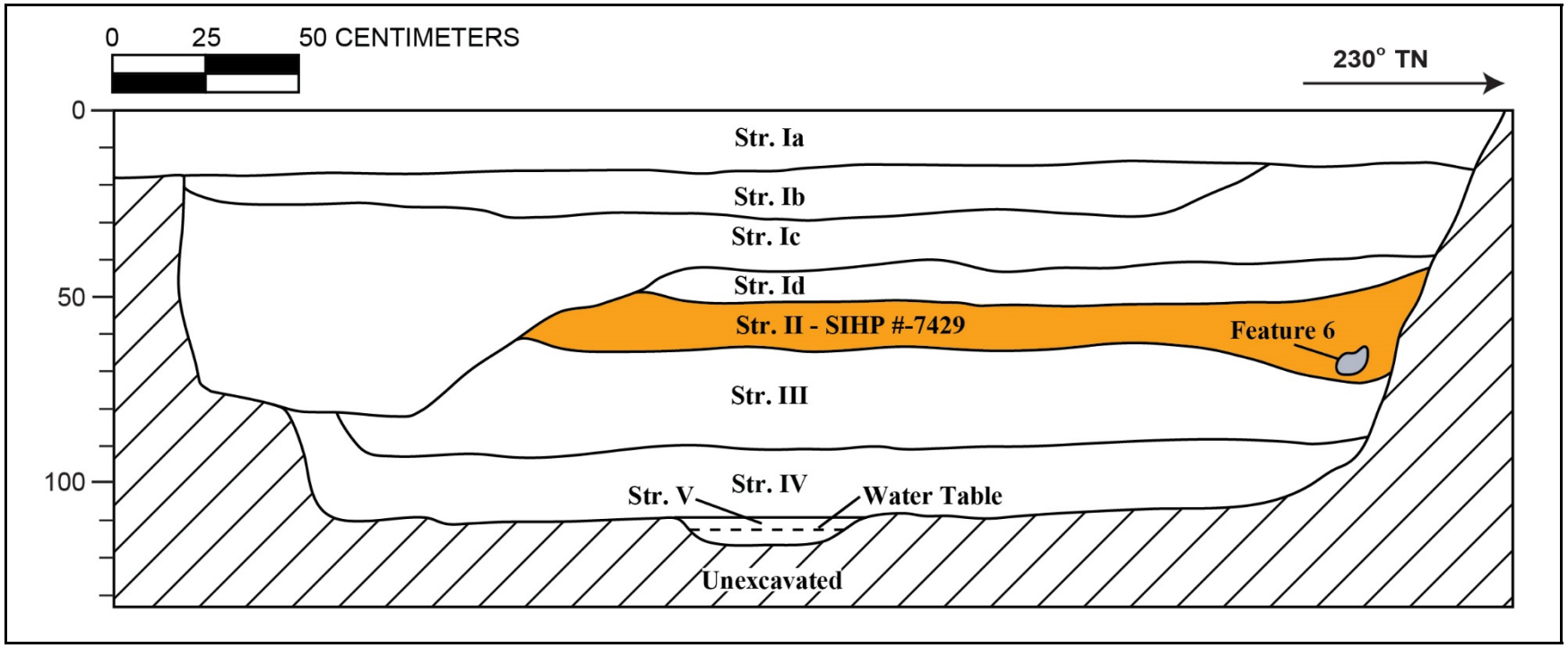


Figure 138. T-170 southeast wall profile, showing the location of SIHP # -7429 Feature 6, human cranial fragment

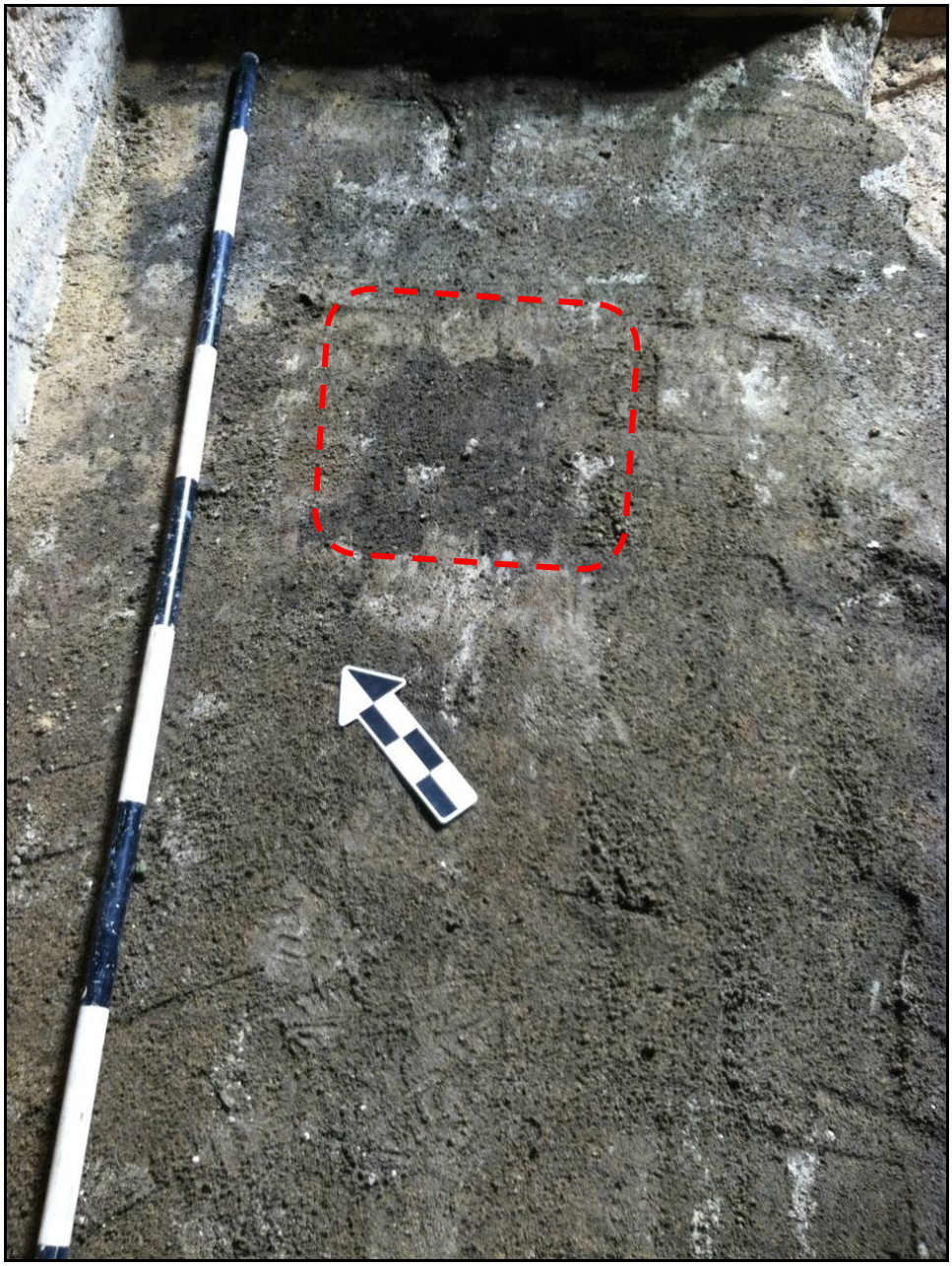

Figure 139. T-170A interface of Strata II/III, showing SIHP # -7429 Feature 7 (outlined), view to northeast

Table 37. Archaeological Features of SIHP # -7429 Identified during the City Center Section 4 AIS

| Feature | Test Excavation | Depth (cmbs) | Type/Function | Contents |
|---|---|---|---|---|
| 1 | T-167 | 140-145 | Pit/Indeterminate | *Nerita picea* shell, burned crustacean, non-cultural shell, a metal fragment, a single fragmentary medium mammal skeletal element |
| 2 | T-167 | 141-149 | Pit/Possible postmold | Burned osseous fragments from an unidentified medium mammal, naturally-occurring, water-rounded marine shell, rusted metal fragments, and fish bone |
| 3 | T-167 | 140-148 | Pit/Indeterminate | Drilled *Canis lupus familiaris* tooth, burned osseous fragments from an unidentified medium mammal and a *Sus scrofa*, also a butchered pig rib, Bushwick/Brookfield Glass Works glass insulator (1864-1921), charcoal (native *‘ōhi‘a lehua* and conifer), shell midden, rusted metal fragments, and an unidentified fish bone |
| 4 | T-167 | 140-166 | Pit/Possible postmold | Possible postmold |
| 5 | T-168B | 150-165 | Pit/Indeterminate | Charcoal (native *‘ōhi‘a lehua* and conifer), shell midden, non-cultural shell, rusted metal, *Rattus* sp., and fire-cracked rock |
| 6 | T-170 | 65-71 | Isolated human remains | Isolated human cranial fragment identified as a left temporal portion including the mastoid process and root of the zygomatic arch. Gracile mastoid process indicates possible female or young adult. No pit outline |
| 7 | T-170A | 56-60 | Pit/Indeterminate | Shell midden, bottle glass fragments, a fish spine, fire-cracked rock, and faunal remains from a *Canis lupus familiaris*, *Rattus* sp., and unknown medium mammal |

The buried A-horizon has been capped by layers of locally-procured and imported fill, base course, and the modern asphalt surface of the Ross Dress for Less store and throughway parking lots, all of which have been sub-designated under Stratum I. The fill sediments that cap the former land surface are considered to be late nineteenth century to modern deposits related to land reclamation, grading, and the construction of the parking lots.

The buried A-horizon (SIHP # -7429) identified in T-167, T-168, T-168A, T-168B, T-169, T-170, and T-170A contained both Traditional Hawaiian and post-Contact cultural material, human skeletal remains, vertebrate and invertebrate faunal material, and charcoal.

Historic cultural material within the buried culturally-enriched A-horizon of SIHP # -7429 was collected from four test excavations. A bulk sediment sample of Stratum II/III from T-167 included a bottle glass and rusted metal fragment. Bulk sediment samples of Stratum II from T-168 included metal fragments and a nail, a small blue glass bead, and a glass fragment. A bulk sediment sample of Stratum II from T-168B included large rusted metal fragments and bottle glass fragments. Stratum II from T-169 contained one glass marble, three clay marbles, a piece of worked glass, and corroded metal and glass fragments. A bulk sediment sample of Stratum II from T-170A contained a refined earthenware ceramic fragment, metal fragments, and bottle glass fragments. A single canine tooth of a dog (*Canis lupus familiaris*) with a drilled hole through the end of the root (Acc. #167-H-1) was collected from SIHP #-7429 Feature 3 (Figure 140). The tooth may have been part of a dog tooth necklace (*lei ‘ilio*) or leg ornament (*kupe‘e niho ‘ilio*). The drilled dog tooth was found near faunal remains and a Bushwick/Drookfield Glass Works glass insulator dating around 1864-1921. Historic artifacts collected from five of the pit features included metal fragments from SIHP #-7429 Features 1-3 and 5, and bottle glass fragments from Feature 7.

Human skeletal remains were encountered within the culturally-enriched A-horizon (SIHP # -7429) in T-170. They were identified between 0.65 mbs and 0.71 mbs. The human skeletal remains were identified as an isolated left temporal bone portion within Stratum II. No pit outline was present. The fracture margins indicated that the fragmentation of the portion had not been recent and was likely a result of previous disturbance. The gracile size of the mastoid process on the temporal bone suggests it was from a female or young adult. An assessment of ancestry was indeterminate. SIHP #-7429 Feature 6 was was preserved in situ.

Vertebrate faunal remains were collected from the buried culturally-enriched A-horizon from T-168B, T-169, and T-170A and from SIHP #-7429 Features 2, 3, and 7. In general, the faunal remains include unmodified, burned, and/or butchered fragments (i.e., exhibited characteristic cut marks). Faunal remains collected from the buried A-horizon included *Bos taurus* (cow), *Sus scrofa* (pig), *Canis lupus familiaris* (dog), *Rattus* sp.(rat), as well as unidentified medium mammal fragments possibly from *Ovis aries* (sheep) or *Felis catus* (cat), and unidentified fish remains. Faunal remains from SIHP #-7429 Features 2, 3, and 7 included *Sus scrofa, Canis lupus familiaris Rattus* sp., and several unidentified medium mammal fragments, in addition to unidentified fish remains.

Invertebrate faunal remains were predominately collected from screened and bulk sediment samples of the buried SIHP #-7429 culturally-enriched A-horizon and associated features. Invertebrate fauna included non-cultural shell and shell midden (see Table 37).

Figure 140. Drilled dog tooth (Acc. #167-H-1) (obverse and reverse) that may have been part of a dog tooth necklace (*lei ‘ilio*) or part of a dog tooth leg ornament (*kupe‘e niho ‘ilio*), collected from the buried culturally-enriched A-horizon (SIHP # -7429) of T-167, scale blocks are in cm

SIHP # 50-80-14-7429 is a newly-identified subsurface cultural deposit. SIHP # -7429 includes a buried, culturally-enriched silty sand/loamy sand A-horizon containing seven archaeological features (Features 1 to 7). Two pit features were interpreted as possible postmolds (SIHP #-7429 Features 2 and 4), four pit features were of indeterminate function (SIHP #-7429 Features 1, 3, 5, and 7), and one feature consisted of an isolated human cranial fragment (SIHP #-7429 Feature 6). SIHP # -7429 contained both traditional and post-Contact cultural material, human skeletal remains, vertebrate and invertebrate faunal material, and charcoal. Laboratory analysis of material collected from SIHP # -7429 indicates that the former land surface was likely utilized from the pre- and/or early post-Contact period to the early twentieth century, prior to being capped by historic fill deposits.

Background research indicates that the coastal lands of Kewalo were sparsely populated during the pre- and early-post Contact time periods. This coastal area largely consisted of wetlands that were utilized for aquaculture, salt pans, occasional taro *lo‘i*, and habitation. Many of the Kewalo wetlands were reclaimed for urban development during the late nineteenth century.

Based on the guidance of the National Register Bulletin No. 15, SIHP # 50-80-14-7429 retains its integrity of location, design, and materials. 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) and E (has cultural significance to an ethnic group) of the Hawai‘i Register, and Criterion D of the National Register, exclusively for its information potential.

SIHP #50-80-14-7429 has provided information, and can potentially provide additional information, on late pre- to early post-Contact habitation, historic land use, and pre- and post-Contact burial practices and distribution within Kaka‘ako. The potential for additional research warrants the implementation of a data recovery program focusing on data collection from the buried, culturally-enriched A-horizon and associated features. Additionally, discrete features within fill layers will be identified and documented. Data recovery will include a more intensive regime of strata- and feature-specific radiocarbon, palynological, and botanical analysis. The analysis will seek to indicate use, function, and potentially the geographic distribution/extent of culturally-enriched strata and features, and attempt to temporally categorize subsurface deposits to distinguish between traditional Hawaiian versus historic deposition. Data recovery will also seek to identify additional burials or human skeletal remains that may be present within SIHP # -7429. Data recovery will include detailed stratigraphic documentation of identified burial pits or human skeletal remains. Following data recovery, archaeological monitoring will be conducted to futher recover data on the depositional sequence and extent of SIHP # -7429 through documentation and sample collection. The previously-identified human remain associated with SIHP # -7429, will be treated in accordance with HAR §13-300 and HRS Chapter 6E-43. In order to alleviate the project’s effect on human burials, a project-specific burial treatment plan (a requirement of HAR §13-300) will be prepared for consideration of the OIBC and recognized descendants. The agreed-upon treatment is preservation in place, the details of which will be documented in the burial treatment plan.