
Draft
Archaeological Inventory Survey Report
For the City Center (Section 4) of the
Honolulu High-Capacity Transit Corridor Project,
Kalihi, Kapālama, Honolulu, and Waikīkī Ahupua'a,
Honolulu (Kona) District, Island of O'ahu
TMK [1] 1-2, 1-5, 1-7, 2-1, 2-3 (Various Plats and Parcels)

Volume IV B

Excavation Results:

Zone 3 West Kapālama (Test Excavations 48 to 53)

Zone 4 East Kapālama (Test Excavations 54 to 85)

Zone 5 Iwilei (Test Excavations 86 to 95)

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

On Behalf of
PB Americas, Inc.

Prepared by
Hallett H. Hammatt, Ph.D.
Cultural Surveys Hawai'i, Inc.
Kailua, Hawai'i
(Job Code: KALIHI 23)

April 2013

O'ahu Office
P.O. Box 1114
Kailua, Hawai'i 96734
Ph.: (808) 262-9972
Fax: (808) 262-4950

www.culturalsurveys.com

Maui Office
1860 Main St.
Wailuku, Hawai'i 96793
Ph: (808) 242-9882
Fax: (808) 244-1994

Table of Contents

Section 1 Introduction	1
1.2 Stratigraphy.....	5
1.3 Excavation Protocol.....	6
Section 2 Zone 3 West Kapālama (Test Excavations 48 to 53)	7
2.1 Overall Location	7
2.2 Transit Infrastructure	7
2.3 Geography, Geology, and Land Forms.....	7
2.4 Traditional and Historic Land Use.....	10
2.4.1 Traditional Accounts of West Kapālama Zone.....	10
2.4.2 LCA Documentation.....	10
2.4.3 Historic Land Use	13
2.4.4 Settlement Pattern Summary	13
2.5 Previous Archaeology.....	18
2.6 Modern Land Use and Built Environment.....	18
2.7 Test Excavation 48 (T-048)	20
2.8 Test Excavation 49 (T-049)	25
2.9 Test Excavation 50 (T-050)	30
2.10 Test Excavation 51 (T-051)	35
2.11 Test Excavation 52 (T-052)	40
2.12 Test Excavation 53 (T-053)	45
Section 3 Zone 4 East Kapālama Geographic Zone (Test Excavations 054 to 085).....	51
3.1 Overall Location	51
3.2 Transit Infrastructure	51
3.3 Geography, Geology, and Land Forms.....	51
3.4 Traditional and Historic Land Use.....	53
3.4.1 Traditional Accounts of the East Kapālama Zone	53
3.4.2 LCA Documentation.....	55
3.4.3 Historic Land Use	59
3.4.4 Settlement Pattern Summary	59
3.5 Previous Archaeology.....	66
3.6 Modern Land Use and Built Environment.....	69
3.7 Test Excavation 54 (T-054)	70
3.8 Test Excavation 55 (T-055)	76
3.9 Test Excavation 56 (T-056)	81
3.10 Test Excavation 57 (T-057)	86
3.11 Test Excavation 58 (T-058)	91
3.12 Test Excavation 59 (T-059)	96
3.13 Test Excavation 60 (T-060)	101
3.14 Test Excavation 61 (T-061)	107
3.15 Test Excavation 62 (T-062)	113
3.16 Test Excavation 63 (T-063)	118
3.17 Test Excavation 64 (T-064)	123
3.18 Test Excavation 65 (T-065)	132
3.19 Test Excavation 66 (T-066)	139

3.20 Test Excavation 67 (T-067)	147
3.21 Test Excavation 68 (T-068)	157
3.22 Test Excavation 69 (T-069)	163
3.23 Test Excavation 70 (T-070)	168
3.24 Test Excavation 71 (T-071)	173
3.25 Test Excavation 72 (T-072)	179
3.26 Test Excavation 73 (T-073)	184
3.27 Test Excavation 74 (T-074)	189
3.28 Test Excavation 75 (T-075)	194
3.29 Test Excavation 76 (T-076)	200
3.30 Test Excavation 77 (T-077)	205
3.31 Test Excavation 78 (T-078)	210
3.32 Test Excavation 79 (T-079)	215
3.33 Test Excavation 80 (T-080)	220
3.34 Test Excavation 81 (T-081)	225
3.35 Test Excavation 82 (T-082)	230
3.36 Test Excavation 83 (T-083)	238
3.37 Test Excavation 84 (T-084)	243
Section 4 Zone 5 Iwilei Geographic Zone (Test Excavations 086 to 095)	248
4.1 Transit Infrastructure	248
4.2 Geography, Geology, and Land Forms	248
4.3 Traditional and Historic Land Use	250
4.3.2 LCA Documentation	252
4.3.3 Historic Land Use	252
4.3.4 Settlement Pattern Summary	257
4.4 Previous Archaeology	257
4.5 Modern Land Use and Built Environment	264
4.6 Test Excavation 85 (T-085)	265
4.7 Test Excavation 86 (T-086)	271
4.8 Test Excavation 87 (T-087)	280
4.9 Test Excavation 88 (T-088)	289
4.10 Test Excavation 89 (T-089)	298
4.11 Test Excavation 90 (T-090)	305
4.12 Test Excavation 91 (T-091)	310
4.13 Test Excavation 92 (T-092)	315
4.14 Test Excavation 93 (T-093)	322
4.15 Test Excavation 94 (T-094)	329
4.16 Test Excavation 95 (T-095)	334
Section 5 References Cited	339

List of Figures

Figure 1. Portion of the 1998 Honolulu U.S.G.S. 7.5-minute topographic quadrangle showing the City Center AIS's 11 geographic zones along with the nine City Center stations	2
Figure 2. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005) showing the location of the West Kapālama Zone AIS excavations (T-048 through T-053) along the HHCTCP corridor	8
Figure 3. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005) with overlay of the Soil Survey of Hawai'i (Foote et al. 1972) showing sediment types within and in the vicinity of the West Kapālama Zone.....	9
Figure 4. 1855 map of Honolulu by Lt. Joseph de LaPasse of the French vessel, <i>L'Eurydice</i> (map reprinted in Fitzpatrick 1986:82-83), showing the relatively barren " <i>Plaine de Kalihi</i> " (Plain of Kalihi) in the West Kapālama Zone in contrast to the " <i>Champs de Taro</i> " (taro fields) of East Kapālama, with <i>lo'i kalo</i> , habitations, and fishponds	11
Figure 5. Aerial photograph (base map: U.S. Geological Survey Orthoimagery 2005) showing the locations of LCAs in relation to the West Kapālama Zone AIS excavations (T-048 through T-053) along the HHCTCP corridor.....	12
Figure 6. 1919 U.S. Army War Department Fire Control map, Honolulu Quadrangle, showing relatively low density habitation in the vicinity of the West Kapālama Zone AIS excavations (T-048 through T-053) along the HHCTCP corridor (perhaps relating to the relative lack of soil)	14
Figure 7. 1927 Sanborn Series maps showing the HHCTCP corridor and AIS test excavations in the West Kapālama Zone, which has by this time become significantly more urbanized (Sanborn Map Company 1927).....	15
Figure 8. 1933 U.S. Army War Department Fire Control map, Honolulu Quadrangle, showing the vicinity of the West Kapālama Zone AIS excavations (T-048 through T-053) along the HHCTCP corridor, which has by this time become significantly more urbanized.....	16
Figure 9. 1950 Sanborn Series maps showing the HHCTCP corridor and AIS test excavations in the West Kapālama Zone amidst intensive urbanization (Sanborn Map Company 1950)	17
Figure 10. Previous archaeological studies in the vicinity of the West Kapālama Zone (base map: U.S. Geological Survey Orthoimagery 2005).....	19
Figure 11. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005) showing the location of the East Kapālama Zone AIS test excavations (T-054 through T-085) along the HHCTCP corridor and at the Kapālama Station	52
Figure 12. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005) with overlay of the Soil Survey of Hawai'i (Foote et al. 1972) showing sediment types within and in the vicinity of the East Kapālama Zone	54
Figure 13. Aerial photograph (base map: U.S. Geological Survey Orthoimagery 2005) showing the locations of LCAs along with the HHCTCP corridor and Kapālama Station AIS excavations (T-054 through T-085) in the East Kapālama Zone.....	57
Figure 14. 1885 map of Kapālama by J. F. Brown (RM 1039), showing small <i>kuleana</i> LCA parcels extending across the Kapālama plain along with the HHCTCP corridor and Kapālama Station AIS excavations in the East Kapālama Zone	58
Figure 15. 1914 Sanborn Series maps showing a portion of the HHCTCP corridor in the East Kapālama Zone with development surrounding Kūwili Fishpond (5368) in the lower right	

corner and a “sugar cane field” noted to the west where the maps do not continue (Sanborn Map Company 1914).....	60
Figure 16. 1919 U.S. Army War Department Fire Control map, Honolulu Quadrangle, showing the HHCTCP corridor and Kapālama Station AIS excavations (T-054 through T-085) in the East Kapālama Zone; note the OR&L railroad tracks on either side and crossing of the corridor.....	61
Figure 17. 1927 Sanborn Series maps showing the HHCTCP corridor in the East Kapālama Zone, encroaching development in the area, and the developing street grid system (Sanborn Map Company 1927).....	62
Figure 18. 1950 Sanborn Series maps showing the HHCTCP corridor in the East Kapālama Zone, encroaching development in the area, and the developing street grid system (Sanborn Map Company 1950).....	63
Figure 19. 1933 U.S. Army War Department Fire Control map, Honolulu Quadrangle, showing the HHCTCP corridor and Kapālama Station AIS excavations (T-054 through T-085) in the East Kapālama Zone	64
Figure 20. 1953 U.S. Army Mapping Service map, Honolulu Quadrangle, showing the HHCTCP corridor and Kapālama Station AIS excavations (T-054 through T-085) in the East Kapālama Zone	65
Figure 21. Previous archaeological studies in the vicinity of the East Kapālama Zone (base map: U.S. Geological Survey Orthoimagery 2005); test excavations of prior studies that are immediately adjacent to the East Kapālama Zone corridor are also shown	68
Figure 22. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005) showing the location of the Iwilei Zone AIS test excavations (T-086 through T-095) along the HHCTCP corridor and at the Iwilei Station.....	249
Figure 23. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005) with overlay of the Soil Survey of Hawai'i (Foote et al. 1972) showing sediment types within and in the vicinity of the Iwilei Zone AIS test excavations (T-086 through T-095) along the HHCTCP corridor and at the Iwilei Station.....	251
Figure 24. 1885 map of Kapālama by J. F. Brown (R.M. 1039), showing the locations of <i>kuleana</i> LCA parcels, Kūwili and Kawa Fishponds, and the Iwilei Zone AIS test excavations (T-086 through T-095) along the HHCTCP corridor and at the Iwilei Station	253
Figure 25. Aerial photograph (base map: U.S. Geological Survey Orthoimagery 2005) showing the locations of LCAs in the vicinity of the Iwilei Zone AIS test excavations (T-086 through T-095) along the HHCTCP corridor and at the Iwilei Station	254
Figure 26. 1914 Sanborn Series map showing a portion of the HHCTCP corridor and AIS test excavations in the East Kapālama Zone and the OR&L holdings around the Iwilei Station (Sanborn Map Company 1914).....	256
Figure 27. 1919 U.S. Army War Department Fire Control map, Honolulu Quadrangle, showing the location of the Iwilei Zone AIS test excavations (T-086 through T-095) along the HHCTCP corridor and at the Iwilei Station.....	258
Figure 28. 1927 Sanborn Series maps showing the HHCTCP corridor and AIS test excavations in the Iwilei Zone and the OR&L holdings around the Iwilei Station (Sanborn Map Company 1927).....	259
Figure 29. 1933 U.S. Army War Department Fire Control map, Honolulu Quadrangle, showing the Iwilei Zone	260

Figure 30. 1950 Sanborn Series maps showing a portion of the HHCTCP corridor and AIS test excavations in the Iwilei Zone and the OR&L holdings around the Iwilei Station (Sanborn Map Company 1950).....261

Figure 31. Previous archaeological studies in the vicinity of the Iwilei Zone (base map: U.S. Geological Survey Orthoimagery 2005); test excavations of prior studies that are immediately adjacent to the Iwilei Zone corridor are also shown262

List of Tables

Table 1. LCAs in the vicinity of the West Kapālama Zone (in numeric order)13

Table 2. Previous archaeological studies conducted in the vicinity of the West Kapālama Zone 18

Table 3. LCAs in the vicinity of the East Kapālama Zone (in numerical order).....56

Table 4. Previous archaeological studies conducted adjacent to the East Kapālama Zone
(arranged chronologically).....67

Table 5. LCAs in the vicinity of the Iwilei Zone (in numerical order).....252

Table 6. Previous archaeological studies conducted within or directly adjacent to the Iwilei Zone
(arranged chronologically).....263

Section 1 Introduction

For organization and results presentation, as well as to provide a suitable context to interpret the results of test excavations and the significance of identified archaeological cultural resources, the 6.9 km length of the City Center AIS study area was divided into 11 geographic zones (Figure 1). The boundaries of the 11 geographic zones were based on background research and fieldwork results. Grouped together were areas with similar stratigraphy and geomorphology, and, where feasible, areas within traditional Hawaiian *ahupua'a* (land divisions). To be clear, the geographic zones technically are limited to the project APE (areas of actual ground disturbance), which is a relatively narrow focus; however, the geographical and cultural contextual information provided for each geographic zone covers a wider area to assist in investigation results interpretation.

Two hundred-fifty test excavations (T-001 through T-232A, including 232 original test excavations from the AISP, 9 abandoned test excavations due to various built environment conflicts, and 27 added test excavations) and seven geotechnical cores were investigated in the City Center AIS study area. Detailed maps of each test excavation location are presented in Volume I, Section 3. A detailed discussion of each test excavation including location map references, photographs of the excavation location and stratigraphy, an illustrated profile, a tabulated description of the stratigraphy, a summary of laboratory results, and an overall summary of the excavation conditions and results is presented in Volumes IVA, IVB, IVC, and IVD of this City Center AIS report. The excavation results volumes are organized into the geographic zones discussed above, generally running from west to east:

Volume IVA Excavation Results (Geographic Zones 1–2)

West Kalihi Test Excavations 1–20

East Kalihi Test Excavations 21–47

Volume IVB Excavation Results (Geographic Zones 3–5)

West Kāpalama Test Excavations 48–53

East Kāpalama Test Excavations 54–85

Iwilei Test Excavations 86–95

Volume IVC Excavation Results (Geographic Zones 6–8)

Waterfront Test Excavations 96–115

West Kaka'ako Test Excavations 116–161

Kewalo Test Excavations 162–178

Volume IVD Excavation Results (Geographic Zones 9–11)

East Kaka'ako Test Excavations 179–197

Kālia Test Excavations 198–225

Kaka'ako Makai Test Excavations 226–232A

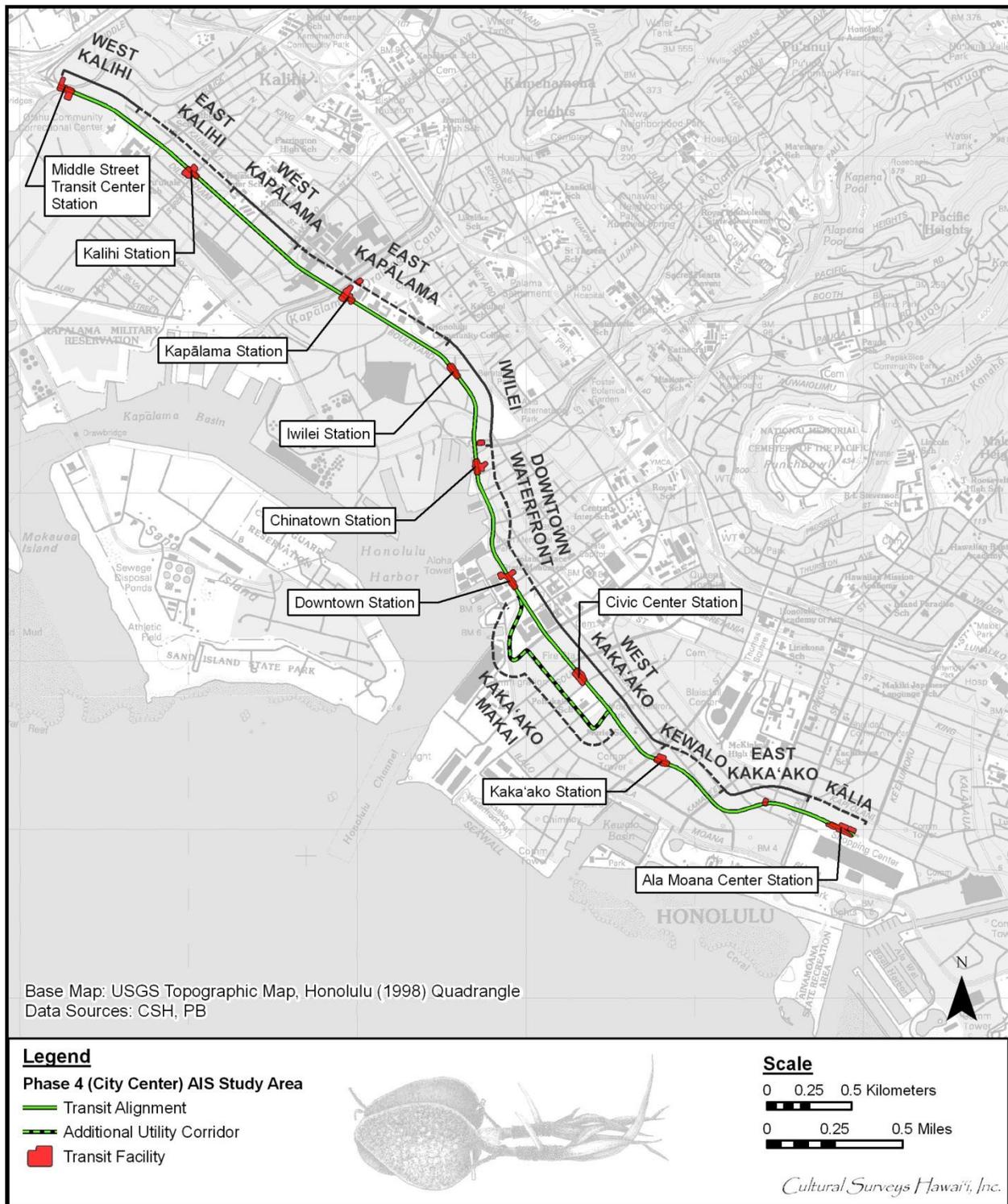


Figure 1. Portion of the 1998 Honolulu U.S.G.S. 7.5-minute topographic quadrangle showing the City Center AIS's 11 geographic zones along with the nine City Center stations

Results of six of the seven geotechnical cores, carried out at the locations of Test Excavations 098, 099, and 101 in the Chinatown Station footprint, are summarized in the archaeological cultural resource description for SIHP #50-80-14-7427 (see Volume I, Section 4.3). The seventh geotechnical core, carried out in the vicinity of Test Excavation 124 on Halekauwila Street between Punchbowl and South Streets, is described in the archaeological cultural resource description for SIHP #50-80-14-2963 (see Volume I, Section 4.3).

1.1 Test Excavation Summary Format

Within the excavation summary volumes (IVA, IVB, IVC, and IVD), each geographic zone begins with a geographic and cultural summary that provides the interpretative context for the individual test excavations and archaeological cultural resources within that geographic zone. These geographic zone summaries incorporate and expand upon the background information presented in Volume II.

Each individual test excavation summary in Volumes IVA through IVD begins with a header section that identifies the test excavation number and the following general information:

- Ahupua'a:** (the traditional Hawaiian land division the excavation is in)
- LCA:** (the Land Commission Award [Māhele award] the excavation is in)
- TMK #:** (the Tax Map Key the excavation is in)
- Elevation Above Sea Level:** (elevation in meters, provided by project surveyors)
- UTM:** (NAD 83, Zone 4 north coordinates, excavation center point)
- Max Length/Width/Depth:** (the excavation's maximal dimensions in meters)
- Orientation:** (the excavation's long axis orientation to True North)
- Targeted Project Component:** (e.g., "station column," "utility relocation corridor," etc.)
- USDA Soil Designation:** (based on USDA soil survey data [Foote et al. 1972])

The body of the test excavation summary is divided into a number of subsections. "**Setting**" describes the location, built environment, and existing utilities immediately adjacent to the test excavation. Utility location information is based primarily on utility location CADD layers provided by PB, but also on "one-call" utility location markings that were placed in the excavation vicinity by the various utility companies prior to excavation.

"**Summary of Background Research and Land Use**" provides a brief recap of what is known about past land use at each test excavation location. This information is based primarily on the background information presented in Volume II. This information (condensed into a GIS database that contained geo-referenced historic maps and aerial photographs, previous archaeology projects, previously identified archaeological cultural resources, land commission award boundaries, and other environmental information) was reviewed and summarized by field crews before each excavation. This was done to provide a context for the interpretation of each test excavation. This information is included with each test excavation summary to provide this cultural/environmental context to the reader.

"**Documentation Limitations**" describes any unusual conditions or constraints (if any) to the documentation of the individual test excavations. Examples of such conditions or limitations

include unsafe conditions that prohibited entry into the test excavation or that prohibited continued excavation, such as undermined sidewalls, unstable sidewalls, or concrete utility jackets containing live utilities. If there were no unusual conditions or limitations, typically the depth of excavation and the depth of the water table are given.

“**Stratigraphic Summary**” provides a brief overview of the different stratigraphic layers observed in the excavation. This brief overview is supported by a detailed stratigraphic description based on USDA soil survey observations that is included as a table with each excavation summary.

The “**Artifact Discussion**” and “**Feature Discussion**” describe the artifacts and features that were documented in the excavation. Artifacts found in bulk sediment samples are described in the “**Sample Results**” section (see below). Only archaeological features are described—modern utility excavations less than 50 years old, for example, are not considered archaeological features and are not described in the feature discussion. Additionally, historic roadway features for in-use roadways (for example, Dillingham Boulevard), such as storm drains and other features associated with roadway use or construction, are considered parts of in-use architectural structures and not archaeological cultural resources. Accordingly, they are not described as archaeological features.

“**Terrestrial Faunal Remains Collected During Excavation**” focuses on summarizing the terrestrial faunal material collected from the test excavation during actual excavation. This most often consisted of the historic and modern terrestrial vertebrate material associated with historic and modern fill layers; however, this discussion also includes terrestrial faunal remains collected from natural and culturally-enriched buried A-horizons. This material was collected and identified to better characterize these deposits, but also to ensure that human remains were not present. Smaller terrestrial vertebrate remains collected as part of bulk sediment samples that were processed in the laboratory after excavation are often described in the “**Sample Results**” subheading of each excavation summary as part of the discussion of bulk sediment sample results (see below). Depending on the number of different species represented, a “**Terrestrial Faunal Identification Results Found During Excavation**” table is included with the excavation summary.

“**Sample Results**” briefly summarizes all other laboratory results, including Energy-Dispersive X-Ray Fluorescence (EDXRF), radiocarbon dating, pollen/micro charcoal analysis, the results of bulk sample analysis (can include additional artifact and faunal discussion), wood taxa identification, marine shell identification, and land snail identification. These results are more thoroughly discussed in Volume V: Laboratory Results.

“**GPR Discussion**” briefly describes the results of the comparison of the actual excavation results to the post-processed GPR survey results. This “ground truthing” is used as a means to evaluate the effectiveness of the GPR method in detecting stratigraphic boundaries and subsurface features. This discussion is amplified in Volumes VIA and VIB: GPR Results.

Each individual test excavation is summarized in the “**Summary**” subheading with a focus on what was learned from each test excavation. State Inventory of Historic Properties (SIHP) numbers are given for those test excavations that are part of archaeological cultural resources.

1.2 Stratigraphy

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

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

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

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

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

1.3 Excavation Protocol

Where possible, excavation was carried out to 3 m below surface (mbs), the maximum depth possible due to safety concerns, the available shoring system, and the limits of the mechanical excavator's reach. Reaching bedrock or the water table before this depth halted excavation at shallower depths. Limitations and important documentation procedures (if applicable) for each test excavation are summarized in the "**Documentation Limitations**" section of each individual test excavation summary (as described above).