
**Archaeological Inventory Survey of a
194.324-Acre Parcel within Portions of
Kohanaiki Ahupua‘a and Kaloko Ahupua‘a
North Kona District, Hawai‘i Island
TMK: [3] 7-3-009:026**

APPENDIX A

**Prepared for
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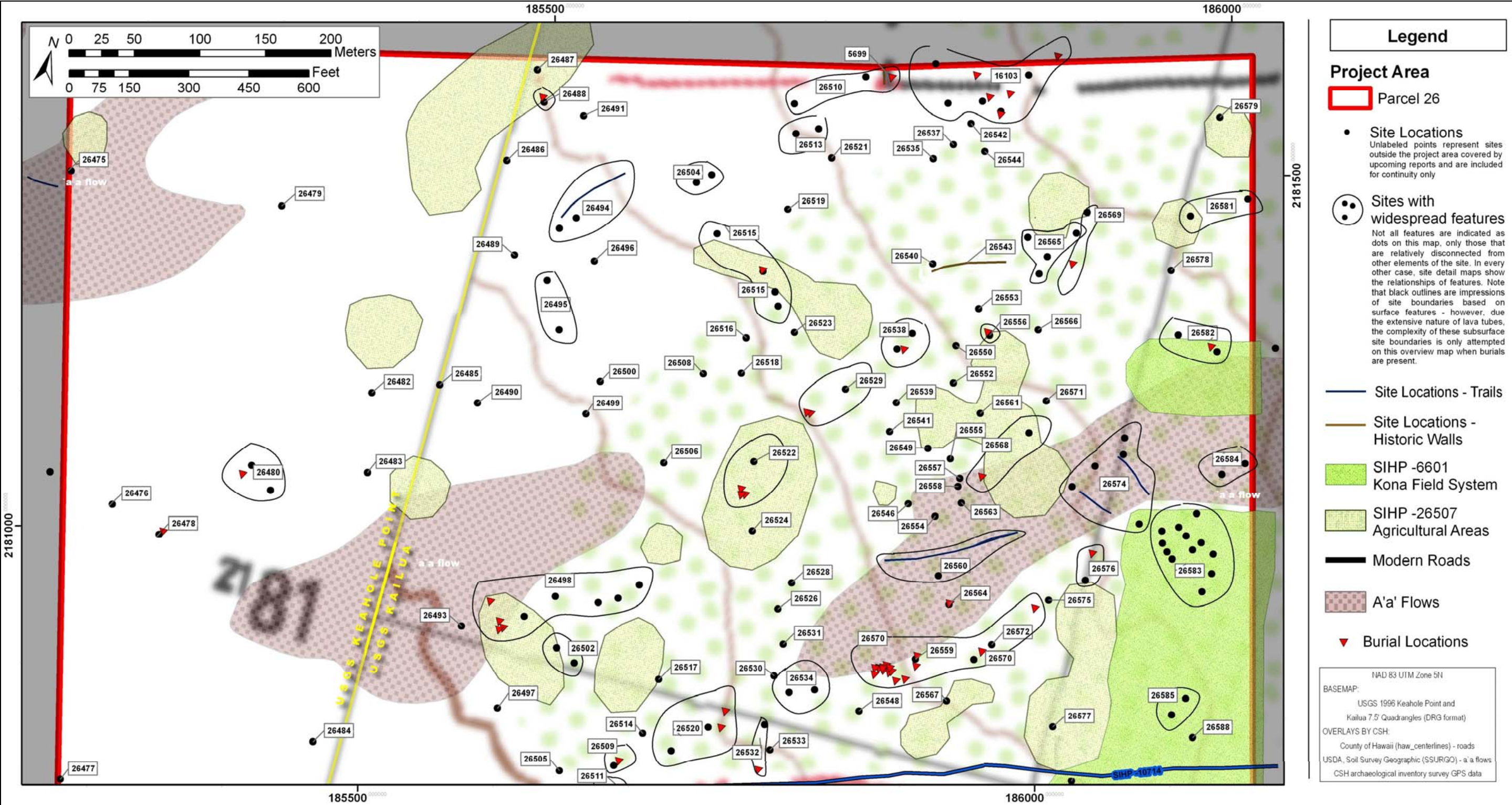
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Appendix A: Introduction

At the request of Stanford Carr Development, LLC, Cultural Surveys Hawaii, Inc. (CSH) conducted an archaeological inventory survey of a 194.324 acre parcel within portions of Kaloko Ahupua'a and Kohanaiki Ahupua'a, North Kona District, Hawai'i Island, TMK: [3] 7-3-009:026. The portion of the inventory survey report included in this document, Appendix A, comprises the site descriptions for all historic properties within the project area. The background discussion, methods, summary, and recommendations for this project area are located in the main body of the inventory survey report. The separation of the site descriptions into the present Appendix A was necessary due to the large number of historic properties.

Site descriptions are organized by State Inventory of Historic Properties number (SIHP #), with sites in the USGS Keahole Point Quadrant discussed first and sites in the USGS Kailua Quadrant discussed second. All sites in the Keahole Quadrant (roughly the western quarter of the project area) have state site numbers beginning with SIHP # 50-10-27, and Kailua Quadrant (roughly the eastern three-quarters of the project area) state site numbers begin with SIHP # 50-10-28. State site numbers were assigned from west to east, with lower numbers being in the *makai* portion of the project area and the highest SIHP #'s being in the far *mauka* portion. There are six historic properties that were previously identified during prior inventory surveys, and these are included in the appropriate section in numerical order based on SIHP #. Figure 1 and Figure 2 show the location of all historic properties, for Kohanaiki and Kaloko Ahupua'a respectively.

The printed version of Appendix A is separated into Part 1 and Part 2, with the Table of Contents located in Part 1. Part 1 consists of all sites through Site -26519, and Part 2 consists of Site -26520 through Site -26588.



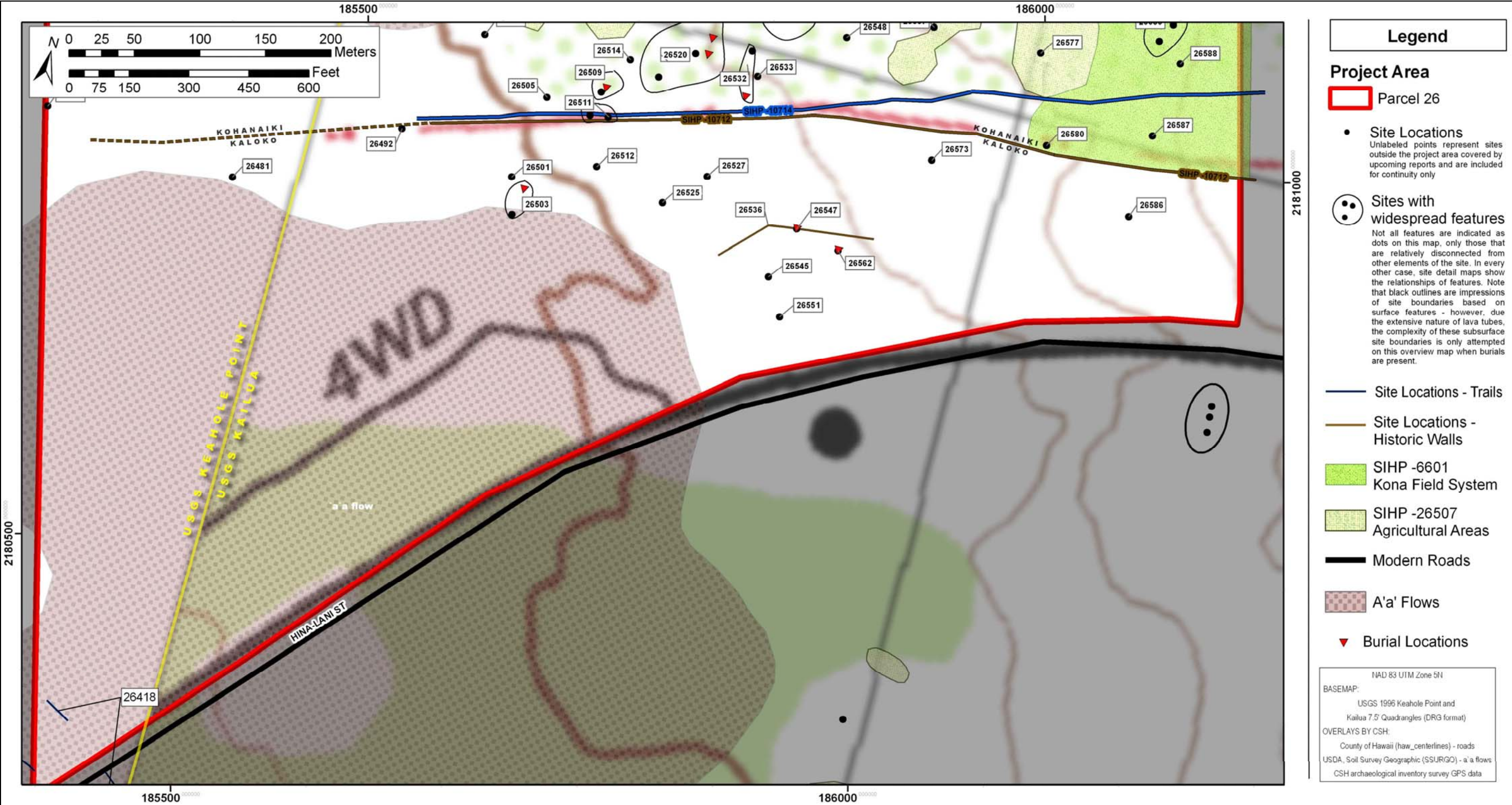


Figure 2. Portion of USGS topographic map showing the locations of historic properties within the south (Kaloko Ahupua'a) portion of the project area (see also Figure 1)

Site Descriptions: Keahole Point Quadrant

1.1.1 State Site # 50-10-27-10712

SIHP #	50-10-27-10712
FUNCTION:	Animal Husbandry
SITE TYPE:	Wall
TOTAL FEATURES:	1
DIMENSIONS:	Approximately 850 m (runs <i>mauka/makai</i> through entire parcel)
CONDITION:	Good
AGE:	Historic
ELEVATION:	535-785 ft. a.m.s.l.

DESCRIPTION: Site 50-10-27-10712 is a historic wall previously observed in Wolforth et al. (2005). The wall runs *mauka/makai* through the entire project area, continuing in both the *mauka* and *makai* adjacent parcels separating Kaloko Ahupua'a on the south side and Kohanaiki Ahupua'a on the north side (see Figure 2). However, the wall is heavily disturbed and nearly completely gone in some areas of the *makai* portion of the current project area. The entire *mauka* portion of the wall, on the other hand, for a distance of approximately 600 m is in good to excellent condition with few breaches. The wall delineates the boundary of the *ahupua'a*.

The wall is constructed of *pāhoehoe* cobbles and slabs (ranging from 25 cm to 60 cm in diameter), formally stacked, with smaller rubble fill. Intact portions of the wall are “crisp” with very sharp edges, and there are occasional large uprights. The height of the wall ranges from about 0.80 meters to 1.50 meters, with an average thickness of 1.0 meters. There are two places in the wall where a crossing from Kaloko to Kohanaiki is apparently built into the wall, and both crossings are associated with Site -10714, a long trail that runs *mauka-makai* and parallels the *ahupua'a* wall. One of the areas where it is possible to pass from one *ahupua'a* to the other is near the formal causeway in -10714 Area A, and the other, which is considerably more formal) is near the *makai* end of -10714 Area B (see Figure 63 in the Site -10714 site description).

The function of Site -10712 is primarily for historic animal husbandry. The wall also functioned as a land boundary marker to designate the *ahupua'a* boundary, and this wall was likely built after circa 1880 as it does not appear on Emerson's late 19th century maps. The excavation potential for this site is poor given the type of construction and lack of potential for recovering cultural material. This site should be considered in its relationship to various other sites near it, such as Site -10714 (*mauka/makai* trail) which parallels the wall on the Kohanaiki side, and Site -26580 which utilizes a portion of the wall as part of a habitation structure.

1.1.2 State Site # 50-10-27-26418

SIHP #	50-10-27-26418
FUNCTION:	Transportation
SITE TYPE:	Trail
TOTAL FEATURES:	1
DIMENSIONS:	Approximately 30 m within current project area
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	535-785 ft. a.m.s.l.

DESCRIPTION: Site 50-10-28-26418 is a long, formal *pāhoehoe* slab trail that traverses almost the entire width of TMK [3] 7-3-009:28, which is immediately south of the current project area; the trail extends approximately 30 m within the southwest corner of the present project area after being cut by modern Hina-Lani Street (Figure 2). The trail runs over the large 'a'ā flow that dominates the southwestern project area, adjacent to the north side of Hina-Lani Street and ending at the abrupt transition of the 'a'ā to *pāhoehoe* at the west edge of the project area. Some areas of the trail are heavily vegetated, with *koa haole* and Christmas berry trees sometimes seriously threatening the integrity of the trail. The portion within the current project area is a more heavily vegetated than stretches south of Hina-Lani Street.

Unlike many *pāhoehoe* slab trails in this area, which generally have a slab every meter or so (just enough slabs to step from one to the next), the site -26418 trail is a continuous path of *pāhoehoe* slabs for over 600 meters (running at approximately 130° TN) within the adjacent parcel (TMK [3] 7-3-009:028) south of Hina-Lani Street. The slabs are directly adjacent to one another for its entire length, often with two to four smaller slabs arranged between the larger slabs to make a larger continuous paved surface, or one large slab adjacent to the next. Overall, this creates a trail that varies somewhat in width, but is generally 70 to 110 centimeters wide, and is in overall very good condition throughout its length. Given the length and formality of the trail and the nature of the 'a'ā flow, this suggests an impressive amount of energy investment in transportation. Within the current project area (on the north side of Hina-Lani Street) the trail is a similar width, runs at the same angle, and consists of crushed 'a'ā and *pāhoehoe* slabs, but the slabs are not nearly as closely spaced and the trail is not nearly as formal likely due in part to modern disturbances. The trail is more thoroughly described in the parcel 28 inventory survey report (Esh et al. 2008), as the majority of the trail is located within that parcel; the trail was described in sections with Section A being the only section within the present project area.

Section A is the portion of the trail north of Hina-Lani Street. It is similar in form to Section B immediately across the modern road (outside current project area), which is the only other portion of the trail that does not consist of continuous *pāhoehoe* slabs, but rather is composed of intermittent slabs and crushed 'a'ā (Figure 3). Section A runs north from Hina-Lani Street (where it is cut by the modern road and continues north) for about 30 meters before being lost due to bulldozer activity and thick vegetation. It runs at the same angle as the rest of the trail in Parcel 28 and appears to be heading to the northwest to exit the 'a'ā as directly as possible. The trail consists largely of bruised or crushed 'a'ā in this area, and may have been stripped of some *pāhoehoe* slabs during construction of the historic site -26371 in parcel TMK [3] 7-3-009:025 to the west.

The function of this site is to facilitate pedestrian transportation over a large 'a 'ā flow. Within the present project area the site is rather minimal and has been disturbed by both bulldozer activity as well as the construction of modern Hina-Lani Street to the southeast, which cuts the trail. On the south side of Hina-Lani Street, in TMK [3] 7-3-009:28, the trail is very formal and is being recommended for preservation (see inventory report for that project area, which has been produced concurrently with the present report, Esh et al. 2008). Within the present parcel, the disturbed nature of the short portion of trail provides considerably less interpretive possibilities. There is no excavation potential.



Figure 3. Site -26418, photograph showing typical portion of the slab trail within project area, near Hina-Lani Street (note: intermittent placement of slabs)

1.1.1 State Site # 50-10-27-26475

SIHP #	50-10-27-26475
FUNCTION:	Shelter
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	27 m by 4.5 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	580 ft a.m.s.l.

DESCRIPTION: Site -26475 is an approximately 27 m long, northeast/southwest trending lava tube located in the north portion of the west side of the parcel in Kohanaiki Ahupua'a (Figure 4). Vegetation within the vicinity of the site consists of Christmas berry, *koa haole*, various grasses, and a large unidentified tree. The site is surrounded by 'a 'ā. Site -26507, Feature G, agricultural mounds, are 10 m north on the 'a 'ā and Site -26346 is 15 m southwest and has a *pāhoehoe* slab trail.

The lava tube has two chambers connected by a crawl space. It is accessible through two openings in the central portion of the tube. One opening is through a skylight that accesses a chamber containing marine shell midden including *Nerita*, *Isognomon*, Thadidae, and other species. Charcoal and a few large pieces of wood that appear to have been burnt are present. A few angular boulders are stacked directly below the sky light for easy access (Figure 5).

The ceiling height below the skylight is approximately 2 m high and is the main activity area of the southwest chamber. The tube continues to the southwest with a ceiling height of approximately 50 cm and includes two water catchment constructions and marine shell midden.

Two side tubes were explored. A side tube extending southeast of the southern portion of the main tube continued for approximately 5 m and was very narrow (0.5 m) and ended. The other side tube was very short extending north from the north end of the main chamber and led to a small skylight that was too small to access.

The northeastern chamber is accessed from the surface through a collapsed portion of the tube and is also accessible by the crawl space from the southwest chamber. Soil is present throughout the chamber and some charcoal is at the north end of the chamber. Several goat bones are just within the chamber's entry and may or may not be the result of deliberate deposition. A few water catchment features are also present within the north end of the chamber.

The site's function is interpreted as shelter based on the presence of marine shell midden, charcoal, and modifications including stacked rock steps for access and water catchment features.

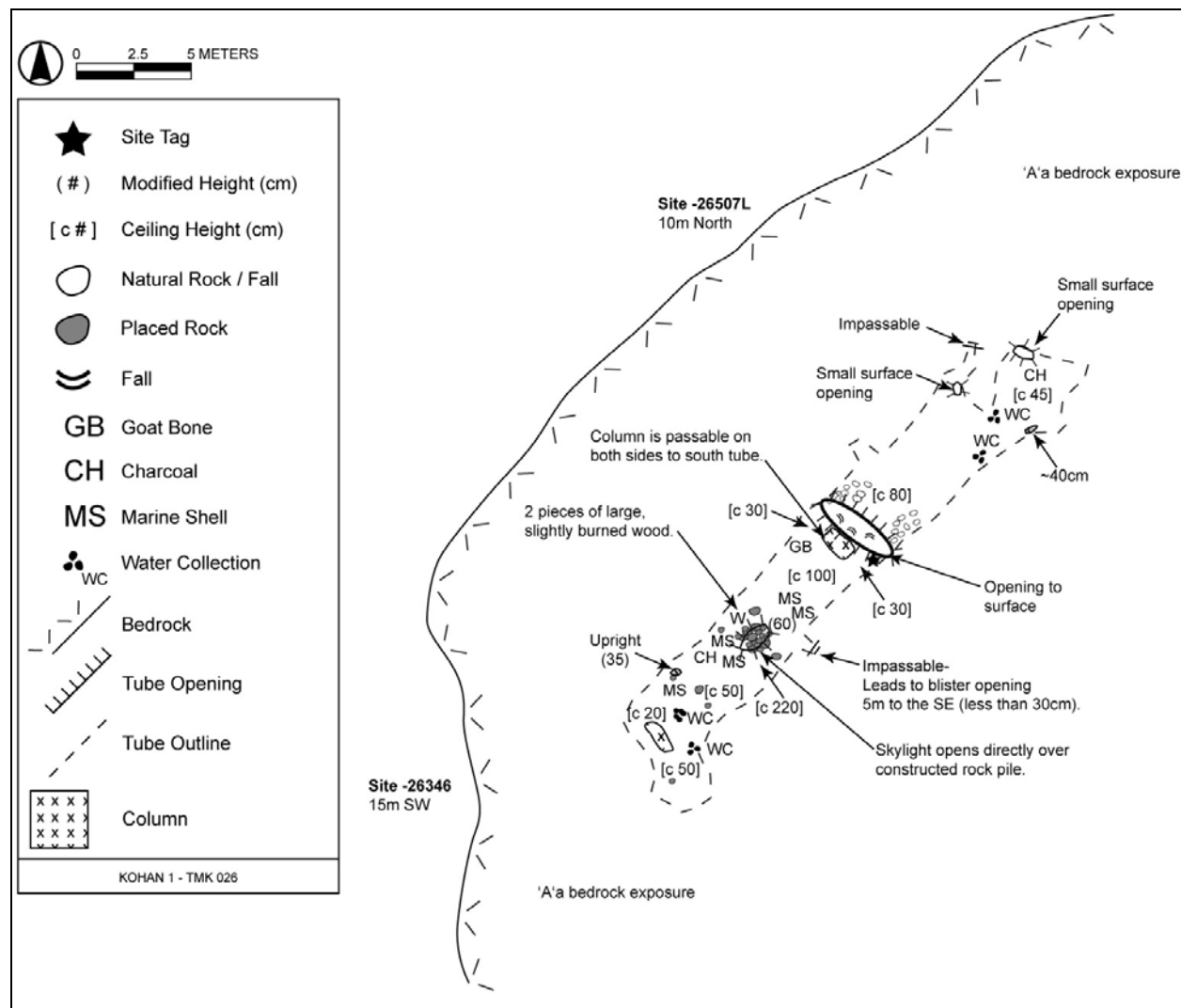


Figure 4. Site -26475 lava tube shelter, plan view



Figure 5. Site -26475, showing the constructed pile of boulders to facilitate access through the skylight, view to southwest

1.1.2 State Site # 50-10-27-26476

SIHP #	50-10-27-26476
FUNCTION:	Agricultural
SITE TYPE:	Mound
TOTAL FEATURES:	1
DIMENSIONS:	2 m by 3 m
CONDITION:	Good
AGE:	Pre-contact / Historic
ELEVATION:	570 ft a.m.s.l.

DESCRIPTION: Site -26476 is a mound located in the far west side of the Kohanaiki Ahupua'a portion of the project area. Extensive bulldozer activity including bulldozer roads, mounds, trash, etc. is evident in the immediate vicinity. Site -26478 (a temporary habitation complex) is approximately 40 m southeast and Site -26344 (in TMK [3] 7-3-009:025) is 50 m west. Vegetation consists of *koa haole* and air plants, and the surrounding area is very level, although eventually slopes downward to the northeast and southwest.

The mound is approximately 3 m by 3 m by 1.2 m in height and roughly round (Figure 6 & Figure 7). The southwest edge of the mound consists of a vertical face with stacked cobbles that reach 120 cm in height and stacked eight to ten courses high. The cobbles for this vertical facing are 20-50 cm in size. The vertical facing on the southwest end continues along the southeast and northwest sides, but diminishes in height to approximately 50 cm. Both the southeast and northwest sides are partially collapsed, which partly accounts for the decrease in height. The rest of the mound is constructed primarily of small (10-20 cm) cobbles. Other portions of the mound perimeter slope downward until meeting the bedrock. The small cobbles are fairly tightly packed except at the very edge of the structure, which may be due to heavy vegetation and collapse. The structure may have been created by using an existing eroding outcrop and modifying it, but if so this outcrop is completely covered by facing and/or small cobbles. The ground surface surrounding the mound is very flat with relatively few cobbles, which could in part be the result of bulldozer activity near the site. A glass bottle, possibly a liquor bottle, was found next to the structure. The bottle has two uneven seams along its length and another where the base attaches. It is clear glass and only "12 17" is engraved on the side. The base is 7.5 cm in diameter and the bottle is 18 cm long. The neck of the bottle is broken off.

The site's function was initially thought to be a possible burial. Excavation results (see below) indicated no burial is present. It is unlikely that this mound was used for habitation due to its small size and mounded sloping top (no large flat surface) and the absence of any midden found in excavation. Based on the excavation results function of the site was determined to be a historic agricultural clearing mound. The association of a historic bottle with the site also helps date the site.

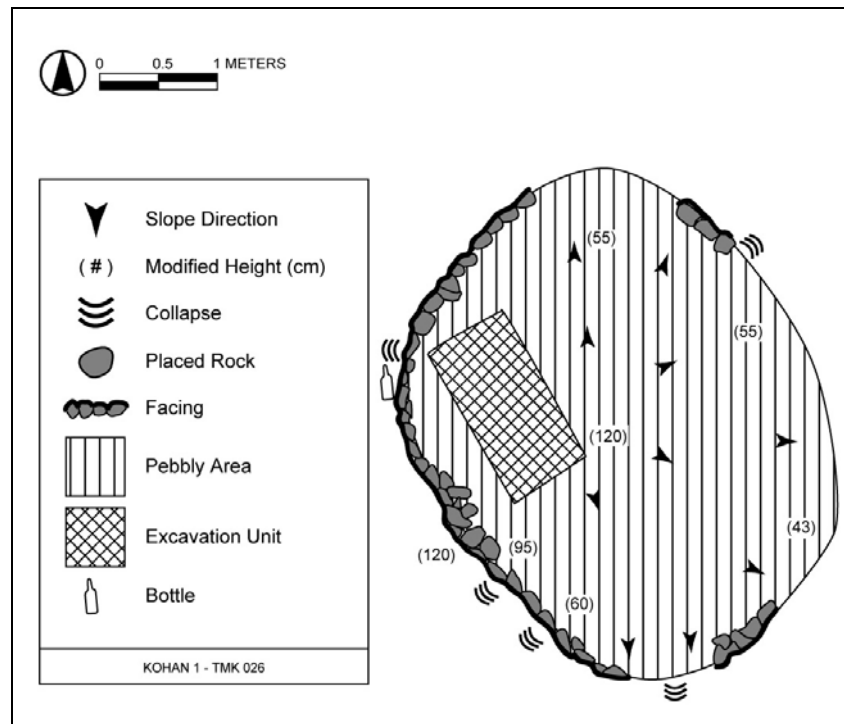


Figure 6. Site -26476, plan view of mound



Figure 7. Site -26476, showing the mound (note: the historic bottle found in front of the platform at the bottom-right of the photo scale), view to east.

Testing Results

An approximately 1.0 m by 0.5 m test excavation was conducted to determine whether a burial is present (Figure 8 to Figure 9). Stratum I consists of the structure's construction material and extends from 0 to 125 cm from the top of the mound. Construction material includes small to medium sized cobbles with a few large cobbles interspersed. No artifacts or cultural material was found. Stratum II, extending from 125 to 130 cm from the top of the mound, consists of a thin layer of silt loam containing rich organic material on top of bedrock. The mound is of small cobble construction throughout, and there is no evidence of a burial. No midden was found. The excavation ruled out a burial and indicated a probable agricultural function.

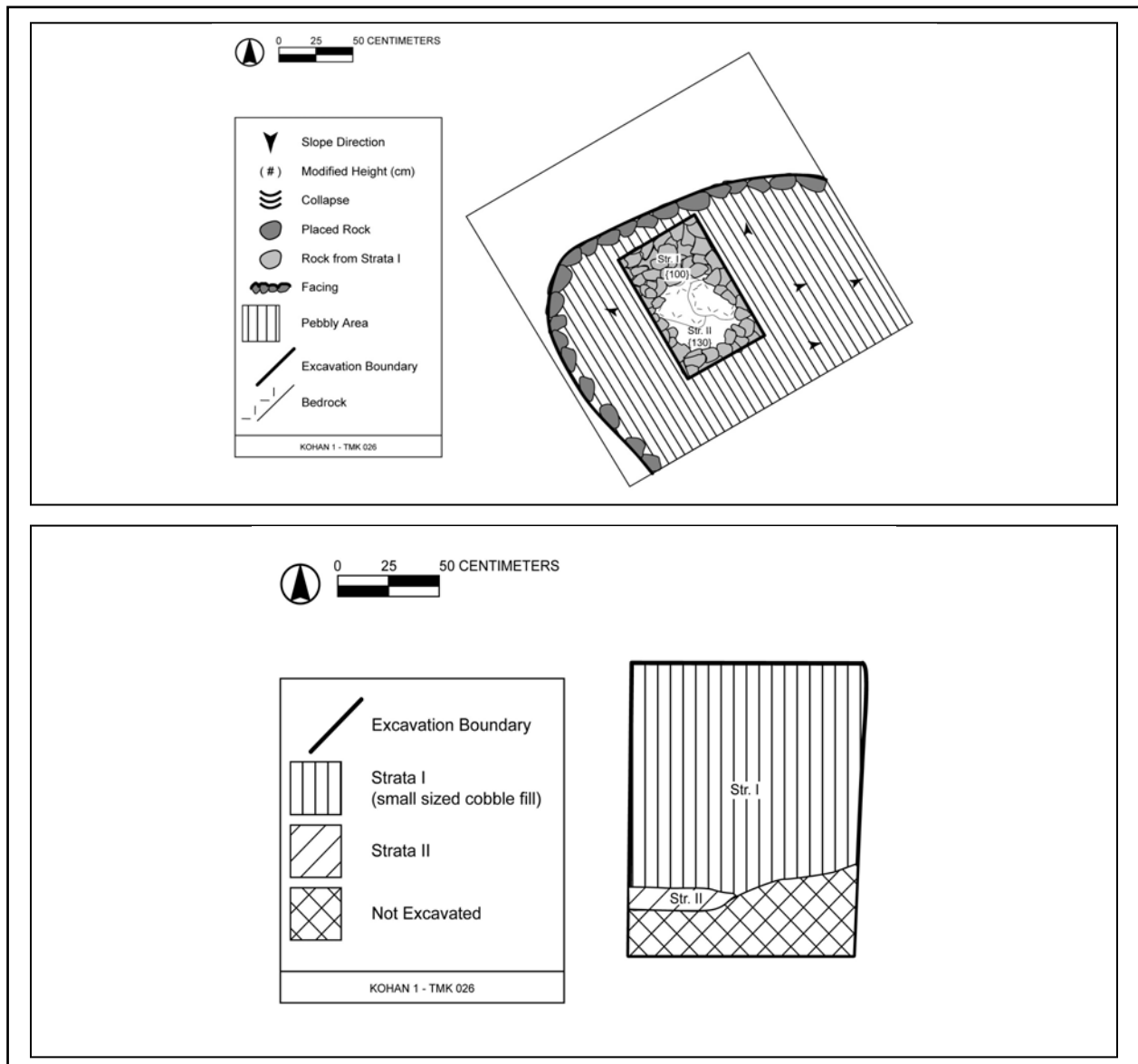


Figure 8. Site -26476, excavation figures: top is plan view of unit, bottom is northeast profile of test excavation in mound showing cobble fill over unexcavated bedrock



Figure 9. Site -26476, excavation figures: top is mound showing pre-excavation, bottom is post-excavation view, view to east

1.1.3 State Site # 50-10-27-26477

SIHP #	50-10-27-26477
FUNCTION:	Shelter
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	13 m by 4 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	555 ft a.m.s.l.

DESCRIPTION: Site -26477 is located in a relatively level area of an undulating *pāhoehoe* flow on the west edge of the project area in Kohanaiki Ahupua'a, approximately 25 m north of the *ahupua'a* wall, Site -10712. The vegetation on the site consists of shoulder-high *koa haole*, thick grass, and air plant.

The site consists of a small, low lava tube that is accessed via small openings on the east and west sides (Figure 10 & Figure 11). The tube is small, with the accessible area measuring approximately only 5 m by 3 m. There is only slight modification in the tube, consisting primarily of the clearing to the sides of the tube of small *pāhoehoe* boulders and large cobbles and a few placed small boulders and slabs. The tube has two water catchment constructions, and a sooty sediment deposit approximately 5 cm deep is in the tube's center floor. A small scattered midden deposit comprised of cowry shell, urchin, other marine shell, *kukui*, charcoal, and small bird bone is also in this central soil area.

The site's function is interpreted as shelter based on the minimal modifications and the presence of the midden. As only two water catchment constructions are present in the tube, water collection is not considered a primary function.

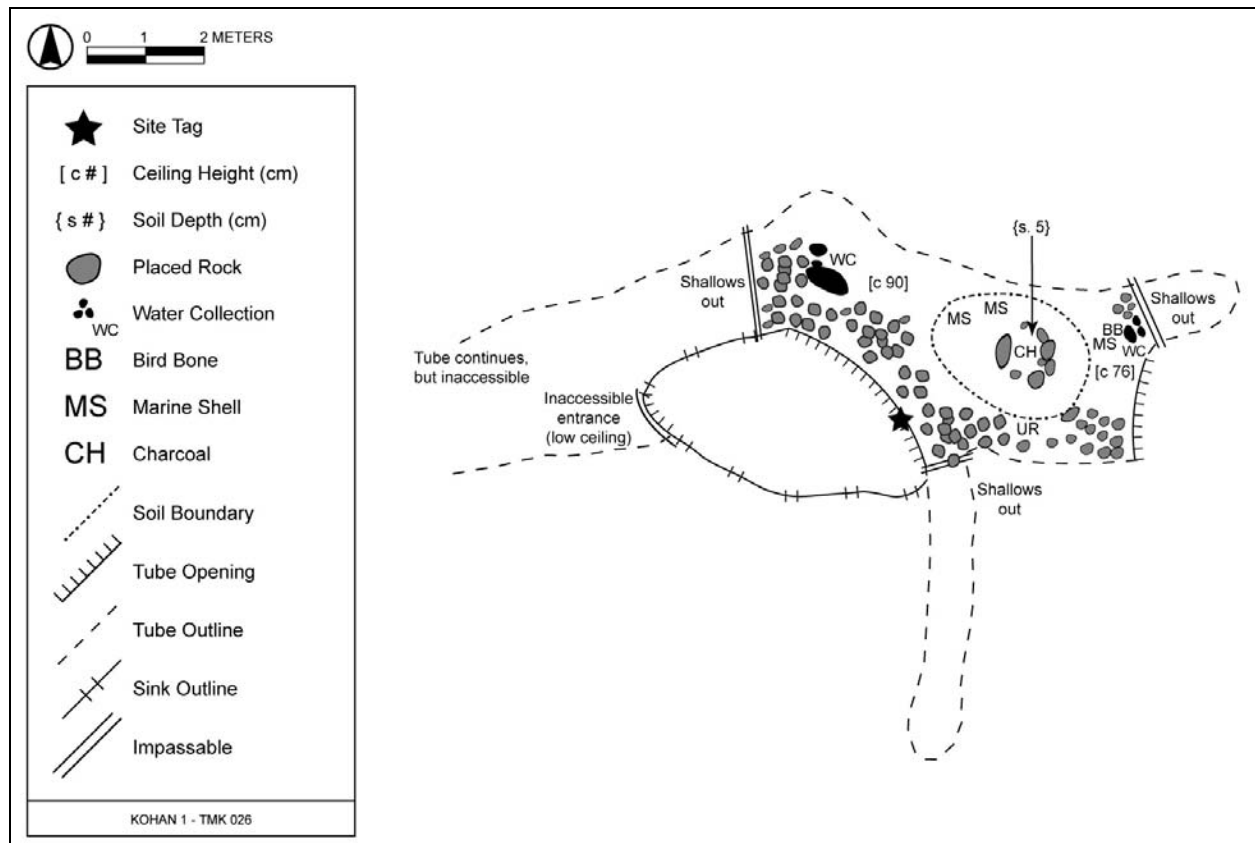


Figure 10. Site -26477 lava tube shelter, plan view

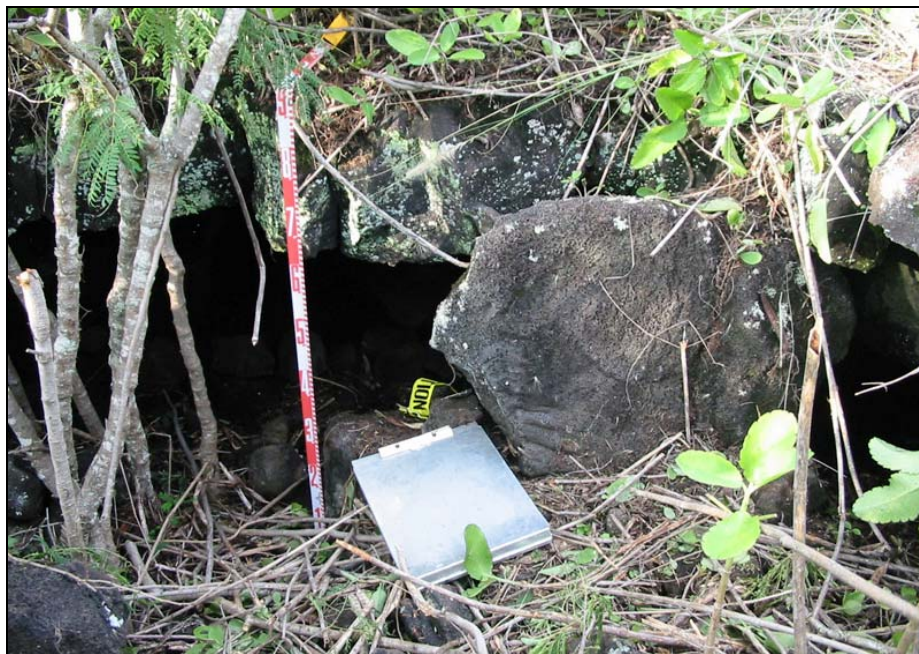


Figure 11. Site -26477, showing the west entrance to the lava tube shelter, view to north

1.1.4 State Site # 50-10-27-26478

SIHP #	50-10-27-26478
FUNCTION:	Burial and Temporary Habitation
SITE TYPE:	Complex
TOTAL FEATURES:	4
DIMENSIONS:	35 m by 10 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	580 ft a.m.s.l.

DESCRIPTION: Site -26478 is located on the west side of the project area in Kohanaiki Ahupua'a and consists of one sink (approximately 7 m northeast/southwest by 4.5 m northwest/southeast) with lava tubes that extend east off of the northeast end and west off of the southwest end of the sink (Figure 12). This site designation also includes a second adjacent small sink with an extending lava tube (Feature D) located to the northeast. Four feature designations (Features A through D) have been assigned. The site is located in an undulating *pāhoehoe* flow near the western boundary of the project area. Vegetation in the vicinity of the site consists of grasses, head high *koa haole*, air plant, *laua'e* ferns, large Christmas berry and a papaya tree in the Feature B sink. There is some evidence of recent human activity at the site including a plastic bottle and a roll of wire fencing. There is also a bulldozer road on the surface nearby to the northwest.

Feature A consists of a lava tube, measuring approximately 6 m by 6 m. that extends off of the southwest end of the sink (Figure 13). The tube entrance measures approximately 4 m long and 40 cm to 75 cm in height. A large, formally constructed retaining wall is located immediately inside this entrance to the Feature A tube. The retaining wall is constructed running north/south across the tube entrance for a length of 2.25 m. The north end of the entrance is also stacked and partially faced, although not as formally as the south end. The wall is constructed to a height of 135 cm.

The retaining wall modifies the tube entrance so that the entryway is fairly level at the top (an approximately 80 cm wide by 4 m long level area). On the west side the constructed retaining wall drops vertically to the tube floor.

The height of the entrance, however, on the north side is only about 40 cm, making the entrance somewhat constricted. Once inside of the tube, the formal construction and size of the wall is impressive, as it is vertical and stacked ten courses high (Figure 14). At the base of the wall, construction consists of larger cobbles, measuring 30 cm to 40 cm, with some small to medium boulders incorporated into the facing as uprights. Towards the top of the wall, the cobbles are somewhat smaller and flat slabs of *pāhoehoe* are stacked horizontally. This retaining wall is built up against the natural tube entrance and is not free standing (but level with the sink floor on the east side; Figure 15).

The Feature A tube consists of two chambers. The first chamber is quite large and represents the majority of the tube. This chamber measures 6 m by 6 m and has been largely cleared of rubble to create a 140 cm high space. The south portion of the tube closest to the entrance exhibits the most clearing and is naturally fairly level, creating a good living surface. It appears

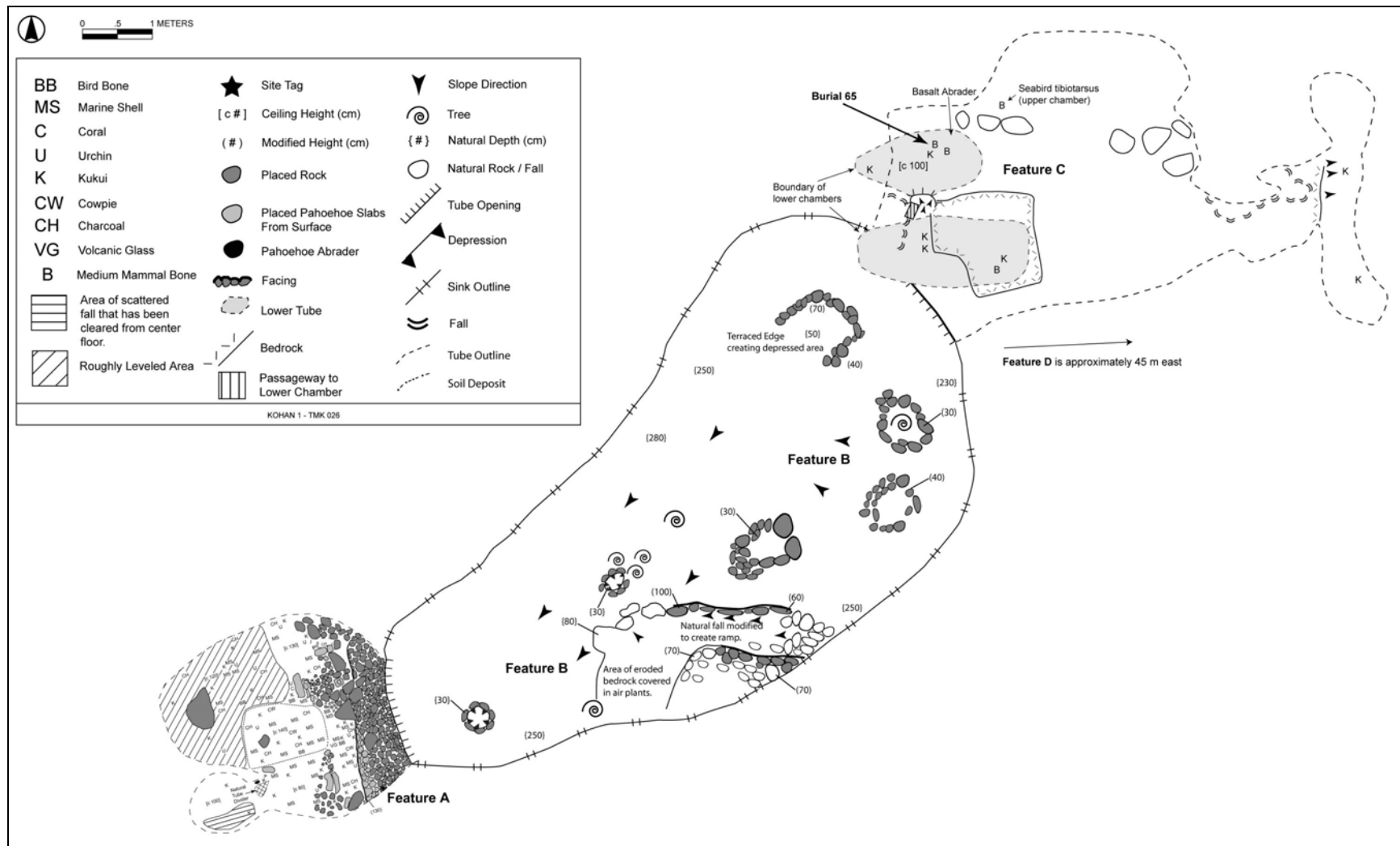


Figure 12. Site -26478 temporary habitation complex, overview

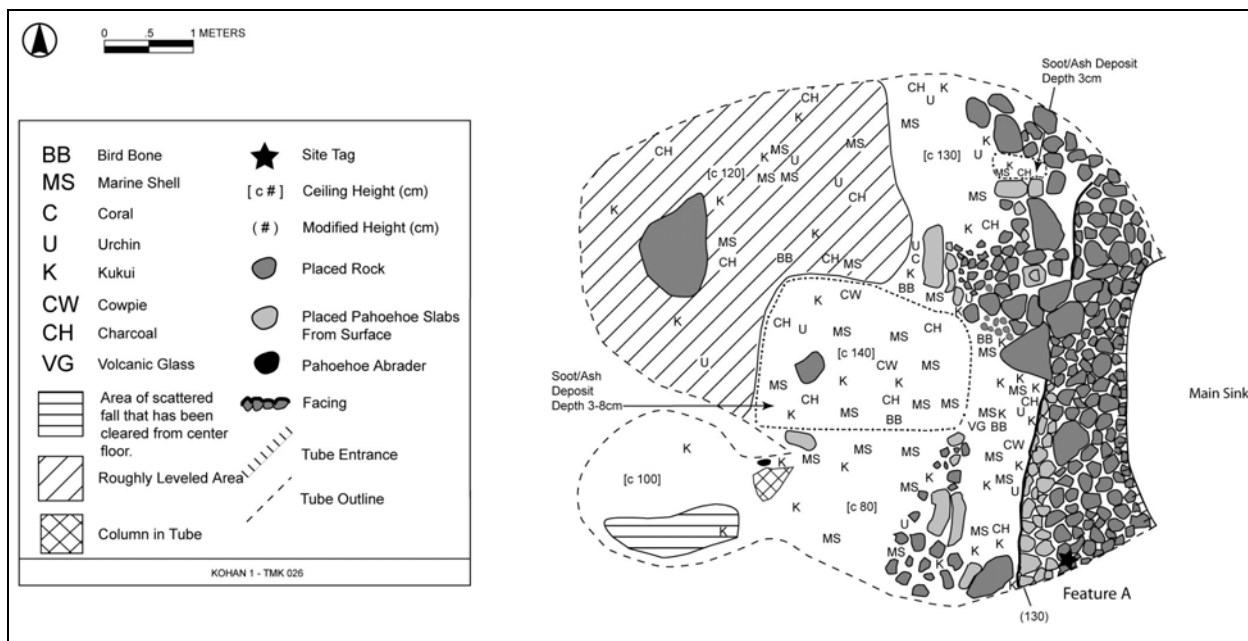


Figure 13. Site -26478 Feature A modified lava tube, interior plan view



Figure 14. Site -26478 Feature A, showing tall retaining wall at tube entrance and very ashy sediment in main chamber, view to northeast



Figure 15. Site -26478 Feature A, top of retaining wall, looking down at tube entrance; ashy sediment in main chamber can be seen in background, view to southwest

that all of the natural fall has been used to construct the retaining wall or has been moved to the sides of the chamber to clear the level area. Midden is scattered throughout the main chamber with the greatest concentration being in the central flat area. The midden primarily consists of marine shell including more than 20 *Cypraea*, a few *Nerita*, *Isognomon*, a few other marine shell species, seabird bone (petrel/shearwater size), non-seabird bone (possibly land bird), a large amount of *kukui* (some burned), sea urchin and a fair amount of charcoal around the edges of the tube. There is a 2 cm-5 cm thick ash layer covering the level area of the tube. There is also a coral pebble (5 cm in diameter, not branch coral) in this same level area of the main chamber. A single small piece of volcanic glass was also found, as well as a large *Cypraea* shell with an apparent cutting (modification) on one side.

The second chamber of the tube is much smaller (1.5 m by 1.5 m) and appears to have been minimally modified. This chamber is located off the southwest portion of the main chamber and is approximately 1 m in height. The central area of this small chamber has a relatively level surface and it is possible that the chamber was cleared to create a more suitable sitting area, but there is no formal modification present. A small cavity on the north side of the small chamber has a few *kukui* endocarps and a *pāhoehoe* abrader.

Feature B consists of the 19 m by 9 m modified sink from which both the Feature A and Feature C lava tubes extend (Figure 16). The modification in the sink consists of seven

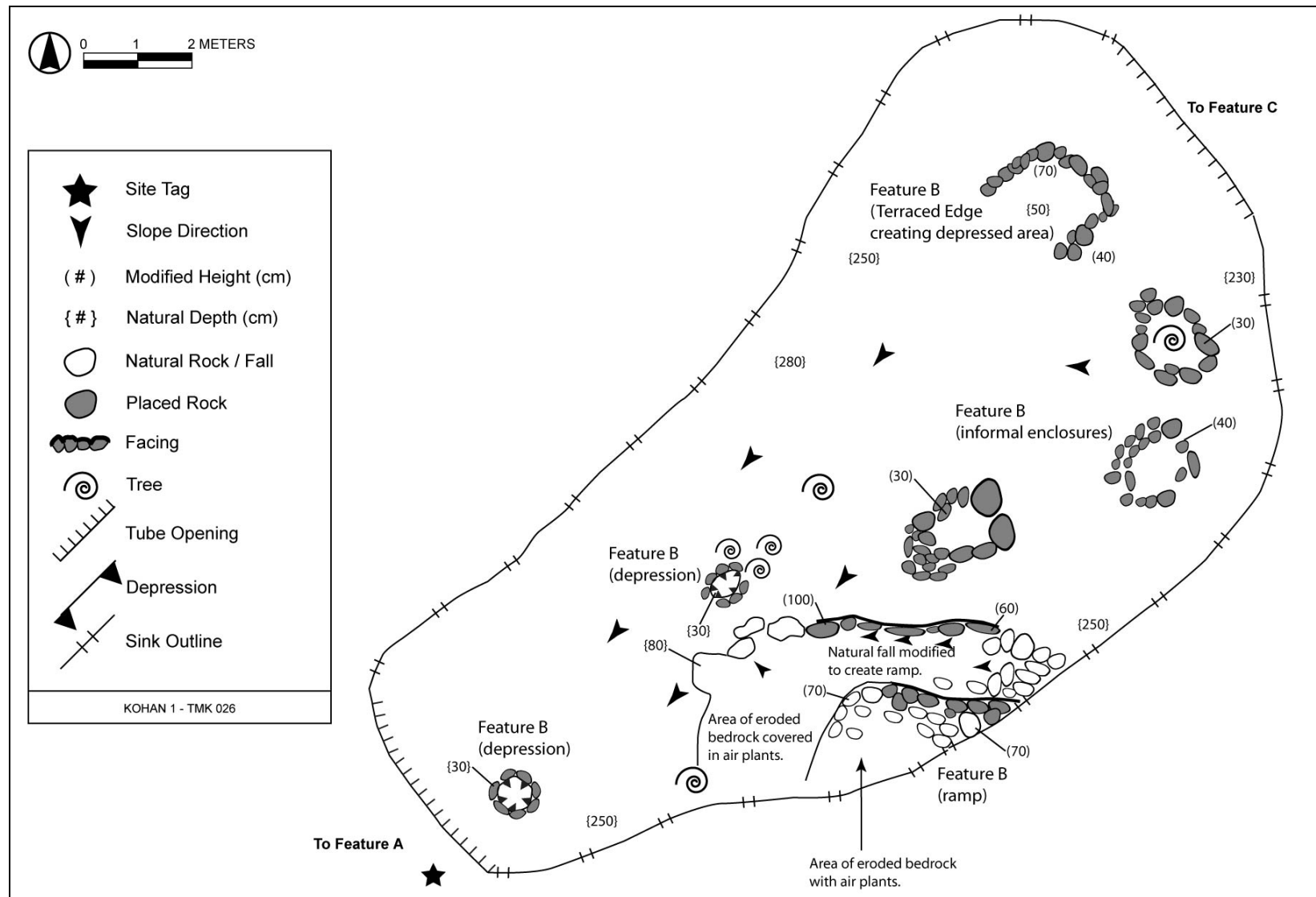


Figure 16. Site -26478 Feature B modified sink, plan view

subfeatures: two constructed depressions; three small constructed enclosures; a constructed terrace; and a constructed ramp.

The U-shaped terrace is constructed on the southwest edge of an area of natural fall, directly in front of the entrance to Feature C lava tube. The terrace edge was constructed by clearing some of the natural fall and creating a low retaining wall stacked two to three courses high that surrounds a depression on three sides. This retaining wall is constructed so that its upper surface is relatively level with the natural fall, creating a roughly level area with a defined edge/step down to the natural floor of the sink. The ramp is constructed in an area of natural fall along the southeast side of the sink and provides access down into the sink. The ramp begins at the surface at its northeast end and slopes down, paralleling the edge of the sink to the southwest. It has been constructed through the clearing of the natural fall to create a relatively even sloping surface. Along the edge of the sink, bordering the area between the ramp and the sink edge, is a stacked, informally faced retaining wall. This was likely constructed during the ramp construction to prevent natural fall from falling from the sink edge and obstructing the ramp. The depressions and small enclosures are informally constructed by clearing and aligning medium size cobbles to create distinct areas. The function of Feature B appears to be agricultural, possibly for aboriculture.

Feature C is a 15 m by 8 m lava tube with a single entrance from the west side of the Feature B sink (Figure 17). Most aspects of the lava tube are naturally formed from the original volcanic activity and subsequent physical and biological erosion. A few large cobbles in the upper chamber that are resting on bedrock exposure do not appear to be natural fall, as the ceiling is intact. The cobbles may have been placed here as a result of excavation at some point to gain access to the north lower chamber, since they are close to the opening that accesses the chamber. Some seabird bone was found in the north portion of the main upper chamber. Towards the southeast, this chamber narrows to just barely passable. It then opens up into two smaller chambers where *kukui* was found. It is possible that the *kukui* relates to cultural deposition, however, due to low density (less than five fragments) and some evidence for gnawing by rodents, it is possible these were deposited by rodent activity.

The opening to the north lower chamber is almost impassable and is located just inside the Feature C tube entrance, on the north side (Figure 18). On the west side of the opening to the north lower chamber, a large *pāhoehoe* slab is wedged vertically, holding collapsed material from falling into this entrance. In the northeast end of the north lower chamber, six human bone fragments were encountered, highly eroded. Another single bone was resting in a crack in the southeastern portion of the south lower chamber (Burial 65; see burial discussion below).

There is a small opening to the south lower chamber near the bedrock in the upper chamber, but the only passable opening is from the southeast end of the north lower chamber. *Kukui* was encountered in higher densities in the north and south lower chambers, but it seems likely that these materials were washed in from above. Otherwise, cultural material is absent from this tube, which is somewhat surprising considering the heavy modification of the tube on the west end of the sink (Feature A). This lack of modification in the main portion of the western tube (which is easy to access and fairly comfortable to sit in) may be due to the burial function for this lava tube.

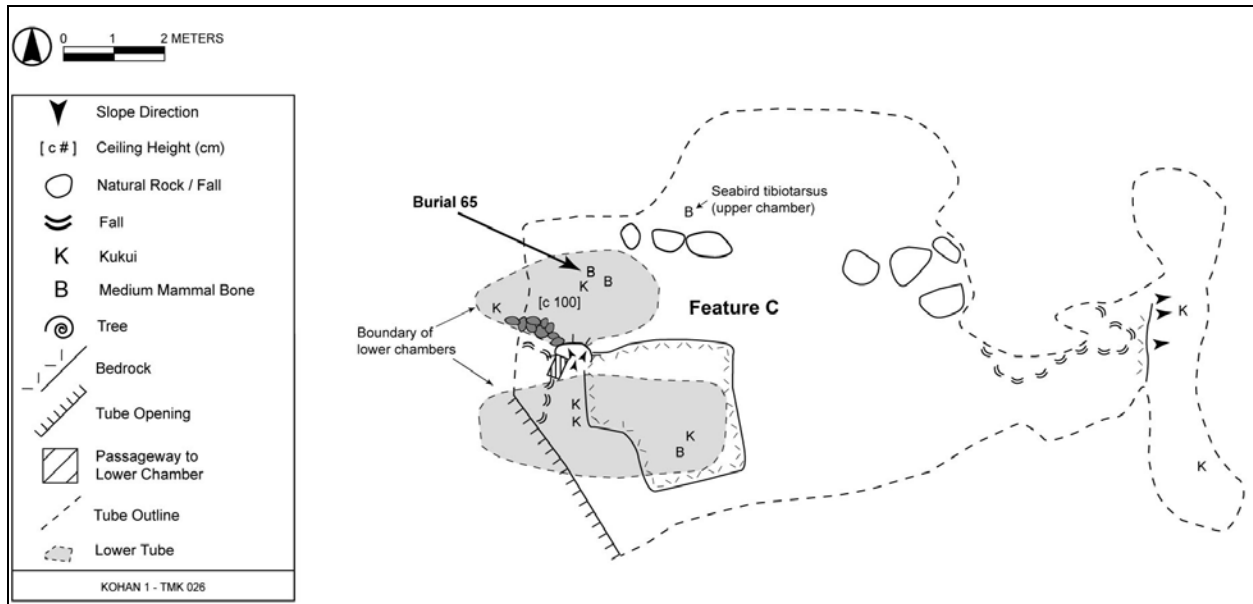


Figure 17. Site -26478 Feature C modified lava tube, plan view



Figure 18. Site -26478 Feature C, opening into north lower chamber (where Burial 65 is located); note placed rocks at left, view to west

Feature D is a large lava tube skylight that is located 47 m at 74 degrees from the main sink. Geologically, this tube system likely connects since they appear to travel the same direction, but there is not currently any passable entrance from one to another. Feature D was discovered after the recordation of the rest of the lava tube and mapping of the system should be addressed during data recovery for this site. The main chamber was explored and no cultural material other than a single water collection construction was located. The feature consists of the skylight entrance, which is approximately 2 meters in diameter and drops down 2 to 3 meters onto a large pile of roof fall; access is made possible only by climbing down a large *noni* tree in the opening. The main chamber is very large, approximately 10 m in diameter. Several small side tubes branch off of the main chamber but none are large and all require crawling over jumbled fall to access. Besides the single water collection construction, there is no midden or other apparent modification in the main chamber.

The site's function is interpreted as temporary habitation and burial. All of the features support the temporary habitation function. In Feature A there is a large amount of midden present and the amount of charcoal and ash indicate repeated fires, which is consistent with temporary habitation usage. The retaining wall also required a fair amount of energy investment to construct, for the function of retaining fall from the sink and creating the living space in the tube. The modifications of the Feature B sink, including the constructed depressions and access ramp also function to support temporary habitation and are possibly agricultural. Feature C contains a confirmed burial (Burial 65). Finally, Feature D (the far skylight opening) was probably minimally used for intermittent habitation purposes. Excavation potential for this site is very good for Feature A and Feature B, considering the ashy soil with midden deposit and the fairly unusual modification that comprises Feature B, both of which could be excavated. Feature C and Feature D have no excavation potential.

Burial 65

Feature C of site -26478 contains highly fragmentary human remains located in a small side tube near the main east tube entrance. This small side tube has been modified with roughly stacked cobbles lining the southwestern edge of the inner chamber, and several placed cobbles and slabs informally modifying the side tube entrance to make it a passable opening. The burial is scattered over an approximately 2 meters area and consists only of very highly fragmented pieces of primarily long bones; nearly all fragments are articular surfaces of the bones with no bone shafts present (Figure 19). The identification of the remains was decided to be human based on the proximal articular surface of a tibia, which was the most intact bone present. The presence of nearly only articular surfaces of bones is somewhat unusual, but the highly deteriorated nature of the remains does not allow any further speculation about the nature of the burial. No other cultural material was found with the bones and they do appear disturbed, since they are spread haphazardly within the side tube.

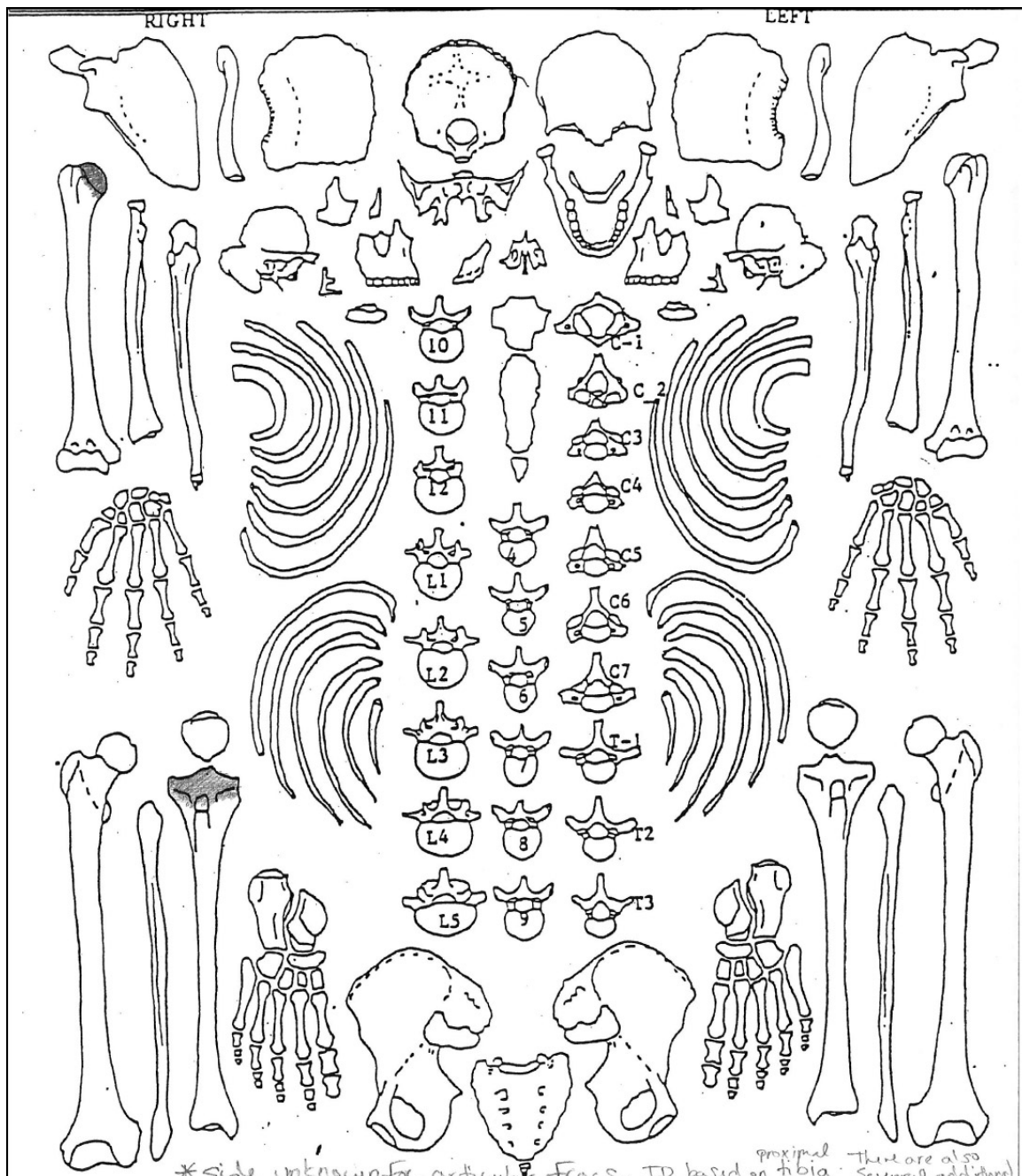


Figure 19. Site -26478, Burial 65, skeletal inventory form

1.1.5 State Site # 50-10-27-26479

SIHP #	50-10-27-26479
FUNCTION:	Permanent Habitation
SITE TYPE:	Enclosure
TOTAL FEATURES:	1
DIMENSIONS:	3 m by 3 m
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	610 ft a.m.s.l.

DESCRIPTION: Site -26479 is a C-shaped enclosure located on a *pāhoehoe* bedrock exposure in the northwest corner of TMK 26 in Kohanaiki Ahupua'a (Figure 20 & Figure 21). Although there are few nearby sites, Site -26507 (pervasive agriculture) Features D and E are within 100 m and Site -26479 has some minor agricultural features nearby (tossed stones on bedrock, small informal agricultural mounds). Site -26479 is surrounded by dense *koa haole* and tall grasses that almost cover the site. The bedrock exposure is elevated slightly above the surrounding ground to the south (90 cm maximum on the south end), providing the enclosure with a good view to the south, southeast, southwest, and east.

The enclosure is C-shaped and open on its southwest side. It measures 3 m by 3 m with an 1.7 m square interior. The southwest side opens onto the elevated bedrock exposure that continues for another 3 m and slopes to the southwest. The wall of the enclosure is collapsing somewhat due to dense vegetation, but several large uprights are still in place and some stacking is still present. The uprights indicate the original structure had square corners (north and east corners), and construction was primarily with upright slabs. Interior and exterior facing was present with small to medium cobbles as fill within the wall. The exterior enclosure wall is 50 cm high at its maximum, 35 cm high on the interior side and 70 cm wide. Although some soil is present within the enclosure, it is not deep and appears to be the result of recent vegetation.

Excavation potential is poor due to the lack of midden and sediment.

The site's function is interpreted as permanent habitation. The enclosure is formally constructed with upright slabs that suggest more intensive use than temporary habitation. There are very few other sites in the immediate area except for agricultural clearing. This site may be habitation related to agriculture. The location of this site, on an upraised exposure with a good view, also suggests longer term habitation.

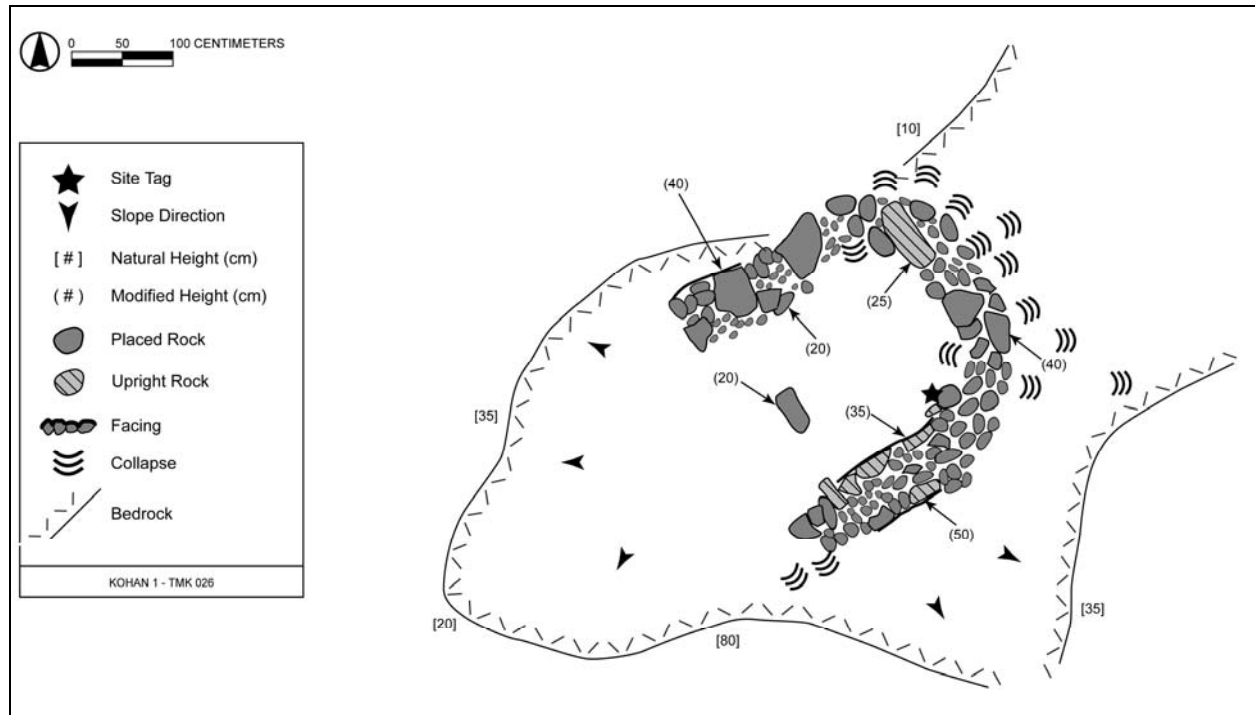


Figure 20. Site -26479 C-shape permanent habitation enclosure, plan view



Figure 21. Site -26479, showing the c-shaped enclosure, view to east

1.1.6 State Site # 50-10-27-26480

SIHP #	50-10-27-26480
FUNCTION:	Burial and Shelter
SITE TYPE:	Lava Tube
TOTAL FEATURES:	3
DIMENSIONS:	25 m by 15 m
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	590 ft a.m.s.l.

DESCRIPTION: Site -26480 is a lava tube with modifications around its entrance (Feature A) and a modified blister (Feature B) located on a *pāhoehoe* bedrock exposure in the northwest corner of TMK 26 in Kohanaiki Ahupua'a (Figure 22). Feature B lies approximately 20 m southeast of the opening of Tube 1. Site -26483 is located approximately 66 m southeast, and Site -26478 is located approximately 100 m southwest. Bulldozer activity is approximately 50 m west, and much of the exposed bedrock in the area is eroded and broken apart. Some of the stones may have been scattered around due to agricultural activities. Thick *koa haole* and tall grass dominate the vegetation in the area.

Feature A is a the modified opening on the south side of Sink 1 leading into Tube 1 (Figure 23). The tube opening was modified so that a curved wall (Feature A) encloses the entire opening. The constructed area measures 200 cm long and 100 cm thick, and reaches a height of 80 cm. It is composed of small to large cobbles that have been roughly stacked up to 7 or 8 courses high on the sides with fewer courses in its central section. The sides of the curved wall were constructed with medium to large cobbles and filled with smaller cobbles, though there are a few larger cobbles placed about the middle. On the east end of the wall on the side facing into the sink is a slab measuring approximately 55 cm by 60 cm that appears to be an upright, though it is not stable in its upright position.

A midden deposit containing cowry and *Nerita*, as well as charcoal and sea urchin is just inside the Tube 1 opening on the south side of the Feature A wall. Soil is also on the floor and measures 3-5 cm in some places. The tube decreases in size as it continues to the south-southwest. In the far southwest section of Tube 1 is Burial 51 (see below). This southwest section is reached through a small opening, less than 25 cm high.

Feature B is a modified *pāhoehoe* blister located on an eroded *pāhoehoe* bedrock exposure in the northwest corner of TMK 26. Site -26483 is located 46 m southeast, and Site -26478 is located 85 m southwest. Bulldozer activity is located 80 m to the west. There are some agricultural features about 100 m southeast (Site -26507 Feature E). Much of the exposed bedrock in the area has eroded and is broken apart, and some of the stones may have been scattered about due to agricultural activities. The bedrock exposure that the blister is located in is situated on the north edge of a sink approximately 10 m across, elevated approximately 50 cm from the bottom of the sink area on the lip. There is no modification of sink evident.

The modified blister is a naturally irregularly shaped vertical opening through the bedrock. The opening has a continuous overhang on its north, west, and south sides, reaching back an

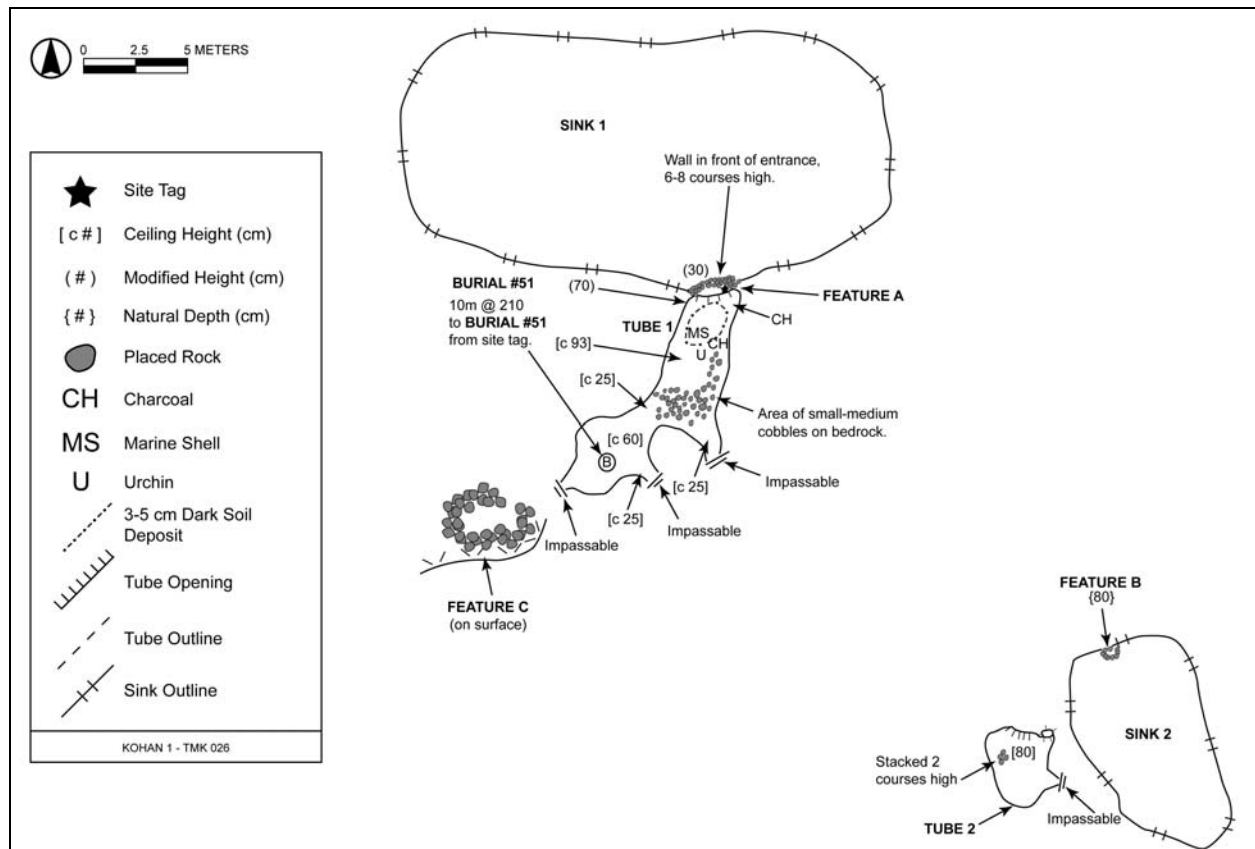


Figure 22. Site -26480 modified sinks and lava tubes, plan view



Figure 23. Site -26480, showing the modified Tube 1 entrance; the modification consists of the wall that lies under the photo scale, view to west

indeterminate length. The opening measures 40 cm by 30 cm and reaches a maximum depth of 50 cm. The floor contains some cobbles and plant materials. Surrounding the opening are placed cobbles and plant materials. Surrounding the opening are placed cobbles, some stacked up around the opening to increase its depth (Figure 24). The area sloping into the shallow sink is covered with more small to large cobbles.

No midden is present, and there is very minimal soil present, so excavation potential is poor.

The function of Feature B is a storage area. Based on the lack of habitation sites nearby, the small size of the opening, and the fact that the blister was built up to increase its size supports this function.

Another small tube (Tube 2) is 3 m west of Sink 2. Tube 2 has no midden and the only modification consists of a few placed, stacked stones. This area also had several other small blister openings with no cultural materials or modifications present.

Feature C is a modified outcrop on the surface, approximately 10 m southwest of Feature A constructed entrance. The modified outcrop measures approximately 3 m by 2 m. The feature exhibits informal construction consisting of the low piling of *pāhoehoe* boulders to create an enclosed area. Feature C functions as an informal shelter.

The site's function is interpreted as burial and shelter. Tube 1, the modified lava tube is a shelter based on the extent of modification and the fact that the tube's interior is not very spacious. The maximum height is approximately 100 cm and would have been uncomfortable for extended periods of time. The presence of some midden also indicates temporary use. The other function is burial site due to the presence of bones described below (Burial 51).



Figure 24. Site -26480 Feature B, modified blister storage cupboard

Burial 51

Burial 51 consists of two rib fragments found at the back of small lava tube (Figure 25). The ribs are fairly flat and were identified as probable human based on morphology as well as their location in the back of a modified/concealed area of a lava tube. Because of the fragmentary state of the ribs and the lack of any other bones, it was difficult to rule out the possibility that these are not human (pig ribs are classically difficult to differentiate from human ribs). Any other bones placed here likely have washed down into the several cracks at the edges of the cavern and there is no way to access these areas. Overall, based on the location, modification of the lava tube, and the morphology of the bones, these remains were determined to be human.

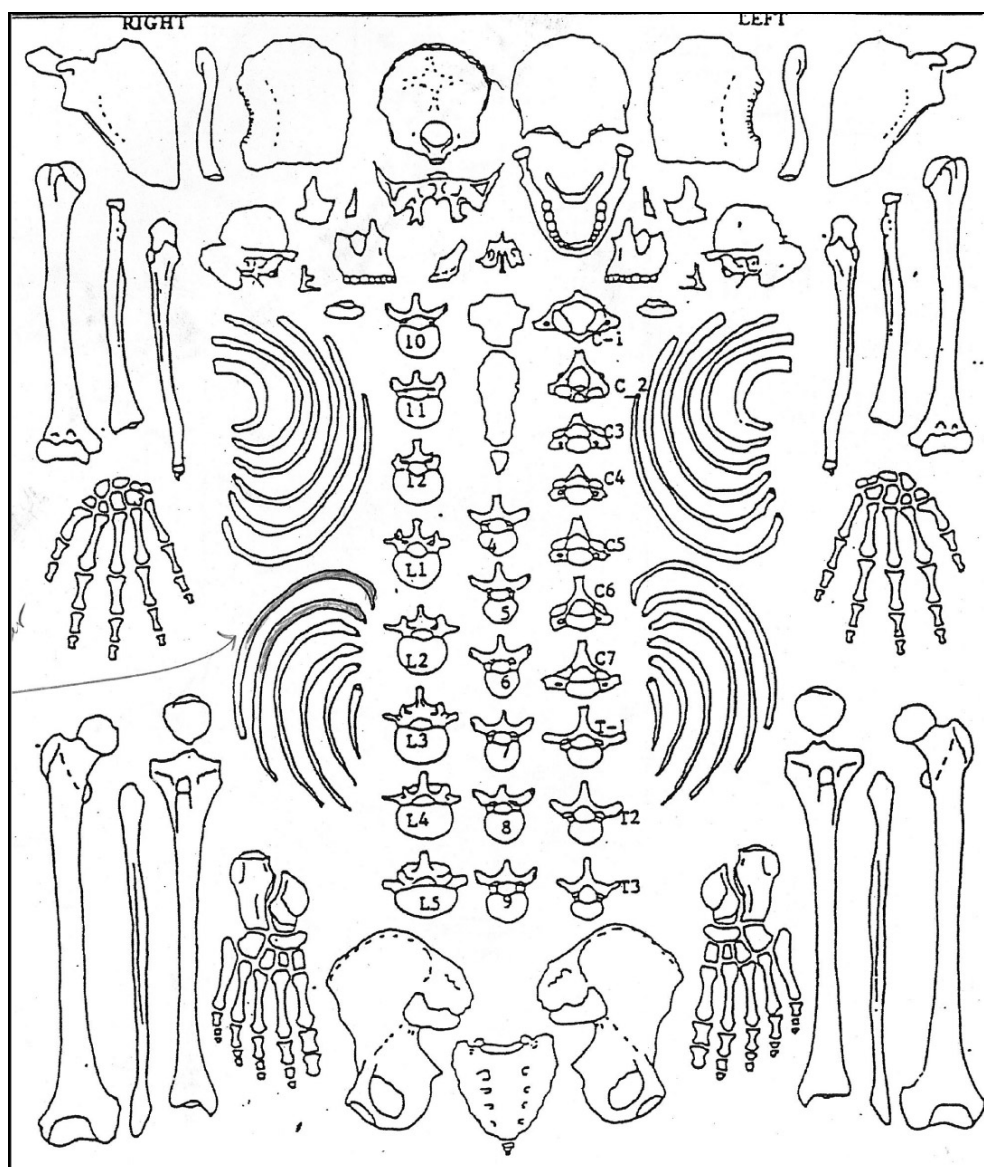


Figure 25. Site -26480, Burial 51, skeletal inventory form (rib fragments only)

1.1.7 State Site # 50-10-27-26481

SIHP #	50-10-27-26481
FUNCTION:	Temporary Habitation
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	6 m by 17 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	560 ft a.m.s.l.

DESCRIPTION: Site -26481 is a small sink and small *pāhoehoe* lava tube located in Kaloko Ahupua'a just south of the *ahupua'a* wall near the west boundary (Site -10712) of the project area (see Figure 26). The sink located on a southwest slope and is almost hidden by the Christmas berry growing within the sink and the dense *koa haole* surrounding it. Approximately six large green *tī* plants (maximum 3 m / 9.8 ft. high) are growing in the sink's center.

Both the sink and the small lava tube are modified. The sink's north edge is marked by a large natural boulder fall that forms a rough slope into the sink. The upper two courses of the primarily natural slope are placed to improve access down into the sink.

The sink floor is relatively level with medium cobbles and small boulders. It also consists primarily of natural fall, however, the southwest quarter of the sink has been slightly modified into a terrace and its surface has been roughly leveled. Below this terrace (to the southwest), heading into the tube itself, is a second area cleared of larger roof fall and roughly leveled cobbles (see Figure 27). North of this leveled area, beginning 1.5 m (4.9 ft.) within the tube, is a round skylight 2 m (6.6 ft.) in diameter. The tube floor beneath the west edge of the skylight contains a larger natural fall area that ends abruptly to expose a very smooth *pāhoehoe* tube floor. This smooth floor has been cleared of roof fall to form a very comfortable living surface. The edges of this bedrock floor are scattered with a thin soil deposit (2-3 cm) and cobbles are cleared from the center of the chamber. The area around the edges of this flat floor is also scattered with relatively dense marine shell midden composed of *Nerita*, *Cypraea*, *Isognomon*, and unidentified bivalves. *Kukui* is also present in this midden.

Beyond the cleared tube floor and to the west, the tube is slightly wider and taller. One small slab and six large cobbles are arranged into two to three water catchment areas in this area.

Angular, thin (5-10 cm / 0.16-0.3 ft.) basalt columns were found throughout the tube, and the columns' upper cortex were particularly abrasive. They are not naturally from the tube and therefore are imported raw material, likely for use as abraders.

The site's function is interpreted as a temporary habitation based on the presence of marine shell midden, and cleared floors. There is no evidence of any other function for this site. Excavation potential is fair given the large amount of shell midden present but lack of deep soil deposits.

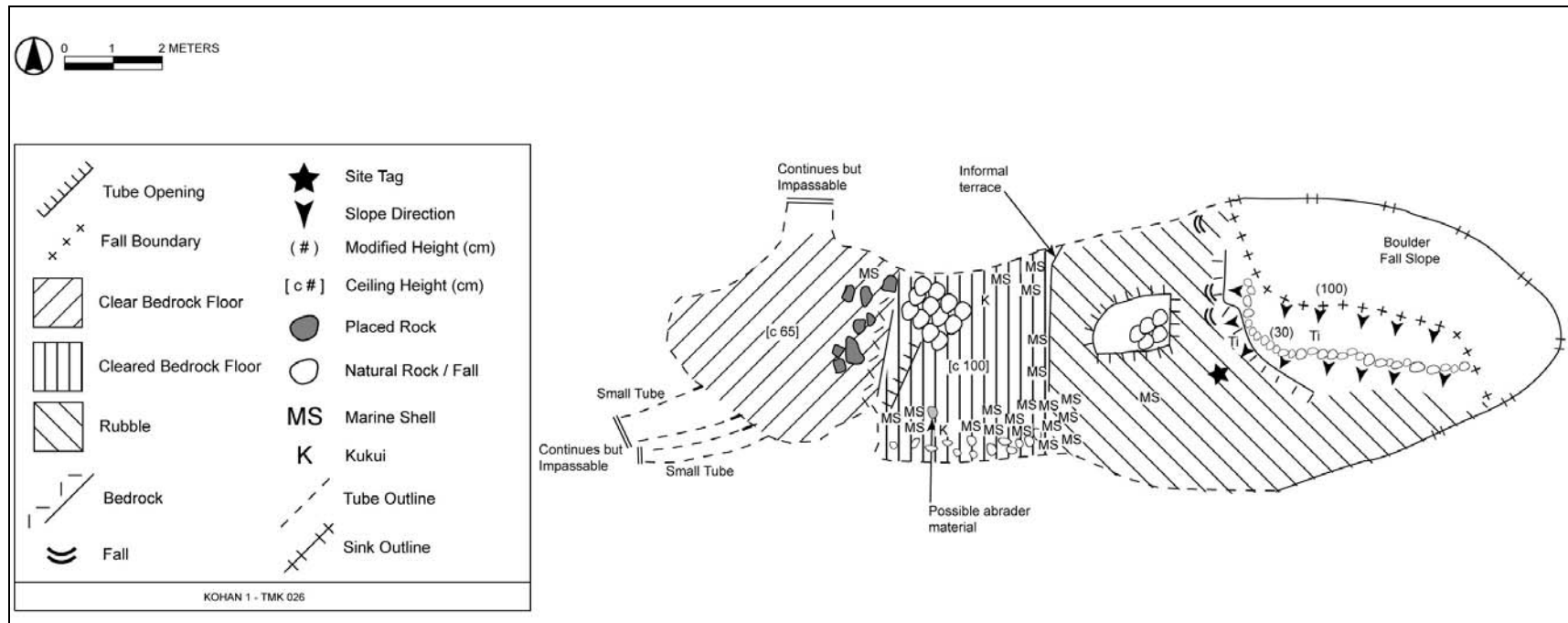


Figure 26. Site -26481 temporary habitation lava tube, plan view



Figure 27. Site -26481, lava tube entrance, view of length of tube to the west (area behind photo scale is leveled), view to west

1.1.8 State Site # 50-10-27-26482

SIHP #	50-10-27-26482
FUNCTION:	Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	40 m by 10 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	600 ft a.m.s.l.

DESCRIPTION: Site -26482 is located in a shallow depression in a *pāhoehoe* flow in the northwest quadrant of TMK 26 within Kohanaiki Ahupua'a. The vegetation surrounding the site consists of thick grasses, head high *koa haole*, and air plant.

The site consists of a single sink with one main tube extending roughly northeast off of the sink (Figure 28). The tube's entrance chamber is paved with small *pāhoehoe* slabs and cobbles. A widespread soot and sediment deposit with scattered charcoal is present, and some pig and goat bone fragments are in the entrance chamber amongst this sediment. Scattered shell midden also in this chamber that includes *Nerita*, pearl shell, and cowry. The entrance chamber at the back is bounded by the wall. Beyond the wall, the tube extends another 35 m and has approximately five water catchments. A few pig bones were found beside one of the water catchments and a piece of branch coral was found beside another water catchment in this back portion of the tube.

Approximately 35 m northwest of Site -26482 is a small sink and lava tube with an old site tag that reads: ACP TF-186 19-2-03. Cobb et al. 2003:n.p. identified the site as a "cave with internal chamber containing possible side tubes" whose function was indeterminate. The sink and tube were explored, but no modification or cultural material was present. As a result, it was not recorded.

A wall is approximately 3 m from the tube entrance (Figure 29). It is constructed of *pāhoehoe* basalt stones (size ranges 20 cm by 20 cm to 60 cm by 20 cm) and runs the width of the tube (roughly northwest/southeast) but is not straight across. The wall makes two obtuse angle turns. It is approximately 5 m long by 0.3 m wide and is 0.6 m in height. The ceiling's maximum height is 120 cm, so the wall does not completely block access to the tube. The wall was therefore likely built as a windblock for the several water collection constructions found further back in the tube to the southwest. The wall is rather crude, at most three courses high, and has no facing. A large *pāhoehoe* slab sits upright and is incorporated into the wall (approximately halfway between the sides of the tube, on the north side of the wall). A burned piece of wood is just on the tube entrance side of the upright *pāhoehoe* slab. Between the wall and the tube entrance (on the northwest side of the tube) is a small paved, level area (about 2 m by 2 m).

The site's function is interpreted as water collection based on the modifications present. These modifications all relate to water collection. While the presence of branch coral indicates possible ceremonial activity, its purpose in this site is associated with water collection based on its proximity to a water collection construction.



Figure 28. Site -26482 modified lava tube, plan view



Figure 29. Site -26482, showing the constructed wall within the tube, view to east

1.1.9 State Site # 50-10-27-26483

SIHP #	50-10-27-26483
FUNCTION:	Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	3
DIMENSIONS:	185 m long by 10 m wide (typically)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	595 ft a.m.s.l.

DESCRIPTION: Site -26483 is located in an undulating *pāhoehoe* flow in the northwestern quadrant of TMK 26 within Kohanaiki Ahupua'a. The vegetation within the vicinity of the site consists of medium and large Christmas berry, head high *koa haole*, grasses, air plant and *laua* 'e ferns.

The site is comprised of two sinks, Sink 1 and Sink 2, both of which run roughly northeast/southwest, and two main tubes, Tube 1 and Tube 2 (Figure 30). Tube 1 extends off of Sink 1 to the northeast and connects with Site -26495 and Site -26490 (both modified lava tubes). Feature A, a pavement, and Feature B, a *pāhoehoe* slab trail, are located in Tube 1. There is a small constructed depression in Sink 1 and a small tube with no modification that runs along the southeast side of the sink. No other modification to Sink 1 is evident and Sink 2 contains no modifications. Tube 2 runs southwest off the southwest end of Sink 1 and through Sink 2. Feature C, a wall, is located in Tube 2. There are a few agricultural mounds and some scattered, piled and tossed boulders on the surface to the northwest of Sink 1, which is approximately 40 m east of Sink 1.

Tube 1 runs generally northeast/southwest off the northeast end of Sink 1. The tube is fairly long with the main branch running approximately 85 m before connecting with Site -26495. A large side tube runs off of the main tube of Tube 1 for approximately 50 m before connecting with Site -26490. The primary modification in Tube 1 consists of many water collection constructions scattered throughout the tube, two cleared pathways over areas of natural fall, one of which leads down into Tube 1 from Sink 1, and Features A and B. A large amount of midden, the majority of which is charcoal, is also scattered throughout Tube 1. The midden also consists of goat bone, fish bone, bird bone (including some likely large extinct bird species), marine shell, urchin, *kukui* and a large amount of crab. The majority of this midden is located at the back, northeast end of Tube 1 near the Feature A pavement, which may have served as a refuge, given its location in the far back of a tube and near the site boundary with Site -26495.

Tube 2 generally runs to the southwest, and is situated southwest of Tube 1. The tube is approximately 95 m long and ranges from 14 m to 8 m in width. It is not extensively modified. Tube 2 contains nineteen water collection constructions and goat bones were found approximately 5 m inside Tube 2 in the western portion of the tube. Marine shells, including *Nerita*, crab shell, and rodent bone were also present.

A tube opening is present within Sink 1 that extends into Tube 2. The sink is approximately in the center of Tube 2. A second tube runs northeast within Tube 2, but is impassable due to natural fall. Feature C, a small wall, is also in the general vicinity of the impassable tube.

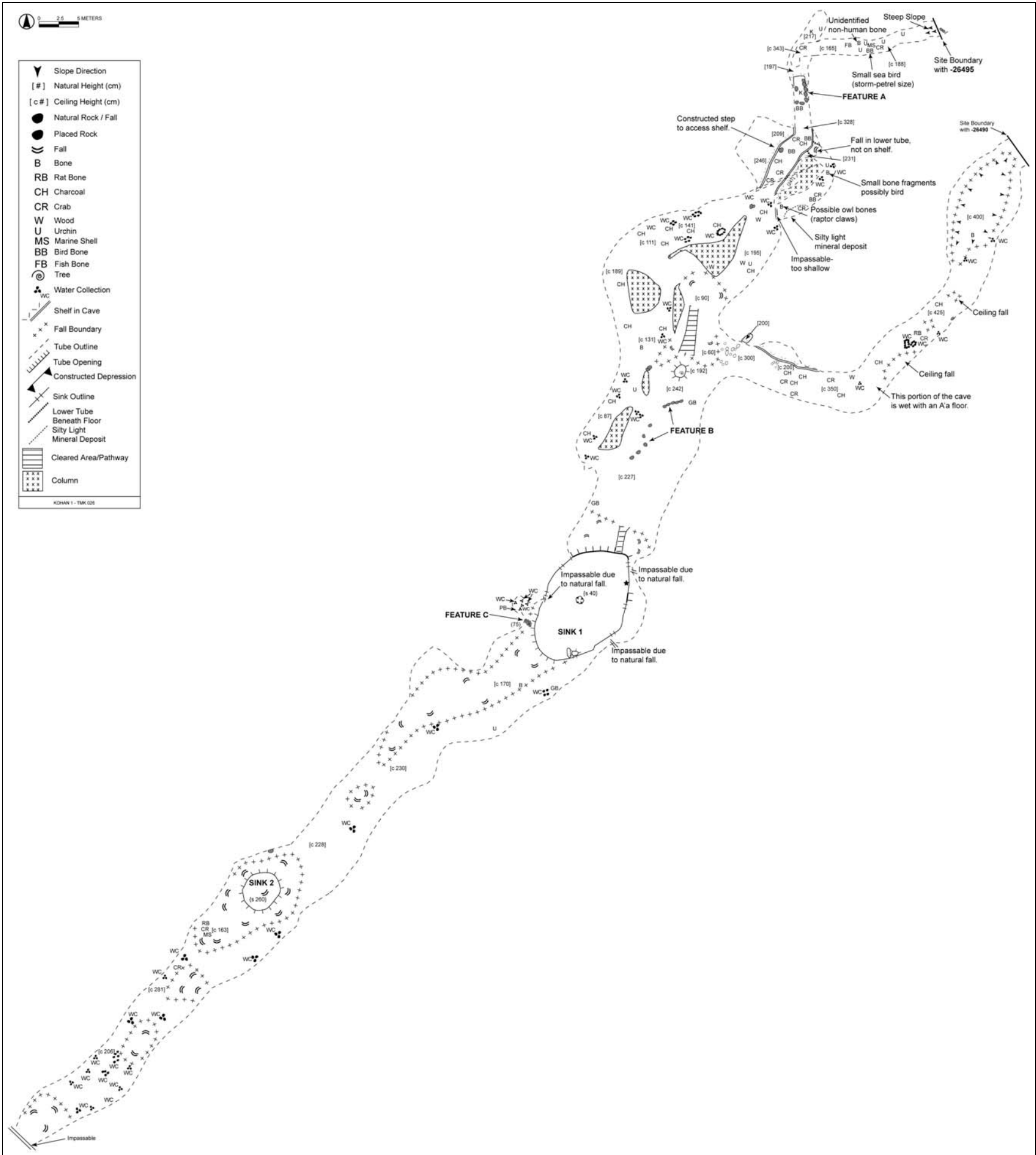


Figure 30. Site -26483 modified lava tube, plan view

There are approximately seven water collection constructions beyond the Feature C wall. Tube 2 ends at an area of impassable rock fall.

Feature A is a small pavement in Tube 1 consisting of six slabs and measures 2.5 m long and 60 cm wide. The slabs range in size from 35 cm to 55 cm in diameter and are placed end to end against the east side of the tube. There are also several similar slabs placed nearby in the center of the tube.

Immediately south of these placed slabs is a loose area of slabs taken from the tube's sidewall. This natural source of slabs is the source for Feature A and may be the source for slabs in Site -26495 Feature H. Numerous charcoal deposits and large bird bones that likely represent at least one extinct species are also in the general vicinity. It is unclear if these bird bones are cultural, but they are in very close proximity to the pavement. A shelf formed over the falling tube wall is accessed by a large slab "step" wedged between a boulder and the tube wall.

Feature B is an incomplete *pāhoehoe* slab trail that begins 8 m north of the dripline in Sink 1, near the tube center (Figure 31). The trail begins just inside of a minimally modified cleared area leading through the fall to access Tube 1. It continues for approximately 12 m, then ends at a large cobble pile of fall beneath a skylight. Approximately 11 slabs, 25 cm to 45 cm in diameter on average, lead to the skylight. Skirting the fall from the skylight are seven very tightly spaced slabs forming a distinct alignment over 2.5 m. Their alignment suggests a heading consistent with the entrance of an eastern side tube.



Figure 31. Site -26483, Feature B, *pāhoehoe* slab trail heading north within Tube 1, view to north

Feature C is located in Tube 2 near the entrance to Sink 1. The feature consists of a small 1.5 m by 50 cm wall constructed of small *pāhoehoe* boulders that likely originated as natural fall. The wall blocks off the passageway between the tube sidewall and the large area of natural fall at the entrance to Tube 2. The wall is constructed from floor to ceiling. The construction is somewhat informal and there is no facing. Beyond the wall, on the side of Sink 1 is a small back chamber with approximately seven water catchments. The wall blocks off this back chamber from the wind to maintain the humidity level for water collection in this back chamber.

The site's function is interpreted as water collection. There are approximately fifty water collection constructions throughout the tubes of this site. Little modification is present that is not related to the water collection activities. Feature A exhibits a possible refuge function, in correlation with Site -26495, although this is only a possible secondary function.

1.1.10 State Site # 50-10-27-26484

SIHP #	50-10-27-26484
FUNCTION:	Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	6m by 9 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	580 ft a.m.s.l.

DESCRIPTION: Site -26484 is a lava tube modified for water collection and shelter located in the central west side of the project area within Kohanaiki Ahupua'a. Vegetation on and within the vicinity of the site is Christmas berry, *koa haole*, and air plant.

The site consists of a tube with two sections separated by a sink (Figure 32). The south tube contains two water collection constructions and has evidence of clearing including stacked boulders (Figure 33). The only modification in the northern portion of the tube is floor clearing.

The site's function is interpreted as water collection with a secondary function of shelter. This determination of function is based upon the presence of water collection constructions and the minimal modification to facilitate short term, limited habitation usage.

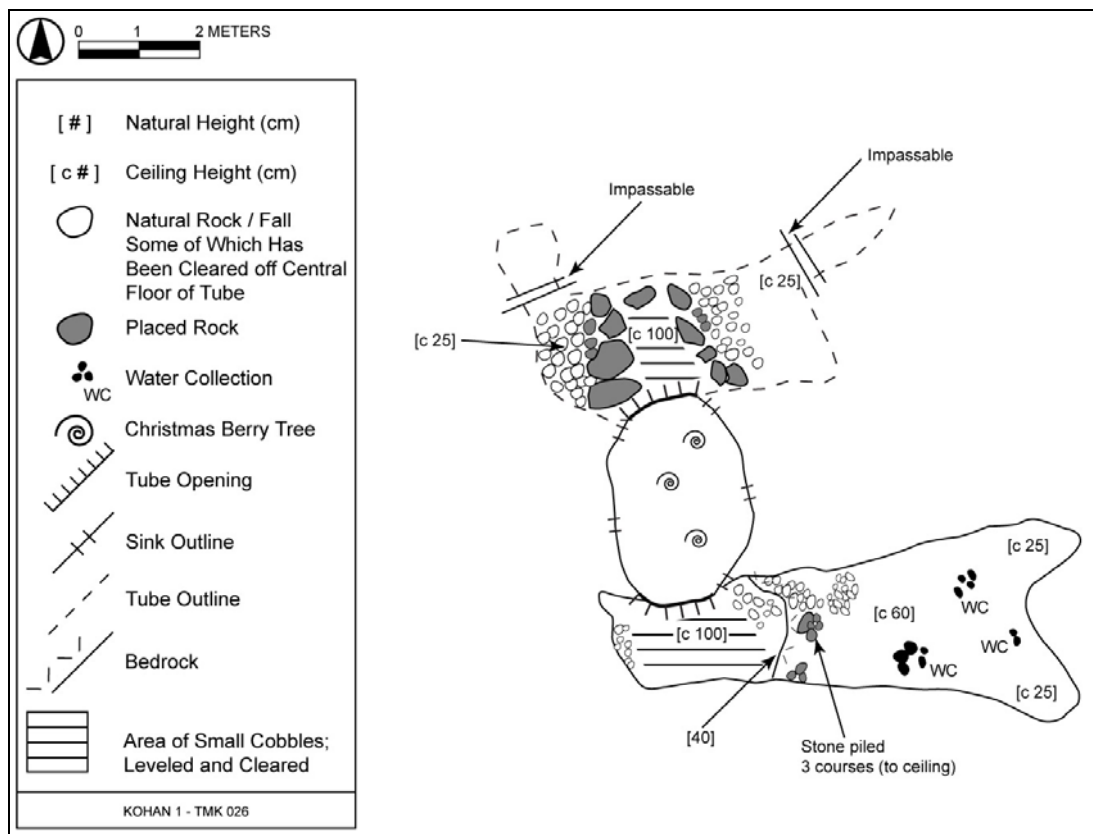


Figure 32. Site -26484 modified lava tube, plan view



Figure 33. Site -26484, showing the entrance to the southern tube (note: stones piled just inside entrance at left), view to south-southeast

1.1.11 State Site # 50-10-27-26485

SIHP #	50-10-27-26485
FUNCTION:	Permanent Habitation
SITE TYPE:	Lava Tube
TOTAL FEATURES:	4
DIMENSIONS:	40 m by 50 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	610 ft a.m.s.l.

DESCRIPTION: Site -26485 is a sink with three lava tubes located in the northwest quadrant of the project area within Kohanaiki Ahupua'a. The lava tubes include a small terminal tube to the northeast that is the locus of habitation (Tube 1), and two entrances on the northwest and west sides to Tube 2 which is modified for water collection (a southeastern branch of Tube 2 adjoins lava tube Site -26483 to the south) (Figure 34). The site is situated at the top of a gradual ridgeline with *koa haole*, Christmas berry, and airplant in the vicinity. A site tag, "TF-180 ACP 18-02-03" indicates the site was previously identified.

Tube 1 contains multiple water collection constructions scattered throughout the tube. A constructed terrace, measuring approximately 1.5 m by 2 m is just within Entrance 2. Adjacent to the terrace is a pavement measuring 7 m by 2 m with some marine shell midden on its surface. A second pavement, measuring 4 m by 2.5 m, is just beyond the first. A piece of ground coral was found on the floor of Tube 1.

Feature A is a low, formal terrace running northwest/southeast across the southeast side of Tube 1 (Figure 34 & Figure 35). The terrace is 4.3 m long northwest/southeast and 35 cm high at the northwest end, and 60 cm high at the southeast end. The width of the terrace varies from 70 - 260 cm since it extends back towards the sink until abutting the fall in the center of Entrance 1 of Feature C.

The wall is constructed of small slab uprights across the front and the wall, generally overlaid by a second course of a horizontal small slabs.

Much of the terrace is adjacent to a cleared smooth *pāhoehoe* slab floor. Near the center of the terrace, a cupboard that measures approximately 50 cm by 50 cm square and is irregularly shaped is beneath the pavement slabs of the terrace. No artifacts were noted in the cupboard.

Feature B is an "L" shaped wall in Tube 1 (Figure 34 & Figure 36). It is 3.1 m in length, 1.5 m in width, and is constructed to a height of 81 cm. The wall is constructed with small *pāhoehoe* slabs and medium to large-sized boulders. The construction is quite informal, lacking stacking or courses, and is mounded. The wall separates two small paved areas at the back of Tube 1.

Adjacent to the wall is a cobble pavement that measures approximately 3 m by 3 m. A drilled 'opihi (*Cellana* sp.) and marine shell midden were found on the surface.

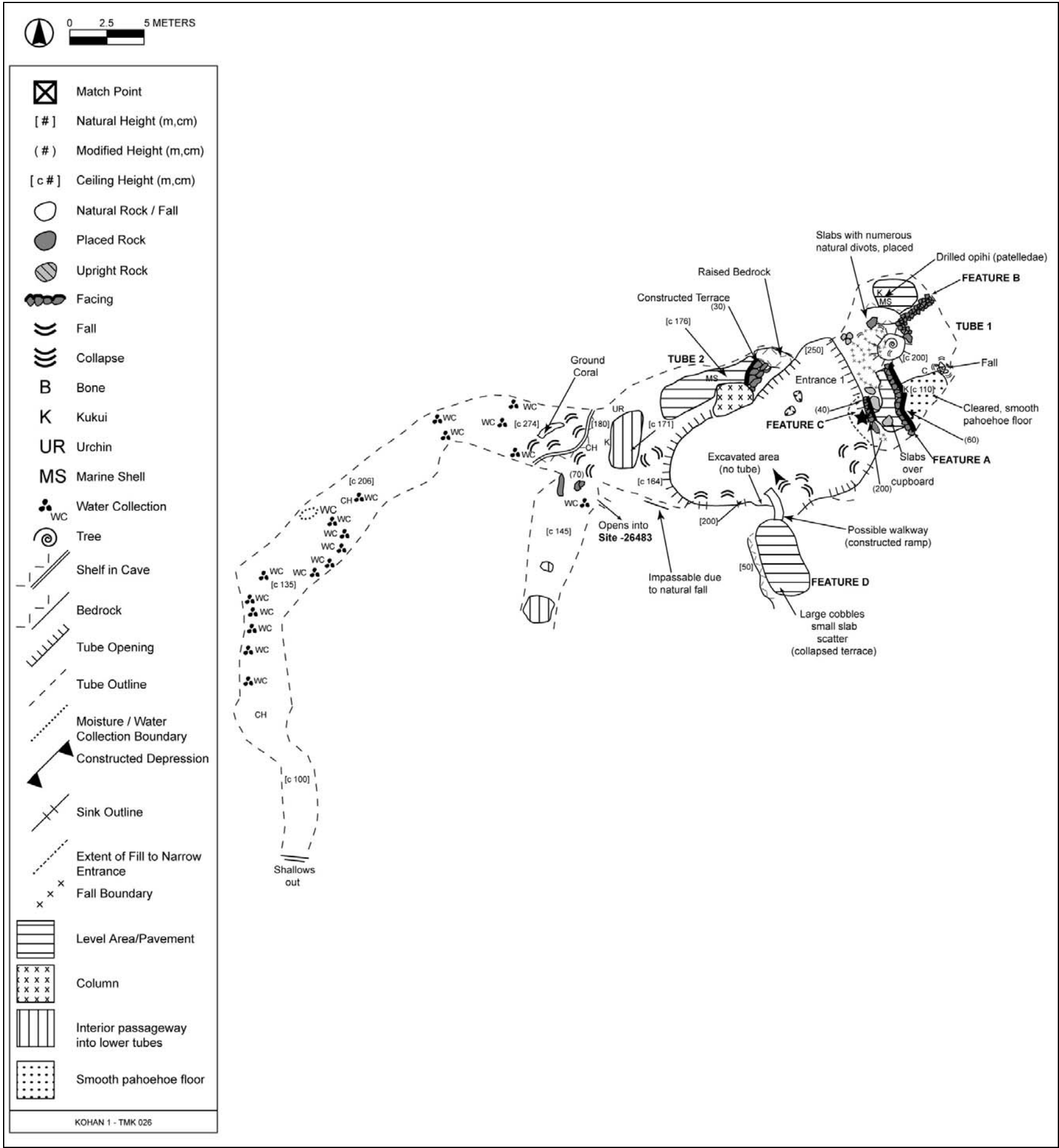


Figure 34. Site -26485 permanent habitation lava tube, plan view



Figure 35. Site -26485 Feature A, showing the terrace and pavement at its base. Feature C is in the background, view to southwest



Figure 36. Site -26485 Feature B, showing the wall, view to north-northwest

Feature C is a retaining wall that restricts entry to Tube 1 and retains fill to the southwest that creates a slightly elevated terrace and a possible entry into the sink (Figure 34).

The wall construction is limited and it follows the dripline of the entrance. Its construction is primarily visible from the inside of the sink where it ranges in height, tapering downwards and diverging from the dripline as it approaches the center of the sink. At most it measures 3 m long and 2 m high (reduced to 0.3 m at its end).

The terrace surface in the sink blends in with surrounding fall, but measures approximately 4 m northwest/southeast by 1.5 m southwest/northeast. Generally it is constructed of small boulders. The retaining wall makes use of one large upright as a foundation.

Feature D is a 5 m by 3 m remnant terrace, built above the edge of the southeast corner of the sink (Figure 34). It is linked to the sink via a ramp created by clearing boulders from the sloping fall. The terrace is roughly rectangular and is constructed on a slightly elevated bedrock exposure that faces the ocean. The terrace is currently largely collapsed and consists of a 1-2 course scatter of small boulders, large cobbles, and a few slabs.

The site's function is interpreted as permanent habitation. Tube 1 is particularly well suited and modified for this function. Limited midden, coral cobbles (abrader material) and the type and amount of modification in the tube are indicative of habitation. Though the sink does not appear to be extensively modified, Feature A is high investment. There are constructed depressions in the center of the sink and Feature D is well situated as a surface habitation, showing considerable investment at the site. As a result, this is believed to be a permanent habitation. Cobb et al. 2003 identified this site as TF180, "a cave complex in large collapsed dome, 3 large and 1 small tubes" with an indeterminate function.

Section 2 Site Descriptions: Kailua Point Quadrant

2.1.1 State Site # 50-10-28-5699

SIHP #	50-10-28-5699
FUNCTION:	Animal Husbandry
SITE TYPE:	Wall
TOTAL FEATURES:	1
DIMENSIONS:	15 m long within project area, continues north for over 500 m
CONDITION:	Good
AGE:	Historic
ELEVATION:	735 ft a.m.s.l.

DESCRIPTION: Site -5699 is a wall located on a slightly southwest sloping gently undulating *pāhoehoe* flow in the east portion of the north side of the project area within Kohanaiki Ahupua'a, at the far north boundary and extending north of the project area (see Figure 1). The vegetation surrounding the site consists of over head-high *koa haole*, Christmas berry trees, and thick grass.

The site consists of a historic rubble-filled wall constructed of *pāhoehoe* boulders (30-50 cm in diameter), some large cobbles, and with some *pāhoehoe* slabs incorporated as uprights at the base of the wall (Figure 37). There are also some slabs stacked horizontally in the wall. The rubble fill consists of small to medium *pāhoehoe* cobbles.

The wall runs roughly north/south at a bearing of 340° TN. Only about 15 m of the wall's south end is within the project area. The wall continues roughly north at the same bearing for at least 500 m but was not explored as it extended far outside the project area. The wall averages 1.25 m tall and 80 cm wide and is nicely faced on both the east and west sides. Some small areas of collapse are evident likely due for the most part to natural causes. A bulldozer road runs along the east side of the wall. The south end of the wall appears to have been subject to bulldozer disturbance and is not the original end. The wall, however, does not continue beyond the current south end.

A survey stake at the south end of the wall reads: PHRI 88-477 T-4 1/11/89. Rosendahl (1989:11, 13, 14) identified the site, SIHP #50-10-28-5699, as a historic agricultural or boundary wall. The report determined that no further work of any kind was necessary, that sufficient data was collected, and that there was no preservation potential, although possible inclusion into landscaping was suggested for consideration (Rosendahl 1989:14).

The function of site -5699 is interpreted as an animal husbandry wall and as a marker that likely represents a historic property boundary. This interpretation is based on the formal construction, and the fact that the wall is very straight and linear. The rubble-fill method of construction indicates the wall is historic, and is typical of other animal husbandry walls in the area (i.e., Site -10712). There is no excavation potential.



Figure 37. Site 5699, showing the largely intact core-filled wall, view to west-southwest

2.1.2 State Site # 50-10-28-6601

SIHP #	50-10-28-6601
FUNCTION:	Agriculture
SITE TYPE:	Complex (Mounds, Terraces, Modified Outcrops, etc.)
TOTAL FEATURES:	No feature designations assigned
DIMENSIONS:	Approximately 30,000 m ² or 7.4 acres within project area
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	700 to 760 ft a.m.s.l.

DESCRIPTION: Site -6601 is a large previously identified agricultural system generally known as the Kona Field System. Intensive non-irrigated agriculture is characteristic of the Kona slopes and other regions of Hawaii and Maui where irrigation, because of the lack of perennial waterways, is not possible. The “Kona Field System” - generally defined by a grid-like patterning of stone constructed field boundaries - represents an interrelated network of intensive non-irrigated agriculture covering an estimated area of 139 km² (456,037 ft.)² between Kealahue Bay and Kailua Bay (Kirch 1985:225). Archaeological studies beyond the arbitrary northern boundary of the “Kona Field System”, have documented evidence of intensive non-irrigated agriculture in the Kekaha region within the Upland Zone between 400 to 1200 ft. a.m.s.l. (i.e., Cordy 1985; Hammatt et al. 1987; Walker and Rosendahl 1990; Robins et al. 1993).

Intensive non-irrigated agriculture is characterized by concentrated occurrences of similar feature types (i.e. field walls, modified ‘a‘ā lava, *pāhoehoe* excavations, and mound complexes). Variations in the methods of non-irrigated agriculture occur as a response to topographical and geological variation, and rainfall in the region. Radiocarbon dates taken from upland field shelters within the Kona Field System indicates that intensive agriculture began developing between ca. A.D. 1400 - 1600 and intensified with permanent upland settlements between ca. A.D. 1600 - 1779 (Schilt 1984).

Within the current project area, the density and intensity of agricultural modification increases significantly with elevation, and reaches its peak at the far eastern (*mauka*) boundary of the project area. For the majority of the parcel, agricultural modification consists of informal clearing mounds, excavated blisters, and other minimal modification features that often occur in clusters, but rarely are the features formally constructed or very dense. These pervasive agricultural features were designated Site -26507 (see site description and overview map for that site below). On the *mauka* slopes of the project area, however, the agricultural features become considerably more dense, there is a wider range of types of agricultural features (planting and clearing mounds, enclosures, *kuaīwi*, excavated depressions and blisters, etc.), and the amount of overall energy investment is considerably greater. This change in the type/intensity of agricultural modification is not surprising given the higher rainfall and better soil development in this area. Wolforth et al. (2005) recorded the Kona Field System in their archaeological inventory survey of the parcel immediately *mauka* of the current project area; the description and data within the present report should be considered an addition to their previous work just *mauka* of the present study.

Since the area of intense agricultural modification within the project area covered several hundred square meters with hundreds of individual agricultural features, a sampling grid was created in order to record basic information about a large portion of the Kona Field System within the project area. There are four sample areas (Sample Area A through D, see Figure 38), all of which abut the project area boundary on the east side and which are designated from north to south (Sample Area A being the furthest north). Thus, the main area that has agricultural modification consistent with the Kona Field System but that which is not within a designated sample area is the *makai*-most areas, which tend to have a lower density of features. Overall, we estimate that our sample areas cover about 80% of the modification consistent with the Kona Field System in the current project area.

Sample areas were mapped at a 5 meters per inch scale and all agricultural modification was sketched on an overview map for each contiguous sample area (Figure 39 to Figure 42). Basic information about each feature was also recorded (Table 1 through Table 4), including dimensions (length and width are in meters, height is in centimeters with depths in centimeters in parentheses), feature type, construction style (formal/informal), the slope in the general vicinity, and whether agricultural clearing of the surrounding area was present or not. Each feature was given a sequential numerical designation within the sample area that can be referenced on Figure 39 to Figure 42. Some typical features found in the field system are shown in Figure 43 through Figure 46. Test excavations were conducted in the sample areas to confirm function and ensure that none of the large mounds and features could be burial platforms (see testing results below). Overall, testing confirmed the agricultural function of the site, as well as revealing that several features were utilized as temporary habitation and activity areas in addition to agriculture.

Sample Area A is the northernmost area of the Kona Field System within the project area, and is on the north side of a fairly large 'a 'ā flow that runs *mauka-makai* through the east portion of the project area. The rest of the field system is primarily located south of this 'a 'ā flow (Sample Areas B-D). Sample Area A is characterized by several *mauka-makai* running depressions (probably old sink areas that do not have any tubes). The interior areas of these linear depressions have been modified with informal terracing and series of mounds in dense clusters. One of the mounds had an associated artifact, a small pecked stone slab that was collected (see Results of Laboratory Analysis in the main document of the inventory survey report). Sample Area A contains mounds, terraces, a small cairn, modified blisters and outcrops, small 'a 'ā cobble mulch areas, and modified edges of the 'a 'ā flow. There is also a more formally modified blister (A80) at the north end of the sample area, which is modified on its south side with several large slabs (three are over 50 cm and several smaller slabs) that are set horizontally against the edge of the blister. These slabs are set on top of smaller cobbles (10-30 cm), and the height of this "bench" is 50 cm (the maximum height of the filled in blister is approximately 100 cm). This feature is thought to be a resting area related to the agricultural activity; excavations revealed no cultural material.

Sample Area B is located just south of the 'a 'ā flow mentioned above. This area contains a large permanent habitation site (Site -26583) and tends to have a very large number of mounds and modified outcrops. There are also a few formal terraces in the area as well as possible *kua'iwi* (linear mounds designating agricultural plot boundaries) and an agricultural enclosure, in

addition to mulch areas, modified blisters and depressions, and a *tī* plant at the northeast corner of the sample area (possibly related to Site -26583) .

Sample Area C is similar to Area B but contains a larger number of formally constructed agricultural features, with several large terraces that have formally constructed retaining walls and occasionally consist of two tiers. This area continues to have large numbers of mounds and modified outcrops, as well as several modified '*a*' edges . *Kuaīwi* and a C-shape enclosure are also present. The increased amount of formal modification may be in relation to the large trail Site -10714 nearby, which runs through Sample Area D, as well a formal habitation enclosure located in Area D (Site -26588).

Sample Area D is located the furthest south and partially abuts the *ahupua'a* wall. Interestingly, although the Kona Field System modification continues as far as the wall on the Kohanaiki side, the Kaloko side does not have any sign of intense agricultural modification. Although this may be a difference between *ahupua'a*, it seems more likely that bulldozing and ranching activity have had a more significant impact on the Kaloko side, and destroyed the agricultural modification there. In Sample Area D, the agricultural modification tends to be fairly formal, with several long terraces having uprights along the *makai* edge (i.e., D9). There are also several mounds that have formal stacking on one edge, apparently as a sort of retaining wall, and a fair number of terraces, modified outcrop edges, and linear mounds.

Function of the site is relatively intense agriculture. Some areas within the field system were likely used for temporary habitation in relation to the agricultural activity; for example, excavations at B54 and D13 (see testing results below) revealed a fairly large amount of midden and other indications of activities in the area (i.e., volcanic glass flakes). Overall, the site has fair excavation potential, as there are a large number of features, some of which function in multiple capacities such as B54 and D13. Further data recovery at the site could include a more comprehensive consideration of the relationship of feature types and environmental variables, as well as dating features.





Figure 39. Site -6601 Sample Area A, showing widespread agricultural modification (Kona Field System)

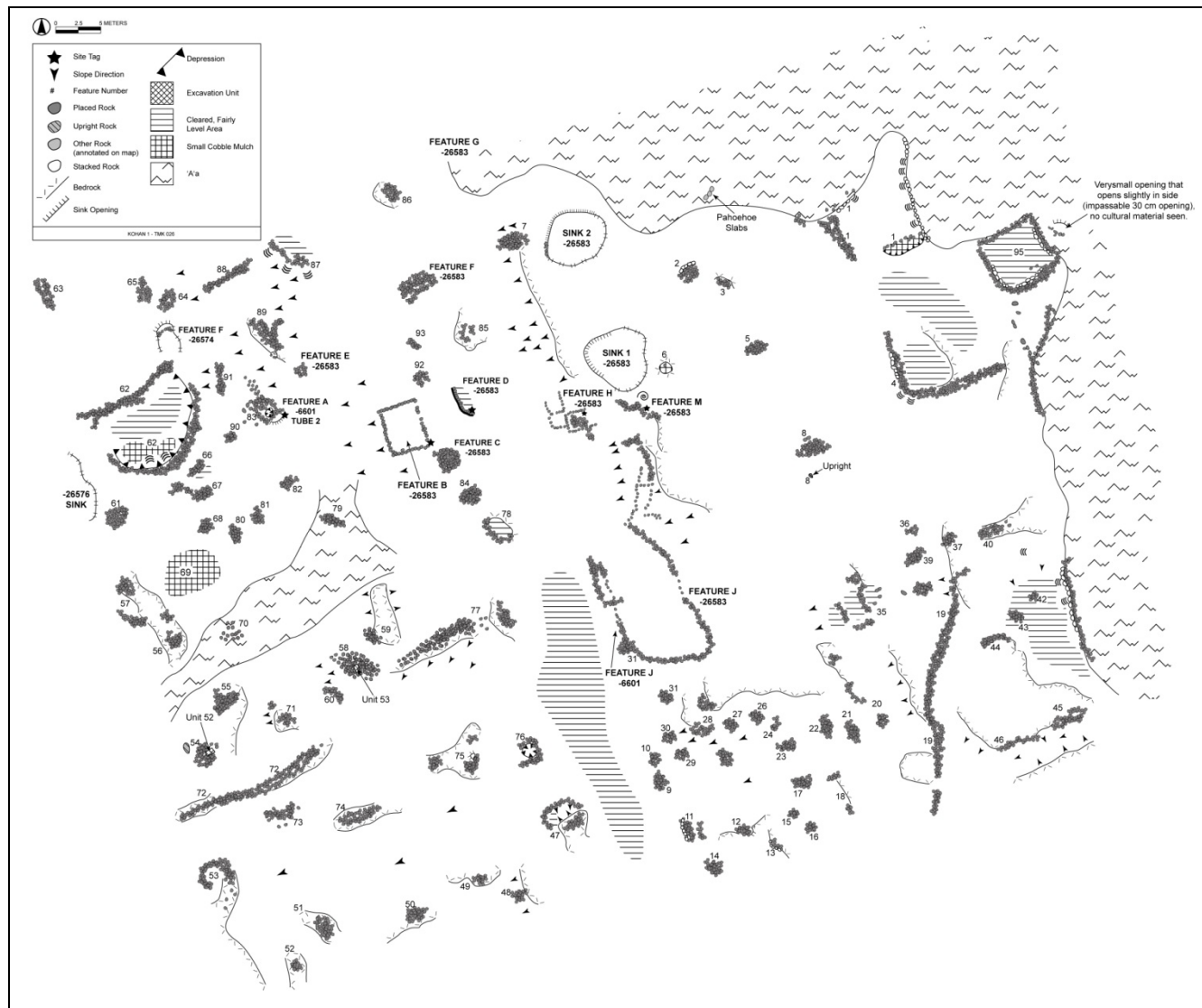


Figure 40. Site -6601 Sample Area B, showing widespread agricultural modification (Kona Field System)

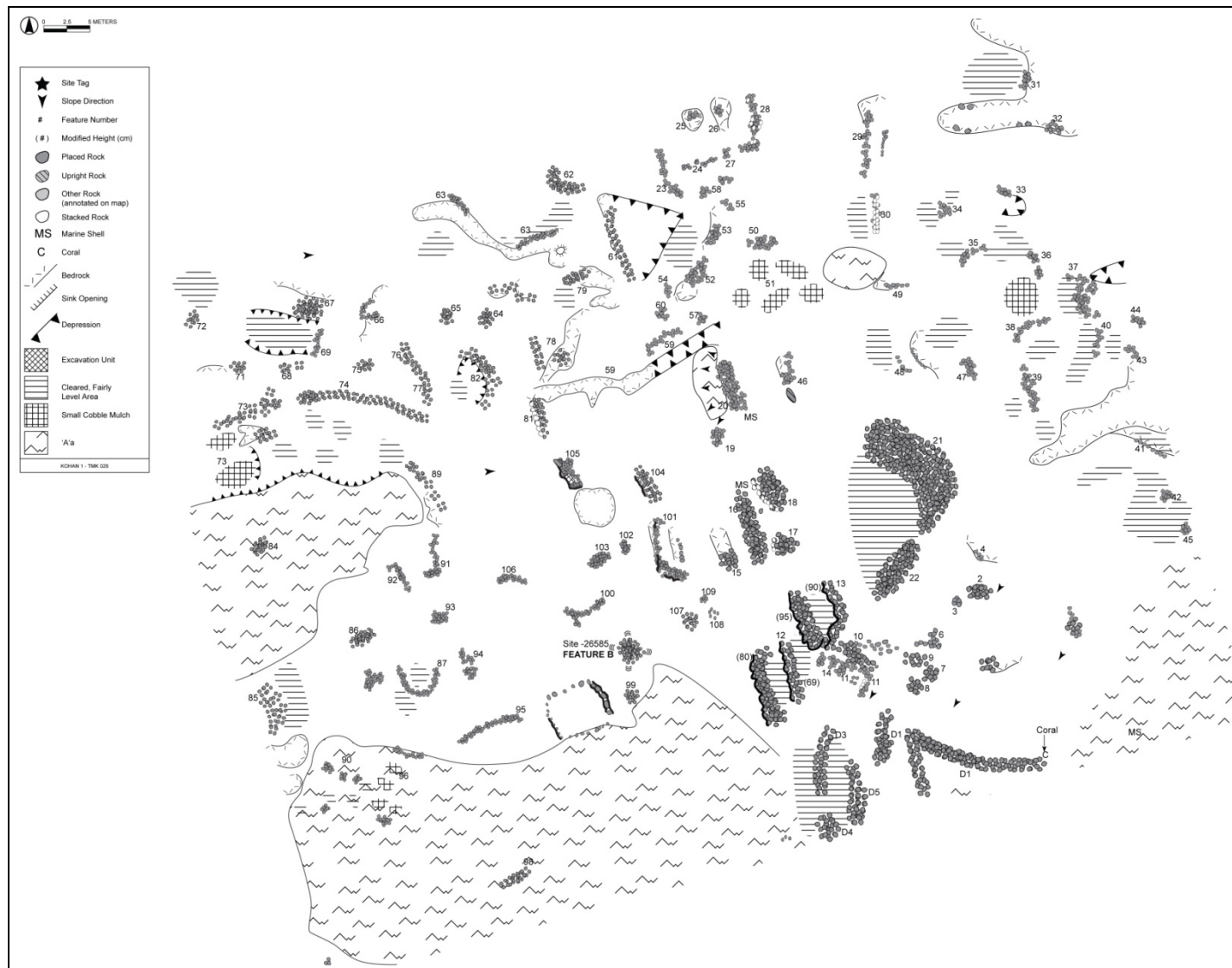


Figure 41. Site -6601 Sample Area C, showing widespread agricultural modification (Kona Field System)



Figure 42. Site -6601 Sample Area D, showing widespread agricultural modification (Kona Field System)

Table 1. Site -6601, Features within Sample Area A of Kona Field System (length and width are in meters, height is in centimeters with depths in centimeters in parentheses)

Area	#	Feature Type	Length	Width	Height	Formal?	Clearing?	Slope
A	1	Mound	3.5	2.4	80	No	Yes	SW
A	2	Mound	1.4	1.4	60	No	Yes	SW
A	3	Mound	3.6	1.1	20	No	Yes	SW
A	4	Mound	2.2	2.2	30	No	Yes	SW
A	5	Terrace	5	1.8	70	No	No	SW
A	6	Mound	1	1.9	50	No	No	SW
A	7	Terrace	2.6	1.6	80	No	No	SW
A	8	Terrace	3.2	2	80	No	No	SW
A	9	Mound	1.9	1.5	30	No	No	SW
A	10	Mound	1.9	1.6	40	No	No	SW
A	11	Mound	2.8	2.3	80	No	Yes	SW
A	12	Cairn	1.2	1	90	Formal stacking	No	SW
A	13	Terrace	2.4	1.8	50	No	No	SW
A	14	Mound	2.5	1.3	60	No	Yes	SW
A	15	Terrace	3.2	1.7	50	No	Yes	SW
A	16	Terrace	2.4	0.6	40	No	Yes	SW
A	17	Filled blister	1.5	1	25	No	Yes	SW
A	18	Mound	1.2	1	50	No	Yes	SW
A	19	Mound	3.5	1.6	80	No	Yes	Level
A	20	Mound	2.3	2.1	50	No	Yes	Level
A	21	Mound	2.8	1.9	60	No	Yes	Level
A	22	Modified outcrop	2	1.7	90	No	Yes	Level
A	23	Mound	2.5	1.5	50	No	Yes	SW
A	24	Mound	2.2	1.2	60	No	Yes	SW
A	25	Modified outcrop	2.6	1.6	50	No	Yes	SW
A	26	Mound	2.1	1.6	55	No	Yes	SW
A	27	Modified edge of 'a'ā	10	1	50	No	Yes	SW

Area	#	Feature Type	Length	Width	Height	Formal?	Clearing?	Slope
A	28	Mound	1.8	1.7	45	No	Yes	SW
A	29	Mound	0.7	0.6	30	No	Yes	SW
A	30	Mound	1.8	1.6	20	No	Yes	SW
A	31	Mound	1.5	1.4	50	No	Yes	SW
A	32	Modified blister	1.7	1.6	60	No	No	SW
A	33	Modified outcrop	2.6	2.5	90	No	Yes	SW
A	34	Mound	3.3	1.5	110	No	Yes	SW
A	35	Modified outcrop	2.1	1.5	30	No	No	SW
A	36	Mound	2.9	1.5	50	No	Yes	SW
A	37	Modified outcrop	4.8	1.9	60	No	Yes	SW
A	38	Modified outcrop	5	1	60	No	Yes	SW
A	39	Terrace	3.9	1.9	70	No	Yes	SW
A	40	Mound	2.7	2	60	No	Yes	SW
A	41	Mound	3.8	2.7	40	No	Yes	SW
A	42	Modified outcrop	2.4	1.2	30	No	Yes	SW
A	43	Mound	2.2	1.5	30	No	Yes	SW
A	44	Mound	2.3	1.7	70	No	Yes	SW
A	45	Mound	2.3	1.5	60	No	Yes	SW
A	46	Mound	3.8	2	60	No	Yes	SW
A	47	Modified outcrop	4.5	1.7	60	No	Yes	SW
A	48	Mound	1.1	0.7	40	No	Yes	SW
A	49	Mound	2.7	1.7	60	No	Yes	SW
A	50	Terrace	3.3	2.7	70	No	Yes	SW
A	51	Terrace	4.8	1.8	40	No	Yes	SW
A	52	Terrace	3.4	2.7	70	No	No	SW
A	53	Modified outcrop	1.6	1.3	40	No	Yes	SW
A	54	Modified outcrop	2	1.5	30	No	Yes	SW
A	55	Mound	4.4	1.7	70	No	Yes	SW
A	56	Mound	2.7	1.8	70	No	Yes	SW
A	57	Mound	5	1.8	50	No	No	SW

Area	#	Feature Type	Length	Width	Height	Formal?	Clearing?	Slope
A	58	Mound	2.1	2.1	80	No	Yes	SW
A	59	Modified outcrop	5	0.7	60	No	Yes	SW
A	60	Mound	1.5	1.3	40	No	Yes	SW
A	61	Mound	2.3	1.4	70	No	Yes	SW
A	62	Mound	3.7	2	60	No	Yes	W
A	63	Mulch area	5	5	0	No	Yes	Level
A	64	Terrace	3.2	2.6	30	No	Yes	SW
A	65	Terrace	2.2	2.2	30	No	Yes	SW
A	66	Terrace	8	2	20	No	Yes	SW
A	67	Terrace	5.1	1.2	20	No	Yes	SW
A	68	Terrace	4.4	1.3	20	No	Yes	SW
A	69	Modified edge of 'a'ā	5	0.9	30	No	Yes	SW
A	70	Mound	2.3	1.8	50	No	Yes	SW
A	71	Terrace	3.6	1.3	20	No	Yes	SW
A	72	Terrace	5	2	40	No	No	SW
A	73	Terrace	4	1	50	No	Yes	SW
A	74	Mound	2.2	2.1	40	No	Yes	SW
A	75	Terrace	4	1	30	No	Yes	SW
A	76	Mound	4	3.8	30	No	Yes	W
A	77	Mound	2.3	1.8	60	No	Yes	W
A	78	Mound	2	1.3	30	No	Yes	W
A	79	Modified edge of 'a'ā	4	4	150	No	Yes	W
A	80	Modified outcrop	3	1	50	Horizontal Slabs	No	SW

Table 2. Site -6601, Features within Sample Area B of Kona Field System (length and width are in meters, height is in centimeters with depths in centimeters in parentheses)

Area	#	Feature Type	Length	Width	Height	Formal?	Clearing?	Slope
B	1	Modified edge of 'a 'ā	12	10	80	Formal stacking	Yes	Level
B	2	Mound	3.5	1.75	60	No	Yes	Level
B	3	Modified outcrop	1.5	0.75	45	No	Yes	Level
B	4	L-shape	12	6	80	Formal stacking	Yes	Level
B	5	Mound	5.2	2	60	No	Yes	Level
B	6	Modified outcrop	1.4	0.75	21	No	Yes	Level
B	7	Mound	2.6	1.4	48	No	Yes	SW
B	8	Mound	4	2.25	75	No	Yes	Level
B	9	Mound	1.8	1.8	80	No	Yes	Level
B	10	Mound	2.3	1.9	85	No	Yes	Level
B	11	Terrace (2-tiers)	3.4	1.4	60	No	Yes	Slight to W
B	12	Modified blister	1.5	1.4	52	No	Yes	Slight to W
B	13	Terrace	1.8	0.9	60	Formal stacking and corner	Yes	Slight to SW
B	14	Mound	3	1.4	75	No	Yes	Slight to SW
B	15	Mound	1.4	0.9	40	No	Yes	Slight to SW
B	16	Mound	2.1	1.3	56	No	Yes	Slight to SW
B	17	Modified outcrop	3.2	4.8	75	No	Yes	Slight to SW
B	18	Mound	1.4	1.1	35	No	Yes	Slight to SW
B	19	Mound	5.5	1.7	70	No	Yes	Level
B	20	Mound	1.7	1.5	37	No	Yes	Slight to W
B	21	Mound	1.9	1.1	34	No	Yes	Slight to W
B	22	Mound	2.8	1.4	75	No	Yes	Slight to W
B	23	Mound	3.2	1.9	80	No	Yes	Slight to W
B	24	Mound	1.8	1.5	85	No	Yes	Slight to SW
B	25	Mound	2.9	1.3	38	No	Yes	Slight to SW
B	26	Mound	0.9	0.6	60	No	Yes	Slight to SW

Area	#	Feature Type	Length	Width	Height	Formal?	Clearing?	Slope
B	27	Mound	1.9	2.1	55	No	Yes	Slight to SW
B	28	Modified outcrop	4.6	2.3	35	No	Yes	Slight to S
B	29	Mound	2	1.8	40	No	Yes	Slight to S
B	30	Mound	1.7	1.5	47	No	Yes	Slight to S
B	31	Mound	2.4	2	76	No	Yes	Slight to S
B	32	Modified outcrop	2.1	1.9	50	No	Yes	Slight to SW
B	33	Modified outcrop	1.25	0.85	50	No	Yes	Slight to SW
B	34	Terrace	3.8	2.5	30	No	Yes	Slight to SW
B	35	Terrace (2-tiers)	5.4	1.6	95	No	Yes	Slight to SW
B	36	Mound	3	1.3	30	No	Yes	Slight to SW
B	37	Modified outcrop	2.5	1	54	No	No	Slight to SW
B	38	Mound	1.9	1.5	22	No	Yes	Slight to SW
B	39	Mound	0.9	0.7	25	No	Yes	Slight to SW
B	40	Modified outcrop	5.1	2.3	38	No	Yes	Slight to SW
B	41	Terrace	9.4	1.5	80	Formal stacking and facing	Yes	Slight to SW
B	42	Mound	1.4	0.9	60	No	Yes	Level
B	43	Mound	2	1	62	No	Yes	Level
B	44	Mound	4.6	1.5	46	No	Yes	Level
B	45	Modified outcrop	3.8	1.4	62	No	Yes	SW
B	46	Modified outcrop	8.75	1.5	35	No	Yes	Slight to S
B	47	Modified depression	3.5	3		No	Yes	Slight to SW
B	48	Mound	1.5	1.5	20	No	Yes	Slight to SW
B	49	Modified outcrop	2	1	50	No	Yes	Slight to SW
B	50	Modified outcrop	2	1	30	No	Yes	Slight to SW
B	51	Mound	3	2	100	No	Yes	Slight to SW
B	52	Modified outcrop	1	1	30	No	Yes	Slight to SW
B	53	Mound	3	2	60	No	Yes	Slight to SW
B	54	Mound	2.5	2.5	70	Formal stacking	Yes	Slight to SW
B	55	Mound	3.5	2	50	No	Yes	Slight to SW

Area	#	Feature Type	Length	Width	Height	Formal?	Clearing?	Slope
B	56	Mound	1.5	1.5	50	No	Yes	Slight to SW
B	57	Modified outcrop	6	1.5	50	No	Yes	Slight to SW
B	58	Mound	4	2	60	Formal stacking	Yes	Slight to W
B	59	Modified outcrop	2.5	1	60	Formal stacking	Yes	Slight to W
B	60	Terrace	1.5	1	40	No	Yes	Slight to SW
B	61	Mound	1.5	1.5	50	No	Yes	Slight to SW
B	62	Modified depression	10	8	(80)	No	Yes	Level
B	63	Terrace	5	1	40	No	Yes	Slight to W
B	64	Mound	2	1	40	No	Yes	S
B	65	Mound	2	1	40	No	Yes	S
B	66	Terrace	3	1	30	No	Yes	NW
B	67	Mound	2	1	80	No	Yes	SW
B	68	Mound	2	1	60	No	Yes	W
B	69	Mulch area	4	3	0	No	Yes	Level
B	70	Modified edge of 'a'ā	10	4	30	No	Yes	Slight to W
B	71	Modified outcrop	1	1	20	No	Yes	Slight to SW
B	72	<i>Kuaīwi</i>	20	1	80	No	Yes	Slight to W
B	73	Mound	2.5	2.5	40	No	Yes	Slight to SW
B	74	<i>Kuaīwi</i>	4.5	2	100	No	Yes	Level
B	75	Modified outcrop	2	1.5	30	No	No	SW
B	76	Modified depression	3	3	(30)	No	Yes	Steep to SW
B	77	Modified outcrop	9	2	50	No	Yes	W
B	78	Modified outcrop	2	2	50	No	Yes	W
B	79	Mound	1.5	1	50	No	No	Steep to S
B	80	Mound	2	1.5	50	No	No	SW
B	81	Mound	1.5	1	50	No	No	W
B	82	Mound	2.5	1.5	30	No	No	Slight to SW
B	83	Modified outcrop	4	3	30	Yes	No	Steep to W
B	84	Mound	3.1	1.7	75	No	Yes	Slight to SW
B	85	Modified outcrop	2.75	1.1	55	No	No	Slight to SW

Area	#	Feature Type	Length	Width	Height	Formal?	Clearing?	Slope
B	86	Modified outcrop	2.25	1.25	45	No	No	Slight to SW
B	87	Terrace	5	1.6	30	No	No	Slight to SW
B	88	<i>Kuaīwi</i>	7	1.2	33	No	No	Slight to SW
B	89	Modified outcrop	4.7	2.1	30	No	No	SW
B	90	Modified outcrop	1.6	1.4	46	No	Yes	Slight to W
B	91	Modified outcrop	4	0.8	30	No	Yes	Slight to W
B	92	Mound	2.1	1.4	53	No	Yes	Slight to W
B	93	Mound	1.7	0.9	30	No	Yes	Slight to W
B	94	Modified edge of 'a 'ā	11	1	40	No	Yes	Level
B	95	Enclosure	7	7	100	Formal stacking and upright	Yes	Level
B	96	Ti plant	N/A	N/A	N/A	N/A	N/A	Level

Table 3. Site -6601, Features within Sample Area C of Kona Field System (length and width are in meters, height is in centimeters with depths in centimeters in parentheses)

Area	#	Feature Type	Length	Width	Height	Formal?	Clearing?	Slope
C	1	Mound	3.84	1.05	55	No	Yes	Slight to SW
C	2	Modified outcrop	2.2	0.9	50	No	Yes	Slight to SW
C	3	Modified outcrop	0.6	0.5	40	No	Yes	Slight to SW
C	4	Modified outcrop	1.4	0.9	40	No	Yes	Slight to SW
C	5	Modified outcrop	1.5	0.5	45	No	Yes	Slight to SW
C	6	Modified outcrop	3.5	0.8	30	No	Yes	Slight to SW
C	7	Mound	1.9	1.5	40	No	Yes	Slight to SW
C	8	Mound	1.6	1.4	45	No	Yes	Slight to SW
C	9	Mound	2.3	1.75	75	No	Yes	Slight to SW
C	10	Mound	3.94	2.1	60	No	Yes	Slight to SW
C	11	Double C-shape	8.19	4	65	No	Yes	Level
C	12	Terrace (2-tiers)	7	2	80	Formal stacking and facing	Yes	Slight to W
C	13	Terrace (2-tiers)	5.5	1.5	95	Formal stacking and facing	Yes	Slight to W
C	14	Mound	3	2	35	No	Yes	Slight to SW
C	15	Modified outcrop	3.56	1	69	No	Yes	Slight to SW
C	16	Mound	7	1.25	60	No	Yes	SW
C	17	Mound	2.6	2.3	65	No	Yes	SW
C	18	Modified outcrop	4	2.23	115	No	Yes	SW
C	19	Mound	3.1	1.2	42	No	Yes	SW
C	20	Terrace	6	1.9	72	Yes	Yes	Level
C	21	Mound	12.95	3.6	85	No	Yes	Level
C	22	Mound	6.8	2.57	70	No	Yes	Slight to SW
C	23	Modified outcrop	4	1	25	No	Yes	Level
C	24	Modified outcrop	6	1	35	No	Yes	Slight to SW
C	25	Modified outcrop	1	0.75	25	No	Yes	Slight to SW

Area	#	Feature Type	Length	Width	Height	Formal?	Clearing?	Slope
C	26	Mound	2.5	1	40	No	Yes	Slight to SW
C	27	Mound	3.5	3.5	55	No	Yes	Slight to SW
C	28	Terrace	12	1.5	65	Formal stacking	Yes	Slight to SW
C	29	Terrace	8	1.5	50	No	Yes	SW
C	30	Terrace	3	0.75	90	Formal stacking	Yes	Slight to SW
C	31	Terrace	1	1	50	No	Yes	Level
C	32	Modified outcrop	1	1	30	No	Yes	Level
C	33	Modified outcrop	3	1.5	35	No	Yes	SW
C	34	Modified outcrop	2	1	30	No	Yes	Slight to SW
C	35	Modified outcrop	1.5	0.75	35	No	Yes	Level
C	36	Mound (2)	1.5	1	30	No	Yes	Slight to SW
C	37	Terrace	8	2	100	No	Yes	Slight to SW
C	38	Terrace	4	1	35	No	Yes	Slight to SW
C	39	Terrace	2	0.5	30	No	Yes	Slight to SW
C	40	Terrace	6	1.5	50	No	Yes	Slight to SW
C	41	Terrace	5	1	85	No	Yes	Slight to SW
C	42	Mound	1	1	50	No	Yes	Level
C	43	Terrace	2	2	60	No	Yes	Level
C	44	Modified outcrop	2	1	70	No	Yes	Level
C	45	Mound	1	1	40	No	Yes	Level
C	46	Terrace	5	0.75	65	Uprights	Yes	Level
C	47	Modified depression	2	2	(40)	No	Yes	Slight to SW
C	48	Terrace (2-tiers)	3	1	40	No	Yes	Slight to SW
C	49	Terrace	3	0.75	45	No	Yes	Slight to SW
C	50	Mound	1.5	1	40	No	Yes	Slight to SW
C	51	Mulch area	7	3	0	No	Yes	Slight to SW
C	52	Mound	3	2	60	No	Yes	Slight to SW
C	53	Modified outcrop	5	1	40	No	Yes	Slight to SW
C	54	Mound	1	0.75	45	No	Yes	Slight to SW
C	55	Modified outcrop	1.5	1	50	No	Yes	Slight to SW

Area	#	Feature Type	Length	Width	Height	Formal?	Clearing?	Slope
C	56	Modified outcrop	1.5	0.75	50	No	Yes	Slight to SW
C	57	Mound	4	2	90	No	Yes	Slight to SW
C	58	Modified outcrop	4	1	60	No	Yes	Slight to SW
C	59	<i>Kuaīwi</i>	8	1.5	50	No	Yes	Slight to SW
C	60	<i>Kuaīwi</i>	3	1.5	50	No	Yes	Slight to SW
C	61	Modified outcrop	7	0.75	30	No	Yes	Slight to SW
C	62	Modified outcrop	3	3	50	No	Yes	Slight to SW
C	63	Modified outcrop	5	1	40	No	Yes	Level
C	64	Modified outcrop	2	1	30	No	Yes	Slight to SW
C	65	Mound	2	1.5	60	No	Yes	Slight to SW
C	66	Mound	2	0.75	65	No	Yes	Slight to SW
C	67	Terrace	2	2	35	No	Yes	Slight to SW
C	68	Modified outcrop	2	1	40	No	Yes	Slight to SW
C	69	Terrace	4	0.75	75	No	Yes	Slight to SW
C	70	Mulch area	5	3	0	No	Yes	Slight to SW
C	71	Modified outcrop	1	1	30	No	Yes	Slight to SW
C	72	Mound	1.5	1	40	No	Yes	Slight to SW
C	73	Modified depression	6	2.5	(60)	No	Yes	Slight to SW
C	74	<i>Kuaīwi</i>	5	1	40	No	Yes	Level
C	75	Modified outcrop	2	1	50	No	Yes	Level
C	76	Modified outcrop	3	2	65	No	Yes	Slight to SW
C	77	Terrace	2.5	0.5	40	No	Yes	Slight to SW
C	78	Modified outcrop	3	3	40	No	Yes	Slight to SW
C	79	Mound	1.5	1	40	No	Yes	Slight to SW
C	80	Modified outcrop	2	1	50	No	Yes	Slight to SW
C	81	Terrace	3	0.75	65	No	Yes	Slight to SW
C	82	Modified depression	4	1.5	(65)	No	Yes	Slight to SW
C	83	Modified outcrop	3	1	45	No	Yes	Slight to SW
C	84	Modified outcrop	2.5	1.5	85	No	No	Steep to S/SW
C	85	Modified outcrop	4	4	80	No	Yes	Level

Area	#	Feature Type	Length	Width	Height	Formal?	Clearing?	Slope
C	86	Modified outcrop	2.5	1	50	No	Yes	S/SW
C	87	C-shape	3	2.5	60	Formal stacking	Yes	S/SW
C	88	Mound	1.5	1	50	No	Yes	Slight to SW
C	89	Terrace	4.5	1	60	No	Yes	Slight to SW
C	90	Modified edge of 'a'ā and mounds	2	1	55	No	Yes	Level
C	91	Terrace	4.5	0.5	45	No	Yes	Slight to SW
C	92	Terrace	3	1	60	No	Yes	Slight to SW
C	93	Mound	2.5	1.5	80	Yes	Yes	Slight to SW
C	94	Double mound	1.5	1.5	45	No	Yes	Slight to SW
C	95	<i>Kuaīwi</i>	5	1.2	85	No	Yes	Slight to SW
C	96	Modified edge of 'a'ā	3.5	1	15	No	Yes	Slight to SW
C	97	Mound	0.75	0.7	55	No	Yes	Slight to SW
C	98	Mound	3	1	80	No	Yes	Slight to SW
C	99	Mound	2.5	0.5	70	No	Yes	Slight to SW
C	100	Mound	4.5	2	95	No	Yes	Slight to SW
C	101	Terrace (2 tiers)	6	1	90	Yes	Yes	SW
C	102	Mound	2	1.5	60	No	Yes	Slight to SW
C	103	Mound	2.5	2	95	No	Yes	Slight to SW
C	104	Terrace	4	1.75	150	Yes	Yes	Slight to SW
C	105	Terrace	3.5	3	70	Yes	Yes	Slight to SW
C	106	Modified outcrop	1	0.7	60	No	Yes	SW
C	107	Modified outcrop	1.5	1	40	No	No	Slight to SW
C	108	Mound	2	1.25	35	No	No	SW
C	109	Modified outcrop	1.5	3	80	No	No	SW

Table 4. Site -6601, Features within Sample Area D of Kona Field System (length and width are in meters, height is in centimeters with depths in centimeters in parentheses)

Area	Feature #	Feature Type	Length	Width	Height	Formal?	Clearing?	Slope
D	1	Terrace	3.7	1.5	85	No	Yes	Slight to W
D	2	Terrace	2.8	2.5	65	No	Yes	Slight to W
D	3	Terrace	3.5	2	55	No	Yes	Slight to W
D	4	Terrace	3.7	3	45	No	Yes	W
D	5	Terrace	7.6	4	20	No	Yes	W
D	6	Modified outcrop	1	0.6	70	No	Yes	Slight to NW
D	7	Terrace	3.4	0.7	30	No	Yes	Slight to NW
D	8	Terrace	11	2	85	No	Yes	Slight to SW
D	9	Terrace	20	1	140	Formal stacking, uprights/facing	Yes	Slight to W
D	10	Modified outcrop	2.3	1.1	80	No	Yes	Slight to SW
D	11	Mound	1.8	1.3	40	No	Yes	Slight to SW
D	12	Modified outcrop	2.5	2	50	No	Yes	Slight to S
D	13	Terrace (2-tiers)	4.2	3.9	120	Formal stacking, uprights/facing	Yes	Slight to SW
D	14	Terrace	2.2	0.6	65	No	Yes	Slight to S
D	15	Mound	6.7	3	150	No	Yes	Slight to S
D	16	Mound	3.7	2	85	No	Yes	S
D	17	Mound	2.8	1.8	80	No	Yes	Slight to SW
D	18	Modified outcrop	7.5	1	70	No	Yes	Slight to SW
D	19	Modified outcrop	2.8	2.5	90	No	Yes	Slight to SW
D	20	Mound	2.7	1.2	100	Formal stacking	Yes	Slight to SW
D	21	Modified edge of 'a'ā	12	1	60	No	Yes	Level
D	22	Mound	4	2	75	No	Yes	Slight to S
D	23	Modified outcrop	3	1.5	75	No	Yes	Slight to S
D	24	Modified outcrop	1.5	1	40	No	Yes	SW
D	25	Terrace	6	1	90	Formal stacking	Yes	S

Area	Feature #	Feature Type	Length	Width	Height	Formal?	Clearing?	Slope
D	26	Mound	2.5	1.5	90	Formal stacking	Yes	S
D	27	Modified outcrop	1.5	1	80	Formal stacking	Yes	Level
D	28	<i>Kuaīwi</i>	6	1.5	60	No	Yes	Slight to S
D	29	Terrace	5	1	80	Formal stacking	Yes	Slight to S
D	30	Mound	3.5	1	70	Formal stacking	Yes	Slight to S
D	31	Modified outcrop	2	1	60	No	Yes	Slight to S
D	32	Terrace	2.5	0.75	50	No	Yes	Slight to S
D	33	Mound	4.5	2.5	120	No	Yes	Slight to S
D	34	Mound	3.5	2	85	Formal stacking	No	Slight to S
D	35	Terrace	6	1	80	No	Yes	Slight to S
D	36	Mound	1.5	1	50	No	Yes	Slight to S
D	37	Mound	2.5	1.5	60	No	Yes	Slight to S
D	38	Terrace	6	1.5	85	Formal stacking	Yes	Slight to S
D	39	Terrace	5	0.75	65	Formal stacking and one upright	Yes	Slight to S
D	40	Modified edge of 'a'ā	5	1	50	No	Yes	Steep to S
D	41	Modified edge of 'a'ā	5	1	80	No	Yes	Slight to S
D	42	Modified edge of 'a'ā	15	1	80	No	Yes	Level
D	43	Modified outcrop	2.5	1.5	60	No	Yes	Level
D	44	Modified edge of 'a'ā	15	1	50	No	Yes	Slight to S
D	45-49	Numbers not used	N/A	N/A	N/A	N/A	N/A	N/A
D	50	Mound	2	1	60	No	Yes	Slight to W
D	51	Mound	1	0.4	30	No	Yes	Level
D	52	Mound	1	0.75	60	No	Yes	Slight to W
D	53	Terrace	2.5	1.1	75	Yes	No	SW
D	54	Mound	3	1	30	No	Yes	SW
D	55	Modified outcrop	3.5	1	45	No	Yes	SW
D	56	Enclosure	5	5	80	Formal stacking and uprights	Yes	SW
D	57	Terrace	6.5	1.25	80	No	Yes	Slight to SW

Area	Feature #	Feature Type	Length	Width	Height	Formal?	Clearing?	Slope
D	58	Terrace	4	0.75	75	No	Yes	Slight to SW
D	59	Mound	5	3	40	No	Yes	Level
D	60	Mound	10	3	75	No	Yes	Slight to SW
D	61	Mound	4	2.5	35	No	Yes	Slight to SW
D	62	Mound	5	4	40	No	Yes	Slight to SW
D	63	Terrace	6	2	40	No	Yes	Slight to SW
D	64	Terrace	3.5	1.5	90	No	Yes	Slight to SW
D	65	Mound	4	2.5	30	No	Yes	Slight to SW
D	66	Modified outcrop	5	4	40	No	Yes	Slight to SW
D	67	Modified outcrop	2.5	2	80	No	Yes	SW
D	68	Terrace	7	1.1	40	No	Yes	Slight to SW
D	69	Modified outcrop	7	2.5	35	No	Yes	SW
D	70	Modified outcrop	10	4	30	Yes - uprights	Yes	SW
D	71	Terrace	14	1.2	90	Yes - uprights	Yes	SW
D	72	Terrace	4	3.5	80	Formal stacking	Yes	SW
D	73	C-shape	3.5	3	45	No	Yes	SW
D	74	Mound	2.5	1.5	60	No	Yes	SW
D	75	Modified outcrop	8	1	50	No	Yes	SW
D	76	Mound	3	1.5	70	No	Yes	SW
D	77	Mound	2.5	1.5	75	No	Yes	SW
D	78	Modified outcrop	3	2	55	No	Yes	W
D	79	Modified outcrop	4.5	1	40	No	Yes	SW
D	80	Mound	8	1	85	Formal stacking	Yes	SW
D	81	Mound	2	2	50	No	Yes	SW



Figure 43. Site -6601, showing various mounds typical of the agricultural site; Feature C25 is in the foreground of the photograph, Feature B15 is at the center-left, Feature B16 is at the center-right, and Feature B17 is in the far background; view to north



Figure 44. Site -6601 Feature B19, showing the *kuaīwi* following the bedrock at an angle to the slope, view to north



Figure 45. Site -6601 Feature C13, showing the two-tiered terrace. Notice the upright slabs used as facing near the photo scale, view to east



Figure 46. Site -6601 Feature D20, showing the formal mound, view to east

Testing Results

Eleven test excavations (Unit 47 through Unit 57) in ten features (Features A, A19, A20, A56, B54, B58, C14, C105, D13, D20, and D77) were conducted to assist in determining site function and to determine whether any burials are present.

Feature A (Unit 54))

Unit 54 was placed in the center of the modified outcrop (Figure 47). Stratum I, extending from 0 to 45 cmbs, consists of cobble construction on a *pāhoehoe* blister with light plant material and sedimentation. Stratum II consists of sandy loam sediment with rootlets, and eroding bedrock. The sediment was likely washed in and is also from the eroding bedrock. No cultural material was found in the excavation. The mound is part of the agricultural system; burial or habitational function is not indicated.

Feature A19 (Unit 56)

Unit 56 was placed in the center of the mound (Figure 48). Stratum I, extending from 0 to 45 cmbs, consists of cobble construction built atop a *pāhoehoe* bedrock outcrop with light sedimentation. No cultural material was found in the excavation. The mound is part of the agricultural system; burial or habitational function is not indicated.

Feature A20 (Unit 55)

Unit 55 was placed in the southeast side of the mound (Figure 48 feature overview & Figure 49). Stratum I, extending from 0 to 40 cmbs, consists of large boulder construction on top of bedrock with a small amount of sedimentation from the surface. The lack of findings supports the hypothesis that this feature is an agricultural clearing mound. There is no evidence for burial or habitation function.

Feature A56 (Unit 57)

Unit 57 was placed in the center of the mound (Figure 50). Stratum I, extending from 0 to 35 cmbs, consists of slab/cobble/boulder construction on top of a collapsed blister with light sedimentation. Stratum II, extending from 35 to 80 cmbs, consists of cobbles from the collapsed blister; sediment, likely from the surface, is with the blister. No cultural material was found in the excavation. The mound is part of the agricultural system; burial or habitational function is not indicated.

Feature B54 (Unit 52)

Unit 52 was placed in the east side of the stacked mound (Figure 51). Stratum I, extending from 0 to 60 cmbs, consists of a cobble construction layer containing plant material and sediment. Stratum II, extending from 60-120 cmbs, consists of sedimentation within a possible blister beneath the mound. Charcoal, and some cobbles and roots/rootlets are present, as is midden, consisting of a dog toot, parrot fish (*Scaridae*) bone, *kukui*, coral, urchin, *Nerita*, and *Isognomon*. A volcanic glass flake was also found.

Excavation revealed a fairly large amount of midden, charcoal, and an artifact that is inconsistent with agricultural function. No burial or crypt were found and it is confirmed that this is not a burial. Given the midden and lithic, this mound is related to habitation, although it is too small to be a house platform. This small platform likely functioned as an activity area in relation

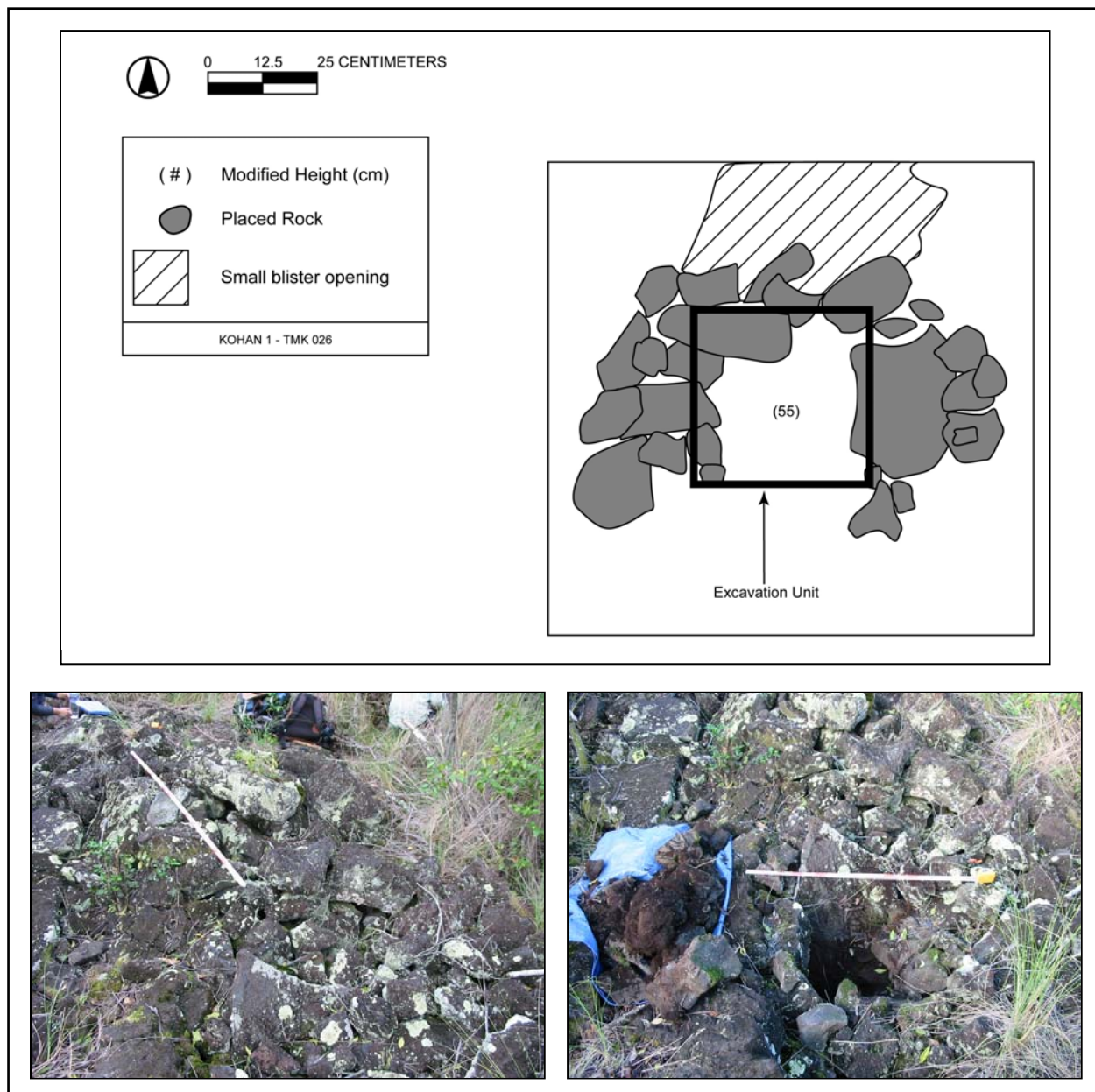


Figure 47. Site -6601, Feature A, excavation figures. Counter-clockwise from top: excavation unit plan view; modified outcrop pre- and post- excavation

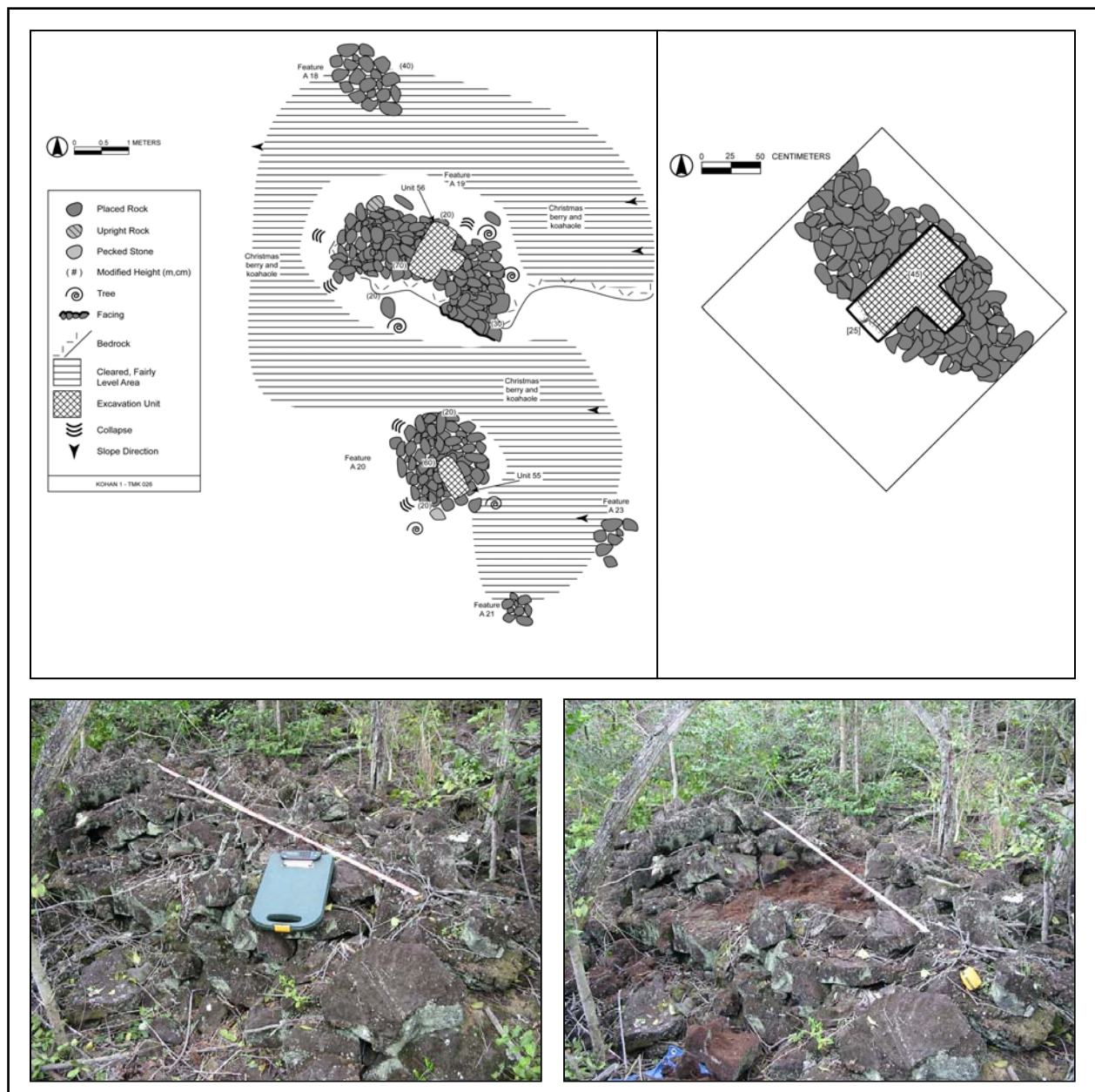


Figure 48. Site -6601, Feature A19, excavation figures. Left to right, top to bottom: Feature A19 and A20 overview; excavation unit plan view; mound pre- and post-excitation

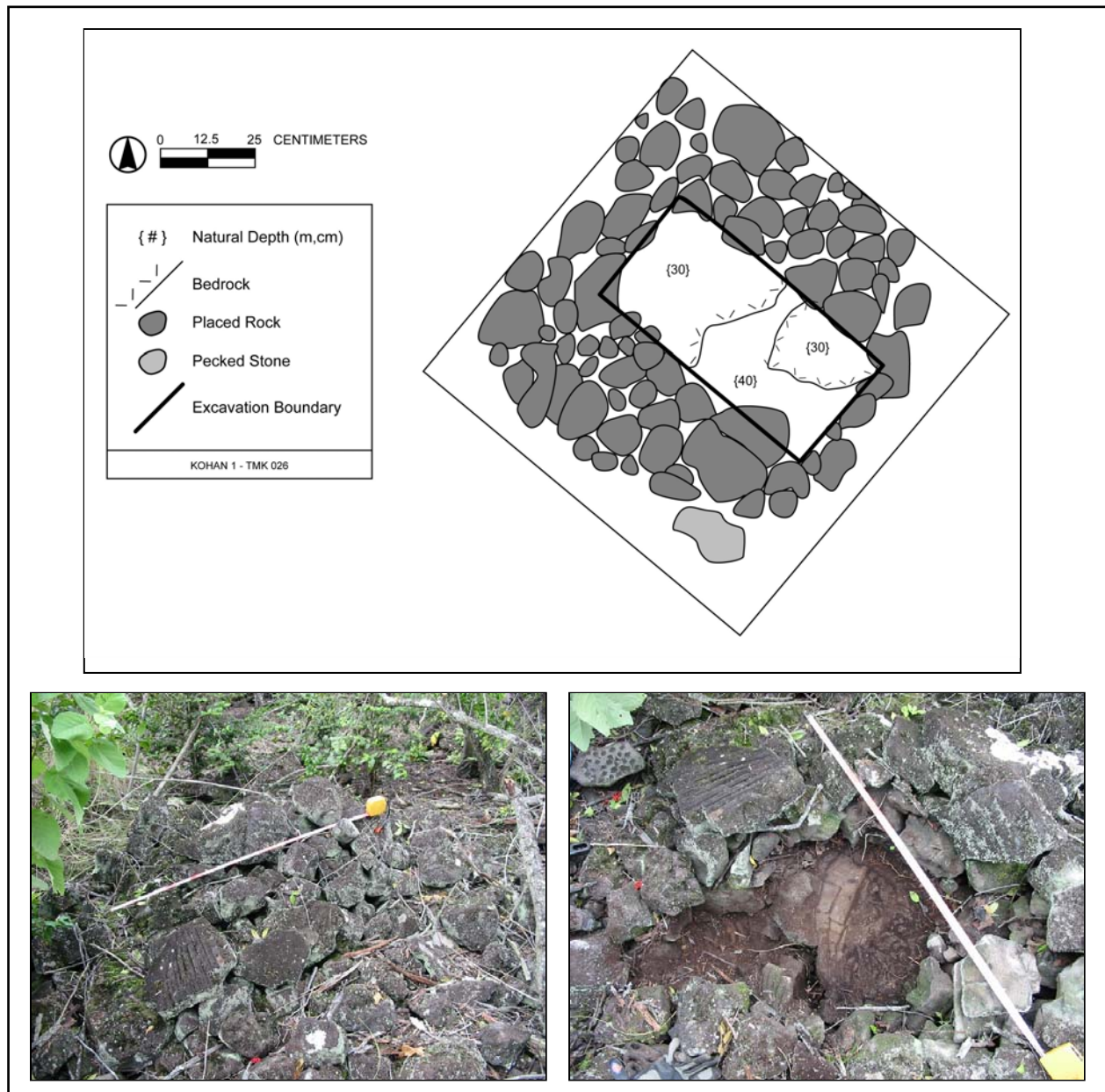


Figure 49. Site -6601, Feature A20, excavation figures. Counter-clockwise from top: excavation unit plan view; mound pre- and post- excavation

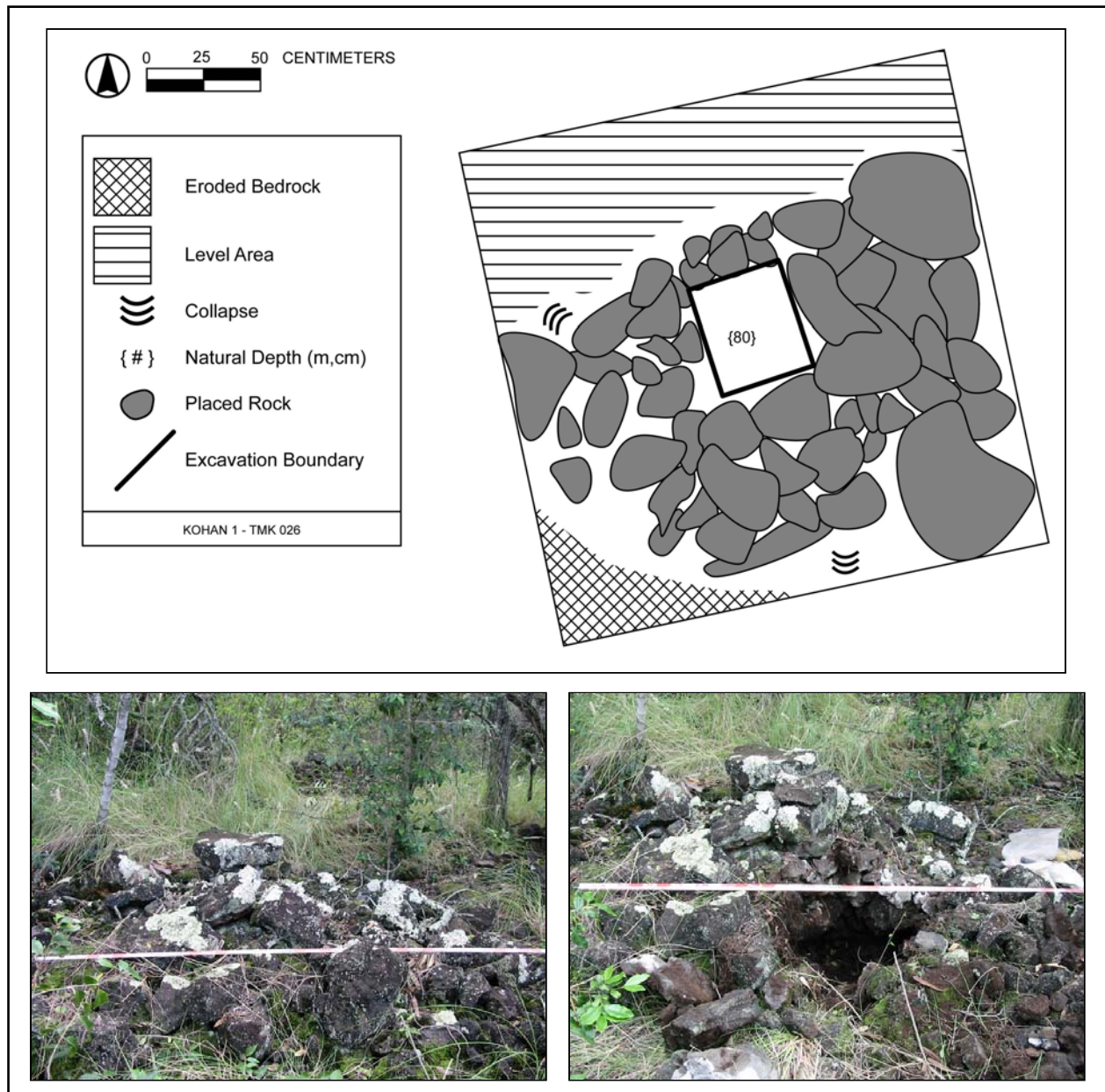


Figure 50. Site -6601, Feature A56, excavation figures. Counter-clockwise from top: excavation unit plan view; mound pre- and post- excavation

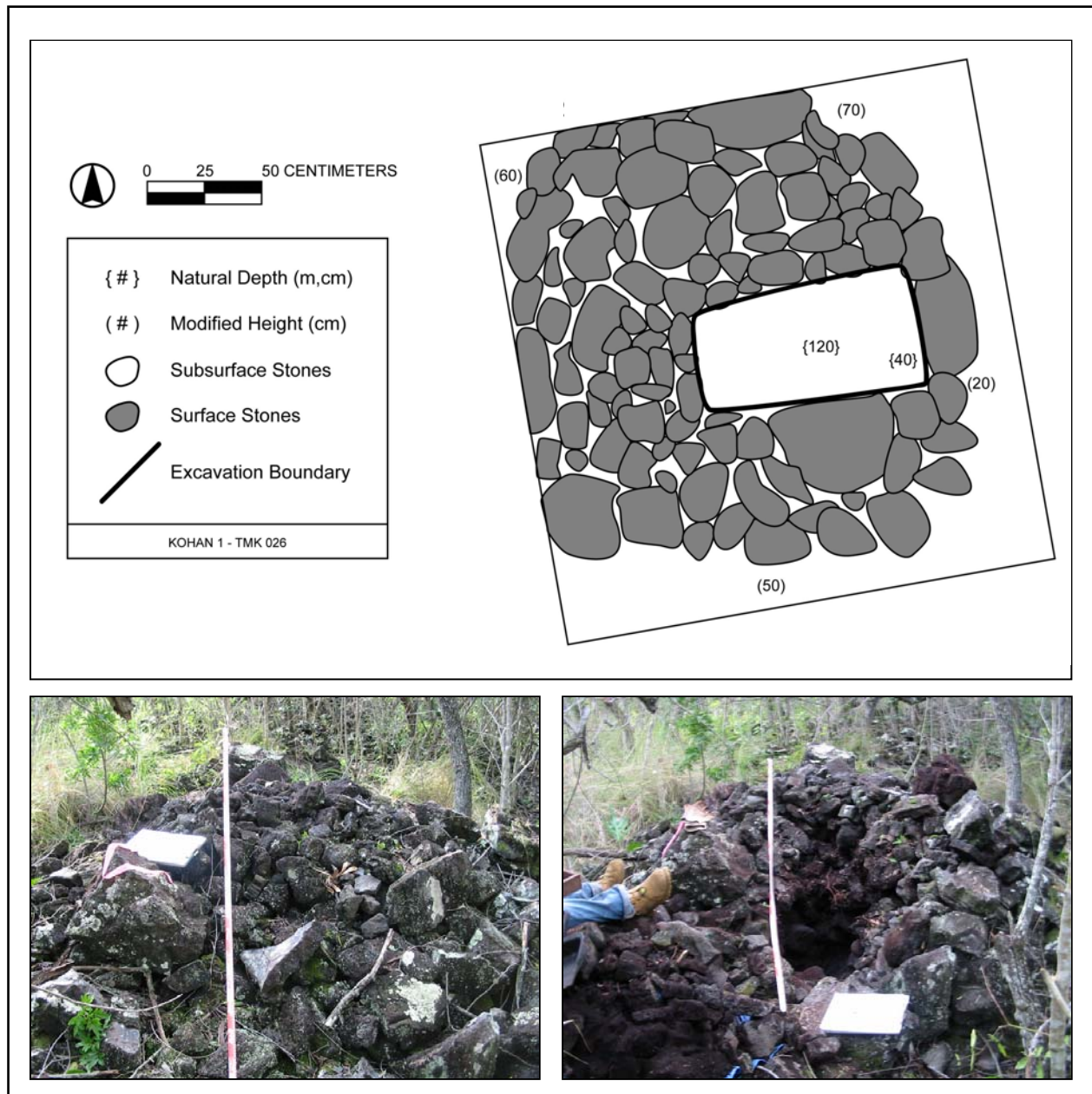


Figure 51. Site -6601, Feature B54, excavation figures. Counter-clockwise from top: excavation unit plan view; stacked mound pre- and post- excavation

to habitation and agriculture in this general area. This feature also has a good view to the south-southwest. This feature is in the Kona Field System and is near -26574, -26576, and -26583. Findings indicate this is an activity area/habitation area within the Kona Field System and related to the agriculture system.

Feature B58 (Unit 53)

Unit 53 was placed in the southwest side of the mound (Figure 52). Stratum I, extending from 0 to 70 cmbs, consists of cobble and boulder construction with light plant material and sedimentation. The lack of findings supports the hypothesis that this feature is an agricultural clearing mound. There is no evidence for burial or habitation function.

Feature C14 (Unit 50)

Unit 50 was placed in the center of the mound (Figure 53). Stratum I, extending from 0 to 30 cmbs, consists of large to medium boulder and medium to large cobble construction with light sedimentation that has filtered down from the surface. Stratum II consists of sedimentation atop a natural eroding bedrock. No cultural material was found in the excavation. The mound is part of the agricultural system; burial or habitation function is not indicated.

Feature C105 (Unit 51)

Unit 51 was placed in the southeast corner of the terrace (Figure 54). Stratum I, extending from 0 to 80 cmbs, consists of boulder and cobble construction on eroding bedrock. No cultural material was found in the excavation. The mound is part of the agricultural system; burial or habitation function is not indicated.

Feature D13 (Unit 47)

Unit 47 was placed in the southeast side of the terrace (Figure 55). Stratum I, extending from 0 to 50 cmbs, is construction layer consisting of slabs, boulders, and cobbles with light sedimentation. Stratum II, extending from 50 to 80 cmbs, is a sediment layer with roots and small cobble/pebble inclusions that are likely eroding bedrock atop bedrock. Several pieces of *kukui* shell, rodent bones, one volcanic glass flake, a possible hammerstone and charcoal were found. Findings indicate that in addition to agricultural function, this was an activity area, perhaps for toolmaking. Burial function is not indicated.

Feature D20 (Unit 48)

Unit 48 was placed in the center of the mound (Figure 56). Stratum I, extending from 0 to 55 cmbs, consists of *pāhoehoe* medium to large boulders and medium cobbles mounded and faced. No cultural material was found in the excavation. The mound is part of the agricultural system; burial or habitation function is not indicated.

Feature D77 (Unit 49)

Unit 49 was placed in the center of the mound (Figure 57). Stratum I, extending from 0 to 55 cmbs, consists of very large *pāhoehoe* boulders and slabs on a bedrock outcrop. Some sedimentation is on the bedrock and roots are present. No cultural material was found in the excavation. The mound is part of the agricultural system; burial or habitation function is not indicated.

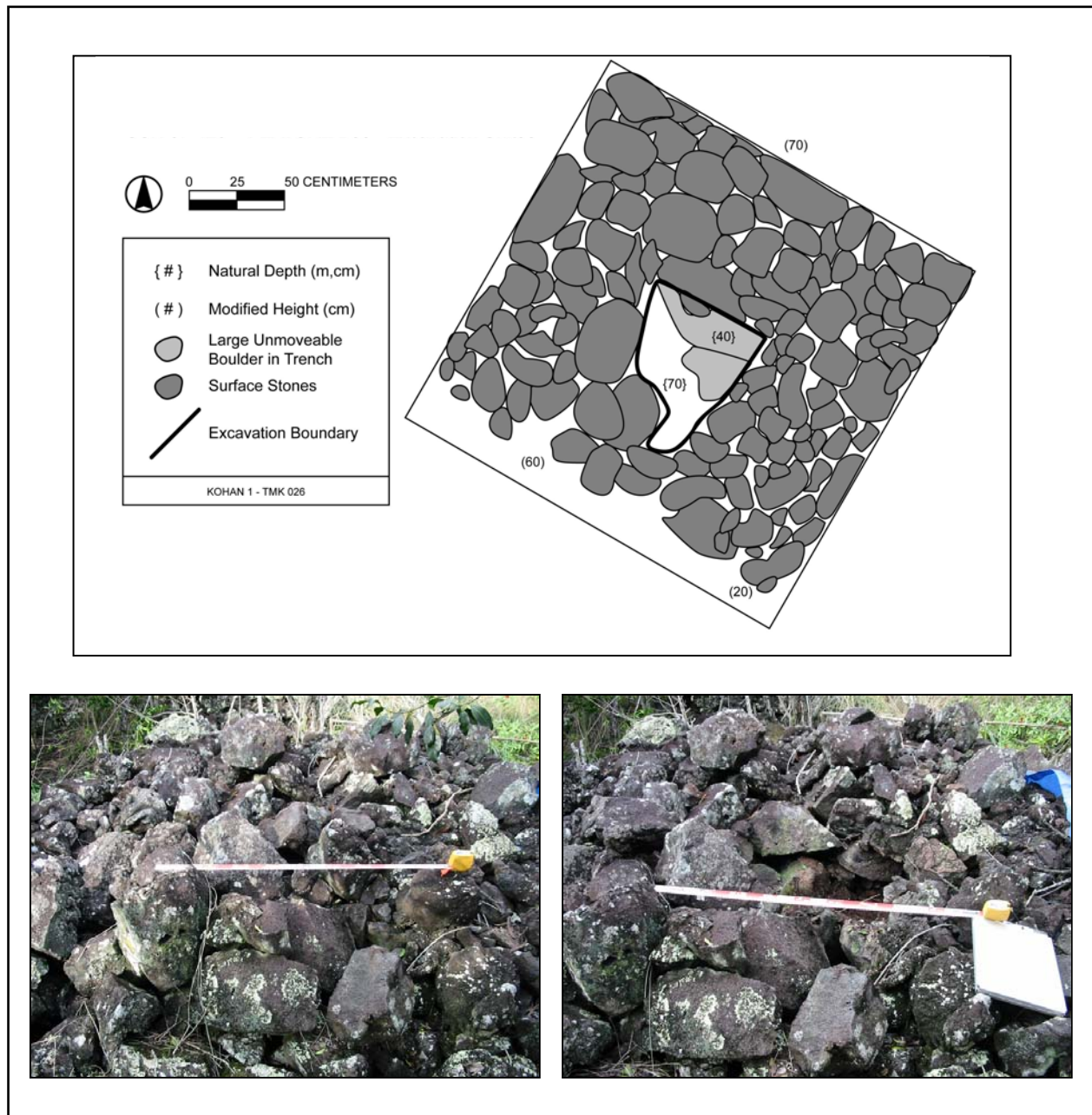


Figure 52. Site -6601, Feature B58, excavation figures. Counter-clockwise from top: excavation unit plan view; mound pre- and post- excavation

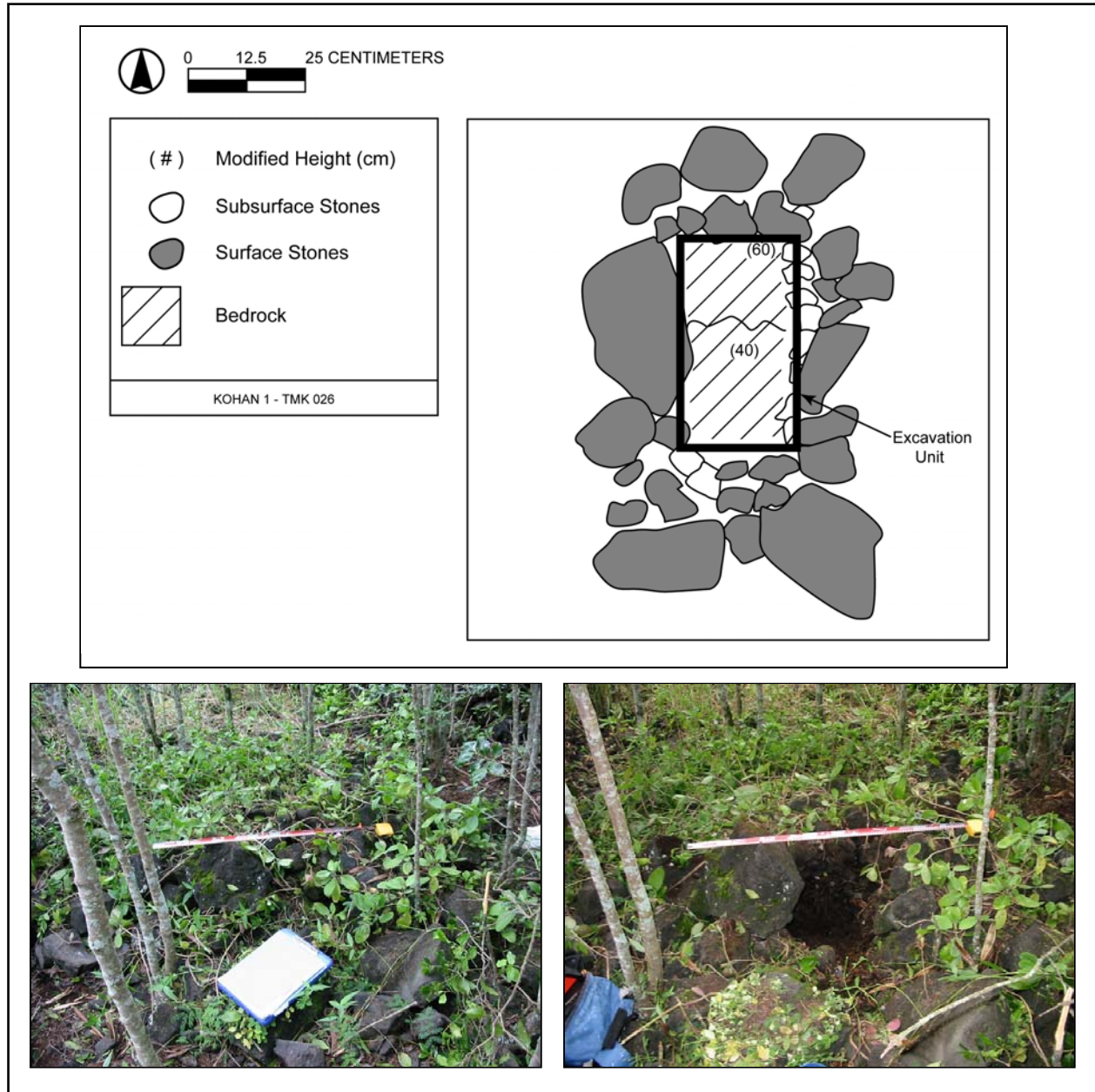


Figure 53. Site -6601, Feature C14, excavation figures. Counter-clockwise from top: excavation unit plan view; mound pre- and post- excavation

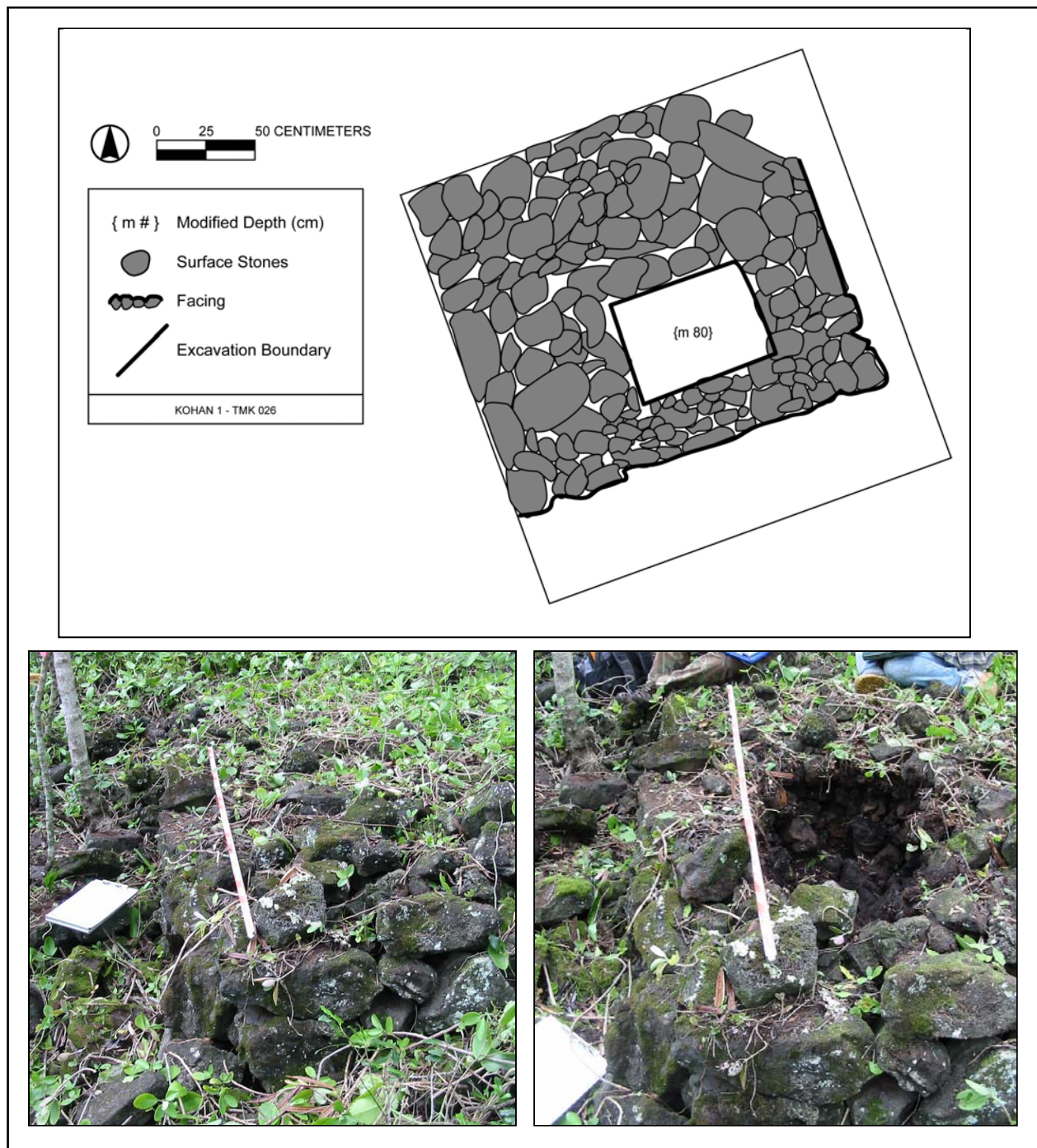


Figure 54. Site -6601, Feature C105, excavation figures. Counter-clockwise from top: excavation unit plan view; terrace pre- and post- excavation

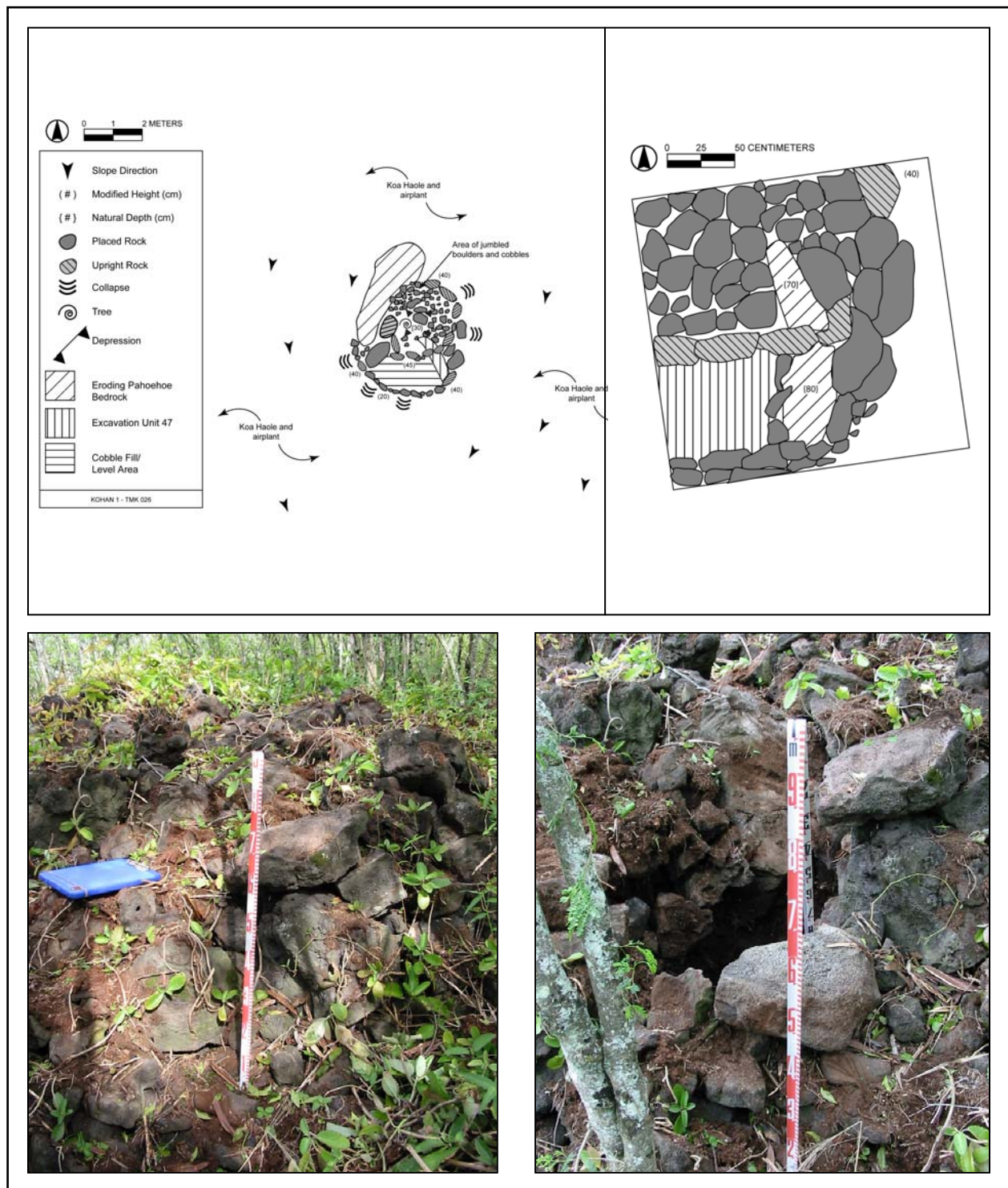


Figure 55. Site -6601, Feature D13, excavation figures. Counter-clockwise from top: excavation unit plan view; terrace pre- and post- excavation

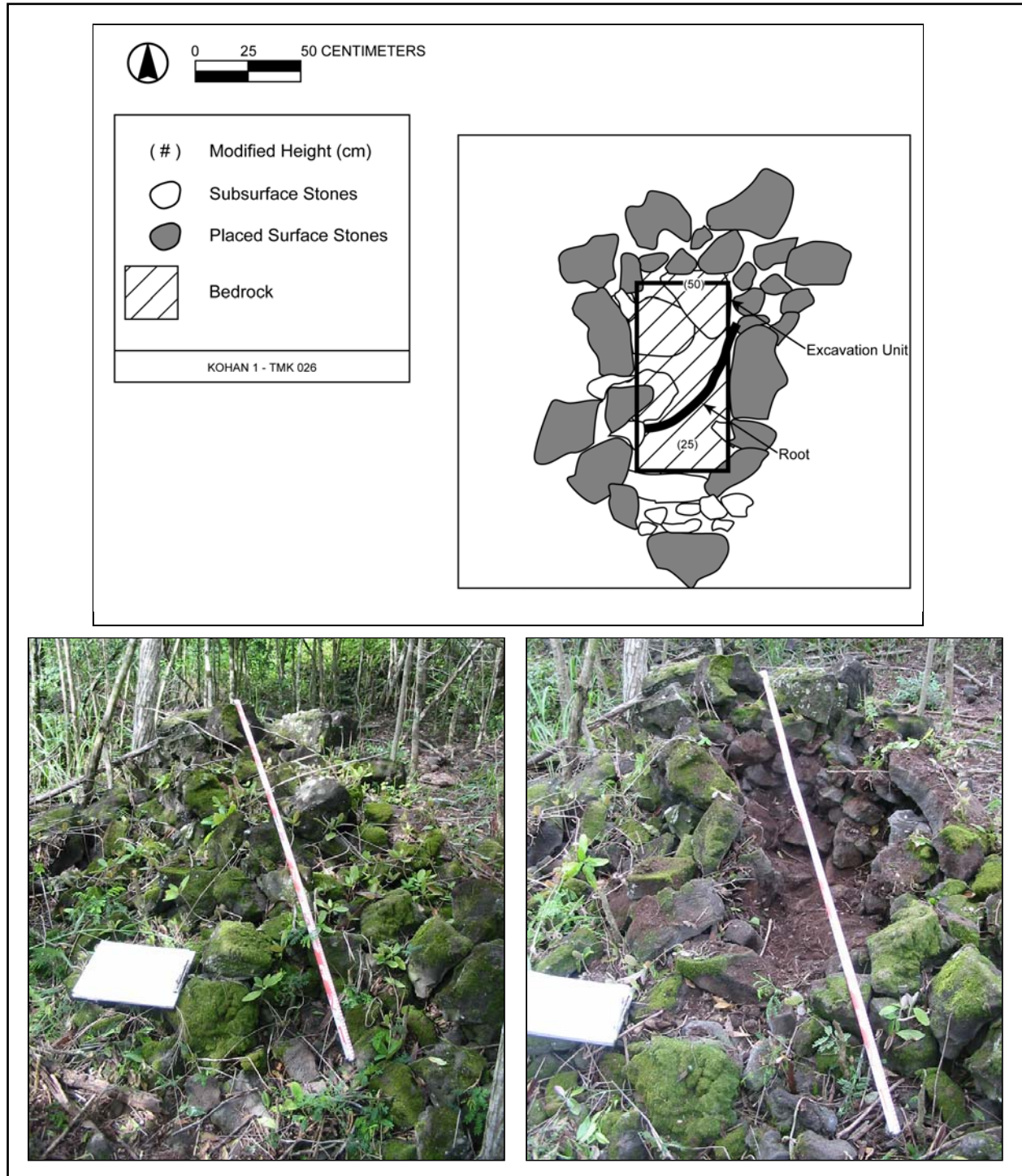


Figure 56. Site -6601, Feature D20, excavation figures. Counter-clockwise from top: excavation unit plan view; mound pre- and post- excavation

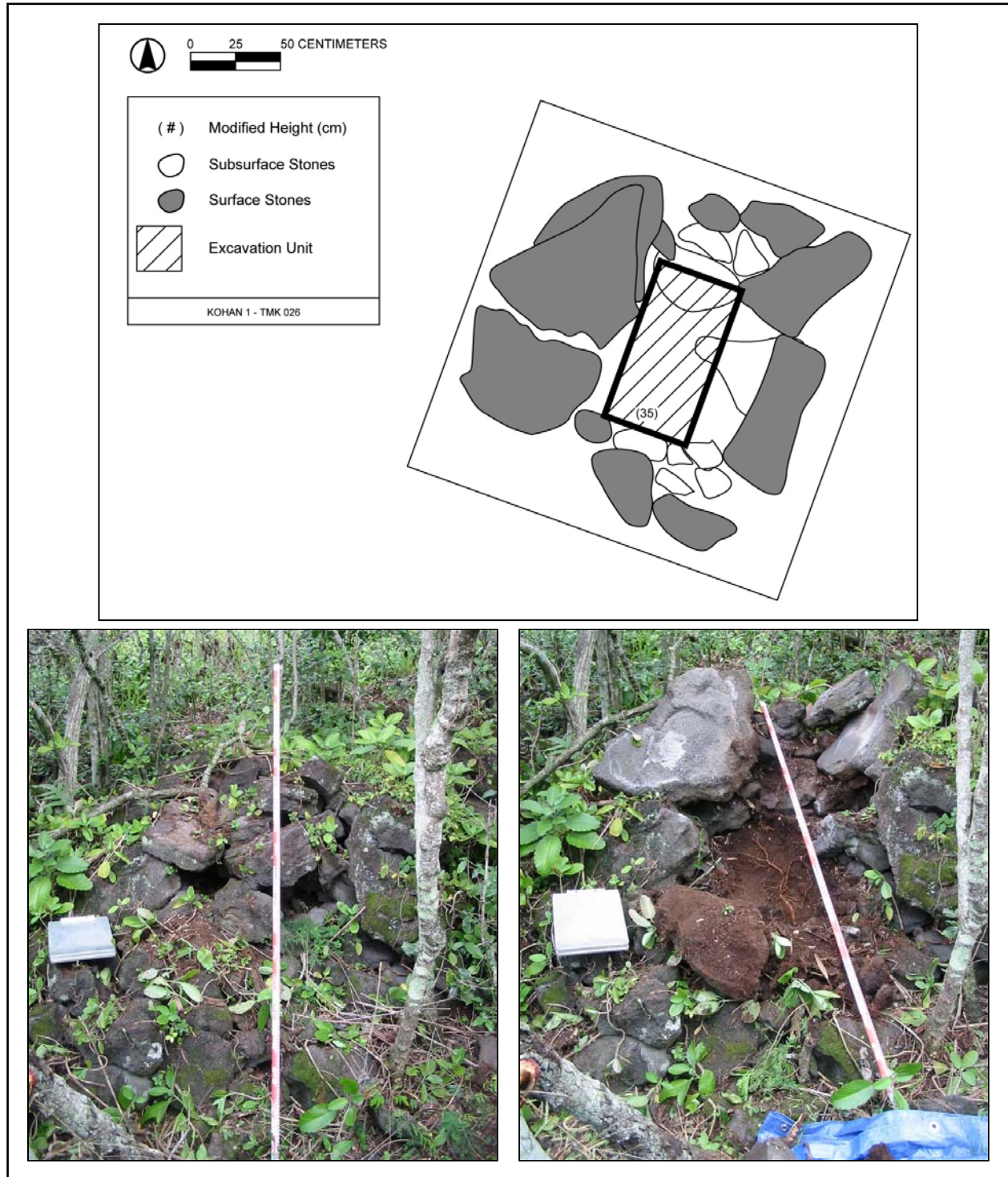


Figure 57. Site -6601, Feature D77, excavation figures. Counter-clockwise from top: excavation unit plan view; mound pre- and post- excavation

2.1.3 State Site # 50-10-28-10714

SIHP #	50-10-28-10714
FUNCTION:	Transportation
SITE TYPE:	Trail
TOTAL FEATURES:	1
DIMENSIONS:	Over 500 m in length in the project area (extends <i>mauka</i>)
CONDITION:	Good
AGE:	Post-contact, likely pre-contact in origin but later modified
ELEVATION:	600-785 ft. a.m.s.l.

DESCRIPTION: Site -10714 is a long *mauka/makai* running trail previously identified by Wolforth et al. (2005) in TMK: [3] 7-3-009:032 originating in the Kohanaiki Homesteads. Generally, the trail parallels the nearby Kaloko/Kohanaiki *ahupua'a* wall (Site -10712), on the Kohanaiki side (Figure 58). This trail was further identified in the current project area, continuing *makai* from the Wolforth study area. The trail entirely traverses *pāhoehoe* and is generally well defined throughout the eastern portion of the parcel, except near the *makai* parcel boundary where extensive bulldozing and grading has nearly destroyed the *ahupua'a* wall and eliminated any definitive sign of the Site -10714 trail. Due to the fairly extensive modification the trail in the *mauka* portion of the project area, it is discussed as three main areas, Areas A, B, and C (Figure 58). These designations are based on consistency of construction and similarity of other characteristics.

Area A of -10714 is a segment of the trail that is relatively intact and well defined (Figure 59). Area A runs directly along the north side of the *ahupua'a* wall about 1.5-3 m from the wall. The trail averages about 1-2 m in width and there are varying degrees of modification for about 100 m. On both the *mauka* and *makai* ends of Area A, modification eventually lessens in intensity and ends, leaving only a faint trodden path continuing either way. Therefore, Area A is defined as this segment where modification is very clear on the surface, delineating the edges of the trail. Overall Area A is in good condition, with several segments that have upright stones and/or facing, and nicely constructed causeways that bridge the low areas in the *pāhoehoe*. At approximately the same point where the *makai* portion of Area A begins, the *ahupua'a* wall is well preserved, marked by stacking often over 1m high (average 5 courses). The intact nature of both the *ahupua'a* wall and the trail in this vicinity suggest that modern disturbance (especially bulldozer activity) has been minimal.

Beginning at the *makai* end of Area A, there is at least one informal cairn placed at the base of the *ahupua'a* wall (Figure 58). The cairn is hardly more than 2 courses, or 20 cm high, and is constructed as a semicircle against the base of the wall (Figure 60). The cairn. There are several other possible cairns along this wall segment but they are extremely informal, low piles of rocks. The cairn is located near the end of the identifiable section of trail - fifteen meters east (*mauka*) of the cairn, the trail becomes more clearly apparent, but to the west the bulldozing is apparent and some modern trash is present. Just *makai* of this cairn, a clear glass historic bottle was located, dating to around the turn of the century (c.1900). It is described in some detail in the Results of Laboratory Analysis Section (Artifact Accession Number ACC #28).

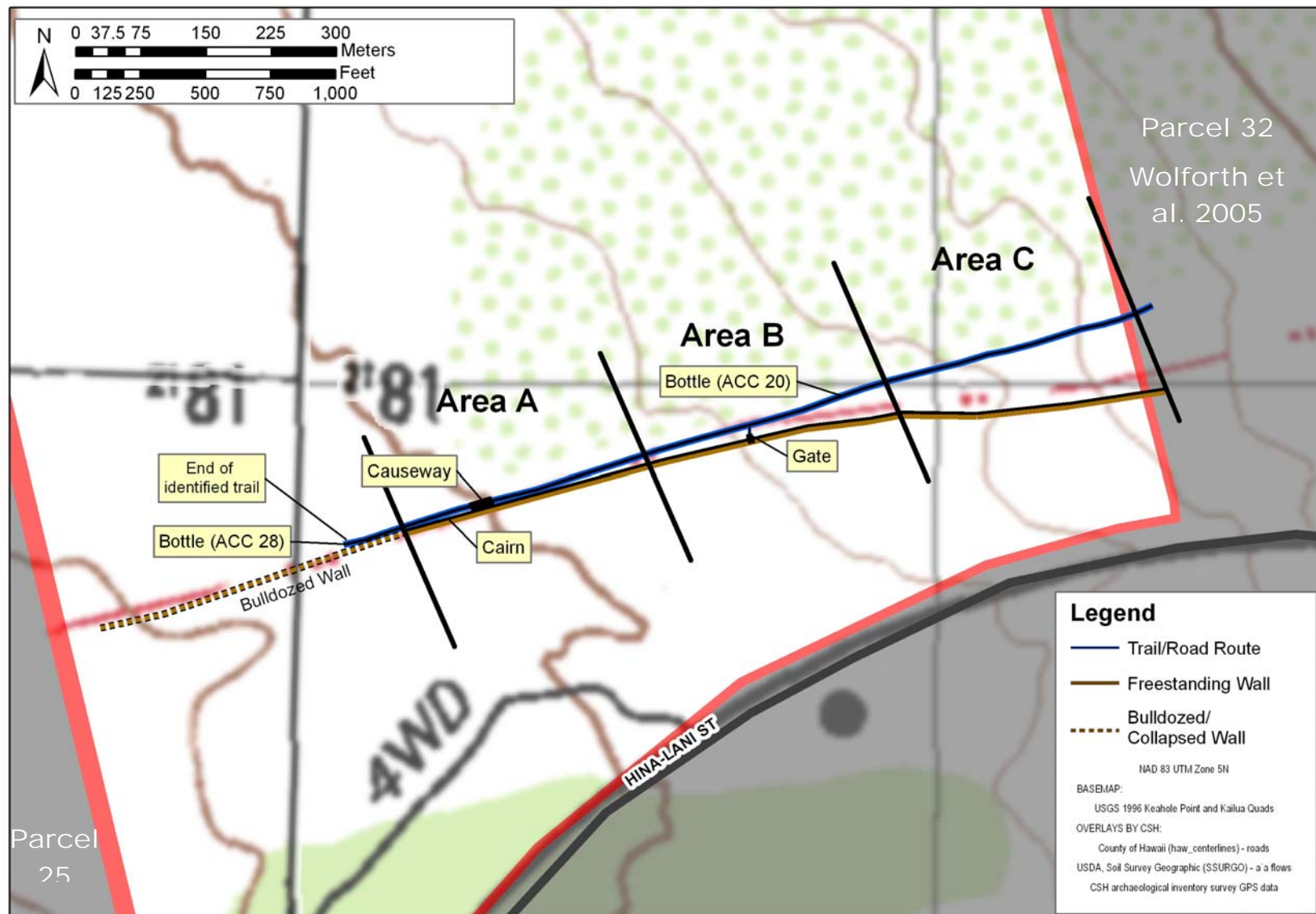


Figure 58 Site -10714, showing overview of trail and three designated areas described in text.

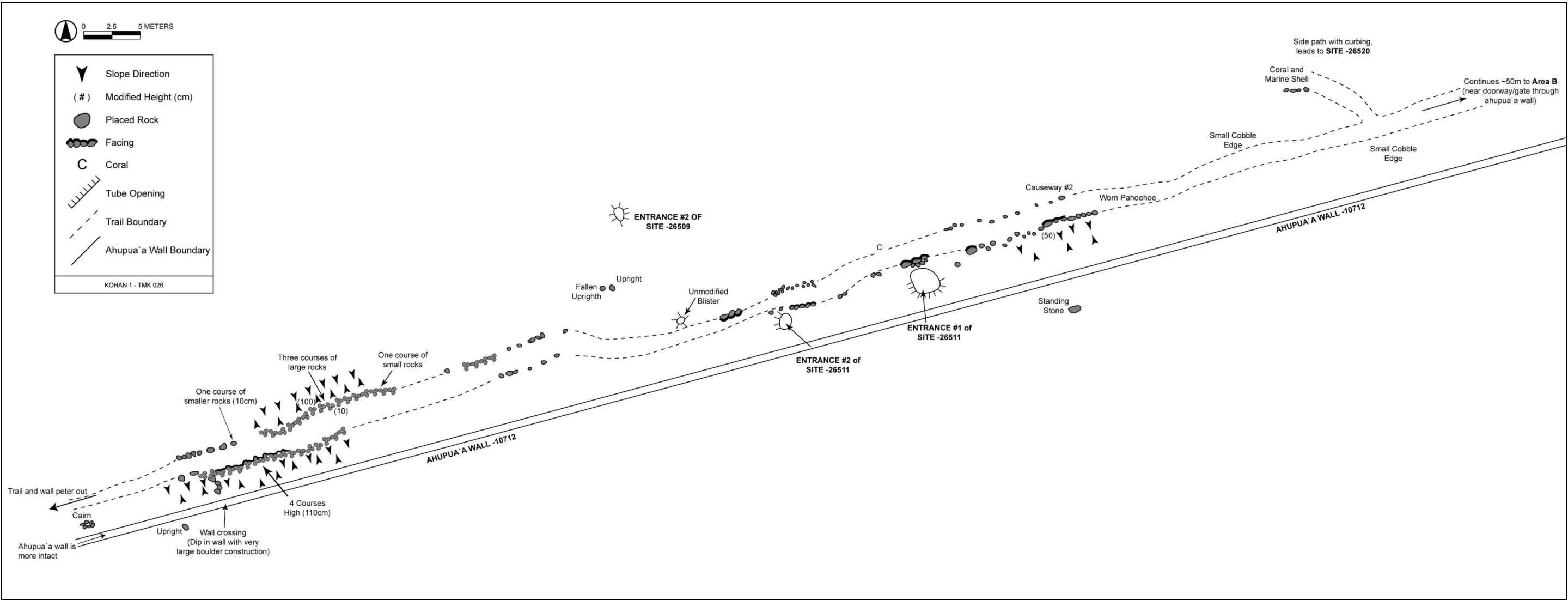


Figure 59. Site -10714, plan view of Area A portion of trail, showing causeways, curbing, and relationships to nearby sites



Figure 60. Small informal cairn on Kohanaiki side of wall.

One of the most formal sections of Site -10714 identified in the project area is a causeway about 15 m long with curbing on both sides of the trail also near the *makai* portion of Area A (see Figure 58). The causeway is constructed of medium boulders stacked up from a localized depression in the natural ground surface to create a flat, about 1.5m wide formal causeway with soil and small cobble fill (Figure 61 & Figure 62). Large boulders are used to create a vertical face on the north and south sides of the trail that is approximately 1m tall. Curbing is placed on top consists of large cobbles (20-35 cm) and small boulders (35-60 cm), which are either placed in an alignment (one course) on flat *pāhoehoe* bedrock or atop the causeway in order to delineate the edge of the trail. On the south side of the causeway, the *ahupua'a* wall also crosses the depression. Here there is a possible, very informal crossing. Several large rocks are placed in the depression to create somewhat unstable elevated stepping-stones to the lowest point in the wall. At this “crossing” there are several 3m tall *tī* plants. On the south side of the wall, a few meters west, there is a large (about 80 cm high) upright stone, but the terrain is rough and eroding and no trail was identified across the wall to the south.

Continuing *mauka* along the trail in Area A, modification consists of intermittent curbing (rocks placed on bedrock, most often one course high but in some places stacked higher and faced, usually medium-large cobbles). For some of the curbing the rocks are placed upright to create formal alignments while in other spots the curbing consists only of cobbles cleared from the trail to its edges and mounded (rarely more than 2 courses high). This *mauka* segment of Area A continues in this way for approximately 60 m. There is one small blister on the north side of the trail and two larger lava tube openings, Site -26511, on both sides of the trail. There is also one piece of coral sitting on the trail in this segment, as well as an upright (about 70 cm) about 2 m north of the trail. This *mauka* segment also has an additional “causeway” built up (south side) to create a level trail, though it is less formal than the more *makai* causeway.



Figure 61. Site -10714 Area A, curbing on north edge and *ahupua'a* wall to south, view to west



Figure 62. Site -10714, section of causeway in Area A; trail on right side of photograph with causeway construction at center and *ti* plants at left

The east end of the trail in Area A consists mainly of heavily worn exposed *pāhoehoe* and areas where small cobbles have been pushed to the side of the trail to create a very minimal curb (more so on the north side of the trail). This east segment of the trail is slightly wider than the rest of the trail and is characterized by small cobbles spread sparsely over exposed *pāhoehoe* or shallow soil.

Area B is an approximately 250 m segment of the trail. This Area is clearly marked by blue DOFAW (Department of Forestry and Wildlife) flags. A worn *pāhoehoe* bedrock path 1 m wide characterizes the trail in Area B that travels at about 75 degrees true north near the *ahupua'a* wall (Site -10712) at its western end. It moves away from the *ahupua'a* wall the further east it travels, and is approximately 40 m from the *ahupua'a* wall near the east end of Area B. The landscape continues to slope gently to the west/southwest.

The *makai* portions of Area B are less modified than most areas on the trail and are often difficult to follow. DOFAW flags generally do not mark the more ephemeral *makai* areas.

Of perhaps the greatest interest in Area B is a crossing built into the *ahupua'a* wall near the center of Area B (see Figure 58). It consists of two upright slabs set perpendicular to the walls length (one on the west end, one on the east) to create a formalized passage or gate through the *ahupua'a* wall about 70cm wide (Figure 63). There are no auxiliary structures that appear to be related to ritual in this crossing. The gate appears to be narrow enough that it would be difficult for cattle to pass during ranching use of the wall. The gate is easily approached the trail by a side trail heading south that leads through this crossing (see Figure 58 and Figure 64), which is about 8m from the Area B trail; the side trail continues on the south side of the *ahupua'a* wall but is quickly lost in heavy vegetation.

Beyond the side trail and crossing, Area B continues northeast and is characterized by medium to large curbstones placed intermittently on either side of the edge of the trail, with flat worn *pāhoehoe* as the surface of the trail. About 30m northeast of the crossing there is a piece of coral on the trail. Also along the trail in Area B are several uprights and a cairn about 25 m east of an area of agricultural modifications, Site -26507. Primarily this area consists of intermittent curbing similar to that seen in parts of Area A. The ground surface on both north and south sides of the trail largely consists of areas of small cobbles spread over the ground, sometimes with medium or large rocks as well; some of this may have been used for mulching as there is more intense agricultural modification in the *mauka* portion of the project area, but this may also simply be the result of clearing the path of cobbles. A second historic bottle was located laying on the surface along the south side of this section of trail. It is a brown glass, Japanese beer bottle dating to the 1900s – early 1930s. It is described in some detail in the Results of Laboratory Analysis Section (Artifact Accession Number ACC #20).

The segment trail designated as Area B ends on its east side where the terrain begins to slope more steeply uphill to the northeast, and the type of curbing changes.



Figure 63. Narrow gate, partially collapsed. Use of large uprights and faced cap on wall allow a worn *pāhoehoe* trail to pass easily through



Figure 64. A gate in Site -10712, Kaloko/Kohanaiki wall, near west end of Area B of Site -10714, and a side trail leading to a distinct crossing in the form of a narrow gate..

Area C is an approximately 75 m segment of the Site -10714 trail on the east-most end of the project area running at 75 degrees true north, largely traversing an area of intensive agriculture in the Kona Field System, Site -6601 (see Figure 42). This area of trail is clearly denoted by DOFAW flags. Area C is characterized by an area that slopes more steeply from east to west, has a small amount of scattered marine shell midden on the surface, several pieces of dense coral, a few uprights along the sides of the trail (5-10m from the trail), and has an 'a'ā small cobble fill towards its east terminus, where it continues beyond the project area east boundary. Generally, the *pāhoehoe* in this area is more rocky and scattered, very small 'a'ā flows amplify this effect. Generally, it appears to be more labor intensive to clear the trail in this area for these reasons.

Upright curbstones in this segment are more frequent, and there are rocks set into the hillside on the trail (perpendicular to the trail) that create approximately three informal stair steps (about 5-10 m apart) going up the slope. As mentioned, coral and marine shell on the surface are more frequent in this Area C than in the other areas of the trail. After about 40 m of steeper slope, the trail levels somewhat and begins to be constructed of a small cobble 'a'ā paving rather than exposed *pāhoehoe* with curbing (Figure 65). There are very small 'a'ā exposures on either side of the trail in Area C (and about 50 cm higher than the trail) and the trail continues to be about 1m wide. The portion designated Area C ends at the project area east boundary, although the trail continues to the east beyond the project area boundary exhibiting the same construction as in Area C.



Figure 65. Site -10714, Area C small cobble paving

On a landscape level, one might expect larger sites at a greater density along the trail. Generally, this appears to be the case though the grassy hillside in the northeast corner of the TMK appears to have been just as heavily inhabited. Major sites in proximity to Site -10714 include burials in lava tubes, habitation lava tubes, and habitation platforms and enclosures and dispersed and intensive agriculture. Of these sites, very few were located within a short distance of the trail (within visual distance in the current vegetation). Only lava tubes were located within this distance of the trail. Burials are not particularly concentrated along the trail either, with the exception of Site -26570 but the nearest tube entrance is still 85m from the trail. As might be expected, there is a significant concentration of post-contact activity in sites nearest to the trail including historic burials (Site -26570), a historic homestead (Site -26534), and evidence of goat ranching in a lava tube (Site -26520). This is consistent with historic improvements to the trail and a direct route to the historic Kohanaiki Homesteads. It seems likely that to some degree, an extended homestead area existed in the study area at least for some time, perhaps limited to one household. The resources in water collection in lava tubes and the agricultural fields would have been valuable and easy to access from the sites used historically in the project area. There are historic sites elsewhere in the project area, but some of the largest are concentrated along the trail.

As of yet, there is little direct dating available for the trail. Overall, the trail's width and the curbstones suggest a historic trail, as does the fact that it eventually leads to the historic Kohanaiki Homesteads. As is common, this important route was almost certainly a pre-contact route as well. The number of pre-contact sites near the trail are good evidence there would have been *mauka/makai* routes in the vicinity. Further, a small section of *pāhoehoe* slab trail located in the next parcel *makai* (Site -26353 in TMK 25) may be evidence for an earlier, pedestrian only route. The age of the historic modifications can be assumed to be around the time of the creation of the Kohanaiki Homesteads (c. 1890). This is consistent with approximate dates for bottles found along the trail. Future work could explore the possibility of using a suitable luminescence dating technique to confirm the placement of curbstones, and a comparison to the construction date of the historic *ahupua'a* wall. Ethnohistoric accounts may also shed light on the order of modification and wall construction. Notably no modern trash was observed along the trail until the bulldozed *makai* end. Though it is understood some evidence of vehicle use such as tires were found in TMK 32 (Wolforth et al. 2005) no evidence of vehicular use was observed in the project area.

The site is very consistent with the route identified on Emerson's RM 1449 and RM 1512 in 1888 and 1889 respectively (see "Mid- to late -1800s" in Background Research: Traditional and Historical Background near the beginning of the document). The archaeological results presented here and in Wolforth et al. 2005 in conjunction with RM 1449 and RM 1512, suggest that the specific route shown on an earlier map, Emerson's RM 1280 (available map is undated, but likely dates to 1882), is highly schematic. Interestingly this map, RM 1280, shows a route from the Kohanaiki Homesteads crossing the *mauka* end of the distinct '*a'ā* flow ending at 'Aimakapā Fishpond. Of the findings of Site -10714, it does not appear to meet this relative position indicated on this map. It is possible that this is caused by the schematic nature of this map, but because the flow is so prominent, this is a poor explanation. Also inconsistent with findings is the crossing of the trail into Kaloko *mauka* of the project area, when Site -10714 is clearly in Kohanaiki until it is lost in bulldozing activity and heavy vegetation.

The function of Site -10714 is transportation. Traditional accounts indicate that this *mauka/makai* trail led to the coast, and this is roughly shown on RM 1280 map. More accurate maps such as RM 1449 indicate that Site -26353 Extensive lava tubes, intensive water collection in these tubes, and the historic use along the trail was located in the project area. Because of this historic use, it is feasible that the historic improvements to the trail were along its most *mauka* extent (in the project area and TMK 32) where it improved access to an extended historic homestead area extending into the *mauka* project area. Worn *pāhoehoe* indicates that the Site -10714 trail has been trodden on excessively and/or cleared of vegetation often enough to expose it to noticeable weathering, permanently stunting vegetation growth in some areas. The whole length of the trail is still remarkably easy to walk, especially when vegetation is cut back. The surrounding terrain is generally cobbly, undulating and filled with many small blisters that invite injury. As a result, even the sections of trail without curbstones are pleasant to travel in comparison.

2.1.4 State Site # 50-10-28-16103

SIHP #	50-10-28-16103
FUNCTION:	Permanent Habitation
SITE TYPE:	Lava Tube
TOTAL FEATURES:	17
DIMENSIONS:	115 m east/west; 85m north/south
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	750 ft a.m.s.l.

DESCRIPTION: Site -16103 is located in a somewhat level area of a gently undulating *pāhoehoe* flow at the northern boundary of the project area in Kohanaiki Ahupua'a. The vegetation on and surrounding the site consists of large Christmas berry, thick grasses, sparse *koa haole*, and multiple *kukui* trees. There is also a large *tī* plant in Sink 1 of the site. A bulldozer road along the parcel's northern boundary is within 10 m of the site, although there is no evidence of disturbance to the site itself.

This permanent habitation site consists of a series of four sinks (Sinks 1-4) and fifteen lava tubes that are numbered consecutively. Encompassed in these sinks, tubes, and the immediate surrounding surface are seventeen features (Features A-Q). Five burials were found within this site, Burial 41 - 45. An old site tag on the Feature G platform reads "RC-0312 T-13-Sink 3 Feature A"; this was identified as site -16103 by Drolet and Schilz (1991:10) and more recently by Nelson et al. (2006:66). Drolet and Schilz (1991:27) determined that the site was one of 26 significant sites within their project area.

Tube Descriptions

Tube 1 is roughly horseshoe-shaped and has two entrances (Entrance 1 and 2), both off the west side of Sink 1 (Figure 66). Tube 1 has a few formal water collection constructions. Among natural fall inside Entrance 1 is a modified natural terrace and an alignment with an upright. The area inside of Entrance 2 of Tube 1 is a habitation area. There is a terrace immediately inside Entrance 2 (Feature D) that levels an area for habitation. There is a basalt adze perform near the south edge of this entrance (Figure 67). Midden in the tube consists of a few dense coral fragments, scattered marine shell, and a drilled cowry shell that functioned as an octopus lure.

Tube 2 extends roughly southeast off of the north half of the Sink 1 (Figure 66). The tube has a constructed entrance, Feature B, and exhibits additional modification in the form of the Feature C wall that restricts access to the back of the small tube where there is a large cache of at least 30 *pandanus* brushes. Feature E consists of placed large boulders and slabs that obstruct the tube's seemingly large opening to the south half of Sink 1. Only a small amount of midden consisting of a small urchin piece and some charcoal is present. Although a large amount of *kukui* is also present, it is likely accounted for by the presence of *kukui* trees in Sink 1. A manuport was found in the front chamber of the tube. It is shatter of very fine-grain basalt of a type that is not locally available.

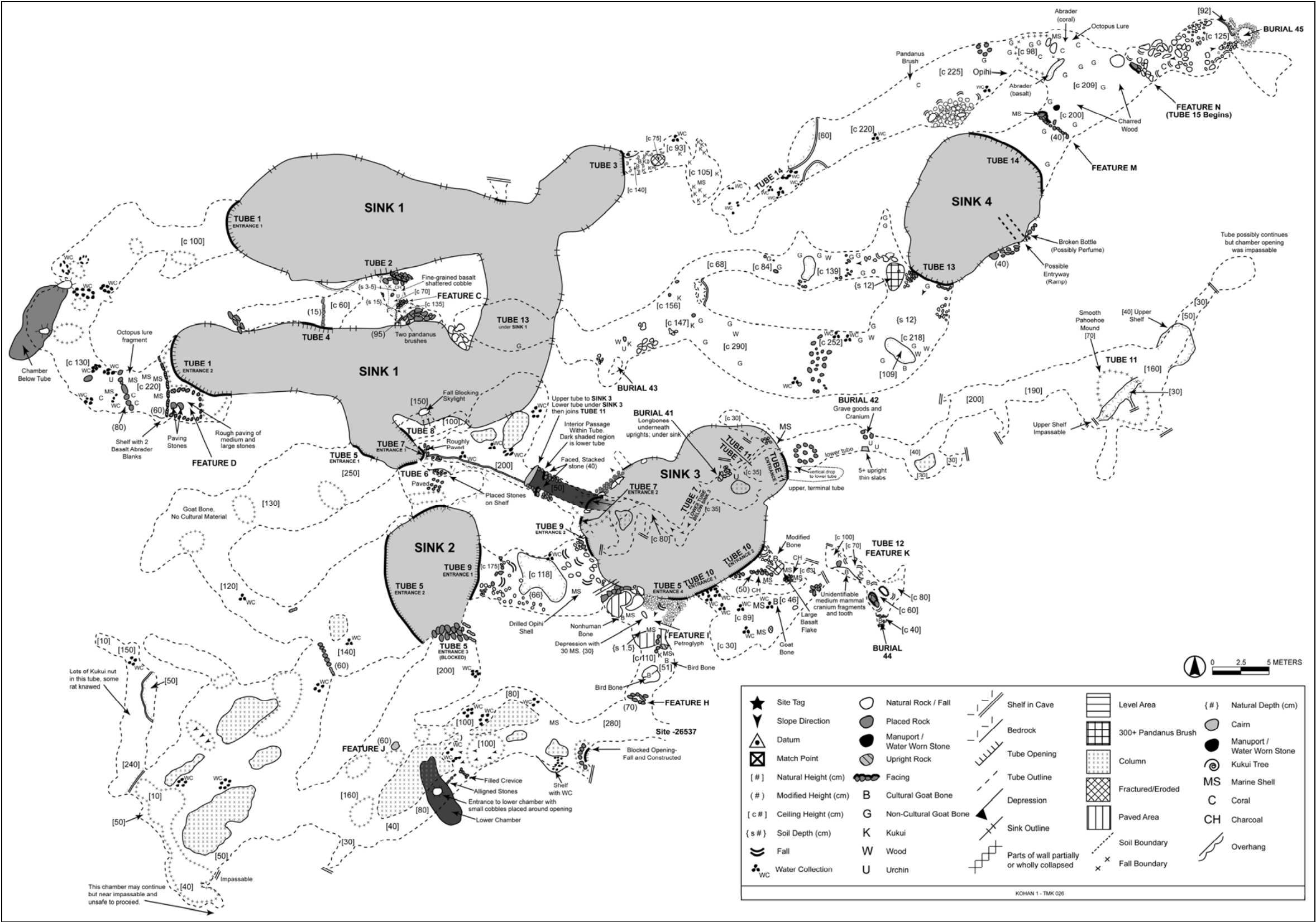


Figure 66. Site -16103, subsurface plan view showing Tubes 1 – 15 and Features C, D, F, H, I, K, M and N



Figure 67. Site -16103, profile view of basalt adze perform

Tube 3 extends off the northeast side of Sink 1 (see Figure 66). The tube trends roughly east/west. The entrance is small (150 cm by 35 cm) and steep, dropping about 2 m at a 50° slope. At the entrance, on the north side of the tube, there are a few placed rocks on a bedrock ledge. Upper and lower passages are just inside the tube. The upper passage is small and joins the chamber at the back of Tube 3. The lower passage continues for 2 m before turning southeast. This lower passage has been cleared of medium and large *pāhoehoe* cobbles that are placed to the sides of the tube. A concentration of goat bone and *kukui* endocarps is in this passage and below the entrance, although these materials are not culturally deposited. A single water collection that is rather formal is close to the area where the tube turns. The tube then continues 2 m to a small chamber where it ends.

Tube 4 extends off Sink 1 and has a low wall (15 cm in constructed height) of basalt stones that runs north/south across Tube 4's east/west trending chamber. No other cultural modifications are present. The tube is small and the ceiling is short (a maximum of 60 cm).

Tube 5 is accessed via entrances in Sink 1, Sink 2 and Sink 3. It is particularly braided and complicated and ceiling fall is common. The tube contains relatively sparse evidence of activity, likely because of the rough floors throughout most of the tube, particularly near Entrance 1, Entrance 2 and its southwest extent. The only widespread midden observed in the tube was *kukui*, much of which is rodent gnawed. As a whole, water collection is relatively limited in this tube with approximately a dozen total. Entrance 3, on the southern most part of Sink 2 has been blocked with the stacking of small boulders and large cobbles across the approximately 1m high opening.

Entrance 4 in Sink 3 has the greatest evidence of habitation use. Immediately at the base of an area of natural fall that slopes from Entrance 4, there is a cleared area where Feature I, a petroglyph, is pecked into the floor (see Feature I description below). The petroglyph is a hatched pattern with no apparent animal or human form. Alongside the cleared area and the petroglyph, there is a thin layer of a grey soot deposit. A small blister in the floor of the cleared area has approximately 30 marine shells, mostly *Nerita*, and charcoal. In the immediate area

surrounding the cleared area, both to the south and west is a layer of rubble paving. The paving on the south edge of the cleared area is rougher and has larger cobbles than the west paving. Other placed rocks are common, particularly along the walls where they would be clear of the habitation area. Beyond the south paving is an upright. Just south of the upright there is a shell midden scatter, containing pearl shell, cowry, and some bird bones that are sizable enough to be sea bird. The informally constructed Feature H wall bounds the south extent of this habitation portion of Tube 5.

Tube 6 extends from Sink 1 to the north side of Sink 2 and has minimal cultural modification and lacks water collection features or midden (see Figure 66). There is a roughly level, small paved area in the center of this short tube.

Tube 7 runs between Sink 1 and Sink 3 and also has a lower tube that runs under Sink 3 (see Figure 66). The tube has five water collection constructions in the western portion of the tube. A faced wall is in the eastern portion of the tube, and Burial 41 was found in the lower tube of the eastern portion (see below). No other modifications were found in the eastern portion. There are several areas near Burial 41 that are impassable. Tube 7 connects to Tube 11 through an extremely small, relatively long, sediment rich sloped crawl that is quite nearly impassable.

Tube 9 extends roughly west off the southwest end of Sink 3 (see Figure 66). The tube is short, only 9 m in length and runs directly from Sink 3 to the northeast end of Sink 2. A single water collection construction, some scattered *kukui* nut, and a single drilled *opihi* shell are present. The west entrance of the tube into Sink 2 is partially constructed of modified natural fall to create approximately four small entrances. The modification to this fall is only clear from Sink 2. These four entrances are referred to on the map as Entrance 1. Entrance 2 opens into Sink 3 and is only slightly modified.

Tube 10 has two entrances, Entrance 1 and Entrance 2, and extends off the southeast side of Sink 3 (see Figure 66). The south half of the tube is most easily accessed via Entrance 1. This south portion of the tube is primarily a small chamber with a low ceiling. An opening to the surface from this chamber is inaccessible due to natural fall. The only modification to this portion of the tube consists of a few small placed *pāhoehoe* slabs at Entrance 1 and approximately seven water collection constructions. The small amount of midden in this portion of the tube consists of some scattered *kukui* and a single marine shell fragment.

The majority of the modification and cultural material is present in the northern portion of the tube. This half of the tube is best accessed from Entrance 2 off of Sink 3. The east end of the Feature G terrace in the sink abuts this entrance and partially obstructs it. The facing on this end of Feature G is only visible from inside of Tube 10. The majority of the floor in the north half of the tube is covered with natural fall cobbles and boulders. A few cleared areas where the rocks have been piled to construct small enclosing walls are present. Two of these cleared areas are near Entrance 2, and both of these areas have a large amount of charcoal. A sooty sediment deposit is throughout the area immediately inside of Entrance 2. Midden is also scattered throughout this area and includes a large amount of marine shell. The northern cleared area has a higher concentration of shell midden. A piece of modified bone (probably pig) is atop a placed rock near the cleared area. A fine-grain basalt flake that is finer grained basalt than is common in the immediate area was also found. A small pile of small boulders is located near the back of these tubes where the northern and southern tubes meet. These piled rocks have been removed

from the natural fall in the tube entrances. Atop this pile is some charcoal, a few marine shells, and a piece of wood that is similar to that used for torches. Charcoal is also located on the floor of the tube in the natural file next to this small rock pile.

Tube 11 extends east off the east end of Sink 3. The tube contains a formal, circular feature of placed stones near the entrance (see Figure 66). Burial 42 is located approximately 10 m east of this circular feature and is also surrounded by a ring of stones (see below). Just across the tube from the burial are five thin slabs of ceiling fall that are laid against the side of the tube. It does not appear to be a water collection construction. On the ledge above these slabs, there are several more slabs of ceiling fall that are obviously manuports carefully placed in this position. No cultural features were found within Tube 11 east of Burial 42, though the geology of the tube is remarkable in some areas where the walls are extremely smooth. Several areas are impassable but appear unlikely to have ever been accessed in the past.

Tube 12 has a small access from the surface west of Sink 3 and south of Sink 4 (see Figure 66). Tube 12 entirely comprises Feature K (Burial 45). The tube does not connect to any other tubes at the site.

Tube 13 is located on the southwestern side of Sink 4 (see Figure 66). The tube is rather large at its entrance and splits, with the main tube running to the southwest and a smaller tube running off to the northeast. This smaller tube connects back to the main tube. Many goat remains are in both tubes, and one of the goat skulls has been placed under a *pāhoehoe* slab approximately 8 m into the tube. There are five water collection constructions in the main tube. Near the back of the tube the ceiling height drops and the tube splits. To the right it is a tight crawl that leads back around to the entrance area. Just before the main tube is reached, there is an area that contains approximately three hundred *pandanus* (*hala*) “brushes” – enough to suggest a *pandanus* tree likely grew in the vicinity. To the left of the split are the remains of Burial 43 (see below). The tube becomes very small and continues for approximately 16 m. In the small back area are the remains of another goat.

Tube 14 is located at the northeast side of Sink 4 (see Figure 66). The tube entrance chamber is a good size and probably one of the more hospitable entrances of the site. It contains a distinct terrace (Feature M), a small amount of midden, a few water collection constructions, and artifacts that are associated with habitation. Almost all of the artifacts are located in the entrance chamber and the water collection generally beyond the first 15 m of habitation area. The artifacts include coral, coral and basalt abraders, an octopus lure, and hammerstones. Just inside of the tube entrance a retaining wall has been constructed of small boulders and large cobbles to a height of 40 cm to create the Feature M terrace. This primary habitation area has been cleared of all other surface rocks, which were removed to the back of the chamber.

Tube 15 is an arbitrary designation made to describe the complicated area that contains Burial 45. It begins at the back of the entrance chamber of Tube 14 (see Figure 66). Tube 15 begins where a very significant amount of ceiling fall has been modified into a terrace, Feature N. Here, a few small boulders are stacked two to three courses high (approximately 40 cm) to retain the center of this fall. Climbing over this terrace leads into an area of loose ceiling fall covering the entire width of the tube and sloping out towards the entrance. After a scramble of approximately a meter of elevation gain, there is a level area atop the fall. There is little visible here. The continuation of the tube to the east appears to have been cut off by even more fall from the ceiling. Only a *pandanus* brush and a piece of coral wedged in the more recent fall are visible. However, where the tube

should continue, there is a small area where several placed slabs disguise a small opening into a small chamber beyond just over a meter in diameter. Human bones were observed through the small gaps in the disguised opening. The remains were positively identified as human and were designated as Burial 45 (see below). Another area appeared to be blocked, but access could not be gained; this area may have been associated with Burial 45.

Feature Descriptions

Feature A is located at the west end of the northern half of Sink 1, approximately 10.5 m east of the entrance to Tube 1 (Figure 68). The feature consists of a wall that runs north/south across the width of the sink (approximately 8 m) (Figure 69). A less formal extension branches off perpendicularly from the north end of the wall heading west. The main north/south running wall is constructed of medium *pāhoehoe* boulders, and large and medium *pāhoehoe* slabs. The wall is stacked four to five courses high and averages a width between 75 cm and 100 cm. The wall is very well faced on the west side, while the east side is not well faced. There is some facing of the northern half of the east wall and is comprised of a single very large upright *pāhoehoe* slab. Some collapse is present on the south end of the east wall. The north end of the wall is wider, creating a sort of small square platform. This area is roughly 2 m wide and is level with the wall's upper surface. It is along the alignment of the south edge of this wider area that the western extension of the wall branches off. This western extension utilizes the natural fall *pāhoehoe* slabs. Medium *pāhoehoe* slabs and boulders are placed to create very fine facing along this alignment. The upper surface of this extension is comprised of the natural fall and some placed small boulders. Though this upper surface is relatively level with the upper surface of the north end of the main wall, it is not particularly level or flat, like upper surface of the north end of the wall. No gaps in the main wall allow unrestricted passage from one side to the other; the wall is continuous from the south wall of the sink to the north wall of the sink.

Feature B is located in Sink 1 at the entrance to Tube 2 on the south side of the sink. The feature consists of a single constructed wall along the natural curve of the sink and extends along that curvature so that it creates a partially enclosing wall across the opening of Tube 2 (Figure 68 & Figure 70). The wall is constructed with predominately large to medium *pāhoehoe* boulders and slabs. The slabs are stacked horizontally, although a few upright slabs are in the interior base facing of the wall. The wall is stacked between seven and eight courses high, and the courses are very distinct on the wall's west face. Only the west and south (interior) sides of the wall are faced. The wall is not freestanding, but reaches from the floor of the sink to the dripline of the opening for Tube 2 with a constructed height of 175 cm. The wall is constructed at a very slight angle as it leans in towards the drip line.

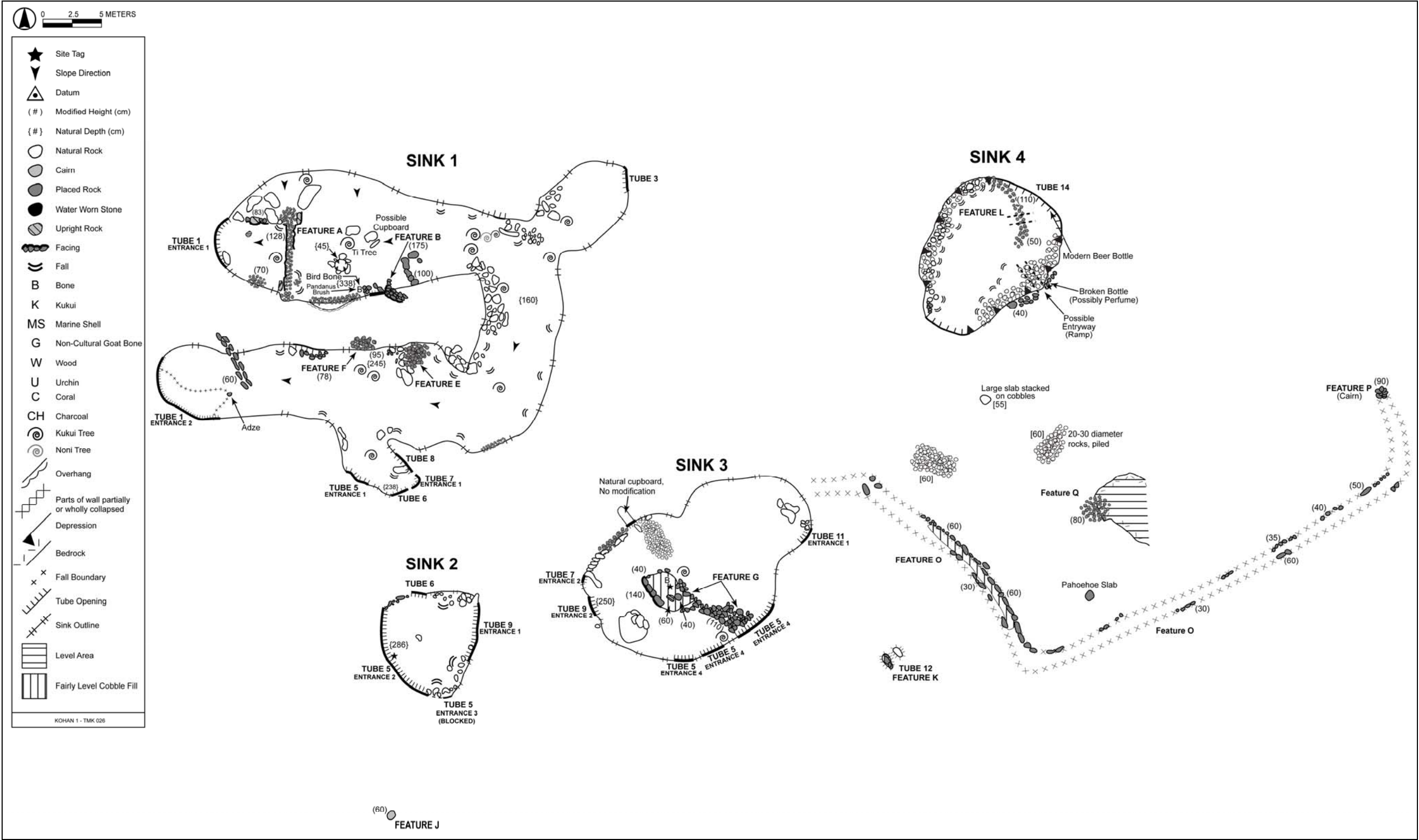


Figure 68. Site -16103, surface overview showing sinks and surface features, Features A, B, E – G, J - L and O - Q



Figure 69. Site -16103 Feature A, showing the north end of the wall within Sink 1 view to east



Figure 70. Site -16103 Feature B, showing the constructed entrance to Tube 2 from Sink 1, view to southeast

Feature C is located in Tube 2 of Sink 1 (see Figure 66). The feature consists of a small wall that restricts access from the front chamber to the back chamber of the small tube. The wall is constructed of small to medium size *pāhoehoe* boulders with two *pāhoehoe* slabs set upright to create facing. The wall reaches from the floor to the ceiling with a maximum constructed height of 80 cm. Only the back side of the wall is faced. Since the ceiling slopes down from the back chamber to in front of the wall with a lower ceiling height of 70 cm, it is clear that the wall was constructed from within the back chamber. The front side of the wall is faced and from the front chamber of Tube 2, does not appear to be a wall, but rather only some placed boulders. From the entrance to Tube 2 in Sink 1 it appears almost as natural fall. The function of Feature C is to conceal the back chamber of Tube 2. A cache of better than thirty *pandanus* brushes is in this back chamber.

Feature D is a terrace built between the tube wall and a large, tall boulder fall area at the center of the entrance (see Figure 66). The terrace is raised above the interior tube floor by a series of upright boulders to a maximum height of 60 cm. It is lower than the center of the sink, where unmodified fall dominates. The feature is sheltered from the elements, as it is against the south wall of the tube and still under the dripline. The surface of the feature measures 2.5 m north/south by 3 m east/west. It is relatively formally paved with *pāhoehoe* slabs ranging in size from 50 cm to 100 cm. Between these slabs, gaps are filled with large cobbles and rubble.

Feature E consists of an area of stacked *pāhoehoe* slabs (see Figure 68). It is constructed at the south end of Tube 2 in Sink 1. The *pāhoehoe* slabs are stacked on an area of fall to seal this end of the tube. The slabs range in size from 20 cm to 65 cm, with the average size being 40 cm. The slabs are stacked nine to ten courses high to a constructed height of 160 cm. The feature is 2.4 m in length north/south and 2.5 m east/west. All but one of the slabs that are visible are placed in linear courses, the exception is one upright. The overall condition of the feature is good, although there is some minor collapse on the southeast corner.

Feature F is a mounded pile of stacked *pāhoehoe* slabs and boulders on the surface at Sink 1 (see Figure 68). The rocks range in size from 35 cm to 65 cm with the average size being 45 cm. The mound is 2.3 m east/west by 2.0 m north/south. The south side of the mound is on the edge of Sink 1. The slabs are stacked on the south side two to three courses high, with a constructed height of 60 cm. The construction is very informal. The mound is fairly round and appears to be slightly collapsed on the north side. The mound has a 65 cm slab in the center that is placed horizontally. This creates a good place to sit and view the coastline.

Feature G is located roughly in the center of Sink 3 (see Figure 68). The feature consists of a platform and an informal terrace that extends off of the platform (Figure 71). The platform measures approximately 4.5 m northwest/southeast by 3 m northeast/southwest and is constructed to a height of 1.4 m. The platform is constructed with *pāhoehoe* cobbles, boulders, and slabs. Both the cobbles and boulders range in size from small to large. The *pāhoehoe* slabs range in size from medium to large. The platform is faced on the southwest and southeast sides. The facing consists of horizontally stacked slabs with a few upright slabs incorporated in the facing. The southwest side of the platform has the tallest constructed height of 1.4 m due to the slope of the sink floor and is stacked an average of five courses. The southeast face of the platform only averages 60 cm in constructed height and is stacked two to three courses high. There is some slight collapse on the south corner of the platform, but the corner is still well



Figure 71. Site -16103 Feature G, showing the western face of the platform within Sink 3, view to east

defined. There is also a clearly defined west corner to the platform, though it has a constructed height of just 40 cm. The platform is constructed so that the upper surface is relatively flush with the sink floor on the northeast side of the and only slightly above (20 cm to 30 cm) the sink floor on the platform's northwest side. On the northeast side of the top surface, there are some placed boulders and slabs, including a few horizontally placed slabs that are constructed to approximately 50 cm above the upper surface of the platform that delineate the northeast extent of the platform. The top surface is paved with primarily small *pāhoehoe* cobbles. On the southeast side the top surface is sort of stepped or two tiered. The upper tier is constructed 40 cm and one to two courses above the lower tier and is faced on its southwest side with an upright. The paving of this upper tier consists of a *pāhoehoe* slab, 90 cm by 65 cm, and some small cobbles. This upper tier is somewhat similar to the small paved area of Feature C of -26344, a permanent habitation site in TMK 25. There is a single fish vertebrae atop the platform that constitutes the identified midden for the feature.

The terrace extends off of the east corner of the platform and heads roughly east to the edge of the sink and Entrance 2 of Tube 10. The terrace is constructed very informally and lacks facing. The construction is roughly piled medium to large boulders. The constructed height is roughly 1.1 m and 4.7 m in length. The terrace rises slightly above the sink floor on the northeast side as it heads east so that at the point that the terrace meets the sink edge and Entrance 2 to Tube 10 the boulders create a mound that is 50 cm high on the northeast side. The east extent of the terrace as viewed from the tube interior is faced and stacked seven courses high. This partially blocks the entrance to the tube and measures 2.1 m wide by 1.3 m high at this point.

Though the platform is faced and exhibits formal construction, there is no direct evidence of ceremonial function. Though there is only one piece of midden, it is suggestive of a habitation function. Burial function can not be ruled out for this feature, however, permanent habitation is the more likely function.

Feature H is located in Tube 5 approximately 10.5 m from Entrance 4 into Sink 3 (see Figure 66). It is also approximately 5 m from the site boundary between Site -16103 and Site -26537. The wall is approximately 1.8 m in length, 75 cm wide, and is constructed 65 cm high. It lacks facing, and is constructed with small to medium *pāhoehoe* boulders, likely from a nearby area of natural fall, piled to partially block passageway through a shallow passage out of the entrance chamber of Tube 5 Entrance 4. Construction is very informal and in parts leans upon the tube side (south side) of the low ceiling marking the rear of the entrance chamber. It does not appear that the wall ever completely closed off this passageway, as there is not sufficient volume of rock to account for such construction. The likely function of Feature H is a windbreak for the water collection activities or as a boundary between the habitation area and water collection area of Tube 5.

Feature I is located in Tube 5 approximately 2.75 m from Entrance 4 into Sink 3 (see Figure 66). The feature consists of a single petroglyph etched into a cleared area of *pāhoehoe* bedrock on the tube floor (Figure 72). The petroglyph resembles cross-hatching, four lines running one direction and three lines running across. It is unknown what this represents. It is not well worked and some of the lines are not well defined.

Feature J is located approximately 11 m south-southwest (203° TN) of Sink 2 on the surface (see Figure 68). It is also only approximately 17 m northwest of Site -26537. The feature consists of a single small cairn constructed atop a natural slightly eroding *pāhoehoe* outcrop. The cairn is constructed of small *pāhoehoe* boulders, the largest of which is 50 cm across. The constructed height is only 60 cm. The cairn likely functions as a marker for the large site complex of Site -16103.

Feature K is located 16 m west of Sink 4 (see Figure 66 & Figure 68). It is a small lava tube accessed via two small, immediately adjacent entrances on the surface. This tube is not in and does not connect to any of the sinks or tubes of -16103. The southern most entrance is partially blocked by what appears to be placed rocks. The other entrance is accessible, despite the abundant natural fall. The tube is small, consisting of three distinct lobes, all of which are constricted by natural fall. The southern lobe contained Burial 44 (see below). This lobe was partially blocked by what appears to be placed stones. The western lobe contained goat bone (non-cultural) and unidentifiable mammal remains (cranial fragments and one tooth). The tooth was small, somewhat square, and in poor condition (most of the root is missing, and the enamel is cracked or missing). Although it could not be positively identified, it is probably pig or human. The cranial fragments could not be identified as human or non human. If these unidentifiable remains are in fact non human, they may be a burial good associated with Burial 44. No other cultural material or features were found.



Figure 72. Photos of Feature I. Bottom photos is digitally emphasized, light and thin lines indicate light incomplete pecking and possible areas of modification.

Feature L is a terrace wall that creates a level area in Sink 4 (see Figure 68 and Figure 73). The wall is constructed of *pāhoehoe* slabs and boulders that range in size from 35 cm to 50 cm with the average size being 40 cm. There is one large *pāhoehoe* slab placed upright in the center of the wall. It is 140 cm in length, 80 cm in height, and 28 cm in width. The wall is constructed of boulders stacked three to four courses in height. This wall was constructed to create a level terrace that is the floor of Sink 4. The wall separates the level terrace floor of Sink 4 and the entrance to Tube 14. The age of the terrace wall is pre-contact, as the only historic artifacts in the area are a broken perfume bottle that is located on the possible entry way ramp to the sink and a recent (1980s) Michelob beer bottle that is located between the terrace wall and the entrance to Tube 14.

Feature M is a terrace wall that has been constructed inside the entrance to Tube 14 (see Figure 66 and Figure 74). The wall measures 4 m north-northwest and is 75 cm at its widest at the northern end. The wall is constructed with *pāhoehoe* slabs and boulders to create a gently sloping terrace between Feature L and Feature M. The slabs measure from 40 cm to 78 cm. The average boulder size is 40 cm. The center of the terrace wall has an opening that allows easy access to the habitation area of Tube 14. The northern half of the wall is constructed to a height of 60 cm, while the southern half is constructed to a height of 40 cm. The very base of the northernmost end has an upright *pāhoehoe* slab laid at surface level. The northern half is constructed in four courses and is faced. The southern end is two courses of boulders and slabs. One large *opihi* shell is on top of the northern end of the wall and measures 7 cm in length. The terrace helps to divide the rock overhang at the entrance of Tube 14 from the entrance chamber/main habitation area of the tube.



Figure 73. Site -16103 Feature L, view to west-southwest



Figure 74. Site -16103 Feature M, view to west-southwest

Feature N is a faced wall located at the intersection of Tube 14 and Tube 15 (see Figure 66 and Figure 75). The wall measures 1.25 m northwest/southeast. The southeast end of the wall is completely covered in ceiling fall and is no longer visible. The constructed height of the existing portion of the faced wall is 75 cm. There is one upright *pāhoehoe* slab that measures 57 cm in height. The remainder of the wall is constructed in three to four courses of *pāhoehoe* slabs that range in size from 35 cm to 40 cm. The faced area of the wall abuts fall on the northern end also. It is not possible to determine whether there was a raised terrace area behind the wall (leading into Tube 15), as the area is covered by a large amount of ceiling fall.

Feature O is an enclosing wall that encloses the surface area on the southeast side of Sink 4 (see Figure 68 and Figure 76). It is possible that the wall enclosed the surface on all sides of the sink, however, the surface surrounding Sink 4, especially its north, northeast, and northwest sides has been significantly disturbed by bulldozer activity. Both the west and north ends of the wall end in collapse and the wall is no longer discernable.

The wall is constructed of *pāhoehoe* slabs, boulders, and cobbles using the rubble filled construction method. This construction method is most evident in the southwest branch of the wall, which runs between Sink 3 and Sink 4. This is the most intact section of the wall. Both the southwest and the southeast branches of the wall exhibit facing, primarily in the form of slabs set upright. As the wall exhibits collapse in all areas, only the base course of the facing remains. This upright facing is evident on both the interior and exterior sides of the wall. The southeast branch exhibits more areas of collapse than the southwest branch, while the northeast branch of the wall is extremely collapsed and is only discernable for approximately 7 m, until Feature P (cairn), beyond which the wall is no longer discernable. There is a small piece of branch coral



Figure 75. Site -16103 Feature N, view to northeast



Figure 76. Site -16103 Feature O, view to southwest

located on the surface, approximately 12 m, 300 degrees, of the east corner of the wall. The surface area, given the scattered midden and modifications, including stacked slabs and piled boulders, is likely a component of the habitation area encompassed by Sink 4 and the surrounding surface area.

Feature P is a small cairn located at the northern end of the northeast branch of the Feature O enclosing wall (see Figure 68). The cairn measures 75 cm north/south by 70 cm east/east with a maximum constructed height of 80 cm. The cairn is constructed with small to medium *pāhoehoe* boulders and small to medium *pāhoehoe* slabs. The construction style is piled rather than stacked, and therefore, there are no evident courses.

Feature Q is a modified outcrop in the immediate vicinity of heavily utilized lava tubes (see Figure 68). The outcrop itself is eroding and strewn with small to large cobbles. It measures 7.5 m northwest/southeast by 5 m northeast/southwest, most of which is unmodified. The northwest corner has been modified into a small, square terrace equal in height to the average height of the outcrop. The terrace formalizes the natural elevated surface of the outcrop. The terrace measures 2 m on each wall and is a maximum of 60 cm near the northwest corner. It is constructed of sub-angular basalt medium, large cobbles, and small boulders. It is flush or nearly flush with the bedrock. The terrace is constructed so that it creates a level surface with the natural level bedrock outcrop.

The site's function is interpreted as permanent habitation and burial. The burial function of the site is evidenced by the presence of Burials 41-45. The habitation function is evidenced by the modifications and construction of multiple features that serve habitation functions, including the Feature G platform and multiple terraces. The water collection activities that are evident also support such an extensive habitation site. The labor required for this site, and its size, indicate that this habitation site served a permanent habitation function.

Burials 41 - 45

Burial 41

Burial 41 is located in Tube 7 of Site -16103 (see Figure 66). The remains were found inside of a small cupboard. The cupboard is approximately 100 cm wide and 35 cm high. It is blocked off by a large upright slab at the front. Behind the slab is another upright and a large stone that is stuffed between the uprights and the ceiling. Beyond these stones, the cupboard narrows to an impassable width, and the end was not visible from our vantage point. Fragmented remains scattered over an area of approximately 60 cm in diameter were washed out from the cupboard to the west of the first large slab. A thin layer of sediment has accumulated here. The above noted fragmented remains consisted of a deciduous premolar, juvenile pubis, rib fragments, unfused epiphyseal fragments, and about a dozen very small and very deteriorated unidentifiable bone fragments (Figure 77). Beneath the stone behind the upright slab were juvenile long bone shafts; a few urchin shell fragments were found in the area of sedimentation, as well as on the bare tube floor. These likely washed in with the sediment and are not associated with the burial. Approximately 1 m to the east-northeast of the cupboard is a very small, nearly impassable tube (about 3 m long and 30 cm in diameter) that connects to Tube 11. There are several stones in Tube 11 located just to the side of the connection with the very small tube. These stones are not ceiling fall and do not look like water collection. They may have previously blocked the passage

from Tube 11 to the very small tube. Burial 41 is likely pre-contact Native Hawaiian based on its location in a lava tube and its concealed nature. Note that Burial 42 (a cranial fragment and whale tooth necklace) was found approximately 15 m to the east in Tube 11.

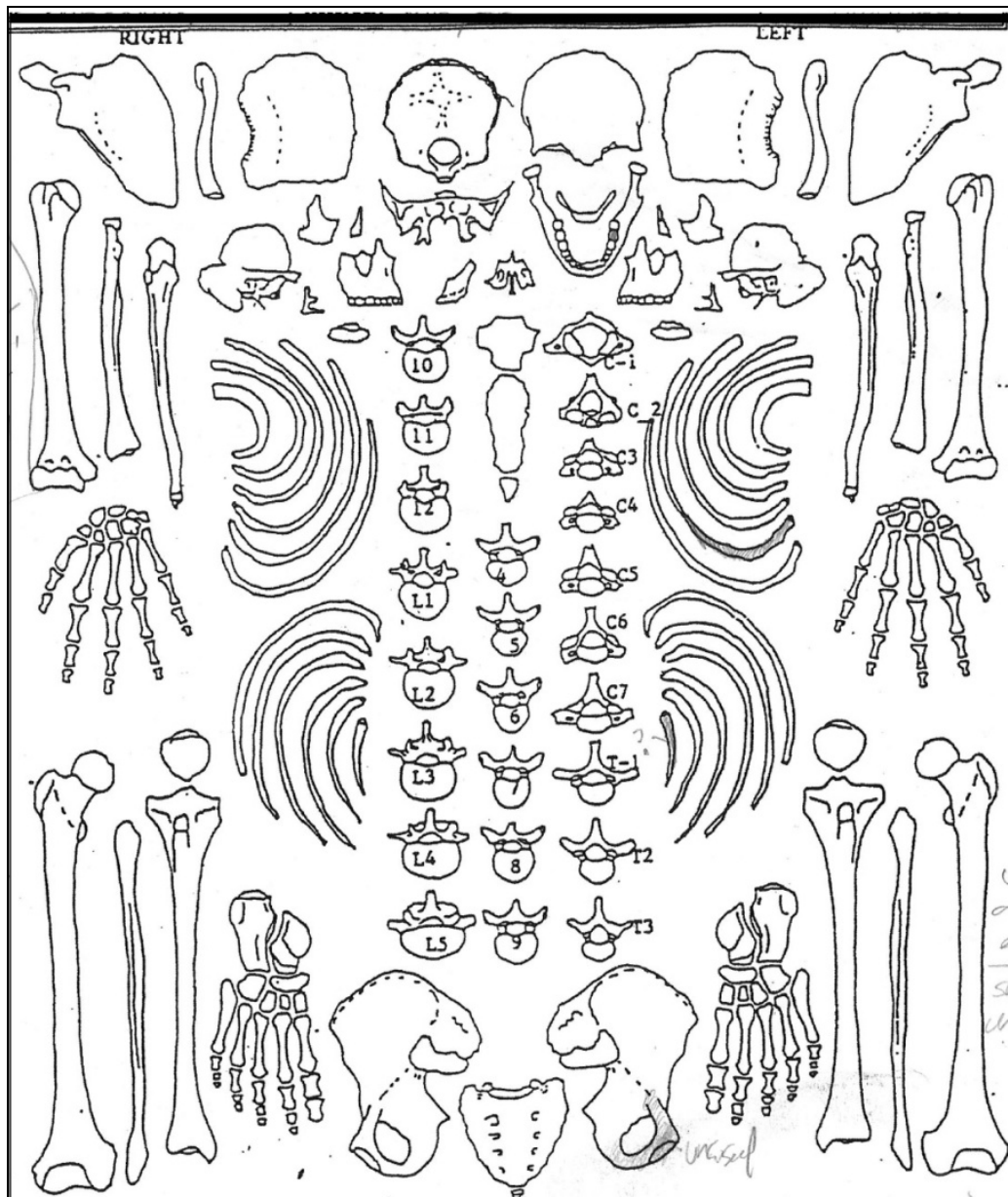


Figure 77. Site -16103, Burial 41 skeletal inventory

Burial 42

Burial 42 is located in Tube 11 of Site -16103 (see Figure 66). The remains are relatively close, approximately 10 m, from the entrance to the tube. The entrance was blocked at one time, leaving only a small shelf exposed via the entrance from the sink. This shelf appears to be a terminal tube, and is a good diversion from the tube below containing the burial. Immediately inside the entryway to the lower tube (Tube 11) is a very circular alignment of small boulders measuring approximately 2 m in diameter. A single boulder has been placed in the center of this alignment. No artifacts were found in or around this alignment and the tube floor is smooth and clean, except for the occasional scatter of *kukui* endocarps that are believed to be primarily from rodent activity. As the tube was found opened, the possibility that this area was a repository for burial goods cannot be discounted. The entrance side of this alignment is partially covered in rubble and large cobbles that appears to have fallen from the entryway into Tube 11.

The burial is located on a slightly raised (10 cm), flat, smooth *pāhoehoe* floor. A small circle of stones, approximately 40 cm in diameter, has been placed on the floor. These stones are unmodified, irregularly shaped, thin cobbles that have fallen from the tube ceiling and have been relocated to this spot. There are six major stones, four of which are stacked in pairs (two stones, each with one stone placed on top), apparently to make the size of each position in the circle more similar in size/volume. Within this ring of stones, a very small amount of sediment has accumulated (less than 2 mm). This sediment may be natural deposition from a small shelf above. Several dozen small pieces of charcoal (less than 2 cm in diameter) are also within this circle. Neither the burial nor the artifacts are burned. The burial is very well contained inside of this small, circular alignment. It consists of only a human cranium (possibly only a calvarium) in poor condition (Figure 78). The two identifiable fragments, a parietal and temporal bone, could not be sided. There are numerous deciduous teeth (approximately 16) that are in good condition and show little to no wear. Other cranial fragments were observed, though all are too small to identify. Conspicuously missing are any identifiable mandible fragments. Some of the teeth were observed to have cavities. The two lower incisors are present, with the serrated edges typical of deciduous teeth. The individual appears to young, based on the size and good condition of the teeth. Within the circle of cobbles containing the human remains are a number of artifacts, believed to be a complete *lei niho palaoa* carved in the traditional shape (there is no remnant of a band, particularly braided hair band). The material appears to be an actual whale tooth. It is very dense, has tight, vertical, linear striations, is solid and very white. The top side as it rests (right side properly oriented) is covered with thin green, brown, and white lichen and deposits, disguising it to a degree. The length of the tooth, as carved, is just over 4 cm. Its maximum width at the base is just over 2 cm wide. The diameter of the carved shaft of the tooth is approximately 1 cm on average. A hole that measures one half centimeter in diameter is drilled into it at the top. Also present within the circle are a number of beads (approximately 24) made of boar tusks. They are approximately 2 cm in size. The teeth are worked to be homogenous in size and shape. Some enamel remains on the convex edge. They are flattened to lay close together and double perforated. Some are in poor condition due to the moisture in the tube.

Approximately three to four bird bone fragments (articular ends of long bones, possibly *tibio tarsus*) were observed among the remains as well, most likely having some function in the *lei niho palaoa*.

Outside the small circle that contains artifacts and the burial, the top portion of a marine shell, possibly a *conidae* was found. This shell fragment is about 1 cm in diameter. Several pieces of urchin were also observed, and were found elsewhere in the tube, associated with natural sediment deposit.

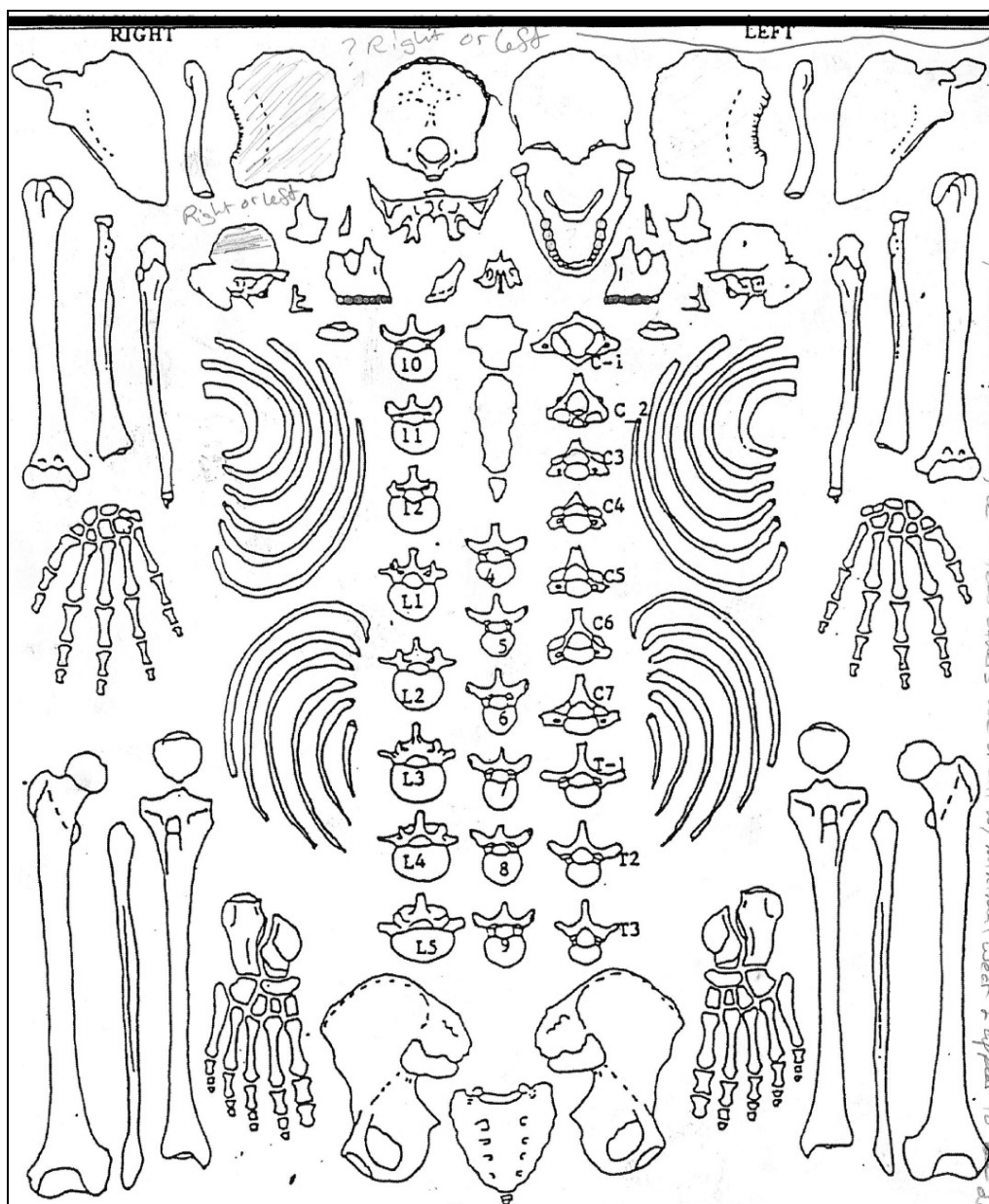


Figure 78. Site -16103, Burial 42 skeletal inventory

Burial 43

Burial 43 is located near the back (south) of Tube 13, off of Sink 4 in Site -16103 (Figure 66). The remains are located on a slightly, naturally raised *pāhoehoe* floor that is otherwise not modified. The tube itself is not notably modified for water collection, though goat bones are plentiful, even in the immediate vicinity of the burial (none are mingled with the burial). This burial is a traditional Hawaiian burial based on the lack of historic burial goods and the placement in the lava tube.

The burial consists of a scatter of bones that are in very poor condition. The scatter is localized in an area similar in size to what the original burial would have been. The bones have been highly eroded by water in the tube. No long bones were observed, nor major cranial elements, except for mandible fragments (Figure 79). The teeth are present and are diagnostic, indicating that the remains are an adult. The teeth show considerable wear.

There are approximately six small (less than 4 cm) long natural wood fragments intermixed with the bones. They are dark, pithy, and do not appear to be charred. They have no recognizable form at this time.

Nearby the burial (approximately 3 m north) is another piece of wood approximately 1 m long by 4 cm in diameter. It does not appear charred either, but is clearly decomposing. It is a light wood, slightly orange in color and is very pithy as well. There is little evidence this is directly associated with the burial.

Burial 44

Burial 44 is located in Feature K, a small lava tube in Site -16103 (see Figure 66). The burial is located in a small niche, approximately 1 m in diameter and 40 cm high. The remains are in fair to poor condition with much of the cortical surface eroded. They are scattered over an area approximately 60 cm in diameter. The niche was partially blocked by stones 10 cm in diameter and 50 cm by 20 cm, but the remains were fairly easy to find since they were not concealed behind any slabs. The bones are still very white. A small amount of sediment deposit has occurred in the niche, likely washed in from the nearby opening. The remains consist of a frontal bone, portions of parietals, portions of both temporals (that could not be sided), a few dozen small unidentifiable cranial fragments, portions of the mandible with some teeth still intact, a portion of the ulna (not sided), and a dozen or so rib fragments (not sided) (Figure 80). The sediment deposit is several centimeters deep and some of the bones are partially buried, so a complete inventory was not possible. Based on the size of the bones, particularly the mandible, the individual was a juvenile.

Also present in the lava tube are goat bones. The goat appears to be there naturally, evidenced by its jumbled nature and the amount of bones present. Many different portions of the animal are represented including long bones, cranial fragments, and vertebral fragments.

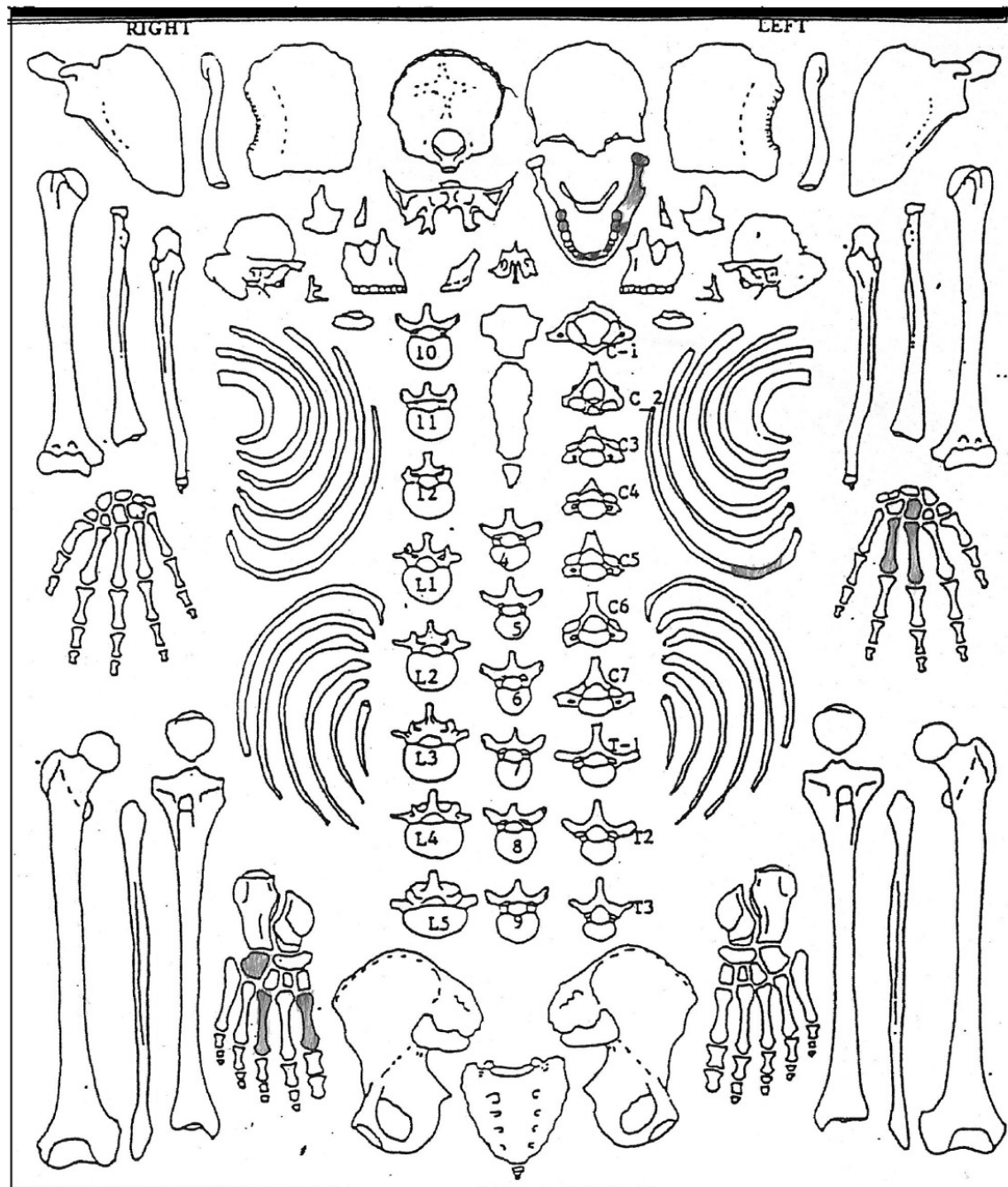


Figure 79. Site -16103, Burial 43 skeletal inventory

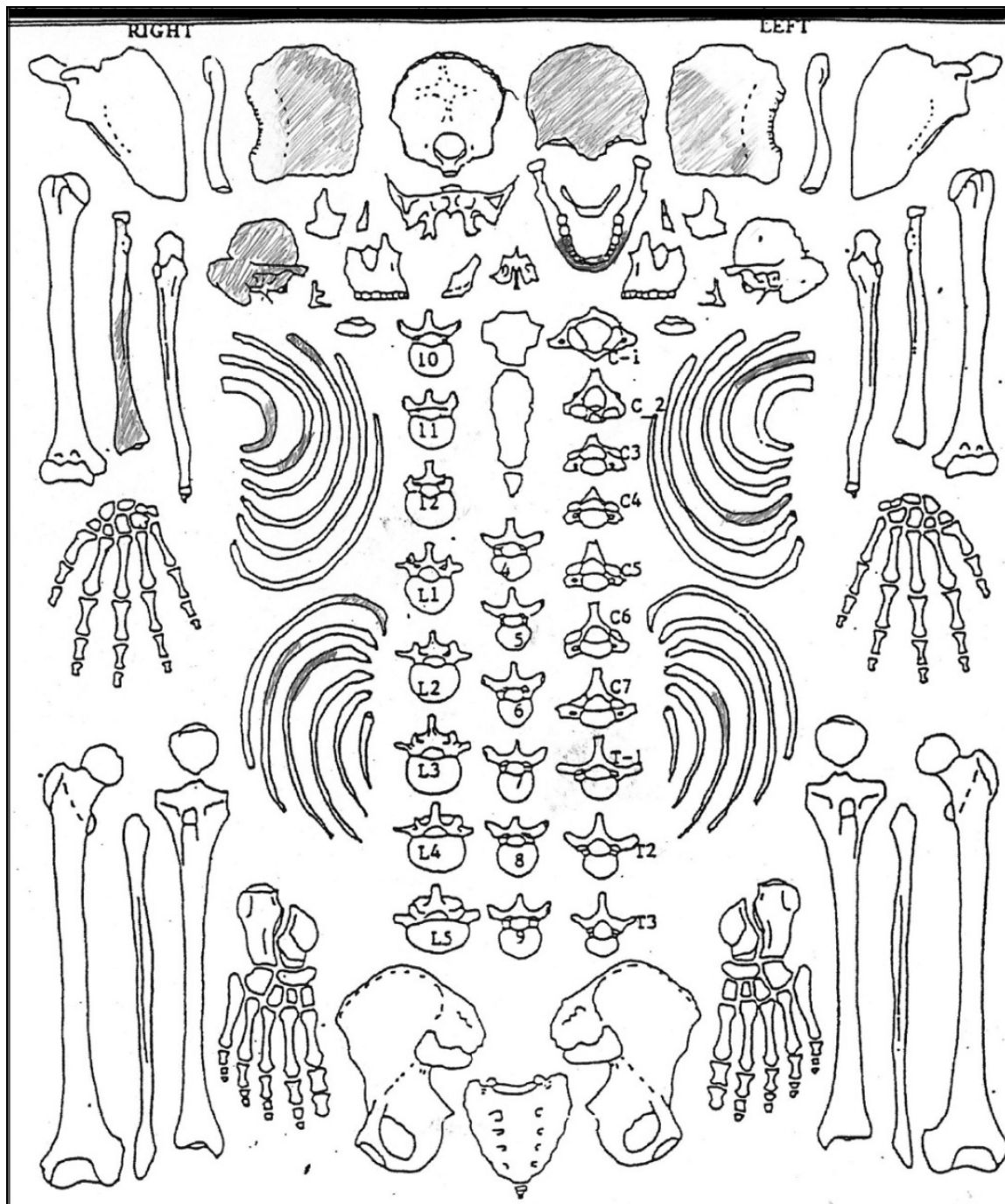


Figure 80. Site -16103, Burial 44 skeletal inventory

Burial 45

Burial 45 is located at the very back of Tube 15 of Site -16103 (see Figure 66). The remains are concealed in a small lava tube, separated from the habitation area by a constructed retaining wall and uneven fall. The chamber was well disguised by fall used to fill the entrance to the small tube. The tube itself appears to have collapsed post-burial and much of the burial is hidden as a result. The bones that are visible are in very good condition and show almost no erosion due to water (Figure 81). The burial is Native Hawaiian based on the burial type and location in the tube.

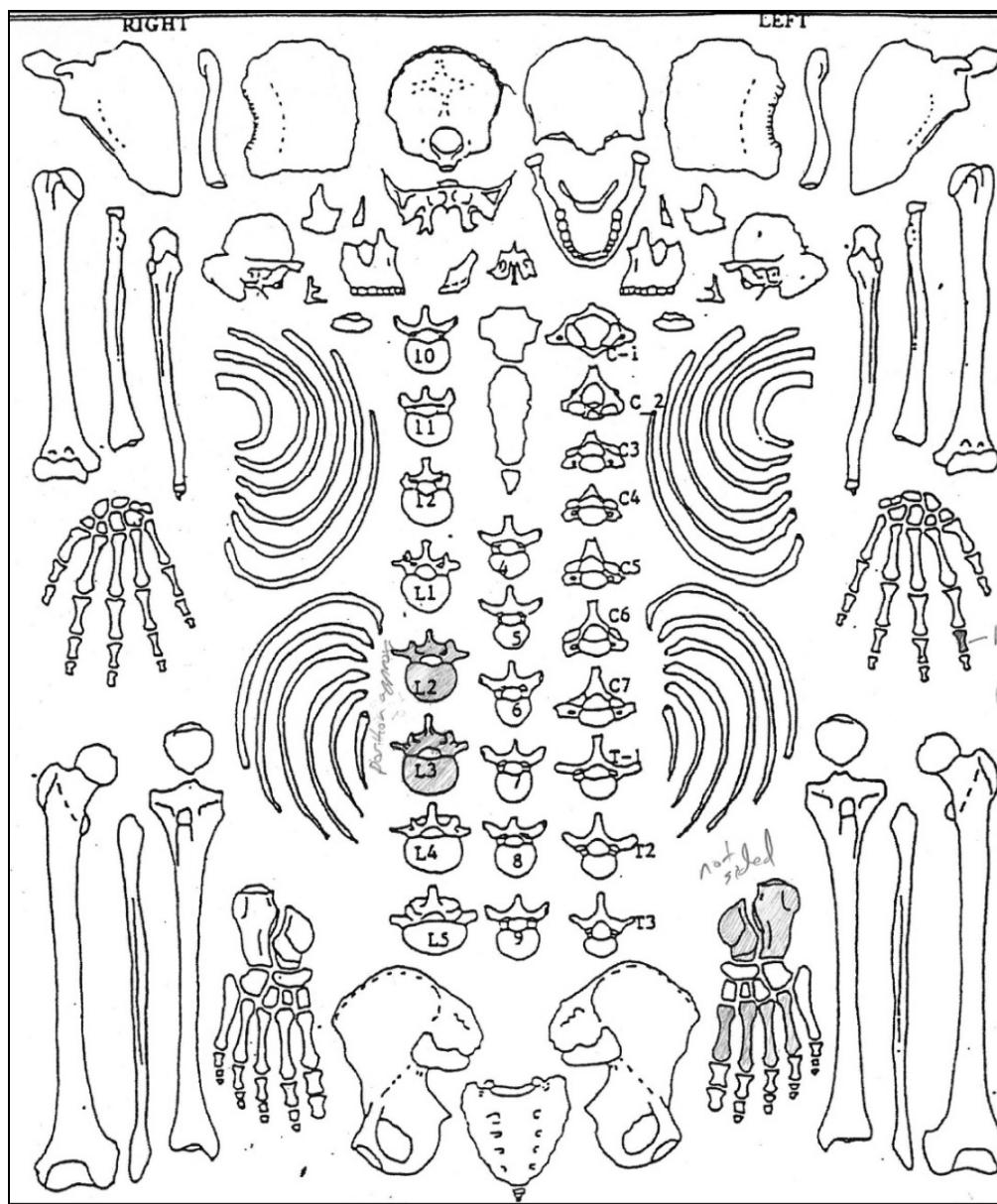


Figure 81. Site -16103, Burial 45 skeletal inventory

2.1.5 State Site # 50-10-28-26486

SIHP #	50-10-28-26486
FUNCTION:	Permanent Habitation
SITE TYPE:	Lava Tube
TOTAL FEATURES:	2
DIMENSIONS:	36 m by 16 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	660 ft a.m.s.l.

DESCRIPTION: Site -26486 consists of two sinks, three tubes, and two surface enclosures, designated Feature A and Feature B (Figure 82). The site is located on a relatively level area in a southwest sloping *pāhoehoe* flow in the northern half of TMK 26 in Kohanaiki Ahupua'a. Vegetation in and surrounding the site consists of over-head high *koa haole*, medium to small Christmas berry, morning glory, and thick grasses.

Tube 1 is located off of Sink 1. Midden in the tube includes rodent gnawed *kukui*, one *Nerita* shell, and sea urchin. A 10 cm long piece of partially burned wood, an *‘opihi* (*Cellana* sp.) shell, and charcoal are also present, as is a very crude, informal, roughly constructed platform (1.5 m by 1 m and 50 cm high) next to an informally constructed terrace (2 m by 1 m by 50 cm high). Natural fall blocks the *mauka* end of the tube, otherwise Tube 1 would open into Sink 2. *Kukui* nuts were likely deposited naturally by water and sediment washing into the tubes. The concentration of *kukui* is high near the entrance and drops off within the tube. None of the *kukui* were burned and many were rodent-gnawed. Several small ledges had a dozen or more that were likely stashed by rodents.

Tube 2 is located off of Sink 2. A small circle of approximately six placed rocks forms what is likely a hearth near the entrance (50 cm to 60 cm in diameter) (Figure 83). Adjacent to the hearth is a 2 m diameter area of ash (5 cm deep), presumably from repeated cleaning of the hearth. Within this area of ash are five to ten broken cowry shells, one pencil urchin spine file, a few *Nerita* shells, and some charcoal. A constructed wall partially blocks the tube just beyond the hearth and ash. On the other side of the wall, midden was observed and includes charcoal and urchin. Unburned and many rodent gnawed *kukui* nuts were found throughout the tube. A circular (50 cm diameter) area of ash, charcoal, and what appeared to be burned and decomposing wood is 14 m beyond the constructed wall. Archaeologists removed a small portion of the wall to gain access to the back of the tube, and found a broken conical section of a large marine shell in the wall. The wall was then reconstructed after recording the tube. As was found in Tube 1, concentrations of *kukui* nuts were high near the entrance and dropped off within the tube.

Tube 3 is located off of Sink 2. Just inside the entrance, to the right, is a constructed platform that measures 3 m east/west by 1 m north/south. Also immediately inside the entrance is a small circle of approximately six placed rocks (about 50 cm in diameter), similar to those seen in Tube 2. Some ash may be associated with the rocks, but sediments washed in by rain made it difficult to discern. A fairly substantial amount of midden is present just inside the entrance. It contained

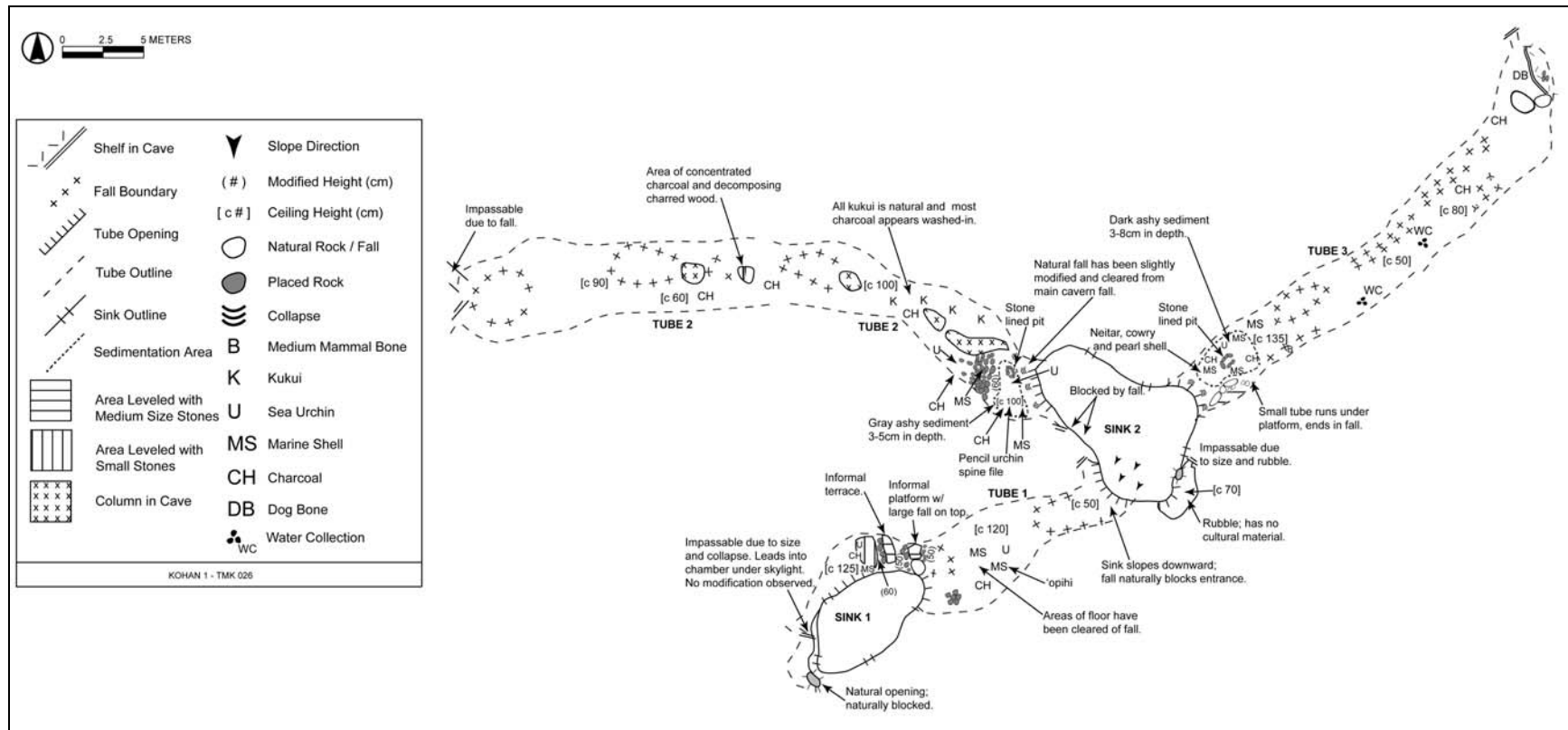


Figure 82. Site -26486, permanent habitation lava tube, plan view



Figure 83. Site -26486, overview of Tube 2. The circular stone construction is in the foreground and the constructed wall in the background, view to west.

a dozen or more broken cowry shell fragments, *Nerita*, sea urchin, pearl shell, a larger piece of cowry shell that may be a remnant of an octopus lure, and some charcoal. Unburned, rodent-gnawed *kukui* is spread throughout the tube. Just past the midden, is a flat cleared area with stones obviously moved to the sides of the tube, and a few water collection constructions. On and near the platform (deeper in the tube) there are some large urchin fragments. A piece of coral (not branch) was found with some non-human medium mammal rib bones. A dog skeleton was also found towards the back of the tube. A constructed platform is formed with naturally fallen slabs placed with boulders and cobbles to raise and level the area. The platform may have served as a sitting or sleeping area. As was found in Tubes 1 and 2, concentrations of *kukui* nuts were high near the entrance and dropped off within the tube. None were burned and many were rodent-gnawed.

Feature A consists of a single 4.5 m by 3.5 m C-shaped enclosure (Figure 84). The enclosure is constructed with *pāhoehoe* cobbles and boulders, and *pāhoehoe* slabs. The enclosure is open to the south, facing Sink 1. The natural bedrock on which the enclosure is built is naturally flat and level. The enclosure appears to be constructed using both mounding and stacking methods. The stacking is visible on the facing of the west exterior and the east interior walls of the enclosure. The exterior face of the west wall is stacked 4-5 courses high. Due to the bedrock's natural slope, the west wall is constructed the highest, a maximum of 105 cm, in order to create what was originally a relatively level top surface of the enclosure. The feature is constructed primarily of medium boulders, with a few small boulders and large cobbles mixed in. The slabs employed in the feature are all stacked horizontally and make up the base courses of the structure. There are no uprights. The function of Feature A is permanent habitation.

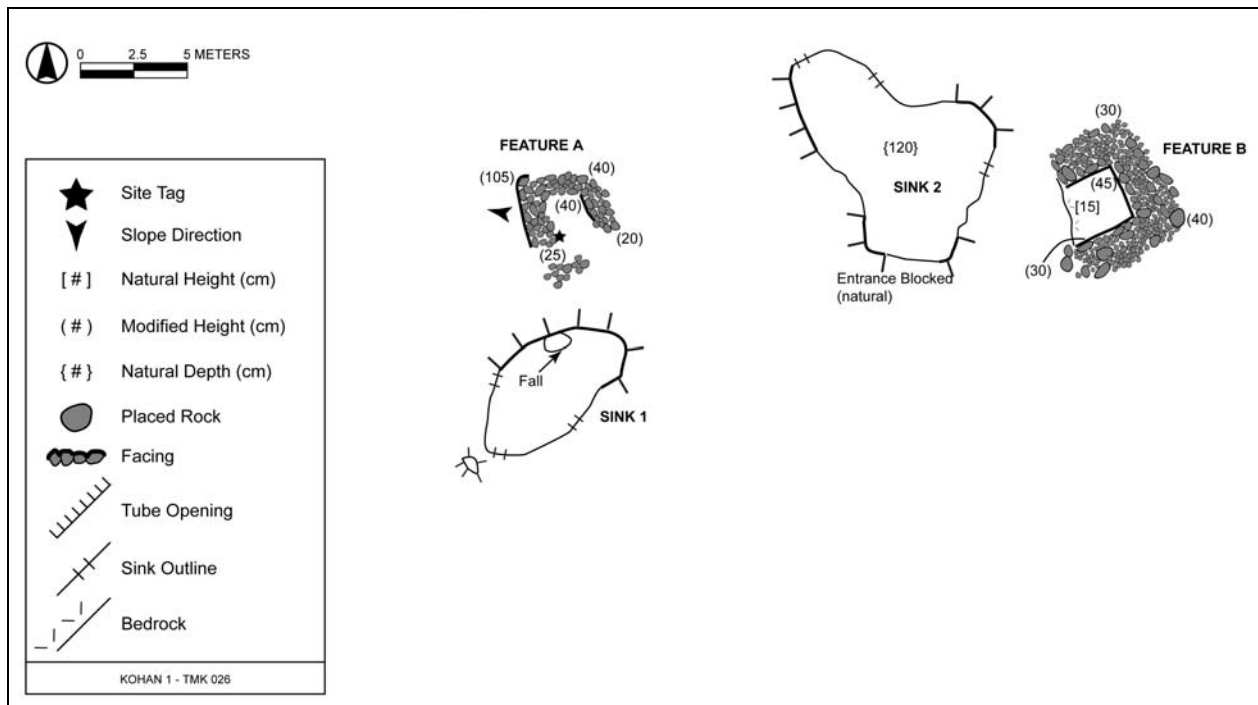


Figure 84. Site -26486, permanent habitation lava tube, associated surface Feature A and surface Feature B, plan view



Figure 85. Site -26486 Feature B, showing the large C-shaped enclosure, view to east.

Feature B consists of a 7 m by 6 m C-shaped enclosure, similar to Feature A (Figure 84 & Figure 85). This enclosure is slightly larger than Feature A and opens to the southwest. It is also constructed differently than Feature A, with *pāhoehoe* slabs, *pāhoehoe* cobbles, and only a few small and medium *pāhoehoe* boulders.

This use of different materials is likely due to utilizing the most available resource. The bedrock ground surface to the north and east of Feature B consists of *pāhoehoe* that has naturally eroded into primarily cobbles. The interior walls of the enclosure are faced, using both upright *pāhoehoe* slabs and horizontally stacked *pāhoehoe* slabs. The exterior faces of the enclosure walls are not faced and slope downward until they become flush with the eroding ground surface. The stacking is at its highest in the north corner, which is 45cm high and is stacked between four and five courses. The interior floor of the enclosure is a naturally smooth and level *pāhoehoe* outcrop that has a natural ledge (approximately 15 cm above the adjacent ground surface) at the southwest edge, the open side of the platform. Feature B is a permanent habitation.

The site's function is interpreted as permanent habitation as is evidenced by the two surface enclosures that indicate habitation. The area's ground surface is naturally very smooth and level, and the site has an excellent view of the coastline to the south and west. A good breeze, coupled with the tube's minimal water collection constructions make this an ideal permanent habitation location. Modification in the tubes, including midden and hearths, also supports permanent habitation function.

2.1.6 State Site # 50-10-28-26487

SIHP #	50-10-28-26487
FUNCTION:	Permanent Habitation
SITE TYPE:	Enclosure
TOTAL FEATURES:	1
DIMENSIONS:	4 m by 4 m
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	680 ft a.m.s.l.

DESCRIPTION: Site -26487 is a square enclosure that is constructed on a flat bedrock exposure that is slightly elevated above the surrounding landscape (Figure 86 & Figure 87). The site is located near the northern boundary of TMK 26 and 350 m east of the western boundary of TMK 26 in Kohanaiki Ahupua'a. The topography of the area gently slopes downward to the west and southwest. This portion of the project area is covered in thick, tall grasses with sparse *koa haole*, Christmas berry and other trees/shrubs.

This location allows for an excellent view, especially to the south and southwest, as well as a good breeze. Site -26488 is located 25 m northwest of the enclosure. There are also several mounds in close proximity to the enclosure. The mounds, part of Site -26507 Feature F, are informal, piled one to three courses high and consist of small to large rocks tossed on bedrock exposures.

The enclosure is approximately 4 m by 4 m in area and consists of an enclosing wall on a flat bedrock exposure. The wall ranges in height from 20 cm to 60 cm, 60 cm to 80 cm in thickness, and is heavily collapsed in most areas. The inner portion of the east corner has one large upright slab intact as well as several horizontal slabs stacked four to six courses high. The outer portion of the south corner is also intact and consists of large horizontal slabs stacked two to three courses high (60 cm). The center of the structure is level and flat and no midden was observed. Tall grass completely covered the inner portion of the structure, and although the floor was searched, if any midden was present it would be difficult to find. Heavy vegetation may be the primary cause for the structure collapse. Based on the intact corners, this structure was probably 60 cm high with 60 cm thick walls all the way around an enclosed flat space 3 m square in size.

Excavation potential of this site is poor due to a lack of midden and the collapsed nature of the structure.

The site's function is interpreted as permanent habitation. The energy investment necessary to build this enclosure suggests frequent, if not permanent habitation. Site -26507 Feature F (agricultural site) is in the vicinity and may be related to the habitation of this site. Its location, on an elevated bedrock exposure with a good view, also suggests a good location for permanent habitation.

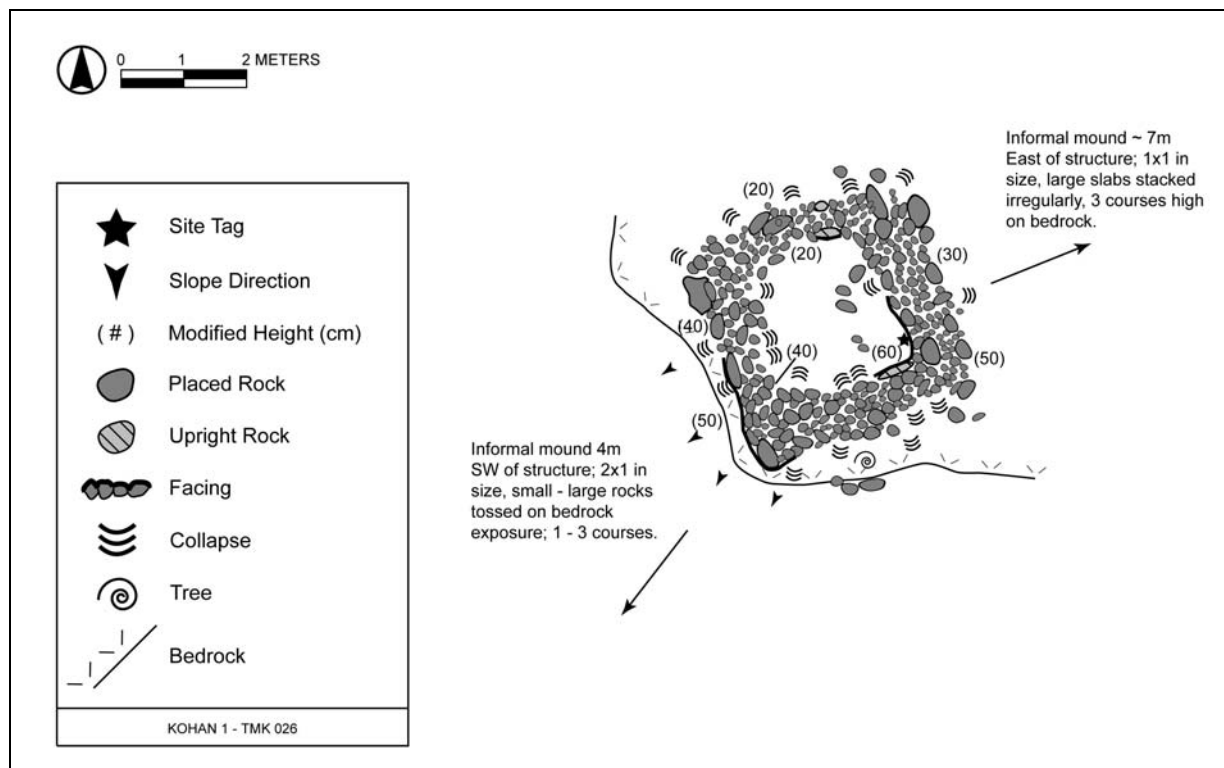


Figure 86. Site -26487, permanent habitation enclosure, plan view



Figure 87. Site -26487, showing the square permanent habitation enclosure, view to east.

2.1.7 State Site # 50-10-28-26488

SIHP #	50-10-28-26488
FUNCTION:	Burial
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	11 m by 5 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	680 ft a.m.s.l.

DESCRIPTION: Site -26488 consists of a small lava tube accessed via a collapsed blister that contains a burial (Figure 88 & Figure 89). The site is located on a southwest sloping, gently undulating *pāhoehoe* flow at the northern edge of the TMK 26 boundary in Kohanaiki Ahupua'a. Vegetation surrounding the site consists of thick grasses, medium to large Christmas berry and a *noni* tree.

The entrance to the lava tube is almost completely blocked by natural fall. The only modification to the entrance is a few *pāhoehoe* boulders placed to block off the remainder of the opening. This placement was very informal. Inside the tube, within approximately 80 cm of the entrance is Burial 50 (see below), a single *kukui*, and a recent cat skeleton. No other modification or cultural materials are present. A few informal agricultural mounds of Site -26507 are located in the vicinity of the site, but there is no evidence the two sites are associated.

The site's function is burial based on the presence of Burial 50. No other cultural materials or modifications are present to suggest any other functions.

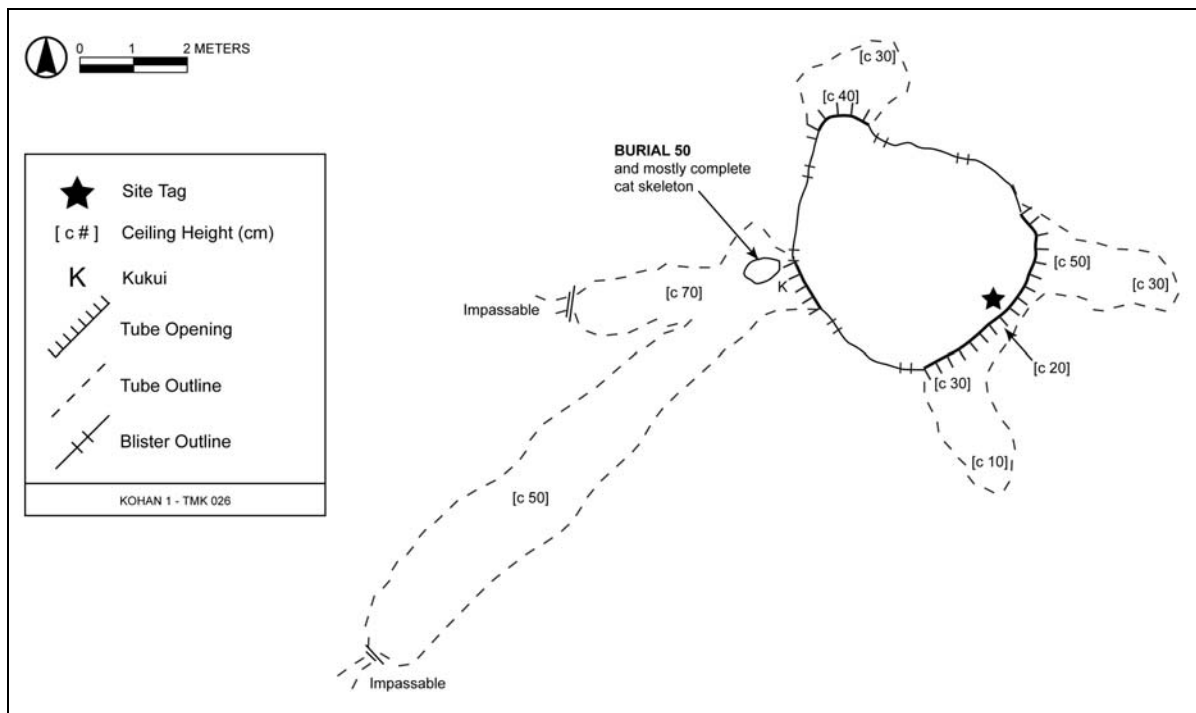


Figure 88. Site -26488, burial lava tube, plan view



Figure 89. Site -26488, showing an overview of the lava blister, view to east

Burial 50

Burial 50 is located in the very small lava tube of Site -26488. The remains are located immediately inside the entrance to the tube (80 cm). Very few bones are present. These bones are two rib fragments, one lumbar vertebrae, two second toe phalanges, three metatarsals, a talus and calcaneus, all of the right foot, and a few small unidentifiable fragments (Figure 90). The bones are located on the tube floor with some natural fall boulders. Amongst the human remains are the more recent remains of a cat. The cat bones show no modification, indicating no relationship to the burial. The burial was positively identified as human based on the right foot bones. Given the number of bones and the type of bones (small) present, it is probable that this was a primary burial and that the bones were left behind when the the rest of the remains were removed for secondary internment elsewhere. Based on the location of the burial in a lava tube, it is believed that Burial 50 is a native Hawaiian burial.

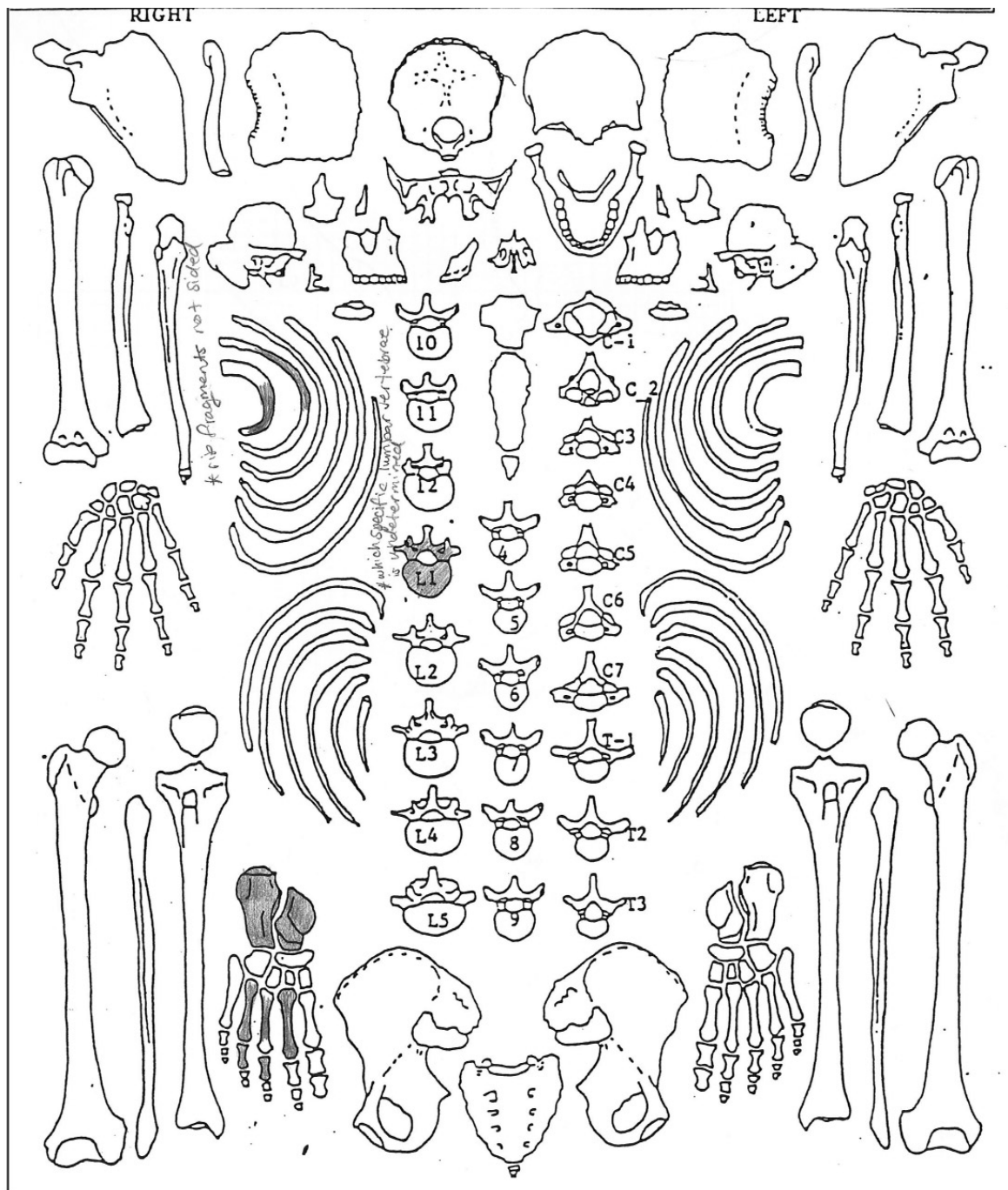


Figure 90. Site -26488, Burial 50, skeletal inventory

2.1.8 State Site # 50-10-28-26489

SIHP #	50-10-28-26489
FUNCTION:	Permanent Habitation
SITE TYPE:	Complex
TOTAL FEATURES:	4
DIMENSIONS:	22.5 m by 32.5 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	650 ft a.m.s.l.

DESCRIPTION: Site -26489 is a multi component site that includes a platform with three petroglyphs, an enclosing wall, multiple mounds, and a trail remnant (Figure 91). The site is located in the northern portion of the project area in Kohanaiki Ahupua'a. The topography of the area is gently sloping eroding *pāhoehoe*. The vegetation consists of head high *koa haole*, Christmas berry and tall grasses.

Feature A is a platform that is located inside of the enclosing wall (Feature B) (Figure 92). The feature is constructed atop *pāhoehoe* outcrop. The platform is rectangular in shape measuring 4.5 m southeast/northwest by 3.7 m southwest/northeast. It is constructed with *pāhoehoe* slabs and cobbles. The northwest and southeast sides of the platform are constructed with uprighted *pāhoehoe* slabs. The northeast side abuts the *pāhoehoe* outcrop and is only constructed one course in height. Towards the southwest end of the platform, the height increases to three courses to create a level surface on the gently sloping terrain.

The platform appears to have been constructed in two phases. A small addition appears to have been constructed on the southeast side over a well built area that contains uprights. Three courses of boulders are stacked against this area of uprights. This was either to expand the platform or to reinforce the southeast wall. A 150 cm wide segment along the southwest wall of the platform is inconsistent with the majority of the platform. Based on its width and the "rougher" construction, this may also be a later addition. The upper surface of the platform is paved with slabs and rubble. The depth of the fill in the center of the platform is unclear. After probing the surface, it was unclear whether it was highly eroding bedrock or cobble/rubble fill. Three petroglyphs were found on smaller slabs around the surface edges of the platform (Figure 93). **Petroglyph #1** is located on the southwest side of the platform. It is a male figure (Figure 94). **Petroglyph #2** is on the northwest corner of the platform. It is also a human figure but most of it is covered in lichen (Figure 95). **Petroglyph #3** is located on the northeast corner of the platform. It is only a fragment of another figure. Just to the southwest of the platform there is a rock pile that is approximately 1.5 m by 1 m.

Feature B is an enclosing wall that entirely surrounds the platform (Feature A). It is generally circular in shape. The dimensions of the wall are 20 m north/south by 22.5 m east/west. The maximum height of the remaining wall is 70 cm, with the minimum height being 15 cm. The wall is approximately 1 m in width. Its width is relatively consistent and at one time its height was also likely consistent. The wall has experienced a good deal of collapse, and currently has different constructed heights. The enclosing wall is constructed with uprighted *pāhoehoe* slabs, small boulders, and cobbles. Some portions of the wall are well faced and some of the

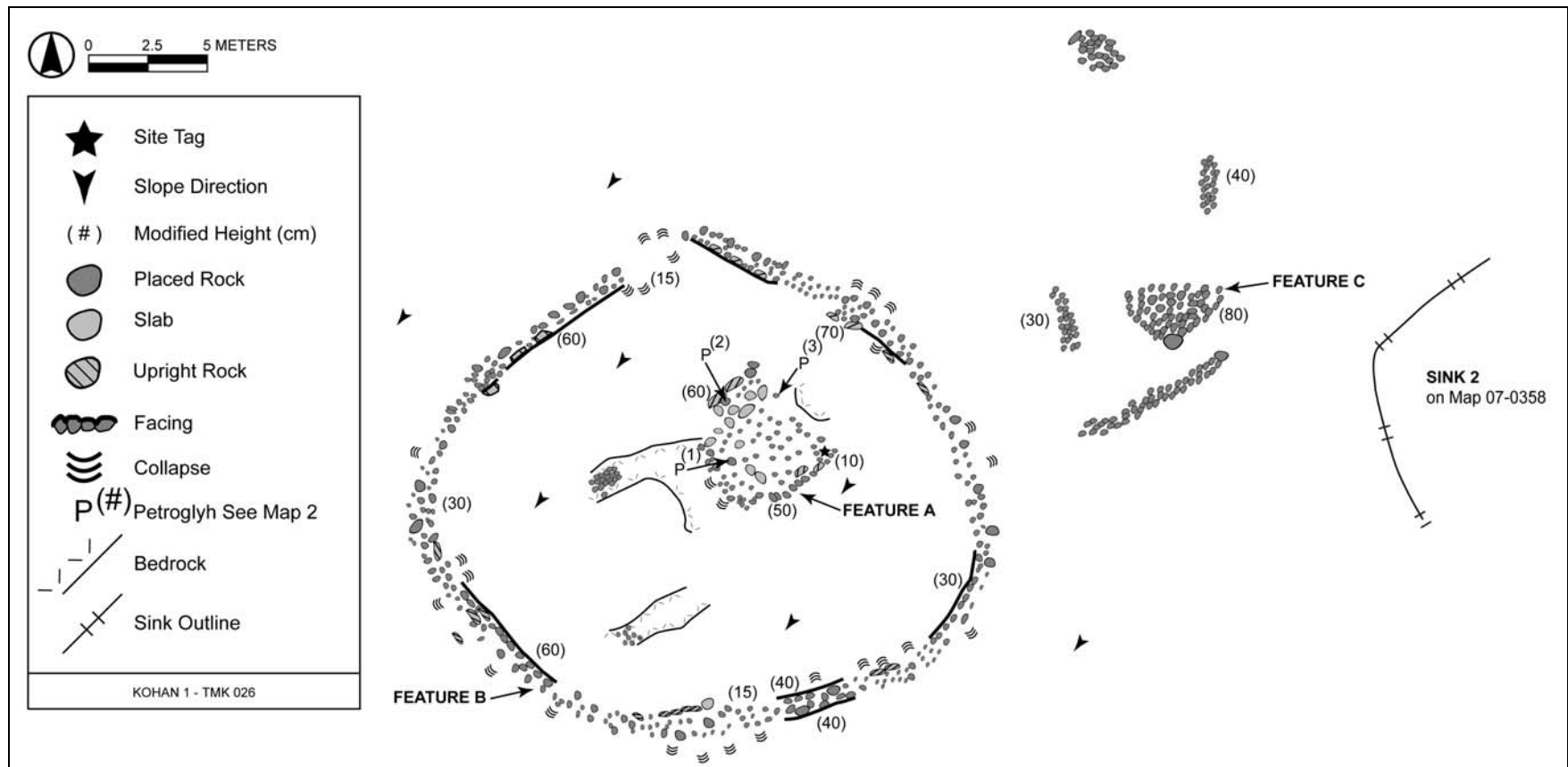


Figure 91. Site -26489, permanent habitation complex, plan view



Figure 92. Site -26489 Feature A, showing the platform, view to southeast

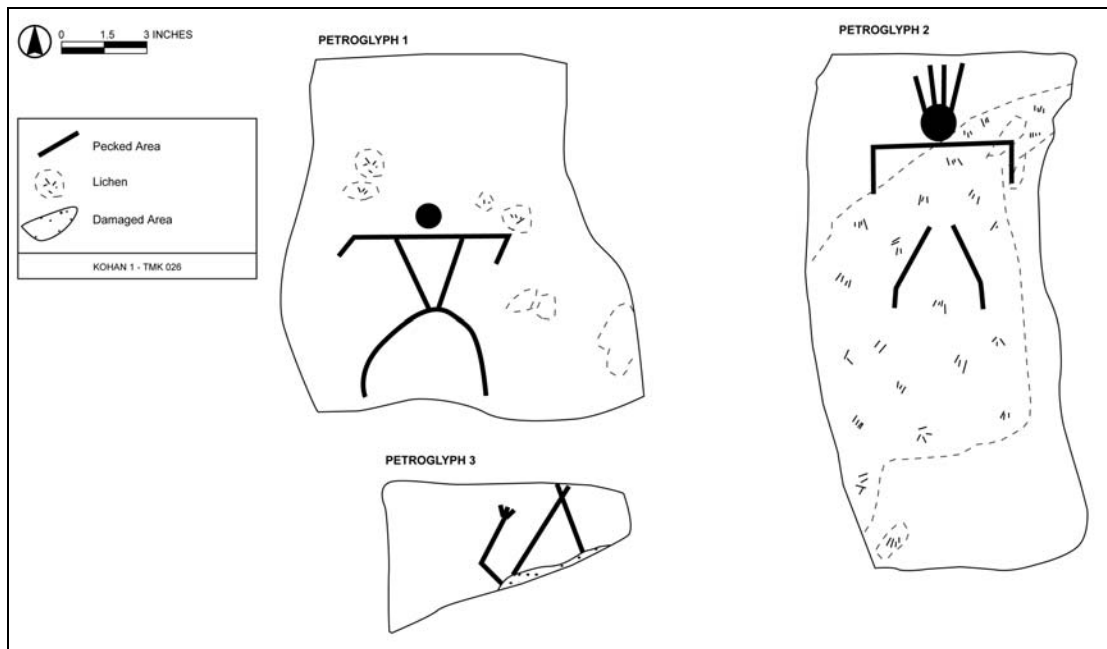


Figure 93. Site -26489, details of three petroglyphs



Figure 94. Site -26489 Feature A, showing one of the three petroglyphs found at the platform (Petroglyph #1), view to southwest



Figure 95. Site -26489 Feature A, a second of the three petroglyphs (Petroglyph #2)

uprights are still in place. It is not rubble filled. The wall takes advantage of the local terrain, and where it is intact, it is constructed in four courses. The outside edge of the wall has experienced more collapse than the interior. An informal entryway appears to be at the northernmost point of the wall. The ends of the wall that about this area are not capped to create a formal entryway.

Feature C is a mound that is located 10 m east of Feature B (enclosing wall) (Figure 96). The mound is constructed of small *pāhoehoe* boulders, large cobbles, and small slabs. It is constructed on a *pāhoehoe* outcrop. The dimensions of the mound are 2.5 m north/south by 4 m east/west. It is mounded to a height of 80 cm. Other small mounds are in the area, and in the vicinity of the mounds, there are a few excavated blisters. The function of Feature C is agriculture mound based on the results of test excavation (see below).

Feature D is a 7 m by 50 cm linear alignment of eight to twelve *pāhoehoe* slabs, oriented 40° TN. The alignment extends towards the Feature B enclosing wall. Many of the slabs are in their natural position (i.e. right side up), however, a few are upside down and appear placed. Several of the slabs' broken edges line up neatly with their adjacent slabs, so what initially appears to be two or three placed *pāhoehoe* slabs is actually just a single broken slab. No coursing, facing, midden or artifacts were seen in the immediate vicinity of the placed slab alignment.

The site's function is interpreted as permanent habitation based on the extent of modification and its proximity to other habitation sites. Site -26495, a temporary habitation site, is within 10 m to the east and contains approximately 60 water collection constructions. Another large habitation site, Site -26494, is approximately 30 m to the north. There also appears to be some agriculture activity in the area.



Figure 96. Site -26489 Feature C, showing the mound, view to north-northeast

Testing Results

Test excavation was conducted to assist in determining the function of Feature C and to determine whether a burial is present (Figure 97). Stratum I consists of fill, loosely fitted containing large *pāhoehoe* cobbles, small to medium boulders and some medium *pāhoehoe* slabs. Stratum I ranged from 0 to 38 cmbs. Stratum II consisted of silt loam soil sediment with small leaves and roots in cracks and small depression in the bedrock surface. Bedrock was encountered at 40 cmbs followed by small cobble fill that is fairly tightly fitted, with small medium cobbles tightly fitted just above. The lack of midden and construction style strongly suggests that this is an agricultural clearing mound.

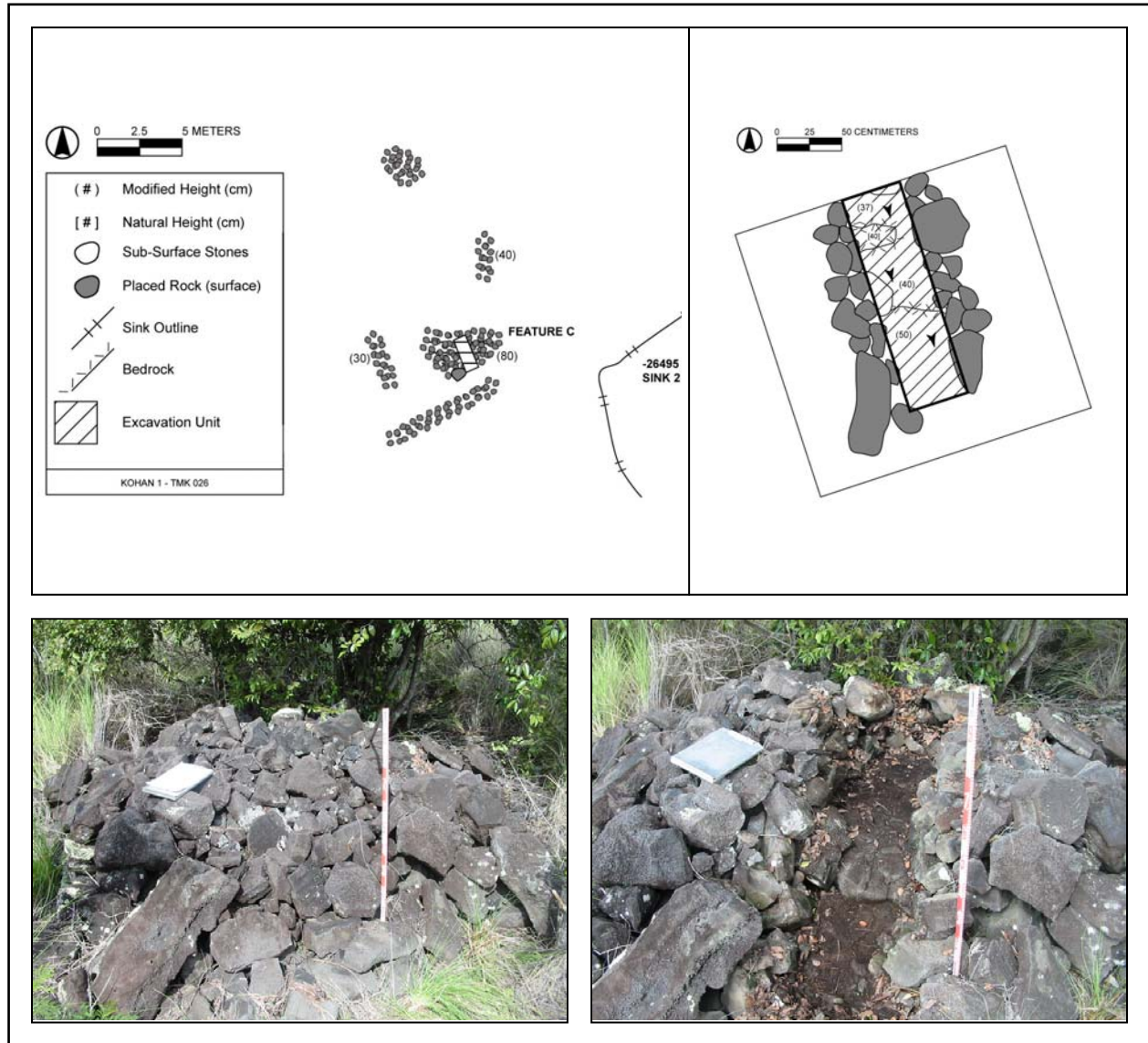


Figure 97. Site -26489 Feature C, excavation figures. Left to right, top to bottom: feature overview; excavation unit plan view; mound pre- and post-excitation

2.1.9 State Site # 50-10-28-26490

SIHP #	50-10-28-26490
FUNCTION:	Shelter
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	60 m by 3-5 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	620 ft a.m.s.l.

DESCRIPTION: Site -26490 consists of a sink and a large lava tube (Sink 1 and Tube 1) that connect to Site -26483 (via Site -26483 east side tube) (Figure 98). To the south of Sink 1 is a small sink (Sink 2) with a small lava tube (Tube 2). The site is located in the northwest quadrant of TMK 26 in Kohanaiki Ahupua'a. The surrounding area has fairly dense *koa haole* and grasses on a fairly level portion of the project area that slopes slightly to the southwest. Site -26507 Feature E (pervasive agriculture) is in the immediate area and there are several agricultural mounds as well as an excavated blister near Site -26490.

Tube 1 connects to Site -26483 (east side tube) to the southwest. This portion of the tube has several side tubes that run off of a large shelf, one of which continues approximately 10 m, but has no modification. Tube 1 leads northeast and has no modification until it reaches its southern entrance, where a wall partially blocks access to the tube. The wall is informally stacked with small to medium size cobbles. A small amount of charcoal is near this entrance. Continuing northeast up Tube 1, there is a second (northern) entrance from Sink 1 that has a large pile of small fall partly blocking the south side of the tube. On the north side of the northern entrance, there is one chicken bone, some water collection constructions, and some charcoal. In addition, ceiling fall has been cleared to the side of the tube to create an easier passage to the northernmost end and cobbles have been placed and leveled as a walkway. Just past this walkway, about nine *pāhoehoe* slabs are set horizontally on the floor to create a pathway, presumably for access to water collection (Figure 99). Tube 1 ends in fall with very small tubes at its northeast end.

Sink 1 is fairly shallow and has no modification. Sink 2 is approximately 8 m south of Sink 1, and is very small (Figure 100). **Tube 2**, a very small tube, is within Sink 2. Marine shell consisting of *Nerita* was found in Tube 2 and is not otherwise modified.

Excavation potential is minimal, due to the small amount of midden present and the shallow sediment depths in the tubes.

The site's function is interpreted as shelter with a secondary function of water collection. Although only a small amount of midden was present and a minimal amount of modification was found within the tube, the presence of midden suggests the use of the tube as a temporary shelter, possibly related to the agricultural activity in the area. Water collection constructions also suggest that this site served a water collection function, again probably related to the agriculture in the area.

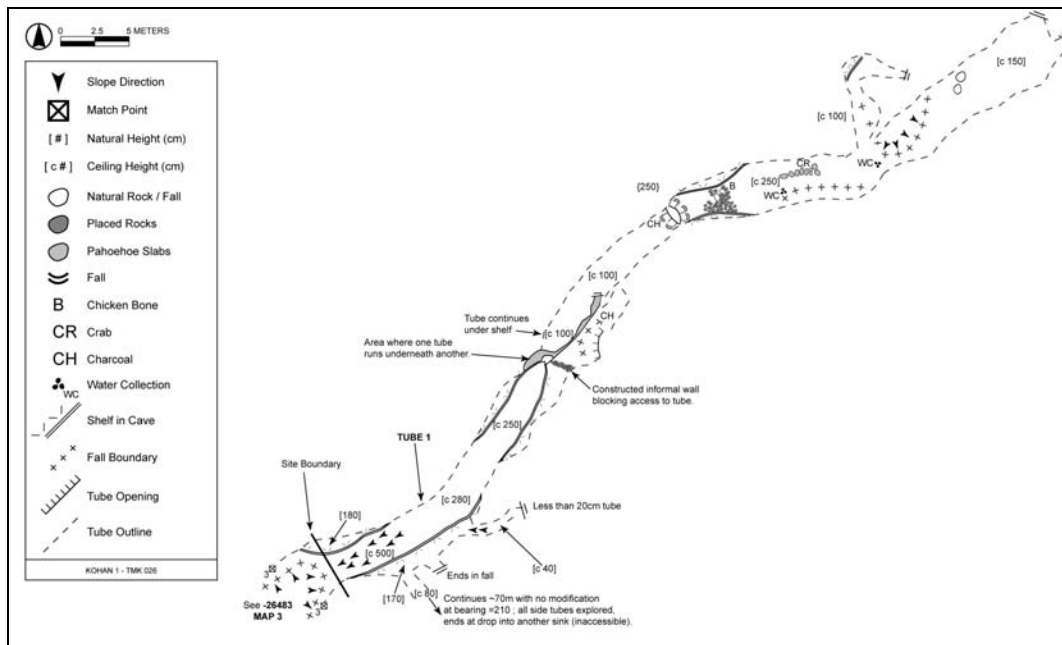


Figure 98. Site -26490 shelter lava tube, Tube 1, plan view



Figure 99. Site -26490, view of *pāhoehoe* slab trail in Tube 1

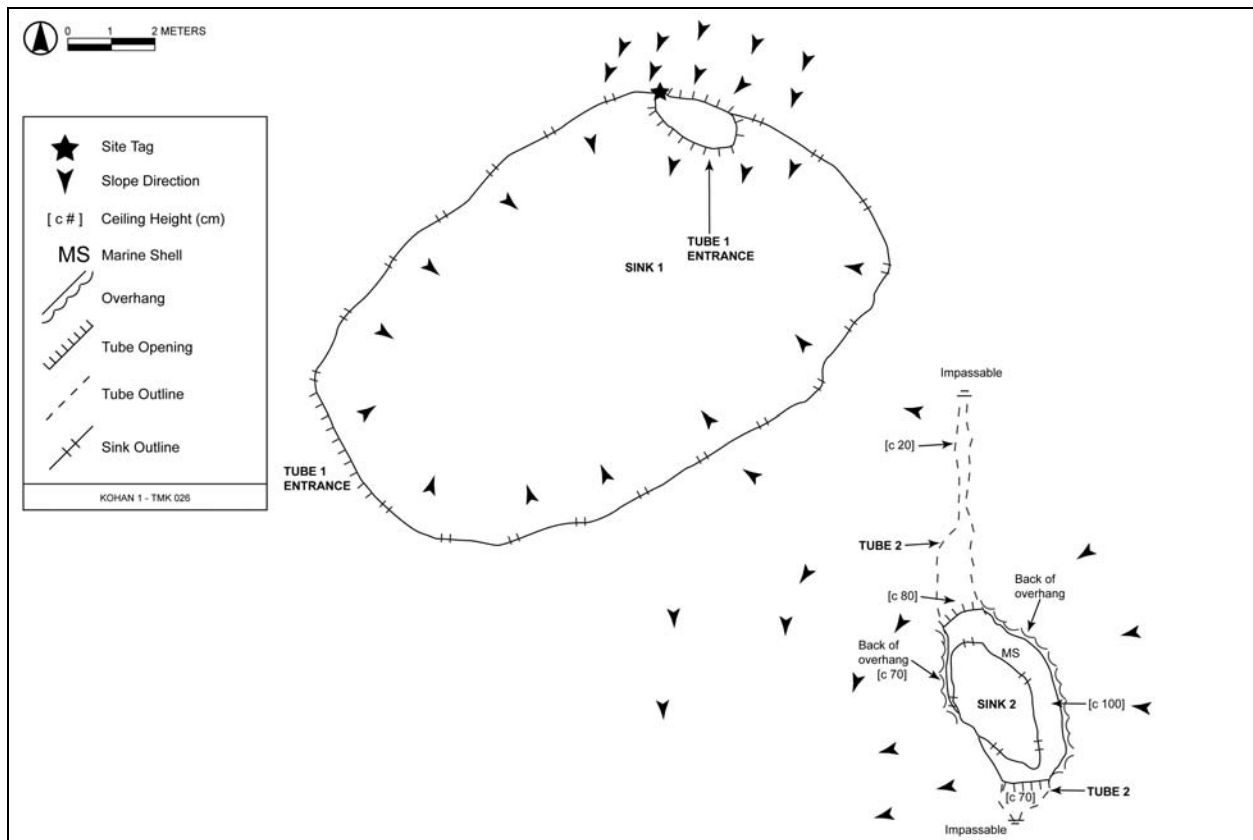


Figure 100. Site -26490, shelter lava tube, Sink 2, Tube 2, plan view

2.1.10 State Site # 50-10-28-26491

SIHP #	50-10-28-26491
FUNCTION:	Permanent Habitation
SITE TYPE:	Platform
TOTAL FEATURES:	1
DIMENSIONS:	5 m by 3 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	685 ft a.m.s.l.

DESCRIPTION: Site -26491 is a habitation platform located on an 'a'ā flow that slopes to the southwest. The site is located 50 m south of the northern boundary of TMK 26 in Kohanaiki Ahupua'a and is 35 m east of Site -26488. Vegetation consists of numerous Christmas berry, thick grasses, moderate *koa haole* and morning glory.

The habitation platform is located on a naturally raised area of the 'a'ā flow. It is roughly rectangular in shape, measuring 5 m by 3 m with the longer axis running approximately northwest/southeast (Figure 101 & Figure 102). The naturally raised portion of 'a'ā (which overlays an older or contemporary *pāhoehoe* flow) forms the base of the platform. It was modified, most obviously by squaring of the corners and leveling the interior. The platform is almost entirely 'a'ā chunks with just one *pāhoehoe* slab present. The southwest and northeast corners are clearly constructed and mostly intact. The southeast corner has collapsed and the northwest corner appears to have been mostly natural, with constructed portions having collapsed. Both the east and west walls are mostly intact, with constructed heights up to 60 cm in 3 to 4-courses. The top of the platform is leveled and consists mostly of small chunks of 'a'ā and a few pieces of *pāhoehoe*. Except for the collapsed corners, the platform is in good and stable condition. The collapse of the corners is likely due to root disturbance from Christmas berry trees. Excavation potential is poor due to a lack of midden and artifacts.

The site's function is interpreted as permanent habitation based on a moderate amount of labor investment, its size, shape, and its location, which offers a breeze and good views to the west.

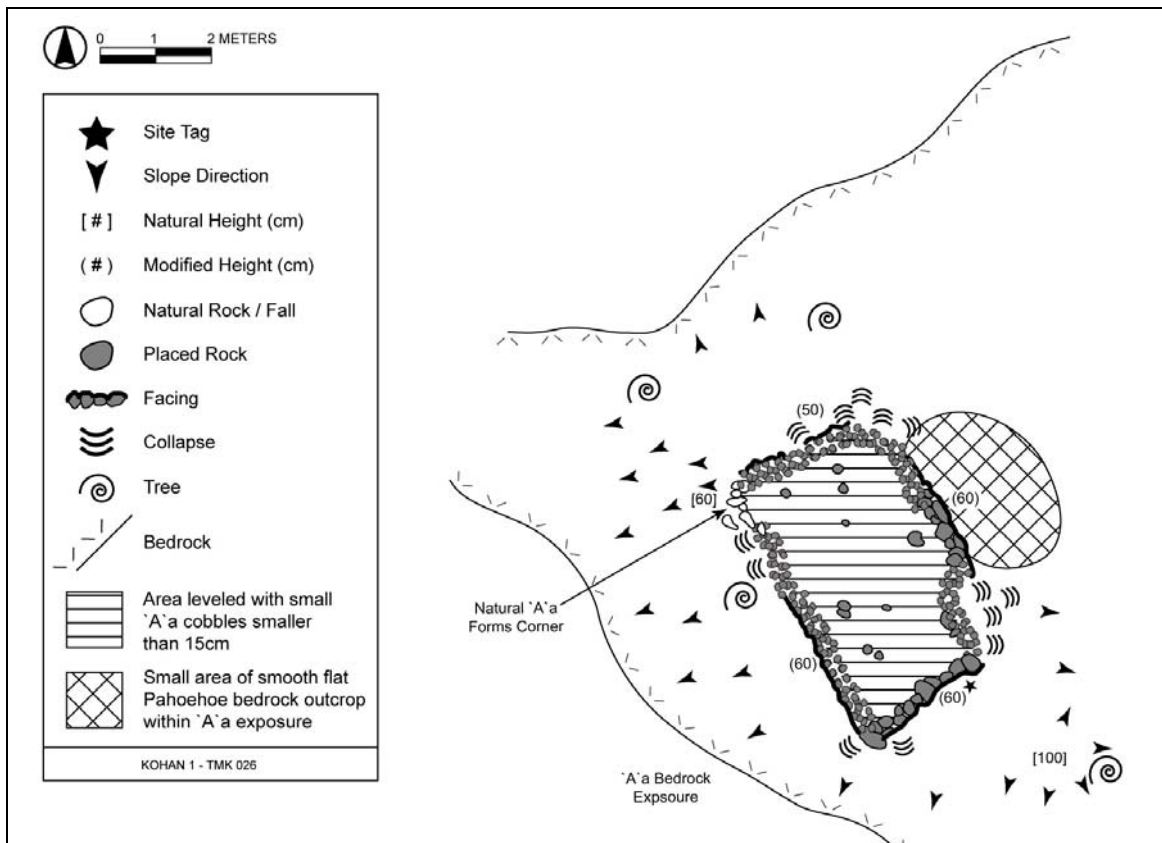


Figure 101. Site -26491, permanent habitation platform, plan view



Figure 102. Site -26491, overview of the platform, view to west.

2.1.11 State Site # 50-10-28-26492

SIHP #	50-10-28-26492
FUNCTION:	Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	22 m by 6 m (72.2 ft. by 19.7 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	585 ft a.m.s.l.

DESCRIPTION: Site -26492 is a small lava tube that runs approximately 22 m (72.2 ft.) northeast/southwest beneath the *ahupua'a* wall, Site -10712 (see Figure 103 and Figure 104). The tube's single access point is a large (approximately 1.5 m by 1 m / 3.3-4.9 ft.) opening in the ceiling of the tube and is surrounded on the surface by dense Christmas berry, air plant, and *koa haole*.

Beneath the tube opening some placed boulders serve as a step and enable access down into the tube. Despite the constructed step, extensive natural fall from the tube ceiling directly underneath the opening and in the immediate surrounding area makes the tube difficult to access. The northeast edge of this natural fall has been slightly modified by the placement/piling of fall to clear the tube floor. The tube continues roughly northeast until it ends after approximately 16 m (52.5 ft.). The only other modifications present in the tube are a few placed boulders and cobbles, and three water collection features. In a small side, parallel running tube off the northeast end of the main tube, a single large *Nerita* shell, a single *kukui*, another small marine shell pieces, and a small, shallow soil deposit are present. It is likely that most, if not all, of this soil washed in from the surface. A few pieces of charcoal are also in the tube and a few pieces of sea urchin are scattered among the fall. An upright measuring approximately 70 cm (2.3 ft.) high is approximately 10 m (32.8 ft.) west of the tube entrance. No other surface modifications are present.

The site's function is interpreted as water collection based on the modification of placed boulders and water catchments. All of the modification at the site, including the constructed step, serves to access the few water catchments. Though there are only a few water collection features, the lack of any modification not related to water collection indicates that site served no other function.

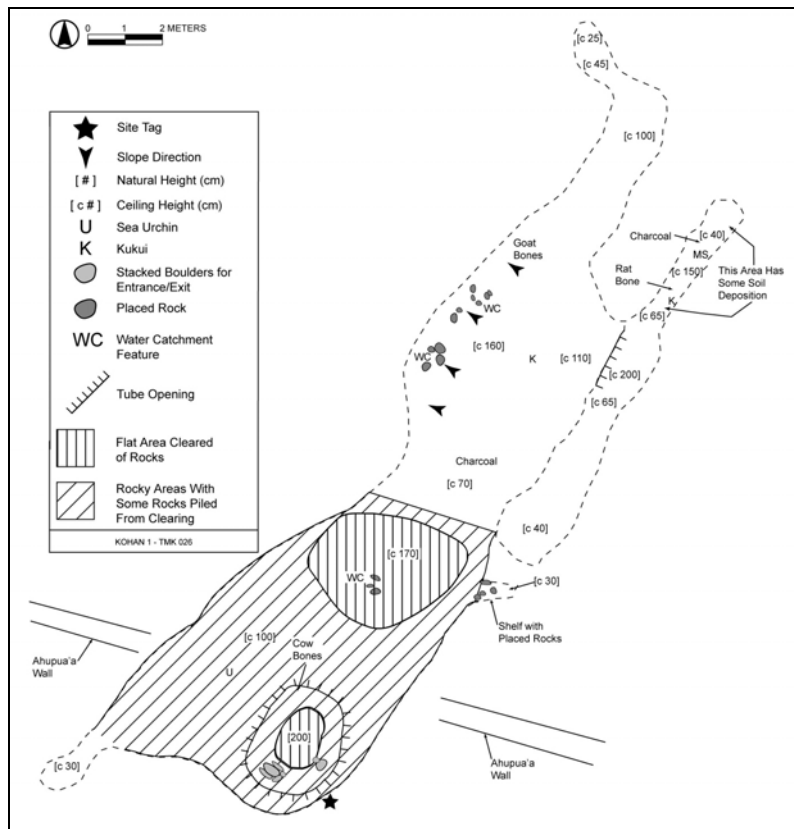


Figure 103. Site -26492, water collection lava tube, plan view



Figure 104. Site -26492, overview of lava tube from immediately inside entrance

2.1.12 State Site # 50-10-28-26493

SIHP #	50-10-28-26493
FUNCTION:	Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	40 m by 15 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	605 ft a.m.s.l.

DESCRIPTION: Site -26493 is located in an undulating *pāhoehoe* flow in the center of TMK 26 in Kohanaiki Ahupua'a. The vegetation surrounding the site consists of head high *koa haole*, thick grass, medium size Christmas berry and air plants.

The site consists of an unmodified sink and a lava tube with minimal modification and almost no midden (Figure 106 & Figure 105). The only modification present consists of approximately eight water collection constructions and some slight modification of natural fall to construct two small water collection terraces. The small amount of midden present consists of charcoal and burnt *kukui* located in the back of one of the tubes (Figure 105). A single crab claw is also located at the back of the same tube. There is some wood that is located at the back of a side tube.

The site's function is interpreted as water collection. This is evidenced by the lack of any modification other than minimal water collection and clearing and ephemeral construction related directly to water collection.

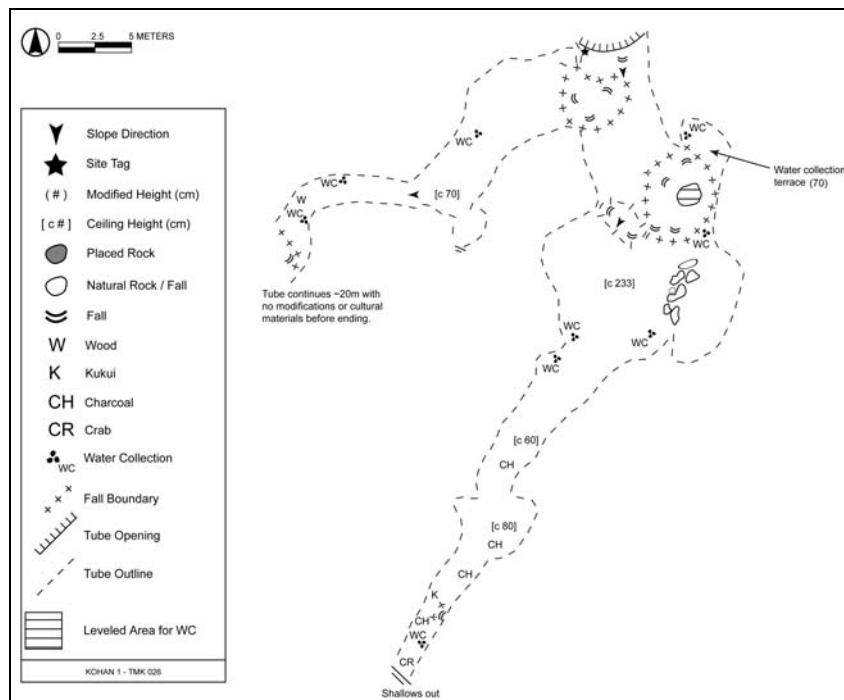


Figure 105. Site -26493, water collection lava tube, plan view



Figure 106. Site -26493, showing the entrance to the lava tube, view to south

2.1.13 State Site # 50-10-28-26494

SIHP #	50-10-28-26494
FUNCTION:	Permanent Habitation
SITE TYPE:	Complex
TOTAL FEATURES:	3
DIMENSIONS:	60 m by 30 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	665 ft a.m.s.l.

DESCRIPTION: Site -26494 is a surface site with three designated features located in the middle of the north portion of TMK 26 in Kohanaiki Ahupua'a, adjacent to and atop of a large level 'a'ā exposure. The vegetation in the area consists of large Christmas berry trees on the 'a'ā, and *koa haole*, grass, and berry trees on the surrounding *pāhoehoe*. The landscape in this area is generally level *pāhoehoe* bedrock exposure, which slopes downward to the southwest just southwest of this site.

The 'a'ā exposure is elevated above the level *pāhoehoe* areas by (on average) 1 to 2 m. The 'a'ā exposure itself is fairly level, although the surface is very rough. A small overhang with no modification or cultural material is 40 m southwest. A sink with a blocked entrance that leads to Site -26504, a water collection lava tube, is just southeast of the 'a'ā exposure.

The site consists of three features, Feature A platform, Feature B enclosing wall, and Feature C *pāhoehoe* slab trail (Figure 107). Feature B, the wall, encloses an approximately 30 m by 10 m area of the 'a'ā exposure, which is the majority of the southwest side of the exposure. Feature C, a *pāhoehoe* trail, leads through the middle of the enclosing wall, traveling northeast/southwest. Just off the southwest end of the 'a'ā exposure is Feature A, a very formally constructed platform. All features of this site have an excellent 360 degree view of the site's vicinity due to the elevated 'a'ā exposure.

Also atop the 'a'ā bedrock exposure, on the northeast side, are several small depressions created by stacking 'a'ā cobbles two courses high along the edge of a natural depression. There are at least two constructed depressions, and they are approximately 90 cm by 60 cm, and 20 cm or less in depth.

Feature A is a formal, rectangular platform located just south of the 'a'ā exposure (Figure 108). It runs approximately 4.5 m north/south on its west side, 6.2 m on its east side and is 3.5 m wide. The constructed height is 1 m on the east side of the platform. It is constructed with medium to large cobbles and boulders (center fill) with large *pāhoehoe* slabs as facing. The slabs range in size between 60 cm and 120 cm across. The slabs are stacked horizontally in four to five courses. The east and west sides of the platform are faced with upright slabs. The top of the platform is very level, and is filled with small cobbles to create a solid level surface. Overall the structure is very formal with 90 degree corners and vertical facing. However, the south end of the structure is either extensively disturbed, unfinished, or constructed differently than the majority of the structure and has collapsed. Approximately 1.5 m from the south end of the east wall the structure is partially collapsed. The top surface of this portion of the platform does not have small cobble fill, instead it has irregularly piled medium to large boulders. The side facing also

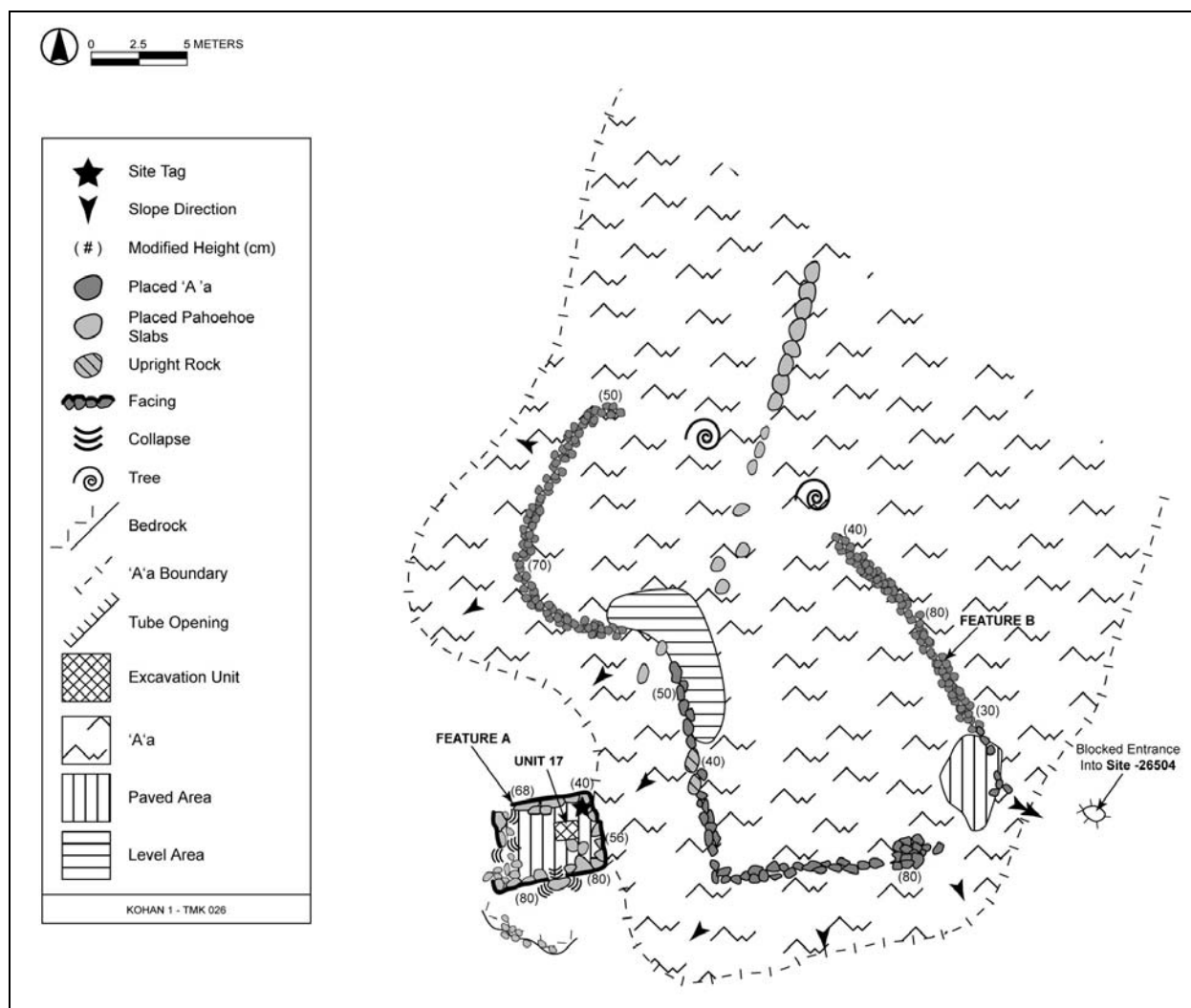


Figure 107. Site -26494, permanent habitation complex, plan view

becomes partially collapsed at this southeast corner. The south wall continues in a similar manner for approximately 1 m before it ends at the southwest corner of the structure and turns back to the north. This area of the structure, the southwest corner, is collapsed, although large upright slabs can be seen within the structure that appear intentionally placed. There does not, however, appear to be enough rubble to account for the entire southwest portion of the structure being collapsed. The southwest corner collapse does not appear to be caused by root disturbance. Thus, the southwest corner may have been under construction, de-construction, or may have originally been built lower, resulting in less collapse.

The function of Feature A is permanent habitation, possibly a house platform. Views from this area, particularly on the platform, are excellent and the surrounding area is modified (Features B and C).



Figure 108. Site -26494 Feature A, platform, showing an overview of the platform, view to north.

Feature B consists of an enclosing wall atop the 'a'ā flow (see Figure 107). The wall is constructed of large 'a'ā cobbles and small boulders, with a few *pāhoehoe* slabs incorporated in the southwest portion of the wall. The wall measures approximately 30 m by 10 m. The construction style of the wall is informal in nature, with two to three courses stacked with an average constructed height of 40 cm. The wall encloses the top of the end of the 'a'ā flow, where it is naturally level. Some areas of the ground surface have been slightly modified and leveled. Feature C trail cuts through the east side of the wall to extend directly off the west end of the 'a'ā flow. There is a large gap in the east side of the wall where the trail runs through. It appears that while there was likely a gap for the trail to pass through, it was not as large as it is now. The size of the current gap is likely the result of the growth of two large Christmas berry trees growing on both sides of the trail along the presumed alignment of the wall.

The function of Feature B of Site -26497 is to enclose the habitation area atop the 'a'ā. This enclosing wall is a component of the permanent habitation.

Feature C is a *pāhoehoe* slab trail that runs for approximately 55 m over an 'a'ā exposure with a width of 70 cm (see Figure 107). On its south end it runs through Feature B. For most of its length, the trail consists of only a few *pāhoehoe* slabs spread out at irregular intervals. The slabs average 35 cm to 50 cm in diameter. However, as the trail passes through Feature B, it is more defined. The trail begins just north of Feature A, where the 'a'ā exposure begins. Approximately twelve slabs are placed through the area enclosed by Feature B (approximately through the middle of Feature B). As the trail continues north past the north wall of Feature B, it is well constructed and consists of ten somewhat larger slabs (40 cm to 70 cm in diameter) with

very little or no space between them. This segment continues for 7.5 m. The slabs then become spaced further apart, and the trail becomes difficult to follow for 20 m. The trail then curves to the east and approximately eight slabs that are spaced 1 m to 3 m apart lead off the east edge of the a'a flow.

The function of Feature C is transportation over rough 'a'a. The trail is clearly associated with Feature B, since it leads directly through the enclosing wall and is most formally constructed near the north side of the enclosing wall.

Excavation potential of this site is limited to Feature A, as Feature B and C consist only of stacked 'a'a cobbles or placed slabs, with minimal formal construction.

The site's function is interpreted as permanent habitation. A significant amount of energy and time was invested in the construction of this site, particularly Feature A and Feature B. Feature C suggests frequent use of the area. Several large lava tubes and other platforms support the conclusion that Site -26494 was used for permanent habitation. Due to the possibility that Feature A may have functioned as a burial platform, a test excavation was conducted to confirm the site's function (see below). No burial was present.

Testing Results

Test excavation was conducted to assist in determining site function and to determine whether a burial is present (Figure 109 & Figure 110).

Stratum I, extending from 0 to 90 cmbs is construction. Stratum II, extending from 90 to 105 cmbs, consists of some sedimentation from the surface but appears to primarily be eroding bedrock soil. The small amount of midden in Stratum II is likely from surface habitation.

This is a habitation platform with a small amount of midden. Soil is very likely acidic and midden may have decomposed, explaining the relatively small amount.

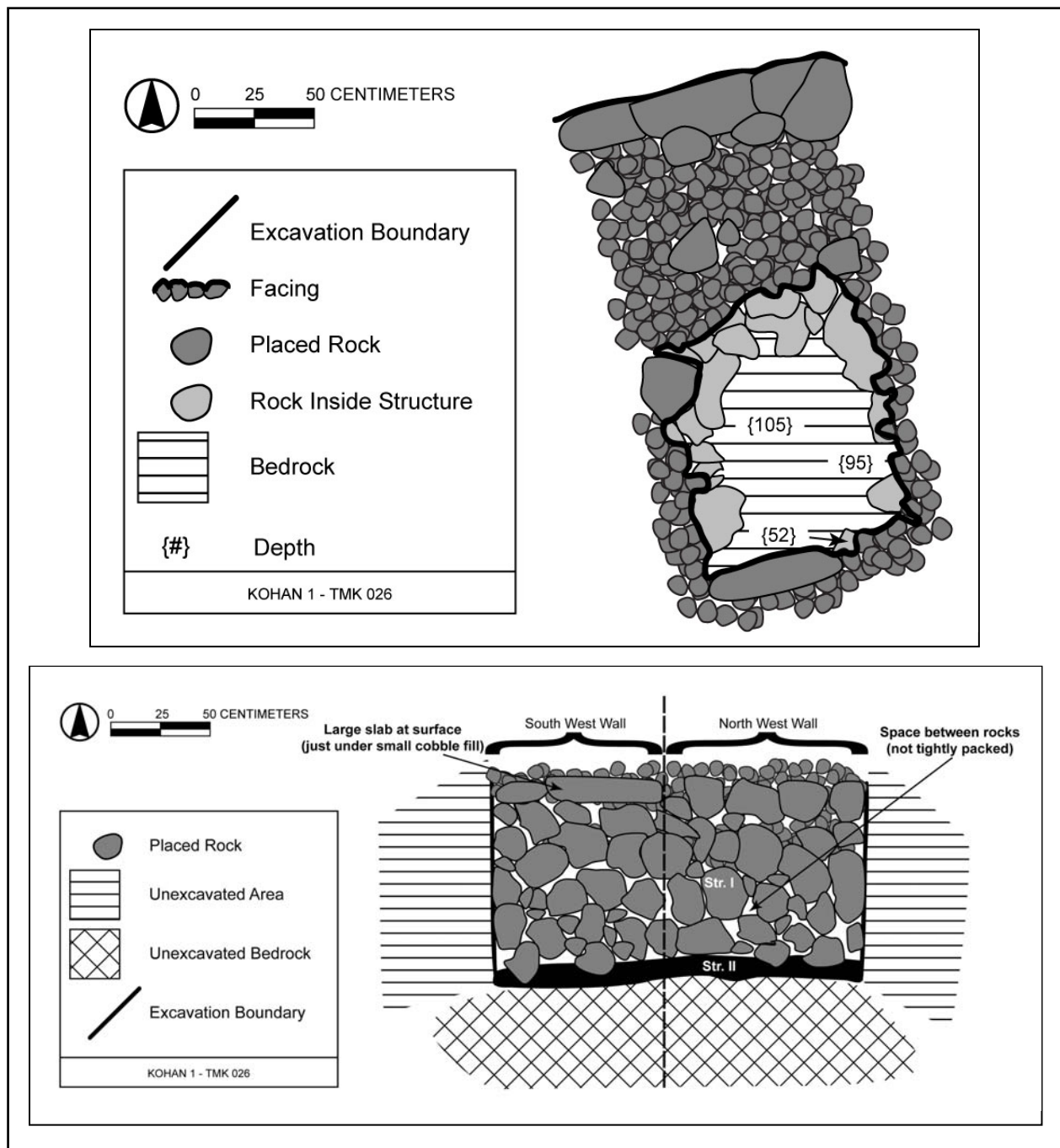


Figure 109. Site -26494, Feature A, excavation unit plan view and southwest and northwest wall profiles



Figure 110. Site -26494, Feature A, platform, pre- and post- excavation

2.1.14 State Site # 50-10-28-26495

SIHP #	50-10-28-26495
FUNCTION:	Temporary Habitation
SITE TYPE:	Lava Tube
TOTAL FEATURES:	10
DIMENSIONS:	140 m by 130 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	640 ft a.m.s.l.

DESCRIPTION: Site -26495 is located on a southwest sloping, undulating *pāhoehoe* flow in the northern half of TMK 26 in Kohanaiki Ahupua'a. The vegetation surrounding the site consists of overhead-high *koa haole*, medium size Christmas berry, and grasses.

The site consists of two sinks (Sink 1 and Sink 2), and two large skylights that are connected by a single long, large lava tube with a few tubes branching off of it (Figure 111). The southwest end of the main tube connects to Site -26483. Encompassed within Site -26495 are ten features (Features A - J). These features are scattered throughout the tube and sinks, but the majority of the modification, as well as the midden and artifacts, is located in Sink 1 and the entrance to the tube from Sink 1. Features A - G are located in this portion of the site.

Feature A is a small 2 m by 1 m terrace constructed on an elevated, sloping tube floor (Figure 112). It is constructed to a height of 65 cm. The retaining wall is partially constructed of upright slabs with a concentration of uprights on the east end of the wall. The wall is 180 cm long east/west by 70 cm average north/south and is loosely filled with large boulders and small cobbles. It is situated on the north side of a relatively tall bedrock outcrop in the floor and is constructed to the same height on average as the bedrock outcrop. The top of the terrace and the outcrop create a level area approximately 140 cm north/south and 200 cm east/west. The terrace is constructed relatively informally. The upper surface is not particularly smooth, however, the presence of some slabs indicate that it may have been reasonably smooth at one time. There is a thin midden scatter in the general vicinity. Immediately north of Feature A (less than 50 cm) is a large *papamū* (*konone* game board; Feature B) that has been pecked into the relatively smooth tube floor.

Feature B is a relatively large *papamū* board measuring 64 cm east/west by 60 cm north/south (Figure 112). It has twelve rows east/west by ten rows north/south. It is well pecked through the smooth skin of the tube floor. The board is not entirely level, as there is a small change in elevation due to an imperfection in the floor.

The *papamū* is located in a central area of the tube and Feature A. Ample seating is available in the immediate area on the smooth tube floor.

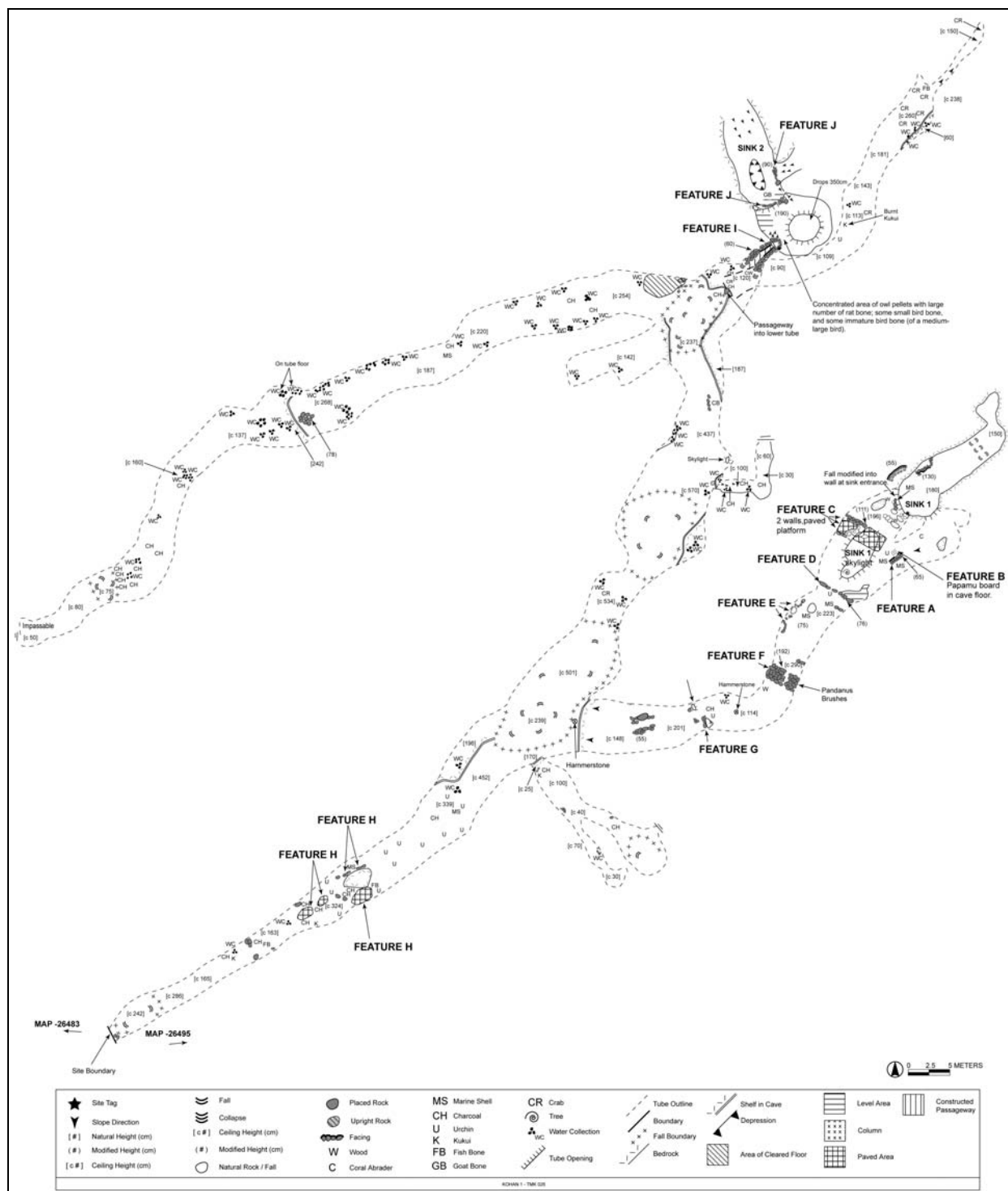


Figure 111. Site -26495, permanent habitation lava tube, plan view

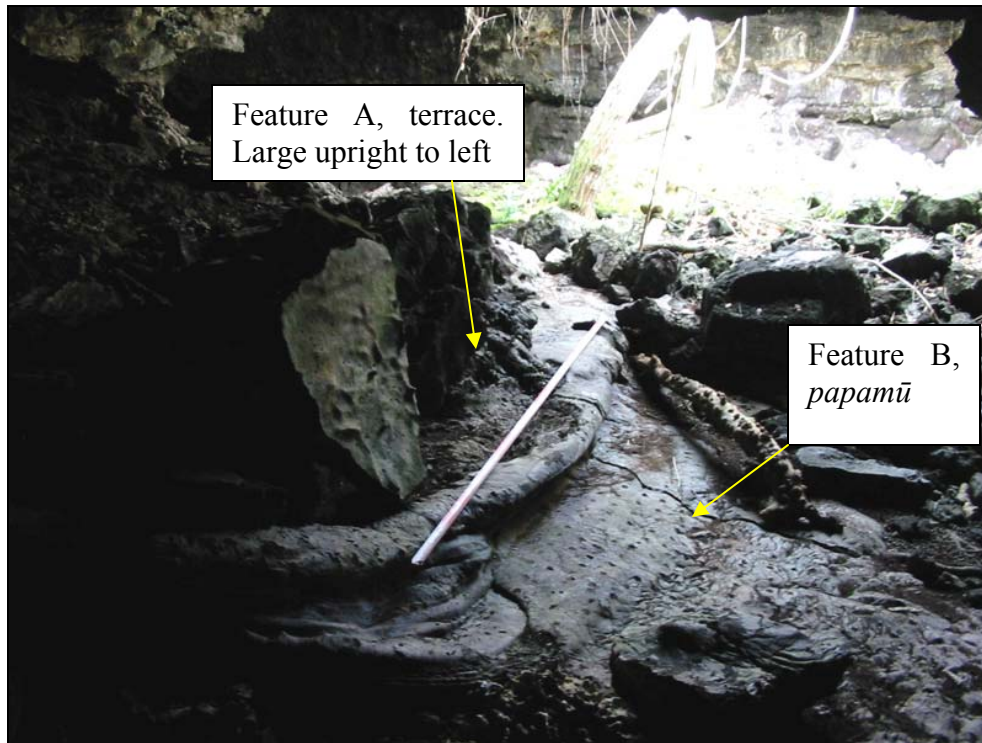


Figure 112. Site -26495 , permanent habitation lava tube, Features A and B, view to southwest.

Feature C is a small complex of elements including two walls, a pavement, and a platform constructed by modifying fall from the tube skylight (Figure 113). As a whole, the feature measures 5 m northwest/southeast by 3.9 m northeast/southwest.

The platform is located mainly beneath the north end of the skylight, and the northern edge is below the dripline. The platform measures 2.7 m northwest/southeast by 2.2 m northeast/southwest and is approximately 110 cm in height from the tube floor. It appears to be largely constructed of fall from the skylight, squared up and paved across the top surface. More recent fall lies its surface. The platform width (northeast/southwest) corresponds very closely to the distance between the two walls. The distance between the two walls is 2.4 m. Both walls span the distance between the platform corners and the side of the tube. This area bounded by the walls and platform is well paved with cobbles and rubble, and is very level. It is partially covered in small boulders on the southeast side (platform side) by either collapse from the platform or fall from the tube.

The north wall is more formal and is wider in construction, measuring 1.4 m in width northeast/southwest and 2.4 m long northwest/southeast. The exterior height is 110 cm and the interior height to the pavement is 70 cm. The interior of the wall is more formal, dominated by a large upright slab in the center. The wall is constructed of stacked small boulders three to four courses high. The outside of the wall roughly slopes to the tube floor. The south wall is relatively informal, constructed of three upright slabs that are a maximum of 1 m in height. It measures 1.7 m long by approximately 30 cm. The uprights abut a large placed slab to the south, outside of the wall. No midden or artifacts were observed in direct association with Feature C.



Figure 113. Site -26495, , permanent habitation lava tube, Feature C, showing the paved area in front of the photo scale, view to northeast

Feature D is a terrace that spans the entire width of the tube east/west measuring 4.5 m. The terrace averages 1.5 m in width north/south and is constructed to a height of 60 cm at its maximum. The north side extends to the north to become flush with the rubble floor. On average the terrace retaining wall is 50 cm wide. It is constructed of boulders and slabs as small as 40 cm in diameter, but is dominated by slabs that measure 1 m square. It is constructed in one to two courses. The terrace is filled with small cobbles and rubble that form a nice level surface, particularly on the east side. There is a constructed ramp/stairway just west of the center of the terrace wall that is 90 cm wide (Figure 114). A fair amount of *kukui* and marine shell is present to the south of the terrace. Much of the construction material derive from the area south of the terrace, as this area has been cleared of most fall. On top of the largest slab, just west of the ramp, is a placed rock that is quite unusual. It is two basalt columns that are fused at the base, creating a V or U shape. The terrace creates a rather level area for the portion of the tube beneath the skylight to the north. South of the terrace, the tube floor begins to slope at a greater angle.

Feature E consists of three large cupboards that are constructed on the west side of the tube. Together they span a distance of 4.5 m and are constructed under an area of low ceiling along the edge of the tube. They are relatively informally constructed of ceiling fall that consists of small boulders and slabs.

The northernmost cupboard is 80 cm wide east/west by 160 cm long north/south. The northern and southern cupboards are constructed similarly with a thin informal wall enclosing the bare tube floor. The wall does not reach the tube ceiling. The southern cupboard is 200 cm east/west by 170 cm north/south (Figure 115). The middle cupboard is formed by the two closest walls of

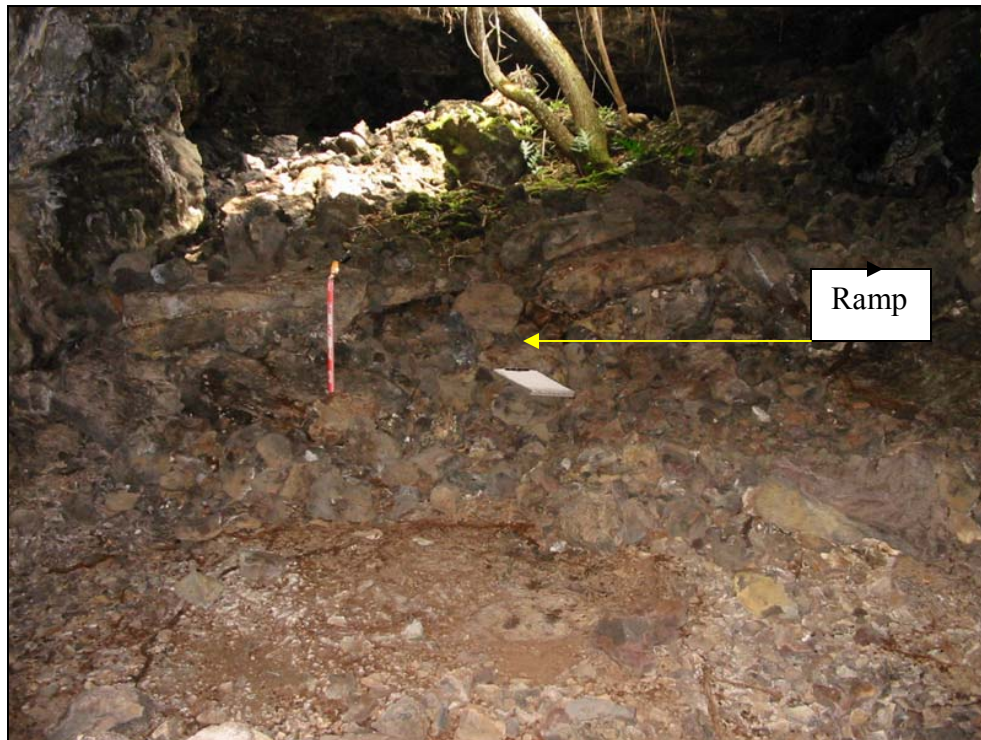


Figure 114. Site -26495, permanent habitation lava tube, Feature D terrace, view to north



Figure 115. Site -26495, permanent habitation lava tube, Feature E, showing the southern cupboard, view to west

the north and south cupboard and a large boulder that has fallen from the ceiling. The floor within the middle cupboard is strewn with small cobbles and rubble. There is nothing of note in the cupboards, just a small amount of midden that is consistent with the midden that is present in the tube south of Feature D.

Feature F is a wall constructed east/west across the entire width of the tube (Figure 116). It is 1.9 m in constructed height and 2 m in width north/south. The wall is constructed with small boulders, medium boulders, and large slabs. The north face of the wall is constructed with slabs as large as 100 cm by 80 cm and is dominated by three large uprights. The wall is 5 m in length east/west. There is a gap between two of the largest uprights that is on average 40 cm wide by 100 cm tall; this is the entrance to a constructed crawlway that leads through the wall. Immediately spanning the two large uprights and the constructed crawlway is a large slab that is over 100 cm in length. The effect of this placed slab is to create a clear edge to the top of the crawlway and gives the appearance of a doorway. The wall areas that are not constructed with large slabs are constructed in five to six courses of boulders. The feature very effectively separates the habitation area of the tube from the remainder of the tube that lies beyond the wall to the south. It appears to be the most labor intensive investment feature in the site. The crawlway is constructed on an angle so one must stand at the wall to see into the next chamber. The thickness of the wall is quite unusual, and it is so massively constructed that it serves another function than to simply delineate the two chambers. Feature G also divides the tube in the same manner, but with a fraction of the energy investment of Feature F.



Figure 116. Site -26495, permanent habitation lava tube, Feature F, showing the entrance to the lava tube in the bottom left corner of the photograph, view to south

Feature G is a small low wall constructed across the width of the tube to delineate two taller ceiling chambers. It is constructed at the low point between the chambers. The wall is constructed of small boulders, large cobbles, and small slabs that are stacked to the ceiling. Near the center of the wall is an opening measuring approximately 30 cm wide by 50 cm tall that serves as a crawlway. To the south of the wall are a few additional, loose, large cobbles and a slab, suggesting the wall may previously have been more closed off. The total length of the wall is 3 m, width is 60 cm. and it is constructed to a height of 50 cm.

Feature H is a habitation area deep within the lava tube that is most noted by slab pavements and a midden scatter. It consists of two pavements, a raised very smooth tube floor, a linear smooth excavated blister formed by a diminished flow in the tube, stacked and placed slabs, a large charcoal deposit, and substantial midden deposits that include fish, urchin, *Cypraea*, and *kukui*. The pavements consist of tube wall slabs sourced from further south in the tube.

Beginning in the northeast, the first pavement measures 1.5 m wide by 2.6 m long and is stacked as high as two courses. An average slab is 35 cm. The pavement contains an extensive amount of urchin and a scattering of other midden. The pavement abuts a large, very smooth tube floor measuring 4 m north/south by 1.5 m east/west. A very dense charcoal deposit was found where the pavement and raised tube floor meet. Opposite the raised floor from the pavement is a small crack that has been filled, likely to avoid injury.

Three meters to the southwest is a second paved area that measures 4.3 m long north/south by 1.2 m east/west. It is connected to the first paved area by three slab stepping stones. The second pavement is constructed of slabs that are on average 40-70 cm in diameter and one course thick. Charcoal is plentiful and scattered throughout this pavement, but little midden is present. This second pavement smoothes the majority of the center floor and extends to the excavated blister that makes up the southern boundary of the feature.

The excavated blister is formed by a collapsed small tube within the main tube. It measures 4 m north/south by 1.2 m east/west and is 30 cm deep. There are placed slabs on the southeast end of the resulting depression that are stacked three courses high to a height of 35 cm. These slabs do not physically block the tube, but are placed over the southeast part of the floor, indicating a boundary in the tube. The blister has a smooth floor and scattered midden that is dominated by fish bone. The function of this area is clearly a temporary habitation area, but its placement so deep within the tube suggests that this tube was used as a refuge cave of some type.

Feature I is a 2.5 m by 2 m lava tube entrance that has been extensively modified. The entrance leads from Sink 2 to the main tube of this site (Figure 117). Natural fall from the sink and tube entrance has been utilized to create a 1 m by 1 m wide by 3 m long access to the main tube. The portion of the feature outside the tube is stacked three to six courses high and is comprised of irregular shaped stones that are 30 cm to 50 cm in diameter. These are stacked fairly loosely and are not faced. The area surrounding the modified entrance in the sink is fairly level and mostly composed of small 5 cm to 15 cm cobbles with some larger cobbles. The area between Feature I and Feature J (to the north) is particularly level and partially paved with small cobbles. The majority of Feature I that is in the sink is covered by a massive amount of small animal bones from owl pellets; none appear to be cultural. Rat bone, small bird bone, and immature medium to large bird bone are present in the owl pellets. The inner portion of Feature I (the portion that descends into the tube) is faced by several large upright slabs that create the

sides of the entrance. Several slabs are placed on the bottom of the entranceway. This modification continues for about 2 m into the tube entrance.

The function of Feature I is to create a more accessible tube entrance, possibly because roof fall was partially blocking the entrance previously. It is notable that the size of the constructed entrance would make it easy to block if desired. The modification to the tube entrance may also be related to water collection, to maintain moisture in the cave.

Feature J consists of two terraces that are located in Sink 2. The smaller terrace is on the east side of the sink just below an easy access point into the sink. There is a gradual slope from the surface ending at the terrace. This smaller terrace is 2 m north/south and is less than 1 m wide and is stacked in two to four courses to a constructed height of 80 cm. It is informally constructed with no facing and is composed of 25 cm to 40 cm stones, with small cobbles creating a level surface. The larger terrace is 2 m south of the small terrace and is 4 m long at 320° TN, 1 m wide and 1.7 m tall (Figure 117). This larger terrace has six to seven courses and is partially faced. It utilizes natural large fall from the sink overhang (which is directly above it) in order to create the terrace that is essentially a retaining wall. It is composed of boulders and cobbles 30 cm to 60 cm in diameter, primarily with large boulders for building and small boulders and cobbles to create a level surface. This larger terrace separates the open portion of the sink from the portion that is open only via a large skylight. On the east side of the larger terrace there is a sloped ramp allowing easy access from the small terrace (and surface above the sink) into the lower portion of the sink beneath the skylight. Feature I is located 5 m southwest of the larger terrace.



Figure 117. Site -26495, showing the Feature J raised terrace in the center background and Feature I constructed entrance on the far left, view to north

The function of Feature J is temporary habitation. A fairly large amount of energy investment was required to create the terraces, especially the larger terrace, indicating the area was used more than just as a shelter. No other functions except habitation and water collection are indicated.

The site's function is interpreted as temporary habitation with a secondary function of water collection. The temporary habitation function is evident in the scattered midden throughout the site, in addition to the extensive modification present in Sink 1. This includes two terraces, a platform, and the highly labor intensive Feature F wall. There is a possibility that this long main tube also may have functioned as a refuge cave, as is potentially indicated by the Feature H, that is located in the far southwest end of the tube. The water collection activities are evidenced by the presence of many water collection constructions, approximately sixty in total, in the tubes.

2.1.15 State Site # 50-10-28-26496

SIHP #	50-10-28-26496
FUNCTION:	Temporary Habitation
SITE TYPE:	Complex
TOTAL FEATURES:	3
DIMENSIONS:	23 m by 10 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	660 ft a.m.s.l.

DESCRIPTION: Site -26496 is located atop a noticeable rise in an undulating *pāhoehoe* flow in the northern half of TMK 26. The vegetation surrounding the site consists of thick grass, overhead-high *koa haole*, and Christmas berry.

The site consists of three (3) features: Feature A terrace, Feature B mound, and Feature C, a very low platform (Figure 118). All of these features are constructed very informally.

Feature A is a terrace at the southwest end of the site, and is constructed of large *pāhoehoe* cobbles, small to large boulders, and slabs (Figure 119). The terrace is constructed off the southeast face of the slope to extend the top surface of the rise. At its northeast end, the terrace blends into a naturally eroding outcrop. The southeast side of the terrace, shows some collapse but has a clearly definable edge. The southwest end of the terrace is the only portion where more formal construction is visible, with at least three in situ upright slabs. The upper surface of the terrace is relatively flat and level and constructed so that it is flush with the top of the rise, which is naturally level, very smooth bedrock.

Feature B is a mound located roughly in the center of the site and measures 5 m by 2.5 m. The southeast end of the mound is primarily comprised of naturally eroded bedrock but is clearly intentionally mounded at the northwest end. The mound is constructed of small to large *pāhoehoe* cobbles and some small to large boulders. The mound appears somewhat connected to the Feature A terrace via the curving, naturally eroding bedrock outcrop. It is notable that the natural bedrock ground surface between Feature A and Feature B, as well as between Feature B and Feature C is naturally very level and smooth.

Feature C is a very low and informal platform that measures only 40 cm above the surrounding ground surface. There are no well-defined corners or edges and the *pāhoehoe* cobbles and small slabs used to construct the platform have diffuse boundaries. No stacking is evident but the platform is distinct from the cleared surrounding ground surface. The upper surface of the platform is relatively level but not smooth.

Located approximately 12 m north from the Feature B is a blocked entrance to a water collection tube of Site -26504. This blocked entrance has an old site tag: ACP TF-205 19-2-03. Cobb et al 2003:n.p. describe the site as “2 cave openings in a depression, 1 with a small entrance, the other has a collapsed entrance” with an indeterminate function.

ThSite -26496's function is interpreted as temporary habitation. The location of this site, at the top of a noticeable rise with exposure to the breeze and an excellent view of the coastline as well as to the southeast and east, is ideal for habitation. The ground surface is naturally very

smooth and level. The Feature A terrace extends this living surface and, in conjunction with the Feature B mound, creates an enclosed area that could support posts for a roofed structure. The Feature C platform likely serves a similar purpose. The site's location adjacent to a water collection tube is also ideal for habitation. Based on the site's informal construction, it is a temporary rather than a permanent habitation site.

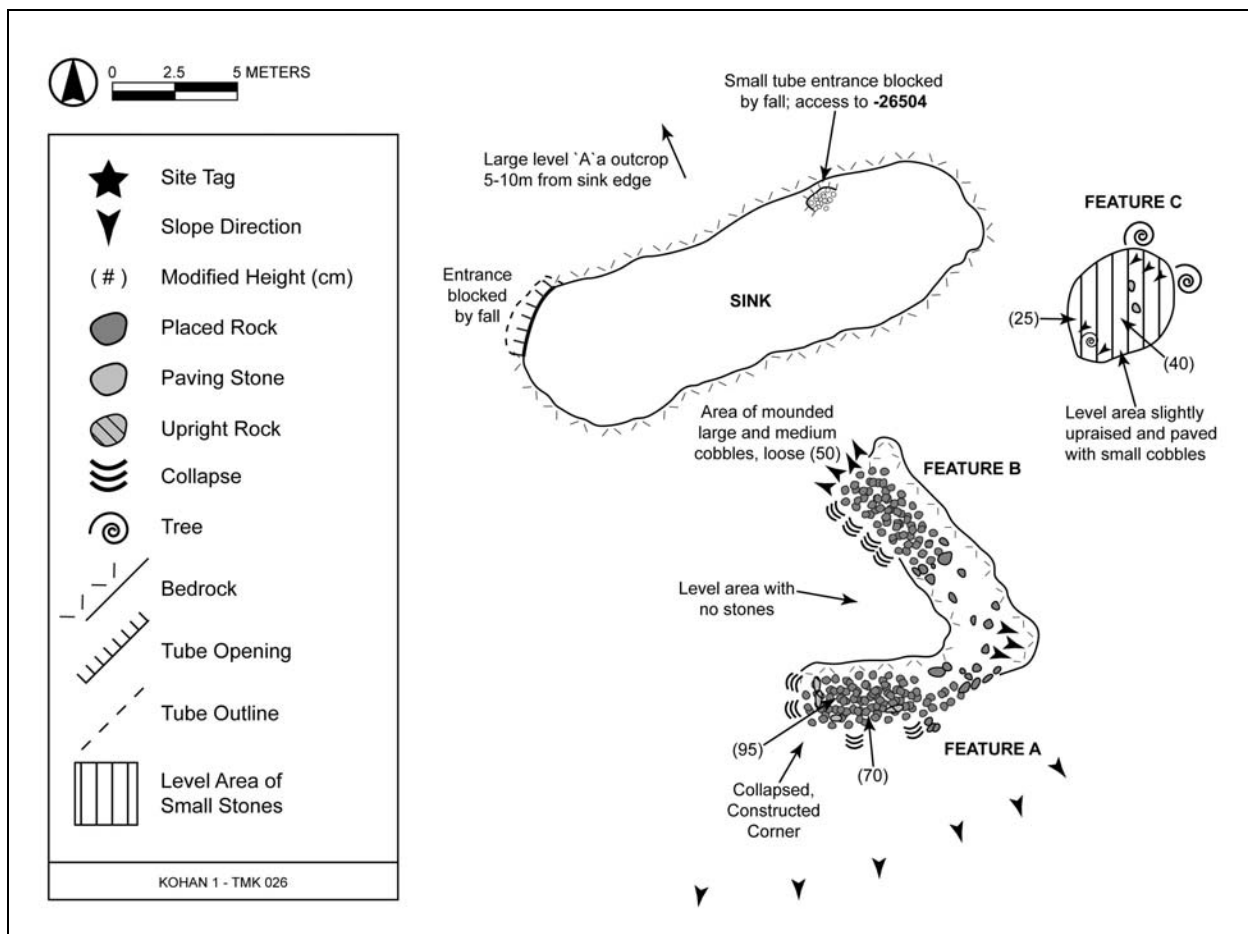


Figure 118. Site -26496 temporary habitation complex, overview



Figure 119. Site -26496 temporary habitation complex, Feature A, showing the uprights found on the southwest side of the Feature A terrace, view to east

2.1.16 State Site # 50-10-28-26497

SIHP # 50-10-28-26497
FUNCTION: Indeterminate
SITE TYPE: Modified Outcrop
TOTAL FEATURES: 1
DIMENSIONS: 4 m by 3 m
CONDITION: Good
AGE: Pre-contact
ELEVATION: 605 ft a.m.s.l.

DESCRIPTION: Site -26497 is a modified outcrop of eroding *pāhoehoe* located in the center of TMK 26 in Kohanaiki Ahupua'a. The topography of the area is gently sloping. Site -26502 is located 65 m northeast of this site. Vegetation consists of 3 m tall *koa haole*, Christmas berry, and fox tail grasses. There is a good line of sight to the west where the ocean and coastline can be seen.

The site consists of a modified *pāhoehoe* outcrop that is 4 m north/south by 3 m east/west. Modification is on the west side of the outcrop and consists of stacking small *pāhoehoe* slabs, cobbles, and small boulders to create a distinct wall. The wall is stacked 3 courses to a constructed height of 52 cm. Most of the surface of the modified outcrop is very informally paved (Figure 120 & Figure 121) with a slab placed in the north central portion of the outcrop. The site's condition is good, as there is little collapse. Modification is restricted to the west side of the outcrop.

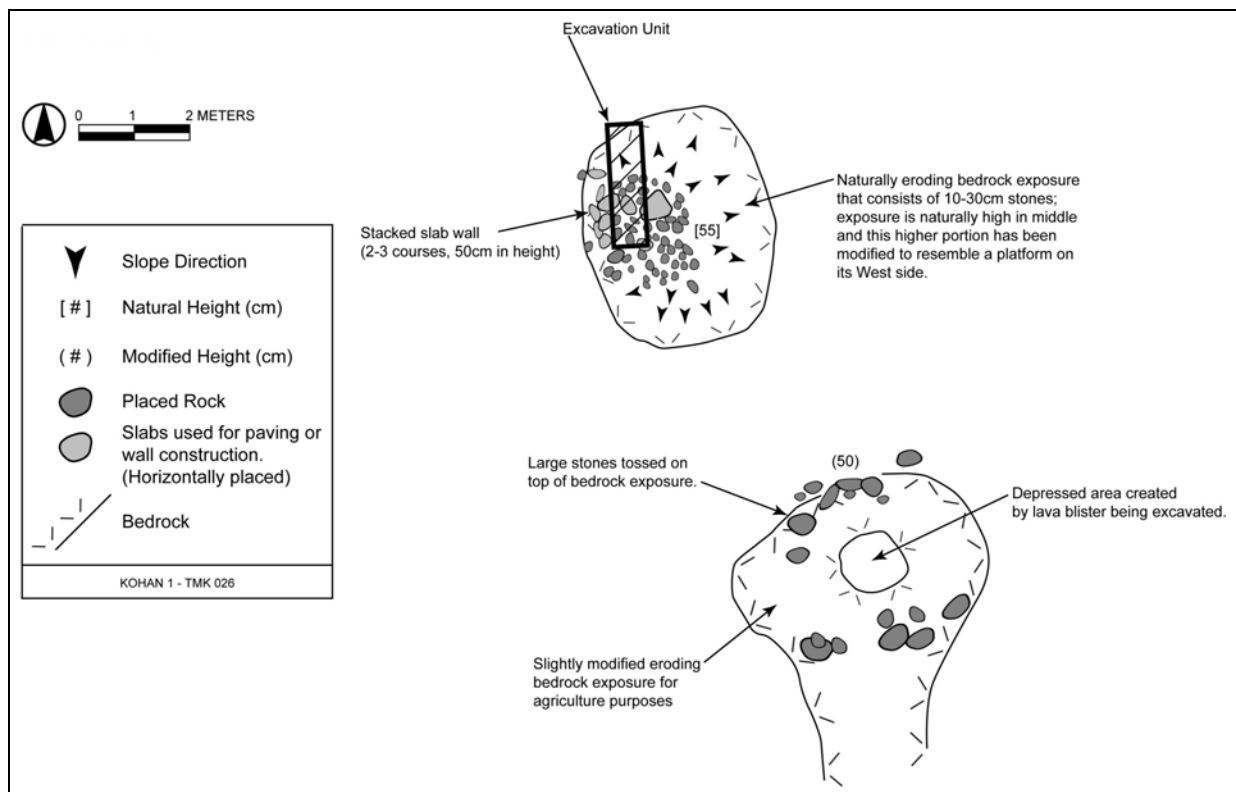


Figure 120. Site -26497 modified outcrop, plan view showing location of excavation unit

The site's function is interpreted as indeterminate. The site was initially interpreted as temporary habitation based on the site's proximity to a cleared depression associated with agriculture 2 m south. Agricultural mounds (-26507 Feature D) are also just to the north of the site. Since burial was also an initial possibility, test excavation was conducted (see below). Little midden other than a few *Isognomon* was found at the boundary between Stratum II and III, and charcoal was determined to be the result of root burn. Habitation is not indicated as the modified outcrop is rather small, not well defined, and the view is not very good. The structure is inconsistent with agricultural modification in the area. No human bone, blister openings or crypts were found.



Figure 121. Site -26497, overview of modified outcrop with stacking clearly visible, view to southwest

Testing Results

Test excavation was conducted to assist in determining the site's function and to determine whether a burial is present (Figure 122 & Figure 123). Stratum I, from 0 to 30 cm below the structure, is constructed with medium - large cobbles and slabs on top with smaller fill below. Stratum II, from 30 to 45 cm below the structure, contains *Isognomon* and some charcoal, especially at the boundary between Stratum II and III. Soil is brown silt loam with many rootlets and small chunks of *pāhoehoe* with some larger cobbles. Stratum III, 45 to 70 cm below the structure, is primarily eroding bedrock with organic soil formation from erosion and root decay. Many large *pāhoehoe* cobbles were present but is all eroding bedrock with an organic soil formation within its many cracks, and is generally non-cultural. *Isognomon* and some charcoal were present at the boundary between Stratum II and III.

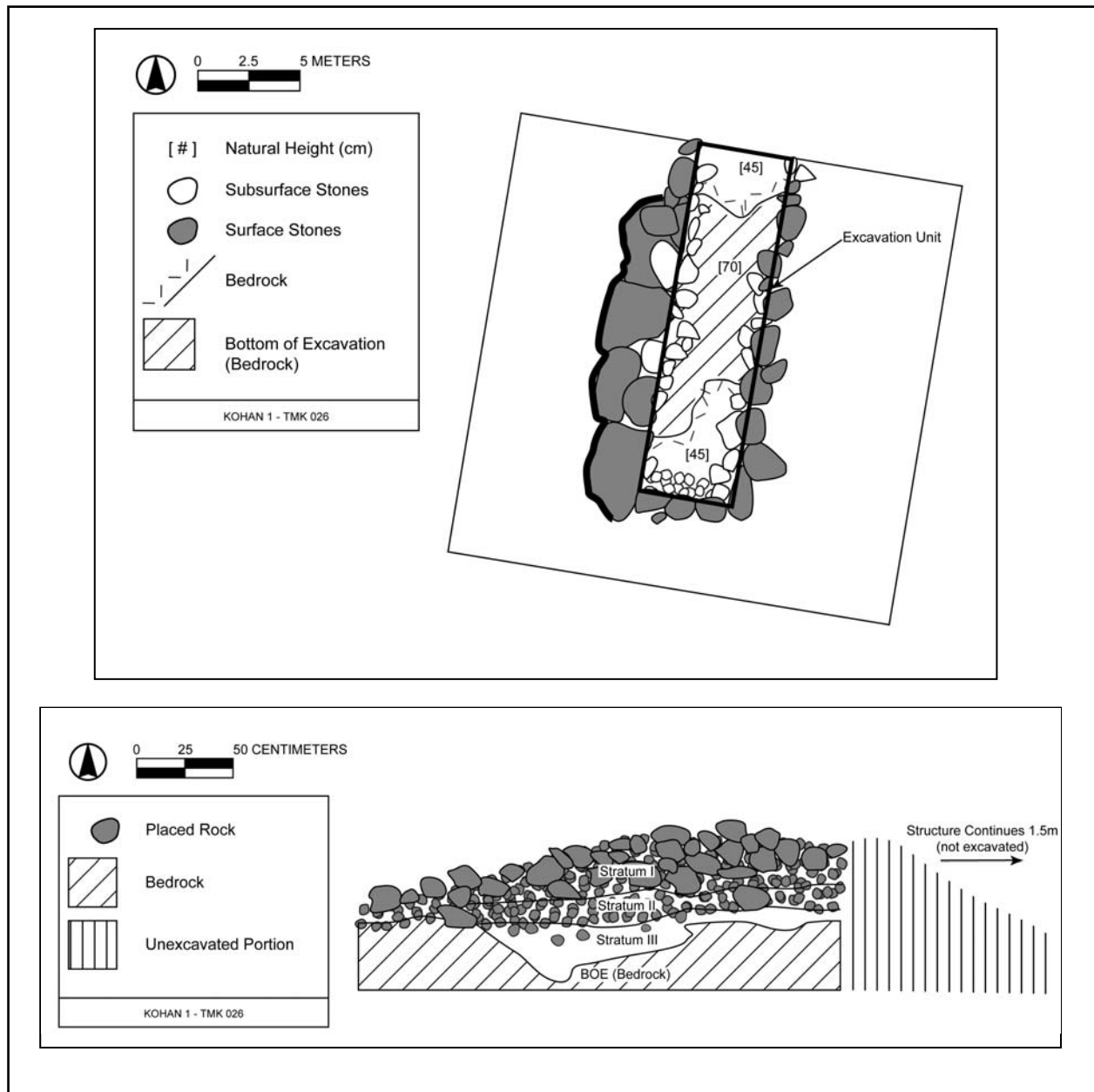


Figure 122. Site -26497, excavation unit plan view and east wall profile



Figure 123. Site -26497 modified outcrop, pre- and post-excavation

2.1.17 State Site # 50-10-28-26498

SIHP #	50-10-28-26498
FUNCTION:	Burial and Temporary Habitation
SITE TYPE:	Lava Tube
TOTAL FEATURES:	5
DIMENSIONS:	150 m by 40 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	620 ft a.m.s.l.

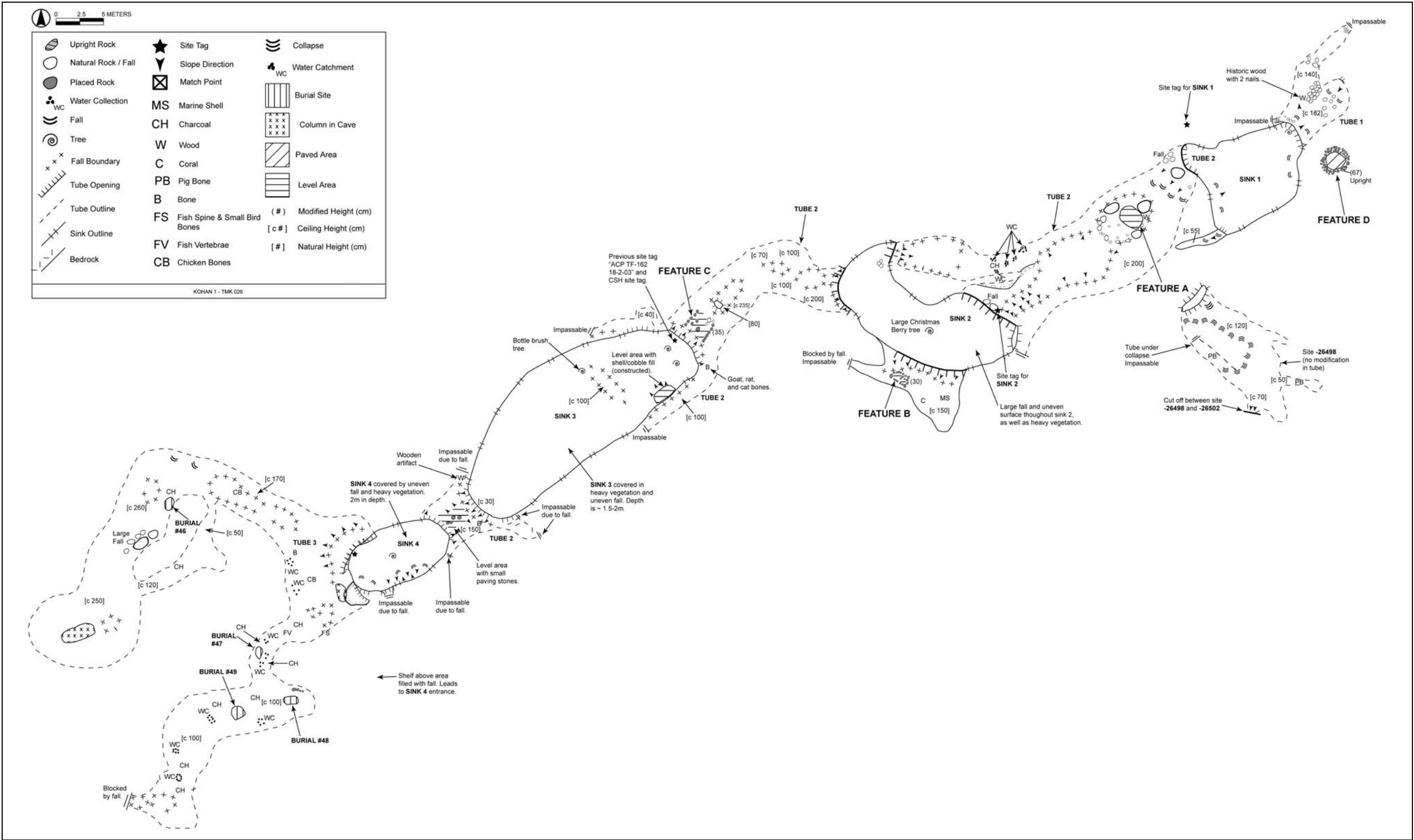
DESCRIPTION: Site -26498 is located in a relatively level area near the center of TMK 26. The vegetation consists of *koa haole*, Christmas berry, tall grasses, a few *noni* and low shrubs. The area around and to the north of the site has been subject to bulldozer activity.

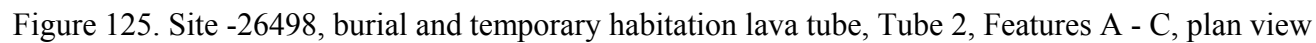
The site is a large *pāhoehoe* lava tube system with four sinks, three tubes, and five archaeological features (Features A-E) (see Figure 124). Site -26498 also contains four burials at its western end, in Tube 3. A small tube entrance to the south of Sink 1 has no modification, but does connect to Site -26502.

It runs east/west for about 140 m, beginning at Sink 1 and continuing to Sink 4 (There are several paved level areas in this main tube and its sinks (see Features A-C descriptions), but very little midden. The sinks are minimally modified, primarily at tube entrances, and generally have a large amount of fall in the sinks, creating uneven surfaces. Christmas berry trees often dominate the vegetation in the sinks. A single artifact was found in Tube 2, between Sink 3 and Sink 4. Tube 2 also has several water catchment features and some scattered charcoal.

The largest tube of this site is Tube 2. It begins on the west side of Sink 1 and ends at Sink 4 (Figure 125). Tube 2 is characterized by fairly tall, large chambers that generally have an extensive amount of fall in both entrances and the tube itself. Tube 2 also has several small side chambers and side tubes, but none are extensive. The tube also contains several water collection features, and charcoal is present between Sink 1 and Sink 2. Feature A is located near the entrance of Tube 2 to Sink 1. On the south side of Sink 2 there is a small side chamber that contains Feature B. Feature C is located at the east entrance of Tube 2 to Sink 3. All three features consist of leveled areas with a small amount of paving. Some leveling is also present between Sink 3 and Sink 4, and within Sink 3 itself. Only a small amount of midden was found, including a few shells, one piece of coral, and some scattered charcoal. Between Sink 3 and Sink 4, a very well made and preserved wooden artifact was found in the northeast corner. The artifact is a modified, very dense piece of wood. The artifact appears to be a traditional Hawaiian *kapa* beater. It was found in a small area of the tube, placed partially under a rock.

Tube 3 runs off of the west side of Sink 4 and has two main branches, both of which contain burials. Burial 46 is in the northern branch, and Burials 47-49 are located near one another in the southern branch (see below for burial documentation). In addition to the burials, there are several water catchment features in this tube, as well as charcoal and some animal bone that includes few chicken bones, fish bone, and a few bones of a small bird (probably a passiniform). There are also two features outside of the tubes and sinks, on the surface, Feature D is a circular enclosure and Feature E is a small cairn.





Feature A is an area of ceiling fall in Tube 2 that has been modified by creating a flat, level paved surface on the top of the fall (see Figure 125 and Figure 126). The paving is constructed with small *pāhoehoe* cobbles that average 5 cm in size. The paved area measures 2 m northeast/southwest by 3 m southeast/northwest. The paved area is elevated 120 cm above the tube floor surface atop natural fall. On the north end of the paved area is a cache of wood that appears to be source material for torches. Just off of the east side of the fall is another, identical piece of wood that appears to be charred on one end, and was likely burned as a torch at some time.

The primary function of Feature A is temporary habitation. The very level, relatively smooth paved surface would have been ideal for a sleeping space or simply a comfortable space. It appears that a good deal of effort was necessary to make this area level and smooth. The modification appears to consist of the removal of large boulders that were then filled with small cobbles to create the paved surface associated with habitation.



Figure 126. Site -26498 burial and temporary habitation lava tube, Feature A, showing the paved area built atop the ceiling fall, view to northeast.

Feature B is a small 2.8 m by 1.8 m terrace that has been constructed inside the side chamber of Sink 2 (see Figure 125). The terrace is constructed on top of the undulating bedrock floor of the chamber to create a level, relatively flat surface. It is constructed of *pāhoehoe* cobbles and boulders that range in size from 30-60 cm with an average size of 40 cm. The surface of the terrace has been paved and some flat *pāhoehoe* slabs level the area. The south side of the terrace has been constructed to a height of 55 cm and the terrace measures 1.75 m north/south by 2.75 m east/west. Although the terrace is 55 cm in constructed height at the south end, the remainder of the terrace is quite shallow due to a rise in the bedrock floor to the north and east side of the terrace.

The primary function of Feature B is temporary habitation. The feature type and its flat constructed paved surface is consistent with habitation as its function. Burial can be ruled out as a function, since the terrace is 55 cm in constructed height at the south end, and the remainder is quite shallow due to a rise in the bedrock floor to the north and east side of the terrace.

Feature C is a 2 m by 3 m platform that abuts fall on its southwest and northeast sides (see Figure 125 and Figure 127). The platform is constructed with one to two courses of small *pāhoehoe* boulders that average 40 cm in size. The platform is square, measuring 2 m southwest/northeast by 3 m northwest/southeast. The cracks between the small boulders have been filled in with *pāhoehoe* cobbles that range in size from less than 5 cm to 25 cm and an average size of 10 cm to 15 cm. The constructed height of the platform is 35 cm. The platform's condition is good, although some recent fall is just southeast of the center of the platform.

The excavation potential for Feature C is poor due to a lack of sediments, artifacts, or midden. The fact that the platform is only one (1) course high in construction leaves very little space to recover artifacts or conceal anything.

The primary function of Feature C is temporary habitation. The relatively low constructed height of the platform and its location next to the tube entrance are consistent with habitation function. The platform is not deep enough to conceal a burial.

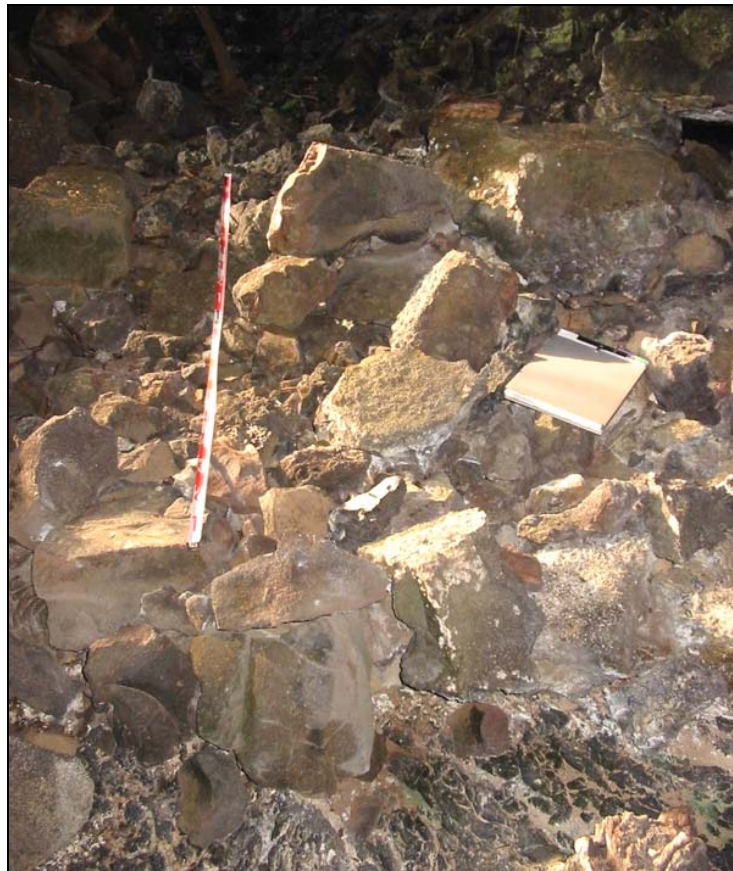


Figure 127. Site -26498, burial and temporary habitation lava tube, Feature C, platform view to northwest.

Feature D is located on the surface, on the northeast side of Sink 1 (see Figure 124 and Figure 128). The feature is comprised of an outcrop modified to create a 3.5 m by 3 m enclosure. The outcrop is an area of exposed, naturally eroding bedrock. The modification is circular shaped, and the center of the circle has been partially excavated and then paved with primarily *pāhoehoe* slabs and some large *pāhoehoe* cobbles and small boulders. Some of the excavated boulders from the center of the circle have been piled atop the surrounding bedrock to create an encircling mound. The southeast side of this enclosing mound is constructed of two upright *pāhoehoe* slabs, including one large upright slab, faced on the interior. The enclosing mound is approximately 3 m in diameter.

The function of Feature D is temporary habitation. Though no midden is present, the modification, particularly the interior paving, and the enclosing mound is indicative of habitation function.



Figure 128. Site -26498, burial and temporary habitation lava tube, Feature D, associated surface modified outcrop, showing the faced uprights and slab pavement., view to east.

Feature E is a small 70 cm by 70 cm cairn approximately 50 cm high and 3-4 courses high. It is constructed of slabs and cobbles of 20-50 cm in diameter, and is approximately 70 cm in diameter, and roughly circular. It is located on the surface between Sinks 1 and 2 of Site -26498, at the far end of an eroding *pāhoehoe* bedrock exposure. The function of this feature is marker, possibly for the nearby sinks and burials.

The function of Site -26498 is interpreted as temporary habitation and burial function with a secondary function of water collection. The burials are confined to Tube 3 and are placed near each other, suggesting a family area for burial, and that they are traditional Hawaiian burials (see below). The remainder of the site consists of paved level areas and water collections, both of which suggest habitation on at least a temporary basis. The presence of Features A-C (leveled terraces) and the energy level to create them suggests that the area was used more frequently than

a shelter. Feature A was also excavated (see below) to determine whether a burial is present. The very fine quality wooden artifact also suggests an area that was used on a fairly frequent basis. The association of water collection and burials indicates the burials likely post-date the water collection activities. Additionally, the surface Features D and E support the temporary habitation function.

Burials 46 - 49

Burial 46

Burial 46 is located in Tube 3 off of Sink 4 (Figure 129). The burial is in poor condition, and the remains are highly fragmented. The positive identification of human remains was based upon the mandible and two embedded molars (Figure 130). Approximately four additional teeth were observed, one of which is an incisor that may have been modified. It appears that a small square piece has been removed from the center front of the incisor. The enamel appears to contain cut marks that extend down the enamel towards the root from the edges of the missing square.

The bones are roughly positioned in an anatomical position indicating that this was most likely a primary burial. The area of distribution of the remains indicates that this was possibly a flexed burial. However, the highly fragmentary nature of the majority of the bones makes it difficult to ascertain for certain. A single rib that is not located in an anatomical position is amongst some placed rocks alongside the burial, indicating that this burial may have been previously disturbed. The burial is located approximately 21 m from the unmodified entrance to a side tube that was utilized primarily for water collection and burial. The location of this burial on the floor of a lava tube and the lack of historic grave goods indicates this was a native Hawaiian burial. A small piece of charcoal is also amongst the remains.

Burial 47

Burial 47 is located in Tube 3 off the southwest end of Sink 4 (Figure 129). The burial is in poor condition, and the remains are highly fragmented. Not many bones present, however, identification of the remains as positively human was made based upon the right mandible (Figure 131). Several bone fragments are too small to identify, and there are no teeth present. It is likely that this burial was previously disturbed, given the amount of bone present. Due to the poor condition of the burial, it is impossible to determine whether it is a primary or secondary burial. A small amount of charcoal is present amongst the remains and immediately north of the remains. There are also multiple water catchments immediately adjacent to the remains. Based on the location of this burial on the tube floor and the lack of any historic grave goods, it is believed that this is a native Hawaiian burial.

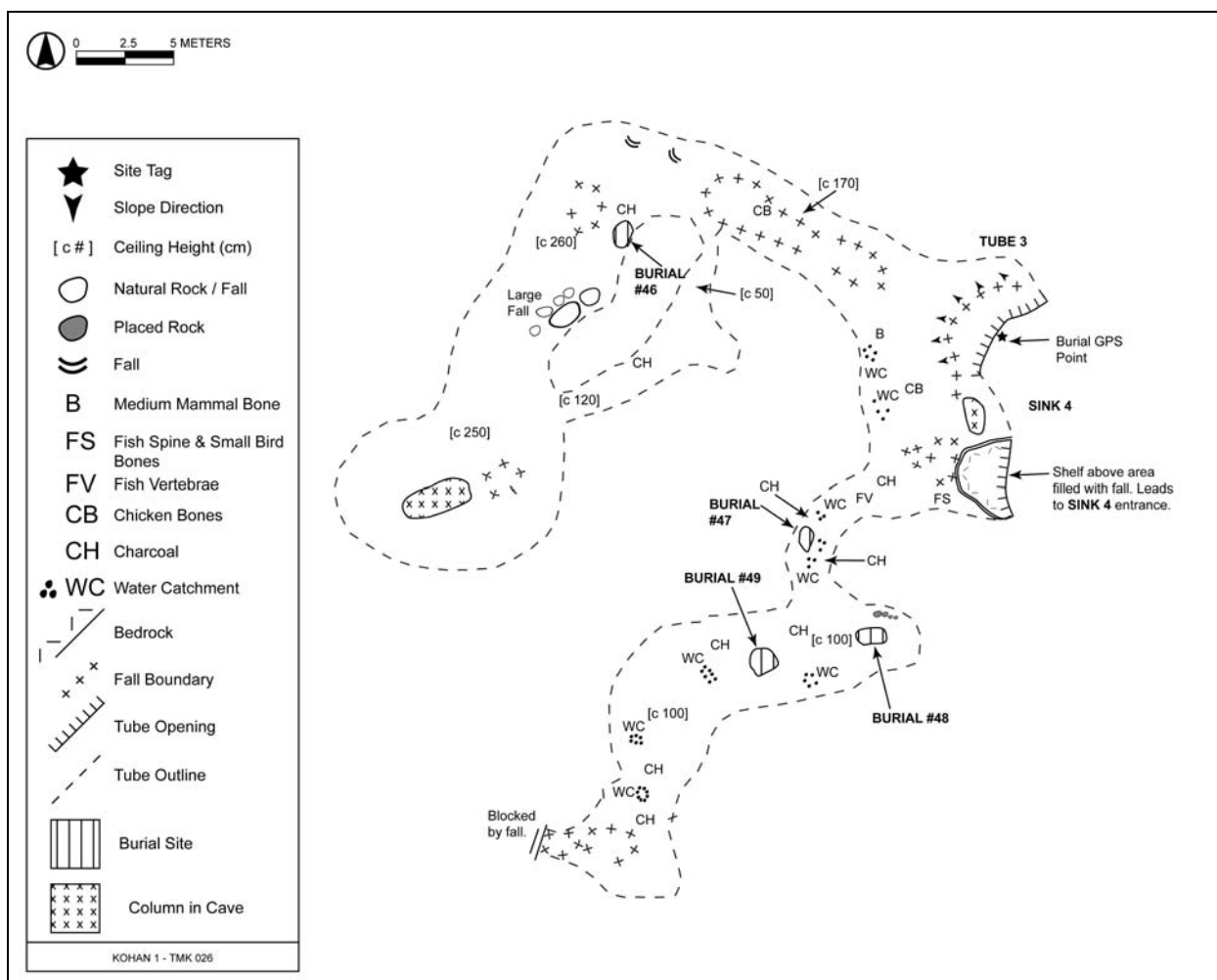


Figure 129. Site -26498, burial and temporary habitation lava tube, Tube 3, Burials 46 – 49

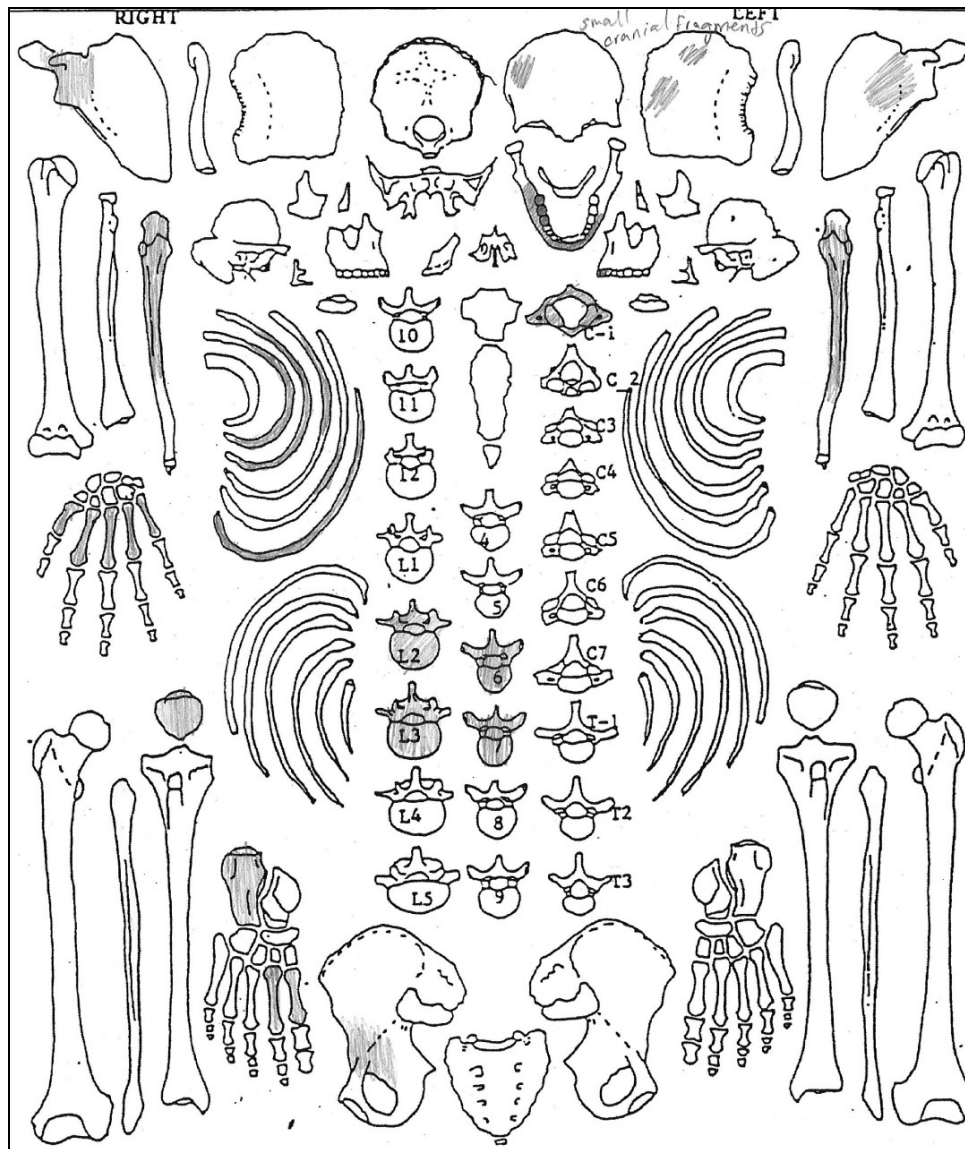


Figure 130. Site -26498, Burial 46, skeletal inventory form

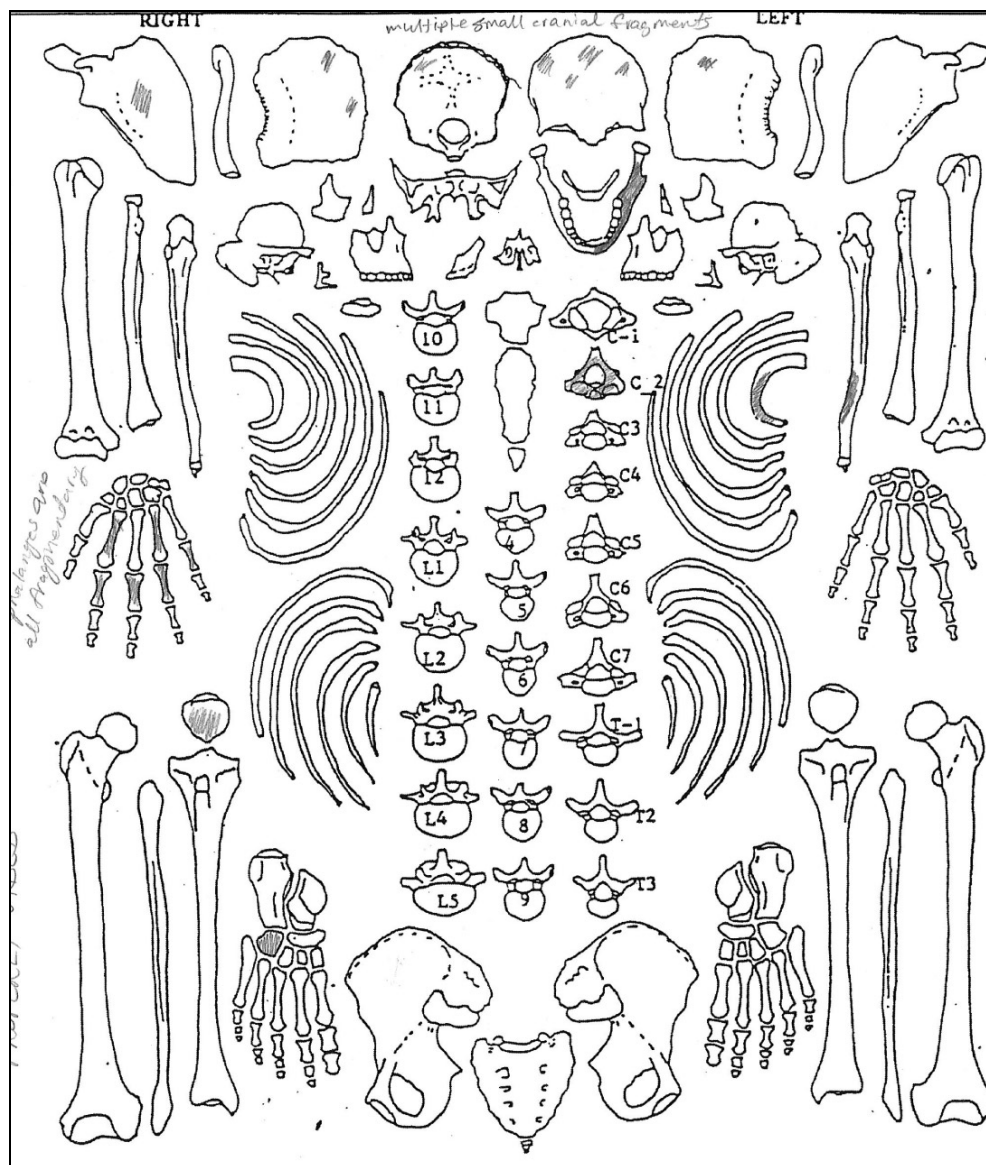


Figure 131. Site -26498, Burial 47, skeletal inventory form

Burial 48

Burial 48 is located in Tube 3 off the southwest end of Sink 4 (see Figure 129). Burial 48 is located only 6 m southeast of Burial 47 and 5 m east of Burial 49. The remains were positively identified as human based upon the large frontal bone fragment, multiple teeth, and the foot bones (see Figure 132). This burial is in an extended position with the head to the northeast, towards a small niche in the tube and the feet to the southwest, the open end of the niche. The remains are highly fragmentary but it appears that the majority of the skeleton can be accounted for except for the long bones. All of the long bones are absent from the remains. It is possible that after this primary burial the long bones were later removed for a secondary burial. A few

small scattered pieces of charcoal are near the remains and a short alignment of approximately four (4) large cobbles is alongside the remains at the base of the tube sidewall. This features could be a water catchment as this area of the tube is particularly wet. There are two (2) small (15 cm across) deposits of some type of powdery red residue present. One deposit is immediately alongside the bones and the other is directly underneath some of the right foot bones. Based on the positioning, location on the floor of a lava tube, and the absence of historic grave goods this burial is believed to be native Hawaiian.

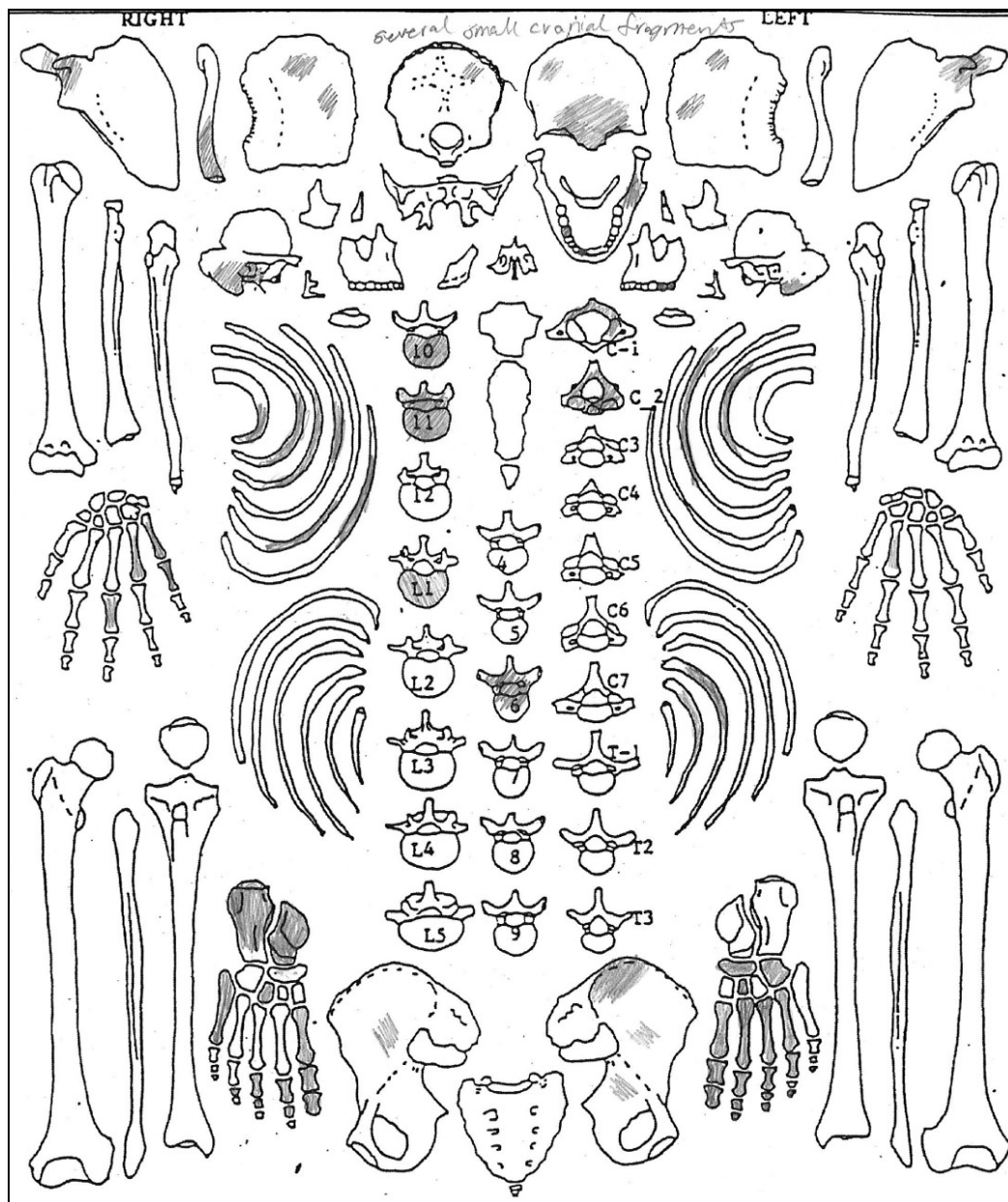


Figure 132. Site -26498, Burial 48, skeletal inventory form

Burial 49

Burial 49 is located in Tube 3 off the southwest side of Sink 4, approximately 6.5 m south-southeast of Burial 47, and 5 m west of Burial 48 (see Figure 129). The positive identification of the remains as human was based on the identification of multiple bones including the maxilla, the pelvis, the humerus and ulna, feet bones, and multiple teeth (see Figure 133). The burial is highly fragmentary and in poor condition, though the cranium itself is much more intact than Burials 46, 47, or 48. The majority of the bones and fragments, aside from the foot bones are concentrated in a single small area, suggesting that this was likely a flexed burial. The concentration of remains covers an area roughly only 70 cm across. The subpubic angle of the innominate seems wide and the individual was relatively petite suggesting this is a female but the remains are too fragmentary to positively determine gender. Some small charcoal is adjacent to the remains and there are three nearby water catchments, one is within 2 m of the remains. Based on the likely flexed positioning, the location in a lava tube, and the lack of historic grave goods, it is believed that this burial is native Hawaiian.

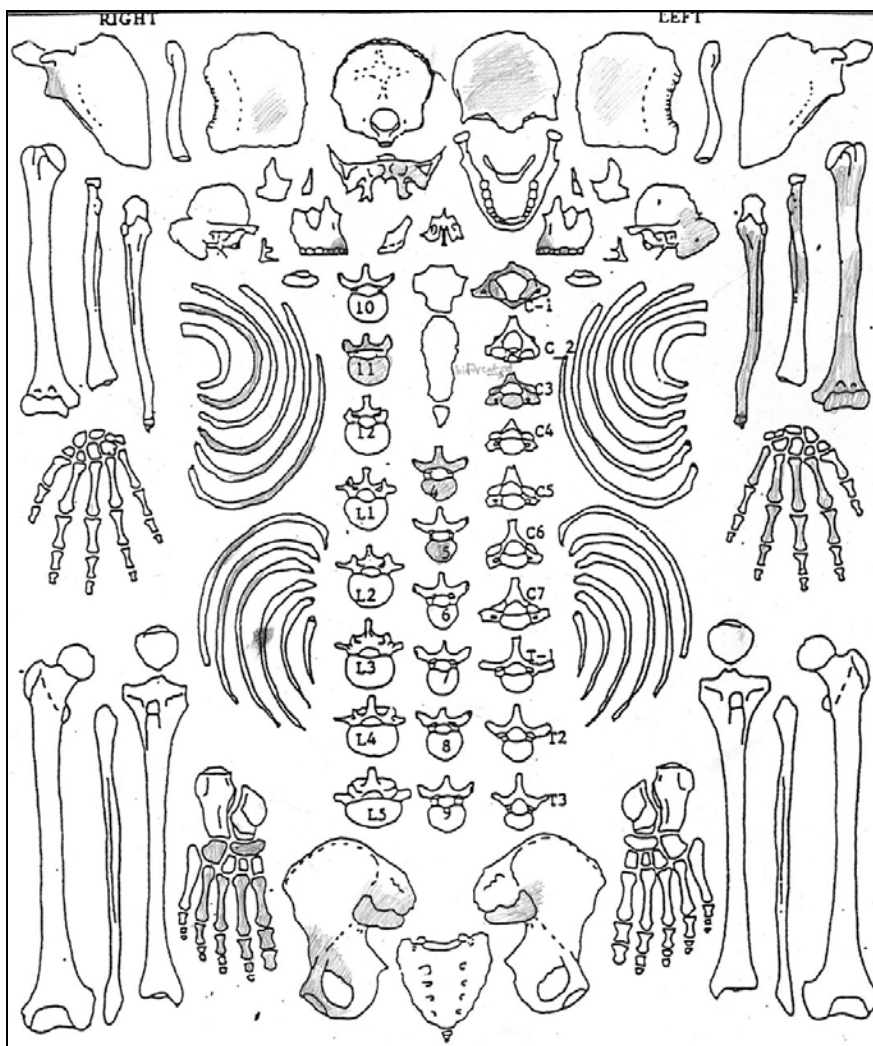


Figure 133. Site -26498, Burial 49, skeletal inventory form

Testing Results

Test excavation was conducted to determine whether a burial is present in an area of modified ceiling fall in Feature A that is leveled into a platform-like area.

No cultural material was found in the unit. Excavation showed that the Stratum I small cobble paving is only approximately 15 cm deep and that there is nothing below this except natural ceiling fall (see Figure 134). The only material found was decayed grass. While this might support the hypothesis that this leveled area was used for sleeping (and grass as padding) it is extremely unlikely grass would have survived more than a few years in this damp environment. Burial has been ruled out. Excavation findings support the temporary habitation function for this site, and Feature A represents clearing of the tube for a leveling of a surface for sitting/sleeping. No profile/plan view due to small size of unit.

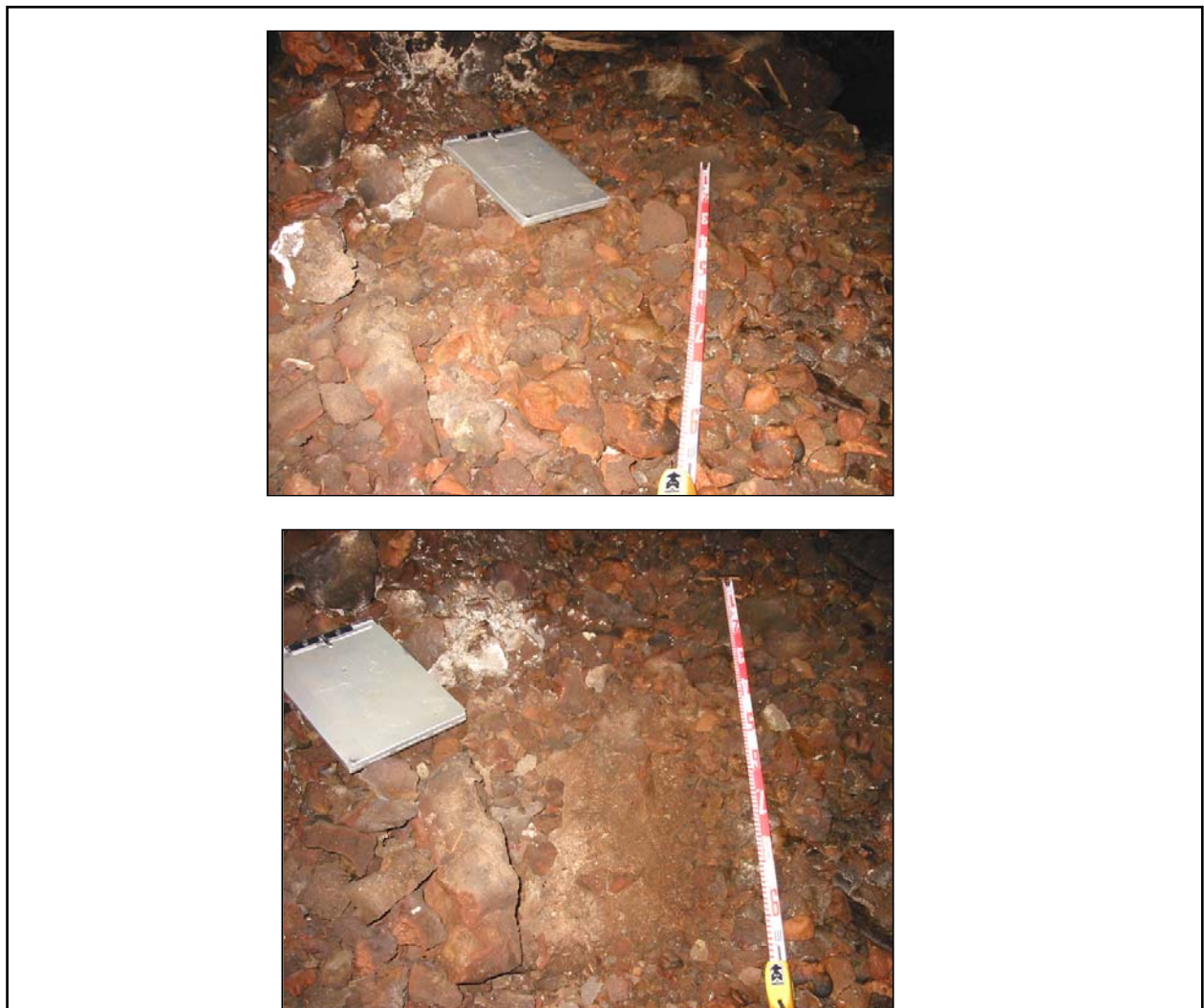


Figure 134. Site -26498 Feature A platform, pre-and post-excavation

2.1.18 State Site # 50-10-28-26499

SIHP #	50-10-28-26499
FUNCTION:	Shelter
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	30 m by 4 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	640 ft a.m.s.l.

DESCRIPTION: Site -26499 is a lava tube that travels between two shallow sinks (Figure 135). The site is located in the center of TMK 26 in Kohanaiki Ahupua'a. The topography of the area is flat, but it drops sharply to the southwest. Vegetation in the area is dense *koa haole*, grasses and large Christmas berry trees in the sinks.

The tube and sinks extend approximately 30 m northeast/southwest. Approximately 5 m to the southeast of the southern-most sink, there is a bedrock exposure with an excellent view to the south and west (*makai*), as the bedrock drops off to the south side affording a view over the trees. The south edge of the northern sink also has an excellent view from its edge. The site has a small amount of midden, a fair amount of charcoal, a few water collection constructions and two artifacts (basalt adze fragment and a coral abrader) all located within the site's main lava tube.

The lava tube of Site-26499 has fairly low ceilings and never becomes very large. Neither of the entrances are modified other than some possible clearing of boulders for ease of access (Figure 136). Within the tube modification is limited to some water collection constructions. Midden is present but scarce. A few *Cypraea* and sea urchin fragments were found, as well as two unmodified pencil urchin spines. There is, however, a fine grain basalt adze fragment, a volcanic glass flake, and a fine grained basalt flake, suggesting manufacture or use of tools in the area. The basalt adze fragment measures 3 cm by 4 cm by 3 cm.

The site's sinks are fairly shallow, generally less than one meter in depth. No modification of the sinks was noted, although large Christmas berry trees in both sinks may have disturbed any minor modification formerly present. The northern sink has a fairly flat bottom that is relatively clear of rocks and may have been used for agriculture, but no direct evidence of this is present. There is a small side tube to the south end of the north sink that appears to be fairly large, but is not accessible due to natural fall.

Excavation potential is poor due to very shallow sediment deposits of less than 3 cm, the small amounts of midden present, and the minimal modification of the tube, entrances, and sinks.

The site's function is interpreted as shelter. There is little modification that suggests temporary or permanent habitation. Midden is present but minimal, suggesting occasional use of the site. The tube is fairly small and is not suitable for habitation other than as a shelter. Site -26500, a very large sink habitation is nearby and is likely related to Site -26499. The close proximity of the site to an excellent lookout point suggests its function may be related to the lookout point. The presence of the adze fragment and coral abrader suggest the site may have been used as a storage area for tools as well.

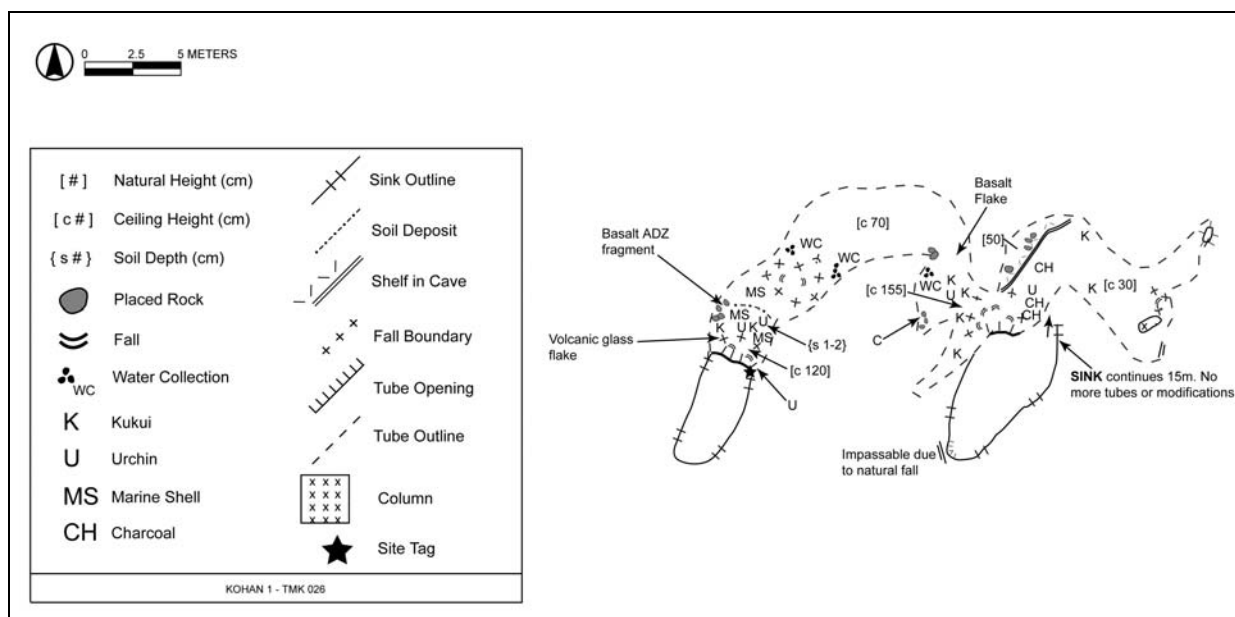


Figure 135. Site -26499 lava tube shelter, plan view



Figure 136. Site -26499, showing the southern entrance to the main tube, view to north

2.1.19 State Site # 50-10-28-26500

SIHP #	50-10-28-26500
FUNCTION:	Temporary Habitation
SITE TYPE:	Lava Tube
TOTAL FEATURES:	9
DIMENSIONS:	Approximately 105 m by 20 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	728 ft a.m.s.l.

DESCRIPTION: Site -26500 consists of four lava tubes, a very long sink, and nine features (Features A through I) (Figure 137). The site is located in the center of TMK 26 in Kohanaiki Ahupua'a. The topography of the area is a relatively flat, eroding, and slightly undulating *pāhoehoe* flow. Vegetation consists of large Christmas berry trees, grasses, *koa haole*, a single *kukui* tree and *laua'e* ferns. Nearby are sites Site -26495 and Site -26499 as well as a sparse number of agricultural mounds.

All lava tubes of the site extend off of a very large central sink that is generally two to three meters deep on nearly all sides. Vegetation within the sink makes it very difficult to discern how extensively the sink has been modified, since Christmas berry trees have clearly disrupted much of the ground surface. At least minor clearing and piling of debris is present, in addition to the designated features within the sink.

Tube 1 is on the northeast side of the sink and connects to Site -26519 (Figure 138). It has one small side tube that leads to a small surface entrance outside of the sink. A coral abrader is present in this side tube. The entrance to Tube 1 is partially modified fall and is more formal on the north edge. The modification on the north edge continues to another small side tube (just outside of the entrance to Tube 1). On top of this modification is a piece of branch coral (entire head of coral, fairly small; see testing results below). Tube 1 also contains a few water collection constructions.

Tube 2 is also located on the eastern side of the sink. It contains a few pieces of marine shell and sea urchin, as well as a coral file and a historic bottle. There are also two water collection construction in Tube 2. A small side tube northeast of Tube 2, on a ledge above the tube, has several *pandanus* brushes.

Tube 3 is located on the northwest edge of the sink and was formed primarily by large fall covering the edge of the sink where there is still a ledge on the top of the sink. The fall created caverns under the rubble. Tube 3 has three entrances and one skylight. All are very close together. The largest entrance is modified by stacking the natural fall at the entrance and leveling cobbles just in front of the entrance. This tube has one water collection construction and one cowry shell was found. The northern end of the tube is blocked by primarily natural ceiling fall. One edge of the fall has some stacking, indicating some intentional movement of the fall, but this area is impassable.

Tube 4 is located at the southern end of the sink and has a large amount of modification at its entrance, including a large wall on the east side (Feature G), a wall at the entrance (Feature H),

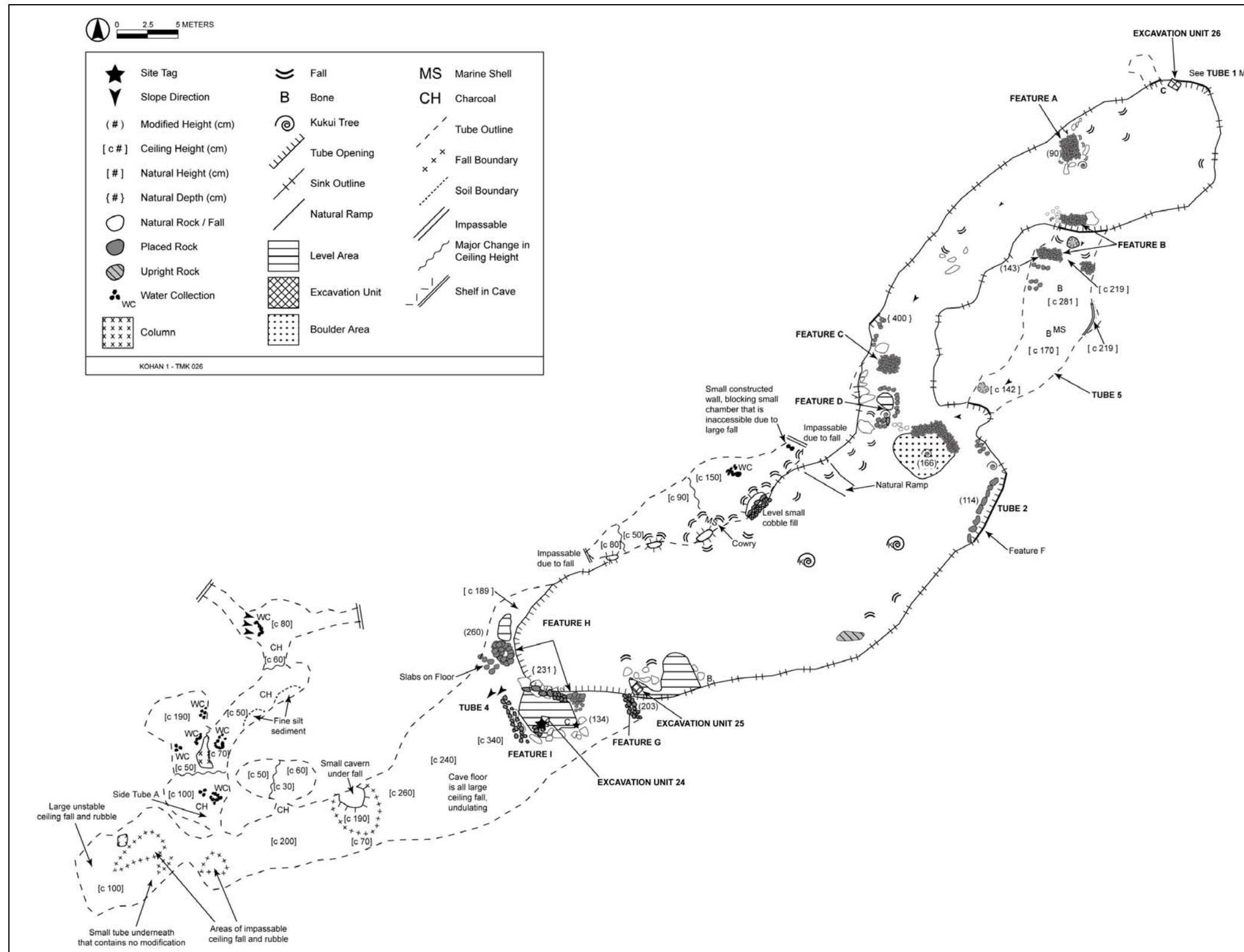


Figure 137. Site -26500 temporary habitation lava tube, plan view of main sink and location of lava tubes (see also subsequent figure)

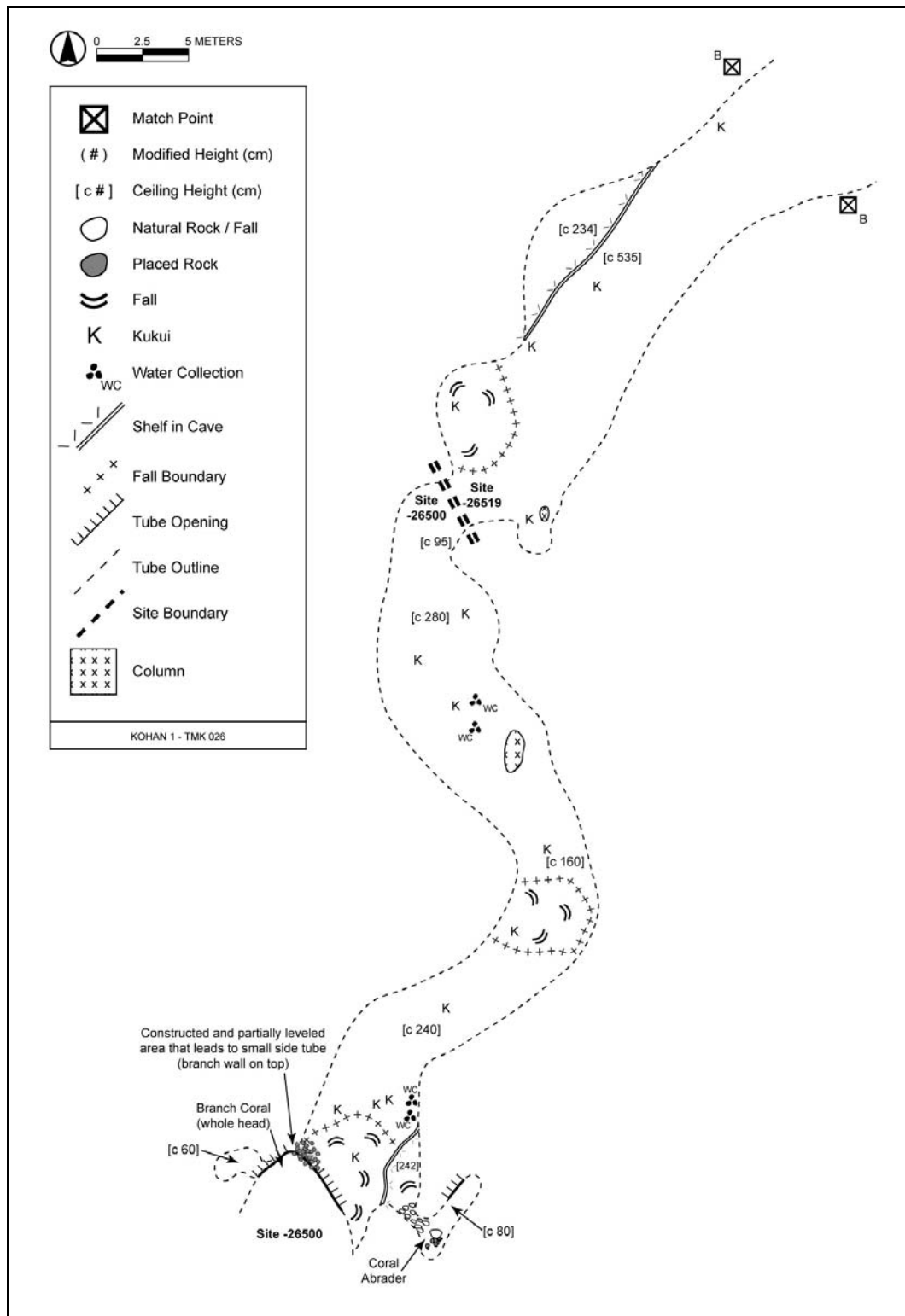


Figure 138. Site -26500, temporary habitation lava tube, plan view of Tube 1 (see also Figure 137) and connection to Site -26519

and a platform just inside the tube entrance (Feature I). Tube 4 is characterized by large fall that is unevenly spread over the tube floor. There is a small amount of charcoal in the main chamber, but no other modification. One side tube is the only part of the tube with a level floor (no ceiling fall). This side tube is very moist, with water dripping from the ceiling and several water collection constructions are present. These water collection constructions are particularly formal and undisturbed. One forms a complete oval and another a rectangle, both measuring 70 cm by 40 cm in size. This side tube also contains a fair amount of charcoal, as well as deposits (less than 1 cm) of a fine, silty sediment that is likely washed in from the surface.

Tube 5 is on the northeast edge of the sink, and has two large entrances and tall ceilings throughout. It is essentially a passageway leading from the northeast portion of the sink to the southwest portion. Feature B is located at the northeast entrance. The interior of the tube has minimal modification, with only a small amount of marine shell and non-cultural goat bone. The southwest entrance is not modified, but is slightly elevated and creates a nice view over the sink.

The function of the lava tubes is water collection, as there are several water catchment constructions in the tubes. The lack of large midden deposits suggest that the tubes these are not being utilized for extensive habitation. All tubes have large amounts of *kukui* endocarp, but this appears to be primarily from natural deposition.

Feature A is a highly disturbed platform remnant. It is located near the north end of the sink and Tube 1. The platform is constructed on top of what appears to be natural fall, modifying a rough natural entry into the sink into a very accessible "ramp" from which the sink can be accessed. The center of the platform on the south side shows exposed large fall boulders. The sides of the platform are established by large boulder uprights, ranging in size from 60 cm wide to 120 cm wide. There are three slabs of this size still in their original position. Approximately four slabs are still roughly in place around the edges of the platform, but have been seriously disturbed and displaced, and much of the platform edge is largely collapsed. The northwest wall has the only evidence of stacking. The top of the platform is sloped, creating a ramp into the sink, and it is roughly paved with small boulder slabs and sub-angular large cobbles. The function of this platform is access to the sink, serving as a component of this habitation site.

Feature B is a linear mound fronting Tube 5 near the north end of Sink 1, and a parallel wall (Figure 139). The mound is built upon natural fall near the entrance of the tube. It measures 4.2 m wide, approximately 3 m thick, and 80 cm high. It is mostly large cobbles and small boulders. The mound spans the entire width of the tube and is consistent in size. It does not appear to have a constructed entryway to ease access into the tube over the mound, however, a very large natural boulder on the north end of the mound provides stable footing for the majority of the crossing.

The wall is similar in width, also spanning the width of the tube, and averages 70 cm wide. The construction of the wall is different than the mound, utilizing smaller material, mainly large cobbles. In some places it is also slightly rubble filled. Roughly the center 2 m of the wall is collapsed into a loose slope. The wall varies in height, partially due to a somewhat unlevel tube. The west end of the wall is stepped to a maximum height of 140 cm. The east part of the wall is only 60cm in height.



Figure 139. Site -26500, temporary habitation lava tube, Feature B, showing construction from interior, view to north

Feature C is a small platform that is 1.75 m square in size, located in the central portion of the sink. Its constructed height is only 30 cm. The platform is constructed of *pāhoehoe* cobbles and boulders that range in size from 50 cm to 15 cm with an average size of 25 cm. The rocks are stacked no more than two courses in height to create a small level area. This area of the sink has many boulders from collapse that make the ground surface very uneven. Rocks were moved to check the depth of construction and for a possible burial, and no burial was found. The function of Feature C is habitation.

Feature D is a small wall with a circular terrace attached to the north side of the wall. The feature is located outside of Entrance 2 of Tube 5. It is constructed of large *pāhoehoe* slabs and boulders that average 50 cm in size, and has an upright slab on the east end of the wall. The wall is constructed in three courses of slabs and boulders.

The semi circular terrace is 170 cm in diameter. Tree roots from a very large Christmas berry tree growing out of the terrace, and next to the wall, are disturbing the feature. It is possible that Feature E was once connected to Feature D, as there is an area of boulders and fall just to the southeast of the wall. The wall appears to be constructed with and built on the adjacent fall. The function of Feature D is habitation.

Feature E is an L-shaped wall (Figure 140). It is constructed with *pāhoehoe* slabs and boulders that range in size from 40 cm to 90 cm with the average size of 60 cm. The constructed height is 165 cm with the smaller side (2 m in length) oriented northeast/southwest. The feature is located outside of Entrance 2 of Tube 5. The feature is constructed with up to six courses of boulders and slabs. The southeast side of the wall has experienced some collapse. There is a large upright *pāhoehoe* slab on the inside elbow of the L-shaped wall that is 90 cm in length. There is also an area of boulders immediately to the west of the wall that may have possibly been a platform,

however, a large Christmas berry tree has disturbed the area to such an extent that it is not possible to determine. The function of Feature E is to delineate space as part of the general habitation function for this site.



Figure 140. Site -26500, temporary habitation lava tube, Feature E, showing construction, view to east

Feature F is a linear alignment of *pāhoehoe* boulders in front of the entrance to Tube 2. The boulders are aligned in a north/south (5.65 m) line that is one boulder wide and one boulder tall. The width of the alignment is 85 cm. Some of the boulders are stacked on smaller cobbles that average 25 cm in length. The average boulder is 85 cm. The stacking of the boulders on the smaller cobbles creates a constructed height of 114 cm. The condition of Feature F is poor, and its construction is very informal, lacking any facing or courses. The function of Feature F is to divide the sink and Tube 2. There are no cracks, crevices, or depth to the construction that could possibly conceal a burial.

Feature G is a terrace that creates two tiers of paved areas just outside the entrance of Tube 4 (Figure 141). It is located along the east wall of the sink and is opposite Feature H. The west end of the terrace is constructed on top of what appears to be natural fall of large boulders, with some boulders used in construction more than 70 cm in size. Smaller cobbles and boulders that range in size from 20 cm to 50 cm are stacked to create the western wall of the terrace. This first terrace is constructed approximately 2 m above the tube floor. The paved area is approximately 2 m by 2 m and is filled with cobbles that create a level surface. On the north side of the paved area, there are large boulders that are natural fall. The second tier is constructed 1 m higher than the first due to the natural height of the fall that the feature is constructed atop. This paved area is 4.5 m east/west by 3.5 m north/south. It is leveled off in the same manner and constructed with

the same material as the lower, smaller paved area, except that the paving is much finer, being paved with smaller rocks than the lower tier. The average size of the rocks used to pave the upper tier is less than 10 cm. Given the size of the terrace, it was considered a possible burial area; excavation (see below), however, confirmed that this feature is not a burial, but rather habitaiton in function.



Figure 141. Site -26500, Feature G terrace, view to northeast

Feature H is a relatively large wall spanning most of the Tube 4 entrance (Figure 142). It is broken by a gap near the west end. The westernmost segment of the wall is the tallest, 2.3 m in height and constructed of boulders on average of 50 cm in diameter with some large foundation stones as large as 70 cm. This portion of the wall is also the thickest, measuring 1.5 m.

The gap in the wall is 1 m wide. The ground surface slopes steeply down to near the intact tube floor in a haphazard way, and no constructed entryway was observed. The east segment of the wall is at most 1.2 m tall. The wall varies in formality; the eastern 1.2 m has the best construction with small boulders with an average diameter of 40 cm and four to six courses high. The far east end of the wall has collapsed.

Feature I is a large, relatively informal terrace. The retaining wall of the terrace is present inside of Tube 4 itself. The terrace measures 6 m east/west and 5 m north/south. It is at most 1.3 m tall inside of the tube. The terrace is roughly half a circle; its diameter lies along Feature H, a wall. It then sweeps around the tube interior, encompassing a significant portion of the tube's width. The terrace is relatively informal in that it uses a large amount of ceiling fall to make up its mass. This fall has been modified to be level and the surface is paved with well sorted rubble and small to medium cobbles. Some portions of the terrace where the fall was too large to pave over remain rough. Given the size of the terrace, it was considered a possible burial area; excavation (see below), however, confirmed that this feature is not a burial.



Figure 142. Site -26500, temporary habitation lava tube, Feature H, showing the profile of the western end of the wall, view to northwest

Three test excavations (see below) were conducted to ensure that no burials were present within constructed features; no human remains were found during test excavations or exploration of the site, and test excavations generally confirm a habitation function for this site.

The site's function is interpreted as temporary habitation. The time and energy investment into the construction of the nine features suggests temporary habitation, as do the feature types. While burial was considered a likely function for portions of constructed areas of this site, no burial was found during exploration nor during subsequent excavations (see below). Overall, the modification of this very large sink and the utilization of the lava tubes are indicative of temporary habitation. Excavation potential is fair to poor depending on the feature, but overall the lack of surface midden and construction style suggest little excavation potential for this site. The large number of water collection constructions present at the site are evidence of a secondary function of water collection.

Testing Results

Test excavation was conducted to assist in determining feature functions and to determine whether burials are present. Three test excavations were undertaken to make this determination.

Feature G

The Feature G excavation unit was placed in the top of the terrace (see Figure 137 and Figure 143). Stratum I, 0 to 30 cmbs, consists of small cobble fill construction materials on large ceiling fall boulders. No cultural material nor burials were found. This feature is part of the temporary habitation, and its function is to provide easy transportation around the sink into Tube 2.

Feature I

The Feature I excavation unit was placed in the top of the terrace (see Figure 137 and Figure 144). Stratum I, 0 to 30 cmbs, consists of small cobble fill used to level the natural roof fall. No burial was present. The terrace functions as a platform for temporary habitation, and was constructed with minimal energy investment by filling cracks in the natural roof fall and laying down a small cobble paving to create a level habitation surface.

Tube 1 entrance

The Tube 1 excavation unit was placed in the top of the mound (see Figure 137 and Figure 145). Stratum I is a mix of placed fill rocks and roof fall that extends to 60 cmbs. No cultural material or human remains were found. There is a coral head was placed on top of an area of natural fall that has been slightly modified to create a level surface. This modification appears to function as modification of the Tube 1 entrance. Although the branch coral suggests a ceremonial or burial function for this site, there is no other evidence for these functions, and the function of this area should be considered habitation.



Figure 143. Site -26500, temporary habitation lava tube Feature G terrace pre- and post-excavation

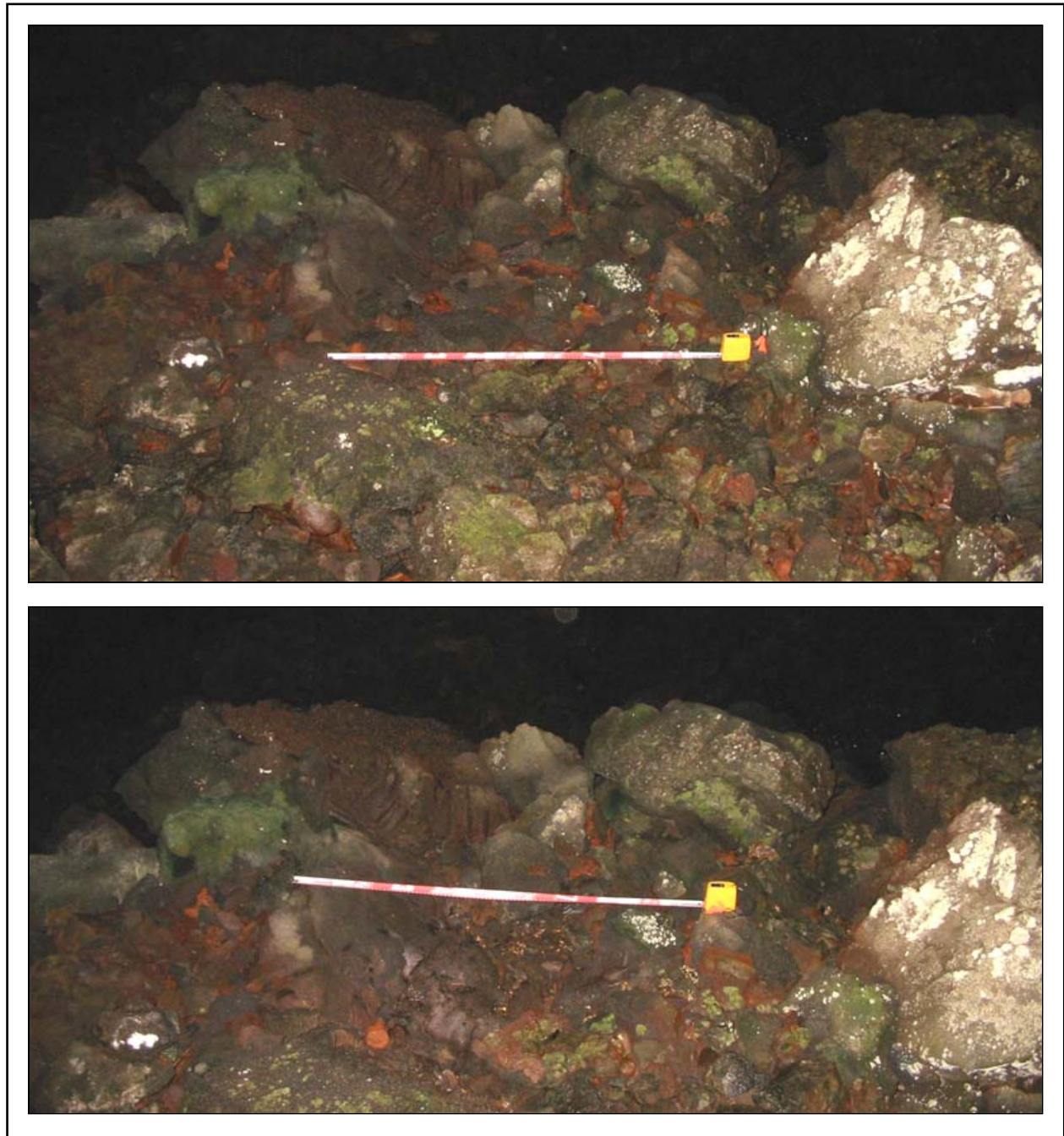


Figure 144. Site -26500, temporary habitation lava tube, Feature I terrace pre- and post-excavation



Figure 145. Site -26500, Tube 1 mound pre- and post-excavation

2.1.20 State Site # 50-10-28-26501

SIHP #	50-10-28-26501
FUNCTION:	Burial
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	14 m by 10 m
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	595 ft a.m.s.l.

DESCRIPTION: Site -26501 is a tall and wide lava tube south of the *ahupua'a* wall that runs for only a short distance. It is located in an undulating *pāhoehoe* flow sloping to the southwest in an area with many blisters, tubes, and linear depressions caused by collapsed tubes.

The lava tube is opens into two sinks, on its northeast and southwest ends (see Figure 146). Both the northeast and southwest entrances to the tube are large (1.5 m / 4.9 ft. tall or taller and 4 m / 13.1 wide or wider). The tube's main chamber is composed of two "stacked" tubes, creating two levels of about the same size and height. The upper and lower main tube contain water collection features. Several (less than six) pieces of marine shell and *kukui* were found near the south entrance. No other cultural material or modification was found in the main tube.

Three small tubes extend from the main chamber. Tube 1 is the largest and extends from the main chamber to the south. It contains three water collection features. A single large fish vertebra was also found in Tube 1. Tube 2 is a smaller tube that extends for a short distance around the west edge of the south sink and contains no cultural material. Tube 3 is a very small remnant of the lower main tube extending to the northeast that contains the majority of the site's modification, an upright and mound, an alignment, and a low mound (Figure 147).

The upright at the end of Tube 3 is a large *pāhoehoe* tube ceiling slab, is propped upright and wedged against an intact tube ceiling approximately 3.5 m (11.5 ft.) inside the entrance (Figure 148). The slab measures 70 cm wide by 70 cm high. Behind the slab (to the northeast) is a low mound of cobbles, measuring 70 cm north/south, 30 cm east/west, and 25 cm high.

The alignment is located just south of the east end of the upright and is informally stacked (maximum 2 courses high) (Figure 148). It measures 130 cm north/south, 40 cm east/west, and is a maximum of 30 cm high. It appears to be the result of clearing a passage to low mound.

The low mound is at the extremity of a very small (20 cm wide by 50 cm tall) lava tube that continues beyond the alignment in Tube 3. The entry to this tube contains small and medium cobbles, mounded approximately 20 cm deep. This low mound extends for a distance of 110 cm and is 35 cm wide. Some of the cobbles forming the informal mound appear to be natural fall, but are very well sorted and level.

The site's primary function is interpreted as water collection based on the number of water catchments present. It is also interpreted as probable burial due to the modifications of the back of the extremely small and difficult to access Tube 3. Neither mound nor tube fill seems very deep, although they may be deep enough to contain secondary burials, and no other function for this modification appears reasonable. No excavation was undertaken due to the likelihood of burial function. Additionally, the extremely tight tube restricted removal of the rocks.

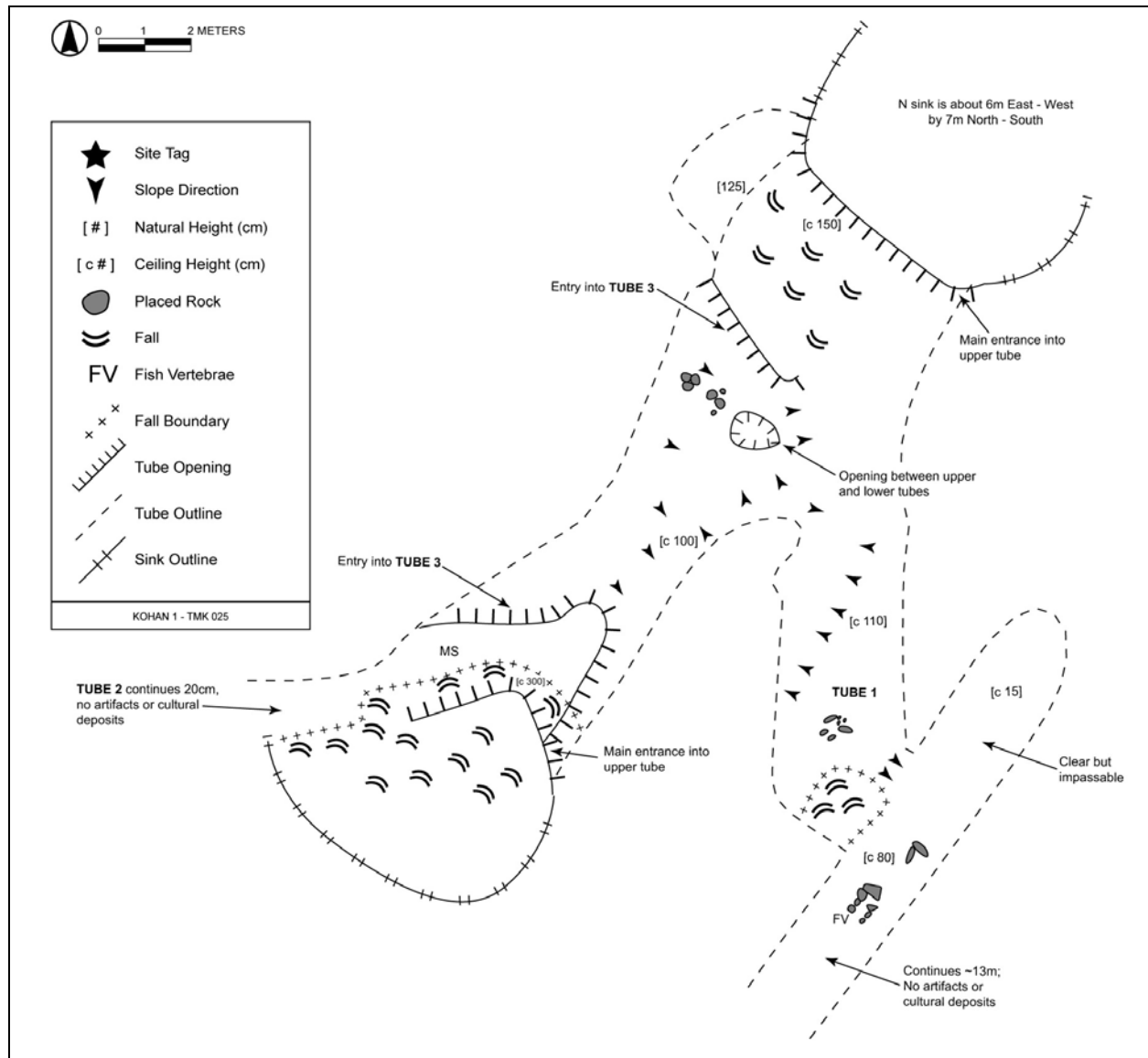


Figure 146. Site -26501, burial lava tube, upper tube plan view; Tube 3 runs under the upper tube that is shown in this figure, see Figure 147 for a detail plan view of Tube 3 (labeled entry points on this map match Figure 147 entry points

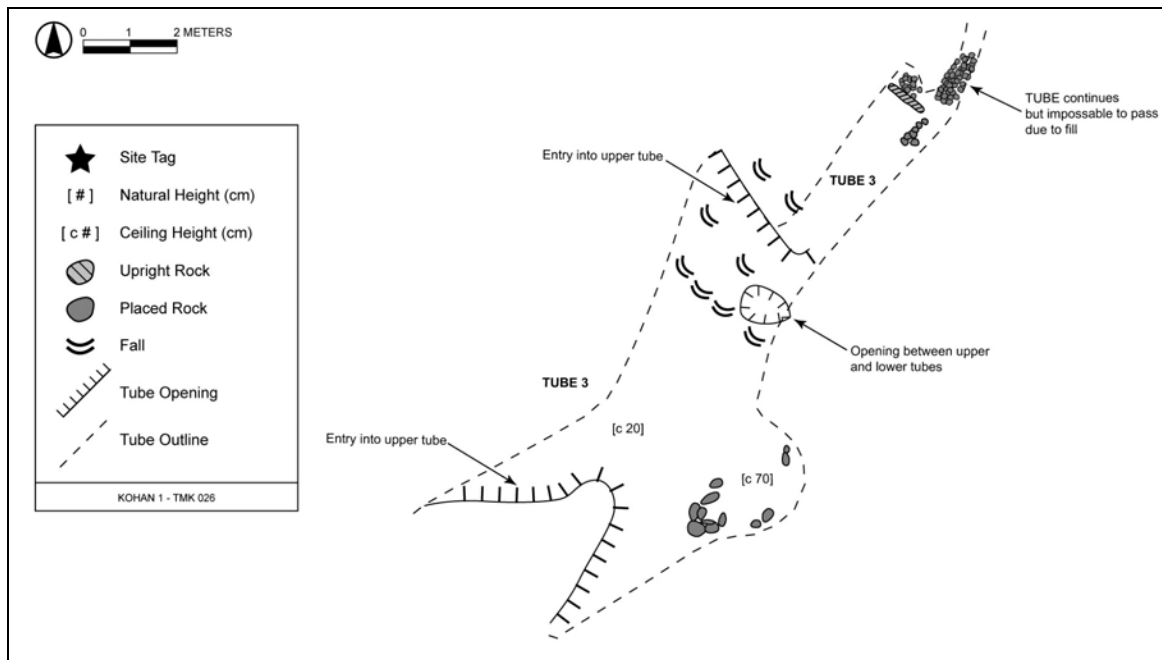


Figure 147. Site -26501, burial lava tube, Tube 3 plan view; this tube runs directly under the upper tube shown in Figure 146 (labeled entry points on this map match Figure 146 entry points)

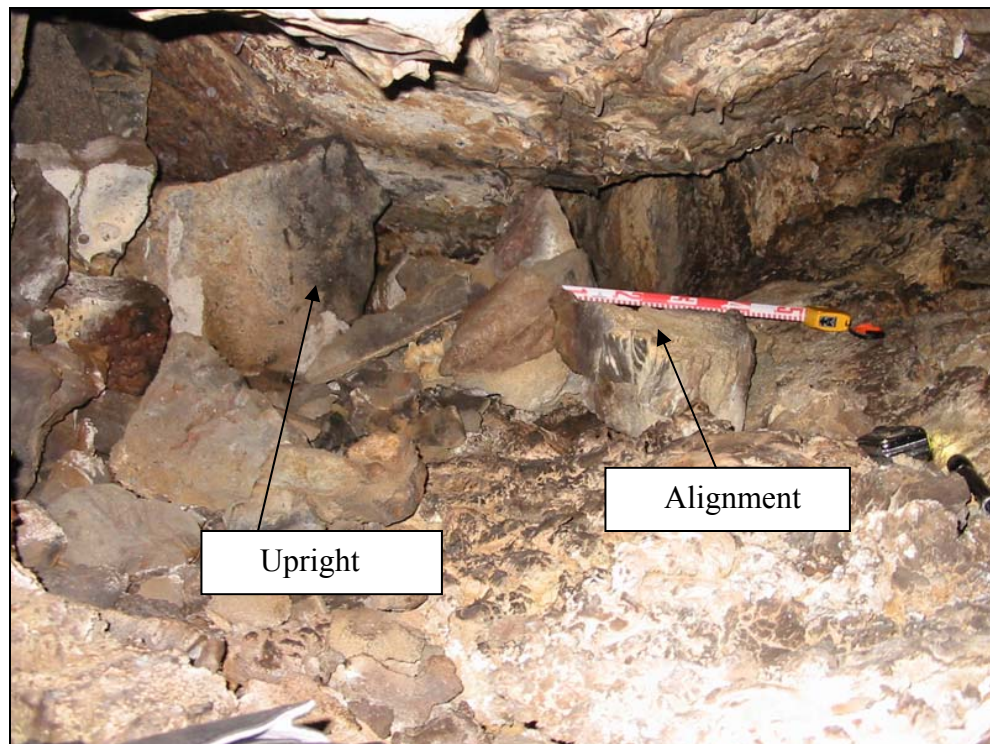


Figure 148. Site -26501, burial lava tube, view of upright and alignment at the end of Tube 3, view to north-northeast

2.1.21 State Site # 50-10-28-26502

SIHP #	50-10-28-26502
FUNCTION:	Permanent Habitation
SITE TYPE:	Complex
TOTAL FEATURES:	4
DIMENSIONS:	64 m by 56 m
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	620 ft a.m.s.l.

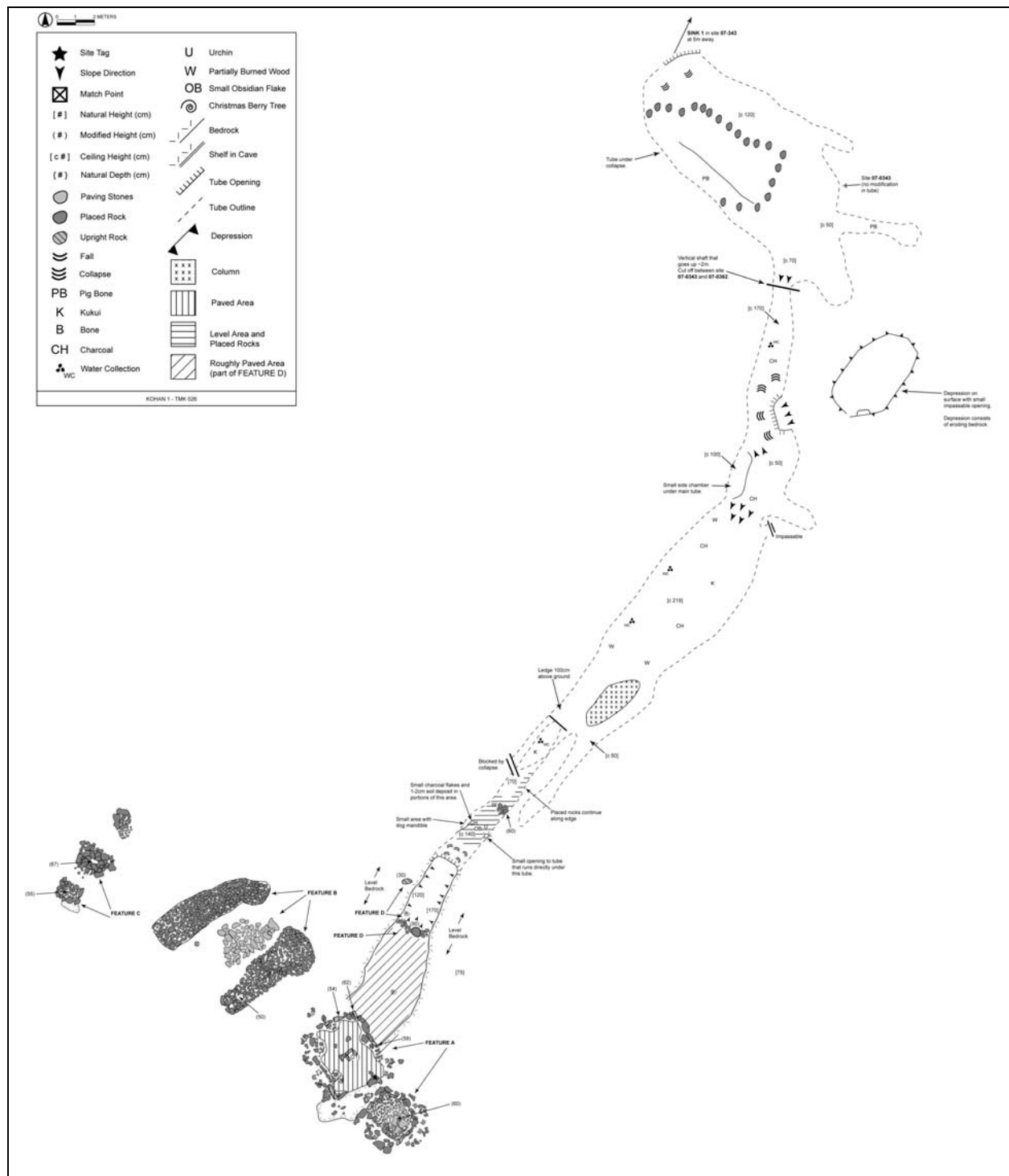
DESCRIPTION: Site -26502 is located in a fairly level area in the center of TMK 26 in Kohanaiki Ahupua'a. The terrain begins to slope downward to the west about 20 m to the west of the site. The surrounding vegetation is dense *koa haole*, grasses and Christmas berry. Considerable bulldozer activity is just to the north of the site. Site -26498, a burial and temporary habitation complex, is 40 m to the north and Site -26507 Feature D, agriculture mounds, is also near the site. This cluster of mounds is 15 m north of -26502.

Site -26502 consists of a lava tube with a large platform (Feature A), two parallel linear mounds with paving between them (Feature B), two small platforms that are adjacent to one another (Feature C), water collection constructions, and a modified entrance (Feature D) with a small amount of midden.

The tube entrance is connected to Feature A by a leveled area with a terrace (Feature D). A small upright slab (40 cm by 10 cm by 30 cm high) is on the bedrock above the depression that leads to the tube entrance. The leveled area has an informal terrace before dropping into the depression (Figure 149). The tube entrance itself consists primarily of natural fall, but about 1.5 m into the tube the natural fall stops, and there is a fairly level area with placed rocks. A small amount of charcoal and sea urchin, a volcanic glass flake, and a dog mandible are in this area. Boulders and cobbles are placed three courses high along the south wall. The tube then narrows until it comes to a shelf that drops 1 m. This opens up into a fairly large chamber with water collection constructions, charcoal, burned *kukui* nut fragments, and a few pieces of wood (some charred). This tube connects to a small entrance that is part of Site -26498.

Feature A consists of two platforms (Figure 149 to Figure 151). The northernmost platform is constructed with *pāhoehoe* slabs, cobbles, and pebbles. The north and east sides of the platform are fairly intact. They are constructed with *pāhoehoe* slabs that have been set upright to form the edges of the platform. The platform is stacked three to four courses high on the north and east sides. The south side of the platform is almost level with the *pāhoehoe* outcrop it is built on. One slab near the southeast corner has been laid on top of a few small cobbles and the bedrock. This appears to be a possible entrance way on to the platform. The west side of the platform is almost entirely collapsed. The center of the platform has a small area with three uprights aligned in a C-shape with the opening facing south to create an inlaid hearth. The hearth measures 43 cm north/south by 50 cm east/west. A 10 cm *koa haole* shrub is currently disturbing the hearth.

Although there are a few slabs placed on the surface of the platform, the majority of the surface is paved with *pāhoehoe* cobbles and pebbles to create a level surface. The overall dimensions of the northern platform are 4 m north/south by 3 m east/west.



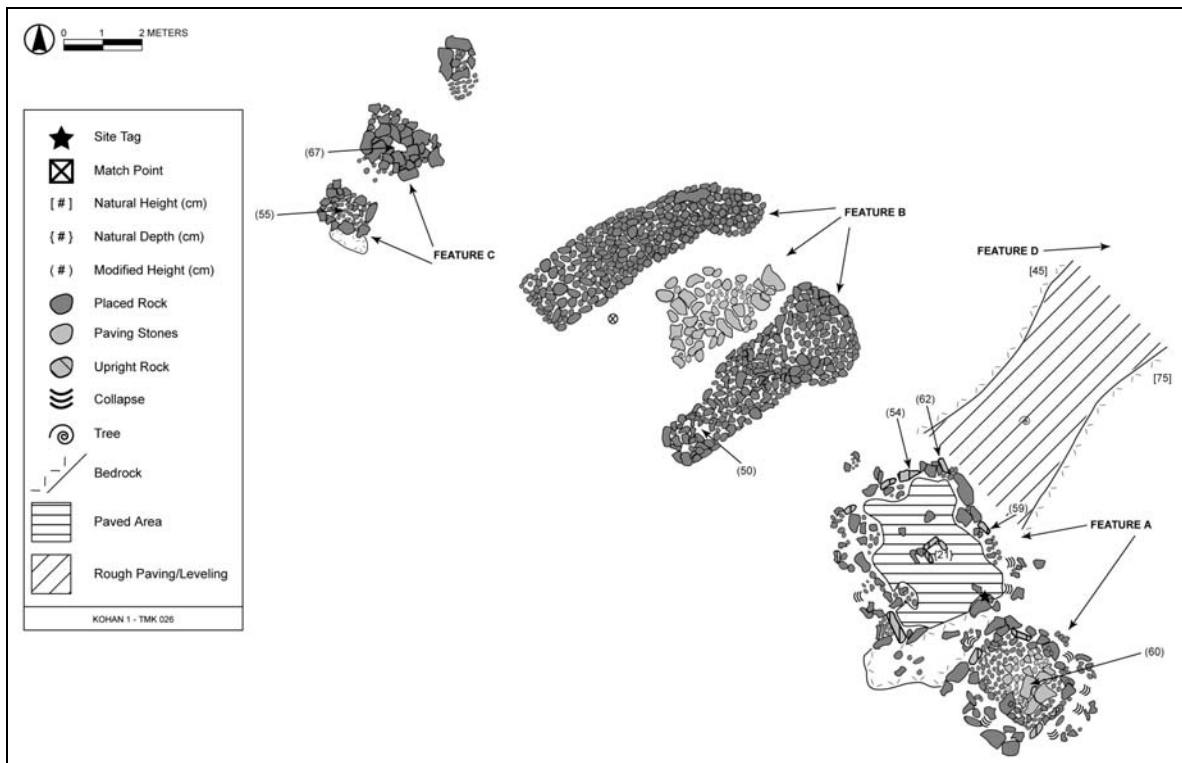


Figure 150. Site -26502, permanent habitation complex, Features A platform, Feature B mounds and paving, Feature C platforms and Feature D constructed entrance, plan view



Figure 151. Site -26502, permanent habitation complex, Feature A, overview of larger platform with small platform visible in background, view to east

The small platform immediately to the south of the northern platform (less than 1 m) measures 1.75 m north/south by 1.5 m east/west. It is constructed to a height of 60 cm. A few uprights are still standing on this smaller platform, but it has had a good deal of collapse. It is constructed in four to five courses of *pāhoehoe* slabs and cobbles. Some of the original slabs are still in the center of the platform and create a level area, but the platform is not formally paved like the northern platform.

The function of the Feature A platforms is permanent habitation. This is evidence by the size and formality of the structures, in particular the northern platform and the presence of the inlaid hearth.

Feature B is located approximately 3 m northwest of Feature A. The feature is approximately 8 m by 8 m and consists of two roughly parallel low linear mounds with a paved area between the two mounds (see Figure 149 & Figure 150).

The two mounds are essentially the same size, shape, and construction. Both are low mounds constructed of large *pāhoehoe* cobbles, small to medium boulders, and a few small slabs to a constructed height of 50 cm. Each mound is approximately 6 m in length and from 1.5 m to 2 m in width. The area between the two mounds is approximately 3 m and has been leveled and paved with small to medium *pāhoehoe* slabs, cobbles, and some small boulders (Figure 152). This area is fairly level, although not very smooth. Though this paving has been slightly disturbed by tree growth, it does not appear as if it was ever formal paving. A small water worn stone that may have some indications of grinding is just off the west end of the pavement between the mounds.

The function of Feature B, similar to feature C, is permanent habitation. The feature is similar to Feature C of the permanent habitation complex of Site -26348 in TMK 25. It is likely that the two linear mounds served as the base for a thatched roof structure with the paved area as the living surface.

Feature C is located approximately 4 m west of Feature B and measures 4 m by 1 m (see Figure 149 & Figure 150). The feature consists of two small adjacent platforms (Figure 153). The platforms are relatively the same size and shape, both being approximately 1 m square. Of the two, the south platform is in better condition and may have had slightly more formal construction. The north platform has experienced more collapse. The platforms are in alignment, only approximately 1 m apart. Both platforms are constructed of small to large *pāhoehoe* cobbles and small to large boulders. Though stacking is not clearly evident, the platforms appear to be between one and two courses high. Some very rough facing is evident on both of the platforms. This facing is constructed of a single course of large boulders. The upper surface of both of the platforms is relatively flat and level and comprised of small cobbles. The upper surface of the northern platform is less level due to collapse. A few placed slabs are atop an area of eroding bedrock to the north of the platforms, but they do not appear to be associated with the feature.

The function of Feature C is not immediately clear, although they likely function as a component of the permanent habitation of the site. They do not serve a burial function based on excavation results (see below), and there is also no evidence to suggest that they function in any sort of ceremonial capacity.



Figure 152. Site -26502, permanent habitation complex, Feature B, overview of paving with two parallel mounds, view to east



Figure 153. Site -26502, permanent habitation complex, Feature C, overview of two small adjacent platforms, view to south

Feature D is a lava tube located on the eastern side of the site (see Figure 149 & Figure 150). The feature is 16 m by 2 m and consists of an upright slab, a modified entrance to the lava tube, and a roughly paved area leading from Feature A. The upright is located on the surface approximately 2 m northwest of the entrance to the tube and is 38 cm in height. The beginning portion of the tube has been significantly modified as has the surface leading from the north platform of Feature A to the lava tube. The area has been leveled and roughly paved utilizing small *pāhoehoe* cobbles and small to medium slabs. Approximately 7 m northeast of the lava tube, the rough paving ends and there is a very minimally, informally constructed slope down to the level of the lava tube entrance. This drop is constructed with a few placed boulders and slabs to allow for easier access to the lava tube. Approximately 1.5 m into the tube, modification becomes evident. Natural fall makes up the first 1.5 m of the tube floor. Beyond this, the fall has been imported to construct a level almost paved area with slabs and boulders. This construction fills in the bottom half of the tube so that there is a continuous floor from the natural fall across the constructed floor and deeper into the tube where the natural tube floor is at the same level. An extremely thin layer of sediment (1 cm to 2 cm) is on the constructed floor. Sea urchin and a volcanic glass flake and *kukui* are also present in this area.

Beyond the constructed floor, several *pāhoehoe* boulders have been placed to construct an informal wall that partially blocks access to the remainder of the tube (Figure 154). A piece of wood is at the base of this piled wall. It is likely that this wall was constructed to serve as some form of windbreak for the water collection activities in the back portion of the tube. Some placed rocks are also along the sidewall of the tube beyond the piled wall.

The function of Feature D was to enable access via the path leading from Feature A and the constructed floor, and facilitate, via the constructed windbreak wall, the water collection activities of this tube. The upright on the surface immediately outside the tube entrance likely serves to mark the tube and its water collection activities.

The site's function is interpreted as permanent habitation. Features A-D (particularly Feature A) required extensive amounts of time and energy investment. These features are in close proximity to one another and are no doubt related, possibly as various household structures. Based on the close proximity of Site -26498 (a large habitation site) and agriculture Site -26507 Feature D, all of the sites may be related. The lava tube of Site -26502 was used primarily for water collection and possibly partially as a shelter, as there is a small amount of midden present. No burials were found, and the platforms and mounds are not large or deep enough for interment. Although no midden was observed on the surface, the heavy vegetation on the site could have concealed it. All evidence indicates the site's function is permanent habitation.



Figure 154. Site -26502, permanent habitation complex, Feature D, showing the constructed floor and blocking wall, view to northeast.

Testing Results

Test excavations were conducted to assist in determining feature function and in some cases to determine whether a burial is present. Three excavations were conducted to make these determinations, one (Unit 27) within Feature A and two (Unit 21 & 22) within Feature C.

Feature A

Unit 27 was conducted in Feature A to assist in determining the feature function (Figure 155 and **Error! Reference source not found.**). Stratum I is constructed. Stratum II, extending from 20 to 35 cmbs is sediment from the surface containing midden, consisting of charcoal, marine shell, sea urchin, volcanic glass, and a small basalt flake. Two small pieces of coral were found in the eastern corner of the test unit. Cultural material tends to be more concentrated closer to/within the hearth. Stratum III, from 35 to 45 cmbs is an isolated ashy area located in the center of the hearth containing charcoal that was collected. Stratum III likely represents use of the hearth, as it is in the center of the hearth, contains ash and charcoal, and burned shell. Feature A functioned as habitation, possibly a cooking house.

Feature C (Unit 21)

Unit 21 was conducted in Feature C in the southern platform to assist in determining the feature function and check for burial (Figure 157). Stratum I, extending from 0 to 44 cmbs, consists of large boulders and medium cobbles. Layer I is all small cobble and medium cobble fill for the purpose of leveling surface. Stratum II consists of eroding bedrock containing small cobbles with a small amount of sandy loam. Bedrock was encountered at 54 cmbs and no cultural material was found. Function is not related to agriculture, and habitation is likely.

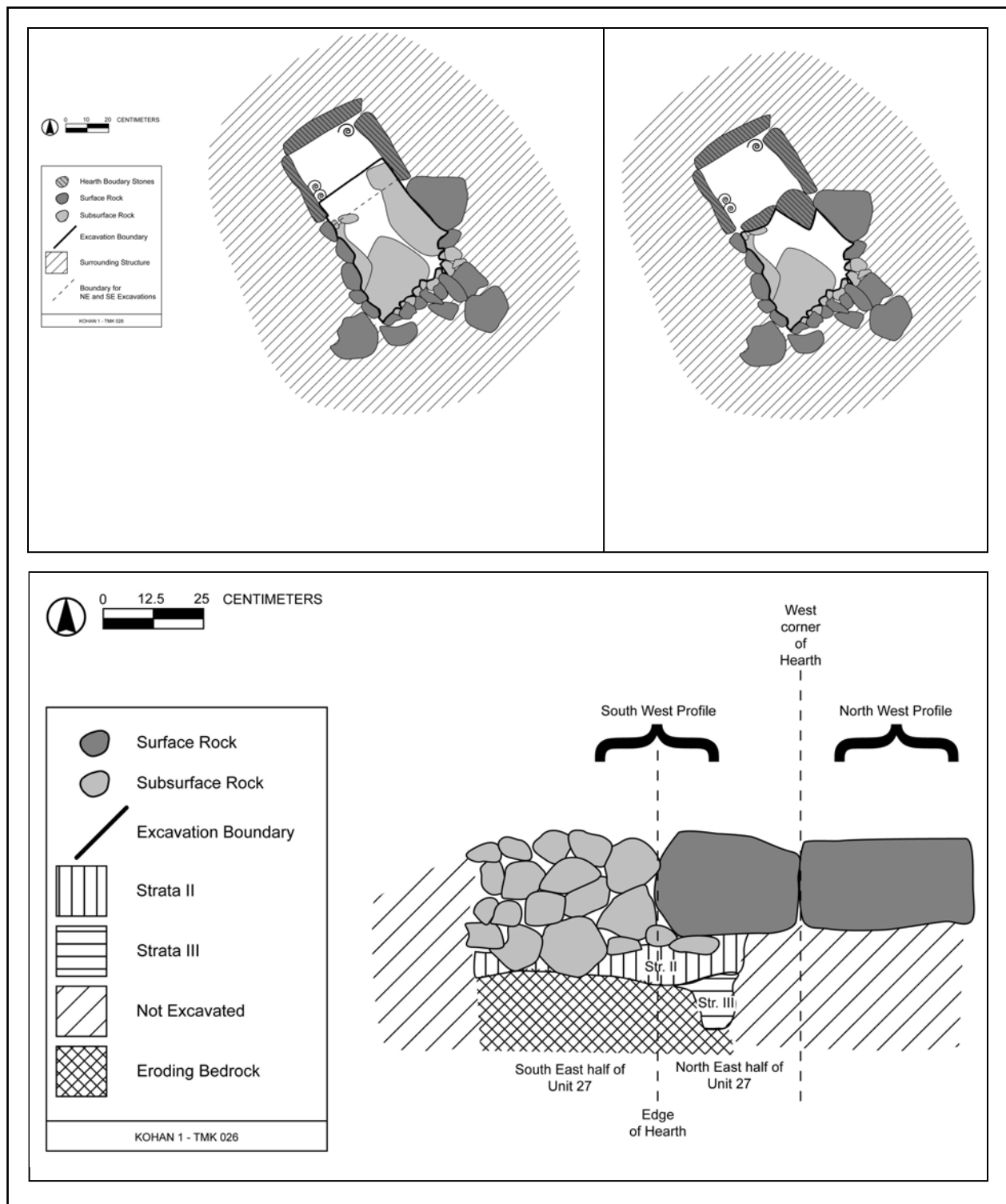


Figure 155. Site -26502, Feature A platform excavation figures. Counter-clockwise from top right: southeast excavation unit plan view; northeast excavation unit plan view; southwest and northwest walls profile



Figure 156. Site -26502, Feature A platform, pre- and post- excavation

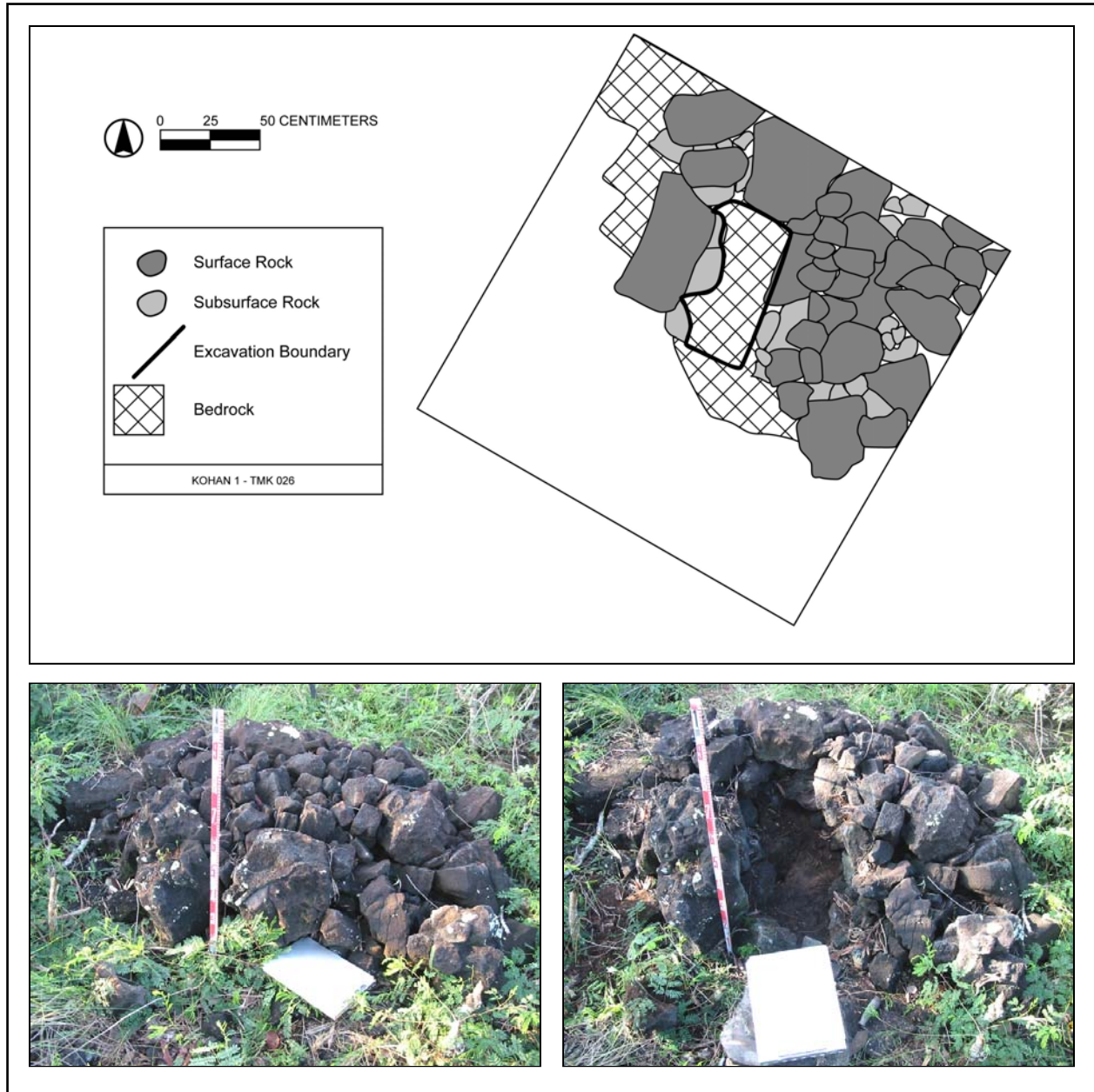


Figure 157. Site -26502, Feature C platform, Unit 21 excavation figures. Counter-clockwise from top: excavation unit plan view; platform pre- and post-excavation

Feature C (Unit 22)

Unit 22 was conducted in Feature C in the north platform to assist in determining the feature function and to confirm a burial was not present (Figure 158). Stratum I extended from 0 to 55 cmbs, and Stratum II extended from 55 to 67 cmbs with similar results as Test B. The platform is similarly constructed to an agricultural mound but due to the proximity of other habitation features, habitation is likely.

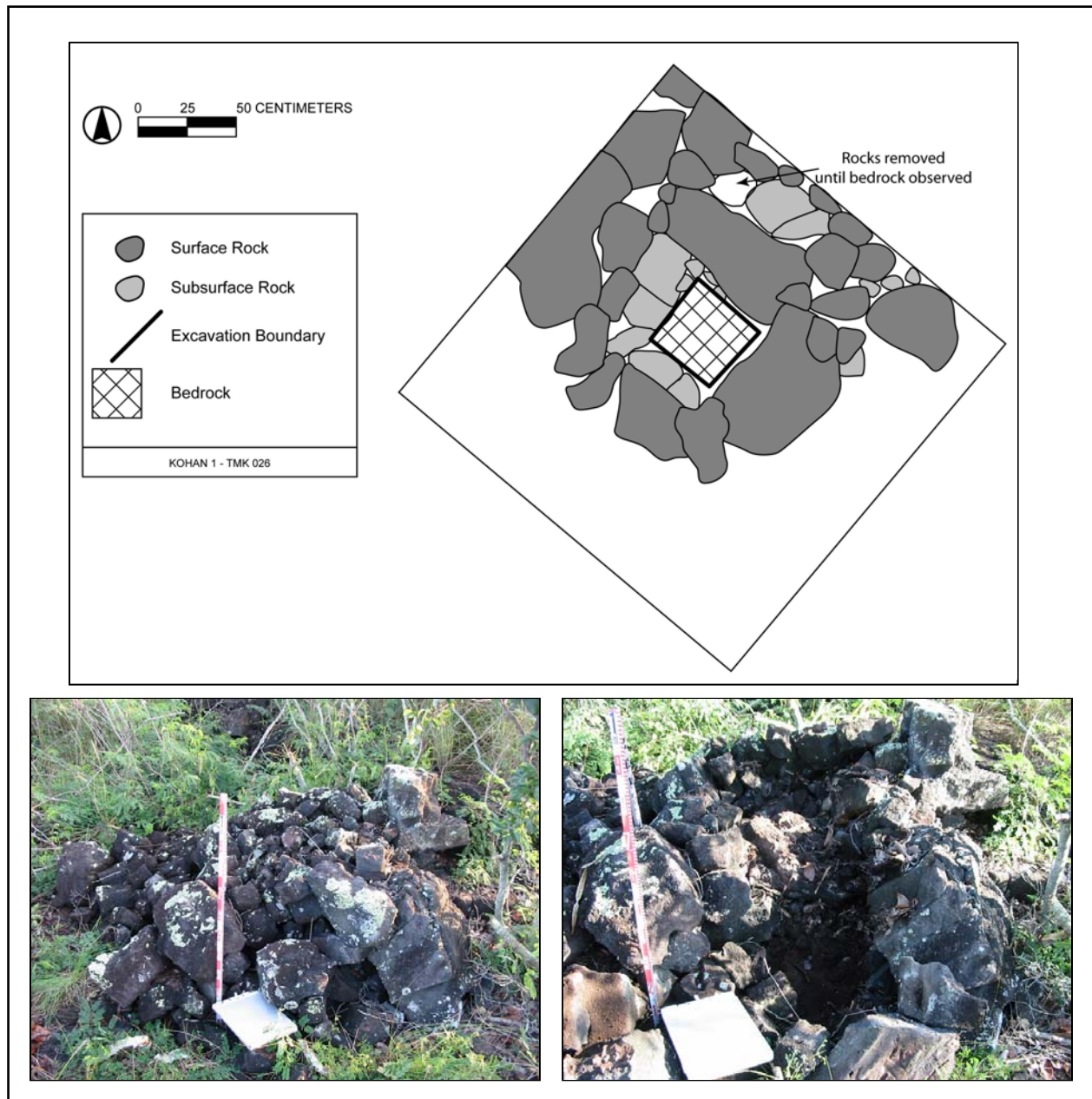


Figure 158. Site -26502, Feature C platform, Unit 22 excavation figures. Counter-clockwise from top: excavation unit plan view; platform pre- and post-excavation

2.1.22 State Site # 50-10-28-26503

SIHP #	50-10-28-26503
FUNCTION:	Burial and Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	70 m by 30 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	590 ft a.m.s.l.

DESCRIPTION: Site -26503 is a series of three sinks, a network of lava tubes, and a single surface structure located in the southwest quadrant of the project area, south of Site -10712, the *ahupua'a* wall. Two of the three sinks of the site are dominated by Christmas berry while the surface vegetation in the area consists primarily of *koa haole* and grasses.

The site consists of three sinks, Sink 1, Sink 2, and Sink 3, and a network of lava tubes, though only two tubes, Tube 1 and Tube 2, are assigned tube designations. The entire site is oriented roughly northeast/southwest. The single surface structure, an informal C-shape is located at the northeast end of the site, northwest of Sink 3 (Figure 159).

Tube 1 runs northeast/southwest between Sink 2 and Sink 1 and continues southwest of Sink 1 for approximately 20 m. The primary modification in this tube occurs on the northeast side of Sink 1. At the bottom of this entrance from Sink 1 some boulders and large cobbles have been informally stacked to a height of 60 cm. The function of this is to narrow this entrance. Medium to large cobbles are also placed on the end of a shelf at the beginning of Tube 2. The construction of this low wall is formal stacking to form a barrier whose function appears to be concealment, as it blocks the line of site from the shelf where the modern campsite was encountered to the entrance into Sink 1. This wall, however, does not significantly impede passage into Tube 2. This wall may be a modern construction associated with the camp or may have simply been convenient for this camper. A few *pāhoehoe* slabs (approximately 30 cm) appear placed along the northwest tube lava tube wall in Tube 1. An upright stone (approximately 85 cm) has been placed in a shelf in the southeast wall across from the slabs.

There is a thin entrance approximately 50 cm on the southwest side of Sink 1, or access is possible through a path around the southeast side of Sink 1, under the natural fall. The tube immediately opens into a large chamber (approximately 20 m southwest/northeast by 12 m southeast/northwest by 150 cm in height). This chamber in Tube 1 has a large pillar near the entrance from Sink 1(northeast end of chamber). Southwest of the pillar is a large area of natural fall. Around the edges of this fall, boulders and cobbles appear to have been cleared from the floor (pushed into the fall or around the walls) in many areas, forming pathways. There are many water collection features, some of which are quite large (up to 1 m) and formally constructed. The function of Tube 1 seems to be primarily related to water collection activities.

The entrance to **Tube 2** is located off the northwest side of Tube 1, closer to Sink 1. Tube 2 consists of a fairly extensive network of small tubes with multiple chambers and branches. Water collection features were found throughout Tube 2. Close to the location where Tube 2 connects to Tube 1 there was a campsite on a ledge with a sleeping bag and modern rubbish scattered

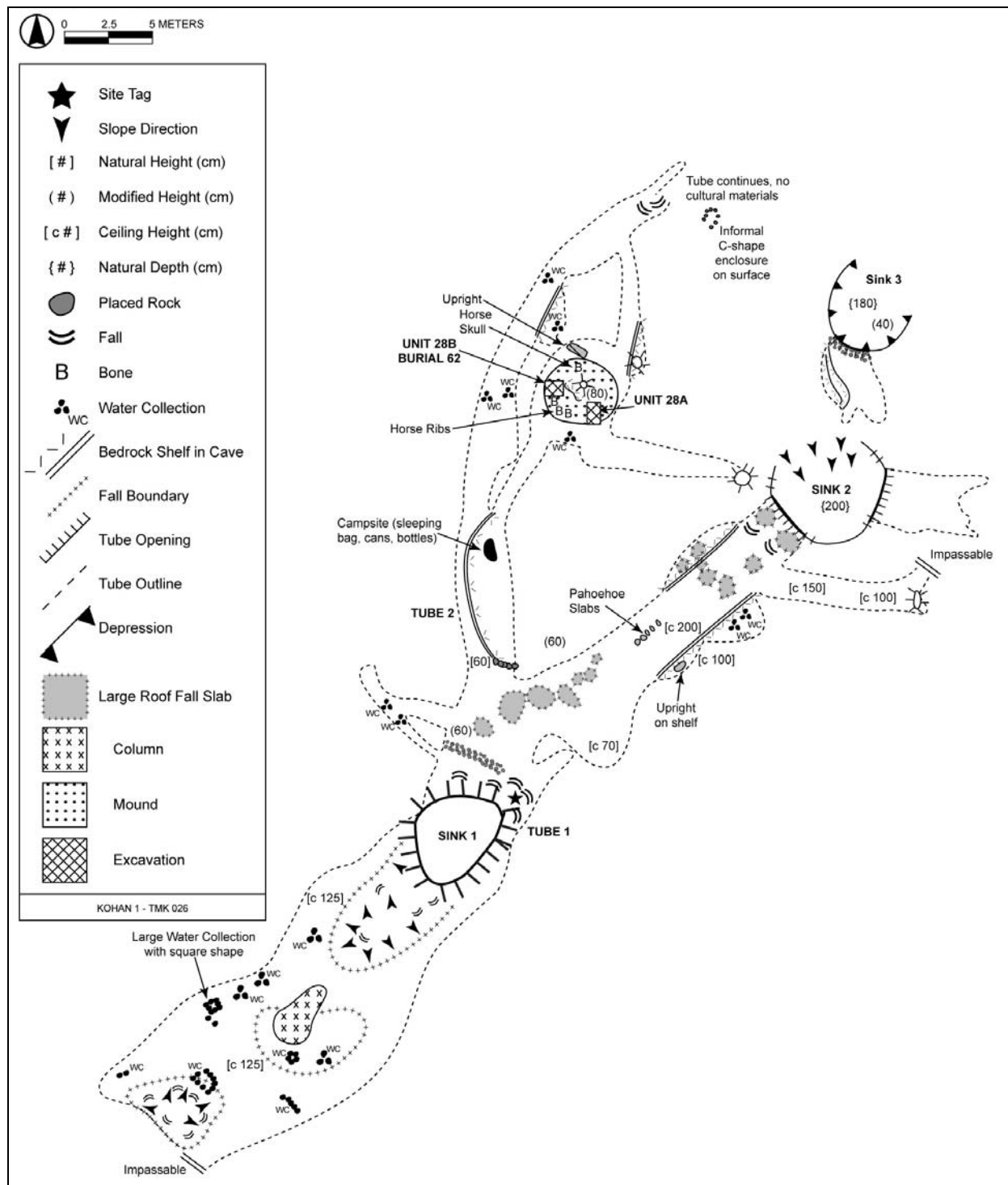


Figure 159. Site -26503, water collection and burial lava tube, overview, plan view

around. Northeast of this campsite, a tube continues northeast for approximately 6 m into a medium sized chamber (about 5 m east/west by 7 m north/south). In the center of this chamber is a mound of small and medium cobbles (4-20 cm) (Figure 160 & Figure 161). The mound occupies most of the chamber measuring 3 m north/south by 4 m east/west by 80 cm. A small opening to the surface was located directly above the mound, however, it did not appear as though the mound had been created simply from natural ceiling fall in this area. The size, shape, and composition of the mound suggest a more formal construction, perhaps by mounding small and medium cobbles onto the boulders of a natural ceiling fall. On the north side of the mound a large (close to 1 m by 1 m by 15 cm thick) *pāhoehoe* slab is upright, touching both the mound and the tube ceiling. The slab appears to be the same material as the nearby ceiling and may have come from the area over the mound, however, approximately 50 cm of the slab is wedged under intact ceiling, suggesting it was moved and placed in its present location. On the mound, resting against the slab and facing west, a nearly complete horse skull (no mandible observed) was found. Three horse rib fragments were encountered on the northeast side of the mound. There is no apparent way a horse could have entered this chamber on its own, and the remains are thus interpreted as culturally deposited material. This mound was later excavated in an attempt to determine function (see Testing Results below for findings).

In an 'a'ā exposure 10 m northwest of Sink 2 is a small, very informal C-shaped enclosure with a diameter of approximately 2 m. The function of the enclosure is likely a temporary shelter associated with the water collection activities of this site.

The site's function is interpreted as water collection and burial. Water collection features were the most commonly encountered feature, and were encountered in most areas of the site. Some areas, such as the beginning of Tube 2 and the surface enclosure, are suitable for short term habitation or shelter, however, midden materials and artifacts were conspicuously absent from these (and all other) areas. The burial function of this site is supported by the presence of Burial 62, discovered during test excavations (see below for details).

Testing Results

Two test excavations were conducted to assist in determining site function and to determine whether a burial is present.

Unit 28A

Stratum I, from 0 to 10 cmbs, is a relatively dense mix of soil (with organics-primarily rootlets) and *pāhoehoe* small to medium cobbles (Figure 162). The trench shows that the mound has considerably less cobble volume than appears and has a potentially solid fall center. However, fall is likely to have gaps beneath where a burial may be located.

Unit 28B

This second excavation trench was placed in the mound to access the area underneath the large piece of fall uncovered in the first trench (Trench 28A) in this mound (Figure 163). Stratum I consists of *pāhoehoe* cobble fill mixed with soil. The *pāhoehoe* small to medium cobble fill was mixed with soil throughout the mound or with the soil making up the majority of the fill volume towards the bottom of the unit. No midden or artifacts were encountered in the unit. A small, likely distal phalange was found in the screening process. This led to the designation of

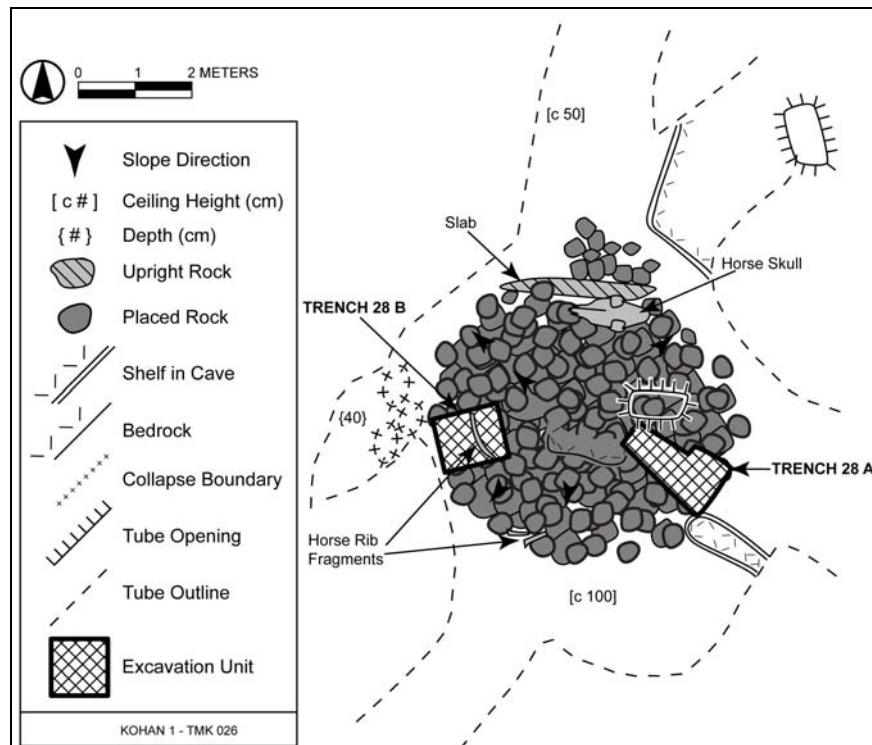


Figure 160. Site -26503, mound and upright plan view

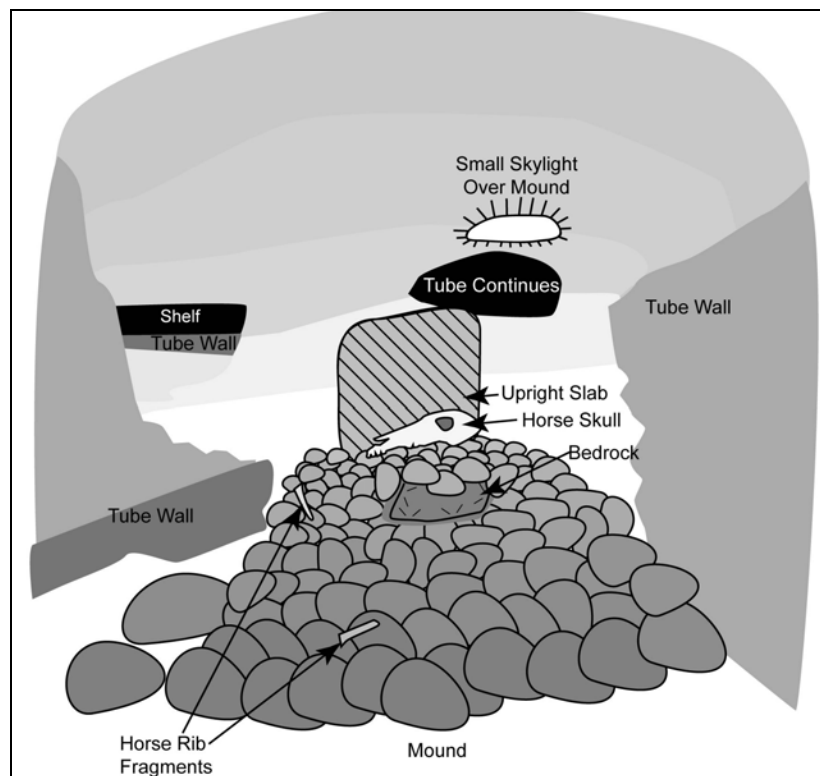


Figure 161. Site -26503, mound and upright, profile view

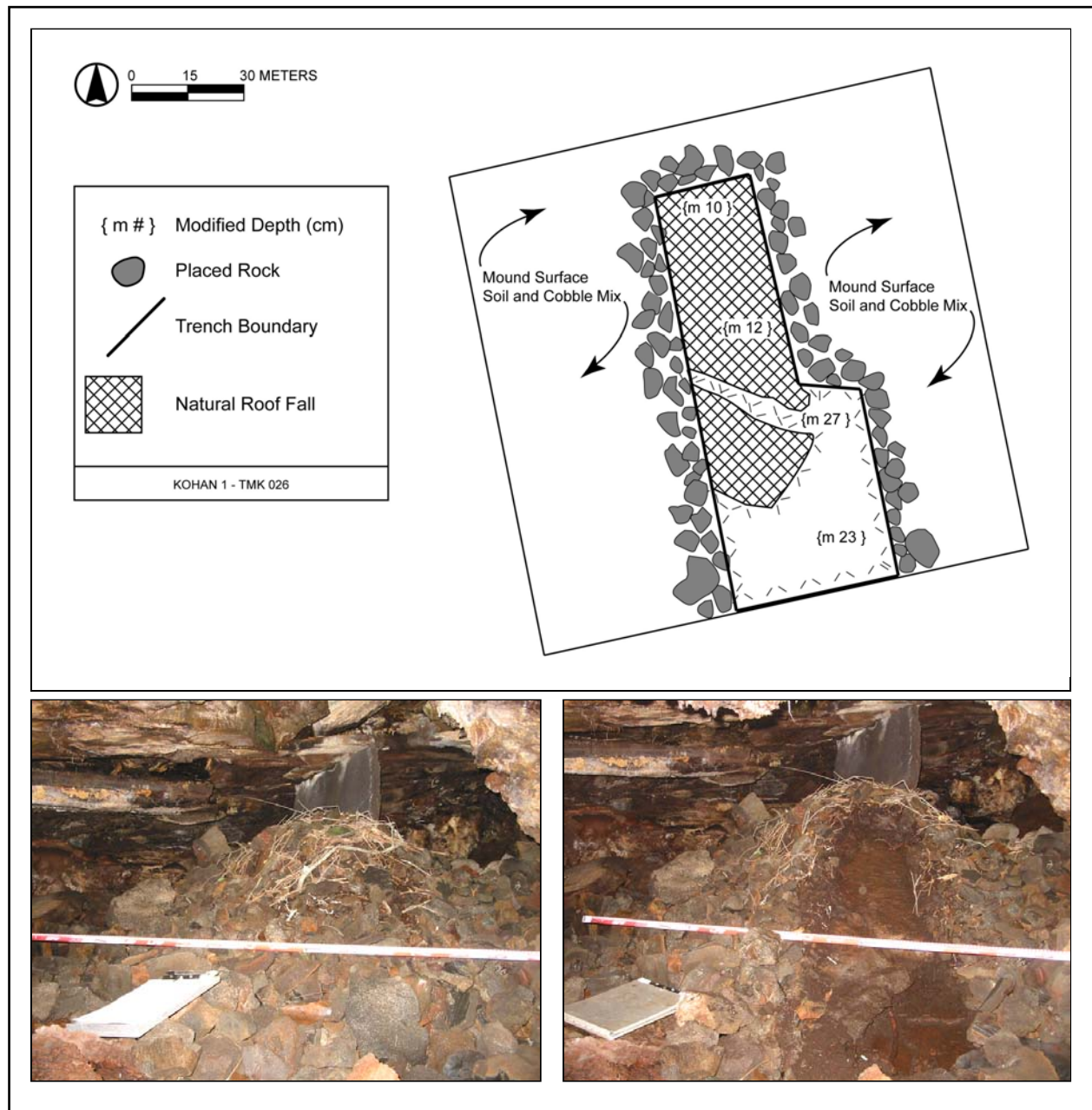


Figure 162. Site -26503, excavation figures for Unit 28 A. Counter-clockwise from top: plan view; mound pre- and post-excitation

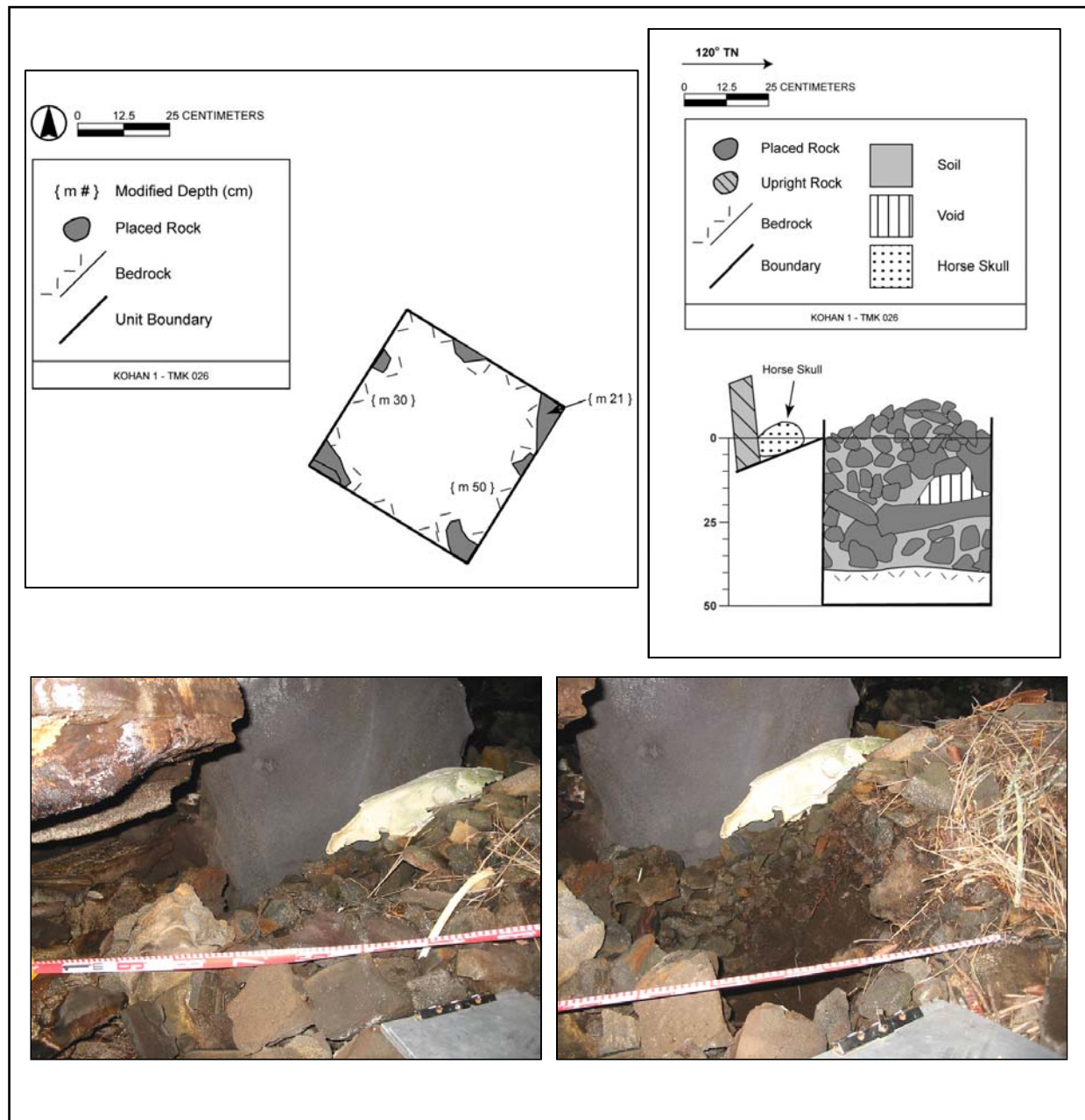


Figure 163. Site -26503 excavation figures for Unit 28 B. Left to right, top to bottom: excavation unit plan view; northeast wall profile; mound and upright pre- and post-excitation

Burial 62 (see below). In the southeast wall of the unit (see Figure 163) there was a visible void between the rocks, under the large piece of ceiling fall. This void may have been partially natural but given the constructed mound with the upright and horse skull atop, it appears the mound was constructed to make use of this void as a sort of crypt for a burial mound. No other bones were visible but the void appears to be just the opening to this chamber with the remainder of the burial further back than was visible from the unit.

Burial 62

Burial 62 is located in a small chamber of Site -26503, and was found during excavation of Unit 28 B. Only one distal phalange was observed (Figure 164). However, based on the substantial structure beneath the *pāhoehoe* rubble, additional deposits of bone are likely. Combined with the upright in the chamber, this is certainly a human burial. Some questions remain, as this burial is unusually exposed to light and to the elements. The presence of the horse cranium (no mandible) suggests this individual may have been involved with ranching in the area.

More of the burial is believed to be beneath the center of the mound under what appears to be the slab of fall with a natural void underneath or a natural fall slab propped up partially to construct a crypt. Ethnicity of this burial is most likely native Hawaiian based on the burial style and location in a lava tube. Its more recent origin may suggest a ranch hand or *paniolo*.

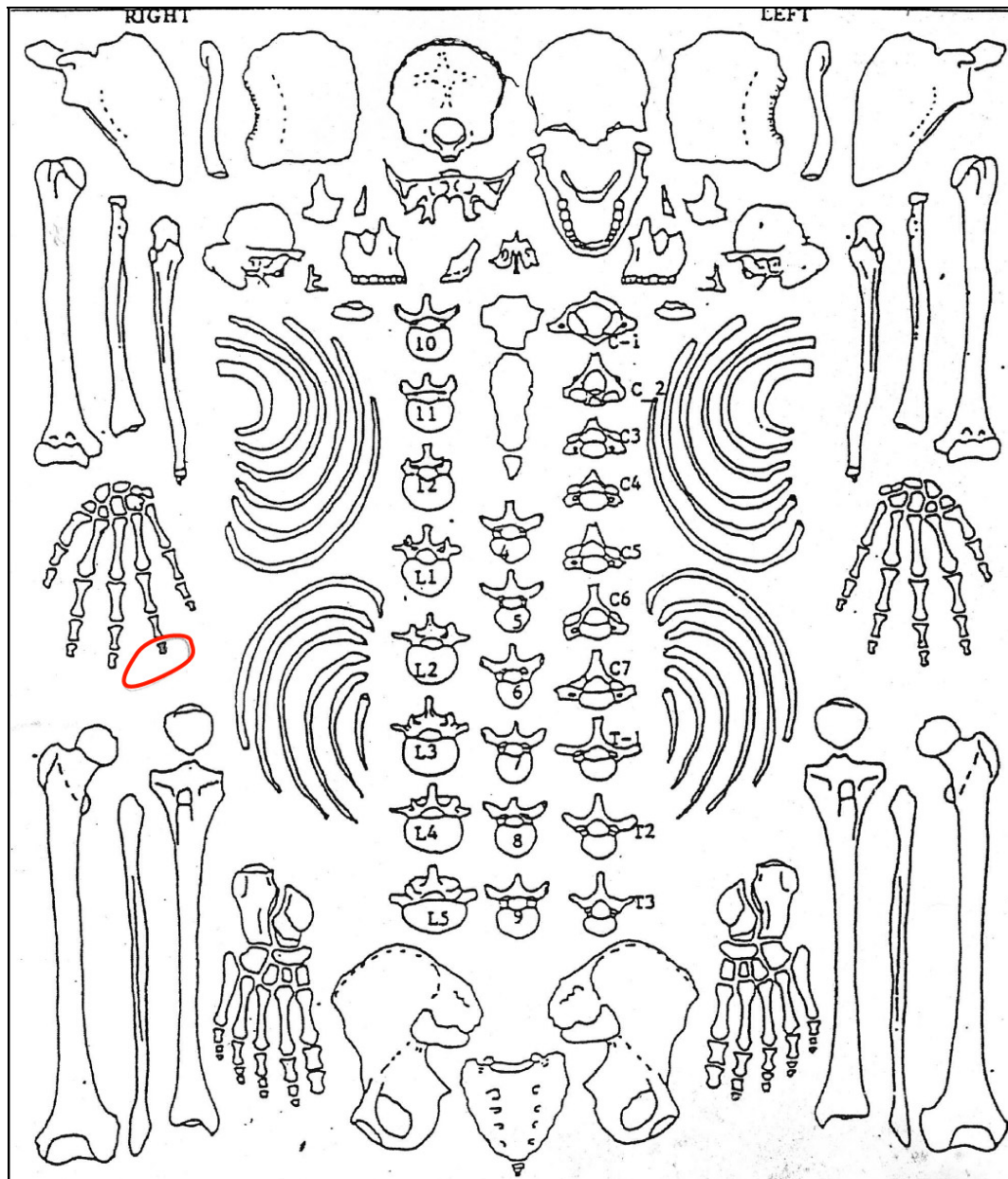


Figure 164. Site -26503, Burial 62, skeletal inventory form (only one distal phalange identified)

2.1.23 State Site # 50-10-28-26504

SIHP #	50-10-28-26504
FUNCTION:	Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	60 m by 4 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	630 ft a.m.s.l.

DESCRIPTION: Site -26504 consists of two linear sinks and parallel tubes that converge and run for approximately 135m to the southwest. In total, 4 features were designated for this site, all of them in the tubes.

The sinks are largely unmodified except for the northeast end of Sink 1, where cobbles and small boulders have been skillfully piled over a tube entrance, fully concealing it. This tube is not at all visible from the sink and the surface appears to be naturally eroding. The tube concealed here is part of Site -26510, Tube 3.

Tube 1 begins in Sink 1 and ends as designated where it joins the longer running Tube 2. Tube 1 contains very numerous water collection features and its entrance has numerous charred wood torch fragments. There is also an area within the fall in the entrance that has been leveled and paved with small cobbles and is labeled Feature A.

Tube 2 begins from a relatively small but tall entrance in Sink 2 and runs for approximately 135m. Tube 2 has numerous water collection features, but notably fewer and less than Tube 1. Near the back the tube splits into a south and west fork. Both forks end in fall, but modification is noted very near the end in both. The west fork contains two formal features: Feature B, a mound on fall and Feature C, a wall with facing on one side. The south fork has three relatively formal water collection features. Feature D is also in Tube 2.

Feature A is a rounded paved area just inside the drip line of Sink 1 (Figure 166). It measures approximately 3.5m northwest/southeast and 2.5m northeast/southwest. It consists primarily of relocated fall to form a rough pavement of medium cobbles. The area is relatively level, likely to facilitate entry and exit from the tube for the purpose of water collection. Numerous water collection features immediately surround the feature.

Feature B is a small mound in the back of Tube 2, over 100m from the entrance. It measures approximately 80 cm northeast/southwest by 180 cm northwest/southeast and from 20 to 100 cm high. It is elevated above the tube floor by placement on top of a large sloping ceiling fall coming from the south wall of the tube. The mound appears to be of material from the fall, and is constructed of primarily large and medium cobbles.

The function of the mound is not entirely clear. The position of the mound this deep in the tube would be consistent with burial, however the mound is so narrow and tall that its shape is not ideal for this function. Further, because of its narrow width and loose, large cobble construction, the majority of the inside of the mound could be observed not to contain any bones. In combination with Feature C, it seems most likely that this mound served as a marker, indicating the end to the water collection area of the tube.

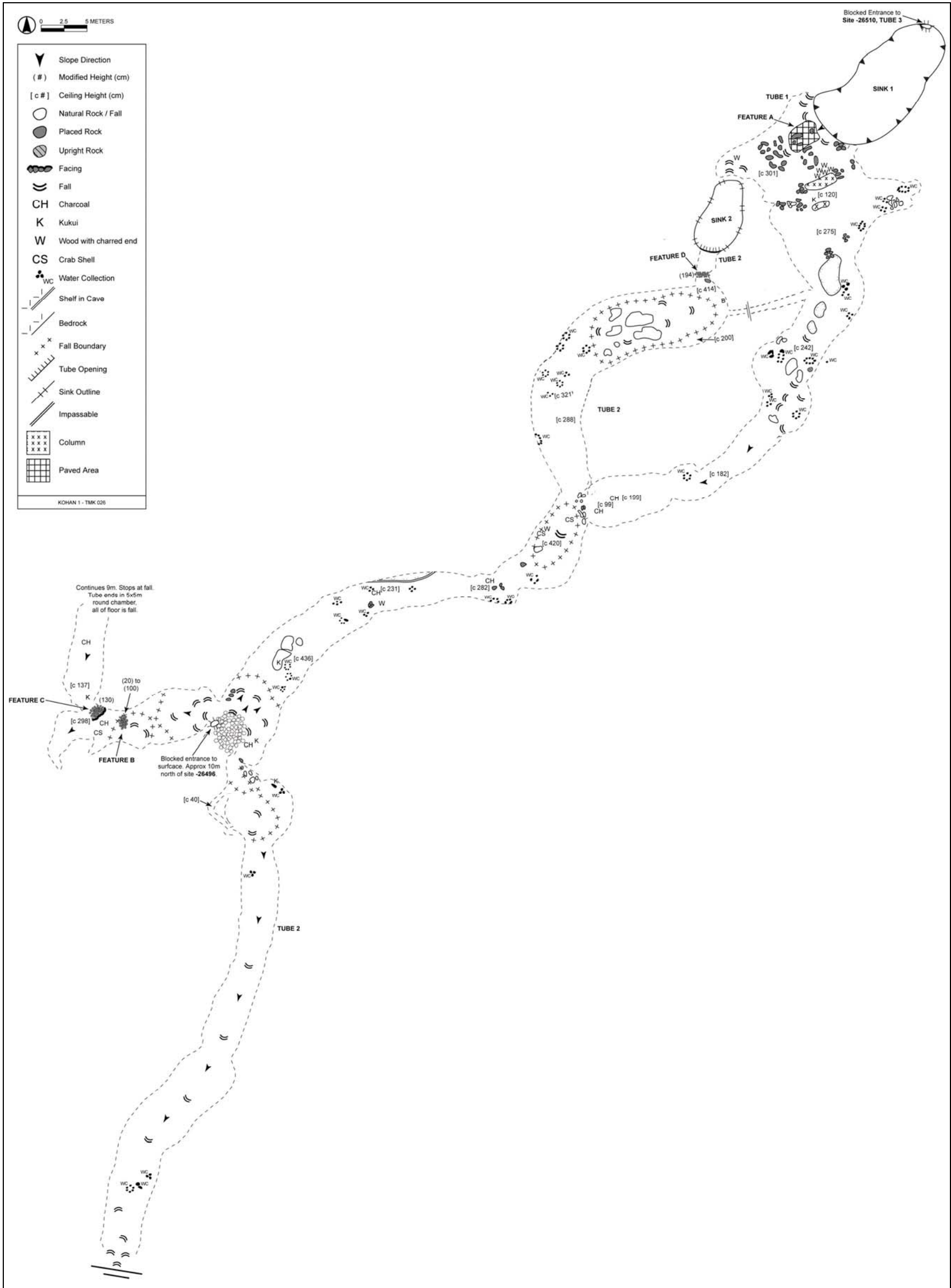


Figure 165. Site -26504, water collection lava tube, overview



Figure 166. Site -26504, Feature A, showing the paved area on top of natural fall. Photo scale lies atop paved area, view to northeast

Feature C is a small wall in the back of Tube 2, approximately 105m from the entrance. It measures 1m thick, 1.5m long and 1.3 m at its highest. It is a relatively stout wall constructed of local fall material from the tube. The entrance side of the wall is roughly faced to improve stability. Compared to the scattered fall in the tube, this organization is highly visible. Similar to Feature B, observations of the inside of the wall indicate it is not suitable for burial and the sudden absence of water collection features beyond this wall suggest that it marked the end of the water collection use of the tube. In the case of a tube this long, this seems like a sensible function, to prevent accidental repeated exploration of the 20m of tube beyond, though the construction is certainly more formal than would be needed for this purpose.

Feature D is located just inside the drip line of Tube 2 where it opens into Sink 2. It is a relatively formal stacked wall that constricts the narrowest section of tube near the entrance (Figure 167). The wall is tallest on the tube side (south) where it reaches 194 cm in height. It is approximately 1.5m wide across the tube and 70 cm thick. The sink side of the wall is substantially shorter, approximately 100 cm above the sloping tube floor.

Immediately behind the wall (south) on the side of the tube is a small 50cm tall upright.

The function of Feature D is delineation of the water collection tube, possibly expressing gathering rights. Another possibility is that the wall formalized the entryway and provided a step for an otherwise sharp drop from the sink into the tube.

The function of Site -26504 appears to be entirely water collection. Virtually no midden was observed in the tube and water collection features are plentiful in the tube. The charred wood fragments are likely torch material used to frequently access the tube.



Figure 167. Site -26504, Feature D, showing the rock wall at the center of the photograph, view to north

2.1.24 State Site # 50-10-28-26505

SIHP #	50-10-28-26505
FUNCTION:	Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	5 m by 18 m (extent with modifications)
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	605 ft a.m.s.l.

DESCRIPTION: Site -26505 is a somewhat T-shaped lava tube on relatively level terrain with *koa haole* and grasses in the vicinity. The site is located in center of TMK 26 near the *ahupua'a* wall, Site -10712, in Kohanaiki Ahupua'a.

The tube extends west from from a small sink for approximately 16 m and then bifurcates with a northern leg followed for approximately 20 m and a southwestern leg followed for approximately 15 m. The entry portion is approximately 5 m wide and 1 m high. The tube has very minimal modification and contains two water collection constructions and one large marine shell ('*opihī*; *Cellana sp.*) (Figure 168 and Figure 169). Beyond the first chamber, no cultural material was found.

The site's function is interpreted as water collection, based on the the sole modification present at the site being a few water collection constructions. No other function is indicated.

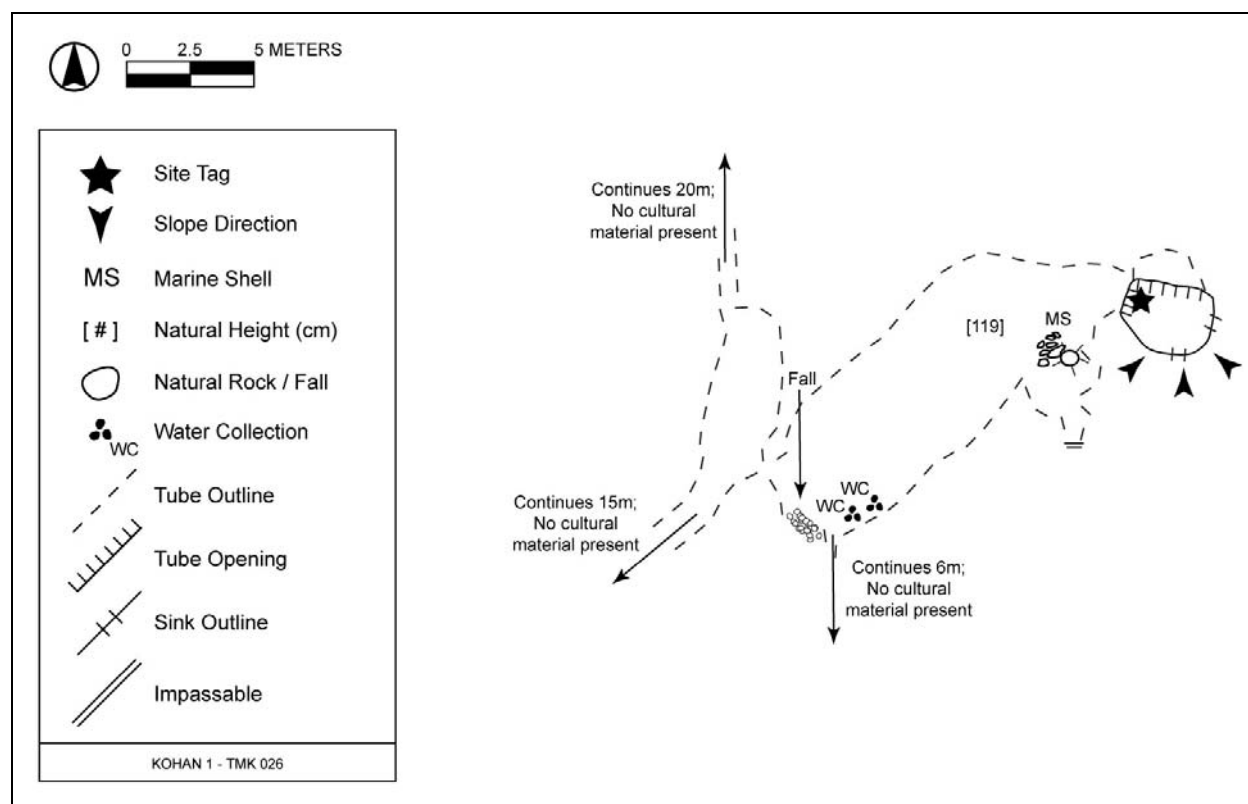


Figure 168. Site -26505, water collection lava tube, plan view



Figure 169. Site -26505, water collection lava tube, overview of entrance to small lava tube, view to south

2.1.25 State Site # 50-10-28-26506

SIHP #	50-10-28-26506
FUNCTION:	Shelter
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	19 m by 16 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	645 ft a.m.s.l.

DESCRIPTION: Site -26506 consists of two leveled areas of an 'a'ā flow and two lava tubes, one of which exhibits some modification (Figure 170). The topography of the area is gently sloping *makai* (southwest). The site is in and surrounded by an 'a'ā flow that offers a very good line of sight with views of the coast and Kaloko fish ponds. The site is located in the central portion of the project area with relatively low site density in the immediate area. Vegetation consists of Christmas berry with grasses and ferns.

The paved areas have been cleared of any large cobbles and boulders to create a level, relatively smooth surface. The first paved area is located in front of the entrance to Tube 1. Another area in front of Tube 1 has been partially excavated to create easier access to the tube. The second paved area is located just to the west of the first and has been cleared in the same manner. There are two pieces of coral (not branch coral) and three placed *pāhoehoe* slabs on this second paved area.

Tube 1 (Figure 171) has been modified with uprights placed on either side of the entrance. Just inside the its entrance is a small hearth area that contains charcoal and soot 9 cm deep. Beyond the entrance is a cowry shell and scattered *kukui* on top of a paved area. An area where cobbles and boulders were removed to create the paved area is to the rear of the tube.

Tube 2 was concealed with 'a'ā and *pāhoehoe* cobbles and boulders. The rocks were moved to enter the tube, which has a very tight entrance and consists primarily of natural fall. The tube runs 5 m north/south and 7 m east/west. Only one urchin fragment was found and no modification was present in Tube 2.

The site's function is interpreted as shelter (temporary habitation). The amount of modification to both the surface and the tube is minor, not requiring a great deal of effort. The small amount of midden also suggests that the site was not extensively used. Although there are two very small pieces of coral (less than 3 cm in size), there is no evidence of anything ceremonial occurring at the site. There is also no evidence of any burial or water collection in the tubes. The excavation potential for Site -26506 is fair due to the sediment depth of the hearth and the small amount of midden that was observed.

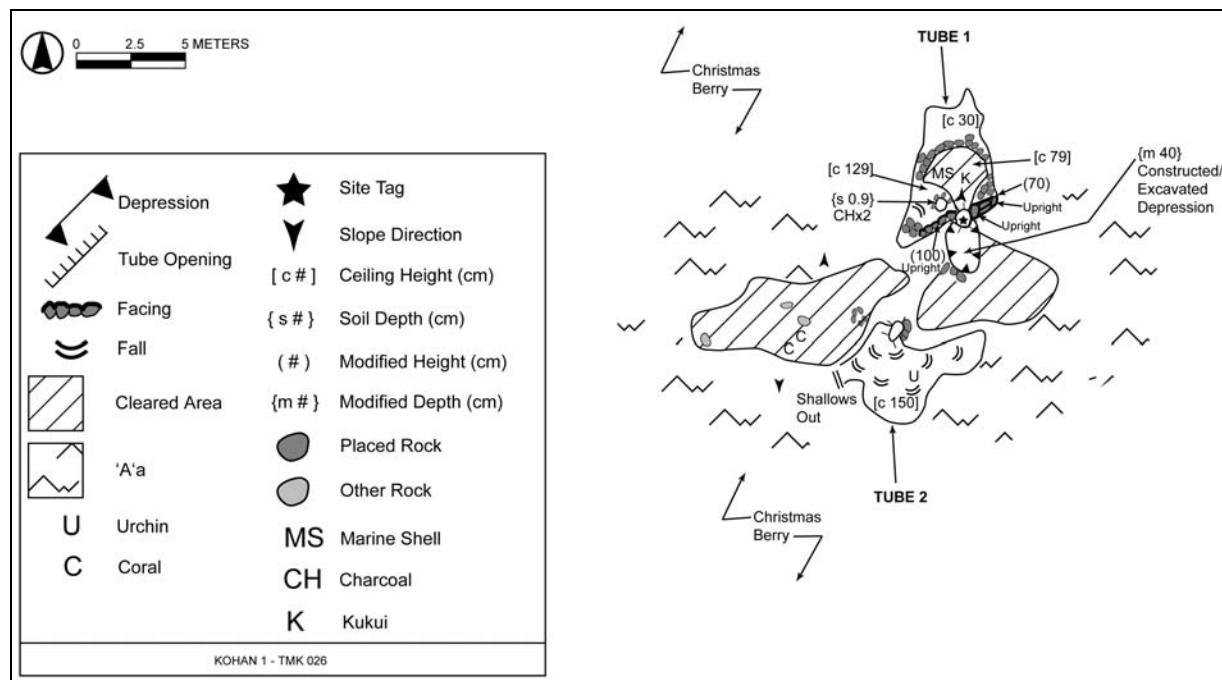


Figure 170. Site -26506, shelter lava tube, plan view of site with Tube 1, Tube 2 and leveled areas shown



Figure 171. Site -26506, shelter lava tube, showing the entrance to Tube 1, view to north

2.1.26 State Site # 50-10-28-26507

SIHP #	50-10-28-26507
FUNCTION:	Agriculture
SITE TYPE:	Complex
TOTAL FEATURES:	16
DIMENSIONS:	550 m by 920 m
CONDITION:	Good
AGE:	Pre-Contact
ELEVATION:	580 ft a.m.s.l. to 780 ft a.m.s.l.

DESCRIPTION: Site -26507 is an agricultural area consisting of 16 designated features and multiple sub-features situated in the northern portion of the project area and extending from the eastern boundary to the western boundary (Figure 172). The site measures approximately 550 m (north/south) by 920 m east/west) with Feature K extending approximately another 50 m north of the project area. The 16 features consist primarily of agricultural mounds and modified outcrops.

Feature A is a 75 m by 38 m area with minimal modification of several heavily eroded exposed bedrock areas (Figure 172). The area has heavy vegetation and thick grass, making visibility minimal. Feature A consists of several informal mounds (boulders are piled on exposed bedrock 2-3 courses); other mounds (primarily constructed of small and medium *pāhoehoe* boulders and range in size from 1.5 m across by 40 cm high to 4 m across by 1.1 m high); a linear mound (boulders piled on bedrock, 2-3 courses high); a small excavated blister about 20 m south of the linear mound; a filled crack in exposed bedrock about 5 m long that is several courses deep (small cobbles) and about 50 cm wide; two small informal terraces just northwest of the linear mound, cleared areas, and modified outcrops. The modified outcrops consist of areas of topsoil or piled boulders including along linear ridges of bedrock. Cleared areas are located between the mounds and outcrops and have a layer of soil deposit.

Feature A functions as a general agricultural activity area. Test excavation (see below) confirms agriculture function.

Feature B is comprised of three subfeatures B1, B2 and B3, located in an area of sparse Christmas berry trees and dense grass (Figure 172). The topography of the area is gently sloping downward from northeast to southwest. The features are located in the east/central portion of TMK 26.

Feature B1 is a low mound of weathered *pāhoehoe* cobbles. The cobbles range in size from about 7-30 cm, and are generally about 15 cm. One large *pāhoehoe* boulder (70 cm) is on the south side of the mound. The mound is approximately 2.5 m north/south by 2 m east/west by 40 cm tall. The mound is situated on an area of underlying *pāhoehoe* bedrock.

Feature B2 is another small mound of weathered *pāhoehoe* cobbles located 5 m west of B1 (Figure 173). Feature B2 is composed of similar sized weathered *pāhoehoe* cobbles, and measures approximately 2 m northeast/southwest by 1.2 m northwest/southeast by 40 cm tall. This mound sits upon an outcrop of heavily eroding *pāhoehoe* bedrock.

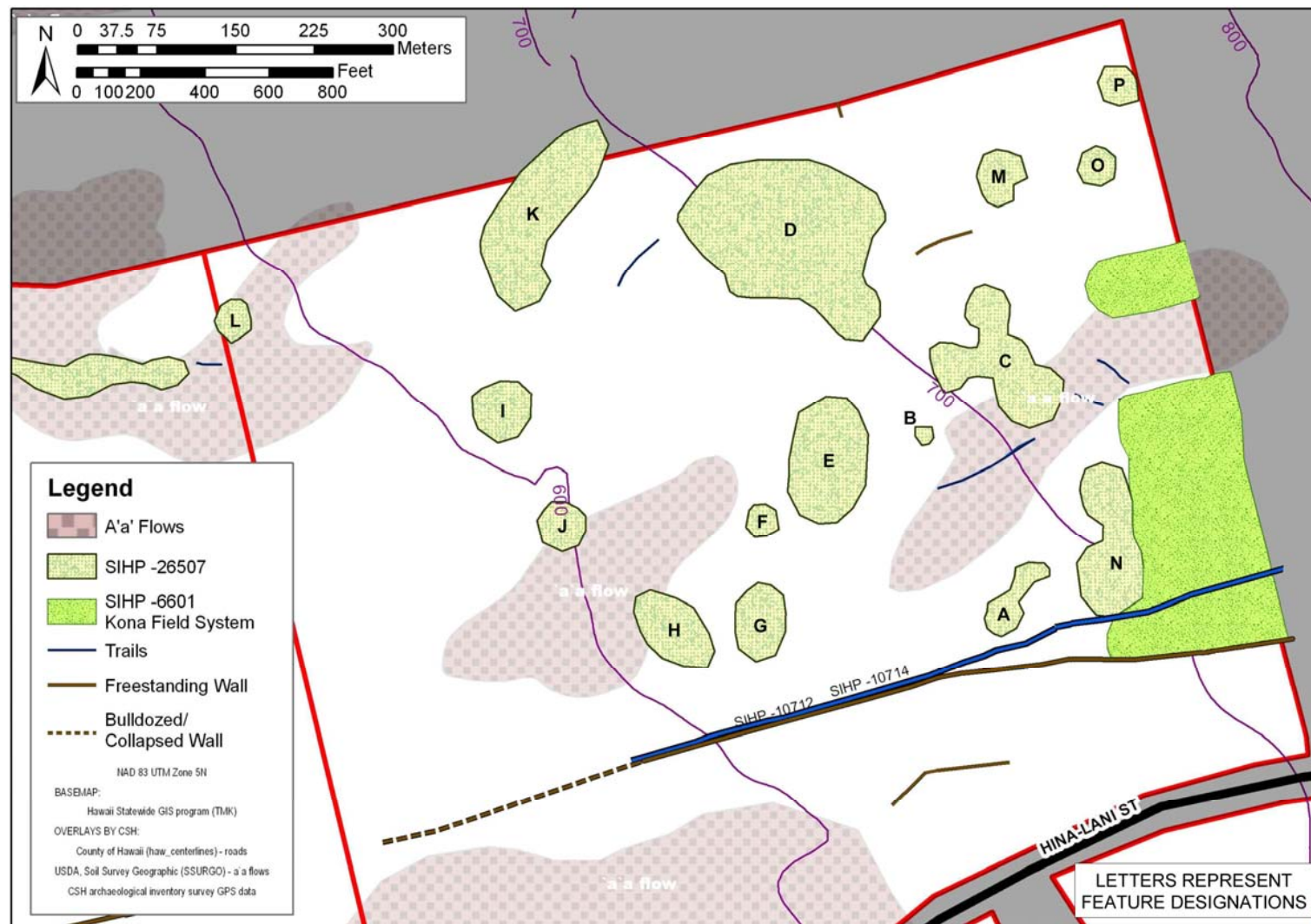


Figure 172. Site -26507, agriculture complex, general view



Figure 173. Site -26507, agriculture complex, Feature B2, showing a representative low, informal mound, view to northwest.

Feature B3 is an informal alignment of *pāhoehoe* large cobbles (15-40 cm) 6 m north of feature B1. The alignment runs roughly northwest/southeast for a distance of 1.5 m. *Pāhoehoe* bedrock lies beneath the southeast side of the alignment and continues out to the north

All three subfeatures are very ephemeral. The geology of the area is characterized by heavily eroding *pāhoehoe* exposures, making identification of features tenuous. Dense grasses further complicate investigation of the area.

The function of Features B1, B2, and B3 is interpreted as agricultural. The features appear to be clearing piles associated with agricultural or horticultural production. The natural setting of heavily eroding *pāhoehoe* would create a surface covered in *pāhoehoe* cobbles. These cobbles appear to have been piled informally on areas of relatively more intact *pāhoehoe* bedrock, presumably to expose areas of sediment or smaller cobbles better suited to crop production activities. Test excavation (see below) confirms agricultural function.

Feature C is comprised of 14 subfeatures and is located in the east central portion of TMK 26, within 20 m of Sites -26549 and -26555 (see Figure 172).

C1 and C2 are located in an area of gentle slope from northeast to southwest with the vegetation being neither dense or sparse Christmas berry, *koa haole*, and grasses. The trees are generally taller than head height. The *pāhoehoe* outcrops in the area are eroding into *pāhoehoe* cobbles.

Feature C1 is a mound constructed of small to medium sized weathered *pāhoehoe* cobbles. Cobbles range in size from 7 cm to 35 cm, but generally they are about 18 cm. The dimensions are 2 m northwest to southeast by 4.5 m northeast to southwest. The height is 70 cm. The cobbles

have generally rounded edges from natural weathering process. The area in the vicinity of the mound has small *pāhoehoe* cobbles on the surface with soil deposits being generally 3 cm deep.

Feature C1 is large enough to contain a burial and the use of smaller cobbles gives it a more formal appearance as compared to Feature C2. A burial check was conducted (see below) on this feature and the smaller cobbles do indicate function is a crop production bed. Clearing in the area (especially to the north) seems extensive enough for the mound to have functioned only as a clearing pile. Testing confirmed this hypothesis, and also found evidence of habitation extending into the area.

Feature C2 is a mound located 5 m northwest of Feature C1. The mound is round shaped, much smaller than Feature C1, and is composed of slightly larger size cobbles ranging in size from 15 cm to 40 cm with an average cobble size of 25 cm. The mound measures 170 cm round and is 55 cm in height. The cobbles are not as rounded as in Feature C1 but they are still weathered. The construction of Feature C2 is very informal. The area around Feature C2 is the same as Feature C1, containing small *pāhoehoe* cobbles with soil depths averaging to about 3 cm. Feature C2 is too small to contain a burial and the larger cobbles indicate that the function of this mound is only agricultural clearing.

Feature C3 is the predominate subfeature; it is a large mound of small to large *pāhoehoe* cobbles and some small boulders (Figure 174). The mound measures approximately 4.5 m north/south by 4 m east/west and averages 60 cm in height. In the center of the top of the mound is a small depression, only approximately 10 cm below the surrounding mound surface. At the north end of the depression, which is the north end of the mound, there is a rough alignment of piled boulders that create a sort of raised corner that serves to create a sheltering wall around the north side of the depression. The *pāhoehoe* cobbles that create the surface of the depression are smaller in size on average than those that make up the remainder of the mound. There are no boulders in the depression. This mound is likely constructed with cobbles and boulders from clearing the area between C3 and C1 and C2, 20 m southeast of D1. This 20 m stretch of undulating *pāhoehoe* flow exhibits extensive clearing, and currently the ground surface only consists of scattered small *pāhoehoe* cobbles and a thin layer of soil deposit atop *pāhoehoe* bedrock. This mound functioned as a sort of constructed agricultural bed. The depression creates a somewhat sheltered area with small cobbles serving as the mulch. The stacked boulder corner/wall (30 cm) also serves to further shelter this bed. The mound itself is constructed to add depth to the cobble mulching above the *pāhoehoe* bedrock.

Feature C4 is an area measuring 3.6 m by 3 m that is a concentration of large *pāhoehoe* cobbles and small boulders. The boulders and cobbles are not stacked or piled, rather they cover the ground surface only one course high. This concentration likely functioned as a mulching bed. There are some densely scattered small cobbles covering the ground surface between C3 and C4. A few meters east of C4 and 16 m east of C3, is a small roughly north/south running ridge in an eroding *pāhoehoe* bedrock exposure. Feature C4 is located 13 m east of Feature C3.

Feature C5 is a small excavated blister located 23 m east of Feature C3. It measures approximately 1 m in diameter and 30 cm deep. A couple of boulders that were likely excavated from the blister are placed on its southeast side. The floor of the excavated blister has scattered small cobbles and a thin layer of soil deposit. This excavated blister creates a small protected agricultural bed.



Figure 174. Site -26507, agriculture complex, Feature C3, showing the mound with a depression in its surface, view to north

Feature C6 is a small clearing mound located 20 m east of Feature C3. This subfeature is very ephemeral and measures only 2.3 m by 1.4 m. The mound consists of large *pāhoehoe* cobbles and small boulders likely cleared from the immediate vicinity.

Feature C7 is another small clearing mound located 4.5 m northwest of Feature C3. The mound is constructed of small *pāhoehoe* boulders piled directly atop *pāhoehoe* bedrock. This small mound only measures approximately 2.5 m by 1 m, and like C6 is very ephemeral.

Feature C8 is a large natural *pāhoehoe* bedrock outcrop that has been modified to create a low curving enclosure. The natural outcrop creates a naturally eroding ridge that curves around an area roughly 30 cm lower than the outcrop. This eroding ridge runs primarily along the east side of the lower terrain. This ridge has then been modified by the placement of *pāhoehoe* slabs and boulders atop and alongside the naturally eroding bedrock to further accentuate the natural enclosure. The enclosure is roughly 12 m in length and 70 cm high. The area inside the enclosure is relatively flat and level and is covered with a layer of soil that averages 10 cm deep. Amongst this soil is scattered small *pāhoehoe* cobbles that likely served as mulch. The area has been cleared of all larger cobbles and boulders. This clearing likely facilitated the modifications of the curving outcrop.

Feature C9 is a small clearing mound 2 m in diameter and 60 cm tall. The mound is located 20 m north of C8. The mound is comprised of boulders averaging 40-50 cm.

Feature C10 is the second small clearing mound located roughly 20 m northwest of C8. The mound measures approximately 2.5 m northwest/southeast by 1.7 m northeast/southwest with a maximum height of 65 cm. In the same manner as C9, the clearing mound was constructed using *pāhoehoe* boulders.

Agricultural mounds extend from Features C8-13 at least as far as Site -26571. This agricultural area is characterized by large *pāhoehoe* cobbles tossed on bedrock, small to medium size (up to 2 by 3 m) mounds that are haphazardly stacked, linear mounds (again with slabs tossed on top) and cleared areas that have very few rocks. Vegetation in this area primarily consists of tall grass and Christmas berry trees. Agricultural features are fairly dispersed and do not occur in clusters very often.

Feature C11 is an oval shaped informal mound of *pāhoehoe* cobbles and boulders (7-85 cm, generally about 20 cm). It is in an area of dense grasses and sparse Christmas berry trees, although no grass is on the mound; a few *noni* trees in the vicinity. The dimensions of this subfeature area approximately 3.5 m north/south by 2.2 m east/west by 55 cm high. The function of this subfeature is interpreted as an agricultural clearing mound. Dense grasses make it difficult to discern cleared (origin) areas in the immediate vicinity of subfeature C11, but an area east of C11 and north of C12 seems to have fewer large cobbles. The eastern-most sink of Site -26552 is roughly 15 m southwest.

Feature C12 is a linear mound of *pāhoehoe* cobbles (5-40 cm, generally about 13 cm). It is in an area of dense grasses and sparse Christmas berry trees, although no grass is on the mound; a few *noni* trees in the vicinity. The dimensions of this subfeature area approximately 500 cm east-west by 150 cm north-south by 35 cm tall. The east side of this subfeature has somewhat vertical formal sides (35 cm constructed height) on the north and south sides. These sides run on a bearing of 277 degrees. The function of this subfeature is likely as a bed for agricultural or horticultural production, the mound may be agricultural clearing, similar to C11, but the smaller cobble size and more formal construction suggest a different or additional function for this feature, as a bed for a crop production. The eastern-most sink of Site -26552 is roughly 15 m southwest.

Feature C13 is an area roughly 7 m north-south by 3 m east-west covered with *pāhoehoe* cobbles (4-40 cm). It is in an area of dense *koa haole* with sparse Christmas berry with a few *noni* trees in the vicinity. The cobbles do not seem mounded or piled and are only 1-2 courses high on the natural surface. A large area (approximately 15 m by 15 m) southwest of this subfeature appears clear as there are predominantly smaller *pāhoehoe* cobbles and sediment deposits in this area. C13 is thus interpreted as an agricultural clearing "pile" for this area. The cleared area is more evident near this subfeature due to the difference in modern vegetation (dense *koa haole* rather than dense grasses as around C11 and C12). The eastern-most sink of Site -26552 is roughly 15 m southwest.

Feature C14 lies on *pāhoehoe* bedrock on the west, north, and northeast side of the 'a'ā outcrop on which Site -26574 is found. Features C 8-10 lie 31 m to the northeast of Feature C14; Site -26557 lies 38 m southwest; Site -26555 lies 43 m west-southwest; Site -26574 lies immediately to the east and south on the 'a'ā flow; and Site -26574, a cairn, is 50 m north. The *pāhoehoe* flow slopes gently down to the southwest in this area. Christmas berry, *koa haole* and tall grasses dominate the landscape. The feature is bordered on the south by the 'a'ā flow.

A small tube opening is 10 m east of Feature C14. The tube itself contains no significant cultural remains; one cluster of mounds is around the tube. In the southern end of the feature, the mounds tend to occur in clusters of two or three, and most are centered around areas of bedrock exposure onto which the mounds are built. A few mounds extend outside of these clusters,

although not more than 10-15 m away. These mounds consist of mixed 'a'ā and *pāhoehoe* cobbles, and at least one mound includes *pāhoehoe* slabs, the mounds vary in size, reaching 2-4 m across. In the area north of Site -26574, the mounds tend to be more isolated, as opposed to being clustered. They are slightly smaller in this area, reaching 1-3 m across, these mounds consist of a mix of 'a'ā and *pāhoehoe* cobbles. There are four or five mounds in this area of the feature, never more than 30 m apart. Feature C14 is distinguished by the mounds being clustered near the edge of the 'a'ā exposure that -26574 is located on. Unlike many other -26507 features, Feature C14 mounds tend to be a mix of 'a'ā and *pāhoehoe* cobbles or just 'a'ā cobbles. In addition to mounds, Feature C14 also has areas that are very flat and areas completely cleared of large stones, as well as a few small excavated blisters; all are agricultural features.

The function of Feature C14 is agriculture. The tube in the southern end of the subfeature area does not contain any modification or cultural remains, so it is not reasonable to call this a shelter or habitation.

Summary Discussion of Site -26507 Feature C

The function of Site -26507, Feature C is agriculture. The feature contains 14 subfeatures that range from ephemeral mounds to well constructed mounds, to cleared areas. Many areas also contain small pockets of soil sediments. Six test excavation (see below) were conducted to aid in determining function and also to determine if any burials are present. Test results confirm the function of Feature C is agriculture.

Feature C1 is an agricultural mound and has evidence of habitation extending into the feature from the surrounding area. Feature C2 is an agricultural mound. Subfeatures C3, C4, and C5 include three planting beds of various types, and two discernable clearing mounds. Amidst these subfeatures are multiple other extremely ephemeral modifications including stretches of cleared areas between subfeatures and a few naturally eroding outcrops that have a few cleared boulders placed on top of them. The majority of the ground encompassed in Feature C3 through C7 is covered with a layer of soil that ranges between 3-5 cm deep. Subfeature C8 was modified to enhance the natural sheltering of the area that allowed for greater soil retention within the enclosure (10 cm deep / 1-3 cm deep outside the enclosure). The remaining subfeatures consist of clearing mounds and planting beds, all related to agriculture.

Feature D consists of three agricultural subfeatures, D1-D3, that are spread over an area measuring approximately 170 m (north/south) by 190 m (east/west) in the northeast corner of TMK 26 (see Figure 172). The geology of the area has outcrops of naturally eroding *pāhoehoe* and some 'a'ā. The vegetation is dense *koa haole*, Christmas berry, and grasses. Site -26523 is just south of this feature.

Feature D1 contains modified outcrops of *pāhoehoe* that have been stacked low, one or two courses from the surrounding land to clear the land for agriculture. Mounds of rock were also piled to clear the surrounding area for agriculture. On average, a mound or small boulder pile is observed every 10 m. The size of the cleared rocks range from less than 10 cm to 60 cm. There are some small round mounds that may be cairns, but that is unlikely due to their construction. Linear mounds follow the bedrock outcrops. At least one mound is an anomaly due to its size, height, and construction; many small pebbles were used in its construction, and it is no more than two courses high. Boulders were removed in three areas of the mound and bedrock was found below. Vegetation is tall *koa haole*, fox tail grass, and *laua 'e* ferns were also found in the area.

Feature D1 is agricultural in function. There is no formal shape or arrangement to any of the mounds or boulder piles. Burials are unlikely in these mounds, since the mounds tend to follow the bedrock. The primary function of the mounds was to clear the area for agriculture.

Feature D2 is an area that stretches approximately 80 m west from Site -26515 and spans roughly 20 m north/south. The agricultural modifications in this feature area are primarily comprised of clearing mounds and modified *pāhoehoe* outcrops. The majority of this feature area is a bedrock outcrop where there are roughly 15 clearing mounds. The majority of these mounds are approximately 3 m long and 1m to 1.5 m wide. A few of these mounds are longer, roughly 3 m long, but roughly the same width as the small mounds, and therefore more linear in shape. All of the mounds are constructed of cleared *pāhoehoe* large cobbles, boulders, and slabs. They range in height from 40 cm to approximately 70 cm for the larger mounds. The bedrock outcrop where these mounds are located has been modified by clearing and the creation of some small cobble beds atop this outcrop. The eastern-most extent of the feature area, in the immediate vicinity of Site -26515, is not a bedrock outcrop but exhibits approximately six small relatively circular clearing mounds, roughly 1.2 m by 1.2 m. These smaller mounds are constructed with the same materials, *pāhoehoe* large cobbles, boulders, and small slabs as the other mounds in the feature area. The function of Feature D2 is agricultural.

Feature D3 is a dispersed area that stretches roughly 100 m north/south and east/west and encompasses the area in between and immediately around Sites -26504, -26513, and -26519. The feature is comprised of multiple agricultural clearing mounds and some bedrock outcrops. The area of bedrock outcrops is naturally eroding *pāhoehoe*. There are several of these linear outcrops, however, only approximately 2-3 appear to have been modified. The mounds that are dispersed throughout this area range in size from linear clearing mounds, approximately 2.5 m long, to circular mounds, only 1.5 m across, and approximately 70 cm tall. The mounds primarily consist of *pāhoehoe* boulders that have been cleared from the immediate vicinity of each mound. Approximately 10-15 of these clearing mounds are scattered across this 100 m by 180 m area that comprises Feature D3. Within this subfeature area is also an approximately 9 m long slightly curving clearing mound, composed of the same *pāhoehoe* boulders and slabs that comprise the other mounds of this feature. A second bedrock outcrop with multiple small 1 m by 1 m clearing mounds is at the east extent of this subfeature. A small 1.5 m by 1.5 m *pāhoehoe* cobble mulching bed is located in the southern portion of this subfeature area. The function of Feature D3 is agricultural.

All three subfeatures of Feature D exhibit agriculture function.

Feature E is a very broad agricultural area measuring approximately 115 m north/south by 70 m east/west (see Figure 172). It consists primarily of eroding natural bedrock terraces that have been modified by removing rock to broaden terraces, small cobble piles on bedrock and larger (2 m by 3 m) mounds from boulder and cobble clearing. The most heavily modified area is 60 m south of the center and the feature, essentially the southern end. It consists of linear mounds up to 3-4 courses high arranged roughly perpendicular and parallel to each other. This creates smaller planting areas with a relatively high labor investment. These are less common than other types of agricultural features in Site -26507. Generally, the density of agricultural features in Feature E increases to the southeast and decreases to the northwest, however, the thicker foxtail grasses to the northwest may affect this observation.

One of the larger mounds in Feature E was excavated to verify that it was indeed agricultural (see excavation results below).

Feature F is located in a low, shallow depression in the central portion of the site -26507 agricultural complex (see Figure 172). The feature consists of three mounds, a small clearing pile and a 5 m by 5 m clearing area. The feature area is approximately 25 m by 25 m. The three mounds are approximately 2.5 m in diameter with a height of roughly 30-35 cm. The mounds are for the most part naturally eroded *pāhoehoe* that has had some larger *pāhoehoe* boulders thrown atop while clearing the immediate area. The small clearing pile consists of approximately 8-10 *pāhoehoe* boulders piled atop a *pāhoehoe* bedrock outcrop. This pile is between two of the mounds, the larger clearing area consists of an area where *pāhoehoe* boulders and slabs, cleared from the immediate area, are all cleared to the 5 by 5 m area atop a bedrock outcrop. These cleared boulders and slabs are not piled or mounded but just cleared to the same area creating a sort of clearing bed. The ground area amongst these feature elements is relatively flat, cleared *pāhoehoe* that has a thin layer of soil deposit.

The function of Feature F of Site -26507 is agricultural. Some boulders were removed from the mounds to ensure that they were predominantly natural. All elements of this feature are similar to and consistent with the other features agricultural Site -26507.

Feature G consists of about 20 agricultural clearing mounds in a fairly level area that is slightly depressed in the south portion of the site -26507 agricultural complex (see Figure 172). Tall grass and *koa haole* are the dominant vegetation. The mounds consist of large cobbles and boulders piled on *pāhoehoe* bedrock exposures, without any distinct form; they are generally about 1.5 m by 1 m, but vary in size. Feature G has a concentration of five mounds in an approximately 10 m by 10 m area that is about 20 m northwest of Site -26514. One of the mounds is especially large (about 3 m by 2 m) and high (about 1 m). This mound utilized a natural tumulus and at its highest point consists of 3-5 courses of small to medium cobbles piled 50 cm high on the tumulus. Rocks were removed from a small (25 cm by 25 cm) area on top of this mound to confirm function, and then replaced. There is no indication that any of these mounds were used for any function other than agricultural clearing, and no midden or artifacts were found. The mounds are too shallow and informal to be burials mounds.

Another concentration of mounds is about 60 m northwest of -26514. There are four mounds all within an area approximately 10 m by 10 m. Just north of these mounds is a larger mound (approximately 2 m by 3 m) that is composed of almost entirely small cobbles, unlike the other mounds that are a mix of medium and large cobbles, with some small cobbles. Soil is interspersed with the cobbles, and the size of this mound suggests that it was created by a bulldozer. There is no form to the mound and it slopes on both sides; all characteristics are consistent with bulldozer push, and removing rocks from a small area of this mound reveals soil and small cobbles throughout – consistent with bulldozer push. A bulldozer road is also about 40 m to the north. The bulldozer piles are, however, easily distinguished from agricultural clearing mounds. In addition to mounds, this feature had areas of less concentrated clearing, where only a few large rocks/slabs have been moved to the center of a bedrock exposure; bulldozer activity could not account for this, as there would be scars on the bedrock. Finally in this general area of Feature G (an area about 70 m north/south by 40 m east/west), there is a natural sink just southwest of Site -26517 that has been partially cleared with rocks piled along the edge of the shallow sink (approximately 10 m by 4 m, less than 1 m deep). Additional small mounds (of the

same type as mentioned above) are located southeast of Site -26502 and just east of -26498 and -26507 Feature G; all are agricultural mounds. This clearing/piling of the sink is most likely for agricultural purposes (planting in the sink).

Feature H encompasses an area 45 m northeast/southwest by 90 m northwest/southeast in the center of TMK 26 (see Figure 172). The feature consists of small agricultural clearing mounds, loose boulders on bedrock, and some piled boulders on bedrock. The largest mound is approximately 2.5 m by 2 m. The spacing between the mounds and piled boulders is relatively wide, approximately 10 m apart on average. The highest concentration is a 25 m area located in the northwest corner of this feature area where the small mounds are in closer proximity. This area is bounded to the north by an 'a'ā flow.

Feature I is located in a long shallow depression in the northern half of TMK 26 (see Figure 172). The feature area encompasses the majority of the area of this depression, approximately 50 m by 50 m. The feature is comprised of several (approximately 10) small clearing mounds in addition to numerous instances of a few piled boulders on bedrock. There are also a few excavated blisters within this feature area. The boulders excavated from these blisters have been piled atop the surrounding bedrock. These modifications are relatively continuous in the feature area, scattered throughout the depression floor and side slopes sloping down into the depression. As a component feature of the agricultural Site -26507, the function of Feature I is agriculture.

Feature J is a broad agricultural area on the east side of a pronounced hill and just southeast, approximately 30 m, of a very deep linear depression in the west portion of the site -26507 agricultural complex (see Figure 172). The area of modification measures 40 m north/south and 35 m east/west. Generally the modification is along the edge of the hill top, its northwest boundary following the edge of the linear depression.

The modification is concentrated in an area of much higher than average exposed *pāhoehoe* bedrock and is relatively high in elevation. The typical modification consists of excavated depressions, with some small (approximately 1.5 m) mounds of loose small boulders and large cobbles.

Feature K is on the northern boundary of TMK 26 and actually extends some 50 m north of the project area (see Figure 172). The feature consists of several agriculture clearing mounds designated as two subfeatures, K1 and K2.

Feature K1 consists of several mounds of *pāhoehoe* boulders, likely resulting from clearing of the surrounding area and one more formal mound that was likely used as a planting bed. This more formal mound is technically outside of the project area (approximately 10 m from the boundary), but as it is associated with clearing mounds within the project area, it was incorporated into Feature K1. This planting mound measures 2.5 m by 1.5 m and is 50 cm in height. It consists of larger cobbles and boulders around the outside and is filled in with small rubble. The mound sits atop a natural bedrock outcrop. This area of clearing mounds is relatively continuous throughout this 160 m by 50 m feature area. The terrain of this area is relatively consistent as well in that it is gently undulating *pāhoehoe* slope currently covered predominately by thick grasses and sporadic Christmas berry. As a component feature of the pervasive agricultural Site -26507, the function of Feature K1 is agriculture.

Feature K2 is located on a relatively steep slope of naturally eroding *pāhoehoe*. The dimensions of the subfeature are 50 m east/west by 45 m north/south. The subfeature area encompasses approximately five modified outcrops in which *pāhoehoe* boulders have been upended and piled on top of these outcrops. The amount of modification is minimal but they likely functioned as agricultural clearly and extremely informal mulching.

Feature L consists of a high concentration of clearing mounds in a 40 m by 30 m area in the far northwestern corner of the site -26507 agricultural complex (see Figure 172). The mounds range in size from 1.5 m in length to approximately 5 m in length. The majority of these mounds are linear, with the largest mound curving to form a U-shape. The mounds are constructed primarily of large *pāhoehoe* slabs and some *pāhoehoe* boulders. There are also two areas that form rough, informal slab clearing mounds on the edge of the adjacent 'a'ā flow over which the *pāhoehoe* flow runs. The mounds average a constructed height of approximately 65 cm. There are approximately twelve to fifteen of these clearing mounds in the feature area. Approximately 18 m southeast of the center of the feature area are three small slabs placed in an alignment atop an 'a'ā flow. The function of Feature L is agriculture.

Feature M is in the northeast portion of the project area, near Sites -26565 and -26569 (see Figure 172). The feature is an agricultural feature consisting of several (3-4) large excavated blisters and agricultural mounds (5-7). The center point for Feature M is approximately 25 m west of Site -26569, and the feature extends to -26569 on the east; it extends approximately 15 m to the west (where there are grassy fields with some agricultural activity), and it extends approximately 40 m to the south (where there is agricultural activity as far as -26571) and approximately 15 m north (where there are flat grassy areas). The area surrounding Feature M is fairly level but slopes to the south/southwest, especially on the southern side of the center point. Tall grass characterizes the surrounding vegetation, except in sink areas (like the center point of Feature M).

Feature M is characterized by several low areas (old sinks) with evidence of agricultural activity. The agricultural activity consists of cleared flat areas with soil, mounds (approximately 1-2 m in size, *pāhoehoe* cobbles 25-50 cm diameter), and excavated blisters. The excavated blister areas of Feature M are large (approximately 3-5 m) and consist of eroding blister areas that have been cleared out, usually stacking the cleared *pāhoehoe* cobbles on the edge of the blister area. This creates a raised edge and a cleared middle.

The low shallow sink areas in the vicinity of Feature M were used for agricultural activities, primarily by excavating blisters, clearing flat areas, and mounding cobbles (clearing mounds). Scattered mounds are also outside the old sink areas (i.e. near -26565 there are several small mounds). None of the mounds are large enough to be considered burial mounds.

Feature N is located in the southeast portion of the site -26507 agricultural complex (see Figure 172). The feature consists of two agriculture subfeatures, N1 and N2. The feature contains agriculture mounds, and excavated depressions. One of the larger excavated N2 blisters was found to have a site tag labeled TF-173 ACP 18-2-03 KOLOKO.

Feature N1 is a diffuse and varied agricultural area. Measuring approximately 20 m west, 50 m north/south and continues to the east. The feature is semi-continuous from Feature N2, but is most concentrated at Feature N1 and in grassy areas. The feature consists of medium sized, low mounds, measuring approximately 1.5 m by 2.0 m. The center of the feature consists of a with-

slope running linear mound in excess of 10 m in length and 1.5 m wide (Figure 175). Adjacent to this mound is cleared, level ground. This appears to be the only subfeature of its type in this locality, but is suggestive of higher investment agriculture, similar to more intensive activity of Site -6601.



Figure 175. Site -26507, agriculture complex, Feature N1, showing a representative long, linear mound. This mound may be a *kuaīwi*. View to southwest

Feature N2 is a broad agricultural area marked by relatively level terrain with a relatively high percentage of the ground surface composed of low bedrock exposures. The ground surface between bedrock exposures appears almost ubiquitously flat, clear of larger cobbles and boulders, and contains some sediment. N2 area measures approximately 40 m northeast, 30 m north, 30 m west and thins out as it approaches Site -1014, the *mauka/makai* trail, 40m south.

Modification in this subfeature consists primarily of excavated depressions and blisters and very small clearing mounds (Figure 176). Generally both blisters and mounds measure less than 1.5 m in diameter.

Distribution is relatively random, following natural bedrock, often spaced as much as 20 m between recognizable modification. Compared to other -26507 features, there is a high degree of cleared, flat ground.



Figure 176. Site -26507, agriculture complex, Feature N2, showing a representative modified blister. The blister opening is at the bottom of the photograph, and the photo scale sits on the adjacent area of piled rocks, view to northeast

Feature O is located in the northeastern portion of the site -26507 agricultural complex (see Figure 172). This area slopes slightly to the south and is densely covered in tall grass in all directions, with some Christmas berry trees. Feature O consists of approximately 10 small to medium size mounds (1 m by 1 m to 2 m by 3 m in size) (Figure 177). Site -26578 (a small shelter) is located 25 m to the south. The dense vegetation in this area could conceal other agricultural features, such as excavated blisters. Despite a surface check of the area, only the 10 agricultural mounds in a fairly concentrated area were found. The agricultural mounds all occur in an area about 30 m by 25 m. The agricultural mounds are constructed of 20-40 cm diameter *pāhoehoe* cobbles and are usually built on exposed bedrock. A fairly large mound of exposed and eroding *pāhoehoe* bedrock is in the area. Excavation potential is minimal due to the lack of midden and soil. The function of this feature is agricultural, and none of the agricultural mounds are large or deep enough for burial.

Feature P is an agriculture area in the far northeast corner of the project area (see Figure 172). This feature consists of five to seven large agriculture mounds, approximately 2 m by 3 m each, spread out over an area of approximately 30 m by 30 m. There are also several shallow depressions in the vicinity of Feature P. This portion of the project area is characterized by thick tall grass and some Christmas berry trees. It is fairly level but slopes gently to the south and southwest. There are only a few sites in the area, -26579 is roughly 10 m to the north, and -26581 is about 55 m to the south. There is, however, a bulldozer road 60 m north (on the north TMK boundary).

The agricultural mounds are comprised of 30-50 cm *pāhoehoe* slabs and cobbles that are tossed on *pāhoehoe* exposures, usually no more than 50 cm high (stacked one to three courses high). The mounds are informal and generally approximately 10-15 m apart. The shallow

depressions are near the mounds and usually only about 50 cm deep. They are often cleared of medium to large cobbles and are fairly level.

Excavation potential of this feature is minimal. There is no surface midden and only soil in the shallow depressions

The function of this feature is as an agricultural area. There are several mounds and some clearing of low depressions. A cairn in the area (-26579) may also be related to the agricultural features of Feature P.

The site's function is interpreted as agricultural based on the 16 designated features and multiple sub-features that all indicate agriculture. The site contains multiple clearing mounds with modified outcrops scattered throughout the site. Soil is evident in some areas and planting beds were evident. The hypothesis that the site's function is agriculture is additionally supported by the eleven test excavations conducted (see below).



Figure 177. Site -26507, agriculture complex, Feature O, overview of a faced agricultural mound

Testing Results

Eleven test excavations were conducted to assist in determining feature functions and to determine whether any burials are present. Test excavations were conducted in Feature A (Unit 30), Feature B (Unit 31), Feature C (Units 33, 34, 36, 37, 38, 41), Feature F (Unit 59), Feature J (Unit 61), and Feature M (Unit 62).

Feature A (Unit 30)

Stratum I, extending from 0 to 30 cmbs, is a construction layer consisting of small to medium cobbles and medium to large boulders. Stratum II, extending from 30 to 55 cmbs, is soil from the eroding bedrock with one *Isognomon* shell fragment, and some charcoal that is likely root burn (Figure 178).

Feature A of -26507 consists of an agricultural area with mounds, modified depressions, and excavated blisters. Upon further inspection this was determined to be an informal terrace that utilizes the natural slope of an outcrop, with cleared areas surrounding it. Excavation revealed bedrock approximately 55 cm down that slopes downward as expected; the terrace utilizes this slope. Only a small amount of charcoal was found which may be root burn and is not a good context for C¹⁴ dating. The single shell found in this structure was the only midden found. It is unlikely this terrace was habitational, rather the shell is likely related to the general habitation in this area (i.e., nearby sites) and the intensive agricultural activity all around this area. Overall, excavation confirms that the function of Feature A is agricultural.

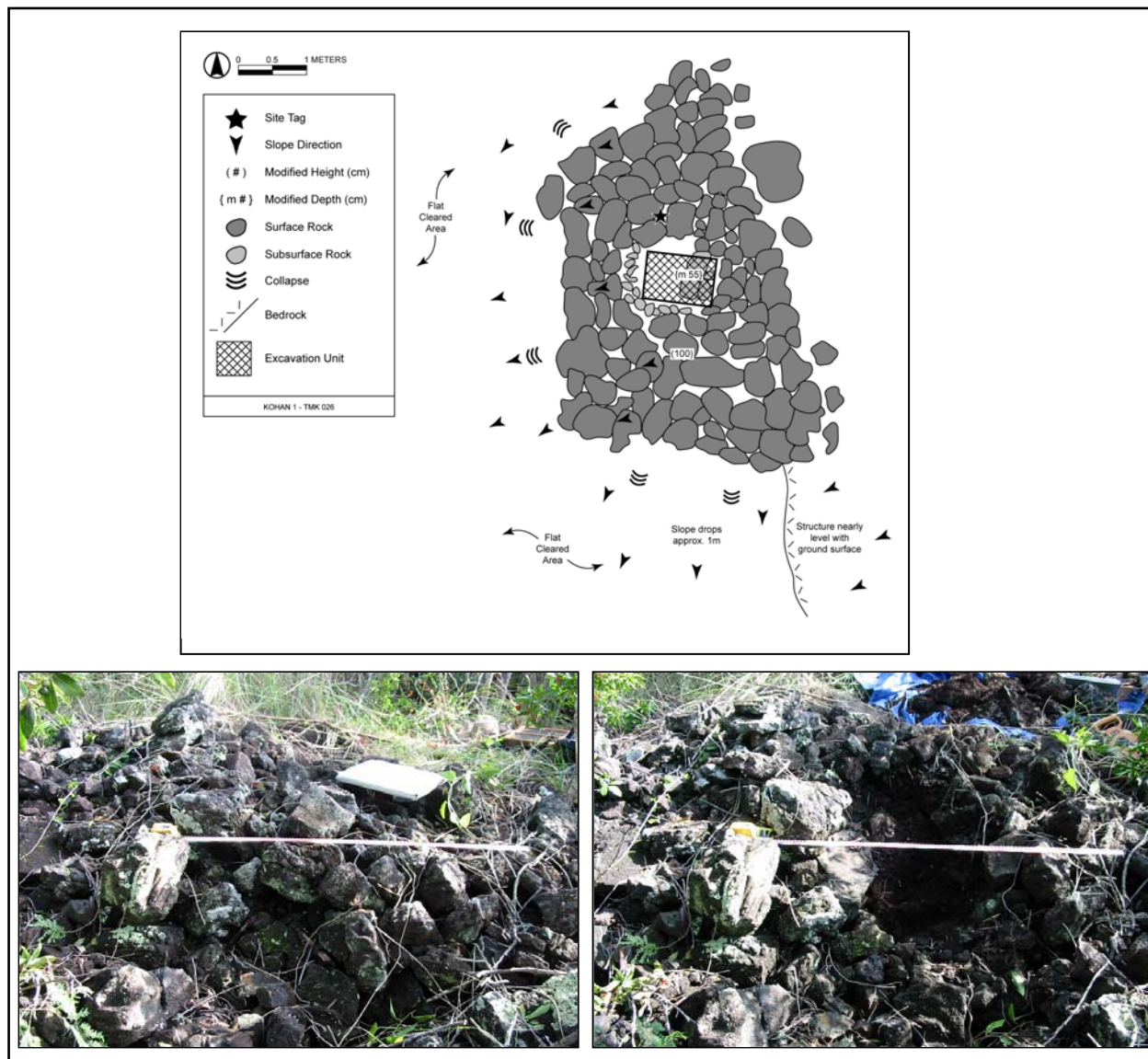


Figure 178. Site -26507 Feature A excavation figures. Counter-clockwise from top: plan view of mound and excavation unit; mound pre- and post-excitation

Feature B (Unit 31)

Stratum I, extending from 0 to 50 cmbs, is construction and consists of medium to large *pāhoehoe* cobbles (Figure 179).

The mound fill consisted of slightly well-fitted small to large *pāhoehoe* cobbles and a few small boulders. The cobbles and boulders were not particularly well-sorted. Approximately 35 cm below the top surface of the mound, natural bedrock was encountered in approximately half the unit. The other half of the unit opened into a small blister in the bedrock that was approximately 15 cm deeper before ending at a lower bedrock floor. No midden or cultural materials were present. The construction of the mound, which is not well-sorted and on the bedrock, and the lack of midden or artifacts confirms the previously determined function of agriculture.

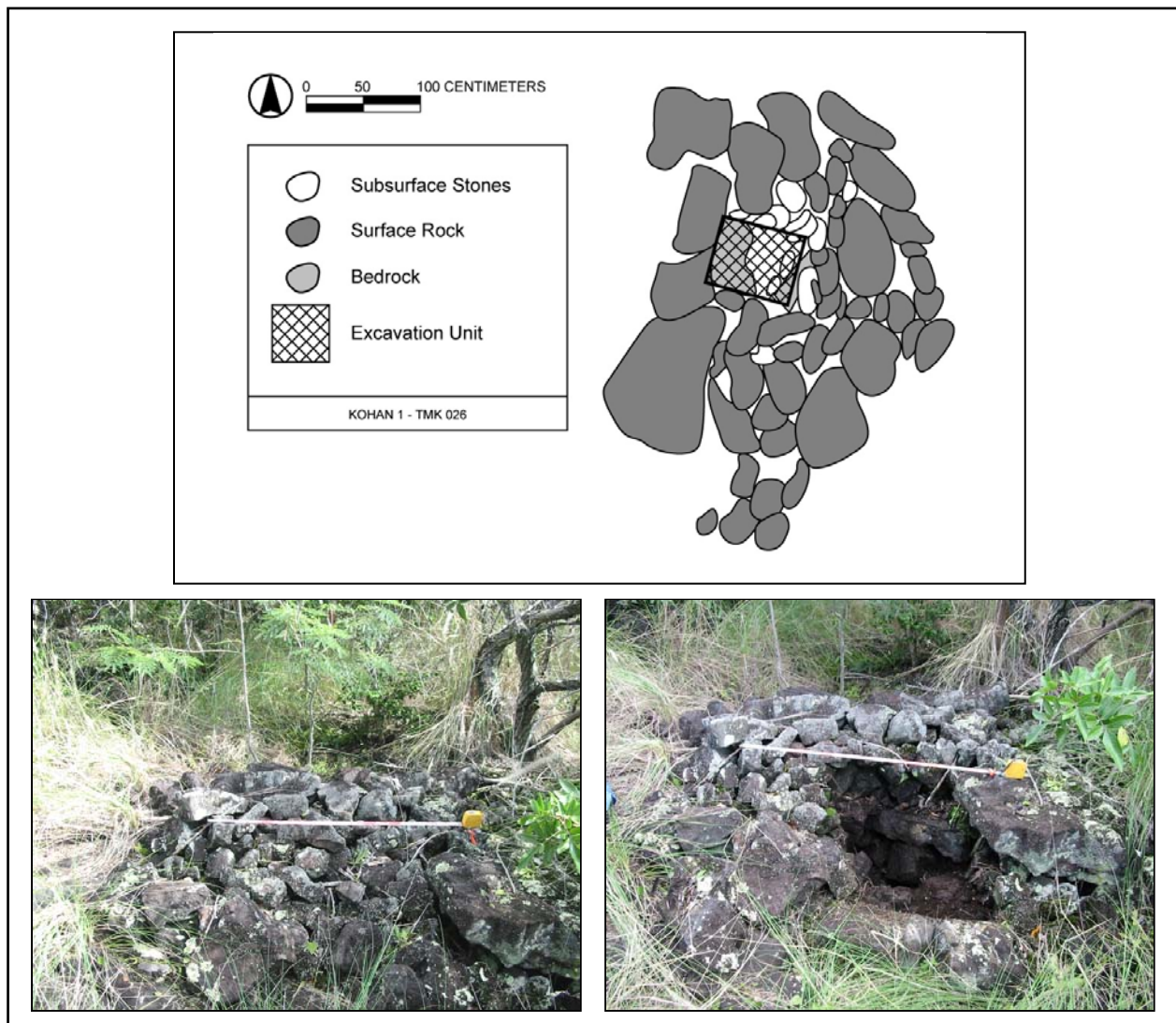


Figure 179. Site -26507 Feature B excavation figures. From top down: plan view of mound and excavation unit; mound pre- and post-excitation

Feature C1 (Unit 33)

Stratum I, extending from 0 to 50 cmbs, is construction and consists of large boulders and small to medium cobbles. Stratum II, extending from 50 to 65 cmbs, consisted of silt loam containing many rootlets (Figure 180). Midden is present and consists of *Isognomon*, *Cyprea*, *Nerita*, *kukui*, and charcoal. Two volcanic glass flakes were also present.

Prior to excavation some cowry shell on the surface was noted, as well as cleared areas surrounding the mound and various agricultural features nearby. Excavation revealed that construction is fairly haphazard with mostly medium size cobbles (angular *pāhoehoe*). The mound is mostly poorly sorted and haphazardly constructed. Beneath the construction, a sediment layer that mostly derives from the surface, contains a few shells, a few charcoal pieces, and two pieces of volcanic glass. Although this suggests a habitation function, it is extremely unlikely this mound was used directly for habitation due to its size, mounded shape, and very informal construction.

Overall, the excavation confirms that this is an agricultural feature rather than a burial mound. It also suggests that there was habitation in the area that was intensive enough to leave midden and artifacts at agricultural clearing sites. This agricultural area should be considered related to the nearby habitation and it should be noted that the excavation supports intensive habitation in this portion of the project area.

Feature C3 (Unit 34)

Stratum I, extending from 0 to 30 cmbs, is construction and consists of larger cobbles on top and smaller cobbles on the eroding bedrock exposure (Figure 181). Stratum II, extending from 30 to 60 cmbs, is a sediment layer that has accumulated below Stratum I and is likely sediment that has filtered down from the surface. Many roots and rootlets are present, as is light midden that includes cowry, *Isognomon*, and urchin that is fragmented and with some of the fragments appearing burnt. A higher concentration of midden is in the lower portion of the layer. Very little charcoal is present and is likely root burn. Volcanic glass flakes that appear to be debitage were also found. There are some pockets of ashy substance and eroding bedrock.

Findings of light midden and sparse ashy substance suggest that this feature was used secondarily as a temporary habitation, while the actual construction of the feature indicates that the primary function was agricultural. The feature was constructed haphazardly atop an eroding bedrock exposure. There is no indication that this feature contains a burial.

Feature C8 (Unit 36)

Stratum I, extending from 0 to 20 cmbs, is construction and consists small to medium cobbles. Stratum II, extending from 20 to 35 cmbs, is a sediment layer that accumulated beneath Stratum I (Figure 182).

The lack of any cultural material supports the interpretation of agricultural terrace for this feature. This feature also supports the conclusion that this area was primarily used for agriculture. There is no indication that this feature contains a burial

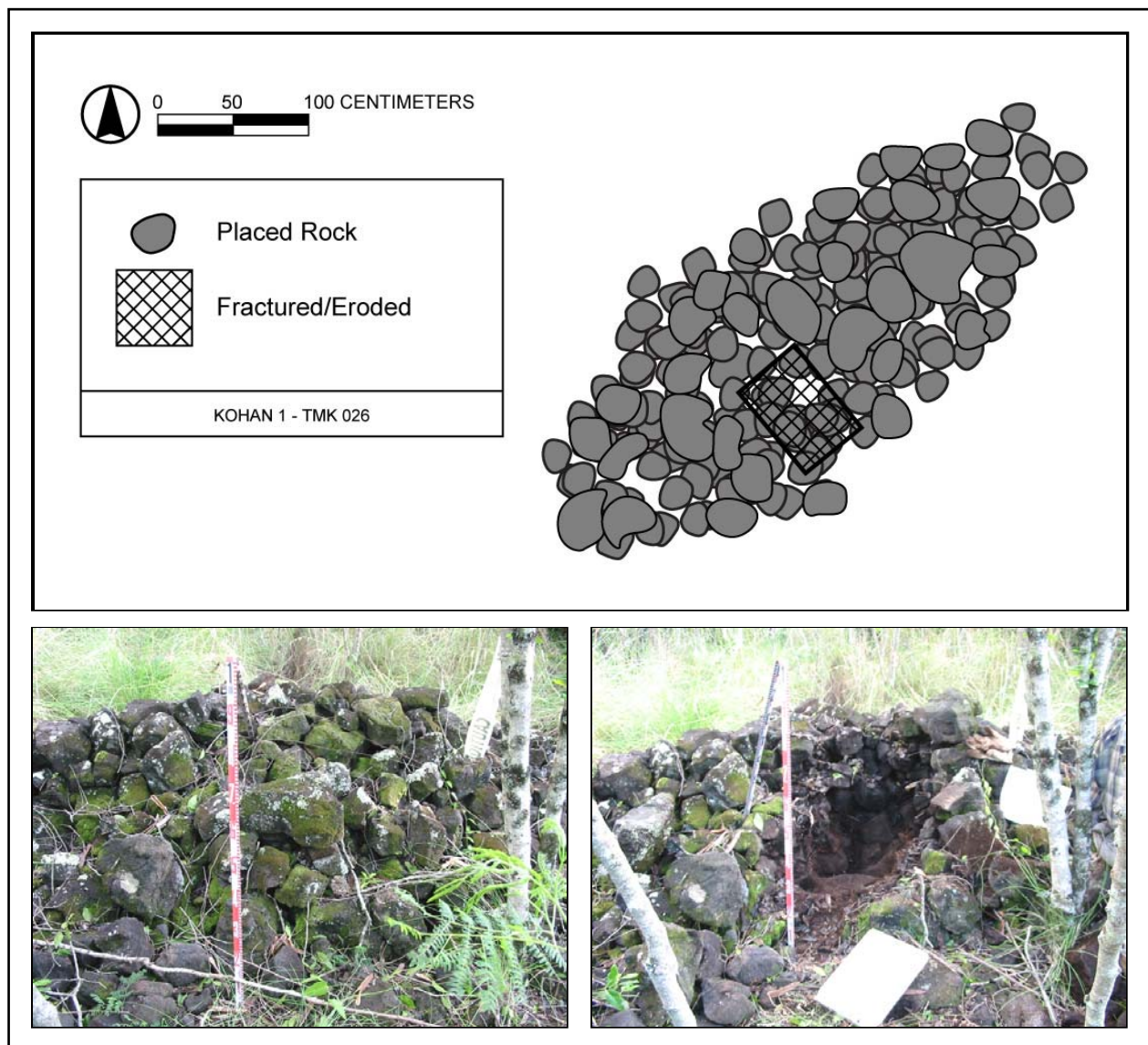


Figure 180. Site -26507 Feature C1 excavation figures. Counter-clockwise from top: plan view of mound and excavation unit; mound pre- and post-excitation

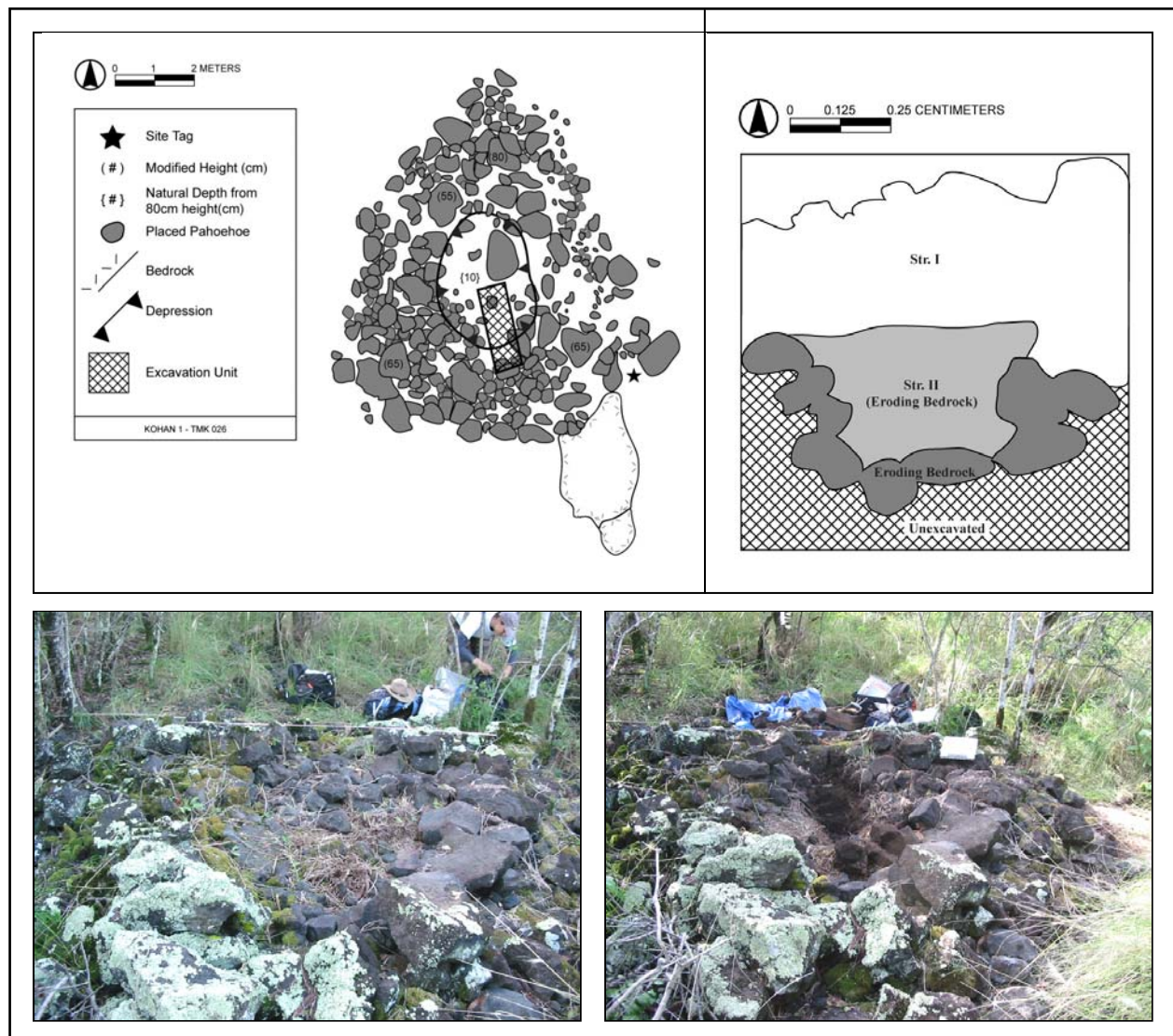


Figure 181. Site -26507 Feature C3, excavation figures. Left to right, top to bottom: plan view of mound and excavation unit; east wall profile; mound pre- and post-excavation

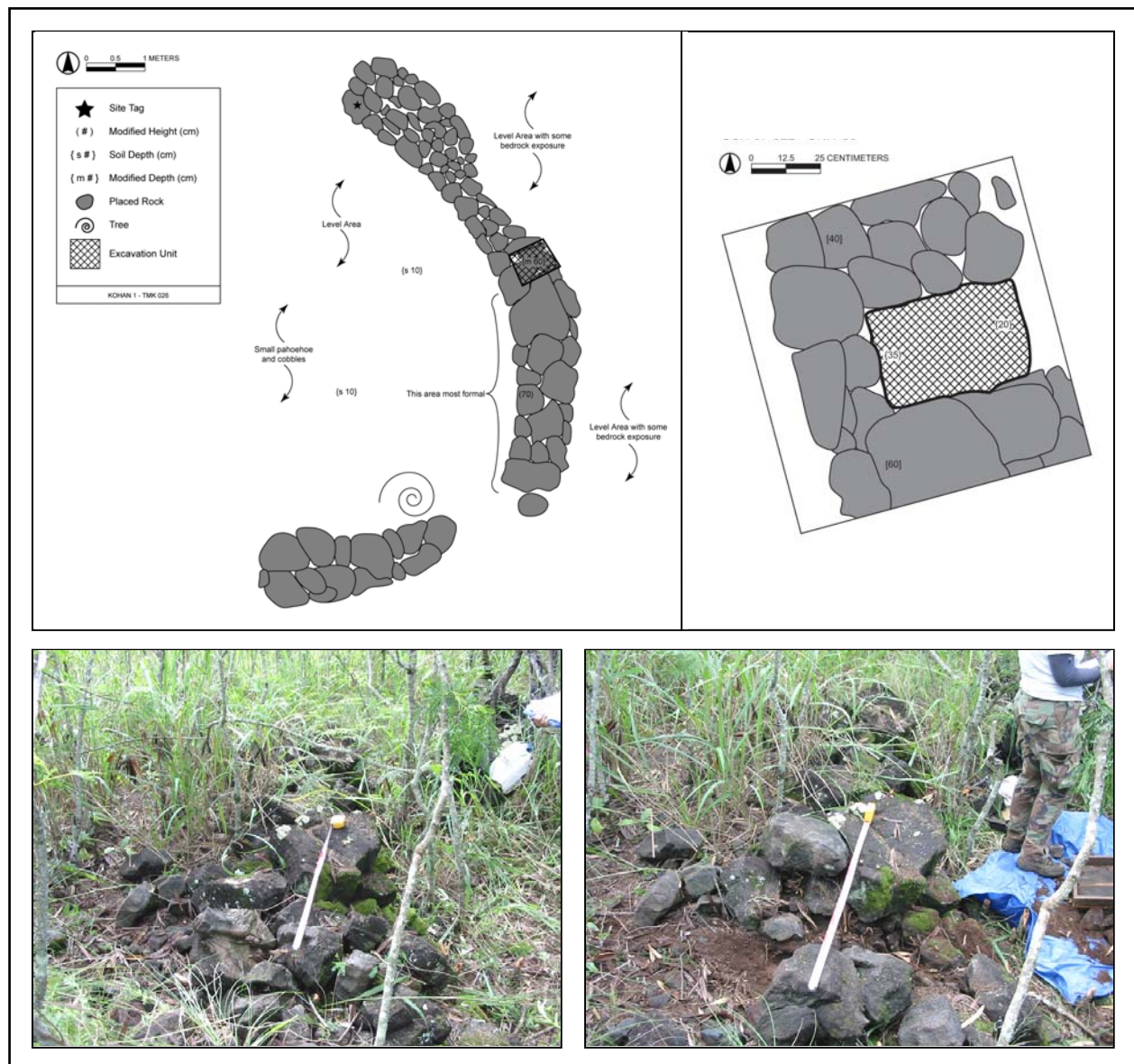


Figure 182. Site -26507 Feature C8, excavation figures. Left to right, top to bottom: overview of outcrop and excavation unit; plan view of base of excavation unit; outcrop pre- and post-excitation

Feature C11 (Unit 37)

Stratum I, extending from 0 to 35 cmbs, is a construction layer consisting of piled cobbles and small boulders atop an eroding bedrock exposure. Stratum II, extending from 35 to 50 cmbs, is a sediment accumulation layer between Stratum I and the eroding bedrock. Sediment has filtered down from the surface with no cultural material present (Figure 183).

No cultural material was found in the excavation. The mound is agricultural and there is no indication a burial is present.

Feature C12 (Unit 38)

Stratum I, extending from 0 to 50 cmbs, is a construction layer consisting of medium to large boulders with small cobbles at the lower level (Figure 184). Stratum II, extending from 50 to 65 cmbs, is a sediment/soil layer that appears darker and more organic than similar layers in other agricultural features excavated (i.e., Feature C11, Unit 37). A few *kukui* endocarps were found.

Excavation supports the hypothesis that this is an agricultural planting area. It is relatively formally constructed and is not a clearing mound but rather an area constructed for growing plants. Small cobbles adjacent to the feature may be mulching. There is no evidence for habitation or burial.

Feature C14 (Unit 41)

Stratum I, extending from 0 to 80 cmbs, is a construction layer consisting of mounded large to medium 'a'ā cobbles and large to medium *pāhoehoe* slabs. Cleared areas surround the feature (Figure 185).

The lack of cultural material confirms the hypothesis that this is an agricultural clearing mound. There is no indication that this feature contains a burial or any evidence of habitation.

Feature E (Unit 59)

Stratum I, extending from 0 to 40 cmbs, is a construction layer consisting of poorly sorted angular *pāhoehoe* (Figure 186).

No cultural material was found in the excavation. The mound is an agricultural clearing mound and there is no indication a burial is present.

Feature I (Unit 61)

Stratum I, extending from 0 to 45 cmbs, is a construction layer with a small amount of natural sediment beneath it, atop the natural bedrock exposure (Figure 187).

No cultural material was found in the excavation. Construction is consistent with an agricultural mound and there is no indication a burial is present.

Feature L (Unit 62)

Stratum I, extending from 0 to 53 cmbs, is a construction layer on top of eroding bedrock (Figure 188).

The lack of artifacts, cultural material, and formal construction supports an agricultural function for this feature.

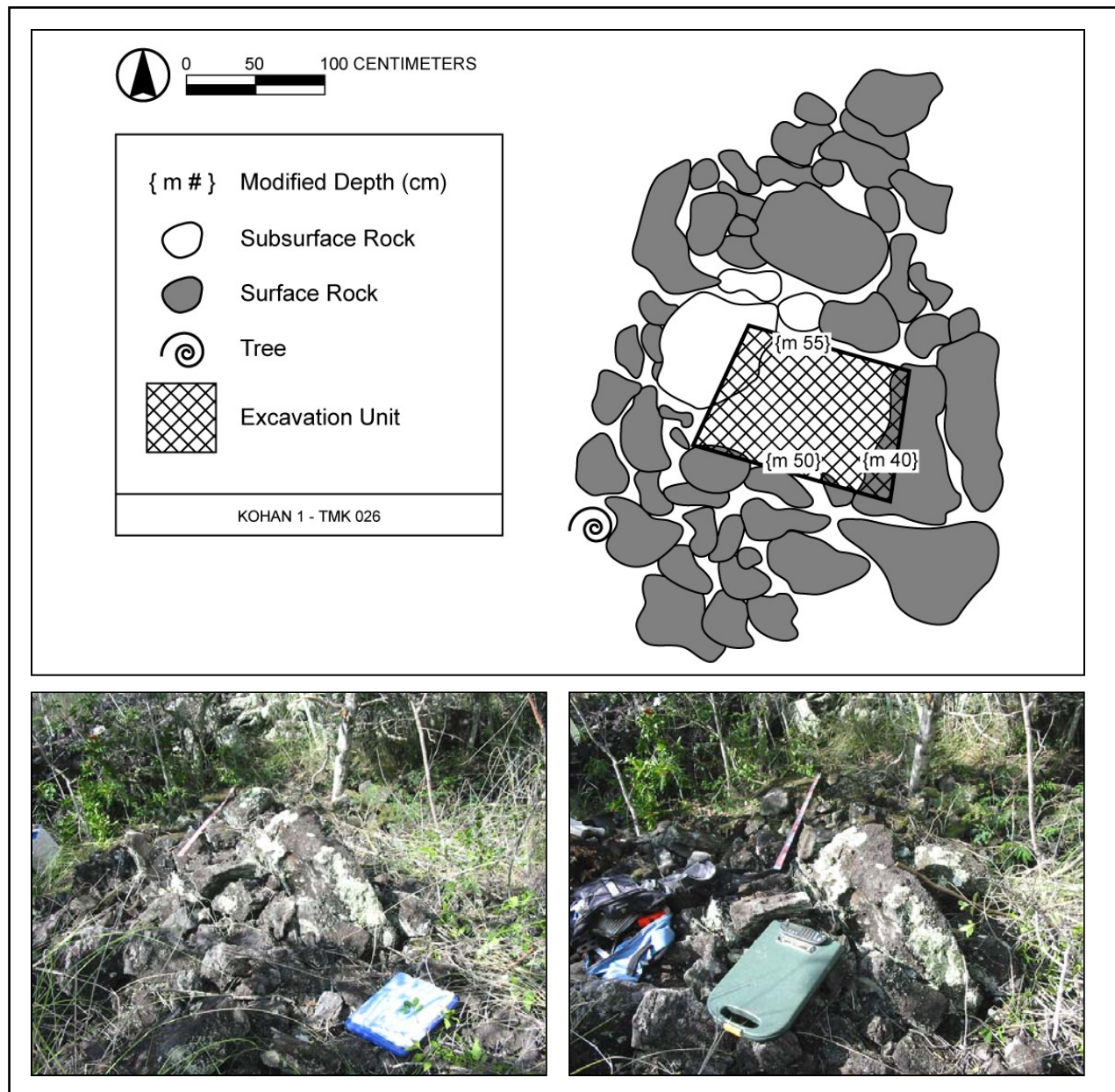


Figure 183. Site -26507 Feature C11, excavation figures. Counte-clockwise from top: plan view of mound and excavation unit; mound pre- and post-excavation

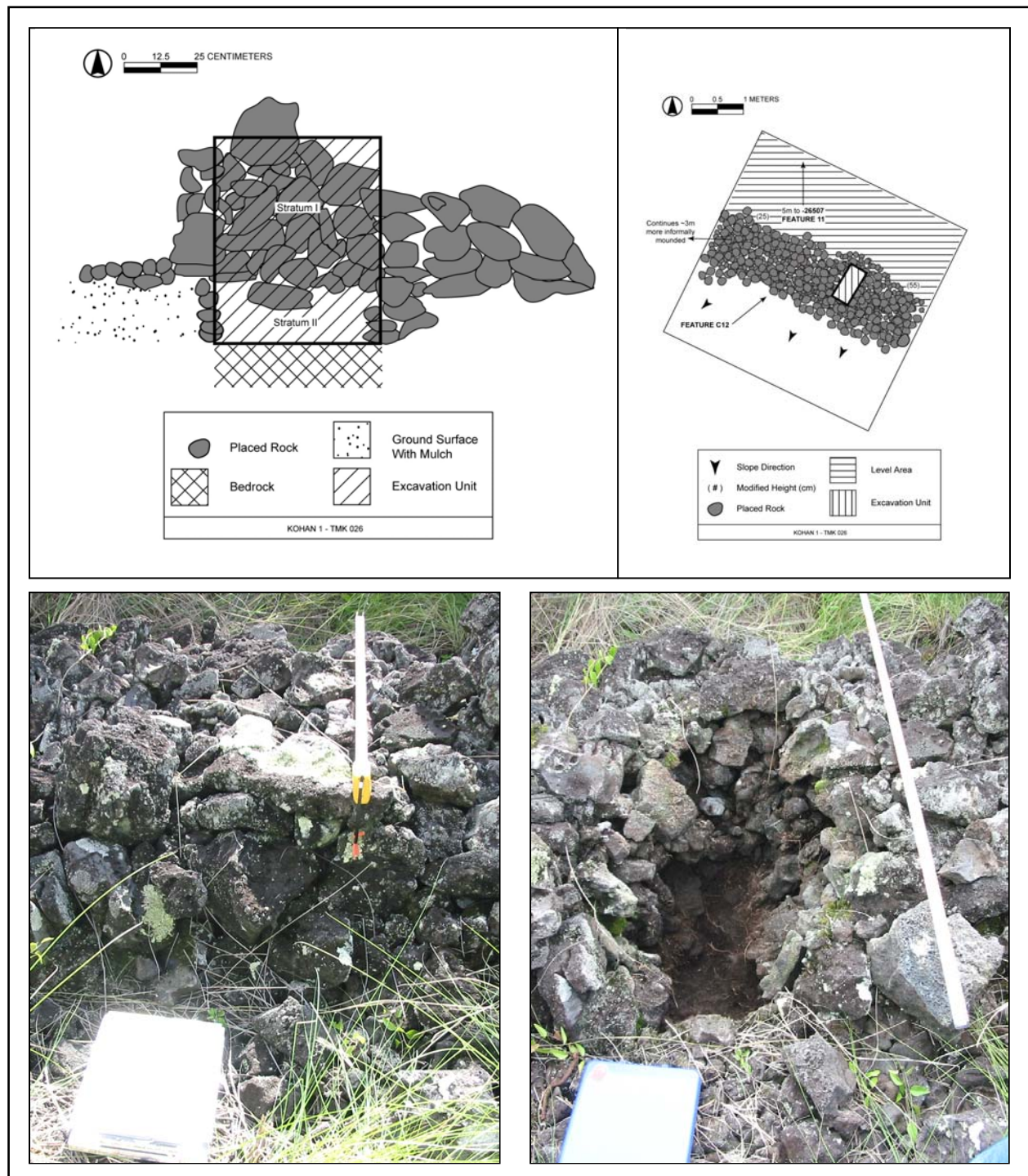


Figure 184. Site -26507 Feature C12, excavation figures. Counter-clockwise from top left: east wall profile; plan view of mound and excavation unit; mound pre- and post-excitation

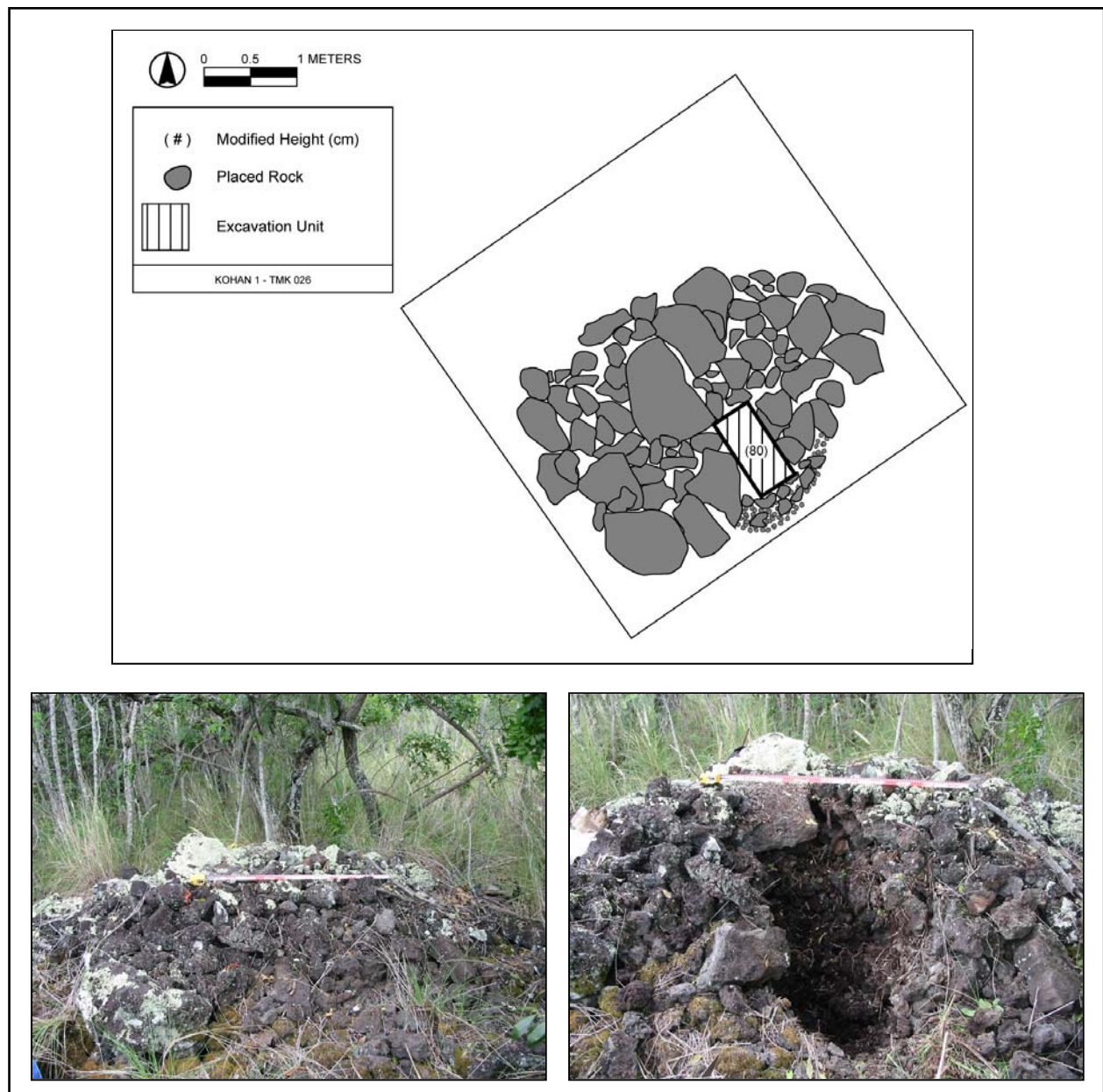


Figure 185. Site -26507 Feature C14, excavation figures. Counter-clockwise from top: plan view of mound and excavation unit; mound pre- and post-excitation

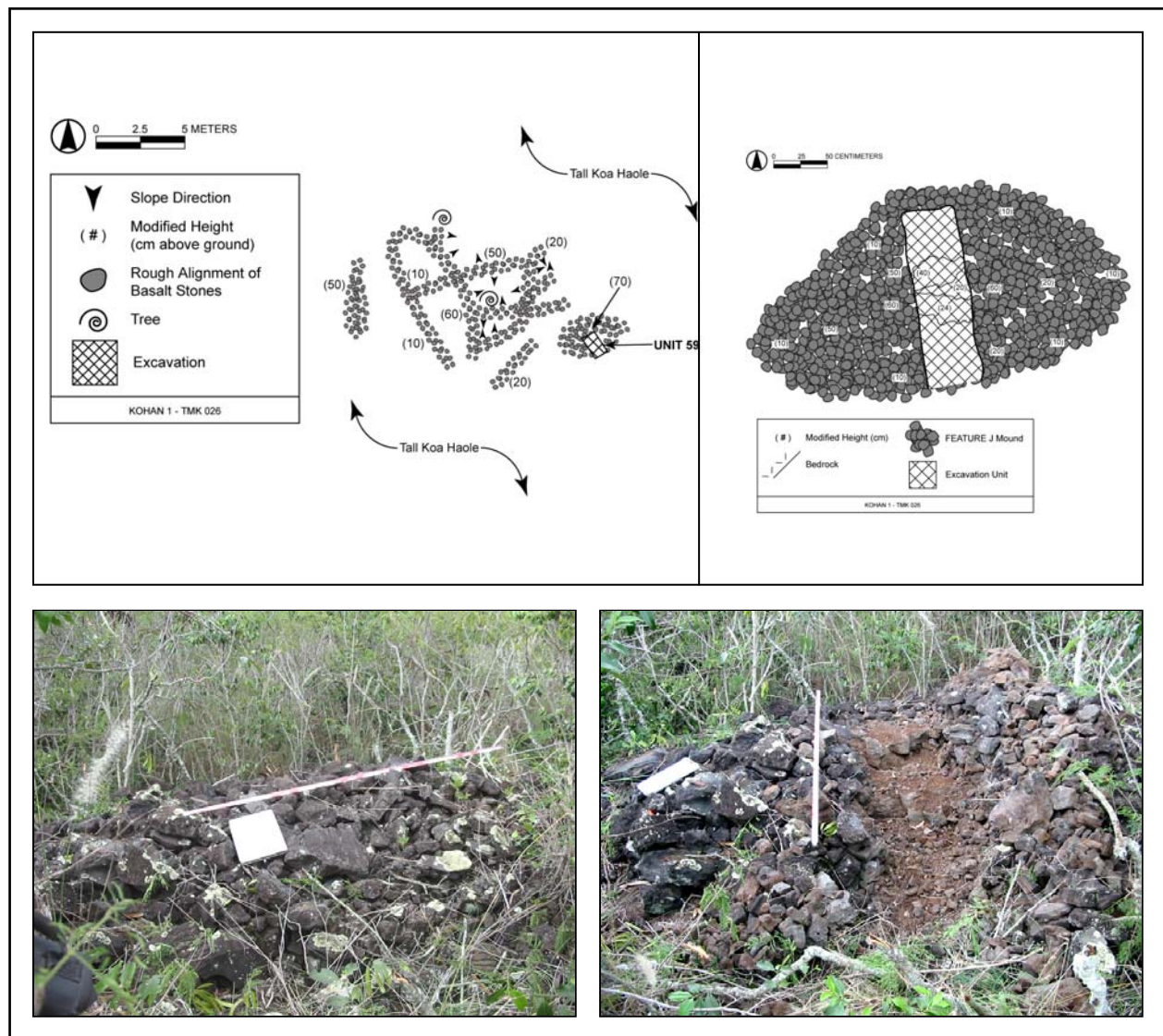


Figure 186. Site -26507 Feature E, excavation figures. Left to right, top to bottom: plan view of feature; plan view of mound and excavation unit; mound pre- and post-excitation

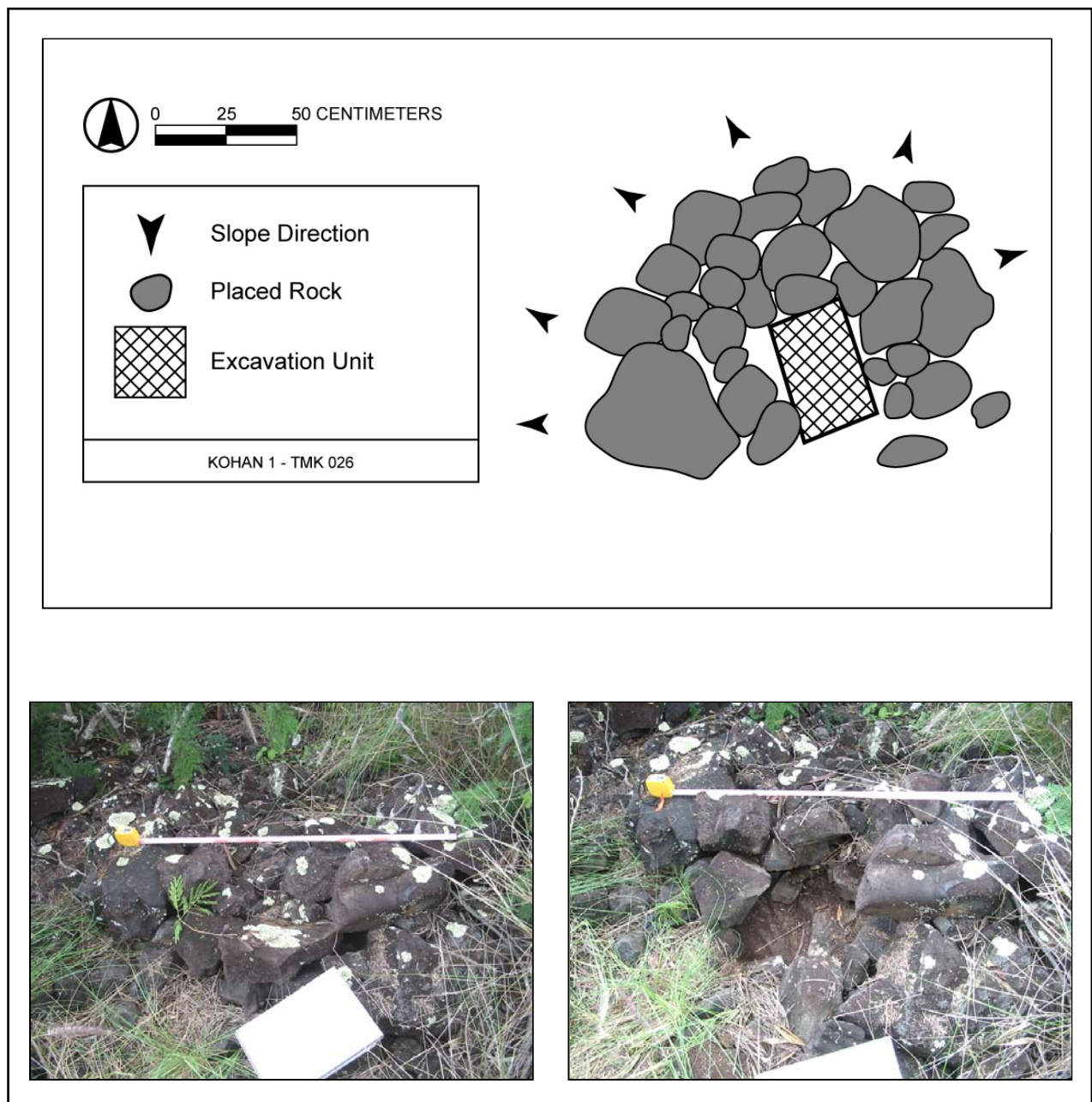


Figure 187. Site -26507 Feature I, excavation figures. Counter-clockwise from top: mound and excavation unit plan view; mound pre- and post-excitation

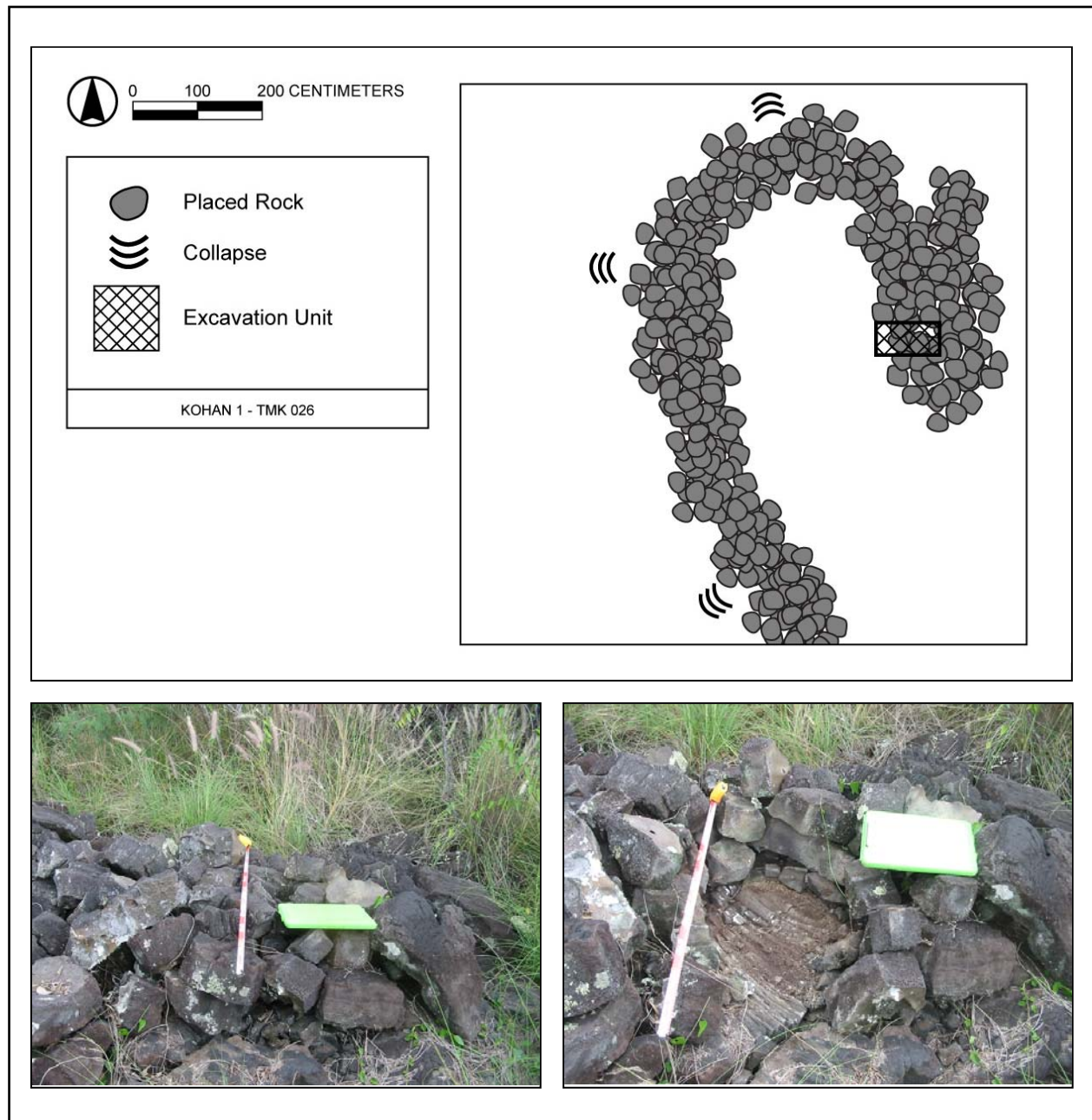


Figure 188. Site -26507 Feature L, excavation figures. Counter-clockwise from top: mound and excavation unit plan view; mound pre- and post-excitation

2.1.27 State Site # 50-10-28-26508

SIHP #	50-10-28-26508
FUNCTION:	Temporary Habitation
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	22 m by 27 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	680 ft a.m.s.l.

DESCRIPTION: Site -26508 is located in an undulating *pāhoehoe* flow in the center of TMK 26, 38 m east of Site -26500, in Kohanaiki Ahupua'a. The vegetation consists of medium to large Christmas berry, grasses, and ferns.

The site consists of a relatively small sink with three lava tubes emanating off of it (Figure 189). One tube is inaccessible from the sink due to natural fall. All of the tubes are connected, and the main tube extends off the south end of the sink and is the only one easily accessible from the sink. The entrance to this tube is partially constructed by the modification of the natural fall from the sink. This fall has been cleared from the tube's entrance chamber and relocated to partially block access to one of the tubes off of the sink and a short side tube off the entrance chamber (Figure 190). The cleared area has scattered midden that includes urchin, cowry, *Nerita*, and *kukui*. A soot-like sediment deposit also covers part of the chamber floor. The back of the entrance chamber connects to one of the other tubes and has two additional tubes that extend off of it. Each of these tubes contains water collection constructions; there is a total of ten water collection constructions in Site -26508. An upright is also on the western edge of the sink.

The site's function is interpreted as temporary habitation with a secondary function of water collection. The habitation function is evidenced by the scattered midden and soot deposit in the entrance chamber of the main tube. There is not sufficient midden or modification present to indicate any more intensive habitation function than temporary. The water collection function is evidenced by the multiple water collection constructions present within the site.

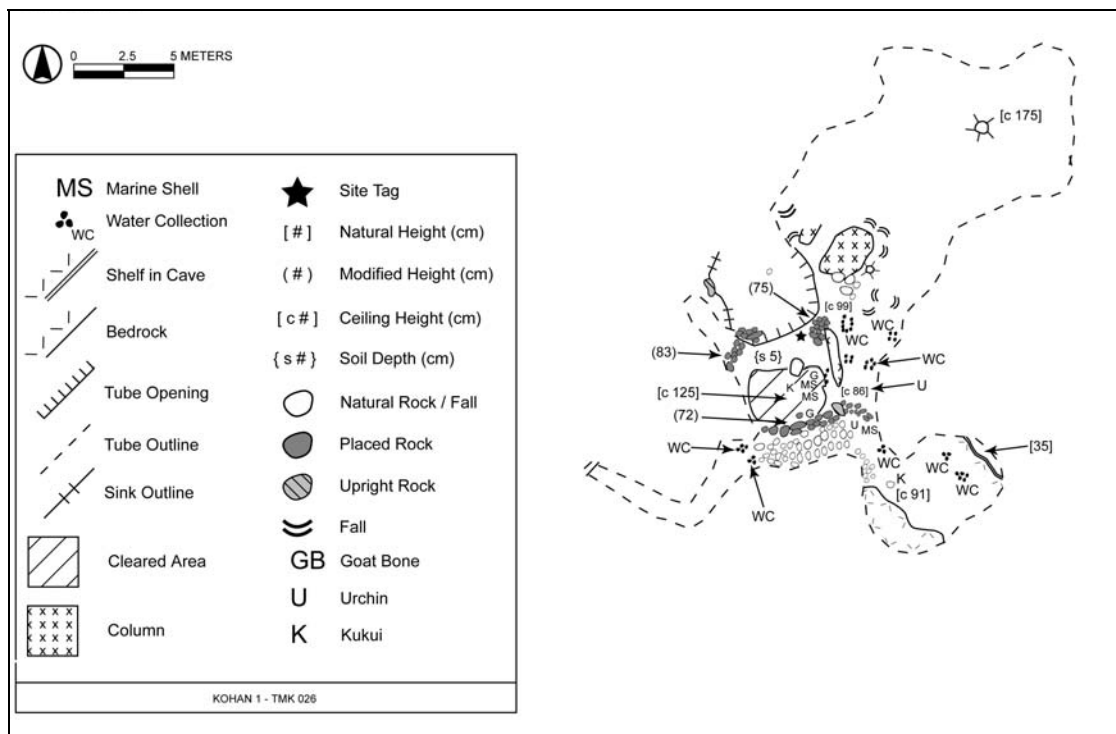


Figure 189. Site -26508, temporary habitation lava tube, plan view



Figure 190. Site -26508, temporary habitation lava tube, view of cleared area immediately inside the entrance of the main tube, view to south

2.1.28 State Site # 50-10-28-26509

SIHP #	50-10-28-26509
FUNCTION:	Burial
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	16.5 m by 6.5 m (54.1 ft. by 21.3 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	615 ft a.m.s.l.

DESCRIPTION: Site -26509 consists of a lava tube with an extensively modified main chamber (Figure 191). It is located approximately 15 m (49.2 ft.) north of Site -26511 (and Site -10714 Area A, the *mauka/makai* trail), and connects to Site -26511. The surrounding vegetation is primarily thick *koa haole* with some berry trees, and a Christmas berry tree growing out of the site's main entrance. The surrounding landscape slopes downward slightly to the south, is fairly level to the north and east, and is characterized by large sink areas with eroding boulder-size *pāhoehoe* bedrock to the west.

The site's main entrance is an approximately 2 m by 3 m (6.6 ft. by 9.8 ft.) collapsed portion of lava tube that drops approximately 1 m (3.3 ft.) from the ground surface. The site's main chamber is extensively modified with a ramp leading from the surface, a leveled area, and a formally constructed retaining wall on the north side of the chamber. Roof fall material from the main entrance and from within the tube was likely used to construct the ramp, wall, and level terrace. The tube's interior has been cleared from the northern end of the main chamber. This northern cleared area extends from the retaining wall of the terrace to the back of the northern extent of the site (approximately 6 m / 19.7 ft.) and is 1-2 m (3.3-6.6 ft.) wide with a 2.5 m (8.2 ft.) ceiling height. A small passage at the back of this northern tube leads upward through a fall area, and connects to Site -26520, an extensively modified lava tube. Thndary designated between these two sites, Site -26520 and-26509, was based upon the significant physical constrict of the tube and the variation in the types of modification in these tubes.

The retaining terrace wall on the north side of the entrance to-26509 is approximately 1 m (3.3 ft.) high and is very formally constructed with a vertical face 4 to 5 courses high of medium to large cobbles (25-45 cm / 0.8-1.5 ft. in diameter) (Figure 192). The area below the terrace to the north is cleared, except for a few large placed stones on the west side that seem to form an alignment that partially blocks the main chamber from a low area beneath a shelf. Several placed rocks are on this shelf and another shelf on the eastern side of the chamber. The placed rocks do not appear to be water collections, but their specific function is unknown. The top of the terrace is a level surface that extends 2-4 m (6.6-13.1 ft.) to the south from the face of the retaining wall. This level surface then slopes upward to intersect the ramp and provides easy access to the surface. The entire area contains some modificaton, and a few upright or partially upright stones retain the ramp area from the level terrace. Christmas berry tree roots growing in this area have likely caused some disturbance to the original ramp construction. A small entrance to a side lava tube is on the ramp's northwest side. This side tube entrance is modified and was created during construction of the ramp and terrace. The entrance to this western tube is loosely stacked, or may have been loosened by roots/vegetation, and access is difficult. A small scatter of marine shell,

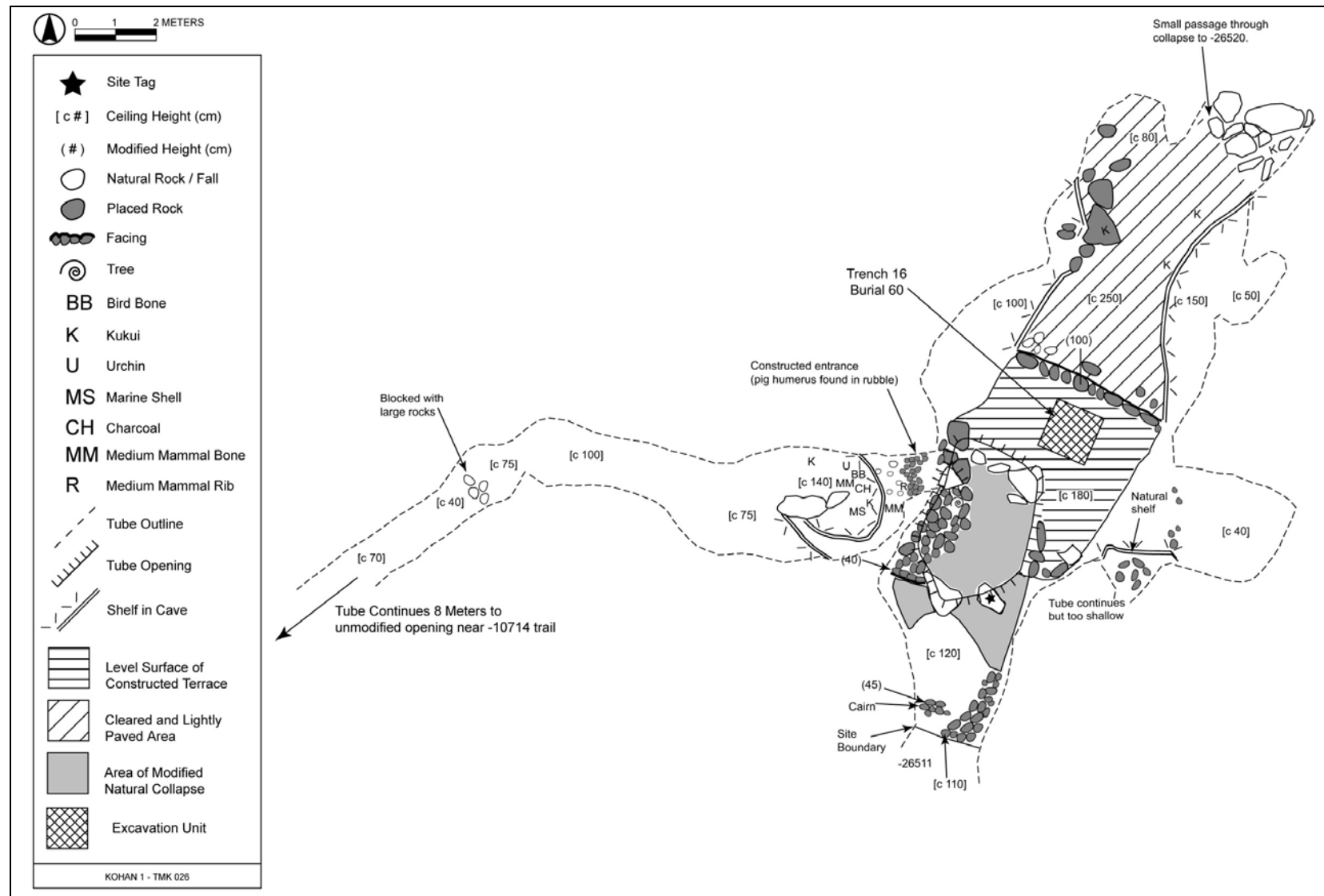


Figure 191. Site -26509, burial lava tube, overview



Figure 192. Site -26509, burial lava tube, showing the vertically-faced wall inside of entrance to the tube. View to south.

kukui, sea urchin, bird bone (a small seabird), a small amount of charcoal and a scatter of deteriorating medium mammal bone are inside the western side tube. The medium mammal bone included an articular surface that had eroded almost completely to calcaneus bone and a rib fragment; the bones could not be definitively identified as faunal or human remains. However, since a pig humerus was found in the rubble pile that leads down into the western tube, the remains may all be pig (since fragmentary pig rib is difficult to distinguish from human and the articular pieces of bones were too eroded to be diagnostic). No other midden or artifacts were found in the western tube. At the end of the western tube, however, there is a partially (crudely) blocked passage that leads to an unmodified sink; this sink is located approximately 5 m (16.4 ft.) north of the trail and close to an upright along side the trail.

A side tube from the main entrance chamber of -26509 leads to the south to Site -26511 narrowing to a crawl space. A small cairn, small to medium boulders piled approximately four high, is in this south tube, just south of the ramp to the surface. The east side of the southern tube is also modified, with rocks piled in a crack to level the surface. No midden other than *kukui* was found in this tube or in the main chamber.

The site's function was initially interpreted as temporary habitation based on its location near a major trail system and the *ahupua'a* wall (Site -10714 Area A and -10712) indicating temporary habitation for travelers. The paucity of midden indicated the possibility of a function other than living space, such as ceremonial. The main chamber's extensive modification indicates the site was likely used more frequently/intensively than a shelter (i.e. Site -26511). The cleared north end and level terrace at the entrance with the ramp all indicate intensive use. Based on excavation results (see below) the primary function of the site was determined to be burial with a secondary function of temporary habitation.

Testing Results

Test excavation was conducted to assist in determining site function and to determine whether a burial is present.

Trench 16 was placed roughly in the center of the formally paved surface of the terrace (Figure 193). Stratum I, extending from 0 to 100 cmbs, consisted of fill of small to medium *pāhoehoe* cobbles and some large cobbles and small boulder mixed with soil. The fill consisted of very tightly fitted predominantly small and medium *pāhoehoe* cobbles with some large cobbles, small boulders and slabs mixed throughout with soil and some small roots. A very small amount of midden was found. A fragmentary piece of innominate that was determined to be human and designated Burial #60, found at 65 cm below the terrace surface, near the bottom of the excavation slightly wedged between two large, immobile pieces of natural fall (see below for burial documentation).

Soil and small cobbles were found between the stones and sifted. In the upper portion of the excavation most stones were small cobbles, but as excavation continued the stones became larger and many could not be removed. The removal of these rocks revealed what seemed to be an entrance to another lava tube, possibly a continuation of the west tube. All stones that could be removed were removed and the soil was cleared to examine the excavated trench. The tube entrance was blocked by large rocks preventing entrance. External examination of the tube showed no skeletal remains or artifacts within the tube.

The unit was terminated at a maximum depth of 100 cm upon encountering immobile natural roof fall and the natural bedrock floor surface.

The lack of midden found in the unit is evidence that this terrace and the site did not function primarily as habitation as previously thought. Rather, given the lack of a more substantial midden, and the presence of human bones, Burial 60, this terrace and site functioned primarily as a burial site.

Burial 60

Excavation was conducted to determine whether the terrace contained a burial. A large bone fragment was found in a crack between two large immobile stones. The surrounding small cobbles were carefully removed to review the bone. The fragment is an innominate and was determined to be human based on grain, morphology, and structure (Figure 194). No other bones were found in the unit or anywhere near the innominate. It appears to be completely isolated. The size of the piece of innominate makes it unlikely that it washed into its position. The bone's location in a formal terrace is consistent with human burial. As no other remains were found in the unit, the additional remains may be within the terrace. The other possibility is that remains may also have been removed and placed in a secondary location or this fragment was moved as a result of rodent activity.

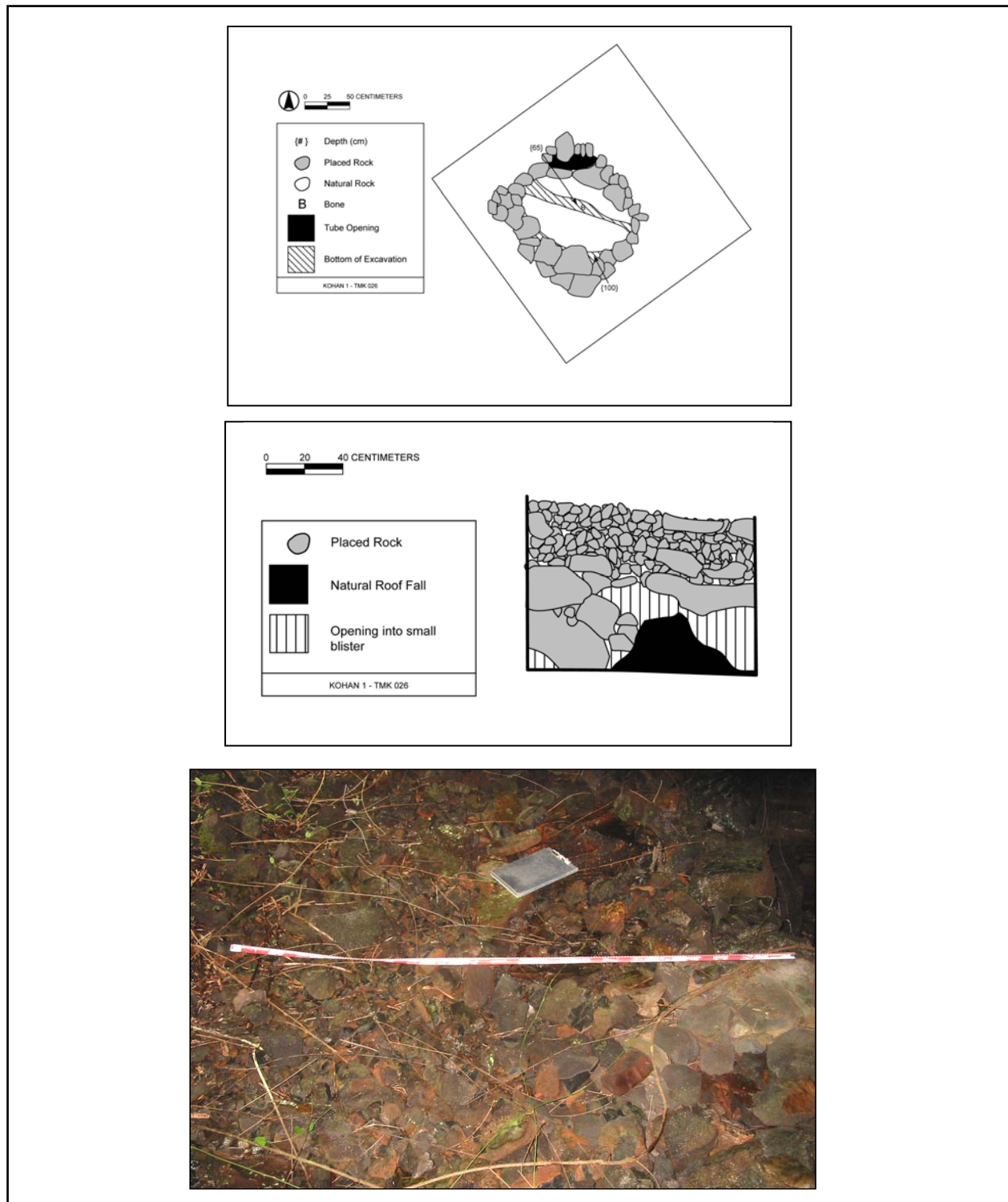


Figure 193. Site -26509 excavation figures. Top to bottom: plan view of base of excavation unit; northwest wall profile; photograph of terrace paving pre-excavation

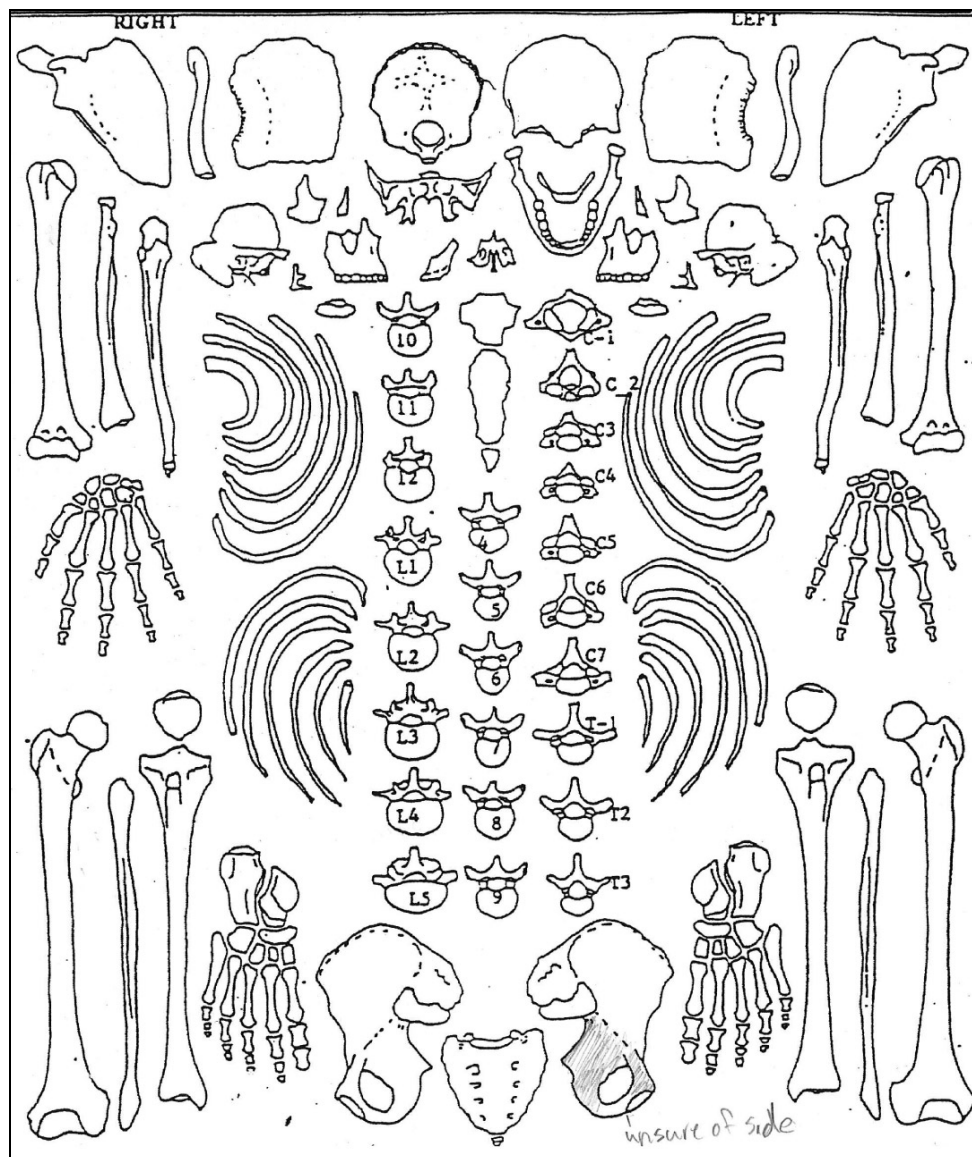


Figure 194. Site -26509, Burial 60, skeletal inventory form (innominate fragment only)

2.1.29 State Site # 50-10-28-26510

SIHP #	50-10-28-26510
FUNCTION:	Burial, Water Collection and Ceremonial
SITE TYPE:	Complex
TOTAL FEATURES:	5
DIMENSIONS:	20.5 m by 35 m (67.3 ft. by 114.8 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	720 ft a.m.s.l. to 735 ft a.m.s.l.

DESCRIPTION: Site -26510 is a large site complex comprised of: two sinks, each of which are only slightly modified; four tubes, Tubes 1 through 4; and a single surface platform (see Figure 195). The site is located on a slightly west sloping and gently undulating *pāhoehoe* flow at the northern edge of the project area in Kohanaiki Ahupua'a. Vegetation within and adjacent to the site consists of varying sizes of Christmas berry trees, head-high *koa haole*, thick surface grasses, ferns, and two *noni* trees growing out of a skylight in a tube.

There are a total of five features, Feature A through Feature E, and only one feature (Feature D) is on the surface outside of a lava tube. Three of the four tubes (Tubes 1, 3, and 4) connect to other sites: Site -26513, Site -26521, Site -26519, as well as a modified sink outside of the project area near Site -16103. Feature A consists of an upright slab and a cairn that are markers of water collection within Tube 1. Feature B and Feature E are trails in Tube 1 and Tube 4 that provide pathways for easier access to the water collection constructions. Feature C platform is associated with Feature D platform, and both serve ceremonial functions.

Each of the four tubes within the site extends off of at least one of the two sinks. **Sink 1** is oval shaped, and measures 10 m northeast/southwest by 5 m northwest/southeast. Sink 1 is only modified at Entrance 2 to Tube 1 (Entrance 1 to Tube 1 is approximately 80 m at 60° TN from Sink 1 Entrance 2). The modification consists of upright slabs that have been placed to block the sides of the entrance and limit access to the entrance. Entrance 3 is off the west side of Sink 1 is the beginning of Tube 2; Tube 2 then leads to Sink 2. **Sink 2** measures about 20 m in length from southwest to northeast (part of Feature A), and 12.5 m in width at its widest. The only modification to Sink 2 is a large upright slab that stands 70 cm in height just outside of Entrance 4 to Tube 2. Sink 2 has three tube entrances: Entrance 4 to Tube 2 is located in the northeast corner; Entrance 5 to Tube 3 is located on the north end; and Entrance 6 to Tube 4 is located in the southwest corner of the sink.

Tube 1 is accessed via Entrance 2, in the northeast end of Sink 1. The entrance to the tube is constructed with stacked small *pāhoehoe* boulders to partially restrict the entrance. Two small *pāhoehoe* slab uprights are along the north edge of the entrance. Immediately inside the constructed Entrance 2 is a modified natural fall ramp heading down into the entrance chamber of the tube. The fall has been modified to partially restrict the openings into the two southwest heading tubes. These openings are not completely blocked. Beyond the northeast boundary of the natural fall ramp in this entrance chamber are approximately seven water collection constructions. There are a few scattered *kukui* in the entrance chamber but no other midden or

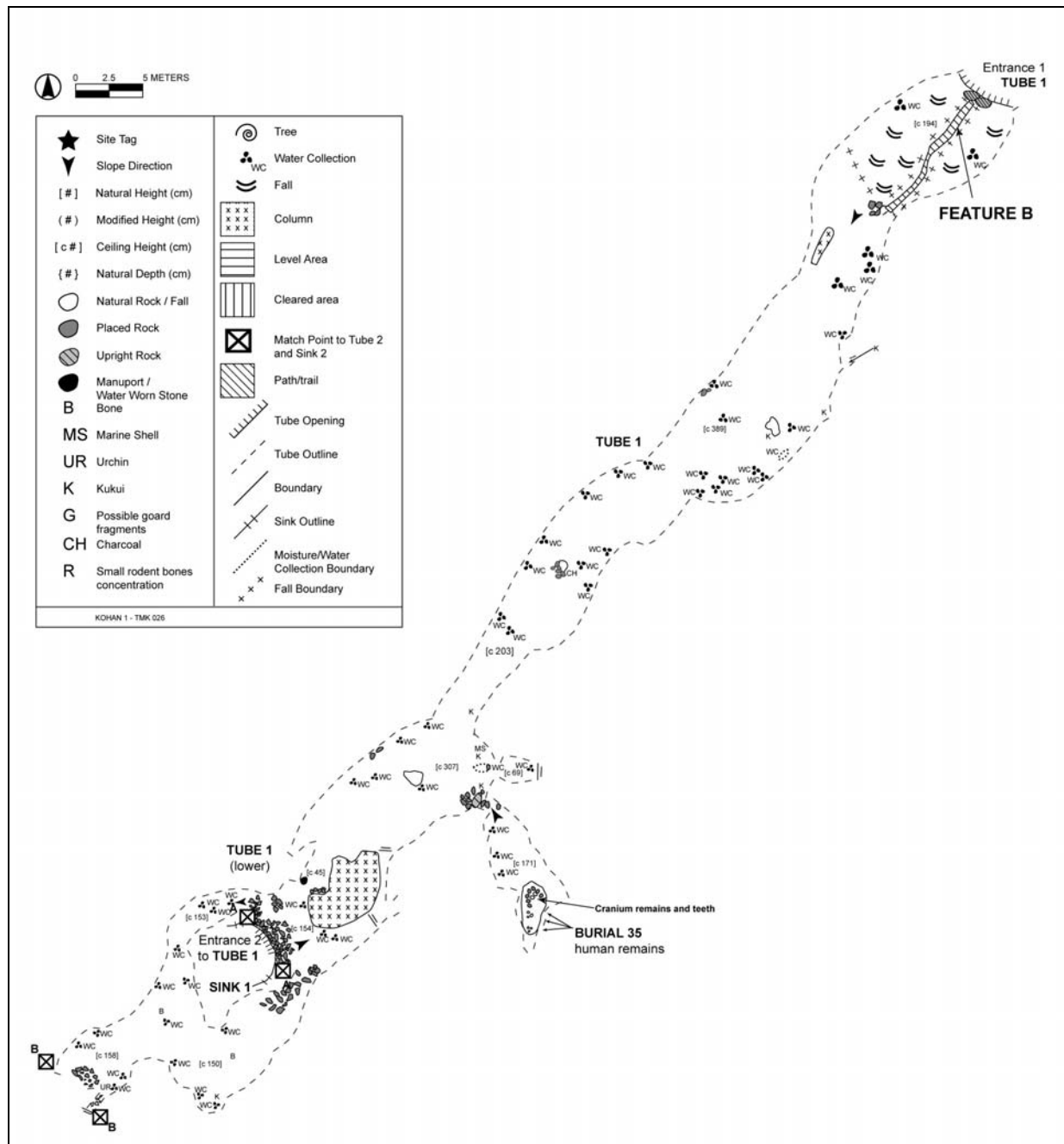


Figure 195. Site -26510, water collection, burial, and ceremonial complex, plan view of Tube 1 and Sink 1; see Figure 196 for match points that lead to southern tubes

cultural materials. Beyond the entrance chamber, a branch of Tube 1 heads to the northeast. This tube opens into a tall chamber with some placed rocks and approximately six water collection constructions. Off to the east side of this tall chamber is a side chamber measuring roughly 10 m by 5 m.

The entrance to this side chamber is modified with the placement of a large upright in front of the entrance (the upright does not block the entrance) and three *pāhoehoe* slabs that are in an alignment on the floor heading into the side chamber. This side chamber contains approximately three water catchments and Burial 35 (see burial section below). Some scattered *kukui* and crab shell are in the tall chamber of this northeast branch of Tube 1. As the tube continues northeast from the tall chamber, a large concentration of small charcoal pieces is present that likely washed in from the surface. The tube continues, heading roughly northeast until it ends at a sink outside of the project area. The sink is labeled with an old site tag that reads RC-0312 T-15 5/11/05, indicating it was part of the inventory survey conducted by Nelson et al. (2006). The tube heading up to this end runs for approximately 55 m from the tall chamber to an area of natural fall, immediately before the end of the sink, at Entrance 1 (outside the project area). In this last stretch of the tube there are approximately 26 more water collection constructions. A path, Feature B, is constructed in this natural fall that leads from Entrance 1 down into the tube. Entrance 1 is modified with the placement of a few upright slabs to restrict the entrance slightly but these slabs do not block the entrance. Entrance 1 is approximately 40 m north of the project area boundary (outside the present project area).

Tube 1 of Site -26510 also has two tubes heading roughly southwest off Sink, 1 immediately inside Entrance 2. One tube branches off the southeast side of the chamber, while the other branches off the northwest side. Both tubes have smooth floors and run southwest before joining together to form a single tube just northeast of the entrance to Tube 2. There is a large modified natural fall that leads up to the entrance to Tube 2, which is in the floor of Tube 2 between Sink 1 and Sink 2. Both of the southwest heading tubes together contain a total of 15 water collection constructions. A small amount of *kukui* is scattered throughout these two tubes and a few pieces of urchin were along the edge of the modified natural fall of the entrance to Tube 2.

Overall, Tube 1 has substantial water collection, as well as containing a single burial. Water collection function is evidenced by the numerous water collection constructions and the lack of much other modification not directly related to water collection or access to the water catchments, such as the trail at Entrance 2.

Tube 2 of Site -26510 runs roughly northeast/southwest in between Sink 1 and Sink 2 for approximately 15 m and measures 7 m in width (Figure 196). There are two entrances from the surface into Tube 3, Entrance 3 on the northeast side of the tube at Sink 1, and Entrance 4 on the southwest side of the tube into Sink 2. The southwest portion of Tube 1 runs directly beneath Tube 2 and opens up into Tube 2 via a small passageway. The passageway leading to Tube 1 is constructed and, in the area immediately southwest of this passageway, the natural fall seems to have been slightly built up as part of this constructed opening. Only a single piece of marine shell, a cowry fragment, is located in the paving. There are also approximately ten small gourd fragments.

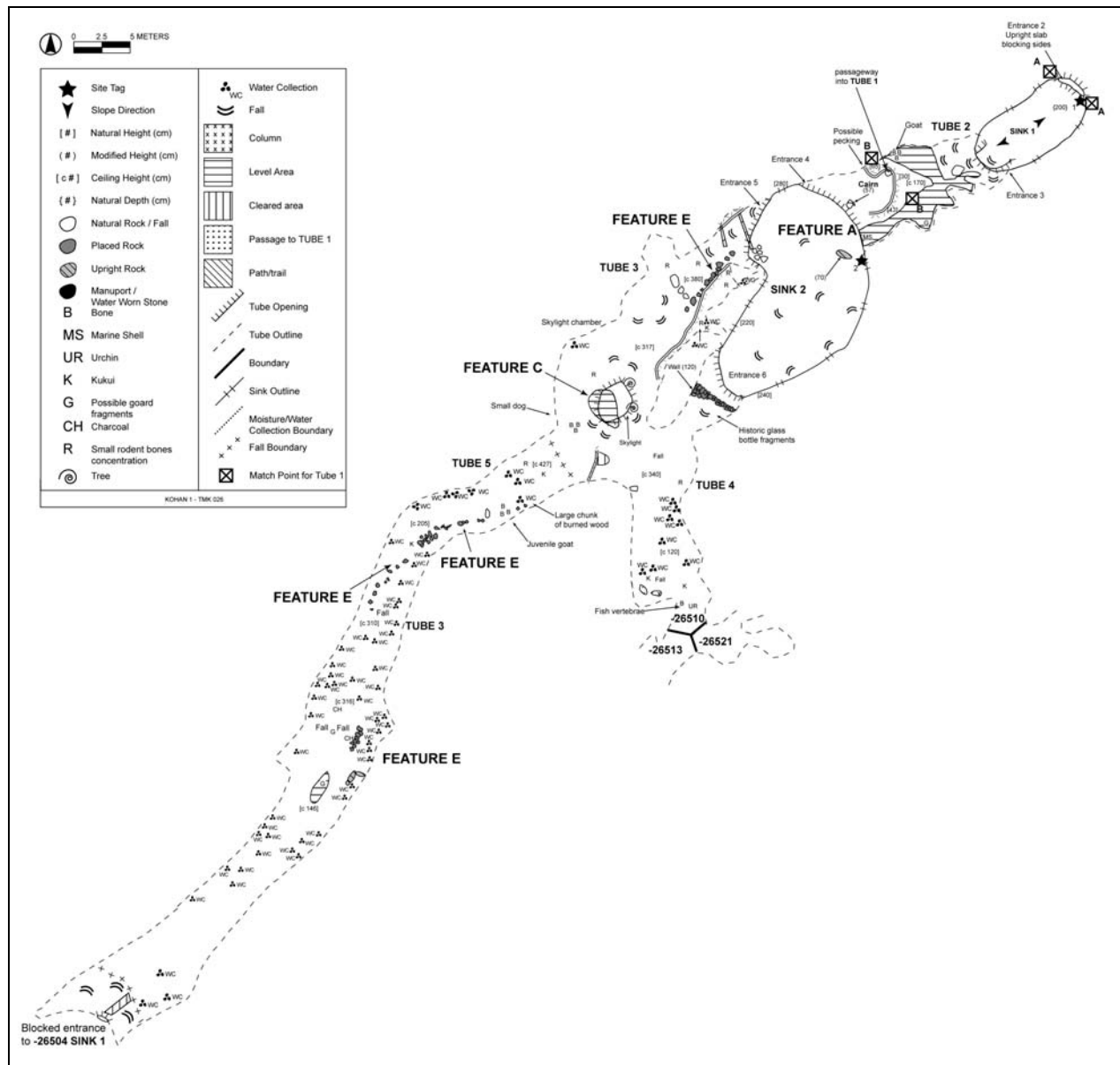


Figure 196. Site 26510, , water collection, burial, and ceremonial complex, plan view of Sink 2 and associated tubes; see Figure 195 for match points that lead to northern tube

The majority of the floor of Tube 2 has either been paved or is completely cleared. The floor is paved with predominantly small *pāhoehoe* cobbles. The cleared areas of the floor are very smooth, naturally level *pāhoehoe*. The southwest end of this cleared floor ends at a natural lip in the *pāhoehoe* where the passageway to Tube 1 is located. Some possible pecking marks are along the rim of this *pāhoehoe* lip, on the west end. It is possible the marks are natural but they are in a rather linear alignment.

The function of Tube 2 is related to the site's water collection activities. Although the amount of space and the paving and clearing are suitable for habitation, there is no midden aside from the single cowry fragment, to suggest habitation use. The gourd fragments also indicate Tube 2's strong association with the site's water collection activities.

Tube 3 runs roughly southwest and begins at Entrance 5 on the northwest side of Sink 2, measuring approximately 90 m by 5 m (see Figure 196). Immediately inside Entrance 5, the natural fall floor has been modified to construct two small terraces. The upper terrace is roughly level with the fall level of Sink 2 but is discernable by the 90 cm high retaining wall on its south side. The lower terrace is constructed 70 cm above the fall surface below its retaining wall. Neither terrace is faced but both have upper surfaces that are relatively level. Construction materials include large *pāhoehoe* cobbles, small *pāhoehoe* boulders, and slabs of the natural fall. The lower terrace has been leveled so that it is relatively flush with a naturally smooth cave shelf on its northwest side. Neither the upper nor lower terrace continues across the length of the entrance but blends into the natural fall that slopes down into the tube.

On the southeast side of the tube are two small side tubes with three water catchments between both tubes. The first 18 m of the tube, heading southwest from Entrance 5, is full of natural fall made up of large *pāhoehoe* boulders and slabs. Feature E is a constructed *pāhoehoe* slab trail that runs along the southeast wall of the tube for 8 m across this natural fall. The path leads to a large chamber, approximately 3.5 meters high, with a large skylight in the roof. The chamber joins Tube 4. Beneath the skylight is a platform, Feature C, constructed of the natural fall. The upper surface of the platform is paved with a small *pāhoehoe* cobble pavement.

Beyond the Feature C platform, Tube 3 continues leading roughly southwest. The tube floor drops down approximately 1 m below the previous floor level. Along the bedrock lip of this drop on the southeast side, is a small area that has been cleared of all fall. Approximately 2 m southwest of the Feature C platform, where the floor level drops, another *pāhoehoe* slab trail begins a continuation of Feature E. The trail leads down along the tube floor and consists of approximately 18 small and medium *pāhoehoe* slabs. After passing the natural fall, the floor is for the most part naturally free of fall, and several water catchments are present. The tube continues and the trail reappears approximately 10 m into the tube, more placed *pāhoehoe* slabs run along the edge of an area of natural fall. Atop the fall, the trail continues but is paved with small *pāhoehoe* cobbles. Water collection constructions are abundant in this tube and, unlike most other water collection caves, are constructed with large slabs and boulders, not only the cobbles that are normally utilized. This tube also has a large number of water collection constructions constructed on the cave's sidewalls. This involves constructing shelf-like features on the sidewalls and building small mounds up against the side walls to collect the water dripping down the sidewalls. There are also two small concentrations (10 gourd fragments) amongst the water collection constructions in the tube. The paved path is roughly level, is

approximately 65 cm wide and continues until it comes down off of the natural fall. It is possible to traverse the entire length of the tube from the skylight chamber on either the intermittent trail or the generally smooth *pāhoehoe* floor until the last 10 m of the cave that has natural fall and four water catchments. The tube ends in natural fall at an intentionally blocked entrance to the surface. This entrance was blocked from the surface with placed *pāhoehoe* slabs, and opens to a sink of Site -26504.

The function of Tube 3 is water collection. There are a total of 55 water collection constructions between Feature C and the skylight chamber and the end of the tube at the blocked entrance to Site -26504. The lack of midden precludes habitation and no other indications of habitation function are apparent.

Tube 4 extends off the southwest end of Sink 2 and measures 25 m by 5 m (see Figure 196). The entrance to Tube 4, Entrance 6, is partially constructed with a sort of retaining wall constructed to contain the natural fall from the sink. The retaining wall is constructed of the natural fall material, consisting of small to medium *pāhoehoe* boulders and *pāhoehoe* slabs, and is roughly 60 cm high. The upper surface of the retaining wall is flush with the fall immediately in front of Entrance 6 in Sink 2. There is a small wall built atop this flush top surface on the northwest side of the entrance. The second wall incorporates an upright *pāhoehoe* slab to a height of 60 cm, making the overall constructed height for both walls 120 cm inside the wall leading down into the tube is natural fall. Amongst this natural fall, along the southeast side wall of the tube, is a historic bottle broken into four pieces.

The bottle is clear glass with an aqua tint. The glass is 0.50 cm thick, has various sizes of small air bubbles in it with striations on the exterior surface of the glass. Two seams are visible running lengthwise down the body of the bottle. These seams are not present on the mouth. The mouth of the bottle is smooth, with no threading. The diameter of the mouth is 2.5 cm. The maximum diameter of the body of the bottle from the remaining pieces appears to be 10 cm. The glass factory mark on the bottom of the bottle is A.B.G.M.CO, which identified the manufacturer as Adolphus Busch Glass Manufacturing Company. The bottle was made sometime between 1886 and 1925 in one of A.B.G.M.CO.'s two plants. The plant in Belleville, Illinois produced bottles from 1886 to ca.1905 when it became part of American Bottle Company and changed its factory mark. The St.Louis, Missouri plant produced bottles between ca.1891-1925. The factory mark on the bottom of the bottle also includes H 22 in the center, however, research does not indicate the significance of the numbering.

Tube 4 and the natural fall continues southwest for approximately 7 m before connecting to the skylight chamber of Tube 3. The tube then turns and heads roughly northwest. There is some natural fall in areas of this northwest-running tube but the large natural fall that fills the tube floor immediately inside Entrance 6 and in the skylight chamber does not continue into this branch of the tube. The tube runs for approximately 15 m with approximately 8 water catchments before reaching the site boundary where it connects with Site -26513 and Site -26521. This section of the tube after the skylight chamber contains a very small amount of midden including a few scattered *kukui*, a couple of urchin mouthpieces, and a portion of a fish spine, consisting of approximately 6 vertebrae. The function of Tube 4 is an activity area for water collection as evidenced by the presence of the water catchments in the Tube 4.

Feature A is located in the northwest corner of Sink 2 and is just outside of Entrance 4 to Tube 2 (see Figure 196). Feature A designates a cairn consisting of an upright slab of *pāhoehoe* measuring 70 cm high by 146 cm long and 28 cm wide. Feature A also consists of a cairn constructed of three slabs of *pāhoehoe*. The cairn is located just inside Entrance 4 to Tube 2. The slabs are stacked to 57 cm in height and 52 cm in diameter and are approximately the same size. The cairn is in good condition and the top of the upright *pāhoehoe* slab is covered with moss. Excavation potential for both the upright and the cairn is poor due to a lack of sediment deposits and no midden or artifacts are present.

Feature A functions as marker used to identify the water collection features; at least 30 water collection features are in Tubes 1 and 2, which are adjacent to each other. It seems unlikely that the marker was used to identify the location of Burial 35, also in tube 1, although it is possible that the markers were used to mark the water collection and the burial.

Feature B is a path located at the northeast end of Tube 1, immediately inside Entrance 1 (see Figure 195). The path was constructed by clearing large slabs and boulders and inlaying small *pāhoehoe* slabs amongst the natural fall cobbles to create a very well defined sloping path. The path leads from the tube floor at the base of the natural fall, up to Entrance 2, directly inside some placed upright *pāhoehoe* slabs that modify the entrance. The path is approximately 10 m (32.8 ft.) long and averages approximately 70 cm (2.3 ft.) wide. It is clearly discernable from the entrance and also from the base of the fall since it has been cut into the fall by clearing larger boulders and slabs. Some portions of the path's surface are as much as 40 cm (1.3 ft.) lower than the surrounding fall surface. The path is also marked by the small *pāhoehoe* cobbles that have not been cleared and by inlaid small *pāhoehoe* slabs.

Feature B provides easy access into and out of Tube 1, a water collection activity area. The portion of the tube immediately beyond the base of the fall and path contains 26 water catchments. The path's function is to access the water catchment features.

Feature C is a constructed platform directly under the skylight chamber adjoining Tube 3 and Tube 4 (see Figure 196 & Figure 197). The platform measures approximately 3.5 m by 2.5 m and is 90 cm high (11.5 ft. by 8.2 ft. and 2.9 ft. high). The platform is constructed with the tube's natural fall, which consists primarily of large *pāhoehoe* cobbles and boulders and *pāhoehoe* slabs. The northwest side of the platform abuts and is flush with the natural fall along the tube's northwest wall. No clear facing is evident on the platform's sides. The top surface is predominantly paved with small *pāhoehoe* cobbles, and is very level and flat. A small dog skeleton is buried under some small *pāhoehoe* cobbles roughly 2 m (6.6 ft.) southwest of the platform.

Feature C's function is ceremonial based upon its proximity to Feature D, which is a ceremonial structure.



Figure 197. Site -26510, water collection, burial, and ceremonial complex, Feature C, showing the platform in the skylight chamber that adjoins Tubes 3 and 4, view to northwest

Feature D is a formal platform constructed on an elevated *pāhoehoe* outcrop (Figure 198 & Figure 199). The feature has an excellent view of the coast from south of Honokōhau harbor to just south of the Kona airport; the fish ponds at Kaloko- Honokōhau are also visible. The *pāhoehoe* outcrop extends about 2 m to the north and about 1 m to the south. Feature D is located 3 m (9.8 ft.) west of the sink 2 skylight. The platform measures 7.25 m east/west by 7.4 m north/south (23.8 ft. by 24.3 ft.); it is constructed of *pāhoehoe* slabs and cobbles. The slabs range in size from 30 cm to 70 cm (0.98 ft. to 2.3 ft.). The largest slab is placed upright on the western side of the platform. The cobbles range in size from 40 cm to less than 10 cm (1.3 ft. to 0.33 ft.). The majority of small cobbles have been placed to make a paved surface on the eastern side of the platform.

The platform is primarily constructed by mounding cobbles between *pāhoehoe* upright slabs and the remnants of faced walls. The platform appears to originally have had facing on all sides, however, due to collapse, only remnants of the outside faced walls remain. A line of upright slabs separates the western side of the paved area from the platform and elevates the constructed height of the paved area above the platform. The center of this line of uprights has collapsed and some collapse is currently around the edges of the wall. Although the south end of the wall is the only area that contains four courses, it is likely the entire platform was originally four courses high.

Feature D's function is interpreted as ceremonial based on the style of construction. Extensive physical labor was necessary to construct the upright wall separating the platform from the elevated paved area on the eastern side. This construction style provides excellent views of the coast and the Kaloko fish ponds. The elevated paved area is more consistent with a ceremonial structure than permanent habitation. The faced walls surrounding the platform and the platform's size and height are also more consistent with ceremonial function.



Figure 198. Site -26510, water collection, burial, and ceremonial complex, plan view of Feature D platform



Figure 199. Site -26510, water collection, burial, and ceremonial complex, Feature D, showing the paved platform; upright slabs are near the photo scale, view to northeast

Feature E is a 90 m by 1 m (295.3 ft. by 3.3 ft.) trail that runs intermittently the length of Tube 3 (see Figure 196 & Figure 200). The trail begins at Entrance 5, and runs along the southeast wall of tube 3 until it reaches the skylight chamber and Feature C, platform. The trail in this first, northeast section is constructed of *pāhoehoe* slabs averaging 60-70 cm (1.9-2.3 ft.) across. The slabs are placed adjacent to each other with a maximum of 10 cm (0.33 ft.) between each slab. This section of the trail has approximately 14 slabs. The second section of the trail begins after an approximately 21 m (68.9 ft.) gap on the southwest side of the skylight chamber and Feature C. This section consists of approximately 18 small and medium *pāhoehoe* slabs. The slabs are separated a bit more than in the trail's first section but little natural fall is present. This second trail section runs approximately 18 m (59 ft.) before the slabs end. The tube floor is then naturally relatively smooth and a cleared path runs for 10 m (32.8 ft.) before it encounters an area of natural fall where placed *pāhoehoe* slabs are present again for 3 m (9.8 ft.). A naturally clear, smooth area atop the fall that leads to the stretch of the trail atop the fall that is paved with small, somewhat angular *pāhoehoe* cobbles follows. This paved path section is roughly level and approximately 65 cm (2.1 ft.) wide; it continues until it leads down off the fall onto another naturally relatively smooth *pāhoehoe* floor. This clear floor path then continues to the last 10 m (32.8 ft.) of the tube that has natural fall. Atop this natural fall, leading up to a blocked entrance to Site -26504, is a roughly clear path. This path is still relatively rough and uneven but it is slightly cleared. The tube ends at the blocked entrance. Feature E's function is transportation to access the activity area for water collection. The *pāhoehoe* slab, cleared, and paved trail makes it possible relatively easily to traverse the entire length of Tube 3 to access the abundant water collection constructions throughout the tube.

While the site largely functions as major water collection, there is also a confirmed burial and two ceremonial platforms at the site, suggesting a range of activities in this area. This interpretation is based on the abundant water collection constructions. Feature A, the cairn marks these tubes; Features B and E, the paths, allow easier access to the water collection area. Features C and D, the platforms, are ceremonial, probably in relation to water collection and also based on their proximity to each other. The site's other primary function is burial based on the presence of Burial 35 in Tube 1.

Burial 35

Burial 35 is located in a 10 m by 5 m side chamber of the tube approximately 25 m from Entrance 2 from the surface down into Tube 1. The chamber has a smooth floor and averages a height of 150 cm. There are three water collection constructions located in this side chamber. The entrance to the chamber from the main tube is small but modified with the placement of a large upright immediately in front of, but not blocking, the entrance. Behind the upright are three *pāhoehoe* slabs laid flat on the floor in a line creating a sort of path into the chamber. The burial is located in a niche on the southeast end of the boulders and two small *pāhoehoe* slabs are arranged in a U-shape around the north end (the cranium) of the remains. A few more placed small *pāhoehoe* cobbles are aligned along the west side of the remains. The remains are highly fragmented and highly decomposed, therefore the positive identification of the remains as human was based upon the teeth. There are four large cranium fragments, including the occipital and a temporal, but there are also a number of very small cranial fragments (Figure 201). There are identifiable fragments of the mandible present as well. Twenty-two teeth are accounted for, only



Figure 200. Site -26510, Feature E, showing one of the slab sections of the trail that extends throughout the length of Tube 3, view to north-northeast

one of which is still embedded. At least seven of the teeth, mostly molars and premolars, have lost most of their roots likely due to natural aging, and not to the poor condition of the remains. Three small rib fragments and a long bone fragment are likely an arm bone based upon their positioning. Approximately 1 m south of the cranium are at least six phalanges of the hands. There is also what appears to be a fragment of a lumbar vertebrae and multiple unidentifiable fragments alongside these phalanges. It was not possible to closely review these phalanges and other fragments due to the positioning of the remains without disturbing the placed rocks and other remains. Approximately 1.5 m south of the hand phalanges are at least four additional bones. Closer inspection was not possible, given the confined space, without disturbing the remains but two of the bones appear to possibly be metatarsals. Since these remains are in an anatomical position, with the head oriented north and feet oriented south, and the placed rocks arranged around the cranium (the part of the burial most open to the rest of the side chamber) indicates that this was very likely a primary, pre-contact burial of a native Hawaiian.

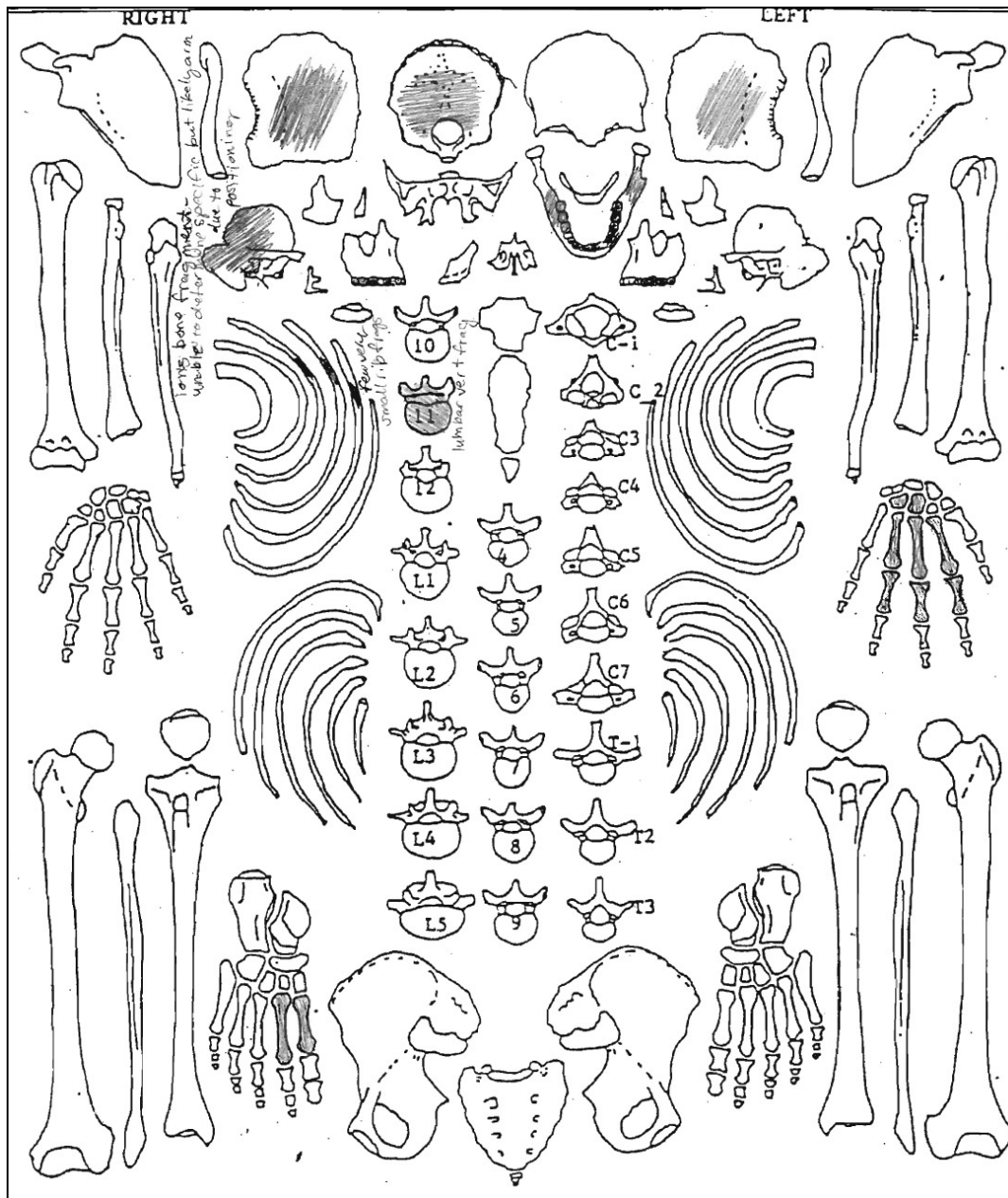


Figure 201. Site -26510, Burial 35, skeletal inventory form

2.1.30 State Site # 50-10-28-26511

SIHP #	50-10-28-26511
FUNCTION:	Shelter
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	60 m by 40 m (196.85 ft. by 131.2 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	610 ft a.m.s.l.

DESCRIPTION: Site -26511 consists of a network of interconnected tubes accessed via two entrances (Figure 202). The site is adjacent to the *mauka/makai* trail Site -10714 Area A and the *ahupua'a* wall, Site -10712.

The curbing of Site -10714 trail runs along the south side of the trail and consists of upright stones that create a barrier between the trail and Entrance 1 (Figure 203). This entrance measures 2 m by 2 m (6.6 ft. by 6.6 ft.) and opens straight down onto a large natural boulder pile formed by the same collapse that created the entrance. Entrance 2 is a entrance approximately 10 m (16.4 ft.) to the west of Entrance 1 on the surface and leads into a connected side tube of the site.

The site's tubes extend to the north, to the east, and to the southwest. The east tube is short, extending only about 10 m (32.8 ft.) with a ceiling height of approximately 80 cm (2.6 ft.). A small *Nerita* shell and *kukui* are at the entrance of the tube while a few pieces of marine shell (bivalve) and a few pieces of *kukui* are at the back of the tube. The northern tube has two water catchment features. Several pieces of *kukui* are the only midden in the north tube. The north tube continues for approximately another 10 m before connecting with Site -26509.

The southwest tube is the site's most extensive tube that opens to Entrance 2 but has little cultural materials and no modification. The cultural material within this tube consists primarily of scattered *kukui* and some bird bone of one small *procellarid*. There is a fair amount of shell midden including several bivalves, a few *Nerita*, and *kukui* fragments in the back of the tube that was likely washed in with natural fall from the surface. This area contains the most midden in this tube system.

The site's function is interpreted as a shelter based on the presence of the limited cultural materials including *kukui* (some of which are charred) throughout the tube system, a few pieces of marine shell in various areas, and water catchment features. The bird bones may represent a food item or a natural death; there is no direct evidence of human consumption. The evidence of use of the tube is extremely minimal with no function other than shelter warranted.

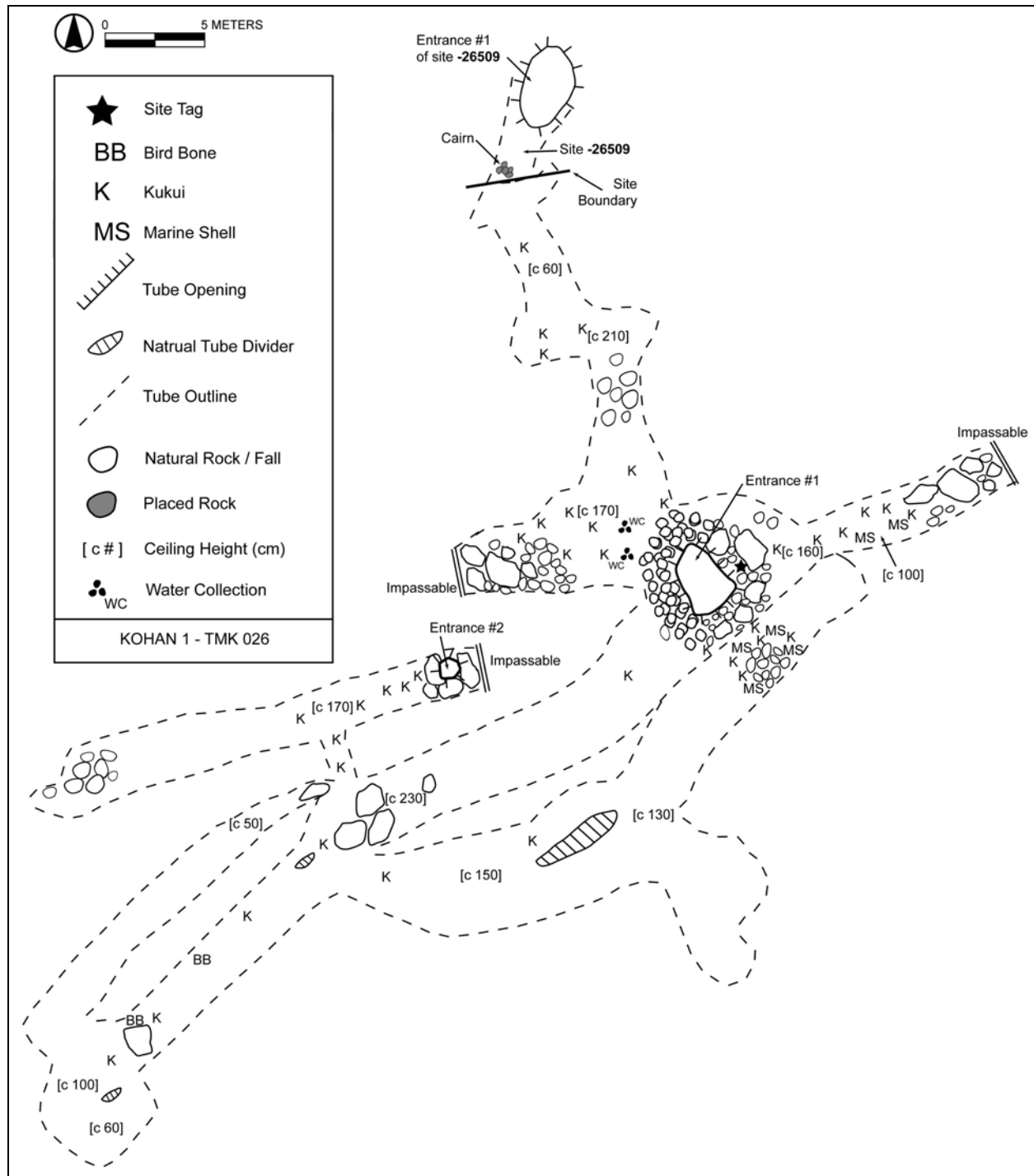


Figure 202. Site -26511, shelter lava tube, plan view showing overview of lava tube, with both entrances and connection to Site -26509



Figure 203. Site -26511, shelter lava tube, showing main tube entrance behind trail curb (Site - 10714) in foreground, *ahupua'a* wall in background, view to south

2.1.31 State Site # 50-10-28-26512

SIHP #	50-10-28-26512
FUNCTION:	Shelter
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	45 m by 15 m (147.6 ft. by 49.2 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	600 ft a.m.s.l.

DESCRIPTION: Site -26512 is a lava tube located in a gently undulating *pāhoehoe* flow. The surface vegetation consists of thick airplant, overhead high *koa haole*, morning glory, and Christmas berry. The site is in the south half of the project area, roughly 200 m (656.2 ft.) north of Hina-Lani Street.

The lava tube has two entrances, Entrance 1, the southwest entrance, and Entrance 2, the northeast entrance (Figure 204). Entrance 1 has been partially disturbed by bulldozer activity. Some of the fall from Entrance 1 and some of the breaks and fractures in this entrance appear to be due to bulldozer activity. Entrance 1 existed prior to the disturbance and the bulldozer only slightly enlarged the entrance. The southwest branch tube runs beyond the Entrance 1 fall but has no modification or significant midden. The main portion of the tube runs between the two entrances and contains fairly abundant midden, consisting of *Cypraea*, sea urchin, *kukui*, *Isognomon*, and other marine shell. The majority of this midden is scattered in and around an ashy soil deposit immediately south of Entrance 2 at the edge of the natural fall boundary (Figure 205).

The site's function is interpreted as a shelter. The tube is a very comfortable size, and the tube's main portion is tall and wide and receives a sufficient amount of natural light from its two entrances. No modification is present to support the determination that this site is more than a temporary shelter. Additionally, the midden and ash deposit indicate very limited utilization of this site, as is expected in a shelter.

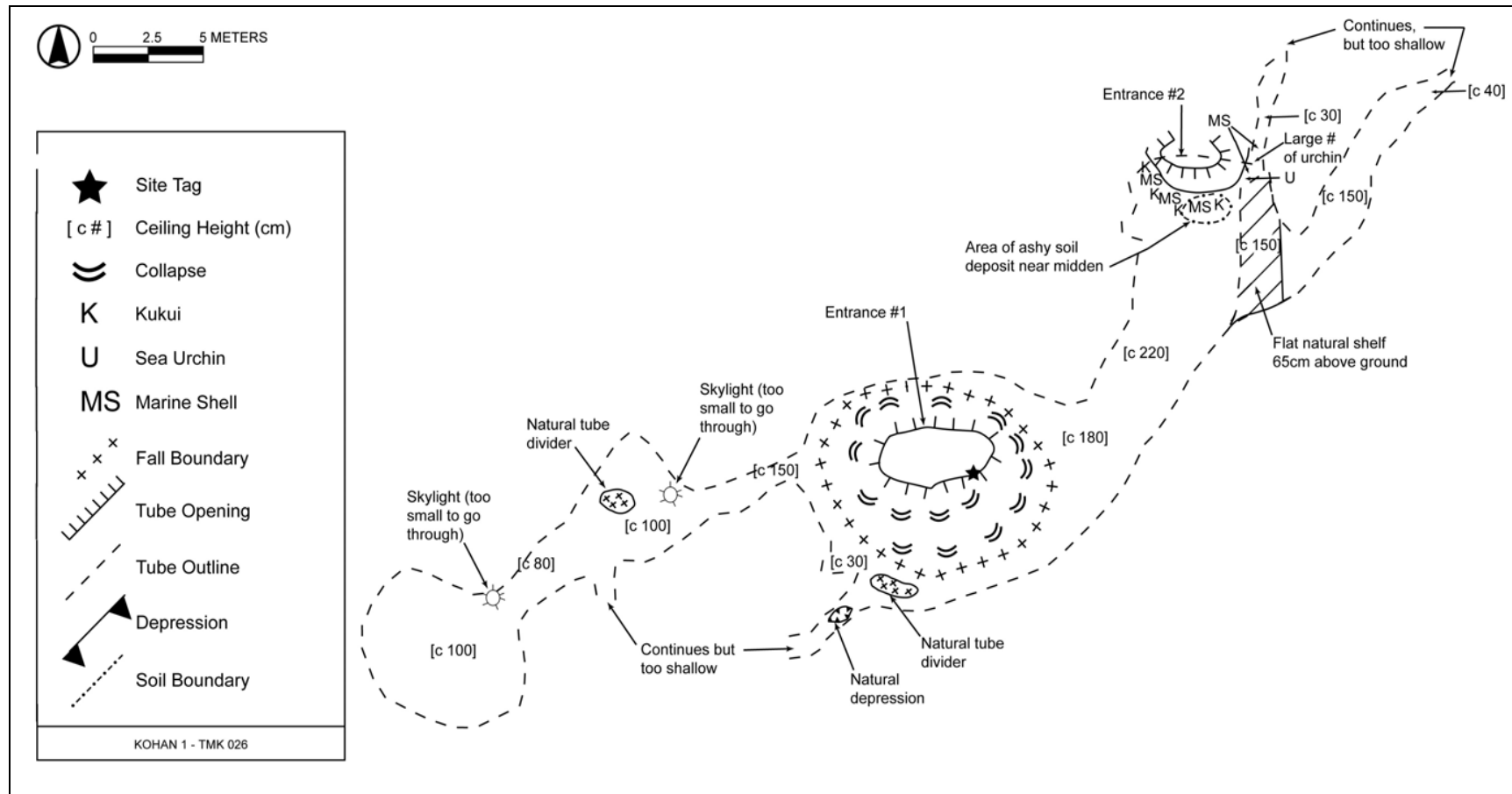


Figure 204. Site -26512, shelter lava tube, plan view



Figure 205. Site -26512, shelter lava tube, showing a flat shelf area with ashy deposit within the tube. View to northeast.

2.1.32 State Site # 50-10-28-26513

SIHP #	50-10-28-26513
FUNCTION:	Temporary Habitation
SITE TYPE:	Lava Tube and associated surface platform
TOTAL FEATURES:	2
DIMENSIONS:	35 m by 20 m (114.8 ft by 65.6 ft)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	720 ft a.m.s.l.

DESCRIPTION: Site -26513 consists of a surface platform (Feature A) and minor surface modification in the vicinity of a large sink with a complex of lava tubes (initial chamber is Feature B) running from its south side (Figure 206). The site is located in an area of gently sloping terrain (northeast to southwest) with many eroding *pāhoehoe* outcrops in the north portion of the project area in Kohanaiki Ahupua'a. Vegetation consists of patches of dense grasses, dense *koa haole*, and dense Christmas berry trees.

The main sink is approximately 15 m northeast/southwest by 13 m southeast/northwest. Feature A (platform) is about 5 m east of the northeast side of the sink (Figure 208). Feature A is very close to Site -26510 Feature D; a small cupboard lacking cultural materials and modification is located about 5 m north of the main sink of Site -26513, between the sink and Site -26510 Feature D. The east side of the sink has a leveled area approximately 4.5 m north/south by 3.5 m, constructed to a height of 55 cm. The top of this leveled area consists of small cobbles (5-20 cm). On the surface, 5 m south of the entrance to Feature B (so directly above Feature B), is a small mound of medium to large *pāhoehoe* cobbles (4.2 m east/west by 2.5 m by 70 cm tall).

The west side of the sink has a small blister in the *pāhoehoe* bedrock. Next to this blister is a small upright *pāhoehoe* slab (40 cm). In the bedrock next to the blister there is a *papamū* board pecked into a cracked bedrock slab (Figure 207). The slab appears to have cracked after the board was pecked, because some cracks bisect some of the pecked game spaces. The area of pecking measures 42 cm by 36 cm on a slab measuring 57 cm by 50 cm. The grid is 12 by 11 rows. The blister appears to continue to a subterranean chamber, but is impassable due to the amount of natural fall.

Feature B is the large entrance on the south side of the sink modified with a retaining wall on the east side that leads to a chamber with abundant midden. A passage (160 cm wide by 50 cm tall) in the back (south side) of Feature B leads to another, lower chamber. At the east side of this chamber, a tube leads to a 3-way site boundary with Site -26510 Tube 4 and Site -26521. This portion of the tube contains pig bone (including a nearly complete mandible near the west end), small unidentifiable bone fragments, marine shell, urchin, and *kukui*. The midden is densest towards the west end of the tube (closer to the main chamber and further from site boundaries).

The lower chamber, southwest of Feature B, is approximately 10 m east/west by 5 m north/south. An area of natural fall leads down into the chamber from the passage from Feature B. This fall contains marine shell (a complete *Tellinidae* half-shell), small unidentifiable bone fragments, and urchin. At the base of the fall, the chamber contains a fragment of a large cowry

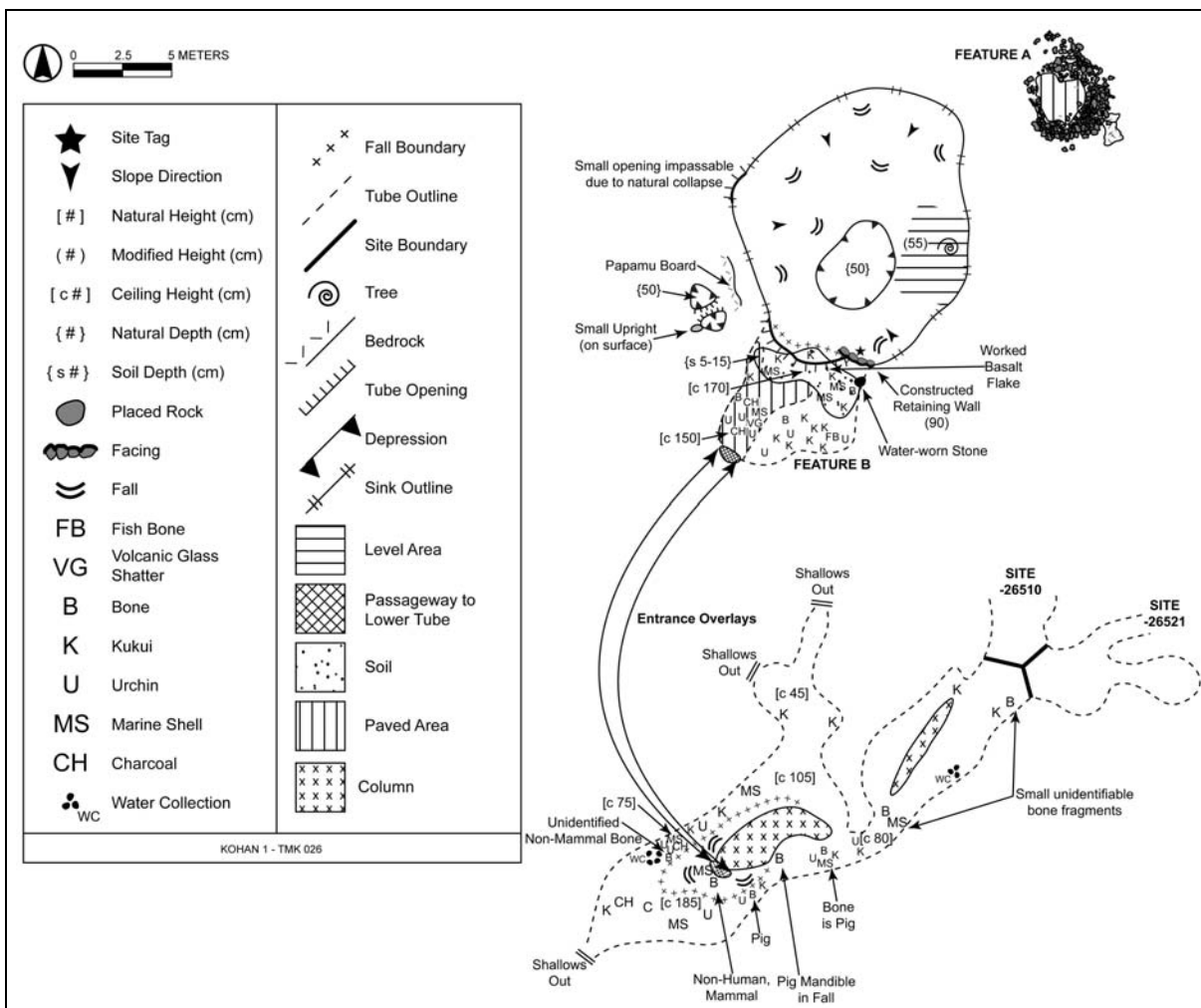


Figure 206. Site -26513, temporary habitation lava tube and associated surface platform, overview



Figure 207. Site -26513, *papamū* board found on the west side of the sink, view to west

shell, a complete urchin, a piece of branch coral, some *kukui*, and a scattering of charcoal. From the north end of this chamber, a tube continues towards the east, back under the fall at the passage from Feature B. Directly under the fall, at the beginning of this tube, is a concentration of small bone fragments that are non-mammal.

A water collection construction is near the beginning of this tube, and near the concentration of bone and just beyond is a fair amount of midden including urchin, marine shell (*Nerita* sp., *Isognomon* sp.), *kukui*, and charcoal. This material may have washed in from Feature B, since it is found primarily in the tube below the fall under the passage from Feature B. The tube opens into a small chamber after passing under the fall and continues back in a generally north direction. Only a few *kukui* and no additional modifications were found in this tube, which continued for approximately another 10 m before shallowing out.

Feature A is a 5 m by 4 m platform (Figure 208 & Figure 209) located in a fairly flat area with eroding *pāhoehoe* outcrops; there is not a good view from the feature. The platform is constructed with *pāhoehoe* slabs and cobbles. The slabs range in size from 50 cm to 15 cm, and the cobbles range in size from 35 cm to less than 10 cm. The paved area of the platform contains many very small pebbles as small as 2 cm and up to 15 cm. The southern end of the platform is constructed with up to three courses of cobbles to raise it up to the leveled area that is paved. There are a few upright slabs on the north and western edge. The overall condition of the platform is good with some root disturbance around the edges.

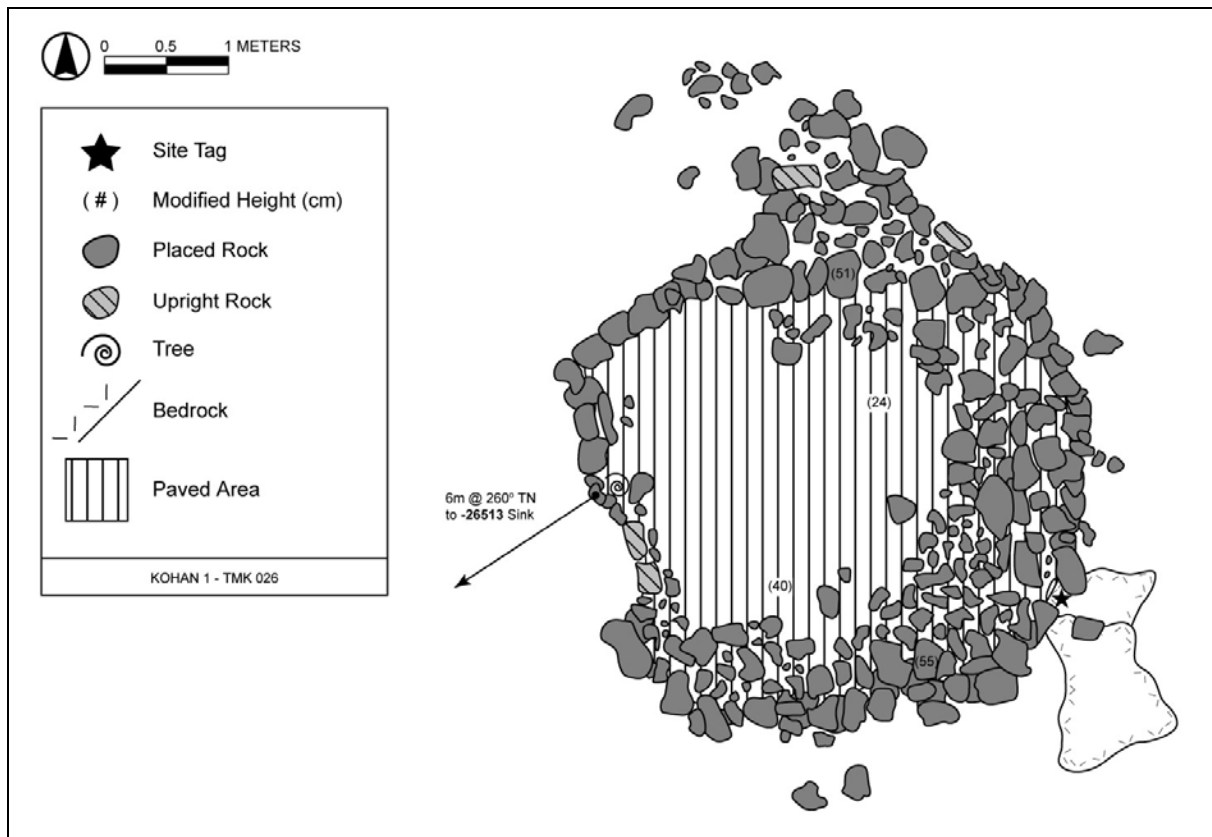


Figure 208. Site -26513, detail plan view of Feature A platform



Figure 209. Site -26513, Feature A, platform, view to north

The function of Feature A is habitation based on the informal construction and size of the platform. A comparison with Site -26510, Feature D, a large and formally constructed ceremonial platform 26 m northwest of Feature A, provides evidence of the difference between habitation and ceremonial platforms. Burial is unlikely, as the platform construction is quite shallow. Excavation potential is poor since little sediment and no midden or artifacts are present at the surface, although material culture may be found within the platform during excavation.

Feature B measures 7 m by 6.5 m and includes the entrance to and initial chamber of a complex of lava tubes on the south side of the main sink (Figure 210). The entrance to Feature B is large (approximately 5.5 m east/west by 170 cm tall), allowing light to fill the main chamber. A constructed wall partially blocks the east side of the entrance. The construction of this wall is evident from inside the chamber, where stacking of *pāhoehoe* slabs and cobbles (20 cm-50 cm in size) can be seen. The wall thus functions as a retaining wall, holding fall from the sink. The wall runs about 1.80 m west from the east side of the entrance to Feature B, and has a maximum height of 90 cm. Natural sloping fall leads up to the entrance on the west and central portions, but transitions to smaller *pāhoehoe* cobbles and dark sediment deposits past the dripline. Just inside the chamber, behind the retaining wall, is an area of dense midden consisting of many cowry fragments, a large fragment of *Tellinidae* shell, a few small bone fragments (including a goat tooth), and many *kukui* fragments. Dark brown sediment deposits are up to 15 cm deep, and a medium cobble of water-worn *pāhoehoe* was found in this area. Just inside the central portion of the entrance, there is a 2.5 cm black chert flake, with flake scars covering one side, and probable use wear along one cutting edge. Areas of small cobble paving are found along the western portion of the chamber.

Along the west side of the chamber is another area of dense midden of *kukui*, marine shell, urchin, and very small bone fragments. A few small pieces of volcanic glass shatter were also found in this area. Sediment deposits are up to about 5 cm deep here. There is abundant charcoal mixed in with sediment and midden deposits. In the southeast portion of the chamber, there are many medium-sized cobbles. This area in general seems less modified than the front, north, and west portions of the chamber, but midden materials (*kukui*, fish and goat bone, urchin) were still encountered in these cobbles. At the south side of the paving along the west portion of the chamber, there is a passage that connects to the site's complex of tubes. The passage is about 1.6 m wide by 50 cm tall, opening immediately to another lower chamber behind Feature B.

The function of Feature B is temporary habitation. The level of energy investment into modifications such as the wall and paving, as well as the quantity of midden and sediment deposits suggests a scale of habitation greater than would be expected for a single use shelter.

The site's overall function is interpreted as temporary habitation based on the amount of cultural material and the extent of modifications. Midden materials were found throughout the lava tube portions of the site, and were particularly dense at the entrance to the tube near Feature B. The surface feature, Feature A is a platform, typical of habitation sites. The midden and sediment deposits, as well as the chert flake cutting tool strongly supports habitation function and suggest good data recovery potential for this site. Water collection is a secondary function of this site.



Figure 210. Site -26513, photograph of the entrance to Feature B, view to south-southwest

2.1.33 State Site # 50-10-28-26514

SIHP #	50-10-28-26514
FUNCTION:	Permanent Habitation
SITE TYPE:	Complex
TOTAL FEATURES:	2
DIMENSIONS:	11.5 m by 7 m
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	660 ft a.m.s.l.

DESCRIPTION: Site -26514 is located in a gently undulating *pāhoehoe* flow in the center of TMK 26. The vegetation consists of air plant, head high *koa haole* and some sparse Christmas berry.

Site -26514 consists of two features, a small lava tube, and a platform/modified outcrop. Feature A is a platform, and Feature B, the lava tube, is located directly beneath it, though the entrance is open to the west of the platform. The site is in very close proximity to Site -26520, a major tube system and a blocked secondary entrance to one of these tubes is within 10 m of the platform.

Feature A is a platform fronted by a modified outcrop (Figure 211). It is located above Feature B (lava tube) and partially above a large lava tube that is part of Site -26520. The platform measures 4 m north/south by 2.5 m east/west and is on average 60 cm in height. The north and west sides of the platform are collapsing, but the east and south sides are partially intact with a few remaining uprights (Figure 212). In general the platform is in fair condition, as it was subject to collapse and thick vegetation growth. The platform interior is constructed of approximately 15 cm cobble fill and is faced and surfaced with larger 50 cm to 60 cm diameter angular basalt small boulders. The most intact portion of the upper surface is paved with very flat *pāhoehoe* slabs of approximately 60 cm in length. The southeast corner of the platform retains intact formal uprights as the foundation to the platform wall and facing.

The modified outcrop directly abuts the south side of the platform. It is largely a natural outcrop that has been leveled with the placements of boulder edges, cobble fill, and some large slab paving stones. There is a 60 cm by 50 cm slab immediately in front of the center of the platform's south face. Also, immediately south of the platform center is a 60 cm by 10 cm slab embedded in the modified outcrop. Another smaller slab (50 cm by 10 cm) formalizes the south edge of the outcrop near the center point. As a whole, the feature is symmetrical with the modified outcrop creating a lower paved area that is formal in its relationship to the platform.

Feature B consists of a single 11.5 m by 6 m lava tube that has a small entrance that has been partially blocked with *pāhoehoe* slabs and boulders, (Figure 213). The placed rocks, while not conspicuous as such, do not completely hide the tube entrance, but block it sufficiently so that it is not easily accessible. The tube has multiple branches, all of which either end or shallow out naturally after short distances. The only other modification in the tube is a small constructed wall. It is constructed of small to large *pāhoehoe* boulders (Figure 214). This wall does not completely block access to the tube behind it, but partially restricts it. Behind this wall is the only clearly in situ midden that consists of multiple *kukui* and urchin remnants. There is also a

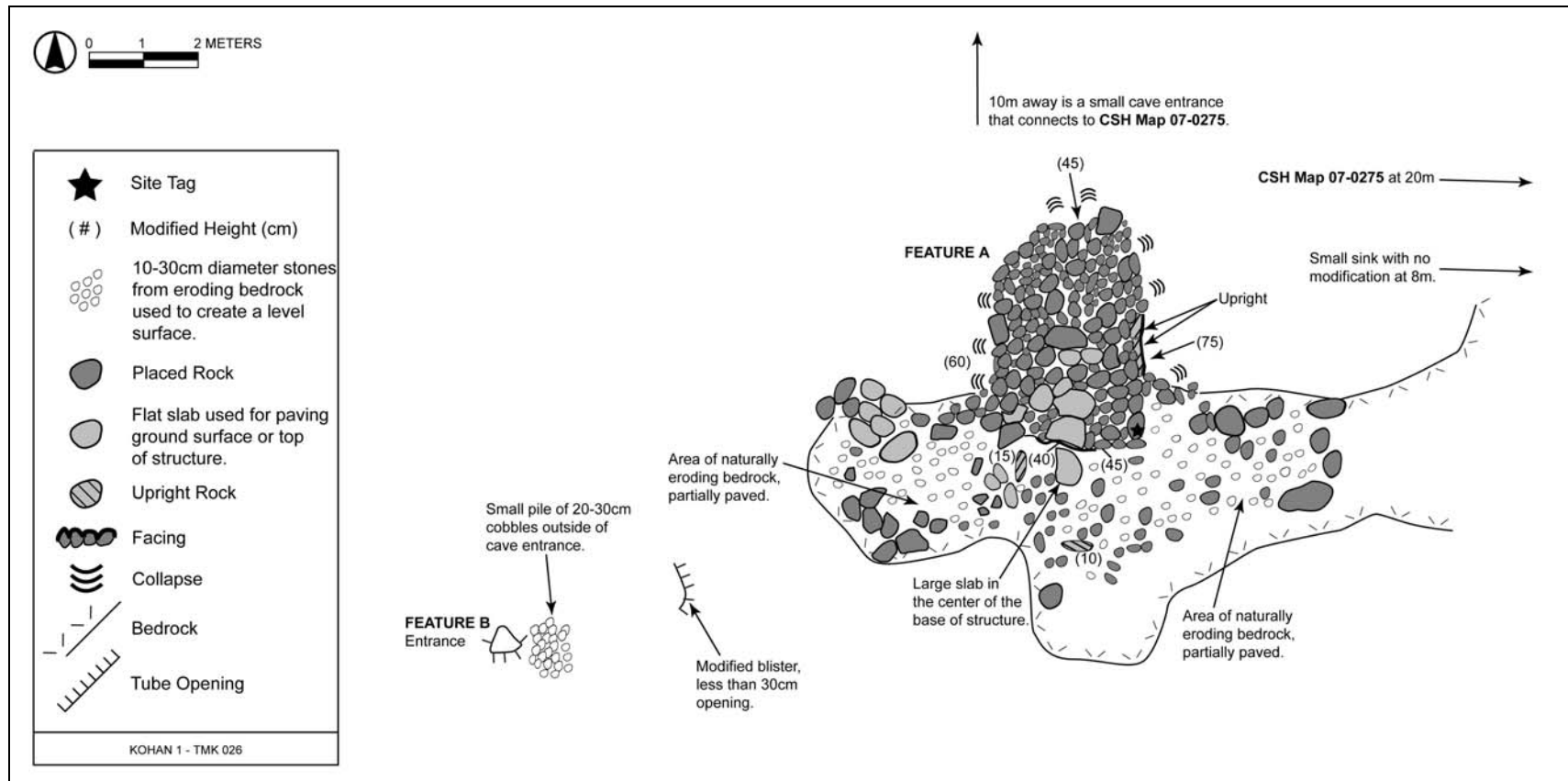


Figure 211. Site -26514, permanent habitation complex, plan view



Figure 212. Site -26514, permanent habitation complex, Feature A, view of platform from east side; intact faced wall visible on right

complete, still attached bivalve shell. Extensive midden is throughout the remainder of the tube, including cowry, urchin, *kukui*, bivalve, pearl shell, and other marine shell. An unidentifiable (due to its fragmentary nature) long bone fragment was also found. The bone in addition to the extensive midden, and soil appear to have washed in from the surface above the tube. This is evidenced by the land snails and other organic materials present and the clear pathways of the midden laden soil entering the tube through areas of fall and from small, inaccessible openings to the surface near the Feature A platform and modified outcrop. A single artifact, a ground pencil urchin spine, was located in the soil amidst the washed in midden.

The site's function is interpreted as permanent habitation based on its formal shape (platform/modified outcrop), the concentration of midden in the lava tube, and its proximity to the large lava tubes of Site -26520. The platform does not appear to be a burial platform based on its height and construction atop the modified outcrop.

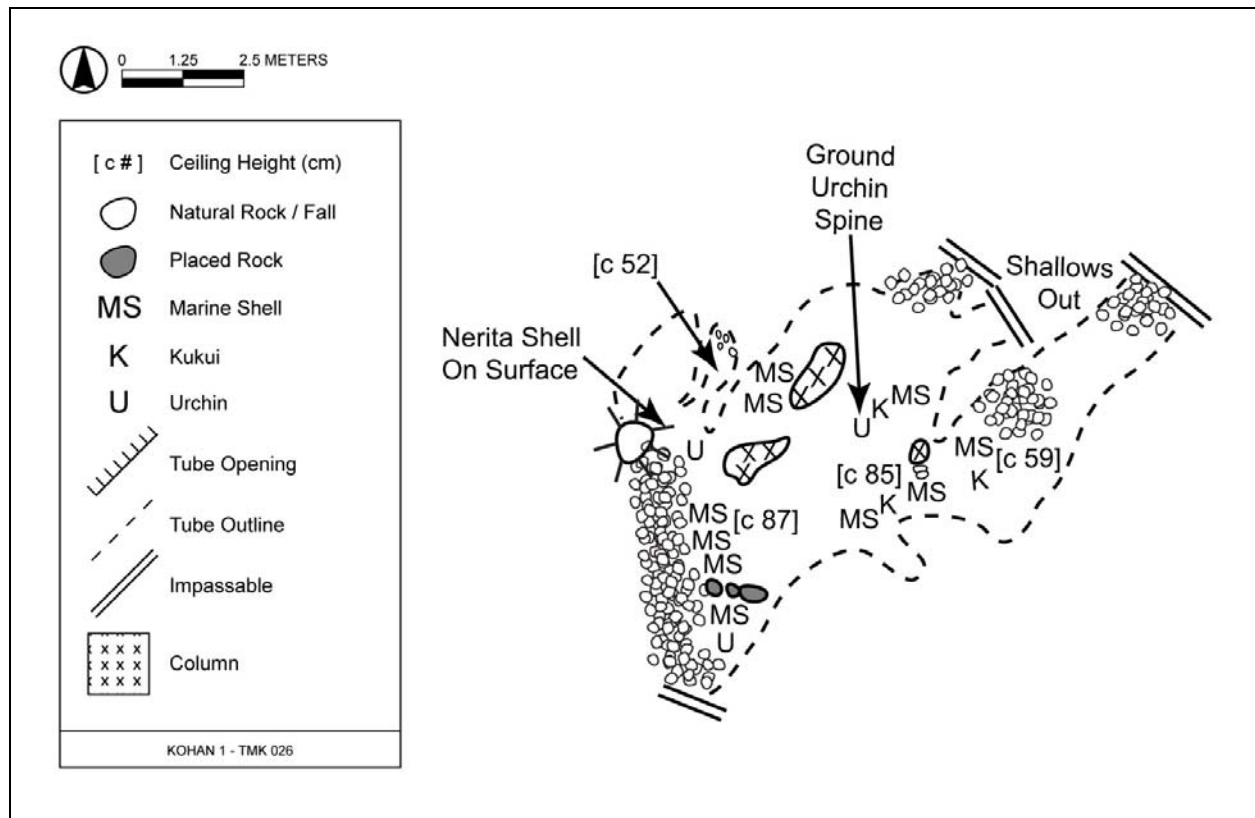


Figure 213. Site -26514, permanent habitation complex, Feature B plan view



Figure 214. Site -26514, constructed wall within Feature B tube. View to south-southwest

2.1.34 State Site # 50-10-28-26515

SIHP #	50-10-28-26515
FUNCTION:	Burial
SITE TYPE:	Platform and Cairns
TOTAL FEATURES:	4
DIMENSIONS:	Features spread over approximately 70 m by 25 m area
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	645 ft a.m.s.l.

DESCRIPTION: Site -26515 is located on a gently south-sloping undulating *pāhoehoe* flow in the northeast quadrant of the project area. The vegetation within and surrounding the site consists of thick grass, head-high *koa haole*, medium-sized Christmas berry trees and morning glory. The site is comprised of four features (Figure 215); Feature A is a small platform with a cairn atop the platform and Features B through D are cairns. The four features are spread over an approximately 70 meter long (northwest/southeast) running alignment.

Feature A is a small platform with a cairn positioned on the northwest corner (Figure 216 & Figure 217). It is constructed on an outcrop of eroding *pāhoehoe*. Feature A is 28 meters northwest of Feature C and has a good line of sight down to Kaloko fishpond and Honokōhau harbor. The platform and cairn are constructed with *pāhoehoe* cobbles and small boulders. The center of the platform has been leveled and paved with *pāhoehoe* pebbles. The cobbles and boulders range in size from 20 to 50 cm (0.66 to 1.6 ft.). The pebbles that fill the paved area are 15 cm or smaller. The outside perimeter of the platform is constructed with two courses of *pāhoehoe* on the west side, one course on the north side, three courses on the south side, and two courses on the east side to create a level area; the perimeter measures 2 m by 2 m. The cairn is constructed of five *pāhoehoe* boulders that range in size from 20 to 45 cm (0.66 to 1.5 ft.). The cairn rises off of the platform to a height of 45 cm (1.5 ft.). Feature A is in good condition with only a small area of collapse on the southwest corner.

Excavation of this feature was necessary in order to determine function, since it was considered a possible burial platform (see details in testing results below). Function of the feature was confirmed as a burial platform for a young individual during excavation; see testing results below for an in-depth discussion.

Feature B is a small cairn located 10 m (32.8 ft.) north-northeast of Feature C (Figure 218 & Figure 219). The cairn is constructed of two *pāhoehoe* slabs with cobbles around the edges and measures 1.5 m long by 1 m wide. The slabs are 55 cm (1.8 ft.) in size, and the cobbles range in size from 17 cm to 35 cm (0.56 ft. to 1.1 ft.). The height of the slab on the top of the cairn is 46 cm (1.5 ft.); the other slab is 24 cm (0.79 ft.) in height. The excavation potential for Feature B is poor due to a lack of sediments, midden or artifacts.

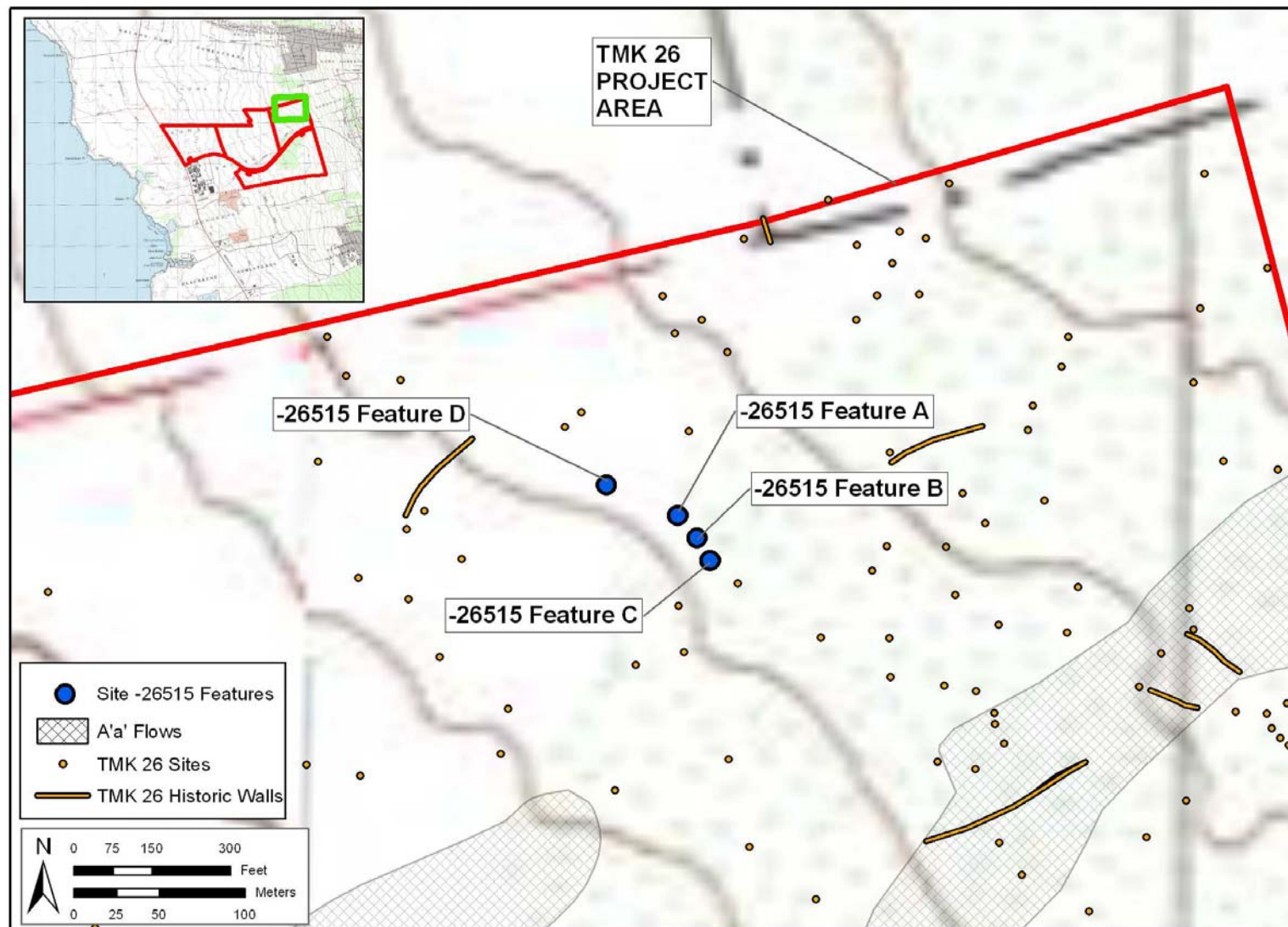


Figure 215. Site -26515, overview plan view showing locations of Features A-D

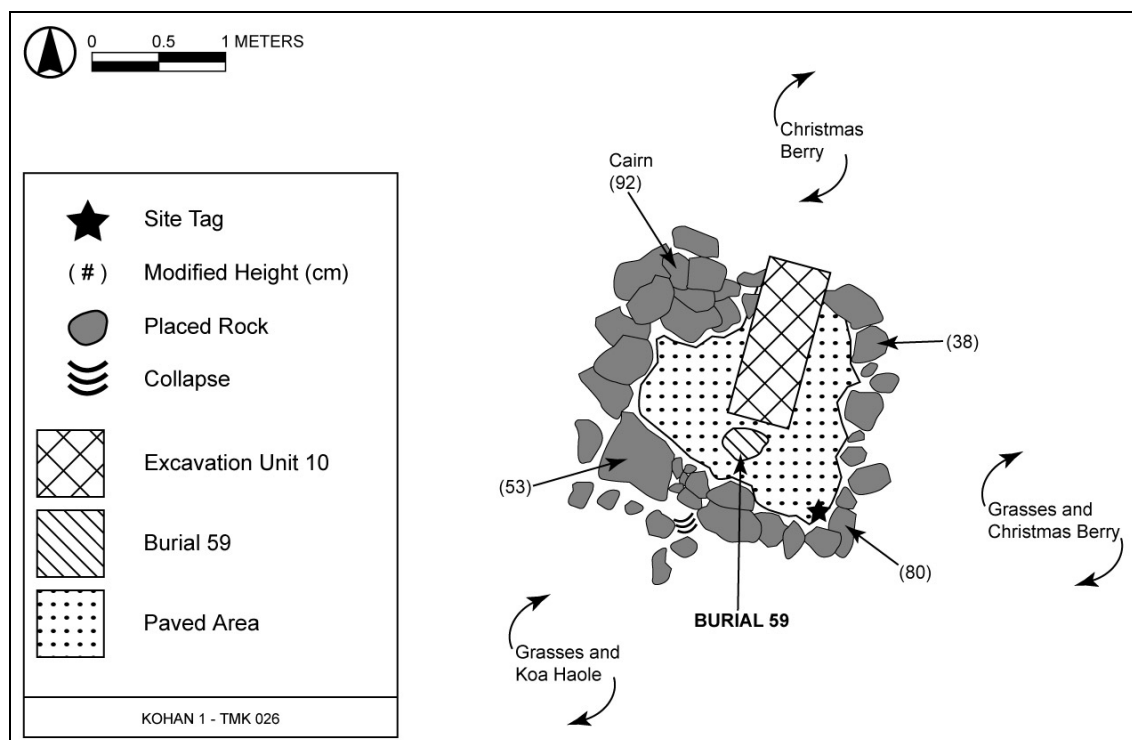


Figure 216. Site -26515, Feature A platform, showing location of excavation unit and Burial 59



Figure 217. Site -26515, Feature A, platform, photograph of small platform with cairn on the northwest corner of the platform, view to east

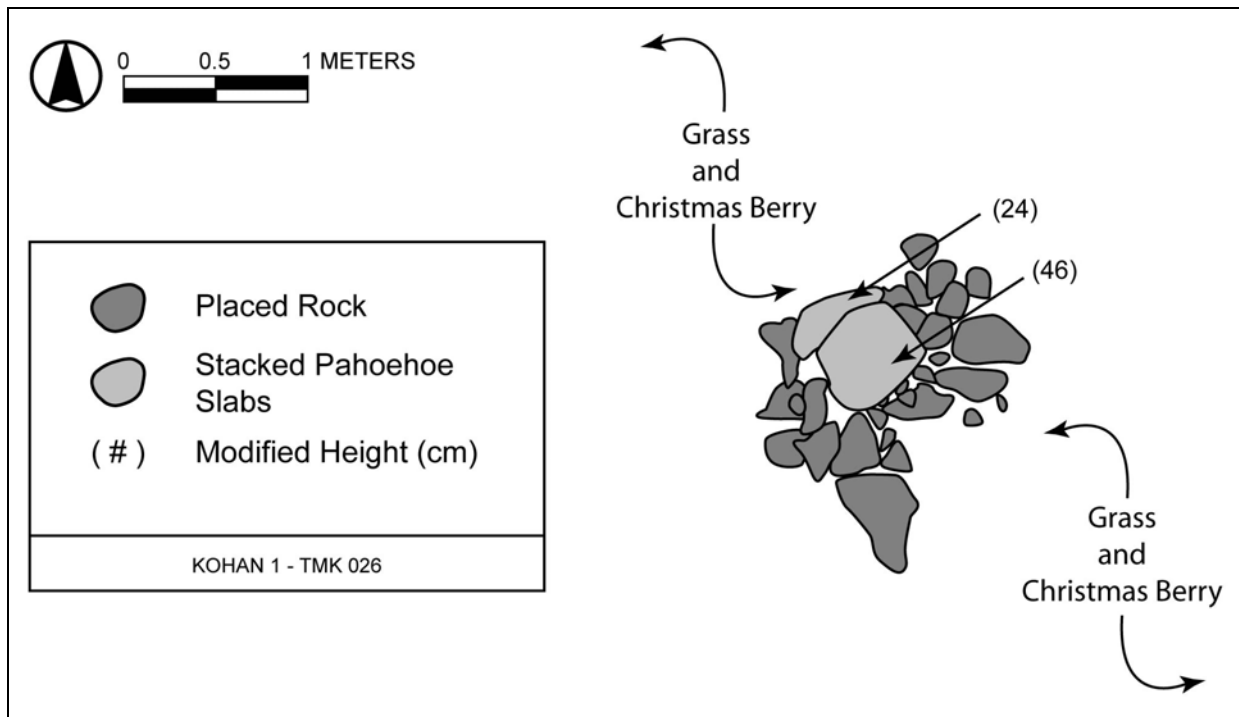


Figure 218. Site -26515, Feature B cairn



Figure 219. Site -26515, Feature B, photograph of small cairn, view to northeast

Feature C is a cairn atop a constructed mound measuring 3.5 m by 2.8 m (Figure 220 & Figure 221). The mound is constructed by informally piling large *pāhoehoe* slabs and cobbles (20-60 cm in size). The shape of the mound is irregular. On the northeast side of the mound, large *pāhoehoe* (25-60 cm) slabs have been stacked to a greater height than the rest of the mound. This cairn sub-feature is two to three courses higher than the underlying mound feature.

The mound averages about 40-50 cm above the surrounding terrain, and the cairn measures 95 centimeters in total height. The cairn may have collapsed since the feature is currently only approximately 40 cm above the mound, which would provide a sturdy base for a taller structure.

The function of Feature C is as a marker. A test excavation was completed (see below), and no evidence of burial was found. This cairn likely functioned as a marker along with the site's two other cairns, Features B and D, both located northwest of Feature C.

Feature D is a cairn approximately 60 cm high and with a 40 cm diameter (Figure 222), located 45 m northwest of Feature A. It is a small cairn located in an area with a fair amount of minor agricultural activity (i.e., Site -26507 Feature I) consisting of mounds and clearing. The cairn is stacked three courses high and consists of *pāhoehoe* cobbles 20 to 35 cm in diameter. The function of the cairn is as a marker, probably related to the agricultural modification nearby or the nearby burial platform (Feature A).

The site's function is interpreted burial and marker. The main component of the site is the Feature A burial platform. This site may be related to the nearby Site -26519 (an extensive permanent habitation 50 m north), and the markers may be part of the general use of this area in addition to marking the burial platform. Agricultural modification may also be the best explanation for the Feature C mound.

Testing Results

Test excavations were conducted to assist in determining the functions of Features A and C, and to determine whether a burial is present.

Feature A

Feature A was excavated as a possible burial platform (Figure 223 & Figure 224). Stratum I, extending from 0 to 65 cmbs, is constructed with *pāhoehoe* boulders and cobbles (2 cm by 2 cm to 25 cm by 40 cm). Stratum II, extending from 60 to 75 cmbs, consisted of 10-15 cm of sandy loam with numerous roots on the bedrock floor of a blister opening. Sediment likely filtered down from the surface. No midden was found but charcoal is present.

Excavation revealed that the structure is built on top of a small blister opening that is approximately 1 m by 1 m. A small tube extends from the north and south ends of the blister. After excavation it was possible to see most of the inside of the tubes. The southern opening is slightly larger and contains three bones that are in fairly poor condition. The bones, Burial 59, are an infant burial (1-2 years old) and include a piece of a cranium (probably temporal), a fragmentary tibia, and a partial sacrum. Based on the presence of Burial 59 (see below for full description), the platform functioned as a burial platform. The only other possible function of this feature is a marker, as there are several cairns (Features B and C) in the area. Charcoal in Stratum II is likely contemporaneous with the burial of the infant and construction of the platform, and dating the charcoal would determine the time period of the burial.

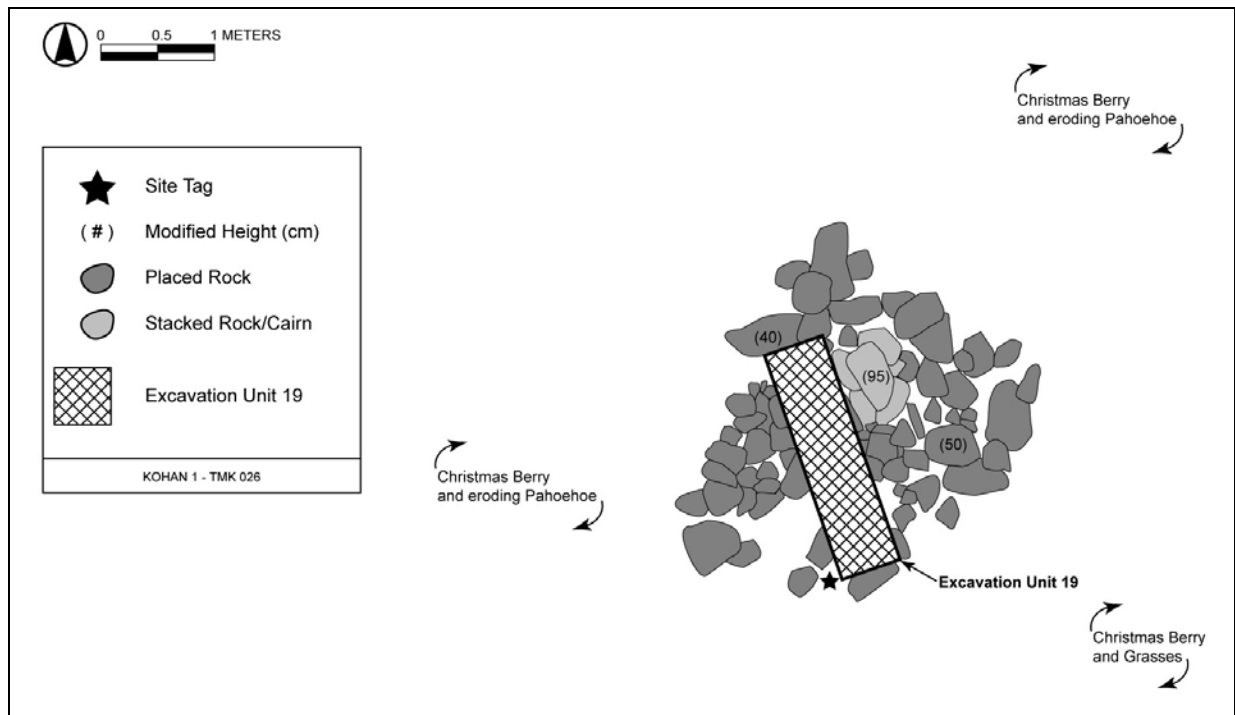


Figure 220. Site -26515, Feature C, mound and cairn



Figure 221. Site -26515, Feature C, photograph of cairn on top of mound, view to northeast



Figure 222. Site -26515, Feature D, photograph of cairn on *pāhoehoe* bedrock

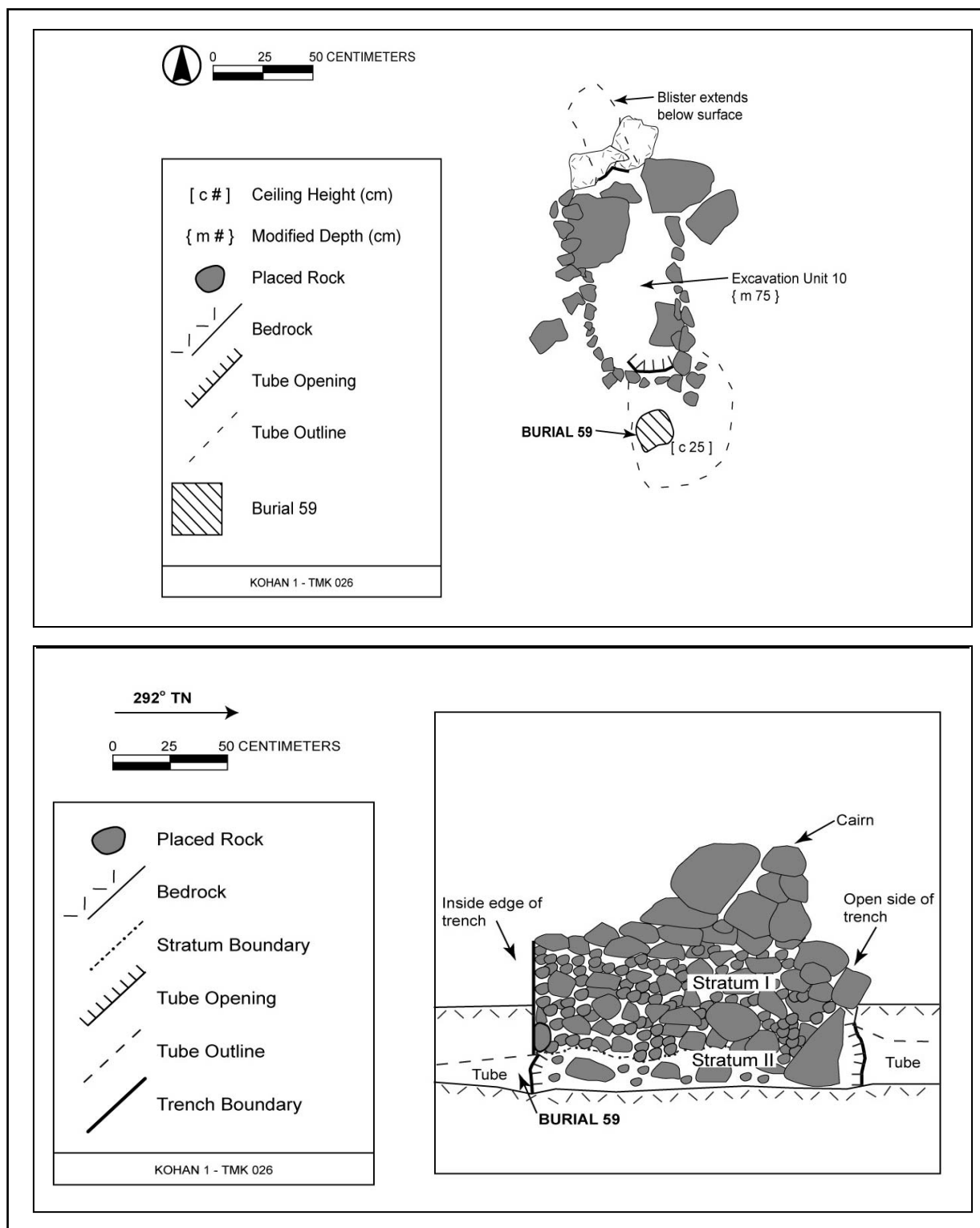


Figure 223. Site -26515 Feature A, excavation figures for Unit 10: top is plan view of excavation, bottom is profile of the west wall; both illustrations show location of Burial 59



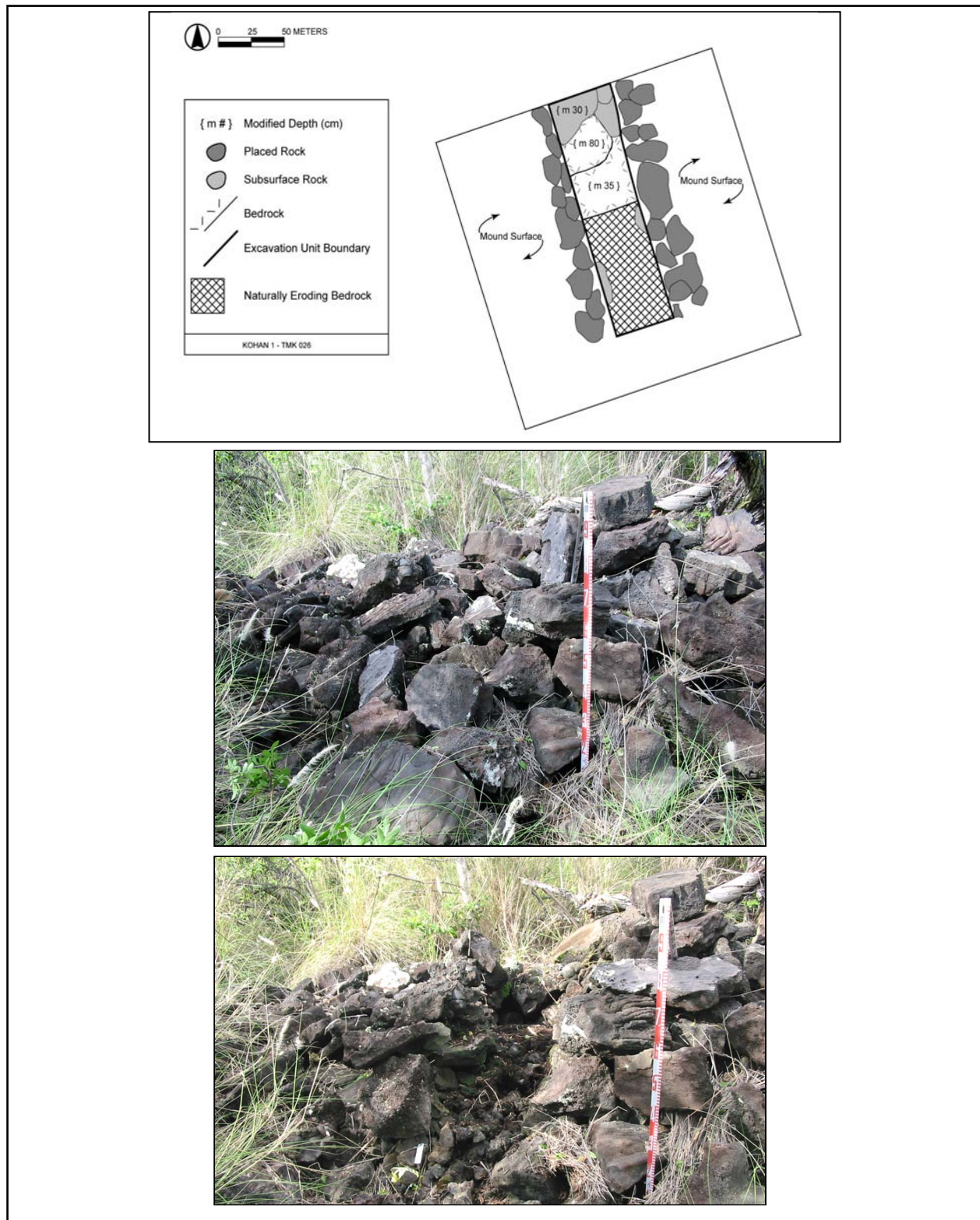
Figure 224. Site -26515 Feature A, excavation figures for Unit 10: top is pre-excavation facing north and bottom is close-up post-excavation; small blister at north end is similar to blister at south end (not shown) that contains Burial 59; note cairn at top left

Feature C

Feature C was also excavated as a possible burial mound (Figure 225). Stratum I, extending from 0 to 50 cmbs, is loosely mounded *pāhoehoe* large cobbles, small to medium boulders and some medium to large slabs. Stratum II, extending from 50 to 80 cmbs, consisted of naturally eroding *pāhoehoe* bedrock. No cultural material or human remains were found, only an eroding bedrock base with medium to large *pāhoehoe* cobbles stacked on top. Based on the construction and lack of midden or any other cultural materials, this feature is an agricultural mound.

Burial 59

Burial 59 was found during the excavation for Unit 10, which was done as a burial check in Feature A of -26515. This feature is a 2 by 2 m platform with a cairn at one corner. Excavation revealed that the platform was approximately 75 cm in depth and was built on top of an approximately 1 m by 1 m blister opening, with a small (25 cm) tube opening on the north and south side. Nothing was found in the north tube opening, and it shallows quickly to less than 10 cm. The south tube was slightly larger, with ceilings never exceeding 30 cm. In the south tube one piece of cranium (probably squamosal suture present on temporal fragment), a partial tibia (no articulars) and a sacrum fragment were found (Figure 226). These bones were all small (tibia less than 5 cm long) and the cranial was extremely thin. Given the context and morphology of the bones, it was determined that these bones are from a human infant. They are not consistent with animal bone and the size is consistent with a human infant less than 1-2 years of age (likely close to newborn). The tibia is spongy bone with no epiphyses. All three bones were in close proximity on the southwest side of the tube. No other bone was found, and the bones were generally in poor condition and fragile. Given the size of the tube, this could only be a burial site for a small child. It appears that the platform, which is fairly formal, was built on top of the blister as a grave marker. The site type suggests a pre-contact style of Native Hawaiian burial. There is charcoal in Stratum II that appears to be contemporaneous with the burial.



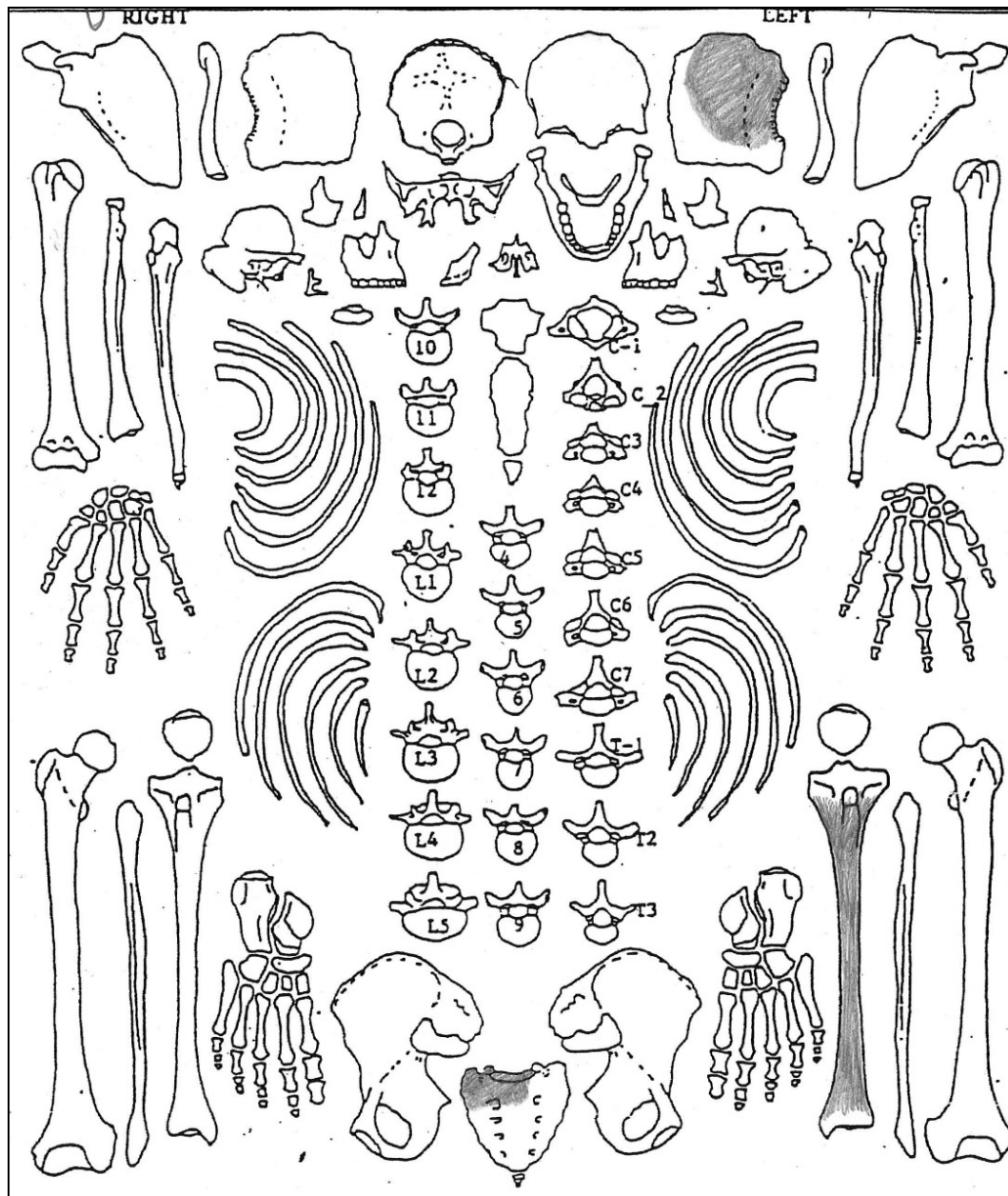


Figure 226. Site -26515 Feature A, Burial 59, skeletal inventory form

2.1.35 State Site # 50-10-28-26516

SIHP #	50-10-28-26516
FUNCTION:	Storage
SITE TYPE:	Modified Outcrop
TOTAL FEATURES:	1
DIMENSIONS:	4.5 m by 0.75 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	680 ft a.m.s.l.

DESCRIPTION: Site -26516 is a modified eroding *pāhoehoe* outcrop located in the northeast quadrant of the project area. The site is located 30 m southwest of Site -26515 Feature C. Vegetation within the site's vicinity consists of Christmas berry trees up to 4 m in height. The topography is gently sloping, eroding *pāhoehoe*.

Modification at the site consists of stacked *pāhoehoe* slabs which create a small cupboard that measures 1 m east/west by 75 cm north/south (Figure 227 & Figure 228). It is constructed with three courses of *pāhoehoe* slabs that range in size from 55 cm to 20 cm. The cupboard is in good condition; nothing has collapsed and the cupboard appears to be intact.

The site's function is interpreted as a storage cupboard based on the size and construction, which are consistent with this function. Another possibility is that the construction was utilized to hold an upright wooden statue, perhaps as a marker or ceremonial function; however, there currently is no evidence or remains of any kind within the feature. The cupboard may be associated with some of the surface habitation sites in this area, although there are no large complexes in the immediate proximity of the site. Excavation potential is poor due to lack of historic artifacts, midden, and sediments.

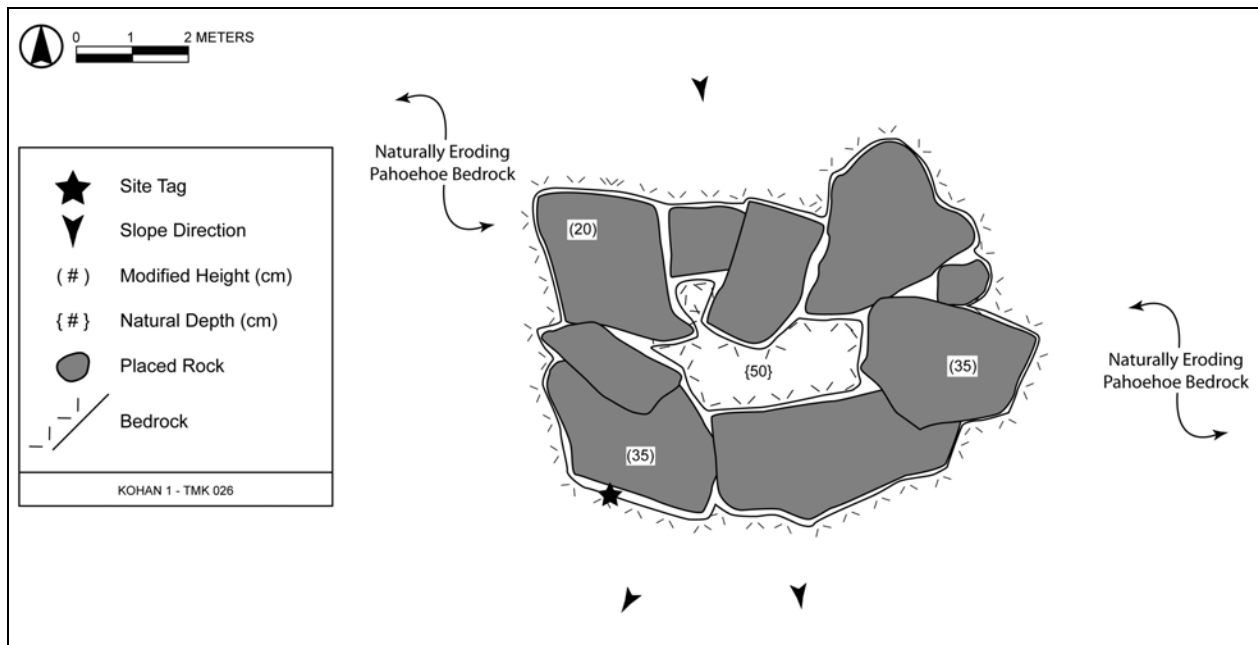


Figure 227. Site -26516, modified outcrop, plan view of cupboard feature



Figure 228. Site -26516, modified outcrop, showing cupboard, view to north.

2.1.36 State Site # 50-10-28-26517

SIHP #	50-10-28-26517
FUNCTION:	Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	60 m by 4 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	630 ft a.m.s.l.

DESCRIPTION: -26517 is a small but fairly long lava tube, located just north of Site -26520 in a grassy area with sparse *koa haole* and Christmas berry (Figure 229). The site is marked by a sink area that runs north/south and creates a vegetation free depression.

Modification consists of a small, tight crawlway near the entrance to the tube. The constructed crawlway is fairly informal and likely serves as a wind-break to facilitate better water collection in the tube. This type of wind-break modification has been found in several water collection tubes within the project area. The lava tube contains approximately 13 water collection features, and only a sparse amount of *kukui* endocarp midden is present at the site.

The site's function is interpreted as a water collection activity area as is evidenced by the water catchments within the tube and the entrance modification to facilitate water collection.

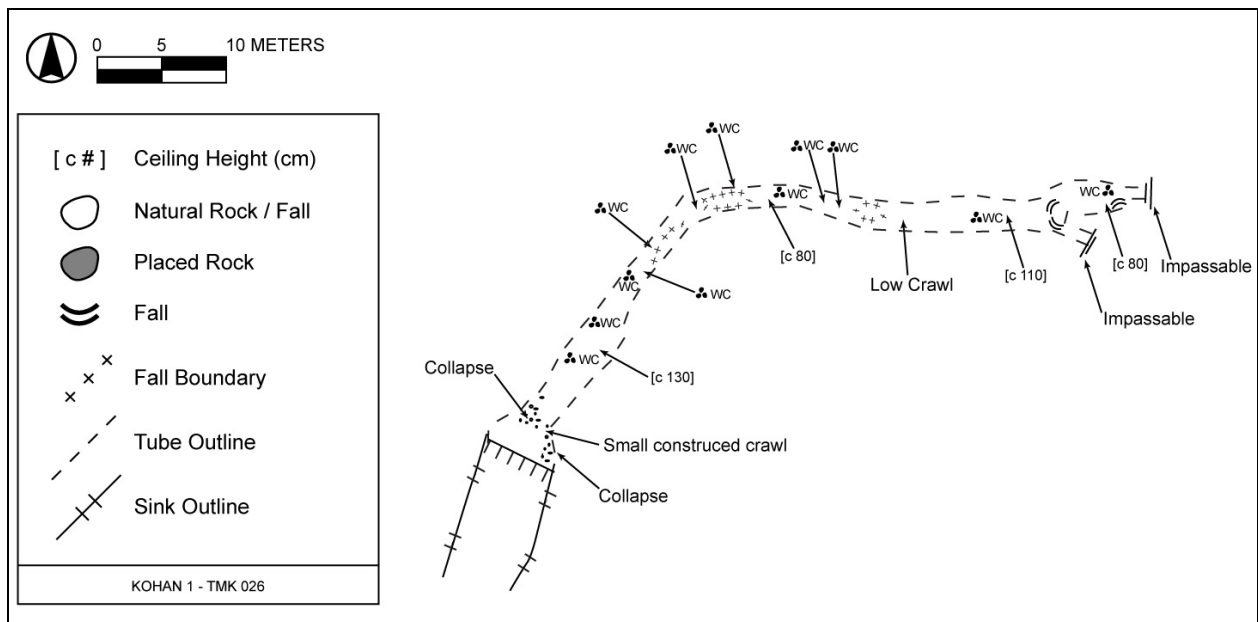


Figure 229. Site -26517, water collection lava tube, plan view showing water collection constructions

2.1.37 State Site # 50-10-27-26518

SIHP #	50-10-27-26518
FUNCTION:	Permanent Habitation
SITE TYPE:	Enclosure
TOTAL FEATURES:	1
DIMENSIONS:	4 m by 4 m
CONDITION:	Remnant
AGE:	Pre-contact
ELEVATION:	680 ft a.m.s.l.

DESCRIPTION: Site -26518 is located on a gently southwest sloping gently undulating *pāhoehoe* flow in the northeast quadrant of TMK 26. The vegetation on and surrounding the site consists of thick grass, medium size Christmas berry and a large *‘ōhia* tree immediately southwest of the entrance.

The site consists of a single highly collapsed squared C-shaped enclosure (Figure 230 & Figure 231). The enclosure measures approximately 4 m northeast/southwest by 4 m northwest/southeast. The enclosure is collapsed on all sides, and the few in-place stones indicate the construction style. The enclosure was faced on both the interior and exterior and incorporated the use of upright *pāhoehoe* slabs in at least the first course of facing. This is evident by the remaining intact uprights. The construction style was rubble fill. The fill is constructed of small, medium, and large *pāhoehoe* cobbles. Only the northeast and southeast walls appear to be partially intact. The northwest end appears to have likely been the open end of the enclosure. It is difficult to be certain, however, as there is only a small amount of collapse along the alignment that would have been the southwest wall of the enclosure. The maximum remaining constructed height is 52 cm, the height of one of the facing uprights. The enclosure was built directly atop a bedrock outcrop that slopes down immediately southwest of the enclosure, providing a good view.

The site's function is interpreted as permanent habitation based primarily on the site type. This type of squared enclosure is characteristic of habitation. The location of this site atop a naturally level face on the southwest slope, with a good view of the coast is also ideal for habitation. Despite the lack of surface midden, the site type and labor investment as is evident in the likely originally formal facing indicates a permanent habitation function.

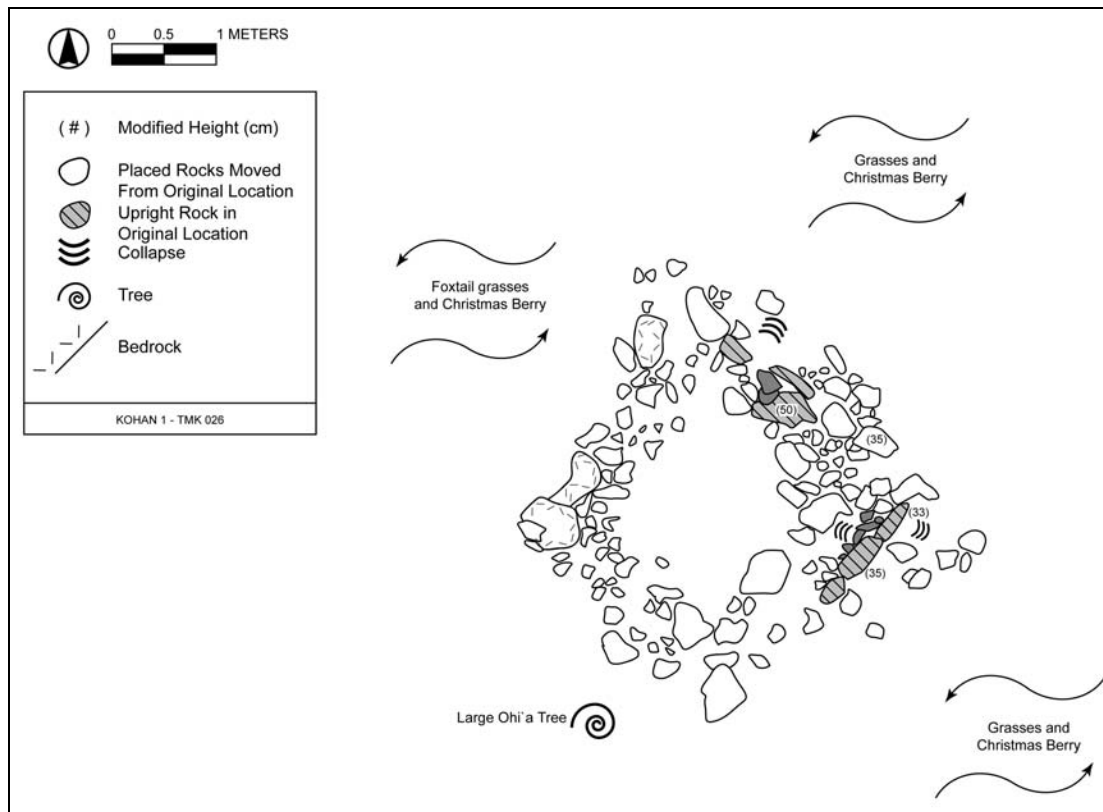


Figure 230. Site -26518 permanent habitation enclosure, overview



Figure 231. Site -26518, permanent habitation enclosure, overview, view to east

2.1.38 State Site # 50-10-28-26519

SIHP #	50-10-28-26519
FUNCTION:	Permanent Habitation
SITE TYPE:	Complex
TOTAL FEATURES:	14
DIMENSIONS:	Approximately 160 m by 120 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	700 ft a.m.s.l.

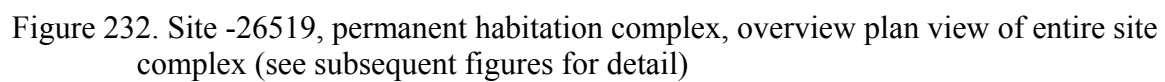
DESCRIPTION: Site -26519 is an extensive lava tube system and surface complex containing three main lava tubes and a total of fourteen features (Figure 232). The site includes an area of intensive habitation, with lava tube modification, water collection activity areas, and numerous surface features including several platforms. The site is located on a slightly southwest-sloping undulating *pāhoehoe* flow in the northern portion of TMK 26, in Kohanaiki Ahupua'a. Vegetation within the vicinity of the site consists of *koa haole*, Christmas berry, and grasses.

The site has a total of three sinks. Sink 1 is a fairly large sink that leads to Tube 1, as well as to Site -26521. Tube 1 continues southwest (see Features A through F in lava tube) and eventually intersects Sink 2, which is also a fairly large sink with some modification within it (Figure 233). Tube 2 extends southwest off of Sink 2, and contains Feature G and H (Figure 234). Tube 2 also leads to Sink 3, as well as extending fairly far to the southwest and eventually intersecting Site -26500. Tube 3 is a small lava tube that has a very small entrance, located northwest of Sink 2 and Sink 3 near Feature L; Tube 3 does not connect to any of the other sinks or lava tubes and contains minimal cultural material (Figure 235). Features I through N are surface features concentrated in an area just west of the three sinks (see Figure 243).

Tube 1 is an intensive habitation area that includes Features A through F (Figure 233; see descriptions of features below).

Tube 2 is a large lava tube trending northeast/southwest, with two entrances off of the southwest side of Sink 2 (Figure 234). The south entrance is slightly paved or cleared of larger pieces of fall. Mostly small to medium cobbles (3-15 cm) are in this area. Feature H, a wall is constructed across the entire south entrance to Tube 2, but does not impede passage into the tube. A sloping area of natural fall leads down into the tube, and a nearly complete goat skeleton is at the base of the fall slope.

There is a small roughly 1 m by 2 m cleared area along the east wall at the base of the sloping fall. Some cracks in the wall at this point lead to a side tube but are impassable. Natural fall covers the floor of Tube 2 and is present well beyond where the fall sloping in from Sink 2 ends. The west entrance leads to a complex of tubes that connect to Sink 3 and connects back to the tube running from the south entrance. The tube near the south entrance contains bird and goat bone, a few fragments of marine shell (including cowry fragments), an urchin fragment, some *kukui*, and 23 water collection constructions. There is also a small (1.5 m diameter) paved area inside the west entrance. Tube 2 travels approximately southwest for approximately 115 m, ultimately connecting to a sink in Site -26500. Within the first 25 m, there is a series of side



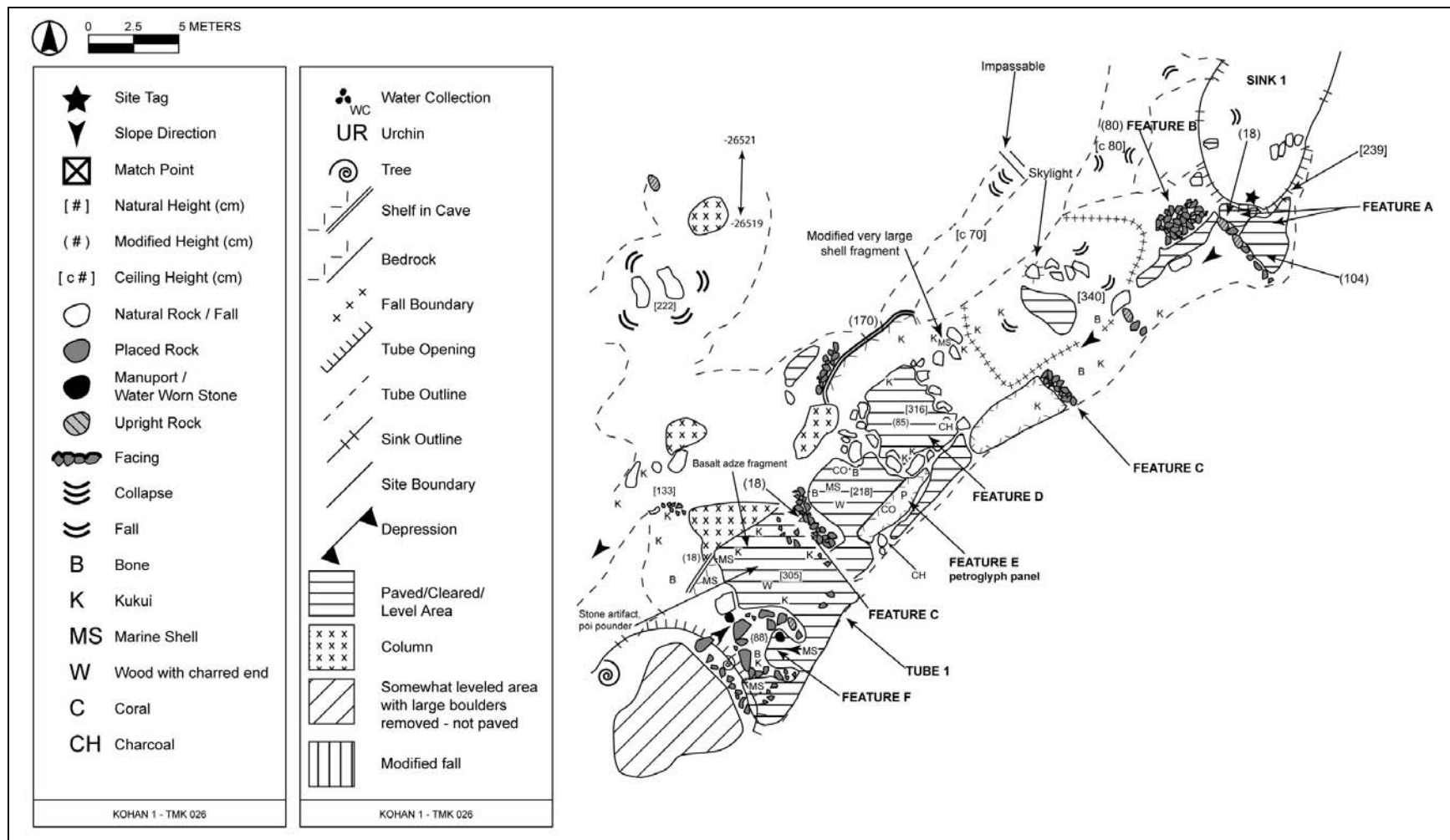


Figure 233. Site -26519, permanent habitation complex, plan view detail of Tube 1 and Features A through F

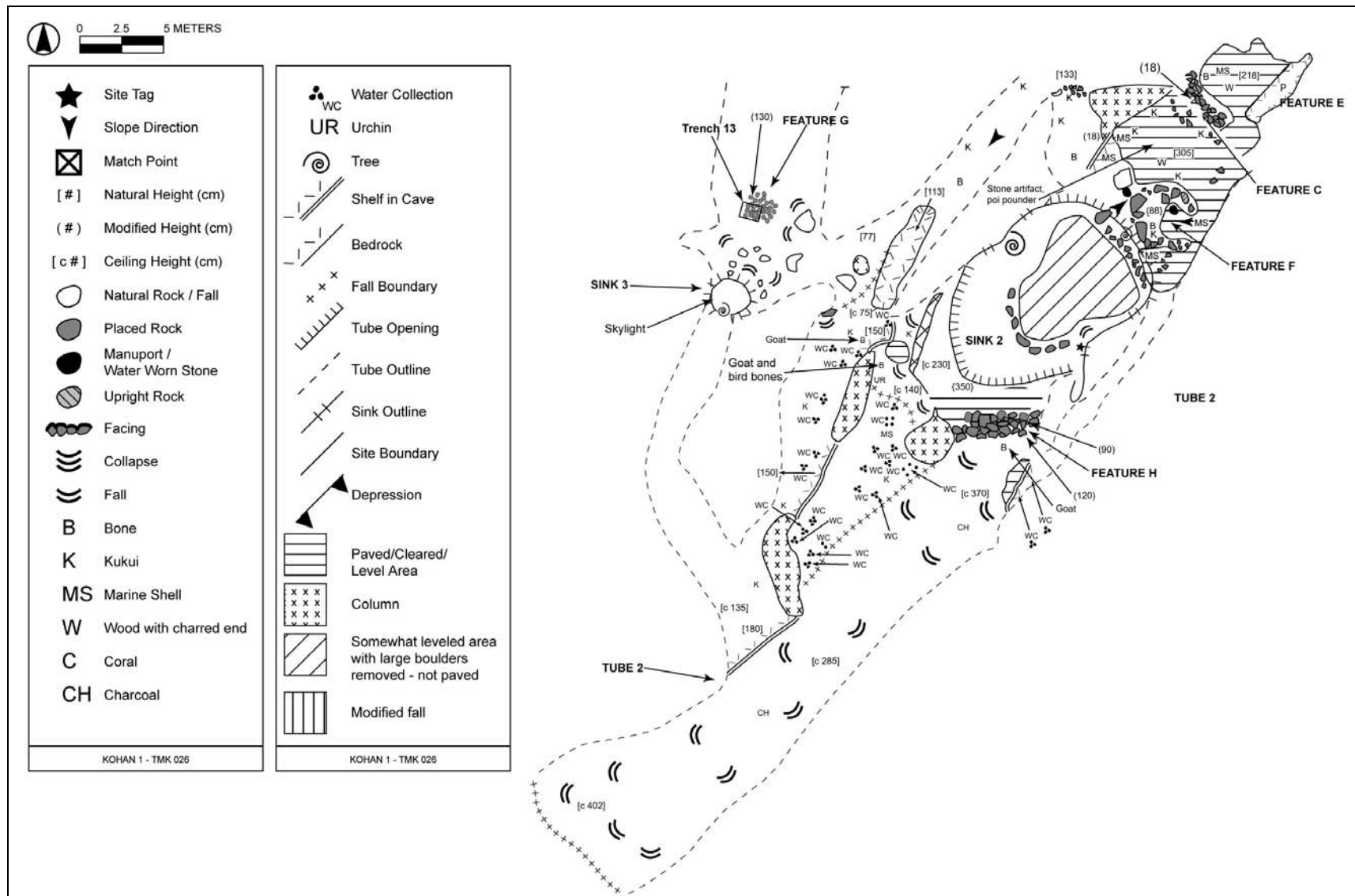


Figure 234. Site -26519, permanent habitation complex, plan view detail of Tube 2 and Features E, F, G and H

tubes from the northwest wall of Tube 2, all of which lead to Sink 3 and/or the west entrance to Tube 2. A site boundary was established at roughly 67 m from Site -26519, Sink 2 and 48 m from the sink at Site -26500. The boundary is a passage with the lowest ceiling height in the tube between the two sinks. A few *kukui* and some charcoal are all that was found further back in Tube 2, although there were a few water collection constructions on the Site -26500 side of the site boundary.

Tube 3 is a small lava tube with a very small entrance (Figure 235) located 1 m northwest of Feature L (terrace). The tube runs roughly northeast/southwest for approximately 13 m. The northeast portion of the tube contained no modification or cultural materials and is not likely to have been utilized due to difficulty accessing this portion. The southwest portion of the tube contained one artifact, a drilled *'opihi* shell that was likely an ornament, and a couple of pieces of midden (one urchin fragment, and one probable Conidae fragment). This portion of the tube is also difficult to access and has low ceilings. The function of this tube is interpreted as a small shelter. It would not be comfortable for long periods of time or for more than a couple of people to occupy.

Feature A is a 5.4 m by 1.4 m terrace at the north entrance of Tube 1, constructed primarily of small to medium boulders stacked two courses high or placed upright and one course high (see Figure 233). The terrace spans the majority of the north entrance to Tube 1. Its east wall extension measures 5.35 m long and averages 80 cm high, and the west wall extends 1.35 m. A sloping, paved pathway runs between these two extensions. The terrace walls face the interior of the tube and other than the area around the top of the terrace, including a maximum 2 m of leveling and rough pavement, no modification in the sink was observed. Near the top of the wall is a round, dense basalt stone that has been broken multiple times and is believed to be source material for basalt tools. Feature A formalizes the entryway to the habitation area of the tube and is a portion of the permanent habitation complex.

Feature B is a very small, approximately 1.10 m square and 50 cm high, platform partially built on natural fall (see Figure 233). It is located immediately inside the north entrance and inside of Feature A. It is located next to (just west) of the paved entryway that bisects Feature A. The structural composition of the platform is a few small boulders and medium to large cobbles. Feature B's function is part of the habitation complex; the feature is not deep enough to be a candidate for burial.

Feature C consists of two walls. The northeast wall is a long wall spanning the center of Tube 1 (see Figure 233). It is not particularly formal, but effectively delineates a rough fall area, including fall from the skylight, from a smoother floor area that has generally been modified into an intensive habitation area. The wall is constructed of small boulders and large cobbles and measures 8.3 m total in length, a maximum height of 125 cm and an average height of 80 cm. To the west side of the tube, the wall retains cobbles and rubble from the large collapse area caused by the skylight. The remainder of the wall is free-standing for the most part. The wall's function appears to be habitation since it partitions living space from the rough tube.

The southwest wall extends from the tube's west edge across almost the entire width of the tube. The wall is 3.5 m long with a gap of 2.3 m at the east wall where one may pass deeper into the cave. The maximum height of the wall is 60 cm, but it appears somewhat collapsed along the remainder of its length. It is constructed of small boulders and large cobbles, and it does not

appear to ever have been a very formal wall. Opposite the constructed wall, on the tube's east wall is a charred log. A dense coral cobble "core" is also located in this area and at least one other coral fragment (not branch coral) is present. The center portion of a very large marine shell was found just north of southwest wall.

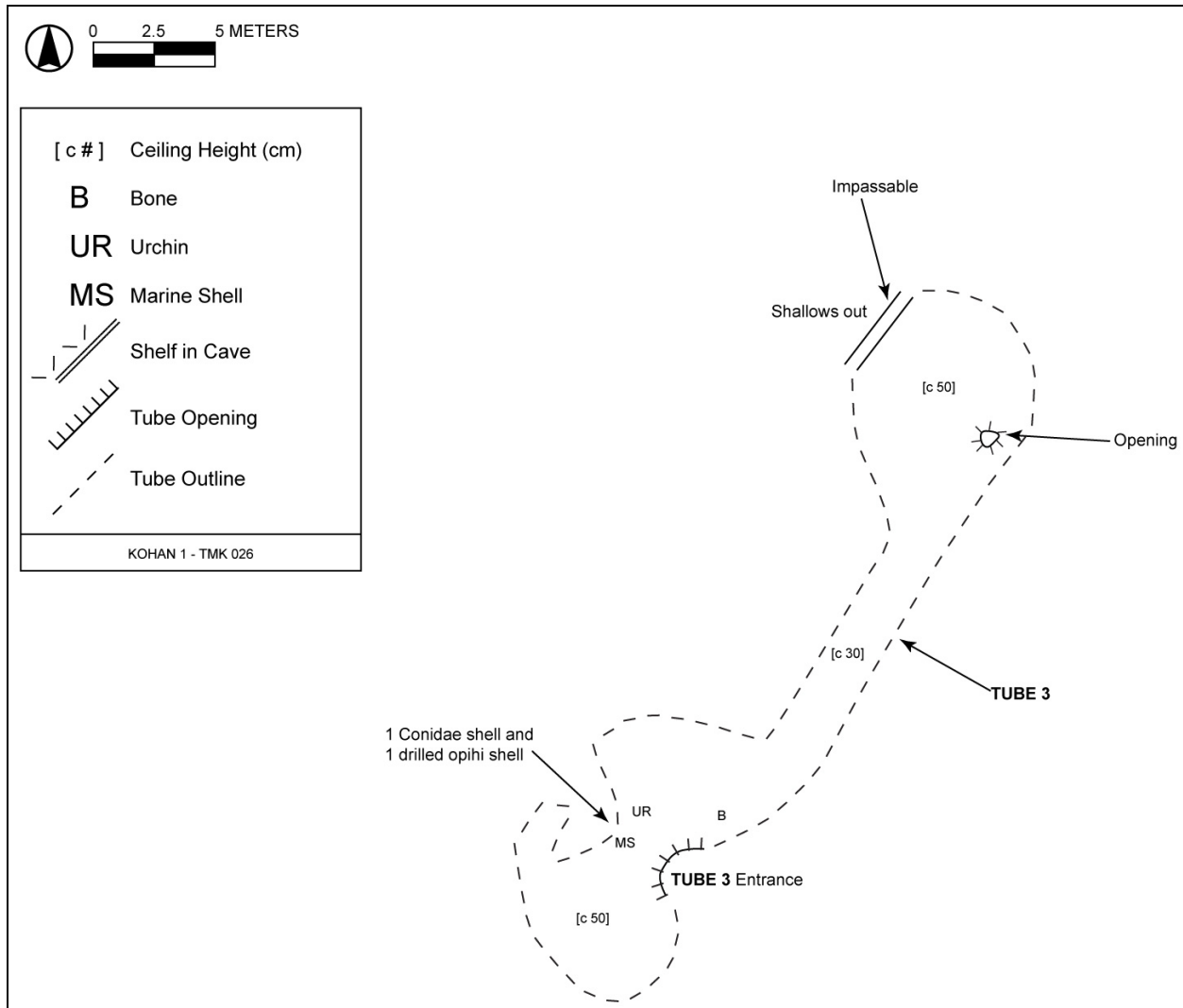


Figure 235. Site -26519, permanent habitation complex, plan view detail of Tube 3

Feature D is a large, relatively square natural fall area that was modified to construct this platform-like area and a paved area (see Figure 233 and Figure 236). The feature is located near the center of the tube, and when traveling north to south this is the beginning of an extensively modified habitation area. The platform is constructed with small boulders and large cobbles that fill gaps of the natural fall and form the sides and the top of the platform. A thin, approximately 3 cm thick layer of rubble has been spread over much of the top of the platform, where a scattering of *kukui* endocarps and charcoal is present.

The paved area is an expansive, open area inside the south entrance to Tube 1 that has been paved with small cobbles and rubble and is subdivided by the Feature C southwest wall. The pavement covers the majority of the tube floor except for a large flat *pāhoehoe* exposure along the east wall where paving is unnecessary. A relatively dense scatter of *kukui* endocarps and marine shell is located throughout much of the paved area, including to the north of the wall. Burned wood is also common.

The function of Feature D is related to habitation, possibly storage, since the top of the platform seems rougher than the paved floor closer to the entrance.

Feature E is a petroglyph panel located in Tube 1 alongside Feature D paved area and in between the two Feature C walls (see Figure 233 & Figure 236). The petroglyphs are located on a linear smooth *pāhoehoe* outcrop and include a human figure as well as a number of pecking marks (Figure 237 & Figure 238)



Figure 236. Site -26519, Feature D, showing the pavement in the center of the photograph; the photo scale sits atop the low wall that bisects the paved area, and the level *pāhoehoe* area with petroglyphs, Feature E is at the lower left of photo; view to west



Figure 237. Site -26519, Feature E, view of petroglyph panel showing pecking and human figure in top center

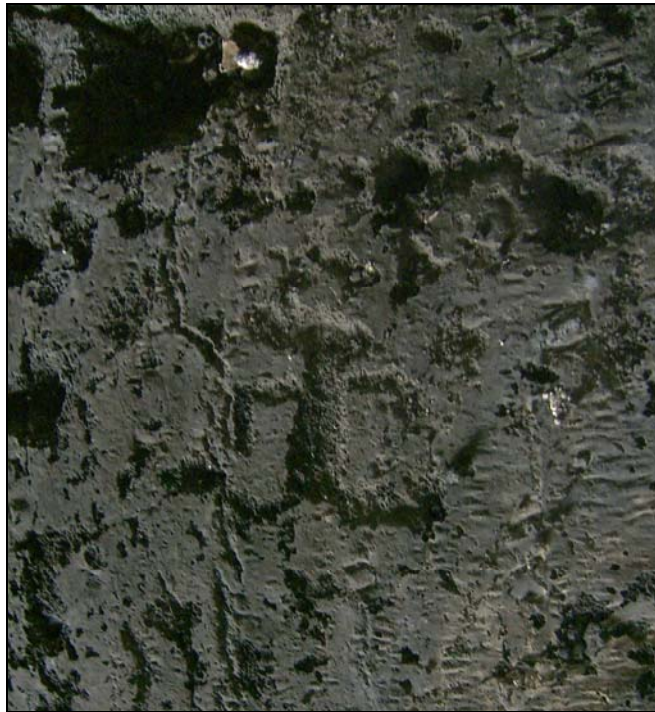


Figure 238. Site -26519, Feature E, close-up of human figure petroglyph

Feature F is an enclosure located at the west entrance to Tube 1 from Sink 2 (see Figure 233 & Figure 239). The enclosure measures 3 m in width east/west and 3.25 m in length north/south. The south end of Feature F is open ended. This is an unusual enclosure, as the top of the constructed areas is leveled off with the paved surface at this end of the tube. The center of the enclosure is a depression that reaches its greatest depth at the west and northwest side of the enclosure. Its maximum depth is 88 cm from its constructed height, and goat bone is present in the depression. Sediments measuring 10 cm deep are in the western portion of the enclosure and indicate good excavation potential.

The enclosure is constructed with boulders averaging 40 cm in size and 2 large *pāhoehoe* slabs that are 100 cm and 110 cm in length. The west wall of the enclosure is stacked 3 courses high. The east side is only one course high, since the paving is at a lower elevation at the entrance to the tube from Sink 2. The surrounding pavement leads into the enclosure from the southern end of the enclosure. The enclosure's condition is good, all of the rocks are in place, and no fall is present. One water-worn rock is in the depression on the east side of the enclosure, and another water-worn stone is just to the north of the enclosure. One upright is on the southeast side of the enclosure, and a *poi* pounder is located 2 m to the northeast of the enclosure (Figure 240 & Figure 241).

Feature F's function is part of the permanent habitation complex, as are all of the other features in Tube 1. The extensive area of paving around Feature F and the charred wood (possible torches) and midden all indicate habitation as the primary function.



Figure 239. Site -26519, Feature F, showing the sloping rubble from the pavement on the left side of the photograph, view to southwest



Figure 240. Site -26519, Feature F, *poi* pounder



Figure 241. Site -26519, Feature F, *poi* pounder

Feature G is a mound of cobbles near Sink 3 just north of the entrance (see Figure 234). The cobbles are large to medium and generally well sorted. They are not consistent with the sink or the interior of the tube and more than half of the mound lies under an intact ceiling. Feature G initially appeared to be a possible burial mound based on its size and construction. Based on this possibility, an excavation was done (see testing results below) and no burial was found. The feature likely functioned as part of the permanent habitation modification at this site.

Feature H is a wall across the entrance to Tube 2 from Sink 2 (see Figure 234 & Figure 242). The wall measures approximately 5 m long by 80 cm wide by 120 cm tall, and it is constructed of *pāhoehoe* cobbles and boulders ranging from 10 cm to 100 cm in size, and on average about 35 cm in size. The construction technique appears to be informal piling rather than stacking, although the wall is relatively straight and has consistent dimensions. The wall is about 30 cm taller on the south side (in the cave interior) than the north side. The maximum height of the north side is approximately 90 cm and 120 cm on the south.

Feature H marks this tube entrance rather than blocks it, since the wall is only 120 cm tall in an area of the entrance where the ceiling height is approximately 230 cm. The wall does not appear to have significantly collapsed in any areas and does not currently impede passage into the tube. Therefore, the function of the wall appears to be part of the habitation function of this site, serving to demarcate the subterranean spaces of the cave from the surface/sink spaces.



Figure 242. Site -26519, Feature H, showing wall at the entrance to Tube 2, view to southeast

Feature I is a large 6.5 m by 4.5 m platform with intact facing on two sides (Figure 243, Figure 244 & Figure 245). The platform is located 8 m northwest of the south entrance to Tube 1, just outside of Sink 2. The platform is also in close proximity to Feature J (platform) and Feature L (terrace), which are 2.5 m to the northwest of Feature I. Feature K is 6.5 m to the northeast. Vegetation in the area is dominated by *koa haole* and Christmas berry trees and some patchy dense grasses. The platform provides good views of coastal terrain to the south and southwest.

The platform is rectangular in shape, with the long axis oriented at approximately 143° TN (southeast/northwest). Dimensions of the platform are approximately 6.5 m southeast/northwest by 4.5 m northeast/southwest with a maximum height of 60 cm in the southwest side. Facing remains intact on the platform's southeast and southwest walls, and its south and west corners are well defined. Though the northeast and northwest walls of the platform are not as high as the others, due to the natural slope of the terrain, a linear rise in the height of *pāhoehoe* cobbles on these sides suggests that at one time the structure had more formal walls than currently exist. The southeast and southwest walls of the platform are faced with large upright *pāhoehoe* slabs (45-70 cm tall). On top of these upright slabs are slabs laid flat, level with the surface of the platform. The platform's interior portions consist of *pāhoehoe* cobbles (generally approximately 5 cm) mounded up to create the level surface of the platform. A large rectangular depression faced with upright *pāhoehoe* slabs is in the center of the platform (constructed hearth). The depression is about 180 cm northeast/southwest by 115 cm northwest/southeast by 25 cm deep. The platform is in very good condition relative to other structures found in the area. The most significant disturbance appears to be along the northeast and northwest sides and is most likely the result of natural biological and physical erosion and weathering processes.

A wall constructed by placing large *pāhoehoe* slabs upright in a linear formation runs southeast from the southeast side of the platform and curves to the south, following a natural high point in the bedrock. The wall is situated between the platform and the south entrance to Tube 1 off Sink 2. The maximum height of the wall is about 60 cm, near the platform.

Feature I is interpreted as a permanent habitation platform. Two adjacent excavations were performed to confirm function, and all evidence confirms habitation (see testing results below). This feature is the largest feature at Site -26519, and it is fairly centrally located. A few midden pieces (one large cowry fragment and two *kukui* endocarps) were found in the southwest wall, and further midden was encountered during test excavations. The central rectangular depression likely functioned as a fireplace (constructed stone hearth).

Feature J is a 5m by 4 m platform in close proximity to Feature I (platform) 2.5 m southeast, and Feature L (terrace) 2 m southwest. Feature J is one platform in a complex of platforms that are in close proximity (Figure 243 & Figure 245).

This platform is rectangular in shape, with the long axis oriented on approximately the same bearing as Feature I, the larger platform (northwest /southeast). The dimensions of the platform are approximately 5 m northwest/southeast by 4 m northeast/southwest by 50 cm tall. This platform is less formal than Feature I and smaller in scale, but similar in other respects. There is some facing of the platform walls using small (25-33 cm) *pāhoehoe* slabs on the southwest and

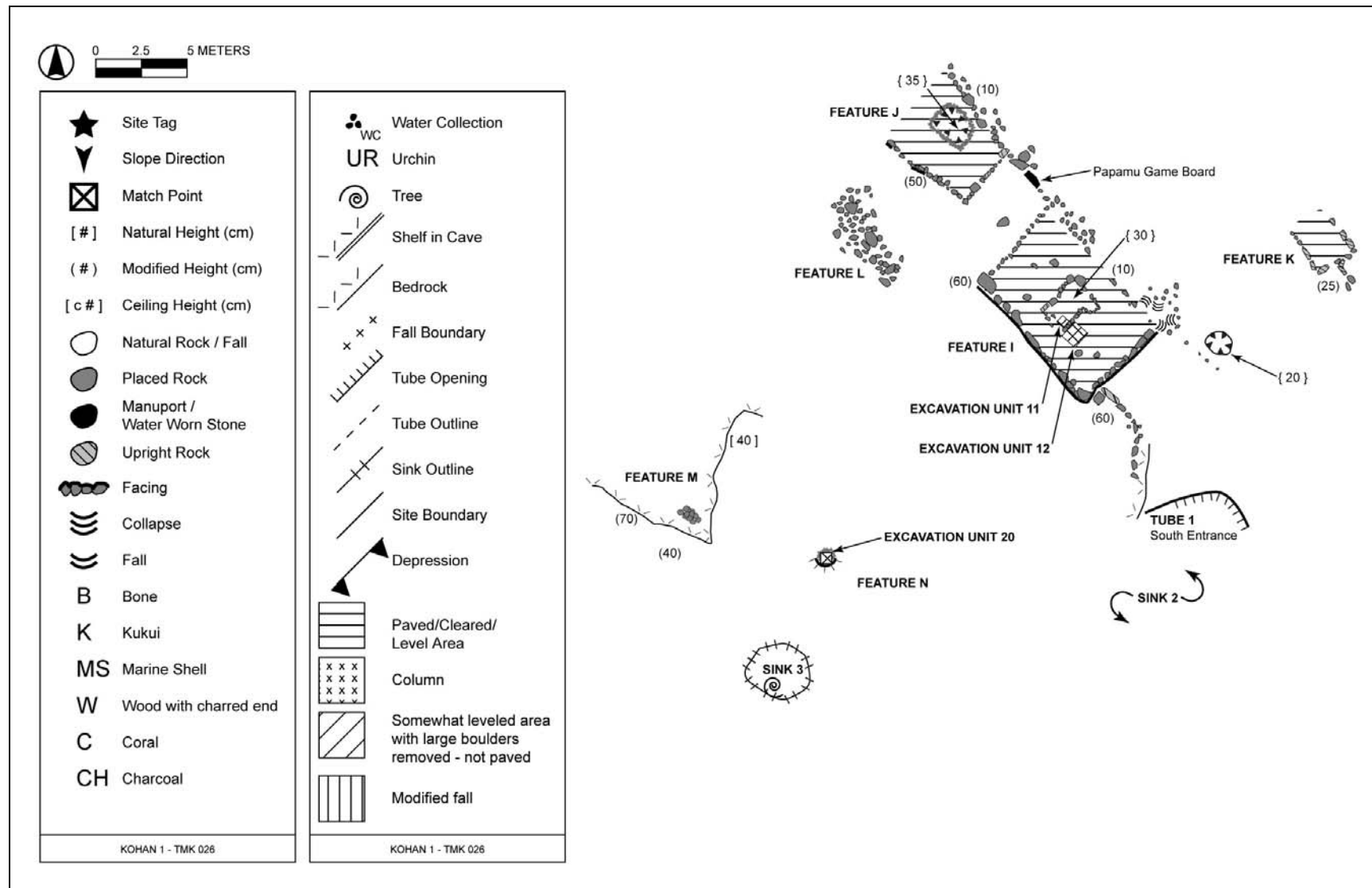


Figure 243. Site -26519, permanent habitation complex, plan view detail of all surface features, Features I through N



Figure 244. Site -26519, permanent habitation complex, Feature I, showing the south and east walls of the platform; slab uprights and paving stones are in foreground and Feature J is in background, view to northwest



Figure 245. Site -26519, permanent habitation complex, Feature I and J overview, looking *makai* from Feature J platform at Feature I, showing excellent view from rise

southeast sides, although all walls have been disturbed by natural erosion/weathering. No corners are distinct enough to designate as undisturbed. The construction technique for the platform appears to have been the mounding of small-medium *pāhoehoe* cobbles (generally 3-18 cm). It is likely that the feature was constructed in a location of a naturally eroding *pāhoehoe* bedrock outcrop as many such features exist in the vicinity, and this would provide a source of construction material and partial mound to begin the construction. A depression in the center of the platform is interpreted as a possible fireplace. There is a small wall with an upright *pāhoehoe* slab between Features J and I. This upright has a *papamū* board pecked into its surface.

The function of Feature J is interpreted as permanent habitation. This platform is similar in form to, but smaller than Feature I. Although no midden was encountered in Feature J, the platform is likely to contain midden.

Feature K is a small 2.4 m by 2.2 m platform about 6.5 m northeast of Feature I (see Figure 243). The platform is rectangular in shape, with the long axis oriented at about 145 °TN. Small upright *pāhoehoe* slabs (35-55 cm long) delineate facing on the southeast, southwest, and northeast sides. The northwest side is flush with the surrounding terrain. The dimensions of the platform are roughly 2.4 m northwest/southeast by 2.2 m northeast/southwest by 35 cm tall. The interior of the platform is paved by small (5-20 cm) *pāhoehoe* cobbles. Off the southeast side of the platform, there is a small, short (2 m long) wall with an upright *pāhoehoe* slab (50 cm tall). The platform is constructed on an outcrop of eroding *pāhoehoe* that runs off to the northwest. The construction of Feature K likely began by modifying this outcrop, using its cobbles as construction materials. The function of Feature K is interpreted as permanent habitation. Although no midden or artifacts were encountered on the surface, Feature K is likely to contain subsurface cultural materials.

Feature L is a small 5 m by 1.8 m northwest/southeast running terrace situated immediately southwest of, and running parallel to Feature J, platform (see Figure 239). The terrace is constructed of small to medium *pāhoehoe* boulders and some horizontally placed *pāhoehoe* slabs, including one large slab atop the terrace at its south corner. The upper surface is primarily paved with small *pāhoehoe* outcrop. There is some collapse of the southwest side of the terrace. No evident facing remains but it is clear that this southwest side was stacked approximately 4 courses high, approximately 90 cm. The upper surface of the terrace is relatively flush with the sloping bedrock on its northeast side, but this upper surface is not completely level, sloping upwards from the flush northeast side to the stacked southwest side. Feature L is permanent habitation as this terrace serves as an extension of the naturally level bedrock of the surface area encompassing Features I and J.

Feature M is a modified outcrop that is relatively level and in close proximity with Features I, J, L (see Figure 243). Modification is irregular around the outcrop, primarily on the east and west sides of the outcrop. Across the west side is a free standing, slightly faced wall approximately 2.5 m long, also an upright and two parallel cobble scatters with a cleared area on the center that appears to be an entryway. A thin alignment of short (approximately 25 cm) uprights lines the southwest edge of the outcrop. At the southeast corner of the outcrop is a small (approximately 2 m) square platform 1 course high that abuts the raised bedrock. This feature is an extended habitation area based on its shape, an apparent entryway and proximity to other habitations.

Feature N is an unmodified outcrop that connects directly from Sink 3 to Feature M (see Figure 243). Feature N is a shallow lava tube or blister that has been filled by placing uprights around the opening to retain small and medium cobble fill that creates a continuous and level surface with the surrounding unmodified outcrop. The fill may have been to facilitate movement on the surface. The blister/tube itself does not appear to be more than 30 cm tall. An excavation (see below) was placed in Feature N because it was considered a possible burial; no cultural material or bones were found, and the function was confirmed as modification in relation to permanent habitation at the site.

Four test excavations were conducted at this site to confirm function and determine whether burials were present (see testing results below). All testing confirmed function as a large permanent habitation complex.

The site's function is interpreted as permanent habitation, based on the number of features, the extent of modification, and the high level of energy investment required to construct the features. Tube 1 is an intensive habitation area that includes Features A through F. These six features are all modifications of the lava tube to make the space more amenable to habitation activities, and create a relatively formal living space. There is also water collection in the lava tube, as well as artifacts that suggest general activity areas within the tube. In addition to this subterranean habitation complex, there is a surface complex of features (Features I through N) that also represents an area of intensive habitation. Distribution of midden materials (mostly marine shell) and artifacts within the areas of intensive habitation additionally support the interpretation of habitation function as the primary site function. The site has a secondary function of water collection.

Testing Results

Test excavation was conducted to assist in determining the functions of Features G, I and N, and to determine whether a burial is present.

Feature G

The Feature G mound was excavated primarily to determine the presence or absence of human skeletal remains (Figure 246 & Figure 247). Stratum I, extending from 0 to 137 cmbs, is a mix of sediment from the surface and small to medium *pāhoehoe* cobbles. Sediment has washed in from the surface and into all gaps in the mound. Small rootlets are present throughout. Midden fragments are present from the top of the unit to the bottom, indicating the mound dates to the period of habitation.

The excavation did not reveal a burial, and ended on a large slab believed to be original fall from the tube ceiling, and is most likely a natural surface. A crevice noted at the bottom of the excavation indicated gaps in the large slabs below, though they appear natural as well. The large slab at the bottom of the excavation near the center of the mound prevented expansion. The heavy sediment deposit appears to have washed in through the opening over the mound and includes a small amount of midden from the surface habitation. Excavation determined that Feature G was the result of the construction of the surface habitation. This construction led to rocks being pushed into the tube from an opening above and a mound (Feature G) was created. A small amount of midden washed in from above, and there is no burial or any indication that this was a burial mound.

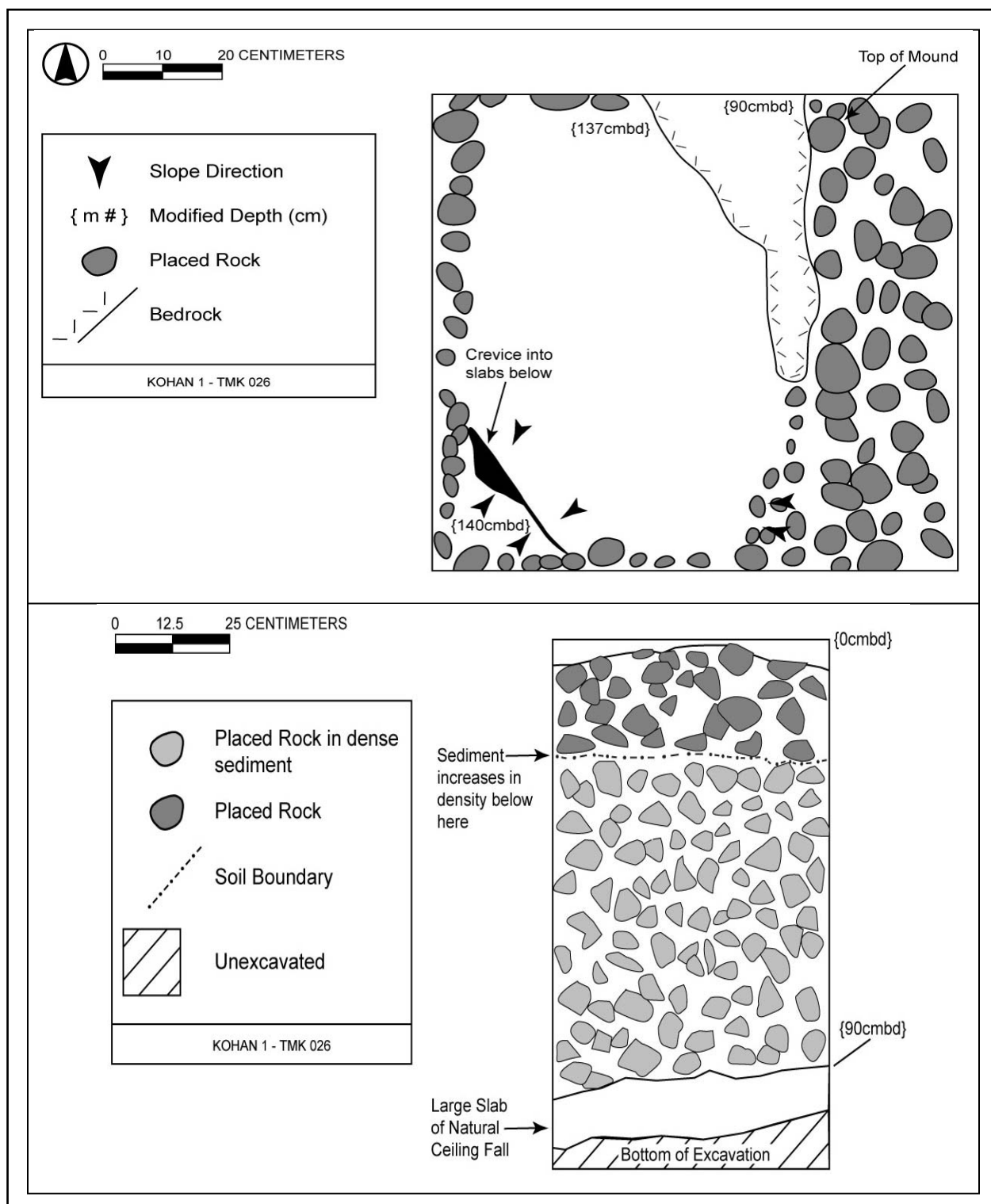


Figure 246. Site -26519 Feature G, excavation figures for Unit 13; top is plan view of unit, bottom is profile of the east wall



Figure 247. Site -26519 Feature G, excavation figures for Unit 13, facing northeast: top is pre-excavation photograph of mound; bottom is post-excavation

Feature I

Two excavations were conducted for Feature I. Unit 11 was to better determine the function of the platform feature and to understand the nature of the faced depression in the center of the feature. Unit 12 was to determine

Unit 11

Unit 11 was excavated on the interior of the constructed depression (Figure 248 to Figure 250). Stratum I, extending from 0-10 cmbs, includes leaf litter, *koa haole* seeds/roots, and other organic material. Stratum II, extending from 10-15 cm, consists of ashy sediment that contains some marine shell midden. Stratum III, extending from 15-25 cm, contains more midden than Stratum II, one volcanic glass flake, and charcoal. Stratum IV, extending from 25-60 cm, also contained marine shell midden, primarily consisting of urchin and including *Isognomon*, cowry, a spiky shell, and a conical shell. Strata II, III, and IV all contain cobbles.

The presence of charcoal and midden within Unit 11 supports the conclusion that this was a hearth within a habitation area. The size and quality of construction indicate this was a more permanent habitation site.

Unit 12

Unit 12 was excavated on the exterior of the constructed depression (Figure 248, Figure 251 & Figure 252). Stratum I, extending from 0-60 cmbs, is a construction layer consisting of *pāhoehoe* cobbles and boulders with coral chunks, cowry shell, and *kukui* endocarp fragments. Stratum II, extending from 60-70 cmbs, has a sandy loam sediment layer among the cobble construction. Marine shell including a possible grooved shell sinker, urchin shell, coral, *kukui* endocarp, and a piece of scoria (approximately 16 cm by 8 cm) that is roughly adze shaped and has been ground down on several sides was found. Stratum III, extending from 60-70 cmbs, is a sediment layer among cobble construction, with bedrock as bottom. A mammal bone modified as an awl was also found in Stratum III.

Excavation findings are primarily midden, non-human bone, coral fragments, and charcoal and support the habitation interpretation. Since no human bone is present, burial function is unlikely.

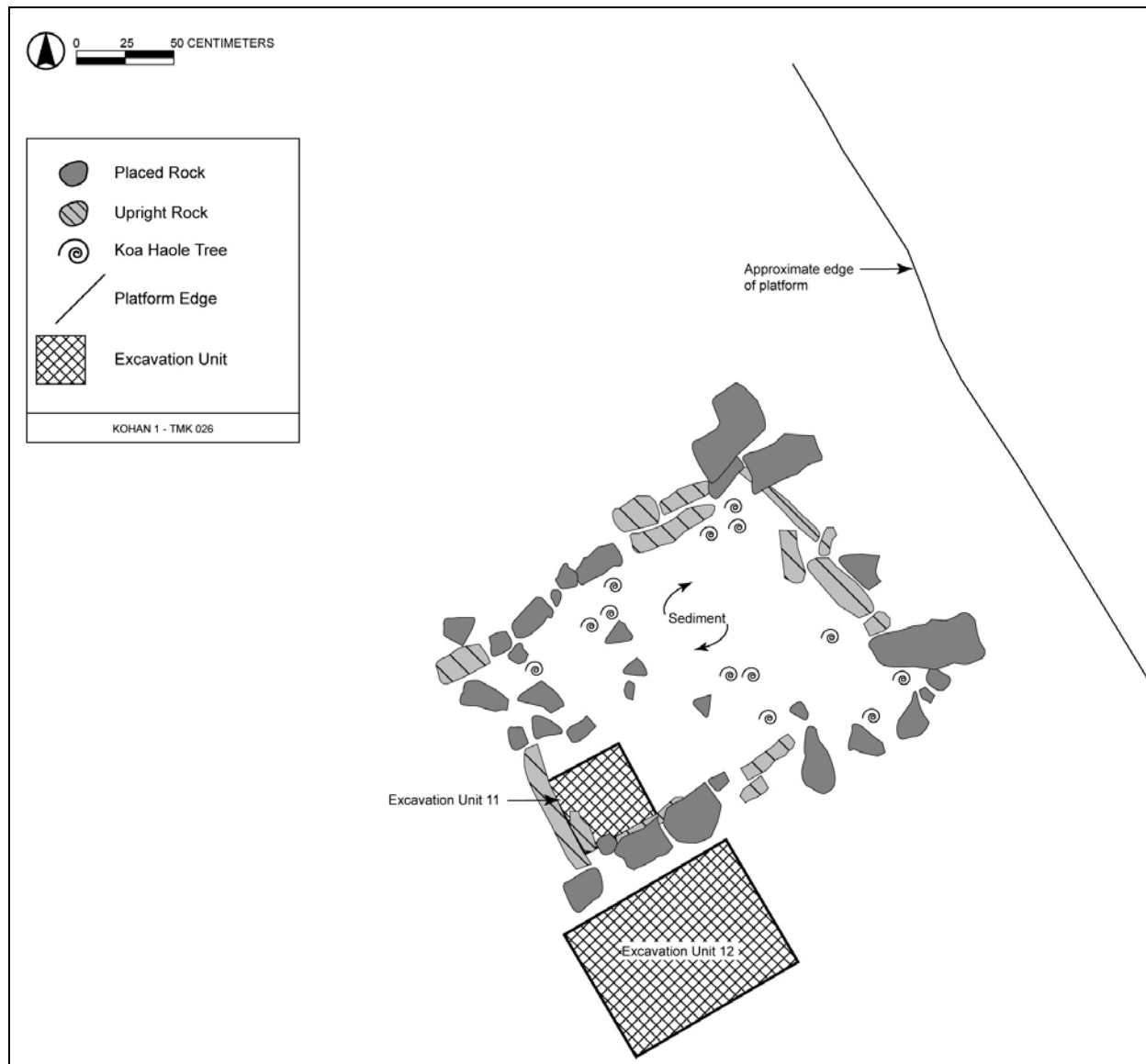


Figure 248. Site -26519 Feature I, excavation figures, Unit 11 and Unit 12 plan view, showing locations of Unit 11 within hearth (delineated by uprights) and Unit 12 placed just outside of hearth in small cobble paving area

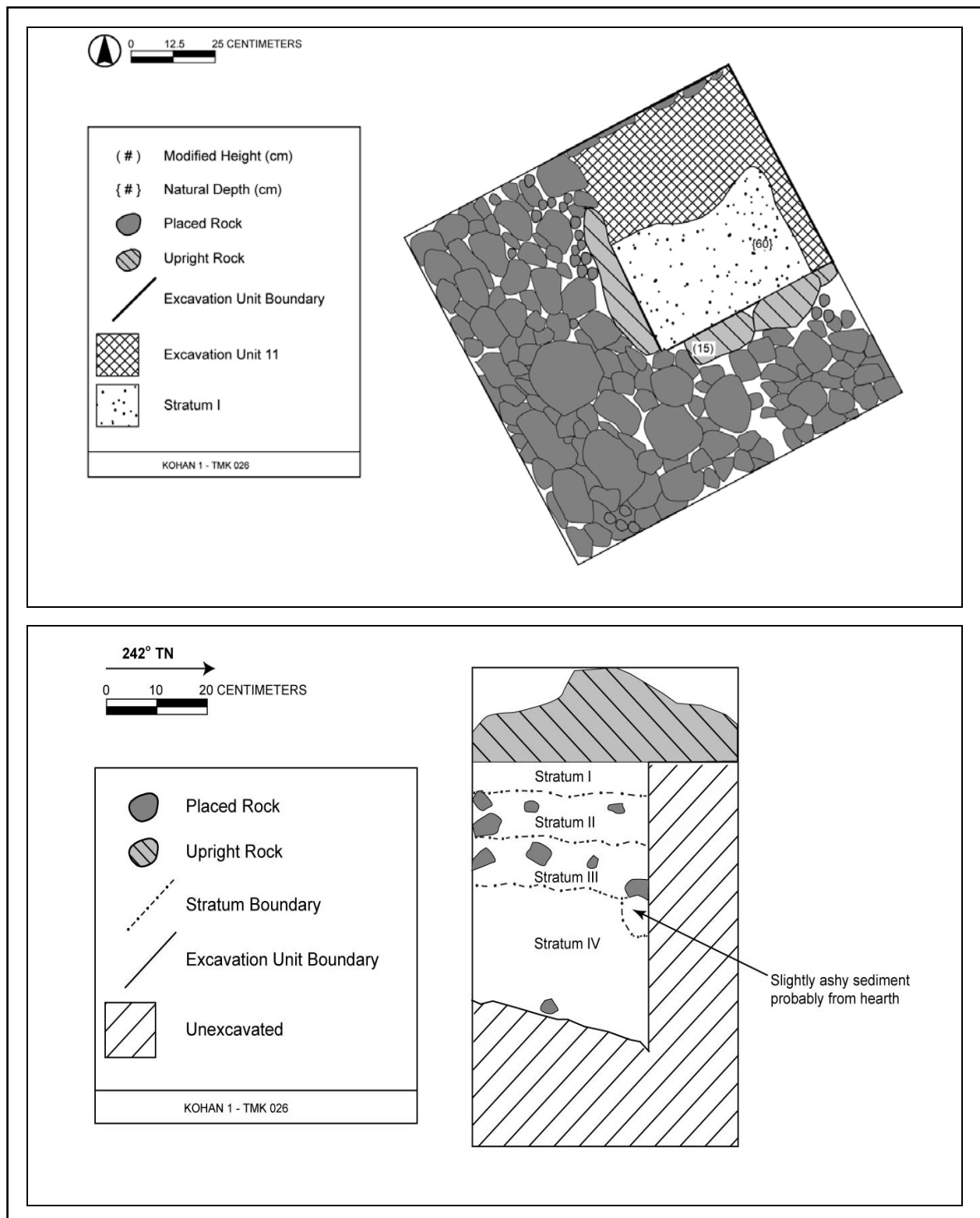


Figure 249. Site -26519 Feature I, excavation figures for unit 11: top is plan view of excavation unit, bottom is profile of west wall

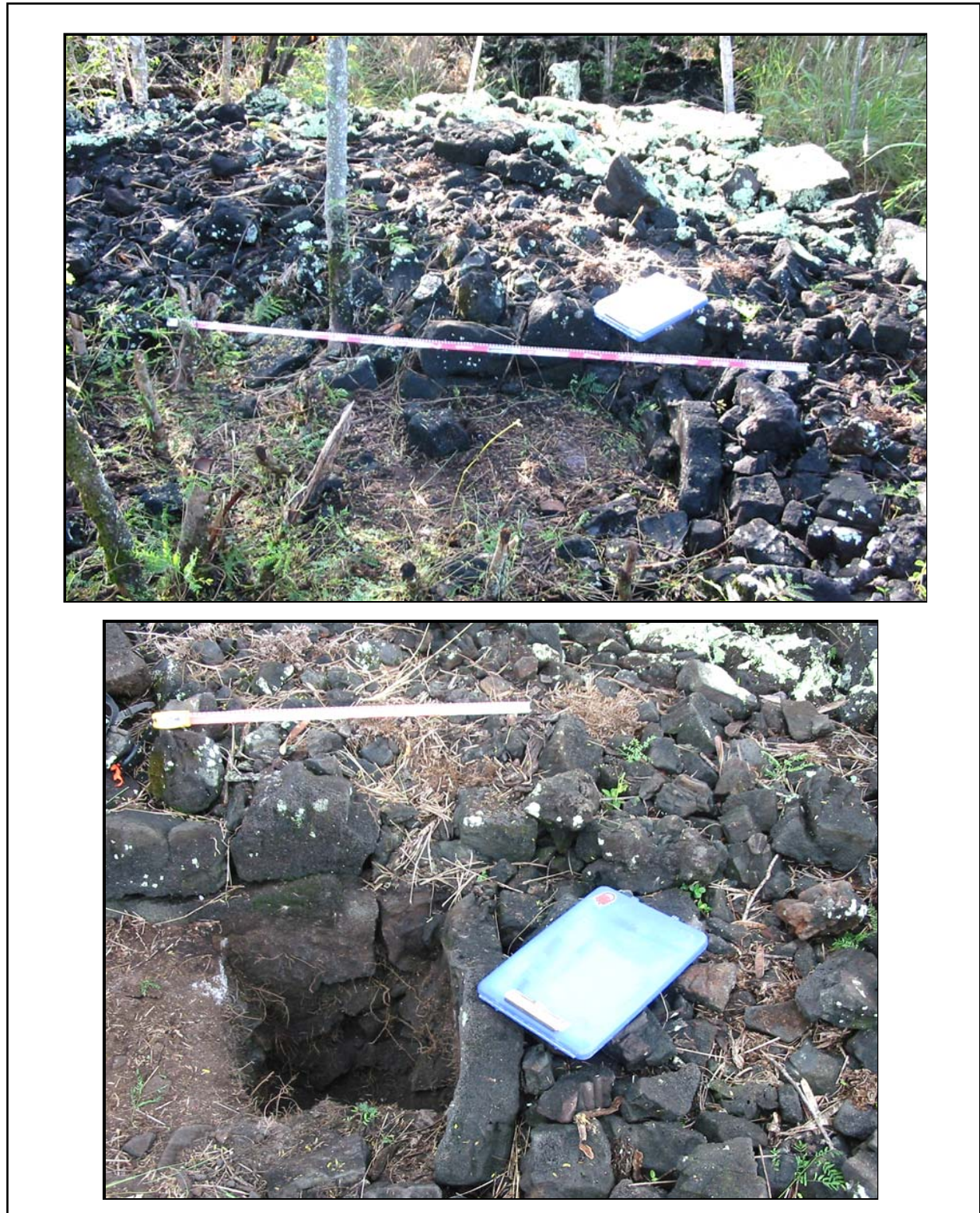


Figure 250. Site -26519 Feature I, excavation figures for Unit 11: top is overview photograph facing southeast, bottom is close-up photograph post-excavation facing same direction

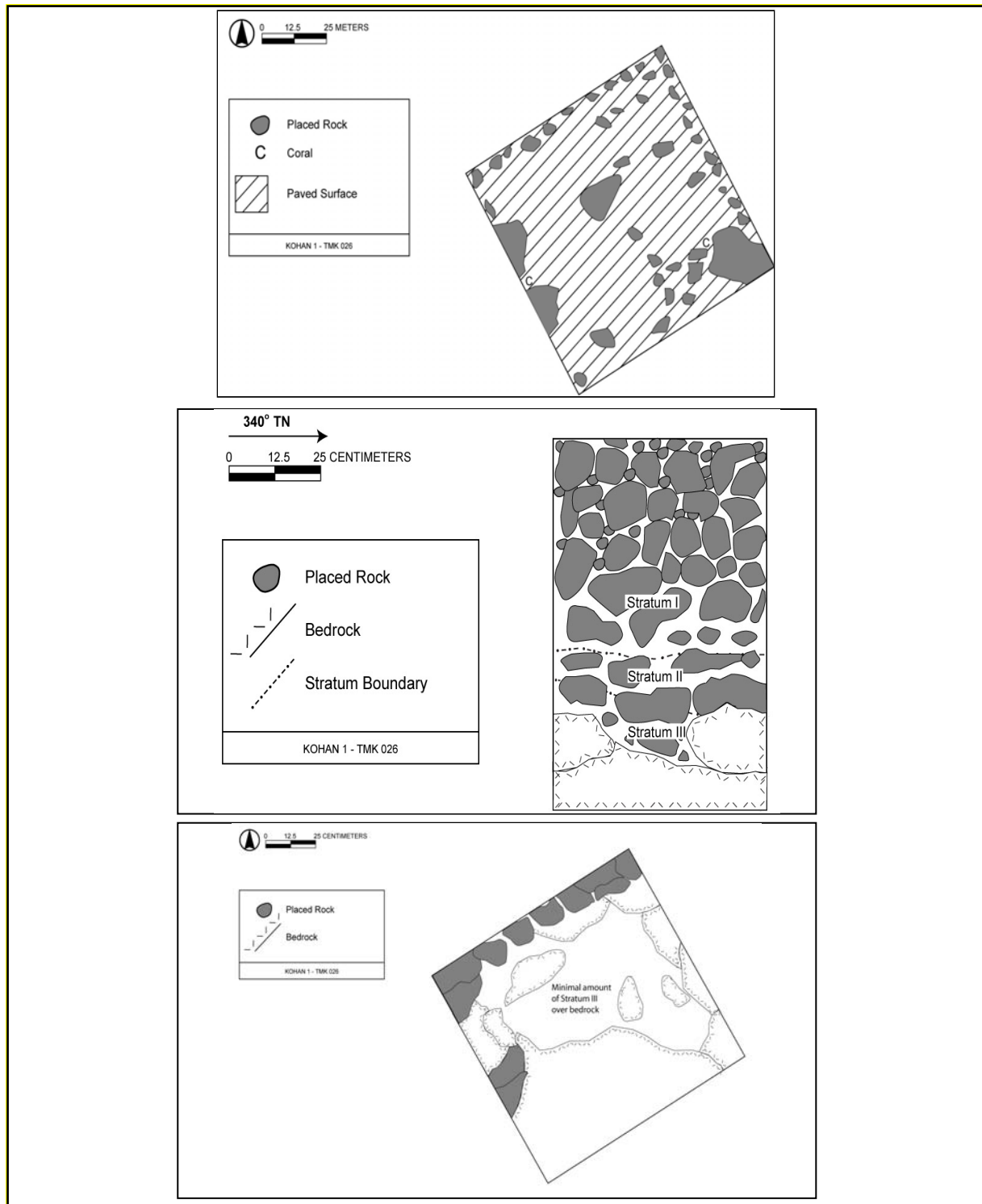


Figure 251. Site -26519 Feature I, excavation figures for Unit 12, from top to bottom: plan view pre-excitation; profile of north wall; plan view post-excitation

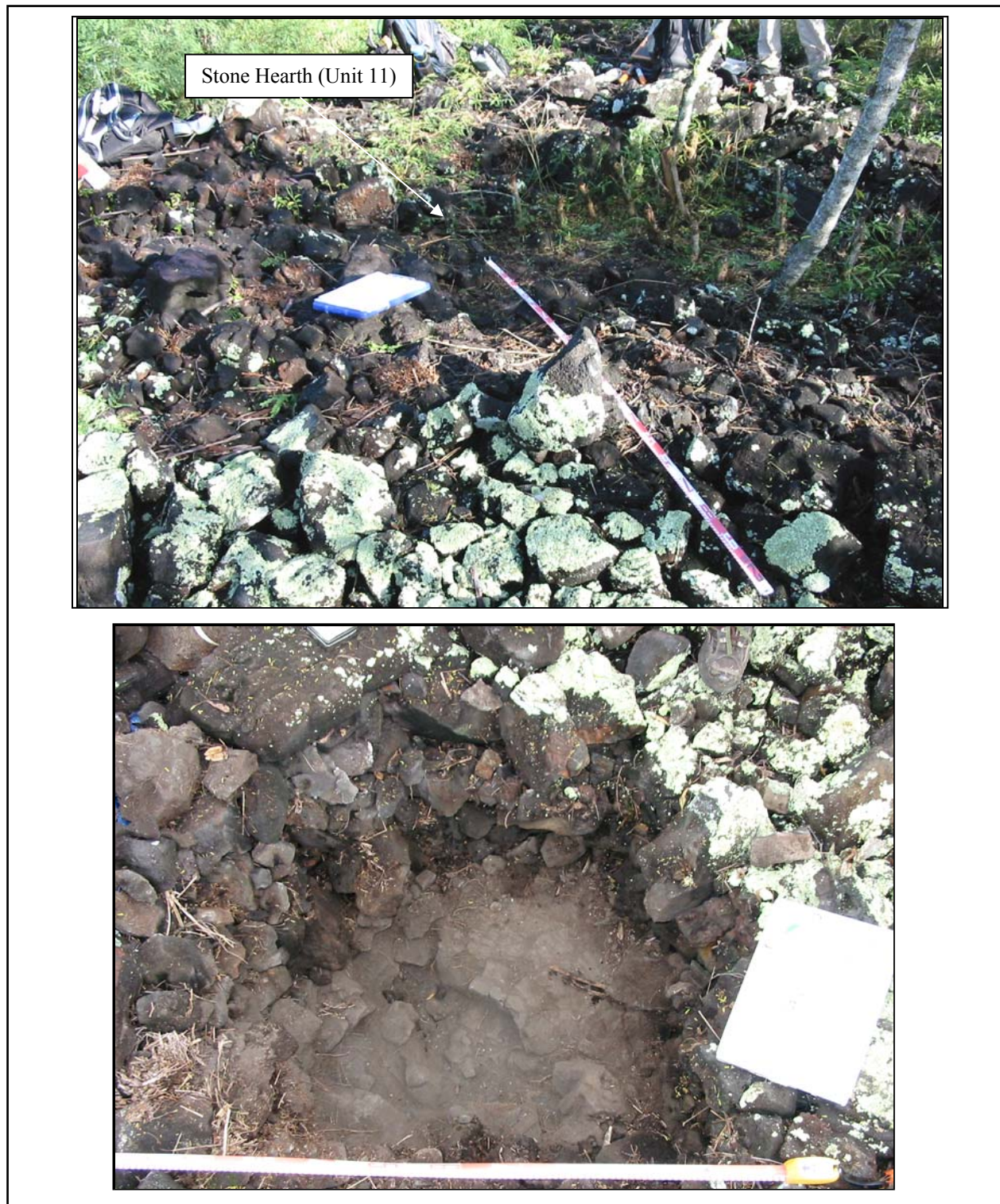


Figure 252. Site -26519 Feature I, excavation figures for Unit 12: top is overview photograph pre-excavation facing northwest, Unit 12 area in foreground; bottom is close-up photograph post-excavation facing south

Feature N

Stratum I, extending from 0 to 40 cmbs, is fairly well-fitted primarily small *pāhoehoe* cobbles and small boulder fill. Stratum II, extending from 40 to 50 cmbs, consists of moist soil at the bottom of a small filled blister with organics. No midden or other cultural material or bone was found, and the end of the blister could be viewed after excavation. The blister was likely filled to create a level surface for ease of transportation around the habitation site complex.

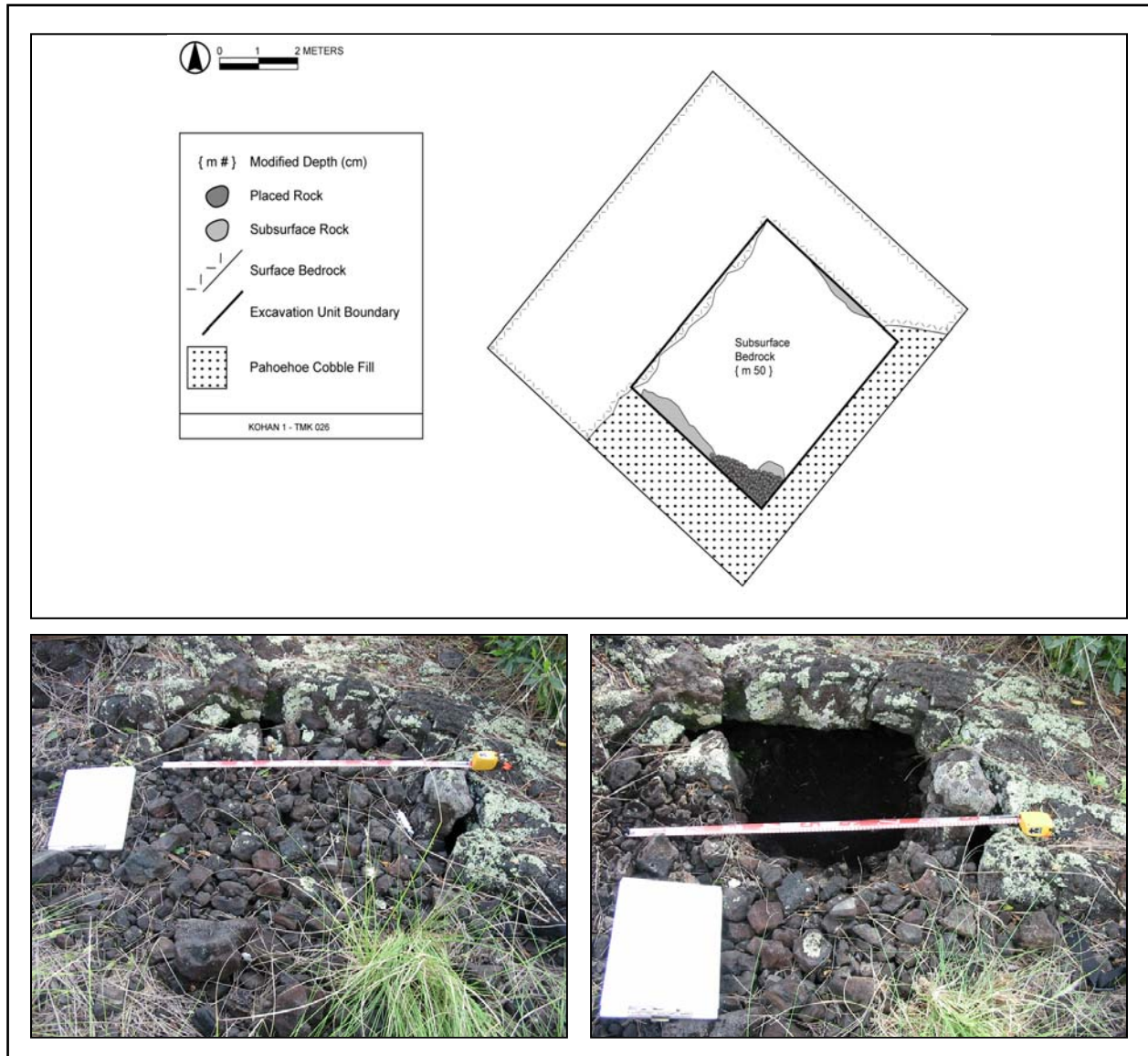


Figure 253. Site -26519 Feature N, excavation figures for Unit 20, from top to bottom: plan view of excavation unit; pre-excavation facing south; post-excavation facing south

2.1.39 State Site # 50-10-28-26520

SIHP #	50-10-28-26520
FUNCTION:	Burial, Ceremonial and Animal Husbandry
SITE TYPE:	Lava Tube
TOTAL FEATURES:	7
DIMENSIONS:	Approximately 80 m by 80 m (260 ft. by 260 ft.)
CONDITION:	Good
AGE:	Pre-contact and Historic
ELEVATION:	688 ft. a.m.s.l.

DESCRIPTION: Site -26520 is a large and heavily modified lava tube system with seven designated features (Feature A through G). Three features, including sink modification (Feature A) and a series of blocked tubes (Feature B and C) are related to historic animal husbandry. The rest of the site complex is pre-contact in style, consisting of two petroglyphs (Feature D), a probable burial chamber (Feature E), a small platform in a lava tube with branch coral on top (Feature F), and a nearby surface platform (Feature G). There also two confirmed burials in the far eastern lava tube. Features A through D are located off the main lava tube of the site which is distinguished by a series of four large sinks (Sink 1-4) that act as skylight openings; this main tube has seven side tubes branching off of it (Tubes 1-7). Features E and F are located in a tube that branches off a nearby sink (Sink 5, which has Tubes 8-10 branching off of it). Feature G (the only surface feature) is located just southeast of the sinks. The burials are both located in Tube 9 off Sink 5 (Figure 254 through Figure 258).

The site is in a relatively level *pāhoehoe* flow area, interrupted by undulating terrain caused by collapsed lava tubes. Vegetation in the area is generally marked by large Christmas berry trees, rather dense robust *koa haole*, and air plant ground cover. The ground surface in the area appears to have been at least partially cleared and there are quite a few tossed rocks in the area, but no formal or definitive surface features are present within the site other than immediately adjacent to the sinks. There are a few ephemeral trails around this area, with an occasional placed rock or area of linear clearing; this is not surprising given the proximity of the major trail Site -10714, which is in good condition just south of Site -26520, along with the *ahupua'a* wall just south of the trail. Specifically, a small upright slab and a few large pieces of marine shell mark a side trail of Site -10714 that appears to lead toward the main tube of Site -26520. However, none of these possible trails are well-defined and none are extensive enough to assign a feature designation. Likewise, the general clearing and tossed rocks in the area are probably the beginning of increased agricultural activity in this more *mauka* area, but the lack of any formal features precludes designating features for this agricultural activity. Site -26514 is also a nearby surface site just to the west of the main lava tube, Site -26532 is a lava tube just east of -26520, and Site -26509 connects to Site -26520 via a small passageway to the southwest.

There are several large sinks that mark the central area of the site, and essentially create a series of large arches with the main tube running between them being very open to light due to the large sinks/skylights (Figure 259). The main lava tube averages a height of 200 cm, and it is open to the surface in four sinks although it is only possible to get in and out of the main tube via two of the sinks (Sink 1 and Sink 4). Sink 1 is the southern-most sink and is closest to the *mauka/makai* trail (-10714) and the *ahupua'a* wall. Sink 1 is also the most extensively modified

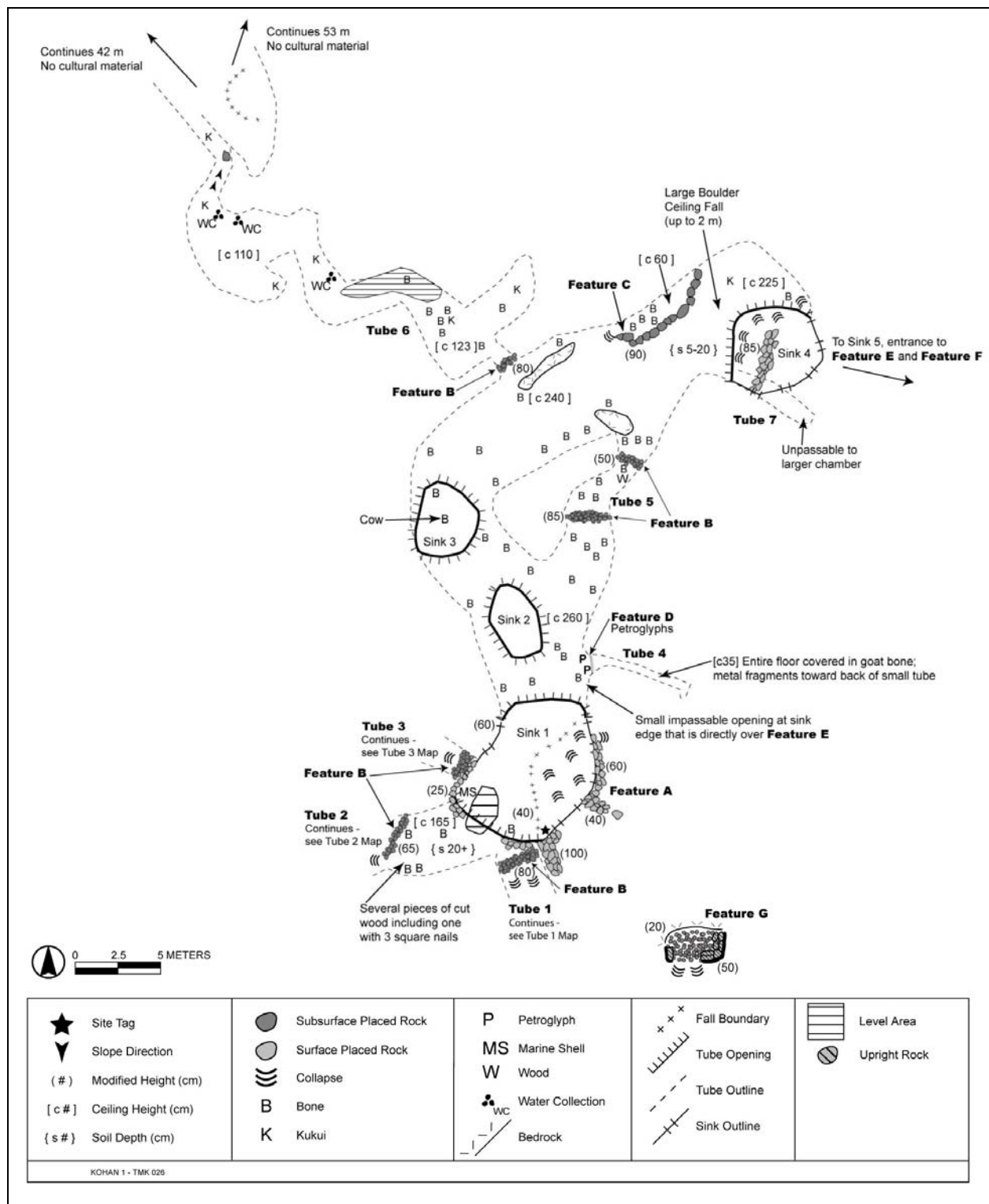


Figure 254. Site -26520, plan view of main lava tube, showing Sinks 1 through 4 and Features A through D and G (see also Figure 255 through Figure 258 for adjacent tubes and Sink 5)

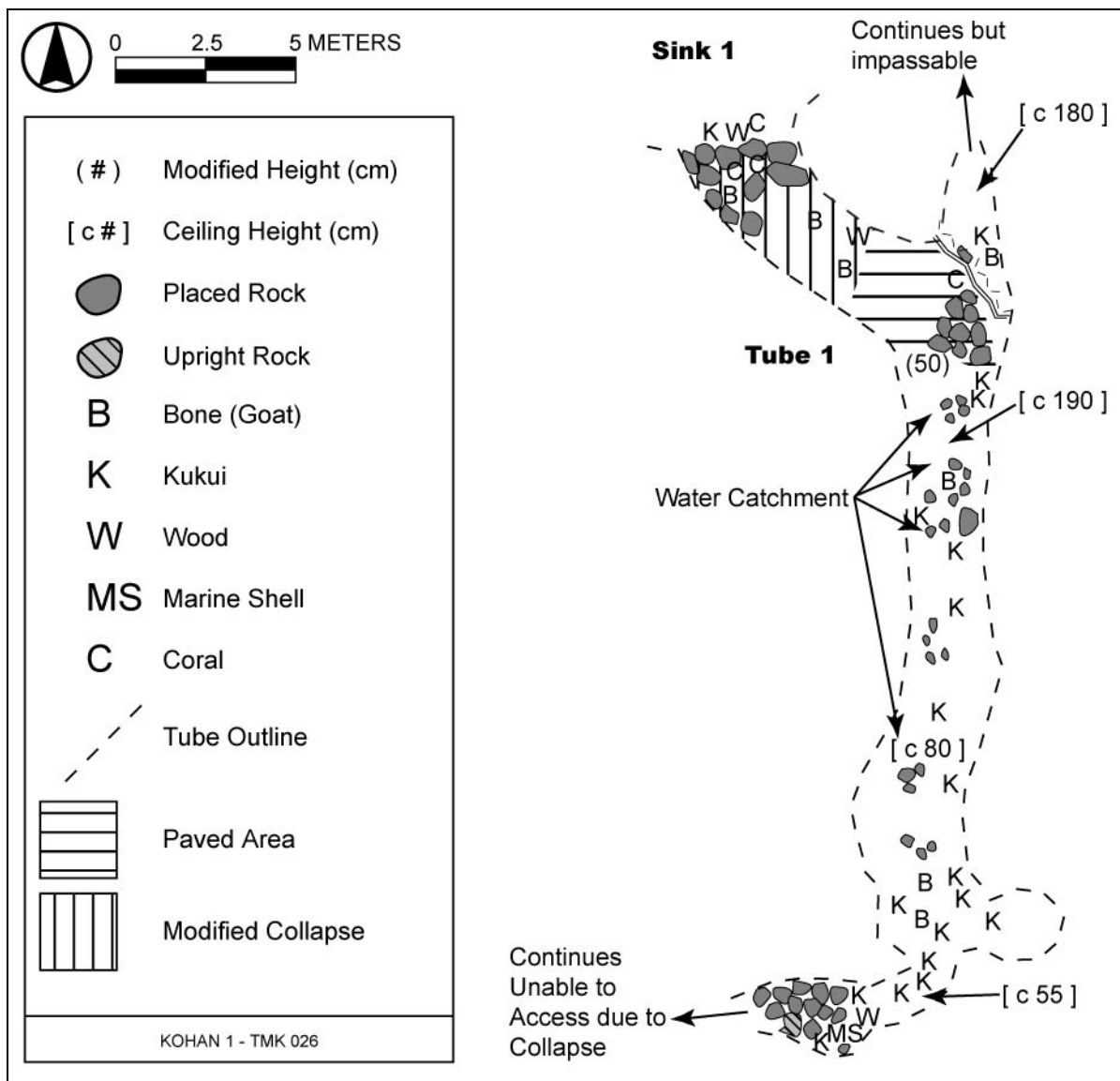


Figure 255. Site -26520, Tube 1 plan view (see also Figure 254)

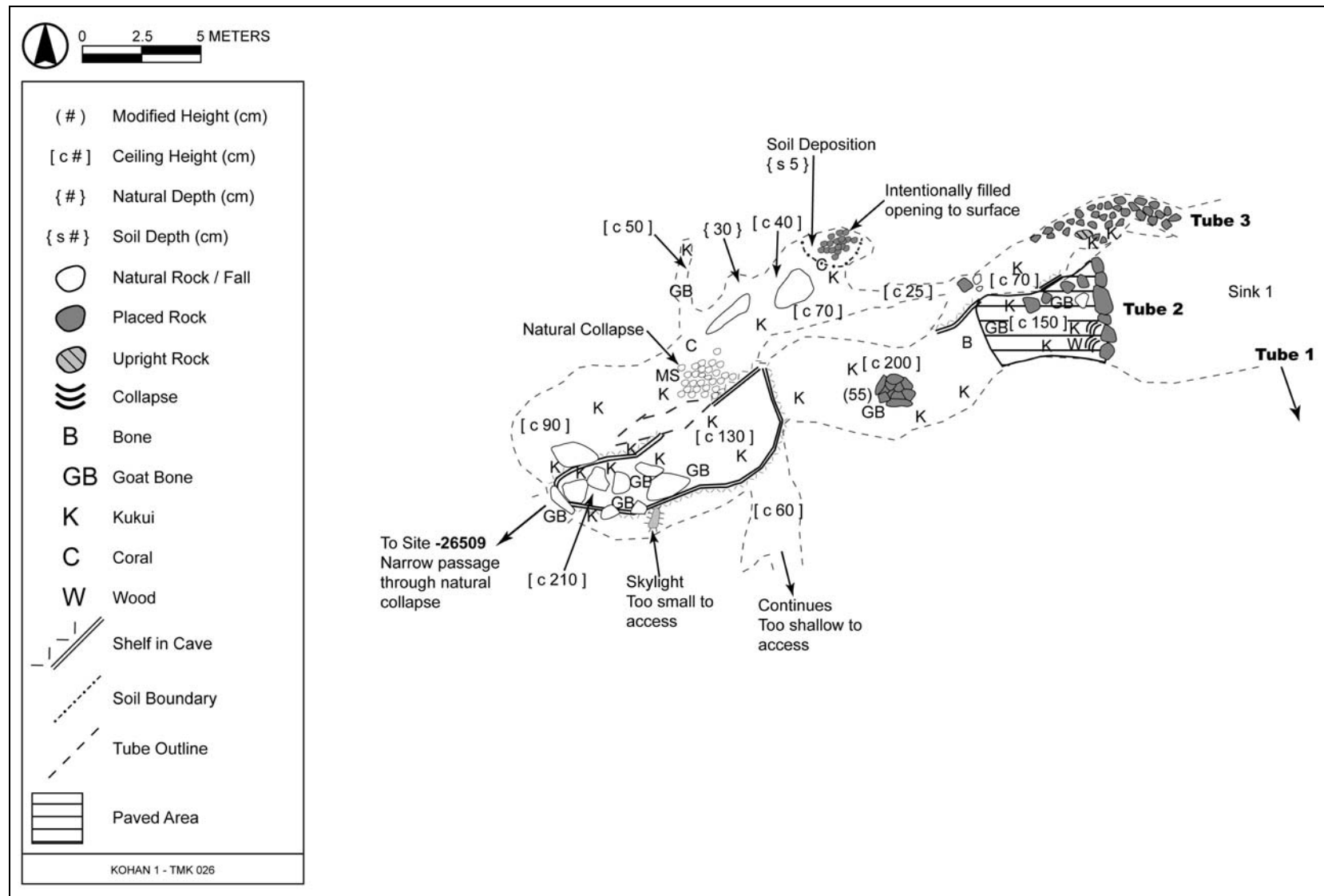
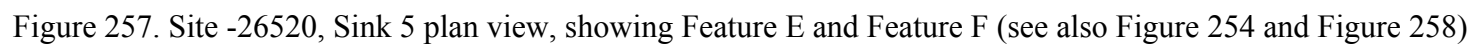


Figure 256. Site -26520, Tube 2 and Tube 3 plan view (see also Figure 254)



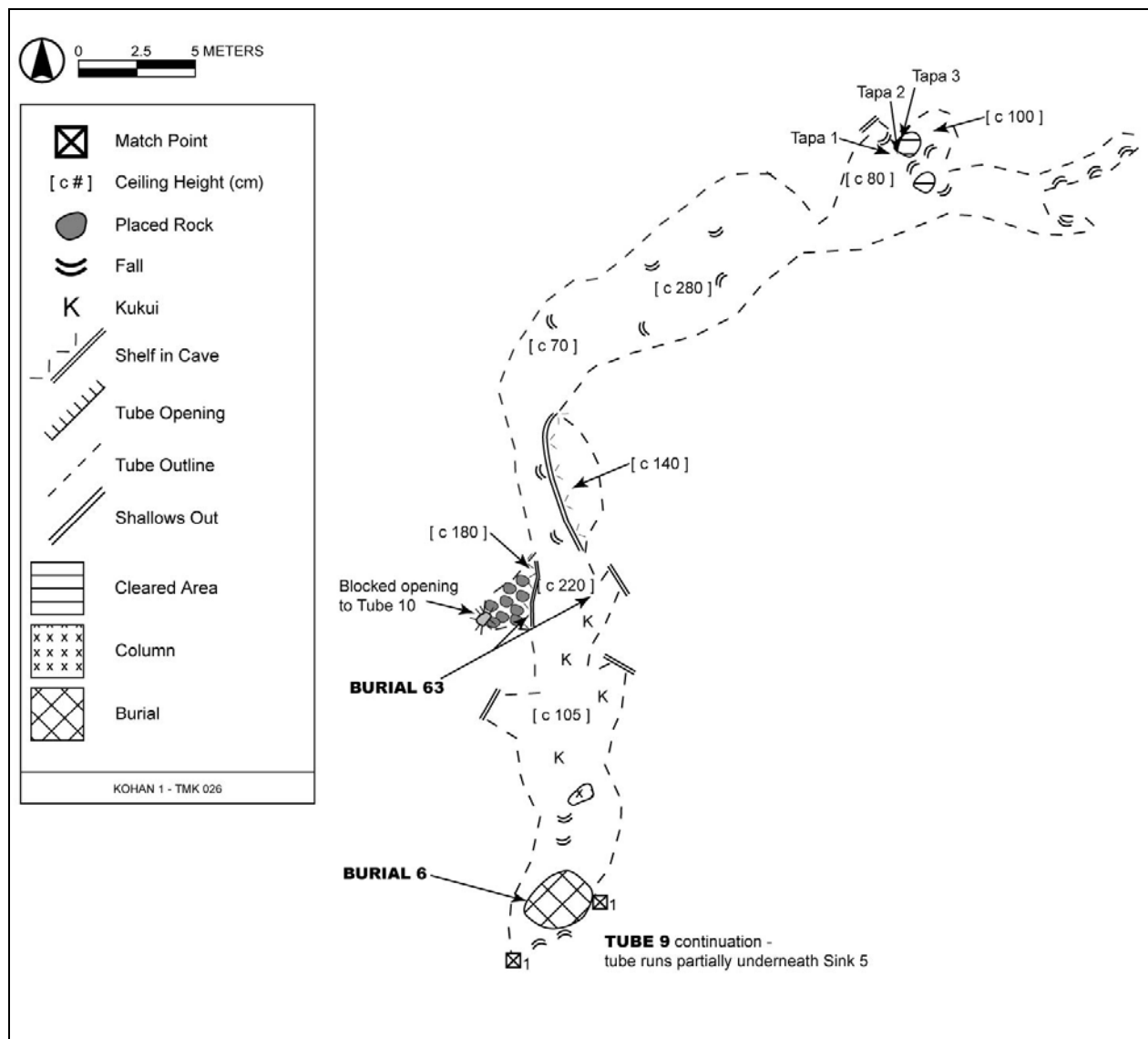


Figure 258. Site -26520, Tube 9 plan view, showing location of Burial 6 and Burial 63 (see also Figure 257)



Figure 259. Site -26520, photograph of south portion of main lava tube, looking south towards Sink 1, showing open nature of tube and soil deposit; Tube 4 is located where orange flag is hanging at left foreground, and there are petroglyphs are immediately below this; Tube 2 opening is in background

and is described as Feature A below. Sinks 2 and 3 are skylights with no visible modification (though there is clearing of the floor surface and movement of cobbles to the edges of the sink) or easy access to the main tube. Sink 4 is a small sink with sloping boulder collapse to the north that has been slightly modified to have a small wall. Sink 5 a large shallow sink and is the only one that does not connect directly to the other sinks; it is located about 8 m southeast of Sink 4.

The main tube, accessed via Sinks 1-4, has a total of seven lava tubes (Tubes 1-7) extending off of the ends and sides of the tube (Figure 254). Almost in entirety, these tubes have been conspicuously blocked with relatively well constructed boulder walls. Sink 5 has three lava tubes (Tubes 8-10) running off its south and east sides. The tubes off Sink 5 are the access to both confirmed burials and a probable burial chamber. This burial chamber is located directly underneath the main lava tube between Sink 1 and Sink 2, where there are two petroglyphs on the tube wall (Feature D). Discussion and details about each tube follows.

Sediments and soils found on the floor of the main tube are extensive and cover nearly the entire tube floor to the sidewalls with over 20 cm of deposit. Although there is not much surface midden, goat bone is ubiquitous for nearly the entire length of the main tube. The types of soil in the tube are highly variable from sink to sink and overhang to overhang. Color varies between areas from dark grayish brown to very pale brown, including more yellowish hues of the latter. Some areas of the main tube overhang have exposed, highly developed ventricular structured soil that is mottled. These soils were observed to contain at least some embedded historic goat bone, but have the potential for older midden as well. The soil in front of Tube 2 and Tube 5 express this mottling the strongest.

Sink 1 has three side tubes running off it that include Tube 1 to the south, Tube 2 to the southwest, and Tube 3 to the west (see Figure 254). Feature A runs along the surface edge of the sink (see feature descriptions below). Two pieces of *Cypraea* sp. are just outside of Tube 1 and Tube 2. Several large pieces of wood are in Sink 1 outside the entrance to Tube 2; one of these long pieces of wood has three metal square nails in it. These pieces of wood may have been part of a historic fence or gate. Tubes 1, 2, 4, and 5 have large pieces of wood placed in them (1-3 pieces in each that measure approximately 5 cm diameter).

Tube 1 runs at approximately 180 degrees for approximately 25 m (the main chamber) and is about 2 m in height throughout most of the main chamber (see Figure 254 & Figure 255). The entrance to Tube 1 is modified; it is blocked by a wall constructed of large rocks, with some slabs placed vertically, stacked approximately four courses high (see Feature B). It appears that a portion of this wall has been removed to allow access to the cave. *Kukui* and scattered adult and baby goat bones are present throughout the main chamber. Several large pieces of wood are also just inside the blocked entrance. Behind the blocked entrance, there are two pieces of coral (not branch coral) set on top of the rubble. The rubble creates a ramp down from the blocked entrance. A shelf just inside the entrance has a placed stone on top; the shelf and a small cave just below it are too small to explore since the entrance is less than 25 cm high, although the small cave does have a few pieces of *kukui*.

In the main chamber there are several water collection features. At the end of the main chamber, the ceiling height drops and there is a small (approximately 2 m by 2 m) cave to the east (no modification, only *kukui* present) and another chamber at the south end that ends the main chamber. This final south chamber requires crawling for approximately 2 m and then opens to a small (approximately 2 m by 2 m) chamber that is nearly filled with medium sized rocks that slopes down from what presumably was once an opening to the surface. This former opening is now completely closed off, with no sunlight coming in, and appears to have been intentionally filled since there is no indication of roof collapse causing the blocking, and there are more rocks than could be explained by collapse. In this area of piled rocks that spill into the entrance from the main chamber, there is suddenly a large amount of *kukui*, marine shell (*Nerita* sp., bivalves, *Isognomon* sp.), sea urchin shell (fairly whole), and small pieces of charcoal; presumably these were deposited at the time this portion of the cave was open to the surface or were the result of surface habitation. While this area could possibly contain a burial, there is no formal construction and no way to do a test excavation given the very small size of the chamber.

Tube 2 has the largest opening off Sink 1, and most likely represents the main lava channel of Site -26520 (see Figure 254 & Figure 256). Tube 2 is blocked by a wall of large and medium

rocks, stacked three to four courses high with several large vertical facing stones (see Feature B). This wall has been partially pulled down on the east side, presumably for access to the tube. Throughout the main cavern of Tube 2 there are *kukui* and goat bones (immature and adult), and the ceiling height is approximately 2 m. About 8 m from the entrance of Tube 2, there is a mound of medium size rocks about 2 m by 1 m in size (and round), about 50 cm in height. This mound actually dips in the center, which may indicate that it is a very large water catchment. In the first portion of the cave entrance, just behind the wall, there is some rubble paving. To the west of the rubble paving is an entrance that leads to Tube 3. Towards the back of Tube 2 there are several shelf areas that either end or continue too shallowly to follow, except for at the far back northwest end, where there is a shelf tall enough to crawl onto (ceiling approximately 90 cm). This cavern wraps back around and continues back to the northeast, running approximately parallel to the main cavern and connecting to the main cavern via a shelf and eventually connecting back to the end of Tube 3, although this portion is too small to crawl through. This northwest side tube leads to a collapsed area with cowry shell and *kukui* partially under it, and a round piece of coral (possibly an abrader) to the west of it, which is adjacent to the shelf area leading to the main tube. The side tube continues northeast and becomes too shallow to continue to the northwest, but has a small chamber to the west that has a few sea urchin shells that are fairly complete, *kukui*, and some soil (less than 5 cm deep). This area appears to have been intentionally filled in like the end of Tube 1 and appears to have had an opening to the surface at one time. The filled area does not have any formal construction, but is similar to the fill in Tube 1 in that it is clearly constructed; again, a burial check was not possible due to the small size of the access, but the lack of formal construction suggests that burial is not highly likely. Finally, at the end of the main chamber of Tube 2, there is an opening near the floor where collapse has occurred; this very small opening leads down in a chimney-like area to Site -26509.

Tube 3 is a short tube, only about 10 m long, that runs parallel to Tube 2 and connects to it as described above (see Figure 254 & Figure 256). Tube 3's entrance is blocked in the same manner as Tube 1 and 2 (see Feature B), although it either suffered more collapse/movement of stones for the entrance or it was less formally constructed originally. The Tube 3 floor is covered by placed rocks until it joins with Tube 2, and there is one upright stone; otherwise this tube contains only *kukui*. The area in front of Tube 3 (in Sink 1) appears to be modified to make an informal platform for entrance into the cave.

Sink 2 is a large skylight that has two tubes that extend off it; Tube 4 to the east and Tube 5 to the northeast (see Figure 254). Feature D is between Sink 1 and Sink 2.

Tube 4 has a small entrance approximately 1.4 m above ground surface, and the opening is approximately 35-40 cm in diameter (see Figure 254). Just inside the entrance there is a very high density of immature goat bone as well as small and medium (5-25 cm) sized cobbles placed on the bottom of the tube to create a very rocky but generally level surface. There is no roof fall; these cobbles are placed and cover most of the surface. Approximately 1.5 m back, there are several pieces of highly corroded metal that are thin and seem to have been bowl-shaped with a small rim. A few pieces of wood were found toward the back of the cave, which turns to the south and becomes too small to crawl in. At the entrance of Tube 4, just below the actual tube entrance, are two anthropomorphic petroglyphs pecked into the smooth *pāhoehoe* lava tube wall (see Feature D description below).

Tube 5 is a side tube that travels from the northeast side of Sink 2 and ends near the southeast side of Sink 4, with entrances on both ends (see Figure 254). Both entrances are blocked with walls constructed similarly to that of Tubes 1 and 2 (see Feature B), and both are partially deconstructed to allow access into the tube. Only a few pieces of wood and goat bone were found in Tube 5. At least one nearly full adult goat skeleton was in this tube, as well as a fairly complete immature skeleton and various scattered immature goat bones.

Tube 6 is a side tube with a blocked entrance (see Feature B) located on the west side of the main tube between Sink 3 and 4 (see Figure 254). The tube runs roughly northwest for approximately 25 m before opening into a large chamber (14 m by 16 m) and splitting into two branches. One branch heads north for 6 m before turning roughly southwest and running another 48 m before it becomes impassable at natural collapse. The second branch begins at the southwest end of the large chamber and also runs roughly southwest before shallowing out after approximately 42 m. Neither the large chamber nor either of the two branches have any modification. There are a few pieces of marine shell that have washed in from the surface through natural collapse as well as small *kukui* that washed in the same way through a separate area of natural collapse. All modification and in situ cultural materials present in Tube 6 are within the first 25 m. This modification includes the blocked entrance in which *pāhoehoe* boulders are stacked 4 courses high (see Feature B), a 6 m long area of the tube floor that is lightly rubble paved, approximately three water catchment features, and a placed boulder that partially restricts access to the large chamber from the modified portion of the tube. A small amount of scattered *kukui* is throughout this portion of the tube as well as scattered goat bones, both immature and adult. There is also a small piece of wood inside the tube within a few meters of the entrance. This wood is similar to the wood found in Tubes 1, 2, 4 and 5 although smaller.

Sink 4 does not have any lava tubes (geologically speaking) coming off of it that have entrances (see Figure 254). However, there are two lava tube-like areas. The first is Feature C, a constructed cubboard (northwest side of sink), and the second is Tube 7 (southeast side of sink); they are both linear caves and essentially similar to lava tubes. Feature C is partially created by natural collapse against the outward sloping back wall and overhang of the sink, and partially by intentionally placed and stacked large rocks to create an enclosed area about 3 m by 1 m. Only immature goat bone was found in this tube.

Tube 7 was created by collapse of Sink 4; it is a cave that runs along the southeast wall of Sink 4, underneath the sink collapse and under the wall constructed on the east side of this sink (see Figure 254). Tube 7 may have been partially excavated for use, as most of the rest of this area is full of partially modified sink debris. The tube is approximately 40-70 cm in height and generally less than a meter wide; it travels to the east for about 3.5 m before ending. No midden or artifacts were found in this tube, except some small pieces of weathered bone (probably goat) and *kukui* that may have fallen from a small skylight. At the far end of the tube there is an opening approximately 20 cm by 50 cm in the floor that opens to another tube but the access is too small (less than 25 cm).

Sink 5 was discovered to be a related site and added to -26520 (see Figure 257). Sink 5 is located less than 10 m northeast of Sink 4 and has two burials as well as a burial chamber (Feature E) that leads to the area behind the petroglyphs (Feature D) in Sink 2. Sink 5 is shallower and more heavily vegetated than the other sinks of this site. This sink is characterized

by an edge of heavily eroding bedrock that has a depression of approximately 1 m deep. The bottom of the sink is somewhat level in some areas and appears to be partially modified, with clearing of areas of medium to large rocks, leaving areas of fairly level soil with small cobble fill. The tabular eroding bedrock that characterizes the edges of Sink 5 (plus heavy vegetation in the sink) makes determining informal modification in the sink nearly impossible without a massive clearing effort. Regardless, the entrance to all three tubes in Sink 5 are slightly modified and there is clear modification just inside of Tube 8's entrance (Feature F).

Tube 8 is a large lava tube that is located on the southwest side of Sink 5 (see Figure 257). It was approximately 25 m to the southeast and is approximately 8 m wide. It has two entrances: Entrance 1 is located on the southeast side of Sink 5; and Entrance 2 is located approximately 7 m to the southwest of Entrance 1. Entrance 1 is approximately 3.5 m wide and approximately 150 cm high, with an informally constructed wall just to the east of Entrance 1; the wall is an extension of natural bedrock (eroding) and is one to three courses (40 cm) high at most. The floor of the cave entrance is sloping downward and is very slightly terraced, although this may have occurred naturally and is most certainly not formally terraced. Just inside Entrance 1 there is a southeast side tube, a northwest side tube, and a small platform on the western bottom portion of the sloping entrance. The southeast side tube leads to Tube 9, and there is no modification or midden other than a *kukui* nut fragment. The northwest side tube is approximately 8 m long and contains no midden other than *kukui* nut fragment. This side tube does have some placed rocks that were probably used for water collection, and this side tube (and this tube in general) has many areas that seem ideal for water collection in that there are considerable ceiling drips. The platform at the entrance (of Entrance 1) is small and associated with a piece of branch coral. This platform is designated Feature F (see feature descriptions below).

Moving southwest from Entrance 1, there is a large area of roof fall sloping down to the sides of the cave. This roof fall makes a natural mound approximately 1.5 m high with the areas at the edge of the cave relatively clear of debris. There is no formal modification of this portion of the cave, although it is possible some rocks were removed from the edges of the cave and or piled with the natural roof fall towards Entrance 1 to create the sloping/slightly terraced entrance that leads down to Feature E. To the southwest of this large roof fall area, this cavern ends and another begins, with Entrance 2 being the easier access to second cavern. This cavern is very similar to the first in that it is characterized by a large amount of roof fall with many very large roof pieces piled in the center of the cavern, which slopes steeply down to a relatively clear area near the edge of the tube. Although this main tube has several small side tubes and a large shelf with side tubes, none of these smaller tubes leads more than a few meters before becoming too small or ending, except the side tube on the south/southwest end that turns approximately southwest. This side tube continues for about 5 m before encountering Feature E, a probable burial chamber. At the entrance of this south/southwest tube there is one piece of marine shell and several pieces of *kukui*; the tube contains several pieces of *kukui*, and just before the wall that begins Feature E, there are several pieces of sea urchin shell. A probable water collection feature is at the entrance to the south/southwest side tube. Other than *kukui*, and items associated with particular features, there is no other midden in Tube 8, except for a few pieces of goat bone that are most likely naturally occurring. The water collection, and Features E and F, are the only

modifications in Tube 8, except for probable minor movement of natural rock fall to create easier access to the entrance or for ease of movement in the cave.

Tube 9 is a lava tube with its entrance on the southeast side of Sink 5 (see Figure 257 and Figure 258). The entrance is slightly constricted by a constructed wall approximately two courses high with a constructed height of 40 cm. The tube opens into a large chamber (approximately 5 m east-west by 8 m north-south). The floor of this chamber is primarily formed by collapse coming through the entrance and areas of roof fall. In the back right portion (south) of the tube, a small passage curves behind an area of roof collapse, opening to a small chamber that articulates with the southeast wall of Tube 8, near the entrance. The opening to Tube 8 is impassable and nothing was found in this rear chamber. *Kukui* was abundant in most areas of Tube 9. Along the rear wall, (southeast) there is a shelf. Tube 9 extends below the shelf towards the left (north) and above the shelf on the right (south). The maximum ceiling height in Tube 9 is about 230 cm. There is some immature goat bone in the collapse (small-medium cobbles) coming from the entrance.

Just northeast of the entrance, at the base of the collapse from the entrance, human bone was encountered. This has been labeled Burial 6 and is documented below. Tube 9 then continues beyond Burial 6. The floor for the entire length of the remainder of the tube, approximately 50 m, is rough 'a'ā. Approximately 12 m roughly north of Burial 6 is Burial 63. See burial documentation below for additional information. At the location of Burial 63 above a natural shelf is a small impassable opening into Tube 10. On the natural shelf there are several placed cobbles and small boulders. On a second natural shelf on the other side of Tube 9 are approximately four placed cobbles that may be a water catchment. Beginning in this portion of the tube and continuing for the rest of its length, the majority of the 'a'ā floor of the tube is at least partially covered by natural fall. The only midden in Tube 9 beyond Burial 6 is some scattered *kukui*. The majority of this *kukui* is located towards the front of this branch of the tube, between Burial 6 and Burial 63.

At the very back of the tube, in a small chamber that is difficult to access due in large part to the low ceiling and the rough 'a'ā floor, is a small cleared area approximately 1 m in diameter with three pieces of *kapa*. The pieces are small and primarily grey in color with some of the fibers appearing brown. The three pieces are scattered over a span of approximately 85 cm. Two of the pieces are just southwest of the cleared area while the third piece is located on the southwest edge of the small cleared area. The cleared area is primarily discernable due to the absence of natural fall that covers the floor of the entire chamber aside from this small area. No other modifications, midden, or cultural materials are present in this entire back half of Tube 9. The *kapa* could not have washed in. There are two possible explanations for the presence of the *kapa* in this difficult to access chamber. The first explanation is that there was an infant burial in this cleared area and because it was infant remains all the bones have completely disintegrated. The second possible explanation is that there was a non-infant burial in this back chamber that was removed. In either case, the *kapa* would likely have served as a grave good, possibly used to wrap the bones.

Tube 10, which is actually a small rock shelter, consists of an overhang that extends back 3 m maximum and is approximately 3 m wide (see Figure 257). On average it extends back less than a meter, but its central portion, which is just under a meter wide, extends back farther. This back

portion (to the north) consists of a naturally flat area that would be ideal for resting on. In front of this naturally flat area, the ground surface has been leveled with medium rocks on the east end and small cobbles on the west creating a level surface under the overhang. Part of this leveling apparently involved filling a crack in the floor that leads to an opening under Tube 10's floor. This impassable opening appears to be rather shallow but does lead to Tube 9. In front of Tube 10, just outside the overhang, is an informally built wall that consists of medium-large boulders stacked one to two courses high that extend the natural bedrock outcrop to create a short wall in front of the entrance to Tube 10. The wall is approximately 30 cm high. No midden or artifacts were found. Tube 10 is located on the north side of the sinks.

There are a total of six formal features at the site. Features A through D are located in the main tube between Sinks 1 and 4, and Features E and F are accessed via Tube 8 off Sink 5. Feature E is located, however, directly under the main tube near Sink 2 and directly under Feature D. Features A through C likely function as part of the animal husbandry activity at the site, serving to block off lava tubes and create a pen for livestock (probably goats given the very large number of goat skeletons in the main tube). Features D through F function as part of the burial and ceremonial portion of this site, and consist of modification of a large burial chamber, rock art, and a likely related platform.

Feature A is a 12 m long wall constructed around the top of Sink 1 (see Figure 254 & Figure 260). It is constructed of small to medium boulders and slabs ranging from 20 cm square to 20 cm thick by 80 cm long by 40 cm wide. The wall ranges in height from one to four courses high on the west side of the sink (a height of 25-40 cm) to four to seven courses on the east side (a height of 40-60 cm). The difference in heights around the sink edge is not due to collapse, but rather design. The natural lip of the sink is unusually uneven. The wall is constructed to create a very level lip around the top of the sink, except to the south. Here, no wall was constructed across the natural lip but a gap measuring 2.25 m is flanked by two roughly parallel and short (100 cm and 40 cm) high walls extending to the southeast for a distance of approximately 2.25 m. This creates an entryway to the tube, approached from the south by a short trail with curbstones that join site 26353. The entryway is flanked by the parallel walls and leads to an area of natural sloping collapse across the southeast quarter of the circular sink, easing access into the site.

Feature B consists of six walls that serve to block Tubes 1, 2, 3, 5, and 6 from the main tube that runs between Sinks 1-4 (see Figure 254, Figure 261 to Figure 263). The specific height of walls and construction styles are described individually in the above tube descriptions. All of the walls are similar in construction and are placed across the width of the tube at its entrance. None of the walls completely block the tubes currently (Tube 6 has the most difficult to bypass wall as it is rather tall) and none of the walls attempt to disguise the tube entrances. A few pieces of cut wood and nails were found near the Tube 2 wall, and this evidence in addition to the extremely high number of goat skeletons in the tube suggest that this sink was used historically for animal husbandry. The two walls blocking Tube 5 from the rest of the main tube could have been used as a smaller pen, and the rest of the sink used for a larger animal pen; the combination of Feature A and Feature B walls would prevent animals from wandering down dangerous side tubes, and keep them in the deep main tube with plenty of light as well as cover from the sink openings. Further evidence of historic use is present in Tube 4, which contains metal fragments.



Figure 260. Site -26520, Feature A, showing the wall from inside of Sink 1, view to east



Figure 261. Site -26520, Tube 2, example of one Feature B wall



Figure 262. Site -26520, Tube 5, example of one Feature B wall, showing the blocked southern entrance view to north.



Figure 263. Site -26520, Tube 6, example of one especially tall Feature B wall

Feature C is a constructed cupboard that was created in part by natural fall from Sink 4 that collapsed, partially closing off an area under an outward sloping back wall and overhang (see Figure 254). Feature C is a small, partially constructed cupboard that functions in a similar capacity to Features A and B. Pāhoehoe boulders and slabs were then placed to close off the rest of this overhang area. Some of these placed small boulders have been removed (prior to the current survey) to allow access to the cupboard. The floor of the cupboard is the same as the floor in the area immediately outside the cupboard, soil deposit with cobbles scattered throughout. This floor appears completely natural with no evidence of modification. No midden is present in the cupboard, but it does contain a scatter of roughly 40 pieces of immature goat bones. The designation of this area as a feature is based, therefore, upon the construction of the blocked-off entry to the cupboard which is partly constructed of upright slabs.

Feature D is comprised of a small lava tube (Tube 4) and its contents, and two anthropomorphic petroglyphs at the opening to this tube (see Figure 254 & Figure 264). The tube is naturally formed through the *pāhoehoe* flow. The tube opening is roughly 1 m vertical by 1.5 horizontal (north/south), but after 50 cm, the tube narrows to 40 cm vertical by 70 cm horizontal. The tube continues back 100 degrees (roughly east) for approximately 440 cm before turning south and becoming impassable. The tube is at a height of about 150 cm above the present sedimented surface of the main area of Site -26520.

The petroglyphs are just below the opening to the tube, at a height of 50 cm above the surface. The petroglyphs are spaced 80 cm apart, one below the north side of the opening, and one below the south side. The petroglyphs are located on an area of the wall with a very smooth surface and were made by pecking or chipping away this surface to expose an area of underlying vesicles in anthropomorphic forms. The south petroglyph is much more formal, though both are clearly anthropomorphic. The south petroglyph appears to have a phallus, indicating depiction of maleness. Gender specificity is not clear for the north petroglyph. The petroglyphs seem placed to mark the opening to Tube 4.

Within Tube 4, once it narrows, the floor of the tube is covered by a high density of immature goat bones. These bones are covered by small to medium cobbles, suggesting that the cobbles were actually placed on top of the bones, rather than the bones falling through the cobbles to the tube floor after soft tissues decomposed.

About 1.5 m back (east) from the opening, there are fragments of corroded metal (about 15-20 fragments). The metal is quite fragile and too fragmentary to make an assessment of original form at this point, coupled with difficult access conditions.

At the floor of the main area of Site -26520, 70 cm south of the south petroglyph, there is a small (60 cm north/south by 20 cm east/west) impassable opening to a chamber accessible through Sink 5 (Tube 8 on south side of Sink 5). Directly below Feature B, (below the petroglyphs), in the Tube 8 chamber, is Feature D – a large upright slab and burial chamber. It is unlikely that the proximity of these features to each other is coincidental, despite the fact that when standing at either one the other is not directly accessible, observable, or apparent.

The function of Feature D is burial chamber given the proximity of Feature B to Feature D. An interpretation of function as being related to burial practices may also be adopted for Feature

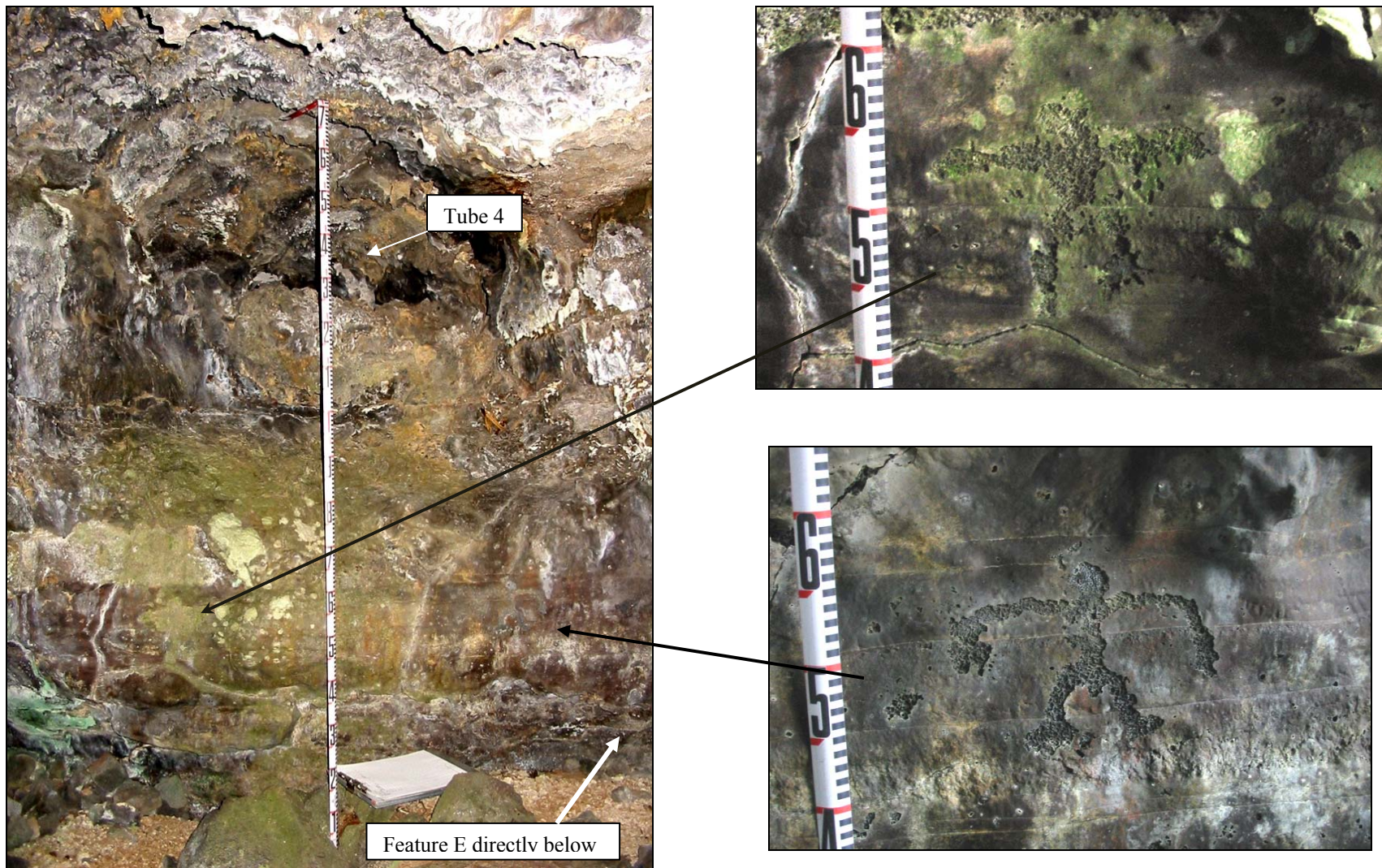


Figure 264. Site -26520, Feature D (petroglyphs) and Tube 4, showing relationship of petroglyphs to Tube 4 and highlighting the portion of the main tube that the large slab in Feature E (burial chamber) is directly under, view to east.

B, although no human remains were encountered. The petroglyphs may secretly mark the location of the underlying burial chamber.

Feature E measures approximately 5 m by 3 m and is located at the far south end of Tube 8, down the southern side tunnel (see Figure 257). At the beginning of the south side tunnel, there is a water collection feature, at least 20 *kukui*, and one piece of marine shell. The south tunnel is under a ledge that is dripping with water and is difficult to see. The tube is about a meter wide but requires belly-crawling almost all the way through (approximately 5m). More than 20 *kukui* and some very highly fragmented sea urchin shell are in the tunnel. The tunnel ends in a small wall (about two courses, 30 cm, high) that is somewhat disturbed (partially pushed over to allow access to the cavern), and there is a cavern approximately 5 m long (running southwest) by 3m wide.

This cavern is actually located just below and to the east of the main lava tube of this side (the cavern is adjacent to the south east side of Sink 2). The cavern is filled with small-medium size rubble that in general slopes down from the west to the east. Some of this rubble looks placed (medium slabs), and the majority of the rubble seems to be intentionally placed in this cavern. The roof fill cannot account for all of the rubble. Two areas in the cavern seem to be somewhat mounded and primarily consist of smaller cobbles. The cavern appears to have originally been larger and/or had side tubes since there are areas on the south, southwest, and north corners of the cavern that may have originally continued but are now completely blocked by rubble. There is *kukui* and also a few sea urchin shells (fairly complete) in the cavern. Along the western wall of the tube, the rubble is piled (intentionally) high along the wall to conceal the crack on the east floor of Sink 2. Several larger rocks are used to make a wall against the crack, and there is only one very small skylight that is still open between the floor of Sink 2 and the cavern (Feature D). The most impressive part of Feature D, however, is a very large upright slab that is set up directly underneath the petroglyphs in Sink 2 (tube 4, Feature B). The slab is approximately 1.5 m wide and a meter tall and was probably one of the large roof slabs that fell down to create Sink 2. This slab is vertical and covered by rubble at its base and sides; the slab is in line with the wall, set against the crack to the surface mentioned above.

The function of Feature E is burial chamber. The extremely large upright slab in the cavern that is set directly below the petroglyphs (but not visible from Sink 2 where the petroglyphs area) suggests that this is meant to be a special and secret cavern. Although no human bones were found, the small mounded areas within the chamber could easily contain burials. No rocks were moved and only a minimal amount of searching within the cavern was conducted, since the cavern could be a burial chamber and minimal presence was felt to be most respectful. Given the associated burial in Tube 9, and the general function of this site, this feature is almost certainly related to a burial, despite the fact that no burial goods or human bone was found. It is possible that this chamber has been looted, as the wall separating the side tube from the chamber does seem to have been breached. Since this burial chamber is so well hidden with petroglyphs marking its location (albeit secretly), this site is undoubtedly unique and should be a high priority for preservation.

Feature F is a small platform constructed at the base of the naturally sloping downward Entrance 1 of Tube 8 (see Figure 257). This platform is constructed with medium size (20-30 cm) rocks along its three edges (southeast, southeast, and northwest), about 2-4 courses high

(about 60 cm at maximum), and it is 1.8 by 1 m in size (Figure 265). The back edge of the platform abuts the downward sloping rubble of Entrance 1; the platform is located about 1 m into the cave of Tube 8, on the western side. The level portion of the platform is constructed with medium rocks and then a smaller cobble fill (5-15 cm diameter) to create the level surface. While most of the platform seems intact, the southeast portion is partially collapsed. A piece of branch coral is located on the slope above the platform.

The function of Feature F is a possible burial platform. It is too small for a house platform and the location is not convenient for habitation, although the use of this small platform as part of a shelter cannot be completely ruled out. The most likely function, especially given its relationship to the rest of Site -26520, is as a burial, especially given the presence of the branch coral. Although ceremonial is another possible function, the minimum amount of formal facing on the structure plus its small size make it less likely to be a structure associated with ceremonial activities, since those structures usually involve more intensive energy investment.

Feature G is located on the surface approximately 12 m southeast of Sink 1, near the Feature A wall (see Figure 254). The feature consists of a single partially collapsed, informal platform. The platform measures approximately 4 m by 4 m with a maximum constructed height of only 50 cm. The top surface of the platform is constructed with small *pāhoehoe* cobbles and on the north side is relatively flush with the sloping bedrock. The platform exhibits some collapse on its south face but remains largely intact. The base of the platform is constructed with medium *pāhoehoe* boulders with a number of upright slabs incorporated as facing. The southeast corner is well-defined with upright facing, in particular, a double row of uprights along the east face of this southeast corner. The function of Feature G is temporary habitation.

The site is a complex with burial, ceremonial, and animal husbandry as the primary functions. The site's secondary functions include water collection and temporary habitation.

The burial function is evidenced by the presence of Burial 6 and Burial 63 located in Tube 9 as well as the possible burials in Feature D and Feature E. The site's ceremonial function is supported by the presence of petroglyphs and the associated small lava tube, Tube 4, with a concentrated cache of immature goat bones and a piece of metal. The *kapa* in the back of Tube 9 may have served a ceremonial function or a burial function as it is located in Tube 9. The entire Site -26520 is unique in the project area in its modifications and geology, lending to a more likely ceremonial function.

The function of animal husbandry is supported by the abundance of goat bones, both immature and mature, throughout most of the site, both in the sinks and tubes. The construction of the Feature A wall around part of Sink 1, and the numerous Feature B walls constructed to block tube entrances may have served to control animal access. This animal husbandry is evidence of historic reuse of this pre-contact site. This is evidenced by the presence of the piece of wood with square metal nails in Sink 1 that may have been part of a fence or gate used to further control animal access.

The water collection is a secondary function as evidenced by the presence of water catchments in Tubes 1, 6, and 8. While the temporary habitation secondary function is supported by small amounts of midden throughout the site and the presence of the Feature G temporary habitation platform.



Figure 265. Site -26520, Feature F platform from inside Tube 8, showing constructed corner and roughly level surface

Burials 6 and 63

Two confirmed burials were found during the inventory survey and both are located in Tube 9 (see Figure 258). The probable burial chamber at Feature E should also be considered during preservation planning.

Burial 6

Burial 6 consists of a scatter of bones at the base of a large area of collapse extending down from the Tube 9 entrance. The scatter is approximately 2 m by 2 m. While the majority of the bones are fragmentary, the pieces are large enough to determine which bones are present, and the majority of the bones are in fair condition. Amongst these mostly whole fragments are a few larger pieces that appear to be crushed, and these pieces are not identifiable. The bones are scattered amongst the collapse and the extremely uneven, rocky tube floor, making a full assessment impossible without risking disturbance. While a pelvis fragment, approximately seven ribs, approximately 10 foot bones, and six vertebrae were observed (Figure 266). Determining which specific bones were present was not possible. Siding was possible and was determined without disturbing the bones for the temporal and scapula. Both maxillas, fused together were present with a single molar still embedded. It was based upon this maxilla and molar that the positive identification of human was made. The scattered positioning of the bones amongst the rocks and the lack of any articulated anatomical position indicates the burial has been disturbed. As an example, there is a single lumbar vertebra located at least 1 m away from the rest of the bone scatter.

Burial 63

Burial 63 was located after a successful attempt to pass Burial 6 without disturbance, which is scattered across the entrance to the tube. The burial is located some distance back in the tube from Burial 6, approximately 12 m, and appears to be concentrated in a small chamber blocked by the pavement in Tube 10, creating an overhang. The burial is only visible from Tube 9, mostly on a shelf that separates Tube 9 and Tube 10. Here, on the shelf, is cobble fall, among which is a thoracic vertebra, a first rib fragment, and two fragments from the second or third rib (Figure 267). Most noticeable is a fibula located below the shelf in the center of the open Tube 9 floor. Ethnicity is most likely traditional native Hawaiian based on the location in a tube and apparently beneath a pavement used as traditional Hawaiian habitation. The location of the fibula is odd as it is some distance down and away from the other bones and no similar bones are visible on the shelf. The burial may have been disturbed, however, Burial 6 does not seem likely as the missing remains. This interpretation is based on the small foot bones that would have to be carefully moved, and the number of larger bones located at the Burial 63 location (especially the fibula that is in plain view). If relocation of part of a burial account for the two incomplete, scattered burials, this may be explained by a burial located at Burial 63 in a receptacle, such as a *lauhala* basket, being brought to the light near the entrance, and losing some bones in the process. This could also explain why both burials seem to be missing long bones, since such a removal would most likely be related to secondary burial and/or looting. However, it seems unlikely that this occurred; a strong argument for these two burials being two separate individuals is the difficulty to traverse the low, rough 'a'ā floor chamber while carrying bones and the absence of any bones or bone fragments in the area.

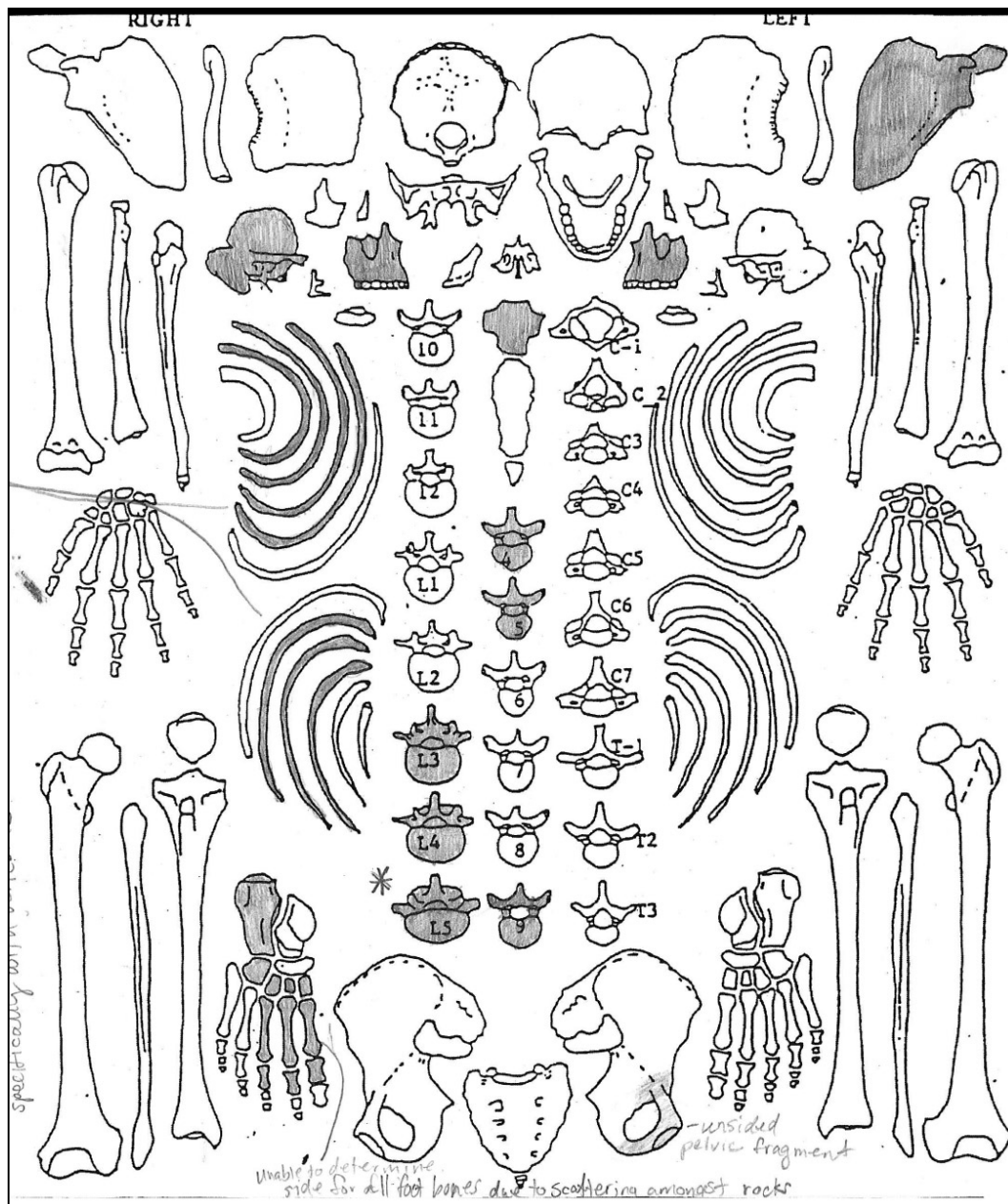


Figure 266. Site -26520, Burial 6, skeletal inventory form

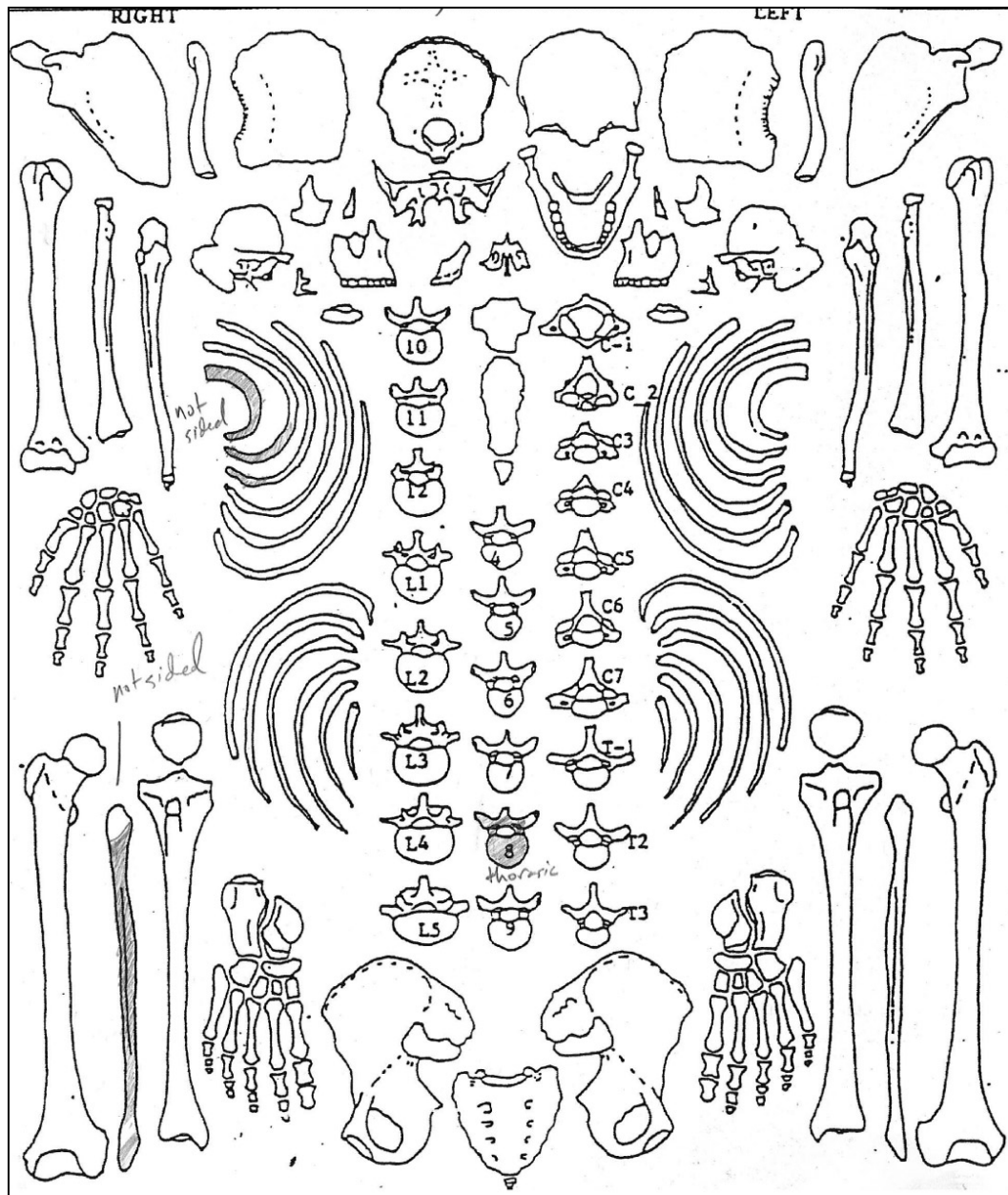


Figure 267. Site -26520, Burial 63, skeletal inventory form

2.1.40 State Site # 50-10-28-26521

SIHP #	50-10-28-26521
FUNCTION:	Shelter
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	80 m by 75 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	720 ft a.m.s.l.

DESCRIPTION: Site -26521 is a series of four sinks and a complex of interconnecting lava tubes (Figure 268). The site is southeast of Site -26510 and northeast of Site -26519, with tubes connecting to both of these sites, as well as a tube that connects to Site -26513. Vegetation in the area consists of patches of dense grasses, dense Christmas berry trees, or dense *koa haole*. Vegetation in the sinks consists primarily of dense Christmas berry with some small ferns (*laua'e*) and mosses at the cave entrances. The geology of the area is characterized by eroding *pāhoehoe* outcrops and large lava tubes that have partially collapsed, forming many sinks in close proximity to each other. All of the sinks within Site -26521 are connected by lava tubes that are often large enough to be walkable. Sinks (particularly in the vicinity of Sink 3) are often within just a few meters of each other, separated by land bridges/natural arches. The site is generally characterized by a lack of or low level of modification and cultural materials despite its large tubes and proximity to extensively modified sites, such as -26510 and -26519. The large tube on the south side of Sink 4 is the location of the highest density of modification and cultural materials.

Sink 1 at the northeast corner of the site is a shallow sink that runs roughly southwest/northeast with a bedrock ledge (Figure 268). Views from the ledge are not noteworthy in any direction. The closest sink to Sink 1 is -26521 Sink 2, and Site -26510 is 40 m to the northwest. There are two entrances to lava tubes running from under the Sink 1 ledge, a southwest entrance and a northeast entrance. The bedrock ledge is about 80 cm tall in the southwest and central portions, and is about 170 cm tall at the entrance to Sink 1. The ledge runs for approximately 12 m. No apparent surface modification is present in or around the sink. The northwest entrance is approximately 2.5 m wide by 70 cm tall. The entrance quickly narrows to 25 cm tall due to natural fall, then opens into a small chamber with a clear *pāhoehoe* bedrock floor. A single water collection feature (composed of approximately 10 *pāhoehoe* cobbles in an oval formation) is on the *pāhoehoe* bedrock floor in the west portion of the chamber.

The Sink 1 southwest entrance is larger (400 cm wide by 90 cm tall), and opens into a larger chamber. From the north side of this chamber, a series of three small tubes lead to two shallow, impassable areas connecting directly to the south side of the small chamber at the Sink 1 northeast entrance. On the west side of the larger chamber, a tube leads back to the southwest. This tube travels approximately 42 m before meeting the 3-way site boundary with Site -26510 (Tube 4) and Site -26513. This tube contained a single placed *pāhoehoe* slab and a few *kukui*. From the southwest side of the larger chamber at Sink 1, southwest entrance, there is a tube running southwest, which connects directly to the north side of Site -26521, Sink 4. This tube has

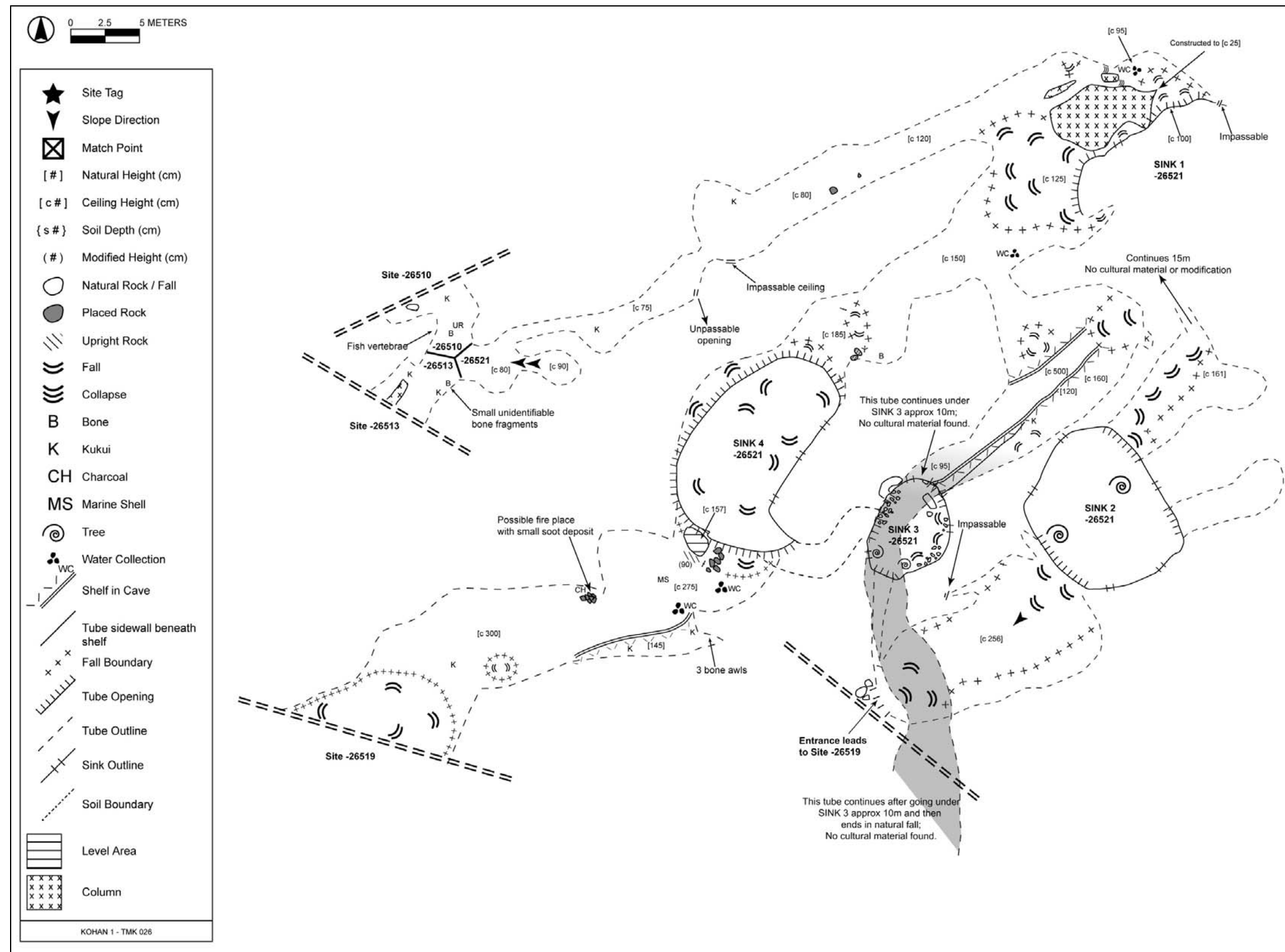


Figure 268. Site -26521, overview plan view showing lava tubes, sinks, and connections to other sites

a small water collection feature on its east end, two small uprights on the southwest end, and a large side tube running from the southeast wall. This side tube leads to an entrance on the northeast side of Sink 3. The tube then continues under Sink 3 and beyond for approximately 35 m in a generally southerly direction, with no modification or cultural materials. Near the end of this tube, there is a sediment deposit (less than 20 cm deep) that is about 1 m in diameter, and is clearly washed in from the ceiling. This deposit contains a few very small flecks of unidentifiable bone that washed in with the deposit.

The function of Sink 1 is water collection. The only modification in the tubes are a few water collection features. This suggests an extremely low scale of activity for the size of the tube.

Sink 2 at the east edge of the site is roughly round. It measures 10 m by 10 m and has three tubes extending from it (see Figure 268). No modification, artifacts or midden were found in the tubes extending from this sink. The southern tube of this sink connects to Sink 1 and Sink 3.

Sink 3 at the southeast edge of the site is roughly round and about 7.5 m in diameter (see Figure 268). Access to the sink is through either Sink 4, located 5 m to the west, or under a natural arch from Sink 1 of Site -26519 to the south. The sink is fairly deep, measuring up to 3 m in depth. There are five tube entrances in Sink 3. The northern tube connects with Sink 1 and Sink 4, and is described in the Sink 1 description above. There is no modification, artifacts or midden in any of the other four tubes. The northwest tube is very small and skirts around the edge of Sink 3 to the north. The third tube entrance is on the west side of Sink 3. This tube runs for 5 m, where it connects to Sink 4. The fourth tube runs out of Sink 3 to the south/southwest for 1.5 m. This tube is more like a natural bridge between Sink 3 and Sink 1 of -26519. The fifth tube of Sink 3 runs from under the southern end of the fourth tube. Sink 3 lacks any modification in the tubes and the sink, and no artifacts or midden were found in the sink and associated tubes.

Sink 4 is a sink with three lava tubes (see Figure 268 & Figure 269). The sink is approximately 15 m north/south by 7.5 m east/west and about 2.4 m deep at maximum depth (on the south end). The tube on the north side of Sink 4 leads directly to Sink 1 (southwest entrance), by a side tube leading to Sink 3 (north side). This tube is described above with Sink 1. On the southeast side of the sink, there is a short tube that leads directly to Sink 3. This tube is about 5 m long, connects to the west side of Sink 3 (the tube is described briefly with Sink 3 above). On the south side of Sink 4 is a large (2 m tall by 8.5 m wide) entrance to a lava tube. The west side of this entrance has been modified by the placement of two large (approximately 1 m) slabs (one upright, one horizontal) to create a level surface at the entrance, faced on the inside of the cave. Some smaller slabs and medium cobbles fill the north side of these large stones, creating a rough level terrace feature (2.5 m north/south by 1.5 m east/west). A few slabs appear to have been placed in the natural fall in the center of the entrance to ease accessibility into and out of the cave. These slabs are much less formal and non-linear than a "trail" or "path". A large upright slab is on the east side of the entrance (between this entrance and the entrance to the tube leading to Sink 3). This slab is retaining fall on the east side of the entrance, although it is possibly a natural rather than a cultural feature. The natural fall extending into the entrance ends shortly (approximately 3 m inside the cave), leaving an exposed *pāhoehoe* bedrock floor. At the base of the fall, there are two water collection features. Also, in the center of the floor, is a very large fragment of marine shell (11 cm) from an unidentified, originally very large shell (less than 20



Figure 269. Site -26521, showing the entrance to the tube on the south side of Sink 4; the clipboard sits atop a large, placed slab within the entrance, view to south-southwest

cm). A small niche on the east wall of the cave (approximately 9 m) contains a cache of three bird bone awls. Further back in the cave, there are two *pāhoehoe* bedrock humps (up to 130 cm tall) rising out of the bedrock floor. Near the first, along the west wall of the tube, is a small fireplace feature. The feature is similar to a water collection feature, with about 6 *pāhoehoe* cobbles (approximately 20-30 cm) placed near each other, but there is a light ashy deposit and a concentration of charcoal below the rocks. It appears to be a single-use fireplace or possibly a small shrine where small quantities of materials were burnt, rather than a hearth used repeatedly. Some *kukui* is along the east wall of the cave on a bedrock shelf, and a small amount of *kukui* is further back in the cave. No other cultural material or modifications were found, although the cave continues back for approximately 39 m (from the entrance) before a site boundary was designated between -26521 and -26519. The tube splits into three side tubes (all of which connect to sinks at -26519). The site boundary was designated at the beginning (north end) of each tube. For the western most tube, the site boundary is at a point in the cave where one passes between being able to see the entrance at either end.

The function of the site is shelter with a secondary function of water collection. This interpretation is based on the modified entrance, and the presence of the marine shell fragment, bone awl cache, fireplace, and a few water collection features. The amount of modification and lack of midden materials (except a few *kukui* and a few shell fragments) suggest that the lava tube complex was not utilized on a scale that could be considered as permanent habitation. Very little modification was evident in the lava tubes and most of it is concentrated in the tube off the south side of Sink 4, near the entrance. This tube contains the greatest amount of modification and cultural materials found throughout Site -26521. Excavation potential for this site is minimal, as there are no deep soil deposits and little midden.

2.1.41 State Site # 50-10-28-26522

SIHP #	50-10-28-26522
FUNCTION:	Burial and Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	7
DIMENSIONS:	110 m by 5 m
CONDITION:	Good
AGE:	Pre-contact/Historic
ELEVATION:	660 ft a.m.s.l.

DESCRIPTION: Site -26522 is a moderately sized lava tube in an area with fairly low lava tube density, and is situated on relatively flat terrain. The lava tube has seven distinct features within it (Features A through G) and contains a minimum of five burials (Figure 270). The site's four entrances were intentionally blocked and disguised, likely as part of the burial function for this site. Currently, only the entrance Feature A₁ is open enough to allow passage.

The tube contains relatively extensive modification (Features A through G) and little midden. Water collection features are present in fairly large numbers but were less common than expected, especially in the northeast portion of the lava tube, given the suitability of the tube for this function. While the water collection features are a typical pre-contact use of lava tubes in this area, the five burials in the lava tube are associated with historic artifacts, including porcelain buttons and a wooden pipe. The majority of modification in the tube consists of blocking entrances, restricting access from the outside, and extensive clearing, paving, and constructed steps to improve access throughout the interior. Some modifications were likely made to aide in the transportation of burials into the tube. However, the modification northeast of the Feature A₁ entrance appears to be more intensive than found at other entrances, yet no burials were found there.

Feature A is a site pervasive feature designation, which includes blocked and concealed entrances/openings to the lava tubes of Site -26522 (Figure 270 & Figure 271). All modification of these subfeatures were discovered from inside the cave despite the prior surface survey. These concealed entrances were relocated on the surface, and found to have been well camouflaged. Function of this feature is for concealment of the tube entrances, in relation to the burials interred within the tube.

Sub-Feature A₁ is the only open entrance to the lava tubes of Site -26522. The entrance is currently about 80 cm in diameter, and the original extent of the opening would have extended approximately 2 meters to the northeast. This portion of the original entrance is blocked with three courses of stacked *pāhoehoe* boulders (55-65 cm in diameter). These boulders are stacked from the natural fall below the entrance. With this foundation, large *pāhoehoe* slabs (approximately 65 cm in size) have been leaned upright from the foundation against the bedrock lip of the entrance. Large and medium *pāhoehoe* cobbles were then placed at the surface to conceal the entrance and its modification. The open portion of the entrance has many scattered large *pāhoehoe* cobbles and boulders beneath it, and appears to have been completely closed at one time. This disturbance may indicate that someone accessed the cave after it was sealed. This is the only concealed/blocked entrance in Site -26522 that exhibits any disturbance.

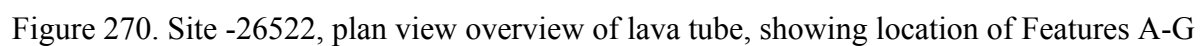




Figure 271. Site -26522 Feature A1, showing the upright slabs near the tube entrance, view to north

Sub-feature A2 is a large blocked entrance only about 1.5 m southwest of sub-feature A1. This blocked entrance is the largest and most impressive within this site. The construction style is similar to sub-feature A1, with large *pāhoehoe* slabs and boulders stacked four to six courses above the natural fall, followed by upright slabs leaning from this foundation against the lip of the entrance. The feature was then filled and the upper surface was paved with small (5-15 cm) *pāhoehoe* cobbles to give the appearance of a naturally eroding outcrop. Beneath Feature A2 and below ground surface is a large column, approximately 2 meters in diameter and 70 cm tall, that extends from the natural fall floor to the ceiling around the blocked entrance.

Feature B is located near the beginning of the lava tube, approximately 8 m north of Burial 36 (see Figure 270). Feature B is a mound of *pāhoehoe* slabs, cobbles, and boulders that forms a step between the tube's natural floor and a natural bedrock shelf that is approximately 1.25 m high. Feature B The feature consists of *pāhoehoe* slabs, cobbles, and boulders (generally approximately 40 cm in size) piled to a height of approximately 95 cm. The base of the feature is approximately 160 cm and the top is approximately 80 cm wide. The construction is solid and is easily climbed. A dense concentration of charcoal on and around Feature B was possibly washed in, or is from torches used to light the tube during its use.

The function of Feature B is transportation since the feature provides a convenient “stairway” from the floor to the bedrock. As the coffin Burial 36 is located only a few meters away on the bedrock itself, it is likely that Feature B was constructed to allow the coffin bearers to transport the coffin and human remains to their present location. Feature B is somewhat similar to a water collection feature 5 m north that is built up along the wall of the tube. Feature B, however, is much sturdier and uses larger rocks. Also, the water collection feature does not provide access to the bedrock shelf; Feature B is a much larger construction and is associated with Burial 36.

Feature C is located near the beginning of the lava tube, on the bedrock shelf near Feature B (the “stairway” mound to the shelf; see Figure 270). The feature is an area of modified fall. Natural ceiling fall has been cleared and placed in an alignment, and there is a minor subfeature of small cobbles placed in a roughly circular formation at the north end of the cleared area. The cleared area measures approximately 200 cm north/south by 75 cm east/west. The ceiling above this area shows signs of fall, and the fall has been aligned roughly north/south on the east side of this area. There is a small circular feature constructed of small (approximately 12 cm) *pāhoehoe* cobbles (above a dozen) on the west side of the cleared area.

The function of Feature C is interpreted as an activity area related to burial, based on similarities to other adjacent confirmed burials. While no human remains or other direct evidence of a burial function was encountered in the area, the shape, size, and nature of the feature seem appropriate for this purpose and these attributes are similar to the burial conditions of Burial 37. Water collection was considered as a form/function of Feature C based on the shape of the small circular subfeature, but due to nearby burials and the similarity to Burial 37 in particular, burial is considered as the most likely function for Feature C.

Feature D consists of several components: a partially blocked-off skylight, a mound, and a constructed route from one area of the lava tube to another (see Figure 270). The skylight is approximately 80 cm in diameter and partially blocked by several slab shaped stones; these stones were clearly placed, as evidenced by their orientation to one another. The stones only partially block the skylight, allowing a fair amount of light into the tube. There is a mound directly below the skylight (the top is about 1.7 m below the skylight). This mound was (at least partially) purposefully constructed as evidenced by the following: the roof and skylight do not have large chunks of rock missing, and the mound is made of a different type of rock than what is found on the ceiling, suggesting the mound is not the result of natural ceiling fall. The mound's most likely function is as a step to access the lava tube from this skylight, but a burial cannot be completely ruled out.

Just beyond the mound, to the north (left side as one moves deeper into the tube) is a modified passageway. The natural floor of the tube drops about one meter just beyond the mound, and here a four course high “step” has been constructed of blocky *pāhoehoe* stones, presumably to make it easier to access the next chamber (which is at a lower elevation). Just to the southeast of the mound (right side as one moves deeper into the tube) is a blocked off passageway to the above-mentioned chamber. The passage is blocked by stones that clearly did not fall from the ceiling (based on the differences of rock type), suggesting they were intentionally placed to block that passage and force the use of the northern passage. This northern passage is modified, with an alignment of large stones along the northwest side (up against the tube wall) apparently placed off to the side to provide easier access to the next chamber. Along the south (right) side is

a large slab of natural ceiling fall. After this large slab are several large stones, like the ones lined up against the left side wall. It appears these large stones were placed after the slab to make an alignment similar to the one up against the left wall. A level paved floor consisting of small stones is between these two alignments, and is about 3.5 meters long and 80 cm wide. This small cobble paving is not natural and appears to have been constructed to make movement through this area easier. The function of Feature D is interpreted as modification of the lava tube for ease of access (transportation) in relation to either burial or water collection.

Feature E is a low area in the center of the tube floor that extends approximately 5 meters (Figure 270). The first 2.5 m consists of a narrow 10-20 cm crack in the floor that has slabs placed over it to facilitate crawling. The second (northernmost) 2.5 m is a much broader depression caused by a drop in the level of lava within the tube. This area has been partially filled in by ceiling fall, but this fall has been modified to evenly (though still roughly) fill the low area. The northwest corner of the depression is an opening to the tube below. The fall has been extensively modified where placed boulders completely block this opening. The function of this feature is interpreted as modification that aids in movement through the tube (transportation).

Feature F is directly under a blocked skylight at the northeast end of the lava tube (see Figure 270). The feature is a roughly circular mound measuring approximately 2.8 m in diameter and about 20 cm high (measured from the lava tube floor). It is composed of chunks of *pāhoehoe* ranging from 5 to 25 cm in diameter. The larger stones are generally at the bottom of the mound, the smaller ones at the top. Quite a bit of sediment deposited on the upper portion of the mound is the result of soil washing in through the closed off opening located above the mound. Some of this mound may have formed naturally by stones and sediment washing into the tube through the opening. The remainder of the mound was constructed either from stones available within the tube or brought in from the outside. Evidence of construction includes: the stones in the mound do not all match the type of rock seen along the sides of the opening; the volume of rock within the mound is greater than generally would have filled the opening before it fell; many large chunks of rock do not appear to have fallen from the sides of the opening. The top of the mound is about 1.7 m below the top of the opening. This opening has been purposefully blocked off – as evidenced by at least three slab-shaped stones (which are incongruous with the surrounding rock type). The opening is roughly cylinder shaped, about 50 cm in diameter. The mound's most likely function was as a step for accessing the tube from this opening.

Feature G is a small constructed fireplace in Tube 1 near Burial #37 (see Figure 270). It is located approximately 3 m southeast of Burial #37. The feature is constructed with 20 cm to 55 cm *pāhoehoe* cobbles placed in a circular formation with a flat *pāhoehoe* slab in the center. Feature G is about 65 cm in total diameter. There is a dense concentration of charcoal on and around the feature. The function of Feature G is interpreted as a source of light for activities related to the nearby burials (Burials 36 through 40). The shape and construction of the feature is similar to water collection features observed elsewhere in the project area, however, the feature is very formal. Combined with the dense charcoal on and around the feature and its proximity to the burials, fireplace/light source is the best interpretation of feature type/function.

The primary function of Site -26522 is as a historic Native Hawaiian burial location, based on the presence of five confirmed burials with associated historic artifacts and the possibility that other burials may be present or were present (i.e., Feature C and Feature F). In addition to the

burial function, this site was utilized as a water collection, presumably prior to use for historic burial. While the majority of the lava tube entrance blockage (Feature A) and modification within the lava tube (Features B through G) likely functioned as part of the placement and concealment of the burials, some of this modification may have originally been part of the water collection activity at this site.

Burials 36 - 40

Site -26522 contains a minimum of five confirmed burials, as well as one probable burial (see Figure 270). All confirmed burials are associated with historic artifacts and are presumed to be historic Native Hawaiian burials.

Burial 36

Burial 36 is a badly decomposing coffin burial in Tube 1 of Site -26522 (see Figure 270). Only a few bones and the longest coffin boards remain in place. The burial is located on a bedrock shelf about 1.5 m above the tube floor. It is in close proximity to Burials 38 through 40, a few meters to the south, and Burial 37 located in a lower chamber. Burial 36 is the northernmost burial and the closest to the lava tube entrance (Feature A₁). The coffin is oriented roughly north/south, with cranium fragments located at the north end. Some small pieces and flecks of bone remain, but the only other fragments large enough to identify are two articular fragments of vertebrae next to the bottom coffin board, and a metacarpal that washed through a hole in the floor of the shelf into a lower chamber (Figure 272). Some large coffin wood pieces have also washed into the lower chamber, as well as some smaller pieces and flecks of bone. There are two placed rocks under the burial. One at the head (north) of the coffin is completely exposed although surrounded by bone and wood fragments. One in the center is underneath the large remaining pieces of the bottom of the coffin. The rocks under the coffin likely functioned to hold it up off the floor. There may be a third rock at the south end (towards to foot of the burial). The nails in the coffin boards are square in cross-section (both shaft and head). No artifacts other than the coffin were observed with Burial 36. However, it is possible that other cultural material was originally present since there was disturbance around Feature A₁ that indicated this tube was entered after it was sealed. The coffin clearly establishes this as a historic burial, but its placement within a lava tube suggests that it is of Native Hawaiian ancestry.

Burial 37

Burial 37 is a historic burial located in the main lava tube of Site -26522 (see Figure 270). The burial is approximately 28 m due south of the entrance, on a low natural shelf in the *pāhoehoe* lava tube that measures an average of 30 cm high. The bones are in poor condition and only the femur, tibia, and larger foot bones remain relatively intact (Figure 273). Water dripping in the tube has caused some displacement of bones; this is a very moist room, and many of the bones are crystalizing.

An alignment of approximately one dozen large *pāhoehoe* cobbles along the west edge of the shelf has retained the bones on the shelf. The one exception is a calcaneus that has washed down

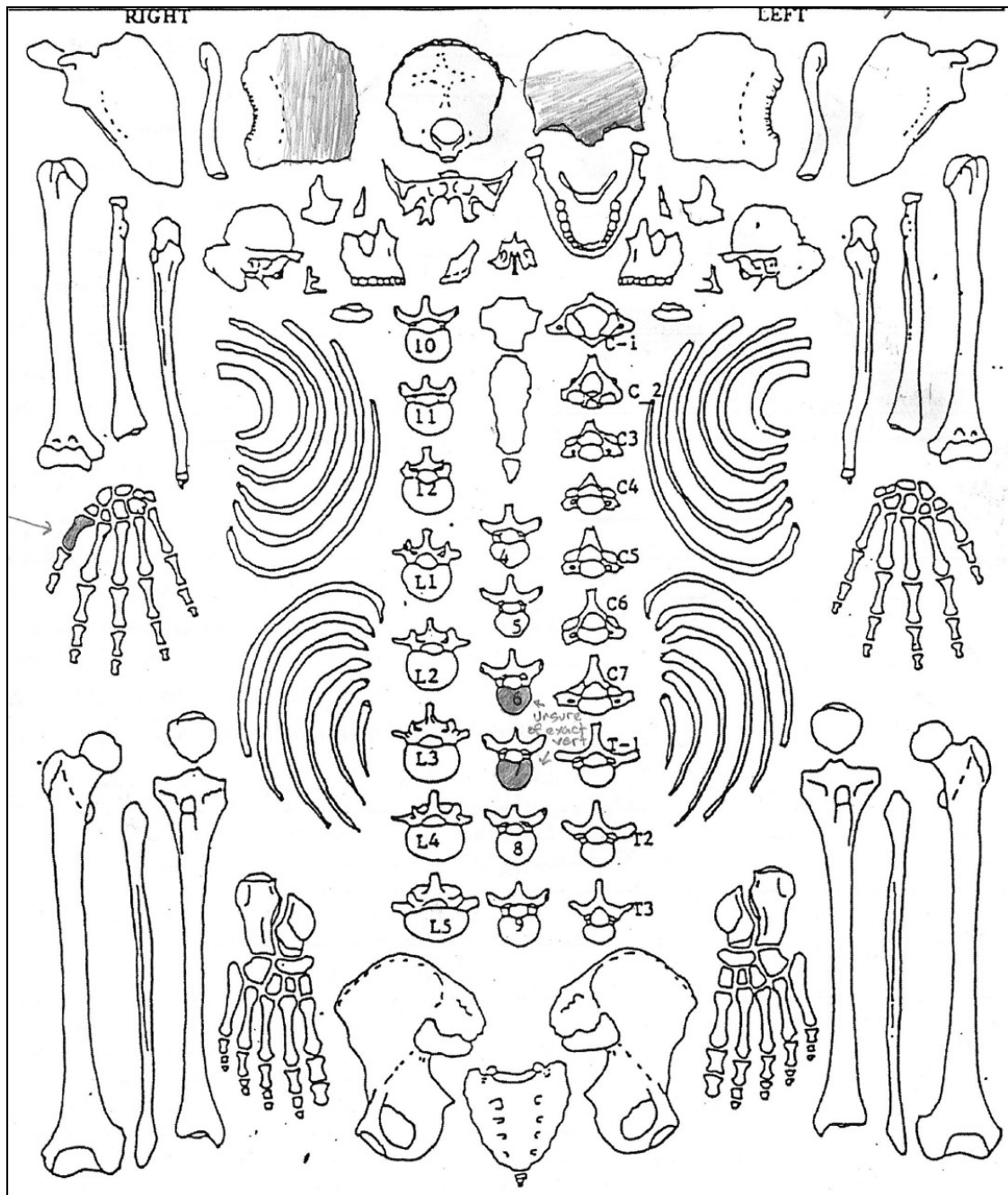


Figure 272. Site -26522, Burial 36, skeletal inventory form

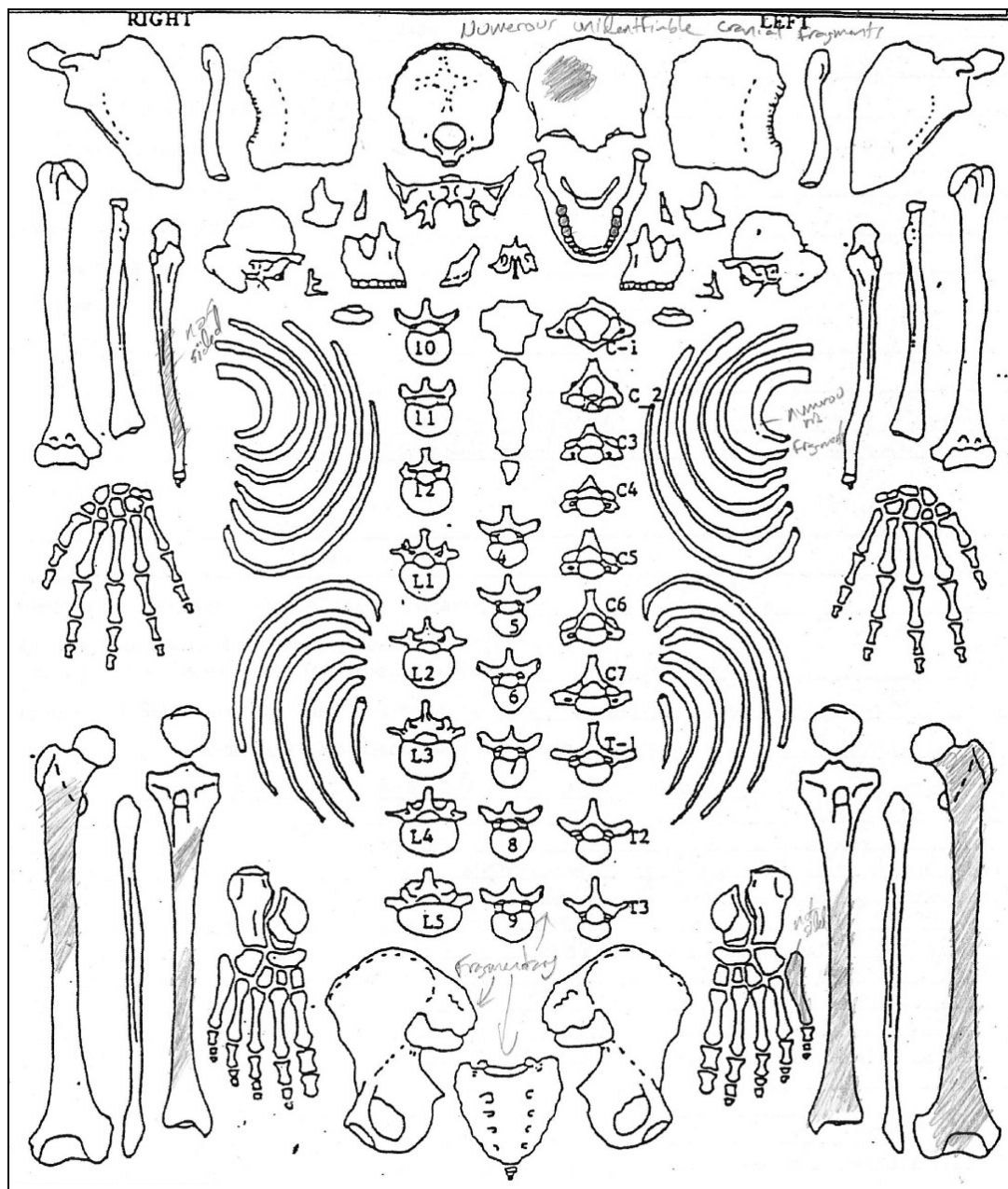


Figure 273. Site -26522, Burial 37, skeletal inventory form

off the shelf. Other bone fragments in the room are from Burials 38 and 39 in the upper chamber that have washed through a crack.

Three historic buttons are arranged perpendicular to the body, suggesting they may not be shirt front buttons. The extended position and presence of buttons indicate the burial's historic origin, and this burial appears to be a historic Native Hawaiian burial due to its placement in a lava tube and association with historic artifacts.

Burials 38, 39 and 40

Burial 38, 39 and 40 are comingled secondary burials in the upper chamber of Tube 1 in Site -26522 (see Figure 270). The bones are concentrated in a natural trough in the bedrock between a very pronounced upthrust of the floor (approximately 1 m high) and the tube's west wall. Between these formations is a space measuring approximately 50 cm wide and 200 cm long (north/south) that contains numerous fragmentary bones. All of the bones observed in this area were small (<5 cm) cranial fragments or arm or leg bones, suggesting secondary burial. Five femurs were observed in the pile of bones, establishing that these comingled bones represent at least three individuals and all were adults. Fewer arm bones were observed (Figure 274).

At the north end of the concentration of bones is a small wood fragment approximately 2 cm diameter round, that is slightly bowl-shaped and has a 1 cm diameter hole in its center. Next to this piece are two green, oxidized (copper) metal fragments, that also suggest a bowl shape by curvature. A decomposing wood fragment measuring approximately 5 cm long and 3 cm tall with a hole through the center is also presumably in association with these grave goods. The artifacts are believed to be a wooden pipe with a copper tobacco bowl.

The secondary nature and comingling of these burials suggests an older origin than the other two burials within the cave. The presence of the pipe, however, also indicates historic origin for at least one of these burials. All three burials are consistent with traditional Native Hawaiian burial practices, as they are located within a concealed lava tube and appear to be secondary burials.

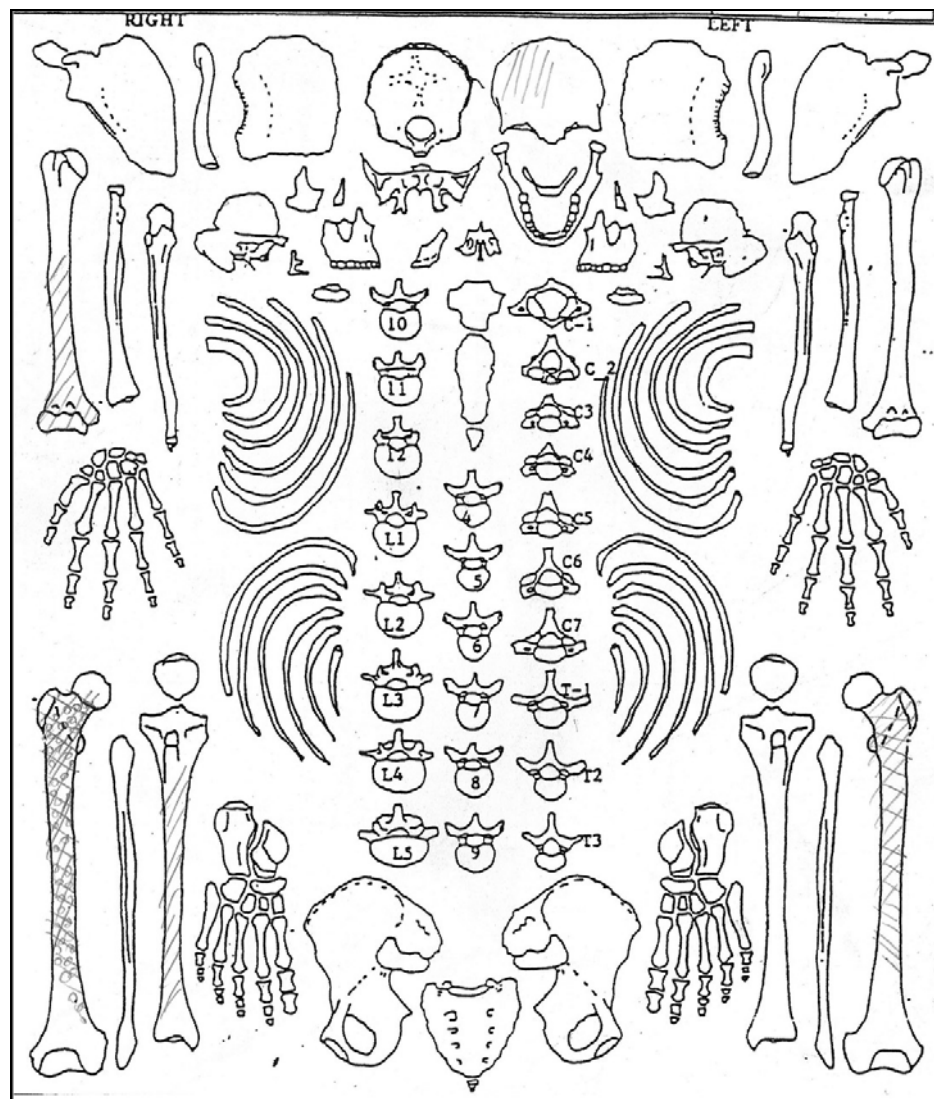


Figure 274. Site -26522, Burial 38, 39, and 40, skeletal inventory of comingled remains; diagonal lines indicate one occurrence of indicated bone, cross-hatching indicates two occurrences, and thick cross-hatching indicates three occurrences; the three right femurs indicate a minimum number of three individuals present

2.1.42 State Site # 50-10-28-26523

SIHP #	50-10-28-26523
FUNCTION:	Temporary Habitation
SITE TYPE:	Platform
TOTAL FEATURES:	1
DIMENSIONS:	4 m by 3.5 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	690 ft a.m.s.l.

DESCRIPTION: Site -26523 is a low platform (Figure 275 & Figure 276). The site is located in an area of dense grasses with patchy Christmas berry trees on the edge of an 'a'ā flow (geology is primarily *pāhoehoe* to the northwest and 'a'ā to the southeast). The construction appears to have taken advantage of a natural finger of the 'a'ā flow. The west side of the platform seems to be the end of the natural finger. The surface of the platform is quite level, composed of 'a'ā cobbles (3-20 cm) with a few *pāhoehoe* slabs (generally approximately 20 cm) mixed in. Two *pāhoehoe* slabs are set in the paving, level with the platform surface. There is a small subfeature of four upright slabs (approximately 30 cm) set in a roughly circular shape (approximately 50 cm diameter; Figure 277). The circle is slightly open on one end and a nearby slab likely represents a disturbed component of this subfeature that may be a hearth.

The entire platform is raised slightly (approximately 15-20 cm) above the surrounding terrain, and is slightly higher (approximately 30 cm) on the southwest side due to the natural slope. The edges of the feature are distinctive due to their height over the natural terrain and the use of slightly larger (10-50 cm) 'a'ā cobbles. The feature was likely constructed using cobbles from the closest portions of the 'a'ā flow to raise and level the natural finger. The site utilizes a minimal amount of modification to construct a fairly nice platform.

The site's function is interpreted as temporary habitation. Since the platform construction would not have required a significant energy investment, it does not justify a designation of permanent habitation. The lack of additional habitation features in the immediate vicinity also suggests temporary rather than permanent habitation. The circular sub-feature of upright slabs in the center of the feature is perhaps the best indication that this is indeed a habitation site. No midden or artifacts were encountered on the surface, though the feature is likely to contain sub-surface midden deposits. Burial is deemed extremely unlikely due to the feature's form (typical of habitation), and the low depth of the platform (appears to be generally only 15-20 cm).

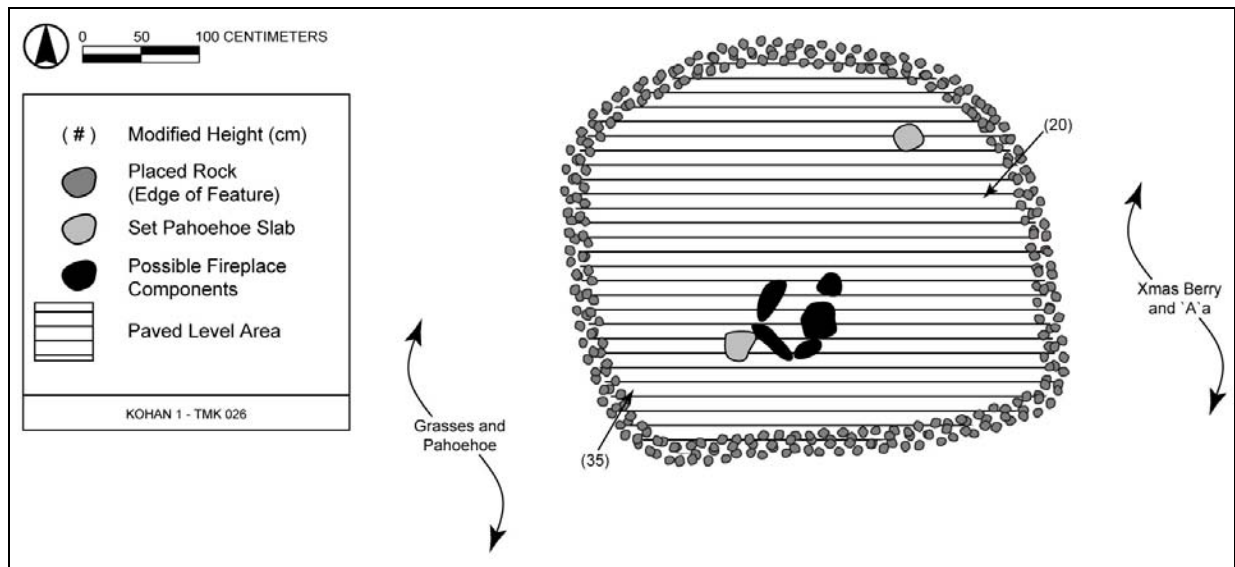


Figure 275. Site -26523, plan view



Figure 276. Site -26523, overview photograph of low platform with informal stone hearth in center



Figure 277. Site -26523, showing a close-up of the possible hearth built into the cobbles of the level platform, view to southwest

2.1.43 State Site # 50-10-28-26524

SIHP #	50-10-28-26524
FUNCTION:	Shelter
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	25 m by 15 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	650 ft a.m.s.l.

DESCRIPTION: Site -26524 is a small *pāhoehoe* lava tube (Figure 278 & Figure 279). The site is on relatively level *pāhoehoe* approximately in the center of TMK 26. Vegetation within the vicinity of the site consists of grasses, *koa haole*, and Christmas berry.

The lava tube contains a few water collection features. Several small pieces of coral were also found. These were not branch coral often associated with burials and ceremonial function, rather these were chunks of dense coral. There is a small amount of scattered midden in the tube, which includes marine shell and *kukui*. There is also a piece of wood that is a possible torch in the tube. This site has poor excavation potential due to the lack of substantial midden, features, artifacts, or burials.

The site's function is interpreted as shelter based on the extent or lack of modification within the lava tube, and the paucity of cultural material. Habitation is indicated by the torch although this site appears to have been used only for shelter.

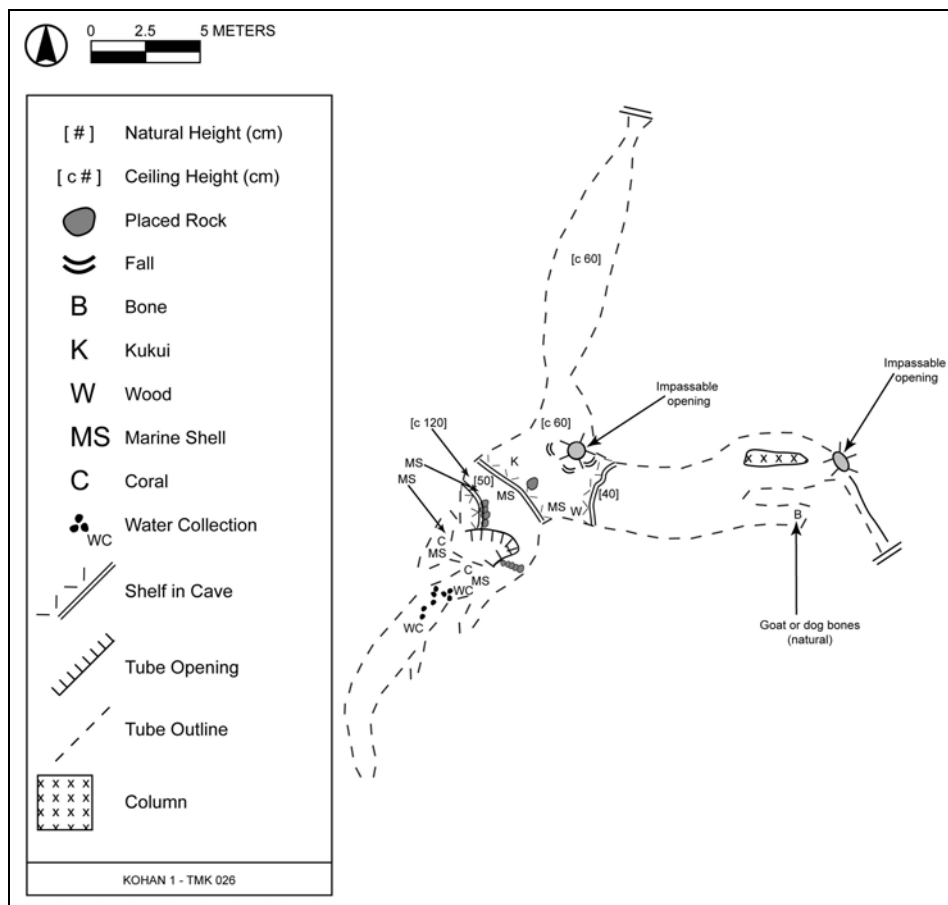


Figure 278. Site -26524 overview



Figure 279. Site -25524, view of lava tube entrance

2.1.44 State Site # 50-10-28-26525

SIHP #	50-10-28-26525
FUNCTION:	Shelter
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	25 m by 5 m (82 ft. by 16.4 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	610 ft a.m.s.l.

DESCRIPTION: Site -26525 consists of a lava tube with a single entrance located on a relatively level area of *pāhoehoe* flow (Figure 280). The landscape slopes downward slightly to the west and south. The site is located in the middle of the southern half of the project area, approximately 150 m (492.1 ft.) north of Hina-Lani Street. Vegetation consists of thick *koa haole*, Christmas berry, morning glory, and air plants.

The lava tube has a steep entrance with extensive eroding bedrock that creates a steep slope into the central cavern. This entrance is not constructed or modified the entryway is rather loose. To the south, the lava tube extends approximately 15 m (49.2 ft.) and has a few fish bones, a few *kukui* nuts, and some juvenile goat bones. The tube is fairly large with an average ceiling height of approximately 110 cm (3.6 ft.). Although no formal water collection features are present in this part of the lava tube, this is a wet cave that could be a good water collection location.

In the central cavern just southwest of the entrance, a constructed wall runs east/west for 2 m (6.6 ft.). The wall is 3-4 courses high, and measures approximately 100 cm (3.3 ft.) high on the south side, 50 cm (1.6 ft.) high on the north side, and is approximately 50 cm (1.6 ft.) thick (Figure 281). It is constructed of large and medium sized boulders (60 cm-30 cm / 0.98-1.8 ft. in diameter) with several large uprights. The wall is well constructed but not well faced. No other construction was found in this lava tube, although the south side of the wall has two areas that appear to have been cleared.

Extending north off the entrance for approximately 6 m (19.7 ft.) is another branch of the lava tube. The beginning of this tube contains a soil deposit, 3-8 cm (0.1-0.26 ft.) deep, in an area that measures 1 m by 2 m (3.3 ft. by 6.6 ft.). A number of pieces of charcoal, a piece of marine shell (a large *Nerita*), several *kukui*, and some rodent bones are present. Some placed cobbles for water collection and a naturally flat area that would be ideal for resting were found farther north in the north tube. No other artifacts, midden, or modifications were evident, although the first portion of the north tube appears partially cleared.

The site's function is interpreted as a shelter with a secondary function of water collection. The determination of the shelter function is based on the presence of a small amount of midden (fish bone that is a diodontidae spine - pufferfish), marine shell, and *kukui*. The amount of midden and the informal construction of the wall suggest temporary use. This level of modification suggests less time investment than is usually typical of a temporary habitation.

This lava tube was also used for water collection. The wall in the south tube may be constructed to maintain higher humidity within the tube and the placed cobbles in the north tube were also used as a water catchment. Some excavation potential is indicated due to a small soil

deposit with charcoal and a marine shell. However, based on the general lack of midden, excavation potential is only fair. Extensive bulldozer activity is evident in the area and the site is less than 10 m / 32.8 ft. to a bulldozer road to the northwest and another road is to the south. Therefore any associated surface structures that formerly existed within the site were likely removed due to bulldozer activity.

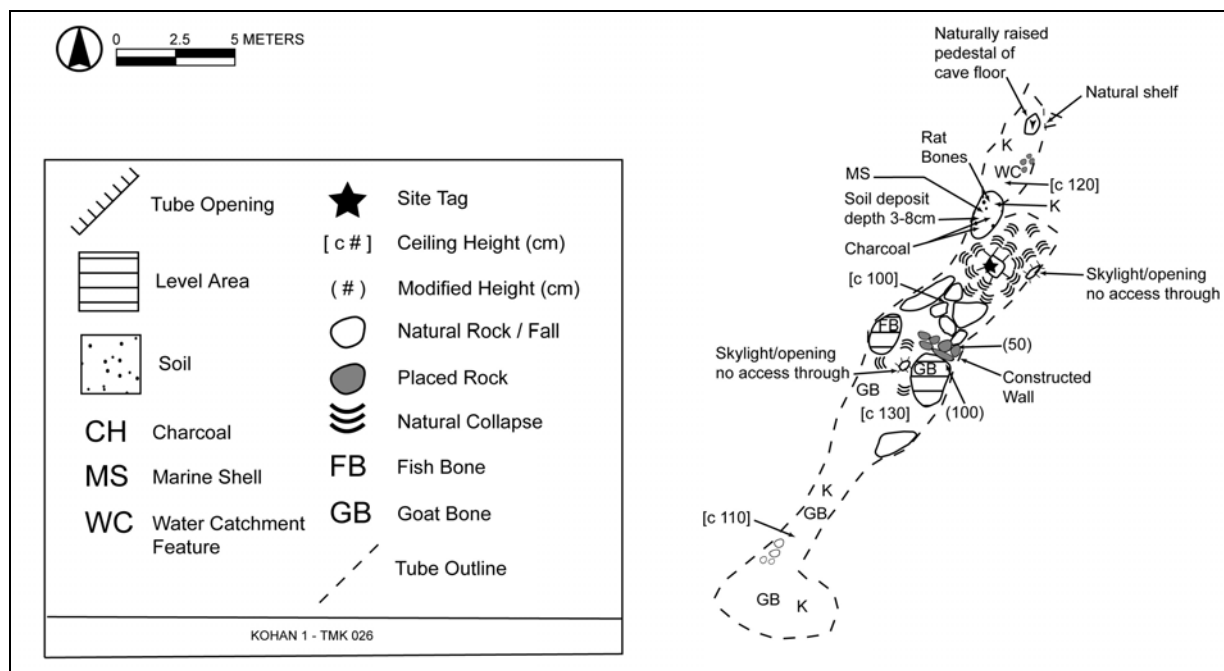


Figure 280. Site -26525, plan view



Figure 281. Site -26525, showing the constructed wall within the tube, view to south

2.1.45 State Site # 50-10-28-26526

SIHP #	50-10-28-26526
FUNCTION:	Marker
SITE TYPE:	Cairn
TOTAL FEATURES:	1
DIMENSIONS:	1.5 m by 1.5 m (4.9 ft. by 4.9 ft.)
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	650 ft a.m.s.l.

DESCRIPTION: Site -26526 is located on top of a rise in an undulating *pāhoehoe* flow in the southeast quadrant of the project area (Figure 282 & Figure 283). The site's vegetation consists of over head-high *koa haole*, small and medium Christmas berry trees, and grass.

The site is a single cairn that measures 1.5 m by 1.5 m, and is 74 cm tall. The cairn is built directly atop the *pāhoehoe* bedrock and is constructed of large *pāhoehoe* cobbles, small boulders, and *pāhoehoe* slabs. Stacking is clearly evident on the west side of the cairn where small *pāhoehoe* slabs and boulders are approximately seven courses high. The cairn's west side is the tallest due to the bedrock's slightly west slope. There are also four placed boulders at the highest point of the rise; they are arranged in a roughly square alignment, 5 m at 150 degrees from the cairn. From atop the rise near these placed rocks, the line of sight is excellent with unobstructed views to the south and west to the coast line.

The site's function is interpreted as a marker based on its location atop a rise within the vicinity of an excellent lookout spot, and the site most likely marks this lookout area. It is also possible that the cairn marks a portion of a trail, but no other evidence of a trail over this portion of the *pāhoehoe* was found. The cairn is similar and possibly related to sites -26541, -26561 and -26571, all of which are cairns on *pāhoehoe* that are probable trail markers. Site -26528 Feature B is also a similar cairn marking a water collection area, but which could be part of a trail as well. There is no excavation potential, given the feature type.

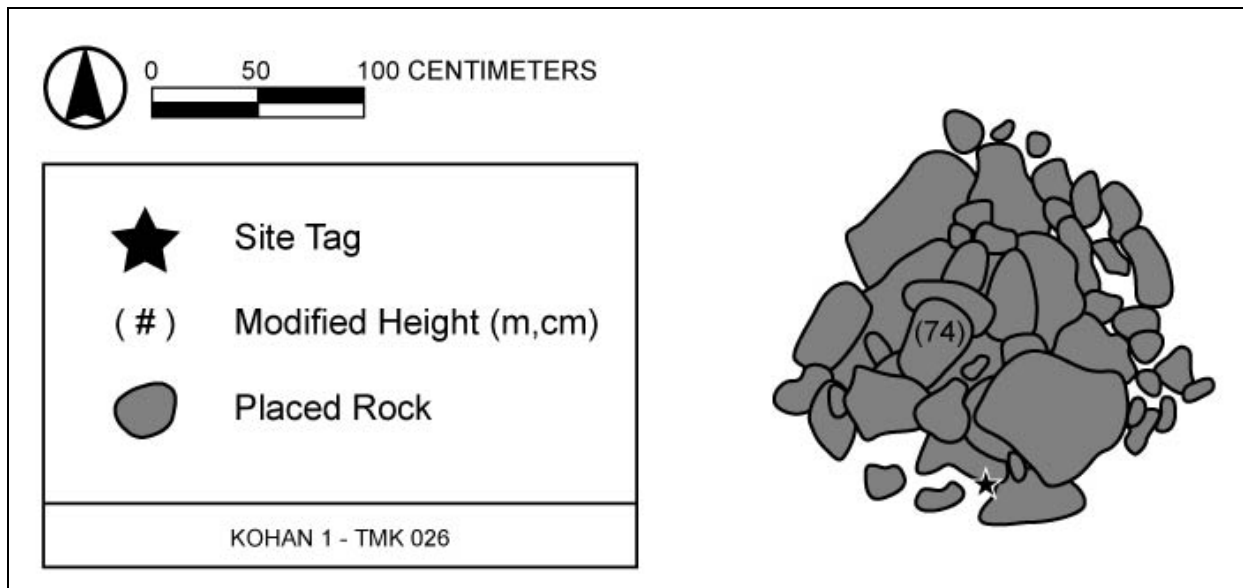


Figure 282. Site -26526, plan view of cairn



Figure 283. Site -26526, photograph of the cairn, view to north

2.1.46 State Site # 50-10-28-26527

SIHP #	50-10-28-26527
FUNCTION:	Temporary Habitation
SITE TYPE:	Lava Tube
TOTAL FEATURES:	3
DIMENSIONS:	52 m by 5.5 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	620 ft a.m.s.l.

DESCRIPTION: Site -26527 consists of two lava tubes located in the southern half of the project area, approximately 180 m north of Hina-Lani Street, on a relatively flat and level area of a gently undulating *pāhoehoe* flow. Evidence of bulldozer activity is in the vicinity and between this site and Site -26525, approximately 35 m southwest. Site -26527 has no direct evidence of bulldozer disturbance. Vegetation surrounding the site consists of patches of grasses and air plant, a few Christmas berry trees and thick over-head high *koa haole*.

Tube 1 runs roughly north/south and encompasses two feature areas, Features A and B (Figure 284). Immediately inside Entrance 1, the southernmost entrance and currently the only access, is Feature A, a chamber approximately 6 m by 5.5 m and 1.3 m high (Figure 285). This chamber contains some very large natural roof fall that has split the room in two. Each side of the Feature A chamber exhibits evidence of clearing, in addition to some placed boulders and cobbles and partial rubble paving. In the east half of the split chamber is a coral abrader blank, a piece of coral that has been worked but not extensively. The worked edge of the piece of the blank is ground and has some discoloration from use. A waterworn stone is atop a natural shelf in the east half at this entrance chamber. The natural fall divide has been artificially extended with the construction of a relatively informal wall of two courses of stacked rocks placed atop the lower north end of the fall. In the west half of Feature A chamber, immediately inside the entrance, and visible from directly outside the tube entrance, is a small *papamū* game board, etched into a small *pāhoehoe* slab (Figure 286). Beyond this chamber the tube narrows and continues roughly north.

Approximately 10 m beyond Feature A, there is a constructed wall that consists primarily of a large upright roof fall slab and marks the beginning of Feature B. The constructed height of this wall is approximately 100 cm high. This wall does not completely block access to the rest of the tube since it is easily climbed over. It is, however, a clear division between Feature A and Feature B. A small soil deposit, approximately 3-8 cm deep, is between the divided entrance chamber and the constructed wall. Beyond the constructed wall, the tube continues for approximately another 5 m before opening into a second chamber.

This second chamber consists of two blocked entrances, Entrance 2 and Entrance 3, both of which are in the tube's ceiling (Figure 287 & Figure 288). Beneath each entrance is modified natural fall and a few placed rocks that likely served as steps to gain access to these ceiling entrances. Both entrances are blocked from the surface with large slabs that have been placed over the entrances. The tube narrows again beyond this chamber with blocked Entrances 2 and 3

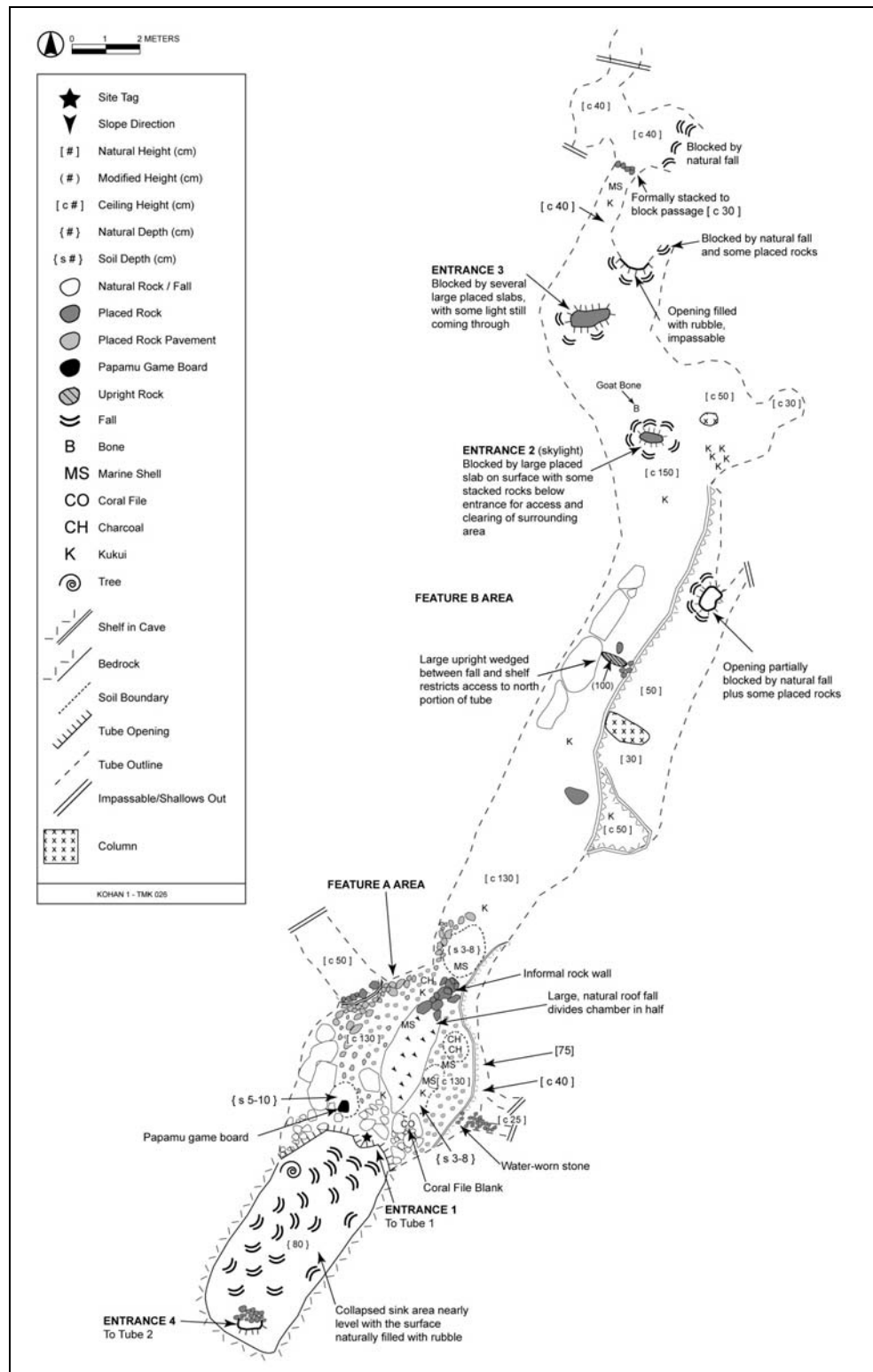


Figure 284. Site -26527, Tube 1, Feature A and Feature B plan view; see also



Figure 285. Site -26527 showing Entrance 1 to Tube 1



Figure 286. Site -26527 view of *papamu* board in the west half of Feature A chamber



Figure 287. Site -26527, Entrance 2, showing blocked, very small entrance to modified chamber

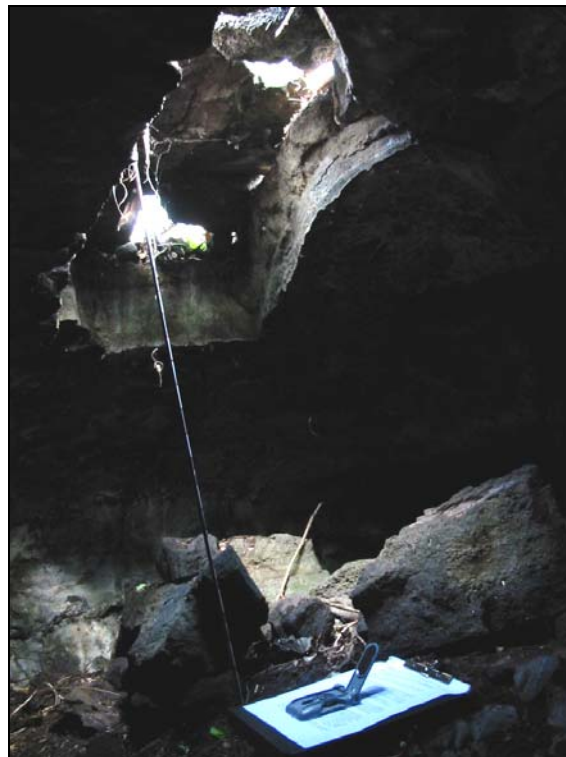


Figure 288. Site -26527, Entrance 3, showing a few of the large slabs blocking skylight

and continues north. After approximately 2.5 m, the tube is blocked by a constructed wall that completely obstructs the passage. This formally stacked blockage at the far north end of Tube 1 (just past Feature B) was photographed and deconstructed to gain access behind the blockage. The area behind the blockage is small with natural rubble to the south and a small cavern off to the north. The ceiling height ranges 30-45 cm in this area and the tube width is 80 cm to 150 cm, and access is difficult. No cultural material or bone was found in this back chamber of Tube 1. As no cultural material or bone were found, it is assumed that this blockage was put in place simply to block an undesirable area from the rest of the tube, and most of the modification in this area should be considered similarly as blockage related to improving habitation at the site.

The midden in Tube 1 consists of *kukui*, urchin, multiple large cowry pieces, other marine shell, and charcoal. The majority of the midden is found in Feature A, which comprises everything south of the constructed wall between the two chambers. There is some midden in Feature B, but it primarily consists of *kukui* scatters. The charcoal scatter in the eastern half of Feature A is accompanied by a thin layer of soot on the rubble paving.

Tube 2 is only accessed via Entrance 4, located approximately 6 m south of Entrance 1 to Tube 1. The entrance to Tube 2 is extremely small and barely accessible. Once inside, however, the main chamber measures approximately 8 m by 3.5 m and 1.4 m high (Figure 289). Tube 2 continues around the west side of Entrance 4 and extends to Tube 1 but is inaccessible on both sides (from Tube 1 and Tube 2) due to natural fall.

Tube 2 has a very informally constructed wall 2-3 courses high. Beyond this wall are two areas of rough rubble paving, and then a larger cleared area with a soil deposit 3-8 cm deep. Feature C includes the placed boulders and cobbles in this main chamber, including an upright approximately 60 cm high. Beyond this main chamber, Tube 2 shallows and has a few small water catchments alongside the tube walls. Beyond the water catchments, the tube opens again into a smaller back chamber. This back chamber has access to a natural shelf that heads back towards the main chamber of the tube. On this shelf, almost directly over-head of the upright in the main chamber, is a second upright approximately 70 cm tall, that can be explained by natural roof fall, although its location almost directly above the first upright is curious. A small amount of scattered midden is present in Tube 2, the majority of which is in the main chamber and includes *kukui* and marine shell.

Feature A consists of the modification in the initial chamber of Tube 1 at Entrance 1 (see Tube 1 above for details; see Figure 284). The modification consists of placed boulders and cobbles that create a more suitable area for habitation. Much of the floor, 6 m by 5 m, has been cleared of large rubble and a small cobble paving is laid down. Boulders have also been placed along the center of the cavern to create an informal wall approximately 50 cm high that bisects the tube. There are also placed small boulders on the shelves and in passageway that leads to the second chamber. All modifications indicate a temporary habitation function.

Feature B consists of modification in the northeast, 15 m by 2 m portion of Tube 1 (see Figure 284). This modification consists of clearing, a large placed upright, two skylights blocked with slabs, and a blocked tube entrance. While the skylights blocked with slabs prevent entrance via these holes, the slabs are spaced slightly apart in some places to allow a little light through. The large upright slab towards the west end of this feature area partly blocks the tube, although it is relatively easy to climb over; this may be in place to delineate space for habitation purposes.

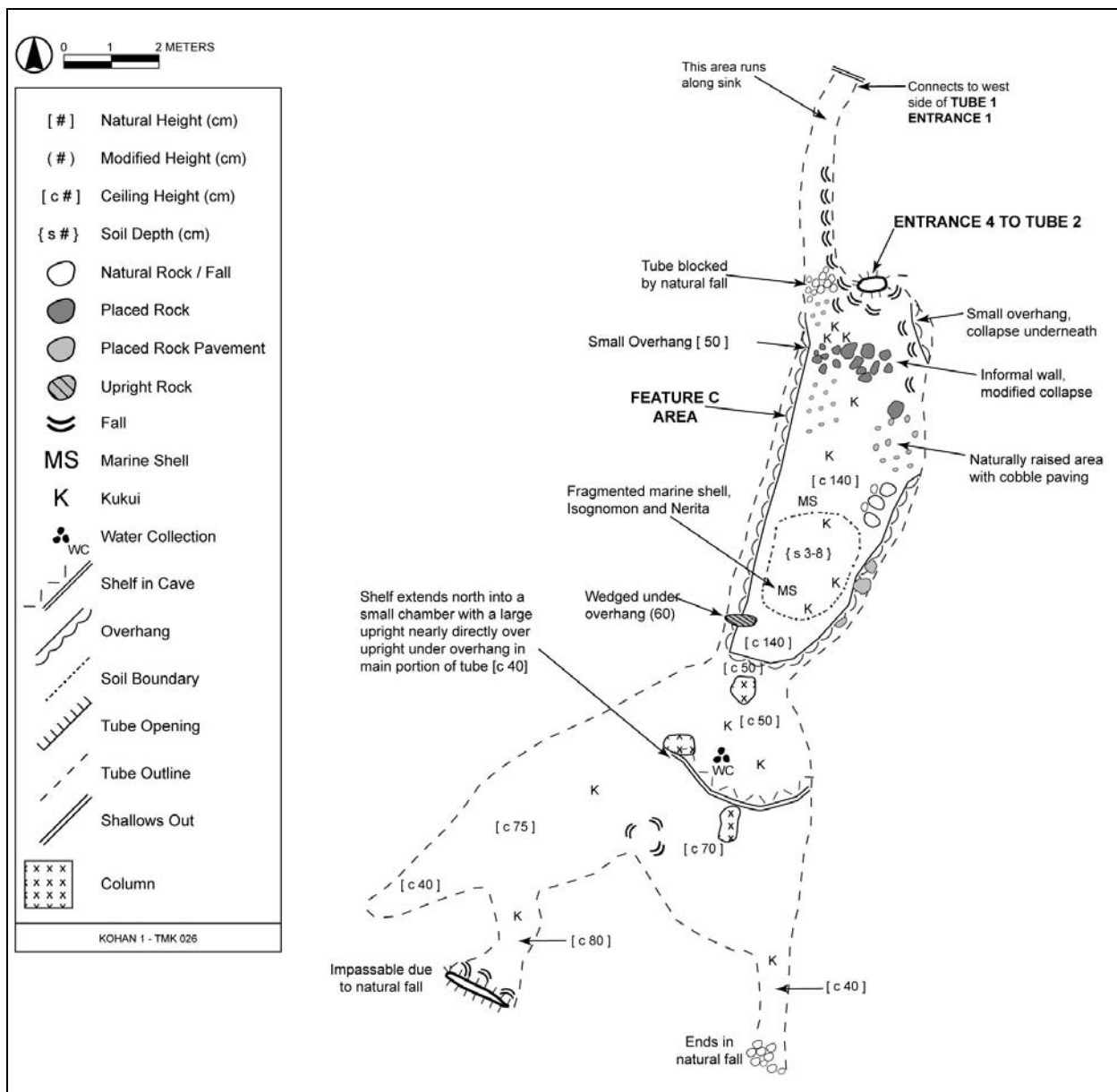


Figure 289. Site -26527, Tube 2 and Feature C plan view

Overall, the modification in Feature B serves to block areas and delineate space. The modification appears to be in place to improve the tube for habitation. A few *kukui* nuts and several marine shells are present (shells are in the side tube leading to the blocked area; marine shell includes *Isognomon* and *Nerita* as well as one other type of shell in low quantities, only about 3 shells total). The blockage and midden suggest that people were using this tube for shelter but perhaps also as a refuge, because it is almost impossible to recognize the blocked entrances from the surface. The interiors of Tube 1 and Tube 2 are extensively modified but all entrances are small and would be easy to conceal, therefore, this tube could be partially used as a refuge cave.

Feature C consists of the modification in the main chamber of Tube 2 (see Figure 289). The area of modification measures approximately 8 m by 3 m and consists of clearing, an informal wall, a paved area on top of natural fall, and an upright. There is some *kukui* and marine shell in the tube, and the clearing and informal paving (utilizing small cobbles) appears to be for habitation purposes. The function of the upright is unknown, but there also appears to be an upright directly above it in a very difficult to access chamber (see description for Tube 2). The modification, including rubble paving, clearing and water catchments, in addition to the midden scatter indicate habitation function within Feature C.

The site's function is interpreted as temporary habitation. The temporary habitation function is particularly evident in Feature A. The scattered midden and presence of a tool, the coral abrader, in addition to the *papamū* game board indicate habitation useage for this area. The rubble paving also serves to create an even, level living surface. The Tube 2 modifications of rubble paving and clearing are also evidence of a temporary habitation function.

2.1.47 State Site # 50-10-28-26528

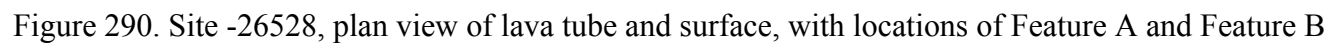
SIHP #	50-10-28-26528
FUNCTION:	Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	2
DIMENSIONS:	Approximately 47 m by 10 m (154 ft. by 33 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	660 ft a.m.s.l.

DESCRIPTION: Site -26528 is a lava tube with a formalized entrance and interior modification that provided access to a water collection (Figure 290). The site is located within an undulating *pāhoehoe* flow. Vegetation within and surrounding the site consists of *koa haole* and Christmas berry.

The lava tube has two entrances, designated Entrance 1 and Entrance 2. **Entrance 1** is the site's northernmost entrance, and is separated from Entrance 2 by a 2 m in length natural bridge. Entrance 1 has a sloping path of natural ceiling fall that leads into the tube and runs from north to south, with one placed *pāhoehoe* slab on this ramp. **Entrance 2** is directly adjacent to the natural bridge, and has large over head-high *koa haole* growing from it. Feature A is a large constructed ramp that leads from Entrance 2 into the tube (see Feature A description below). Upon entering Entrance 2, the area of ceiling fall east of the ramp has been moved and piled along the eastern edge to create a small passage. This area has a small amount of midden (sea urchin, marine shell, and *kukui* endocarps) as well as modern (likely naturally deposited) animal bone, including the remains of cow, pig and goat skeletons.

The tube continues south from the entrance chamber, although placed rocks and ceiling fall limit immediate access to some areas. The placed rocks that are approximately 3 m south of Feature A (Figure 290) appear to restrict access to a small area within the tube, creating a small area (about 1.5 m square) that was apparently used for storage. Four pieces of wood that appear to have been cut with an adze were found just behind some of the placed rocks, about 3 m south of Feature A. The wood pieces measure about 78 cm in length and 9 cm in diameter. Bark is stripped from two of the pieces of wood, and the wood pieces are placed parallel to one another in a cache with a few placed rocks on top of them. The ends of each wood piece are cut in a manner consistent with using an adze type tool (as opposed to an axe), but there is no other modification other than two of the pieces being stripped of bark. All pieces are rather straight and of very similar size.

Southwest of the placed rocks and wood pieces, the tube continues to the south until natural fall blocks access or the tube terminates; all side tubes eventually shallow out and become impassable. Several water collection features (about twenty) and a few *kukui* endocarps are spread throughout the tube. There are also some decaying gourd fragments located on the southeast side of the tube and some small concentrations of charcoal and charred wood, usually associated with the water collection features. Goat bone and a small amount of marine shell (at least one cowry shell) is also present in the southeastern portion of the tube.



Feature A consists of the constructed ramp at Entrance 2 (see Figure 290 & Figure 291), as well as other modification (placed rocks) within the lava tube that appear related to water collection. The ramp is aligned in a north/south direction with the north portion being the highest, and it functions to provide easy access to the tube. The ramp is approximately 1 meter in height, 150 cm wide (east/west) and 230 cm long (north/south). It is constructed with *pāhoehoe* cobbles and boulders that are from 70 cm to 15 cm in size, with an average size of 40 cm. The rocks are piled to create a wedge shape (the ramp slopes upward from the south to the north). Construction is informal, lacking any formal facing, upright rocks, or courses, and it is a free standing feature.

The tube also contains several areas blocked with placed rocks that are considered part of Feature A. These blocked areas do not seem to wholly restrict access, since the portion of the tube that is blocked off can usually be accessed via a different portion of the tube (see Figure 290). Construction of blocked areas usually takes advantage of areas already restricted by natural fall, and this informal construction utilizes cobbles and small boulders from the natural fall. One partially blocked area has an upright on its east side (see Figure 290). The excavation potential for Feature A is poor due to a lack of sediments and the feature type, although charcoal recovery should be considered for data recovery.

Feature B is a cairn (see Figure 290 & Figure 292) that marks the location of the lava tube and water collection. The cairn is located on an eroding *pāhoehoe* outcrop 8 m southeast of Entrance 2. The marker is 80 cm long by 50 cm wide and 55 cm tall, and is constructed with *pāhoehoe* cobbles ranging in size from 17 cm to 25 cm, stacked two courses high; a *pāhoehoe* slab 70 cm in length is placed on top. The cairn's condition is good and does not appear to have any collapse or disturbance. Excavation potential for the cairn is poor due to the feature type.

The site's function is interpreted as water collection based on the number of water collection features present in the lava tube. Feature A, the ramp and other tube modification, improves access to the tube from Entrance 2, and in part probably retains moisture within the tube. Feature B, the cairn, is 8 m to the southeast of entrance 2 and functions as a marker for the water collection lava tube. No trail is visible in the site's vicinity, but the cairn may have been used as a marker for transportation.

There is no indication that any part of Feature A functioned as a burial location, although it does appear to be either a storage area for the cut wood or possibly a workshop area. The possibility that the four pieces of cut wood may have been a cache for a burial was considered, since other coffin burials within the project area used similar wood to raise the coffin above the ground surface. Placed rocks have also been observed for use in raising a coffin above the floor of a cave. However, there is no evidence that there is or was a coffin or a burial at this site. Additionally, there is no evidence of any ceremonial function at the site or large amounts of midden as would be expected in a temporary habitation shelter. Thus, the primary function of the site is interpreted as water collection, and the pieces of cut wood are presumed to have been utilized for this function or as part of a general activity area at the site.



Figure 291. Site -26528, Feature A, photograph of the formally constructed ramp that provides easy access to the tube from Entrance 2, view to northwest



Figure 292. Site -26528, Feature B, photograph of cairn, view to southeast

2.1.48 State Site # 50-10-28-26529

SIHP #	50-10-28-26529
FUNCTION:	Burial and Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	Approximately 70 m by 5 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	690 ft a.m.s.l.

DESCRIPTION: Site -26529 consists of two lava tubes on opposite ends of a very shallow, linear sink running approximately northeast/southwest (Figure 293). The maximum depth of the sink does not exceed 1 m. The surrounding area has fairly dense *koa haole* and some Christmas berry trees, and slopes slightly to the southwest.

Tube 1 is the northeast tube. It is smaller and connects to Site -26552 Sink 3 via -26552 Tube 3. The entrance to Tube 1 was originally low, but has been blocked with mounded cobbles so that only a smaller than 10 cm crack is visible. The entryway to the tube (no longer accessible on account of being blocked) is large enough to shelter in and shows evidence that this occurred; *kukui* endocarps, *Cypraea* sp. and *Brachiodontes* sp. were noted in the entryway.

Beyond the entryway, the floor is smooth and it is full of water collection features and has sparse *kukui*. A large circular ceiling fall ends the main portion of the tube. To the north of this fall, approximately 3-5 slabs have been modified in an apparent attempt to shut down what small remnant of the main tube skirts the north side of the fall. This area is not passable.

Opposite the fall, on its south side, is a small tube only 1 meter long that leads to a small terminal subchamber to the south of the main tube. In the center of the floor of this chamber is a small artifact cache including an octopus lure (modified *Cypraea* sp. Shell), basalt abrader material and a round coral artifact similar to an “*ulu maika*” but flat on one face and round on the other.

Tube 2 is the southwest tube. It has a larger opening 1.5 m high and just over 3 m wide. No midden was observed in the sharply sloping, loose entryway. Near the bottom of the sloping entry is a rough boulder scatter created by ceiling fall. In two gaps between these boulders, human bone was observed. In one case, the majority of the distal femur was found just to the south of a natural cavity between boulders that was covered with a placed square slab. Nothing was found inside this cavity. The second human bone was located between the east wall of the tube and the boulder fall. It was deliberately covered with three placed large cobbles that largely blocked the view of the bone in the natural gap. Within 20 cm of the sacrum was a nearly complete goat skull that also deliberately was placed in this gap between fall and the tube wall. These human remains are considered to be related to Burial 33 and 34, both of which are located further down the tube (see burial descriptions below and Figure 293)

Tube 2 continues past this collapse and contains a few water collection features. A large-diameter charred (on both ends) wood fragment (approximately 10 cm diameter, 20 cm long) was found among fall on the east wall (Figure 293 & Figure 294). After a low crawl the tube opens

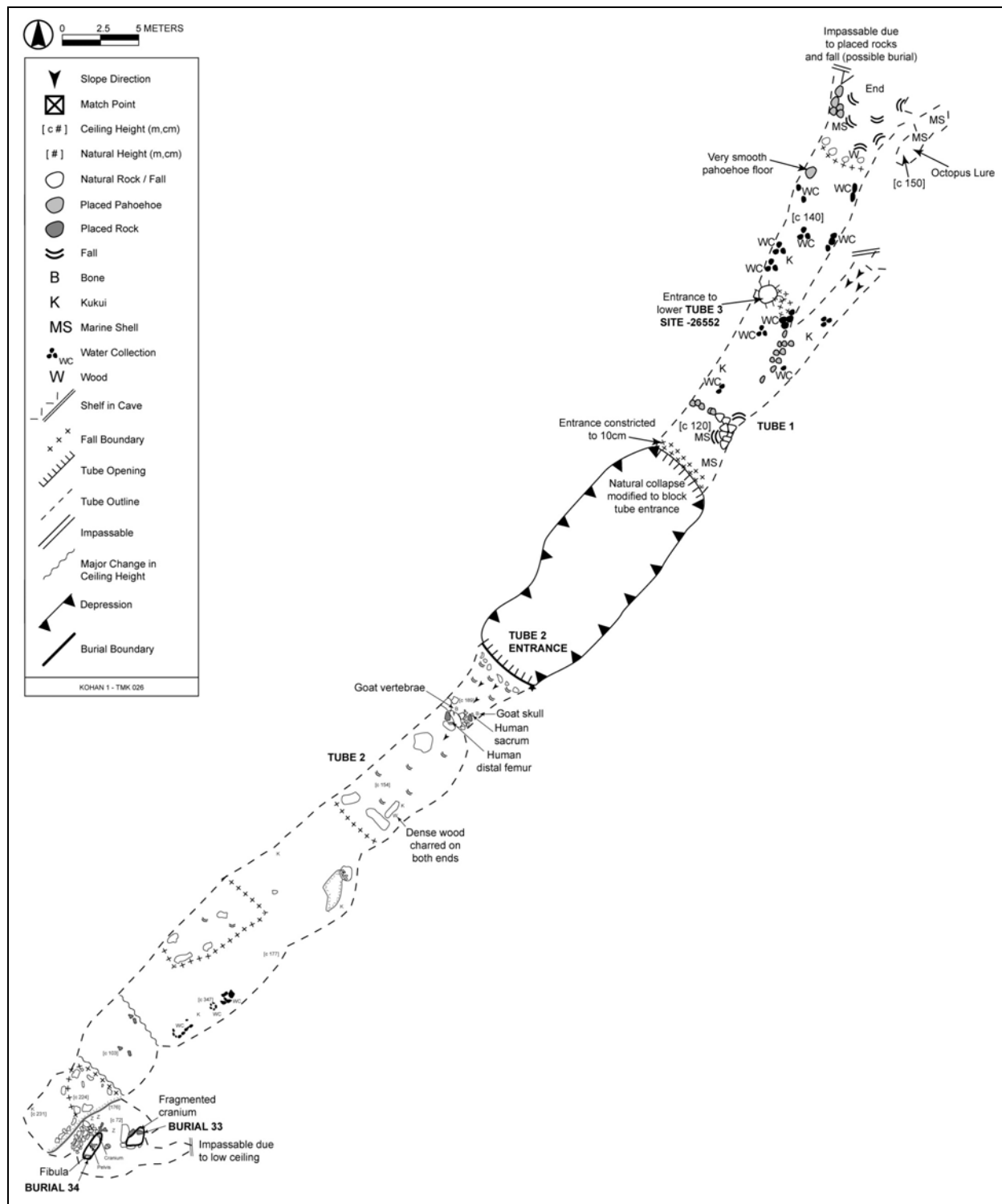


Figure 293. Site -26529, plan view of sink and lava tubes



Figure 294. Site -26529, showing the entrance to Tube 2, view to southwest

into a second and terminal chamber. A large shelf in this chamber's east side contains two human burials, Burial 33 and Burial 34. See burial description below for details

Function of this site is burial (Burial 33 and 34) as well as a water collection tube. Both tubes are utilized for water collection, although there are considerably more water catchment features in the northeast tube (away from the burials). There is also a minor habitation component of this site, also primarily in the northeast tube, evidenced by the small midden deposit and artifact cache. This site should be considered in relation to Site -26552, to which it connects. Excavation potential for this site is minimal, given a lack of soil deposits.

Burial 33

Burial 33 is located in the terminal chamber of -26529, Tube 2. It is within meters of a second burial, Burial 34 (description follows). Both burials are on the floor of an elevated shelf in this chamber. The burial is very well contained within a natural depression in the shelf floor that is circular and 125 cm in length northwest/southeast and 100 cm southwest/northeast in width. The natural depression has been modified slightly with a *pāhoehoe* slab to the southeast (horizontally placed) and two placed cobbles near the head to the northwest. These modifications fill gaps in the surrounding ring of natural bedrock.

No bones associated with this burial were located outside of this ring in the immediate area, so although water erosion has affected the burial, it has not displaced it. The bones are in very poor condition; almost all are fragmentary and beyond recognition, covered in carbonate and are decomposing (Figure 295). The shelf floor immediately west of the burial contains a concentration of six more whole, burned *kukui* nuts (not the endocarps). The burial is native Hawaiian based on the burial type and lack of any ethnically linked grave goods. Its flexed position also supports this conclusion.

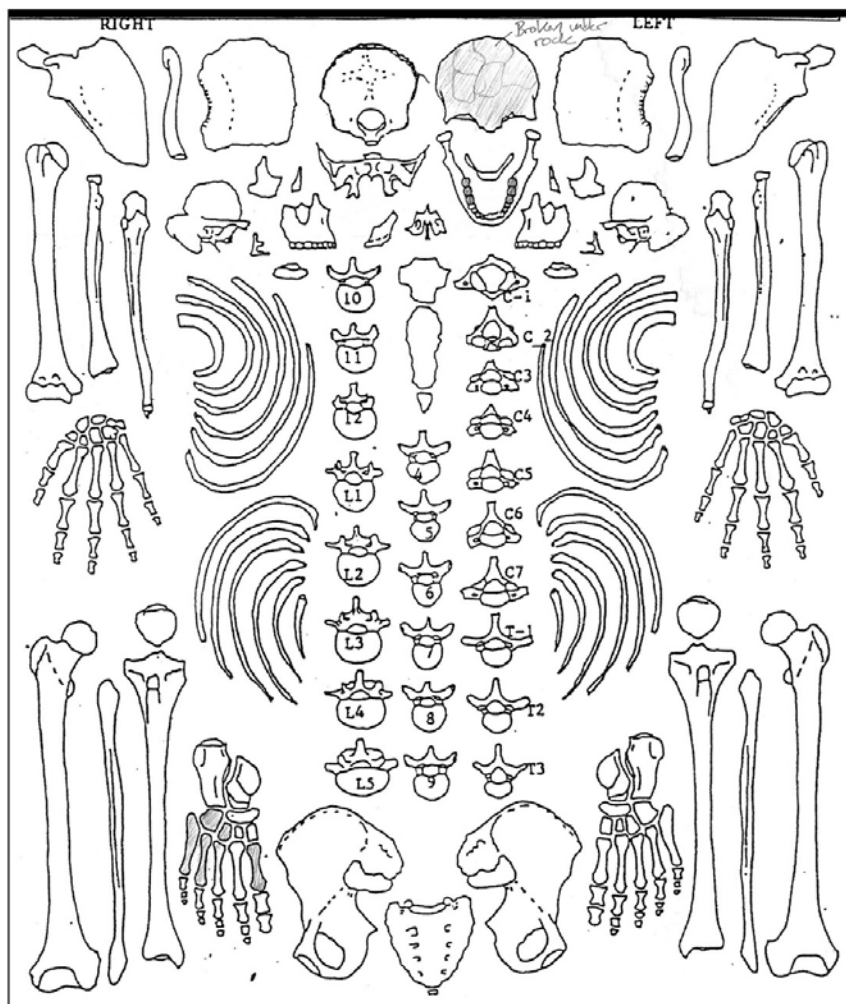


Figure 295. Site -26529, Burial 33 skeletal inventory (cranial fragments and foot bones)

Burial 34

Burial 34 is located in the terminal chamber of -26529, next to Burial 33. It is located to the north of a small roof fall area. This roof fall has been modified slightly extending it in an area to the west to hide the burial from view from the terminal chamber.

This burial is roughly in anatomical position and is not flexed, though there is a possibility it may be partially flexed since the skeleton appears to be incomplete (Figure 296.). Very few ribs were observed and no large long bones were observed. The bones are otherwise in relatively good condition, therefore it is difficult to account for the absent long bones with decomposition. The existing fibula also appears out of place as it is opposite a concentration of tarsals from the pelvis. Due to the scattered nature of this burial it was determined to be disturbed and it is hypothesized that the human remains located near the entrance of this lava tube are associated with either this burial or Burial 33. Based on the location, type of burial, and lack of grave goods, this burial appears to be a Native Hawaiian burial.

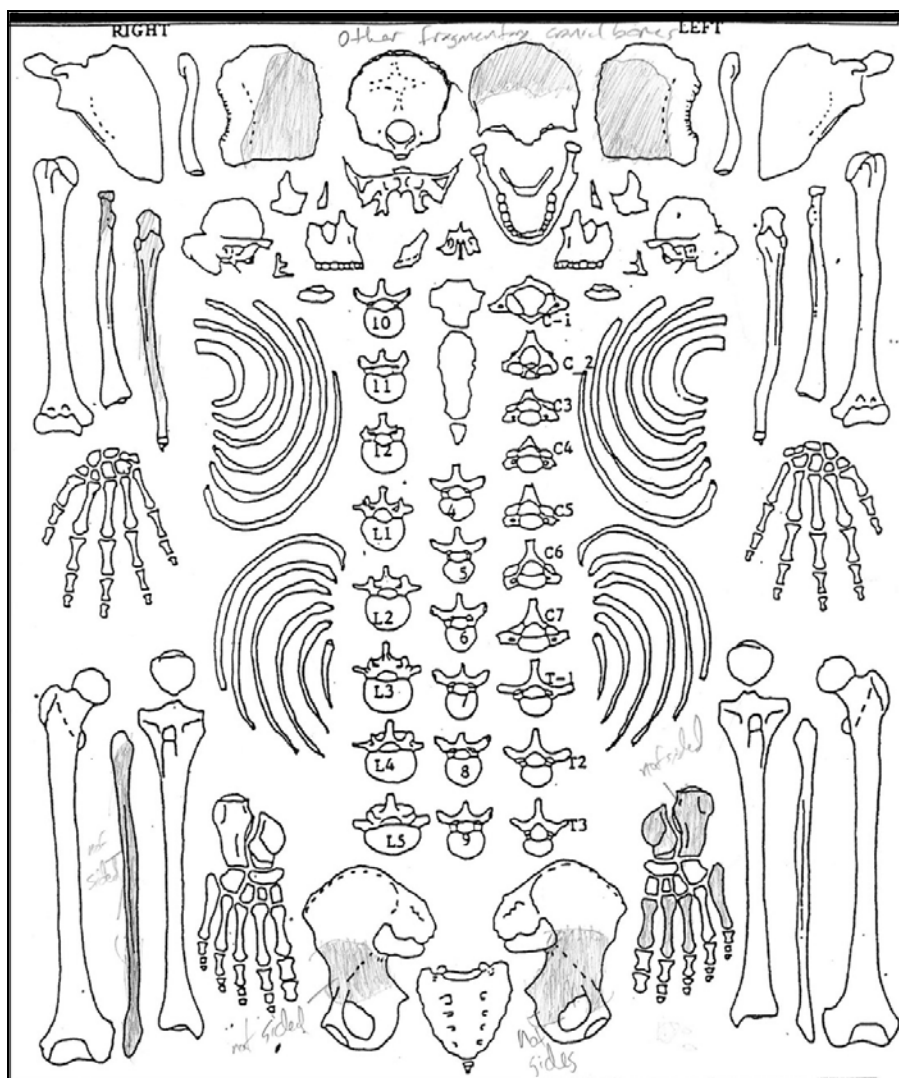


Figure 296. Site -26529, Burial 34 skeletal inventory

2.1.49 State Site # 50-10-27-26530

SIHP #	50-10-27-26530
FUNCTION:	Temporary Habitation
SITE TYPE:	Platform
TOTAL FEATURES:	1
DIMENSIONS:	2 m by 3 m
CONDITION:	Good
AGE:	Pre-historic
ELEVATION:	650 ft a.m.s.l.

DESCRIPTION: Site -26530 is an 'a'ā outcrop with an eastern edge modified into a rough platform with a cairn 4.3 m to the north. The site is located in the southeast quadrant of TMK 26, 30 m south of Site -26531, just south of an 'a'ā flow. The topography of the area is gently sloping, and the geology of the area is 'a'ā. Vegetation includes dense *koa haole* and Christmas berry up to 5 m in height. With the current vegetation, there is no line of sight.

The platform has been constructed by modifying the eastern end of an 'a'ā outcrop (Figure 297 & Figure 298). The platform is 2 m east/west by 3 m north/south. It is constructed with 'a'ā cobbles that average 30 cm in size, 3 courses high. It is 55 cm in constructed height at the northern corner, where there is some collapse of the structure. The surface of the platform is rather rough, and has not been paved.

The cairn is constructed on a 1 m long outcrop of *pāhoehoe*. The cairn is constructed with three stacked 'a'ā cobbles. One cobble measuring 25 cm is placed at the northern side, while there are two 'a'ā cobbles, 17 cm and 24 cm, stacked on top of each other on the southern end.

The site's function was initially interpreted as a possible burial since the platform did not appear suitable for habitation. However, based on excavation results (see below) this platform is in fact temporary habitation in function. The surrounding area/ground surface is covered in cobbles and pebbles, so the platform was not constructed by clearing the area for agriculture. The informal construction is not consistent with any ceremonial function. That and the lack of any artifacts or coral indicate that this is not a ceremonial site. The cairn likely markerrs this habitation platform.

Testing Results

Test excavation was conducted to assist in determining site function and to determine whether a burial is present.

Stratum I consists of medium sized rubble (20-40 cmbs), followed by small cobble fill that is fairly tightly fitted, with small medium cobbles tightly fitted just above Stratum II (Figure 299). Most of the cobbles in Stratum I are 'a'ā, although at least one medium (25 cm) *pāhoehoe* cobble and some small *pāhoehoe* pieces were found in the first 30 cm. Stratum I extended to 45 cmbs. Stratum II consisted of silt loam, marine shell including *Nerita* and cowry, fish bone, and a coral abrader. Matrix within Stratum II, which extended to 60 cmbs, is primarily small cobble fill with a small amount of sediment filling in spaces. Sediment and midden likely washed in from above. Stratum III consisted of silt loam, marine shell including cowry, *nerita*, and *Isognomon*, sea urchin, charcoal, and fish bone. Midden is fairly concentrated in small areas. Straum III is similar to Stratum II but contains more sediment between the rocks and is somewhat looser.

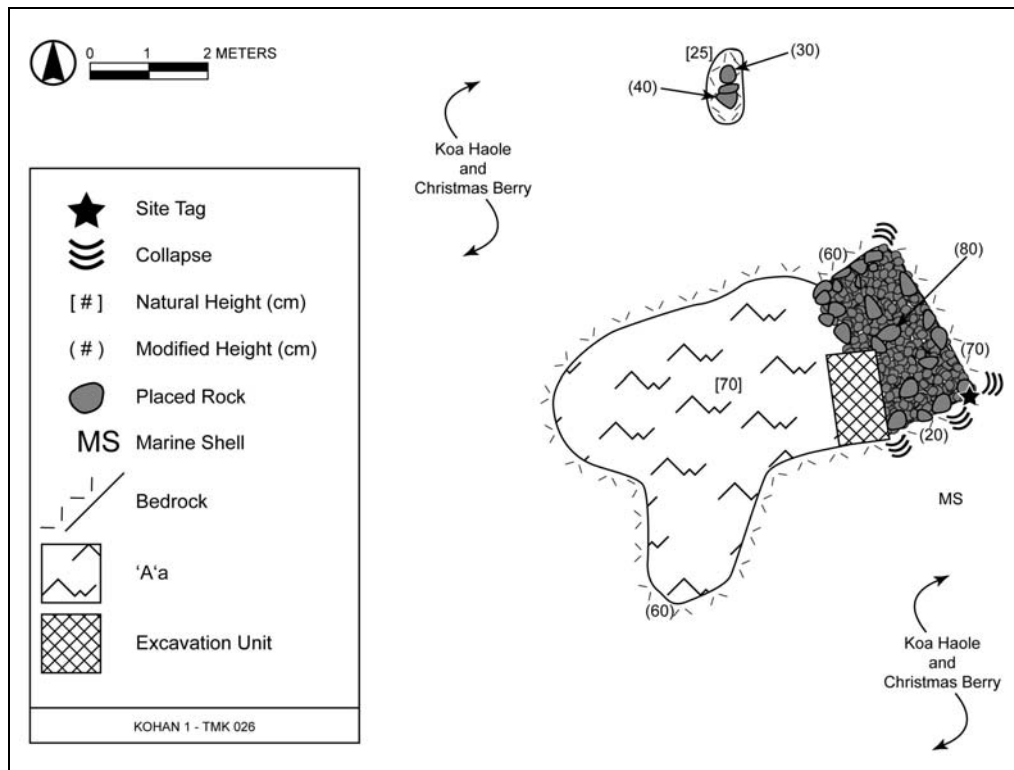


Figure 297. Site -26530 overview



Figure 298. Site -26530 overview of 'a'ā platform

Small and medium cobbles are within the matrix and Stratum III extended to 70 cmbs. Stratum IV consists of a dark organic thin layer containing eroded shell, charcoal, and represents the eroding 'a'ā soil below with some cultural material from above.

This is a habitation platform on 'a'ā, with eroding 'a'ā below it. It was built on a natural linear 'a'ā mound.

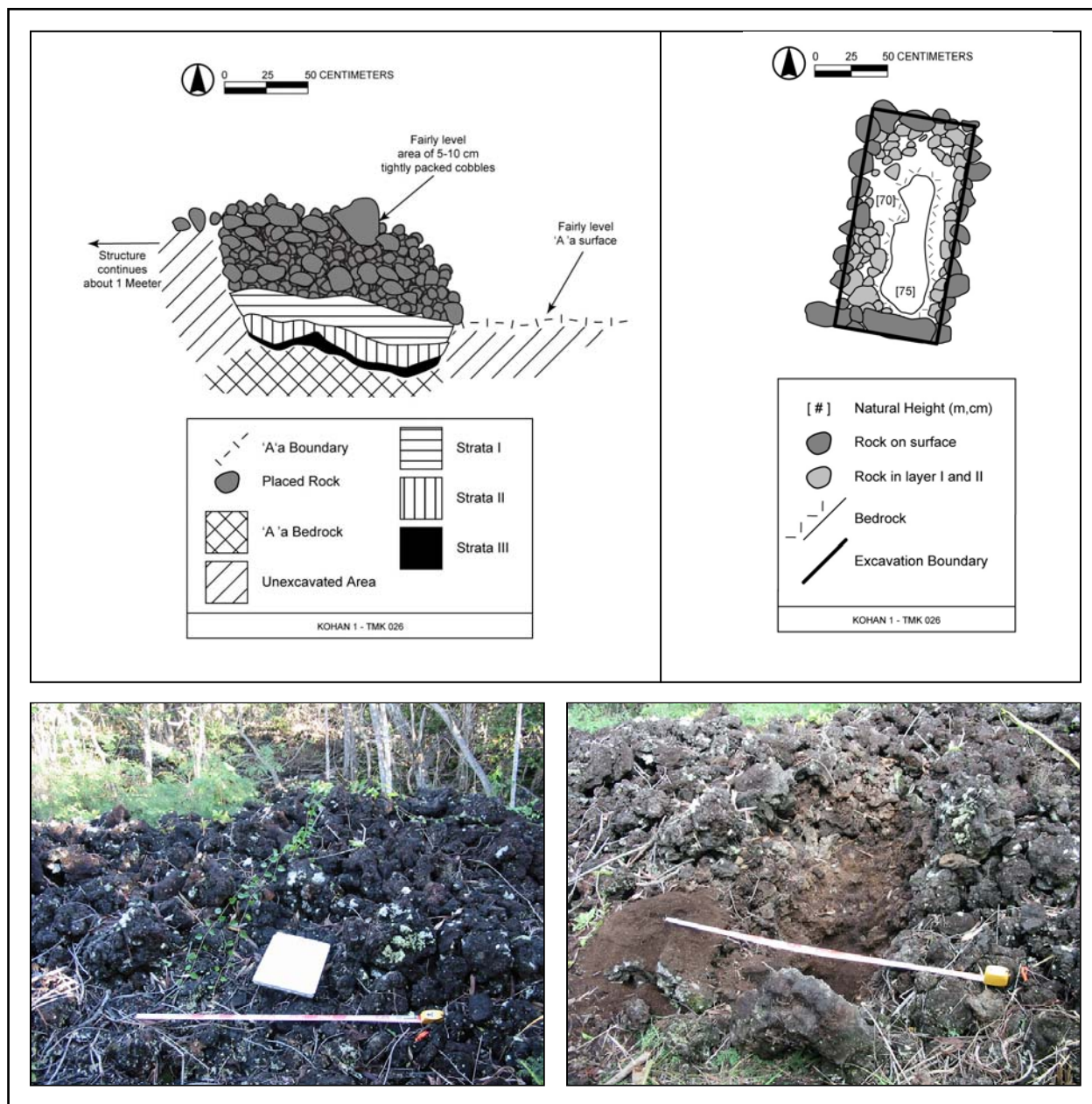


Figure 299. Site -26530 excavation figures. Left to right, top to bottom: excavation unit plan view; east wall profile; platform pre-excitation; platform post-excitation

2.1.50 State Site # 50-10-28-26531

SIHP #	50-10-28-26531
FUNCTION:	Agriculture
SITE TYPE:	Enclosure
TOTAL FEATURES:	1
DIMENSIONS:	4 m by 5 m (13.1 ft. by 16.4 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	650 ft a.m.s.l.

DESCRIPTION: Site -26531 is an informal enclosure located in the central portion of the project area, on top of a slightly west sloping, undulating *pāhoehoe* flow (Figure 300 and Figure 301). The enclosure is near the northwest edge of a small 'a'ā flow. Vegetation around the site consists of head-high *koa haole*, medium size Christmas berry, and grass.

The site consists of a single isolated enclosure informally constructed on top of a small natural blister. The blister has been excavated and *pāhoehoe* boulders have been placed on top of the blister edge and along the east side of the blister to extend the enclosure. This east arm of the enclosure is constructed of large *pāhoehoe* boulders. The west side has some modification; some *pāhoehoe* cobbles fill a small crack in the bedrock and a few placed boulders are present. The enclosure measures approximately 4 m by 5 m (13.1 ft. by 16.4 ft.). The enclosure's interior measures approximately 2.5 m by 2 m (8.2 ft. and 6.6 ft.). There is a soil deposit that measures approximately 11 cm to 13 cm deep, with no surface midden present.

The site's function is interpreted as agriculture. Modification of the natural blister is very informal, and the enclosure height is also very low, measuring only 0.45 m (1.5 ft.) on average. No midden is present that might suggest a habitation function, and the excavation potential is therefore poor, despite a shallow soil layer being present. The informality of the structure, which clearly required relatively little energy investment, and the soil deposit indicates that this enclosure was utilized for agriculture. This site was not combined into agricultural Site -26507 because it is a distinct structure, not part of a larger area of widespread agricultural features.

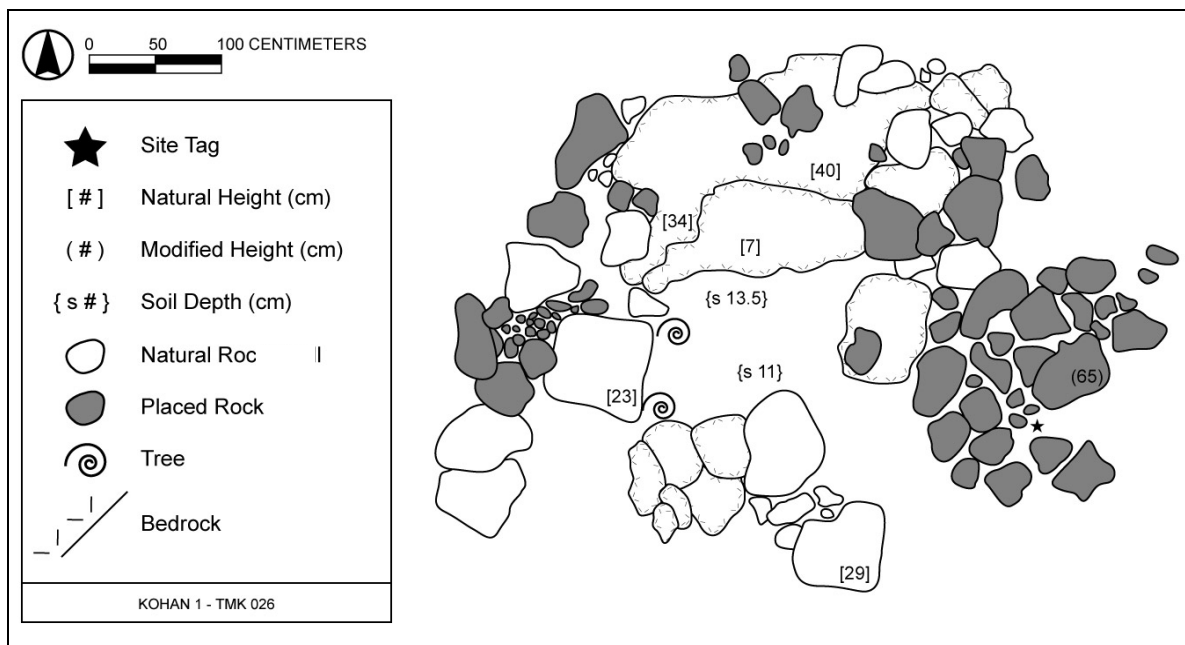


Figure 300. Site -26531, plan view of informal agricultural enclosure constructed on top of excavated blister



Figure 301. Site -26531, photograph showing the enclosure built around an excavated blister, view to north

2.1.51 State Site # 50-10-28-26532

SIHP #	50-10-28-26532
FUNCTION:	Temporary Habitation and Burial
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	50 m by 25 m (164 ft. by 82 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	640 ft a.m.s.l.

DESCRIPTION: Site -26532 is a lava tube sink with two lava tubes branching off of it; Tube 1 extends to the southwest and Tube 2 extends to the northeast (Figure 302). The sink is 2 m by 2 m and the only modification is at the Tube 2 entrance. It is located approximately 15 m west of Site -26520 (Sink 5) in a generally level landscape with very thick and well-developed *koa haole* and Christmas berry trees growing in the sink with a fairly sparse understory of air plants.

Tube 1 begins at the southwest end of the sink and is characterized by collapse and a fairly tight entrance, Entrance 1. About 20 m south of Entrance 1 is a skylight, Entrance 2. Tube 1, in general, is characterized by large number of branching side tubes, small amounts of scattered midden, and a few water collection features; the water features do tend to be closer to Entrance 2, which has easier access. There are also several cleared, level areas (Figure 303). A few pieces of *kukui* and cowry shell are present between Entrance 1 and 2. The cowry closest to Entrance 1 is very large, but not modified. To the east of Entrance 2, there is a complex side tube system that contains a few water collection features; one area has a number of marine shells (*Nerita* sp.) near a small ceiling collapse that opens to the surface, but is not large enough for surface access.

Several side tubes are present to the west of Entrance 2, but the tubes become too small to traverse. To the south of Entrance 2, a side tube with several water collection features becomes too small to pass (approximately 30 cm diameter passage) although it does appear to continue. A small opening, too small to provide access, to the surface and a pile of collapse are between the south side tube and Entrance 2. An octopus lure was found near this collapse. Finally, there is a side tube to the southeast of this collapse that leads to an area with a very large number of *kukui*. This appears to be a cache of *kukui* nuts; 100 are piled in a single area, and this is likely a rodent cache. Just to the southeast of the *kukui* there is a natural collapse with a very small opening to the surface. Burial 7 is located in this area, on the northeast side of the collapse (see burial description below). A small number of seabird bones are also present in this side tube.

Tube 2 is located on the northwest end of the sink. A modified chamber is just inside the entrance. A small alignment of medium size rocks is at the entrance to Tube 2 and just within the chamber is a level area paved with small cobbles (5-10 cm). To the east of the entrance, there is a small side tube that has been modified with a retaining wall (approximately 50 cm high) and small cobble fill to create another level area (Figure 304). A small depression is at the back of the small side tube that ends quickly; this area appears to be a good resting and/or storage area. To the west of the entrance, there is a small side tube that also ends quickly and appears to have been partially constructed.

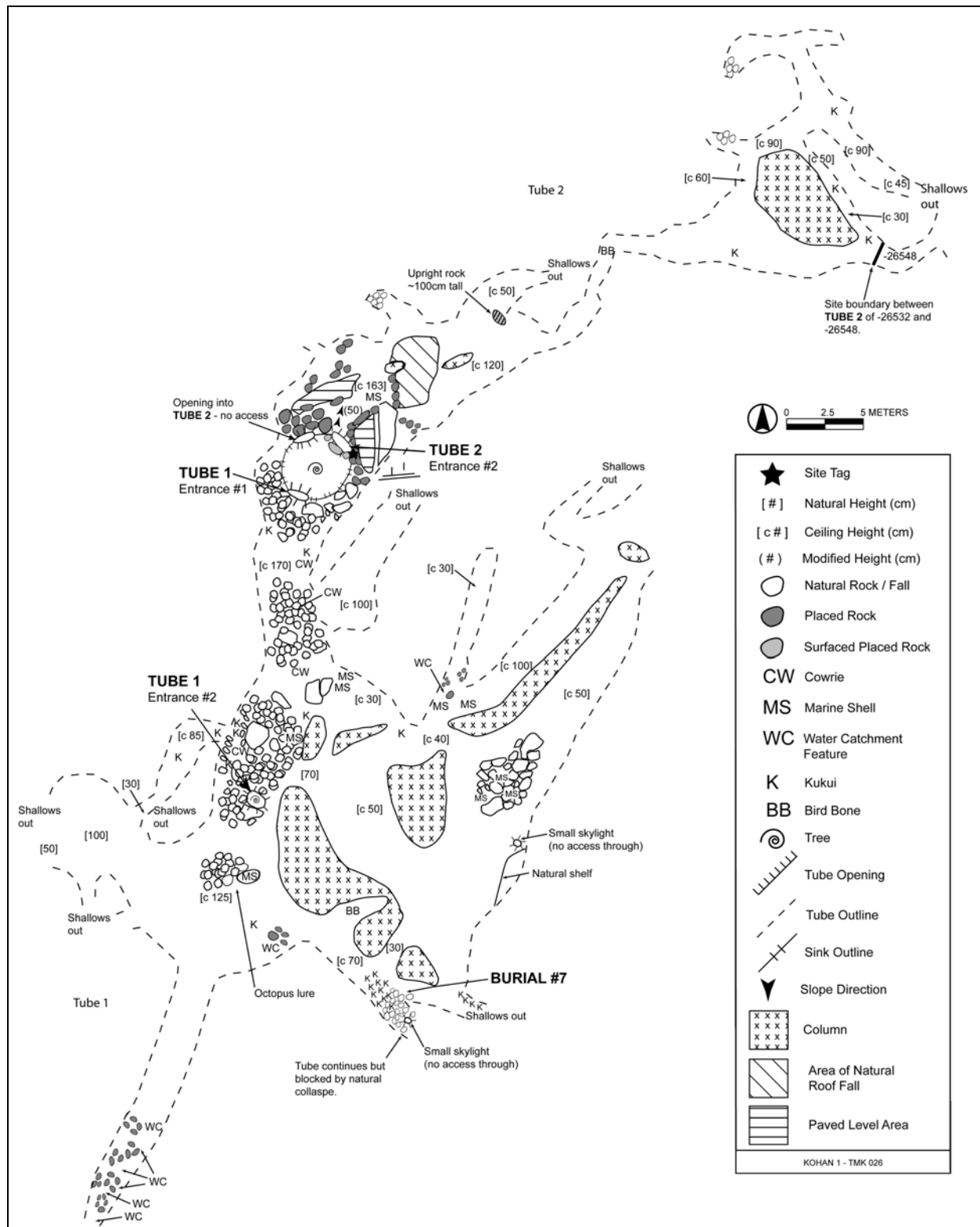


Figure 302. Site -26532, plan view of lava tube; note site boundary with Site -26548 at north end of tube



Figure 303. Site -26532, photograph of interior leveled portion of tube



Figure 304. Site -26532, showing the retaining wall on the east side of the entrance to Tube 2; the cobble fill is behind the wall in the upper portion of the photograph, view to southeast

Tube 2 continues to the northeast where a small retaining wall constructed of medium size rocks (informal) is built at the base of the natural roof fall. The tube then continues to the northeast about 10 m and ends. At the tube's end, a large roof fall slab is standing vertically wedged between the roof and the up-sloping ground, creating a large upright. The upright does not seem to be a marker for anything nearby. No midden was found in the back of the tube, although one large 'opihi shell was located in the center of the paved cavern entrance. Tube 2 has one major side tube that branches off the northeast end and continues to the northeast. This is a fairly tight entrance with several side tubes and little modification. Near the entrance of the side tube there are a few fragmentary bird bones, which appear to be a small land bird. Otherwise, no midden is present in the side tube system other than occasional *kukui*. This side tube system leads to Site -26559, which has a constructed entrance and is associated with several water collection features, an increased frequency of *kukui*, and some scattered charcoal fragments. Based on the proximity of these items to the -26559 entrance, they were determined to be associated with that site and not part of Site -26532.

The site's function is interpreted as temporary habitation and burial, with a secondary function of water collection. Tube 2 has a paved floor and a constructed area that was probably used for resting, and midden is scattered throughout the tube system. Tube 1 contained an artifact octopus lure and water collection features are present in Tube 2. This lava tube system contains more modification than a simple shelter and is considered to be a temporary habitation. The tube system also functions as a water collection and contains a burial, although the human remains likely represent a secondary deposition due to their fragmentation and placement (see burial description below). Nearby Site -26520 contains Burial 6 and Burial 63 and may be associated functionally with Site -26532. Excavation potential for this site is minimal due to a lack of soil deposit and only scattered midden.

Burial 7

Burial 7 is located in Tube 1 approximately 10 m southeast of Entrance 2. The southeastern side tube of Tube 1 has a large number of *kukui*, a very small opening to the surface with a natural roof fall pile beneath it, and two small side tubes that are less than 30 cm (0.98 ft.) high and cannot be accessed. Burial 7 is located between the roof fall area and the large cache of *kukui* nuts. The burial consists of six fragments of human remains: two teeth (a molar and a canine); a mandible fragment (coronoid process); two long bone shaft fragments (a probable humerus and a probable fibula); and a bone fragment that is most likely a portion of the iliac crest of the pelvis (Figure 305). Although all of these remains were too fragmentary to determine side or probable age, the small size of the humerus and lack of tooth wear suggest a young individual. All of the bones were found on the surface inside the tube; none were in an anatomical position, but were scattered in an area approximately 1 m by 1 m. The cave was searched for additional human remains, and none were found.

It is difficult to determine whether this is a primary burial or secondary deposition since the burial appears to have been moved from its original deposition area (bones are fragmentary, the skeleton is incomplete, bones are scattered on the surface). Natural causes (i.e. erosion, water movement through the cave) may have disturbed the burial since no intentional disturbance is evident. The human remains are near a small inaccessible opening to the surface and a pile of natural fall that was likely used as an informal burial chamber. Entrance 2 to Tube 2 is also an

accessible entrance and could have been used to deposit the burial in this area. Additionally, a small shallow tube continues southeast but is too shallow (30 cm / 0.98 ft. height) to crawl through. The human remains may have been initially deposited in this far chamber and were washed out; there is, however, no evidence that the human remains are eroding from a particular area. The location of Burial 7 is consistent with pre-contact Native Hawaiian practices of depositing human remains in mounds and in lava tubes. There are no associated burial goods.

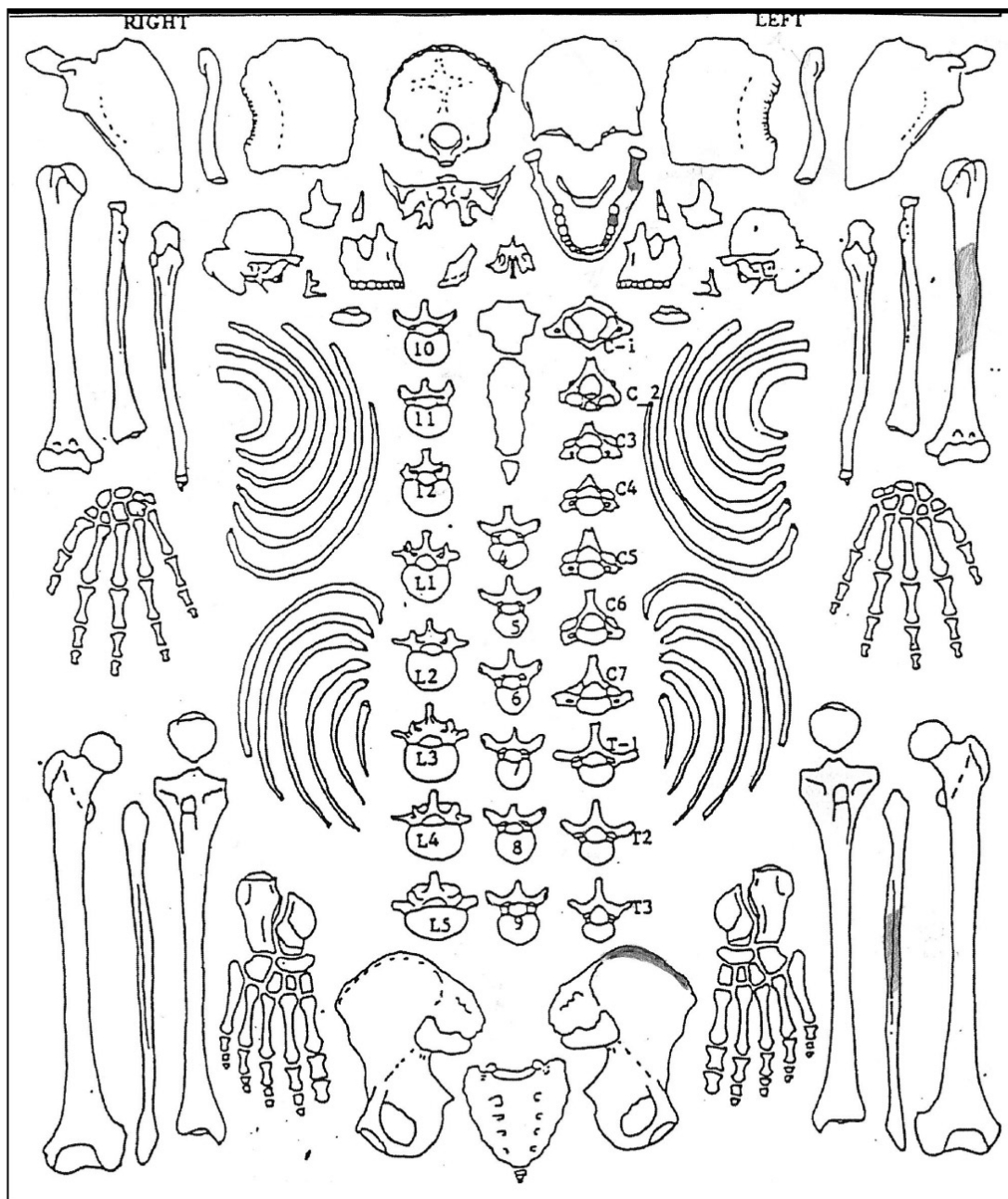


Figure 305. Site -26532, Burial 7 skeletal inventory form

2.1.52 State Site # 50-10-28-26533

SIHP #	50-10-28-26533
FUNCTION:	Agriculture
SITE TYPE:	Platform
TOTAL FEATURES:	No feature designations assigned
DIMENSIONS:	3 m by 2 m (9.8 ft. 6.6 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	640 ft a.m.s.l.

DESCRIPTION: Site -26533 is a small platform located in a broad area of exposed and eroded bedrock (Figure 306 and Figure 307); much of the bedrock in the area appears to be more eroded than might be expected and may have been subject to bulldozer activity or agricultural clearing.

The platform is constructed on top of a bedrock exposure that is visible on its south side where the exposure ends; it is very visible to the north as the bedrock exposure continues. The site measures 3 m by 2 m, and the construction of the platform is not more than 20 cm above the bedrock at the east/west edges of the platform, with a maximum constructed height of 30 cm. Bedrock exposure forms the base course on the south face of the feature, and the platform is constructed of medium cobbles to small boulders. The platform's north wall is informal with a rough alignment of small boulders (the largest in the platform) bordering the back of the platform, and sitting atop the bedrock exposure. The center of the platform is filled with small cobbles and rubble and is relatively well sorted. Excavation potential is overall poor, due to the shallow construction on bedrock. The platform walls are not faced, but are well aligned. If the walls were well stacked at one time, they are currently collapsed, and overall construction is very informal.

The site's function is interpreted as agriculture, and a test excavation of this feature (see below) confirms this function. The well sorted rubble in the center would be more advantageous for agriculture than other functions, since the platform is not large enough for habitation and burial has been ruled out by the test excavation. Further excavation potential is minimal.

Testing Results

Test excavation was conducted to assist in determining site function and to determine whether a burial is present. Stratum I, extending from 0 to 35 cmbs, consists of construction and sediment matrix (Figure 308 and Figure 309).

Excavation revealed the platform was constructed with small and medium cobbles over solid bedrock with a matrix of sediment throughout. A small amount of marine shell was recovered (*Nerita sp.*, approximately 4 pieces). Overall, an agricultural function is supported by the type of construction - the feature has somewhat larger cobbles on the outer edge with small to very small cobbles in the center. This supports the function as a planting bed as does the soil mixed within the cobbles. The small amount of marine shell may have been the result of general habitation in the area or may have been added as a fertilizer. Overall, function as an agricultural planting bed is strongly supported.

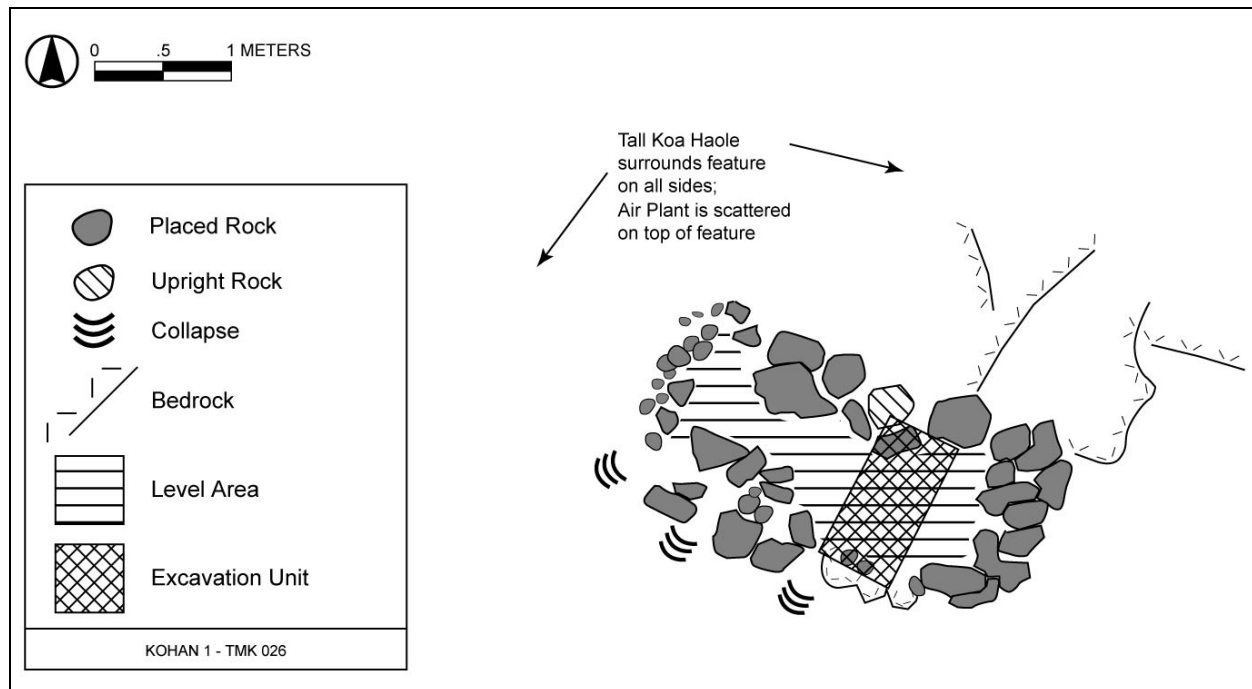


Figure 306. Site -26533, plan view



Figure 307. Site -26533, showing small agricultural platform, view to north

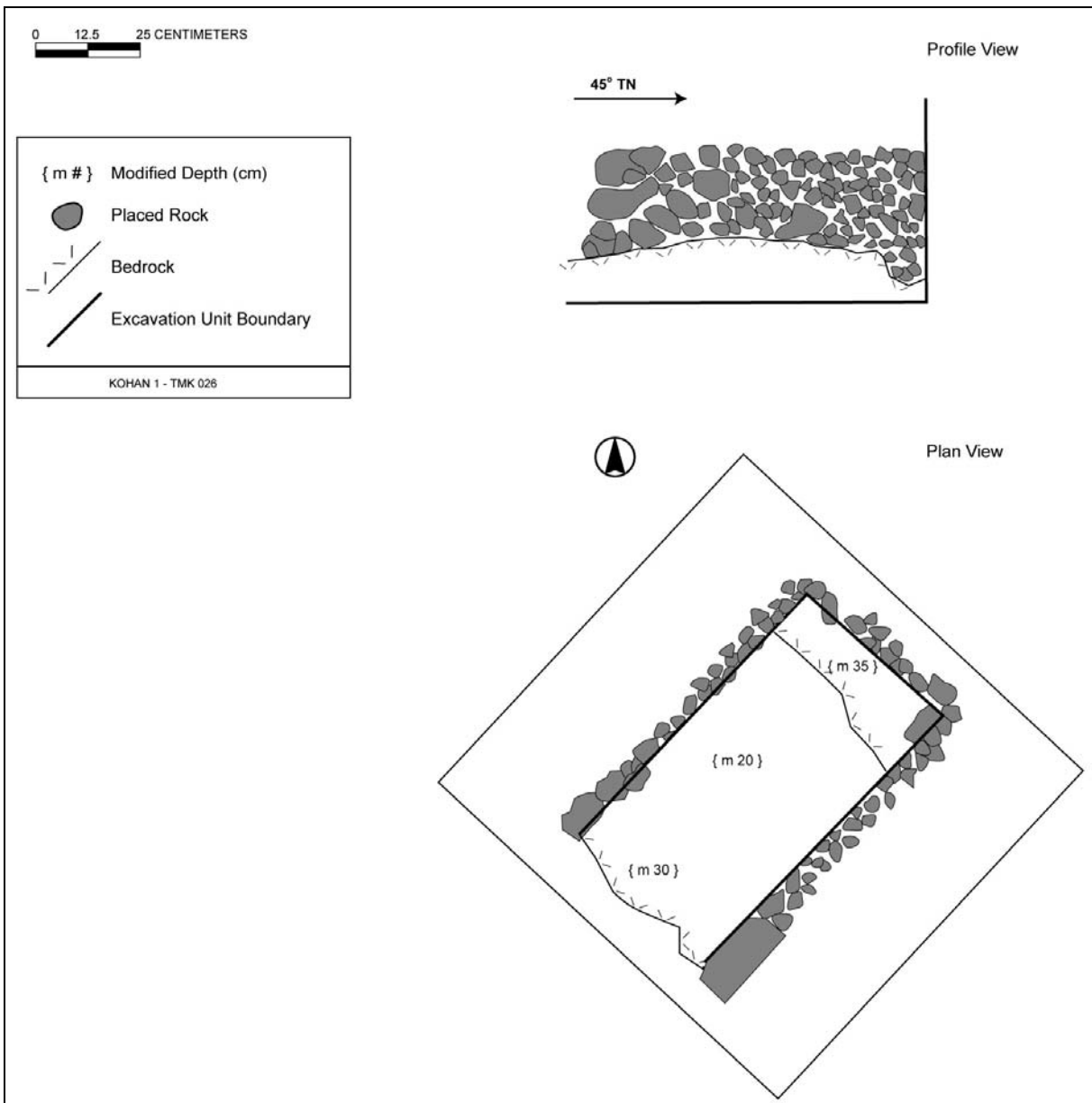


Figure 308. Site -26533, excavation figures for Unit 63, showing profile and plan view

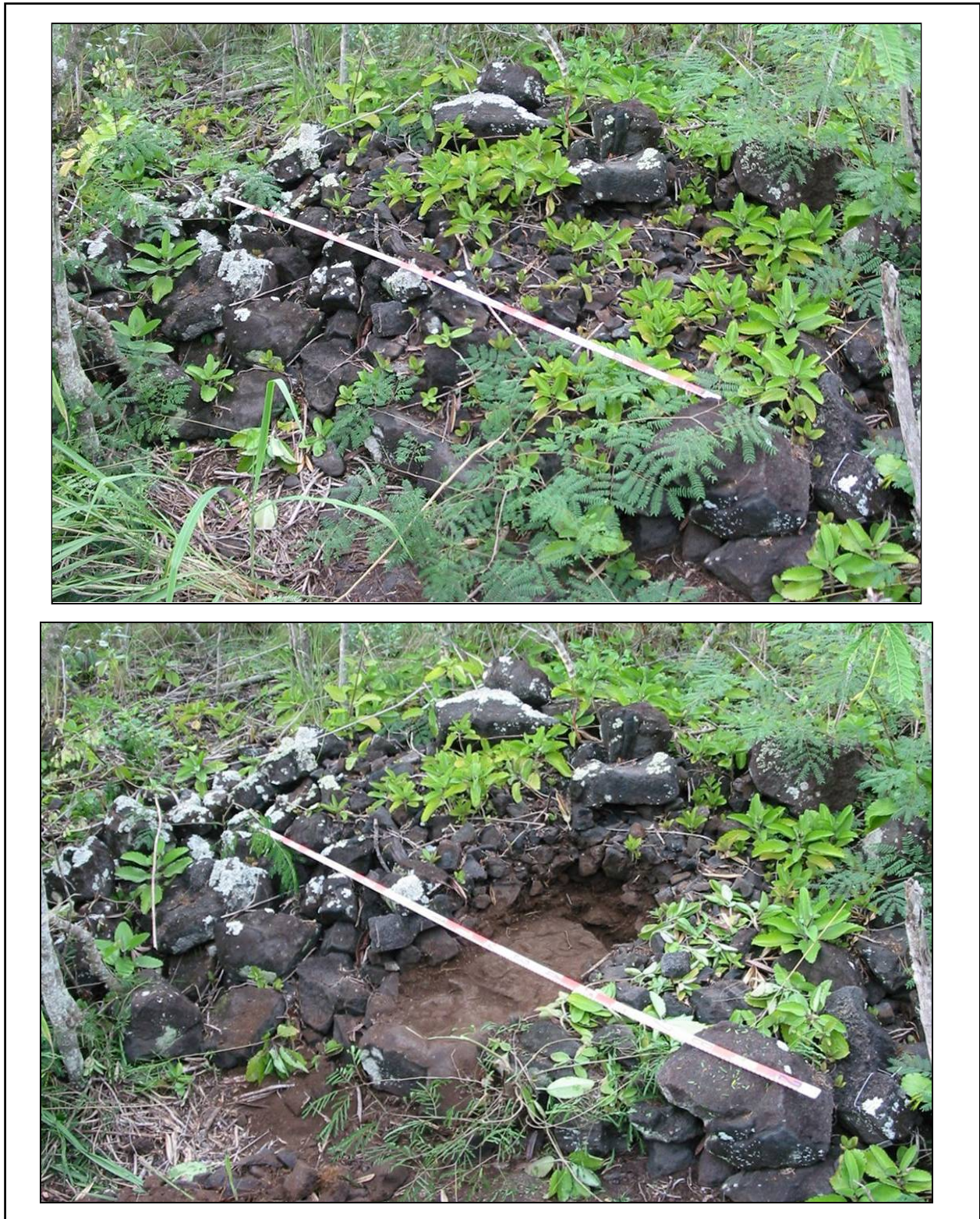


Figure 309. Site -26533, excavation figures for Unit 63, pre-excavation (top) and post-excavation photograph (bottom), facing north

2.1.53 State Site # 50-10-28-26534

SIHP #	50-10-28-26534
FUNCTION:	Permanent Habitation
SITE TYPE:	Complex
TOTAL FEATURES:	2
DIMENSIONS:	33 m by 23 m
CONDITION:	Good
AGE:	Historic
ELEVATION:	650 ft a.m.s.l.

DESCRIPTION: Site -26534 is located in the southeast portion of the project area and is 70 m (229.6 ft.) north of the *mauka/makai* trail Site -10714. The site is a permanent habitation site with two features (see Figure 310). Feature A is a habitation area with an 'a'ā platform, *pāhoehoe* slab pavement, *pāhoehoe* slab trail and an informally constructed *pāhoehoe* slab area. Feature B is a wall that encloses Feature A. The topography is gently sloping and the site is situated on top of an old 'a'ā flow. Vegetation consists of very thick air plants that conceal the ground surface, *koa haole*, and Christmas berry. Feature A has a good line of sight to the coast despite the dense vegetation. A site tag on the Feature B's west wall from previous work that reads TF 165 ACP 18-2-03. Cobb et al. (2003) identified Feature B as a cattle ranching wall.

Feature A consists of a platform paved with 'a'ā pebbles, a *pāhoehoe* slab pavement, two *pāhoehoe* slab trails, and an area of placed *pāhoehoe* slabs that are not level. The area that encompasses the Feature A modifications measures 11.7 m by 6 m (38.4 ft. by 19.7 ft.); it is located in the center of the site and extends to the east.

The paved 'a'ā pebble platform measures approximately 4 m (13.1 ft.) west-southwest/east-northeast and 6.5 m (21.3 ft.) south-southeast/north-northwest, and is 25 cm to 35 cm (0.82 ft. to 1.1 ft.) in constructed height. The perimeter is constructed with 'a'ā cobbles and boulders measuring 15 cm to 67 cm (0.49 ft. to 2.2 ft.) in diameter, with an average size of approximately 30 cm (0.98 ft.). The southern and western edges are stacked 2-3 courses high and both sides show evidence of collapse. The center of the western side of the platform has a section that is 115 cm (3.8 ft.) long and is constructed of two courses of horizontally stacked flat *pāhoehoe* slabs. The slabs range in size from 40 cm to 65 cm (1.3 ft. to 2.1 ft.). The eastern and northern ends of this platform are not stacked or piled, and are composed of naturally eroding 'a'ā. Four waterworn stones are in and on top of the platform. Three of the waterworn stones measure 25 cm (0.82 ft.), and one stone in the western wall collapse measures 35 cm (1.1 ft.). Immediately west of the 'a'ā platform is a *pāhoehoe* slab pavement (Figure 311). The pavement measures 5 m north/south by 3 m east/west (16.4 ft. by 9.8 ft.). The average measurement of the slabs is 50 cm by 50 cm (1.6 ft. by 1.6 ft.). They are tightly placed to form a smooth, level, solid pavement. The pavement is one course laid on top of the naturally occurring 'a'ā in the site. One waterworn stone that measures 35 cm (1.1 ft.) is on the pavement. There are also six 'a'ā cobbles on top of the pavement that do not appear to have been placed during the construction, and are likely associated with the partial collapse of the 'a'ā platform walls.

South of the southern edge of the *pāhoehoe* pavement is a *pāhoehoe* slab trail that extends to a small segment of the Feature B enclosing wall that is constructed with *pāhoehoe* slabs. The trail is constructed of a single course of *pāhoehoe* slabs and measures 8.3 m (27.2 ft.) in length. This

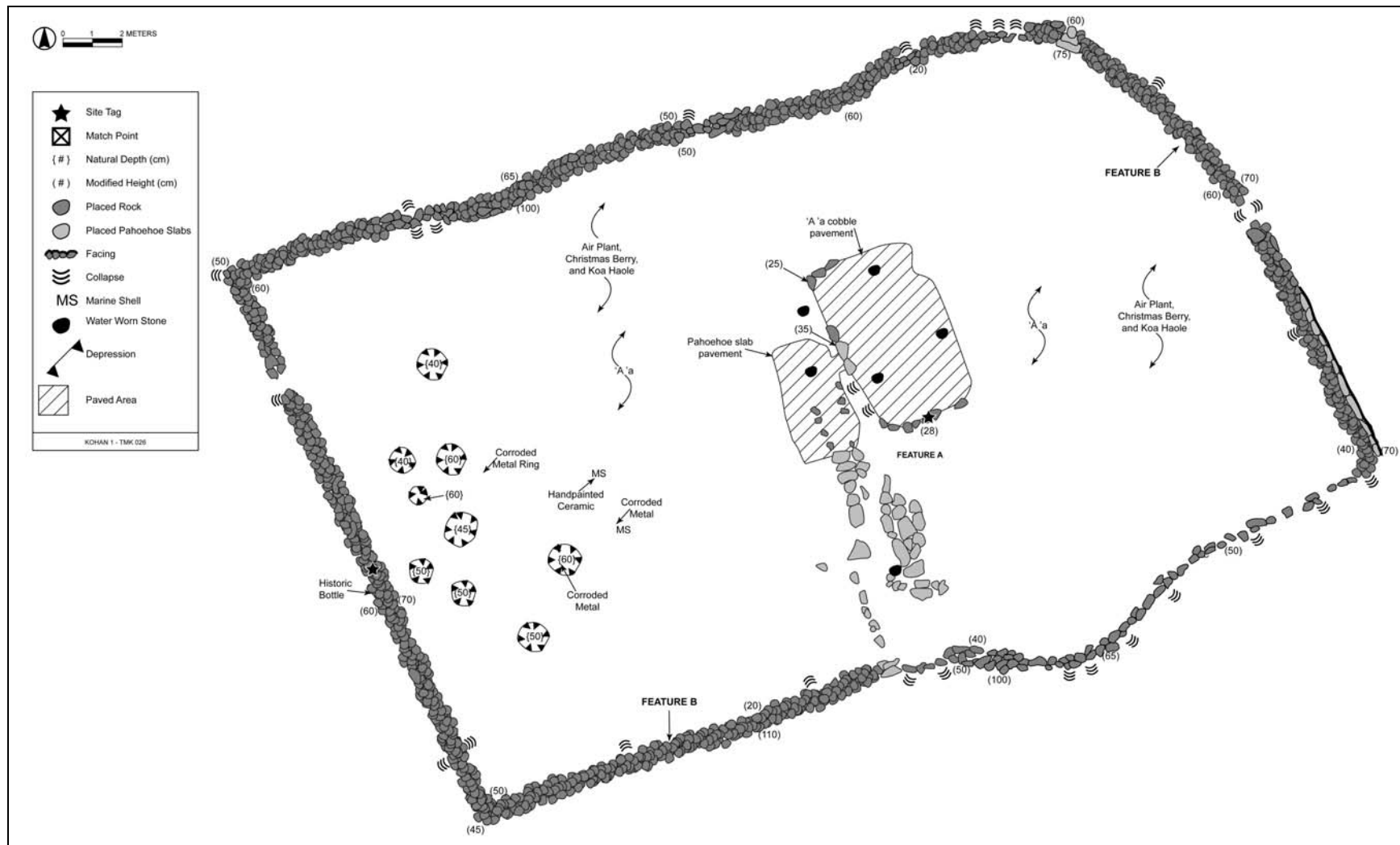


Figure 310. Site -26534 overview, plan view



Figure 311. Site -26534 Feature A, showing an area of slab pavement in the foreground and the low platform in the background, view to northeast



Figure 312. Site -26534 Feature B, showing an intact section of the wall, view to west

trail consists of approximately 15 slabs, ranging in size from 25 cm to 60 cm (0.82 ft. to 1.9 ft.) with an average size of about 40 cm (1.3 ft.).

One meter (3.3 ft.) to the east of the slab trail is an area of laid *pāhoehoe* slabs. The area is informally constructed; the slabs are not level and are not tightly placed, but are rather loose. The slabs range in size from 35 cm to 60 cm (1.1 ft. by 1.9 ft.) and average 50 cm (1.6 ft.). This area measures 4.5 m north/south by 1.5 m east/west (14.7 ft. by 4.9 ft.). One 25 cm (0.82 ft.) waterworn stone is near the southern end of this area.

Feature B is the wall enclosing Feature A. The wall is constructed of 'a'ā cobbles and measures 30 m east/west by 20 m north/south (98.4 ft. by 65.6 ft.). The wall enclosure is rectangular shaped, although the eastern side is somewhat rounded. Some facing is present at the southern end of the east wall.

The eastern portion of the south wall follows the contour of the 'a'ā flow, bowing out slightly to the south. This eastern portion also has some collapse and is more of a retaining wall than a free standing wall as it is on all other sides. This south wall is 70 cm (2.3 ft.) in width and measures 110–115 cm (3.6–3.8 ft.) in height on its exterior face. The interior face of the south wall ranges only from 15 cm to 35 cm (0.49–1.1 ft.).

A portion of the southeast corner of the enclosure is constructed with *pāhoehoe* slabs. A second *pāhoehoe* slab segment of the wall is constructed in the approximate center of the south wall, forming an alignment with the Feature A *pāhoehoe* slab trail. This *pāhoehoe* slab wall segment consists of four *pāhoehoe* slabs that are stacked four courses high. The 'a'ā wall is faced on the south wall's exterior where still intact.

The western wall is approximately 20 m (65.6 ft.) in length north/south. Most of the southwest corner is collapsed, with only the base 2–3 courses remaining. The west wall averages 55 cm (1.8 ft.) high, on both the interior and exterior sides, and 65 cm (2.1 ft.) wide. There are three small areas of collapse on the western wall. The wall is 4 courses of 'a'ā cobbles that average 40 cm (1.3 ft.) in diameter. A historic purple glass bottle is located at the base of the exterior face of the wall. The west wall reaches a maximum constructed height of 90 cm (2.95 ft.) at the center of the wall (see Figure 312). The wall is faced on both sides. There is an area near the northwest end of the west wall that may have been an entrance but is not definitive due to collapse.

The north wall is approximately 30 m (98.4 ft.) long. Extensive collapse has occurred in the eastern portion of the north wall. The primary area of collapse is the eastern quarter of the north wall; the constructed height is presently only 20 cm (0.66 ft.). Just east of the northwest corner, the wall is constructed to a height of 75 cm and measures 60 cm in width (2.5 ft. and 1.9 ft.). The north wall is constructed with 4–5 courses of 'a'ā cobbles that average 40 cm (1.3 ft.) in diameter. Portions of the walls that are not collapsed are faced.

The northeast corner of the wall is 5–courses of stacked *pāhoehoe* slabs that are between 25 cm and 45 cm (0.82 ft. and 1.5 ft.). The wall is 70 cm high and 70 cm wide at this point. The east wall has two small areas of collapse and then continues 55 cm high and 60 cm (1.8 ft. and 1.9 ft.) wide. The base course of the east wall incorporates an upright slab in its facing.

The western one-third of the site contains nine excavated depressions ranging in size from 80 cm to 1 m (2.6 ft. to 3.3 ft.) in diameter and depths of 40 cm to 60 cm (1.3 ft. to 1.9 ft.). There are a few cowry shell fragments amongst the 'a'ā flow in this area. There are also several historic

artifacts in this western portion of the site. These include fragmentary pieces of corroded metal including a corroded metal band or ring (Figure 313) and a hand painted ceramic dish (Figure 314) on the surface of the 'a'ā flow. In one of the larger excavated depressions there are some additional fragments of corroded metal and along the base of the Feature B enclosing wall is a historic glass bottle (Figure 315). The bottle and ceramic piece were collected during inventory survey.

The site's function is interpreted as permanent habitation based on the amount of labor invested to construct both Feature A and Feature B. The site has a good line of sight to the coast despite the dense vegetation. Feature A is a habitation 'a'ā platform with a well constructed *pāhoehoe* slab pavement to the west, and a *pāhoehoe* slab trail that leads to the surrounding wall with an area of informally laid *pāhoehoe* slabs to the east of the slab trail. Feature B encloses Feature A, and although it is possible the wall was built to enclose an area for livestock, this seems unlikely, as the western third of the enclosed area is 'a'ā rubble that lacks vegetation. It seems more likely that the wall was constructed to enclose the platform and keep any livestock out of the living area. Excavation at this site is overall good, as historic artifacts and possibly midden are likely to be present within the enclosure.



Figure 313. Metal band observed at Site -26534 Feature B



Figure 314. Hand painted ceramic dish shard observed at Site -26534 Feature B

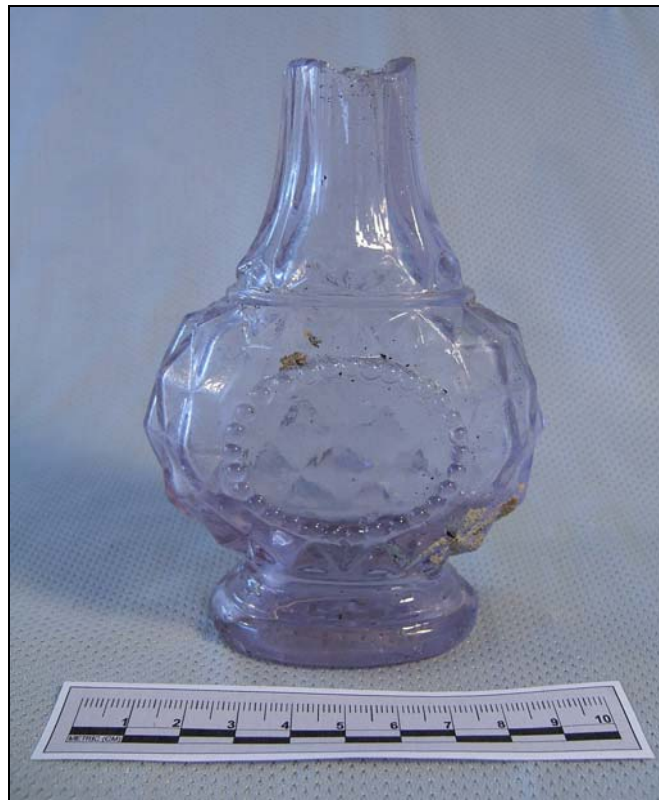


Figure 315. Glass bottle observed at Site -26534 Feature B

2.1.54 State Site # 50-10-28-26535

SIHP #	50-10-28-26535
FUNCTION:	Permanent Habitation
SITE TYPE:	Platform
TOTAL FEATURES:	1
DIMENSIONS:	6 m by 4 m
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	740 ft a.m.s.l.

DESCRIPTION: Site -26535 is a rectangular platform constructed of *pāhoehoe* cobbles (Figure 316 & Figure 317). This feature is approximately 20 m south-southwest of the sink for -26537, a complex of water collection caves. The mound is an area of dense grasses and moderate over head-high Christmas berry trees, and this vegetation was encountered up to and on the edges of the mound; although vegetation was not growing from the center, large roots have caused significant disturbance to the structure.

The platform is constructed to a height of 1.2 m above the surrounding terrain, and provides views of the coastline to the south and west, with particularly good views of the coastal plain to the southwest and closer surrounding terrain to the south. The current dimensions of the structure are approximately 6 m north/south by 4 m east/west, but original dimensions were likely closer to 3 m north/south by 2.5 m east/west. The platform is composed of small to large *pāhoehoe* cobbles (generally 5-45 cm), and heavily eroding *pāhoehoe* bedrock outcrops to the northeast of Site -26535 could have provided an ample source of *pāhoehoe* cobbles to construct the feature. The only evident construction technique beyond informal piling are alignments along the edges, interpreted here as the original edges of the feature. These alignments are a single course high, generally with medium sized cobbles, but with large cobbles at the southeast and southwest corners. The alignments are evident along the entire east side, the entire south side, and the south half of the west side.

There is no evident facing and the surface of the structure is not particularly level, but the linear alignments along the edges of the feature suggest it was a platform rather than just a mound (this was confirmed during test excavations, see discussion below). Alignments on the east, south, and west sides suggest that the original shape of the feature was rectangular. There is evidence of collapse on all sides of the platform, but is most significant along the north side and in the northwest corner.

The site's function is interpreted as permanent habitation. A test excavation (see testing results below) was conducted to confirm that this was not a burial mound, and the large amount of midden recovered from excavations (as well as ashy soils and charcoal) confirm recurrent habitation at the site. There are also a number of nearby habitation sites, suggesting fairly intensive occupation of this particular area.

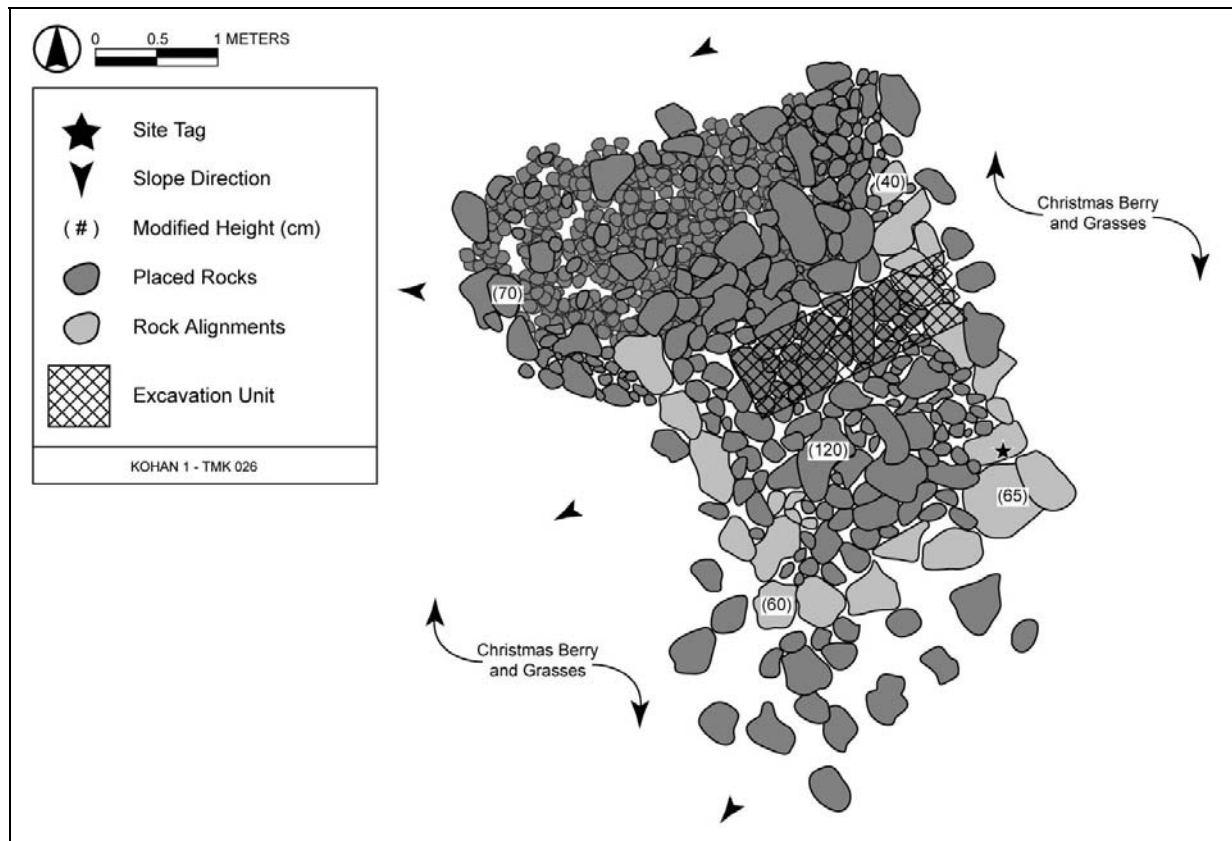


Figure 316. Site -26535, plan view



Figure 317. Site -26535, showing the roughly rectangular mound; alignments are visible at the bottom left and bottom right sides of the photograph, view to northwest

Testing Results

Test excavation was conducted to assist in determining site function and to determine whether a burial is present (Figure 318 & Figure 319). Stratum I, extending from 0 to 70 cmbs, is the constructed portion of the structure consisting of small to large cobbles (5-50 cm). Stratum II, extending from 70 to 80 cmbs, is mixed with small to medium stones, less sediment than rocks and heavy root action with some cultural material. Stratum III, extending from 80 to 100 cmbs, consists of sediment that is slightly ashy between and under medium sized cobbles (15-25 cm); about equal volume of rocks and sediment; and large and small roots on the bedrock. Most cultural material is just above the bedrock and probably represents the peak use of the site.

Excavation revealed a fairly large amount of midden in Stratum III, and a small amount in Stratum II. Midden included a large amount of shell, charcoal, one fish bone, and sea urchin including a large number of mouth pieces and shells). Several small pieces of volcanic glass (10+), one large coral abrader blank, and one small waterworn hammerstone was found. All indications suggest that this structure was utilized as a habitation platform that may once have had a more level surface.

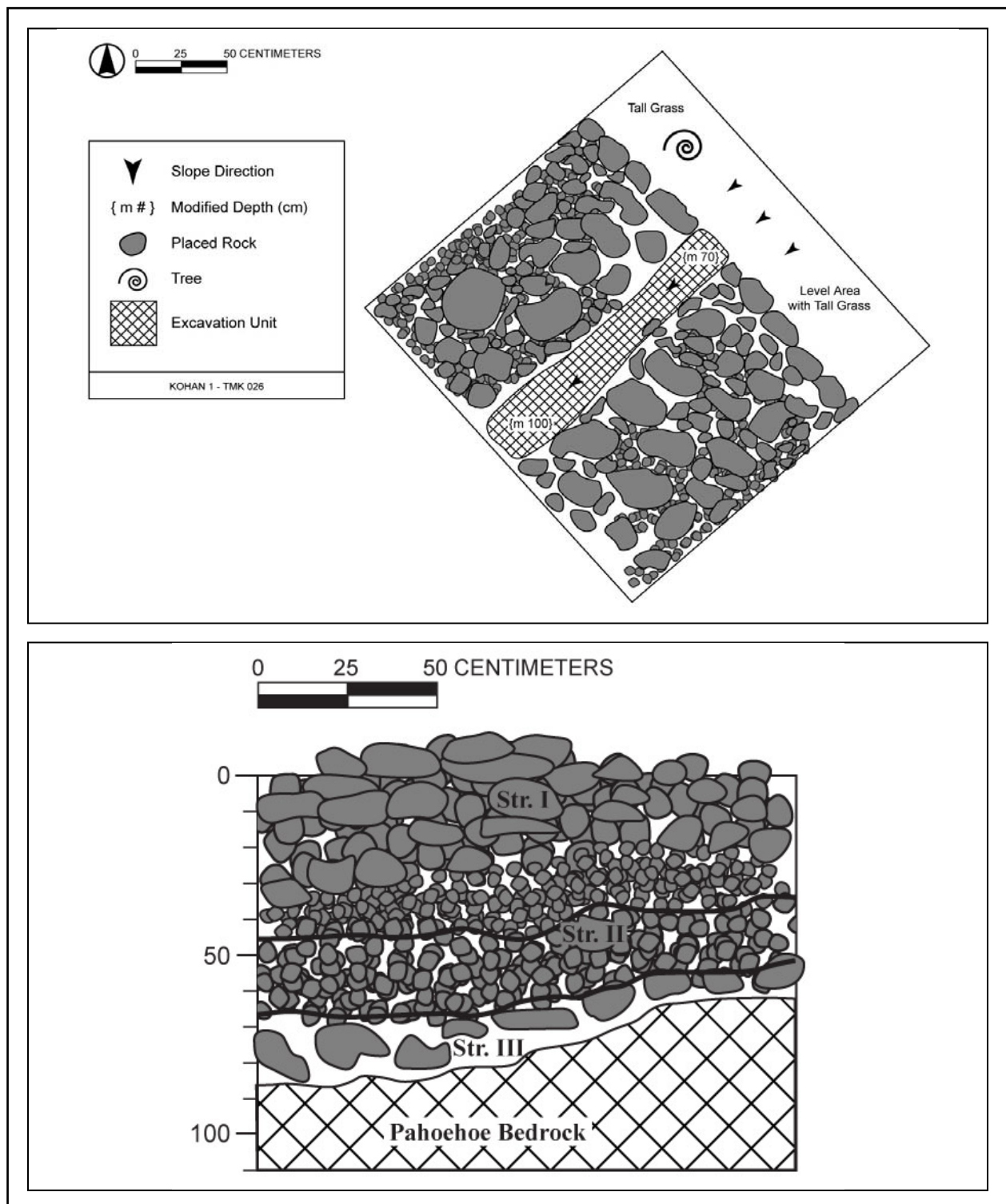


Figure 318. Site -26535, excavation figures for Unit 7: top is plan view of excavation, bottom is profile of north wall



Figure 319. Site -26535, excavation figures for Unit 7: top is pre-excavation photograph, bottom is post-excavation, view to southwest

2.1.55 State Site # 50-10-28-26536

SIHP #	50-10-28-26536
FUNCTION:	Animal Husbandry
SITE TYPE:	Wall
TOTAL FEATURES:	1
DIMENSIONS:	120 m by 60 m (393.7 ft by 196.9 ft)
CONDITION:	Poor
AGE:	Historic
ELEVATION:	625 ft a.m.s.l.

DESCRIPTION: Site -26536 is a historic wall located in the middle of the southern portion of the project area atop a relatively flat area in the undulating *pāhoehoe* flow (Figure 320). The wall is surrounded by the area's typical vegetation which consists of *koa haole*, air plants, and grasses.

The wall runs for a total length of 120 m (393.7 ft) and averages a width of 60 cm. The westernmost approximately 40 m of the wall runs northeast/southwest. The remaining approximately 80 m of the wall runs roughly east/west. There is no defined corner remaining where the orientation of the wall changes from northeast/southwest to east/west as the wall has suffered significant collapse due to natural forces and bulldozing. There a total of four breaches in the wall, each measuring at least 5 m (16.4 ft) wide, all likely caused by bulldozing.

Despite the collapse of the wall, its construction style of rubble-filled construction is still clearing evident. The wall was constructed with *pāhoehoe* boulders averaging approximately 40 cm in diameter and stacked anywhere between two and eight courses. The remaining intact portions of the wall exhibit some facing and constructed heights ranging from 70 cm to 100 cm (2.3-3.3 ft), with a maximum constructed height of 110 cm.

The site's function is interpreted as a historic animal husbandry wall based in large part on the absence of evidence to suggest any other function. The extensive bulldozing in the area surrounding the site may have destroyed any additional modification that may have provided further insight to the wall's function.



Figure 320. Site -26536, showing the northeast-southwest-oriented wall segment, separated from the other wall segment by bulldozer activity, view to south

2.1.56 State Site # 50-10-28-26537

SIHP #	50-10-28-26537
FUNCTION:	Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	90 m by 10 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	740 ft a.m.s.l.

DESCRIPTION: Site -26537 is a lava tube system (Figure 321) located on the southwest slope of a gently undulating *pāhoehoe* flow in the northeast corner of the project area. Vegetation surrounding the site consists of dense grasses, Christmas berry of varying sizes, a couple of tall 'ohia trees, and some sparse head-high *koa haole*.

The site consists of two lava tubes extending from a modified sink (Figure 322). The sink measures approximately 5 m by 4.5 m and is 2.1 m below the surface. The modification in the sink consists of a stacked small mound measuring 1.25 m in diameter and 95 cm tall, constructed of *pāhoehoe* slabs and small boulders stacked atop a large piece of natural fall to create a means of access into and out of the sink (Figure 323). The sink has also been modified with the placement of rocks that block a tube along the northeast sides of the sink. Along the edge of the north side of the sink, these placed rocks are small to large *pāhoehoe* cobbles piled just beneath the dripline. On the east side of the sink, the placed rocks blocking the tube are *pāhoehoe* slabs and boulders and completely close off the northeast tube from the sink. The southwest side of the sink has the partially blocked entrance to a tube constructed of *pāhoehoe* slabs, including a couple of uprights, and *pāhoehoe* boulders. Immediately northeast of this constructed entrance, just beneath the dripline, is a small *pāhoehoe* cobble pavement. The only midden in the sink itself are four cowry pieces found amongst the cobble paving. No artifacts were found in the sink.

The southwest tube extends approximately 55 m roughly west-southwest. The main chamber of the tube, immediately inside the entrance, was full of unmodified natural fall. Beyond this main chamber, the tube narrows and is relatively clear of fall and continues for 45 m before it becomes too shallow to pass through. In this 45 m stretch, there are approximately eight water catchments scattered throughout, with the majority of them, five, located in the last 5 m of the tube before it shallows out. Beyond the impassable shallow end of this tube, it is possible to see into another tube where a blocked entrance to the surface is clearly visible. The area is not accessible from this southwest tube. There are two additional side tubes of the southwest tube that head back around the sides of the sink from immediately inside the entrance to the southwest tube, but they soon become impassable due to natural fall. A single piece of marine shell was present amongst the natural fall on the northwest side tube. This southwest tube clearly functioned as a water collection cave.

The tube off the northeast end of the sink is blocked by placed rocks across the entire northeast side of the sink. Upon moving two small boulders from the least blocked portion of the placed rocks, access was gained into the northeast tube. Immediately beyond this entrance is a



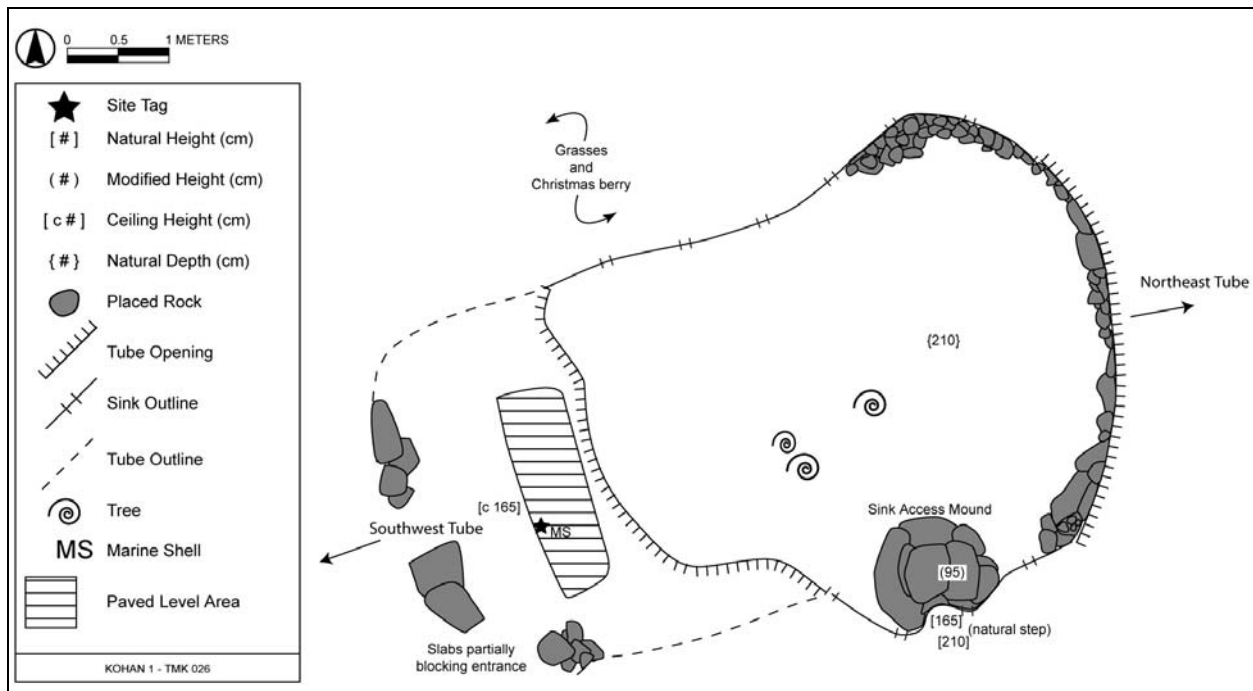


Figure 322. Site -26537, plan view detail of sink modification (see also Figure 321)



Figure 323. Site -26537, showing the mound that provides access into sink, view to south

constructed paved path leading into the tube. Access is tight as this path is paved with small *pāhoehoe* cobbles and inlaid small *pāhoehoe* slabs between the north side wall of the tube and the natural fall that fills the majority of the center of the floor space in the entrance chamber. The path runs approximately 4 m into the entrance chamber before ending. In this entrance chamber, there are approximately two small alignments composed of large *pāhoehoe* cobbles and small boulders. Approximately thirteen water catchments are also scattered throughout the entrance chamber.

Some charcoal is scattered throughout the entrance chamber as well, but it is likely this all washed in based on the location the charcoal was found. The midden in this entrance chamber consists of scattered *kukui*, a single marine shell, and a single urchin. Some placed rocks are also scattered around the entrance chamber. Along the north wall of this entrance chamber at the northeast end is a torch, a piece of wood with one end burnt. A burned piece of *kukui* is also near this torch. Beyond the entrance chamber, the tube continues, first heading northeast and then east. It ends approximately 17 m beyond the entrance chamber. The remaining stretch of the tube has some scattered *kukui* and approximately 14 additional water catchments scattered throughout. Some placed rocks are scattered throughout the tube beyond the entrance chamber, and the north side tube connects to Site -16103, a permanent habitation.

The site's function is interpreted as a water collection based on the presence of water catchments in both tubes and almost no other modification. The southwest tube also has no midden except for a single marine shell piece and the northeast tube has extremely limited midden as well. The sink contains some modification but only in relation to accessing the tubes and not serving any independent function. Thus water collection is the only primary function.

2.1.57 State Site # 50-10-28-26538

SIHP #	50-10-28-26538
FUNCTION:	Complex
SITE TYPE:	Lava Tube
TOTAL FEATURES:	4
DIMENSIONS:	90 m by 30 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	710 ft a.m.s.l.

DESCRIPTION: Site -26538 is located in a gently undulating *pāhoehoe* flow in the northeast quadrant of the project area. The vegetation on and around the site consists primarily of Christmas berry of sizes ranging from small to large. There are also some surface grasses in the vicinity and morning glory.

Site -26538 is a site complex that consists of two sinks and three lava tubes that encompass four features (Features A-D) (Figure 324). Feature A is a lava tube that extends off the southwest of the two sinks, Feature B, and functions as both burial, containing Burial 32, and water collection. Feature B is the southwest sink with two overhangs and modifications in the form of paving, a retaining wall and leveled areas. Feature B functions as a temporary habitation. Feature C is the northeast sink of Site -26538 that opens into a skylight chamber with an abundant amount of surface midden, 21 artifacts and modifications. Feature C functions as temporary habitation. Feature D consists of two lava tubes that head northeast of the skylight chamber of Feature C. The two lava tubes contain only slight modification and function as water collection.

Feature A is a 20 m by 10 m lava tube that extends off the northeast side of Feature B sink (see Figure 325). The entrance to the tube is relatively small, measuring only 130 cm by 50 cm (4.3 ft. by 1.6 ft.) (Figure 326). There is a natural fall ramp (not constructed or modified) that extends down into the tube. Just beyond the base of this natural fall, approximately 4 m east/northeast of the entrance is the small *pāhoehoe* boulder and cobble mound of Burial 32 (see below for burial documentation). Located approximately 5 m north of the burial mound is a water catchment. As the tube heads east it splits into two branches, both of which run for approximately 3.5 m (11.5 ft.) before opening into the skylight chamber of Feature C. Immediately before opening into Feature C, in the northernmost of the two branches all the larger cobbles have been cleared to the sidewalls creating a small cobble paving stretching 2 m (6.6 ft.) before opening into Feature C. The southernmost of the east heading branches has modification including a partially constructed entryway into this branch with placed small boulders and an upright that somewhat restricts the entryway but does not block it completely. A path on the floor of the tube has been cleared and partially curbed with fall to create a well defined pathway to the intentionally blocked entrance to the Feature C chamber. In the fall that has fallen in from Feature C at the end of this path is a large amount of midden consisting of *kukui*, urchin, and small mammal bone.

A very small amount of midden is present in the other areas of the tube, consisting of scattered *kukui* and urchin.

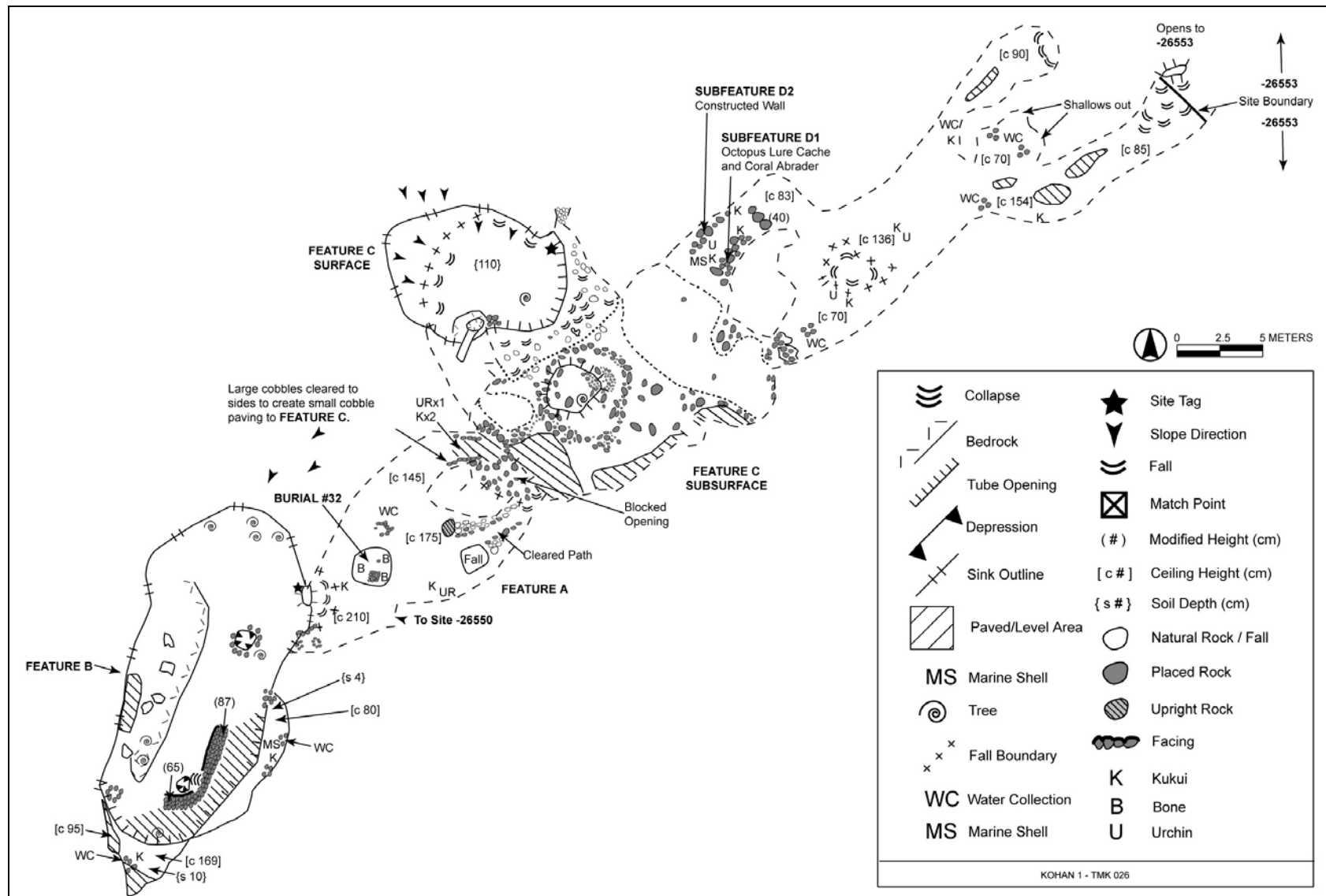


Figure 324. Site -26538 overview

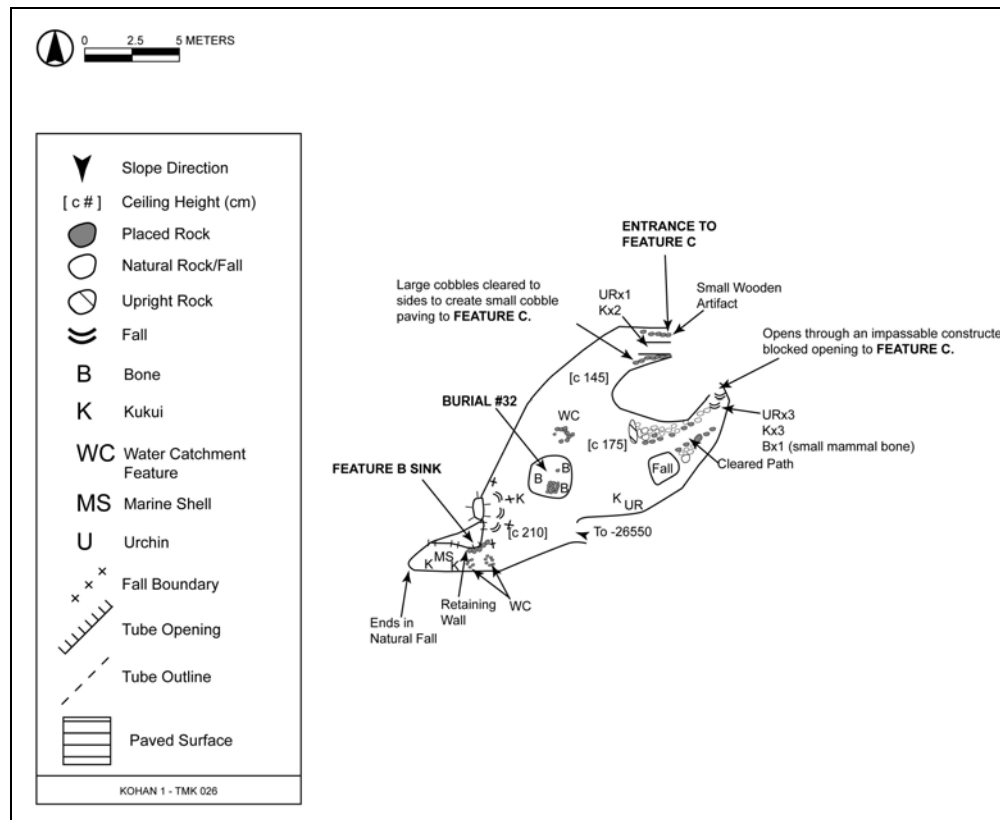


Figure 325. Site -26538, Feature A, Burial 32 plan view



Figure 326. Site -26538 Feature A, showing the entrance to the lava tube

The main chamber of Feature A lava tube connects through a small opening high on the side wall to Site -26550.

The Feature A tube also heads roughly west immediately inside the entrance from the Feature B sink. There are two small water catchments at the beginning of this west trending branch of the tube. Beyond the water catchments, the tube runs for another 3.5 m before ending in natural fall. There is a small midden scatter in this branch consisting of *kukui* and cowry shell. The south side of the entrance to the Feature A tube, making up the northeast side of the west branch, is a partially constructed wall, constructed from what was likely natural fall to serve as a retaining wall for natural fall from the entrance.

The function of Feature A is burial and water collection. The burial function is confirmed by the presence of Burial 32, a positively identified human burial. The water collection function is evidenced by the presence of the water catchments and percolating water throughout the cave. Aside from the water catchments and the burial, the majority of the tube's modification seems to be more related to Feature C than Feature A as such modifications are present nowhere else in the tube except immediately adjacent to Feature C. The midden present in the tube is also very limited except in relation to Feature C.

The water collection function likely predates the use of this tube as a burial given the burial's position only 4 m inside the entrance, in the center of the main room of the tube and visible from immediately inside the tube entrance at the top of the natural fall ramp.

Feature B of Site -26538 is a north/south running modified sink (Figure 327). The sink runs north/south for approximately 24 m and has a width of 8 m. The north end of the sink is unmodified and the Feature A lava tube extends off the northeast side of the sink. The floor of the sink is naturally covered with large *pāhoehoe* cobbles and small to medium boulders. This natural fall has been modified in multiple areas of the sink. A small excavated depression measures roughly 1 m (3.3 ft.) across. The natural fall in the center of the sink has also been modified to construct an L-shaped retaining wall that measures 65-87 cm tall (Figure 328). The majority of this retaining wall is intact and faced. The wall serves to retain the natural fall and create a level area that is immediately in front of the sink's two modified overhangs. The overhang on the east side of the sink has a naturally level, relatively smooth floor. It contains some placed small boulders, including a couple of small upright slabs, a water catchment, and a very small amount of midden that includes a few *kukui* and a single marine shell. The overhang at the south end of the sink is larger and has two small paved areas. This south overhang has a second small water catchment and a few *kukui* endocarps. There is also a small circular alignment of placed rocks immediately in front of the southwest end of the south overhang. A shallow soil deposit is in the opening of the south overhang that measures approximately 10 cm (0.33 ft.) deep.

The function of Feature B is temporary habitation. Despite the fact that there is almost no surface midden present in the Feature B sink and overhangs, the type of modifications present, including informal pavements and retaining walls creating a level living space, indicates habitation function. Neither the modification nor midden are extensive enough, however, to warrant a permanent habitation function.

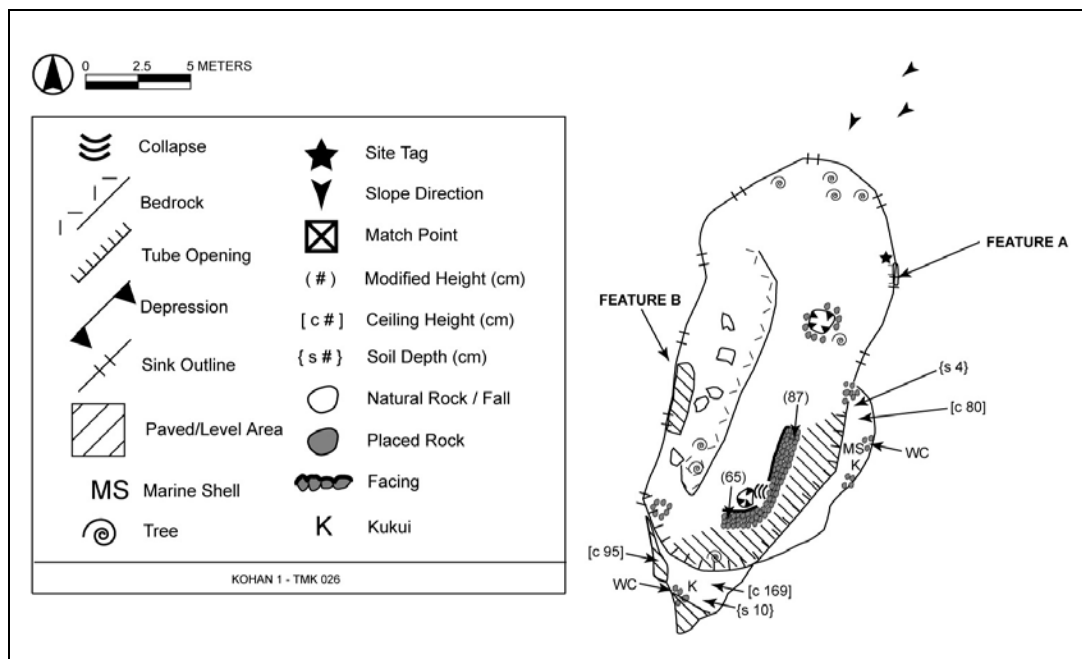


Figure 327. Site -26538, Feature B, plan view



Figure 328. Site -26538 Feature B, showing the retaining wall inside of the sink, visible in the center of the photograph. Notice the southern overhang in the background. View to southwest

Feature C measures 15 m by 11 m and consists of a sink and skylight chamber (Figure 329 & Figure 330). The sink begins approximately 5 m (16.4 ft.) northeast of the northeast end of the sink labeled Feature B. The sink is approximately 6 m east/west and 8 m north/south (19.7 ft. by 26.2 ft.) with a depth of 110 cm (3.6 ft.). The sink contains very little modification. A small naturally formed cupboard is on the south side of the sink. The interior space is approximately 1.5 m north/south by 1 m east/west (4.9 ft. by 3.3 ft.) by 1 m (3.3 ft.) tall. Large cobbles are piled near the entrance of this cupboard to possibly conceal it, although it was open when encountered. The floor of the sink is *pāhoehoe* cobbles and boulders (15-70 cm / 0.49-2.3 ft.). A large Christmas berry tree is growing towards the southeast side of the sink. The stones in the sink are mostly covered with moss. A single large entrance (5 m wide by 1.6 m tall / 16.4 ft. by 5.2 ft.) is off the east side of the sink and leads directly into an open airy chamber with a large (2 m / 6.6 ft. diameter) skylight.

The chamber is approximately 11 m north/south by 8 m east/west (36.1 ft. by 26.2 ft.). Many tubes run from this chamber, which contains abundant midden, a number of portable artifacts, soil deposits, and some modifications (Figure 329). From the entrance, a slope of natural fall leads down to the central part of the chamber, underneath the skylight. The area beneath the skylight has been cleared of all large boulders that presumably fell, creating the skylight. Two small trees now grow out of the skylight. A small mound (80 cm diameter by 25 cm tall / 2.6 ft. by 0.82 ft.) of small (3-15 cm / 0.1-0.5 ft.) *pāhoehoe* cobbles is just east of the skylight. Slightly larger rocks (approximately 35 cm / 1.1 ft.) are arranged in an informal ring around the central skylight portion of the room (see Figure 330). This area is about 4 m (13.1 ft.) in diameter. No midden or artifacts were encountered in this portion of the chamber.

On the west side of the skylight chamber, just south of the entrance, there is a small (25 cm wide by 100 cm deep by 45 cm tall / 0.82 ft. by 3.3 ft. by 1.5 ft.) natural cupboard that contains a midden deposit of *kukui* with a few urchin pieces. The midden materials may have washed in. However, since the cupboard is slightly upslope from the chamber, this is unlikely and this was just a convenient place to deposit materials. Just southeast of this cupboard is a cleared area with grey, silty sediment (10 cm / 0.33 ft. deep) and dense midden. This area is approximately 1.5 m (4.9 ft.) diameter with some small (1-10 cm / 0.4-4 inches) *pāhoehoe* pebbles and cobbles mixed in with the sediment and midden. The midden materials consist of *kukui* (approximately 50 fragments), marine shell (approximately 10 fragments; mostly cowry, one *Isognomon* fragment), urchin (less than 10 fragments), and bone (less than 10 fragments of small unidentified fragments). Artifact #2 is a *pandanus* brush in the sediment of the cleared area, directly adjacent to the constructed area of cobbles. To the west of this area, near the cupboard and against the wall, there is a nearly complete 'opihi (*Cellana sp.*) with a hole drilled through it (6 cm / 0.2 ft. specimen, 8 mm / 0.3 inches hole). This artifact, #1 for -26538, may have been an ornament.

South of the cleared area is an area of paving within an arc of larger (generally about 30 cm / 0.98 ft.) *pāhoehoe* cobbles marking a passage that heads to the northeast side of Feature A. Within the arc, two more *pandanus* brushes, artifact #3, are in the paving. Just inside the passage to Feature A, on the right (northwest) side is artifact #4, a modified piece of wood. This is a fairly hard wooden stick, 37 cm long by 3 cm wide (1.2 ft. by 0.1 ft.). It is tapered on one end to form a flat, broad end. The paving within this arc was constructed using small *pāhoehoe* cobbles (5-15 cm / 0.16-0.49 ft.). The paving within the arc contains fairly dense midden, including *kukui*

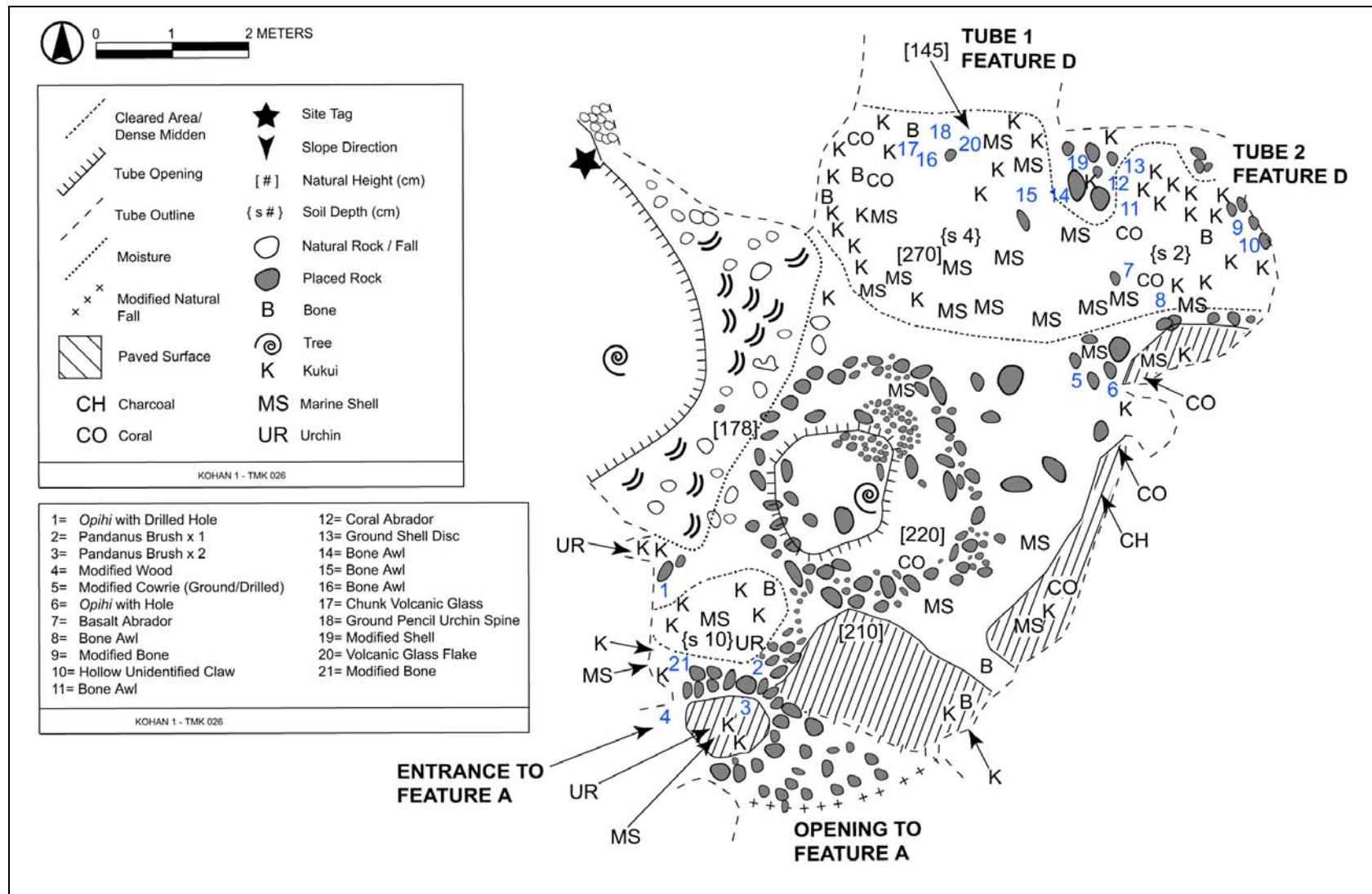


Figure 329. Site -26538, Feature C, interior plan view



Figure 330. Site -26538 Feature C, showing the skylight chamber with its ring of boulders. View to east.

(approximately 20 fragments), small cowry marine shell (approximately 10 fragments), and urchin (approximately 10 fragments).

East of the constructed entrance to Feature A is an area of partially modified fall with sparse midden. This area consists mostly of small cobbles (3-15 cm / 0.1-0.49 ft.) with larger cobbles (15-30 cm / 0.49-0.98 ft.) in the southwest corner of the chamber. Most of the smaller cobbles seem to be natural fall. The larger cobbles concentrated further back in the southwest corner were likely cleared from elsewhere in the chamber. These cobbles partially block an impassable opening to the east end of Feature A. The function of the modification in this area has been two-fold: as a clearing pile and to block this opening. The midden materials in this area consist of *kukui* (approximately 30 fragments) and bone (a few small fragments, one identifiable as bird bone).

East of the central enclosed area, along the east wall of the skylight chamber there is a small (2 m north-south by 1 m east-west / 6.6 ft. by 3.3 ft.) area paved with small cobbles (5-15 cm / 0.16-0.49 ft.). This area contains *kukui* (approximately 10 fragments), marine shell (approximately five *Nerita* fragments, one *Isognomon* fragment), charcoal (one fragment), and coral (approximately 10 fragments).

Just north of the paving, a modified large cowry shell, artifact #5, lies near some larger boulders. This is a fragment of (7 cm by 4.5 cm / 2.75 inches by 1.8 inches) cowry that is ground flat on two sides and drilled or punctured on one end. The artifact takes the form of a scoop, and its function is unclear. Near artifact #5, but closer to the wall is artifact #6, a complete *Cellana* sp. ('*opihi*) with a slightly off center hole drilled or punctured through it. The artifact measures 5 cm (0.16 ft.); the hole is 9 mm (0.35 inches). Small cobble paving continues along the east side

of the chamber wall northeast of these artifacts. The northeast section of the skylight chamber (most of the area northeast of the central enclosure) is a large cleared area with very dense midden, deposits of grey silty sediment generally about 4 cm at the deepest, and many portable artifacts. The area is clear of most large cobbles and boulders that were likely cleared to the walls or to elsewhere in the chamber (possibly the southwest corner). Midden in this area consists of hundreds of *kukui* fragments, abundant marine shell (small cowry is most abundant, also many *Nerita*; *Theodoxus vespertinus*, *Isognomon*, a few *Conidae*), bone (including dog teeth and mandible fragment, small mammal bone, and bird bone), and many coral fragments.

Many artifacts were found in this portion of the chamber. They were labeled in sequence roughly from east to north (see Figure 329). Artifact #7 is a basalt abrader, roughly 7 cm by 3.5 cm by 1.5 cm (0.23 ft. by 0.11 ft. by 0.05 ft.). Some edges are rounded from use, but others are jagged. Artifact #8 is a bird bone awl approximately 4 cm (0.13 ft.) in length. Artifact #9 is a fragment of modified mammal bone 4.5 cm long by 1.5 cm wide (0.15 ft. by 0.05 ft.). It is ground to a tapered, flat, broad edge. Artifact #9 is very similar to Artifact #21. Artifact #10 appears to be a small (2.5 cm / 0.82 ft.) claw. Definitive identification was not made, but this may be a dog claw. It is hollowed out and was designated as an artifact due to its unique, albeit as of now unidentified, form. Artifact #11 is a bird bone awl. Artifact #12 is a small (approximately 2 cm / 0.8 inches) coral abrader. Artifact #13 is a ground shell disc made from the upper surface of a *Conidae* shell. Artifacts #14-16 are bird bone awls. Artifact #17 is a small (1 cm / 0.03 ft.) chunk of volcanic glass. Artifact #18 is a pencil urchin spine that appears ground on the distal end. Artifact #19 is a small (approximately 2 cm / 0.06 ft.) piece of square ground *Isognomon*. Artifact #20 is a small (approximately 1 cm / 0.4 inches) volcanic glass flake.

On the north side of the sink, a small natural cupboard is behind the natural fall of the sink. The fall blockage appears to be natural and no cultural materials were observed in the cupboard. A cow bone is on the fall.

The function of Feature C is temporary habitation based on the dense midden materials, sediment deposits, many portable artifacts of diverse types, and modification within the feature.

Feature D is a lava tube with two entrances (Tube 1 and Tube 2) from the Feature C skylight chamber. It measures 28 m by 7 m (98.9 ft. by 23 ft.). The entrances are located on the north side of the chamber with the skylight at Feature C. Tube 1 is the left (west) entrance and Tube 2 is the right (east) entrance. Dense midden is present in the area of Feature C by these entrances; this midden partially extends into the tubes' entrances.

Tube 1 travels back in a northeast direction from Feature C (Figure 331 and Figure 332). It continues for 7 m before joining the main tube of Feature D through a bottleneck to the east. Right at the entrance to Tube 1, behind an area of roof fall is a sub-feature D1, a cache of octopus lures. This cache contains four complete, drilled cowry shells; one complete, cowry shell (no evidence of drilling), and one coral abrader. The cowry shells are large (approximately 7 cm in length) and the coral abrader is approximately 6 cm by 7 cm by 2 cm. The entrance to Tube 1 contains abundant *kukui* and many urchin fragments, but this midden diminishes within a couple of meters of the entrance. A small wall (sub-feature D2) runs perpendicular to the tube (wall runs 160 degrees to 320 degrees) 5 m (16.4 ft.) back (northeast) from the entrance. The wall begins 50 cm (1.6 ft.) off the east tube wall and continues for 135 cm (4.4 ft.) with a maximum height of 52

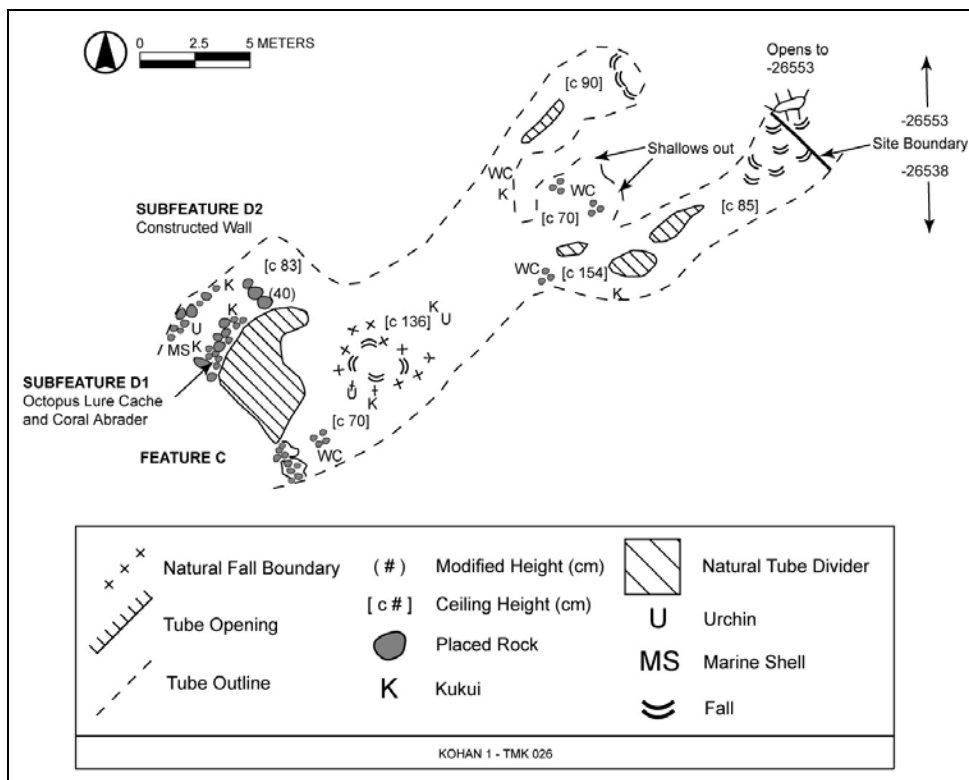


Figure 331. Site -26538, Feature D, interior plan view



Figure 332. Site -26538 Feature D, showing the cleared path area inside of Tube 1. The clearing pile is on the right side of the photograph, and the Feature D2 wall is behind the photo scale. View to north.

cm (1.7 ft.). The wall does not impede passage through the tube as there is approximately 120 cm between the end of the wall and the west tube wall, and the ceiling height is 130 cm. The function of the wall is a wind break for the water collection activities in Feature D. The wall is constructed of *pāhoehoe* cobbles and boulders (15-55 cm) stacked 2-3 courses high. The central part of Tube 1 has been cleared of large *pāhoehoe* cobbles up to sub-feature D2. These cobbles are placed along the walls of Tube 1, creating a clear *pāhoehoe* bedrock path down the tube.

Tube 2 parallels Tube 1 on the east. The entrance to this tube is low and partially blocked by natural fall. Some rocks appear to have been placed on top of this fall to further block the tube, but the entrance is just passable. Beyond the blockage, there is a single water collection feature, a few *kukui*, and two urchin mouth fragments. Further back, there is an area of large fall boulders, but these are easily passable. Just beyond the boulders, Tube 1 joins Tube 2 in a large chamber that begins main tube Feature D.

Heading northeast in the main tube of Feature D, there are three tubes: lower left, upper center, and lower right. The lower left tube continues back 10 m (32.8 ft.) before ending in roof fall. The upper center tube continues back wide and low for 4 m (13.1 ft.) before becoming very shallow. Two water collection features are at the back of this tube. The lower right tube continues for 13 m (42.7 ft.) to the entrance at Site -26553. No modification was observed in this tube and only a few *kukui* endocarps are present. The tube continues beyond the entrance to Site -26553, but the site boundary was drawn here.

The function of Feature D is water collection based on the lack of midden materials present (besides a few *kukui* endocarps) and the fact that the modification is either water catchment or directly related to accessing the water collection. The cache, sub-feature D1, and the midden near the entrance is more likely related to the temporary habitation activities of Feature C.

The site's function is interpreted as burial and temporary habitation complex based on the variety of features within the site and the extent of modification and amount of material culture present. Feature A and Feature D are water collection that support habitation. Additionally, Burial #32 was found in Feature A. This burial function, however, likely post-dates the habitation function of this site complex. Feature B has pavements and retaining walls that create a level living space and indicate habitation function. Although Feature B lacks surface midden, the extent of modification is consistent with temporary habitation. Feature C exhibits extensive modification, has dense midden materials and sediment deposits, and 20 diverse portable artifacts. The quantity of materials/sediments and the scale of modification suggest that this feature was used for temporary habitation.

Burial 32

Burial 32 is a secondary burial positively identified as human by the mandible and teeth. The burial consists of primarily fragmentary remains including the mandible, thoracic and cervical vertebra, clavicle and scapula fragments, rib fragments, both radii, long bone fragments that are likely an ulna, a fibula and tibia, a patella, and footbones for two feet, including all ten metatarsals. The remains are in fair condition. None of the bones are complete, due to either fracturing or being time worn or a combination of both but are still in fair enough condition to be identifiable. The majority of the remains are placed under a small mound of approximately eight small *pāhoehoe* boulders and large cobbles. Beside this mound is a cobble beneath which all the

footbones are present. The mandible fragments, including the accompanying teeth, both embedded and loose, are on the tube floor, approximately 60 cm northwest of the mound. These mandible fragments are not placed under a cobble, and since they are separated from the rest of the remains, in particular from the rest of the cranial fragments, suggests that they were relocated to their current position by disturbance, likely animal disturbance. The presence of a few rat bones in the vicinity of the burial also suggests this. The mound itself is located approximately 4 m east-northeast of the entrance to the lava tube from the surface. The mound and remains are visible from immediately inside the entrance, which is relatively small, measuring only 130 cm by 50 cm. This burial is believed to be a primary burial based on the large number of bones present, including all ten metatarsals.

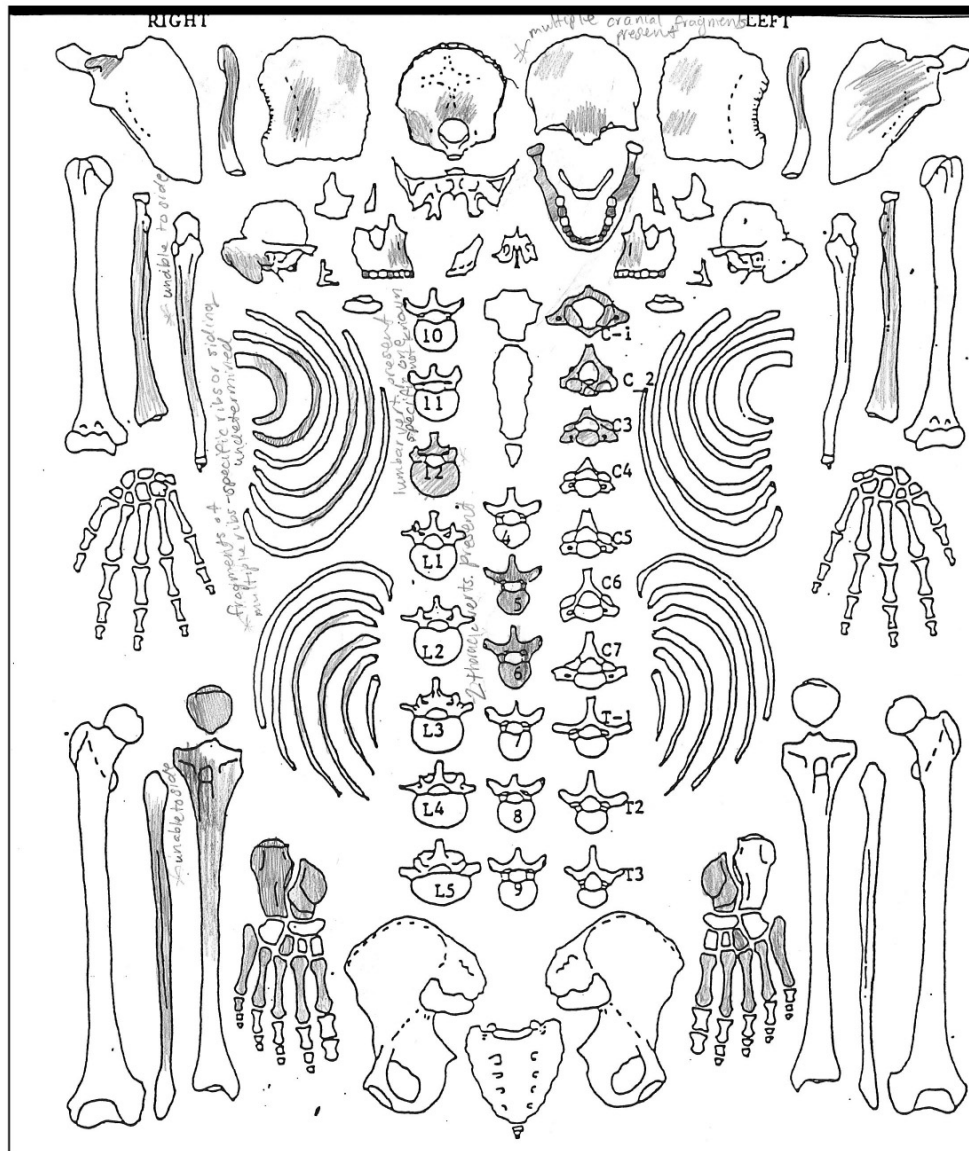


Figure 333. Site -26538, Burial 32, skeletal inventory form

2.1.58 State Site # 50-10-28-26539

SIHP #	50-10-28-26539
FUNCTION:	Temporary Habitation
SITE TYPE:	Platform and Lava Tube
TOTAL FEATURES:	2
DIMENSIONS:	33 m by 6 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	690 ft a.m.s.l.

DESCRIPTION: Site -26539 is a complex consisting of a temporary habitation surface structure (Feature A) and, in close proximity, a lava tube with multiple water collection features (Feature B). The site is located in an area of Christmas berry and thick grasses in the vicinity of major lava tubes (-26552).

Feature A is an informal 7 m by 7.5 m platform built on top of exposed bedrock (Figure 334 and Figure 335). It is constructed of angular *pāhoehoe* small boulder and large cobbles, and rises to a maximum height of 40 cm above the surrounding terrain and 25 cm above the bedrock that is its foundation. On average it appears piled two to three courses high. The edges of the platform are not faced, but rather rough and mounded. The south edge of the platform is especially rough. In part, the rough edge of this platform may be due to collapse, however, the structure likely never had well constructed edges. The center measures 3.0 m by 3.0 m, is very level and well paved with medium cobbles and rubble, and is the most formal part of the platform.

Also of note is a very roughly constructed enclosure off of the east side of the platform. The enclosure is C-shaped, adjoins the east platform wall near its southern end and has a diameter of 3.5 m (north/south). It is constructed to a maximum height of 50 cm above the surrounding terrain. The average width of the enclosure wall is 1 m. The center of the enclosure is a somewhat rough and irregular large cobble floor measuring only about 175 cm.

The function of Feature A is habitation. The very flat surface would make for a good living surface, and the attached south enclosure is more indicative of habitation than burial. The informal construction of the platform suggests this was probably a temporary habitation at best. Feature B is a prolific water collection cave. Based on its close proximity, this habitation would have sufficient water. Since Feature B has such a small entrance and is in close proximity to Feature A, the platform may be concealing a small tube or blister. Excavation to eliminate a possible burial function was conducted (see testing results below) and no bone was found.

Feature B is a 33 m by 5 m lava tube with a very small entrance measuring less than 200 cm across and 40 cm tall (Figure 336 and Figure 337). The entrance is located in rubbly, eroding *pāhoehoe* but is not marked by a sink. Two large *noni* trees grow from near the entrance. The tube floor consists primarily of fall and slopes sharply downward. Some of this fall has been cleared aside. The floor then levels and is largely a rough 'a'ā floor. Numerous water collection features dot the tube floor. The only other cultural items observed in the cave was an urchin shell near the bottom of the fall near the entrance. The function of Feature B is water collection.

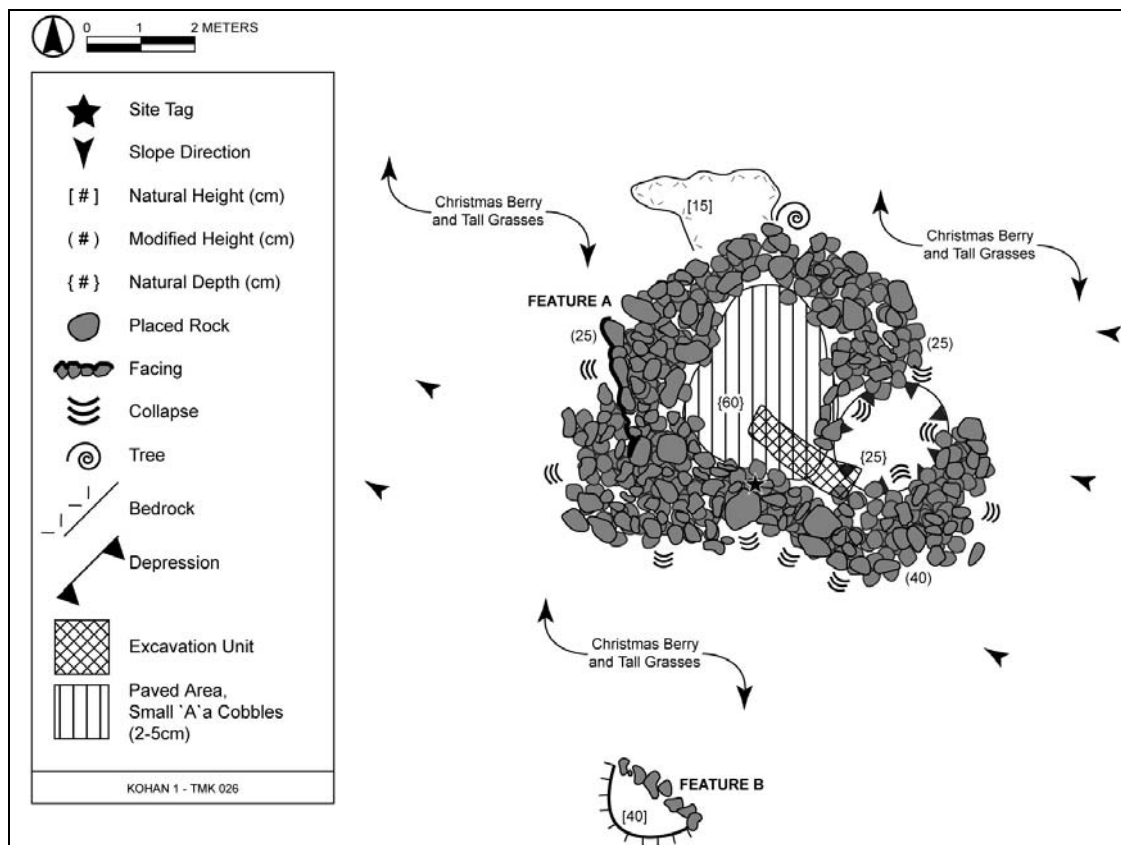


Figure 334. Site -26539, Feature A plan view and relative location of Feature B



Figure 335. Site -26539 Feature A, showing the platform, view to west

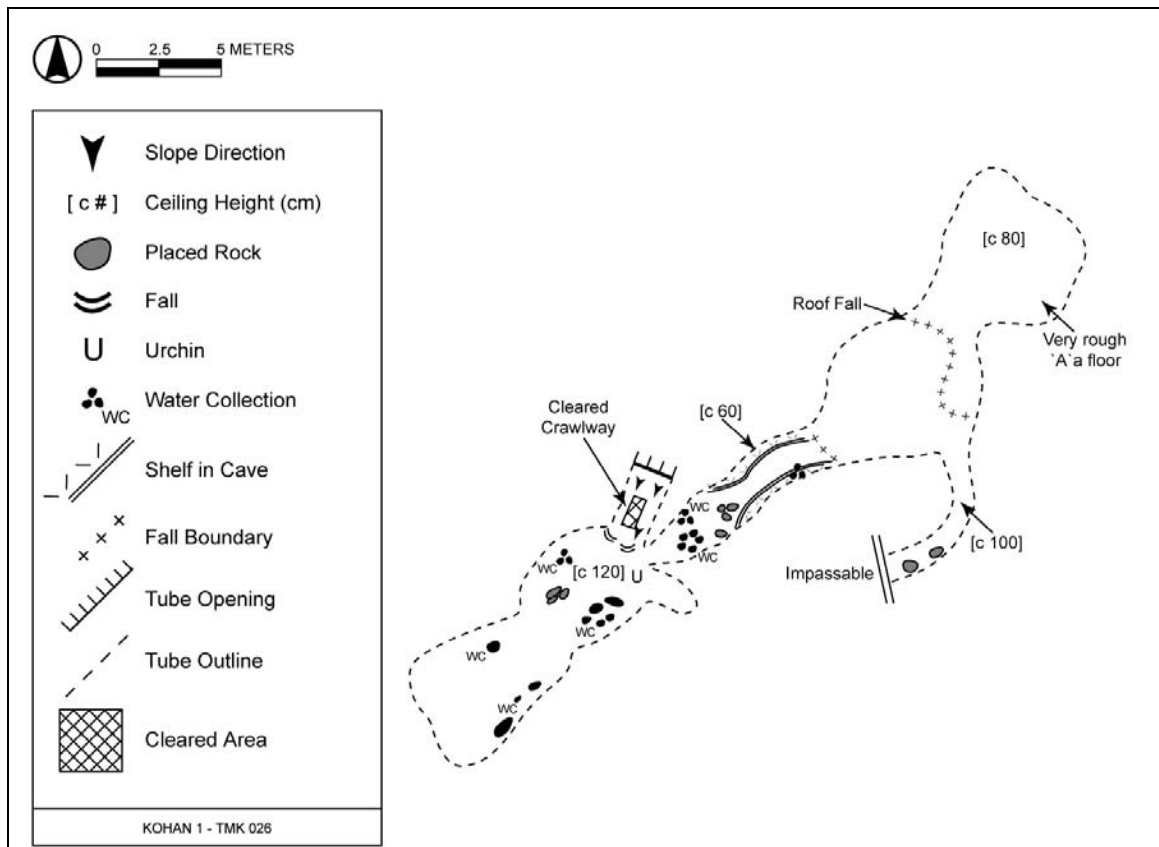


Figure 336. Site -26539, Feature B lava tube plan view



Figure 337. Site -26539 Feature B, showing the entrance to the lava tube, view to southwest

The tube was not observed to have any potential areas for burial and has a very wet interior (including standing water in some places).

The site's overall function is interpreted as a habitation complex supported by Feature A, a temporary habitation platform with an adjacent C-shaped enclosure. Feature B, the lava tube with multiple water collection features, also supports this interpretation.

Testing Results

Test excavation was conducted to assist in determining site function and to determine whether a burial is present (Figure 338 and Figure 339). Stratum I, extending from 0 to 60 cmbs, is the main constructed portion of the structure. It consists of small cobbles on the level top, medium to large middle fill, and small and medium cobbles at the base on top of a thin sediment layer (Stratum II) on top of bedrock. Stratum II, extending from 60 to 70 cmbs, is a dark sediment at the base of the structure that represents sediment accumulating due to the habitation nature of the structure. Sediment is mixed with rocks at the base of the structure. Some charcoal, one piece of *Nerita*, one large piece of cowry, several urchin fragments, a few pieces of heavily eroded shell, and one piece of volcanic glass were found.

Feature A was constructed using small to large cobbles on the bedrock exposure. The bedrock exposure probably had some sediment (Stratum II) prior to construction, but some of Stratum II was likely deposited post construction during habitation. No human bone was found and the structure is built solidly on bedrock. Excavation strongly supports temporary habitation function for this feature.

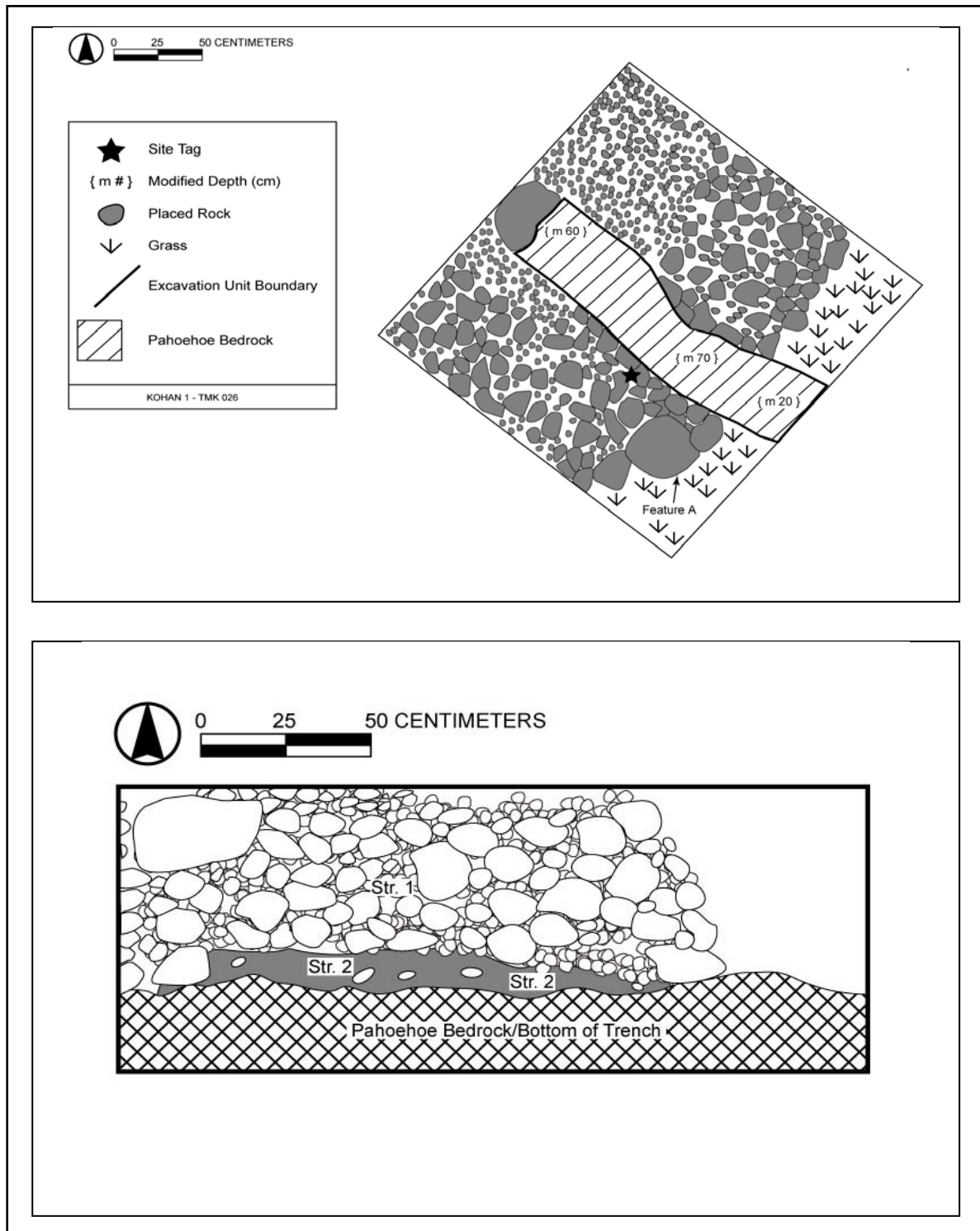


Figure 338. Site -26539, excavation figures; top is plan view of excavation, bottom is profile of northeast wall

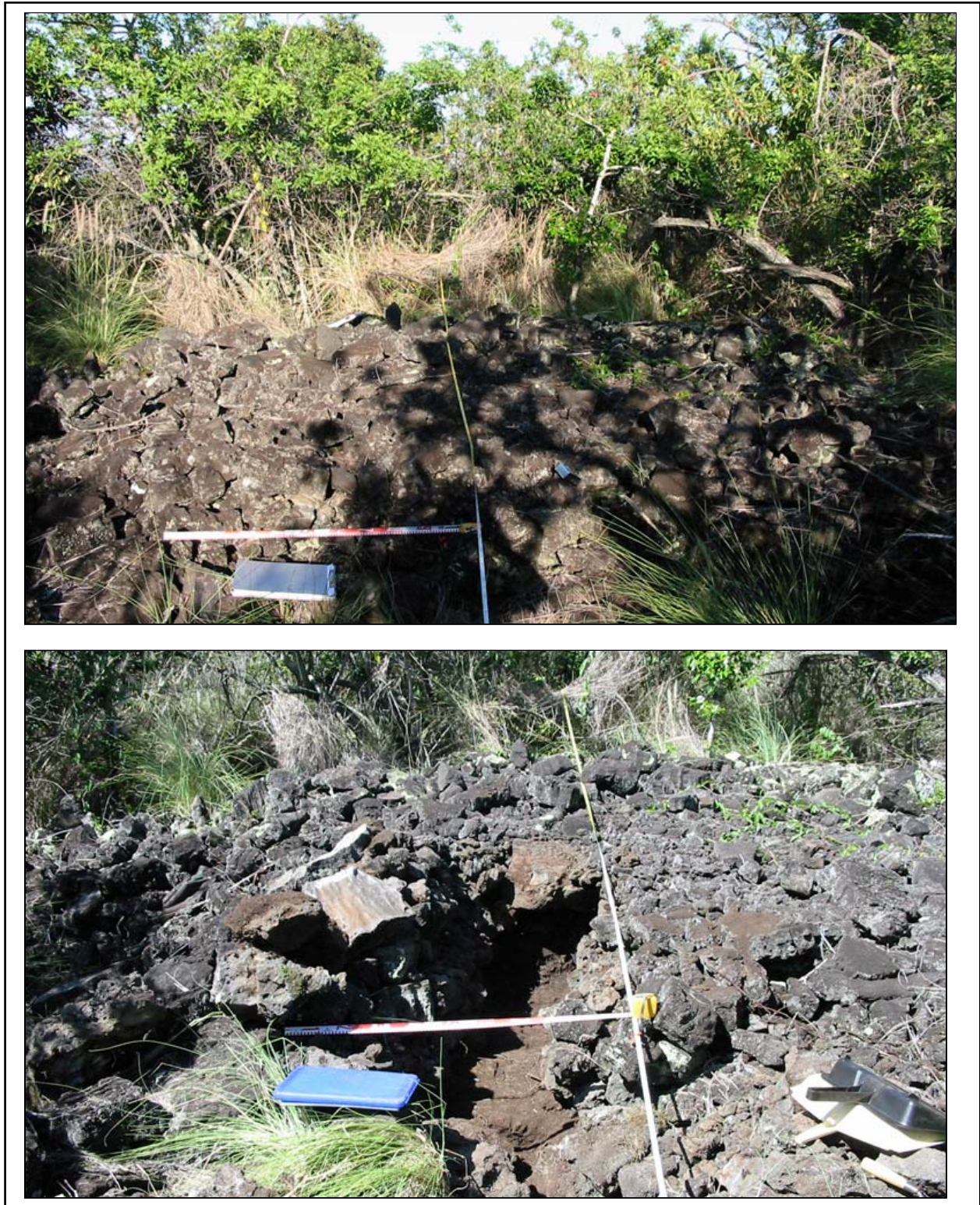


Figure 339. Site -26539, excavation figures; top photograph is pre-excavation, bottom photograph is post-excavation, view to west

2.1.59 State Site # 50-10-28-26540

SIHP #	50-10-28-26540
FUNCTION:	Marker
SITE TYPE:	Cairn
TOTAL FEATURES:	1
DIMENSIONS:	1.7 m by 1.5 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	725 ft a.m.s.l.

DESCRIPTION: Site -26540 is a small cairn constructed of stacked *pāhoehoe* boulders (Figure 340 and Figure 341). The feature sits in an area of dense grass, moderate *koa haole*, and sparse Christmas berry where the terrain slopes gently from north to south; the site is located in the northeast quadrant of the project area and is adjacent to Site -26543. The feature is on a relatively high point on the terrain with good, although not exceptional, views of the surrounding terrain. The feature is composed of approximately a dozen *pāhoehoe* boulders (25 cm to 65 cm in size) that are informally piled to a height of 65 m.

The site's function is interpreted as a cairn marker. The size, construction, and placement of the feature is typical of this type of feature. Agricultural clearing was considered as a function for this site but based on its small size, and the fact that no cleared areas were found nearby, this is unlikely. Site -26543, a wall remnant, is approximately 5 m northwest of the cairn, but no other features or sites are in the immediate vicinity. Based on proximity, the most likely function for this site is as a marker for the -26543 wall. There is no excavation potential.

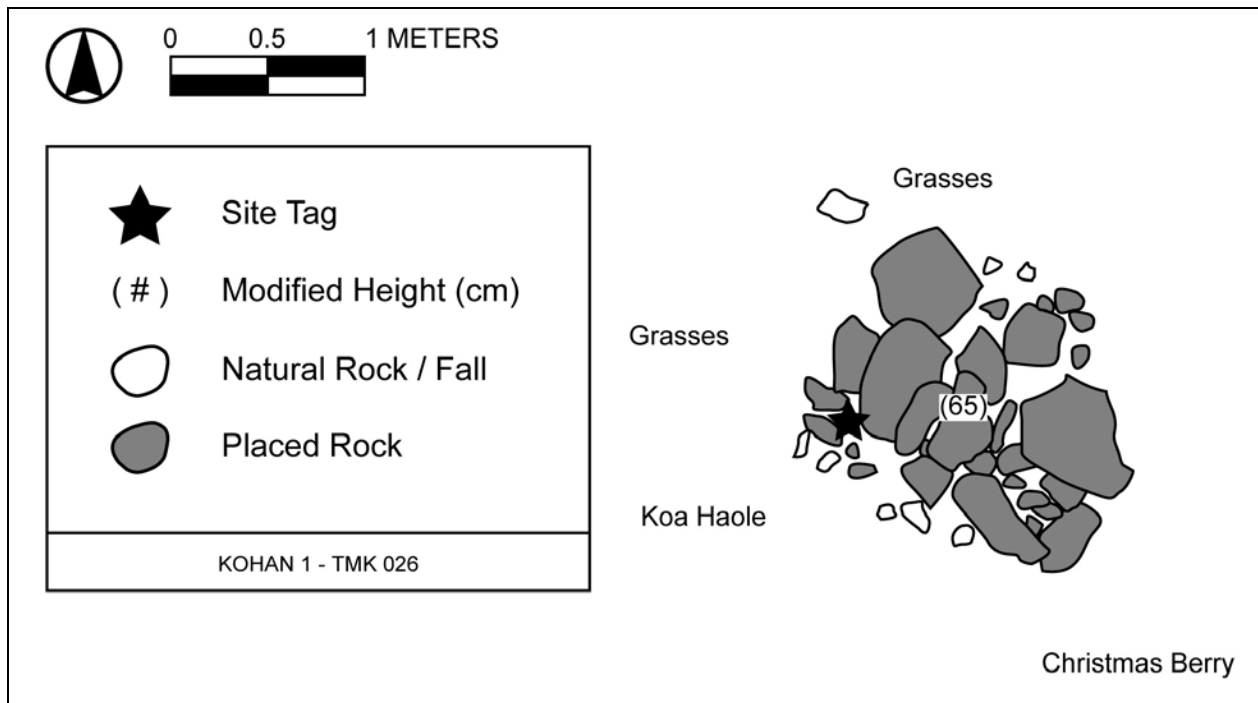


Figure 340. Site -26540, plan view of cairn



Figure 341. Site -26540, showing cairn, view to west

2.1.60 State Site # 50-10-28-26541

SIHP #	50-10-28-26541
FUNCTION:	Marker
SITE TYPE:	Cairn
TOTAL FEATURES:	1
DIMENSIONS:	1.55 m by 1.7 m (5.1 ft. by 0.56 ft.)
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	690 ft a.m.s.l.

DESCRIPTION: Site -26541 is a collapsed cairn that is a rather informal pile of *pāhoehoe* cobbles and boulders on an outcrop of *pāhoehoe* bedrock (Figure 342 & Figure 343). The site is partially surrounded by overhead Christmas berry trees with dense grasses growing on and around the site. A tall *ohia* tree is approximately 5 m (16.4 ft.) west of the site and there are a few *koa haole* trees nearby. The geology of the area is characterized by eroding *pāhoehoe* outcrops. This area has a good view of the landscape to the southwest (*makai*; downslope).

The cairn consists of *pāhoehoe* cobbles and boulders measuring between 9 and 65 cm (0.3 and 2.13 ft.) and averaging about 30 cm (0.98 ft.). The rocks are informally piled on bedrock. The base of the cairn appears to be relatively undisturbed and is roughly circular. A large cobble that may have been part of the cairn is on the west side of the feature.

The site's function is interpreted as a marker although it is currently unclear what this cairn marked. It is notable that Site -26541 does appear to be in line with two other cairns, Site -26561 and Site -26571, and may have originally been a marker for a trail over *pāhoehoe* that is no longer observable. Site -26539 (a lava tube and platform) is also a nearby and possibly site, approximately 15 m (49.2 ft.) north-northwest. Overall the line of sight from the cairn and its construction, including the possible collapse to the west indicate the site was a cairn functioning as a marker. A large cairn at this location may have been quite visible to areas downslope if the current vegetation was cleared. The possibility that the site is an agricultural clearing mound was considered. Although the informal construction and large cobble/boulder size of the rocks are consistent with such an interpretation, there is no evidence for clearing in the area. Therefore, the cairn/marker interpretation appears most appropriate.

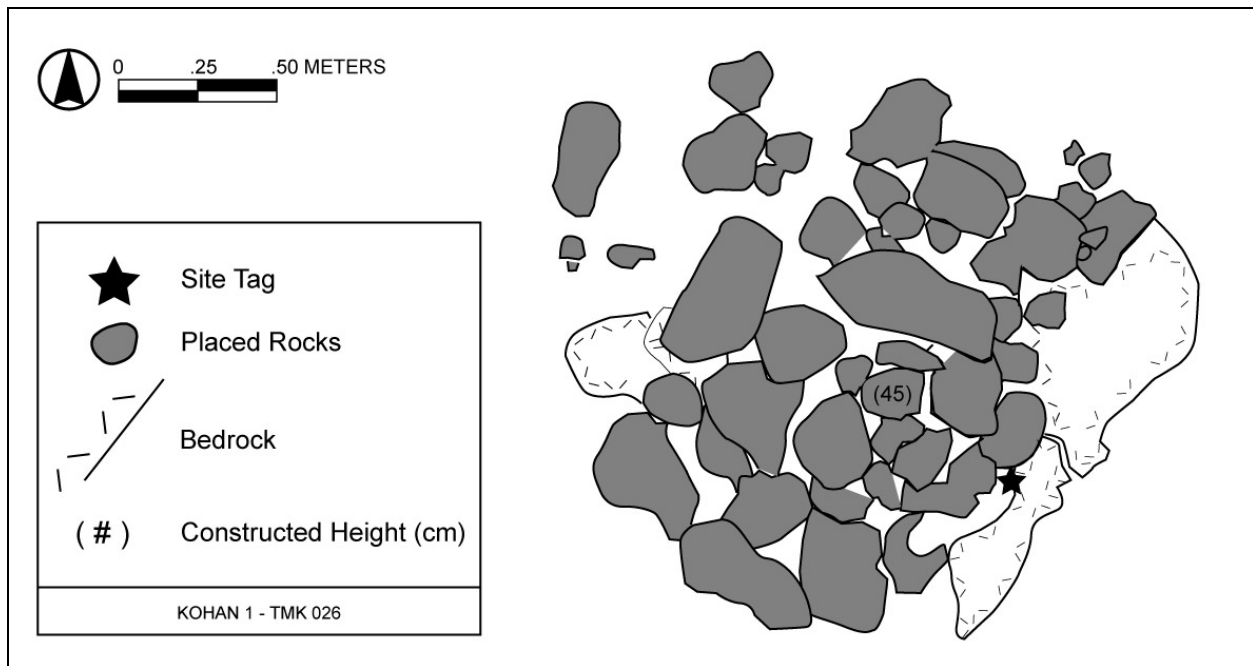


Figure 342. Site -26541, plan view



Figure 343. Site -26541, showing the cairn, view to north

2.1.61 State Site # 50-10-28-26542

SIHP #	50-10-28-26542
FUNCTION:	Temporary Habitation
SITE TYPE:	Platform
TOTAL FEATURES:	1
DIMENSIONS:	8 m by 5 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	740 ft a.m.s.l.

DESCRIPTION: Site -26542 is a large, low platform located near the north boundary of the TMK 26, 20 m from the large lava tube complex -16103. The site is on a moderate slope to the southwest on a *pāhoehoe* rise. Vegetation within the vicinity of the site consists of foxtail grass, and Christmas berry.

The platform is constructed of small angular and subangular basalt boulders and various sized cobbles (Figure 344 and Figure 345). Very few slabs were selected for either foundation stones or pavement. The surface of the platform is level for the most part, but follows the curve of the bedrock to the north. The platform surface is not paved and large boulders, some of which are not embedded but are relatively loose on the surface, comprise the bulk of its top. The west corners of the platform are marked by medium boulders, and are among the largest boulders present, measuring approximately 70 cm in diameter that are leaning against each other. They are neither upright nor stacked upon each other, creating a distinct but less than formal, crisp corner. The edges of the platform are not faced, but instead are rough alignments of small boulders and large cobbles approximately 30 cm high. The north edge is only raised slightly above the north-northeast upward sloping terrain (approximately 1 course or 15 cm).

Generally the edges of the platform slope down somewhat, though not dramatically, from the center of the platform. The center of the platform at its highest point is marked by two medium boulders (also among the largest used to construct the platform) that are deeply embedded.

The view from the center of the structure is quite good (as is common on this hillside) roughly from outer Kailua Bay/Old Airport to approximately Keahole Point.

Immediately south of the platform is a small, shallow sink with two small entrances leading to -16103 and -26537 lava tubes.

The site's function is interpreted as habitation, most likely extended temporary habitation due to the site type and shape of the platform, its proximity to numerous major sites including the lava tube complex -16103 immediately to the north. Excavation also revealed a moderate amount of midden (see below for discussion) which supports a temporary habitation function.

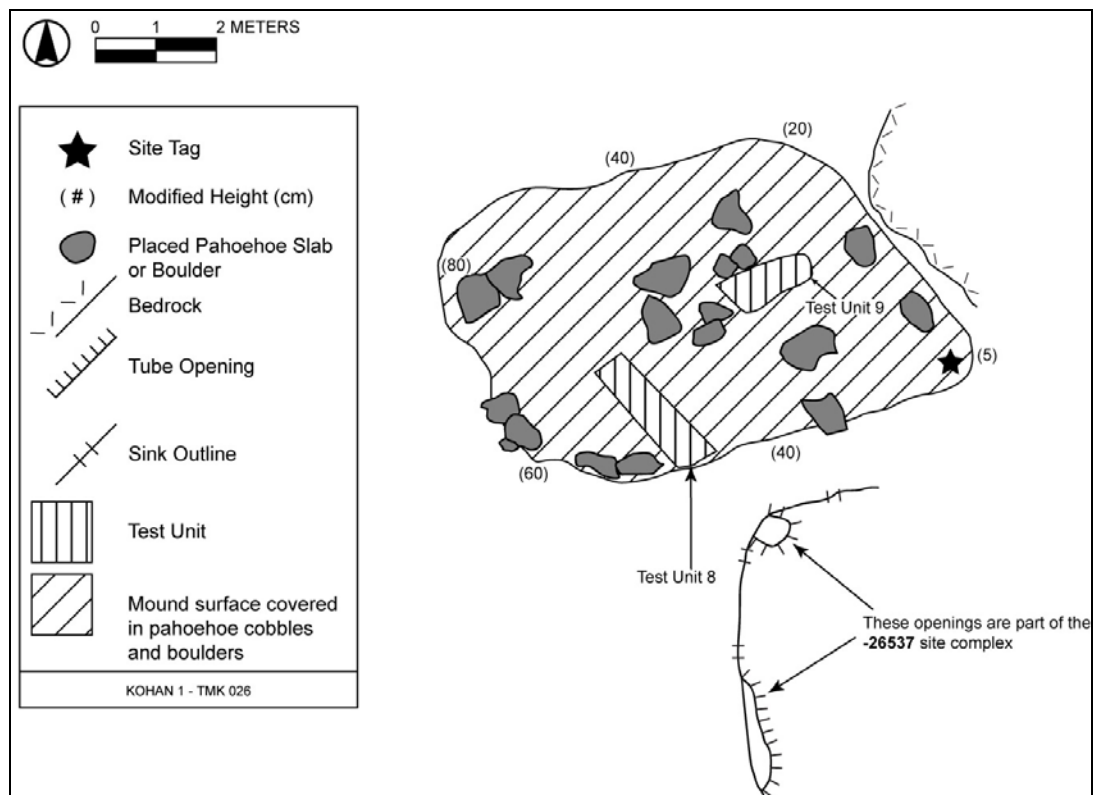


Figure 344. Site -26542 overview



Figure 345. Site -26542, platform, overview, view to northeast

Testing Results

Test excavation was conducted to assist in determining site function and to determine whether a burial is present. Two excavations were conducted to make this determination.

Unit 8

Unit 8 was located in the southwest quadrant of the platform (Figure 344). Stratum I consists of dark grayish brown sandy loam that contains approximately 20 marine shell fragments, including *Nerita* and cowry, sea urchin, and charcoal that likely formed over time and filtered down through the rock (Figure 346). The rock consists of piled *pāhoehoe* slabs and cobbles. Stratum IIa is a sandy loam with numerous rootlets and small roots. Stratum IIb is sandy loam with few roots and rootlets. Most of the midden present was found in IIa. It appears that much of IIa and IIb formed by filtering down through the structure, which was built on a thin layer of sediment.

The findings indicate the site is habitation. The relatively small amounts of charcoal and midden may be due to the location of the trench, which is near the west end of the structure.

Unit 9

Unit 9 was located in the northeast quadrant of the platform (Figure 344). Stratum I consists of no sediments other than very thin layer of sedimentation mixed with small cobbles (Figure 347). Stratum I contains small cobble and medium cobble fill for the purpose of leveling the surface.

This structure was built on an area of large cracked bedrock. A small amount of space is beneath this bedrock about 70 cm down, but the cracks are no larger than 10 cm and the space under appears to be no larger than 10 cm. Cracks appear to be filled for the purpose of leveling the area for habitation.

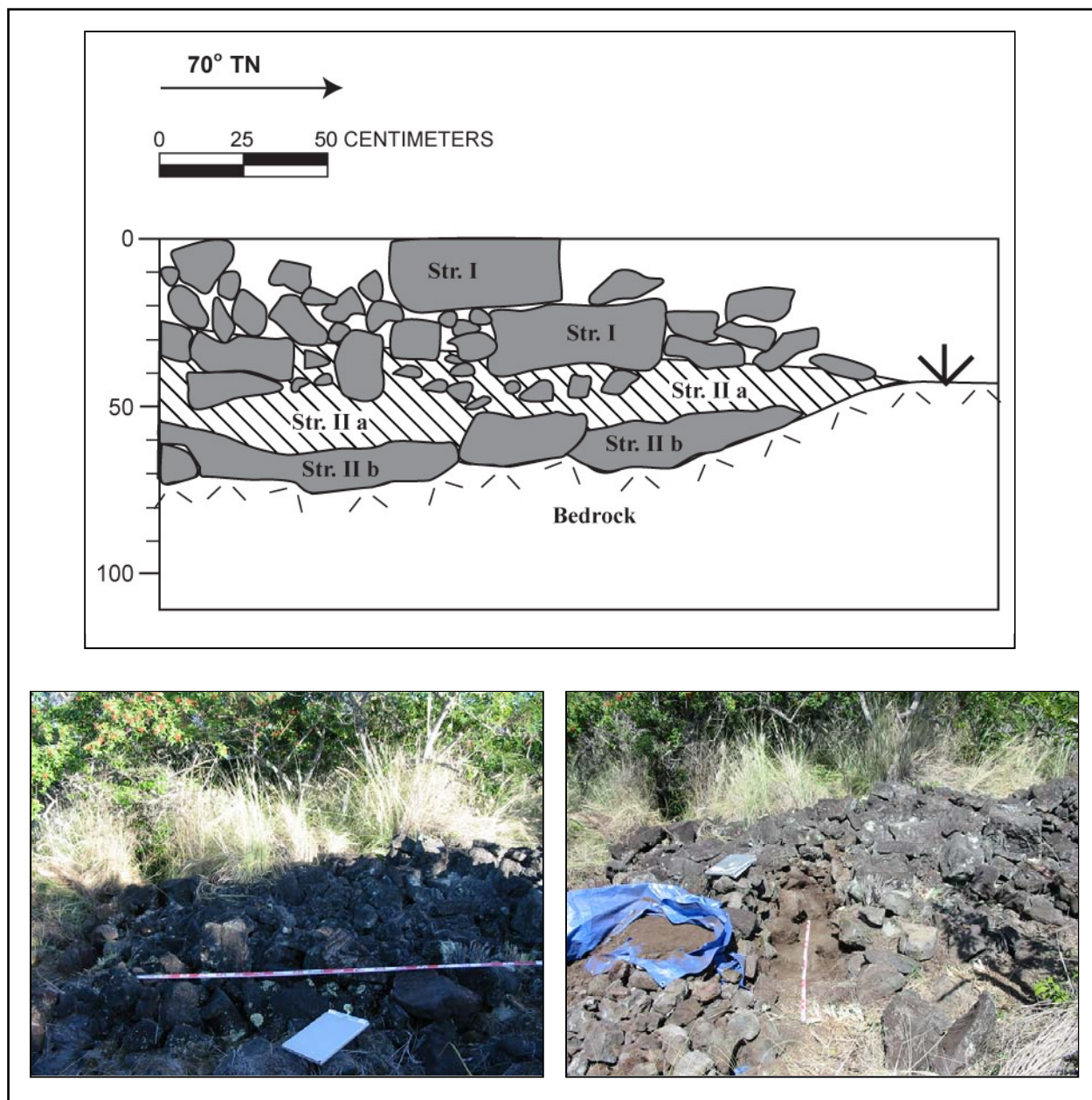


Figure 346. Site -26542, Unit 8 excavation figures. Counter-clockwise from top: east wall profile; platform pre-excitation; platform post-excitation

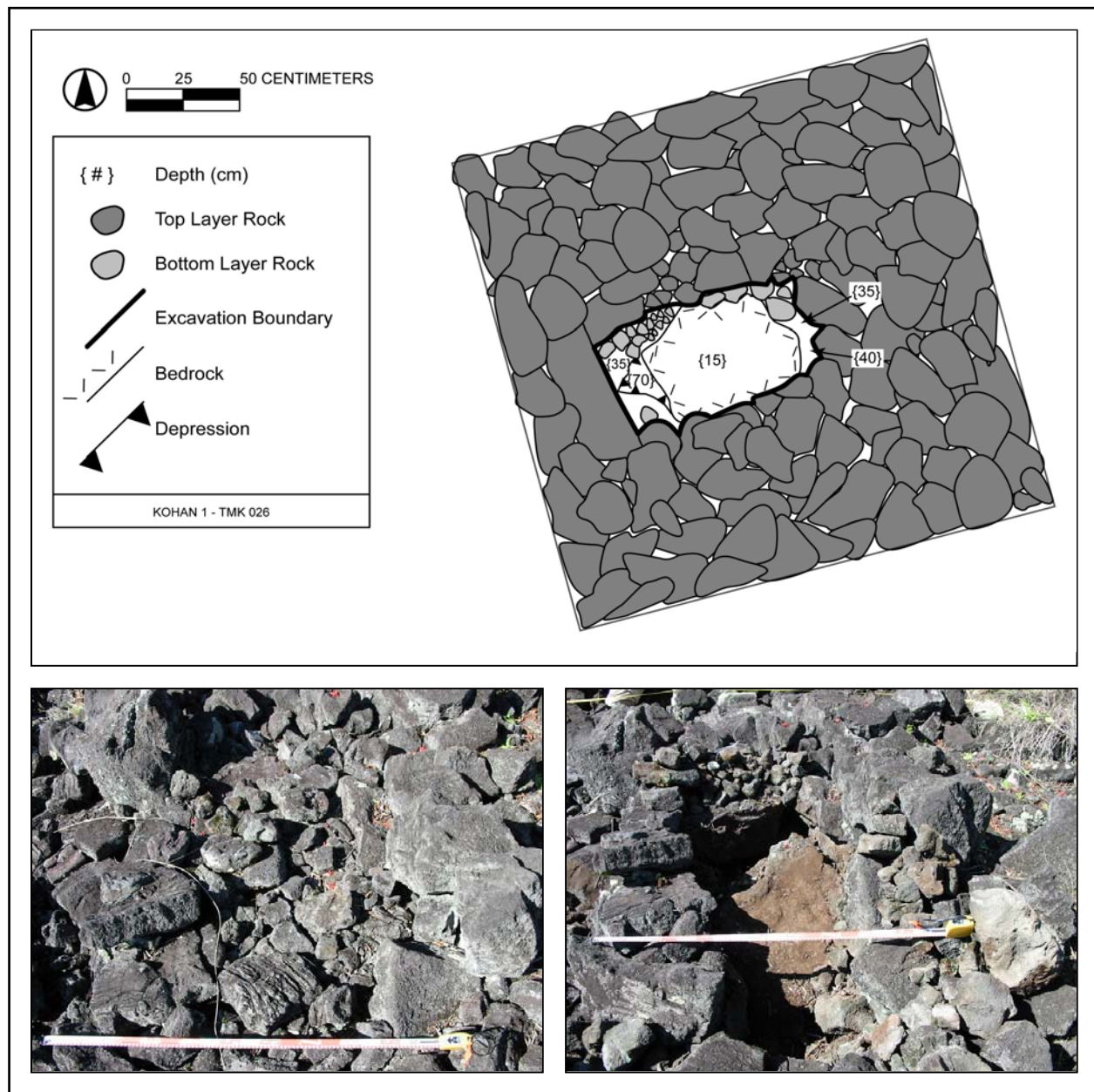


Figure 347. Site -26542, Unit 9 excavation figures. Counter-clockwise from top: plan view of excavation unit; platform pre-excavation; platform post-excavation

2.1.62 State Site # 50-10-28-26543

SIHP #	50-10-28-26543
FUNCTION:	Marker
SITE TYPE:	Wall
TOTAL FEATURES:	1
DIMENSIONS:	30 m by 0.7 m
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	725 ft a.m.s.l. – 740 ft a.m.s.l.

DESCRIPTION: Site -26543 is located on the undulating *pāhoehoe* flow in the northeast corner of TMK 26. The site consists of an approximately 30 m long remnant portion of a wall.

The most defined portion of this wall is a 2 m long section that runs across a depression filled with dense Christmas berry and *koa haole* (Figure 348). This portion of the wall is 2 m long by 70 cm wide and measures 30 cm high. The remnant wall clearly exhibits facing that consists of large *pāhoehoe* cobbles and boulders (25-85 cm) and interior rubble filling with small *pāhoehoe* cobbles (3-15 cm). The remnant wall continues southwest (245° TN) as an informal linear pile of *pāhoehoe* cobbles (5-40 cm) for 5 m then turns slightly left (210° TN) and runs roughly another 5 m before becoming an informal linear pile of *pāhoehoe* cobbles that naturally forms the west wall of a north/south running natural depression.

The wall runs northeast (65° TN) from the well-defined, faced portion for 15 m. This portion is an informal linear mound of *pāhoehoe* cobbles with some facing evident in a few areas. Beyond these 15 m, the wall construction fades into a naturally eroding linear outcrop of 'a'ā and *pāhoehoe* cobbles (7-25 cm). This natural linear outcrop continues northeast for 33 m.

At the northeast end of the natural outcrop is a very small tube. The entrance is 100 cm wide by 55 cm tall, and interior dimensions are approximately 1.6 m east/west by 1.5 m north/south. The interior's south wall extends less than 30 cm and drops into a chamber beyond. The chamber has a 90 cm ceiling but is not accessible. The extent of modification at the entrance is minimal and consists of consists of a few placed slabs.

The site's function is as a boundary marker. The wall runs only a short distance (only approximately 30 m of definite wall structure) and fades into natural formations at either end serving more as a symbolic boundary rather than a physical obstacle. The wall does not enclose any distinct areas and therefore is unlikely to have served as an animal husbandry wall.



Figure 348. Site -26543, wall, showing the long axis of the wall ,view to northeast

2.1.63 State Site # 50-10-28-26544

SIHP #	50-10-28-26544
FUNCTION:	Permanent Habitation
SITE TYPE:	Enclosure
TOTAL FEATURES:	1
DIMENSIONS:	5.7 m by 5.5 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	750 ft a.m.s.l.

DESCRIPTION: Site -26544 is a faced square enclosure. The site is located on a gentle slope that is relatively flat, offering a commanding view of the coastline below. The site is located in the northeast corner of TMK 26; Site -26537 is 20 m to the west and Site -16103 is 35 m to the northwest. The geology in the vicinity of the site is eroding *pāhoehoe*. The vegetation in and around the site is predominantly Christmas berry trees and foxtail grasses with a few *laua* 'e ferns.

This square, faced enclosure is built with slabs of *pāhoehoe* and small *pāhoehoe* cobbles (Figure 349). The slabs range in size from 30 to 90 cm. Cobbles range in size from less than 10 cm to 30 cm. The average size boulder used to construct the enclosure is about 40 cm. The enclosure was constructed by stacking *pāhoehoe* slabs, five to six courses high. Almost all of the slabs are laid flat but there are a few upright slabs on the eastern side. The overall condition of the structure is very good (Figure 350). There are a few small areas that have collapsed, but overall the structure still retains its original shape. The height of the structure is about 1 m. The structure is 5.5 m in length from the northeast to southwest and 5.7 m from northwest to southeast. The inside and outside of the structure are faced walls.

The excavation potential for Site -26544 is excellent, as the interior floor has sediments from 4 cm to 9 cm in depth. Since there are no artifacts or midden on the surface, excavation may help to confirm the age of the site.

The site's function is interpreted as permanent habitation. This function is evidenced by the large size and marked formality of the structure. There is a good line of sight toward the coast, despite the vegetation; as well as a good line of sight to the south and southeast over Hualālai and even out to Mauna Loa. The fact that there is a good amount of sediment (4 cm - 9 cm) present inside the enclosure reflects a possible long term, permanent habitation.

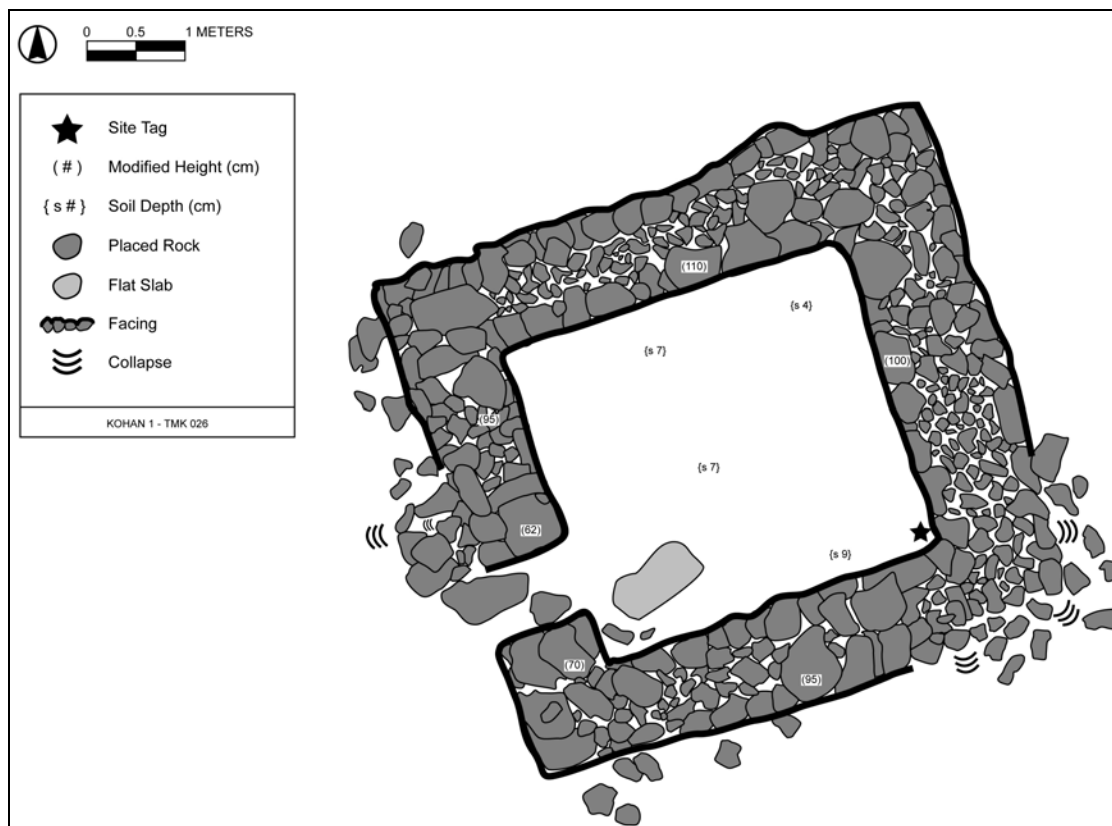


Figure 349. Site -26544, plan view



Figure 350. Site -26544 enclosure, overview showing constructed entrance and interior and exterior facing, view to northeast

2.1.64 State Site # 50-10-28-26545

SIHP #	50-10-28-26545
FUNCTION:	Activity Area
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	4 m by 4 m (13.1 ft. by 13.1 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	620 ft a.m.s.l.

DESCRIPTION: Site -26545 is a lava blister located in the southeast quadrant of the project area, approximately 76 m (249.3 ft.) north of Hina-Lani Street, in a gently undulating area of *pāhoehoe* flow (Figure 351 and Figure 352). There is evidence of bulldozer activity in the vicinity, but Site-26545 itself has not been disturbed. Vegetation consists of typical *koa haole* trees and grasses. Air plants generally cover the *pāhoehoe* boulders atop and surrounding the blister.

The blister's entrance is fairly large, 1.5 m by 1.5 m (4.9 ft. by 4.9 ft.), and opens into a small chamber with fairly circular dimensions (approximately 4 m / 13.1 ft. in diameter and 1.45 m / 4.75 ft. in height). The ceiling of the central north section has a blocked opening. Inside the blister are several placed boulders and cobbles, most placed through clearing activities of the central floor area. The majority of the cleared boulders and cobbles have been cleared to the side walls of the blister. There are a few small boulder alignments in the center of the blister including a circular alignment that likely served as a hearth.

The blister floor is covered with a sediment deposit. The sediment throughout the blister is a mixture of soil and soot ranging between 10-20 cm in depth and provides excellent excavation potential. The site contains midden that is spread fairly evenly over the entire blister floor with *kukui* and an abundant scatter of a variety of marine shell (cowry, pearl shell, urchin, '*opihi*, *Conus*, *Nerita*, etc.). Several identifiable pieces of pig skull and a sea bird radius, possibly *Procelaridae* (petrels and shearwaters), were found on the northwest quadrant of the blister. A number of artifacts are present, including one whole piece of a two piece fish hook several volcanic glass flakes and a core, and a basalt abrader. A smooth, fairly used basalt adze preform (approximately 6 cm by 4 cm) was found on the surface immediately southeast of the blister entrance (see Figure 353). Also on the surface in the area immediately circling the blister entrance are a few scattered *pāhoehoe* boulders.

The site's function is an activity area for tool manufacture with a secondary function of shelter. The tool manufacturing function is evidenced by the high density of artifacts; in particular the several volcanic glass flakes. The shelter interpretation is based on the presence of the midden and informal hearth. No evidence is present to suggest any additional function for this site.

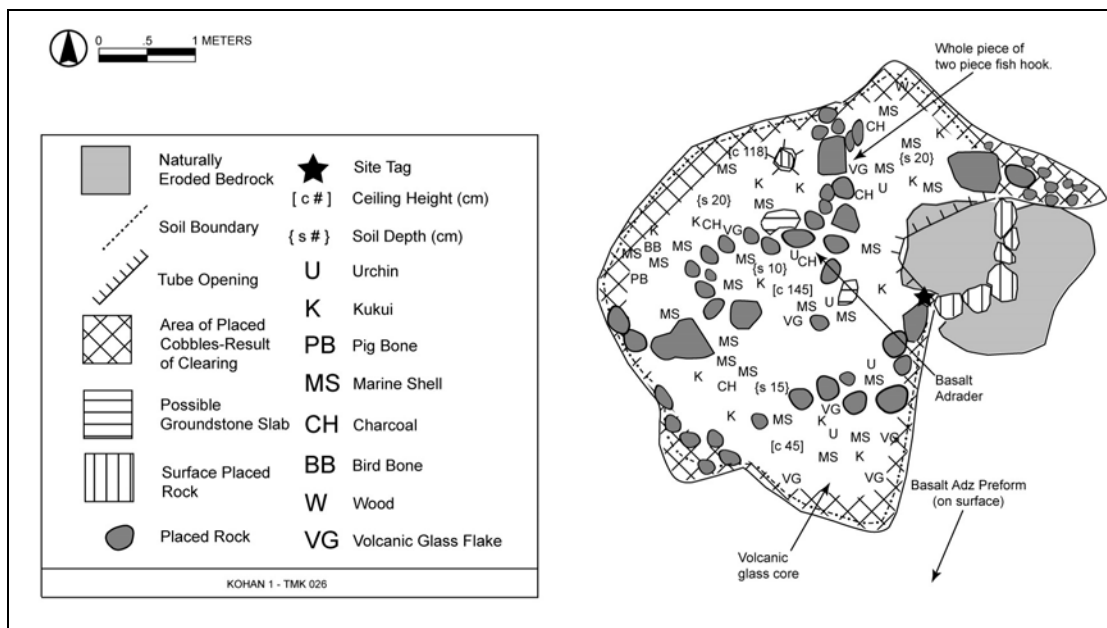


Figure 351. Site -26545, interior plan view

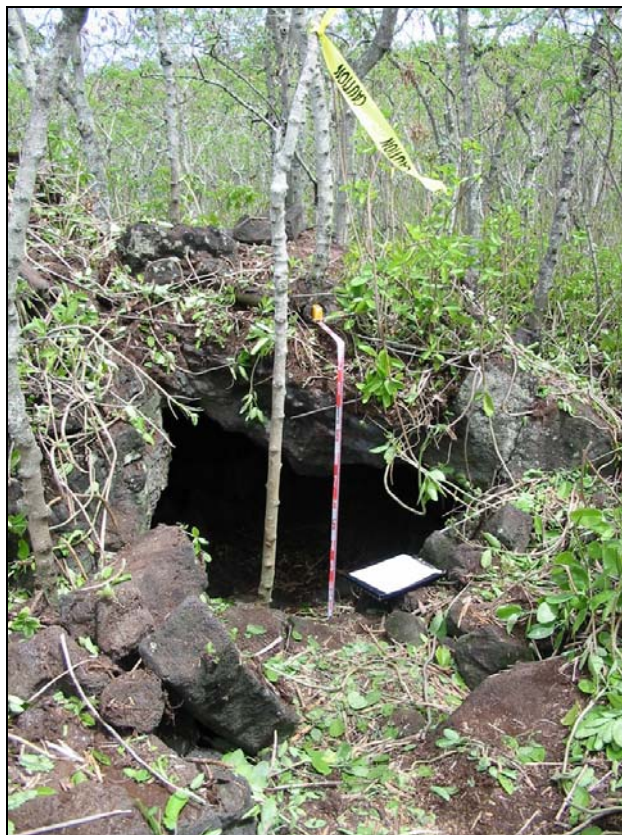


Figure 352. Site -26545, showing the entrance to the tube, view to the west



Figure 353. Site -26545, view of basalt adze

2.1.65 State Site # 50-10-28-26546

SIHP #	50-10-28-26546
FUNCTION:	Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	37 m by 7 m (121.4 ft. by 23 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	690 ft a.m.s.l.

DESCRIPTION: Site -26546 is located on the southwest slope of an undulating *pāhoehoe* flow in the east half of TMK 26. The vegetation surrounding the site consists of head-high *koa haole*, large, medium and small Christmas berry, and some thick patches of grass.

The site is a northeast/southwest trending lava tube (Figure 354). Entrance 1 is located at the west end of a small sink. This tube entrance is small, measuring only 50 cm (1.6 ft.) across and is partially constructed on the surface with a very naturally worn, rounded flat *pāhoehoe* boulder placed on top of the natural bedrock (Figure 355). The entrance is a short vertical shaft. At the base of the entrance shaft, the tube's sides are lined with large cobbles and small boulders of the same very naturally worn and rounded *pāhoehoe* (Figure 356). These rounded boulders line the sides of the tube, and constrict the passageway for approximately 5 m (16.4 ft.). These placed boulders also block access to a small side tube that branches off from the main tube heading north-northeast, and continues 7 m (23 ft.) along the north sink wall before ending in natural fall. The main tube gradually descends, turns, and becomes more level at the end of the rounded stone lining. At this point, the tube floor becomes 'a'ā and the path running through the center of the tube floor is paved with small *pāhoehoe* cobbles. For approximately another 2 m (6.6 ft.) the paving, comprised of natural *pāhoehoe* cobbles and boulders that are likely natural roof fall, continues. This point also marks the beginning of the water catchment features of which approximately 20 were found throughout the tube. Beyond the pavement, aside from the water collection, no additional modifications are present. A light scatter of *kukui* is present throughout the tube; this is the only midden found in the site. Charcoal is also scattered throughout the tube, however, it all appears to have been washed in from the surface.

A small side tube is located at the back of the main tube that appears to curve around back to a low side chamber on the west side of the back of the tube. This side tube is shallow and the roof is somewhat loose and unstable. It was deemed unsafe and was not explored. Due to the tube's apparent small size and access difficulties, it is unlikely anything is present in the tube.

Entrance 2 to Site -26546 is a small opening located 7.5 m (24.6 ft.) south of the sink at -26546, between the sink and the sink for Site -26554. Entrance 2 is actually two small entrances that are adjacent to each other.

This tube leads to an extremely tight passage, beyond which is a series of small chambers that have various extremely small openings to the main tubes of -26546. No modifications or cultural materials were encountered; this area was not mapped.

The site's function is interpreted as water collection based on the number of water catchments within the site and the presence of a substantial amount of water within the deep lava tube.

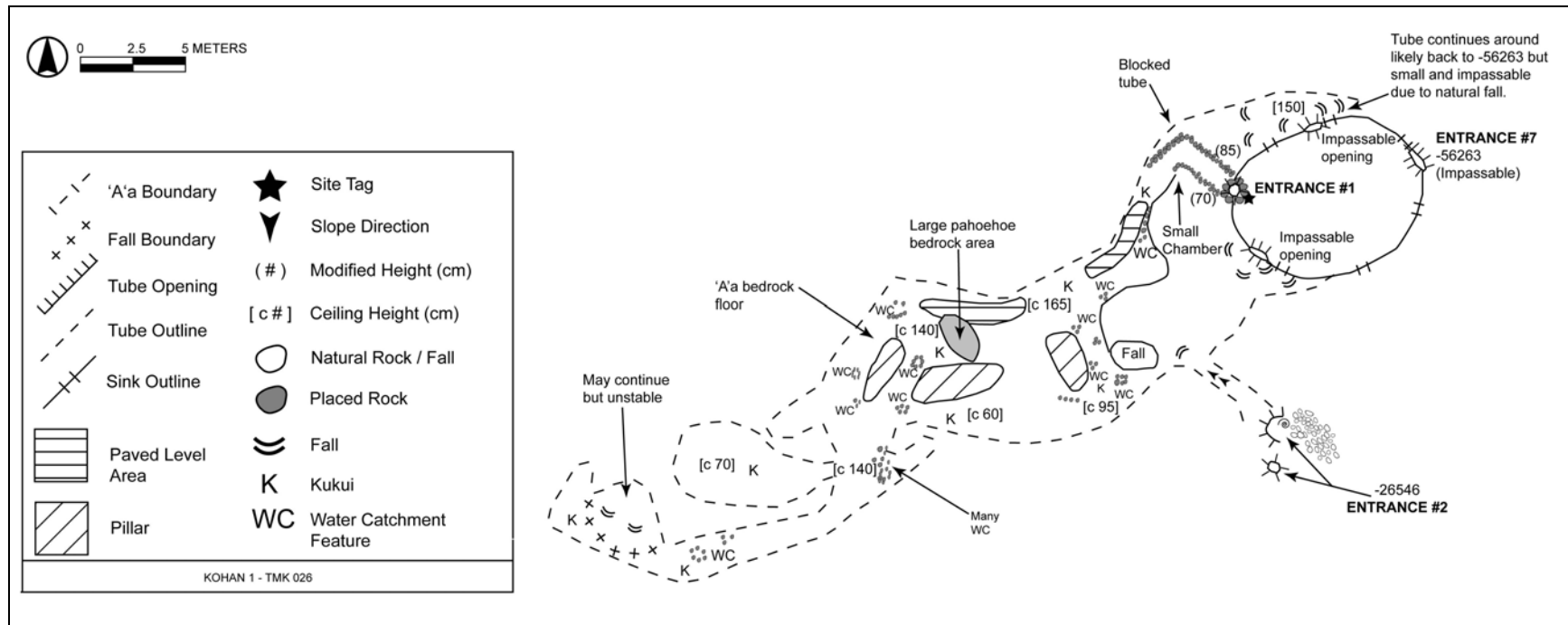


Figure 354. Site -26546, water collection lava tube, plan view

Entrance 1 is extensively modified, which is unusual for a water collection site. Although pavement is present, its presence is not sufficient to be evidence of a different function, such as habitation. The only midden present at the site is *kukui*, which would have served as light for accessing the water catchments.



Figure 355. Site -26546, view of partially constructed Entrance 1 from the surface



Figure 356. Site -26546, showing rounded, placed rocks lining the wall of the tube, view to northwest.

2.1.66 State Site # 50-10-28-26547

SIHP #	50-10-28-26547
FUNCTION:	Burial
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	4.3 m by 4.7 m (14.1 ft. by 15.4 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	625 ft a.m.s.l.

DESCRIPTION: Site-26547 (Figure 357 & Figure 358) is adjacent to the south face of Site -26536, rock wall (13 m / 42.6 ft. west of Site -26536), and 35 m (114.8 ft.) west of Site -26562. The site consists of a small blister on a *pāhoehoe* rise with two visible surface openings (Entrance 1 and Entrance 2). An old site tag near Entrance 1 reads TF-211 on February 19, 2003 by ACP (Cobb et al. 2003). The vegetation surrounding the site is typical *koa haole* trees, with air plants, and various other grasses over bedrock.

Entrance 1 is the larger of the two entrances into the blister, though both are quite small. It is somewhat obstructed by what appears to be natural fall. Entrance 1 is south of Entrance 2 and furthest from the Site -26536 rock wall. Burial 9 was found inside of Entrance 1 (see below for burial documentation). No midden or other cultural material was observed on the blister floor, although some *kukui* was encountered. Two areas contain placed cobbles (Figure 357), but no other modifications were observed.

Entrance 2 is a fairly circular surface opening into the blister that is approximately 30 cm (0.98 ft.) at an inward angle that makes it difficult to crawl into. A significant amount of natural boulder and cobble fall is on the surface near the entrance that obstructs the blister opening. With much maneuvering, it was possible to view an upright 1.5 m (4.9 ft.) from the entrance. It is likely that this upright is placed however due to inaccessibility, it cannot be definitively determined. The remainder of the blister floor immediately inside Entrance 2 primarily consists of soil and contains some *kukui* endocarps that may have fallen in naturally. No other modifications or cultural materials are visible inside Entrance 2. The blister area between the two entrances is impassable due to shallow height.

The site's function is interpreted as burial based on the presence of Burial 9. Based on the blister's tight spaces and no evidence of habitation, burial is the sole function.

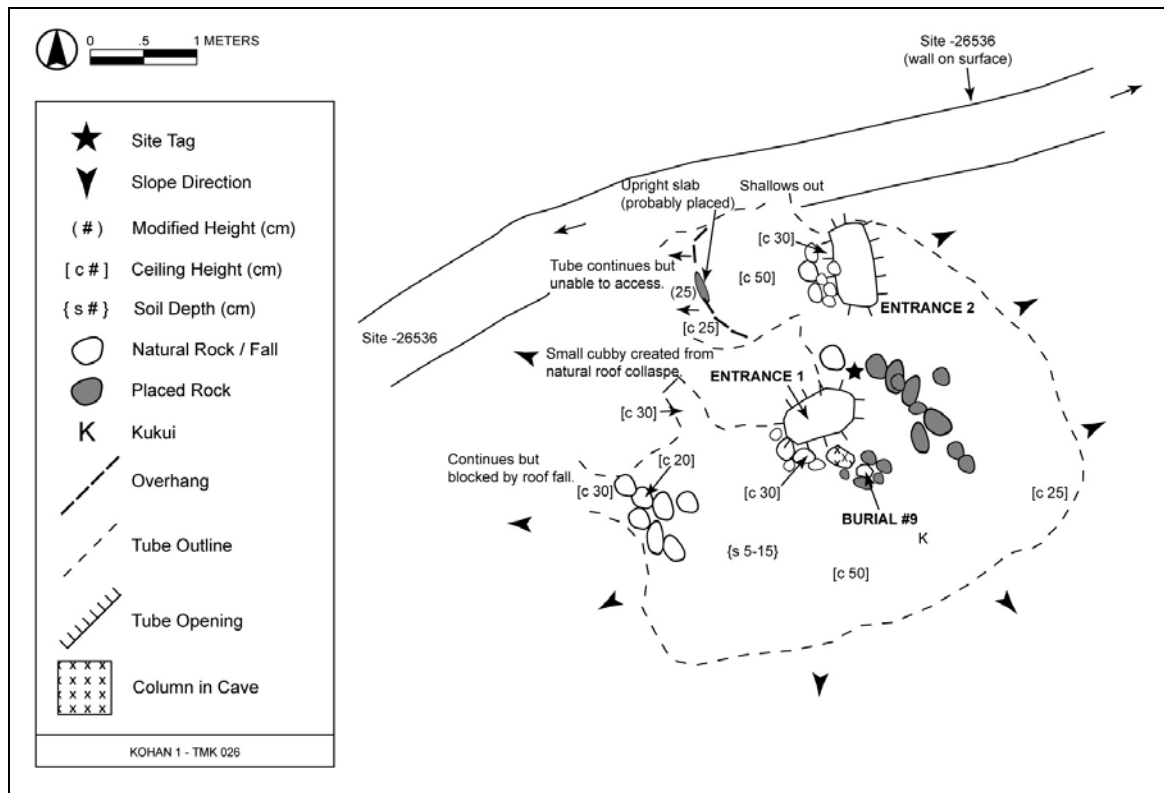


Figure 357. Site -26547 lava tube with burial and exterior wall of Site -26536, interior plan view



Figure 358. Site -26547, overview of Entrance 1 in the foreground and Entrance 2 in the background

Burial 9

Burial 9 is a secondary bone bundle burial. All bones visible were identified without being disturbed and include two humeri, two tibia, two fibula, and two femurs (Figure 359). The bones are one of each side (eg. one left femur and one right femur) representing only one person. All of the bones are positioned alongside each other and are resting almost vertically (on end) against placed large cobbles that are arranged in a C-shape, creating a sort of niche. The bones are placed with one of each bone (1 femur, 1 humerus, 1 tibia, 1 fibula) with its proximal end in the soil and its distal end against the placed rocks and the second of each bone in the opposite position, with the distal end down in the soil and the proximal end up. All of the bones are partially ($\frac{1}{2}$ to $\frac{1}{4}$ of each bone) covered by soil but enough is visible to identify them as whole adult human. No other bones are visible. It is possible that there are other bones present in the soil, which is approximately 5 - 15 cm deep, but this is not likely given that such placement would be the result of disturbance, of which there is no evidence. This is also not probable when considering that the presence of only long bones in this arrangement is consistent with a secondary burial of a long bone bundle.

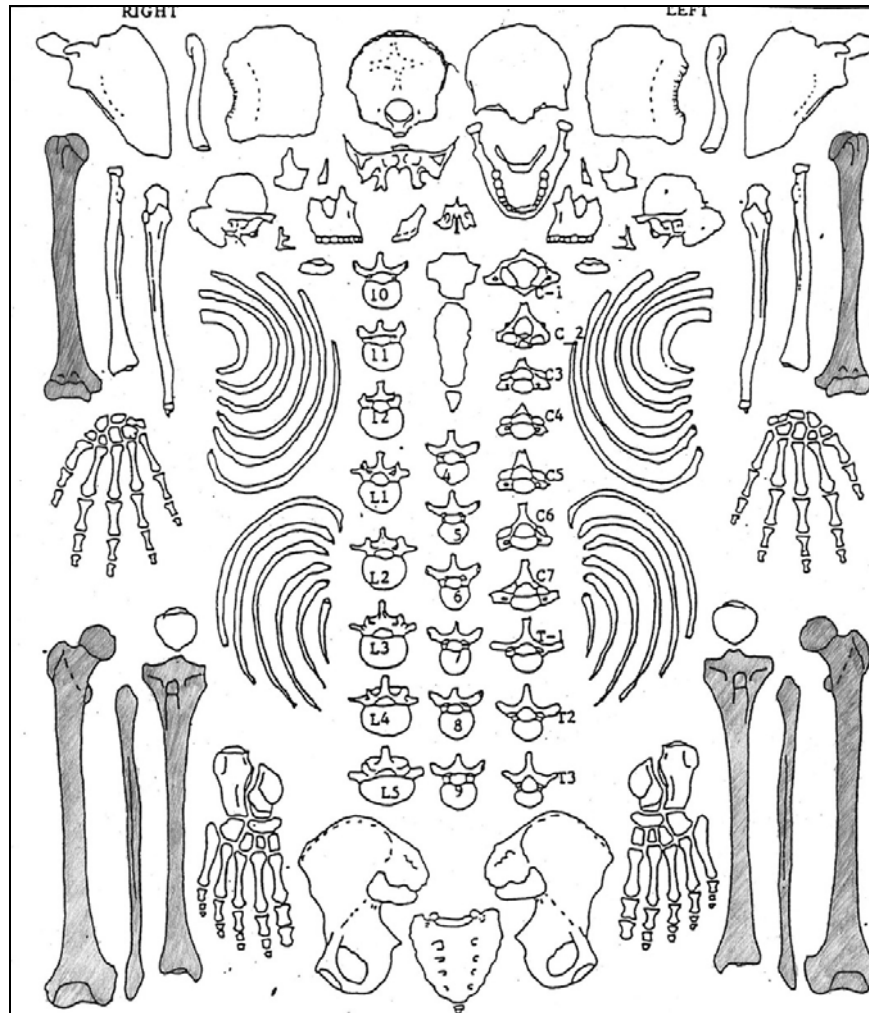


Figure 359. Site -26547, Burial 9, skeletal inventory form

2.1.67 State Site # 50-10-28-26548

SIHP #	50-10-28-26548
FUNCTION:	Temporary Habitation
SITE TYPE:	Lava Tube
TOTAL FEATURES:	3
DIMENSIONS:	30 m by 20 m (98.4 ft. by 65.6 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	660 ft a.m.s.l.

DESCRIPTION: Site -26548 is located on a relatively flat, level area of a gently undulating *pāhoehoe* flow in the southeast quadrant of the project area, approximately 50 m (164 ft.) north of Site -10714, the *mauka/makai* trail, and Site -10712, the *ahupua'a* wall. The vegetation surrounding the site consists of overhead-high *koa haole*, grasses, air plant, and a few small Christmas berry shrubs.

The site consists of a small, relatively shallow sink and a maze-like network of lava tubes that connect to Site -26532 at the southwest extent of this site (Figure 360). Three feature designations have been assigned for this site, Feature A, B, and C. Feature A and B are near one another at the southwest end of the sink inside the lava tube, and Feature C is on the surface about 12 m north of the sink.

A low overhang area runs along most of the perimeter of the sink. Modifications to this natural overhang area include areas of cleared large cobbles and small boulders that have been placed along the back wall and lower-ceiling areas of the overhang. Two areas of rough rubble paving are under the overhang, in the area in front the Feature A entrance to the tube network and the Feature B blocked entrance. A small amount of scattered midden with *kukui* and marine shell is present in the paved areas. There is also an upright in the overhang area near one of the paved areas. A site tag identifies the site as TF-166 ACP 18-2-03. Cobb et al 2003 identified the site as a refuge, temporary habitation, and/or burial.

Feature A is at the southwest end of the sink (Figure 360). It consists of two constructed faced retaining walls that modify a portion of the initial lava tube chamber where it drops down into a lower tube with water collection features. One wall is faced and constructed of *pāhoehoe* slabs. One of the slabs is upright and the other small slabs are stacked horizontally. The fall from the overhang is retained by this wall which creates a level area amongst the fall that makes up the overhang floor and creates a clear path down into the lava tube. The second wall is constructed immediately inside the tube from the first wall and serves to retain cleared *pāhoehoe* cobbles and small boulders (Figure 361). This second wall is also faced and creates a defined pathway leading down into the tube. The function of Feature A is ease of access into the tube for water collection. Limited modification is evident within the tube, beyond Feature A, and consists of approximately eight water catchments scattered throughout the shallow tube network. A small amount of scattered midden, primarily consisting of *kukui*, is present.

Feature B is a blocked entrance at the southeast side of the overhang of the entry sink constructed with *pāhoehoe* boulders that incorporates several uprights (Figure 360). This low

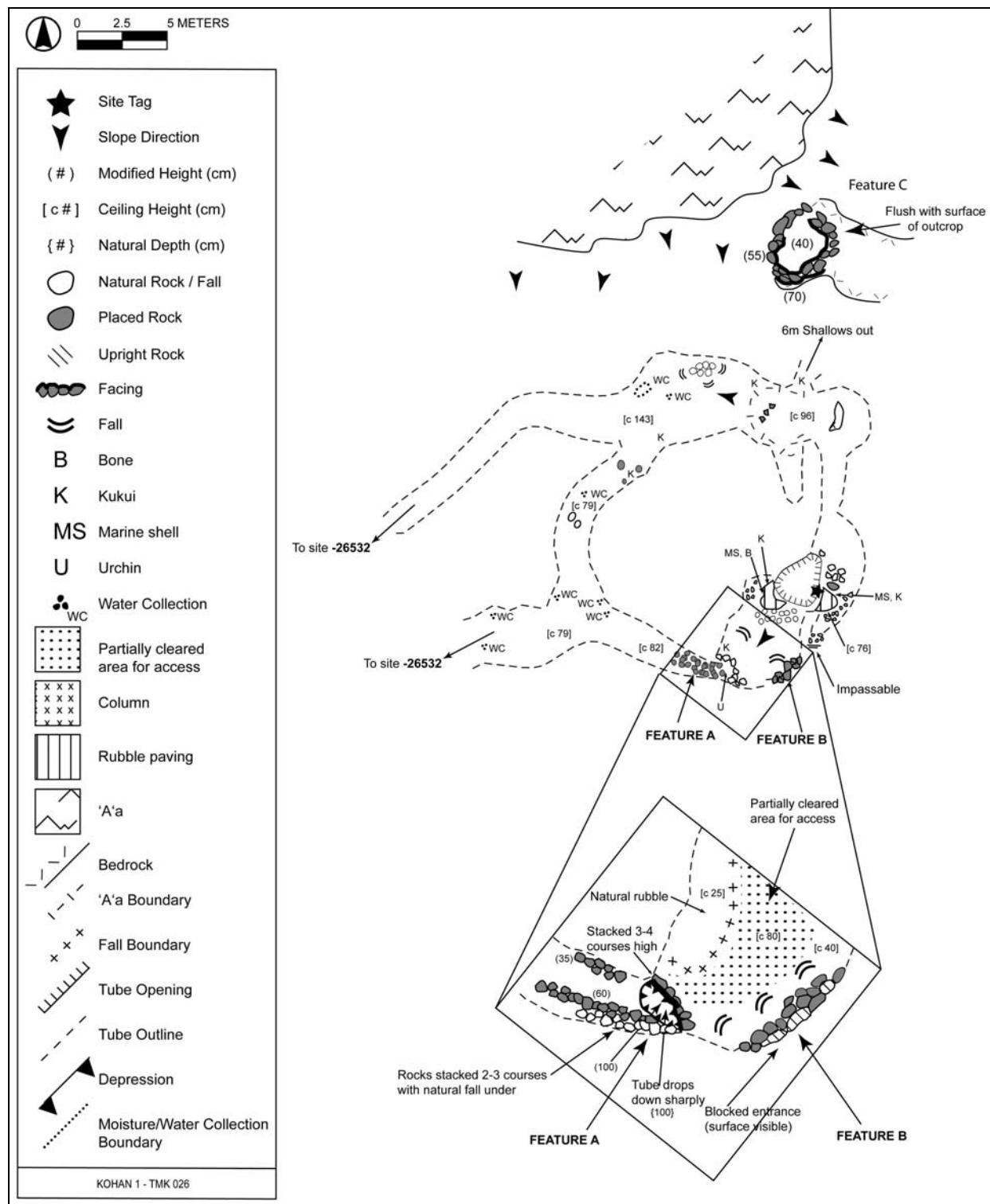


Figure 360. Site -26548 overview with detail inset of Feature A and Feature B, plan view



Figure 361. Site -26548 Feature A, showing one of the faced retaining walls within the tube, with the other wall paralleling it at far left; view to southeast.

entrance was apparently blocked to increase moisture in the lava tube for the water collection activities, since no other purpose is evident. The sealing off of this entrance prevents wind flow through the overhang and tube, but otherwise does not prevent access the tube since there is another entrance (from the main sink) only a few meters away.

Feature C is a small but fairly formal square enclosure located about 12 m north of the lava tube entrance, immediately below the downsloping edge of an *'a'ā* flow (Figure 360 & Figure 362). The construction of the enclosure utilizes the edge of the *'a'ā* and small *pāhoehoe* bedrock outcrops to enclose a small area (inner dimensions are 1.1 m to 1.5 m). The walls are 40-50 cm and the inner height of the structure is 40-55 cm, stacked three to five courses high with medium size cobbles and slab (both *pāhoehoe* and *'a'ā* cobbles). The tallest constructed portion is the south wall (outer height is 70 cm), where there is no natural outcrop to build upon. The area around the feature is fairly well cleared, as is the central portion of the structure.

The site's function is interpreted as temporary habitation with a secondary function of water collection activity area and agriculture. Feature A and B, paved area modifications, and scattered midden indicate this site's habitation function. The secondary function of water collection activity area is indicated by the presence of the multiple water catchments throughout the tube network. Finally, the small surface enclosure appears to be agricultural (possibly for aborigiculture), although it could be for other habitation related activity, such as storage. Excavation potential for this site is generally fair, as Feature C could be excavated; collection of charcoal associated with water collection should also be considered for data recovery.



Figure 362. Site -26548 Feature C, showing interior of small enclosure, facing south

2.1.68 State Site # 50-10-28-26549

SIHP #	50-10-28-26549
FUNCTION:	Agriculture
SITE TYPE:	Terrace
TOTAL FEATURES:	1
DIMENSIONS:	3 m by 2 m (9.8 ft. by 6.6 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	700 ft a.m.s.l.

DESCRIPTION: Site -26549 is located on a slightly west sloping undulating *pāhoehoe* flow in the eastern half of TMK 26. The vegetation on the site consists of thick patches of grass, medium-sized Christmas berry, overhead-high *koa haole*, and a *noni* tree. The site is in immediate proximity to two other sites; it is 15 m (49.2 ft.) south of Site -26507, Feature C, and 20 m (65.6 ft.) west of Site -26555.

The site consists of a single small terrace that measures roughly 3 m north/south by 1 m east/west (Figure 363). The terrace is built up against a west sloping *pāhoehoe* bedrock exposure. The west face of the terrace is slightly curved and is well faced (Figure 364). It measures 60 cm (1.9 ft.) high, and is stacked approximately 3 courses tall. The terrace is constructed of large *pāhoehoe* cobbles and medium boulders and slabs. The facing is constructed of horizontally stacked slabs. The terrace's upper surface is built slightly above the exposed bedrock, approximately 30 cm (0.98 ft.).

The terrace's upper surface is not flat, and is slightly mounded due to the placement of some small boulders on top of the terrace. This surface, however, does not appear to have been constructed to create a flat upper surface since it is rough and uneven. Approximately 3 m (9.8 ft.) east of the terrace are two small natural blisters that show no signs of modification or any utilization.

The site's function was initially interpreted as a possible burial based on the elimination of other possible functions. Test excavation (see below), however, indicates this is an agricultural mound. The terrace's upper surface is not suitable for habitation and no indications of habitation were found during excavation. Although the terrace facing appeared to be too formal for agricultural use and the larger boulders size and slabs used for construction are not suitable for growing, testing indicates the terrace was used for agriculture.

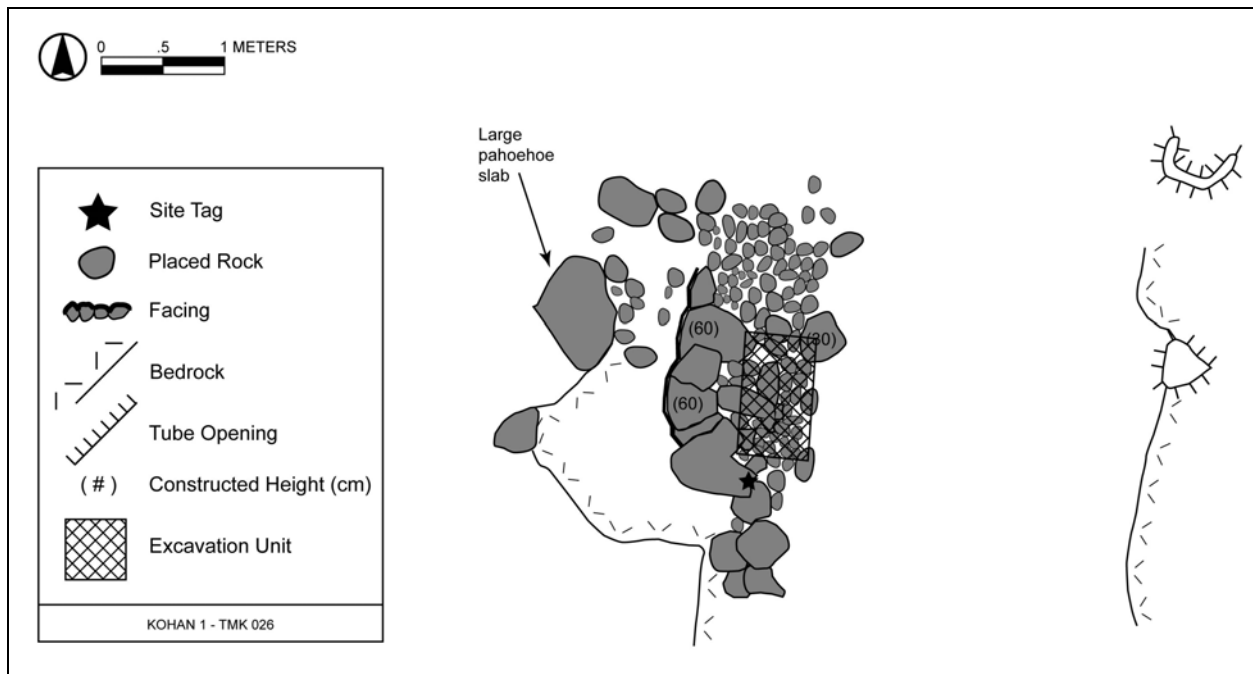


Figure 363. Site -26549, agricultural terrace, plan view



Figure 364. Site -26549, showing faced side of the slightly mounded terrace, view to east

Testing Results

Test excavation was conducted to assist in determining site function and to determine whether a burial is present. Stratum I, extending from 0 to 65 cmbs, is the constructed portion of the structure (Figure 365). Stratum II, extending from 65 to 75 cmbs, is stony sandy loam sediment that contains a small amount of marine shell, and a *kukui* fragment that is likely a mixture of more recent sediment that filtered through the structure and an older A-Horizon.

Excavation ended at 75 cmbs at natural eroding bedrock and no evidence of a burial was found. A few *kukui* fragments and marine shell fragments were recovered as well as *koa haole* seeds and cockroach wings - all from Stratum II. The marine shell was found in a very low concentration, and was likely present simply as a result of the area's general use as an agricultural and habitation area. The marine shells and *kukui* are not concentrated enough to represent midden. The presence of *koa haole* seeds and cockroach wings within Stratum II suggests the stratum is not very stable, and these items may have washed in.

The terrace was determined to have functioned as an agricultural feature based on the lack of evidence for a burial as well as the terrace's small, rough surface being unsuitable for habitation.

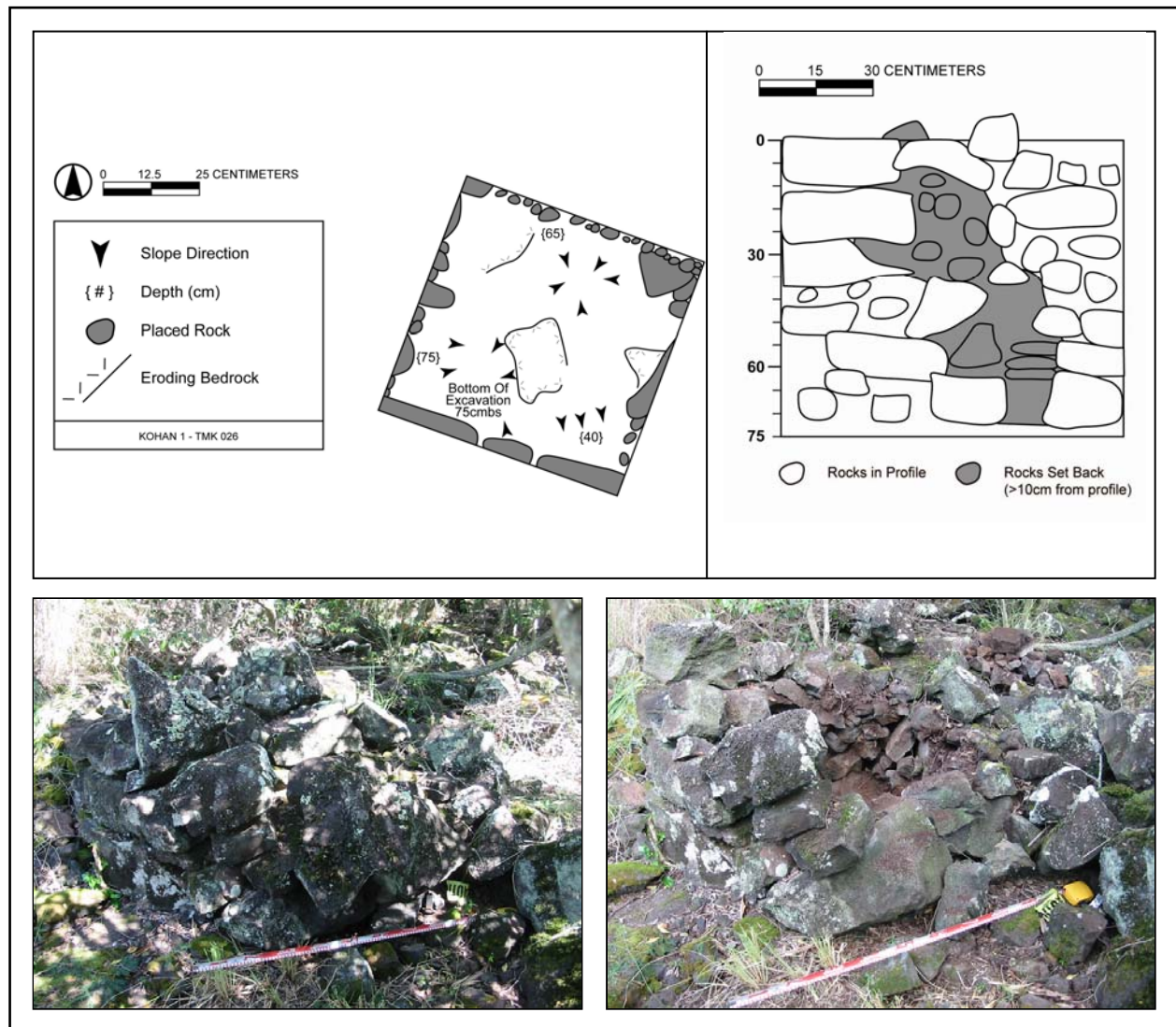


Figure 365. Site -26549 excavation figures. Left to right, top to bottom: base of excavation unit plan view; north wall profile; terrace pre-excitation; terrace post-excitation

2.1.69 State Site # 50-10-28-26550

SIHP #	50-10-28-26550
FUNCTION:	Temporary Habitation
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	50 m by 15 m (164 ft. by 49.2 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	720 ft a.m.s.l.

DESCRIPTION: Site -26550 consists of a small sink and a northeast/southwest trending lava tube located in the northeast portion of TMK 26, 24 m (78.8 ft.) northwest of Site -26552 (Figure 366). The entrance to this tube is off of the small (4 m by 3 m / 13.1 ft. by 9.8 ft.), but deep (2.5 m / 8.2 ft.) sink. The sink is in an area of dense grasses with few trees. Some small but dense thorny shrubs are growing in the sink.

The lava tube entrance is partially blocked by a large upright *pāhoehoe* slab (Figure 367). An area of natural fall at the entrance slopes down to a paved, level terrace a few meters into the tube. On the southeast side of the tube there are *pāhoehoe* slabs placed upright against a bedrock shelf. A small amount of *pāhoehoe* small cobble fill is behind the slabs. This modification creates a raised level area. The paved level surface contains *pāhoehoe* pebbles and small cobbles (2-10 cm / 0.06-0.3 ft.), and some larger *pāhoehoe* slabs and cobbles (20-40 cm / 0.6-1.3 ft.). There are a few *kukui* endocarps in this paved area. Just southwest of the paved area, placed large *pāhoehoe* slabs create a ramp down into the lava tube. The slabs range from medium to large (20-75 cm / 0.66-2.5 ft.). At the base of the ramp, the floor of the tube is *pāhoehoe* bedrock. The greatest quantity of midden materials was encountered in this area. Abundant *kukui* and many fragments of marine shell are present; cowry shells are the most abundant, about 30 fragments were observed. Another approximately 20 fragments are mostly *Nerita* (*Theodoxus vespertinus*), although one specimen of *Conidae* (probably *Conus bullatus*) was observed.

Southwest of the area of dense midden the main tube turns slightly southward. There are six water collection features in this portion of the tube. A side tube (heading west) is situated under the floor of the main tube. Two water collection features were observed at the entrance to this side tube. The main tube continues for a few meters to a small (70 cm / 2.3 ft.) passage leading west from the main tube. It briefly narrows before opening into another large chamber (9.5 m / 31.2 ft. northeast-southwest by 4 m / 13.1 ft. northwest-southeast by 2 m / 6.6 ft. tall). This chamber contains a single water collection feature and a few *kukui* endocarps are along the chamber sidewalls.

Beyond an area of roof fall, the tube continues without modification or cultural materials. A small opening on the left (south-southwest) is impassable, although Site -26552, Sink 3 is visible. The tube continues in a westerly direction that leads to Site -26550, Feature B.

A second small tube branches off from the -26550 sink, heading roughly southeast for approximately 15 m (49.2 ft.) before ending. The tube is very small with an average ceiling height of only 60 cm (2 ft.) and contains only a small amount of midden consisting primarily of scattered *kukui* and an urchin shell amongst the placed cobbles that partially block the entrance.

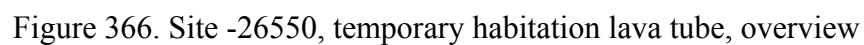




Figure 367. Site -26550, showing entrance to the tube in the sink, view to southwest.

The site's function is interpreted as temporary habitation with a secondary function of water collection. The amount of modification present in this site, including some placed rocks in the sink itself, require enough energy investment to rule out both shelter as the function and water collection as the sole function. These formal modifications immediately inside the entrance and within the light zone of this tall tube, suggest a habitation function. The amount of midden present, both *kukui* and marine shell, also supports a temporary habitation function. The number of water catchments and the presence of water throughout the tube indicates water collection as a secondary function.

2.1.70 State Site # 50-10-28-26551

SIHP #	50-10-28-26551
FUNCTION:	Activity Area (Quarry)
SITE TYPE:	Modified Outcrop
TOTAL FEATURES:	1
DIMENSIONS:	Approximately 100 m (main area)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	620 ft a.m.s.l.

DESCRIPTION: Site -26551 consists of an isolated quarry area located approximately 40 m (131.2 ft.) north of Hina-Lani Street in the southeast portion of the project area. Four additional isolated quarries were found in the immediately adjacent western parcel TMK [3]: 7-3-009:25 (SIHP # 50-10-27-26275, Features A-D; Bell et al. 2008). The quarry area within the current project area is a similar site type, representing pervasive but low-intensity quarrying in this region.

Heavily eroded bedrock exposure is characteristic of this portion of the project area, as is the extremely dense vegetation that consists primarily of *koa haole* and dense air plant ground cover. The eroding rock from these exposures frequently appears to have been tossed around and is partially rolled downhill and piled haphazardly or sitting askew. Although the proximity to Hina-Lani Street suggests that bulldozer activity could be responsible for this disturbance, no obvious bulldozer mounds are present and most of the tossing appears to be on top or around elevated bedrock exposures, locations a bulldozer could not easily access. Some bedrock exposure areas are the product of heavy natural erosion and vegetation, w other areas clearly indicate human use.

Site -26551 in the present project area is a modified *pāhoehoe* exposure that has been quarried at its southwest terminus (Figure 368). The exposure runs northeast/southwest for approximately 20 m with an average width of approximately 5 m and is heavily eroded, such that large pieces of the exposure are breaking apart due to exposure to the elements and heavy vegetation in the area. The southwest end of the tumulus is almost vertical; it slopes back and slightly to the northwest. It is relatively flat in areas where large flat slabs of the bedrock have been removed. These large flat slabs are no longer present and were very likely used for construction of structures in this area. Sites -26536 (a wall) and -26562 (an enclosure) required many flat slabs for construction and both sites are only about 60 m north of site -26551. Although this site is the most distinctive quarrying area in this general vicinity, there are many eroding *pāhoehoe* exposures that were probably quarried for stone, since stones are relatively easy to remove without extensive quarrying activity. The bedrock in the vicinity is so eroded that large pieces could simply have been picked up and removed, rather than removing slabs from an intact exposure. This removal of stones without quarrying explains some of the tossed stones that are prevalent in the site's vicinity.

The site's function is interpreted as quarry activity area based on the site type and the removal of basalt. This site should be considered as one specific area of activity that is part of a broader activity pattern, specifically the general removal of stones from eroding bedrock exposures and the active quarrying of exposures for the construction of nearby structures. There is no excavation potential for this site.



Figure 368. Site -26551, quarried outcrop, view to northeast showing an example of probable quarrying activity, where naturally eroding slabs have been removed and are no longer present

2.1.71 State Site # 50-10-28-26552

SIHP #	50-10-28-26552
FUNCTION:	Permanent Habitation
SITE TYPE:	Lava tube
TOTAL FEATURES:	7
DIMENSIONS:	110 m by 27 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	715 ft a.m.s.l.

DESCRIPTION: Site -26552 is a large lava tube located relatively close to the surface in an area of eroding *pāhoehoe* bedrock and comparatively dense sites that are generally related to agriculture. The site is a permanent habitation consisting of three sinks, seven lava tubes and seven features comprised of both small natural spaces and discrete constructions (Figure 369). It is located in the northeast quadrant of TMK 26 in relatively flat terrain. The lava tube is open to the surface by relatively shallow sinks that average 1.5 m (4.9 ft.) and provide fairly easy access.

The lava tube is a good size and has multiple comfortable sitting and standing areas. Signs of disturbance present in the tube include irregularly shaped excavations within several soil deposits and Feature D pavement has been disturbed.

Tube 1 is a large tube that runs between Sink 1 and Sink 2. A large cairn is on the surface above Tube 1 measuring approximately 1 m in diameter and 1 m tall. A number of modifications are in Tube 1 including Feature D, a small pavement, and Feature E, a filled crevice.

Tube 2 is a small tube with a very small entrance (less than 2 m). The maximum height of the tube is 60 cm. It contains two chambers - the first is unmodified and the second contains a number of water collection features and an area of leveled fall to ease entry. Within the leveled fall was a near complete dog skeleton of non-cultural origin.

Tube 3 is a long tube that has multiple levels and connects Sink 3 to Site-26529. The tube closest to Site -26529, is the most heavily utilized and is one of the densest water collection areas of the site. The entrance to Tube 3 from Site -26529 has been blocked with a low mound consisting partially of natural fall. Considering the very smooth floor inside this entrance, the presence of marine shell, and the high density of water collection, this blockage appears to post date the water collection.

Tube 4 is one of the larger tubes off Sink 3. It extends from the sink to the southwest. Tube 4 shares an entrance with **Tube 7** (to the west). Tube 4 is primarily water collection with numerous informal collection features and a very wet floor.

The common entrance to Tubes 4 and 7 is modified, particularly in front of Tube 4. The floor has been leveled and roughly paved with large to small cobbles to create a terrace. Its retaining wall is inside the cave is relatively tall (80cm) but partially collapsed. The ceiling in this entrance is highly collapsed and it is believed that the terrace is largely to even out the fall to improve access to water collection. The tube contains sparse *kukui* and one 10 cm by 4 cm piece of wood with a charred end.



Figure 369. Site -26552, permanent habitation lava tube, overview

Tube 5 is located in Sink 3 of Site -26552 and contains little evidence of previous use. The tube is quite narrow, 2 m wide at most, and approximately 14 m in length. A placed rock and *kukui* endocarps are present but no water collection features or other cultural material was found.

Tube 6 is a small lava tube about 4 m in length and 1 m in width. One placed rock was at the entrance to the tube and three pig bone fragments were on the floor. No modification to this tube was evident and there are no water collection features present.

Tube 7 is located at the southwestern end of Sink 3. The tube is approximately 25 m in length, and 4 m to 5 m in width. The main function of Tube 7 is water collection. Water collection areas are found throughout the length of the tube. A small amount of cowry shell was also found near the entrance to the tube from Sink 3. For the first 12 m the tube has ceiling fall and water collection features. The tube then opens into a small room with a flat *pāhoehoe* floor where there are water collection features and *kukui* endocarps. The tube continues through a tight passage of fall and opens up with an entrance to an unmodified sink.

Feature A is an overhang in the northwest side of Sink 1. It is the remnant of the portion of lava tube that collapsed to create the sink (see Figure 369 & Figure 370).

Feature A measures a maximum 150 cm (4.9 ft.) tall, 4.25 m (13.9 ft.) wide, and 2.25 m (7.4 ft.) deep. The ceiling drops quickly, but remains high enough for sitting or lying down. The overhang floor contains 30 cm (0.98 ft.) of thick ashy silt mixed with well sorted small cobbles and rubble that is a very dense pavement (Figure 371).

The soil deposit contains some charcoal, a few *Cypraea sp.* fragments and numerous *kukui* endocarps.

This feature is an ideal habitation area since it is sheltered but open to the air and natural light, and is a comfortable size close to the main lava tube and the sink interior. The presence of relatively dense midden suggests this was the most extensively used portion of the site for habitation activities.

Feature B consists of two cupboard features located just north of the center of Sink 1 (see Figure 369 & Figure 370). They are constructed among the small boulder and cobble fall that comprises the sink floor. They are low, approximately 10 cm (0.33 ft.) tall, but wide - as much as 40 cm (1.3 ft.). Both cupboards are constructed with the placement of a large slab 70 by 40 cm (2.3 ft. by 1.3 ft.) and 40 by 40 cm (1.3 by 1.3 ft.) on a single course of placed large cobbles (Figure 372). No artifacts or midden were observed in the cupboards.

Feature C is a highly collapsed retaining wall that is well faced where it remains intact (see Figure 369, Figure 370 & Figure 373). The wall's total length is approximately 6 m (19.7 ft.), although it is highly collapsed along much of its length. The maximum height is 1.2 m (3.9 ft.).

The wall is constructed across the northeast end of Sink 1, where there is a natural slope. The retaining wall creates an artificial boundary that mimics the curvature and height of the natural sink itself. This construction creates a relatively level lip to the sink for its entire circumference and formalizes the interior of the sink and its boundaries.

The area retained by the wall is approximately 1 m (3.3 ft.) thick and for the most part consists of natural fall, although it has been somewhat filled to create a level area atop the wall.

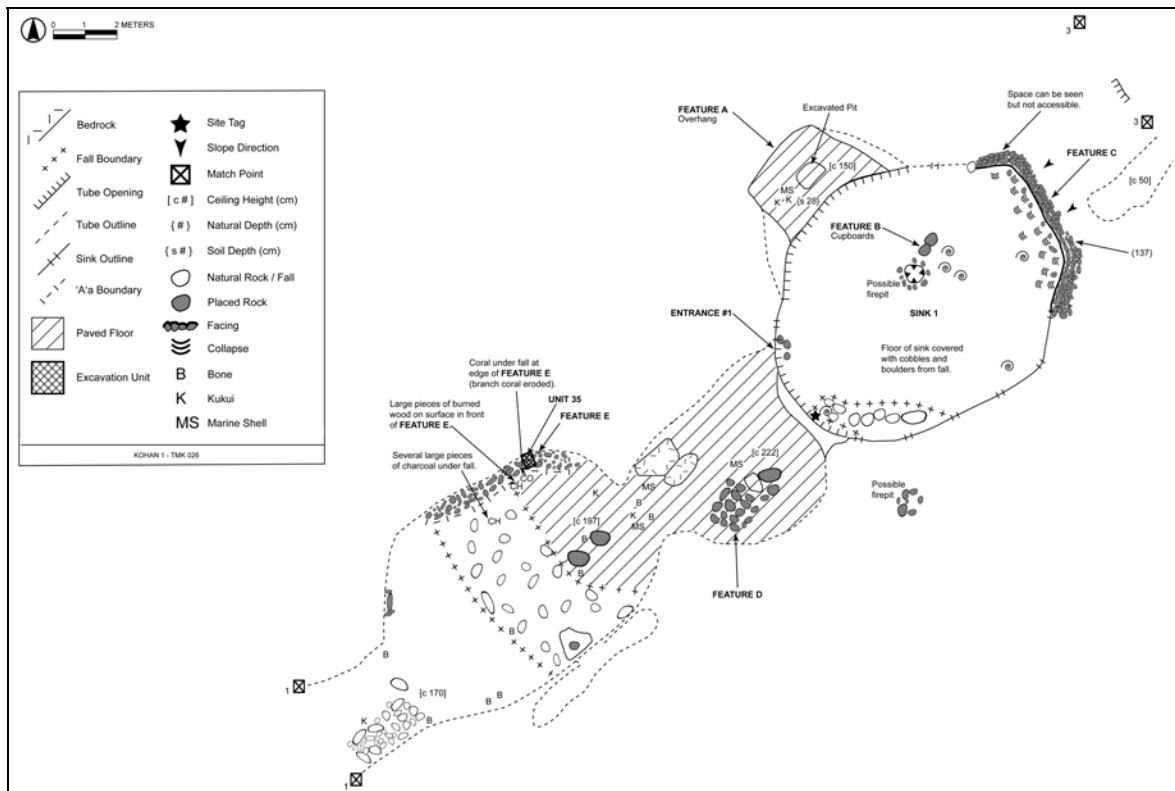


Figure 370. Site -26552, Sink 1, Tube 1, Features A-E, plan view



Figure 371. Site -26552 Feature A, showing the overhang in Sink 1 with an ashy floor and cobble pavement, view to north-northeast



Figure 372. Site -26552 Feature B, showing cupboards, view to northeast



Figure 373. Site -26552 Feature C, showing the faced wall that follows the edge of Sink 1, view to southeast

Feature D is a *pāhoehoe* slab pavement surrounded by angular *pāhoehoe* small boulders located in Tube 1 (see Figure 369 & Figure 370). The pavement is roughly rectangular shaped and measures 50 cm (1.6 ft.) wide (east/west, approximately) and 130 cm (1.3 ft.) long. With the surrounding boulder alignment, the feature measures 120 cm (3.9 ft.) wide and 170 cm (5.6 ft.) long.

The pavement is comprised of approximately *pāhoehoe* 10 slabs ranging in size from 30 cm (0.98 ft.) square to 15 cm (0.49 ft.) square. They are arranged tightly, leaving no more than 1 cm (0.03 ft.) gaps between slabs (Figure 374). The slabs are slightly embedded into the soil deposit and average 5 cm (0.16 ft.) thick. The boulder alignment is composed of approximately 10 small *pāhoehoe* boulders ranging in size from 20 cm (0.66 ft.) to 45 cm (1.5 ft.) square. The boulders sit on top of the soil deposit, and are arranged to enclose the paving. The feature is located in the natural light zone approximately 2 m (6.6 ft.) from the entrance to Sink 1. On the northeast end of the feature, two small boulders have been removed from a small 50 cm by 30 cm (1.6 ft. by 0.98 ft.) excavated area in the soil deposit. This excavation appears to be prospecting by looters.

The area surrounding the feature shows some minor midden deposits including *Cypraea* and *kukui* endocarps. Excavation potential is fair based on the soil deposit around the feature.

The function of this pavement and alignment is habitation. The feature may be a resting or sleeping area that is highly formal, based on its size and smooth paving.

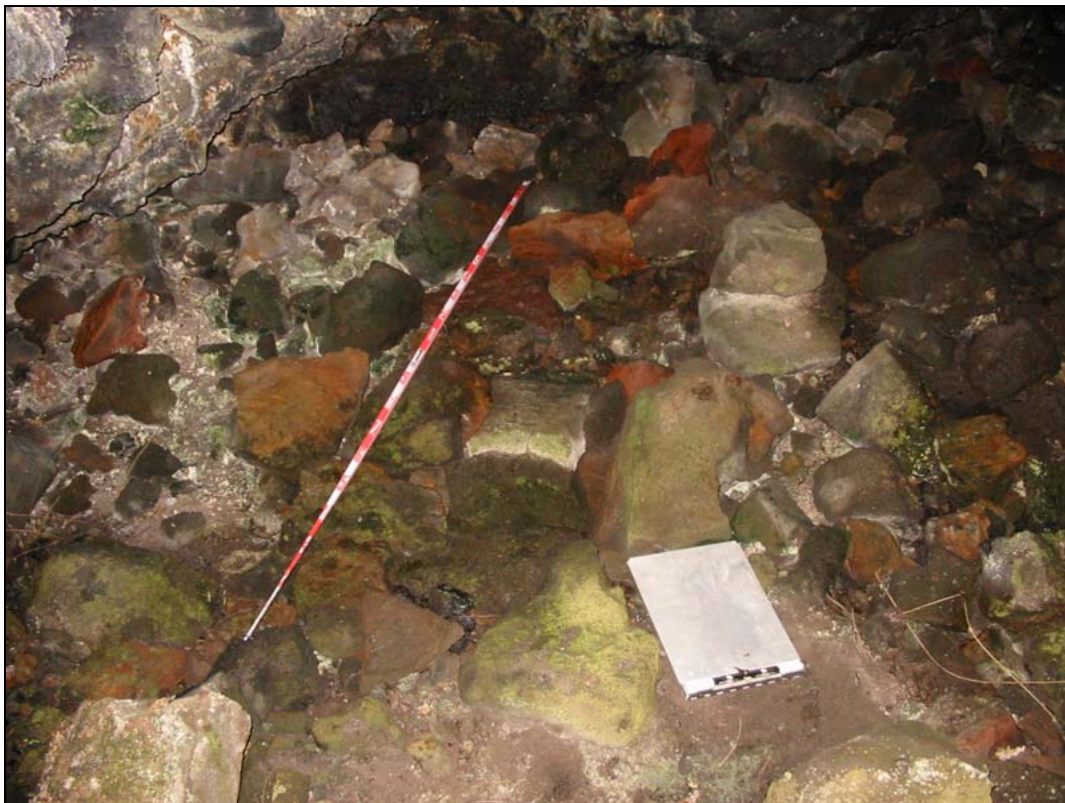


Figure 374. Site -26552 Feature D, showing the slab pavement surrounded by boulders, view to south.

Feature E is a small boulder and large cobble linear mound along the northwest wall of Tube 1 (see Figure 369 & Figure 370). It extends 6 m (19.7 ft.) along the tube wall and up to 1 m (3.3 ft.) from the wall (Figure 375). The mounding is 10-30 cm (0.33-0.98 ft.) above the floor towards the center of the tube, but is likely considerably deeper along the tube edge where the floor has a slight drop.

The north end of the mound has a constructed cupboard feature comprised of at least two slabs placed at approximately a 45 degree angle that span between the base of the mound and the tube wall. A space behind these slabs was created by the combination of the downward sloping floor and the mound and slabs. The constructed space measures 20-50 cm (0.66-1.6 ft.) wide (northwest/southeast) and approximately 80 cm (2.6 ft.) deep. This constructed space is visible for a distance of 1 m (3.3 ft.), starting at the north end of the mound. It may continue under the mound for some distance. The chamber is visible at the northeast end of the mound and appears to have been opened, likely during looting.

The function of this feature is most likely storage related to habitation and the clearing of fall. Possible burial was originally considered a function for Feature E but was disproved by testing (see below).



Figure 375. Site -26552 Feature E, showing the linear mound along the northwest wall of Tube 1, view to northeast

Feature F is a tall, round cairn that is 1.3 m by 1.3 m (4.3 ft. by 4.3 ft.) (see Figure 369). The cairn is in very good condition, especially for its height (Figure 376). It appears to mark the general area of numerous sinks, although no more specific function is apparent since the cairn is surrounded by most of the site.



Figure 376. Site -26552 Feature F, showing the tall, round cairn, view to southeast

Feature G is located 16 m from the -26552 site tag, on top of the far east end of Sink 1 (Figure 369). This feature consists of an L-shaped enclosure, informally constructed, that utilizes the naturally eroding bedrock and sink fall for construction. The area within the L-shape has been cleared. This feature is consistent with the function for the rest of this site and the surrounding area in general, which is habitation.

The site's function is interpreted as permanent habitation. Ashy soil deposits, investment in the construction of Feature C, selection of slabs for a living/sleeping surface of Feature D, and paving in Feature A and Entrance 1, all indicate extensive time investment and long term habitation. The presence of water collection features in the tube also indicates habitation.

The site's excavation potential is good. There is a substantial deposit (up to 30 cm / 0.98 ft.) of ashy soil in Entrance 1 and Feature A. Feature E may also be excavated for midden or charcoal and to test for function.

Testing Results

Test excavation was conducted in Feature E mound to assist in determining site function and to determine whether a burial was present since a large piece of branch coral was found adjacent to the feature (see Figure 369 & Figure 370 and Figure 377).

Stratum I, extending from 0 to 65 cmbs, is a construction layer consisting of small to large jumbled cobbles. One piece each of fish bone and fractured bird bone, a whole urchin body, *kukui*, charcoal and marine shell pieces including cowry were found.

The construction of the mound is not formal and is primarily the result of clearing and leveling of fall from the tube floor to create a more desirable habitation space. All findings, including the charcoal, midden, and solid construction, support habitation function for this feature.

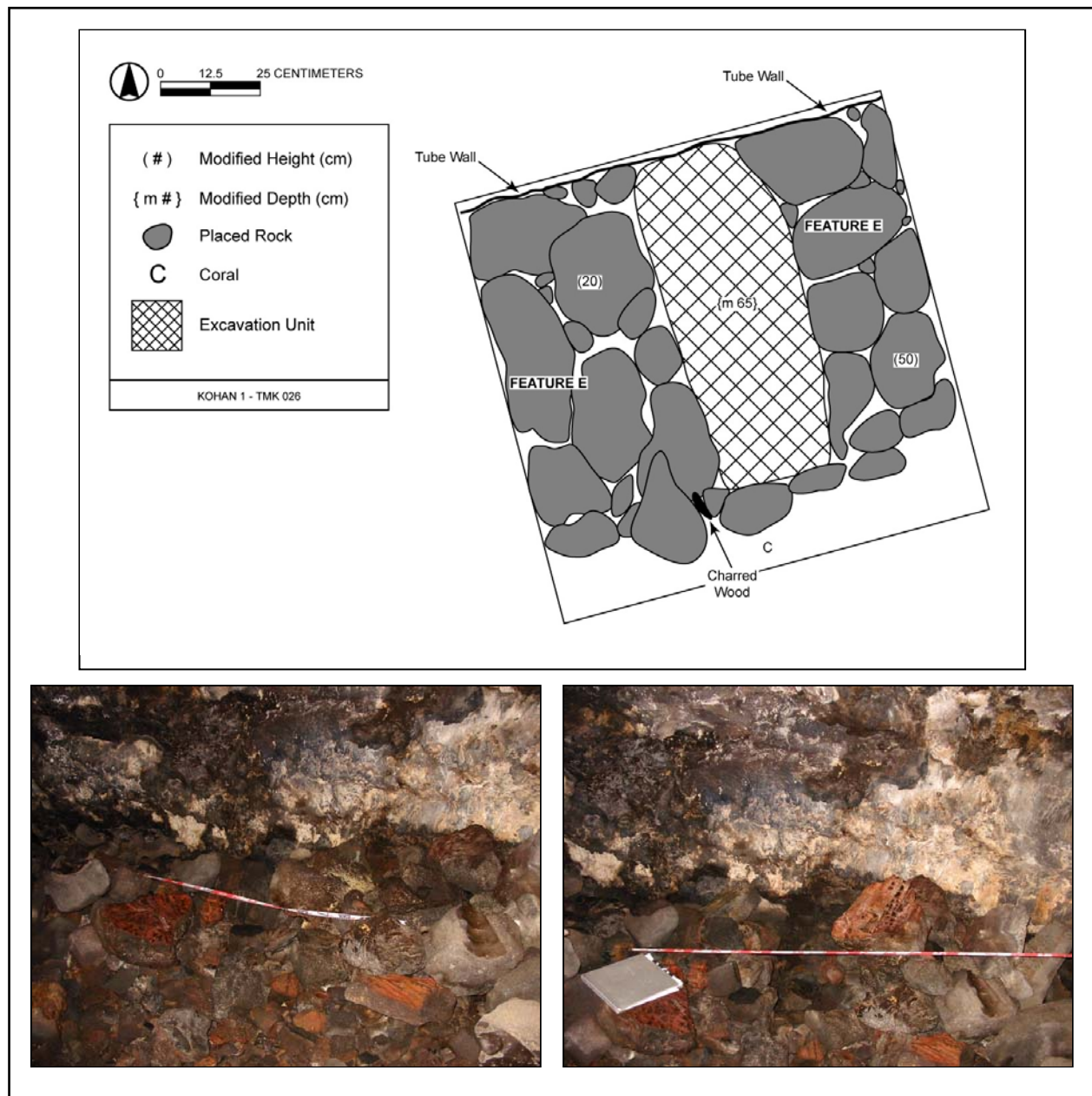


Figure 377. Site -26552 Feature E excavation figures. Counter-clockwise from top: plan view of base of excavation unit; photograph of mound pre-excitation; photograph of mound post-excitation

2.1.72 State Site # 50-10-28-26553

SIHP #	50-10-28-26553
FUNCTION:	Temporary Habitation
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	15 m by 5 m (49.2 ft. by 16.4 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	725 ft a.m.s.l.

DESCRIPTION: Site -26553 is located on a gently undulating *pāhoehoe* flow in the northeast quadrant of TMK 26. The site consists of a sink with two lava tubes and a small overhang (Figure 378). The vegetation within the site predominantly consists of Christmas berry of varying sizes, morning glory, and patches of surface grass around the edges of the sink.

The overhang of the sink measures only 1.5 m (4.9 ft.) and has a few placed rocks and a single piece of *kukui*. The sink's largest tube extends roughly southwest. The tube entrance is large, approximately 2 m (6.6 ft.) tall. A small wall at the entrance retains the natural fall of the sink and a small ramp leads down from the sink into the tube. The ramp is constructed of the natural fall of *pāhoehoe* cobbles and small boulders. The tube's entrance chamber is at the base of the ramp. The chamber has a cleared floor that is split by a small wall that primarily consists of a single large upright that measures 90 cm (3 ft.) tall. The large *pāhoehoe* cobbles and boulders that have been cleared from this area are piled along the south wall of the entrance chamber (Figure 379). Toward the southwest end of the clearing pile is a small waterworn stone. The only midden found in the clearing pile is a piece of marine shell. A small piece of coral was observed on the edge of the clearing pile and the southwest half of the divided cleared area. Other findings include an abundant amount of *kukui* in this southwest half of the cleared area and a single piece of *kukui* on the northeast half of the cleared area; no other midden is present in either the northeast or southwest halves of the cleared entrance chamber.

A tube extends from the southwest end of the entrance chamber. The tube heads roughly southwest and has a constructed entrance with *pāhoehoe* boulders and slabs placed in an arc around the entrance. This construction significantly blocks visibility from the entrance chamber into the tube. Approximately 1 m (3.3 ft.) beyond the constructed entrance, the tube is blocked by placed rocks. The tube is very shallow at this point; only four or five small boulders were used to block the tube. Beyond this blockage, the tube continues for 9 m (29.5 ft.) at 265° before encountering an entrance to the surface through a small sink that also connects to Site -26538 Feature D. The portion of the tube between the blockage/placed rocks and Site -26538 Feature D, has no modifications and contains only a few scattered *kukui*. A second tube extends from the northeast end of the sink but ends after a few meters and contains no modifications or cultural materials.

The site's function is interpreted as temporary habitation. The general lack of midden within most of the sink suggests little use of the site. However, the amount of modification present in the tube and its size, a medium height of 3.25 m (10.7 ft.), is more indicative of temporary habitation.

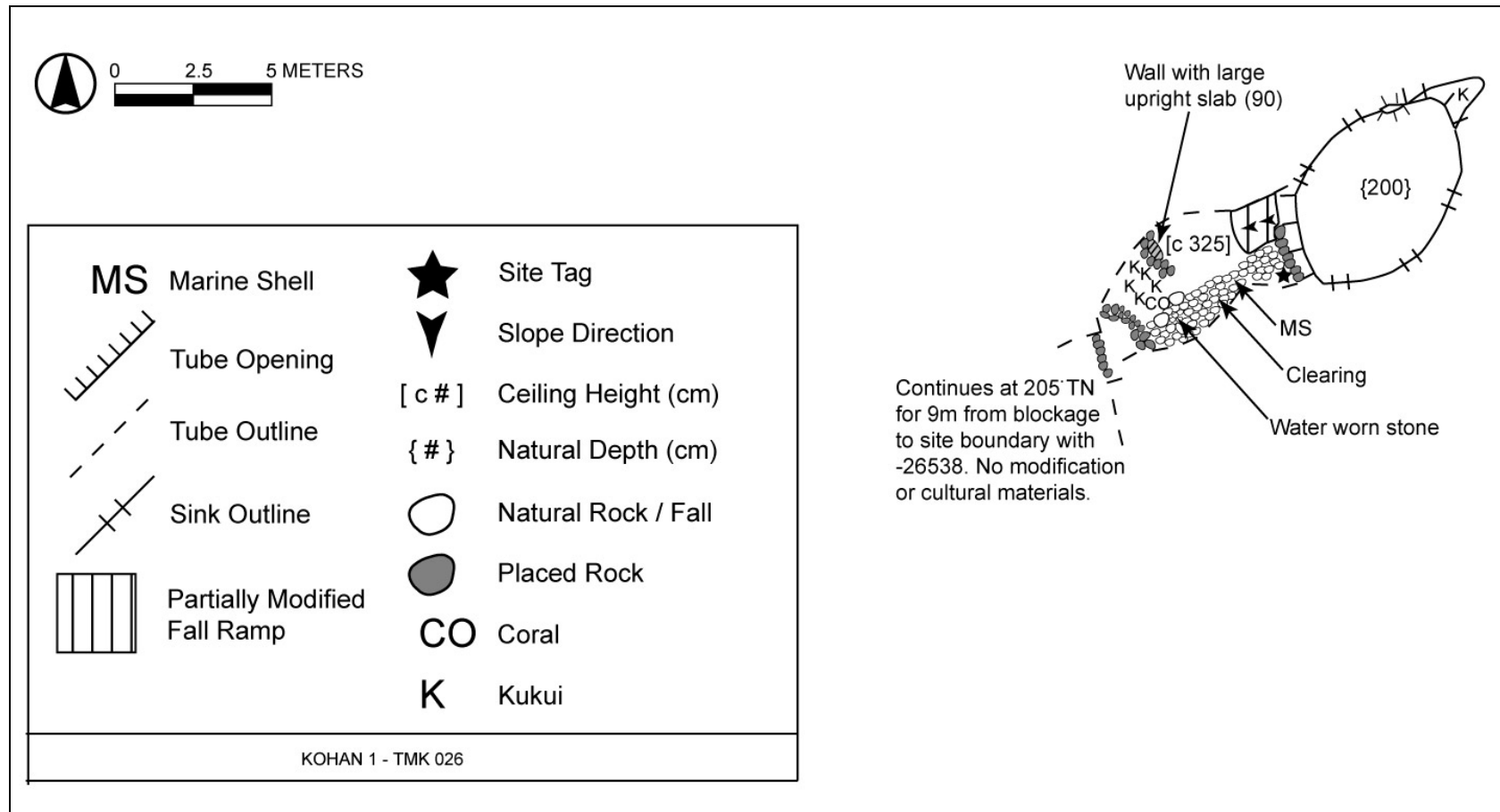


Figure 378. Site -26553, temporary habitation lava tube, plan view

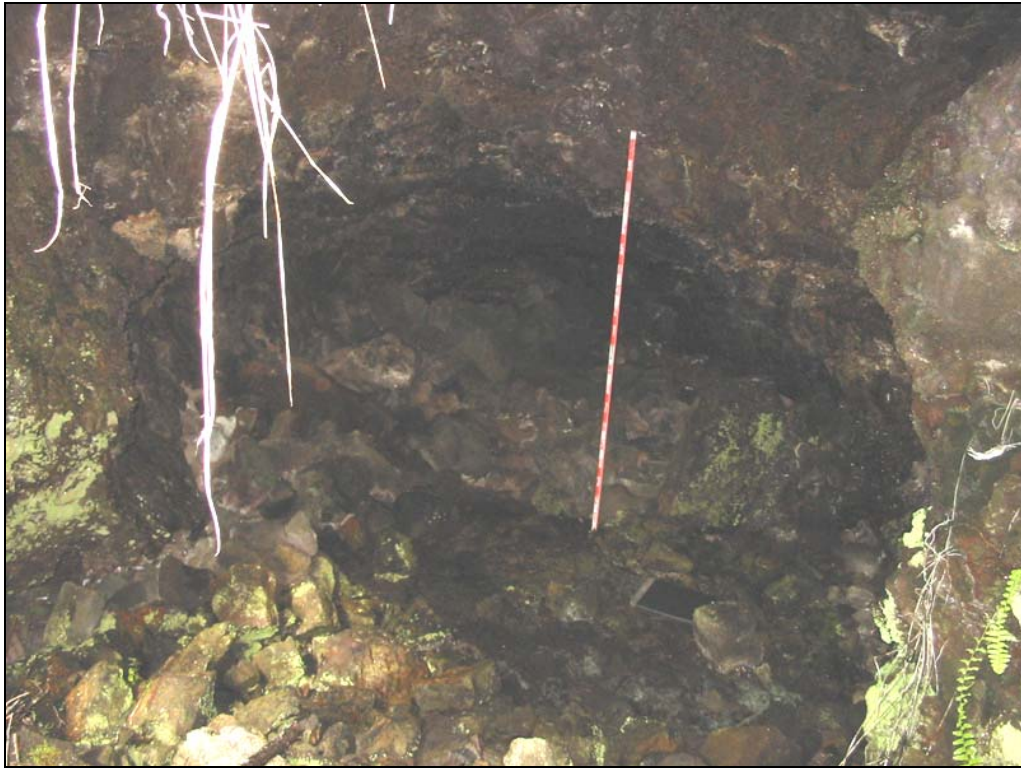


Figure 379. Site -26553, showing the cleared area within the tube, view to west

2.1.73 State Site # 50-10-28-26554

SIHP # 50-10-28-26554
FUNCTION: Water Collection
SITE TYPE: Lava Tube
TOTAL FEATURES: 1
DIMENSIONS: 30 m by 10 m (98.4 ft. by 32.8 ft.)
CONDITION: Good
AGE: Pre-contact
ELEVATION: 690 ft a.m.s.l.

DESCRIPTION: Site -26554 is on a west sloping, gently undulating *pāhoehoe* flow in the east half of TMK 26. It is within approximately 30 m (98.4 ft.) of Sites -26507 Feature B, -26546, and -26563. The vegetation surrounding the site consists of many medium Christmas berry, head and shoulder-high small *koa haole*, and thick patches of grasses.

The site is a roughly east/west trending lava tube with two sinks, Sink 1 and Sink 2 (Figure 380). The tube begins at Sink 1, Entrance 1, which is the eastern extent of the tube (Figure 381). There are a couple of placed rocks in Sink 1. The tube continues west for approximately 30 m (98.4 ft.) before ending at its western end at Sink 2. Along the course of the tube there are approximately three water catchments and roughly 50 pieces of scattered *kukui*. The tube also connects to Entrance 2 of Site -26546 but the passage is very small, and too low to pass through. Some rock placement and natural fall modification in Entrance 3 create a partially constructed entrance into the tube from Sink 2. This partially constructed entrance and the few water catchments in the tube are the only modifications.

The site's function is interpreted as water collection. The lava tube is small and exhibits minimal modification. The lack of any midden other than scattered *kukui* suggests that shelter function is unlikely. The tube's low ceiling height and the small entrances limit access to the tube. The site is a poor shelter in comparison to nearby Site -26563 with its larger sinks, entrances, and overhangs. This tube is a relatively ephemeral water collection based on the small number of water catchments.

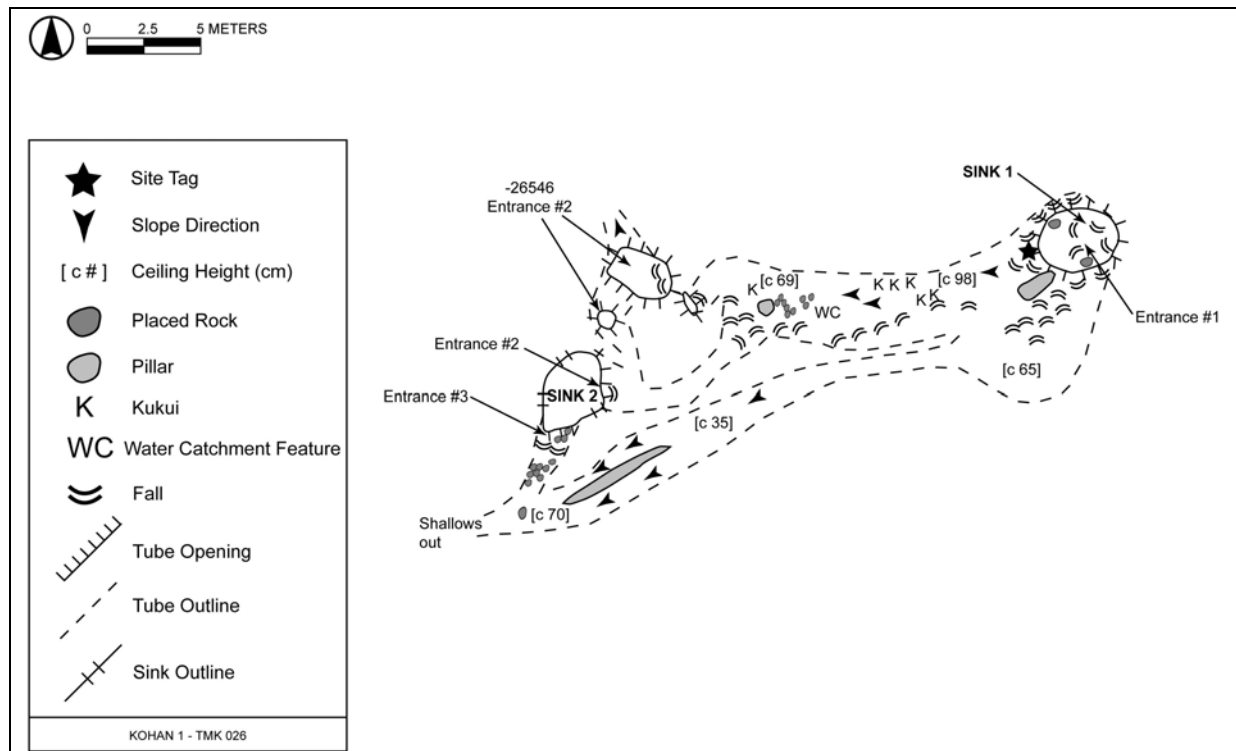


Figure 380. Site -26554, water collection lava tube, plan view



Figure 381. Site -26554, showing Entrance 1 to the lava tube in Sink 1, view to west.

2.1.74 State Site # 50-10-28-26555

SIHP #	50-10-28-26555
FUNCTION:	Shelter
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	12 m by 2 m (39.4 ft. by 6.6 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	700 ft a.m.s.l.

DESCRIPTION: Site -26555 is located on a gently undulating *pāhoehoe* flow in the northeast quadrant of TMK 26. The site is an east/west trending, small lava tube. The vegetation surrounding the site consists of few medium-sized Christmas berry and sparse, shoulder-high *koa haole*.

The tube entrance is located approximately in the center of the tube's 12 m (39.4 ft.) length (Figure 382). The tube entrance is partially constructed; *pāhoehoe* slabs are placed on top of the lip of the entrance creating an area immediately inside the entrance that is slightly more protected (Figure 383). The tube's largest open area is directly inside this entrance, which is in the ceiling of the tube. A small midden scatter is primarily concentrated in the area beneath the tube's entrance and consists of *kukui* and a few pieces of charcoal. A piece of wood and dog bones were also found in this area. Additionally, a few placed rocks, including a large flat *pāhoehoe* slab that makes a comfortable seat or step, were found.

The east end of the tube has some placed rocks and an inaccessible natural opening in the ceiling. The tube continues east but is inaccessible due to natural fall. The tube's west end is partially blocked by placed rocks; this area was accessed by temporarily moving some of the placed rocks. The tube continues another 2 m (6.6 ft.) west before becoming impassable due to low ceiling height and natural fall. Only a single piece of urchin was found beyond the area of partially blocking placed rocks. A thin layer of soil, ranging in depth from 1-2 cm (0.03-0.06 ft.) covers most of the tube floor.

The site's function is interpreted as a shelter based on all aspects of the site. The small amount of midden and modification are also more indicative of a shelter rather than any other possible function. The possibility of a burial function, suggested by the partially blocked tube, was ruled out after accessing the blocked tube and finding no evidence or indications of burial. Therefore, the only possible site function is shelter. The tube is too small to have functioned as a more intensive habitation site.

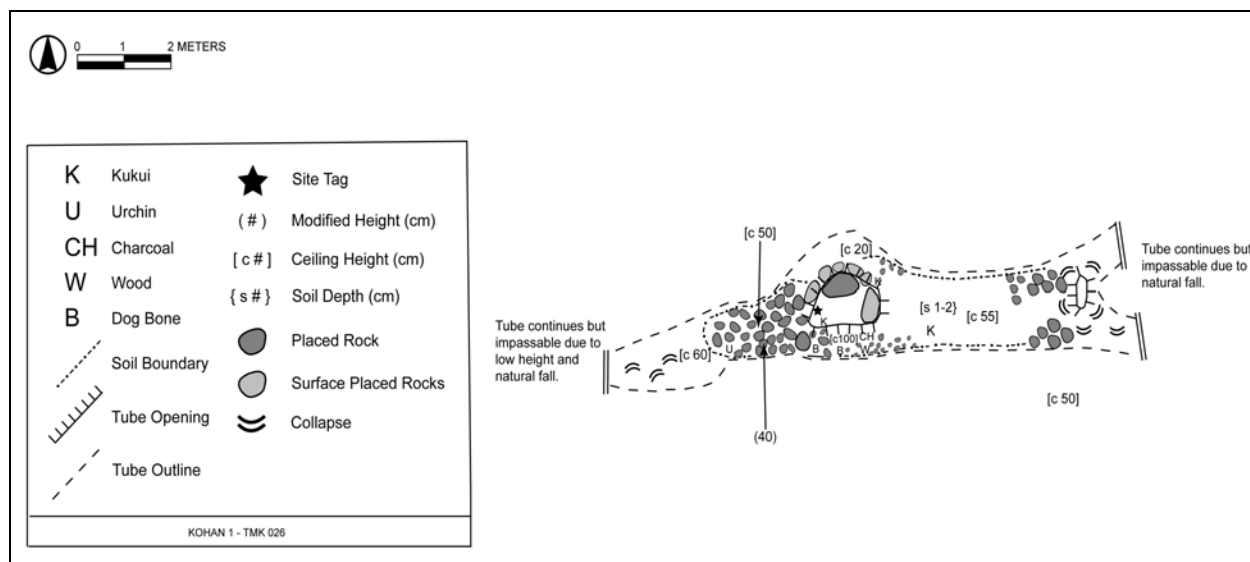


Figure 382. Site -26555, interior plan view



Figure 383. Site -26555, showing the partially constructed entrance to the small tube, view to south

2.1.75 State Site # 50-10-28-26556

SIHP #	50-10-28-26556
FUNCTION:	Burial
SITE TYPE:	Platform
TOTAL FEATURES:	1
DIMENSIONS:	4.5 m by 3.7 m (14.8 ft. by 12.1 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	725 ft a.m.s.l.

DESCRIPTION: Site -26556 is located on a small rise on a gently southwest sloping undulating *pāhoehoe* flow in the northeast quadrant of TMK 26. The vegetation surrounding the site consists of Christmas berry of varying sizes, a *noni*, morning glory, and dense patches of grass.

The site consists of a single rectangular platform that measures 4.5 m by 3.7 m and is 1 m (3.3 ft.) tall (Figure 384 and Figure 385). The platform is constructed of *pāhoehoe* cobbles, boulders, and slabs ranging from 8-80 cm (0.26-2.6 ft.) with an average size of 25 cm (0.82 ft.). The platform is located directly on top of a *pāhoehoe* bedrock outcrop that exhibits slight natural erosion. The structure itself is partially collapsed, primarily at its four corners and on the south side of the platform. Some intact facing remains on the platform's north, east, and west sides. The facing incorporates the use of upright *pāhoehoe* slabs. The platform has no remaining intact corners. Despite the collapse, the remaining facing on the east side of the platform indicates that the structure was constructed at least 4-courses high. The platform's upper surface is only partially intact and is constructed with at least a few intact *pāhoehoe* slabs with cobbles and small boulders. Based on the slabs' position, the platform's upper surface was originally roughly level although it is unlikely that it was paved or smooth. The platform's south side has extensive collapse and has a single upright slab as its only remaining facing. The original southeast wall base is partially visible amongst the collapse.

The site's function is interpreted as burial with a secondary ceremonial function based on excavation results (see below). While the site type of a platform is also indicative of habitation sites, this platform is too tall to have functioned as such and the platform's upper surface does not appear to have ever been level enough to have been a formal living surface. The platform is constructed on a small rise, and is likely visible from the surrounding area. The location of the platform and the height of its upper surface also facilitates an excellent view of the surrounding terrain and the coastline. The partial remaining facing on the platform also indicates the original relatively formal construction of the structure, which suggests ceremonial function. A single structure of this height appears unlikely for habitation, particularly considering that the vicinity has multiple large lava tube and sink complexes that are more suited for habitation and that facilitate access to water for such habitation.

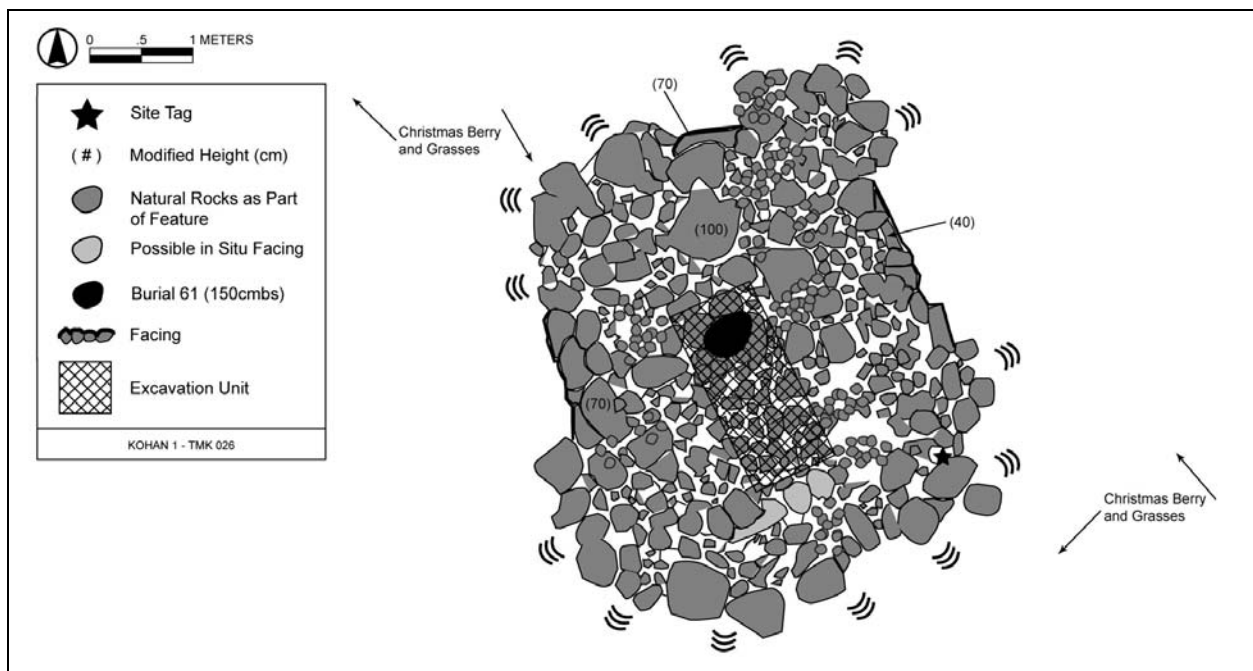


Figure 384. Site -26556, plan view



Figure 385. Site -26556, showing the platform, view to northeast

Testing Results

Test excavation was conducted to assist in determining site function and to determine whether a burial is present. Stratum I, extending from 0 to 90 cmbs, is the construction layer consisting of uprights and large boulders (20-60 cm in diameter). Stratum II, extending from 90 to 135 cmbs, consisted of sedimentation from the surface resting atop the bedrock surface. One large fragment of cowry was found. Stratum III, extending from 135 to 150 cmbs, is within the crypt, containing Burial #61 (see below for information on burial). Excavation ceased when the burial was found although bedrock/sterile soil was not reached. The crypt consists of some upright slabs within the blister capped by larger slabs (Figure 386, and Figure 387).

The sparse amount of midden found at this site, together with its construction style, eliminates the possibility of this platform being habitation related. Burial #61 was found within the constructed sub-surface crypt making the primary function of this site burial. The presence of the cowry piece and possibly the unidentified shell fragment could point to a secondary ceremonial function. The charcoal found in Stratum III near the burial could have resulted from any number of activities, perhaps ceremonial in nature. This conclusion supports the original identification of the site as ceremonial, but the primary function is burial.

The structure's construction consisted almost entirely of medium to large angular cobbles (25-60 cm). At approximately 70 cm below the surface of the structure, solid bedrock was encountered. Further excavation revealed two upright slabs holding this horizontal slab up (a smaller horizontal slab was removed in order to access the space beneath the very large slab). Soil with Stratum II revealed a small amount of midden including urchin and shell, as well as some charcoal. After excavating approximately 10 cm down into Stratum III, a bone fragment was found and determined to be human. This bone was near the center of the constructed area (between the slabs). It was determined that this area was a crypt, and all bone and cultural material other than the charcoal were placed back inside the crypt area. The small horizontal slab was replaced and the unit filled back in so as to not further disturb the burial area.

Excavation findings indicate that this site was a burial and supports the conclusion that this platform could have served a ceremonial function.



Figure 386. Site -26556 excavation figures. Top to bottom: plan view of base of excavation unit; west and north wall profiles



Figure 387. Site -26556, top surface of platform, pre-excavation

Burial 61

Burial 61 consists of several bone fragments discovered during the test excavation of a platform in TMK 26. During excavation a crypt was found that contained an innominate fragment with identifiable features (Figure 388). Based on the thickness and size and shape of the obturator foramen the burial was determined to be a young adult. Excavation ceased upon discovering the burial so as to not further disturb the burial area.

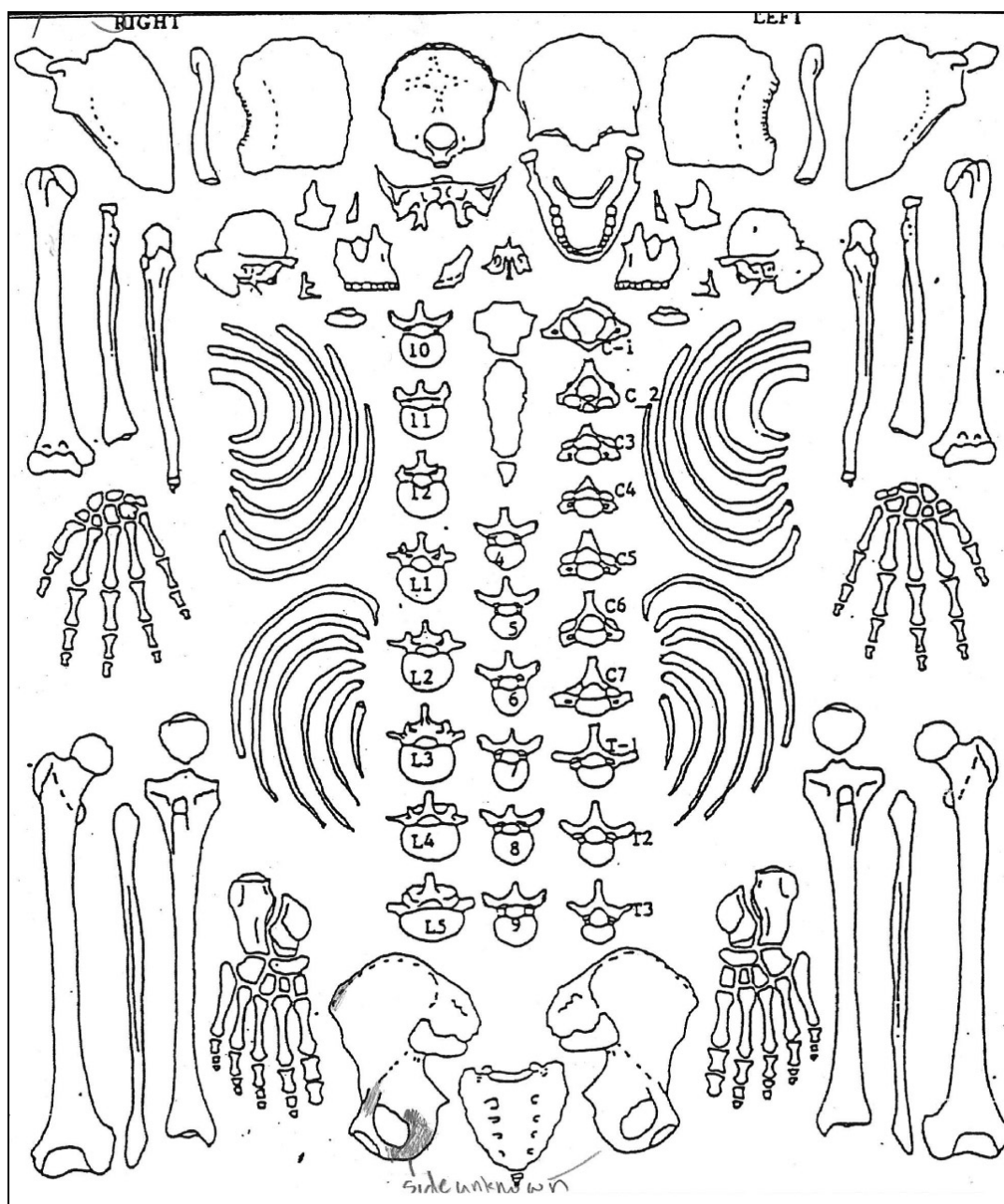


Figure 388. Site -26556, Burial 61, skeletal inventory form (innominate fragment only)

2.1.76 State Site # 50-10-28-26557

SIHP #	50-10-28-26557
FUNCTION:	Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	28 m by 6.5 m
CONDITION:	Excellent
AGE:	Pre-contact
ELEVATION:	700 ft a.m.s.l.

DESCRIPTION: Site -26557 is located on the southwest slope of an undulating *pāhoehoe* flow in the east half of TMK 26. The vegetation surrounding the site consists of head-high *koa haole*, large, medium and small Christmas berry, and some thick patches of grass. The site consists of a lava tube trending roughly east-west (Figure 389). The sink and entrance to Site -26557 are located between Site -26555 to the northwest and -26563 to the southeast, and are roughly 15 m from each. There is also a platform (Site -26558) 7 m northeast of the entrance to -26557.

The only modification to the sink is the constructed entrance to the tube at the west end of the sink (Figure 390). The modification is difficult to recognize from the surface, but once inside the tube it becomes clear that *pāhoehoe* slabs (approximately 50 cm) have been placed upright to retain fall from the sink and keep the entrance open. The entrance is small (40 cm east/west by 80 cm north/south) and the modification is on the northeast side of the entrance. Once inside, an unmodified ramp of natural fall leads down to a small chamber. Approximately 3 m inside the tube, on the south side of the chamber on a bedrock shelf, there is a formal water collection feature constructed in a circular formation with approximately a dozen *pāhoehoe* cobbles. A small amount of *kukui* is also in the chamber, some likely having washed in. No other modification or cultural material is present.

Two tubes extend off the initial chamber. These tubes join within a few meters and continue heading southwest. The tubes became braided and complex. There are six water collection features in these tubes. The tubes continue roughly 20-25 m past the last water collection feature. The ceiling averages at approximately 60 cm, though there are some very tight, but passable spots (approximately 30 cm). The tube finally ends in natural fall. A few *kukui* that are likely to have washed in were found. There is no modification or cultural materials past the last water collection feature.

The site's function is interpreted as water collection. Aside from the modification at the entrance and some *kukui* (much of which probably washed in), the only features or cultural materials in the tube were water collection features.

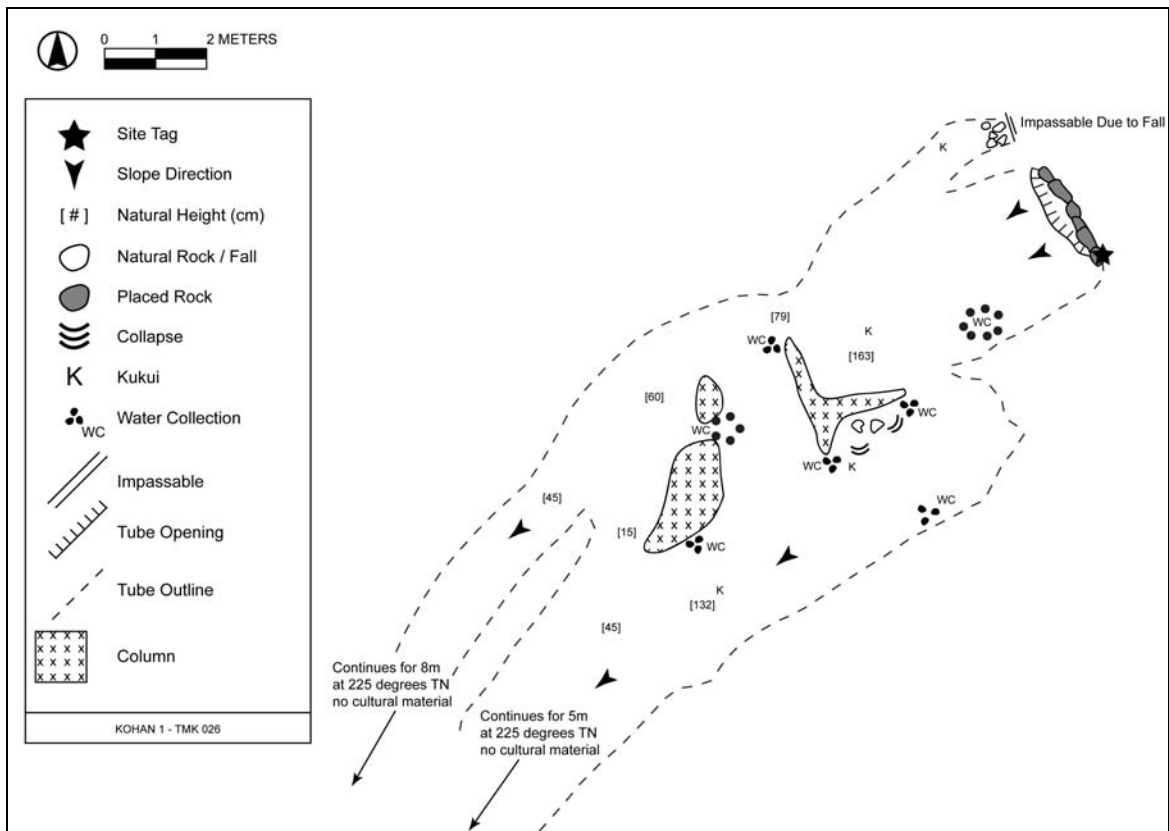


Figure 389. Site -26557 overview



Figure 390. Site -26557, showing entrance to the tube, view to southwest

2.1.77 State Site # 50-10-28-26558

SIHP #	50-10-28-26558
FUNCTION:	Permanent Habitation
SITE TYPE:	Platform
TOTAL FEATURES:	1
DIMENSIONS:	4.5 m by 4.5 m
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	700 ft a.m.s.l.

DESCRIPTION: Site -26558 is a round, raised platform of eroding *pāhoehoe*. The site is located 6-7 m northeast from -26563 and 7 m southwest of Site -26557 in the east central area of TMK 26. The site is in an area that is gently sloping to the southwest with dense *koa haole* with some Christmas berry. The dense vegetation currently obstructs the view from the platform but with less vegetation, would have been good. A site tag was found in the eastern side with TF-200 ACP. 19-2-03 (Cobb et al 2003).

The platform measures 4.5 m in diameter and is constructed with eroding *pāhoehoe* cobbles that range in size from 10 cm to 40 cm in length (Figure 391 and Figure 392). There are some smaller pebbles also mixed in the construction. The platform was constructed with piled boulders and cobbles. The platform is approximately 55 cm in height on the west edge and 20 cm in height on the eastern edge. The center of the platform has a depression that is 1 m in diameter and is 20 cm deep that appears to be a hearth. It is also possible the depression was caused by looters prosecting the platform. Some of the larger boulders scattered around the eastern edge of the platform may have been removed by looters.

The site's function is interpreted as permanent habitation based on the site type, presence of the hearth, and excavation results (see below). Nearby sites Site -26557 and Site -26563 Feature B are lava tubes with water collection features that would have supported habitation. The platform appears to be too informally constructed to have been used for ceremonial purposes. The site therefore serves a permanent habitation function.

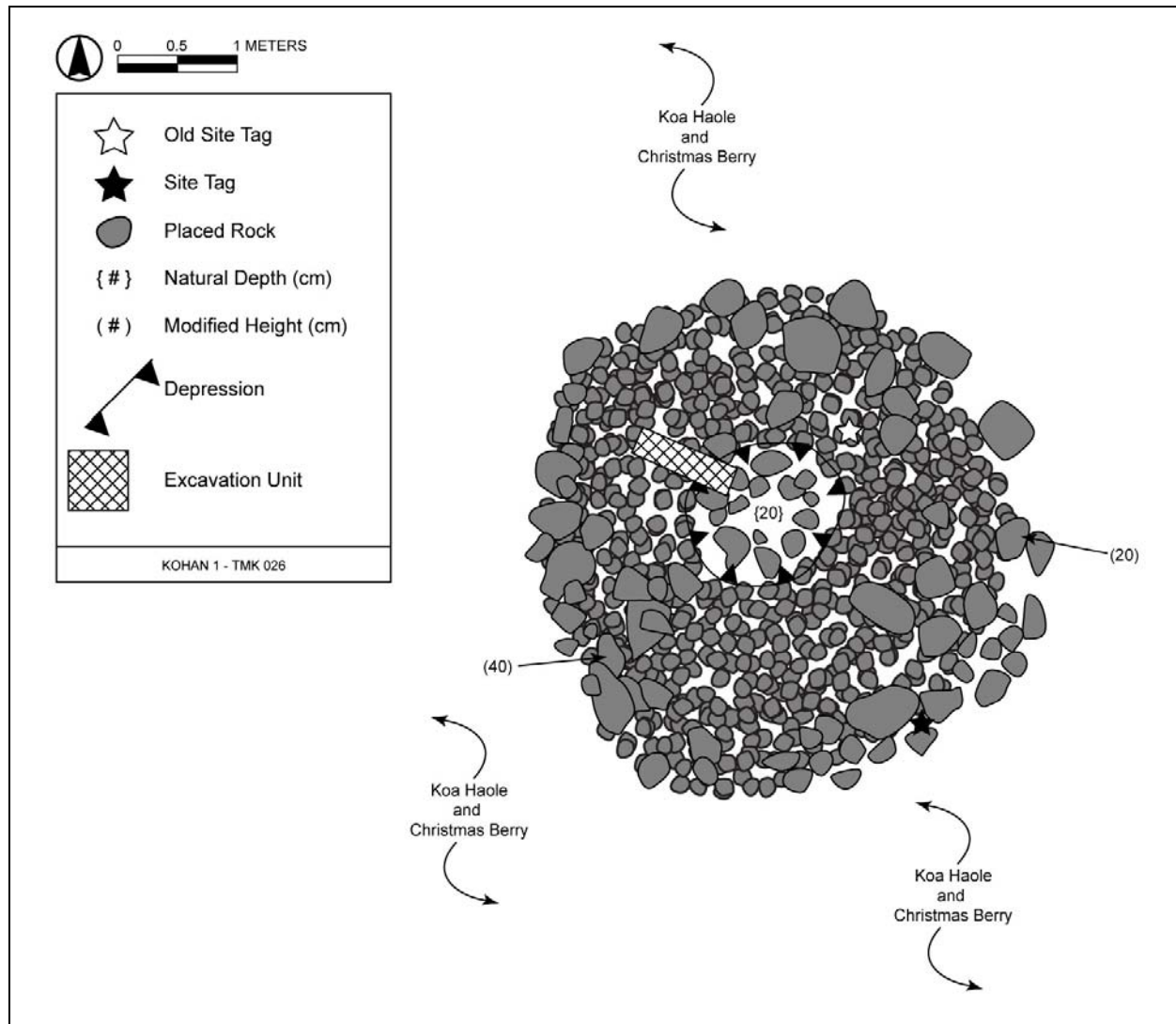


Figure 391. Site -26558, permanent habitation platform, plan view



Figure 392. Site -26558, showing the platform, view to the north-northwest.

Testing Results

Test excavation was conducted to confirm habitation function and determine whether a burial is present. Stratum I consisted of *pāhoehoe* cobbles and was excavated to 30 cmbs (Figure 393). Stratum II contained very dark brown silt, charcoal, urchin, and *kukui*. The level contained many small organics including rootlets and was excavated to 40 cmbs. Stratum III contained black silt, charcoal, marine shell (*Cypraea*), one volcanic glass core with flake scars, an unmodified possible fish tooth (likely *Balistidae*), and urchin. The majority of the midden was found near the top of the stratum although charcoal was found throughout and the majority was encountered at the boundary between Stratum II and III. Some of the charcoal may be the result of root burn based on the presence of many rootlets. However, the concentration of charcoal suggests it is not all root burn.

The northeast portion of the test unit is inside the hearth and the southwest side is outside. The portion within the hearth feature is primarily constructed of medium size cobbles (15-40 cm), many of which are slabs. One slab is set perpendicular to the unit that is likely an edge of the hearth. On the southwest side of this slab, small cobbles are tightly packed to create a level small cobble fill, while on the northeast side of the slab, most of the rocks and medium cobbles are not level. This difference confirms that the depressed area in the center of the platform is indeed constructed into an apparent hearth. This is further confirmed by a fairly large amount of charcoal and some midden in addition to artifacts in Stratum II and III. The findings confirm that this is a habitation platform with a hearth in the center.

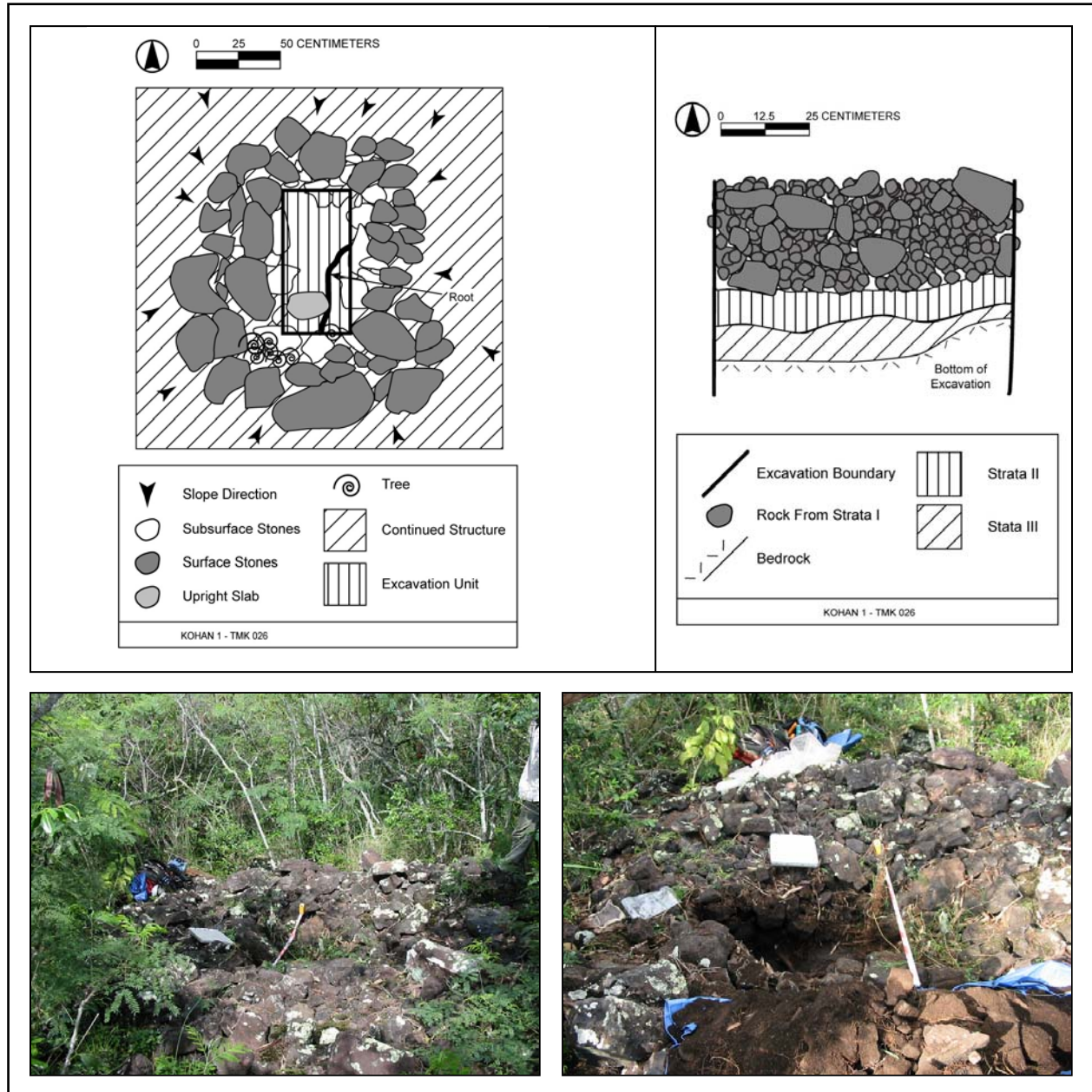


Figure 393. Site -26558 excavation figures. Left to right, top to bottom: excavation unit plan view; north wall profile; platform pre-excitation; platform post-excitation

2.1.78 State Site # 50-10-28-26559

SIHP #	50-10-28-26559
FUNCTION:	Burial
SITE TYPE:	Platform
TOTAL FEATURES:	1
DIMENSIONS:	1.8 m by 1.8 m (5.9 ft. by 5.9 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	680 ft a.m.s.l.

DESCRIPTION: Site -26559 is a single circular platform located on a south sloping *pāhoehoe* flow in the southeast quadrant of TMK 26 (Figure 394). A more recent 'a'ā flow is within 15 m and surrounds the *pāhoehoe* flow. The site's vegetation consists of thick overhead-high *koa haole*, small Christmas berries, morning glory, and air plant.

The platform is approximately 1.8 m by 1.8 m and 50 cm tall; it is primarily constructed of small *pāhoehoe* cobbles, with some small to large 'a'ā cobbles and boulders incorporated (Figure 395). The incorporation of the 'a'ā cobbles and boulders indicates the utilization of immediately available building materials. The platform's circular edge was constructed by stacking *pāhoehoe* slabs four to five courses. The center of the platform was filled with slabs, boulders and cobbles. The platform's uppermost surface is flat and relatively level, despite its location on the slightly south sloping *pāhoehoe* flow. The platform's south side (57 cm) is higher than the north side (45 cm) to compensate for this slope. The platform is faced on all sides and is slightly collapsed on the west side.

The platform is constructed directly atop, and concealing a skylight into Site -26570, Tube 1 where 18 burials are located.

The site's function is interpreted as a burial based upon the platform's clear intent to conceal the tube over which it was built. The formality of the structure is also an important indicator. It is clear that the labor investment necessary to construct the circular platform was excessive for what would be necessary to simply cover the opening. This formality may also indicate a possible ceremonial function. Given that the main purpose of the circular platform itself is the formal concealment of the tube, burial is the function.

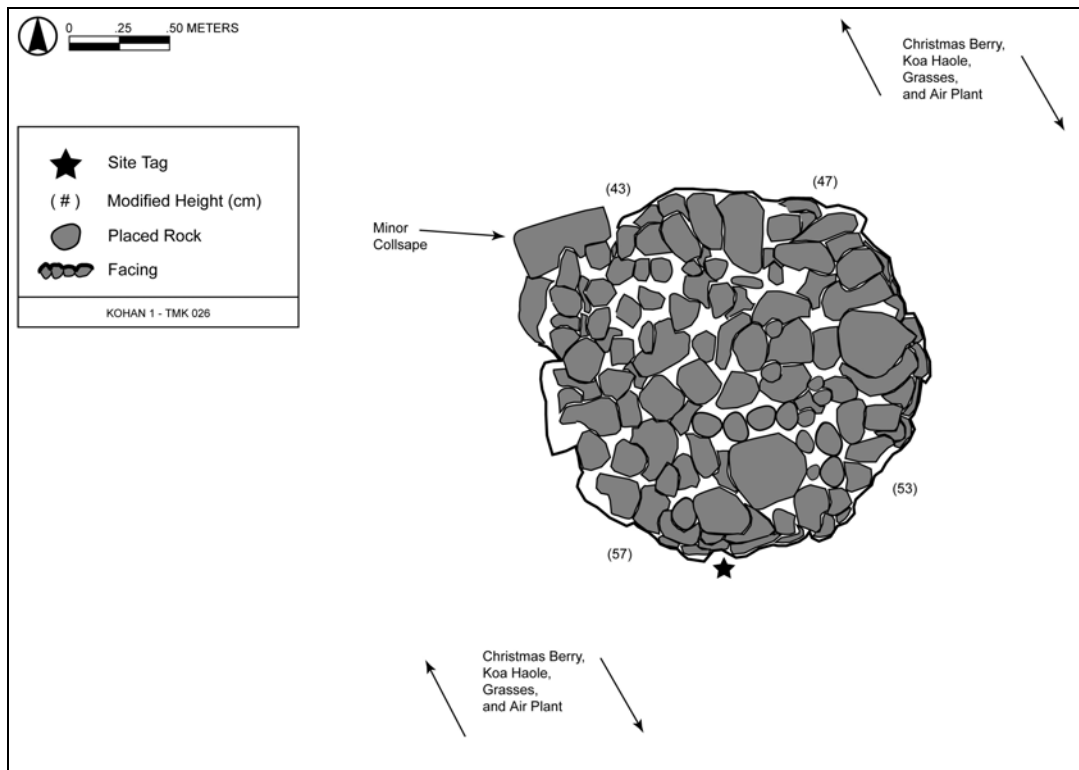


Figure 394. Site -26559, platform concealing a skylight into Site -26570, Tube 1, plan view



Figure 395. Site -26559 view of faced circular platform

2.1.79 State Site # 50-10-28-26560

SIHP #	50-10-28-26560
FUNCTION:	Transportation
SITE TYPE:	Trail
TOTAL FEATURES:	1
DIMENSIONS:	Approximately 100 m in length
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	680 ft a.m.s.l. – 710 ft a.m.s.l.

DESCRIPTION: Site -26560 is a stepping stone trail with several small petroglyphs located nearby, on the south side of a large 'a'ā flow that has an excellent view to the southwest (Figure 396). Site -26564 is located about 20 m to the south, just off the 'a'ā flow, and vegetation in the area consists of thick Christmas berry trees, *koa haole*, and tall grass.

The stepping stones are typically *pāhoehoe* slab boulders 30 to 50 cm (0.98 to 1.64 ft.) in diameter. At the west and above a break in the slope, is an aggregate of a dozen slabs arranged roughly linearly in a space of 10 m (32.8 ft.). A lone *tī* plant was observed in the barren 'a'ā, 4 m (13.1 ft.) to the north. Just north of the trail's west end is an area, approximately 6 m by 6 m (19.7 ft. by 19.7 ft.), that appears to have been roughly leveled and cleared of boulders and cobbles. This clearing may be a resting/sitting area along the trail since the views to the south and west are good. The trail appears to run directly on the upper edge of the flow, descending to the southwest at the end. A short portion of the trail is 'a'ā pebbles, and the boulders and cobbles have been removed. The trail continues intermittently for approximately 70 m, for a total

Approximately 10 to 15 m south of the more continuous slab portion of the trail is a naturally level area atop the 'a'ā ridge, and here there are several apparently randomly strewn about *pāhoehoe* slabs. These may have been portions of other older trails that were re-used in the Site -26560 trail. Also in this area are four modified slabs, two petroglyphs which appear to be partial human figures (Petroglyph 1 and 2; Figure 397 & Figure 399), one partial indeterminate petroglyph (Petroglyph 3; Figure 397 & Figure 398), and one small slab pecked in a pattern similar to a *papamū* board (Petroglyph 4; Figure 397 to Figure 399). This level portion of the 'a'ā flow where the petroglyphs are located is the first good view point when traveling *makai-mauka* on the trail, and overall this is an excellent resting spot. The strewn about *pāhoehoe* slabs in this area and the petroglyphs may be related to this resting/sitting spot, but no other structures or modification were found atop this level area.

The site's function is interpreted as transportation, based on the site type, and may have an adjacent resting/sitting area. A secondary function is rock art, as there is a small cache of incomplete petroglyphs near the trail at an area with excellent visibility. These petroglyphs may have served as markers for the trail or in a ceremonial function, again possibly in relation to the trail; overall the petroglyphs suggest peripheral activity in addition to the transportation function of the trail, but no other distinct archaeological evidence of this remains. Petroglyphs 1-3 were collected during inventory survey.

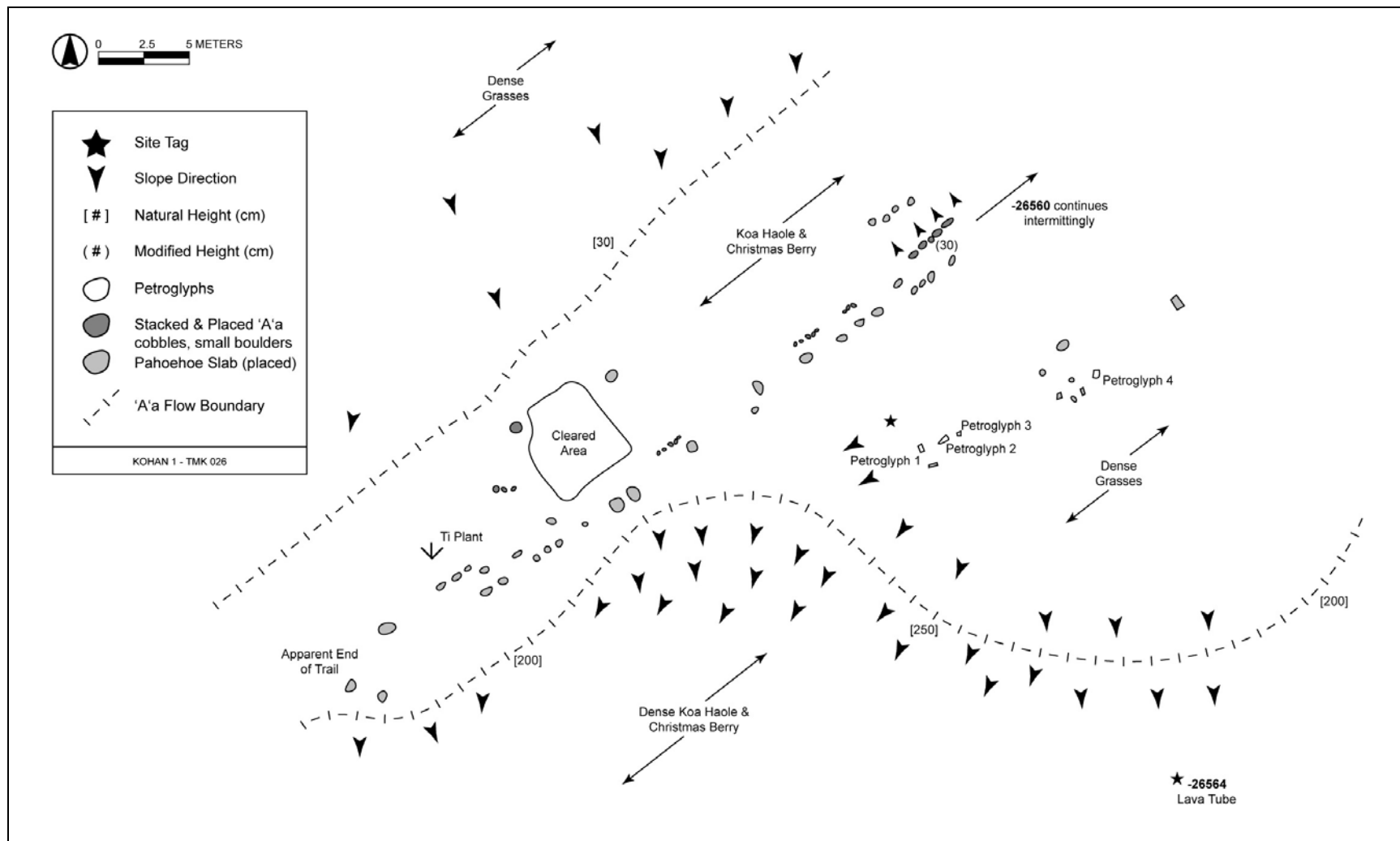


Figure 396. Site -26560, plan view



Figure 397. Site -26560, location of petroglyphs on 'a 'ā flow (top, facing northwest) and detail photographs of Petroglyph 1 (left) and Petroglyph 2 (right); the slab trail is located just out of sight in the background of top photograph

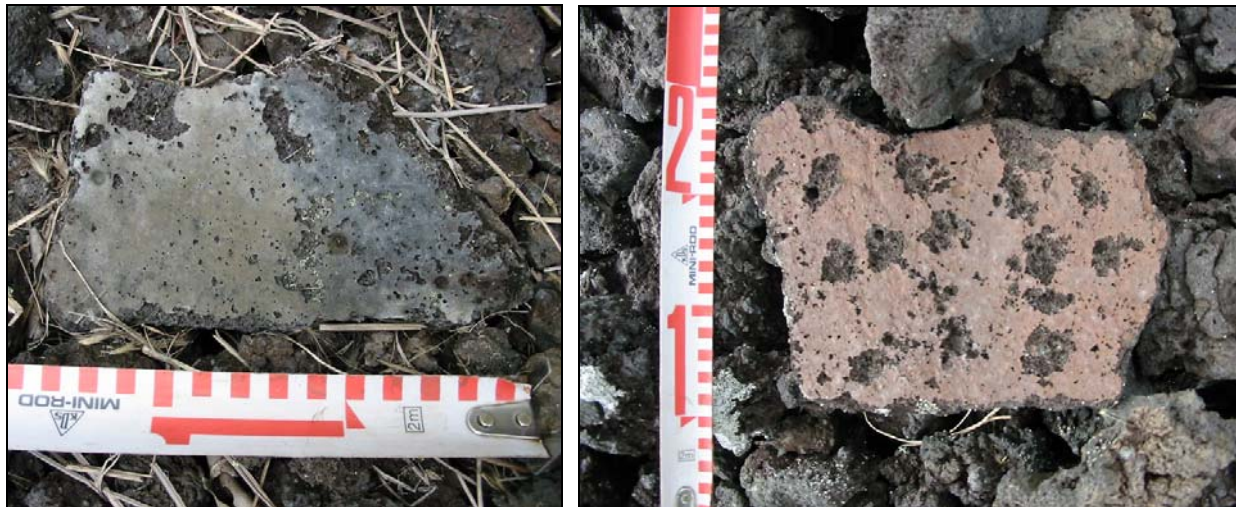


Figure 398. Site -26560, photographs of Petroglyph 3 (left) and 4 (right)

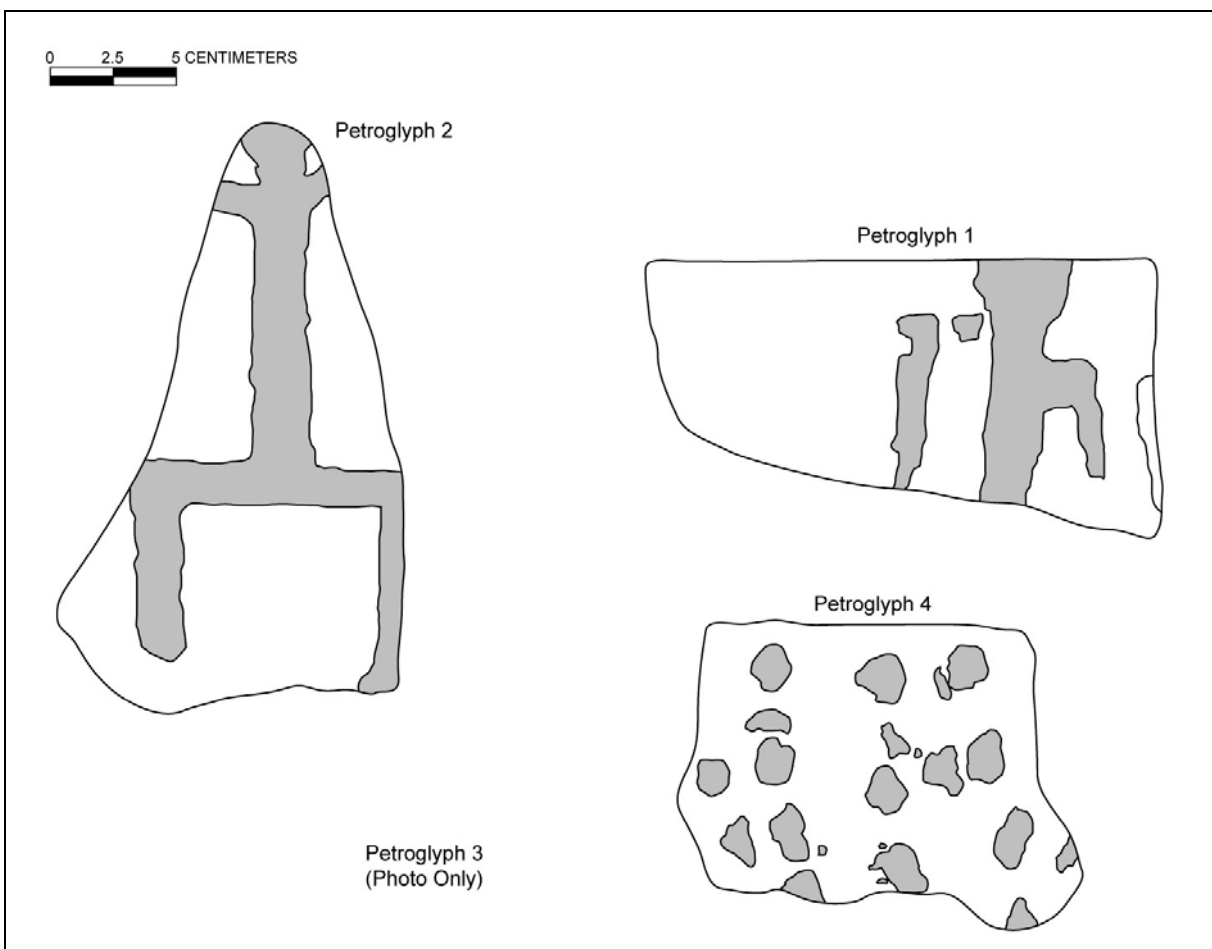


Figure 399. Site -26560 sketches of Petroglyphs 1, 2, and 4

2.1.80 State Site # 50-10-28-26561

SIHP #	50-10-28-26561
FUNCTION:	Marker
SITE TYPE:	Cairn
TOTAL FEATURES:	1
DIMENSIONS:	7.5 m by 3 m (24.6 ft. by 9.8 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	710 ft a.m.s.l.

DESCRIPTION: Site -26561 is situated on a very gently undulating *pāhoehoe* flow in the northeast quadrant of the project area. The vegetation surrounding the site consists of overhead-high *koa haole*, a few medium-sized Christmas berry, and some sparse patches of grass.

The site is comprised of a small, relatively circular natural bedrock outcrop with a cairn stacked on the north end (Figure 400). The outcrop's east side is unmodified bedrock that naturally rises above the surrounding terrain approximately 30 cm (0.98 ft.). The west side of this naturally raised bedrock outcrop have been modified with the placement of large *pāhoehoe* cobbles and small boulders. These placed cobbles and boulders create a slightly raised surrounding wall along the west half (Figure 401). Some areas on the top surface of the outcrop have been leveled with very small cobbles in the natural low spots in the bedrock.

The cairn is located at the northeast end of the bedrock outcrop. It is stacked four to five courses high, 78 cm (2.6 ft.) tall (Figure 401). The cairn is also constructed of large *pāhoehoe* cobbles and small to medium boulders.

The site's function is as a marker. The site is surrounded by the multiple modifications of agricultural Site -26507 (Feature C), and it is possible that this agricultural feature is what the cairn was marking. This cairn also is line with two other cairns, Site -26541 and Site -26571 (see Figure 1), which may indicate that there was at one time a trail over the *pāhoehoe* that utilized these sites as trail markers; however, no sign of such a trail remains.

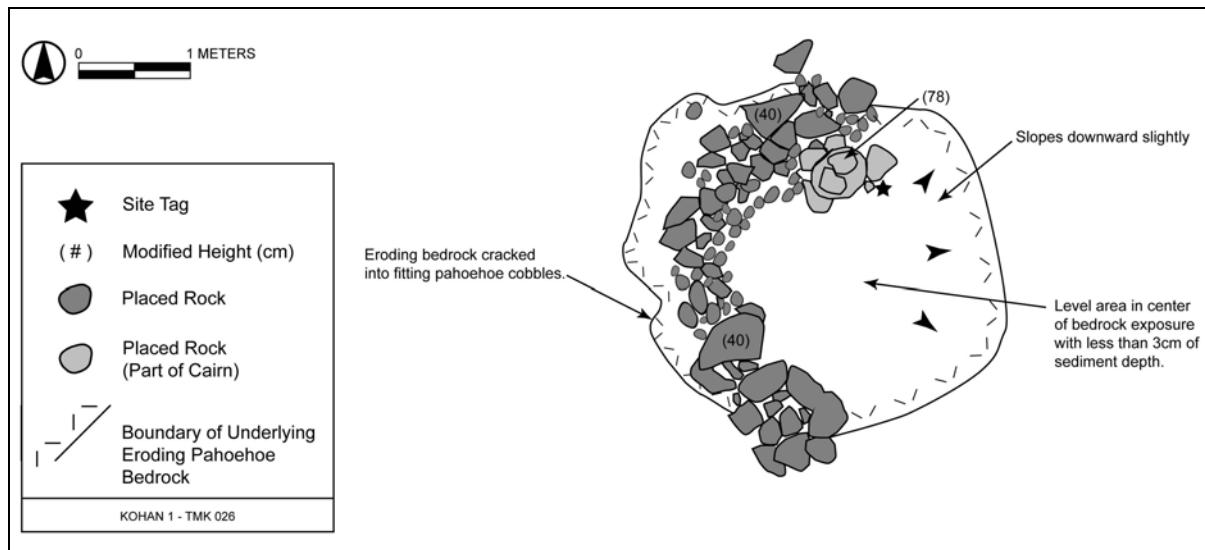


Figure 400. Site -26561, cairn, plan view



Figure 401. Site -26561, showing the bedrock outcrop with cairn on its north side, view to east

2.1.81 State Site # 50-10-28-26562

SIHP #	50-10-28-26562
FUNCTION:	Permanent Habitation and Burial
SITE TYPE:	Complex
TOTAL FEATURES:	1
DIMENSIONS:	8 m by 8.5 m (26.2 ft. by 27.9 ft.)
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	635 ft a.m.s.l.

DESCRIPTION: Site -26562 is located on a southwest sloping, undulating *pāhoehoe* flow in the southeast corner of the project area (within Kaloko Ahupua'a), approximately 10 m (32.8 ft.) south of the east/west running wall of Site -26536. The vegetation on and around the site is thick overhead high *koa haole*, grasses, and air plant. The site consists of a large (5 m by 5 m / 16.4 ft. by 16.4 ft.) enclosure and a small lava tube blister that runs directly beneath the enclosure and which contains a burial.

The enclosure is constructed of *pāhoehoe* slabs, boulders, and cobbles built on top of the undulating exposed *pāhoehoe* bedrock ridge that runs east/west (Figure 402). The structure has extensive collapse primarily due to tree growth, although the northeast corner and the northeast sides of the north and east walls remain relatively intact. The north wall is stacked with horizontally placed *pāhoehoe* slabs approximately ten courses, 110 cm (3.6 ft.) high (Figure 403). The north wall and the intact portions of the other exterior walls are faced. The enclosure walls top surfaces are constructed to be level on all sides of the enclosure. As a result of the bedrock ridge atop which the enclosure is situated, the intact portion of the west wall that is on top of the ridge is only stacked between one and two courses high. The top surfaces of the walls are approximately 1 m (3.3 ft.) wide. The wall's interior faces are not as tall as the exterior walls since the central floor within the enclosure is either the bedrock ridge or is constructed to be flush with the bedrock (Figure 404). Overall, this creates a platform-like structure with a depression in the center, but it is technically an enclosure because the apparent usable space within the structure is depressed to create an enclosed space. On average the intact portions of the interior walls measure 50 cm (1.6 ft.) in height, and a few intact portions of the enclosure wall exhibit interior facing, but large trees have significantly damaged the interior of the structure. While the northwest, southwest, and southeast corners are fairly discernable, the northeast corner is the only corner that remains well-defined.

A constructed depression is located in the northeast corner of the enclosure. This depression is roughly rectangular in shape and, although it is partially collapsed, measures between 80 cm and 90 cm (2.6 ft. and 2.95 ft.) deep. This internal construction may have been used as storage, and does not appear to be a hearth feature.

Immediately east of the enclosure's east wall is an excavated blister measuring 1.7 m by 1 m (5.6 ft. by 3.3 ft.). The entrance to a second small lava blister is on the enclosure's west side at the west end of the bedrock ridge. The blister is small and measures approximately 2.5 m by 2.5 m (8.2 ft. and 8.2 ft.) with a ceiling height of 80 cm (2.6 ft.). This blister contains a small midden

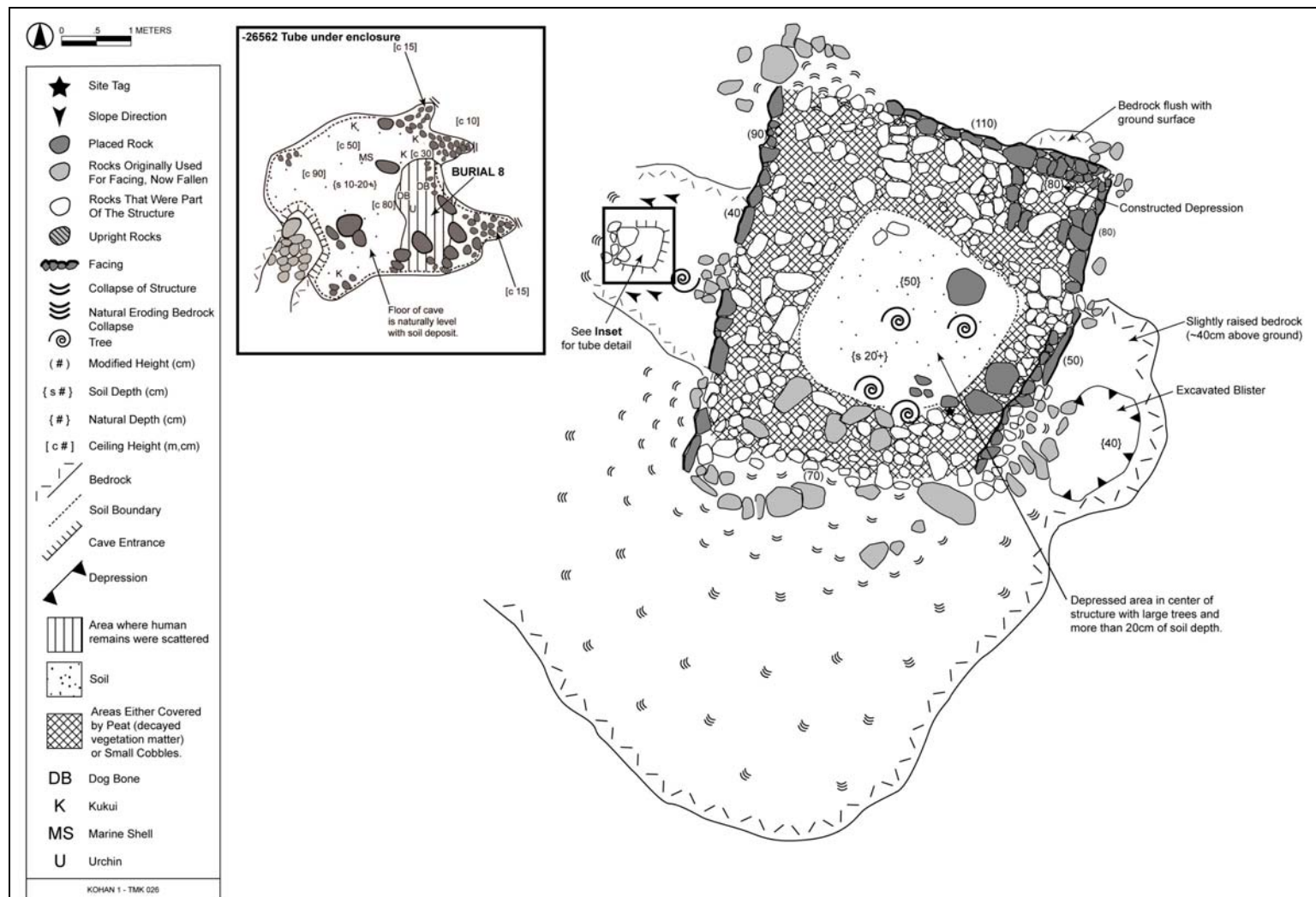


Figure 402. Site -26562, permanent habitation enclosure, plan view



Figure 403. Site -26562, showing an intact portion of the north wall of the enclosure. Notice the stacking, facing and likely original height of the wall, view to south.



Figure 404. Site -26562, overview of enclosure showing interior facing of east wall and constructed depression in northeast corner in the background

scatter including *kukui* endocarps, urchin, and marine shell, as well as some placed rocks including a small upright, two dog metacarpal bones, and scattered human remains (Burial 8; see burial description below).

Despite the more than 20 cm (0.66 ft.) deep soil deposit in the blister, and the enclosure's interior floor soil deposit (also at least 20 cm / 0.66 ft. deep covered with a recent plant material layer), excavation potential is not good because the plant material and a large proportion of the soil in the enclosure are likely recent deposition. Extensive bulldozing is also evident in the area surrounding the site.

The site's function is interpreted as permanent habitation and burial. The interpretation of permanent habitation is based in part on the site type of a large enclosure as well as the interior floor surface of the enclosure which has been constructed to be flush with the natural bedrock, creating a level living surface. The constructed depression likely functioned as storage. The size and formal construction of the enclosure, including its height and facing indicate extensive labor investment and intensive utilization, clearly indicating a permanent, rather than merely temporary, habitation function. The lava tube blister on the west side of the enclosure functioned as a burial as evidenced by the presence of Burial 8.

Burial 8

Burial 8 is located within site -26562 underneath the main structure in a small blister (which runs underneath the structure; see Figure 402). The burial consists of a few human bones scattered across the east side of the blister. Only a metacarpal, first rib, clavicle, and thoracic vertebra were observed (as mentioned above two other metacarpals were observed but determined to be dog; Figure 405). Burial 8 is a pre-contact burial based on its location directly beneath the pre-contact enclosure inside the lava blister and scattered on a soil surface. This soil, which is more than 20 cm (0.66 ft.) deep, may conceal additional human remains. An entire bundled human skeleton may have been previously located in the blister, later removed, and a few skeletal remains were accidentally left behind. The presence of dog bones may have ceremonial significance as well.

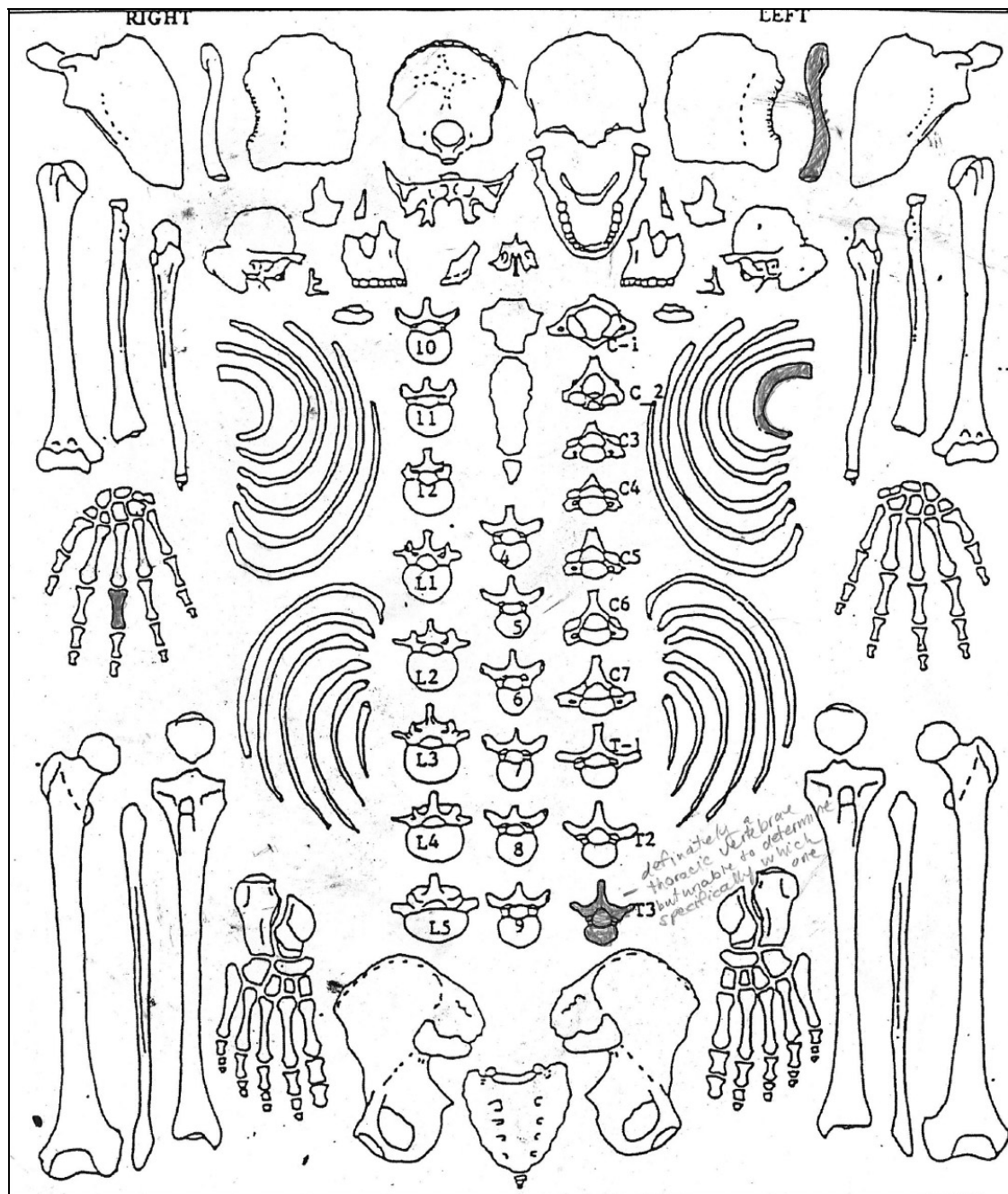


Figure 405. Site -26562, Burial 8, skeletal inventory form

2.1.82 State Site # 50-10-28-26563

SIHP #	50-10-28-26563
FUNCTION:	Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	65 m by 10 m (213.3 ft. by 32.8 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	700 ft a.m.s.l.

DESCRIPTION: Site -26563 is a lava tube in the east/central portion of the project area with seven entrances and three sinks (Figure 406). The surface vegetation in the area consists of fairly dense *koa haole* and Christmas berry trees, growing to heights generally less than 1 m (3.3 ft.) over head, with some open grassy areas and 'a 'ā exposures. Site -26563 was designated TF-199 ACP by Kennedy on 2-19-03; a metal site tag with this number is located in Sink 2. Cobb et al. (2003) identified this site as a “cave complex” whose function was “Refuge, Temporary Habitation and/or Burial.”

Sink 1 is a small sink, measuring only 1.5 m by 2.5 m (4.9 ft. by 8.2 ft.). A single entrance, Entrance 1, to the tube runs most of the circumference of the sink. A low chamber, located 3.5 m (11.5 ft.) southwest of Sink 1, is between Sink 1 and Entrance 2. A very small tube continues approximately 15 m (49.2 ft.) to the northeast of Sink 1; no modification or cultural materials were encountered in this tube. Entrance 2 is located in an area of exposed *pāhoehoe* cobbles slightly modified to create a level area immediately outside Entrance 2. A tube runs between Sink 1 and Entrance 2. This portion of the tube contains goat bone near an area of piled *pāhoehoe* cobbles and boulders that may have blocked this tube at one time.

Sink 2 is the site's largest sink, measuring approximately 7.5 m east/west by 3 m north/south (24.6 ft. by 9.8 ft.). The eastern portion of Sink 2 is modified with a formally constructed retaining wall that is approximately 3 m (9.8 ft.) northwest/southeast, turns at the east end of the sink, and continues about 1.5 m (4.9 ft.) northeast/southwest (Figure 407). The interior side of the retaining wall is faced and is constructed to be relatively flush with the ground surface outside of Sink 2. The wall is constructed with small to medium (10-30 cm / 0.33-0.98 ft.) *pāhoehoe* cobbles stacked to a maximum 9 courses high but averages four to five courses high. The northwest and southeast sides of Sink 2 have been somewhat modified with medium to large cobbles placed around the edges. The Sink 2 modifications appear to formalize the sink boundary. The formal modification in the east end may serve to conceal an additional entrance/tube from Sink 2; however, careful inspection with a flashlight did not reveal any such indications.

Entrance 3 and Entrance 4 are both located on the west side of Sink 2 (Figure 408), and lead to a series of braided tubes that lead to Entrances 5 and 6, located on the east side of Sink 3. These tubes are generally fairly large and contain many very formal water collection features. *Kukui* is abundant in these tubes, but appears to have been primarily washed in from Sink 2 and, to a lesser extent, Sink 3. Some of the water collection features are quite large (up to approximately 1 m / 3.3 ft. across).

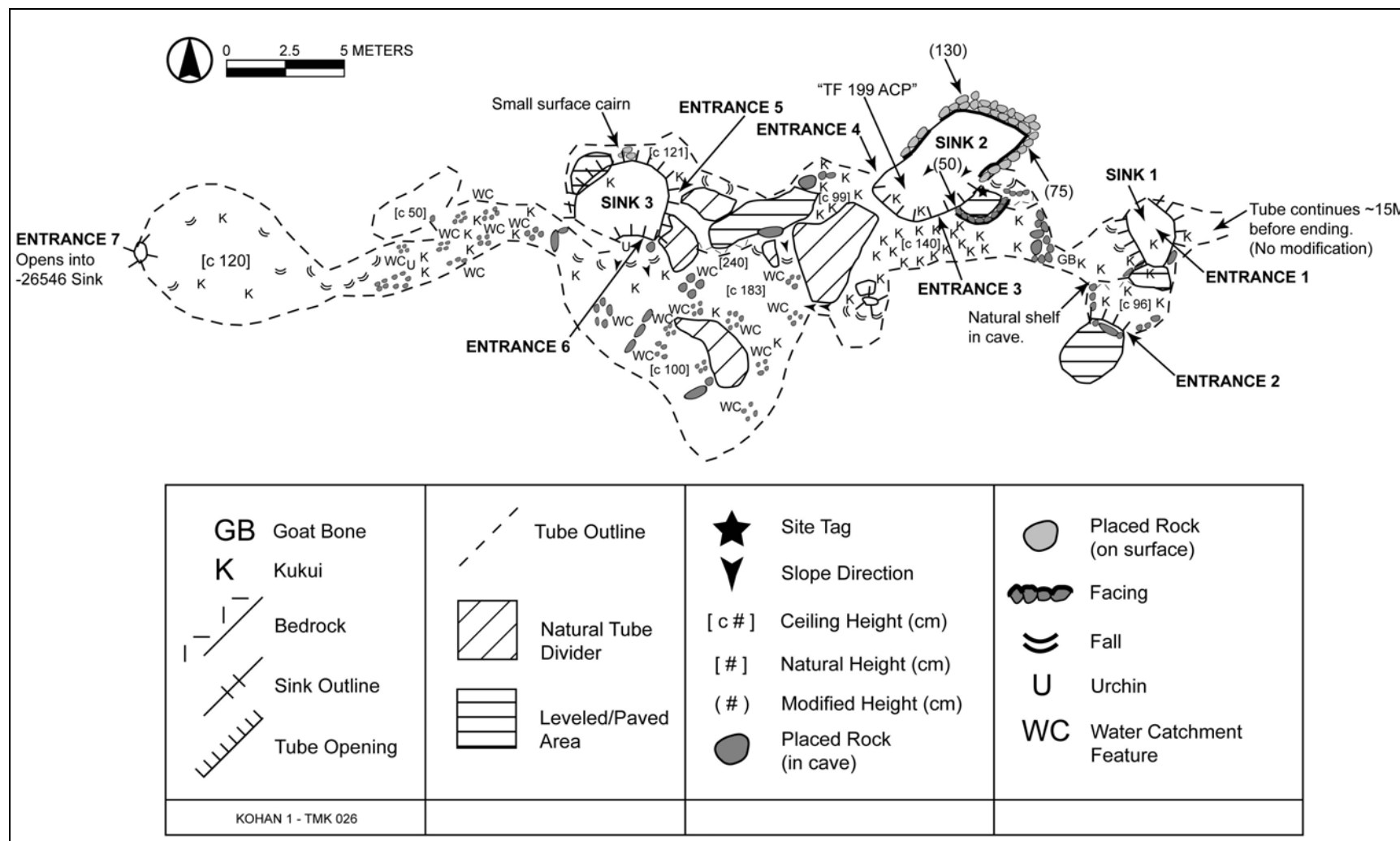


Figure 406. Site -26563, water collection lava tube, Sinks 1-3, plan view



Figure 407. Site -26563, showing retaining wall in Sink 2, view to west



Figure 408. Site -26563, showing Entrance 3 into the tube from Sink 2, view to east.

Sink 3 is approximately 4.5 m east/west by 3 m north/south (14.8 ft. by 9.8 ft.; see Figure 406). Entrances 5 and 6 are located on the east side of the sink; Entrance 6 is the larger of the two and leads to a larger tube. Tubes from both entrances lead back to Entrance 4, but the tube at Entrance 6 also continues on to the west, eventually terminating at Entrance 7. A small cairn constructed of three *pāhoehoe* boulders is situated on the north edge of Sink 3 and relatively informal paving is under an overhang on the northwest side of the sink. Similar informal paving is also in the tube between Entrances 4 and 5. Both paved areas are constructed with small to medium cobbles and pebbles.

The tube continues west from Entrance 6 to Entrance 7; a few pieces of urchin and many water collection features were found in this portion of the tube. An area of roof collapse creates a tight squeeze to pass into the chamber where Entrance 7 connects to the sink shared with Site -26546. No modification or cultural materials were found in this chamber.

The site's function is interpreted as water collection a based on the high density of formal water collection features. Although the tube may have been suitable for short term or temporary habitation, the absence of midden materials (except the few pieces of urchin) suggests that water collection activities were the primary, if not the only function of Site -26563. Excavation potential is minimal due to a lack of deep soil deposits and little midden.

2.1.83 State Site # 50-10-28-26564

SIHP #	50-10-28-26564
FUNCTION:	Burial
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	85 m by 10 m (278.9 ft. by 32.8 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	690 ft a.m.s.l.

DESCRIPTION: Site -26564 is located at the west end of a small east/west running 'a'ā depression located in the southeast quadrant of the project area. Very little vegetation is in the 'a'ā depression but the immediate vicinity contains Christmas berry, head-high *koa haole*, and morning glory.

The site is a generally east/west trending lava tube that has an extensive amount of natural fall (Figure 409 and Figure 410). Immediately inside the tube's entrance is an unarticulated small, adult dog skeleton. Directly beneath these dog bones is a naturally level, unmodified area measuring approximately 2 m by 2 m (6.6 ft. by 6.6 ft.). On the south edge of the lava tube, along the tube wall outside of the natural fall area, within only 3 m (9.8 ft.) of the entrance is Burial 10 (see burial description below). There is no direct evidence of association between Burial 10 and the dog skeleton found near the tube entrance.

A small amount of scattered midden consisting of *kukui* and three urchin pieces are located near the tube entrance. A few pieces of crab shell found near the back of one of the tubes was the only additional midden found at the site. Aside from the midden, dog bones, and Burial 10, there is no modification or cultural materials present in this tube.

The site's function is a burial. The burial remains have been positively identified as human and the absence of any modifications or other significant cultural materials indicate burial is this site's sole function. The proximity of Site -26560 should be noted, as that site has several small petroglyphs (on broken, portable slabs), which could be related to Burial 10.

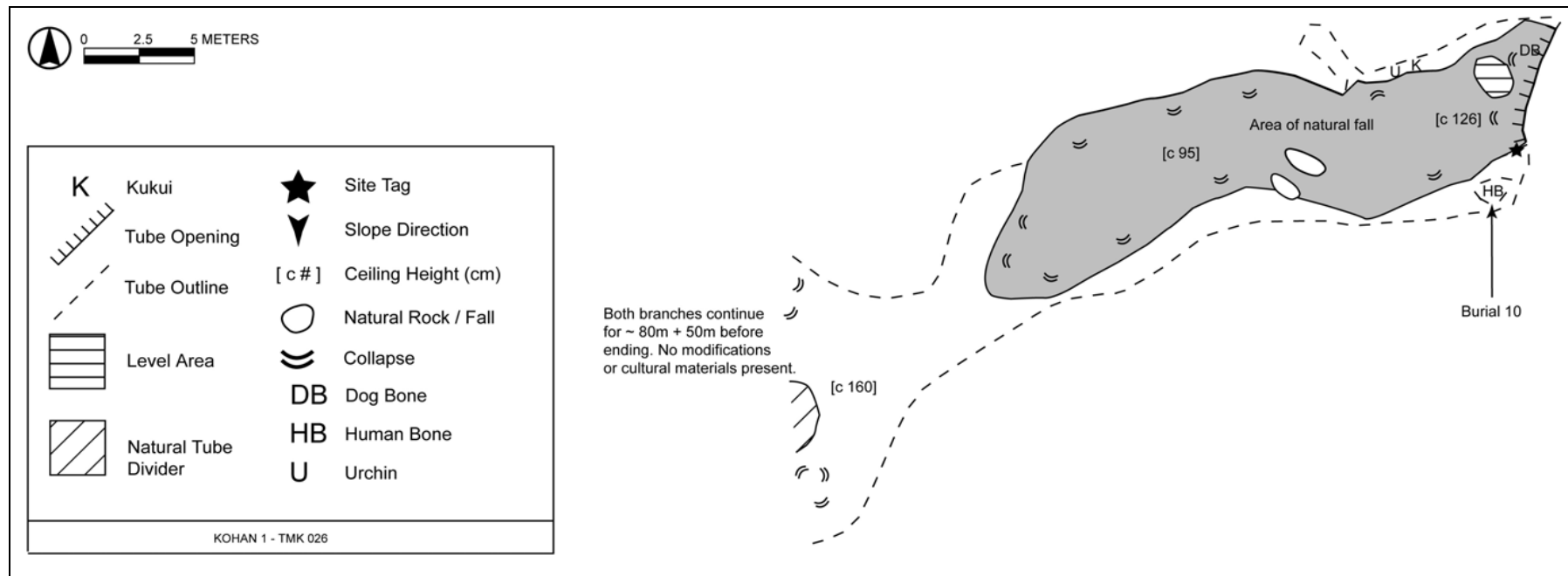


Figure 409. Site -26564, burial lava tube, interior plan view



Figure 410. Site -26564, showing the entrance to the lava tube, view to northwest

Burial 10

Burial 10 included most skeletal elements (Figure 411). Burial 10 was found in the eastern-most portion of Site -26564, at the bottom of the slope of natural fall that extends from the entrance of the tube; the burial is south of the entrance. The burial consists of a single individual's remains scattered over an approximately 2 m by 2 m area. The remains are resting upon *pāhoehoe* bedrock with some small to large *pāhoehoe* and 'a'ā cobbles. The bones for the most part out are not in anatomical position, although the first metatarsal is beside the calcaneus; the finger phalanges, carpals, and metacarpals are in close proximity; and some thoracic and lumbar vertebrae are in close proximity. Note that the right vs. left side was determined for the clavicle and innominate and radius fragments; the teeth were situated in the mandible. Other teeth were not determined to be maxillary or mandibular, except for a single upper-front incisor.

Specificity or siding was not determined beyond the level of carpal, metacarpal, metatarsal, rib (although both first ribs were identified), finger phalanx, toe phalanx, cervical vertebrae, thoracic vertebrae, and lumbar vertebrae to avoid disturbing the remains (see Figure 411). Other bone fragments were either too fragmentary or inaccessible to make any determination. Burial 10 is likely a pre-contact Native Hawaiian burial based on its deposition in the lava tube and the absence of any historic or modern associated artifacts. Due to the disturbed nature of the burial, it is unclear whether this is a primary or secondary burial, although the proximity of some corresponding bones (i.e. hand and foot) tentatively indicates primary deposition. Most of the skeletal remains are in good condition. Some bones are fragmentary or broken, but most are clean and smooth. The innominate fragment and a few other smaller fragments are weathered and have a crystallized exterior; most of the remains lack this weathering.

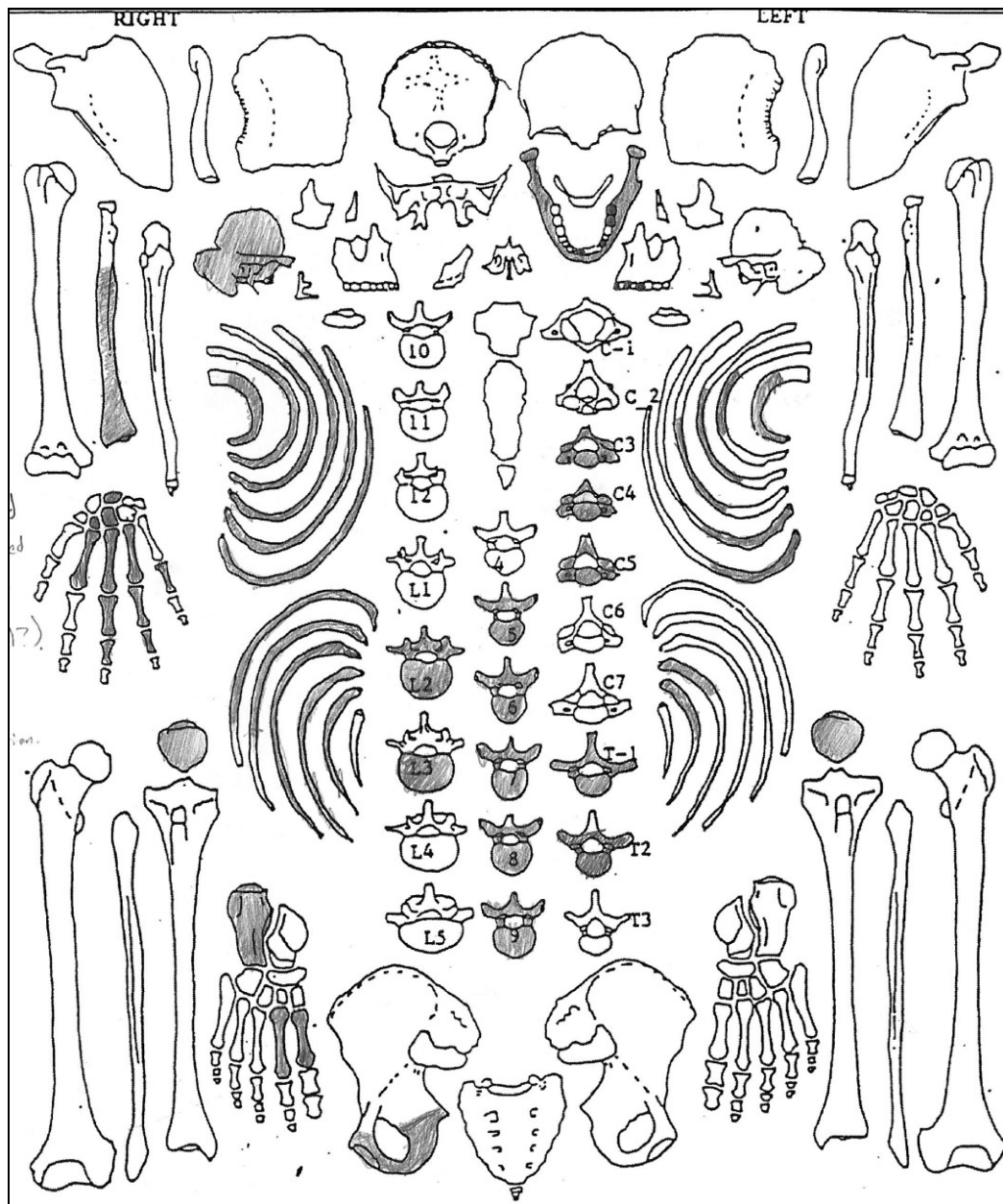


Figure 411. Site -26564, Burial 10, skeletal inventory form

2.1.84 State Site # 50-10-28-26565

SIHP #	50-10-28-26565
FUNCTION:	Permanent Habitation
SITE TYPE:	Complex
TOTAL FEATURES:	4
DIMENSIONS:	20 m by 75 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	740 ft a.m.s.l.

DESCRIPTION: Site -26565 consists of four widespread features in the northeast portion of the project area, a formal platform (Feature A), a terrace in a sink near the platform (Feature B), a small cairn (Feature C), and a U-shaped enclosure with a platform (Feature D). Feature A and Feature B are the central features of the site, with Feature B located 10 m south of Feature A. Feature C is a very informal feature, located about 28 m northeast of Feature A (the main sink of Site -26569 is located about 20 m northeast of Feature C). Feature D is located about 45 m northwest of Feature A (see Figure 1 for spatial relationship of features).

The surrounding landscape slopes downward fairly steeply to the south and southwest, and allows a good view of the coast from Feature A. Surrounding vegetation is dense and consists of thick, tall grass and Christmas berry trees. Site -26543 (a low wall that may been a footpath) ends approximately 30 m southwest of -26565, and appears to head directly towards -26565. Thick grass in the area makes it impossible to determine if remnants of -26543 continued to -26565 at one time. Site -26569 (a lava tube) is approximately 40 m east of Feature A, and -26566 (lava tube) is approximately 45 m south.

Feature A is a formal platform with a good view of the coastline (Figure 412 and Figure 413). The platform measures approximately 8 m east/west by approximately 6 m north/south. Uprighted *pāhoehoe* slabs have been incorporated into the south and west sides of the platform. The platform is rather formal in construction, and is a maximum height of 70 cm on the southwest corner. The feature is paved with small rubble and a few *pāhoehoe* slabs. A piece of marine shell was found on top of the paved area. To the north of the paved area, the ground surface is flat and has been partially leveled, although it is difficult to tell due to the thick grasses that cover and disturbed it. Site -26543, a low wall that may have also acted as a footpath, leads towards the platform from the west, although the wall ends at a cupboard 30 m to the southwest of the platform. The southeast corner of the platform is collapsed, but there are two placed rocks near the original corner that are still in their original position. There is also a bedrock outcrop protruding from the south wall. It is possible that this outcrop is the foundation for the platform. There has been some deliberate deconstruction on the west wall where one of the slabs has been moved from the wall (between two uprights) and placed atop the level, paved area just adjacent to the wall.

The function of Feature A is habitation as evidenced by the level surface, excellent view, and marine shell fragment on the paved area. Test excavation confirms this hypothesis (see testing results below).

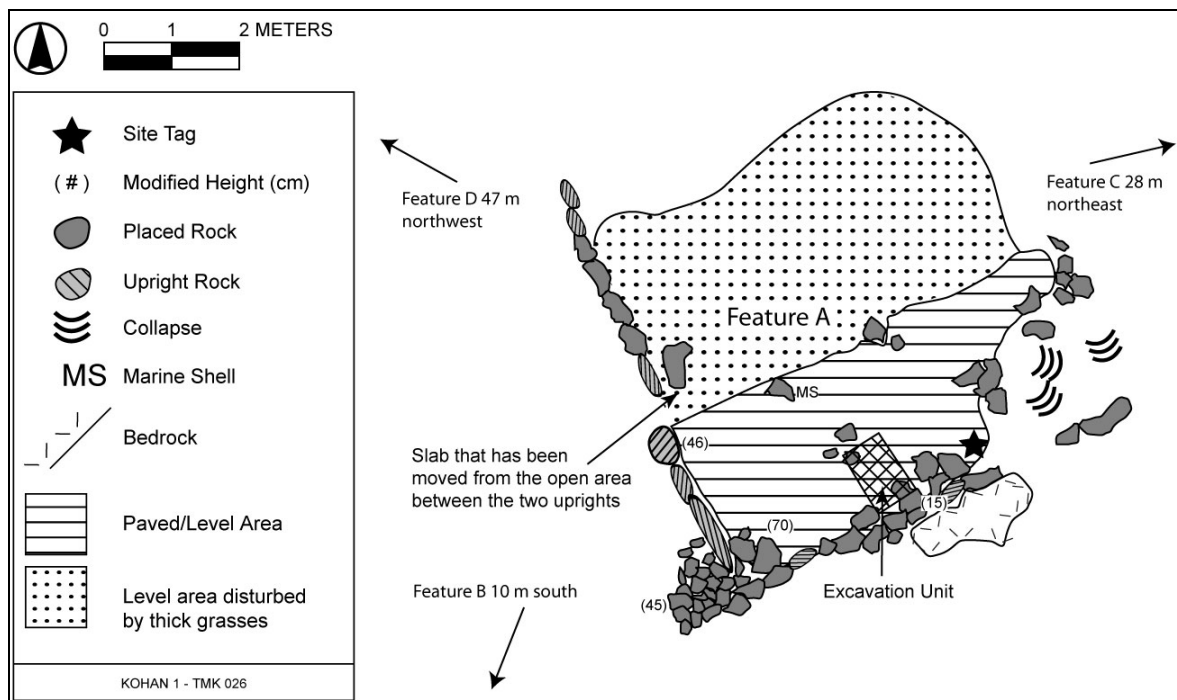


Figure 412. Site -26565, plan view of Feature A



Figure 413. Site -26565, Feature A, view to east

Feature B is a 4 m by 1 m terrace (Figure 414 and Figure 415) constructed along the edge of a sink approximately 10 m south of Feature A. The terrace utilizes the natural, eroding bedrock exposure at the sink, and a retaining wall with some formal facing creates the terrace. The terrace is 1 m high, stacked 3-5 courses high, and the retaining wall curves slightly to follow the sink edge, and is constructed of rocks 20-40 cm in diameter. The terrace continues back from the sink edge fairly level for about 0.5-1 m, and then begins to slope steeply upward. This sloped area is the natural slope of the eroding sink edge. Excavation potential is poor due to lack of midden, but excavation within the sink or under the retaining wall may provide charcoal or midden. A cleared area in the sink near the terrace (level area) may have been cleared for agricultural purposes. The function of Feature B is permanent habitation based on its association with Feature A. Agricultural function may also apply as evidenced by the cleared sink that is possibly a planting area. Although it is possible this terrace was built to block a tube entrance or burial, there does not appear to be any space under the terrace that would indicate a tube, and the function is more likely related to habitation and/or agriculture.

Feature C is a small cairn that has been constructed on top of an elevated, naturally eroding *pāhoehoe* outcrop (Figure 416). There are four rocks stacked on top of this outcrop. The smallest rock measures 20 cm while the other three are 30 cm. It is constructed to a height of 30 cm above the outcrop. One meter north of the cairn, on the same outcrop is a small blister about 1 m in length. There is no cultural modification to the blister. Excavation potential is poor due to the feature type, and the lack of sediments, midden, artifacts. The function of Feature C is as a marker for Feature B, 29 m to the southeast.

Feature D is a U-shaped enclosure with a platform incorporated into its northeast side (Figure 417 and Figure 418). This feature is 47 m from Feature A at a bearing of 305 degrees. The enclosure opens to the southeast, and is approximately 8 m southeast/northwest, and 40-80 cm tall. The height variation is due to utilizing the bedrock outcrop, especially at the northeast corner. The enclosure has a 6.4 m wide exterior with a paved interior of small cobbles that is 4-6 course wide and 2-4 courses high. The platform area measures 2.2 m east/west and 5.2 m north/south. The platform utilizes the bedrock on the north edge. It is constructed with medium size cobble paving, is in good condition, and is level. The function of Feature D is permanent habitation based on its relationship to the other features within the site and the amount of labor necessary to construct the enclosure and platform. The platform construction (level surface and reasonably large surface area) indicates that it is a habitation platform.

The site's function is interpreted as permanent habitation. Feature A's large size and formal construction suggests that it is a habitation platform. Feature B, the terrace in the nearby sink, may have been agricultural or related to the habitation site as a secondary dwelling. Feature C is a small cairn that likely functioned as a marker. It lines up fairly well with a direct line from -26543 (a low wall) to -26465 Feature A to -26565 Feature C, and it is possible that it marks some sort of boundary. Nearby agricultural activity to the south and west (-26507, Features C11-C14) may be related to the habitation site, but only a few small mounds are within 10-20 m of this site. Feature D, the enclosure and attached platform, also supports the permanent habitation hypothesis since the construction of these enclosures are consistent with habitation. Overall excavation potential for the site is fair, given that midden and charcoal were recovered during test excavation of Feature A (see below); Feature B and D also have fair excavation potential.

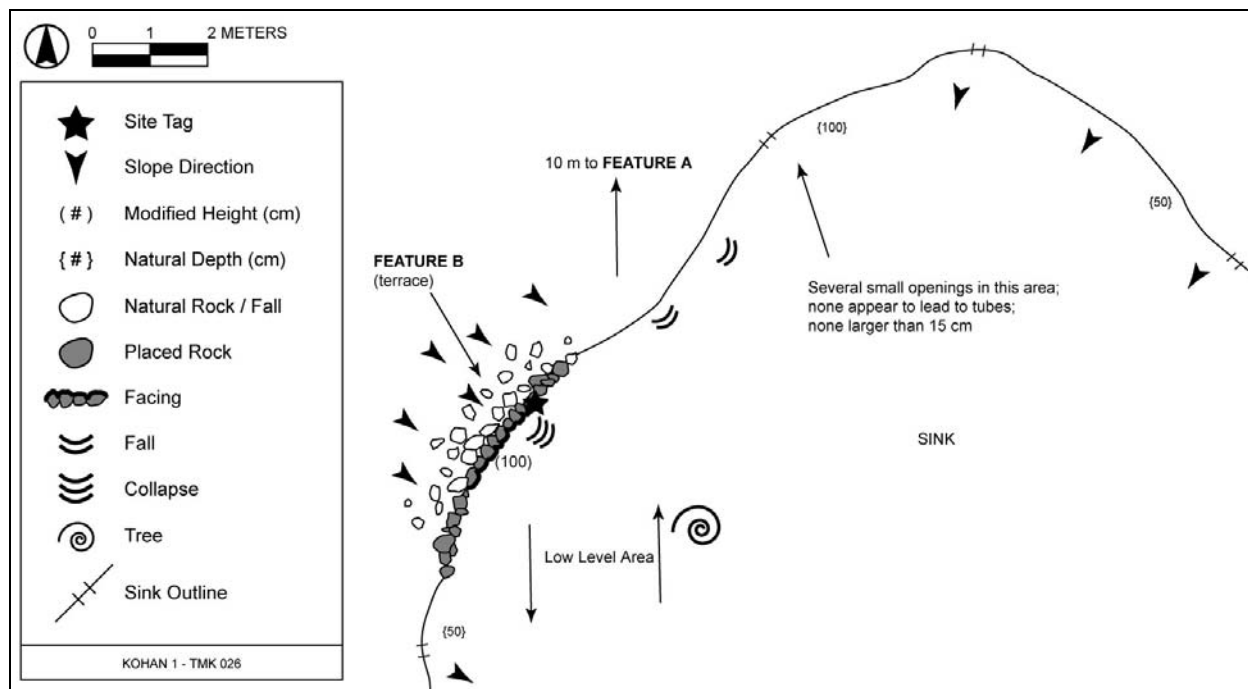


Figure 414. Site -26565, Feature B plan view



Figure 415. Site -26565, Feature B, showing the terrace at the edge of the sink, view to west

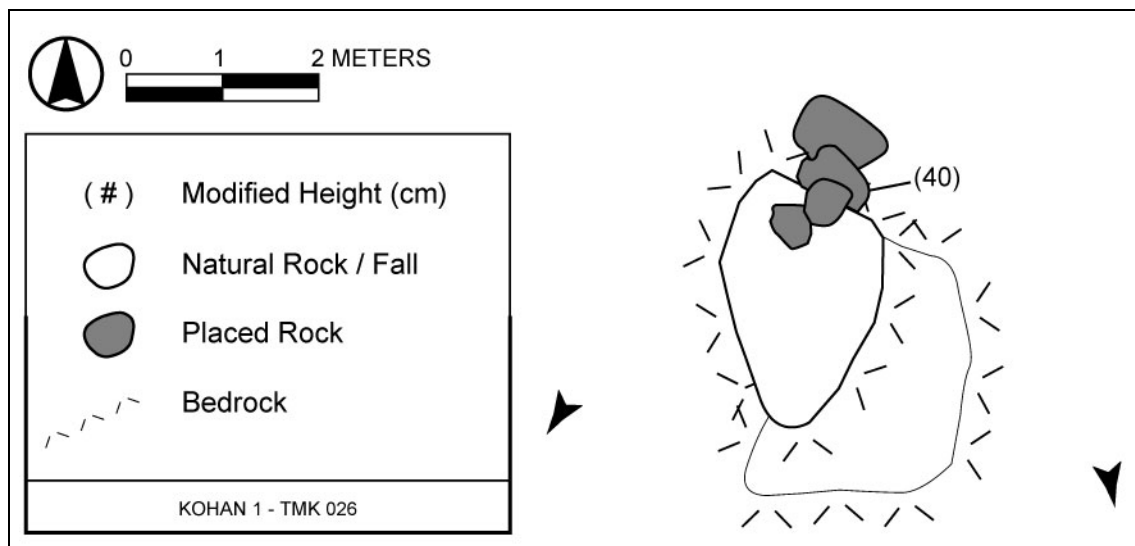


Figure 416. Site -26565, Feature C plan view

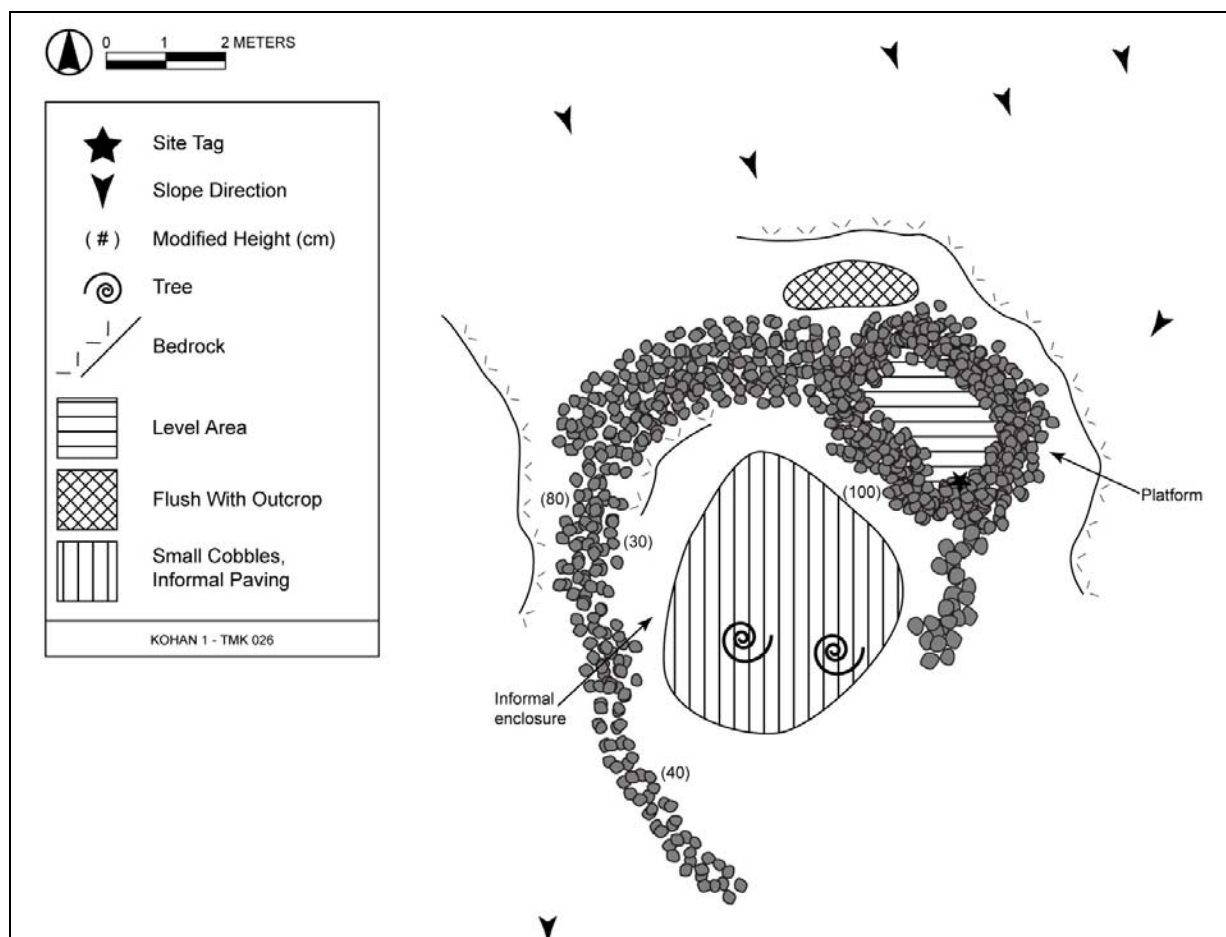


Figure 417. Site -26565, Feature D plan view



Figure 418. Site -26565, Feature D, showing platform leveled with medium cobble paving (foreground) and attached enclosure (background, right and left sides) with cleared area in center; view to south

Testing Results

Test excavation was conducted to assist in determining site function and to determine whether a burial is present (Figure 419 and Figure 420). Stratum I, extending from 0 to 30 cmbs, is construction and consists of small cobble fill on top of medium to large cobbles and slabs. Stratum II consists of a brown sedimentation layer with medium angular cobbles that is loosely fitted. Sedimentation, which contains, *kukui*, cowry, coral, and *Opihi*, probably filtered down from the surface. Stratum III consists of tightly fitted pieces of eroding bedrock with dark organic soil and some sedimentation from above. Cowry, corals (including a coral abraded), cone shell, *Nerita*, urchin, *Isognomenon*, and volcanic glass was found. Based on the amount/variety of midden/artifacts, this is a permanent habitation platform. There is no evidence of a burial.

An area on the east corner of the platform has a small blister opening that appears to open up slightly to the east. It is not possible to enter, due to its small size, and all boulders blocking the entrance are too large to move. Although there is no indication that this might be a burial, it should be carefully monitored if the site is not preserved, or subject to additional data recovery. The blister area is in an area of collapse and may have been previously looted; there is also evidence that at least one stone has been intentionally moved on this platform. Overall, however, all evidence points only to habitation, not burial.

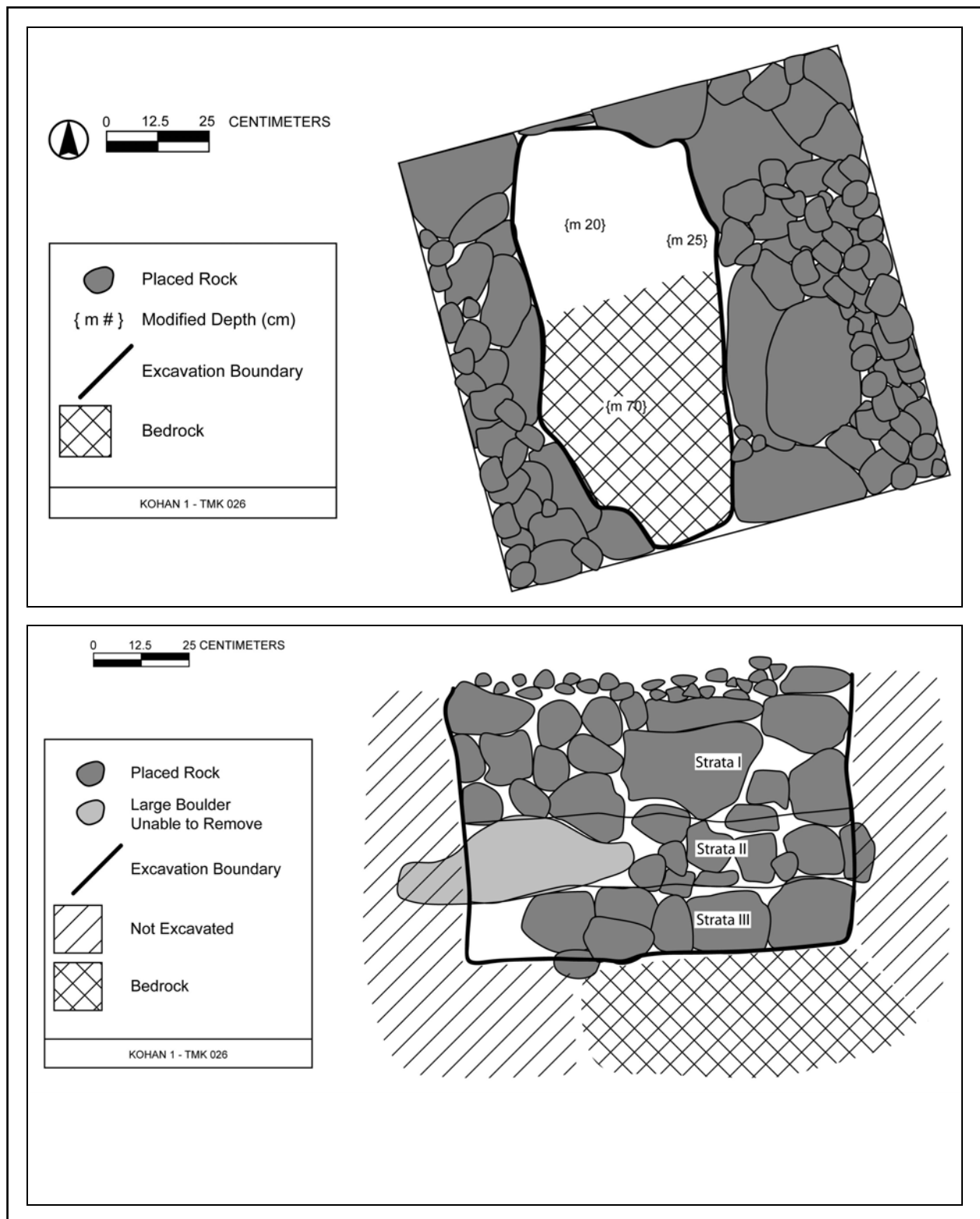


Figure 419. Site -26565, Feature A excavation figures: top is plan view, bottom is west wall profile



Figure 420. Site -26565, Feature A excavation figures, clockwise from top: platform overview pre-excavation facing east; pre-excavation showing south wall, facing northeast; post-excavation showing construction, facing east

2.1.85 State Site # 50-10-28-26566

SIHP # 50-10-28-26566
FUNCTION: Water Collection
SITE TYPE: Lava Tube
TOTAL FEATURES: 1
DIMENSIONS: 52.5 m by 40 m
CONDITION: Good
AGE: Pre-contact
ELEVATION: 730 ft a.m.s.l.

DESCRIPTION: Site -26566 is a lava tube located in the northeast portion of the project area (Figure 421). Site -26565, a habitation platform, is located approximately 50 m to the north. A small amount of agricultural activity is present in the area. Vegetation consists of tall thick grass and Christmas berry trees, and the landscape slopes slightly to the south/southwest, with some open grass fields.

Site -26566 has two sinks and two lava tubes, which all represent one large lava flow heading approximately north/south. Tube 1 is at the south end of Sink 1, which is approximately 1-2 m deep (Figure 421), and has fairly narrow entrance but is relatively large inside, making it an ideal water collection area. Tube 1 contains many water collection features, some charcoal, a few pieces of wood, and one marine shell fragment. The wood may have been used as a torch, although one piece was found under a portion of a water collection feature and may have been the water receptacle itself. Overall this lava tube would be an excellent choice for dating charcoal and burned wood associated with water collection.

At the north end of Sink 1 is Tube 2, but all entrances from the Sink 1 side have been at least partially blocked (these entrances would have been small to begin with). Tube 2 has extensive stacking with some cleared areas but very little midden. Neither Sink 1 nor Sink 2 exhibit extensive modification outside of the tube.

Tube 1 is the main lava tube in Site -26566. The tube is a water collection tube and contains approximately 11 water collection features, some of which are very formal, oblong in shape and measure 100 cm by 35 cm. Other water collection features are informal. The tube is fairly narrow at the entrance, then opens up with an approximately 3 m high ceiling. The tube then begins to taper. There are formal water collection feature within this main large chamber (Figure 422). The tube then bears to the left and reaches a very small choke point that is 15-24 cm in height. There was nothing cultural beyond this small choke point, and although *kukui* was present in the tube, none was burned. It appears that all of the *kukui* is non-cultural. There was a large cowry fragment near the entrance that is approximately 10 cm in length. The function of Tube 1 is water collection as is evidenced by the presence of multiple water catchments.

Tube 2 is a relatively small chamber (approximately 5 m by 5 m) that is between Sinks 1 and 2 and is fairly formally modified. Access to Sink 1 has been restricted by stacking stones two to five courses high along the south edge of Tube 2. This results in several small skylights along the Sink 1 edge into Tube 2. Stacking continues along the west edge of Tube 2 around a well cleared area in the center of the chamber. A constructed wall (two to three courses) made of medium size and large cobbles is at the Sink 2 entrance (Figure 423). This wall blocks access to the cleared

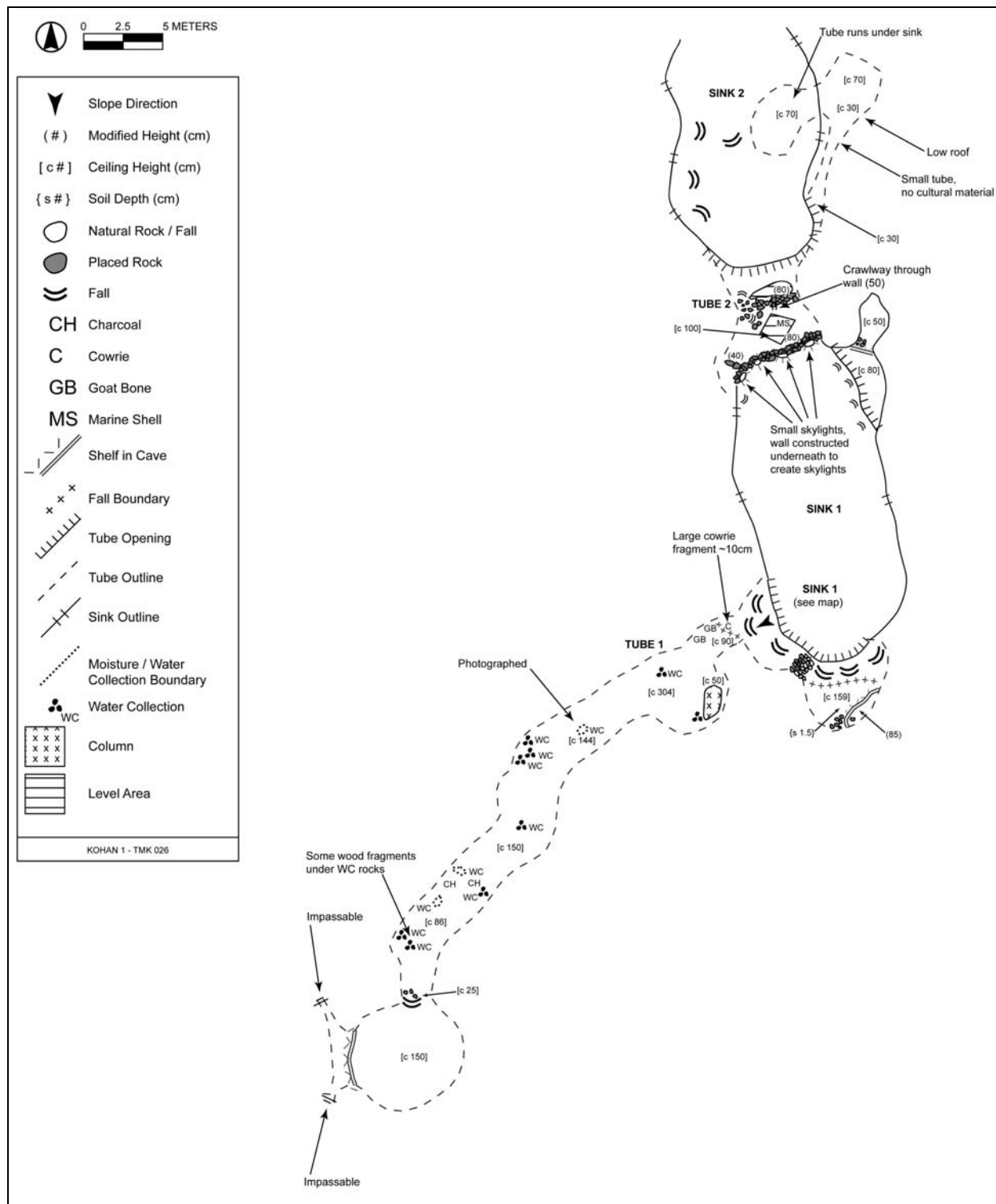


Figure 421. Site -26566, water collection lava tube, plan view



Figure 422. Site -26566, showing a formal water collection construction within the south lava tube, view to northeast



Figure 423. Site -26566, constructed wall within the north end of the lava tube, view to south

area in the middle of the cavern, but has a constructed area that lowers about 80 cm wide and provides a 50 cm high gap that is a crawlway (the wall does not quite touch the ceiling, so the crawlway is essentially a low point in the wall, but was constructed). The area north of the wall is also cleared. One piece of marine shell was found in the cavern.

The site's function is interpreted as water collection with a secondary shelter function based on the presence of water collection constructions and the extent of modifications. Tube 1 has multiple water collection constructions and the naturally tapered entrance to this fairly large tube makes it ideal for water procurement. The large cowry shell fragment may indicate a workshop area (for octopus lures) or is simply midden. Tube 2 is modified to create a fairly formally closed off living area that was most likely a shelter. Restricting access to the Sink 1 edge of Tube 2 and creating the wall along the Sink 2 side, constructed a separate area that is closed off but still has some sunlight through the small skylight – an ideal resting area. Excavation potential for this site is fairly minimal since there is little midden or soil within the tube; charcoal in good context, however, could be recovered from around the water collection features.

2.1.86 State Site # 50-10-28-26567

SIHP #	50-10-28-26567
FUNCTION:	Agriculture
SITE TYPE:	Complex
TOTAL FEATURES:	1
DIMENSIONS:	35 m by 30 m (114.8 ft. by 98.4 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	680 ft a.m.s.l.

DESCRIPTION: Site -26567 is located on a south sloping undulating *pāhoehoe* flow located in the southeast quadrant of the project area. The vegetation in and around the site consists of small and large Christmas berries, over head-high *koa haole*, and thick patches of grass.

Site -26567 consists of an excavated blister, a small lava tube blister with some placed rocks, three mounds, and an upright (Figure 424). The excavated blister is approximately 5.5 m by 2.5 m (18 ft. by 8.2 ft.). There are several small boulders on top of the *pāhoehoe* upper blister surface. The lava tube blister is small, measuring only 12 m by 6 m (39.4 ft. by 19.7 ft.), with a maximum height of 60 cm (1.9 ft.). Within the blister, on the south side, there are approximately five placed small *pāhoehoe* slabs. They are placed on a naturally shallow part of the blister that continues, but is too small to access, until it opens into the northwest end of the excavated blister. This opening is also too small to access.

Only one of the three mounds in the site appears to have been constructed. This constructed mound is small, measuring 2.5 m by 4 m and 80 cm high (8.2 ft. by 13.1 ft. and 2.6 ft. high). The other two mounds are similar in size, appear to be natural, and may have been slightly modified by additional mounding of one or two boulders on top of the natural eroded bedrock that forms each mound. There are also three placed *pāhoehoe* slabs, laid atop exposed bedrock, and a single small upright, approximately 28 cm (0.92 ft.), also on top of a second naturally level area of exposed bedrock.

The site's function was initially interpreted as a shelter with a possible burial. Based upon testing results (see below) this site was determined to serve an agricultural function. There is no midden or formal construction present to suggest any other potential function.

Testing Results

Two test excavations were conducted to assist in determining site function and to determine whether the mound was covering a lava tube and therefore potentially covering a burial.

Boulders and cobbles were removed from each of the two constructed mounds down to bare level bedrock (Figure 424 to Figure 426). No sediment and no cultural material was present. The *pāhoehoe* bedrock exposure under the mounds is naturally slightly raised.

Given that these mounds are on bare bedrock and based on the lack of midden or other cultural materials, they are interpreted as agricultural clearing mounds. This functional interpretation applies to the entire site.

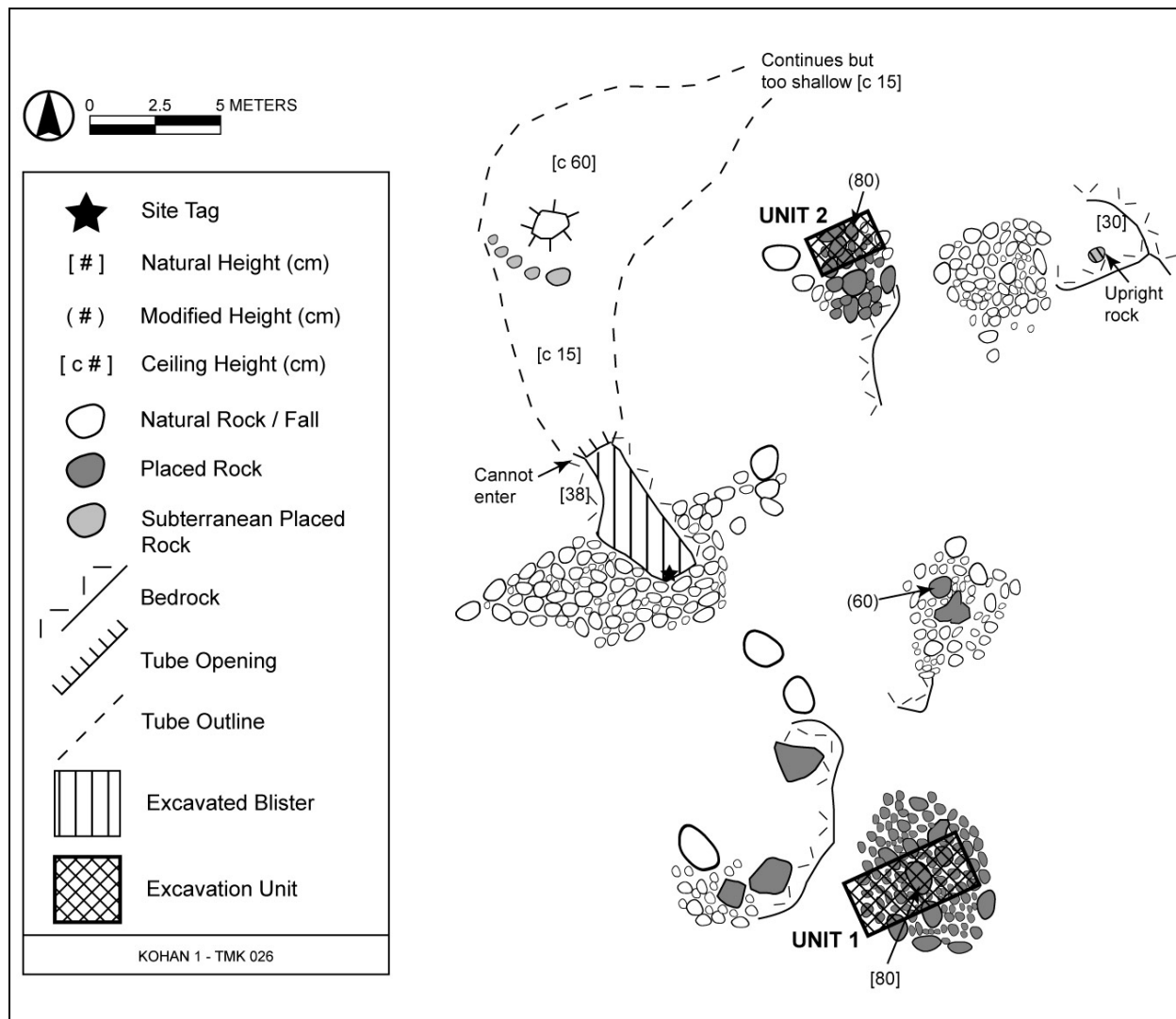


Figure 424. Site -26567, agricultural complex, plan view

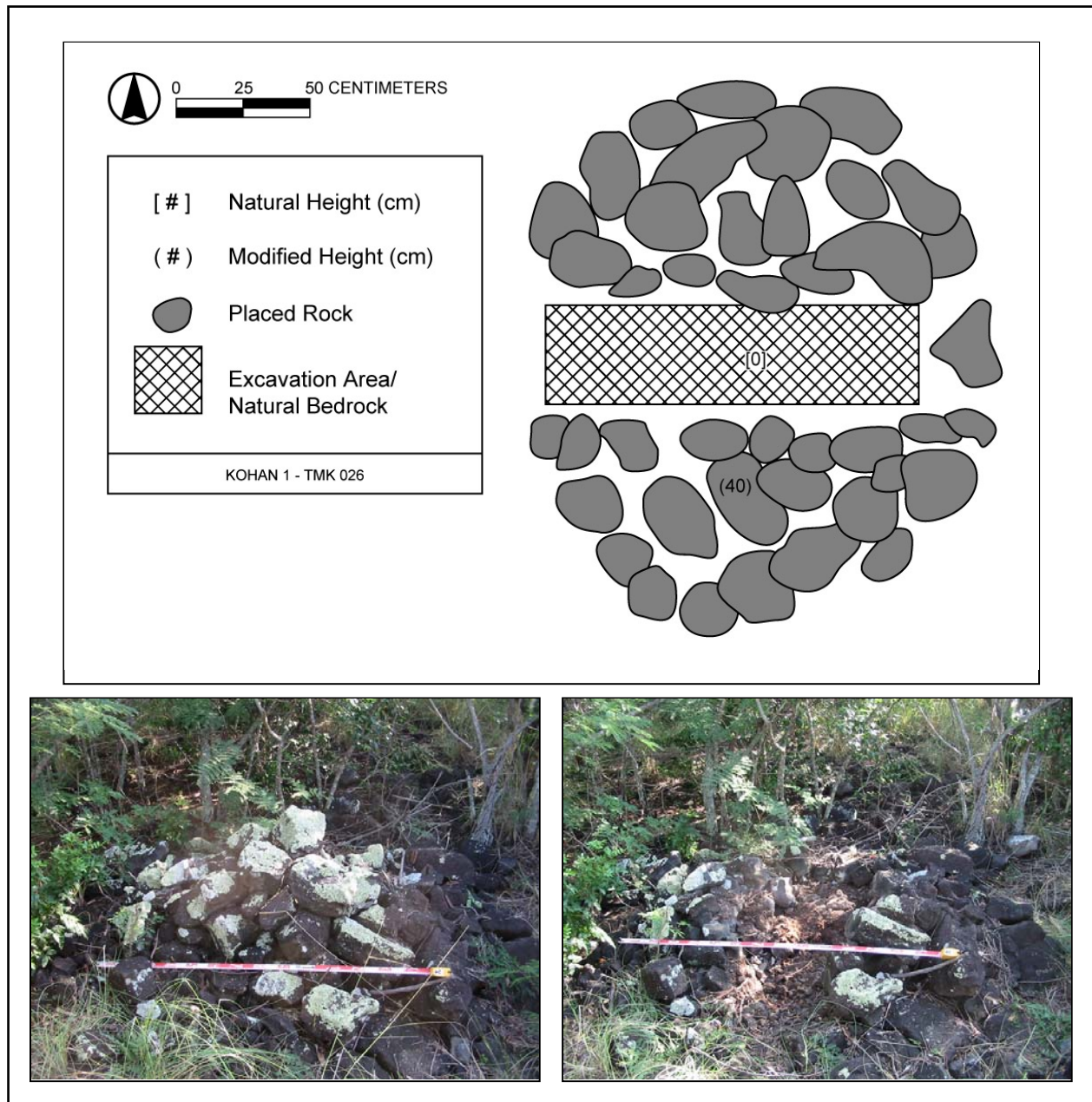


Figure 425. Site -26567, Unit 1, excavation figures. Counter-clockwise from top: plan view of mound and excavation unit; mound pre-excitation; mound post-excitation

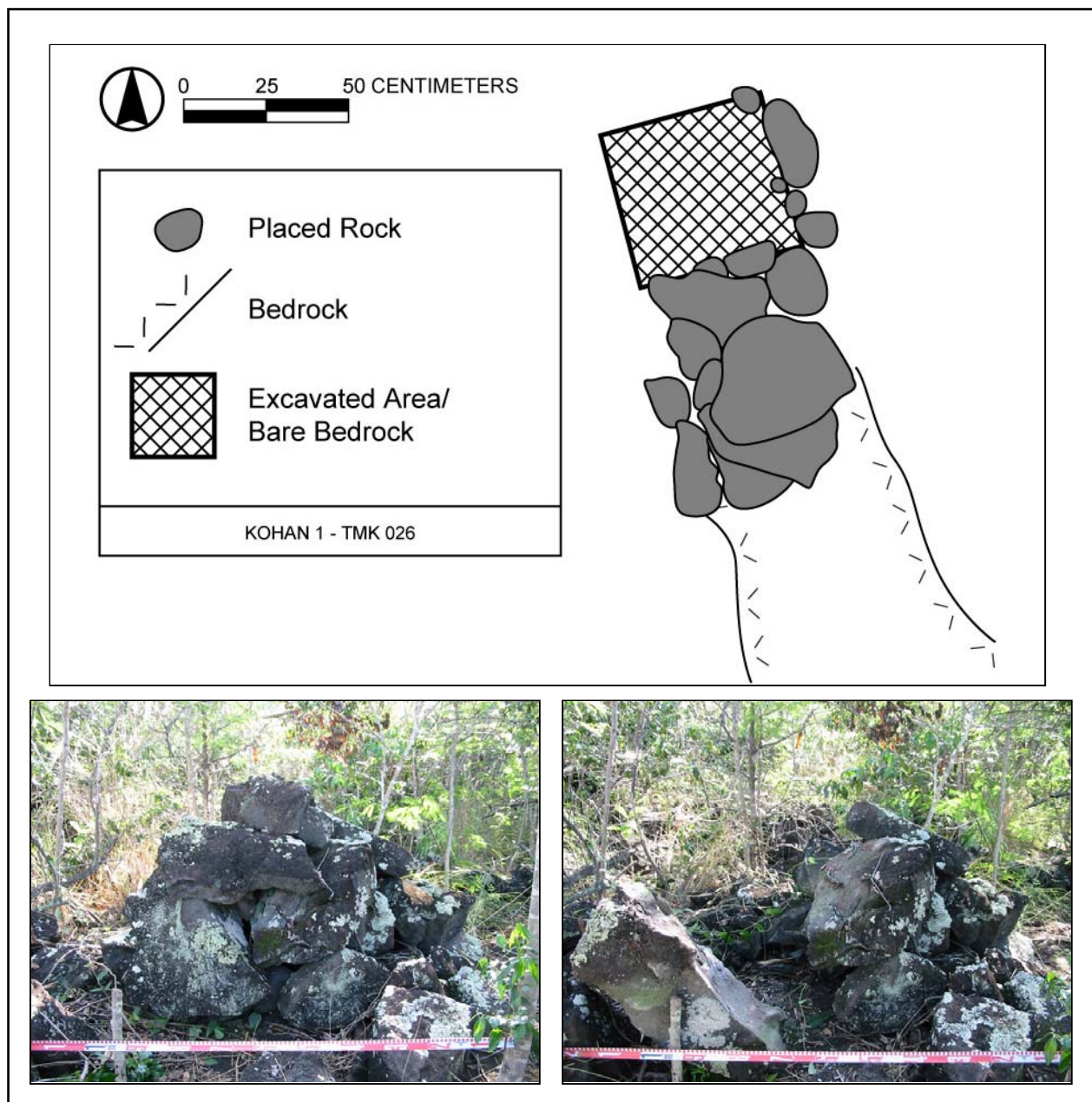


Figure 426. Site -26567, Unit 2, excavation figures. Counter-clockwise from top: mound and excavation unit plan view; mound pre-excitation; mound post-excitation

2.1.87 State Site # 50-10-28-26568

SIHP #	50-10-28-26568
FUNCTION:	Burial and Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	75 m by 53 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	710 ft a.m.s.l.

DESCRIPTION: Site -26568 is a *pāhoehoe* lava tube sink with a modified area (platform, see Figure 428) constructed near a small lava tube opening (see Figure 427) that leads to a burial area (Burial 54). The site is in the northeast portion of the project area, approximately 30 m south of Site -26571, 40 m east of Site -26561, and in an area with many agricultural features (mounds, excavated blisters, etc; see Site -26507). The southern end of the lava tube, which runs south/southwest for approximately 65 m, is near the center point of Site -26507 Feature C, and near Site -26557, -26568 and -26557 which may be part of the same tube system but they do not connect through passable tubes. The surrounding area is fairly level with tall grass and Christmas berry trees being the dominant vegetation; the land slopes downward slightly to the southwest.

The southern end of -26568 has a tube entrance and platform. The tube entrance is very small, and rocks have been moved aside to allow access. The only entrance point is to the far west of the tube overhang on the south side of the sink, and it is very small and difficult to see. The tube opens up after a short crawl into a larger chamber that contains areas with many water collection features. The small entrance may have been advantageous both for hiding this tube entrance as well as maintaining moisture in the tube. The tube continues to the southwest for approximately 60 m, eventually ending at an impassable area. Burial 54 (see burial description below) is located near the end of the tube, concealed under a partial overhang of the tube. A small amount of charcoal, *kukui*, and marine shell is in this tube and water collection features are present almost as far back as the location of Burial 54.

Near the entrance of the tube, there is a small side tube that leads to the east. It eventually becomes too small to pass (only 15 cm) but appears to open up under the informal platform built in the sink (Figure 428). This platform is approximately 100 cm high on its west side and stacked three to four courses. The platform is partially collapsed at its northwest corner and north side. Its east side is minimally constructed and simply merges into the natural sink edge, which is eroding. The platform's surface has fall covering it from outside the sink, but does not appear to have ever been particularly level. The platform's function was apparently to block the tube opening behind it as well as provide easy access into the sink; however, excavation was necessary to confirm this interpretation (see testing results below).

The site's function is interpreted as water collection based on the number of water collection constructions found; burial based on the presence of Burial 54; and secondarily as shelter based on the presence of some midden in a fairly large tube. The platform is not level on top nor is it very formal, suggesting its main function is to block a tube rather than provide habitation space.

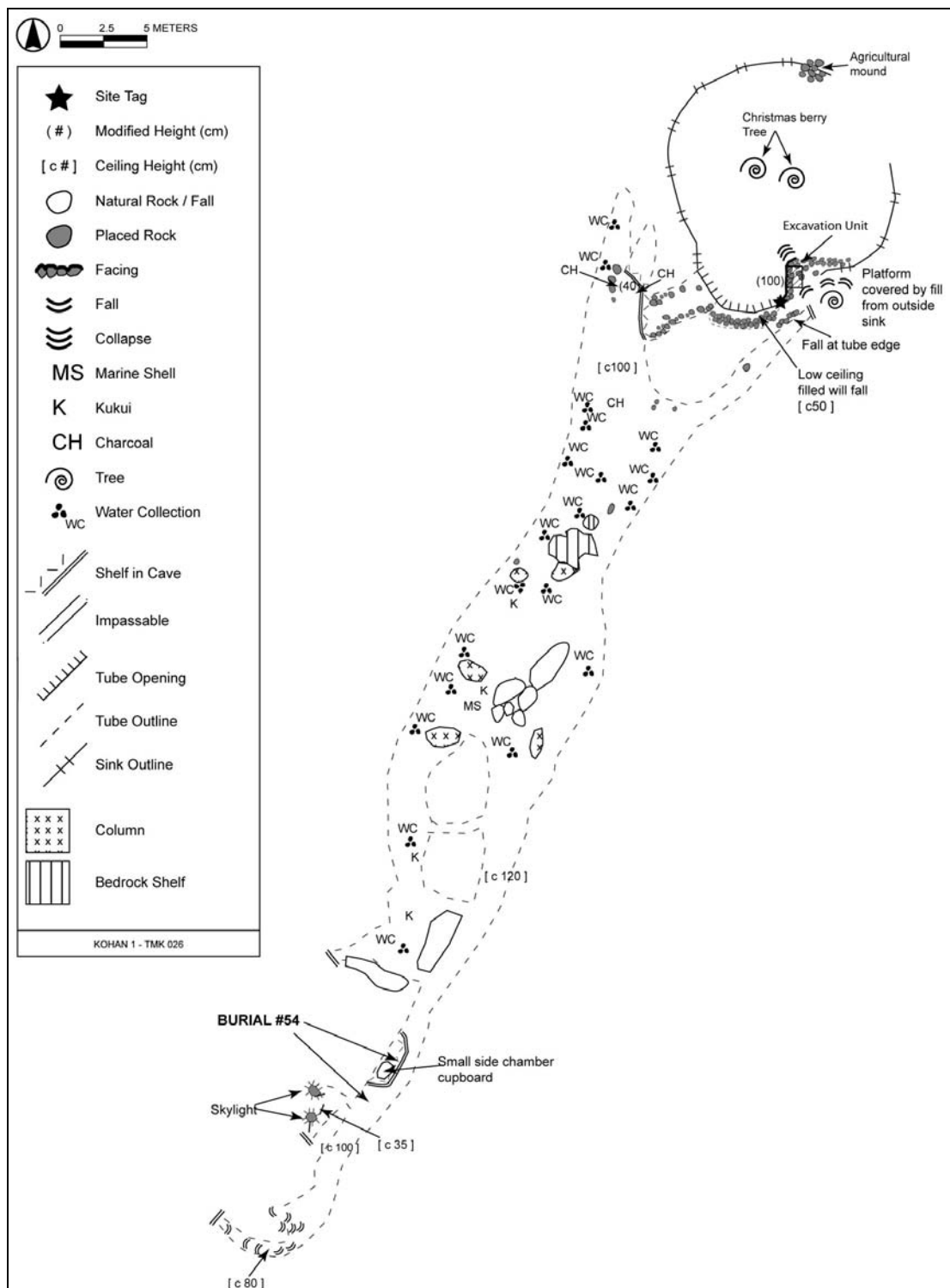


Figure 427. Site -26568, water collection lava tube, plan view



Figure 428. Site -26568, showing the partial platform adjacent to the lava tube entrance, view to east.

The platform may block a burial, and excavation was conducted to determine function (see below). Habitation is unlikely as a function because of the minimal amount of modification, small tube entrance, and minimal midden. Based on excavation results, modifications are related to water collection and ease of access to these areas. Excavation potential of the tube is poor due to the lack of soil and the minimal midden, but there is datable charcoal associated with the water collection features. Excavation potential of the sink is fair due to some soil and the possibility that it was used for agricultural purposes.

Burial 54

Burial 54 is located in a relatively small tube to the south of the main tube entrance of Site -26571. The burial is located in two concentrations of bones. The primary location is within a small natural cupboard inside a raised tube floor adjacent the wall. The opening to the cupboard itself is small (20 cm in diameter). Numerous bone fragments are located inside in an area measuring approximately 0.50 high and 2 m by 70 cm. All of the bones are in very poor condition and none are identifiable. However, the downslope side of the cupboard has a small hole (25 cm by 40 cm) connecting it back to the bottom of the main tube. Through this hole a number of footbones have washed down (Figure 429). All of these bones are identifiable as human and are in much better condition than those in situ. Based on the location of the burial and the lack of grave goods, this appears to be a traditional native Hawaiian burial.

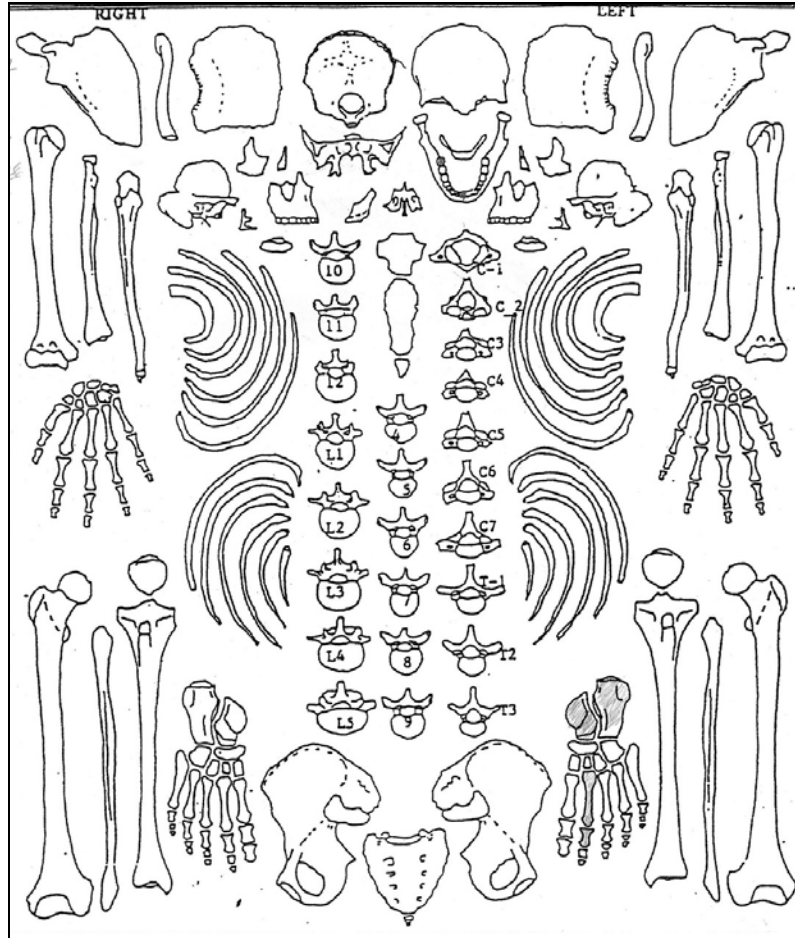


Figure 429. Site -26568, Burial 54, skeletal inventory form (only foot bones identified)

Testing Results

Test excavation was conducted to assist in determining site function and to determine whether a burial is present (Figure 430).

Stratum I, extending from 0 to 90 cmbs, is construction of the structure with a small amount of soil. The construction consists of 10-45 cm cobbles from nearby natural fall that are generally angular *pāhoehoe* cobbles. Some charcoal and *kukui* are present although they are likely natural. Stratum II, extending from 90 to 100 cmbs, appears to be sedimentation from above. It includes small cobble pieces that seem to be eroding bedrock, and some roots/rootlets. Some *kukui* and charcoal are present.

Excavation revealed a small blister opening behind the platform. The blister opening continues approximately 60 cm back with a 25 cm ceiling, and ends. No bone or cultural material was observed in this blister, and there is no construction around the blister to suggest it is a burial. Based on these findings, the platform is a sink modification that eases access for the nearby water collection tube. It appears that the natural fall area in the sink was minimally modified to create a retaining wall to improve the sink and prevent fall from the water collection tube access areas.

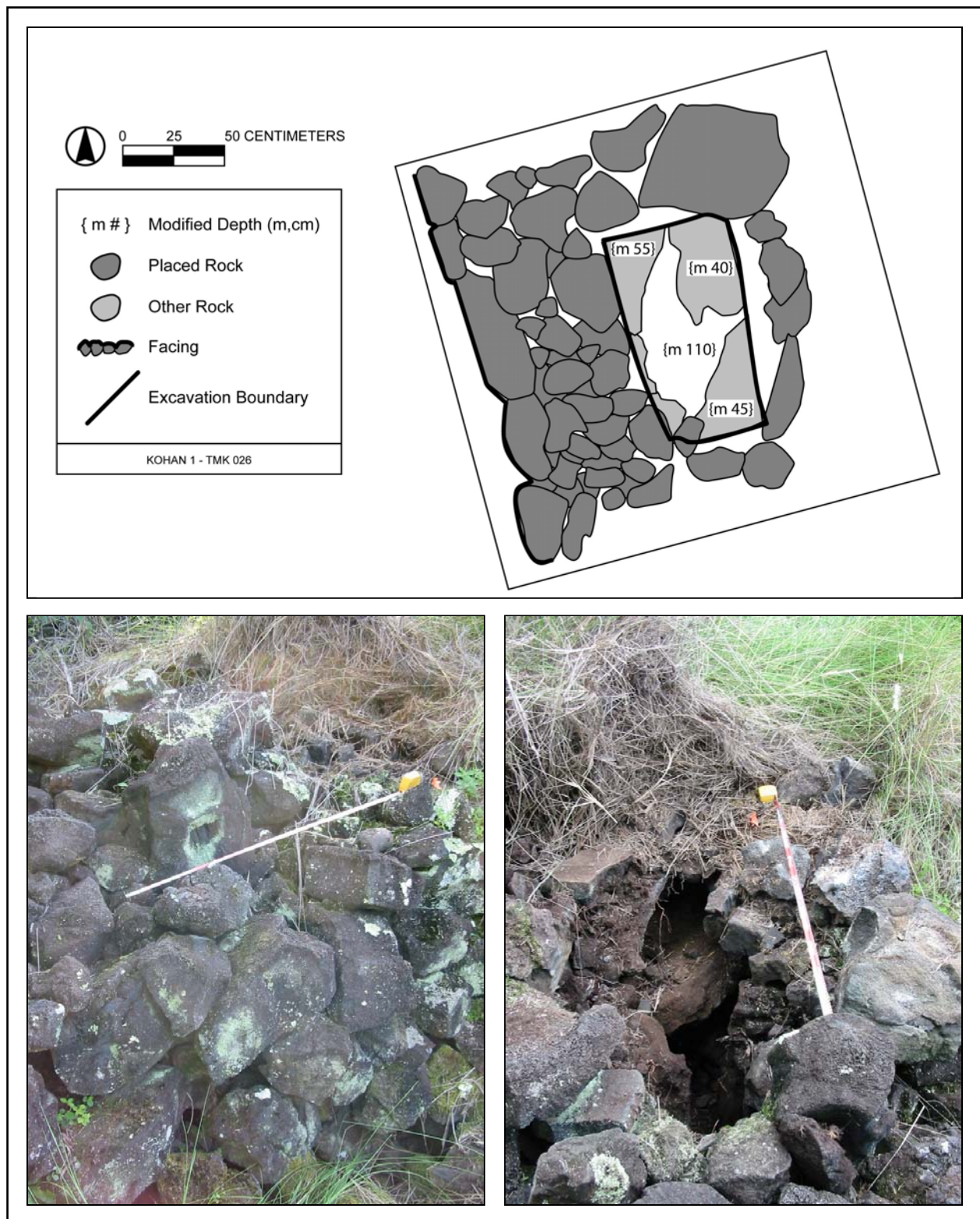


Figure 430. Site -26568, excavation figures, clockwise from top: plan view, pre-excavation photograph, post-excavation photograph

2.1.88 State Site # 50-10-28-26569

SIHP #	50-10-28-26569
FUNCTION:	Burial and Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	63.5 m by 5 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	760 ft a.m.s.l.

DESCRIPTION: Site -26569 is a lava tube in the northeast corner of the project area, 75 m northeast of Site -26565, in an area of undulating *pāhoehoe* (Figure 431). Surface vegetation consists of grasses, large christmas berry, *koa haole* and a *kukui* tree. The site contains two activity areas (a water collection activity area and a manufacturing activity area) and Burial 53.

Activity Area 1 is located at Entrance 1 (Figure 432). It contains a coral abrader, a ground stone that is broken at one end and a grinding slab (approximately 65 cm). The slab is relatively large and appears to be a piece of *pāhoehoe* ceiling. The slab's very smooth side is up and shows signs of wear, especially in the center, where the smooth surface has been worn down by some sort of grinding action. Traveling into the tube to the south, it becomes very tapered and leads to an area of fall where no apparent modification is present. Just before the choke point, there is an area that appears to be relatively cleared that contains the grinding stone and goat bones (non-cultural). Activity Area 1 also has midden including one cowry fragment, a few urchin fragments, and one *Conidae* shell. This is the area with the highest concentration of *kukui* nut from the tree at the south end of Entrance 1, which is directly adjacent.

Activity Area 2 lies just beyond the area of fall and continues down towards Entrance 2. There are approximately 20 formal and informal water catchments in this activity area. Burial 53 (see burial description below) is approximately 18 m north from Entrance 2 of -26569.

The site's function is interpreted as burial and water collection with a secondary function of tool manufacture. This interpretation is based on the presence of approximately 20 water collection constructions, and the presence of the coral abrader, ground stone and grading slab are indicative of a manufacture activity area near Entrance 1. The presence of Burial 53 is evidence of the burial function. The site's excavation potential is fair due to a sediment deposit measuring 5 cm located in the cleared area of Activity Area 1, although only one *Conidae* shell was observed in this area. A large amount of *kukui* nut is spread throughout the tube although no discernible cultural *kukui* nut midden was found anywhere in the tube.

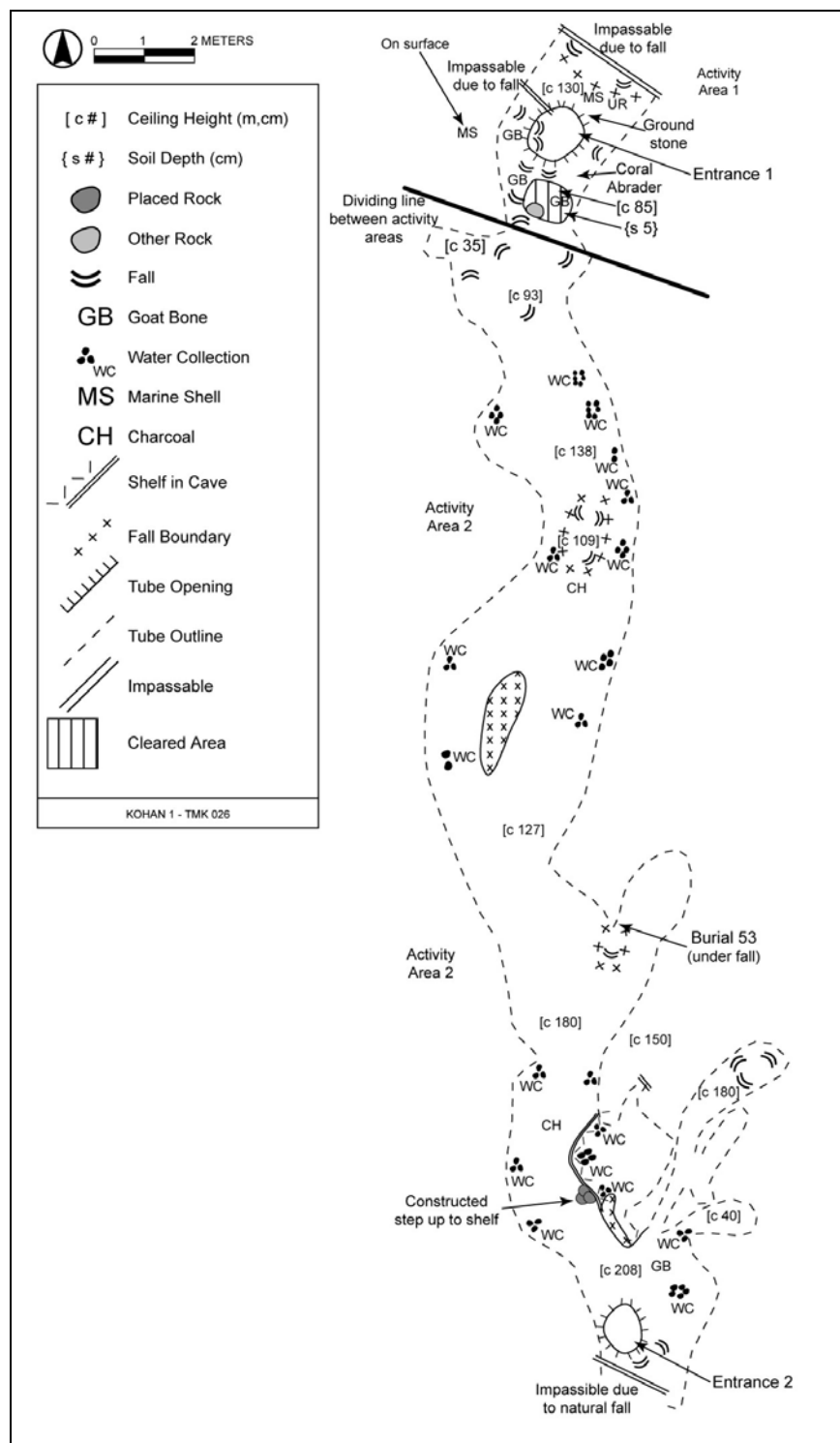


Figure 431. Site -26569, activity area lava tube, plan view

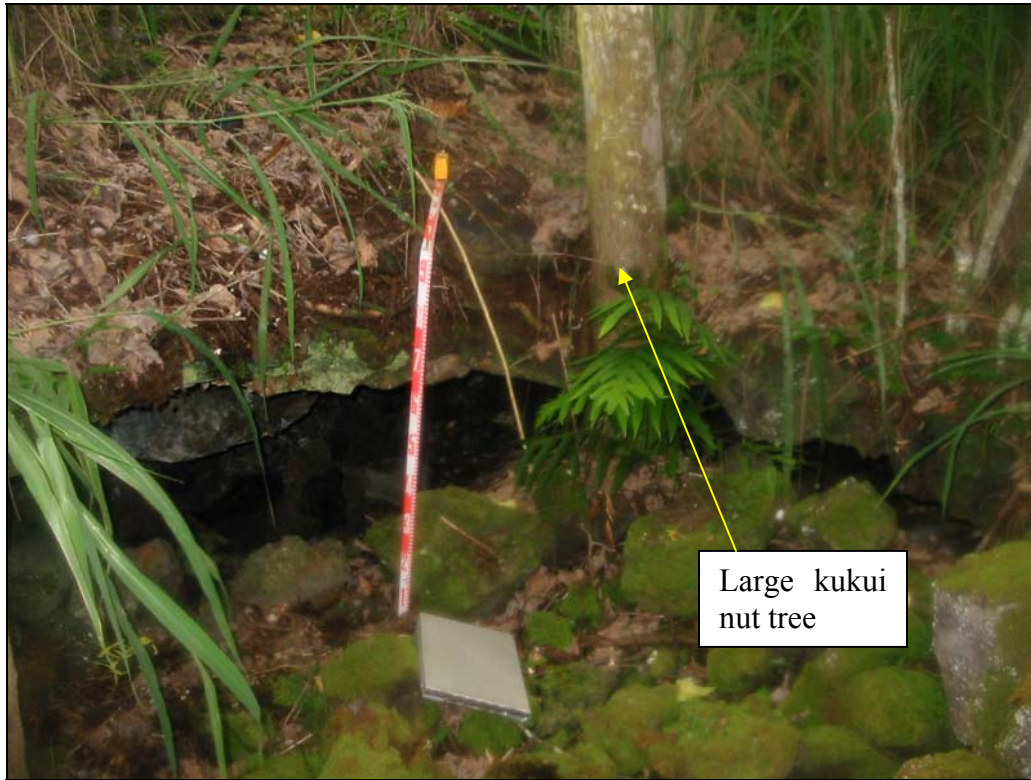


Figure 432. Site -26569, showing Entrance 1 to the lava tube, view to south.

Burial 53

Burial 53 is just off the main tube of Site -26569 in a small niche under an area of natural fall, about 18 m north of Entrance 2. The burial was positively identified as human based upon a tooth and a large fragment of the left scapula. The remains also contain cranial and rib fragments, multiple cervical vertebrae, fragments of both femurs and fragments of long bone shafts. The burial is in poor condition and highly fragmented (Figure 433). Given the distribution of the remains, it appears that this was a primary extended burial. Fewer bones of the lower body are present, which may be the result of the positioning of the remains in an extended position. The lower half of the skeleton is more exposed and less protected from the fall as the head is at the back of the niche. The long bones may have also been removed for secondary burial as only a few small long bone fragments are present. As is evidenced by a cache of rat-gnawed *kukui* amongst the remains, this burial has also been disturbed by animal activity. Given the location of the burial in a lava tube and the lack of historic grave goods, this burial is believed to be native Hawaiian.

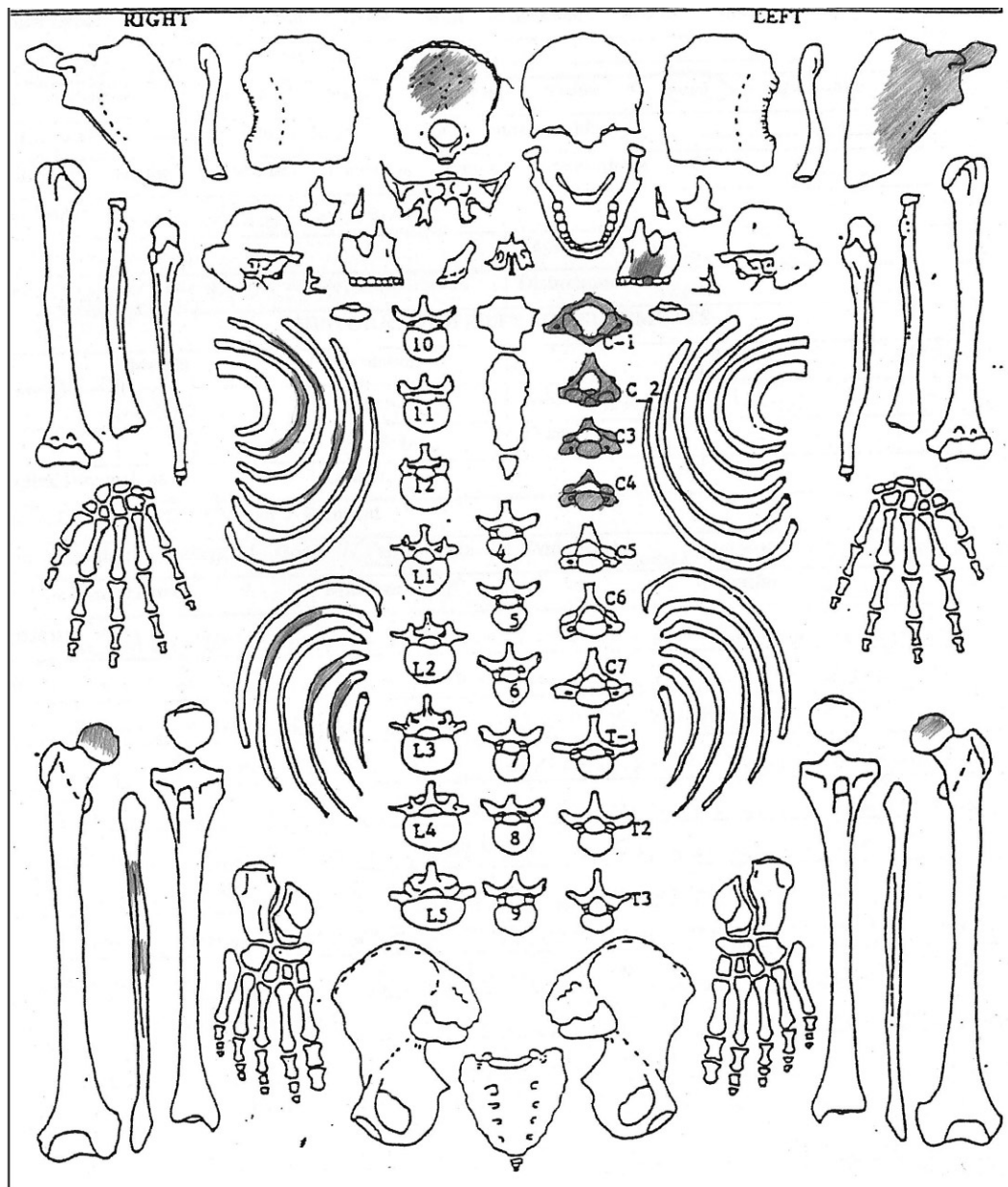


Figure 433. Site -26569, Burial 53, skeletal inventory form

2.1.89 State Site # 50-10-28-26570

SIHP #	50-10-28-26570
FUNCTION:	Burial and Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	9
DIMENSIONS:	140 m by 70 m
CONDITION:	Good
AGE:	Pre-historic, historic
ELEVATION:	690 ft a.m.s.l.

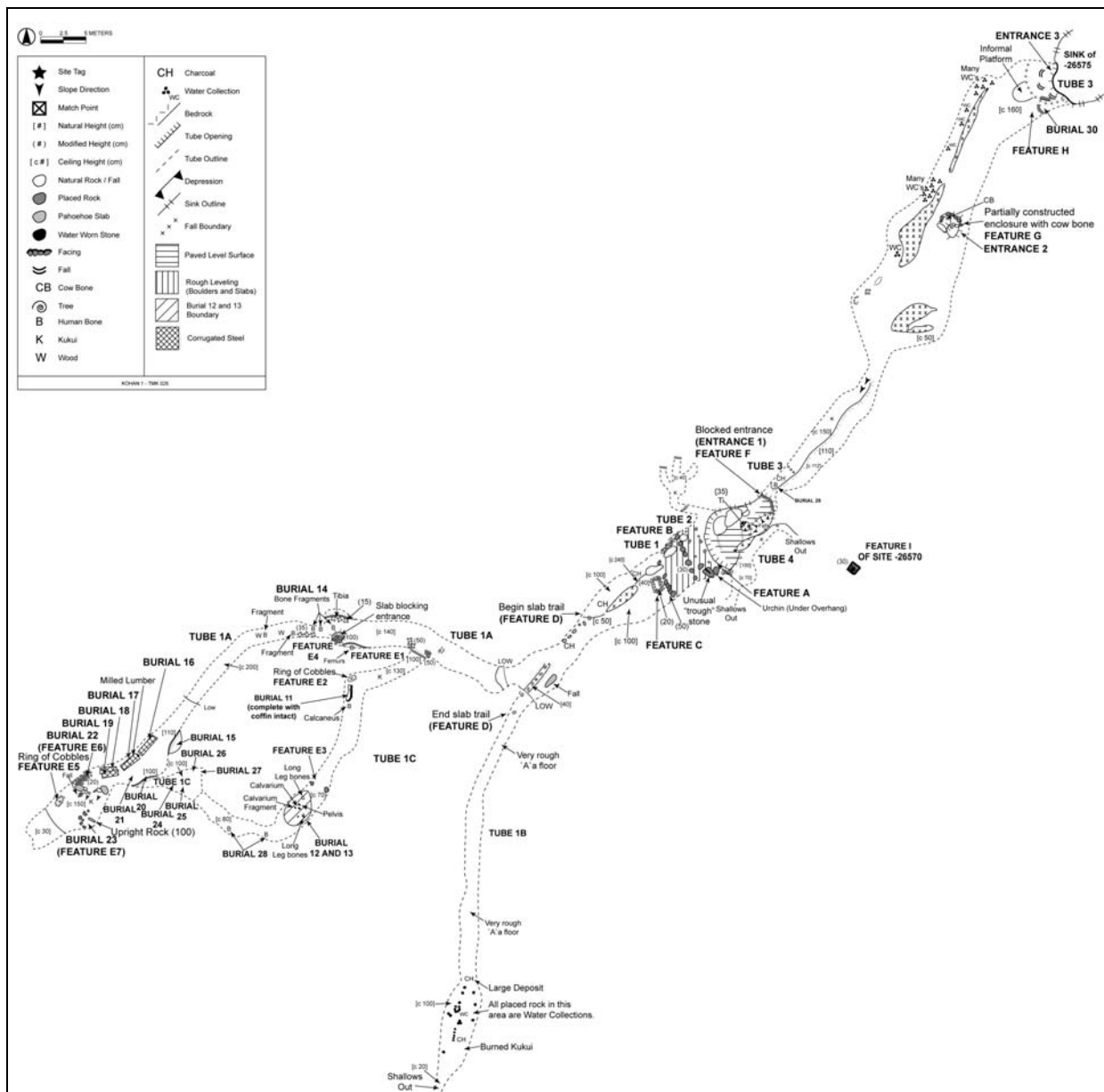
DESCRIPTION: Site -26570 is a long lava tube located in the central portion of the project area, in an area with heavy vegetation consisting of Christmas berry trees, *koa haole* trees, and thick grass. The topography in the area is relatively level, and the site is located at the top of a ridgeline (running southeast/northwest) with a good view to the southwest. Several other sites are located in close proximity, including Site -26572, -26564, -26567 and -26507 Feature A. Site -26570 connects on its far northeast end to -26575, which then eventually connects to -26576 further east. Site -26599 is a nearby site closely related to the burial function of site -26570.

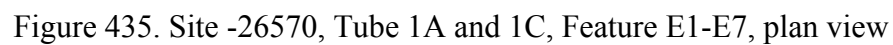
The site consists of a lava tube sink with several large lava tubes that were primarily used for burials as well as water collection (Figure 434). A total of twenty confirmed human burials are present at -26570. Burials 11-28 are located in Tube 1A and 1C, and Burials 29-30 are located at either end of Tube 3. The style of burial varies greatly even though most are in very close proximity, with some being a pre-contact style and some associated with historic artifacts.

The main sink is approximately 2 m deep with steep sides or overhangs. Most of the open sink floor is not extensively modified, and there are large piles of natural roof fall. On the northeast side of the sink there is a steep ramp leading from the surface to the bottom of the sink; the ramp consists primarily of minimally modified natural roof fall. While the vegetation in the sink consists almost solely of large Christmas berry trees, there is a single small *ti* plant at the center of the sink that is located at the edge of a small excavated depression (0.8 m by 0.8 m, 35 cm deep). Four tubes branch off the main sink: Tube 1 is to the southwest; Tube 2 is to the west; Tube 3 is to the north; and Tube 4 is to the southeast.

Tube 1 is a large tube with extensive modifications throughout and contains a large number of burials (see Features B through E). Tube 1 has a large entrance that is more than 2 m in height (see Features B and C), and continues south with approximately 1.5 m high ceilings for about 20 m before splitting off into Tubes 1A (to the northwest) and 1B (to the south) near Feature D. There is no midden in this area other than scattered *kukui* and charcoal.

Tube 1A is accessible via a low crawl area (35 cm) to the west of Feature D (Figure 435). After this crawl area, the floor becomes flat and smooth *pāhoehoe* throughout Tube 1A, allowing easier access. The tube is generally wide (1.5 m to 4m) and tall (up to 200 cm ceilings, average 150 cm). Approximately 5 m west of the low crawl area, Tube 1A splits off to the south into Tube 1C, which eventually wraps back around to again connect with Tube 1A farther to the southwest. Tube 1C is generally smaller than 1A and its center is less accessible due to narrow or low crawlways. Tubes 1A and 1C contain a large number of burials, with eighteen individuals (see Feature E and respective burial details; Burials 11-13 and 24-28 are in Tube 1C, Burials 14





through 23 are in Tube 1A). The main burial chamber, with the largest number of burials, is located where Tube 1A and 1C connect on the west side of the tubes; there are fourteen individuals located in close proximity in this area (nine in 1A and five in 1C, with Burial 28 being comparatively isolated in the center of Tube 1C). Many of the burials in Tube 1 are historic in nature (i.e., Burial 11, 16-21, 24-25), with either a coffin or other associated historic, while some of the burials are traditional Hawaiian in nature (i.e., Burials 12-15, 22-23, 26-28).

Tube 1B begins near the middle of Feature D, which leads into Tube 1B. Feature D ends fairly quickly after the tube splits even though the floor continues to be rough 'a'ā (Figure 436). There are no artifacts or modification for approximately 30 m after the tube splits. The tube then opens into a larger chamber (100 cm ceiling, approximately 4 m by 4 m) that is very moist with some standing water at low points in the 'a'ā floor. There are several water collection features in this room, including a fairly large (30 cm diameter) formal circular water collection feature, as well as scattered charcoal with some larger deposits of charcoal are at the cavern entrance.

Tube 2 and **Tube 4** are small side tubes that have minimal modification consisting of a few small placed rocks and *kukui*. Both have low ceiling heights.

Tube 3 is a fairly large tube (runs northeast/southwest for approximately 50 m) that contains both water collection and two burials (see Features F through H and Burials 29-30) (see Figure 437). There are three entrances, one at the northeast end of the main sink (see Feature F), one near the middle of the tube (see Feature G), and one at a far southwestern sink (see Feature H). There is a small amount of scattered charcoal and *kukui* within the tube, but no other midden is present. Further down the tube to the northeast are nearly twenty water catchment features, some of which are fairly large (1.2 m by 0.6 m) and formal. The water catchment features appear to be clustered into several groups, often in fairly shallow areas of the tube.

Feature A consists of three small terraces located along the south/southeastern sink wall (Figure 437). The terraces are each approximately 1 m (east-west) by 0.9 m (north-south), with informal construction lacking facing, and consisting of small to medium size cobbles (10-30 cm diameter) piled 1-4 courses high (50-100 cm in height). All three terraces have a small cobble fill on the surface to level the top, and all three block the space created by a natural low overhang (approximately 50 cm in height) along the sink edge. The southernmost terrace creates a level surface leading to Tube 4, and is the largest terrace.

Feature B consists of modification of the Tube 1 entrance (Figure 436). At the southwest end of the sink, under the large overhang that leads to Tube 1, there is a partial small cobble paving and a partial *pāhoehoe* slab paving that functions to modify the entrance to Tube 1. The small cobble paving continues up the southeast side of the sink (to Feature A), while the west/northwest side of the sink is covered by large pieces of natural roof fall and smaller rubble. Feature B covers an area of approximately 5 m by 6 m, and is 30-50 cm in height. Construction utilizes small to large cobbles (10-60 cm), the majority being modified natural roof fall, with an informally paved surface (small cobble and *pāhoehoe* slab). At the south corner of the Tube 1 entrance (at the edge of Feature B), there is an overhang in the ceiling 0.7 m in height that is blocked by several large slabs and some medium sized cobbles. This partially blocked overhang is accessible via the west side (inside Tube 1 entrance) and there are urchin fragments on the rubble inside the blocked area. The overhang and blockage create a roughly rectangular cleared area under the overhang.

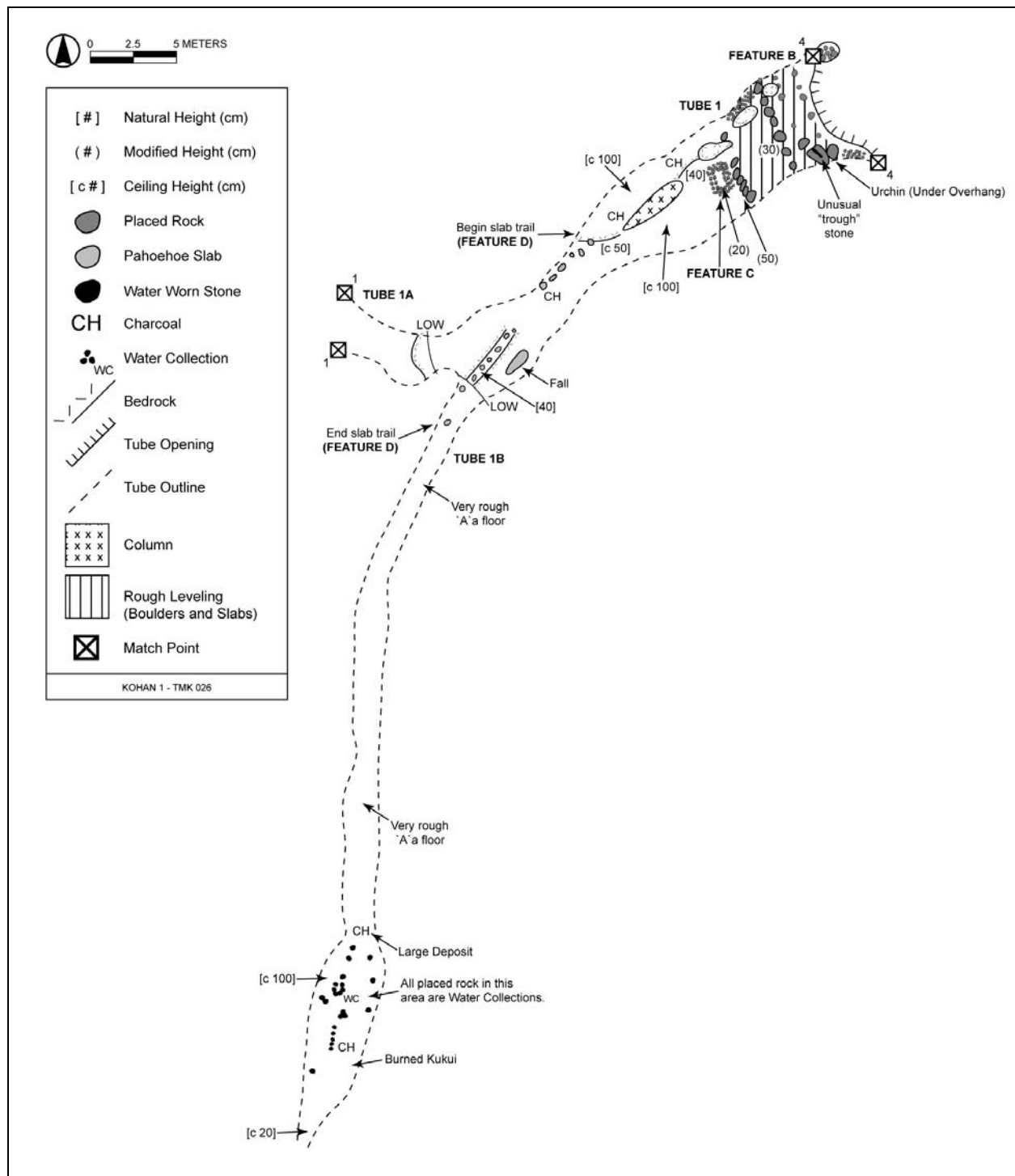


Figure 436. Site -26570, Tube 1B, Feature B - D, plan view

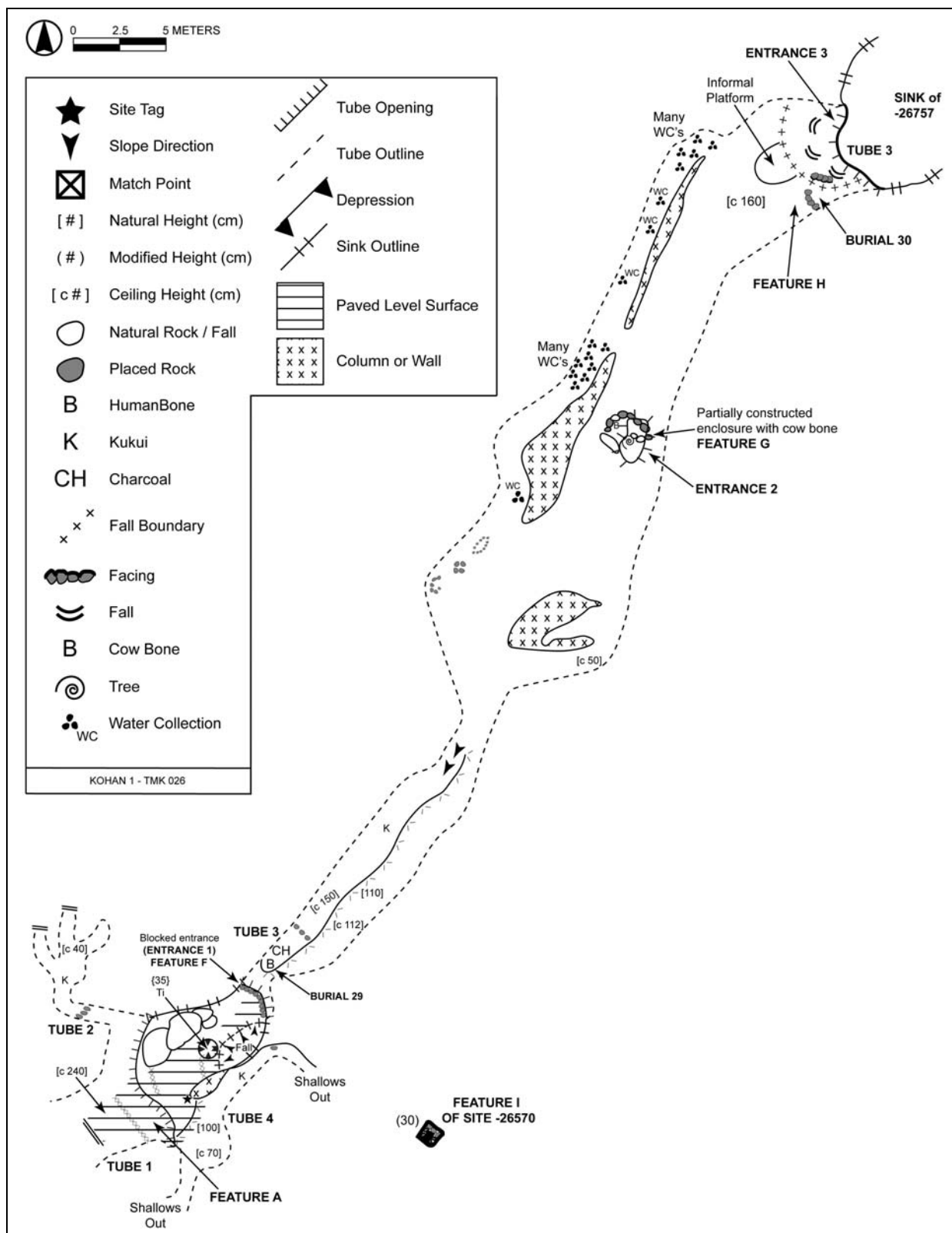


Figure 437. Site -26570, Tube 3, Feature A, and F - H, plan view

Feature C consists of a small rectangular feature just southwest of Feature B (see Figure 436). The natural tube floor past Feature B is rough 'a'ā, and Feature C is constructed by placing rocks one to two courses high on this rough 'a'ā area. Feature C is 0.8 m by 0.3 m and 20-30 cm in height, and appears to be larger and more formal than a typical water collection feature.

Feature D is a *pāhoehoe* slab trail inside Tube 1 that begins approximately 10 m southwest of Feature C, and continues for about 15 m leading into Tube 1B (see Figure 436 and Figure 438). The approximately 15 slabs are 25-50 cm in size and spaced 40 cm-100 cm apart. As Tube 1 splits and leads downhill into Tube 1B, the trail follows a linear, naturally depressed area.



Figure 438. Site -26570, showing the Feature D *pāhoehoe* slab trail at the beginning of Tube 1B, view to south

Feature E comprises all of the modifications that are associated with the large burial chamber in Tube 1A and 1C (see Figure 435). All modifications are considered in relation to the burials.

Feature E1 consists of two small cairns placed at the eastern entrance to Tube 1C (from the southeastern portion of Tube 1A). The cairns measure 0.7 m diameter, 50 cm in height, and are constructed using small to medium size cobbles. They are placed at each side of the tube entrance, before a drop in the floor down into Tube 1C. Burial 11 is located less than 10 m from the cairns, and the cairns appear to be markers for this burial area.

Feature E2 consists of a fairly symmetrical rectangular ring of cobbles (1 m by 0.5 m) next to Burial 11 (a wooden coffin burial in Tube 1C). The ring of cobbles is one course high and utilizes cobbles averaging 10-20 cm diameter in size. This feature is similar to Feature E5; neither contains any artifacts or other cultural material, but both are closely associated with burials.

Feature E3 consists of two placed rocks (approximately 30 cm diameter), one on either side of Tube 1C, just northeast of Burials 12 and 13. These placed rocks function as cairns, similar to Feature E1, and mark a boundary beyond which Burials 12 and 13 are located.

Feature E4 is at the primary entrance to the main burial chamber of this tube in Tube 1A. It consists of a small informally constructed platform measuring 1 m by 1.5 m and 1.2 m tall (4-5 courses high). It is constructed directly under a distinct entrance, a skylight (1.5 m in diameter) that has been blocked with large slabs laid across the opening. Site -26559, an oval platform on the surface, was constructed to seal (and conceal) this primary burial entrance. The platform under the blocked skylight probably functioned to access the tube, as it is about a 1.5 m drop from the surface into the tube. The platform also appears to have been used as a burial place, as Burial 14 (primarily scattered long bone fragments) is located around this platform. Other areas of placed rocks in this chamber are likely related to Burial 14.

Feature E5 consists of a fairly symmetrical rectangular ring of cobbles (1 m by 0.5 m) next to Burials 22 and 23 in Tube 1A. The ring of cobbles is one course high and utilizes cobbles averaging 10-20 cm diameter in size. This feature is similar to Feature E5; neither contains any artifacts or other cultural material, but both are closely associated with burials.

Feature E6 is a constructed crypt in Tube 1A made of slab boulders and cobbles, approximately 1.9 m long southwest/northeast, 1.0 m wide, and 40 cm tall, with a fairly level surface. This feature contains Burial 22.

Feature E7 is located in Tube 1A and consists of a large upright slab and about eighteen smaller boulders on bare floor that define an open crypt area. This feature contains Burial 23.

Feature F is located in Tube 3, at the northern end of the sink (see Figure 437). The entrance to Tube 3 is partly blocked by an informal wall 2-3 courses high, approximately 50 cm in height, and approximately 80 cm thick, constructed of medium size *pāhoehoe* boulders; this blockage comprises Feature F. Burial 29 is located inside Tube 3 only a few meters after the blockage.

Feature G is a partial enclosure located in Tube 3 under the second entrance (near the middle of the tube). Feature G consists of a cleared area measuring 2 m by 2 m that is partially enclosed by the placement of rocks (see Figure 437). These placed rocks and boulders, in conjunction with some natural fall, create a roughly circular alignment around the cleared area beneath the entrance. Feature G primarily functions to modify this entrance.

Feature H is an informal platform and an area of placed stones that is associated with Burial 30, located at the southeastern entrance of Tube 3 (see Figure 437). The entrance itself is partially restricted by modification of the natural fall, and just beyond the entrance a small informal platform (approximately 1.5 m by 2.0 m) has been constructed within the tube. Burial 30 is partially buried under several placed cobbles, boulders, and slabs.

Feature I is a low, very small 1 m by 1 m platform, 2-3 courses high, very square in shape located on the surface, southeast of Entrance 1 to Tube 3 (see Figure 437). The bottom 2 courses are constructed of small boulders and slabs that are faced around the entire perimeter. The center is filled in with cobbles. One larger slab is placed atop the center, but does not appear to be particularly well shaped or have any other property that it appears selected for. In total the feature is 30 cm tall and measures approximately 1 m on either side. The function of Feature I is ceremonial based on excavation results (see below), possibly as an shrine related to the adjacent burial activities.

The site's function is interpreted as burial based on the presence of twenty confirmed human burials. Tube 1A and 1C contain 18 burials (Burials 11-28) and two additional burial (Burials 29-30) are at either end of Tube 3. All modifications encountered in within the site are also related to burial function. Based on the variety of burial style, the site has been used over a long period of time and may have been a family burial plot.

The site's secondary function is water collection based on number of water catchments present and the formality of some of the features. Tube 1B has several water collection features, Tube 3 has 20 water catchment features, and Feature C is a large, formal water catchment feature. Tube 1B and Tube 3 also contain several large, formally constructed water catchment features, with formal modification (i.e. slab trail in tube) associated with the water collection.

Burials 11-30

Burial 11

Burial 11 is a formally constructed historic wooden coffin burial associated with Features E1 and E2 in Tube 1C (see Figure 435). The coffin is made of wood planks in a classic western-style shape. Leather shoes and cloth are associated with the burial, and the coffin is extensively eroded. The shoes are hand-made, brown leather, and loafer-like style. The cloth appears finely made, possibly from a suit. An eroded piece of wood and a placed rock held the coffin slightly off the ground at one point, but it has mostly collapsed. The burial was not disturbed and only the shafts of the long bones of the right leg were visible (Figure 439). It seems likely that most of the skeletal elements are in fact present.

Burials 12 and 13

Burials 12 and 13 are located further down Tube 1C from 11, and are associated with Feature E3 (see Figure 435). The bones are somewhat scattered and co-mingled (consisting of a minimum of two individuals; Figure 440). The burials appear to be in a flexed position lying head to head (feet pointing in the opposite directions) and follow a pre-contact style of burial with no associated historic material. The similarity of Features E1 and E3 suggest that there is some continuity of cultural practice despite the apparent difference in time period between these burials and Burial 11.

Burial 14

Burial 14 is located in Tube 1A and is associated with Feature E4 (see Figure 435). The bones are scattered within this cavern (and slightly further downhill to the west) and appear somewhat disturbed. Leg long bone shafts were identified (Figure 441). Small fragments can be also seen within Feature E4. This burial appears consistent with a pre-contact style of interment.

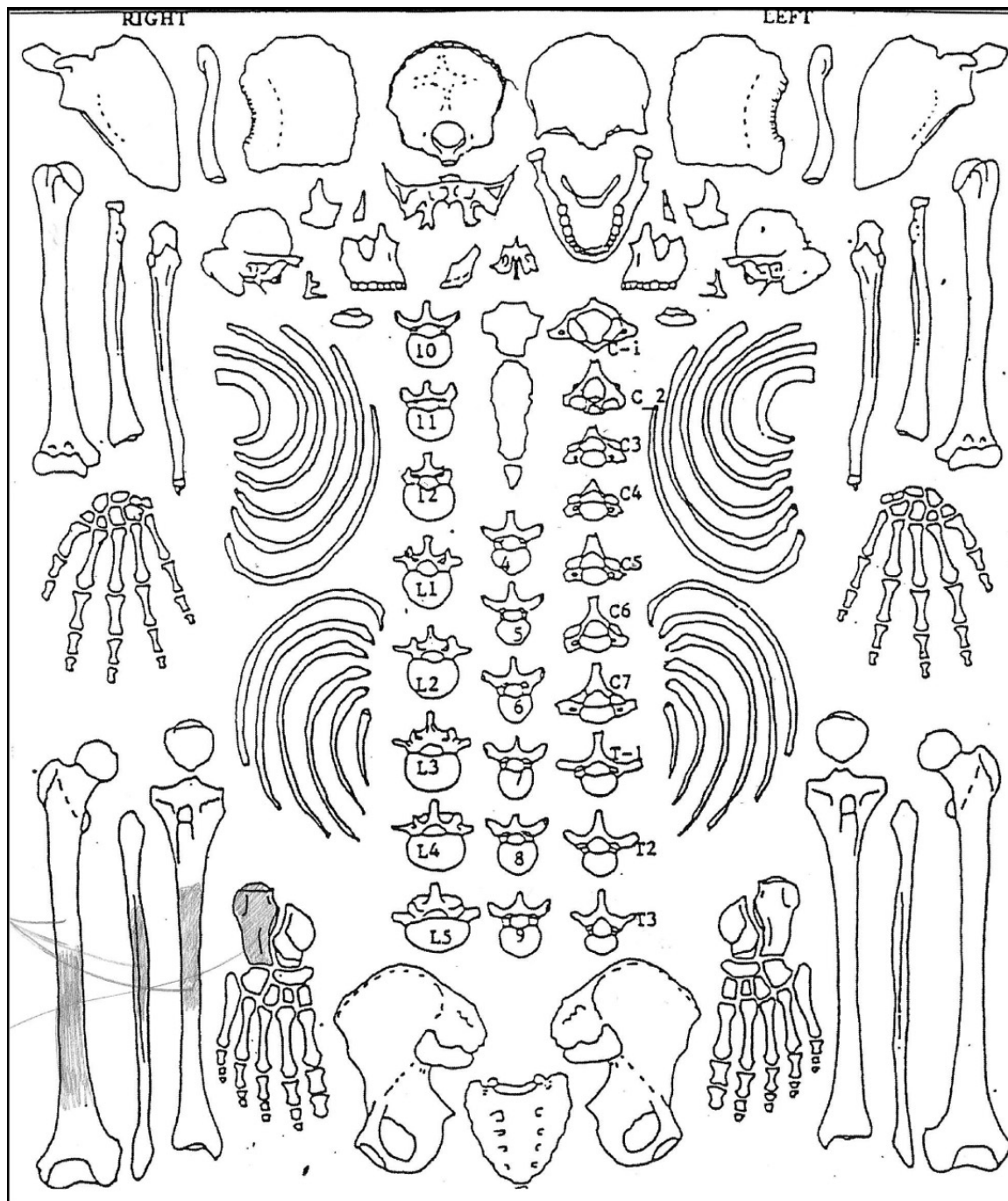


Figure 439. Site -26570, Burial 11, skeletal inventory form (the burial was not disturbed and only the shafts of the long bones of the right leg were visible; most of the skeletal elements are in fact present)

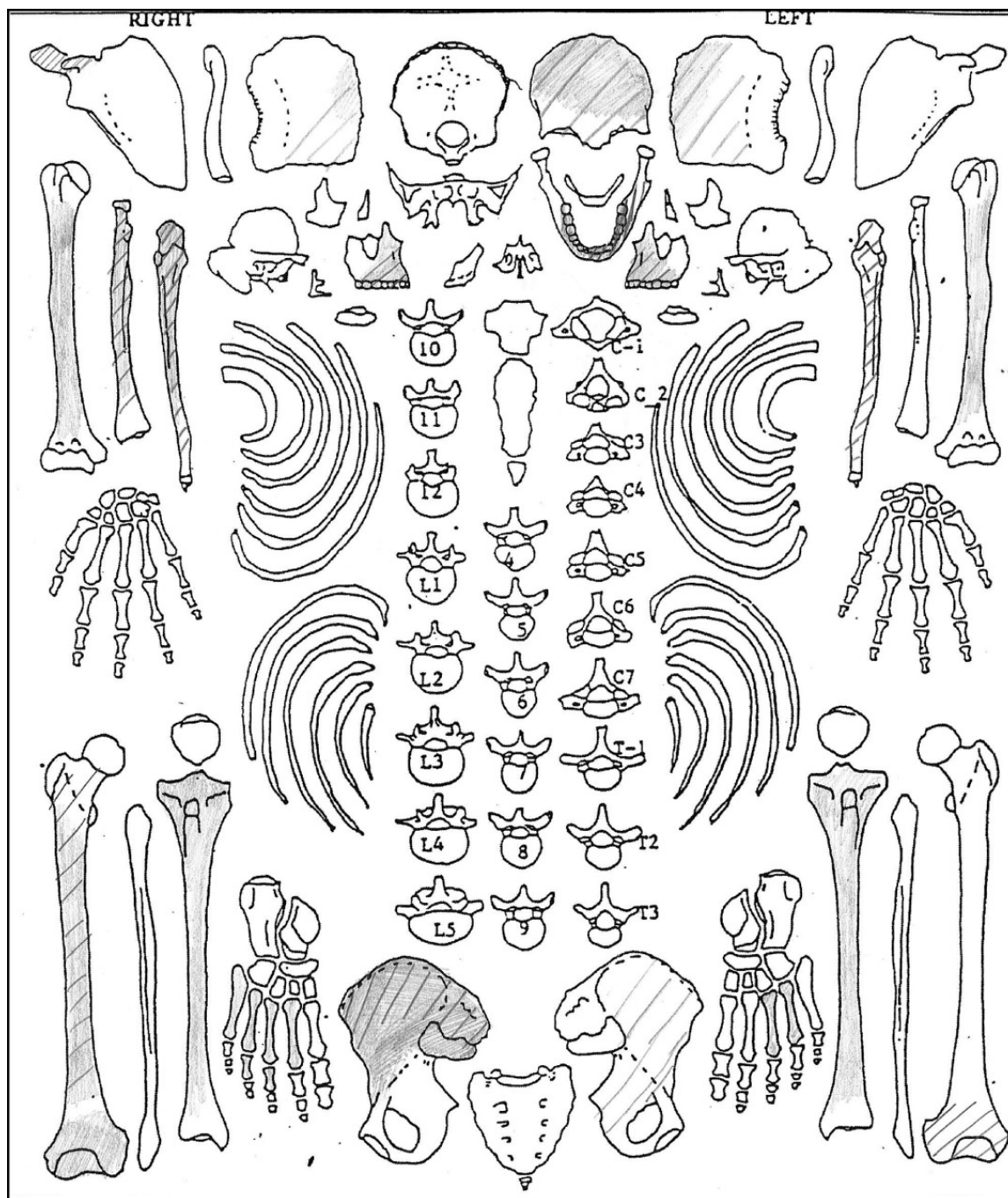


Figure 440. Site -26570, Burials 12 and 13, skeletal inventory form (the Minimum Number of Individuals is two; one set is shaded and the other hatched)

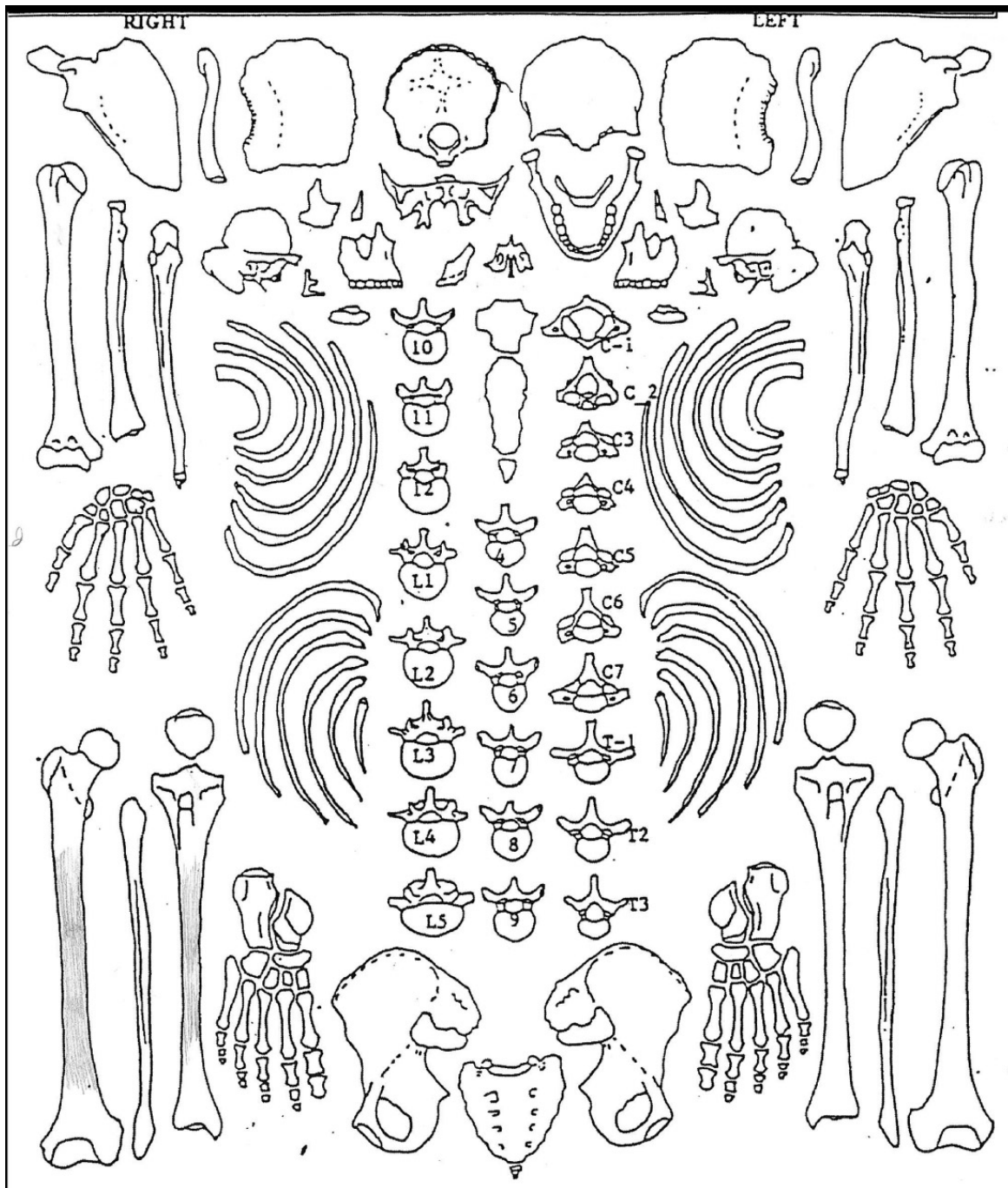


Figure 441. Site -26570, Burial 14, skeletal inventory form

Burial 15

Burial 15 is located in Tube 1A just before the chamber containing the most concentrated area of burials (see Figure 435). This burial is slightly different than most of the other burials, as it is located on top of a natural shelf about 100 cm off the tube floor. Various skeletal elements were present (Figure 442). The size of the shelf (less than 1.5m by 1 m) suggests that this was a flexed burial, but decomposition and the placement of several small and medium size cobbles along the shelf edge make it difficult to observe. Overall the placement of the burial is consistent with a pre-contact style of interment. Some sort of cloth is associated with the burial, but decomposition makes it impossible to determine whether this is a *kapa* cloth or a historic fabric/leather.

Burials 16 - 19

Burials 16 - 19 are informal coffin burials, in coffins constructed of corrugated (and galvanized) steel sheet and milled lumber, located in the most highly concentrated area of burials in Tube 1A (see Figure 435). The remains of nails can be seen around the coffin edges, and it appears the corrugated metal was originally a cover for constructed wooden coffins; as the wood eroded, the corrugated metal fell on top of the burials, obscuring most of the bones. Various skeletal elements were observed (Figure 443 & Figure 444). All the burials appear to be extended and generally follow a historic pattern/proto-historic pattern. There is a single placed rock on top of the corrugated metal on Burial 16, and some cloth or leather can be seen, but otherwise only small fragments are visible. Burial 17 appears to be an adult, extended burial with the head to the north, with some cloth visible as well as what appears to be a pillow under the head. Burial 18 also appears to have a pillow under the head, but only small bone fragments can be seen, and there is also a placed rock on top of the corrugated metal. Burial 19 also has associated cloth fragments as well as a pillow under the head. The pillow appears to be constructed of coconut fibers, but erosion makes this difficult to confirm.

Burials 20 and 21

Burials 20 and 21 consist of two extended skeletons in anatomical position on the cave floor, both outlined with eroded, rusty coffin nails in the main burial chamber of Tube 1A (see Figure 435). Burial 20 has an outline of where a pillow once rested, as well as several small placed rocks on the chest area. A portion of a coconut husk is next to the burial. There are also small portions of both of the anterior femurs missing, which does not appear to be natural (although the skeleton is eroding; Figure 445). This may suggest disturbance of the burial at some point or damage via the erosion of the coffin that has apparently completely disintegrated, leaving only nails. Burial 21 is similar to 20 but is an immature individual, probably around 10 years of age. Various skeletal elements were observed (Figure 446). Several buttons are associated with the burial, at least one of which is copper. There are several white buttons and a few with some color (orange and pink) that may be made of some sort of celluloid material. A small belt buckle and a large safety pin are also in the vicinity of the lower body, and the remains of a pillow is under the head.

Burials 22 and 23

Burials 22 and 23 are located towards the back of the main burial chamber and are associated with Features E6 and E7, respectively, as well as Feature E5 (see Figure 435). They both have burial areas constructed with stone. The burials are located against the southwest wall of the lava

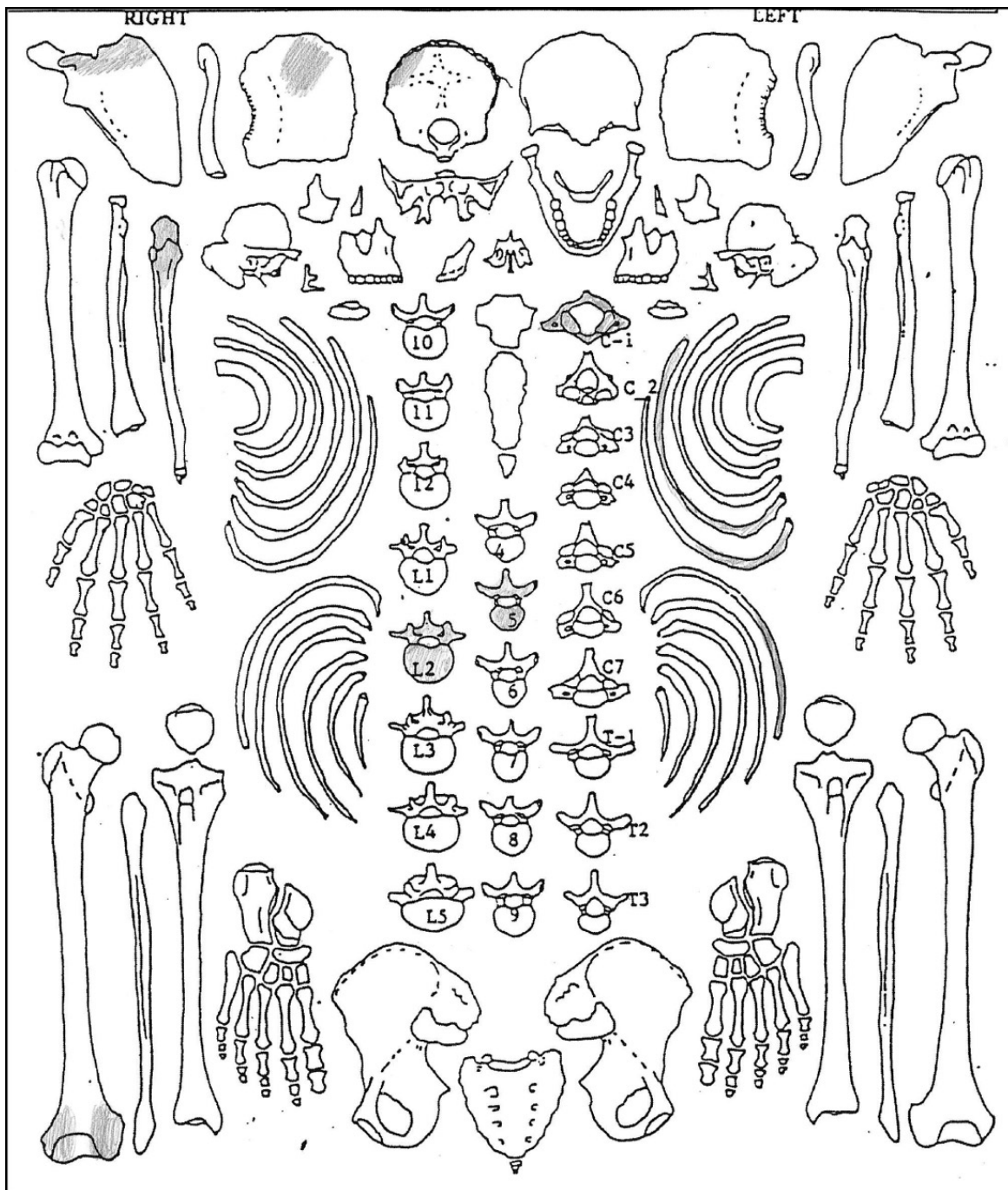


Figure 442. Site -26570, Burial 15, skeletal inventory form

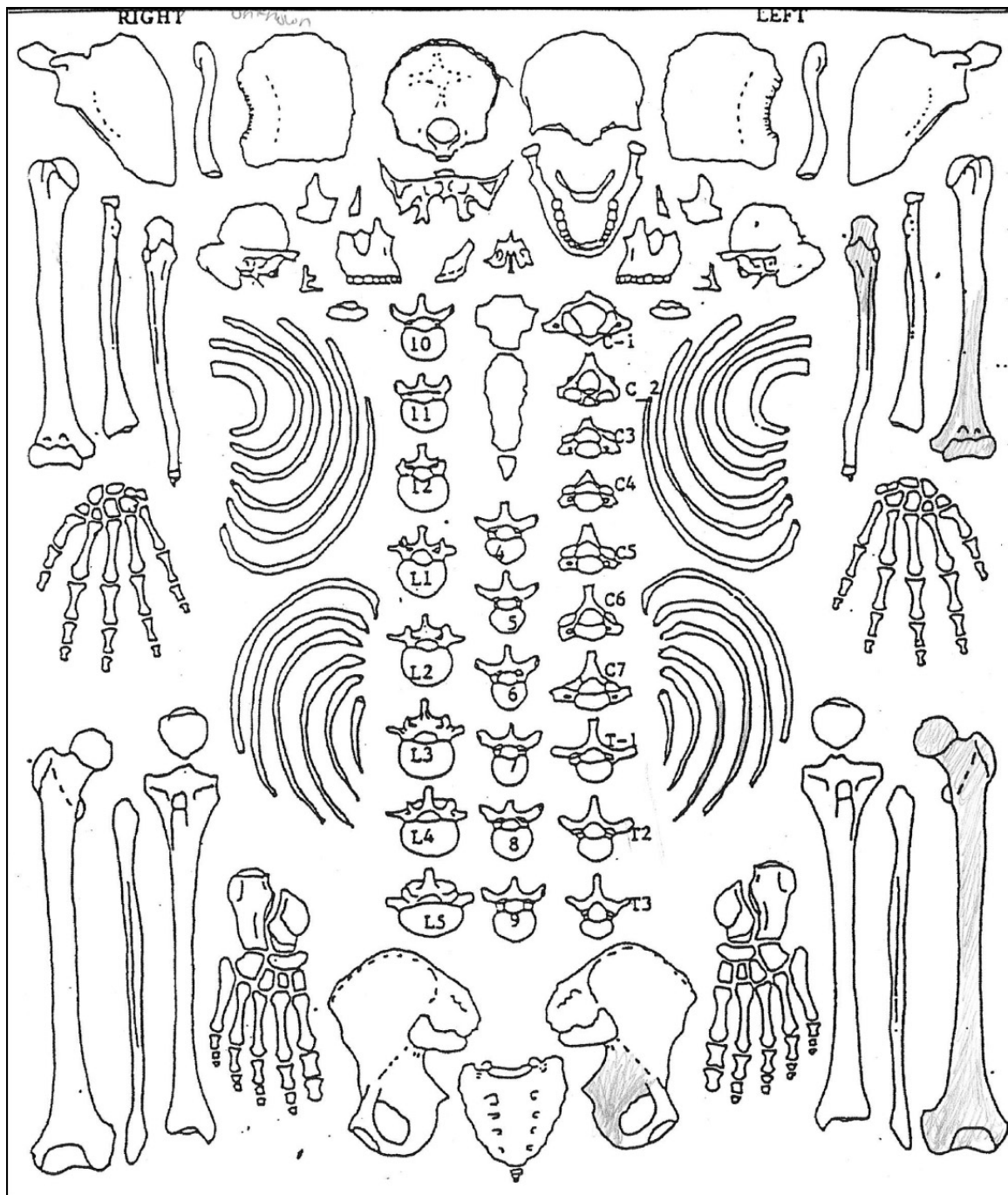


Figure 443. Site -26570, Burial 16 - 18, skeletal inventory form

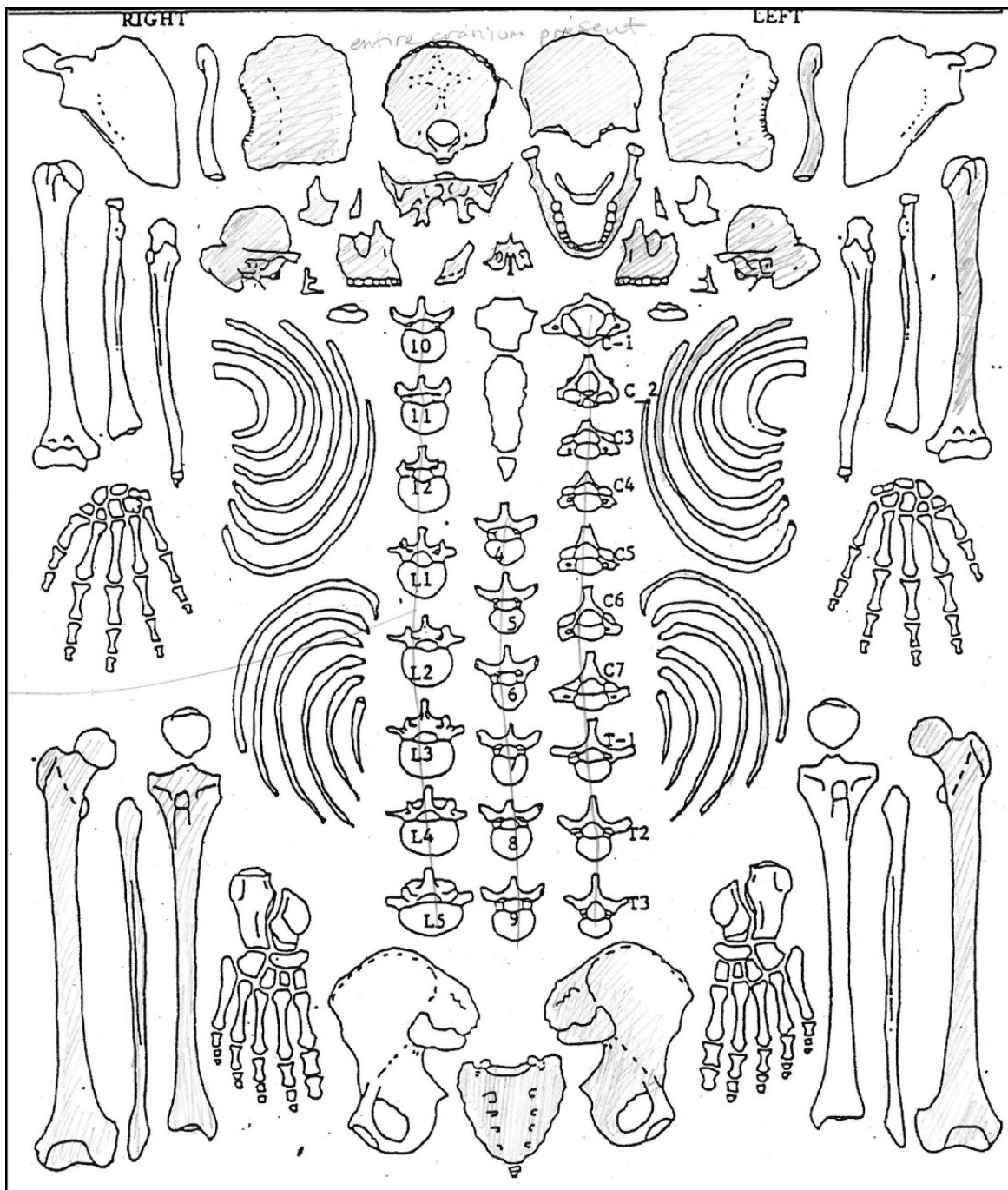


Figure 444. Site -26570, Burial 19, skeletal inventory form

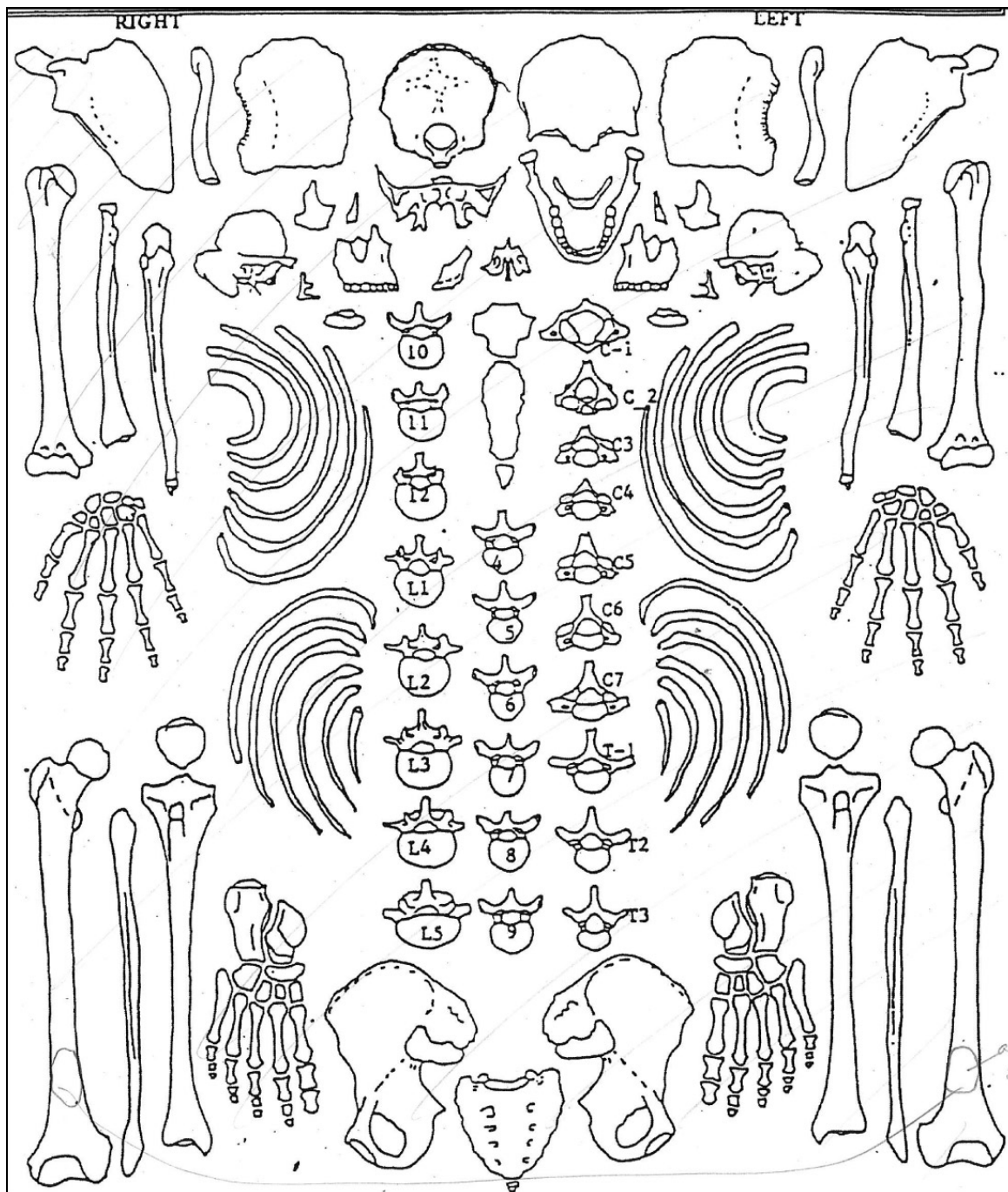


Figure 445. Site -26570, Burial 20, skeletal inventory form (most or all skeletal elements are present with the exception of distal anterior portions of both femurs)

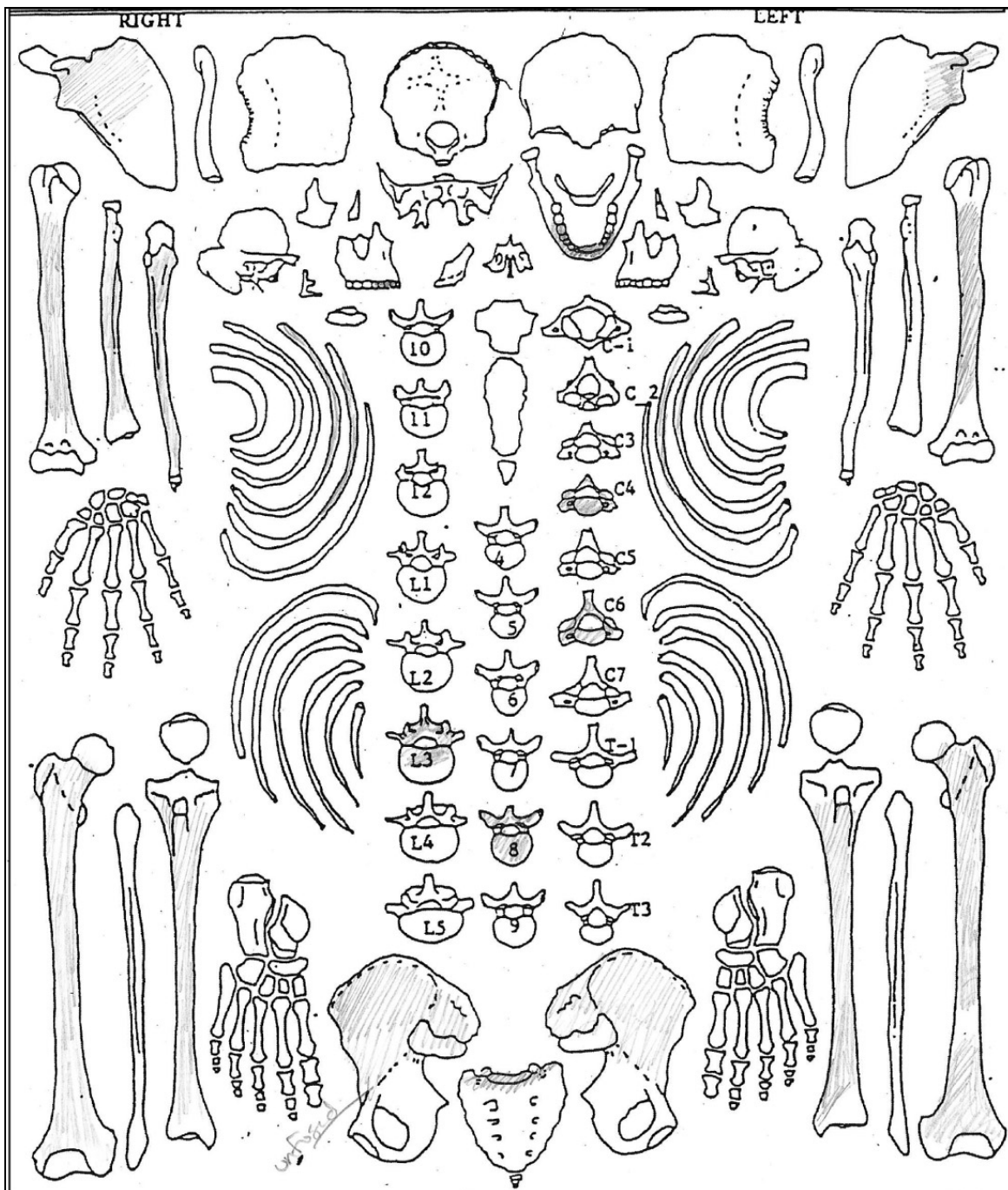


Figure 446. Site -26570, Burial 21, skeletal inventory form

tube on the bare, relatively smooth lava floor. The tube is 4 m wide and 1.1 m high in the vicinity. The ceiling of tube over the burials is 60 cm high. A large slab upright of roof fall defines the east side (toward the entrance) and 13 smaller boulders on the bare floor define a rough, open crypt.

The crypt measures 1.9 m long southwest/northeast, 1.0 m wide, and its height is 40 cm against the northeast wall of the lava tube. The crypt is constructed of slab boulders and cobbles on a relatively level surface. While the crypt is in good condition, the burials are in poor condition, and no associated burial goods were found. All long bones appear to be present, although very few vertebrae, ribs, or phalanges were found (no skeletal inventory was conducted).

Burials 22 and 23 are further into the tube than the clearly historic burials, hence they are possibly older. However, they could be contemporaneous and are beneath four sheets of galvanized steel corrugated roofing .

Burials 24 and 25

Burials 24 and 25 are located in Tube 1C, where it connects to Tube 1A at the main burial chamber (see Figure 435). Tube 1C is southeast of and 2 m higher than Tube 1A. Burial 24 is an adult that has heavily eroded redwood boards and coffin nail remnants around it, as does Burial 25, which is an immature individual around 7 years of age. A curious, white, shiny crystalization is evident on the base of some of the coffin boards. Most or all skeletal elements appeared to be present (no skeletal inventory was conducted).

Approximately 30 cm separates the two burials. Between these two burials there are two tin medallions and a buckle with brownish-red cloth nearby.

Burials 26 and 27

Burials 26 and 27 are partially commingled in a fairly small area (less than 1.5 m by 1 m for both burials) farther up Tube 1C (see Figure 435). Various skeletal elements were observed (Figure 447). They appear to be in a pre-contact style, possibly flexed or secondary burial based on the size of the area they are placed (bones are heavily eroded). No associated historic material was observed.

Burial 28

Burial 28 is further up Tube 1C and consists of scattered bones between Burials 27 and 13 (see Figure 435). Many bones are missing, and may possibly be comingled with Burial 12-13 (Figure 448). There are no associated historic and this appears to be a pre-contact burial style.

Burial 29 and 30

Burials 29 and 30 are located in Tube 3 and are associated with Features F and H respectively (see Figure 437). Various skeletal elements of Burial 29 are scattered over multiple levels of the tube and Burial 30 is partially covered with rocks so that not all elements present could be observed (Figure 449 & Figure 450). No historic grave goods were found and burial in blocked lava tubes is a well documented traditional Hawaiian practice and as such, this burial is believed to be native Hawaiian.

Testing Results

Test excavation was conducted to assist in determining the function of Feature I and to determine whether a burial is present (see Figure 434). Stratum I consisted of fairly tight boulders and cobbles, mounded into a slightly formal structure. Stratum II consisted of a loamy soil of eroding bedrock with some *kukui* fragments (Figure 451).

Excavation revealed that the small platform does not contain a burial or any indication of a burial. It is constructed of medium cobbles (10-30 cm) with some small and large cobbles that are nicely fitted together throughout the structure. The structure sits on eroding bedrock with some sedimentation/soil formation in Stratum II. A very small amount of midden, including many small fragments of *kukui* and one sea urchin mouthpiece, was present. However, excavation results and the size of the structure do not indicate habitation. Excavation findings also revealed that the structure is well constructed throughout, therefore, Feature I may be an shrine, and the most reasonable function is ceremonial in relation to the surrounding burial activities.

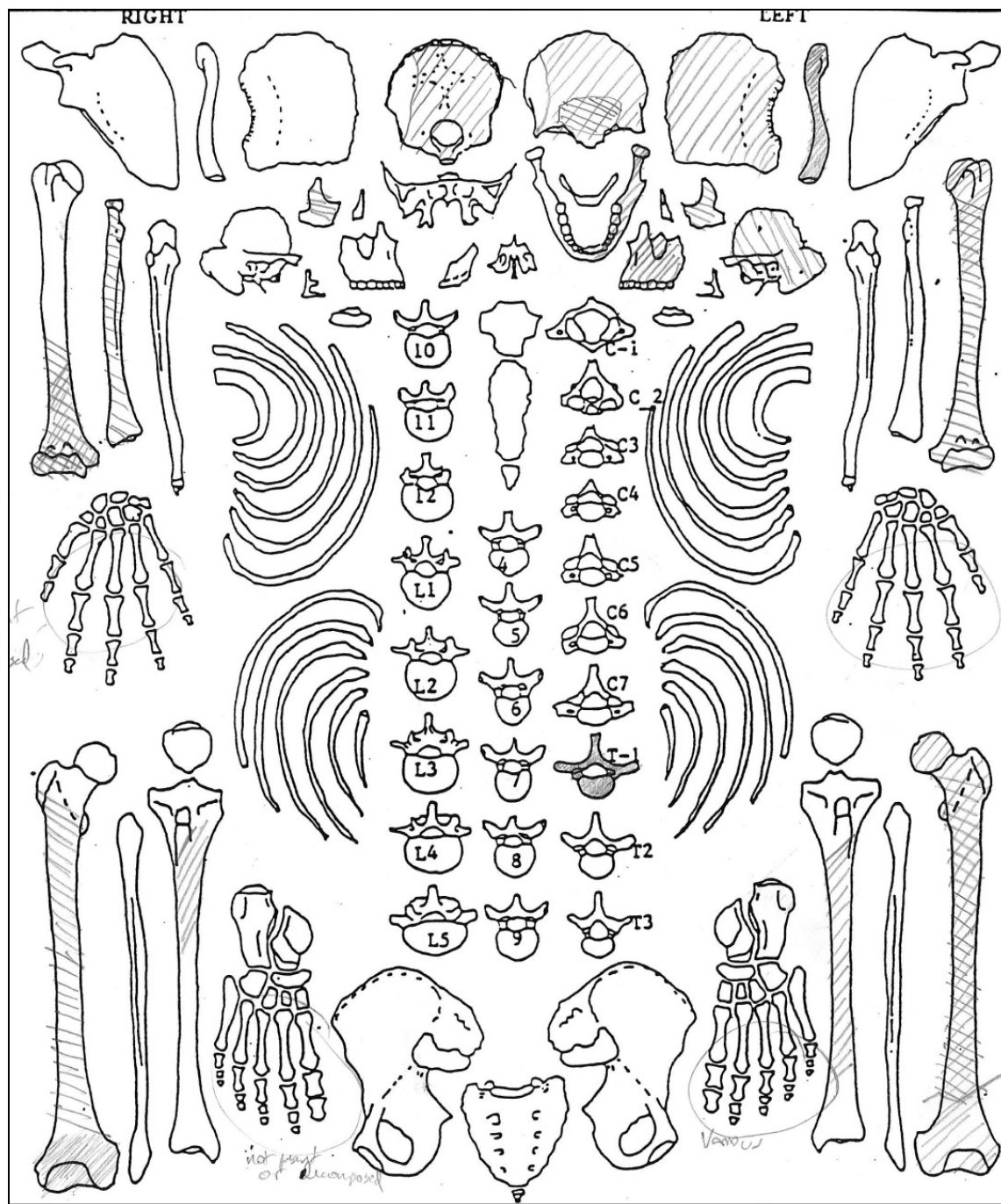


Figure 447. Site -26570, Burial 26 and 27, skeletal inventory form (the Minimum Number of Individuals is two; one set is hatched in one direction and the other hatched in the other direction and common elements are cross-hatched)

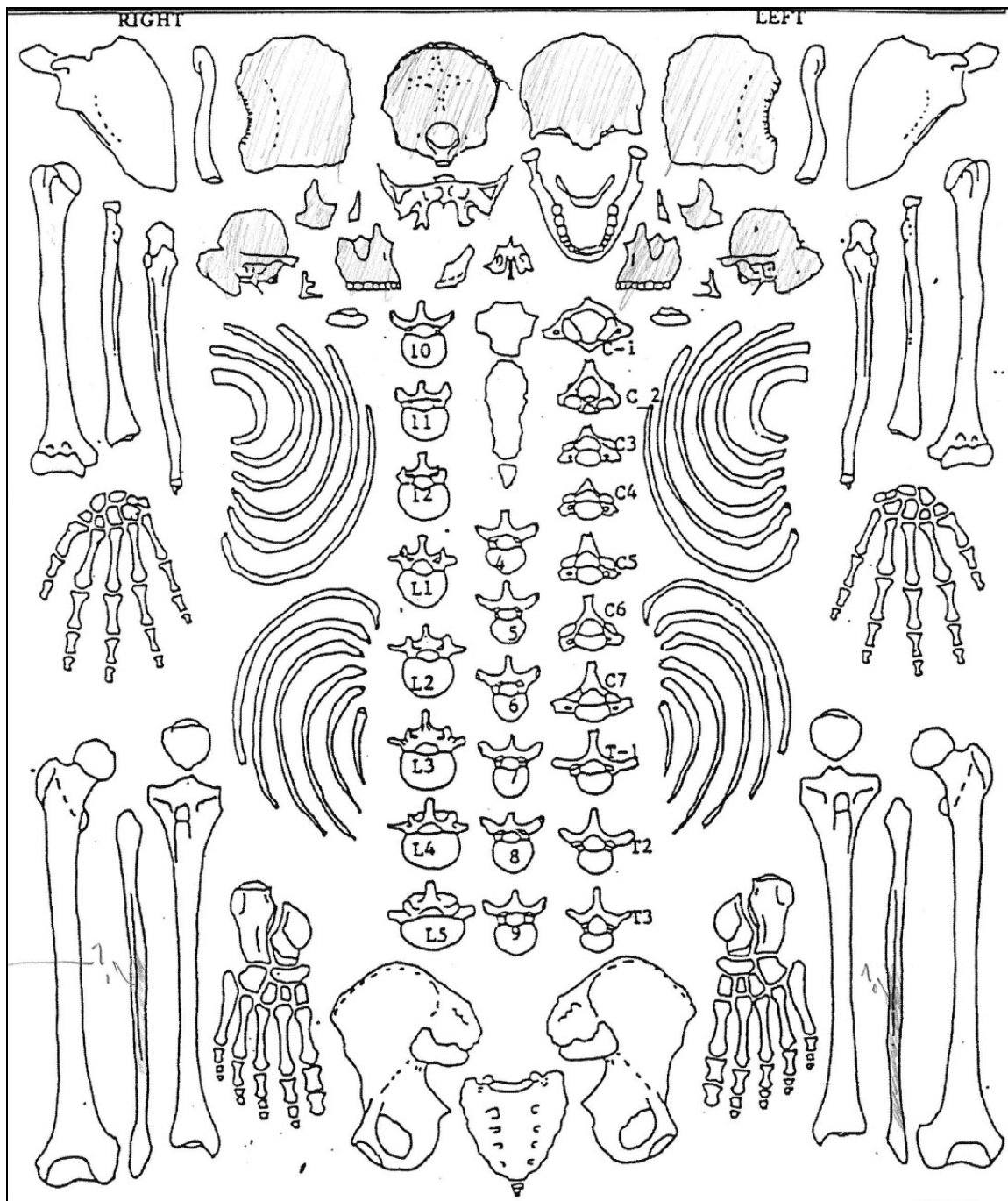


Figure 448. Site -26570, Burial 28, skeletal inventory form

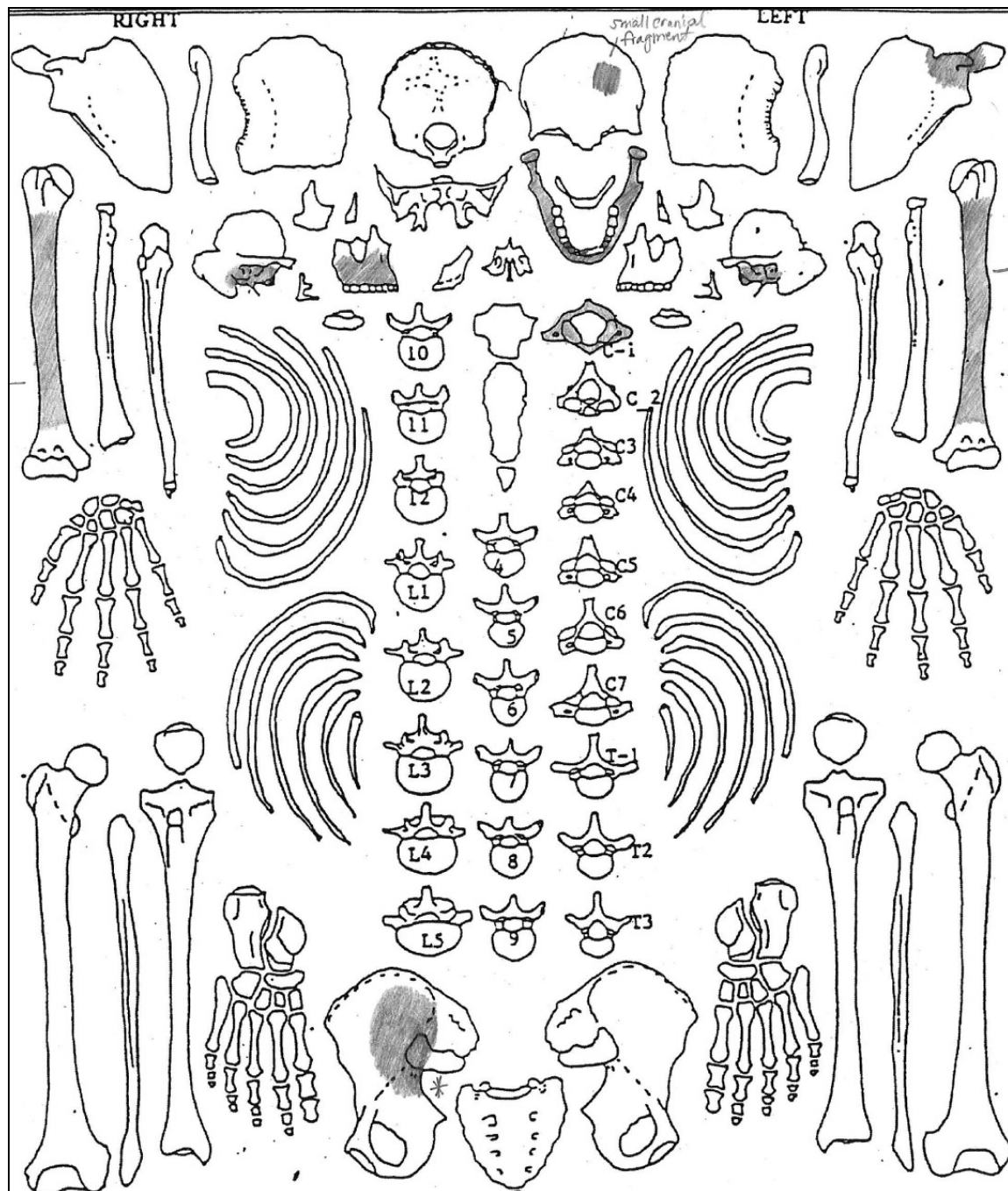


Figure 449. Site -26570, Burial 29, skeletal inventory form

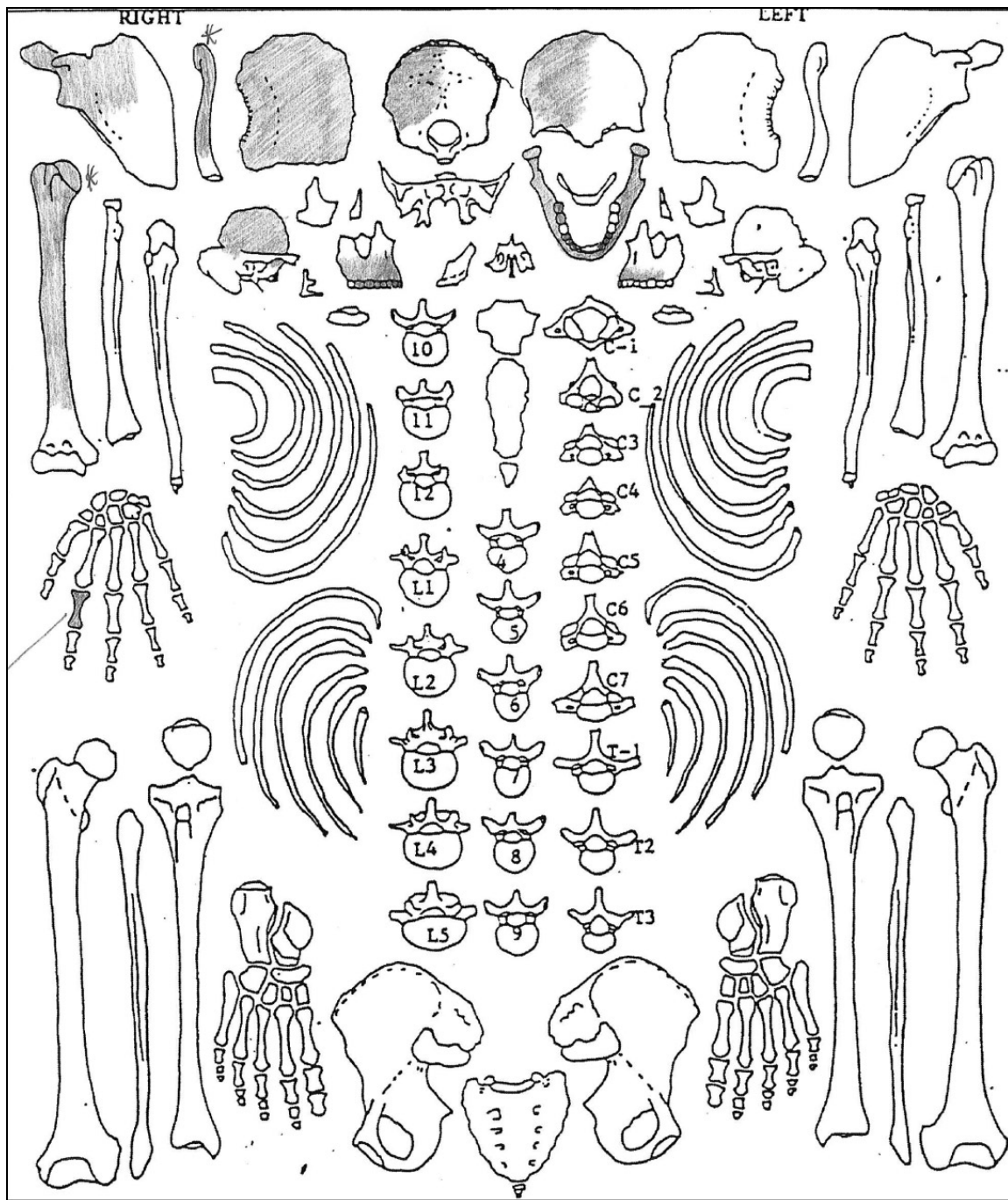


Figure 450. Site -26570, Burial 30, skeletal inventory form

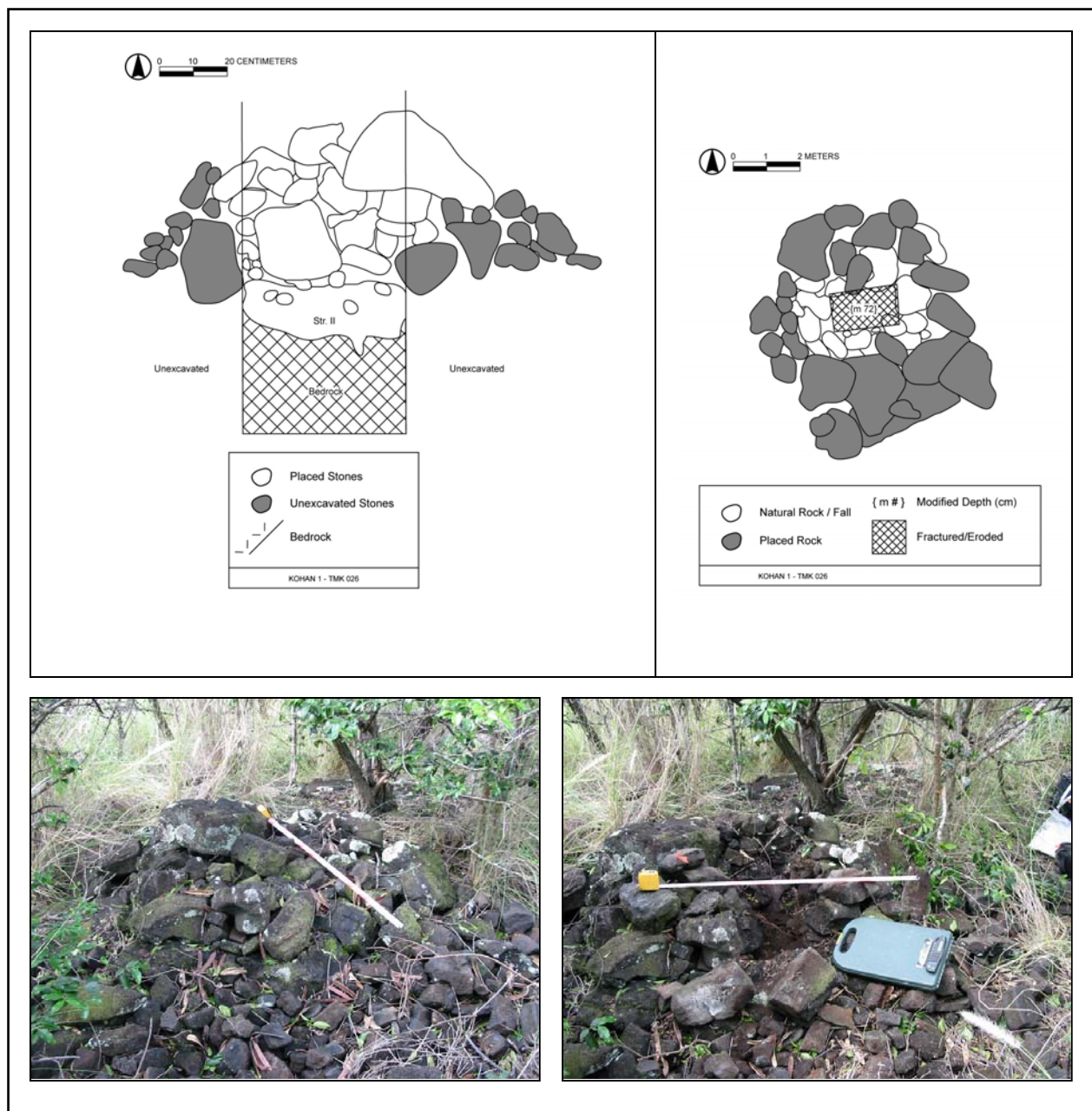


Figure 451. Site -26570 Feature I, excavation figures. Left to right, top to bottom: south wall profile; platform and excavation unit plan view; platform pre-excitation; platform post-excitation

2.1.90 State Site # 50-10-28-26571

SIHP # 50-10-28-26571
FUNCTION: Marker
SITE TYPE: Cairn
TOTAL FEATURES: 1
DIMENSIONS: 0.90 m by 0.70 m
CONDITION: Good
AGE: Pre-contact
ELEVATION: 720 ft a.m.s.l.

DESCRIPTION: Site -26571 is a cairn in the northeast quadrant of the project area. This area has Christmas berry trees, tall grass, and sparse *koa haole*, and intensive agricultural activity in the area that includes agricultural mounds, excavated blisters, etc. (see Site -26507 Feature C). A large habitation site, -26574, is located 60 meters southeast of this site. The area surrounding the cairn is fairly level but slopes downward to the southwest.

The cairn is constructed of *pāhoehoe* cobbles 30-55 cm in diameter that are stacked 1.2 m high (five to six courses tall) (Figure 452 & Figure 453). The cairn measures 90 cm by 70 cm with the larger side running east/west. It is located at the end of a naturally eroding *pāhoehoe* bedrock exposure that runs down hill (east/west).

The site's function is interpreted as a marker, as it is very noticeable due to its height. In comparison to the nearby agricultural mounds, it is very tall and is well constructed. It may have functioned to mark a trail (see also Site -26561 and -26541 cairns, which are in line with this cairn), but no sign of a trail over the *pāhoehoe* was found. Excavation potential for the site is minimal due to the lack of soil or midden.

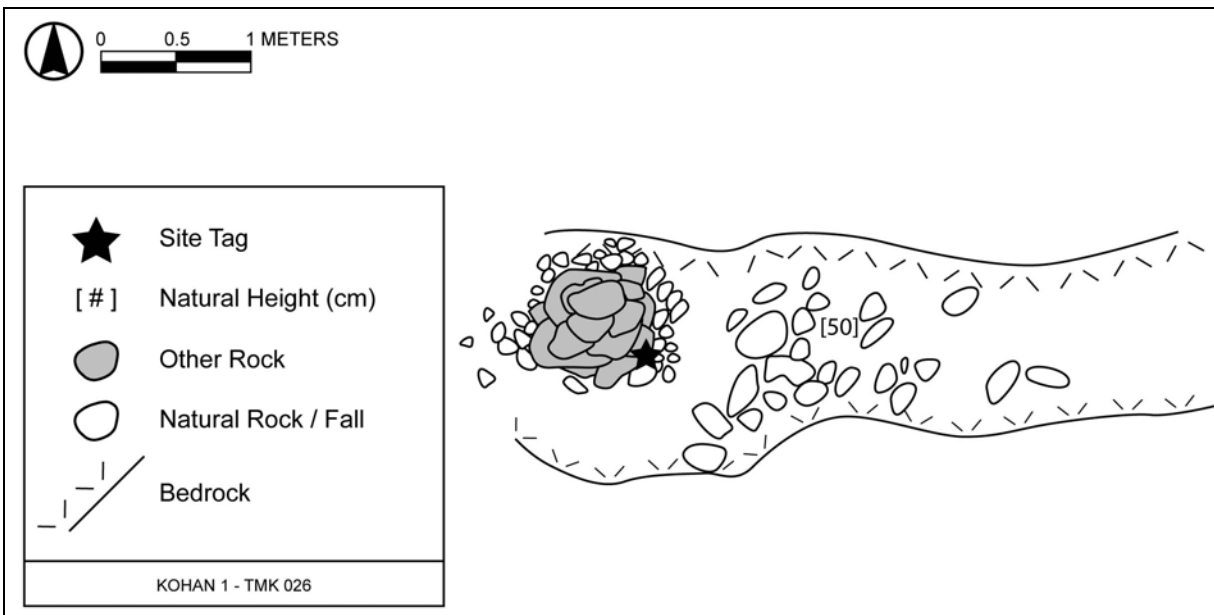


Figure 452. Site -26571, cairn, plan view



Figure 453. Site -26571, showing the cairn, view to north

2.1.91 State Site # 50-10-28-26572

SIHP #	50-10-28-26572
FUNCTION:	Agricultural
SITE TYPE:	Complex
TOTAL FEATURES:	3
DIMENSIONS:	4.3 m by 3.2 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	735 ft a.m.s.l.

DESCRIPTION: Site -26572 is a complex containing three features and surrounding agricultural modification in the *mauka* portion of the project area, approximately 8 m northeast of Site -26570 (Figure 454). The site is within an undulating *pāhoehoe* flow that very gently slopes to the southwest. Vegetation consists of overhead Christmas berry and thick grass.

Feature A is a J-shaped enclosure that opens to the east and measures 4.3 m by 3.2 m (Figure 454 & Figure 455). The enclosure's center is leveled to create a circular level area at the base of the "J". Construction consists of roughly piled 90 cm wide angular basalt boulders (small to medium) that are typically 30 to 60 cm high. The southwest corner has two uprights just before the bend that are 90 by 90 cm angular slabs and 25 cm thick. The structure's floor consists primarily of soil, with bedrock exposure to the east, and rises to the east (*mauka*). A small boulder in the northwest interior corner creates a defacto cupboard that may have been intentionally constructed. The function of Feature A is ceremonial as an agricultural shrine. The uprights and more formal stacking of Feature A suggest it is not solely agricultural function and may have functioned ceremonially.

Feature B is a slightly curved terrace that extends approximately 7.5 m, and is 2 m northwest from the outside of the J-shape enclosure, Feature A (Figure 454). It is 1.2 m wide, 50 cm high, and is constructed with roughly piled angular cobbles and boulders. The ground is rocky between Feature A and this terrace. Feature B roughly parallels Feature A, and possible agricultural planters are in the area to the north and northwest of Feature A. The function of Feature B is agriculture based on construction type and the feature is location within an area of agricultural modifications.

Feature C is a modified bedrock alignment and loosely stacked wall constructed of angular small to medium boulders, creating an approximately 12 m long terrace (Figure 454). It appears collapsed in the center, is roughly linear, and has a maximum height of 70 cm. Prior to collapsing, at least half a dozen larger boulders formed or appear to have formed a somewhat regular foundation for the constructed wall segments. Portions of the wall segment are bedrock. A site tag from ACP 2003 archaeological assessment was located on the east end of this feature. The function of Feature C is agriculture based on construction type and the fact that the feature is within an area that appears to be an isolated agricultural system.

The site's function is interpreted as agricultural with some ceremonial function. The site should be considered to be associated with the nearby -26570. Features B and C are agricultural, possibly *kuaīwi* (long, straight agricultural wall). These two features are consistent with the extensive amount of agricultural activity in this area (Figure 454).

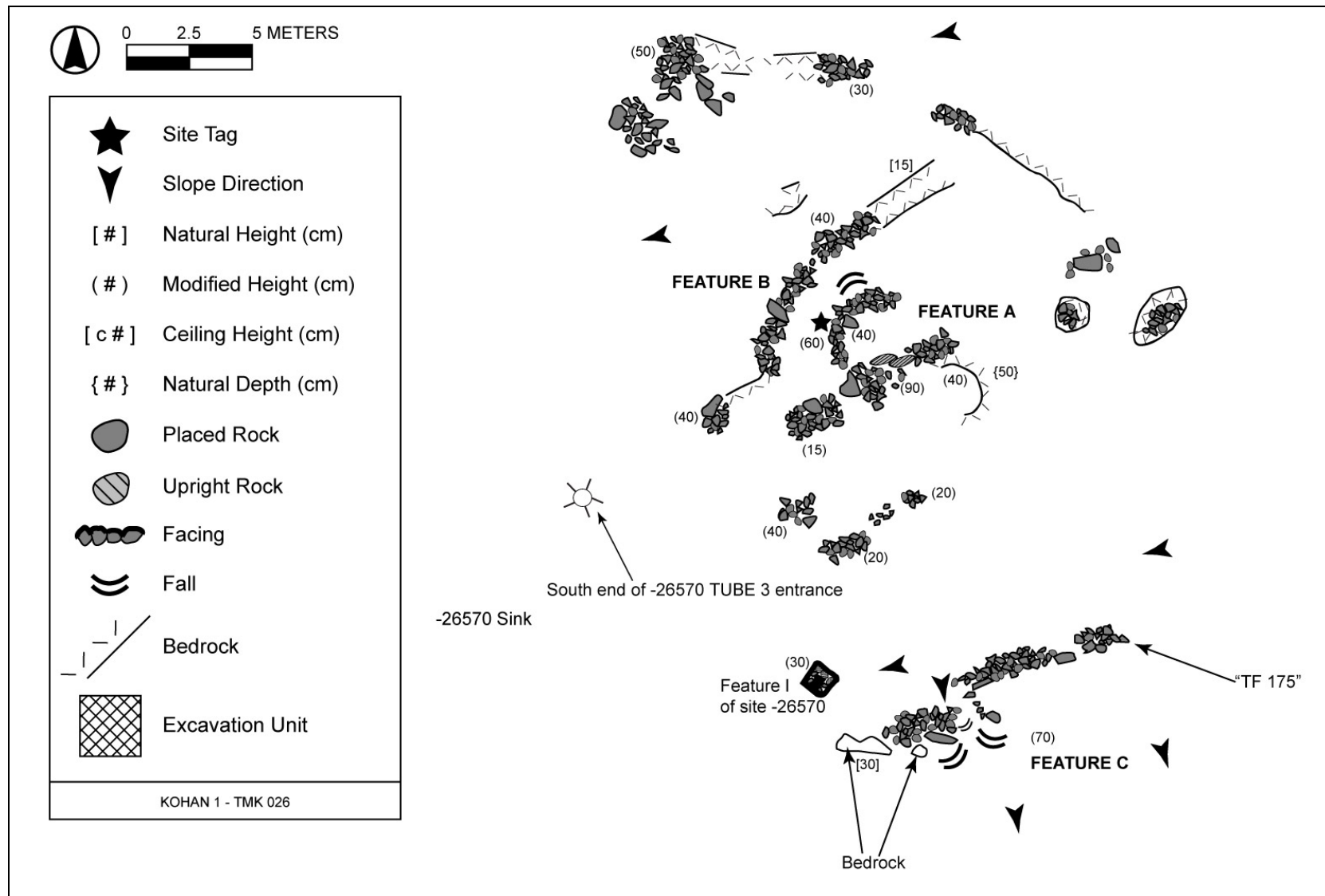


Figure 454. Site -26572, agricultural complex, plan view



Figure 455. Site -26572, Feature A (J-shape enclosure), scale is next to large uprights, with bottom portion (short end) of “J” in foreground

2.1.92 State Site # 50-10-28-26573

SIHP #	50-10-28-26573
FUNCTION:	Temporary Habitation
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	5 m by 3 m (16.4 ft. by 9.8 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	700 ft a.m.s.l.

DESCRIPTION: Site -26573 is a lava tube with one entrance, one main chamber, and one side tube leading west. The lava tube is located in an area with thick *koa haole*, air plants, and grasses, in the southeast portion of the project area about 25 m south of the *ahupua'a* wall (near Site -10714 Section B). This area gently slopes to the south and west but is fairly level; bulldozer activity in the area is extensive.

The site's main chamber is extensively modified, and contains several artifacts and midden (Figure 456). The entrance is approximately 1 m north/south by 0.8 m east/west and has a pile of partially modified roof fall that forms a ramp to the floor of the chamber. This partially modified ramp is partially collapsed, and no formal modification can be seen. The main chamber floor has a small cobble paving where the skeletal remains of a cow were found. On the north end of the chamber, the tube extends back 2 m, becomes shallow very quickly (the ceiling is approximately 25 cm) and ends.

The north area of the tube is blocked by a small constructed platform. The platform is approximately two to three courses high, and measures approximately 50 cm tall, 100 cm wide, and the ceiling height above the platform is only approximately 25 cm high. The platform extends back to the north/northwest approximately 2 m, and does not have formal facing. It consists of medium to large (20-40 cm) stacked cobbles. On the south/southwest end of the main chamber is a larger constructed platform that has formal facing along its front (south) edge. The platform is also built from medium to large cobbles and small boulders, is approximately three to four courses high, and measures approximately 80 cm tall, 1.5 m wide, and the ceiling height above the platform is approximately 50 cm high. The platform extends back (southwest) about 1.0 m, and a small wall is built along the top of the platform that runs approximately northwest/southeast, and blocks a side tube that leads west. The wall is stacked one to two courses high and is informally built with medium cobbles; the space between the top of the wall and the ceiling is approximately 25 cm. This western tube was accessed over the wall and surveyed; the tube curves around to the northeast and travels approximately 10 m before ending at a collapsed opening. The tube may have originally continued further, but the collapse currently completely blocks the tube. This collapsed opening may have been caused by bulldozer activity since a bulldozer road is located directly above; it is therefore possible that this tube was accessible during the pre-contact period but is now inaccessible. This tube is approximately 1 m wide with a ceiling height of 40-60 centimeters. Only *kukui* was found in this side tube. In the main chamber, at the base of south/southwest constructed platform, the chamber extends to the south, although the ceiling is approximately 25-30 cm high. The platform and the small cobble fill completely blocks any possible entrance into this area, which becomes smaller and ends.

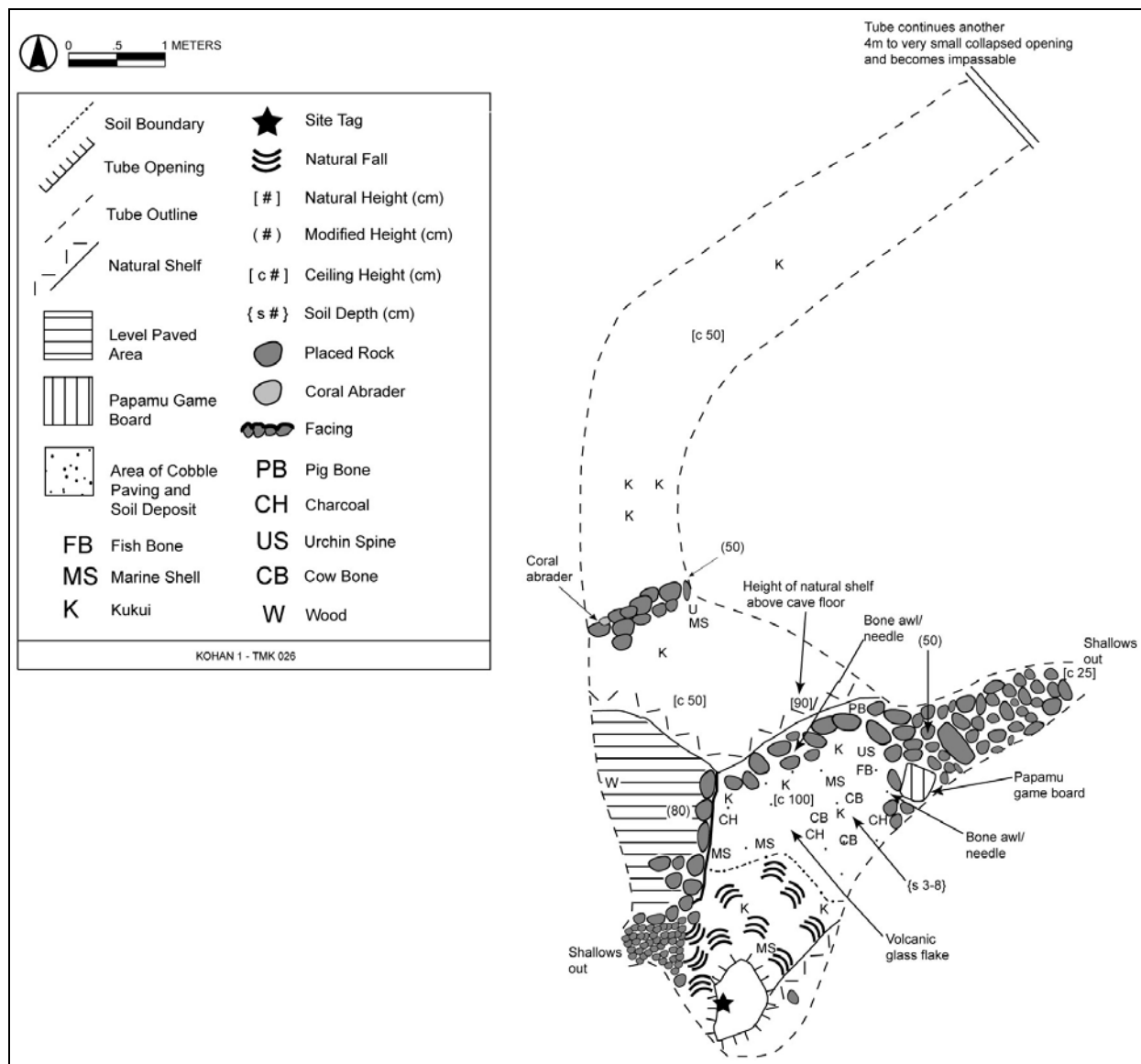


Figure 456. Site -26573, interior plan view of tube

Boulders and cobbles have also been moved out of the way, and placed along the chamber's northwest wall in order to clear the floor.

In the main chamber, a *papamū* (game board) was found resting at an angle on the north platform (Figure 457). Two awls (modified bone, pointed at one end) were found in the main cavern. One awl appears to be dog or pig long bone (Figure 458) and the other is a bird humerus with the proximal end modified (the species is dark-rumped petrel or wedge-tail shearwater). The bird bone awl/needle also has a hole drilled into the distal articular end. A piece of volcanic glass, a large amount of *kukui*, marine shell (pearl shell, *Nerita*, cowry, and 'opihi), and sea urchin were found on the floor of the main chamber. Beneath the placed rocks on the northwest end of the chamber is a pig humerus fragment. More *kukui*, sea urchin, and pearl shell are on the south/southwest platform near the wall or on top of it. Behind the west end of the wall there is a coral abrader, and two long pieces of approximately 5 cm diameter wood are along the south side of the platform. Small amounts of charcoal are spread all over the cave, and the soil depth is 3-8 cm in the main chamber. This cave has good excavation potential based on the presence of the artifacts and midden, and soil.

The site's function is interpreted as temporary habitation. The construction, artifacts and midden deposit suggest more frequent habitation than a single-use shelter. The *ahupua'a* wall proximity and the *mauka/makai* trail (Site -10714) also suggest frequent use of this area, although the cave is not large enough for permanent habitation. The southwest platform may have been a sleeping area, since the platform surface is leveled and the ceiling height is approximately 50 cm above the platform. The wall at the back of this platform may have been constructed to block access to the tube, to create a delineated space on top of platform, or to partially seal the side tube for moisture collection. No water collection features were found in the side tube although the ground surface is uneven enough that gourds could be placed and stand without additional support. Inspection of the construction within the tube suggests that there is very little possibility of burial within the construction, and all modification appears related to habitation.



Figure 457. Site -26573, view of the main chamber and *papamū* board



Figure 458. Site -26573, detail of *papamū* board (left) and one of the bone awls (right) found in main lava tube chamber

2.1.93 State Site # 50-10-28-26574

SIHP #	50-10-28-26574
FUNCTION:	Complex
SITE TYPE:	Permanent Habitation and Ceremonial
TOTAL FEATURES:	7
DIMENSIONS:	84 m by 98 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	720 ft a.m.s.l.

DESCRIPTION: Site -26574 is a habitation site complex centered on an elevated 'a'ā exposure in the eastern portion of the project area (Figure 459). The 'a'ā is elevated on average 1-2 m above the surrounding *pāhoehoe* landscape, which slopes gently to the southwest, while the 'a'ā is generally level. The surrounding area has tall grass and *koa haole*, and many Christmas berry trees and areas of thick tall grass on the 'a'ā. Several large lava tubes are within approximately 50 m of the 'a'ā, including -26575 and -26576. Extensive agricultural activity is in the immediate vicinity, including -26507 Feature C off the west and north portion of the 'a'ā, and -6601 off the south portion of the 'a'ā. This site may also be related to Site -26583, which is a nearby large habitation complex that also has a probable ceremonial function.

Site -26574 has seven features. Feature A is a large platform with a hearth at its center and scattered branch coral, with three enclosures off of its southwest side. The platform is notable for its well constructed hearth, slab paving, and the presence of a several branch coral. The attached enclosures are large and have some facing. Feature B and Feature E are *pāhoehoe* slab trails that run over the 'a'ā exposure from various features of the site. These trails are very formal in some areas (like the middle of Feature B) and in good condition; the presence of several *pāhoehoe* trails on the 'a'ā suggests extensive use of this area. Features C, D, and G are small platforms that have facing on at least one side, but not more than two sides. None of the platforms have a very flat top and all are fairly small and informal; excavations (see testing results below) rule out the hypothesis that these are burial mounds. Feature F is a small tube with a small amount of midden and nearby agricultural mounds, located just off the south side of the 'a'ā flow. The two *pāhoehoe* trails lead directly toward Feature F and Site -26583. A site tag from a previous survey was found on the Feature B *pāhoehoe* slab trail. It reads "TF-197 19-2-03 ACP". Cobb et al. (2003:n.p.) identified the feature as a "trail containing *pāhoehoe* stepping stones across 'a'ā flow, running east/west". Site -26560, a *pāhoehoe* slab trail, is approximately 110 west of Feature B. This *pāhoehoe* trail was probably related to Feature B, however, vegetation has obscured any direct connection between the two. Site -26584 is also a *pāhoehoe* trail on the same 'a'ā exposure and should be considered related to Feature B and Feature E of this site (-26574).

Feature A is an approximately 35 m by 15 m habitation feature built on 'a'ā made up of three subfeatures: A1 is a high 'a'ā rise modified into a platform; A2, is a series of low walls that form a rough, raised enclosure; and A3 is an enclosure similar to A2 (Figure 459 to Figure 461).

Feature A1 appears to be the locus of habitation activity. It is located on a natural 'a'ā rise, approximately 2 m above the surrounding terrain. The rise has been leveled with the construction of faced retaining walls, the most formal of which is to the west, and a paved surface. The pavement consists of 'a'ā cobbles and rubble except along the west edge of the platform where a

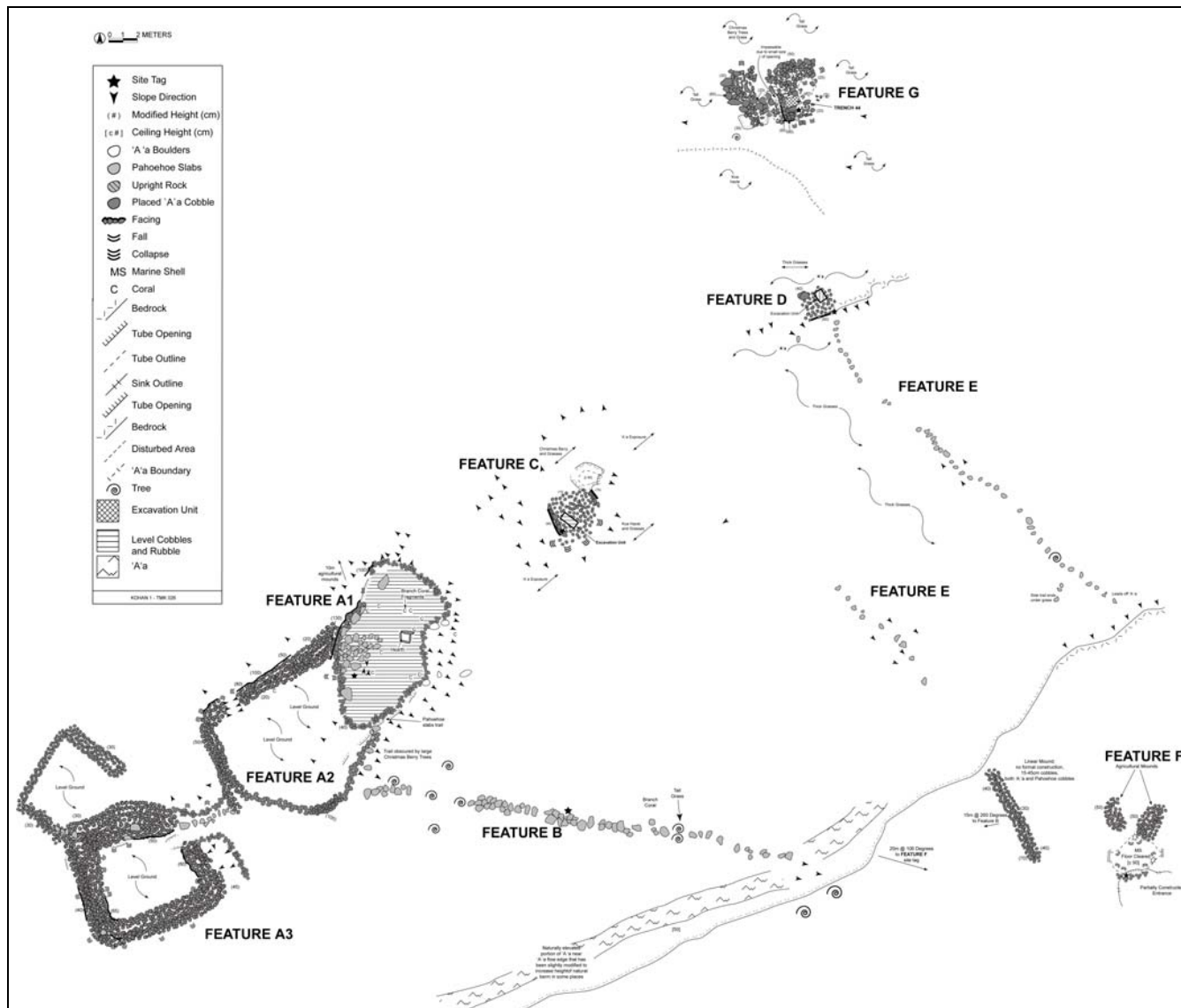


Figure 459. Site -26574, plan view showing relative locations of Feature A through Feature G

Archaeological Inventory Survey of a 194.324-Acre Parcel within Kohanaiki and Kaloko Ahupua'a



Figure 460. Site -26574, Features A1, A2, and A3 detail plan view



Figure 461. Site -26574 Feature A1, showing the faced western wall of the platform; notice the *pāhoehoe* slabs visible on the surface of the platform; view to northeast

very dense pavement of *pāhoehoe* slabs creates an ideal living surface on the platform edge. The living surface is strewn with branch coral fragments that are faded gray in color, a color not dissimilar from the 'a'ā itself. Some of these fragments are embedded in the pavement. At onetime, these fragments probably represented a single large coral head or several smaller ones. Also prominent in the pavement is a square hearth measuring 60 cm per side constructed of upright slabs. The present depth is approximately 15 cm. From the east side of the platform, a rough 'a'ā ridge runs east to Feature C.

Feature A2 is a long, curving terrace that follows natural bedrock contour just west of A1 and small discontinuous terraces that form an enclosure to the southwest of A1. The main terrace that abuts the west edge of A1 is constructed of small boulders and cobbles and is 2 m wide at its largest (near A1), narrowing to 1 m. A low area in the faced wall near the southwest corner of the resulting enclosure may have served as an entryway. The center of A2 is level ground with a substantial soil deposit supporting dense, tall *koa haole*. Thick grasses obscures the view of the ground, but it does not appear to have other modification.

Feature A3 is a similar but somewhat more well-defined enclosure with a continuous wall well faced in some areas but also largely collapsed. Feature A3 also has a small, low formal enclosure off the west corner of the main enclosure. The main enclosure walls are generally

between 1-1.5 m thick, 50 cm high, and are constructed of small boulders and cobbles. Stacked slabs are prevalent in the areas that remain intact. The center of this enclosure is also level soil, and it is located just off the edge of the 'a 'ā.

All three of the features (A1-A3) are constructed of 'a 'ā cobbles, boulders, *pāhoehoe* slabs. A2 is composed of *pāhoehoe* and 'a 'ā cobbles and boulders. A3 has *pāhoehoe* slabs, cobbles, and boulders. The function of Feature A is permanent habitation based on the use of slab pavements and the presence of the hearth, as well as adjacent living areas (attached enclosures).

Feature B is a 35 m long *pāhoehoe* slab trail on a large 'a 'ā exposure on the eastern side of the project area (see Figure 459 and Figure 462). Feature B begins at Feature A and heads at approximately 100 degrees across the 'a 'ā bedrock exposure. Christmas berry trees growing on the 'a 'ā partially obscure the trail but the trail is intact and can be followed until it runs off of the 'a 'ā heading towards Feature F, which is located approximately 20 m off the 'a 'ā from the trail. The trail primarily runs over level areas of 'a 'ā except where it intersects Feature A. There, the trail runs along the northeast end of the Feature A platform and onto its constructed edge, which slopes upward to meet the flat top of the platform. This portion of the platform is partially collapsed as is the trail that ran along it. Most of the trail is intact and *pāhoehoe* slabs range from approximately 25 cm to 55 cm in diameter and are generally flush with the 'a 'ā surface, and are somewhat set into the 'a 'ā for stability. In general, the *pāhoehoe* slabs are no more than 1 m apart and are often adjacent to each other. A piece of branch coral similar to that found on Feature A was found along the trail. Northeast of the main trail there are a few more *pāhoehoe* slabs running approximately north/south down a steep portion of the 'a 'ā. These slabs lead towards Feature F to the south and onto a grass-covered area to the north, and lead in the general direction of Feature D. Also near the *pāhoehoe* trail at the edge of the 'a 'ā is a natural berm running approximately northeast/southwest (see Figure 459). The berm is elevated approximately 50 cm above the 'a 'ā and its interior measures about 30 cm. In several places 'a 'ā cobbles have been added to the berm to increase the size of the natural wall.

The function of Feature B is transportation over the rough 'a 'ā via *pāhoehoe* slabs. It appears to lead directly from Feature A to Feature F, and therefore may have been used just for movement between a house (platform) and the lava tube (Feature F) and agricultural features near Feature F. No other function for Feature B is indicated.

Feature C is a small 3.5 m by 2.4 m platform built on the south side of a raised 'a 'ā ridge (see Figure 459, Figure 463 & Figure 464). This ridge continues to the southwest, and is approximately 15 m to Feature A. Immediately east of the platform is a small blister that lacks any cultural material. The platform is constructed of 'a 'ā small boulders and large cobbles stacked atop the 'a 'ā. The west side of the platform is the only side that remains, and is well faced. The south and east walls have largely collapsed. Because the platform is built on the slope, it does not appear to have had a north wall.

The platform is relatively small for habitation. Intermixed with the 'a 'ā are a few similarly sized *pāhoehoe* boulders and slabs. The platform was tested for burial function (see below) based on its small size, lack of pavement, and proximity to Feature A. Test results indicate that this is a component of the habitation complex and its function is habitation.

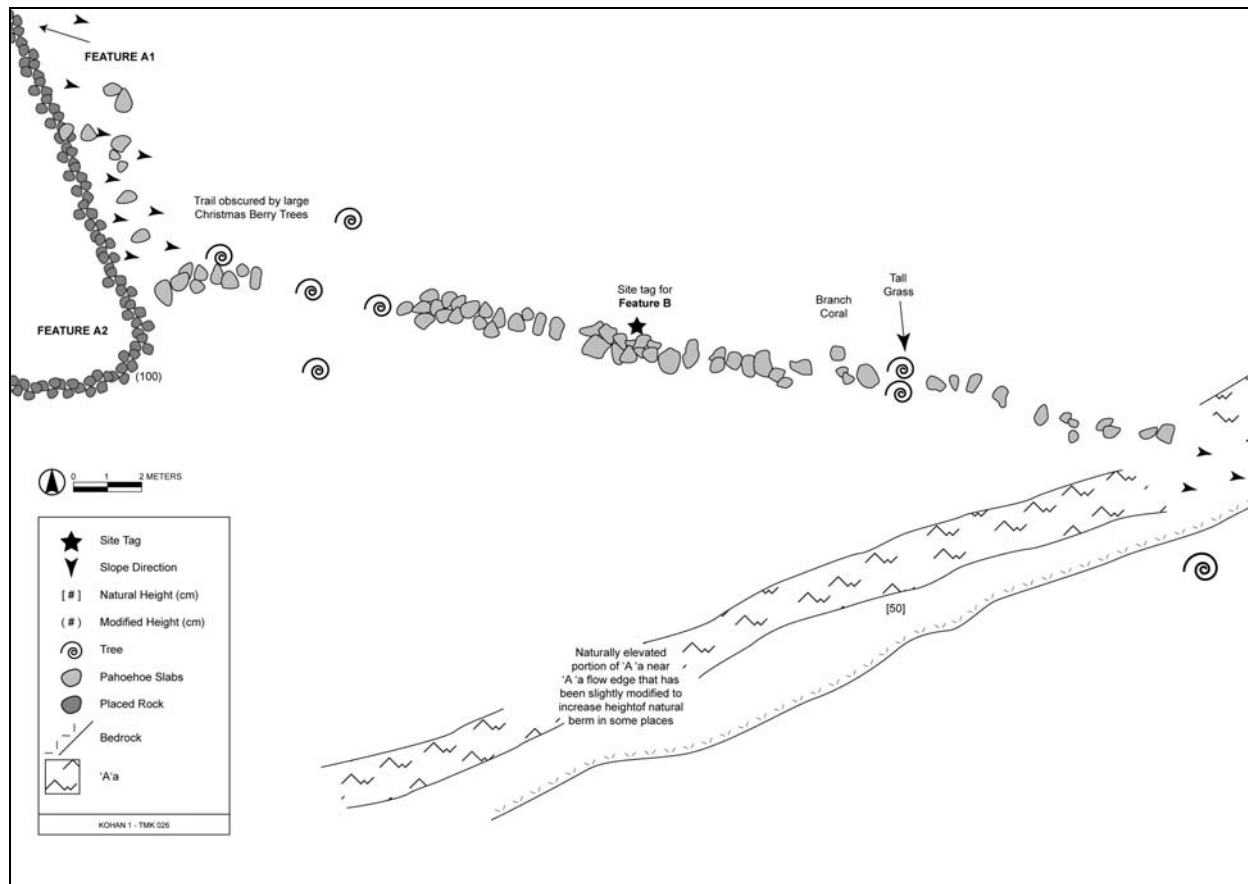


Figure 462. Site -26574, Feature B detail plan view

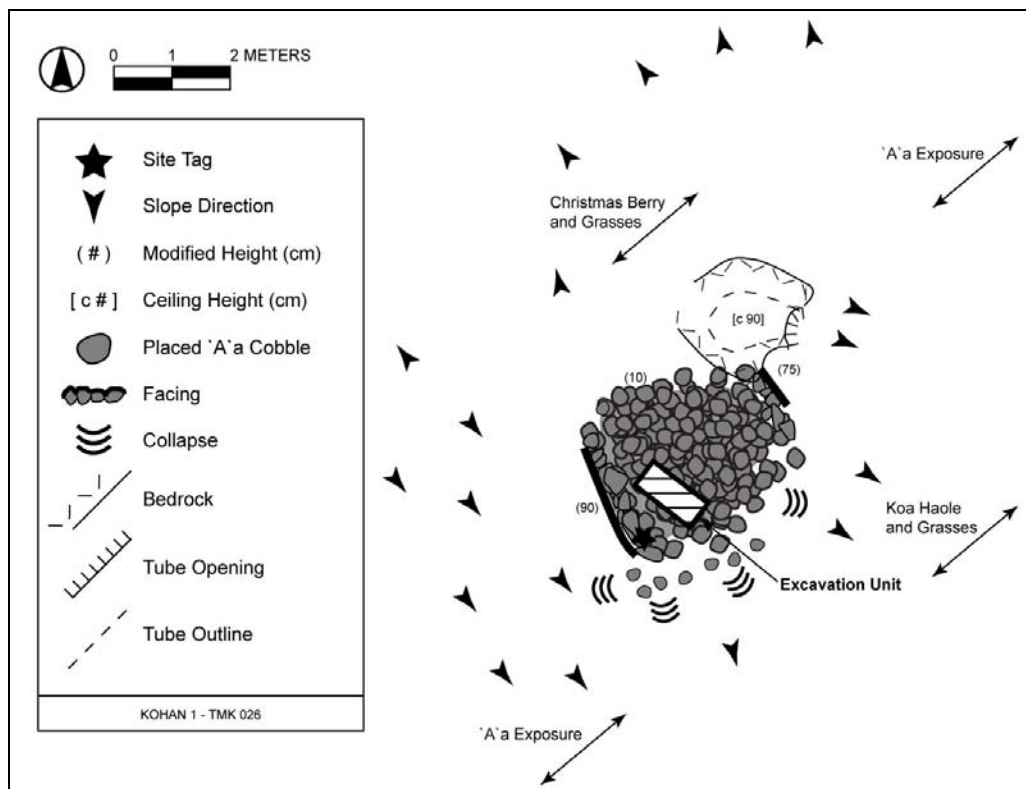


Figure 463. Site -26574, Feature C detail plan view



Figure 464. Site -26574 Feature C, showing the platform, view to northeast

Feature D consists of a small platform built on a naturally elevated area of the 'a'ā bedrock exposure (see Figure 459 & Figure 465). It is built from cobbles 15-45 cm in diameter and stacked 5 courses high on its south side, which is faced and 90 cm high. The entire platform is approximately 2 m by 2 m and lacks facing on all other sides, and is lower (approximately 40 cm high) on all but the south side. Feature D is about 15 m east of Feature C and 25 m northeast of Feature A. It is similar to Feature C but smaller, and is constructed mostly of 'a'ā cobbles with some *pāhoehoe* cobbles.

Feature E is a *pāhoehoe* trail leading from Feature D to the southeast (see Figure 459 & Figure 465). This trail consists of *pāhoehoe* slabs 25-50 cm in diameter laid flat on the 'a'ā exposure to create a trail leading from Feature D and eventually off the 'a'ā approximately 25 m to the southeast. The slabs are occasionally adjacent to each other but are often spaced approximately 30-100 cm apart. Feature E is fairly intact, although partially obscured by thick tall grasses. Where Feature E leads off the 'a'ā exposure, there is a steep drop to the east. A small side trail to the main *pāhoehoe* slab trail appears to lead south, however, this trail ends after only a few meters. About 10 m west of this short trail is another short trail (running approximately 10 m) leading downslope to the south towards Feature F. This 'a'ā exposure seems to have had multiple *pāhoehoe* slab trails heading in various directions, suggesting frequent use of this elevated 'a'ā exposure, probably in relation to the nearby agricultural and habitation activity (see -26507 Feature C, -Site -6601, and Site -26583). Excavation potential for Features D and E is minimal due to a lack of soil or midden. However, Feature D was tested for burial (see testing results below) and results indicate it is a marker for Feature E or habitation related. The function of Feature E is transportation.

Feature F is a small lava tube with minor modification. The lava tube is located just south of the large 'a'ā exposure containing the Site -26574 features (see Figure 459 & Figure 466). The tube has a small opening (approximately 60 cm high) and is approximately 3 m by 2 m in size with a 90 cm ceiling. Boulders have been moved out of the center area and stacked at the cave entrance and sides of the tube, but no formal modification is present. There are a few pieces of marine shell in the cleared floor area. Some sediment is present in the tube and is approximately 5 cm deep, however, this is probably sediment washed in from the two small skylights. Small and medium size rubble has also fallen in via these skylights. Feature B, the *pāhoehoe* slab trail, leads off the 'a'ā less than 20 m from Feature F, and leads towards Feature F. Several mounds are also nearby that are probably agricultural (see Sites -26507 and -6601). Excavation potential for Feature F is poor. There is only a small amount of midden and most of the soil depth is probably from recent sediment wash-in. The function of Feature F is a shelter based on the small amount of midden and minimal modification. The size of the tube is consistent with a shelter rather than habitation. Based on its proximity to the majority of site -26574, Feature F was in use as part of this larger complex.

Feature G is a platform and a low informal terrace 20 m north of Feature D and the north end of Feature E (see Figure 459 and Figure 467 & Figure 468). It is located just off of the 'a'ā flow on which much of the site is located. The platform is constructed of small *pāhoehoe* boulders, small slabs, and cobbles. They are stacked around a small rise in the *pāhoehoe* bedrock that forms the majority of the platform center. The southwest corner of the platform is the most intact and is well constructed with 3 courses of *pāhoehoe* slabs. The surface of this southwest corner of the platform is notably rough, and is randomly strewn with larger boulders set atop the formal

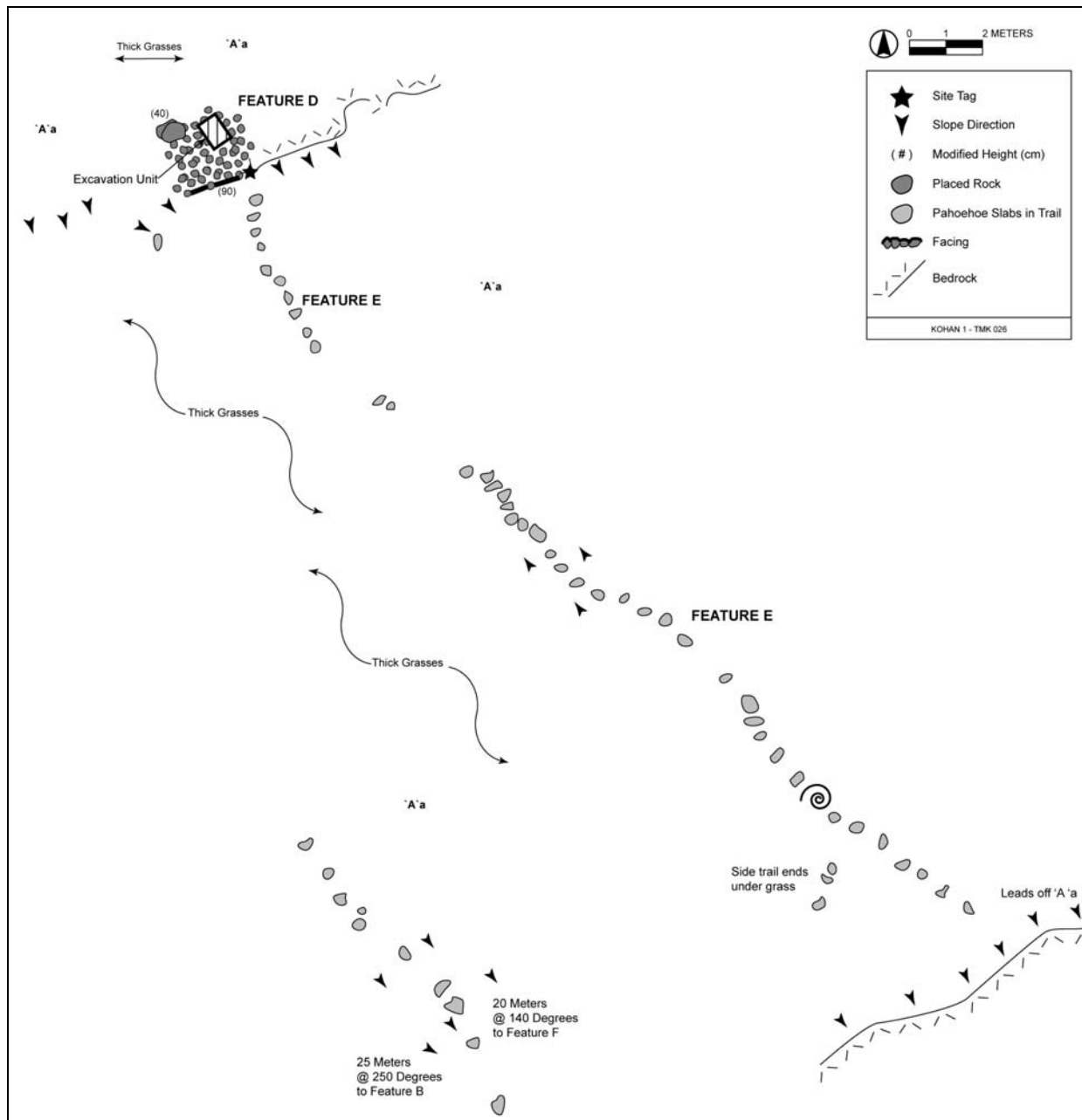


Figure 465. Site -26574, plan view of Feature D and Feature E

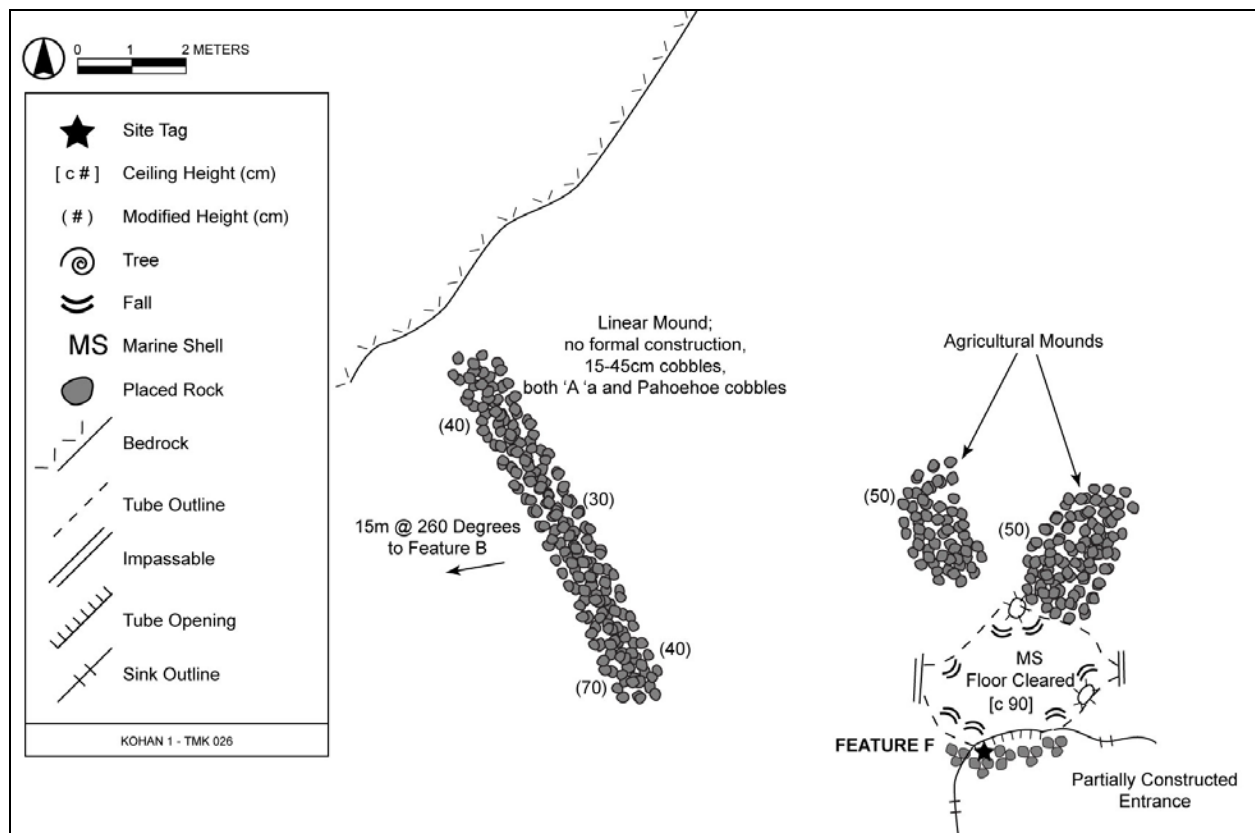


Figure 466. Site -26574 Feature F

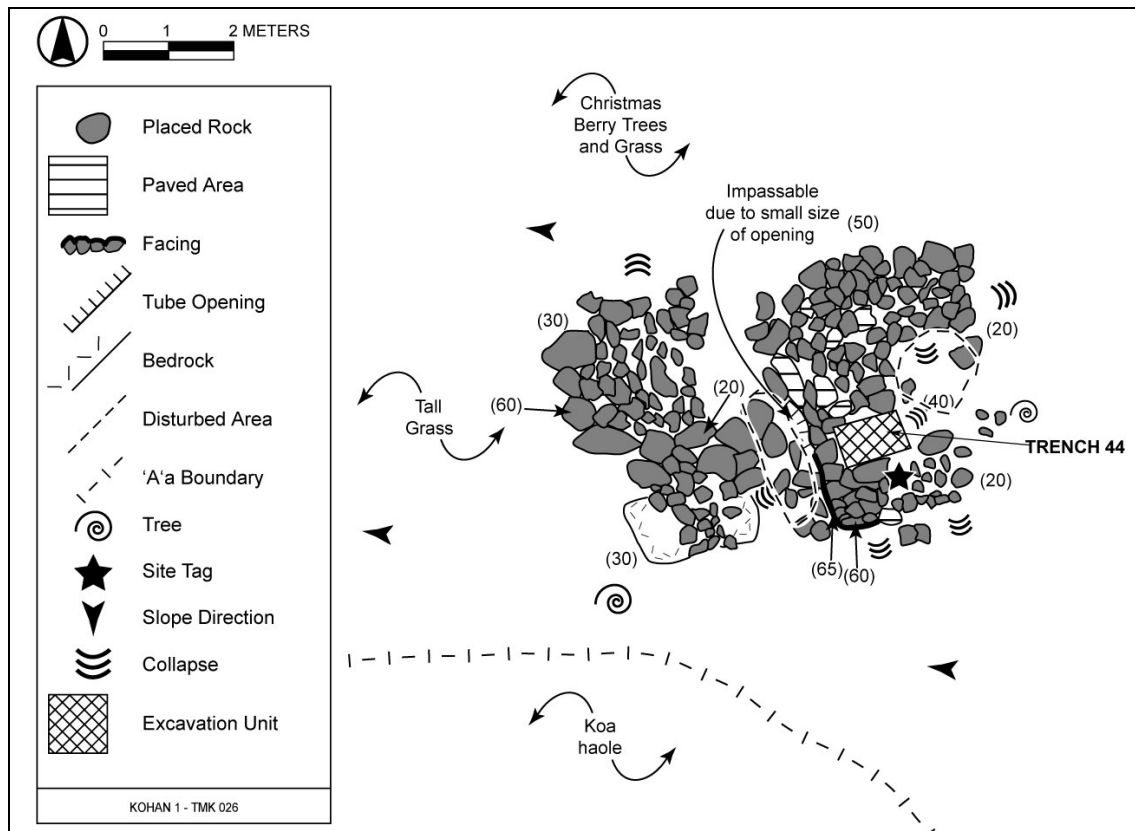


Figure 467. Site -26574, plan view of Feature G



Figure 468. Site -26574 Feature G, showing the terrace in the foreground of the photograph and the platform in the background, view to east

surface. These boulders appear to be disturbed, and likely are displaced from the *pāhoehoe* bedrock at the center of the platform. As a result, the south center of the platform's surface is depressed, and the bottom is exposed bedrock.

The platform's west wall is situated so that the base course is exposed bedrock. In the center of this exposed bedrock is a small blister opening. The blister extends beneath the platform and naturally raises bedrock that the platform is centered on. No midden or artifacts were observed in this blister and it is extremely small (less than 1 m in diameter). Due to the intentional exposure of the blister as part of the platform wall, it is not well suited for concerning a burial, but may have been used as a cupboard. Immediately west of this cupboard is a flat area partially enclosed by a semi-circular terrace. The terrace abuts the platform's west wall near the southwest corner and extends across to the northwest in a quarter circle, where it abruptly ends. The terrace is constructed of material similar to the terrace. The portion of the terrace abutting the platform appears disturbed as some of the larger boulders have an atypical haphazard orientation. It is possible this disturbance was caused by looters attempting to access the cupboard. The function of this feature is permanent habitation based on the exposed cupboard, the extending terrace, and the proximity to other habitation features. This interpretation was supported by test excavation (see below).

The site's function is interpreted as a habitation complex. Extensive utilization of the 'a'ā exposure is evident in the *pāhoehoe* trails, platforms, enclosures, and central hearth, indicating permanent habitation as the most likely function. This habitation site may also have been related to the two agricultural features, Site -26507 Feature C and -Site 6601, in the immediate vicinity. Feature F, the small lava tube, was likely used as a small shelter and contains midden, providing additional evidence of habitation. It is probable that Feature A was used for ceremonial purposes, based on the presence of the branch coral. However, the hearth and enclosures plus the *pāhoehoe* trails strongly suggest permanent habitation as the most likely function. Test excavation were conducted in the Feature C, D, and G platforms (see below) to determine whether burials were present. Test results indicate that Features C and G are habitation platforms and Feature D is a marker for Feature E. Excavation potential for this site is good, primarily based on the presence of the hearth in the center of the Feature A platform. The hearth and the platform are in good condition and charcoal/midden may be obtained during excavation. The enclosures have soil, 25 cm in some areas, that could also be excavated to determine function.

Testing Results

Test excavation was conducted to assist in determining site function and to determine whether a burial is present. Three units were excavated to make this determination. One (Unit 42) in Feature C (see Figure 463), one in Feature D (Unit 43; see Figure 465), and one (Unit 44) in Feature G (see Figure 467).

Feature C (Unit 42)

Unit 42, Feature C was placed in the top of the small platform (Figure 469). Stratum I, extending from 0 to 70 cmbs, is the structure's construction layer and consists of small to large (10-50 cm) 'a'ā cobbles with a few *pāhoehoe* cobbles and slabs interspersed. Stratum II, extending from 70 to 100 cmbs, consists of eroding bedrock with some sediment that has fallen into the large cracks in the natural 'a'ā.

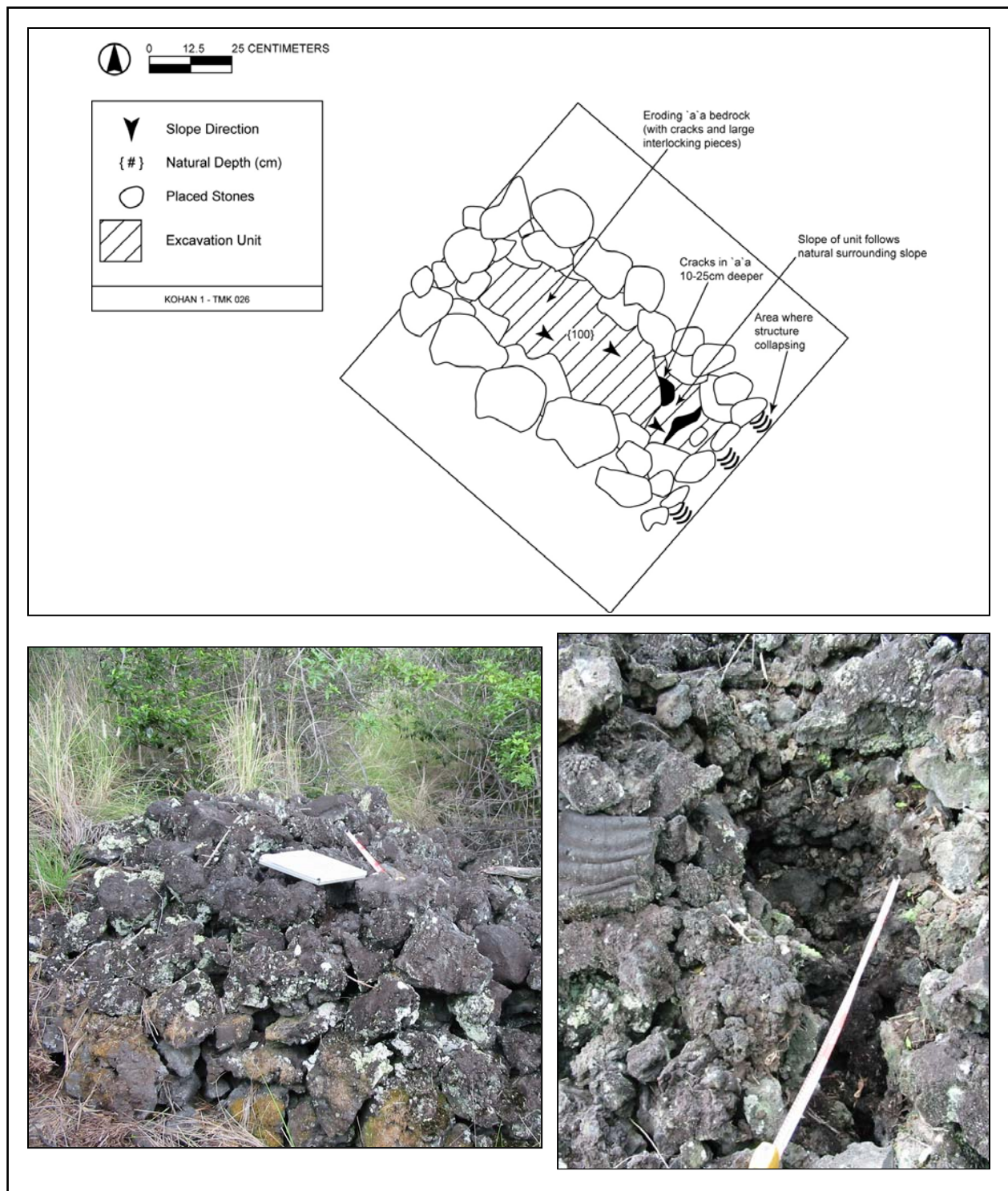


Figure 469. Site -26574 Feature C (Unit 42), excavation figures, clockwise from top: plan view, photograph pre-excavation, photograph post-excavation, view to northeast

Due to the nature of the 'a'ā bedrock surface on which the structure was built, most visible cultural material is not retrievable since it has fallen into cracks and beneath the 'a'ā. Although

only a very small amount of midden is present, the most likely function is habitation. No burial was encountered and construction does not suggest it.

Feature D (Unit 43)

Unit 43, Feature D was placed in the top of the small platform (Figure 470) Stratum I, extending from 0 to 46 cmbs, is the structure's construction layer and consists of 'a'ā cobbles stacked on 'a'ā bedrock. A little bit of sediment has filtered into this layer but there are no cultural remains present. The lack of any cultural materials or human remains disproves the conclusion that this was a burial mound. Only a couple of rat-gnawed *kukui* nut shells, probably naturally occurring, were found. There is no indication that this was a burial mound, and it is likely part of the large habitation complex of this site. Based on Feature D's location, adjacent to the Feature E trail, this may also be a marker.

Feature G (Unit 44)

Unit 44, Feature G was placed in the top of the small platform (Figure 471). Stratum I, extending from 0 to 40 cmbs, is mixed cobble construction on top of bedrock. Stratum II, extending from 40-100 cmbs, is a naturally disturbed bedrock layer (blister) with sedimentation including some midden. Midden consists of a few small marine shell fragments including cowry and *Isognomon*. Organic material is evident throughout and includes small rootlets, and larger roots. Very little midden was found, and no evidence of a burial was found. The function of Feature G is habitation despite the small amount of midden.

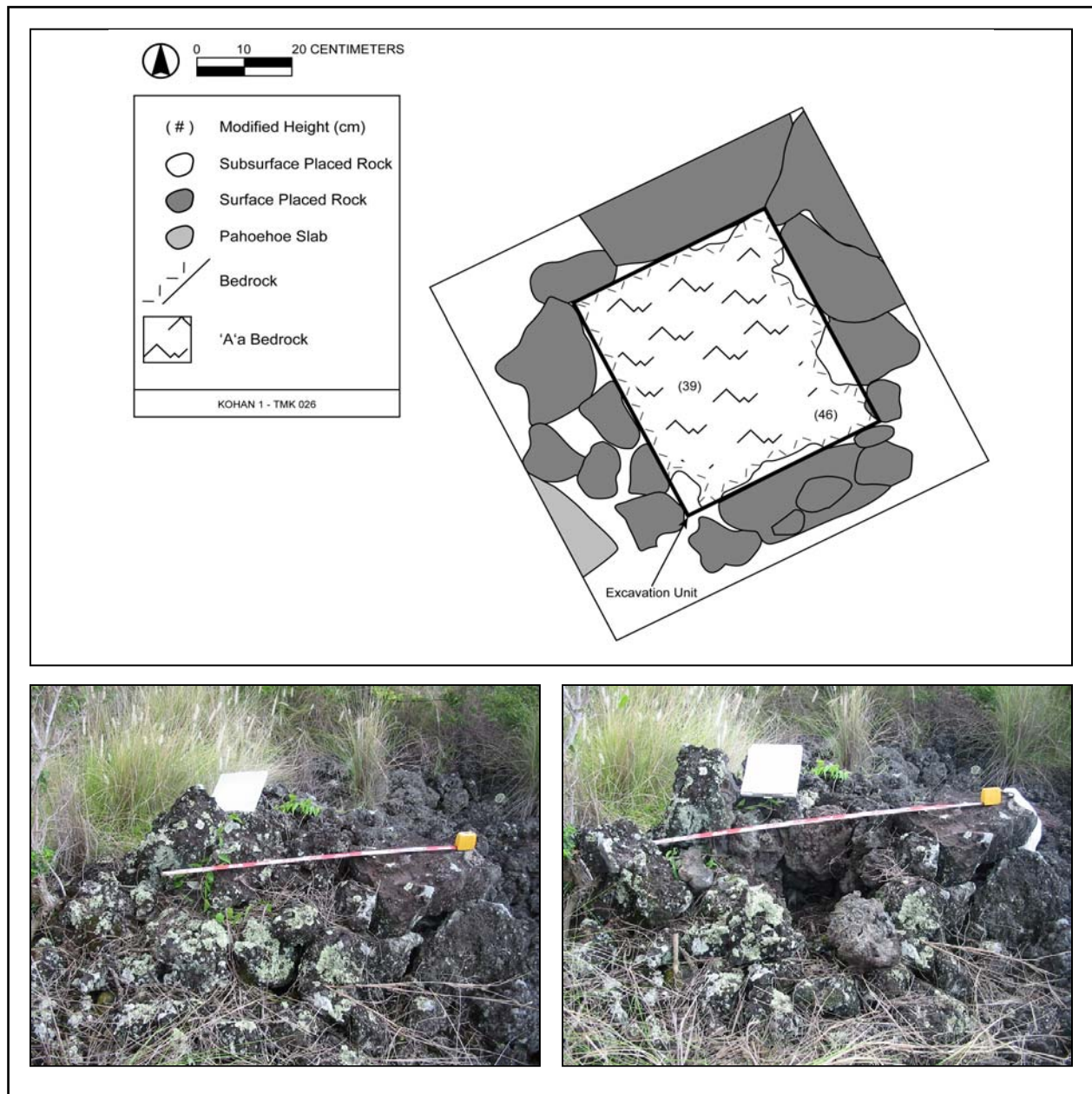


Figure 470. Site -26574 Feature D (Unit 43), excavation figures, clockwise from top: plan view, photograph pre-excavation, photograph post-excavation, view to northeast

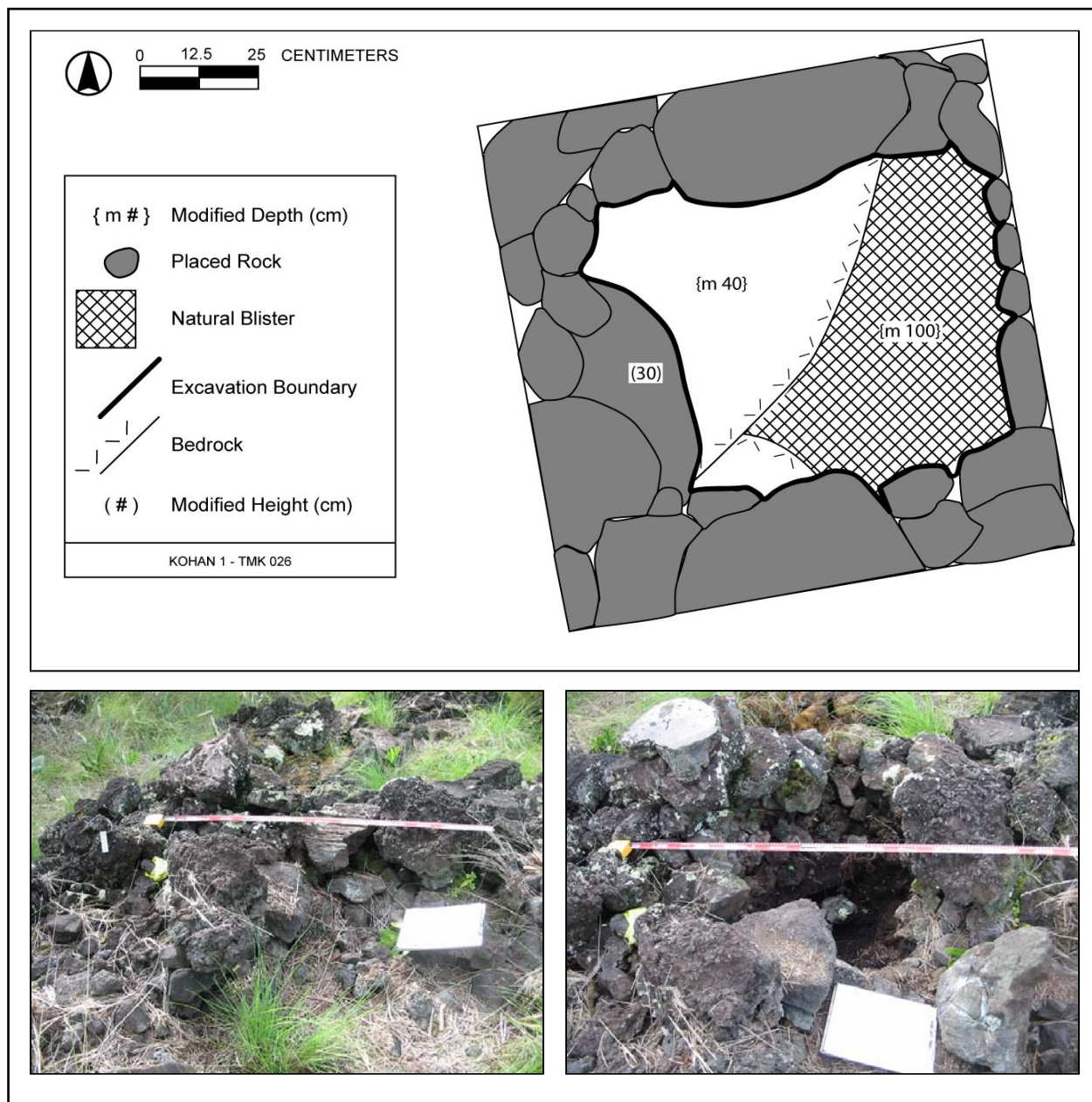


Figure 471. Site -26574 Feature G (Unit 44), excavation figures, clockwise from top: plan view, photograph pre-excavation, photograph post-excavation, view to northeast

2.1.94 State Site # 50-10-28-26575

SIHP #	50-10-28-26575
FUNCTION:	Water Collection
SITE TYPE:	Lava Tube
TOTAL FEATURES:	2
DIMENSIONS:	35 m by 17 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	710 ft a.m.s.l.

DESCRIPTION: Site -26575 consists of a sink and a lava tube with two features (Figure 472). The site is located in the southeast quadrant of the project area. Vegetation on the site's surface includes thick grasses, head-high *koa haole*, and medium to large Christmas berry trees. An old site tag at the entrance to the tube reads "TF-19-ACP-2-03". Cobb et al. 2003 did not include a description of this site in their feature description table.

There is no modification to the sink of the site, off the southwest side of which extends Tube 3 of Site -26570. There is only one tube that runs off in the northeast end of the sink and is designated as Site -26575.

Feature A is the partially constructed entrance into the tube from the sink (Figure 472). A placed upright serves to partially block off the entrance, although it does not prohibit access to the tube. The modification also includes several placed medium size boulders constricting the natural tube entrance. This constructed entrance serves to prevent wind flow through the tube, increasing the amount of moisture in the lava tube for water collection. From the Feature A constructed entrance, the tube heads roughly northeast. A side tube branches off the main tube, and the first of Feature B's two low walls is at the entrance to the side tube.

Feature B consists of two low walls inside the side tube (Figure 472 & Figure 473). The first wall is constructed at the beginning of a side tube that branches off from the main tube. The wall is constructed of medium *pāhoehoe* slabs with a couple of small *pāhoehoe* boulders. It runs across the length of the entrance of the side tube with a constructed passageway through the middle of the wall. This constructed passageway is approximately 50 cm wide and paved with two *pāhoehoe* slabs. Some of the slabs used in the wall are upright to create a rough, extremely informal southeast face. The wall is only constructed 50 cm high. The second of Feature B's walls is constructed in the same manner as the first wall although slightly taller, at 65 cm in height, and spans the entire short width of the side tube. This second wall is located at the back of the side tube, approximately 10 m from the first wall and a few meters south of an impassable entrance to Site -26576. Both of these Feature B walls apparently serve as wind breaks to facilitate moisture within the tube for water collection.

There is some scattered midden throughout the main and side lava tubes that consists of predominantly *kukui* and a few scattered marine shell, including *Nerita*, cowie and other marine shell, urchin, a few pencil urchin spines, and charcoal. The north end of the side tube is a blocked entrance to Site -26576. Beyond the constructed blockage is natural fall that makes the entrance impassable. The constructed blockage serves, similarly to Features A and B, as a wind break. The main tube continues beyond where the side tube branches off until it opens into the back of

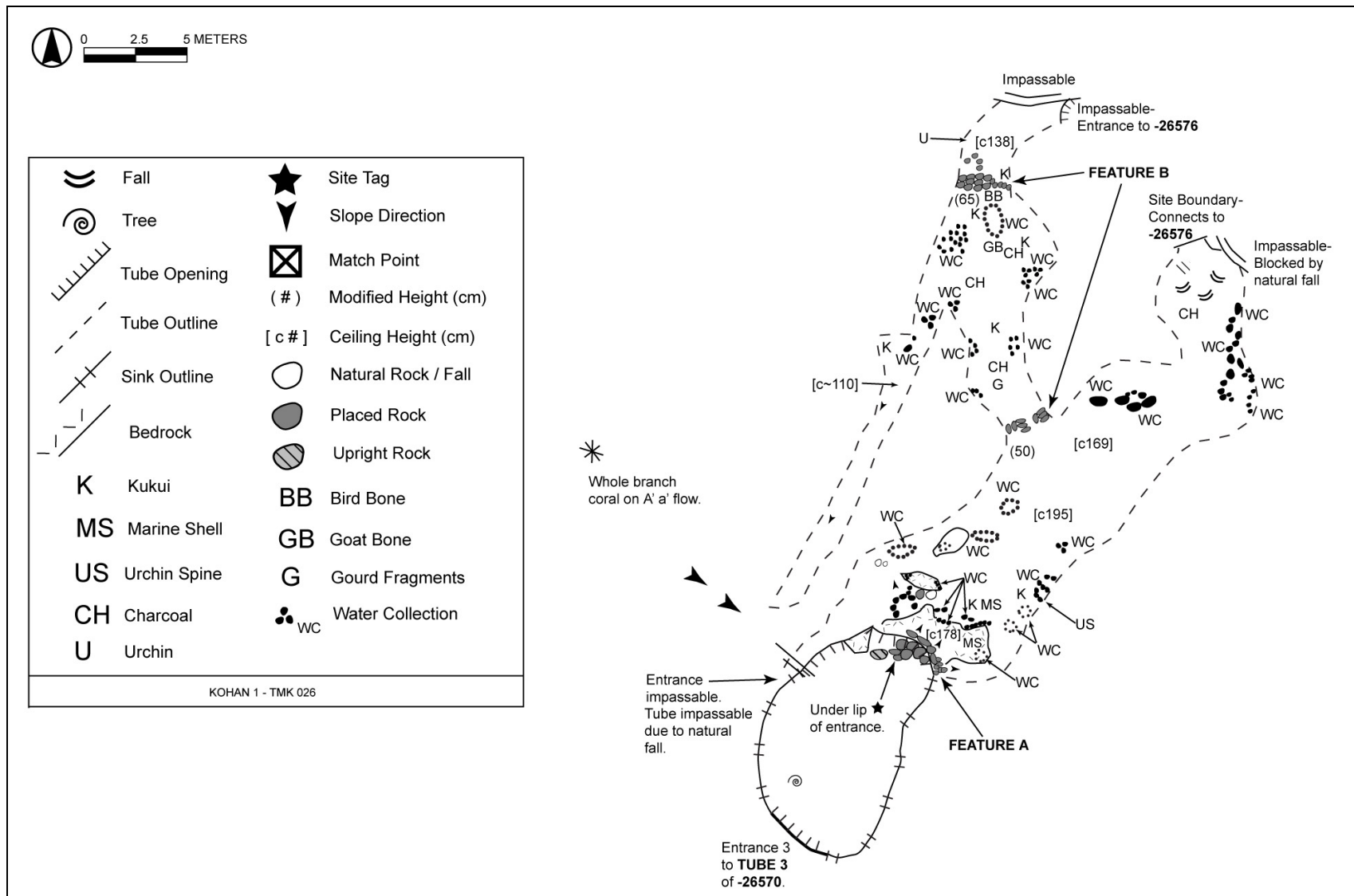


Figure 472. Site -26575 water collection lava tube and sink, overview

the overhang at the southwest end of -26576 sink. An upright *pāhoehoe* slab marks the entrance to this passage.

The site's function is interpreted as water collection. Water collection features were found throughout the main and side tube, and a total of 35 water catchments were found at this site. All of the modification in the tube, including the Feature A constructed entrance and Feature B walls appear related to the water collection activities. While some scattered midden is present in the tube, it is not sufficient to suggest any type of habitation function. The water catchments are all relatively formal in construction, indicating they serve the primary function of this site.



Figure 473. Site -26575 Feature B, showing the first of two walls, view to north

2.1.95 State Site # 50-10-28-26576

SIHP #	50-10-28-26576
FUNCTION:	Burial and Shelter
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	45 m by 25 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	720 ft a.m.s.l.

DESCRIPTION: Site -26576 is located in an undulating *pāhoehoe* flow in the east half of the project area. The vegetation around the site consists of over head-high *koa haole*, medium and large Christmas berry trees, thick grass, and air plant. There is also a very tall *tī* plant in one of the sinks.

The site consists of a series of three adjacent sinks and a small network of mostly interconnecting small lava tubes (Figure 474). Both the sinks and most of the tubes lack any significant modification. The majority of the modification is located in the southwest half of the largest southwest sink, in which there has been minor modification of some natural fall to create a faced area that is constructed to be flush at its top surface with the natural fall (Figure 475). There is also an area adjacent to this in the sink where *pāhoehoe* boulders and slabs have been placed to fill in an uneven area of the sink and create a nice level area under a slight overhang. Finally, in addition to this modification, a burial (Burial 52) was located in the main lava tube of this site.

The overhang at the southwest end of the sink exhibits some modification in the form of clearing and placement of cobbles and boulders (Figure 475). This modification serves to block other openings into the overhang and therefore increases the suitability of this area for shelter. It is within this overhang that the majority of the site's midden is located, which includes *kukui* endocarps, charcoal, and marine shell. Also in the back of this overhang is an opening which leads to Site -26570, another lava tube with multiple burials. In a small tube to the west of the overhang is a blocked entrance into Site -26570. There is a small excavated blister and some clearing evident in the northwest-most tube. In the northwestern tube there is another blocked opening which leads into a small tube, and this is where Burial 52 is located. See burial documentation below for additional information about the burial.

The function of site -26576 is burial and shelter. The burial function of this site is evidenced by the presence of Burial 52. The shelter function is indicated by the small amount of midden and slight modifications, including leveling and clearing. The midden and charcoal in the southwest overhang indicates some utilization but not intensive utilization, precluding any more intensive habitation function other than shelter.

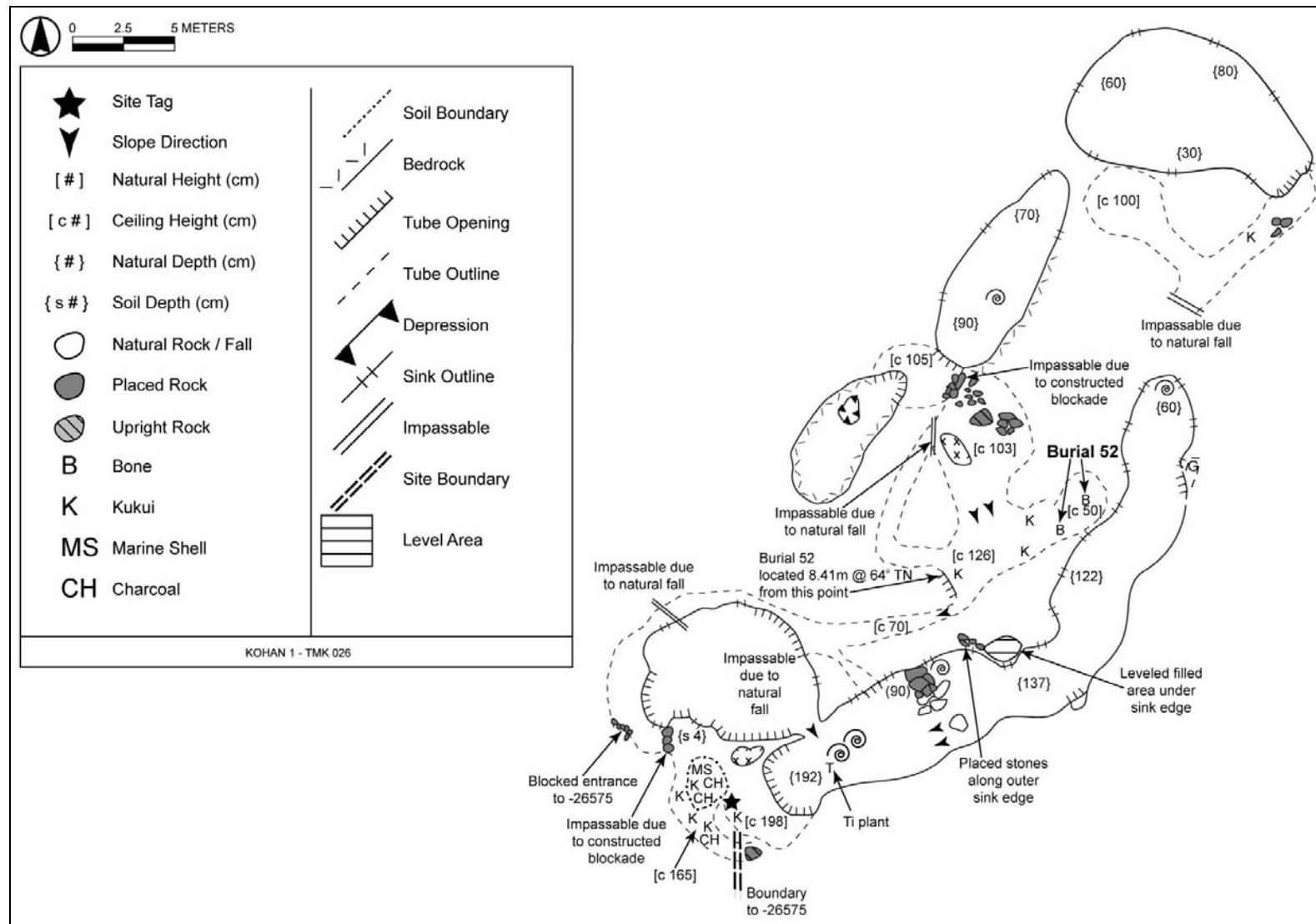


Figure 474. Site -26576, sinks and lava tube network (burial and shelter), plan view



Figure 475. Site -26576, showing the overhang shelter at the southwestern end of the large sink, view to northwest

Burial 52

Burial 52 is located in the back of the lava tube in an area of smooth floor and low ceiling. The burial is in poor condition and highly fragmented. The remains include several cranial fragments including teeth, innominate pieces, fragments of long bone shafts, calcaneus and other foot bones, rib fragments, and a patella (Figure 476). A majority of the remains are too fragmentary to identify. There is also an end fragment of a third metatarsal. Based on this fragment, in addition to the innominate, patella, and teeth, the remains were positively identified as human. The distribution of the remains on the lava tube floor indicate that this was likely an extended primary burial that is in currently in poor condition and has been slightly disturbed likely by animal activity. The tube in which the burial is located has one blocked passageway to a surface entrance. This was likely blocked to prevent access to the burial, though it is accessible via another surface opening.

Based upon the location of the burial in a lava tube and the lack of historic grave goods, this burial is believed to be a native Hawaiian burial.

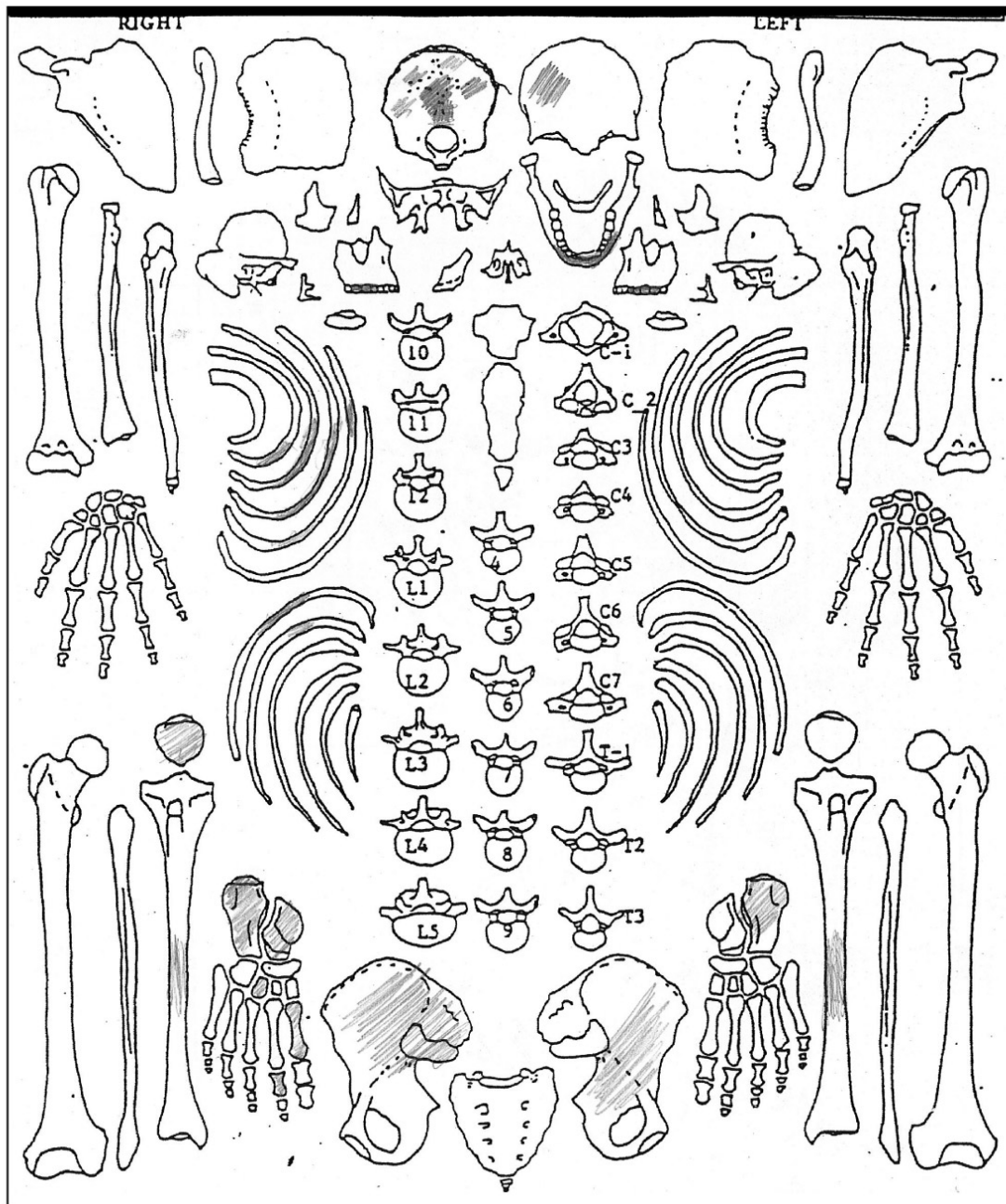


Figure 476. Site -26576, Burial 52 skeletal inventory form

2.1.96 State Site # 50-10-28-26577

SIHP #	50-10-28-26577
FUNCTION:	Temporary Habitation
SITE TYPE:	Platform
TOTAL FEATURES:	1
DIMENSIONS:	3.9 m by 3 m
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	680 ft a.m.s.l.

DESCRIPTION: Site -26577 is a partially faced platform that lies in the southeast corner of the project area and is surrounded by pervasive agricultural Site -26507 (Figure 477 and Figure 478). Site -26570 is located approximately 90 m to the northwest, and Site -10714 (trail Area B) is 28 m south. The topography is composed of *pāhoehoe* gently sloping to the southwest. The area is covered in dense *koa haole*, Christmas berry, and air plant.

The platform is roughly oriented southwest/northeast. The southwest corner is faced with stacked *pāhoehoe* slabs, three to four courses high. This clear facing extends 1.3 m up the south side and 0.7 m along the west side. No other facing is evident. The other sides of the roughly rectangular platform are very informal, and seem to have been loosely piled. The platform is raised on all sides despite its lack of continuous facing. The platform is comprised of *pāhoehoe* slabs and stones from large cobbles to small boulders in size. The exterior area is predominately made up of boulder-sized stones, while the interior section contains more cobbles. The southwest end, where the facing is located, has a more level surface than the northeast end, though it is certainly not paved. One cowry shell fragment was discovered on the surface along the southwest section of the platform.

Approximately 6 m southeast of the faced platform is a small northeast/southwest running lava tube. The tube is small, measuring only 12 m by 5 m with a maximum height of 70 cm. The only modification present is some placed small and medium *pāhoehoe* boulders, likely cleared from the entrance of the tube to facilitate access. The only midden present are a few *kukui* and a piece of cowry shell. This small tube seems to be very minimally utilized, given the slight modification. This small tube functioned as a shelter.

The site's function is interpreted as temporary habitation based on excavation results (see testing results below). Initially, the site appeared to lack the formality of a habitation structure, and the surface seemed too uneven for it to have been used for a living area. Though the southwest corner is faced, the general appearance of the platform seemed to be a jumbled pile, similar to other agricultural clearing mounds in the vicinity. However, excavation indicates that the site was used for temporary habitation and that roots beneath the structure caused the large amount of collapse. The platform lies in an area surrounded by agricultural features and is likely habitation associated with these agriculture features, specifically with Site -6601 (Kona Field System). Excavation potential is fair since there is minimal soil and midden in the vicinity, but excavation of the fairly large structure is possible and revealed a relatively very large midden deposit.

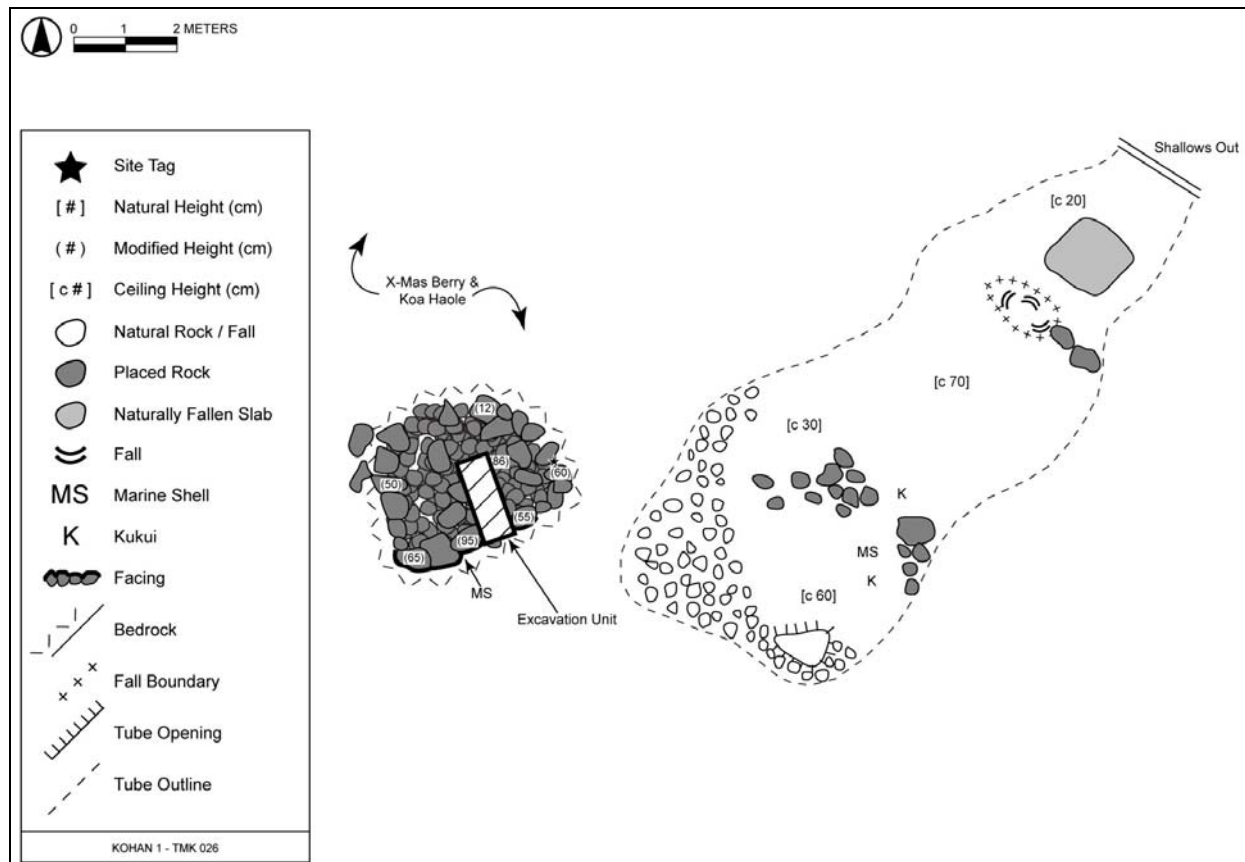


Figure 477. Site -26577, showing platform and relative location of small lava tube shelter



Figure 478. Site -26577, showing the partially-faced platform, view to northeast

Testing Results

Test excavation at Site -26577 was conducted to assist in determining site function and to determine whether a burial is present in the platform (Figure 479). Stratum I consists of platform construction and extends to 65 cmbs. Stratum II, from 65 to 80 cmbs, contains sandy loam and fairly dense midden consisting of *Cypraea*, *Isognomon*, and *Nerita*. Soils are filtering through the structure and are concentrated in this stratum. Stratum III, from 80-93 cmbs, consists of sandy loam and contains dense midden in the top half of the stratum. Dense midden indicates habitation function, and midden is the common type of marine shell, usually moderate to small sized. Some of the soil is slightly ashy, and a fair amount of charcoal was recovered.

The rough surface of structure's east half seems to indicate disturbance, possibly from the large roots observed during excavation. Overall, collapse - apparently due to this root disturbance - has obscured the formality of the site. The site's function has been confirmed as temporary habitation based on the presence of midden and formal, solid construction (stacked horizontal slabs). Excavation also confirms that there is no burial present.

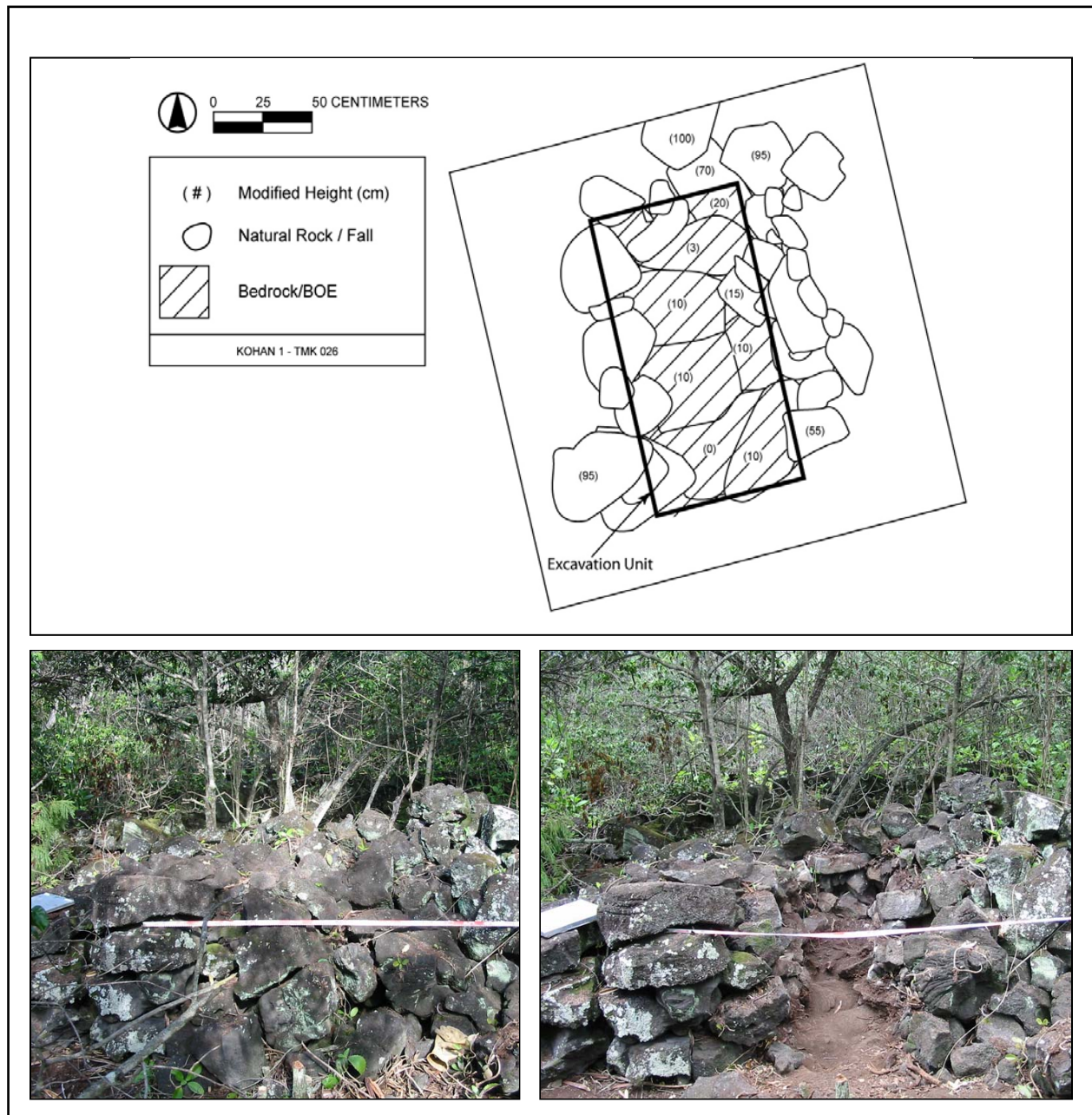


Figure 479. Site -26577, excavation figures: top is plan view; bottom left is pre-excavation photograph, bottom right is same photograph post-excavation

2.1.97 State Site # 50-10-28-26578

SIHP #	50-10-28-26578
FUNCTION:	Shelter
SITE TYPE:	Lava Tube
TOTAL FEATURES:	1
DIMENSIONS:	2.5 m by 7 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	760 ft a.m.s.l.

DESCRIPTION: Site -26578 is a small lava tube shelter (Figure 480 & Figure 481). It is located in the northeast portion of the project area in an area characterized by very thick tall grass and Christmas berry trees. The landscape slopes downward to the south, and the site is located on the a *pāhoehoe* bedrock exposure elevated slightly, affording a good view from the surface to the south and southwest. A portion of the pervasive Site -26507 is located 25 m north, and small agricultural mounds are in the immediate vicinity to the north, but otherwise site density in this area is relatively low.

The site consists of a small tube opening with a main interior chamber that measures approximately 3 m by 2 m. Small side tubes lead west and east, but both end or become less than 15 cm in size within 5 m of this main chamber. The main chamber is approximately 80 cm in height and the main floor area has been cleared, and stones have been stacked along the edge of the main chamber to delineate space. The stacked wall consists of rocks 25-50 cm in diameter stacked two courses high with some stones placed upright. The wall is 40-70 cm in height, and although it is not faced it is fairly formally stacked. A small amount of charcoal and at least one burned *kukui* nut (as well as natural *kukui* endocarps and rat bone) is in the tube. Also in the main chamber is a large piece of broken cowry shell, but no other midden was observed. There is also, however, a large basalt flake (very fine grained, dark gray material; about 5 cm in size), as well as a full cowry shell with two perforations, one on each end, that is most likely an octopus lure. The back portion of the chamber has a smaller (approximately 30 cm) water worn stone (finer grained but not as fine as the flake). It is rounded and smooth on at least one edge and may have been used in tool production (fine grained abrasion), although it is probably too small for a hammerstone. A small amount of soil is present in the tube, and measures up to approximately 4 cm.

The site's function is interpreted as a shelter and as a general activity area. The small size of the main chamber suggests that this was used for temporary shelter rather than more permanent habitation. The presence of several artifacts suggests that in addition to a shelter this was also an activity area, possibly for tool manufacture and/or storage. No other functions are likely for this site. Excavation potential for this site is good due to the presence of artifacts and a small amount of midden, as well as a small amount of charcoal. The soil depth is only approximately 4 cm, but more artifacts may be found if portions of the wall and rocky area behind it are excavated.

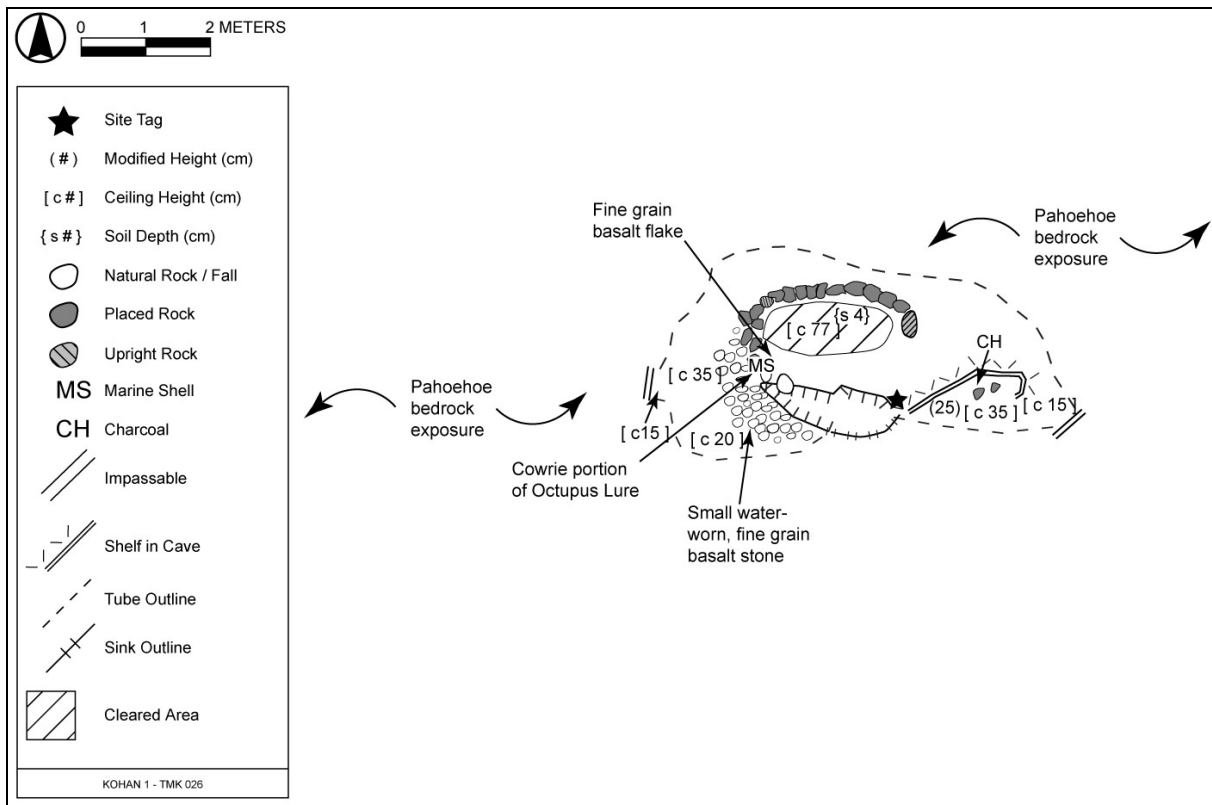


Figure 480. Site -26578, lava tube shelter, plan view



Figure 481. Site -26578, showing the wall inside of the lava tube, view to north

2.1.98 State Site # 50-10-28-26579

SIHP #	50-10-28-26579
FUNCTION:	Marker
SITE TYPE:	Cairn
TOTAL FEATURES:	1
DIMENSIONS:	0.7 m by 0.9 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	780 ft a.m.s.l.

DESCRIPTION: Site -26579 is a cairn located in a relatively flat *pāhoehoe* flow in tall dense grass and 4 m high Christmas berry (Figure 482 & Figure 483). Site density in this far northeastern portion of the project area is relatively very low, although there is a fair amount of agricultural modification (pervasive Site -26507). The cairn is 75 cm tall, and constructed with *pāhoehoe* boulders and cobbles. The average size of the boulders are 35 cm in diameter, and the cobbles average 25 cm in diameter. The cairn is 3 courses tall and measures approximately 70 cm north/south and 90 cm east/west.

The site's function is interpreted as a marker for Site -26507, a pervasive agriculture site located 10 m south of the cairn. Excavation potential is poor due to site type, and the lack of artifacts and midden.

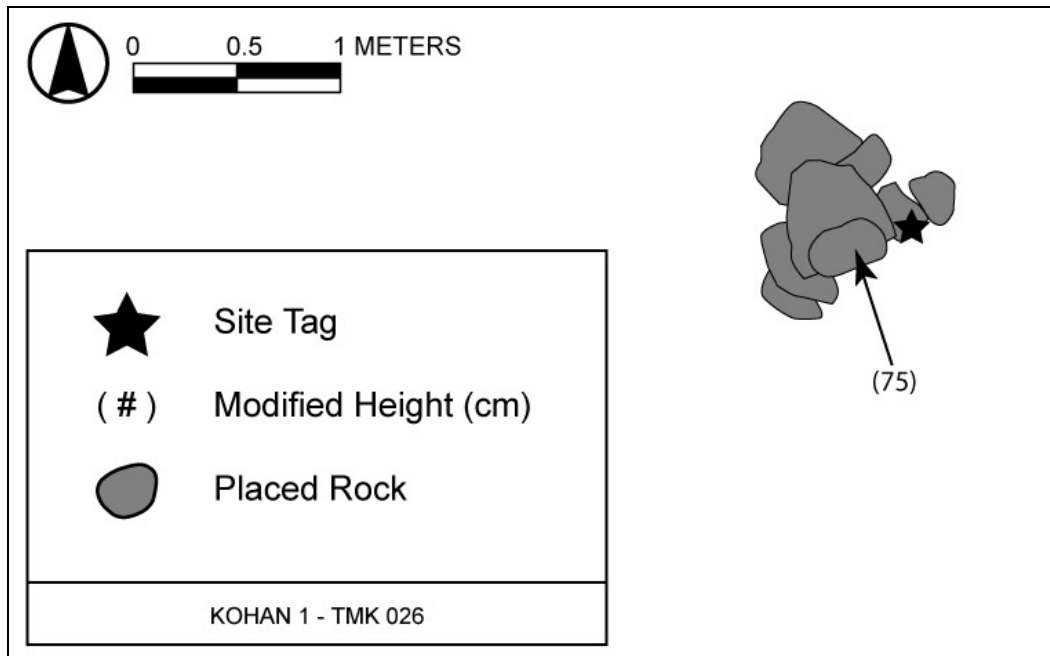


Figure 482. Site -26579, plan view



Figure 483. Site -26579, showing the cairn, view to the south.

2.1.99 State Site # 50-10-28-26580

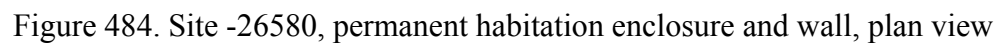
SIHP #	50-10-28-26580
FUNCTION:	Permanent Habitation
SITE TYPE:	Enclosure
TOTAL FEATURES:	1
DIMENSIONS:	16 m by 7 m (52.5 ft. by 22.9 ft.)
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	680 ft a.m.s.l.

DESCRIPTION: Site -26580 is comprised of an approximately 5 m by 7 m enclosure and a faced wall that extends from the enclosure to the southwest, towards the *ahupua'a* wall (Figure 484). The site is located in the southeast corner of the project area along the north side of the *ahupua'a* wall (Site -10712). Vegetation within and adjacent to the site consists of overhead-high *koa haole*, patches of grass and widespread air plant.

The site is constructed atop a northeast/southwest running raised ridge of *pāhoehoe* bedrock outcrop. The enclosure and wall construction take advantage of this natural formation. The enclosure is formally constructed with horizontally stacked *pāhoehoe* slabs. The bedrock ridge is partially excavated, and what appears to be the bottom three courses of slabs of the enclosure are actually layers of *pāhoehoe* flow and bedrock. Between two and four courses of stacked slabs are atop this bedrock. The interior of the enclosure walls, including the excavated bedrock areas, is well faced. The placed *pāhoehoe* slabs, boulders, and cobbles that make up the top surface of the enclosure walls are stacked to a height of 30-80 cm above the bedrock with the exception of the southwest side. The southwest side's surface is flush with an area of naturally eroding bedrock. Placed uprights close off the otherwise open south end of the U-shaped enclosure (Figure 485). This wall of uprights is a single course wide and a single course high; the interior and exterior are vertical. The uprights are well placed and set to create a continuous wall.

The enclosure floor is lower than the surrounding bedrock surface due to the ridge on the north side of the enclosure and is the result of excavating the base of the ridge. The floor is level with the bedrock surface on the enclosure's south side. The interior enclosure floor is covered with a soil deposit that ranges in depth from 10 cm to 14 cm (0.33 ft. to 0.46 ft.).

The constructed wall that extends approximately 6 m (19.7 ft.) southwest of the enclosure also utilizes the natural bedrock ridge, which in this area is naturally eroding and highly fractured and broken into boulders and some cobbles. The wall has stacked *pāhoehoe* slabs from one to five courses high to form a face at the south end of this eroded area and retains the eroding bedrock. The southeast side of the wall is faced, although not as well as the enclosure. The top surface of the northwest side of the wall is flush with the eroding bedrock. The wall and the eroding bedrock ridge curve towards the south. Some placed *pāhoehoe* boulders abut the *ahupua'a* wall and close off the space at the southwest end of the eroding bedrock. The areas of bedrock immediately surrounding the enclosure and wall that are not broken up due to erosion are naturally very flat, smooth and relatively level.



The site's function is interpreted as permanent habitation based on a number of factors. The site's location is advantageous for habitation due to its proximity to the *mauka/makai* trail, Site - 10714, and the topography being flat and level natural bedrock exposure. The wall construction in conjunction with the eroding bedrock intersects the *ahupua'a* wall to create a well defined and confined living space. The upright wall surrounding the enclosure is tall enough to completely enclose the interior of the enclosure, but not too tall to prevent access. The labor investment required to construct the wall and the enclosure, including excavating the bedrock to create a level interior floor and the formal facing, preclude this habitation site from being considered anything less intensive than permanent habitation. Excavation potential is overall good, as there is a fair amount of soil depth and presumably cultural remains within the structure.



Figure 485. Site -26580, showing enclosure, view to north (*ahupua'a* wall is immediately behind photographer)

2.1.100 State Site # 50-10-28-26581

SIHP #	50-10-28-26581
FUNCTION:	Complex
SITE TYPE:	Lava Tube
TOTAL FEATURES:	2
DIMENSIONS:	30 m by 75 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	770 ft a.m.s.l.

DESCRIPTION: Site -26581 consists of a single lava tube that connects two sinks, with two designated features (Figure 486). Both sinks have one lava tube entrance, and both entrances have some modification. Sink 1 (easternmost sink) has also been modified at its east end to create an enclosed (modified) depression, designated as Feature A. A wall just inside the Sink 1 tube is designated Feature B. Site -26581 is located at the eastern edge of the project area (almost directly on the border) in the northern portion of the project area. This area is fairly level but slopes gently to the south/southwest. There is some agricultural activity in the vicinity (i.e. pervasive agricultural site -26507) and a few other sites are nearby (-26579, 60 m north, and -26578, 75 m southwest). In general, the vegetation in this area consists of very thick tall grass and some Christmas berry trees, but in the immediate vicinity of Sink 1 there are only Christmas berry trees and other smaller trees.

The main entrance to the lava tube is within **Sink 1**; the entrance consists of a large skylight that drops approximately 50 cm down into the lava tube. A smaller tube entrance is just east of the skylight, and directly east of that is Feature A. Sink 1 is a small sink, running for only approximately 10 m from the tube entrance on the west to the end of the sink (a fall area) on the east side. The east side of the sink (and part of Feature A) cross the eastern project area boundary. Beneath the skylight (main entrance of lava tube), natural fall has been cleared out from under the overhang of the tube to create a good shelter area. This area has two coral abraders (Figure 487), a few large cowry shells (broken), some '*opihi*, and some *Nerita* shell, as well as charcoal and a large piece of burned wood. A cow skeleton that is likely natural is also present. There are also some small placed rocks. No soil is within this area but the ground is level. On the south side of the tube under the overhang there are several small holes that lead down to a lower tube; these small entrances have been slightly modified and block the entrance to that lower tube, although it is possible to access through the western (lower) tube (see below).

Feature A is a modified depression in Sink 1 with a wall of uprights that surrounds the depression (Figure 486 & Figure 488). Small areas on the north and south side have facing. Feature A is 9 m east/west by 5 m north/south with a maximum constructed height of 176 cm and minimum height of 73 cm. The depression has been cleared of all large rocks. Sediment depth of 8.5 cm is on the northwest side of the feature indicating good excavation potential, and other areas also have sediment. The function of Feature A is temporary habitation. The formal construction with uprights semi-circling the depression is not indicative of agriculture. The fact that the feature is just east of the skylight area that has marine shell midden and two coral abraders supports the argument for habitation. Habitation seems the most likely function due to the labor investment in constructing the uprights and the facing of portions of the wall.

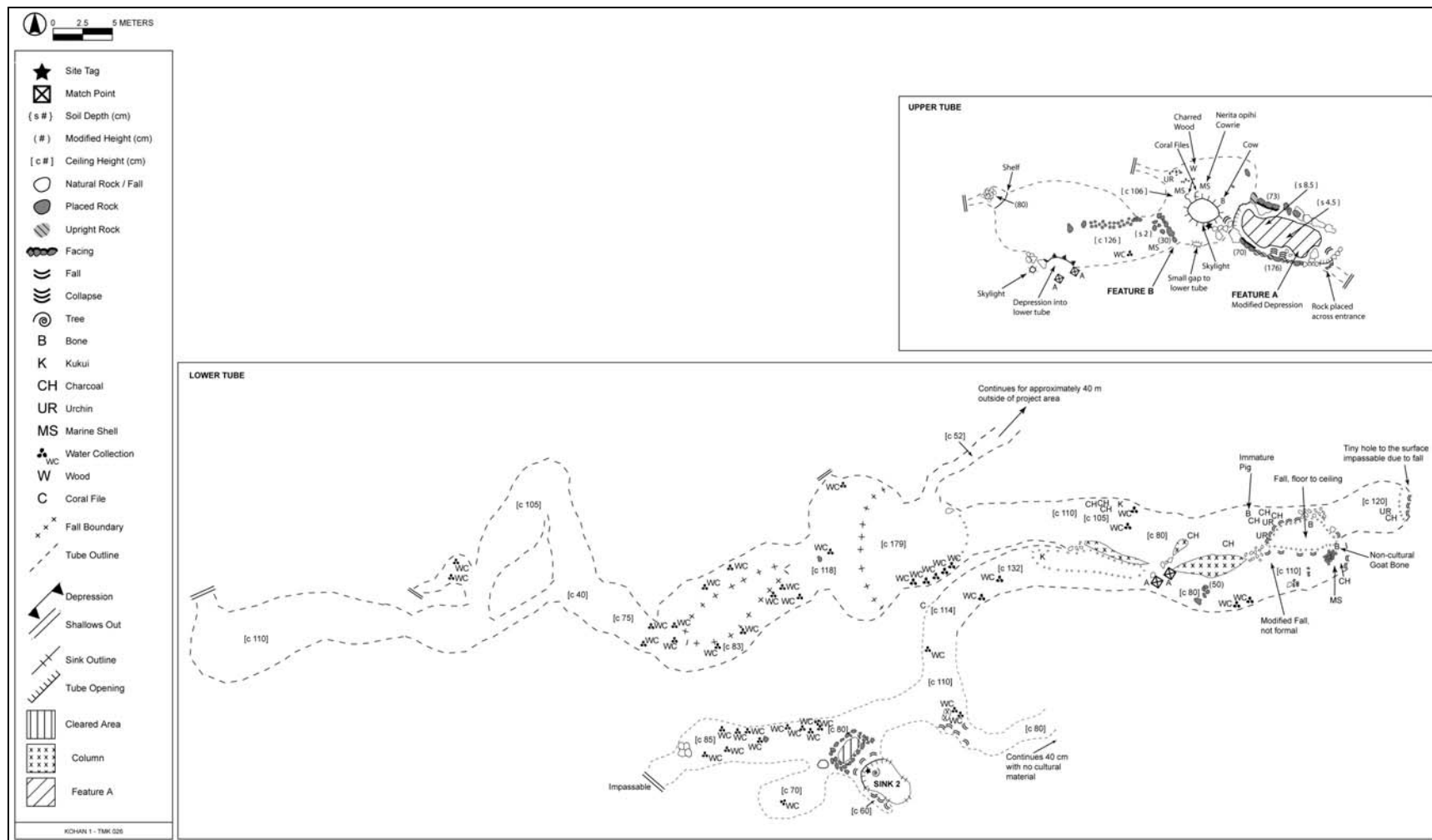


Figure 486. Site -26581, plan view

Feature B, is in the main lava tube that extends west from Sink 1 (Figure 486). A small wall that is approximately one to two courses high, and measures 30 cm is built across the entire width of the tube. To the west of the Feature B wall are many placed stones that are not placed in a formal shape; a few of the stones possibly represent water catchment. The tube continues back (west) and has two small skylights. On its south side it drops down via a depressed area and leads to a lower tube. This lower tube continues both east and west, and is the same lower tube that can be seen from above (just under the skylight). On the east side the tube has water collection, sea urchin, charcoal, and a small amount of marine shell; most of this midden likely washed in from above. The east side wraps around and comes back toward the west, paralleling the west tube (see Figure 486). This tube (now heading west and slightly north) leads to an area with more water collection and charcoal. A small side tube then heads east again (after going through a 25 cm choke point), then heads approximately 20 m west and outside the project area and connects to the previously recorded Site -10756 in the immediately adjacent eastern TMK 32. Although these sites connect, it is appropriate to consider them as two separate sites since the passage between them is very small and very likely was not utilized.

From the point in the main tube where it drops down to the lower tube, the tube heads west with water collection and charcoal. This eventually leads to **Sink 2** (there is a single entrance from the sink into the tube). The tube entrance at Sink 2 is modified, with the fall stacked up and a small wall built to delineate a flat cleared space that was probably used as a comfortable sitting area. Side tubes off this chamber have water collection but end fairly shortly. Just before reaching Sink 2, the main tube splits off to the south and turns east, running for approximately 40 m with no cultural modification, and eventually ends in fall.

The site's function is interpreted as a complex with temporary habitation (Feature A), shelter (tube), and activity area (extensive water collection in tube and coral abraders). The formal facing on the edge of the modified depression of Sink 1 that creates Feature A suggests a living space between their agricultural uses. The small amount of midden and artifacts and low walls in the tube suggests minor modification for shelter within the tube. The presence of more than 25 water collection features in the tube suggests extensive use as an activity area for water collection, and the coral abraders indicate this may have been an area for tool manufacture. Overall the main function of this site is habitation and water collection. No other functions are likely. Excavation potential for this site is good because Feature A has up to 8 cm of soil and there may be midden or charcoal in this enclosed area. The tube does not contain any good soil areas for excavation but midden and artifacts are present, including water collection features with associated charcoal.



Figure 487. Site -26581, coral abraders found in Sink 1



Figure 488. Site -26581 Feature A, showing the uprights in the southern wall, view to south

2.1.101 State Site # 50-10-28-26582

SIHP # 50-10-28-26582
FUNCTION: Burial
SITE TYPE: Lava Tube
TOTAL FEATURES: 1
DIMENSIONS: 45 m by 5 m
CONDITION: Good
AGE: Pre-contact
ELEVATION: 750 ft a.m.s.l.

DESCRIPTION: Site -26582 is located in a relatively flat area at the eastern boundary of the project area. The geology of the area is *pāhoehoe*. Vegetation consists of 4 m tall Christmas berry and *koa haole*. Site -26582 is located 40 m west of a small shelter tube located east (outside) of the project area and which was not recorded. A coral abrader, a modified urchin spine, and an extensive amount of marine shell midden was observed in the small tube outside the project area.

Site -26582 consists of a small, shallow sink that is 7 m east/west and has two lava tubes (Figure 489). The first tube runs to the east of the sink, toward the project area boundary. The only modification is some rocks that have been placed on the north side of the entrance inside the tube. These rocks were most likely moved from the entrance area to gain easier access to the tube. There was no cultural material or other modification in this tube.

The second tube runs off the west side of the sink (Figure 490). Immediately inside of the entrance there is a cleared area with a sediment depth of up to 8 cm. The rocks that were moved to clear the area have been piled to construct a very informal wall immediately west of the cleared area. A small tube that immediately shallows out is off of the southwest side of this entrance chamber. The main tube continues to the west. On the other side of the informal wall, Burial 55 (see below for a complete description), and a modified bird bone pick are on the north side of the tube. A few pieces of urchin midden are also just before the burial on/in the wall. The only other cultural modification beyond the burial is two water collection features

There are two long slightly depressed linear sinks (without tubes) that run east/west for approximately 60 m, which begin near the main Sink of -26582. This long sink has terracing and is part of the Kona Field System (Site -6601).

The site's function is interpreted as burial as evidenced by Burial 55. The initial cavern of the western tube also appears to have been used as a shelter. The minimal modification of clearing the entrance area in the west tube and informal piling of rocks to the west of the chamber and the lack of midden suggest that the site was not used for very frequent habitation. Excavation potential for -26582 is fair due to the sediment depth of up to 8 cm in the cleared area of the lava tube, but excavation is not recommended given the proximity of the burial.

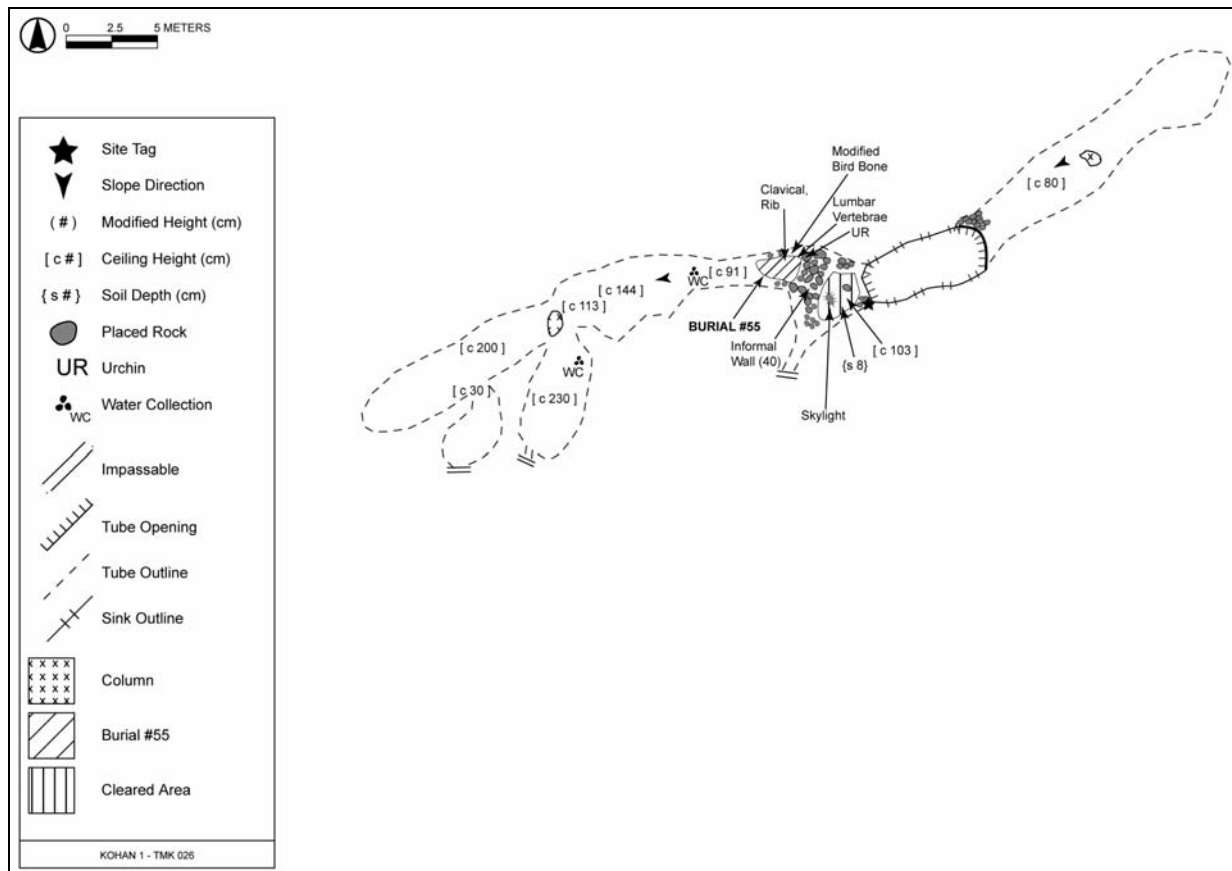


Figure 489. Site -26582, burial and shelter lava tube, plan view



Figure 490. Site -26582, showing the entrance to the lava tube that leads to the western end of the sink, view to west

Burial 55

Burial 55 is located near the western entrance of -26582, approximately 7 m west of the tube opening. The initial cavern of the tube has a low wall on its west end that is constructed in front of a tube running west. The wall does not block the entrance to the west tube but does restrict it. Just beyond the wall the tube is approximately 2 m wide with 120 cm high ceiling, and the burial is located here. The sides of the tube come out about 50 cm on each side to create small shelves approximately 30 cm off the ground; part of the burial is located on the shelves (one whole vertebrae) but most of it is down under the shelves or in the depressed area between the shelves. The depressed area between the shelves has been filled in with *pāhoehoe* slabs and cobbles, and bone fragments can be seen beneath these placed rocks that continue from the wall approximately 2 m. The burial is highly fragmented and consists of at least five vertebrae, four rib fragments, one phalanx, one clavicle, and one carpal, and one possible hyoid bone (Figure 491). More bone fragments are visible under the placed rocks but cannot be identified. There is one sea urchin shell fragment on the wall just east of the burial, and one bird bone pick is next to the vertebrae that is on top of the shelf. These items may be associated with the burial, and may also be associated with other activity in the cave (such as water collection). Charcoal is also near the burial.

The burial extends over an area of approximately 2 m (the width of tube) by 3 m. The tube slopes downward to the west and it appears that part of the burial has been washed downhill. Based on the presence of ribs, small hand bones, and the hyoid, this burial was likely a primary burial. No long bones or skull fragments were found, although they could be concealed under the *pāhoehoe* slabs and cobbles that are filling in the depressed area. It appears that the depressed area was the original burial location, and that the *pāhoehoe* slabs/cobbles were placed around or on top of the burial. Based on the location of the burial within a tube and the association of pre-contact artifacts, it is probable that this burial represents a native Hawaiian individual.

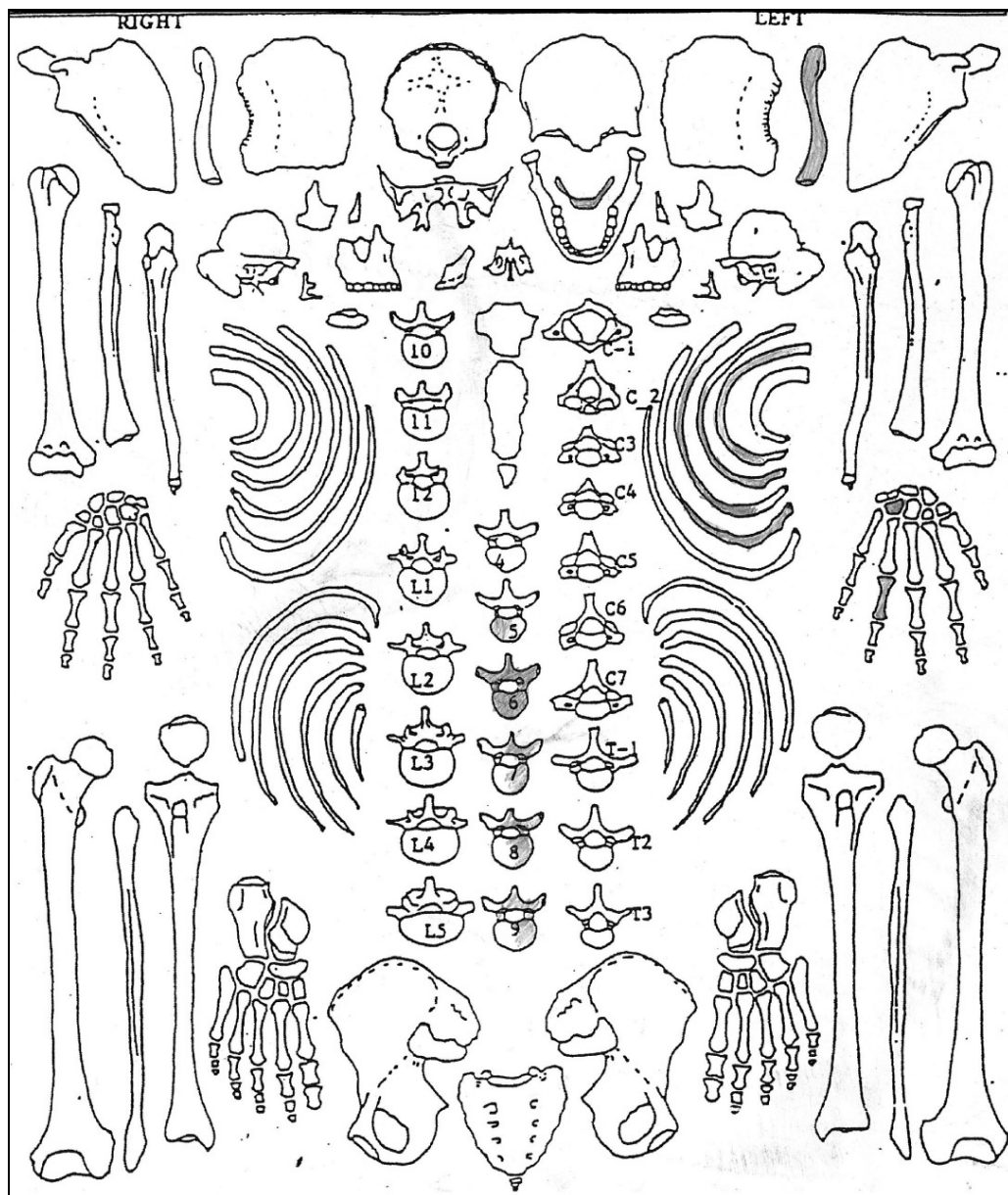


Figure 491. Site -26582, Burial 55 skeletal inventory form

2.1.102 State Site # 50-10-28-26583

SIHP #	50-10-28-26583
FUNCTION:	Permanent Habitation and Ceremonial
SITE TYPE:	Complex
TOTAL FEATURES:	11
DIMENSIONS:	Approximately 50 m by 60 m
CONDITION:	Good
AGE	Pre-contact
ELEVATION:	750 ft a.m.s.l.

DESCRIPTION: Site -26583 is a large site complex that is located near the eastern project area border (50 m west of border) and approximately 150 m north of Site -10714 (a large *mauka/makai* trail). The site is primarily constructed on eroding *pāhoehoe* bedrock exposures and also in a *pāhoehoe* lava tube system, but it is located just off the southern edge of a large east/west running 'a'ā exposure. Another large site complex (Site -26574) is located approximately 100 m northwest of Site -26583 on the 'a'ā exposure, and there are also several lava tube systems to the west (Sites -26576 and -26575) within approximately 100 m. In general this area has a large amount of agricultural activity, including agricultural clearing mounds, excavated blisters, clearing of sinks and low areas, and both formal and informal terracing that comprises a portion of the Kona Field System (Site -6601). Within the project area, the Kona Field System is present primarily in the southeast, north of the *ahupua'a* wall. The Kona Field System begins on the northeastern edge of the large 'a'ā flow previously mentioned and the majority is concentrated between the *ahupua'a* wall on the south and the large 'a'ā flow on the north. Thus, Site -26583 is located at the north edge of an extensive agricultural area (see Site -6601 Sample Area B).

Vegetation in the area primarily consists of thick tall grass, Christmas berry trees, *koa haole*, and some other small trees. Vegetation on most of the features of this site is thick and has very often partially disturbed the feature through root action. This area is fairly level at its eastern end (near Tube 1) and then slopes downward to the south and southwest (Features H and I area at the edge of this flat area that then slopes down to the south, sometimes steeply, and takes advantage of the view afforded by it). The terrain continues to slope to the south below Features H and I but there is a more level ridge that Features B, C and Tube 2 (Feature A) are located on; below this the terrain slopes gently and is slightly depressed, and agricultural activity is more intense. Agricultural activity is also concentrated to the south of -26583, as well as some agricultural activity to the east between Tube 1 and the eastern 'a'ā flow area.

Site -26583 consists of 11 features, A through K, located in an area approximately 50 by 60 m (Figure 492). There are three small sinks with interconnecting (though impassable) lava tubes. Feature A is near the western extent of the site, and is the modified entrance of Tube 2 (the western tube). Feature B is located about 10 m southeast of Feature A and is an enclosure with some faced walls. Feature C is a faced mound just southeast of Feature B. Feature D is 10 m east of Feature B and is a small level platform. Feature E is another faced mound 5 m northeast of Feature A. Feature F is a large linear mound 15 m northeast of Feature E. Feature G is a constructed depression about 10 m northeast of Feature F. Feature H is a large multi-tiered platform with paved surfaces and faced edges that is possibly a ceremonial structure, and is

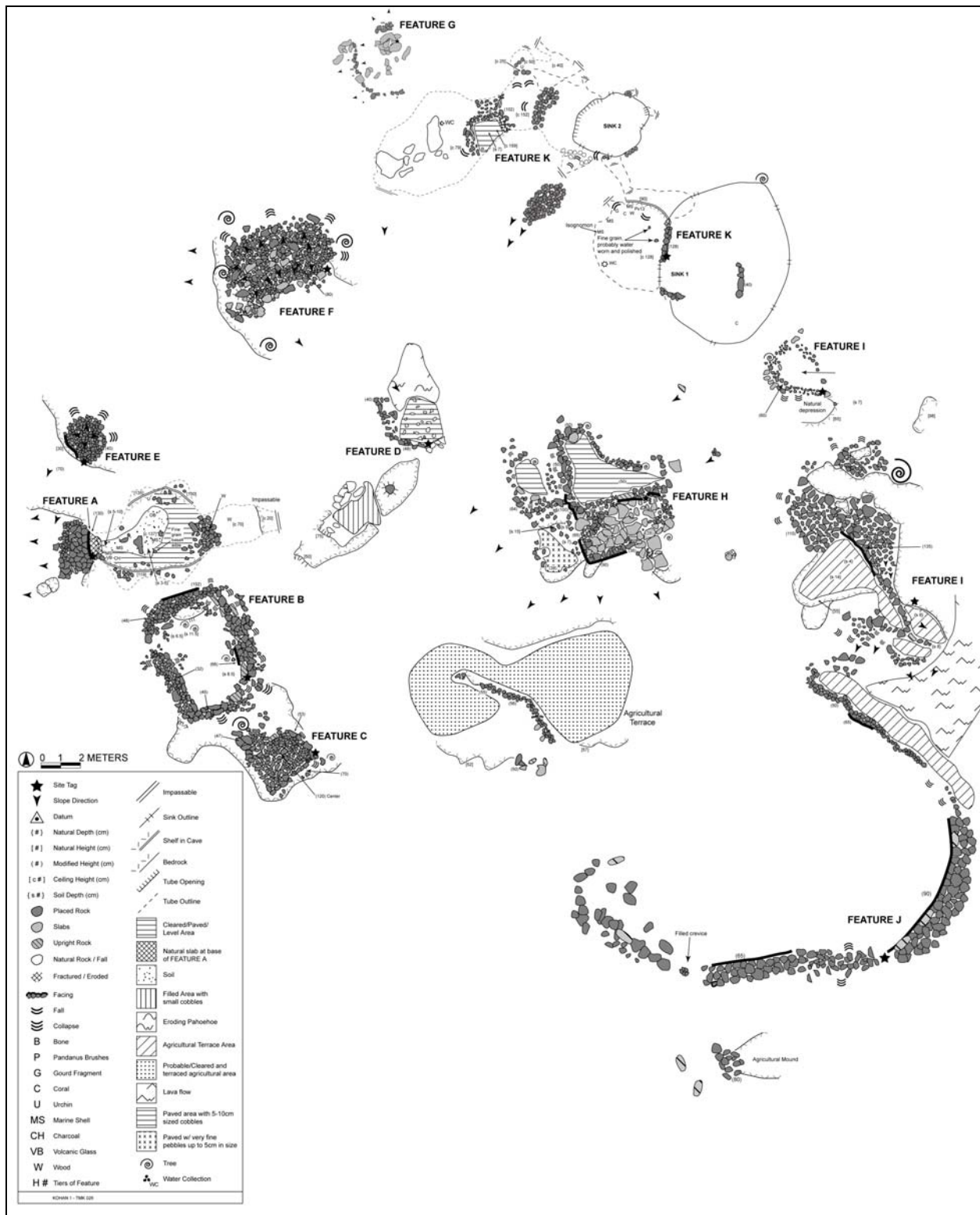


Figure 492. Site -26583, overview map of site

located 10 m southeast of Feature D. Feature I is a series of several large formally constructed terraces just southeast of Feature H, which are very likely related to Feature H. Feature J is a wall that extends south from Feature I and defines the edge of the low area just south of the probable ceremonial structure. Feature K consists of modification of Tube 1 (the eastern tube) and its related sinks.

Tube 1 extends from two sinks (Sink 1 and Sink 2) and has several tube openings, but with a single main tube (Figure 493). Sink 1 is at the southern end and has one entrance that is modified (Feature K, Figure 494). Tube 1 continues north through a small entrance from Sink 1 to Sink 2, which is modified along the south edge as well as at the entrance to the continuation of Tube 1; there are also several small side tubes that are not passable in Sink 1 (no cultural material observed). There is a western side tube blocked by apparently natural fall that is very small (approximately 30 cm), which has an agricultural mound on top of the area on the surface. Sink 2 also has some stacked rocks along its top edge, but if these were once formal they are now mostly collapsed. The modification of the Sink 2 entrance to Tube 1 is fairly extensive (see Feature K, Figure 495). The entrance chamber has an area with a soil deposit that has been cleared, as well as several uprights creating a partial wall. Modification continues throughout the tube, until it leads to an impassable area.

Tube 2 extends approximately 10 m to the east from its modified entrance (Feature A) (Figure 496). Tube 2 has some midden, several lithics including small volcanic glass flakes and a polished adze fragment (Figure 497), and more than 5 cm of soil depth over a fairly large area. The tube is accessed via a western entrance to the tube system. The tube entrance consists of a vertical drop from the surface past the construction that is Feature A. The natural entrance is the eastern side; the constructed wall/fill (Feature A, see Figure 498) is the western side of the entrance. Slab fall is present directly inside the entrance. Approximately 1 m into the tube (heading east), the tube opens into its main chamber area that measures about 5 m long by 4 m wide with a ceiling of 1.37 m. These dimensions mean that the chamber would have been a roomy and comfortable sitting and crouching space. At the east end of this chamber is a constructed "blockade", that appears to simply be the result of clearing the floor of the chamber.

The constructed blockade at the east end of the chamber consists of *pāhoehoe* cobbles and slabs reaching up to 60 cm across. The slabs appear to be ceiling collapse, so the blockade may partially be a piling of cleared stone from the chamber floor. Within the chamber area are also shelves created by the collapse of smaller adjacent tubes. These tubes are too small to enter, but on the shelves small to medium cobbles have been placed. The shelf along the northern wall holds three or four placed cobbles, while the southern shelves hold about a dozen cobbles.

Directly within the entrance of the tube is a soil deposit 5-10 cm deep. Scattered around this area are fragments of cowry, *kukui* nut (some gnawed, and not possible to determine whether some are natural or due to human presence), charcoal, and a volcanic glass flake. In the central, cleared area of the chamber is another area of soil deposit that contains more rocks, and has a depth of 3-5 cm. Found atop this deposit are more marine shell fragments, including cowry, scalloped pearl shell, and a spiral variety. Also present area are more *kukui* nut fragments, an edge of an adze (5 cm by 4 cm by 2 cm), and a small water-worn hammer-stone (6 cm by 5 cm) that would have fit well in the hand and has some bashing scars on its flat end. Closer to the north wall of the chamber, an urchin fragment and a small scatter of more volcanic glass flakes

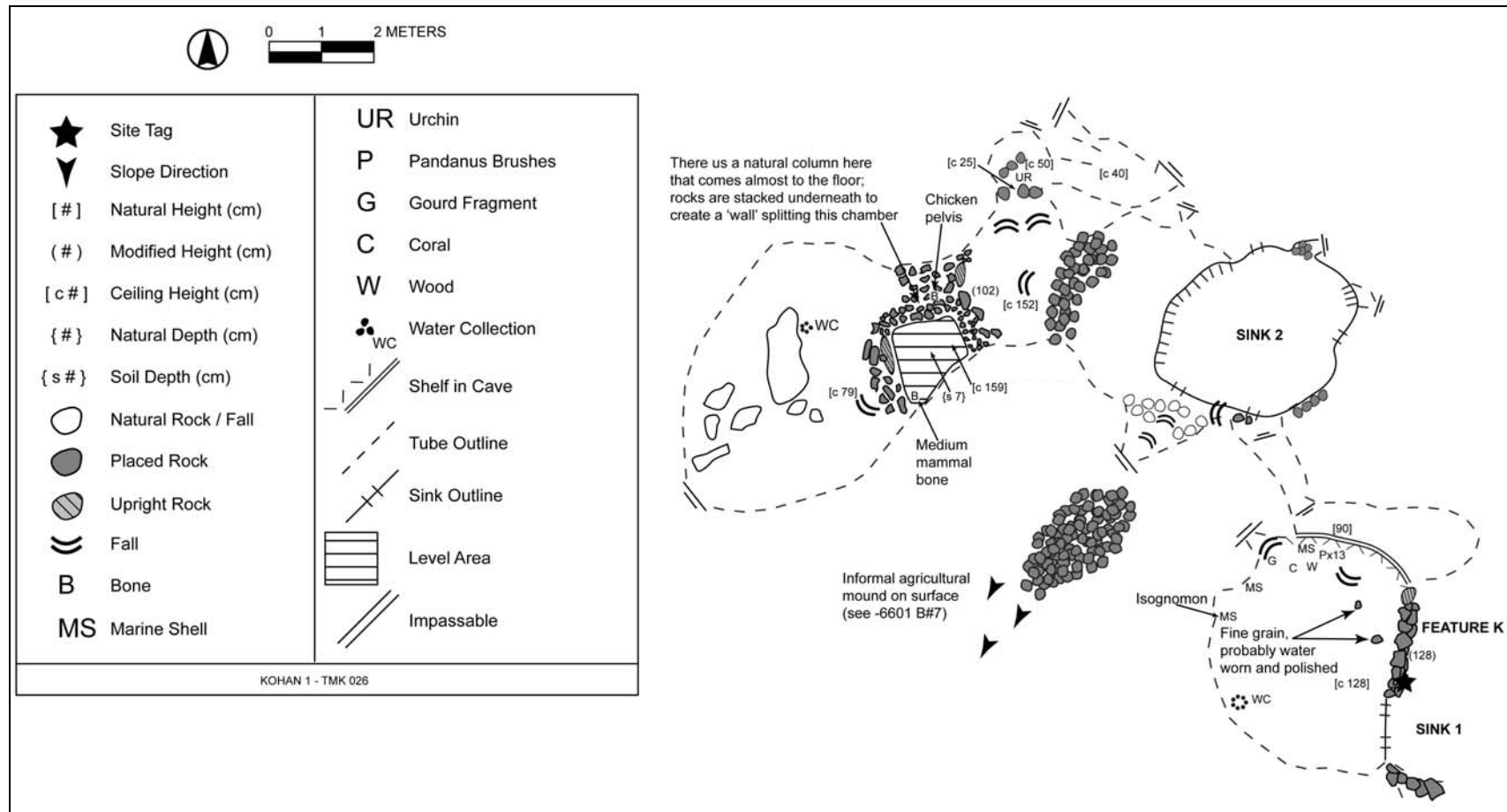


Figure 493. Site -26583, plan view of Tube 1 with Sinks 1 and 2, showing Feature K



Figure 494. Site -26583 Feature K, showing the constructed entrance to Tube 1 from Sink 1, view to southeast



Figure 495. Site -26583, showing the entrance to Tube 1 at Sink 2, Feature K. The entrance is partially blocked by a stacked wall, visible in the foreground of the photograph. The built up area inside the entrance is at the center of the photograph, and the large uprights can be seen in the background. View to southwest.

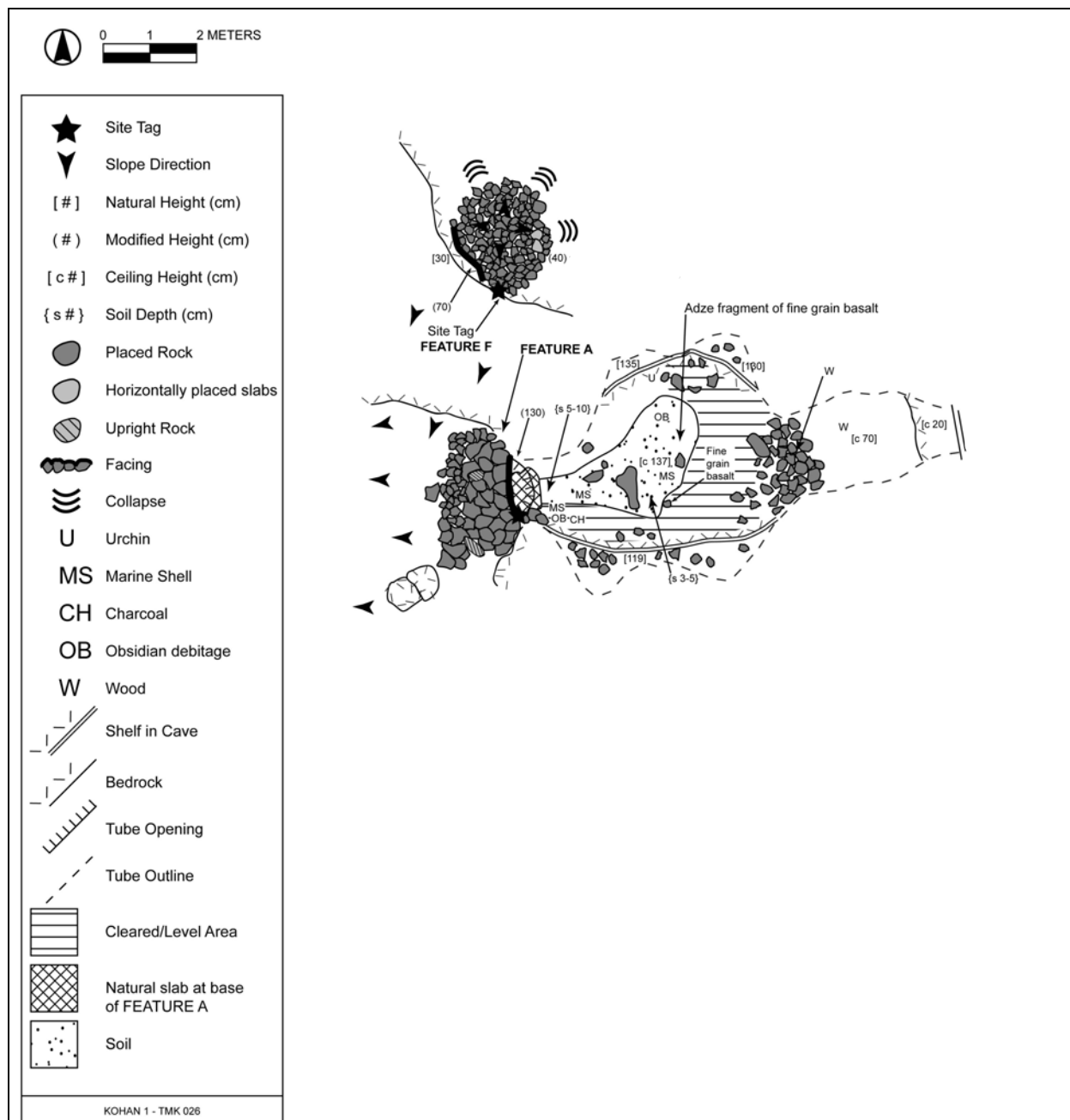


Figure 496. Site -26583, plan view of Tube 2, showing Feature A tube modification and Feature E on the surface



Figure 497. Site -26583 Tube 2, showing ground basalt lithic (adze fragment) found in tube



Figure 498. Site -26583 Feature A, showing the constructed entrance to Tube 2, view to west

are present. Some wood chips are near the constructed blockade area. Among the stones of the blockade and on the east side of the blockade are more wood chips and charcoal fragments. Some of the woodchips have charred edges. Excavation potential inside the main chamber is good because of the soil depth, midden, and artifacts present. The function of Tube 2 is an activity area and shelter.

Feature A is a retaining wall and mound of *pāhoehoe* cobbles and slabs that limits access to and modifies the entrance to Tube 2 (Figure 496 and Figure 498 above). The entrance to Tube 2 is approximately 130 cm high and approximately 1 m wide. This entrance opens into a small natural sink. In addition to the fall at the entrance, medium (15-35cm) cobbles and some medium size slabs have been placed to form vertical retaining wall that reaches the same height as the top of the tube entrance (approximately 130 cm high, four to eight courses). The retaining wall is vertical and formally stacked and this construction creates an entrance that is 50 cm by 90 cm (90 cm wide and 50 cm from the retaining wall to the edge of the tube). The function of Feature A is retaining wall that restricts and modifies the entrance to Tube 2 for shelter. Tube 2 has a fair amount of midden, lithics, and charcoal, and was probably a shelter. The restricted entrance most likely represents an attempt to formalize and probably to limit access and/or hide the tube entrance, since the wall makes the entrance smaller. The wall also makes the tube entrance fairly easy to hide by simply laying grass or vegetation over the small entrance, but also allows easy entrance.

Feature B is an enclosure situated on a *pāhoehoe* outcrop along a *pāhoehoe* flow that slopes downward to the southwest (Figure 499 and Figure 500). The positioning of the fairly level outcrop along the down slope affords an excellent view of the coastline. This feature lies at the *makai* edge of the site, and the thick vegetation has caused the partial collapse and structural damage at this feature. The enclosure was originally rectangular with distinct corners. Due to collapse, the enclosure now has an almost oval appearance. The enclosure is 5 m wide and 7 m long and is oriented northwest/southeast. Building materials consist of medium to large *pāhoehoe* cobbles, boulders, and slabs up to 0.8m across. The southeast wall is approximately 0.7 m thick, 0.4 5 m high, and is highly disturbed probably due to the large Christmas berry tree 1 m away. The east corner is basically remnant, with the collapse tumbling down the slope. A couple of upright slabs remain near this corner. The remainder of the southeast wall consists of 3 courses of boulders and slabs. The south corner is mostly intact. The southwest wall is in very poor condition. Only the lowest course of stacking still remains, but this is enough to show the clear facing on the interior. This wall is 1 m thick and 0.32 m high. It appears to have been core-filled, with large slabs and small boulders on the outside and cobbles filling the inside. The west corner at this wall is also in poor condition, though a relatively small amount of scatter at this corner and a lack of courses may imply that this corner served as an entryway. The northeast wall is in poor condition except for its central section, which is largely intact. The intact section of the wall is about 1 m thick and 1 m high and consists of up to five courses of faced, stacked large cobbles and small boulders. The northeast wall is almost 1 m thick and 0.66 m high.

The enclosure wall's interior has upright slab facing, though some slabs have fallen down. A large upright boulder is at the south end of the wall. The exterior sidewall is also constructed using some upright slabs set up in between boulders, but most of these have collapsed. The incorporation of several boulders in this wall made filling the core with cobbles necessary only in intermittent sections of the wall. The interior of the enclosure contains a lot of collapse. Due to

the heavy vegetation inside, there is a layer of mulch-like soil and plant matter that reaches a depth of up to 11.5 cm. Due to this soil and the presence of collapse within, it is difficult to picture the original floor, although it does appear to have been fairly level. Excavation potential for this feature is good based on the soil content within the enclosure. The function of Feature B is permanent habitation based on its location and construction style. This enclosure was nicely built at one time and likely required a significant time investment to construct. There is also an excellent view of the coast from this feature.

Feature C is a platform situated 2 m southwest of Feature B along a *pāhoehoe* flow that sloped downward to the southeast (Figure 499 and Figure 501). This feature may have once been connected to Feature B, but there is a large Christmas berry tree between the two features that has caused extensive damage to both features. The platform is a rough square, though it is a little longer than it is wide. There is a possible area of protrusion from the northwest corner that may have connected to the Feature B enclosure, though the large tree has torn up the bedrock quite a bit. This “protrusion” area consists of 4 or 5 slab-like boulders and a jumble of cobbles. The platform itself is raised on all sides and may have originally been roughly faced on all sides. The quality of construction is not excellent – it is kind of a jumble of materials with space in between – so it is not surprising that the facing is not more distinct. However, there are some upright slabs found along the sides, with clear examples on the north and east sides. The south and west sides have nearby collapse that look like fallen upright slabs. The rough facing was also attained by the use of stacked boulders and large cobbles, up to 4 courses high on the south side. The structure is naturally taller on the down slope of the western side, with a height of 0.7m, while the east side is 0.53 m high. The platform does not have a flat surface, but vegetation disturbance is rather high. The platform reaches a maximum height of 1.2 m. The surface of the platform contains a few slabs up to 0.3 m across that seem to have been carefully placed, but the rest of surface is made up of a jumble of cobbles and a couple small boulders. The function of Feature C is permanent habitation, based on its relationship to Feature C and the rest of the site.



Figure 499. Site -26583, Feature B (enclosure) and Feature C (platform)



Figure 500. Site -26583 Feature B, showing the enclosure, view to east



Figure 501. Site -26583 Feature C, showing the platform. Feature B is in the background, behind the Christmas berry tree, view to northwest

Feature D is a paved terrace situated approximately 12 m north of Feature B (Figure 502 and Figure 503). Between Feature B and D is an area that appears to be a small tube sink with an entrance on the south end and an opening on the north end, and a filled area. These areas are included in Feature D. The feature is situated on a *pāhoehoe* flow that slopes downward to the southwest, and runs through an area of the parcel that is part of the Kona Field System. Important areas of this system are found southwest and north-northeast of this feature. Feature D is surrounded by the other features of site -26583, and above Tube 1; Feature B lies about 12 m west. There is dense vegetation in the area, including Christmas berry, *koa haole*, and tall grasses. This portion of the *pāhoehoe* flow is very broken up. The naturally occurring cobbles covering the area indicate a high level of weathering and deterioration that may be partially due to the vegetation.

The construction of the Feature D terrace is unlike the agricultural terraces in the surrounding areas. Like the agricultural terraces, it uses the natural slope of the flow and has a faced area along the front. Unlike an agricultural terrace, however, the surface of this terrace has been paved. The terrace has a rough western face consisting of up to 3 courses of stacked *pāhoehoe* cobbles and small slabs. This face is 0.4 m high. The western face connects to the southern face at a corner consisting of jumbled boulders and cobbles. The southern face is also very rough and consists of 2 courses of cobbles and small boulders. It reaches a height of 0.45 m. The south facing ends at a bedrock outcrop. The terrace created by these two faced sides has been loosely filled in to create a level surface. A large space between the stones is used to fill the terrace. The fill consists of cobbles and boulders, but the surface is filled with smaller cobbles and has also probably been compacted through use. Scattered across the surface area are other larger *pāhoehoe* cobbles that seem to come from the upslope on the north end of the terrace and appear to be natural fall. On the terrace along the western facing area, some small boulders are lying haphazardly. These may have been a wall or other extension of the face that once rose above the terrace and has collapsed.

About 2.5 m southwest of the terrace is a tube opening lacking cultural remains. Another 0.4 m southwest, the tube was collapsed and created a small sink that stretches about 3 m and ends at the tube entrance. This tube contains no cultural remains and terminates at another opening 4 m northeast of Feature B. In between the opening near the terrace and the tube entrance, a section of the sink has been filled with small to medium cobbles. The large spacing between the stones (not tightly packed), makes a fairly level surface. This fill is about 2 m long and about 1.8 m wide. Excavation potential is fair at this feature.

The function of Feature D is habitation because the paved level surface of the terrace is more characteristic of habitation than agriculture. A *hale* could have been constructed atop this pavement. The feature also occurs in an area near another major habitation feature (Feature B) and could have been connected somehow. Some agricultural mounds are nearby as well, but not other terraces, as seen in the systems to the southwest and the north-northeast.

Feature E is a mound that has fairly formal stacking on its south side (see Figure 496 and Figure 504). It is located on top of a naturally raised bedrock exposure that is 5 m north of the entrance to Tube 2 and Feature A. This area has tall thick grasses and several Christmas berry trees. Feature E consists of small to medium size cobbles and a few medium size slabs (rocks range from 10-35 cm in diameter) that have been piled on a bedrock exposure approximately 70

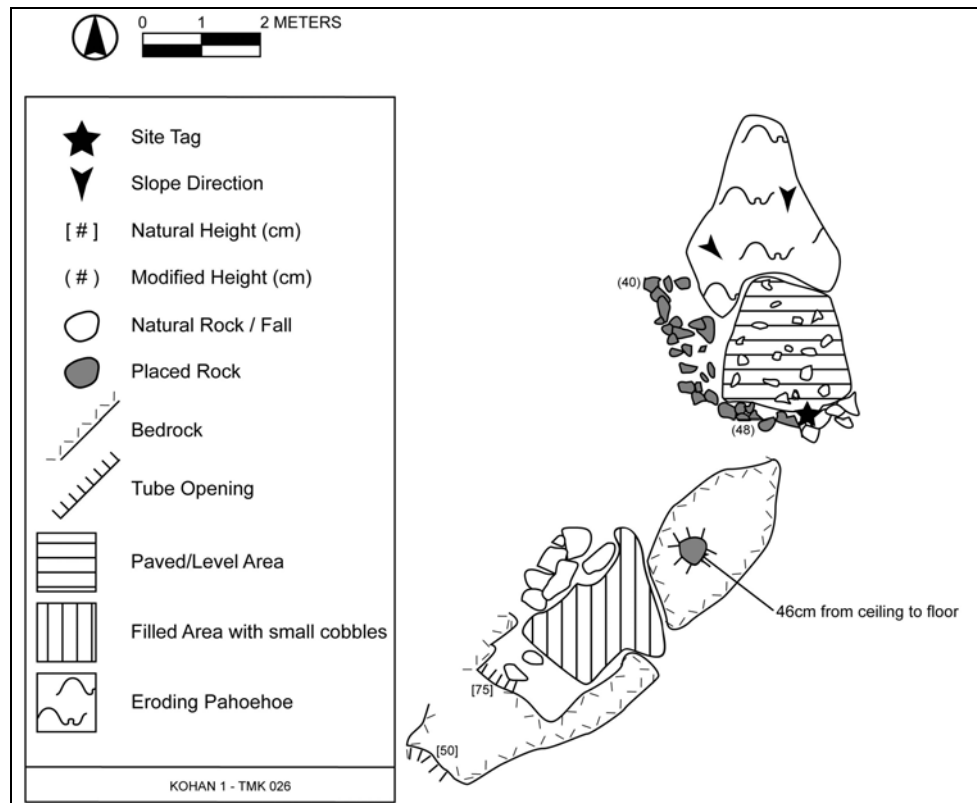


Figure 502. Site -26583, Feature D plan view



Figure 503. Site -26583 Feature D, showing the terrace, view to northeast



Figure 504. Site -26583 Feature E, showing the faced mound, view to northeast

cm high and in a mound shape. The southern edge of the mound is more formally stacked 3-4 courses high (70 cm). Portions of the mound are collapsing due to vegetation disturbance. Excavation potential is low due to a lack of midden or soil. However, excavations could reveal more information about the function of this mound. The function of Feature E is considered to be related to habitation at the site. It also could be related to the agricultural modification in this area.

Feature F is a large linear mound running approximately east/west for 6 m, with a width of about 4 m and is approximately 80 cm high (Figure 505 and Figure 506). The mound is not formally constructed but does have *pāhoehoe* slabs placed horizontally along its southeastern edge (just off the mounded area) that appear to be a partial paving. The mound is constructed on top of a *pāhoehoe* bedrock exposure that has a small opening under it on the mound's southeast side. This small opening does appear to lead to a larger tube but it is inaccessible due to the small size of its entrance. The function of this feature is as part of the larger habitation complex.

Feature G consists of a modified outcrop and a *pāhoehoe* slab pavement (Figure 505 and Figure 507) that is constructed on the southeast edge of a large 'a'ā flow (the same flow that -26574 and -26584 are located on). The feature is 3.5 m from the southeast and southwest terminus of the 'a'ā exposure. Feature G was constructed by excavating an area of small 'a'ā cobbles or utilizing a naturally depressed area. This depression was then shored up using one upright slab (on the north side) and several slabs placed horizontally to create a space of 25 cm by 25 cm by 70 cm. The horizontal slabs are well placed (faced) and the top of the outcrop is defined by several large *pāhoehoe* slabs. There are also a few stacked 'a'ā cobbles behind the feature (to the north) stacked 1-3 courses (35 cm tall), creating an alignment which runs east/west for about a meter. The area to the south of the excavated area is partially paved with

pāhoehoe slabs. The slabs are scattered and do not appear to form a trail or a particularly formal paving. This area also is leveled and is slightly raised above the surrounding area. Excavation potential for this site is fair due to the possibility of midden/artifacts inside the cupboard, perhaps behind the upright slab on the north side. However, no midden or artifacts were observed within the storage cupboard or in the surrounding area. The function of Feature G is most likely as constructed storage.

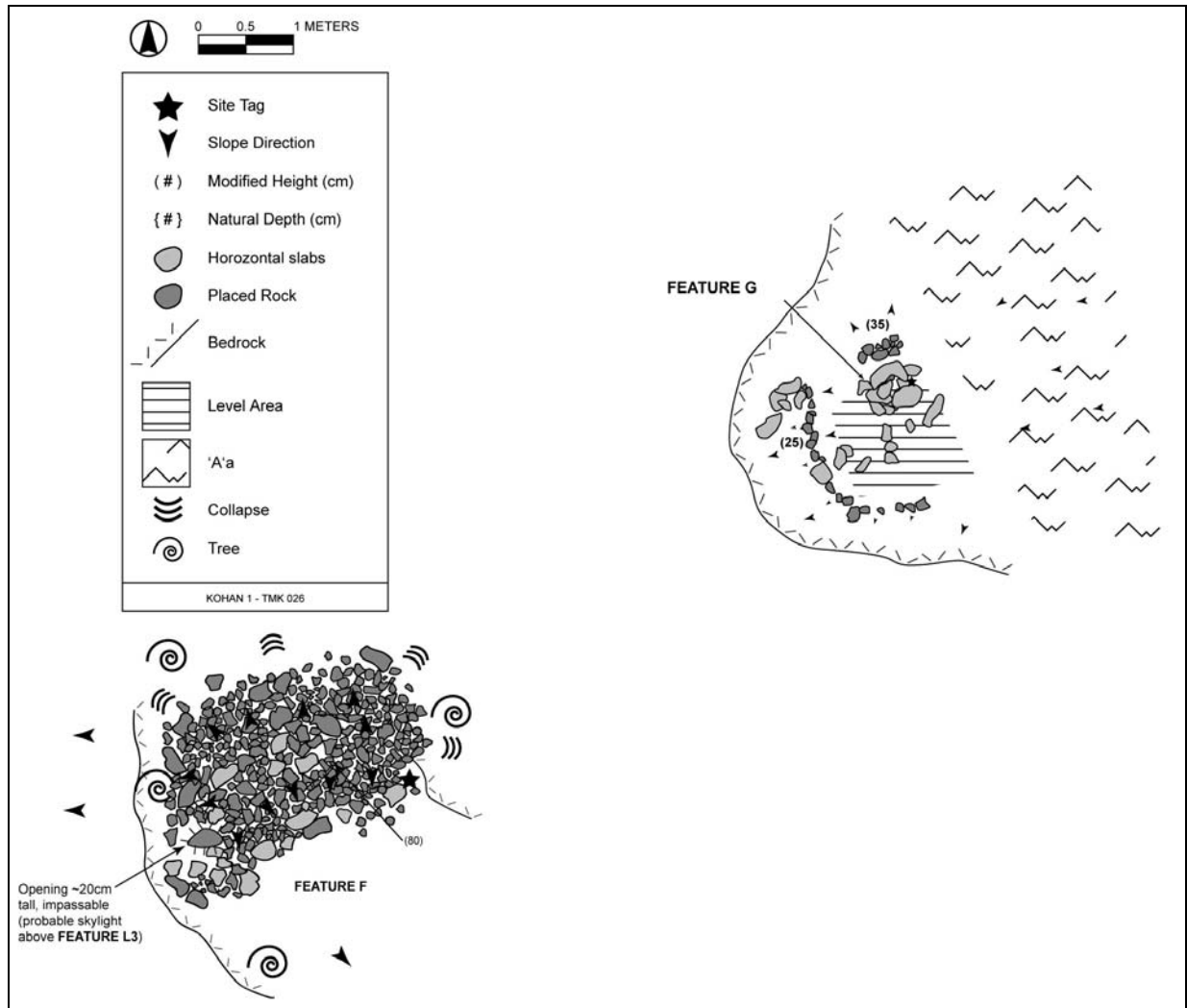


Figure 505. Site -26583, Feature F and G plan view



Figure 506. Site -26583 Feature F, showing the long linear mound. The *pāhoehoe* slabs are at the bottom right corner of the photograph, view to north



Figure 507. Site -26583 Feature G, showing the constructed storage area and 'a 'ā pavement, view to west-southwest

Feature H is a multi-tiered platform located on a *pāhoehoe* flow that slopes downward to the southwest (Figure 508, Figure 509, and Figure 510). The feature is situated on a ridge along the hillside that affords an extensive view of the coastline. Feature H consists of five distinct tiers, interconnecting to create one large platform. The map for this feature best describes the relationship of each tier to the next (Figure 508). For the sake of description, these tiers have been named H1-H5. All the building materials are *pāhoehoe*.

Tier H1 is platform-like, and the uppermost tier of Feature H (Figure 509 and Figure 510). The platform has three faced sides. The northeast side of the platform abuts the gentle down slope of the *pāhoehoe* flow. The northwest side is roughly faced with one course of large cobbles and small boulders. Some of the stones from this edge have collapsed down onto the slope. This side is raised to a maximum of 0.5 m. The southwest facing of H1 is raised 0.5 m above H3. It is stacked 2 to 3 courses and continues past H3 and onto H4, which is lower than H3. Here, the wall is higher (1.0 m), stacked up to 5 courses at its corner, and consists of more slab-like pieces than the rest of side. Collapse from this side has fallen into both H3 and H4. The southeast side of the wall is raised 0.5 m above H2. From the corner at the southwest face to about halfway down the face, the 3-4 courses of cobble stacking have begun to collapse down onto H2. The collapse ends midway down the face at a large upright slab 0.7m across. From this point to the east end of the platform, the facing of jumbled slabs, cobbles, and boulders is basically intact. The surface of the platform has been paved with small cobbles measuring 0.05-0.10 m across. It is difficult to determine how far back toward the down slope of bedrock at the northeast side of the platform this paving went. A layer of soil has washed down onto this section from the slope above. The paved area that can still be observed is quite level. A single slab about 0.3 m across sits out of place at the north corner of the platform – upon this slab is a tag that reads “TF 196 ACP 19-2-03”. Cobb et al.(2003:n.p.) identified this structure as a possible *heiau*. There are some medium-sized cobbles scattered across the surface that have probably tumbled down from the slope above.

Tier H2 lies southeast of and 0.5 m below H1 (Figure 509 and Figure 510). This tier is identified as a terrace with two faces. The northwest and northeast sides of the tier abut H1 and the down slope, respectively. The southwest side drops 0.6 m to tier H4. It consists of 4 to 5 courses of roughly stacked medium to large cobbles and small slabs. Toward the south corner of this face, the bedrock that H4 is built upon turns in toward the face a bit, leaving the foundation of this corner exposed. Turning the corner to the southeast face, the height of the tier is 0.9 m above the bedrock. This face is constructed of boulders stacked up to 2 courses with a course of large cobbles on top. Midway along this face, where H5 juts out to the southeast, bedrock is incorporated into the face. It is at about this point that the only real damage to the tier facing is present. A large Christmas berry tree has pulled down the cobbles that were stacked atop the bedrock here. The surface of this terrace appears to have once been entirely paved in slabs varying from 0.3 m to 0.8 m across. The west side of the tier is still almost entirely covered in these slabs. Collapse from H1 has tumbled down onto this terrace where it abuts H1. The east end of the tier contains collapse due to the presence of four or five *koa haole* trees. Chunks of broken slab around the trees and intact slabs along the southeast edge indicate that this tier was once completely paved with these slabs.

Tier H3 lies 0.5 m below the southwest side of H1. This tier at one point had three faces, but heavy vegetation has caused extensive damage – it is now basically remnant. At least a dozen

koa haole are growing out of this tier, as well as one large Christmas berry. Collapse from this tier has tumbled down the slope and onto H4. None of the sides of this tier can really be described because of damage, though the southwest side does have one collapsed slab and a few small boulders along it. It appears that the tier was constructed of small to large cobbles and small boulders and integrated some bedrock outcrop into its surface. The presence of a concentration of small cobbles (similar in size to those of the H1 pavement) at the west corner of the tier may indicate that this tier was once paved in a fashion similar to H1. H3 is raised 0.65 m above the down slope on the southwest side.

Tier H4 lies about 0.3 m below the collapsed southeast face of H3 (Figure 509), and 0.65 m below the intact southwest face of H2. Like H3, this tier has been damaged by the heavy vegetation, and supports about a dozen *koa haole* trees. This tier appears to have consisted of an outcrop filled in and paved with cobbles. The surface has many pebbles and small cobbles (up to 0.05 m), and it supports a soil layer near its center that is 0.08 - 0.09 m deep. The facings are basically natural outcrop at this point – they may have been built up a bit more in antiquity but have since collapsed. The bedrock facings reach up to 0.38 m above the slope.

Tier H5 lies 0.25 m below the east end of the southeast face of H2. This tier has only one face that is to the southwest, and is surrounded by bedrock down slope on its east sides. This tier consists of four slabs, up to about 0.5 m across. The two slabs that create the west half of the tier also serve as the top course of stacking in the two course facing, which is 0.36 m above the slope.

Tiers H1 and H2 area may have retained their structure better than H3 and H4 because they were originally constructed better. Fewer trees are growing out of these tiers, so fewer roots are damaging the tiers. If the construction was tighter and more formal, presumably the trees would have a more difficult time sprouting through the stones. Excavation potential for this feature is fair. Though there are no artifacts or midden on the surface, there is a soil layer in H4. More importantly, excavation may uncover something within the structure that could be dated and help determine the age of the structure.

The function of this feature is ceremonial. The feature is extensive, and H1 and H2 are well constructed. The structure is arranged in tiers, and is overall rather formally constructed with considerable energy investment; thus, this interpretation as ceremonial seems reasonable. Based on its location within this extensive Kona Field System, it is possible that it is an agricultural *heiau*.

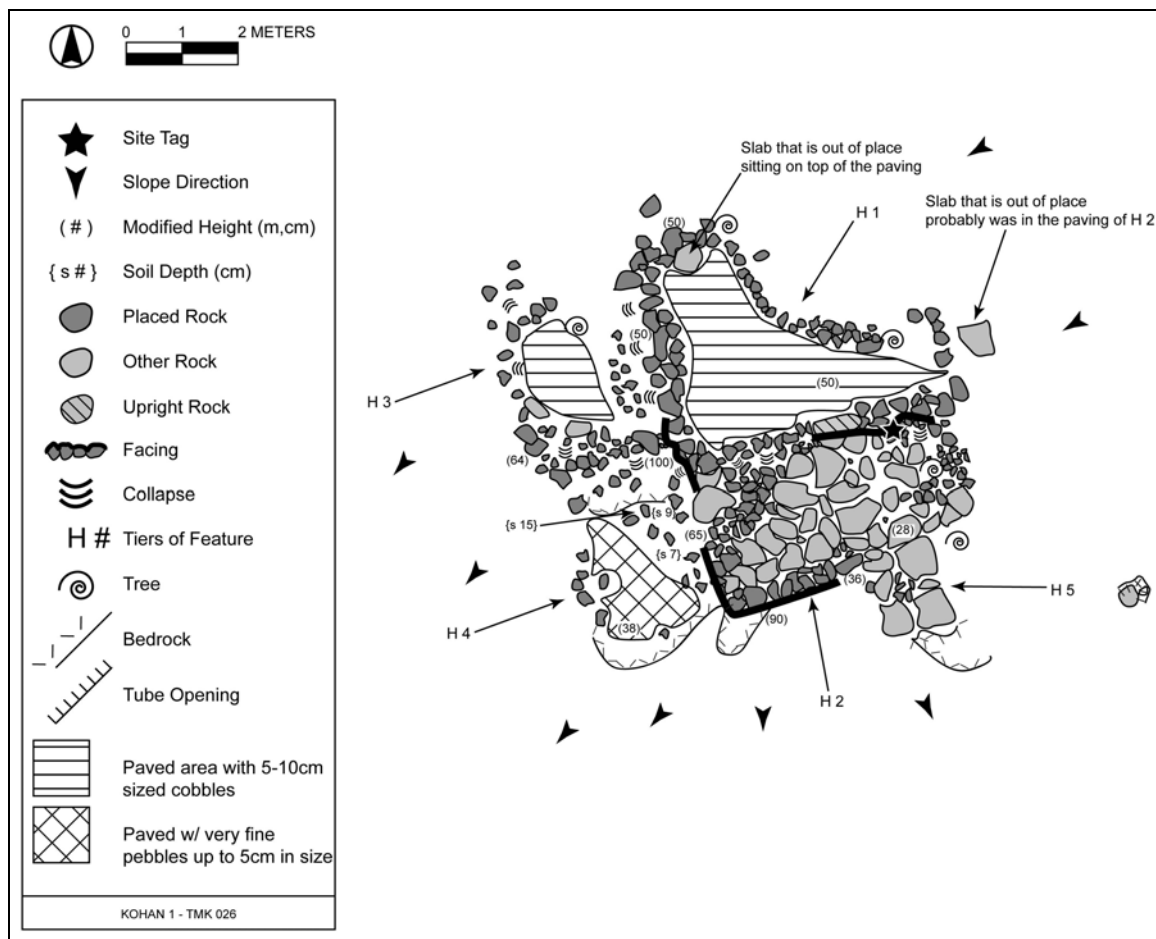


Figure 508. Site -26583 Feature H, plan view



Figure 509. Site -26583 Feature H, overview of the tiered platform, view to the north; H4 is in foreground, with H2 at top right and H1 and H3 in left background



Figure 510. Site -26583 Feature H, showing the uppermost two tiers of the platform (tiers H1 and H2). Level 'a' 'ā cobble pavement and upright slab facing of H1 are on the right side of the photograph. To the left, the slab pavement of H2 is visible, view to west

Feature I consists of a system of terraces and a platform built off of a steep bedrock outcrop (Figure 511, Figure 512 and Figure 513). The feature is located along a moderately steep incline along a *pāhoehoe* flow that slopes down to the southwest. All of the other features for site - 26583 lie to the north and west, except for the Feature J wall that represents the south boundary of the site. Feature J seems to have connected to the far southeast end of the lowest terrace of Feature I, which is at the bottom of the steep slope in a sink. Feature H lies about 10 m west. This feature is on a portion of the ridge that sits a bit higher than Feature H, and therefore the view is even better. Due to its location on the slope and the dense growth of trees, this feature has collapsed quite a bit. At one time coherent terraces and possibly steps or walkways for accessing the terraces were most likely present. The main intact areas are found at the highest and lowest sections of the feature. The feature covers a 6 m drop along the steep down slope.

The uppermost section of the feature is a large outcrop area at the top of the ridge that has been filled in for leveling and built up along the southwest and north sides. The north edge of the outcrop has been faced with slabs and large cobbles. Most of these have collapse down onto the slope surface. The southwest side of outcrop appears to have the most modification. Slabs and boulders up to 0-6 m across form a face along the outcrop. From the point where the north and southwest sides meet, to about halfway down this faced section is a platform jutting out from the face. Here the stacking is only about 2 courses high. Past the platform-like area, heading southeast the facing is built up to 1.1 m above the next tier of bedrock outcrop and consists of up to four courses. At about 1.4 m beyond the platform faced, filled area along the edge of the upper outcrop begins to drop downward in an almost ramp like "path" about 1 m wide. This constructed ramp hugs the bedrock as it descends to the next bedrock tier. The ramp is faced with upright slabs and boulders averaging 0.5 m across. Between these facing stones and the bedrock of the slope is a fill of small to large cobbles.

The platform-like area abuts the north end of the southwest face of the upper terrace. It consists of 2 courses of stacked slabs, 0.3 m to 0.5 m across, forming a rough square platform. The platform does not appear to have been very well faced, but due to collapse onto the next bedrock tier and down slope, it is difficult to determine. The surface was level, slab-paved. The bedrock tier below the platform and along the ramp best exemplifies why this section of the hillside was used for this feature. The tier stretches from a little beyond the south corner of the platform all the way to the bottom of the ramp. The bedrock is a little chunky but would have provided a rather continuous and passable tier. Many plants, including some large *koa haole*, are growing on this tier, so undoubtedly the bedrock looks a bit more chunky now. There is also a 0.04 to 0.15m deep soil layer on this tier.

East of this tier is another small tier along the bedrock supporting trees and a soil layer about 0.8 m deep. This tier is built along the bedrock with upright slabs and small boulders. This section is very short, about 1.5 m, but probably once extended to the west, creating a tier below the tier adjacent to the ramp. This facing is 0.6m high, and drops to what was likely a third tier, which is also remnant. This tier seems to have been completely constructed, as opposed to being a modified outcrop. It consists of boulders and large slabs that were probably upright but have now fallen down onto the lowest section of this feature. Little remains of this third tier or the west section of the second bedrock tier because the slope is steep and most of the materials have slid down the hill. Below these tiers is a broad faced terrace that was probably once fairly level. The terrace curves around a low sink area, from the west end of the bedrock tier system nearly

all the way to Feature J. The terrace may have once connected to Feature J, but a slide of small *pāhoehoe* cobbles mixed with some 'a 'ā cobbles extending past the east side of the bedrock tiers has disturbed and partially covered these lower reaches of the feature. This area of loose small cobbles may have also been tiered but it is currently impossible to determine. The facing of this lower terrace is about 0.65 m high. It consists of stacked small boulders and cobbles, 1-3 courses high. It is filled with small to medium cobbles, and is littered with the fall from the hillside and the collapse from the tiers. The entire feature faces down into the low sink area, which is bordered also by the Feature H ceremonial platform and the wall.

Directly between the upper modified outcrop area and Feature H is a *pāhoehoe* blister with two small openings. These openings have been filled in with small and medium cobbles. It appears unlikely that this was a burial if this was actually a transportation area between the ceremonial features. However, the blister may have served as a covered storage for some other item or it could have just been filled to facilitate movement through the area.

Near the main section of Feature I is a modification of a relatively level bedrock area. The modification consists of a constructed area at the west edge of the bedrock outcrop that serves to extend the natural level area. Directly off of the north side of the main portion of Feature I, there is a depression or low area with a natural bedrock terrace above it to the northeast. This flat, natural terrace extends several meters northeast to the next outcrop area, and approximately 10 m to the northeast, where it drops into Sink 1. Moving west past the natural level area is an outcrop that is located between Sink 1 and the depression just north of Feature I. It is around this west outcrop that modification occurs. The outcrop has been modified with large cobbles, small boulders, and slabs to give it about the same height above the depression as the natural terracing. This construction area is in poor condition, with collapse into the depression. It may have once been up to 3 courses high against the outcrop. This construction continues around to Sink 1 and ends where the natural outcropping continues to define the level area. The Sink 1-side of the construction is extensively damaged by vegetation and it is difficult to determine how this would have originally been stacked. Essentially the construction reuses what was down-sloping bedrock to the same level as the natural area to the east, creating an even larger level area. In addition to the constructed edges, the down-sloping bedrock was covered with fill and some small slabs to achieve the size. Between this feature and Feature K is a 0.1m long coral fragment (gray).

This feature functions as part of the permanent habitation complex and may be ceremonial in relation to Feature H. The view from this feature commands a long section of coastline, which could have been important to ceremonial or habitation functions. The Feature J wall also seems to set this entire section of the site apart, and seems to mark it as a special area. Excavation potential is fair for this feature. Although there is no midden or artifacts, two of the tiers contain a soil layer.

Feature J consists of a wall section surrounded by a scatter of upright slabs, small blister openings, other wall sections, and a small terrace (Figure 511 and Figure 514). Feature J represents the most southern area of site -26583. The Feature J wall begins about 5 m east of the remaining faced section of the lower terrace of Feature I. The wall is built up along a bedrock outcrop above a gentle slope down to a low sink area that sits below Features H and I. The wall heads in a southeast direction for about 3 m, where it curves and heads west. This first section of the wall is the most intact. It is constructed with large cobbles, boulders, and upright slabs 0.5 m

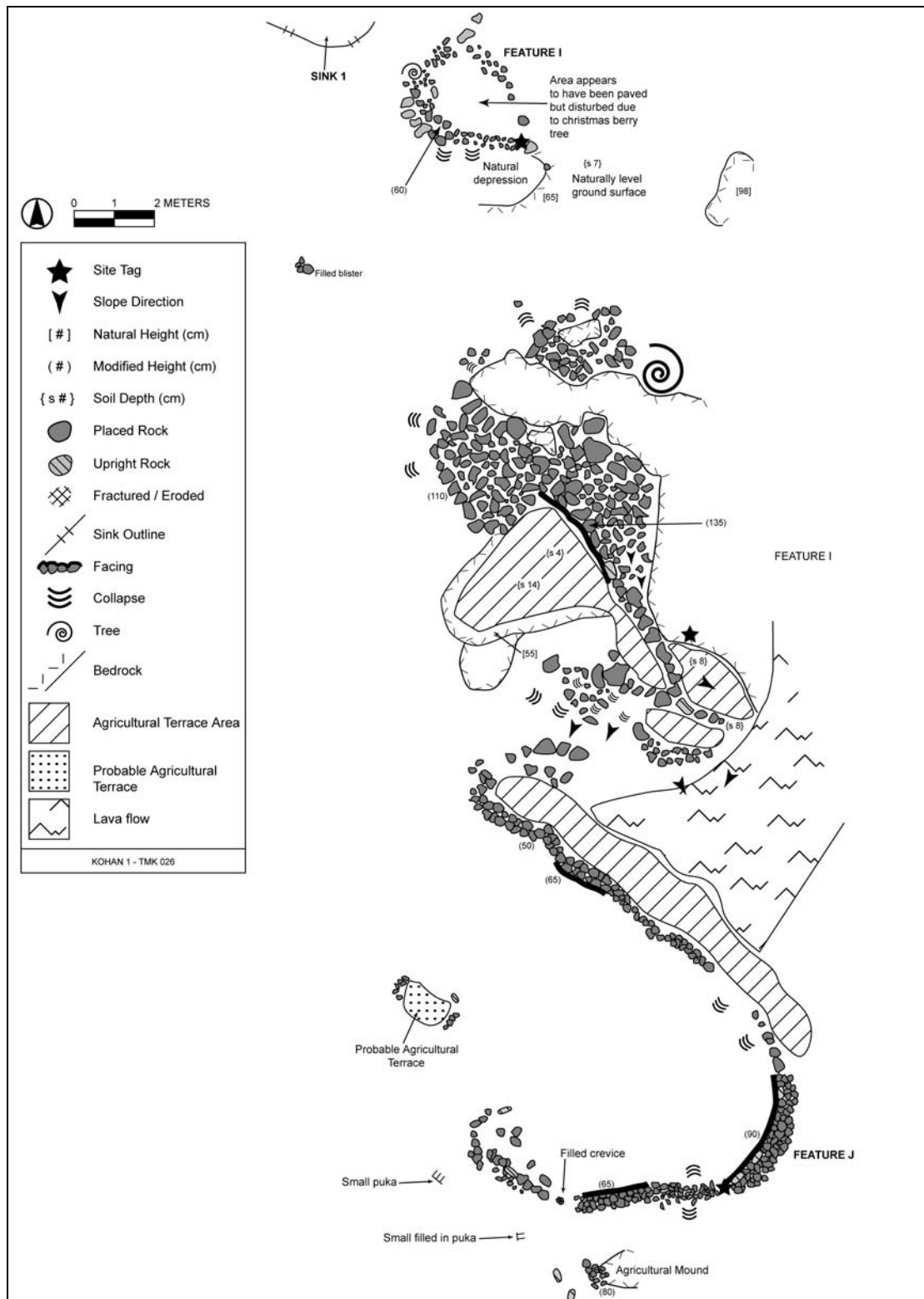


Figure 511. Site -26583 Features H, I and J, overview plan view



Figure 512. Site -26583 Feature I, showing the terrace system. The view is from the bottom of the slope on the lowest terrace, looking up. The photo scale is leaning against one of the extant terrace faces. Notice the stacked platform extension at the center-left of the photograph, beneath the tree line, view to northeast.



Figure 513. Site -26583, showing one of the constructed sides of the level area between Feature I and Feature K, view to northeast



Figure 514. Site -26583 Feature J, showing the meandering wall, view to east.

across, stacked 1-3 courses. The wall is higher on the side facing the sink, and lower on the side abutting the slope. The wall is up to 0.7 m high in this section. It is well faced on the sink side but has collapsed somewhat on the slope side. The wall turns west to follow the bedrock and presumably enclose the sink area. The wall meanders a bit along this bedrock ledge, probably following the small tube that has caved in and been filled at the end of the wall. The first several meters of this western arm are remnant with boulder and cobble collapse scattered on both sides. The construction is a bit better where the wall drops off of the bedrock. Here, large upright slabs support stacked slabs, boulders, and large cobbles. Some collapse is present, but the facing on the interior is still quite distinct. This section is about 3 m long and up to 0.75 m high. The average thickness of the wall is about 0.7-0.8 m. The wall drops off after this section. The bedrock is exposed, and less than a meter to the west, a small blister has collapsed into a crevice. This has all been filled in with small cobbles, 0.05-0.15 m in size. A small blister opening is at the west end of this filled area, and is inaccessible.

About a meter northwest of the filled crevice, another small wall section is found. It is remnant and runs not quite 5 m to the northwest. A linear, broken-up foundation remains and consists of some upright boulders and slabs, as well as some prostrate boulders and large cobbles. This wall remnant basically points to an area with some scattered small features that are included on the map. These features include some upright slabs and two small terraces, probably agricultural, that lie below Feature H. The lowest terrace in the sink is basically remnant with only a few placed cobbles and a level area. The upper terrace is in better shape, with a more

distinct single course of placed large cobbles and small boulders. This terrace is just below the H-4 tier of Feature H, about 6 m away. A little further west is another small, inaccessible blister opening. On the south side of the main wall section are several agricultural mounds (the closest one to the wall is mapped and is presumably part of Site -6601) and a scattering of upright slabs.

The function of this feature is part of the permanent habitation complex and may be related to ceremonial activity. Agricultural features lie on the other side of the wall, so the feature serves as a boundary between habitation/ceremonial and agricultural areas. Excavation potential is fair for this feature because of its proximity to the low sink. This sink contains a good amount of soil (less than 0.1 m in places) and it is in close proximity to/down slope of Features H and I.

Feature K is a modification to the Tube 1 entrance in Sink 1 and Sink 2 (Figure 493 and Figure 494). The modification is a wall-like construction built along the drip line of the tube entrance (in both sinks). The Sink 1 wall is faced on the interior, tube side, and slopes down to the bedrock on the outside. The construction consists of large cobbles, small boulders, and slabs stacked up to 4 courses on the faced side. The sloped side that connects to the bedrock coming down into the sink is a bit jumbled, probably due to the Christmas berry tree growing about a meter away from the entrance. The construction basically blocks off the north half of the tube entrance. The construction at the south end is the best section, and is the tallest, at 1.28 m. As the construction follows the slope of the sink up to the north, it declines and ends at the north end of the entrance with one upright slab about 0.3 m across. The stacked side of the construction is about 0.3 m wide, but the total width including the sloped fill connecting to the bedrock is about a meter wide. The chamber just within the entrance from Sink 1 contains some cultural modification and remains, including a water collection area, light *Isognomon* midden, charcoal, a gourd fragment, *pandanus* brushes, wood chips, and two fine grain water-worn stones that may have been polished. The chamber is tall enough to move around in if crouched down and has a kind of sloped bench along the back of natural bedrock. The floor contains significant natural fall. A tube extends off the north from the chamber and connects to Sink 2 but it is impassible due to fall.

In Sink 2, Feature K consists of modification of the Tube 1 north entrance. There is a fairly informal wall partially restricting the entrance, constructed of medium size cobbles, partially from the natural fall in the area. Beyond this is a small chamber mostly consisting of fall that has been partially cleared, and a small side tube to the north that has been partially blocked with medium size stones. Continuing down the tube there are several uprights and many placed stones that serve to restrict access and delineate space; the placed rocks utilize a natural partial column in the middle of the chamber with stacked rocks under and around it to split the chamber in two halves. The south side of the split chamber is completely cleared and has more than 5 cm of sediment, although no midden other than a small medium mammal bone fragment was found. The north side of the split chamber uses placed stones as a kind of informal pavement. A large (approximately 50 cm) upright at the west end of the south side of the split chamber is particularly well placed and delineates the cleared space from farther back in the tube.

The function of this feature is related to general habitation at the site. The presence of coral nearby (near Feature I) is indicative of a ceremonial function as well. Excavation potential for this feature is fair. Despite the lack of an actual soil layer, some midden, including charcoal, and artifacts, like the gourd fragment are present.

Overall excavation potential for Site -26583 is good. There are several large structures that are relatively intact and would be good candidates to excavate for information about construction technique as well as possibly obtaining charcoal for dating. Given the important artifacts found at this site, excavations could reveal more artifacts. Tube 2 is also a very good candidate for excavation, as there is a fair amount of midden in the tube, at least 5 cm of soil in most of the main cavern, several lithics, and charcoal. There are also several wood chips in Tube 2 that could be collected for dating, in addition to the charcoal.

The site's function is interpreted as a permanent habitation complex and ceremonial center with associated activity areas. The large multi-tiered platform (Feature H) is a probable ceremonial structure, based on its fairly large size, location with an excellent view, formal construction, and multi-tiered form. Feature I is an associated large terraced area and is likely part of the habitation/ceremonial complex, as is Feature J, which is a wall that defines the depressed area just below (south of) Feature H. Based on their location it appears that Feature J defines the habitation/ceremonial area and Feature I is a series of terraces leading up to Feature H. There is one enclosure (Feature B) that is likely a permanent habitation structure, with Feature C being closely associated. Tube 2 has midden suggesting that it was used in part as a shelter, but it also has lithic flakes and tool fragments, suggesting an activity area for tool or artifact manufacture, as does a portion of Tube 1. Several mounds (Features C and E) and a low terrace (Feature D) are also likely part of this habitation complex.

2.1.103 State Site # 50-10-28-26584

SIHP #	50-10-28-26584
FUNCTION:	Transportation
SITE TYPE:	Complex
TOTAL FEATURES:	2
DIMENSIONS:	30 m by 25 m
CONDITION:	Poor
AGE:	Pre-contact
ELEVATION:	755 ft a.m.s.l.

DESCRIPTION: Site -26584 is a remnant trail and an associated cairn (Features A and B, respectively) situated on a large 'a'ā flow running east/west through the eastern portion of the project area (Figure 515). The site itself is near the central eastern project boundary. The 'a'ā flow is situated on a gentle downslope toward the southwest. Vegetation is thick in this area, consisting of thickets of Christmas berry and *koa haole* trees and patches of tall grass. The poor condition of the trail feature is apparently due largely to the presence of vegetation. Site -26574 is located along the same 'a'ā flow, 120 m to the west-southwest. Site -26583 is 60 m to the south-southwest.

Feature A is a trail area comprised of *pāhoehoe* slabs on an 'a'ā flow (Figure 516). On the northeastern edge of the site is a trail section made up of at least four distinct slabs averaging 30 cm across. These are laid out in a linear fashion, at approximately on east/west orientation. The path probably continued in either direction but has been cut off in both directions by dense growth of Christmas berry and grasses. About 30 m south of this linear concentration is another concentration of slabs on the 'a'ā flow. Consisting of at least nine distinct slabs ranging from 20 cm to 50 cm across, this concentration does not have any linear, path-like patterns. The vegetation of the area has probably disturbed whatever paths may have been created from these slabs.

Feature A is situated on the same 'a'ā flow as site -26574, which is located approximately 120 m to the west-southwest. This is notable because Features B and E of site -26574 were also slab trails. These *pāhoehoe* slabs placed on the 'a'ā flow were surely used as transportation across the rough 'a'ā terrain.

Feature B is a small cairn constructed on an 'a'ā flow with 'a'ā cobbles that average 30 cm in size (Figure 517). The cairn is constructed to a height of 80 cm and is approximately 60 cm in diameter. This small cairn is constructed with seven 'a'ā stones. The function of Feature B is as a marker for Feature A (*pāhoehoe* slab trail).

The site's function is interpreted as transportation. The *pāhoehoe* slabs placed on the 'a'ā would have facilitated movement across the rough terrain. The cairn appears to be a trail marker. There is no excavation potential for this site.

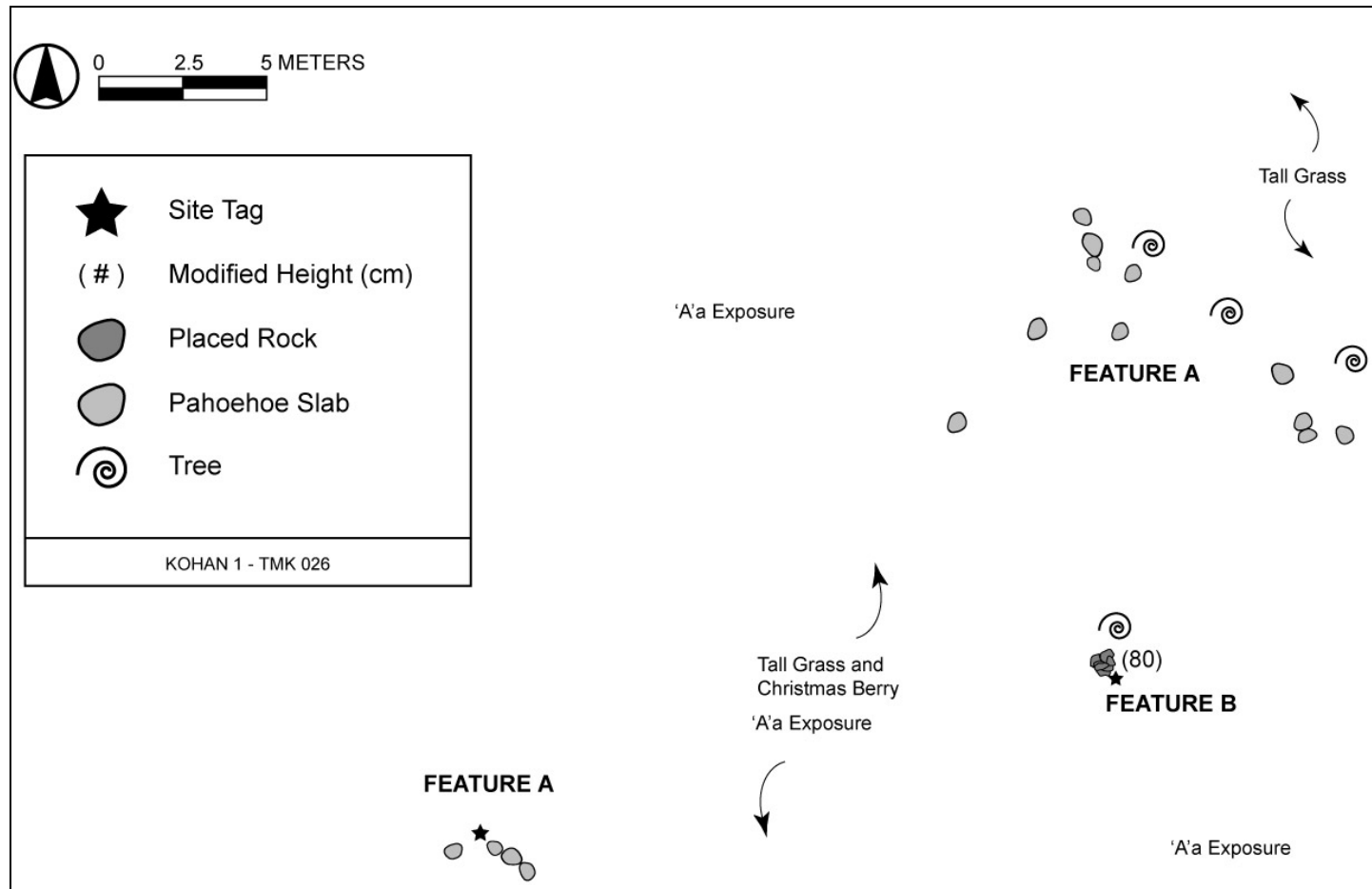


Figure 515. Site -26584, plan view



Figure 516. Site -26584 Feature A, showing *pāhoehoe* slab trail, view to east



Figure 517. Site -26584 Feature B, showing the 'a'ā cairn, view to south

2.1.104 State Site # 50-10-28-26585

SIHP #	50-10-28-26585
FUNCTION:	Agriculture
SITE TYPE:	Platform and Enclosure
TOTAL FEATURES:	2
DIMENSIONS:	16 m by 16 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	730 ft a.m.s.l.

DESCRIPTION: Site -26585 consists of an enclosure and small platform (Figure 518) located on a west sloping undulating *pāhoehoe* flow in the west half of Sample Area C of the Kona Field System in the east end of the project area. The vegetation on the site consists of overhead-high *koa haole* and Christmas berry trees, air plant, *liliko*i vines and *noni*.

The site consists of two features, Feature A (an enclosure), and Feature B (a small platform) located approximately 5 m apart. Though amidst the Kona Field System, Site -26585 exhibits a somewhat different style of construction than surrounding areas, consisting of more formal and distinct structures, and was therefore recorded as a separate site.

Feature A is a 6 m by 5.5 m enclosure (Figure 518 & Figure 519). A raised natural outcrop of *pāhoehoe* bedrock abuts the edge of an 'a'ā flow to almost form a natural enclosure. The interior of the natural enclosure has been cleared and small to medium boulders have been stacked atop the *pāhoehoe* outcrop and the 'a'ā flow to provide better definition and enhance the walls of the enclosure. The stacked boulders consist of both *pāhoehoe* and 'a'ā but are primarily *pāhoehoe* stacked atop the *pāhoehoe* outcrop and 'a'ā atop the 'a'ā flow. Atop the *pāhoehoe* outcrop, which makes up two full sides of the enclosure, the stacking ranges from one to two courses high, with the utilization of some *pāhoehoe* uprights to create facing on the northwest wall of the enclosure. The south corner, where the *pāhoehoe* abuts the 'a'ā is well-defined by the faced stacking approximately three to four courses high. The open end of the enclosure faces the west (downslope). There is a soil deposit on the floor of the enclosure's interior that ranges from 6-20 cm deep.

The function of Feature A is most probably an agricultural enclosure, since the floor area is not particularly level and construction is fairly informal compared to most other habitation structures in the area. The location amongst the intensive Kona Field System suggests that this could be a more informal habitation such as a sort of field house, but the feature also very well may be only agricultural (i.e. for aborigiculture).

Feature B of Site -26585 is a small platform located approximately 5 m northeast of Feature A (Figure 518 & Figure 520). The platform is square, measuring approximately 2.5 m by 2.5 m. It is constructed of *pāhoehoe* cobbles and small to medium boulders to a constructed height of 120 cm. While the platform does not have any formed facing, it does have well-defined corners and an upper surface that is paved with small *pāhoehoe* cobbles and is relatively level and flat.

The function of the Feature B platform appeared to be a possible burial platform or temporary habitation. Neither function was supported when test excavations were performed, although

burial was ruled out. Test excavation results (see below) indicates that this is an agriculture feature despite the construction, and is possibly a planting bed.

The site's function is interpreted as agriculture, with temporary habitation as a possible secondary function. This is not surprising given its location within the Kona Field System, but the construction of these adjacent features is somewhat different than the surrounding agricultural modification and probably had a more specialized use. Further excavation potential is minimal, considering that a test excavation revealed little cultural material.

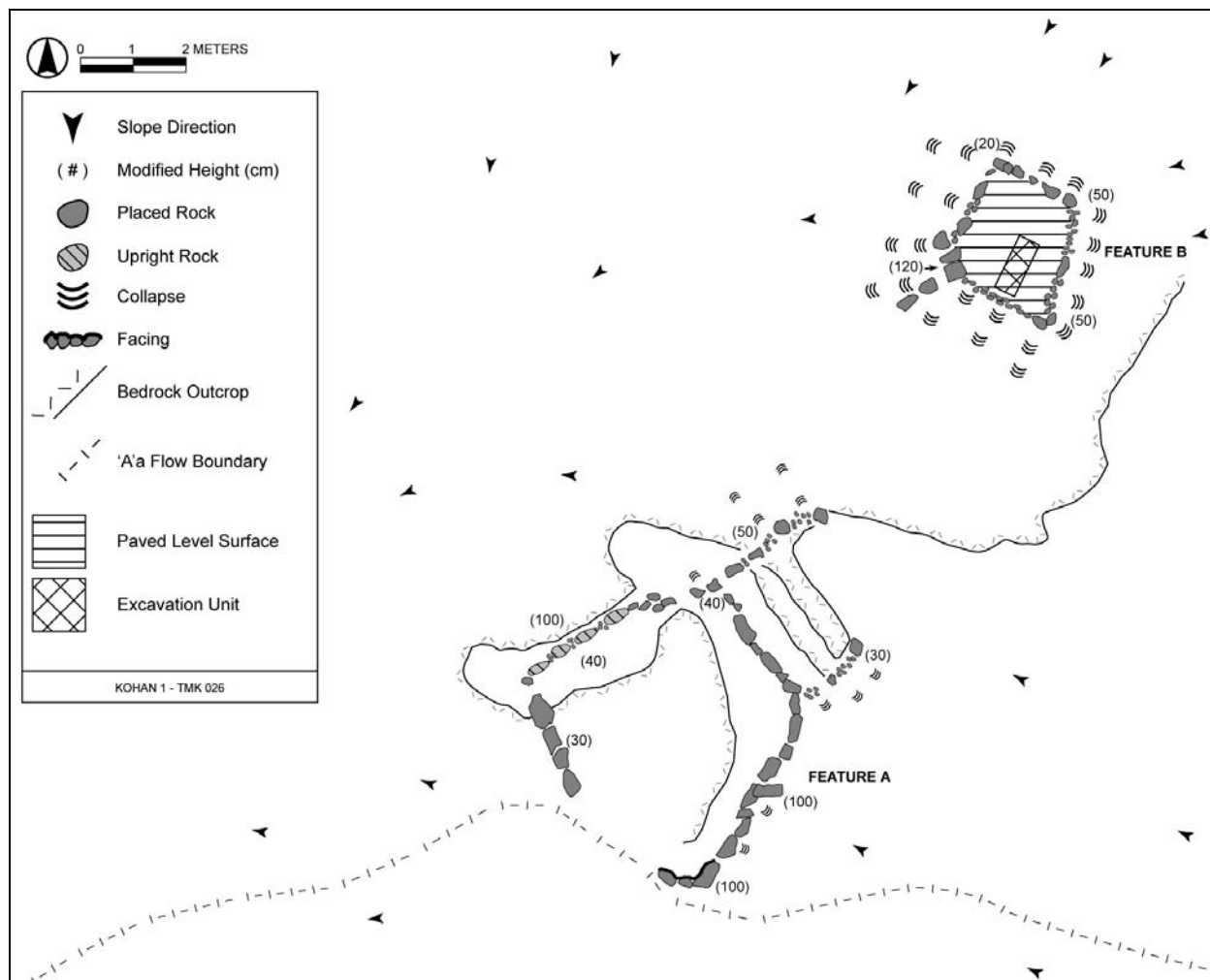


Figure 518. Site -26585, agricultural platform and enclosure, plan view



Figure 519. Site -26585 Feature A, showing the enclosure, view to south-southeast.



Figure 520. Site -26585 Feature B, showing the platform, view to east

Testing Results

Test excavation was conducted to assist in determining the function of Feature B and to determine whether a burial is present (Figure 521). Stratum I consists of platform construction and extends to 40 cmbs. Small cobble paving on the surface with small to large *pāhoehoe* angular cobbles on top of the eroding bedrock. Stratum II extended from 40 cm to 100 cmbs and consisted of sedimentation from above mixed with eroding bedrock. The lack of findings confirms that this is not a burial, and also suggests this is not a permanent habitation. The platform's function is most likely is agricultural (possibly a planting bed) or for very intermittent habitation in relation to agricultural.

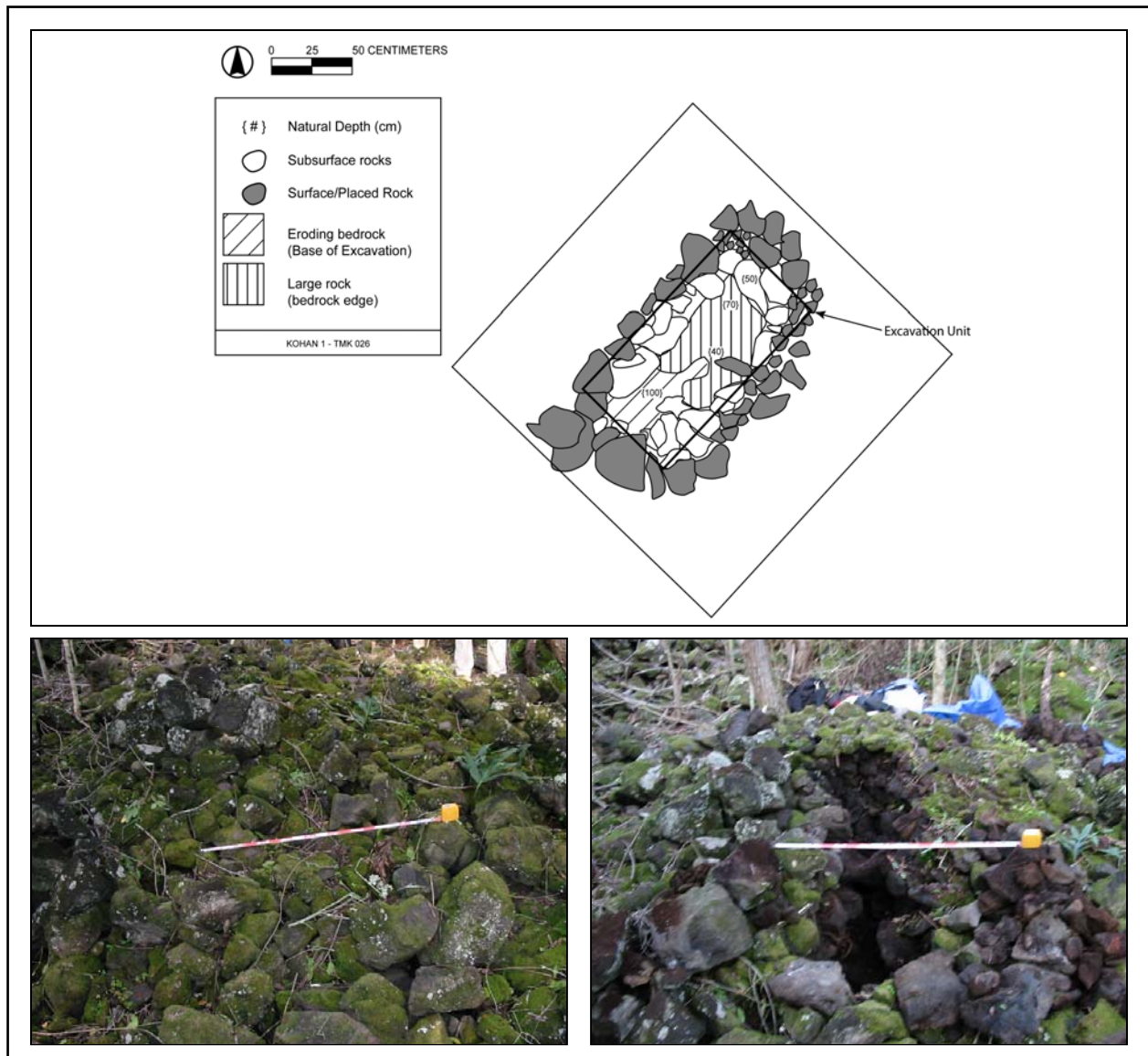


Figure 521. Site -26585, excavation figures clockwise from top: plan view of unit; pre-excavation photograph; same post-excavation

2.1.105 State Site # 50-10-28-26586

SIHP # 50-10-28-26586
FUNCTION: Marker
SITE TYPE: Cairn
TOTAL FEATURES: 1
DIMENSIONS: 1 m by 0.8 m
CONDITION: Good
AGE: Pre-contact
ELEVATION: 740 ft a.m.s.l.

DESCRIPTION: Site -26586 is a small cairn in the southeast portion of the project area (Figure 522 and Figure 523). Surrounding vegetation consists of *koa haole* and very tall grass, and there is evidence of pig disturbance as well as some possible bulldozer activity in the area. The topography is fairly flat, sloping slightly to the southwest, and the cairn is 80 meters north of Hina-Lani Street and 40 m south of the *ahupua'a* wall.

The cairn is approximately 0.8 meters by 1 meter and 60 centimeters in height. It consists of a pile of medium size cobbles (30-45 cm in diameter) one to two courses high, with an upright supported by surrounding stones in the middle. Although there is a large amount of loose eroded bedrock in the area, this configuration of stone with an upright in the middle is unlikely to be natural. There is no excavation potential given the lack of midden, artifacts, or soil depth.

The function of this site is as a marker. Given its proximity to the *ahupua'a* wall (approximately 40 m) it may be related to site -10712. No other function is apparent and there is no excavation potential.

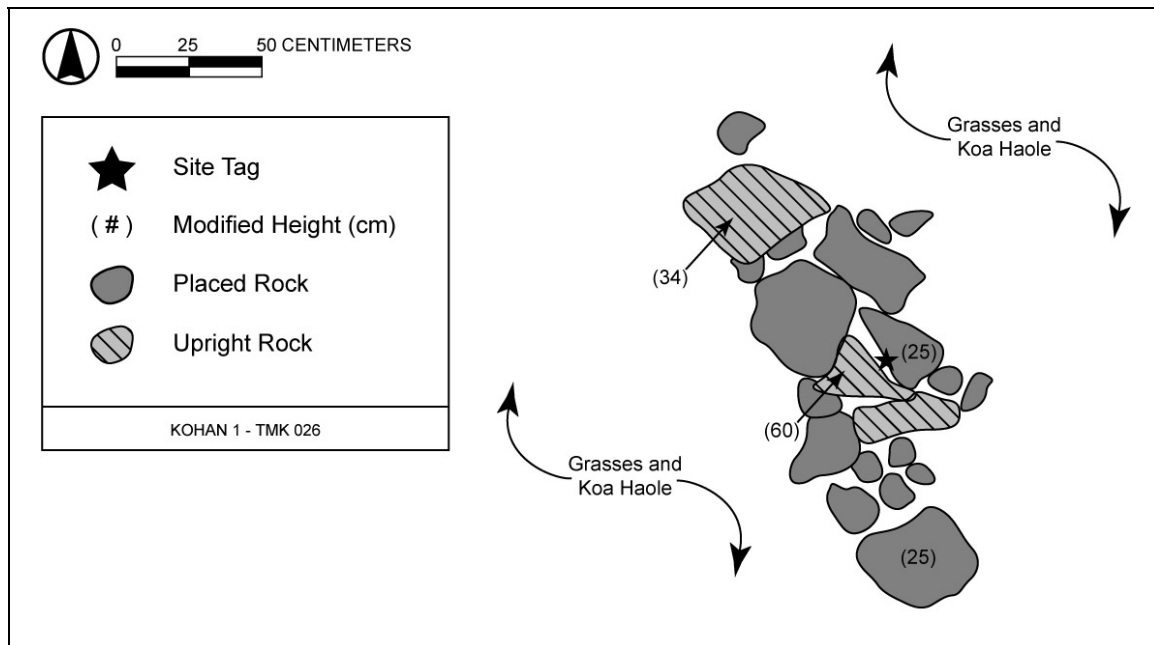


Figure 522. Site -26586, plan view of small cairn



Figure 523. Site -26586, showing the small cairn with an upright, view to southwest

2.1.106 State Site # 50-10-28-26587

SIHP # 50-10-28-26587
FUNCTION: Agriculture
SITE TYPE: Mound
TOTAL FEATURES: 1
DIMENSIONS: 3.5 m by 2.5 m
CONDITION: Poor
AGE: Pre-contact
ELEVATION: 710 ft a.m.s.l.

DESCRIPTION: Site -26587 is a partially collapsed formal agricultural mound (Figure 524 & Figure 525) located approximately 30 m north of the *ahupua'a* wall (Site -10712) and approximately 30 m south of the *mauka/makai* trail, Site -10714. The surrounding area slopes downward to the south and is near the southern extent of the Kona Field System. Vegetation consists of sparse *koa haole*, air plants, and *noni*. The site is surrounded by agricultural features (associated with the Kona Field System), especially to the north and east. This mound is different in character than other agricultural features in the surrounding area due to the formal stacking on its west side, which is fairly atypical construction style for the other modification seen within the Kona Field System.

The mound is approximately 2.5 m by 3.5 m (north/south) by 1 m high. The west side is the most intact portion of the structure (Figure 525), and it consists primarily of horizontal slabs (approximately 25-40 m in diameter) stacked to form a vertical face six to eight courses tall and 1 m in height. The majority of the remainder of the structure is collapsing on all other sides, probably due to disturbance by vegetation. The top of the structure is not level but is more mound-like, possibly due to collapse on the side, although there is one large horizontal slab still in place on the top of the structure. The mound was built on a small bedrock exposure that is nearly level with the ground surface on the south side and covered by the structure collapse on the north side.

The site's function is interpreted as an agricultural mound. The feature's size would be very small for habitation, and the top of the structure is not very level. The site is located adjacent to a large agricultural area and may be associated with it, however, it was initially determined to be unlikely that the mound functioned as an agricultural feature since it has a high, faced vertical side, and it is not a terrace or retaining wall (it is elevated on all sides). Because this was considered a possible burial mound, a test excavation was done (see testing results below); no cultural material or remains were found. Based on this test excavation, the site appears to be an agricultural mound likely associated with the Kona Field System. Excavation potential is poor due to a lack of midden or soil deposits.

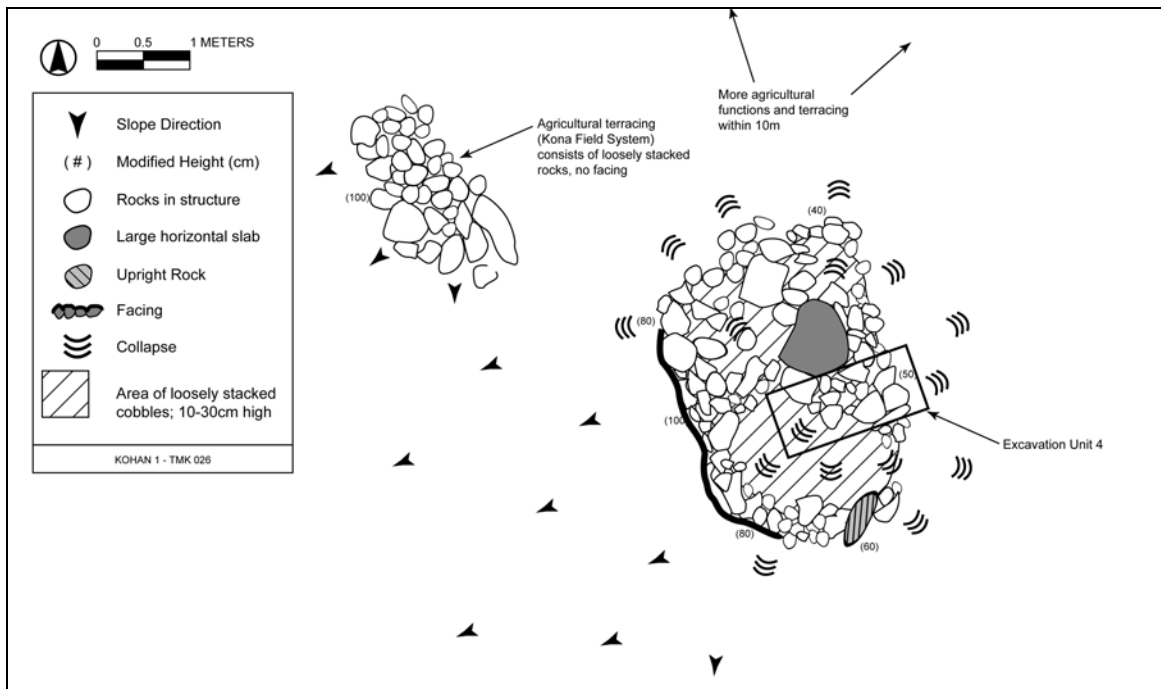


Figure 524. Site -26587, agricultural mound, plan view



Figure 525. Site -26587, showing mound, view to east

Testing Results

Test excavation was conducted to assist in determining site function and to determine whether a burial is present (Figure 526 & Figure 527). Stratum I consists of boulders, cobbles, and rubble of the mound construction. Stratum II appears to simply be accumulated sediment (cobbly sandy loam) and eroding bedrock, and it is virtually identical to the surrounding exposed soil.

No artifacts, midden or bones were found during excavation. Excavation revealed that the mound was constructed on top of a naturally elevated area of bedrock (approximately 50 cm maximum above the surrounding area), and utilizes small cobbles throughout most of the interior of the mound (5-15 cm) and medium to large cobbles for the facing on the west side, the top of the structure, and on the western bottom portion of the west side (medium to large cobbles are 15-50 cm in size). The mound is built up 70 cm in the center portion of the structure where the bedrock is highest, and 100 cm at the highest (on the western faced edge). Although this is fairly large and formal for an agricultural mound, there is no evidence that this feature functioned in any other way (no bones, no midden found, no special interior construction for burial chamber, etc.). This feature is, however, in a portion of the Kona Field System (see Site -6601 Sample Area D) with several other fairly formally stacked and faced features (terracing, etc.) and is not inconsistent with those agricultural features. Therefore, the function of this mound is agricultural clearing or planting mound, probably from clearing the area that is currently level behind it (to the east). The wall was likely formally stacked as a retaining wall for the small cobbles (a mix of *pāhoehoe* and 'a'ā cobbles) that make up the mound and are generally common in this area. The formal construction may be more consistent with historic agricultural practices.

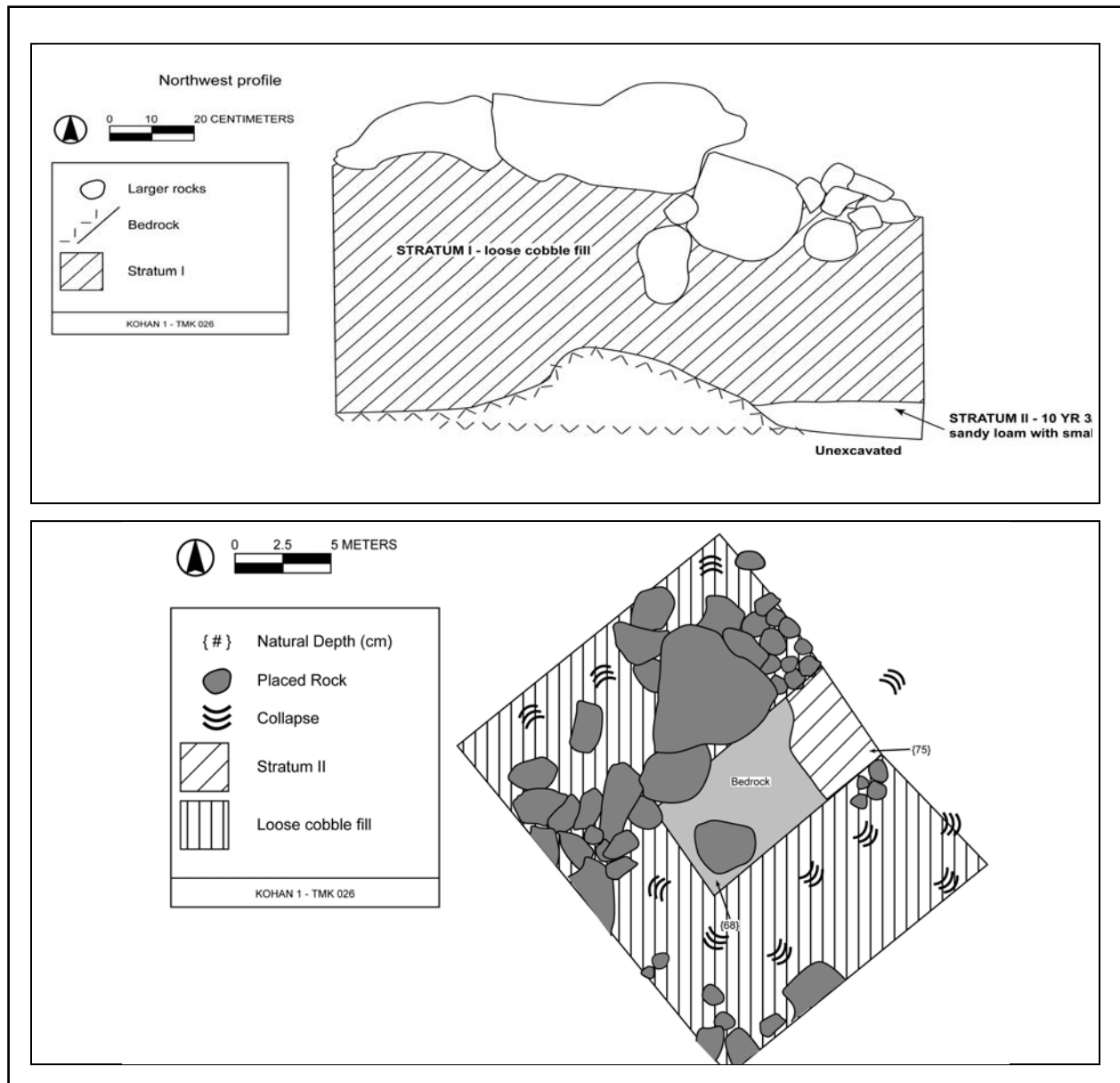


Figure 526. Site -26587, excavation figures: top is profile of northwest wall, bottom is plan view



Figure 527. Site -26587, excavation figures: top is pre-excavation photograph, facing west;
bottom is post-excavation showing trench through east (informal) side of platform

2.1.107 State Site # 50-10-28-26588

SIHP #	50-10-28-26588
FUNCTION:	Permanent Habitation
SITE TYPE:	Enclosure
TOTAL FEATURES:	1
DIMENSIONS:	7 m by 6 m
CONDITION:	Good
AGE:	Pre-contact
ELEVATION:	760 ft a.m.s.l.

DESCRIPTION: Site -26588 is an enclosure located on a relatively steep southwest slope of an undulating *pāhoehoe* flow along the eastern edge of the project area. The site is near Site -10714, approximately 27 m to the north of the trail. The vegetation surrounding the site consists of overhead high *koa haole* and Christmas berry, air plant, and *laua 'e* ferns.

The site consists of a single large very formal enclosure (Figure 528). The enclosure measures approximately 7 m by 6 m, and is constructed of 'a'ā cobbles and boulders and *pāhoehoe* slabs. All walls of the square enclosure are faced on the exterior. The walls are constructed primarily of 'a'ā boulders. Some large *pāhoehoe* slabs have been uprighted for the facing and in the south wall it is evident that the construction method is rubble-filled. Some *pāhoehoe* boulders have also been utilized in the walls. There is some collapse of the walls, particularly in the northeast and southwest corners. Due to the natural slope of the ground surface, the west wall has a taller constructed height than all the other walls of the enclosure, and is stacked a maximum of seven courses high. The interior sides of the walls are faced as well. Based on intact portions of the interior wall, it is clear that it was faced partially with upright *pāhoehoe* slabs and is stacked at what appears to be a maximum of three courses high.

The interior of the enclosure is filled to create a level surface atop the sloping *pāhoehoe* flow. There are two distinct areas of paving within the enclosure (Figure 529 & Figure 530). The most formal of the two paved areas is an extremely level, smooth *pāhoehoe* slab pavement. The slabs average approximately 0.5 m across and are well fit together. This slab pavement covers the floor of the intact portion of the west floor of the enclosure. The east boundary of the slab pavement is bounded by a placed upright slab alongside a few horizontally stacked slabs that create a step up to the second paved area of 'a'ā cobble pavement. This 'a'ā paving is approximately 30 cm above the slab pavement. The pavement is constructed with small 'a'ā cobbles and creates a relatively level, smooth surface. The cobbles are tightly fit together. It is unclear whether either pavement originally continued the entire north/south length of the enclosure interior since almost the entire south end of the enclosure's interior has been heavily disturbed. A number of boulders and slabs, primarily from the southwest corner of the interior, have apparently been tossed into the southeast corner of the interior. It is possible that this disturbance is the result of looting or possible previous archaeological investigation, but it could also be the result of heavy vegetation disturbance.

The site's function is interpreted as permanent habitation. The enclosure site type is characteristic of habitation with a level interior surface and formal walls. The formality of the structure is also indicative of permanent habitation given the energy investment required. The

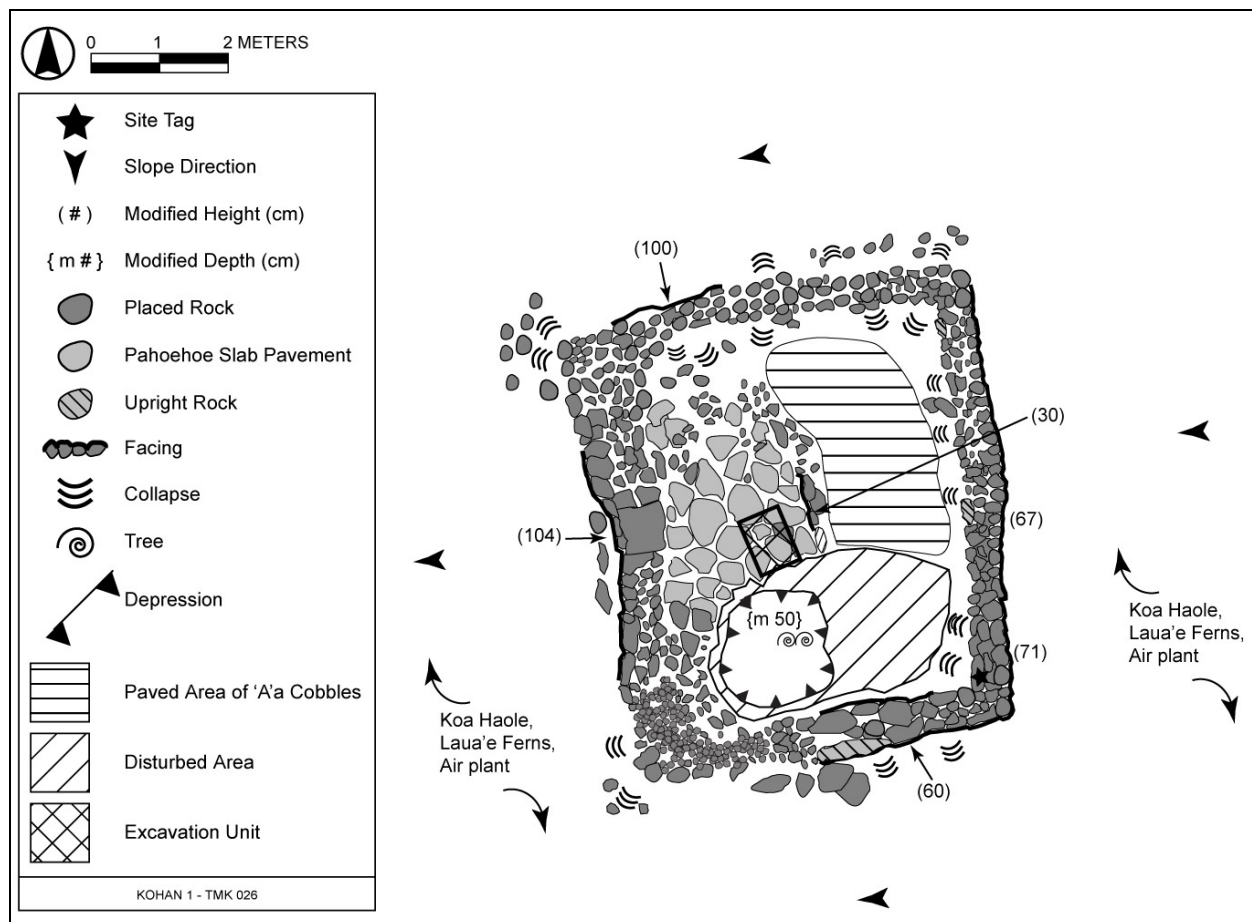


Figure 528. Site -26588, plan view of formal enclosure



Figure 529. Site -26588, showing the central west portion of the enclosure; note the area of tightly-fitted slab pavement at the center of the photograph and depressed/disturbed area in right foreground



Figure 530. Site -26588, close-up view of *pāhoehoe* slab pavement, view to south

site is located in the midst of an area of concentrated, high density Kona Field System (Site - 6601) modifications, which may indicate some relationship between the permanent habitation and the agricultural activities. The formality of the site could indicate a ceremonial component, but there is no other evidence to support this.

Testing Results

Test excavation was conducted to assist in confirming site function (Figure 531 &

Figure 532). Stratum I, 0-45 cmbs, consists of paved structure and 'a'ā cobble fill under the paving. Stratum II, 45-95, consists of 'a'ā cobble fill with soil and a small amount of midden consisting of *kukui* fragments and charcoal. The amount of soil increases with depth until the naturally eroded bedrock surface. Lack of findings indicates that burial function can be excluded. Habitation continues to be the most likely function. The charcoal may suggest a hearth area, possibly located adjacent to the trench in the depressed/disturbed area.

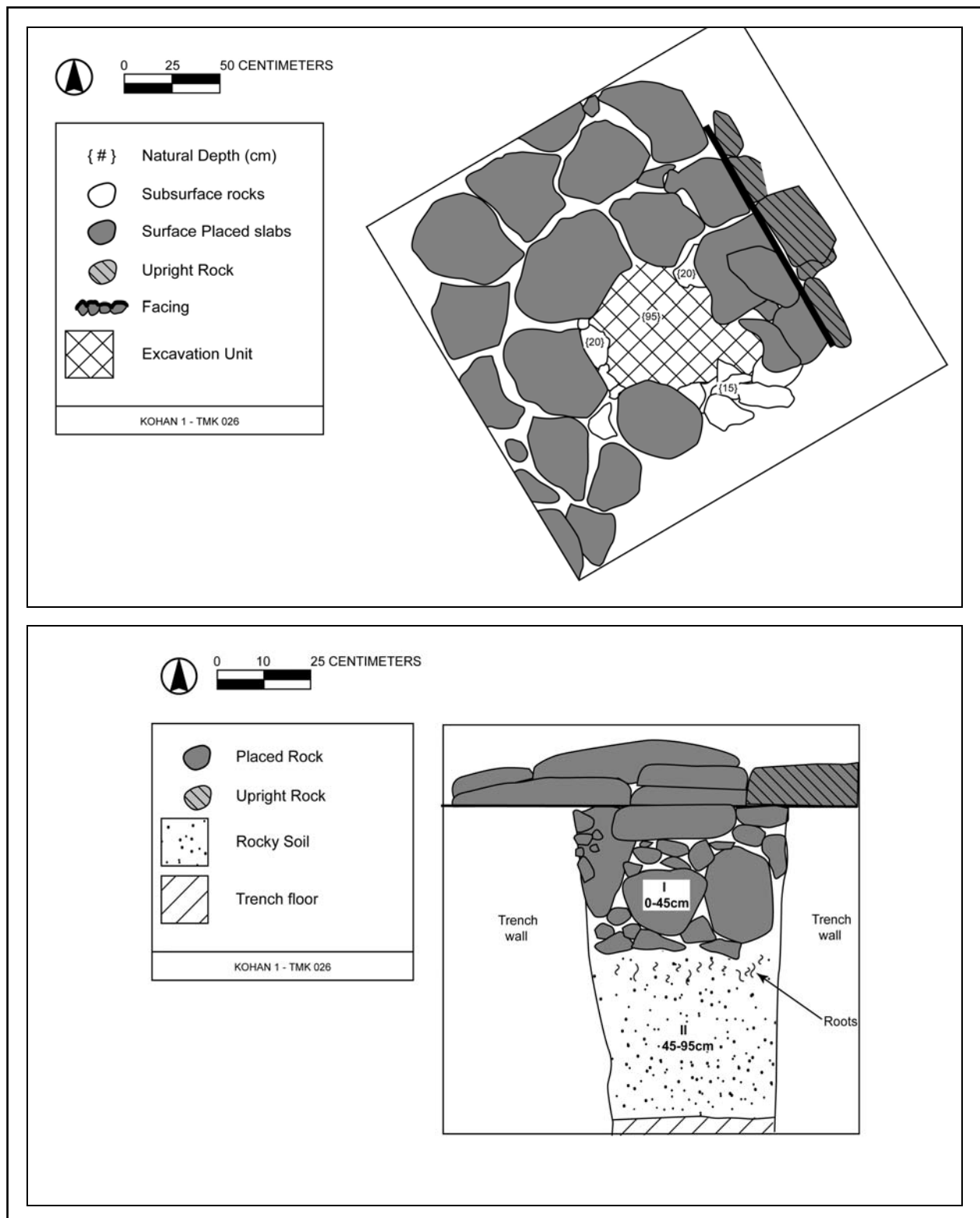


Figure 531. Site -26588, excavation figures: top is plan view of unit, bottom is profile of northwest wall



Figure 532. Site -26588, excavation figures: top is photograph of paved area pre-excavation, bottom is post-excavation, facing north