ELEVATED HAWAIIAN TRAILS OF THE PUNA DISTRICT ISLAND OF HAWAI'I

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The elevated trails of lower Puna appear to be unique in that, to the knowledge of the author, they do not occur elsewhere in the Hawaiian Islands. Apple (1965), in his description of Hawaiian trails, makes no mention of them. They have been found at three and possibly four locations in Puna. The most extensive occurrences are in the ahupua'a of Kahuwai which is described in this report.

The ahupua'a of Kahuwai is located approximately 4.3 km northwest of Cape Kumukahi on the island of Hawai'i (Fig. 1). Kahuwai extends along the coastline for 1.5 km and inland for 10 km to the present village of Pāhoa. The area nearest the coast, comprising about 210 acres, has been relatively undisturbed since its last occupation by Hawaiians in about 1880. The prehistoric village of Kahuwai extends approximately 800 m inland from the beach (Fig. 2). Discernible structures on the map include canoe sheds, house platforms, a temple or heiau, and the ancient trails. All of these structures are heavily overgrown by vegetation consisting of guava (Psidium guajava L.), kamani (Calophyllum inophyllum L.), hala (Pandanus odoratissimus L. f.), and hau (Hibiscus tiliaceus L.). There are possibly other structures present that have yet to be discovered. Trail III to the north of the village is a type A trail under Apple's classification consisting of a single line of stepping stones. It has been traced for approximately 1.5 km in the direction of Hilo and is part of the "trail around the Island."

An elevated trail, Trail IV, originates near the beach and winds inland for 880 m. This trail has four shorter elevated trails which branch from it. Hatch marks on the map (Fig. 2) indicate those parts of trails which are elevated. The dimensions of the elevated parts of Trail IV vary from 70 to 150 cm in height and from 3 to 5.5 m in width. Adjacent to the beach the trail is paved with rounded beach boulders, but farther inland the paving is reduced to a single line of smooth boulders which touch each other. In places these boulders have been robbed to build stone walls which were positioned directly on top of the trail. A part of Trail IV, indicated by dotted lines, is obliterated. It may lie beneath a post-European trail which is also elevated, or it may have been robbed to build the post-European trail.

At Site 5 a trench was excavated through Trail IV in order to examine its internal construction. Figure 3 shows a cross-section of Trail IV as determined by the trenching operation. The trail at this point is 3.05 m wide at the base and 0.9 m high at the center. The exterior sides consist of 'a'ā boulders. The top is paved 2 m wide with rounded beach boulders and the interior consists of small 'a'ā rocks and beach pebbles, the latter of which were originally placed between the interstices of the beach boulders but have sifted downward with time. Below the surface of the trail at a depth of approximately 37 cm a second layer of paving stones was uncovered. This layer is similar to the surface pavement but is only 1.6 m in width. Again, below this layer the interior consists of small 'a'ā rocks intermixed with beach pebbles.

Among the lower level of pebbles at 43 cm below the top of the second pavement and 24 cm above the base of the trail two artifact fragments of obsidian were found. Thin sections of these glasses were prepared, and microscopic analyses yielded alteration rind thicknesses of 6.5±0.5 and 7.0±1.0 μm. Using the equation developed by Halbig et al. (1979) which relates rind thickness to age, a date of 635±100 years B.P. (before present) was obtained. Assuming that the flakes were emplaced during either the construction or later use of the trail, the age which was obtained may be considered a minimum age for the trail.

At the beginning of Trail IV and at three of the trail junctions, elongated and somewhat rectangular beach boulders are found. These measure approximately 33 to 48 cm across their base and are about 80 cm in length. These boulders are thought to have been placed originally in an upright position.

About 1.5 km southeast of Kahuwai, at the old coastal village of Wai'ele in the ahupua'a of Kanekiki, there is another section of elevated trail. It is similar to the beach portion of Trail IV and measures 1 m in height and 2.4 m in width. It is paved with beach boulders, beginning 100 m from the coastline and extending inland for 75 m. Another section of similarly-built elevated trail lies near the beach at Kalapana and has been described by Ching et al. (1974).

The first question which arises in the study of these elevated structures is how can one differentiate between wide stone walls and elevated trails? Where the trails are paved with beach boulders there appears to be no problem. However, where there are no paving stones and yet the dimensions suggest an elevated trail, a problem of classification does arise. In many instances stone walls are found on top of and paralleling the trails. It is likely that many of these trails were along land boundaries, so there is good reason to believe that boundary walls were built on top of more ancient trails after they had ceased to be used as trails. Therefore, the two structural criteria which seem important in differentiating walls from trails are paving stones and surmounting walls. In one instance during this study it was observed that pavement was robbed to construct the lower courses of a surmounting wall.

The second question of prime importance is what could have been the purpose of the elevated trails? Although Trail IV is low in height at places, it most certainly offered a significant obstacle to anyone who wished to cross from one side to the other. Except where it has collapsed or has been robbed, the sides are nearly vertical at heights of 1 to 1.5 m. There is no evidence of ramps or steps which may have served as crossing aids.

It is perhaps significant that there are 28 platforms to the west of Trail IV and only nine to the east. Of the nine, two are connected to Trail IV, one is built on an escarpment facing the sea and may have been a heiau, and three appear to be graves. Therefore, there are only three platforms to the east of the trail which can be identified as being house platforms. This distribution of dwelling sites implies that Trail IV was not meant to be crossed or used by the majority of the population. This interpretation leads to a very intriguing solution. Was the trail in fact a kapu area and was it elevated in order to assure that the kapu was not violated?

If Trail IV was kapu to the common people, the double layer of paving stones exposed by the excavation at Site 5 (Fig. 3) may have an explanation. If the original trail and the lower level of paving had been seriously violated by hostile neighbors or through the kapu falling into disuse, its ceremonial significance---the kapu---may have been reestablished by covering over the original pavement with a new trail. In any event, there must have been a reason for not reusing the existing paving stones, since the Hawaiians were prone to robbing existing structures during their construction activities. It does not seem logical that without reason new paving stones would have been transported from the beach when suitable stones were at hand in the old pavement.

It is, therefore, suggested that the elevated trails of the Puna District were either for ceremonial purposes or were used for trails by the Ali'i only. The occurrence of four fairly large platforms in close proximity to the branches of Trail IV suggests that the latter explanation is most likely.

LITERATURE CITED

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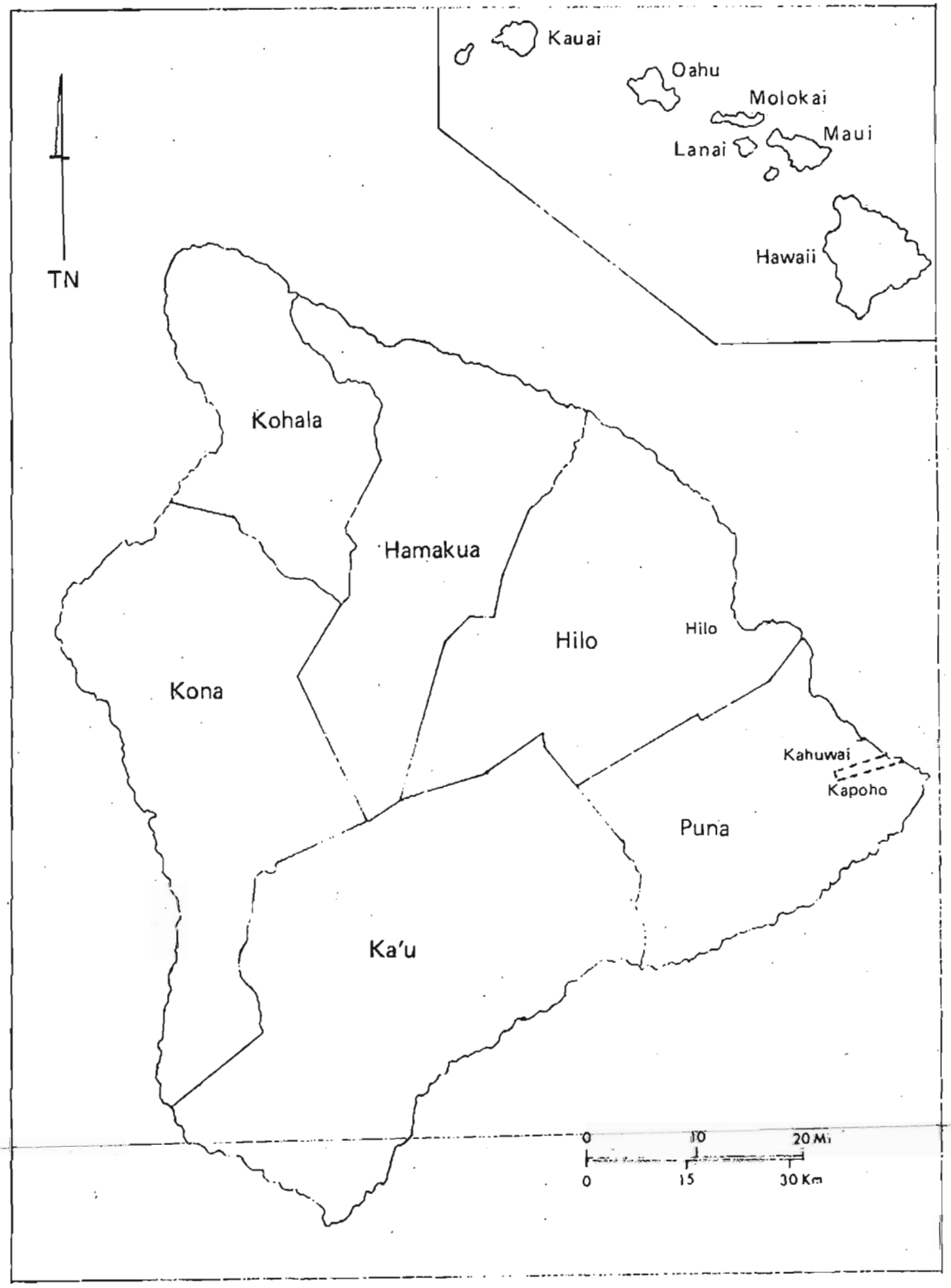

FIGURE 1. Map of Hawai'i.

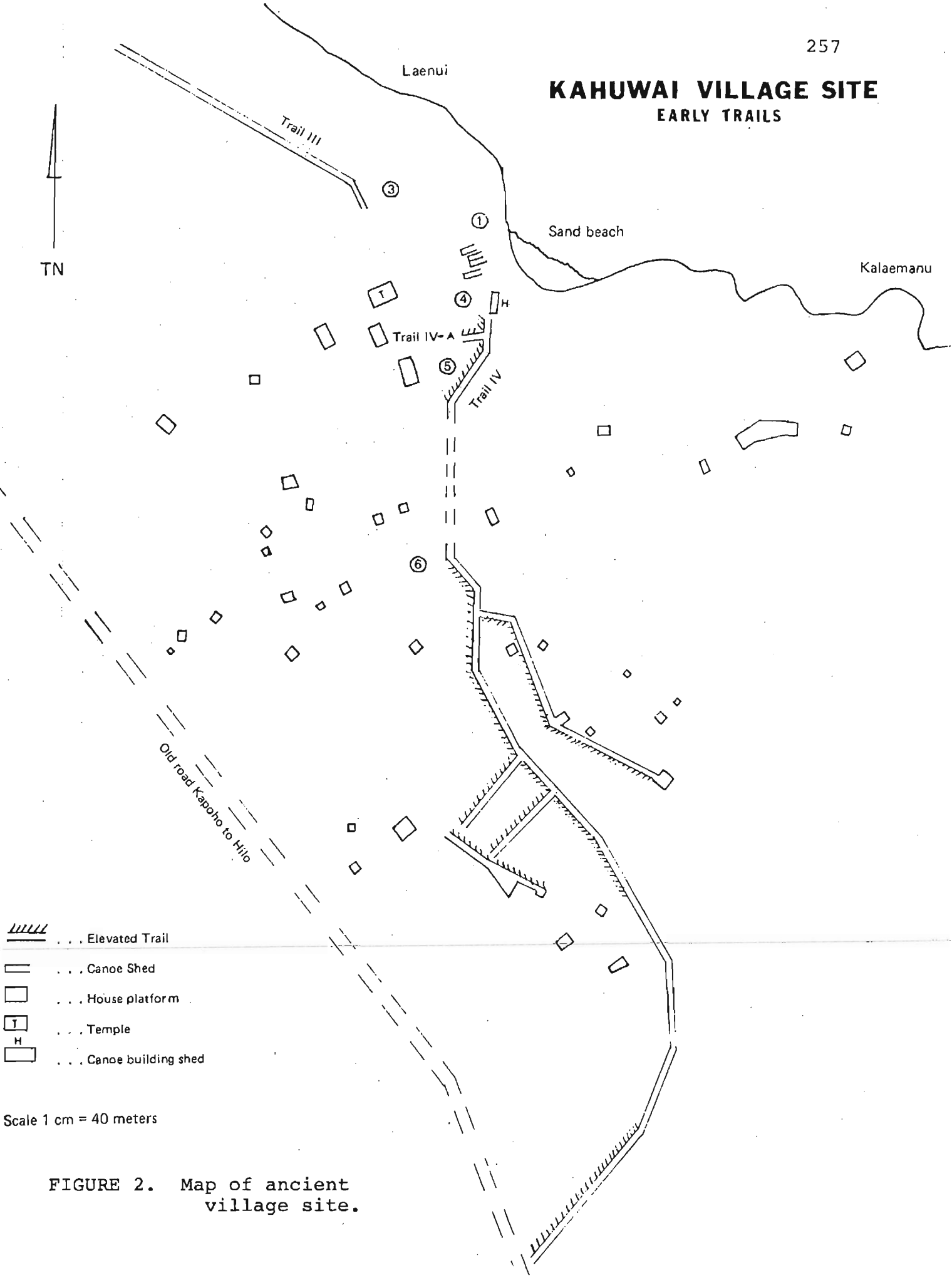

FIGURE 2. Map of ancient village site.

Site 5 - Profile of trench

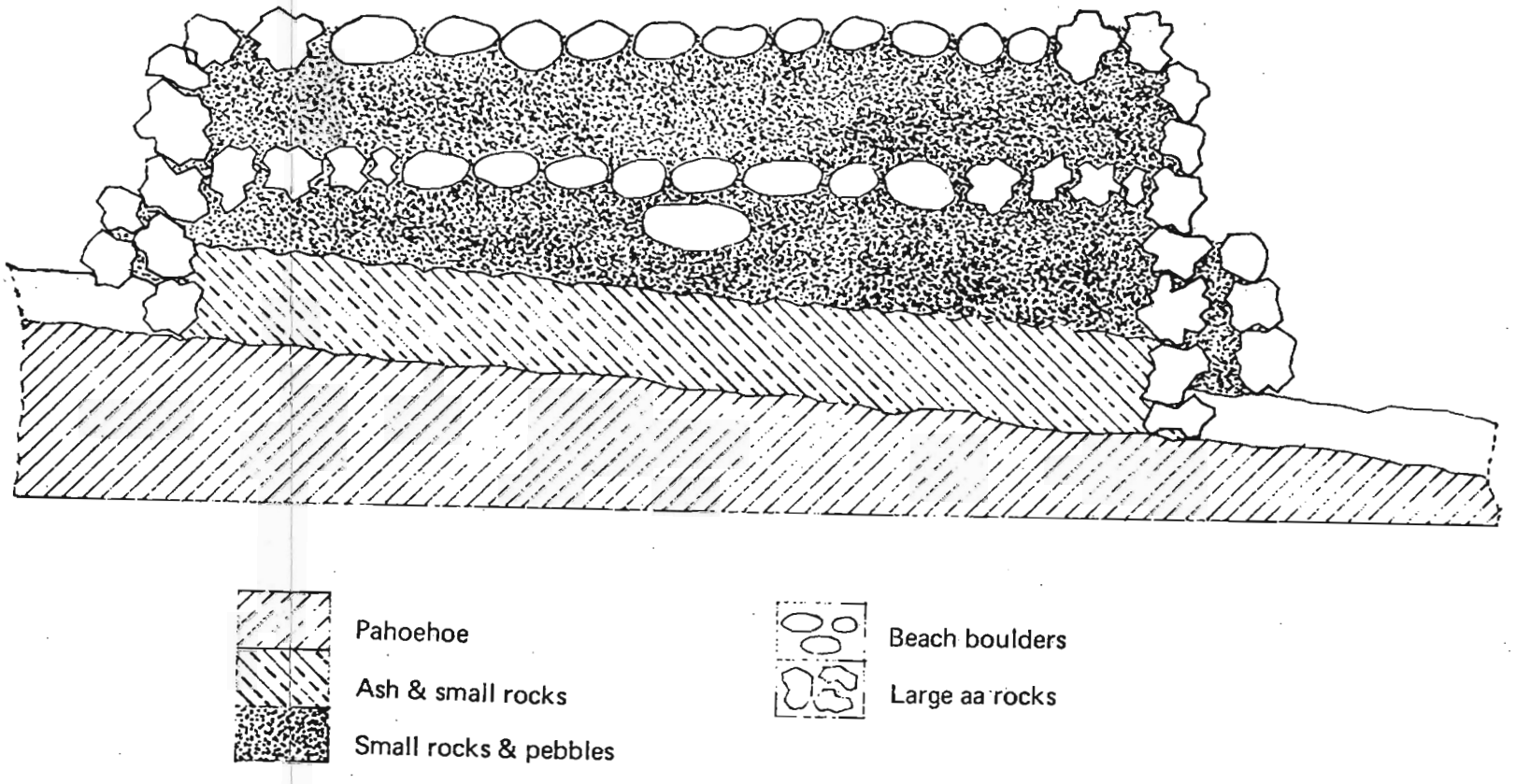

FIGURE 3. Profile of trench at site 5.