

**Archaeological investigation of part of U14/2866,
April 2006**

**report to
Connell Wagner Tauranga**

**Warren Gumbley
July 2006**

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Introduction

This report details the results of a second archaeological investigation undertaken on part of U14/2866 in April 2006, and which followed an earlier investigation in August 2005 (results described in Gumbley 2005). Both investigations took place as a condition of Authority 2004/32. The first investigation occurred within the area of Lots 6 and 7 of Papamoa Junction subdivision, and the second investigation took place in the area to be affected by earthworks for a right of way. The excavation was carried out using a hydraulic excavator.

U14/2866 is one of the largest recorded midden complexes on the Papamoa Dune Plain and extends for approximately 850 metres along a dune ridge that forms the southern edge of the Wairakei palaeo-channel at Papamoa. As such it is part of an almost continuous series of prehistoric archaeological deposits along the dune ridges forming the southern edge of the Wairakei Stream. The part of U14/2866 examined lies at the north-western end of a dune ridge, with the earlier investigation examining the actual western tip.

Three trenches were excavated in August 2005 (Gumbley 2005), and trench numbering continues from there. Trench 4 was excavated to examine the soil stratigraphy and recover samples for palaeo-environmental data. No suitable samples were recovered for radiocarbon dating. Trench 4 was excavated parallel to Trench 1, across the dune ridge to provide a cross-section of the ridge. Area A (25 m²), on the crest of the ridge west of Trench 4, had the topsoil stripped to the clean yellowish-brown subsoil to examine for features. No features were identified in Area A (Figure 1).

Results

Trench 4

Trench 4 was 26 metres long: the southern and northern faces sloped gently (15%) rising to a flat crest, 9 metres broad (Figure 2). Like Trench 1, the trench showed deepened and modified soil profiles on both the slopes, with a corresponding truncation of the soil profile on the crest, where the topsoil organic layer thinned to less than 100 mm and a modified soil underlies the topsoil. Again, like Trench 1 this modified soil was both thinner than that on the slopes, and contained a higher proportion of subsoil and lower proportion of tephra and organic materials than on the slopes. In a general sense the profile exposed in Trench 4 was very similar to that in Trench 1.

The modified soil on the southern slope of the dune ridge was a mixed and deepened soil. At the toe of the dune this layer was up to 550 mm thick and steadily thinned to 200 mm on the crest. This mixed soil included both Kaharoa and Taupo tephra mixed into it, along with charcoal, and the parent materials were A horizon and B horizon soils. In places the layer is underlain by patches of iron-pan. The distinction between the modified soil layer and the subsoil horizon was sharp or abrupt and smooth.

On the shoulder of the northern slope a small feature was identified in the profile at the 23 m mark (Figure 3). This feature 80 mm wide and intruded 150 mm into the sand underlying the mixed soil (a total of 500 mm from the soil surface) and had two fills: the lower a dark greyish-brown the same as the mixed soil, and the upper a dark yellowish brown sand the same as the underlying subsoil. This feature may have been either the edge of a test-pit dug earlier by Matthew Campbell (2004) or a posthole, it is not possible to determine which.

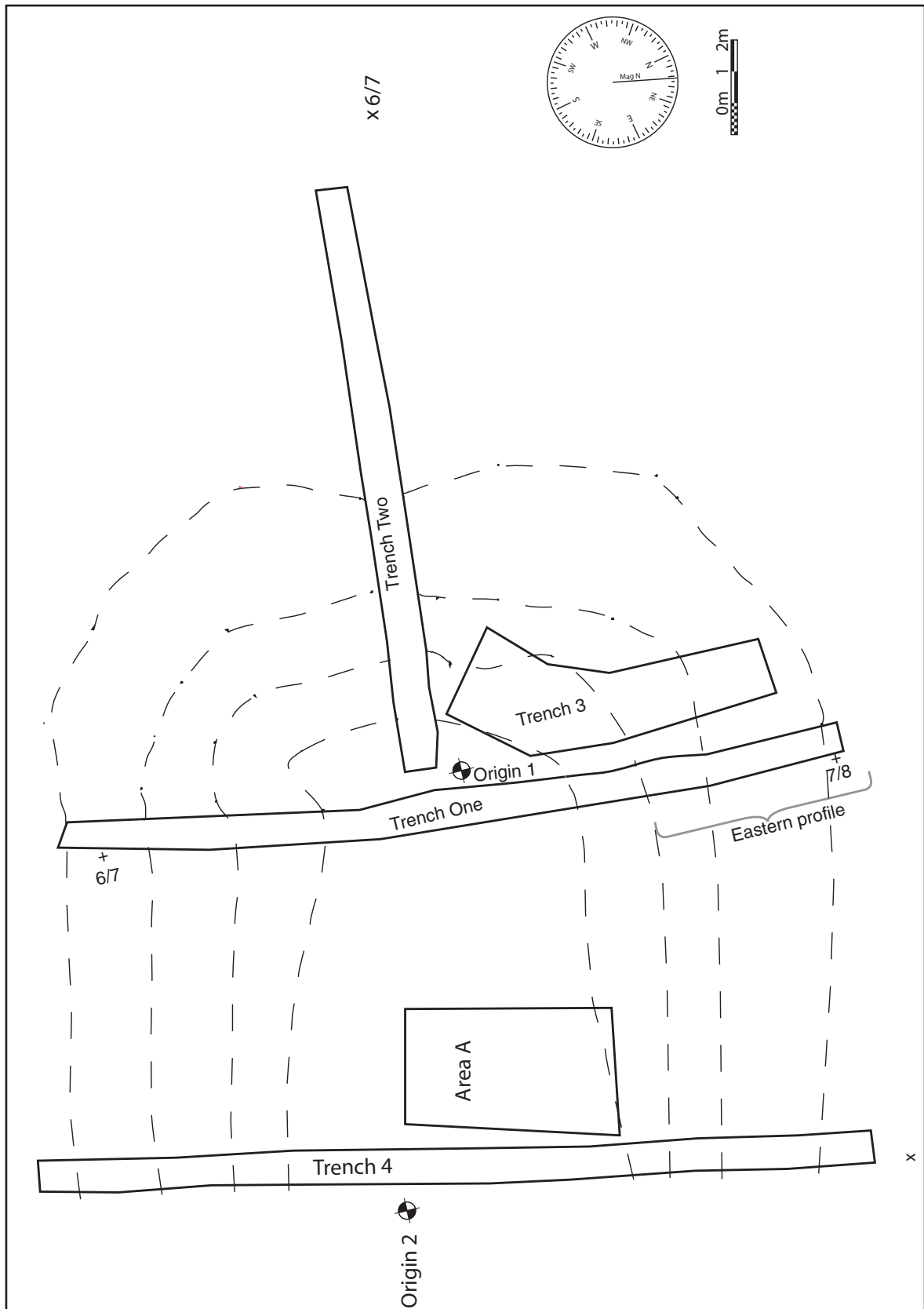


Figure 1. U14/2866, contour plan and location of trenches.

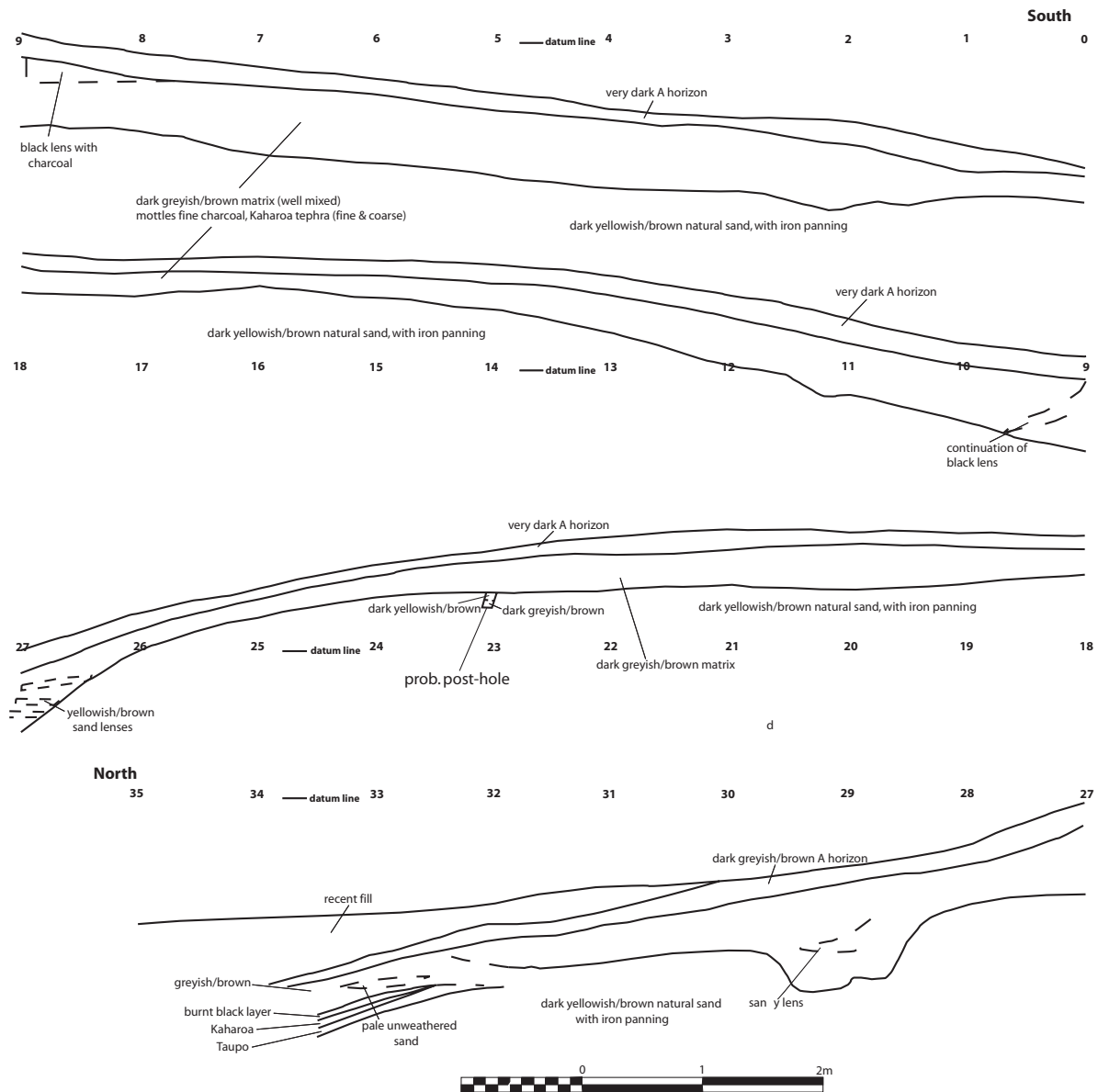


Figure 2. Trench 4, east profile.

On the northern slope of the dune the modified soil layer was deepened and thickened in a similar manner to that in Trench 1. In the profile between 26 m and 28 m (see photo 2) clear lenses of yellowish-brown subsoil sand are distinct. These lenses are the result of the deposition of the yellowish-brown subsoil within the mixed soil. McFadgen and Walton (1996) have characterised these type of features as remnant of prehistoric gardening, “a process of cutting soil from higher parts and pulling it down-slope”, and which they have termed spreading units (Figure 4). It is also worth noting the variation in the rate of drying/water retention between the mixed soil and the natural subsoil sand, when the yellowish-brown subsoil dries appreciably faster than the mixed soil. Since the parent soils of the mixed soil are poorly weathered yellowish-brown sand with a thin and weakly developed organic A horizon (topsoil) the addition of pumice tephra and charcoal has clearly improved the moisture retention qualities of the mixed soil.



Figure 3. Possible posthole in Trench 4 at the 23 m mark.

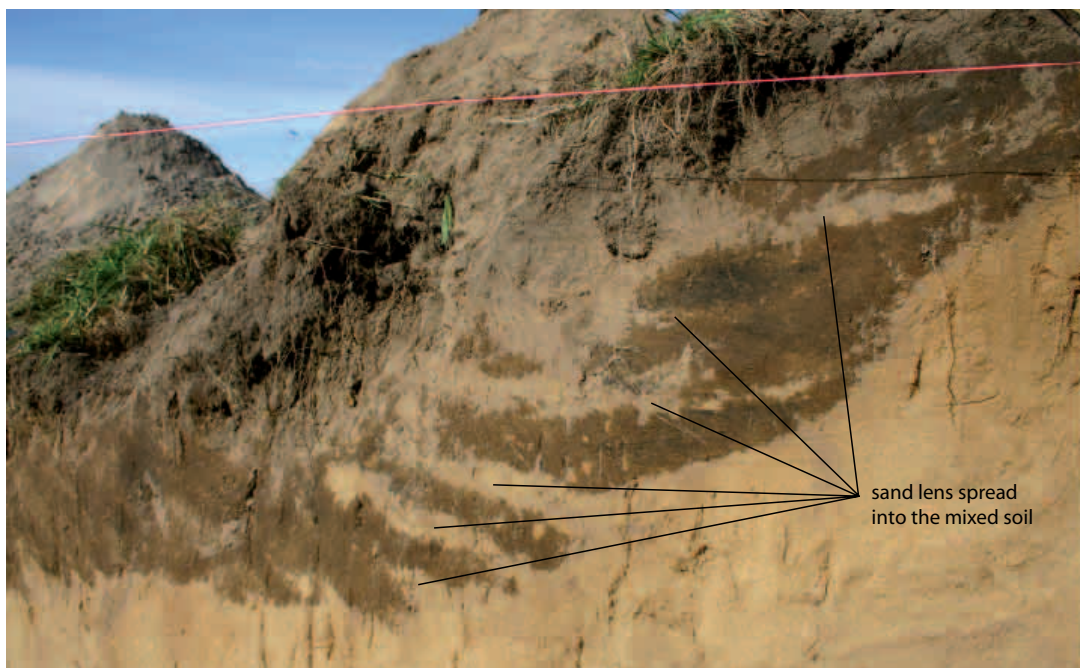


Figure 4. Oblique photograph of the eastern side of Trench 4 showing examples of "spreading units" between 26 and 28 m.



Figure 5. Feature (possible pit) in eastern profile of Trench 4. (scale has 20 cm intervals). Note yellowish-brown sand lens in the fill in the feature.

Down slope from these spreading units the garden soil is well mixed but elements of the components (tephras, parent soils, charcoal) can be distinguished as mottles. The mixed soil is 550 mm thick immediately below the shoulder of the ridge and thins to 350 mm on the lower half of the slope. Between 28.5 and 29.5 m a feature can be identified in the eastern baulk (Figure 5). At the interface of the mixed soil layer and the yellowish-brown sand this feature is 1100 mm wide and intrudes into the subsoil 450 mm. There is a step in the base of the feature. The feature is also identifiable in the western baulk of Trench 4 where it is shallower and approximately 500 mm up slope. The fill of the feature as visible in the eastern baulk has two aspects: the lower is the greyish-brown mixed soil the same as the main body of the mixed soil layer, while the upper is a lens of mostly yellowish-brown sand. The upper fill has a composition and attitude that indicates it is fill that has come from up-slope, but which may have originally been excavated from the feature. The stratigraphic relationship between the feature and the mixed soil could not be securely determined, but the fill indicates it was dug through the mixed soil layer. This suggests a linear feature dipping down the face of the dune, but it may also have been a pit of some form.

From the 30 metre mark the topsoil has been truncated and recent fill overlaid.

Sampling

No material suitable for radiocarbon dating was encountered.

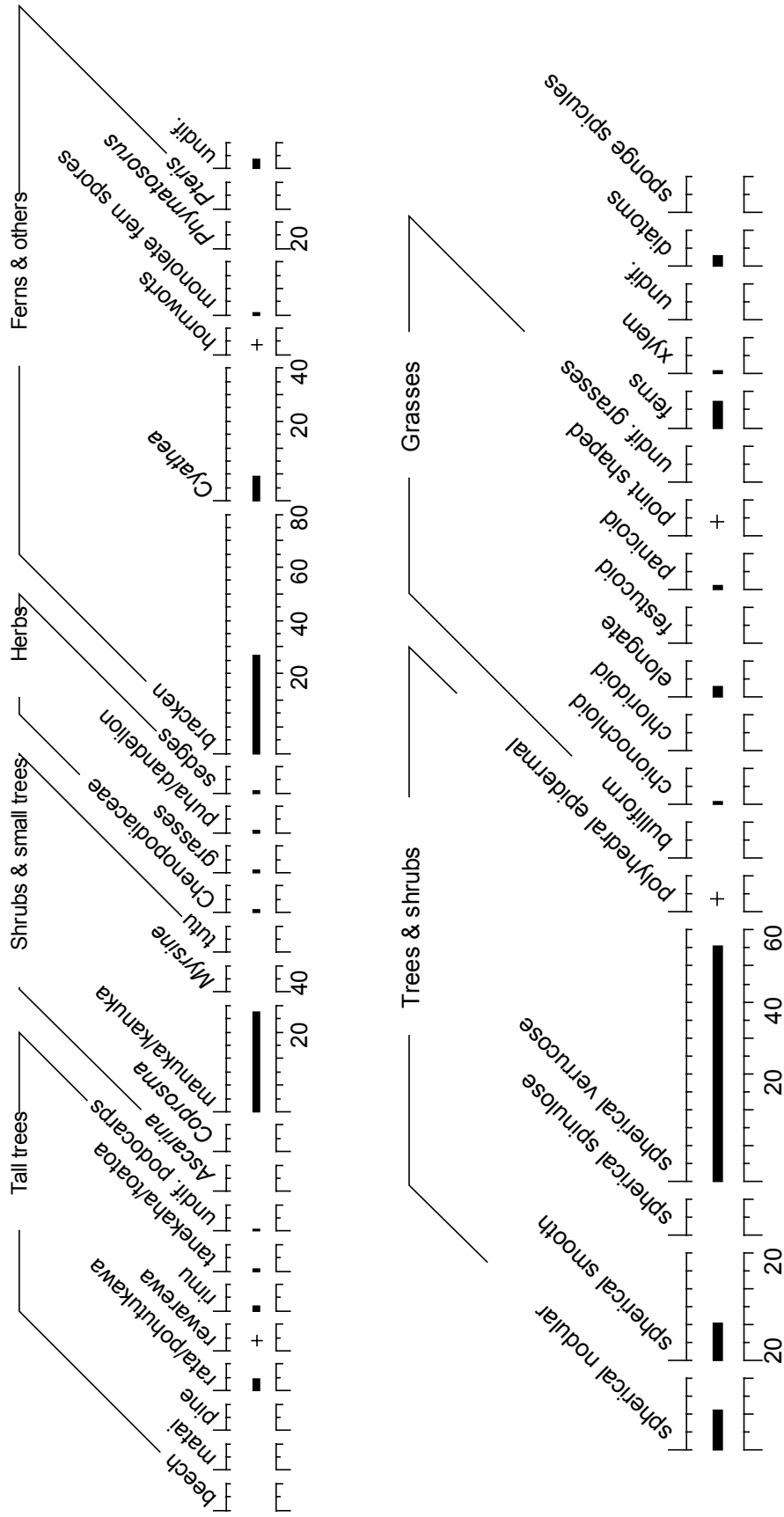


Figure 6. Top: percentage pollen diagram from U14/2866, Papamoa (+ represents found after count). Bottom: percentage phytolith diagram from U14/2866, Papamoa (+ represents found after count) (Horrocks 2006).

A soil sample was recovered from the base of the feature identified at the 29 metre mark for palaeo-environmental analyses. This was submitted to Mark Horrocks of Microfossil Research for analysis of pollen, phytoliths and starch residues. The results of this analysis reinforced the results from the earlier investigation; that the immediate environment of the site was dominated by kanuka/manuka and bracken. No starches were identified in the sample. The absence of European introduced taxa from the results indicate a pre-European date for the pit feature at 29 metres in Trench 4.

Discussion

The modified soils identified during the investigation of part of U14/2866 are typical of a characteristic type of soil identified at Papamoa that are associated with archaeological sites on the dune plain. These soils are a mixture of topsoil, subsoil, charcoal and both Kaharoa and Taupo tephra (and sometimes shell midden). Stratigraphically these soils sometimes bracket shell midden and other archaeological layers of features, or are bracketed by them. Chronologically there is no doubt that these modified soils were formed after human settlement of the dune plain. In the area of the dune plain around U14/2866 these modified soils are almost continuous on the northern side of the palaeo-channel and also almost continuous on the high dune ridge that forms the southern edge of the palaeo-channel.

The part of U14/2866 investigated had been used for gardening in the last 650 years BP (since the Kaharoa eruption, Lowe et al. 1998). Since there was no suitable material available for dating this as secure as we can be about the date.

Stratigraphic data confirms there were probably two phases of occupation on this part of the site.

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