

# THE WINTREBRE LANE SITES, U14/3404 AND U14/3405, TAURIKO



REPORT TO  
THE NEW ZEALAND HISTORIC PLACES TRUST  
AND  
TBE 2 LTD

HPAAUTHORITY 2008/79

JADEN HARRIS

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**CFG**  
HERITAGE

CFG Heritage Ltd.  
P.O. Box 10 015  
Dominion Road  
Auckland 1024  
ph. (09) 309 2426  
jaden.h@cfgheritage.com

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Prepared by:

  
.....  
Jaden Harris

Reviewed by:

  
.....  
Matthew Campbell

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P.O. Box 10 015  
Dominion Road  
Auckland 1024  
ph. (09) 309 2426  
jaden.h@cfgheritage.com

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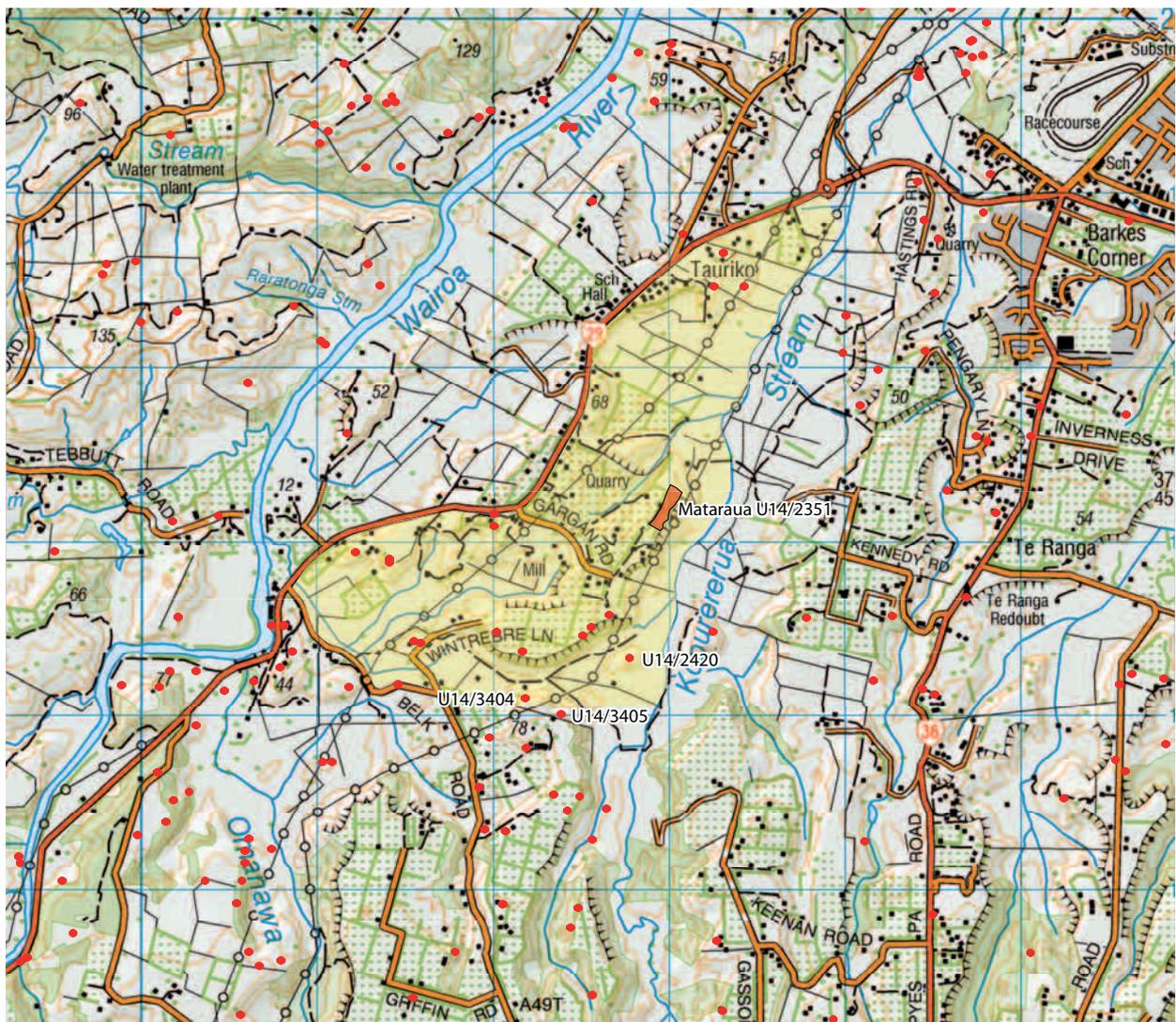
# THE WINTREBRE LANE SITES, U14/3404 AND U14/3405, TAURIKO

JADEN HARRIS

TBE 2 Ltd have expanded their earthworks area at the Tauriko Business Estate to include two small hills on the southern boundary accessed off Wintrebre Lane via Belk Road. The Tauriko Business Estate is being developed in the land bounded by the Route K Roundabout to the north, State Highway 29 to the west, Belk Road as far as Winterbre Lane to the south and the Kopurererua Stream to the east. The project has progressed in stages over several years since the first earthworks season in 2005–06. Previous archaeological investigations for the project include the excavation of the Mataraua site (U14/2351) in 2007 and 2011 (Campbell and Hudson 2009; Campbell and Harris 2012) and site U14/2402 in 2008 (Harris 2009). Both of these sites have now been destroyed by development.

No archaeological sites had previously been recorded on these hill but it was expected that small scale occupation evidence similar to what was found at

*1. Location of sites U14/3404 and U14/3405 with the approximate area of the Tauriko Business Estate shaded yellow. Other archaeological sites mentioned in the text are also labelled.*



U14/2404 would likely be present. Preliminary topsoil stripping on the main hill was monitored by Jaden Harris of CFG Heritage on 21 June 2012 and a group of rectangular storage pits and earth ovens uncovered. These features were recorded as site U14/3404 in the New Zealand Archaeological Association site file ([www.archsite.org](http://www.archsite.org)) and investigated from 4–9 July 2012. Investigations were carried out under authority 2008/79 issued by the New Zealand Historic Places Trust under section 14 of the Historic Places Act 1993. Site 14/2402 had already been investigated under this authority. Monitoring of topsoil stripping on the end of the other hill to the east carried out during the investigation of U14/3404 only revealed a small area of midden with no other associated features. This was recorded as site U14/3405 and investigated at the same time.

### Methodology

Topsoil stripping was carried out by hydraulic excavator under archaeological supervision. Areas with visible archaeological features were then cleaned down by hand and investigated following standard archaeological procedure. Bulk samples were taken from the fill of ovens to extract charcoal for identification and potential radiocarbon dating. Soil samples were taken from the fill of storage pits and from pit bases for possible environmental analysis. All features were described on feature forms and features planned by hand using reference pegs which were later surveyed using differential GPS to tie the site plan into the map grid. To maximise information recovery features such as ovens were only excavated in half-section and most of the pit features were also only excavated in section or in part to establish the relationship with other features and to define their form. Other features, where the form was clear from the surface, were planned and recorded but not excavated.

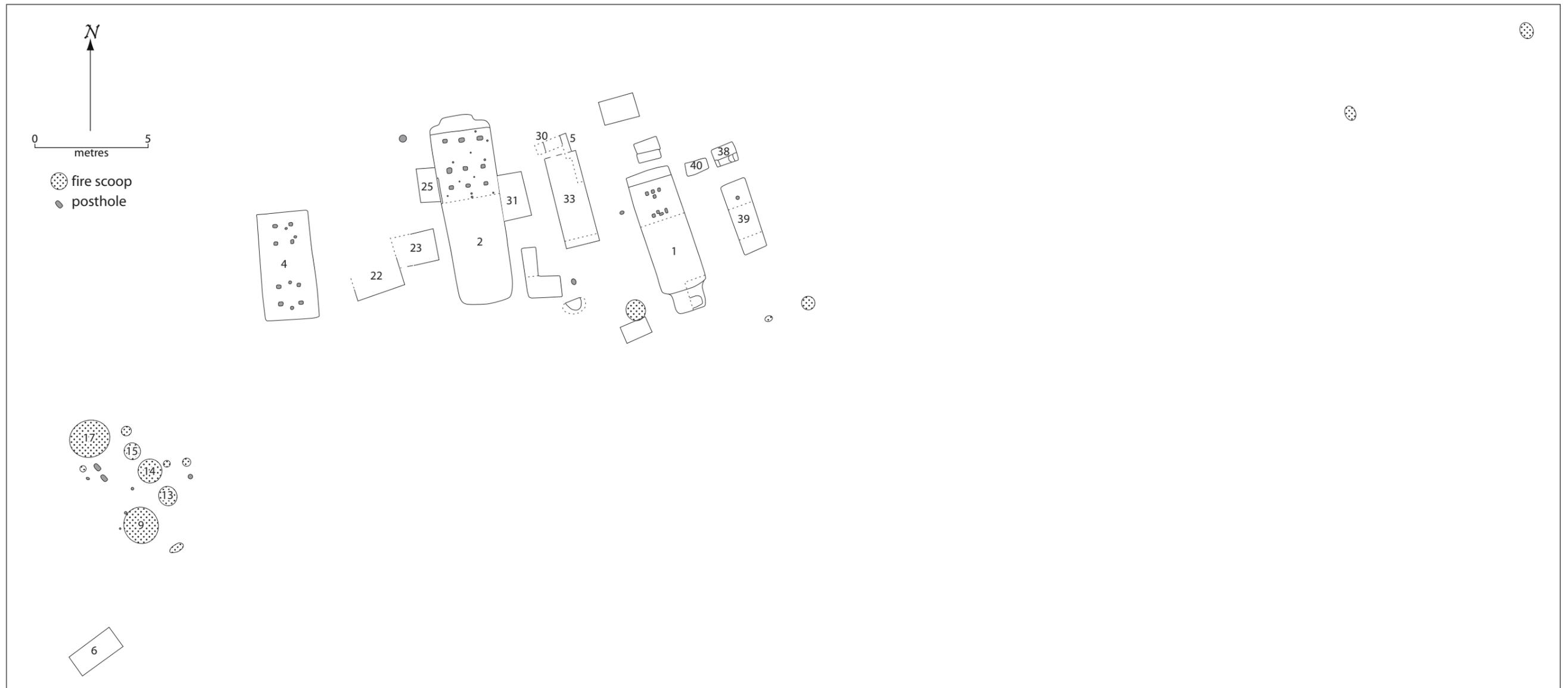
### U14/3404

The site consisted of a group of rectangular storage pits on the central part of the hill, a discrete group of ovens just to the west and a few outlying features. The top of the hill where the features were located had been at least partly modified with a bulldozed track accessing the top from the south side and evidence of the ground having been ploughed on at least one occasion. In general, however, most features were relatively well preserved beneath the plough zone.

#### *The central storage pit complex*

After the topsoil had initially been stripped off the site the only clear features in the central area of the hill were three large rectangular storage pits. Cleaning down around these pits as the investigation progressed revealed a number of further rectangular pits, many of which were on a similar alignment and others on different alignments, along with several smaller bin pits. The three largest pits (Features 1, 2 and 4) were all characterised by having very dark, charcoal-rich fill. They had been left open when the site was abandoned and vegetation, probably bracken (*Pteridium esculentum*) had grown over the exposed surfaces and been repeatedly burnt, resulting in a cumulative filling of the pits showing up as bands of charcoal rich soils (Figure 4). Pit 2 clearly cuts through two earlier pits, indicating that Pits 1, 2 and 4 represent the last phase in the occupation of the site. All three pits are orientated on a roughly north–south alignment running across the top of the hill.

Pit 2 was the largest pit and visible as a distinct linear depression on the surface prior to topsoil stripping and excavation; the top edges had been eroded by it being left open and probably again by later ploughing. It measured approximately 8200 x



2. Site plan of site U14/3404. Features mentioned in the text are numbered.



2600 mm x 900 mm deep. A 3.5 m section at the north end was excavated. Despite the relatively small area excavated 22 internal features were revealed, including three rows of rectangular postholes which would have supported the main roof structure and a series of smaller round postholes probably associated with the internal layout of the pit. Further down into the pit the sides were found to be straight and the base flat. The main structural postholes were all of similar dimensions and ranged from 440–700 mm in depth. A narrow V-shaped trench 150 mm wide at the top, partly excavated along the west wall may have been a footing for a retaining wall or similar feature. The feature partially overlaps with where the pit cuts through an earlier pit and a retaining wall may have been constructed to stop the loose fill of the old pit collapsing into the new one. At the north end of the pit the end wall was stepped down to allow access into the pit.

Pit 1, which measured 5300 x 2070 mm x 1170 mm deep, had a similar step at both ends, although only the north end was fully excavated. Like Pit 2 the sides were also eroded around the edges but became straight and vertical as it was excavated. In the part excavated an arrangement of two sets of three closely spaced postholes was exposed, with the spacing between the two suggesting at least another two sets would have been present in the other half of the pit which was not excavated. Both sets of postholes had an additional posthole in the centre which appeared to have been added later to support the roof structure. At the south end of the pit the fill on the surface suggested a bin pit or step off the end of the main pit, but the form was not clear. A small section in the south-east corner was excavated and revealed a separate bin pit off the end of the main pit 600 mm deep. In the south end of the pit proper a step was present the same as at the north end, but was not excavated or exposed further.

Pit 4, measuring 4700 x 2350 mm by 650 mm deep, was fully excavated. Like Pit 1 and Pit 2 the fill of the pit was very dark and made up of distinct layers resulting from clean soil blowing in from the sides and episodes of burning across the site leaving darker bands of fine charcoal rich soil. Two groups of four main rectangular or square postholes were exposed at each end of the pit with a few smaller postholes. The main structural postholes ranged in depth from 210–380 mm with one being 500 mm deep. Soft fill in the centre of the postholes suggests that the posts were not reused and were left to rot in situ. Unlike Pit 1 or Pit 2 there was no step at either end of the pit.

In between and around the three large pits were a number of other rectangular pits and smaller bin pits. These pits mainly contained much cleaner, slightly mot-



3 (above). View of the main pit group after the initial clean down looking west. Pit 1 is in the foreground with Pit 2 in the middle and Pit 4 just visible in the right background. Scales = 1 m.

4 (left). Pit 2 excavated in part section showing the layering of the fill. Scales = 1 m.



5 (top). Pit 2 with the section extended back and the exposed internal features excavated, note the much cleaner fill of Pit 25 visible on the right and in the west wall. Scales = 1 m.

6 (bottom). Pit 1 excavated in part section; note the layering of the fill and the eroded edges along the sides. Scales = 1 m.

tled soil and would appear to have been filled successively as new pits were constructed. The continued use of the same area for the construction of storage pits and the subsequent intercutting of features meant that not all pits were visible or could be clearly defined on the surface. This was especially true in the areas between the three large pits where some of the mottled surface material was probably the result of material having been dug out of these later pits and deposited to the sides.

All pits were on the same general alignment indicating that they belonged to a single occupation with several sub-phases. Pit 39 was only excavated by taking out a small section at both ends and measured 3100 x 1200 mm x 700 mm deep. A single round posthole was exposed in the centre of the north end of the pit and suggests a simple arrangement of a single row of two or three posts down the centre of the pit to support the roof structure. Pit 33 was a similar rectangular pit which only had a small section excavated at the south end to find the width and depth of the pit and a trench along the east wall to find the north wall. The pit was a relatively narrow feature with dimensions of 4050 x 1490 mm by 950 mm deep. At the north end of the pit the trench to find the north wall was continued and Pits 5 and 30 were found, neither of which were clear from the surface. The floor level of Pit 5 was roughly at the same level as Pit 33 and while there was no difference in the fill it clearly represented a separate feature. Pit 30 was not visible at all from the surface and appears to be earlier than both Pits 5 and 33. It was only exposed in section in the partly excavated north wall of Pit 5 and was deeper, as the fill of the Pit 30 was visible in the exposed section of floor of Pit 5. The lengths of Pits 5 and 30 were not established but the width of Pit 30 as exposed in section was 780 mm suggesting that it was probably only a bin pit.

Pit 38 was a small roughly square pit 1020 x 850 mm x 900 mm deep. Along the south wall there was a buttress in each corner and between these the floor had been excavated 30 mm below the rest of floor surface with a small sump dug up against the south east buttress. The function of this of pit is uncertain but it would seem to have been constructed for some specific purpose. The exact function of other smaller pits usually referred to as bin pits is also uncertain and several such features were present. Pit 40 was a slightly irregular rectangular pit 980 x 500 mm x 280 mm deep just to the west of Pit 38 and like most of the smaller pits contained very clean slightly mottled brown volcanic soil. Just past the north end of Pit 1 were two intercutting bin pits with Pit 3 cut by Pit 81. Pit 3 contained clean grey/brown soil and measured 1100 x 530 mm x 500 mm deep. Pit 81 was a very deep narrow pit 1000 x 500 mm x 1200 mm deep, with dark black fill above a grey ashy layer. Pit 32 appeared on the surface as an irregular patch of dark fill and upon partial excavation was found to be a small bell-shaped rua with a semi-circular opening, with a straight side sloping slightly down and a circular side undercut to create a larger storage area.

Other pits, such as Pits 25 and 31 which had been cut through by Pit 2, were not excavated but were defined on the surface and recorded on the site plan. Between Pits 2 and 4 the surface evidence suggested the presence of at least 2–3 pits, but

small exploratory trenches were unable to define these features further. The corners and ends of two pits which were clear from the surface were recorded on the site plan as Pits 22 and 23.

### *The cooking area*

Further back along the top of the hill just to the west was a discrete group of fire scoops. The group consisted of two very large scoops, seven smaller ones and a small number of postholes. The two largest features, although very similar in size, presented a very different appearance on the surface. Feature 17 which measured 1800 x 1620 mm x 460 mm deep contained very black charcoal rich fill on the surface, with more mottled fill and layers of burning below. The base and sides of the feature were fire reddened and only small fragments of fire cracked rock were present. Feature 9 measured 1600 x 1500 mm x 320 mm deep and contained much cleaner fill on the surface and included whole and broken oven stones. Excavation revealed a deep layer of burning at the base with more oven stones and fire reddening on the sides and base.

The other smaller fires coops had been more badly disturbed by ploughing and ranged from a remnant oven base just 20 mm deep to Feature 14 which was 190 mm deep. Bulk samples of fill were retained from Features 9, 13, 14, 15 and 17 to extract charcoal samples for environmental analysis and as potential radiocarbon dating samples. Only two sub-rectangular postholes in this area were particularly large, measuring 320 and 420 mm deep, containing a very dark fill packed with fragments of fire cracked rock. There were also several round stakeholes. These features may represent windbreaks for the fires.

### *Outlying features*

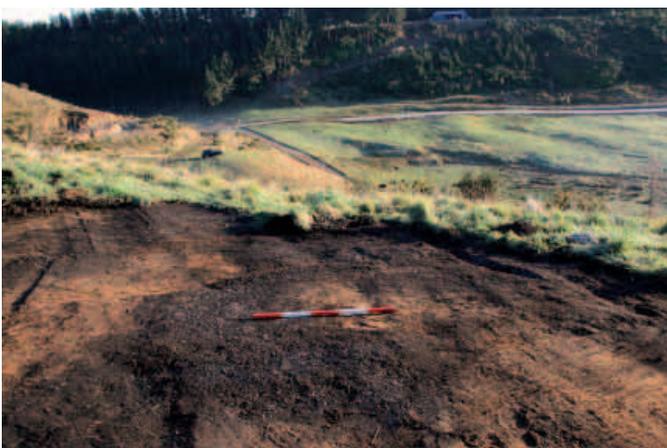
Outside of the area defined by the main pit group and cooking area, were a few outlying features. Pit 6 was a small rectangular pit 2100 x 1050 mm x 600 mm deep with similar dark charcoal rich fill to the large pits, suggesting that it was also a late feature that had been left open. It was located to the south of the cooking area. To the east beyond the pit group the only features identified were two isolated oven scoops right on the east end of the hill. During the initial topsoil stripping trenches were also opened up on the west end of the hill and along the northern edge, but no features were identified in this location.



7 (top). Pit 4 fully excavated looking south. Scales = 1 m.

8 (centre). The cooking area after the initial clean down looking south, note the plough lines. Scales = 1 m.

9 (bottom). Feature 17 excavated in half section looking south. Scales = 0.5 and 1 m.



10 (top). Feature 9 before excavation showing whole oven stones exposed on the surface. Scales = 0.5 m.

11 (centre). Feature 9 excavated in half section showing the layer of burning at the base. Scales = 0.5 and 1 m.

12 (bottom). Site U14/3405 looking north. Scales = 1 m.

that the shell size especially of the cockles was quite small. The analysis seems to largely confirm these observations with cockle (*Austrovenus stutchburyi*) being the most numerous species followed by pipi (*Paphies australis*). The number of cats eye (*Turbo smaragdus*) and whelk shells present is also significant enough to suggest that they were a deliberately targeted species. All of these species would have been available from in and around Tauranga Harbour. A similar composition of species was found from two samples analysed from the nearby Mataraua site

### Charcoal analysis

Charcoal samples from six features from the group of ovens were submitted to Rod Wallace, Auckland University, for identification. The assemblage is dominated by tree species and clearly came from a landscape where forest was locally prevalent at the time of occupation. Three possible dating samples were extracted, two of mahoe from Features 9 and 17 and one of hebe from Feature 8.

### U14/3405

Site U14/3405 was uncovered on the end of the spur to the east of site U14/3404. A preliminary inspection of the spur revealed some possible terraces on the north side, but monitoring of topsoil stripping in this area showed no evidence of prehistoric occupation. The only evidence that the spur had ever been utilised by Maori was a small patch of shell midden approximately 2 x 4 m on the very end of the spur overlooking the Kopurererua Stream valley. No associated features were identified around the midden. The site location was recorded with a handheld GPS, cleaned down, photographed, and a 10 litre bulk sample taken for analysis. Excavation of the bulk sample revealed that the midden was generally quite thin, around 50–70 mm thick.

### Midden analysis

The bulk 10 litre sample was dried and weighed, and then wet sieved through a 6 mm screen and re-dried, before being sorted. Shell was identified to taxon and all diagnostic shell counted and weighed. Other material such as bone and stone was sorted and weighed. The appearance of the midden at the time the sample was taken was that it was composed primarily of fragmented cockle and pipi shell and

Species	F8	F9	F13	F14	F15	F17	Total	Plant type (%)
Hebe ( <i>Hebe</i> sp.)	5						5	Small shrub (5%)
Porokaiwhiri ( <i>Hedycarya arborea</i> )			1	1			2	Small trees (19%)
Mahoe ( <i>Melicytus ramiflorus</i> )		5	1	1		10	17	
Pukatea ( <i>Laurelie novaezelandiae</i> )	1						1	Broadleaf trees (50%)
Tarairi ( <i>Beilschmiedia tarairi</i> )		1				1	2	
Rewarewa ( <i>Knightia arborea</i> )			1	1			2	
Puriri ( <i>Vitex lucens</i> )	2	12	6	7	12	6	45	
Rimu ( <i>Dacrydium cupressinum</i> )				2			2	Conifers (25%)
Matai ( <i>Prumnopitys taxifolia</i> )			11	5	3	4	23	

Table 1. Charcoal species identified by feature.

U14/2351, although in this case pipi was the dominant species targeted (Campbell and Hudson 2009: 14).

A sub-sample of 100 whole cockle valves were measured with the median size being 22.5 mm; too few whole pipi valves were present for a significant sample of this species to be measured. There are also no large specimens within this sub-sample with the largest shell being 28 mm and the smallest 17 mm. The degree of fragmentation of the shell can also be seen in Table 3 by looking at the weight of the diagnostic shell portions compared to the uncounted shell residue. The spur on which the site was located showed no evidence of ploughing and so the fragmentation is unlikely to be the result of historic disturbance. The midden was located immediately under the turf layer and only covered by a thin layer of dark topsoil, so it is possible that the shell was exposed on the surface in the past and natural weathering may have resulted in the fragmentation. Only a small proportion of the

Volume (l)	Dry weight (g)	Sieved weight (g)	Dry wt/vol (g/l)	Sieved wt/vol (g/l)	% loss
10	9590	5341	959	534	45

Table 2. Volume and weight data.

	Cockle ( <i>Austrovenus stutchburyi</i> )	Pipi ( <i>Paphies australis</i> )	Rock oyster ( <i>Saccostrea cullata</i> )	Cat's eye ( <i>Turbo smaragdus</i> )	Whelks	Miscellaneous gastropods	Residue	Total
MNI	1345	728	1	36	27	57		2194
Weight	552	776	4	53	138	37	3730	5290

Table 3. Count (MNI) and weight (g) of shell by species.

shell showed obvious signs of burning and so this is unlikely to have been a major factor. Other inclusions in the midden were charcoal (< 1 g), a number of small fish bones (< 1 g) and 49 g of stone, including small pumice pebbles.

### Faunal analysis

A small assemblage of fish bone was recovered from the 10 litre bulk sample of midden analysed, but contained no elements that could be identified.

### Chronology

A sample of mahoe charcoal from Feature 17 from site U14/3404 was submitted to the Waikato Radiocarbon Laboratory for AMS dating. From site U14/3405 a sample of pipi shell was submitted for standard radiometric dating. The results are given in Table 4. The result from U14/3404 indicates occupation around the late 16th or early 17th century, while U14/3405 is probably a little later.

Lab no.	Site	CRA	cal AD 68%	cal AD 95%
Wk-34905	U14/3404 (F.17)	341 ± 25	1510–1575 (55.7%) 1621–1636 (12.5%)	1500–1598 (73.3%) 1611–1645 (22.1%)
Wk-34906	U14/3405 (midden)	668 ± 32	1558–1679 (68.2%)	1490–1725 (94%) 1742–1754 (0.7%) 1789–1802 (0.7%)

Table 4. Radiocarbon results.

### Discussion

Previous investigations of sites in the upper Kopurererua Valley – U14/2351, Mataraua Pa, and U14/2402 – have established a baseline for our understanding of the pre-European occupation of this area. Although much of the Mataraua site had been destroyed by contouring for kiwifruit orchards, the remaining part at the north end of the site contained multiple phases of pits with evidence of cooking in the form of fire scoops and a probable house floor (Campbell and Hudson 2009). At the south of the site, outside the presumed defences, further pits were found but these were very truncated. Again, there was evidence of multiple phases of occupation (Campbell and Harris 2012). In both cases one pit stood out as being larger and more complex, with multiple sub phases of use. Similar singular pits were also found at Rowsdale in the nearby Ohauti Valley (Campbell 2004b, 2005; Campbell and Harris 2007). These were not found at Wintrebre Lane, but the last phase of pits, Pits 1, 2 and 4, were all large and contained multiple lines of post-holes. Pits 1 and 2 were also deep, and had steps to facilitate access.

The pits were separated from an area of fire scoops by 8 m, which formed a discrete group of features. We have assumed that the two groups of features are from the same or related occupations, but this isn't certain. Charcoal from the fire scoops was from forest trees, indicating that the local environment was largely undisturbed when they were used. Given the evidence of multiple phases of pit construction, it seems probable that the fire scoops relate to the earlier pits. As is common in the Bay of Plenty, most pits have been filled during the occupation of the site. Only the last phase of pits were left open to fill naturally. The layered charcoal rich soils in the upper fills indicate repeated burning of the covering vegetation, probably to renew the edible bracken.

The date range of AD 1500–1650 for U14/3404 indicates an occupation date that is much the same as at Mataraua. Dates in the AD 1450–1650 range are typical of sites in the valleys leading south from Tauranga Harbour (Campbell 2005; Campbell and Hudson 2008). These inland areas seem to have been abandoned after an occupation period of around 200 years, possibly as a result of human-induced environmental change rendering the valleys increasingly unproductive (Campbell and Hudson 2009). The less extensive evidence from site U14/3405, where a later date was obtained, indicates that people were still utilising inland routes late in prehistory but not necessarily occupying them on a permanent basis.

### Acknowledgements

The excavation team consisted of Matthew Campbell, Jaden Harris, Noel Hill, Colin Sutherland and Peter Holmes with assistance from Ngai Tamarawaho representatives Matika Kohu and Julian Tukaokao. Tangata whenua proceedings and permissions were facilitated by Piri Kohu of Ngai Tamarawaho. Grant Downing of TBE 2 Ltd provided logistics and support.

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*The University of Waikato*  
*Radiocarbon Dating Laboratory*



Private Bag 3105  
Hamilton,  
New Zealand.  
Fax +64 7 838 4192  
Ph +64 7 838 4278  
email c14@waikato.ac.nz  
Head: Dr Alan Hogg

*Report on Radiocarbon Age Determination for Wk- 34905*

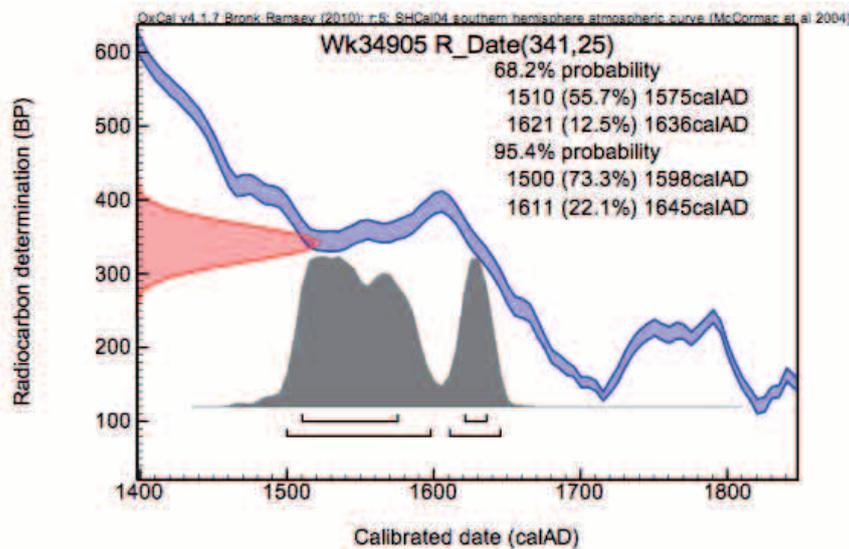
<b>Submitter</b>	M Campbell
<b>Submitter's Code</b>	Wintrebre_001
<b>Site &amp; Location</b>	Tauriko, Western Bay of Plenty, New Zealand
<b>Sample Material</b>	Mahoe charcoal from oven feature (site U14/3404)
<b>Physical Pretreatment</b>	Sample cleaned.
<b>Chemical Pretreatment</b>	Sample washed in hot HCl, rinsed and treated with multiple hot NaOH washes. The NaOH insoluble fraction was treated with hot HCl, filtered, rinsed and dried.

$\delta^{13}\text{C}$	-29.9 ± 0.2 ‰
D <sup>14</sup> C	-41.5 ± 3.0 ‰
F <sup>14</sup> C%	95.8 ± 0.3 %

**Result 341 ± 25 BP**

(AMS measurement)

**Comments**



*Alan Hogg*

18/10/12

- Result is *Conventional Age or Percent Modern Carbon (pMC)* following Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier.
- The isotopic fractionation,  $\delta^{13}\text{C}$ , is expressed as ‰ wrt PDB.
- F<sup>14</sup>C% is also known as *Percent Modern Carbon (pMC)*