

ARCHAEOLOGICAL INVESTIGATIONS OF U14/3332, DOVEDALE, 479 OHAUITI ROAD, TAURANGA



**REPORT TO
THE NEW ZEALAND HISTORIC PLACES TRUST
AND
DOVEDALE LTD**

HPA AUTHORITY 2009/298

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AND
DOVEDALE LTD

Prepared by:


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Peter Holmes

Reviewed by:


.....
Matthew Campbell

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Reference: 2012/39



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Monitoring of earthworks associated with house lot and access construction at Dovedale, 479 Ohauti Road (Lots 8 and 10 DFP 422217) (Figure 1) was undertaken by Peter Holmes of CFG Heritage Ltd between 10 and 17 December 2012. Previous monitoring and investigation on adjacent lots had been undertaken by the late Ray Hooker (2009) under authority 2009/298 issued by the New Zealand Historic Places Trust (NZHPT) under section 14 of the Historic Places Act 1993. Following application to NZHPT the named archaeologist on the authority under section 17 of the HPA was changed to Matthew Campbell of CFG Heritage.

Four kumara storage pits and some fragmentary shell midden had been recorded by Hooker in Lot 7 and he noted the likelihood of further features being found in adjacent Lots. During monitoring three features were found on Lot 8 and one on Lot 10 (Table 1, Figure 2), as well as light scatters of disturbed midden.



1. Location of Lots 7, 8 and 10 DP 477712 and recorded archaeological sites.

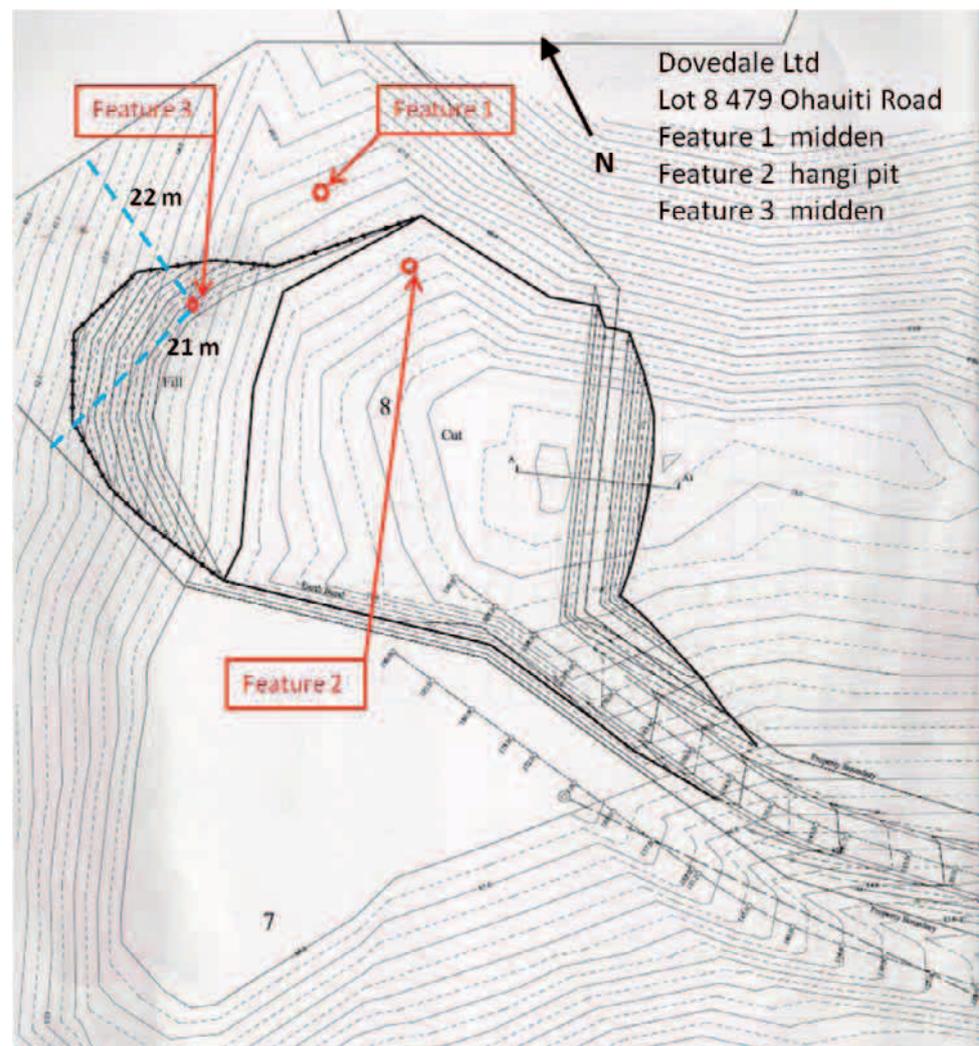
Results

Feature 1 was a shallow midden deposit within very light friable brown topsoil approximately 100–200 mm below the surface and was roughly circular, approximately 2400 mm in diameter. A section was cut to confirm the extent and depth of the deposit and 1410 g sample of midden material was collected for further analysis.

Feature 2 was a small, deep fire scoop cut into the sub soil approximately 100 mm below surface, measuring 300 mm in diameter x 270 mm deep. The fill matrix was a dark grey sandy clay loam comprising a mix of shell types and sizes, with

Site	Feature	Type	Grid reference (NZTM)
U14/3332	1	midden	E 1879749 N 5816093
	2	fire scoop	E 1879772 N 5816062
	3	midden	E 1879774 N 5816261
U14/3412	4	midden	E 1879914 N 5816073

Table 1. Features identified on Lots 8 and 10.



2. Location of recorded features.

430 g of heat cracked rocks near the base of the scoop. Twelve heat cracked rocks were collected ranging between 20–40 mm along with a 2170 g sample of midden material and a charcoal sample.

Feature 3 was a midden deposit and charcoal stain approximately 1300 x 600 mm, approximately 50 mm below the surface, partly overlying 200 mm of mottled fill.

Feature 4 was a midden exposed by the cutting of a farm track below a disused milking shed and turnaround. Approximately 9 m wide of crushed shell extended out into the track. This feature was recorded as a new site, U14/3412.

Final monitoring of topsoil removal from the eastern and western edges of the cutting for the construction site took place on the 15 and 17 of December, but no further features were identified.



3. Feature 1 profile and extent of shallow topsoil midden deposit, looking south.



4. Feature 2, small fire scoop.



5. Feature 3 profile, looking west.



6. Feature 4 Crushed shell exposed by cutting on Lot 10, looking north towards Lot 8.

Midden analysis

Bulk samples from Features 1 and 2 were analysed. The volume of the samples was measured to the nearest half litre and then weighed before being wet sieved. The sample from Feature 1 was sieved through a 6 mm screen and the sample from Feature 2 through a 2 mm screen to aid in the recovery of charcoal for environmental analysis. The sample from Feature 1 (midden) had a volume of 11 litres and the sample from Feature 2 (fire scoop) of 2.5 litres. The samples were then dried before being sorted. The diagnostic portions of each shell type present were separated out and counted to give a MNI (Minimum Number of Individuals) for each species. For bivalves this was achieved by counting the number of hinges and whole valves and dividing the total by two. For gastropods the greater number of shells and columellas, or operculums was taken as the MNI. All diagnostic shell for each species and the remaining shell residue made up of non-diagnostic fragments was weighed. Charcoal, stone and any faunal bone was separated out and weighed but not counted.

Three basic statistics can be calculated from the resulting measures: dry weight/volume (g/l), dry sieved weight/volume (g/l) and weight loss through sieving (as a percentage). These statistics are intended to quantify the density of the midden, that is, how much material there is in the sample and how much of it is shell. Weight and the MNI for shell species can also be used to calculate the MNI per gram (MNI/g) to express the degree of fragmentation of different shell species within the sample. In general it would be expected that shell from an oven scoop would be more fragmented than shell from a clean midden deposit.

Results

While not directly comparable due to the different screen sizes used to sieve the samples, the difference in the loss of weight is largely due the midden sample containing more soil, which passed through the screen and the oven sample containing more stone. The small range of species present, largely made up of pipi and cockle, suggest that estuarine or harbour environments around the margins of Tauranga Harbour were where the shellfish were being collected from. Large wedge shells (*Macomona liliana*) are not commonly represented in shell midden samples but live in the same estuarine and harbour environments where both pipi and cockle can be found. The presence of small miscellaneous gastropod shells probably represent specimens collected incidentally along with the targeted species.

Sample	Dry weight (g)	Sieved weight (g)	Dry wt/vol (g/l)	Sieved wt/vol (g/l)	% loss	stone (g)
F1	10980	3473	998	316	68.37	8
F2	2130	1272	852	509	40.29	500

Table 2. Comparison of dry weight and sieved weight.

Sample	Pipi (<i>Paphies australis</i>)	Cockle (<i>Austrovenus stutchburyi</i>)	Large wedge shell (<i>Macomona liliانا</i>)	Miscellaneous gastropods	Total MNI
Feature 1	444	438	4	13	899
Feature 2	12	115	21	3	151

Table 3. Counts of shell by species (MNI).

Sample	Total MNI	Total weight (g)	Mean weight (g)	MNI/g
F1	899	3457	3.845	0.260
F2	151	747	4.947	0.202

Table 4. Comparison of weight and count of shell.

Charcoal analysis

Charcoal extracted from the Feature 2 sample and submitted to Rod Wallace, University of Auckland, for identification and environmental analysis.

This sample contains a mixture of trees (mangao, tawa and kahikatea) and shrubby species that regenerate on cleared land (hebe, coprosma and mahoe). This implies the site was set in a mosaic of bush and cleared land.

Species	count
<i>Hebe</i> sp.	10
<i>Coprosma</i> sp.	3
Mahoe (<i>Melicytus ramiflorus</i>)	4
Mangao (<i>Litsea calicaris</i>)	4
Tawa (<i>Beilschmiedia tawa</i>)	7
Kahikatea (<i>Dacrycarpus dacrydioides</i>)	1

Table 5. Charcoal identified from Feature 2.

Chronology

A sample of pipi shell from Feature 2 was submitted to the University of Waikato Radiocarbon Dating Laboratory for dating. This returned a result of cal AD 1476–1668 at 95% confidence interval.

Discussion

Several archaeological investigations in the inland valleys of Tauranga have shown that this area was occupied between around AD 1450 and 1650 (Campbell 2004, 2005; Campbell and Harris 2007, 2012; Campbell and Hudson 2008; Furey 2004). The Dovedale site is the furthest inland of these sites but the dates are identical to sites further down the valleys. It might be expected that settlement of the valleys was a gradual process as people spread out from the Tauranga Harbour, with earlier sites closer to the coast and later sites further up the valleys. The charcoal analysis indicates that this part of the Ohauti Valley was in the process of being cleared of vegetation at the time it was occupied, implying that this was very soon after the first occupation. However, it would be dangerous to extend this analysis too far on the basis of these small scale investigations alone.

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The University of Waikato
Radiocarbon Dating Laboratory

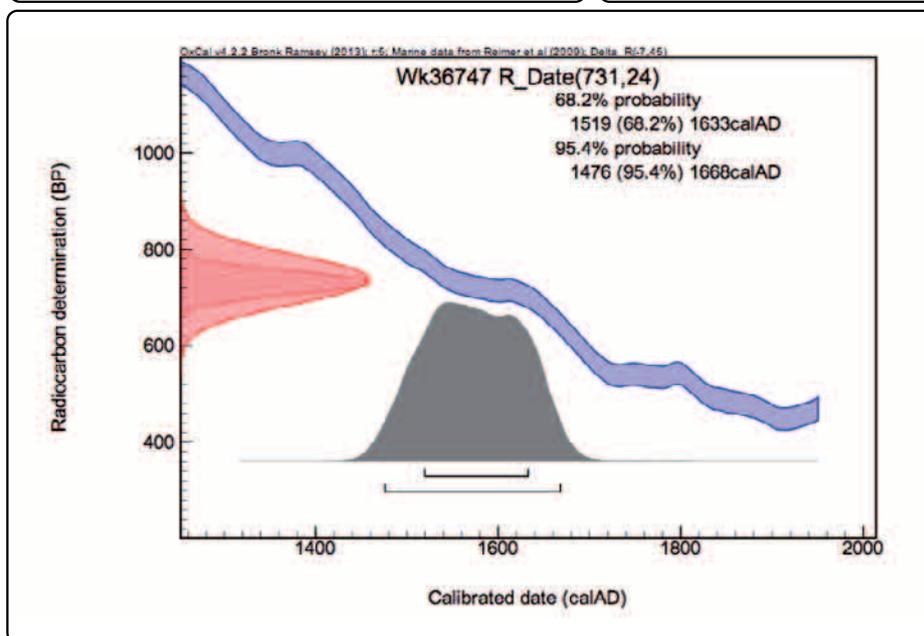


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Report on Radiocarbon Age Determination for Wk- 36747

Submitter	M Campbell
Submitter's Code	Dovedale_001
Site & Location	Ohauti, Tauranga, New Zealand
Sample Material	Pipi shell
Physical Pretreatment	Surfaces cleaned. Washed in an ultrasonic bath. Tested for recrystallization: aragonite.
Chemical Pretreatment	Sample acid washed using 2 M dil. HCl for 120 seconds, rinsed and dried.

$\delta^{13}\text{C}$	$1.3 \pm 0.2 \text{ ‰}$	Comments
D ¹⁴ C	$-87.0 \pm 2.7 \text{ ‰}$	
F ¹⁴ C%	$91.3 \pm 0.3 \%$	
Result	731 ± 24 BP	



- 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.
- F¹⁴C% is also known as *Percent Modern Carbon (pMC)*