127 Owera Road, site T11/346: final report (HNZPTA authority 2022/460)

report to
Heritage New Zealand Pouhere Taonga
and
Dean Wood Family Trust

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Ella Ussher

An archaeological assessment of 127 Owera Road, Otapaurau (Lot 4 DP 89306) in support of a proposed subdivision noted that a building platform and accessway for the proposed Lot 5 had been constructed on an archaeological site recorded as T11/346 in the New Zealand Archaeological Association (NZAA) Site Recording Scheme (SRS) without an authority from Heritage New Zealand Pouhere Taonga (HNZPT) (Ussher and Kneebone 2021). After consultation with HNZPT, authority 2022/460 was obtained for a salvage investigation in mitigation of the damage and to determine the extent of site damage. The investigation was carried out from 11 to 14 April 2022 by Ella Ussher and Renee Sadlier of CFG Heritage Ltd, accompanied by Wanda Brljevich from Ngāti Huarere ki Whangapoua Trust.

Background

The property is located around 1 km from the Whangapoua Harbour and consists of moderate to gently rolling land around Owera Road with moderately steep ridges to east and west, rising to around 80 m above sea level. Most of the property is in pasture, with a small area of a pine plantation towards the western boundary, and small areas of rejuvenating native bush. The Owera Stream runs through the property north to the Whangapoua Harbour and there are several small swamy areas.

The basement rock type forming the ridges is early Miocene to Pliocene andesites (2.5–23 mya) forming part of the Matarangi andesite formation which in turn is part of the Kuaotuna geological sub-group (Skinner 1993). Overlying this is a mantle of strongly weathered and firm yellowish-brown tephra derived clays, composed principally of Rotoehu ash (c. 42000 kya: Hogg 1979; Hogg and McCraw 1983; Pain 1981).

Pre-European Māori history

Māori settlement of the Coromandel Peninsula extended along the coastline and stream valleys where fresh water was available, which is supported by archaeological evidence. Fish, shellfish and sea mammals would have been gathered from the foreshore or with the aid of waka. Birds would have been caught in the surrounding bush clad hills. As population increased, these resources would have become scarcer. Horticulture, particularly kūmara horticulture, provided an important additional food source (Mallows 2009). Given the mountainous terrain and dense bush of the Coromandel Peninsula, streams and rivers such as Owera Stream were important access routes inland from the coast. Rivers offered landing sites, harbours, and a source of fresh water, and it was easier to get from place to place by walking or canoeing up or down rivers than by walking over the mountains or through dense bush.

Māori often built settlements both at the mouths of rivers and at various locations upstream. Food resources could usually be obtained from the river itself or its estuary, and access to resources found inland, around the coast, or at sea could be reached easily by rivers. The relationship between rivers and the sea is often acknowledged in local tradition.

In the Owera Stream valley most evidence for occupation comprises sites such as middens or terraces and pits, with substantially less evidence of occupation higher on the hills and

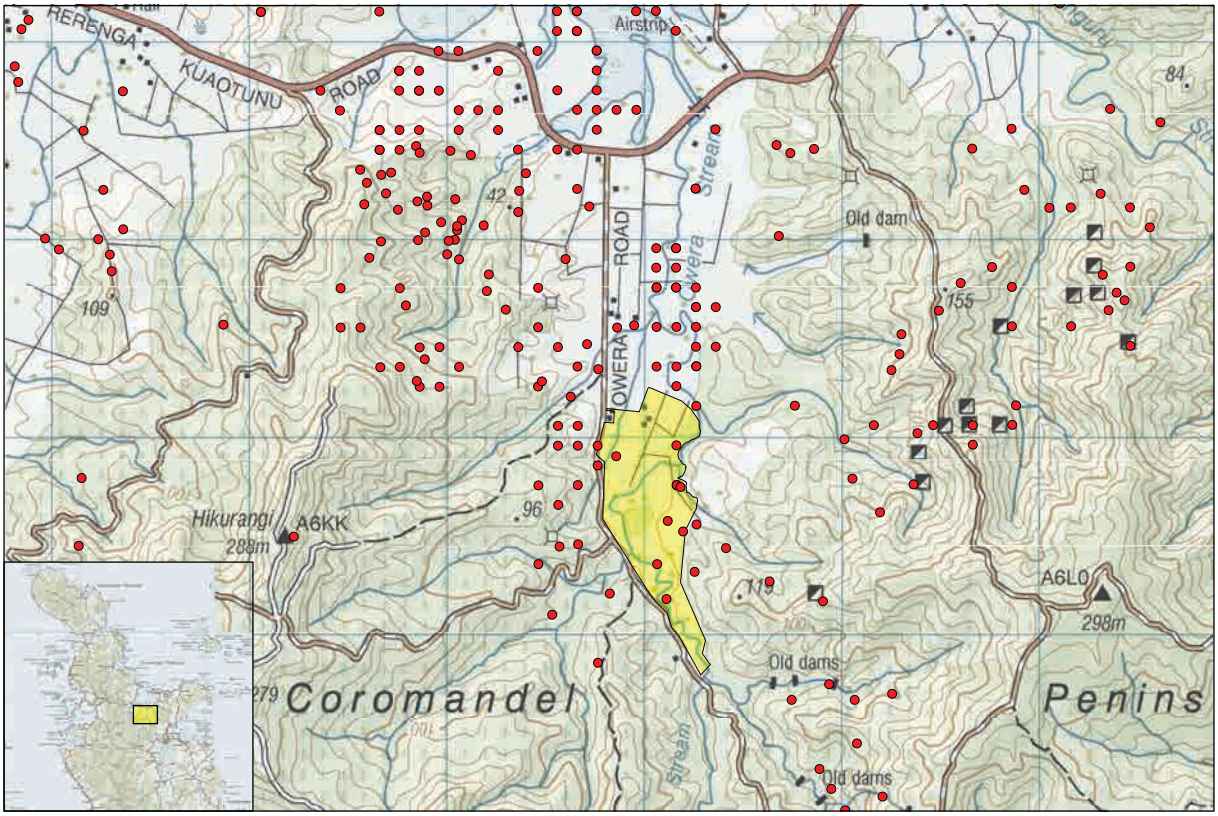

Figure 1. Location of 127 Owera Road and archaeological sites in the vicinity.

spurs found deeper inland. This pattern indicates a focus on the availability of good, fertile soils on the valley floor for horticulture, the ready supply of water and marine resources, and the ease of access through the area.

Archaeological background

Five sites on the western side of Owera Road had been recorded by Louise Furey in 1986 as part of a survey prior to archaeological excavations carried out for the New Zealand Forest Service in the Holzgang Block in the Whangapoua Forest (Crosby et al. 1987). These included pit/terrace sites T11/681 and T11/685, shell middens T11/682 and T11/684, and midden and terrace T11/683 (Furey 1986). On the eastern side of Owera Road, John Coster and Gabrielle Johnston conducted a survey of archaeological sites in the Western Otanguru Block of the Whangapoua State Forest for the New Zealand Forest Service in 1979. They extended their survey onto parts of adjoining farmland on the Owera Valley floor, including 127 Owera Road, in order to better explain the distribution of sites on the higher ridges and spurs of the dividing ridge they were surveying. They noted the fertility of the soils in the valley floor and the presence of pit and terrace sites in the ridges, which together indicated that crops were grown in the valley in pre-European times (Coster and Johnston 1979: 2).

The most comprehensive survey was by Nicholas Twohill, who surveyed from Owera Road to Owera Head on the Whangapoua Harbour in 1992 and later in the Owera Valley Floor. He recorded 121 sites in this area, including several on 127 Owera Road (Twohill 1993, 1994). The locations of these were all recorded as grid reference points accurate to 100 m, and so prior to the survey it was unclear which sites were in the property boundaries. More recently, Moore (2009) assessed the subdivision of a property to the west of Owera Road.

During that assessment 10 sites were relocated and GPS locations collected, although not all seem to have been updated in the SRS, and 3 new sites were recorded.

Pit, terrace and midden site T11/346 was first recorded by Coster and Johnson in 1979. At that time the site was described as intermittent shell midden of mainly pipi (*Paphies australis*) and tuangi (*Austrovenus stutchburyi*) across the surface over an area of 20 x 10 m. The site was subsequently re-recorded by Twohill in 1994 as a shell midden exposed intermittently for 30.7 m along the shoulder of a north-south running spur, with a single terrace measuring 7.2 x 3.2 m.

Archaeological investigations in the wider Whangapoua catchment

Only a small number of previous archaeological investigations have been carried out near the Owera Valley, and this is the first in the valley itself. The first were a series of excavations by Furey in 1986 (Crosby et al. 1987) for the New Zealand Forestry Service and New Zealand Historic Places Trust at sites T11/644, T11/643 and T11/648 in the Holzgang Block, Whangapoua Forest. Of these, T11/643 and T11/648 were originally thought to be terraces but these were proven to be natural features with no evidence of modification or structures and the only archaeological deposits noted were areas of shell midden. T11/644 was recorded as eight terraces, and five of these were targeted for further investigation. Two structures were identified on these north-facing terraces through the alignment of postholes and in situ stakes. Fire scoops were recorded in the structures, as well as a large quantity of obsidian and chert flakes, argillite adze flakes, hoanga and quartz pebbles (Crosby et al. 1987: 85). It was argued that the evidence pointed towards a more than transitory occupation, a point reiterated by Hoffmann (2012) during his later investigations in the Holzgang Block.

Hoffmann (2012) conducted several small investigations for Earnslaw One Ltd prior to forestry harvesting at six sites. These sites varied between simple midden exposures (T11/644 and T11/652), to larger pit complexes on ridges and spurs overlooking the Wairoa Stream catchment (T11/630, T11/647, T11/648 and T11/646). The investigations at T11/646 and T11/648 were an extension of the areas excavated by Furey in 1986, and it was determined that T11/646 was in fact just a continuation of T11/648. While no pits were recorded by Furey, Hoffmann located 13 pits on the same ridgeline to the south. The dimensions of these pits varied markedly, but the fill was relatively consistent. Three distinct layers were noted, with the basal layer characterised by intact sections of burned tree fern, branches of rewarewa (*Knightia excelsa*), tawapou (*Pouteria* costata) and kahikatea (*Dacrycarpus dacrydiodes*), and stems of rata (*Metrosideros robusta*) or pohutukawa (*Metrosideros excelsa*). Analysis of these suggested that the wood had been adzed into boards or poles for the roof structure, which had subsequently burned and collapsed. It was argued that the sections of rewarewa were in an advanced state of decay at the time of burning, suggesting that the pits had been abandoned for some time before this event occurred. There was some evidence of re-use after the pits had been abandoned and burned, with several firescoops in the upper layers of the pit fill.

Dates from the two phases of occupation at T11/648 indicated that these were only around 50 years apart, with occupation in the first and second halves of the 16th century. Two pits identified at site T11/630 on a ridgeline further to the west were accompanied by a small area of midden, argued to be evidence of a single period encampment (Hoffmann 2012), dated to the mid to late 17th century. An investigation of a possible horticultural site (T11/647) located a further cluster of pits on a low spur close to the flood plains of the Wairoa River catchment. Based on this, Hoffmann (2012: 42) concluded that "…the 'ridge-top' guide to storage pit site location is only a partial view to the distribution of such sites on the landscape." A basic chronology of settlement was suggested that put initial settlement in the area

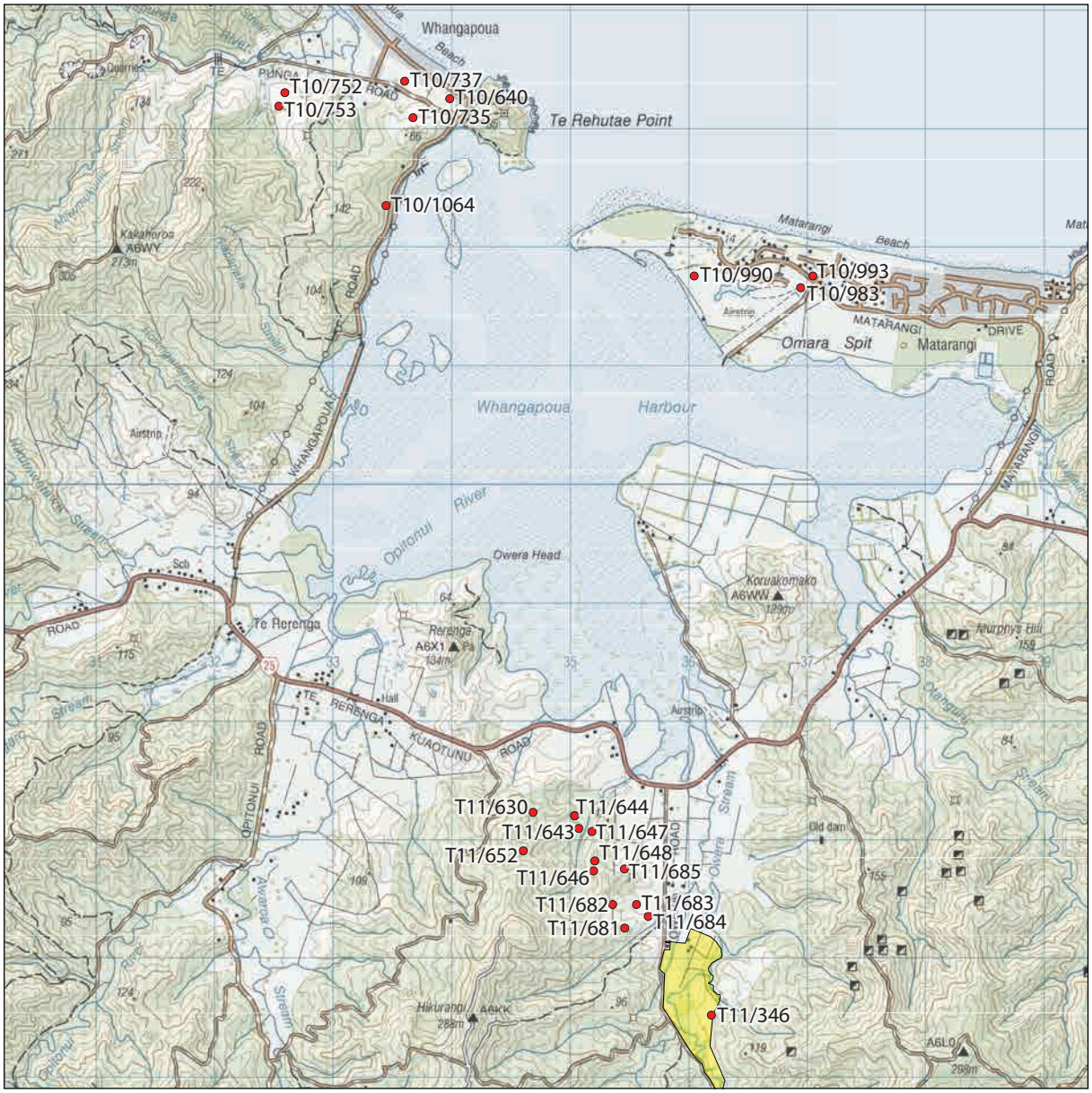

Figure 2. Archaeological investigations around Whangapoua Harbour.

no earlier than the mid-15th century, with the bulk of occupation and horticultural expansion occurring in the 16th century, declining by the mid to late 17th century.

Evidence of coastal settlement on the Matarangi Peninsula at the mouth of the harbour has been collated through several surveys by Furey (1997, 2005), and Hoffmann (2015), and investigations by Furey (1998), Sewell (2000) and Larsen et al. (2022). These surveys have recorded 28 areas of shell midden, of which seven have been archaeologically investigated. In 1998 Furey investigated site T10/993 on the northern side of the peninsula. She interpreted the site as a seasonal encampment for the collection and drying of shellfish such as tuangi, tuatua (*Paphies subtriangulata*) and pipi. Radiocarbon dates placed the occupation in the 16th to 17th centuries. Charcoal analysis suggested an environment of primarily secondary regrowth, but the presence of some broadleaf species in one midden suggested that larger trees were still present. Later Sewell (2000a) excavated three other sites (T10/983, T10/990

and T10/991) further to the southwest, with evidence for similar seasonal occupation but also possible horticulture on the older dunes. Dates from these returned ranges in the 15th to 17th centuries. Most recently, Larsen at al. (2022) investigated a further three sites, including several large areas of shell midden with fire-scoops, a small number of postholes, rock caches and possible hāngi cut into these and the subsoil below. These are yet to be fully analysed and reported on.

On the western side of the harbour, Raukawa Pā (T10/176) at Te Rehutae Point overlooks the entrance to the Whangapoua Harbour. Several investigations in this area have shown that more permanent settlement was established around the pā at Whangapoua by at least the 17th century. Sewell (2000b, 2002, 2005) investigated areas of settlement on both the beach flat and the hills behind, at sites T10/640, T10/737, T10/735 and T10/1064. Site T10/640 was further investigated by O'Hagan (2021), which showed the settlement extended along much of the area behind the dunes at the eastern end of the beach, and occupation possibly began as early as the 14th century. Further to the west, in the hills behind the beach is hilltop pā T10/212, below which Gumbley (2008) investigated sites T10/752 and T10/753. These sites included a number of structures such as pits, drains and postholes, as well as areas of culturally modified soils that were interpreted as representing two possible phases of occupation. The earliest phase entailed the construction and use of pits for kūmara storage and a later phase involved the cutting of the ridge and infilling of these structures to create a terrace, although these phases were likely only several years apart in the mid-17th century. The presence of these pits were used to argue for the occupation of the area over winter and provided the first evidence of year-round occupation at Whangapoua.

Summary of archaeological damage assessment

Earthworks for a new driveway and building platform in Lot 5 had damaged a number of features associated with T11/346. The terrace on the western side of the spur, originally recorded by Twohill in 1994, was no longer visible and had almost certainly been destroyed. The shell midden originally recorded by Coster and Johnson (1979) and later by Twohill (1994), had been extensively damaged. The shell midden was redeposited and mixed with soil pushed to the sides of the building platform to create a level surface. A test pit and probing found that some in situ shell midden remained on the slopes below the earthworks. A smaller lower terrace with at least one rectangular pit was also identified during the assessment that had not been damaged by the works.

The site is located in an intensive archaeological landscape, with more than 30 other sites recorded as shell middens and 13 as pit/terrace sites on the banks of the Owera Stream and surrounding highpoints to the east and west. The site is therefore not unique but is an important element in the context of pre-European Māori occupation in the Owera Valley and contributes to our knowledge of settlement patterns and subsistence practices in this area of the Whangapoua Harbour. The damage which took place represented a potential loss of this information that could otherwise have been collected through an archaeological investigation, in addition to the physical damage to the landforms and the archaeological and cultural landscape as a whole.

Investigation methodology

The existing building platform was carefully stripped of all gravel and topsoil using an excavator with a flat-edged bucket, including removal of the topsoil bunds on the northern and southern sides of the platform. These works were monitored by an archaeologist to the level where archaeological features or deposits, or the natural clay subsoil were exposed. All features below the original topsoil were recorded and sampled, and were then stripped off to expose the natural clay subsoil. In some areas archaeological features were present below the shell midden on the northern side of the building platform, and these were also recorded and sampled prior to removal. Two 500 x 500 mm square test pits were excavated on the northern slopes of the spur below the building platform to assess the nature and stratigraphy of the midden in this area.

Results

Fifteen features were recorded in the damaged area (Appendix 1). All but one of these (Feature 4) were located on the northern side of the building platform in what is presumed to be the remains of the now truncated upper terrace (Figure 5–Figure 7).

The top of the spur had been flattened to create the building platform and the back of the upper terrace had been removed during this process. The stratigraphy on the terrace (Figure 8) consisted of varying levels of overburden from the construction of the building platform above at least 100 mm of buried charcoal-stained topsoil containing numerous fire-cracked rocks, charcoal and some lithic artefacts. Below this was 100–200 mm of shell midden across most of the terrace and the upper slope below, sitting above the natural clay

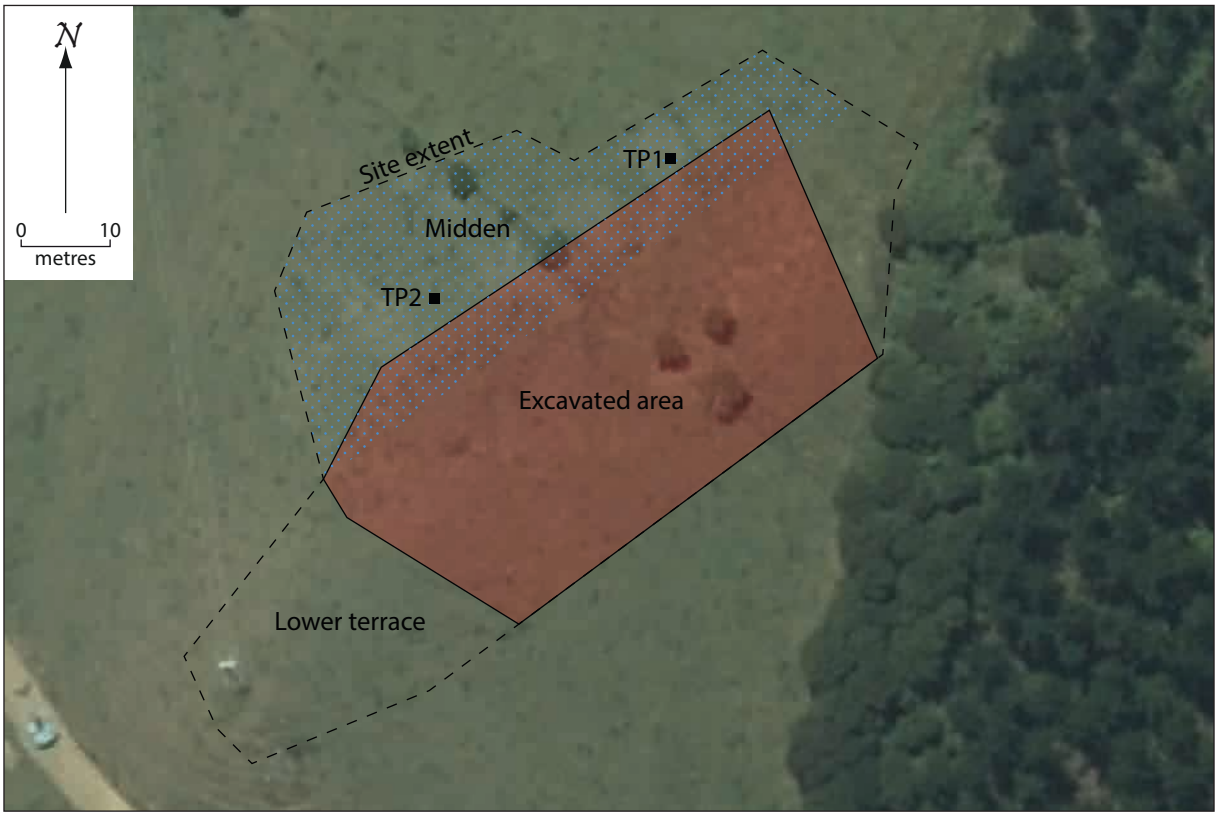

Figure 3. Extent of excavation.

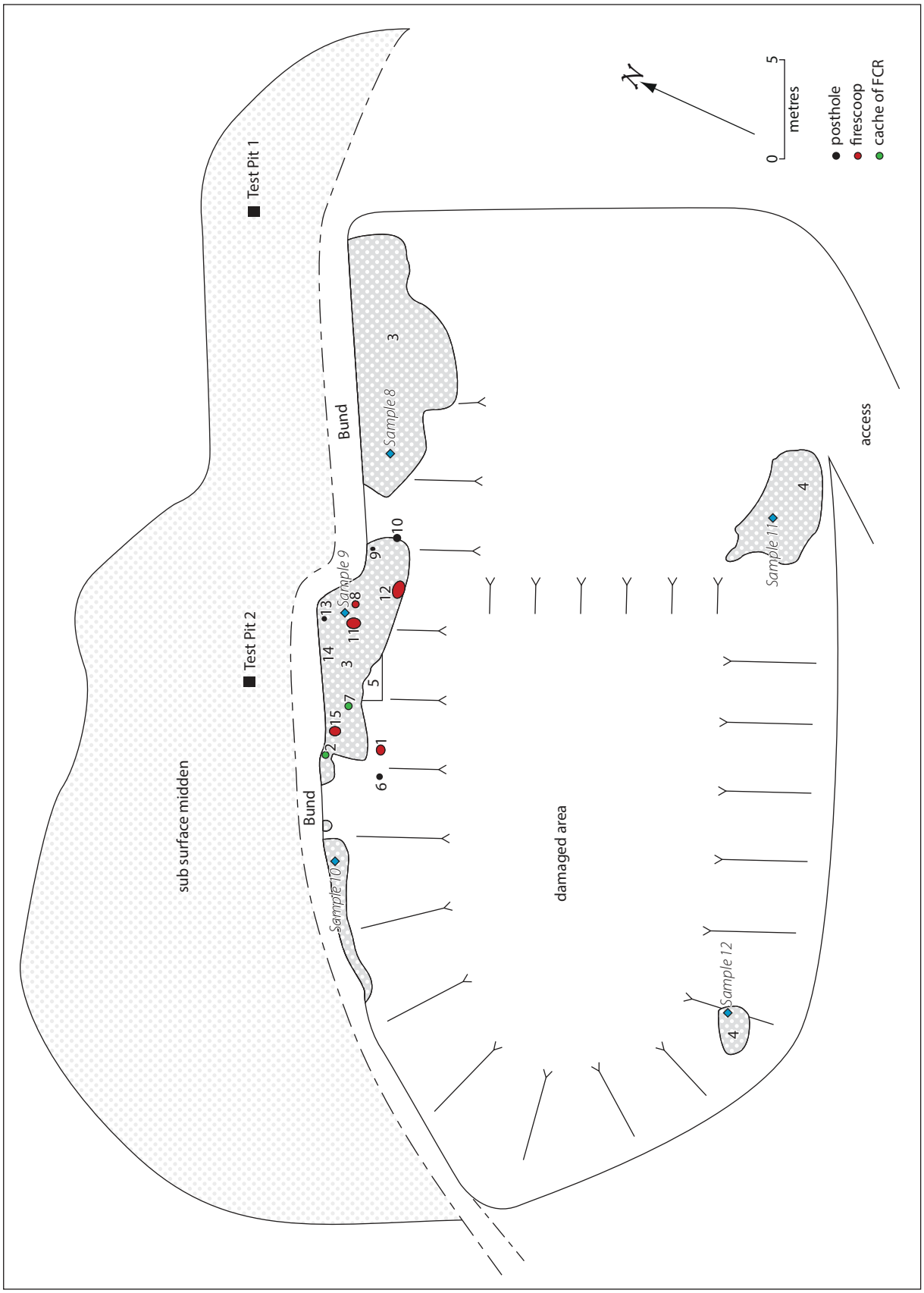

Figure 4. Excavation plan.

subsoil. Most recorded features were sitting on or cut into this subsoil, but a small number were in the buried topsoil, midden or at the interface between these (Appendix 1).

Of the 15 recorded features there were six firescoops, four postholes, two clusters of fire-cracked rocks, one rectangular pit with a thick layer of charcoal above a burned clay base and two large concentrations of shell midden (Figure 9 and Figure 10, Appendix 1). Three of the postholes (Features 6, 9 and 10) had narrow bases, were flared at the top and were dug on an approximately 70° angle meaning the posts would have pointed northwards, out from the brow of the upper terrace A roughly 3 x 3 m concentration of lithic artefacts in the buried topsoil of the upper terrace on the northern side of the building platform included obsidian and chert flakes and cores, an adze and basalt adze fragments, indicating a possible working floor in (Figures 11 and 12).

Two spade width test pits showed that the remaining subsurface shell midden (Feature 3) on the slopes below the terrace was around 200 mm deep, sitting immediately below a shallow topsoil and directly on the clay subsoil (Figures 13 and 14). The upper 100 mm of midden contained mostly crushed and fragmented shell, and below this was a further 100 mm of whole shell. These layers were sampled separately, but it is probable that these differences reflect post-depositional processes such as trampling by people and stock.

Figure 5. View looking north east along the upper terrace, truncated by the building platform.

Figure 6. View looking south west along the upper terrace, truncated by the building platform .

Figure 7. Feature 4, shell middens, on the southern side of the building platform (photo scale = 1 m).

Figure 8. Profile of the upper terrace showing overburden above topsoil and midden (photo scale = 1 m).

Figure 9. Test trench cut through Pit 5 below the shell midden (photo scale = 500 mm).

Figure 10. Postholes and fire scoops cut into clay subsoil below the shell midden on the upper terrace.

Figure 11. Lithic working floor on upper terrace at site T11/346.

Figure 12. Adze in situ in lithic working floor (photo scale = 500 mm).

Figure 13. Test Pit 1 on the slopes below the upper terrace photo scales = 1 m, 500 mm).

Figure 14. Test Pit 2 on the slopes below the upper terrace (photo scales = 1 m, 500 mm).

Analysis

Midden samples were returned to the lab and washed in a 6 mm wet sieve before being dried and sorted to primary classes: in this case shell, fishbone, stone and charcoal, there was no bone. Washing and sorting were undertaken by Lucy Hughes of CFG Heritage.

Lithics

Twenty-nine pieces of lithic material and two pieces of kauri gum were recovered. These were analysed by Brendan Kneebone of CFG Heritage. Material type was determined on visual characteristics only. Analysis followed the methods in Andrefsky (2005), Holdaway and Stern (2004), Young (2019), Phillipps et al. (2016), Clarkson (2013), Dibble and Rezek 2009) and Turner and Bonica (1995). Dimensions and weight were recorded for all artefacts over 10 mm.

One adze of fine-grained sedimentary stone, milky grey in colour, probably argillite from the Nelson / Marlborough region, was recovered. It is a relatively small but complete Type 2b adze (Duff 1975), with a rectangular cross section and a small, steep bevel, measuring 65 x 49 x 23 mm, with a cutting edge 48 mm wide (Appendix 2). The asymmetrical sides and evidence of flake reduction indicate it has been reworked, probably multiple times, from a larger tool. The poll and butt have been reduced, most likely to fit a socket haft, which was the most common way of hafting 2b adzes. The adze has been polished all over and older flake scars have been hammer dressed, then polished, further indicating that the adze has been reworked. The cutting edge has micro-flake notches and striations, a common indication of use. A large piece is missing from the cutting edge and this would have made the blade unusa-

Figure 15. Nelson / Marlborough argillite Type 2b adze.

ble, although hammer dressing marks suggest attempts at repair were made. Along with the artefact's size, this is the probable reason it was discarded.

A coarser piece of fine-grained sedimentary stone was recovered from Test Pit 2, and is most likely a sandstone. The material does not occur naturally at the site, and is the type of stone traditionally used for grinding tools.

A single piece of fine-grained volcanic stone was recovered, most likely basalt from the Tahanga quarry complex at nearby Opito Bay, measuring 46 x 30 x 13 mm (Appendix 2). It has polish on the dorsal surface over hammer dressing marks and is probably from an adze. The Tahanga basalt quarry was an important stone source and regularly exploited by early Māori settlers in the production of flaked adzes and other tools, and widely distributed throughout the North Island and much of the South Island.

Twelve chert artefacts were recovered. 'Chert' is used here for all material that appears to be highly siliceous (such as flint, chalcedony and jasper) but cannot readily be classified into other well-known stone types (Moore 1977). The chert artefacts include three cores, two flakes, a possible drill point, and six pieces with no diagnostic characteristics. Chert was popular as a raw material for expedient tools as it often produces a good conchoidal fracture with the ability to create extremely sharp edges quickly. Cherts are difficult to source precisely being widely distributed and geochemically indistinct (Sheppard 2004) but, based on physical characteristics (e.g., colour and inclusions) chert artefacts may be sorted into distinct groups for analytical purposes. All but one piece of the chert recovered from this site appear to be

Figure 16. Possible chert drill point.

of the same material: red/brown with milky white inclusions. The material is high quality and would fracture predictably when flaking. The other piece is a white, semi translucent material, most likely chalcedony.

The distal end of a probable chert drill point appears to have been reduced to a sharp point. There are no obvious signs of use, however this may be difficult to detect given the characteristics of the raw material. The proximal end has parallel notches that would have been formed by lashing the drill point to a wooden handle.

Sixteen obsidian artefacts were recovered (Appendix 2), including six flakes, two cores and eight pieces with no diagnostic characteristics. At least four types of obsidian are present, most likely representing different sources (Moore 1988). A high-quality green material with no inclusions is most likely from Tūhua / Mayor Island, a high-quality source found at sites throughout the country. A second type is a high-quality grey material also with no inclusions. This material can be found at various locations along the east coast of the Coromandel Peninsula, and on Aotea / Great Barrier Island. The third type is also grey in colour but displays obvious flow banding and can also be found in both the Coromandel and Taupō volcanic zones. The fourth type is also grey but shows crystal inclusion and while still suitable for flaking, is of a lesser quality. This may influence the ability to create feather terminations with sharp edges and limit the life use of the tools. This type is common in the Whangamatā area, as well as other locations in the Coromandel and Taupō volcanic zones.

Three flakes exhibited micro-notching along at least one edge, indicating use wear. The two cores were both were grey in colour with crystal inclusions and radial flake scarring on all surfaces. While the flaking quality of the stone may be less than that from other places, these attributes still indicate an intensive reduction strategy.

The lithic assemblage displays a wide range of material rock type and stone use, given a relatively small investigation. Radial flake scarring on the obsidian and chert cores indicate that intensive reduction was a strategy used to produce expedient implements with sharp edges. The flakes and the adze indicate evidence of tool manufacturing and use was present at this site. The presence of exotic materials, in particular the argillite adze (given the proximity of the site to the Tahanga quarry complex) indicates that T11/346 was part of a wider communication network.

Fishbone

A very small fishbone assemblage of 14 elements was recovered from the midden samples, of which only 5 could be identified to genus or species level. One vertebra each of mackerel (*Trachurus* sp.), pilchard (*Sardinops sagax*) and yellow eyed mullet (*Aldrichetta forsteri*), and two mackerel scutes were recovered. Although this is a small assemblage, all these species have small mouths and would not take a baited hook, implying that they were netted either in the Whangapoua Harbour or nearby inshore habitats.

Table 1. Fish identified from site T11/346 by NISP.

Taxon	NISP
Hauture (Mackerel, *Trachurus* sp.)	3
Mohimohi (Pilchard, *Sardinops sagax*)	1
Aua (Yellow eyed mullet, *Aldrichetta forsteri*)	1

Shellfish

Shell was analysed using conventional methods by Lucy Hughes with species identification based on Morley (2004). Shell that did not have any diagnostic portions was classified as residue. The full 10 litre bulk sample was analysed from Sample 11 (Feature 4), while the remaining 10 litre samples were quarter-sampled due to time constraints and the fragmented nature of the shell. The results are summarised in Table 2.

In all samples the bulk of the identified shell was tuangi (*Austrovenus stutchburyi*) with smaller amounts of pipi (*Paphies australis*) and some minor species. Most of these species inhabit intertidal sandy or muddy environments like the Whangapoua Harbour. Small quantities of pūpū (cat's eye, *Lumella smaragda*) and mussel would have been taken from the rocky shore of the harbour mouth.

Most of the midden was too fragmented to be able to be identified to species (Figure 17), although many of the identified pipi and tuangi shells were whole. The shell in Test Pit 2 on the slope below the upper terrace was less fragmented than the samples from the two features, suggesting that the midden on the terrace was more affected by post-depositional processes such as trampling by people or later by stock.

Table 2. Shellfish identified from site T11/346 by MNI.

Species	Feature 3	Feature 4	Test Pit 2	Total
Koeti (large horn shell, *Zeacumatus lutulentus*)			1	1
Tuangi (Austrovenus stutchburyi)	615	419	111	1145
Pipi (Paphies australis)	49	82	126	257
Huamutu (lined whelk, *Buccinulum vittatum)*	9			9
Ngākihi (slipper shell, *Maoricrypta monoxyla)*	1	1	3	5
Pūpū (cat's eye, *Lunella smaragda*)		3		3
Pūpū piatāta (southern olive, *Amalda australis*)	1			1
Unidentified gastropod		5		5
Unidentifiable mussel (Mytilidae)		1		1
Total	675	511	241	1427

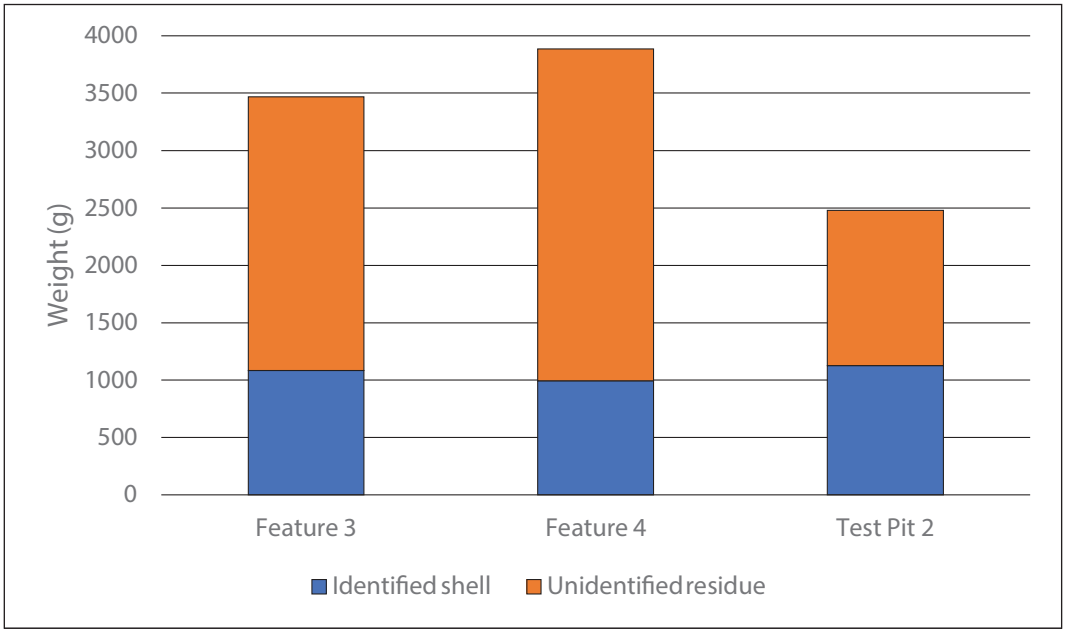

Figure 17. Identified and unidentifed shell, by weight.

Charcoal

Charcoal was analysed by Ella Ussher of CFG Heritage following the methodology outlined in Chabal et al. (1999), Théry-Parisot et al. (2010) and Dotte-Sarout et al. (2015), although the sample sizes were lower (50 fragments or less) than recommended (200–400 fragments).

Charcoal from the wet-sieved material of each bulk sample was analysed. These included one kūmara pit (Feature 5), two areas of midden (Features 3 and 4), and one test pit (TP2) (Table 3).

Table 3. Summary of charcoal identified at site T11/346

Taxon	Type	Pit	Midden Feature 3	Midden Feature 4	TP2	Total Count	%
Bracken (*Pteridium esculentum*)	Monocot			2		2	1%
Manuka (*Leptospermum scoparium*)	Small trees and shrubs		3	17	8	28	41%
Kanuka (*Kunzea ericoides*)					2	2	
Whauwhaupaku (*Pseudopanax arboreus)*		30	1	1		32	
Mahoe (*Melicytus ramiflorus*)			3	1		4	
Hebe sp.			2	4	3	9	
Pate (*Scheffleria digitata*)			2	4	3	9	
Kaikomako (*Pennantia corymbosa*)				3		3	
Horopito (*Pseudowintera colorata*)					1	1	
Ake ake (*Olearia* sp.)			1	5		6	
Tawa (*Beilschmiedia tawa*)	Broad-leaved canopy trees	28				28	22%
Northern rata (*Metrosideros robusta*)					2	2	
Hinau (*Elaeocarpus dentatus*)					1	1	
Pohutukawa (*Metrosideros excelsa*)			6	9	5	20	
Conifer (*Podocarpus* sp.)	Conifer		7	4	3	14	8%
Kauri (*Agathis australis*)			2	3		5	
Parenchyma			4	4	1	9	4%
Seed					7	7	3%
Unidentified			21	10	19	50	22%
Total		58	52	67	55	232	

Two species were present in the samples taken from the base and walls of Pit 5. The walls contained only whauwhaupaku (five-finger, *Pseudopanax arborus*), a small tree or shrub, that would have been readily available in the Owera Valley. This is not a species that has been recorded ethnographically or archaeologically lining pits in Aotearoa previously, instead tree ferns, bracken (*Pteridium esculentum*) or manuka (*Leptospermum scoparium*) have been commonly reported (Davidson et al. 2007). In the base of the pit the charcoal derived from both whauwhaupaku and tawa (*Beilchmiedia tawa*). A large amount of burned tawa on the floor of a pit at Raupa in the Hauraki Plains was interpreted as part of a pit superstructure (Prickett 1990) and is similar to the evidence recorded by Hoffmann (2102) at T11/646. This is therefore likely the remains of a burned roof covering the kūmara pit.

Table 4. Charcoal identified from Pit 5.

Taxon	Base	Walls
Tawa (*Beilschmiedia tawa*)	28	
Whauwhaupaku (*Pseudopanax arboreus*)	22	8
Total	50	8

A wide range of species were represented in the midden samples, suggesting that resource selection for firewood was targeting an array of species from the surrounding environment, which is to be expected. Overall the samples were dominated by small trees and shrubs, particularly manuka (*Leptospermum scoparium*), with smaller amounts of Pohutukawa (*Metrosideros excelsa*), conifers and bracken (*Pteridium esculentum*). This indicates an environment of secondary growth after initial vegetation clearance, rather than primary forest, surrounding the site during occupation. The presence of pohutukawa, northern rata (*Metrosideros robusta*), kauri (*Agathis australis*), hinau (*Eleaocarpus dentatus*) and tawa indicate the continued presence of these coastal and lowland broad-leaved or conifer canopy species, but these are likely from small remnant stands.

Radiocarbon dating

A sample of vegetative storage parenchyma charcoal from shell midden Feature 3 was sent to the Radiocarbon Laboratory at the University of Waikato for Accelerator Mass Spectrometry (AMS) dating. This returned a date range in the late 15th to mid-17th centuries AD (Table 5), which is consistent with other dates from inland sites around the Owera Valley in the Holzgang Block (Hoffmann 2012) and around the Whangapoua Harbour (Furey 1998; Gumbley 2008; Sewell 2000a).

Table 5. Summary of C14 dating results.

Lab no.	CRA BP	Cal AD 68%	Cal AD 95%
Wk 55031	364 ± 19	1500–1520 (10.8%) 1530–1600 (48.3%) 1610–1630 (9.2%)	1490–1640 (95.4%)

Discussion and conclusion

Prior to excavation, site T11/346 site had been truncated by earthworks to construct a building platform. However enough remained to outline the nature and timing of occupation. Fifteen features were excavated on the terrace and on the northern and southern slopes of the spur: two areas of shell midden, one rectangular pit, six firescoops, four postholes, and two clusters of fire-cracked rocks. Several of the postholes were dug on an angle at the back of the terrace, close to the rear scarp. Firescoops and clusters of fire cracked rocks were located closer to the front of the terrace. The northern concentrations of midden were located on the terrace overlying many of these features, and were generally thicker at the front of the terrace and continued down the slope. The midden concentrations on the southern side of the spur were on the slopes.

The lithic material recovered included cherts, probably locally sourced; obsidians and basalts from the Coromandel Peninsula and nearby Tūhua, and perhaps Taupō; and argillite from as far away as the upper South Island – the argillite adze had probably been curated for several generations before becoming unusable. A range of tools were being used and manufactured at the site, including adzes, drill points, hoanga and flakes for cutting and scraping. Most of these were found in a small area on the terrace as findspots, interpreted as a working floor showing some spatial delineation of activities at the site.

Charred vegetative storage parenchyma shows that roots or tubers were processed at the site, and likely stored in pits such as Pit 5. Analysis of the faunal remains showed that the most common species harvested were tuangi with smaller amounts of pipi, supple-

mented by other intertidal or mud flat species and occasional rocky shore species, indicating a wider catchment for shellfish gathering than just the nearby Owera Stream estuary and Whangapoua Harbour.

Charcoal from midden Features 3 and 4 showed that the environment surrounding the site was one of secondary growth after initial vegetation clearance, with some evidence of remaining stands of primary forest. The burn layer in the Pit 5 was composed of whauwhaupaku and tawa, suggesting that the superstructure above the pit was constructed using these species.

Overall, these features indicate that the site was an undefended camp, tucked inland at the back of the Owera Valley but part of a network of inland sites utilising resources on the coast and the valley floor.

Coupled with the evidence of excavations elsewhere around Whangapoua, we see a picture of coastal settlement on the dunes around the mouth of the Whangapoua Harbour from as early as the late 14th century, primarily targeting the exploitation of shellfish and fish available around the estuarine environment. A later expansion inland and to higher elevations in the hills and valleys beyond the harbour is evidenced by the construction of pits and terraces by the mid-15th century lasting at least into the 17th century.

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Appendix 1: Excavated features

Feature	Type	Stratigraphic location	Description
1	Fire scoop	In clay subsoil	300 x 400 mm circular feature cut into clay subsoil. Fill is buried topsoil and FCR.
2	Cluster of fire-cracked rocks	Above midden	300 x 300 mm cluster of FCR on top of midden (F3) in buried topsoil.
3	Midden on northern slopes	Above clay subsoil	Midden on north-facing terrace and slopes below.
4	Midden on southern slopes	Above clay subsoil	Midden on southern facing slopes of site.
5	Pit	In clay subsoil, below midden	1880 x 1270 x 160 mm deep rectangular pit with square edges. Fill is mixed dark silty matrix with clay pockets and many large FCR, charcoal at base. Cut into clay subsoil below midden (F3).
6	Posthole	In clay subsoil	180 x 150 x 200 mm deep cut on angle into clay subsoil with rock at base. Fill is buried topsoil.
7	Cluster of fire-cracked rocks	Above clay subsoil, below midden	400 x 300 mm cluster of FCR below midden (F3) sitting on clay subsoil below midden (F3).
8	Fire scoop	In clay subsoil, below midden	200 x 200 x 30 mm deep fire scoop with burned edges. Fill is buried topsoil, charcoal and ash.
9	Posthole	In clay subsoil, below midden	130 x 110 x 260 mm deep oval posthole cut on angle with tapered base into clay subsoil below midden (F3). Fill is loose grey ash with some fragmented shell.
10	Posthole	In clay subsoil, below midden	170 x 180 x 490 mm deep circular posthole cut on angle with tapered base into clay subsoil below midden (F3). Fill is grey ashy fill and charcoal-stained topsoil with some fragmented shell.
11	Fire scoop	In clay subsoil, below midden	520 x 420 x 20 mm deep fire scoop filled with ash, charcoal, shell and FCR cut into clay subsoil below midden (F3).
12	Fire scoop	In clay subsoil, below midden	650 x 400 x 100 mm deep fire scoop filled with ash, charcoal, shell and some FCR cut into clay subsoil below midden (F3).
13	Posthole	In clay subsoil and midden	120 x 130 x 50 mm deep posthole or stake hole with burned edges at top cut into clay subsoil but through midden (F3). Fill is shell, ash and charcoal-stained topsoil.
14	Fire scoop	In clay subsoil, below midden	500 x 500 x 40 mm deep fire scoop cut into clay subsoil below midden (F3). Fill is charcoal, ash, shell and FCR.
15	Fire scoop	In clay subsoil, below midden	400 x 300 x 120 mm cluster of FCR sitting on clay subsoil under midden (F3).

Appendix 2: Lithics

SampleID	Material	Colour	Inclusions	Class	Context	Length (mm)	Width (mm)	Thickness (mm)	Platform width (mm)	Platform thickness (mm)	Weight (g)	Cortex	Polish	Dorsal Scars	Scar Direction	Termination type	Platform type	Retouch type
S17	basalt	n/a		piece	Surface Find	46.21	29.64	12.69			18.2		50-80%					
S14-4	chert	red/brown		piece	Surface Find	31.58	27.84	5.18			5							
S14-5	chert	red/brown		piece	Surface Find	23.93	11.31	5.34			1.6							
S14-6	chert	red/brown and milky white		utilised	Surface Find	32.33	17.93	5.4			3.2			3	bilateral			dorsal
S14-7	chert	brown/red/white		piece	Surface Find	14.21	7.55	6.14			0.3							
S14-8	chert	Red/whit		piece	Surface Find	21.75	13.82	9.27			2.4							
S14-9	chert	white		piece	Surface Find	15.68	14.73	6.34			1.8							
S18	chert	red/brown	some	core	Working floor	57.19	25.79	26.489			59.7	50-80%		5+	radial			
S18-1	chert	red/brown/white	some	core	Working floor	52.55	55.3	38.57			70.6	>25%		5+	radial	inflexed		
S18-2	chert	red/brown		flake	Working floor	24.42	18.04	4.52	14.19	4.8	1.7			2	bilateral	step	uniFlake	
S18-3	chert	red/brown		piece	Working floor	27.03	21.22	17			7.2							notch
S18-4	chert	red/brown		tool	Working floor	37.38	24.18	11.42	20.41	11.42	9.1			3	bilateral	feather	uniFlake	
S19-5	chert	red/brown	some	core	Working floor	41.42	24.99	15.23			11	>25%		5+				notch
S14-14	indet.	n/a		piece	Surface Find	13.79	10.71	3.83			0.3	indet.						
S14-2	indet.	n/a		piece	Surface Find	0	0	0			0	50-80%						
S14	obsidian	grey	crystals	piece	Surface Find	28.23	16.16	13.03			4.9	25-50%						
S14-1	obsidian	grey	crystals/flow banding	flake	Surface Find	27.05	22.54	6.59	17.93	5.53	4.3			3	bilateral	step	uniFlake	
S14-10	obsidian	green		piece	Surface Find	12.6	7.53	1.22			0.1							
S14-11	obsidian	green		tool	Surface Find	25.75	12.78	6.45	12.85	4.6	1.3			2	unilateral	feather	uniFlake	
S14-12	obsidian	grey	crystals	piece	Surface Find	21.52	16.11	6.46			1.7	25-50%		1				
S14-13	obsidian	grey	crystal	piece	Surface Find	27.32	10.49	5.51			1.4							notch
S14-3	obsidian	grey	none	piece	Surface Find	11.6	7.55	4.15			0.2							
S15	obsidian	grey	crystals	tool	Surface Find	42.65	31.66	12.9	31.25	12.55	12.6	>25%		5	radial	feather	uniFlake	
S15-1	obsidian	grey		piece	Surface Find	27.24	18.66	7.24			3.4	50-80%						
S16	obsidian	grey	crystals	core	Surface Find	45.05	21.08	26.07			24.5	25-50%		5+	radial			
S17	obsidian	gray	some crystals	core	Surface Find	75.62	46.41	26.12			100.8			11	radial			
S17-1	obsidian	grey	crystals	flake	Working floor	28.36	33.21	4.9			3.6			2	unilateral	feather		
S17-2	obsidian	grey	crystals	flake	Working floor	20.62	38.9	5.4			4.9					step		
S17-3	obsidian	grey	crystals	piece	Working floor	14.7	6.87	3.27			0.2							
S21	obsidian	grey	crystals	tool	Working floor	45.22	47.02	10.16	20.6	8.56	25.2	>25%				feather		
S7	sandstone	n/a		piece	TP 2	73.17	49.19	18.01			63.2							