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FLOOD MITIGATION SCHEME KAEO, NORTHLAND

FINAL ARCHAEOLOGICAL MONITORING AND EXCAVATION REPORT (SITES P04/760 & P04/761)

By Richard Shakles (BA Hons, BSc) Sarah Phear (PhD) Rod Clough (PhD)

Report prepared for Northland Regional Council Under NZHPT Authority No. 2012/520



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INTRODUCTION

Project This report describes the results of the archaeological monitoring of the Kaeo **Background** Flood Mitigation Scheme, Kaeo, Northland (Figure 1) and the excavation of sites P04/760 and P04/761. The Flood Mitigation Scheme consisted of the creation of earthen stopbanks, a spillway, and other associated earthworks which took place on both sides of the Kaeo River (Figure 2 and Figure 3). The principal works monitored were the excavation of a 40m wide topsoil strip to the east and west of Pohue Pa (P04/238) that provided material for the construction of the earthen stopbanks.

An archaeological assessment was undertaken by Clough & Associates in August 2010 (Phear et al. 2010) in which it was noted that the proposed works would be taking place in close proximity to Pohue Pa, and that Maori gardens associated with the Ngāti Uru settlement at Pohue Pa were reportedly located on the river side (south) of the pa (Phear et al. 2010). The assessment also noted that due to the length of occupation and settlement by Maori and early European settlement history in the vicinity of the works area it was likely that unrecorded archaeological features would be exposed during the flood mitigation scheme works.

An authority from the New Zealand Historic Places Trust (NZHPT, now Heritage New Zealand) was applied for by Northland Regional Council as a precaution in case any archaeological remains were exposed by the works. The Authority was granted on 22 December 2011 (NZHPT Authority no. 2012/520) subject to the preparation of a Site Management Plan (Macready & Clough 2012) and with the requirement that an archaeologist must be present during any earthworks that might affect archaeological sites, and that any remains encountered should be recorded and analysed (Conditions 6 and 7).

Northland Regional Council commissioned Transfield Services Ltd to undertake the Flood Mitigation Scheme works. The works were undertaken between 6 December 2013 and 15 January 2014 and were monitored in accordance with Authority No. 2012/520.

INTRODUCTION, CONTINUED







Figure 2. Aerial image illustrating Pohue Pa (centre left) and the general area of works (source: Northland Regional Council GIS)

INTRODUCTION, CONTINUED

Figure 3. Aerial plan illustrating the works of the Kaeo Flood Mitigation Scheme



HISTORICAL BACKGROUND

Maori Settlement During the pre-contact period, the Northland region was the most densely populated area of Aoteroa. The tangata whenua of the Whangaroa region were comprised of two main iwi: Ngāti Pou and Ngāti Uru, also known as Ngatihuruhuru (Laurenson 1972). Ngāti Pou, numbering around 600, were based around the Whangaroa harbour entrance and resided with their chief Te Pahi (also referred to by various authors as Te Pahe and Te Pari) at his pa on Ohauroro Island; while Ngāti Uru were located further inland in the vicinity of the Kaeo estuary and along the banks of the River Kaeo itself and numbered approximately 200 (Owens 1974; Salmond 1997; Bedford 2012).

Ngāti Uru had originally been located in the southern Bay of Islands, but following the fallout from the deaths of the French Captain Marion Du Fresne and crew in 1772 they migrated to the Whangaroa Harbour area (Fox 1975: 16; Bedford 2013: 61). The French documentary records of the 1772 engagement derive from retrospective accounts written sometime after the events and were taken from journals that are no longer extant, or from personal memory (Salmond 1991: 403, cited in Bedford 2013: 63). The records indicate that after the attack on Du Fresne and his crew, the French undertook a series of retributive attacks on various Maori settlements including pa and kainga in the area in which an unprecedented number of Maori, possibly upwards of 300 and including many warriors, were killed during the short conflict (Bedford 2013: 64).

Oral Maori accounts of the events of 1772 were also recorded retrospectively by John White in the 1850s and 1860s from Ngāpuhi sources and inform of subsequent inter-tribal tensions (Salmond 1991: 377, cited in Bedford 2013: 64). In the aftermath of the French attacks, inter-tribal warfare broke out which led to the expulsion of two hapu, Ngāti Pou and Ngāti Uru, who migrated to Whangaroa (Owens 1974: 34; Salmond 1997: 21, 381, cited in Bedford 2013: 64). Ultimately, Ngāpuhi gained control of the Bay of Islands after the events of 1772 (Salmond 1991: 377, cited in Bedford 2013: 64). Oral traditions also speak of Pohue Pa being established in the late 1700s by Ngāti Uru following their migration into the area from the Bay of Islands (Bedford 2012: 3).

Following their arrival in the Whangaroa area Ngāti Uru's main settlement was established around the base of the pa at Kaeo under their chief Te Ara, who was also known by the English name of George (Sale 1986). The name Kaeo is derived from the kaeo, a freshwater shellfish that is found in the river (Orange 2009).

The BoydInitial interaction between Whangaroa Maori and Europeans took place from as
early as 1805 with whaling vessels visiting Whangaroa Harbour and ships
trading biscuits and iron tools with Maori for fresh produce. However, in 1809
this general cordiality ceased spectacularly with the 'massacre of the Boyd'.
The Boyd was an English vessel commanded by Captain John Thomas, which
had sailed from London on 10 March 1809 with convicts bound for the penal
colony of New South Wales (McLintock 1966). After delivering the convicts in
August of that year, the Boyd was chartered by Samuel Lord of Port Jackson
(Sydney) and set sail for New Zealand, and in particular Whangaroa, to pick up
spars of kauri to transport to the Cape of Good Hope (McLintock 1966).

Of the 70 or so persons on board the vessel, four were Maori with the most prominent among them being Te Ara, the young chief of the Ngāti Uru whose pa was at Kaeo (McLintock 1966; Laurenson 1972). Te Ara had served as a seaman on several European vessels and presumably took service on the *Boyd* as a means of returning home. At some point during the voyage Te Ara was flogged and relieved of his possessions, and when he disembarked at Whangaroa he was severely displeased with his treatment (McLintock 1966). While there are several differing accounts of what happened next, what is known for certain is that all but four of the ship's crew or passengers were killed, and cannibalised by Maori three to four days after the *Boyd* arrived at Whangaroa (Figure 4).¹

The first reference to the settlement of Pohue Pa is from a visit in January 1810 by Captain Alexander Berry of the ship City of Edinburgh to investigate the rumoured burning of the Boyd, and killing of those aboard (Salmond 1997:381-384 quoted in Bedford 2012: 4). Berry's visit was made some three weeks after the events and soon after arriving in Whangaroa Harbour, Berry (leading a heavily armed party) met two Rangatira of Ngāti Uru who openly admitted to their involvement in the demise of the *Boyd* and subsequent events, at the same time informing Berry of a small number of survivors and documents and miscellaneous objects that could potentially be retrieved (Salmond 1997:381-384 cited in Bedford 2012: 4). Subsequently Berry and his party were invited to visit their settlement (Pohue) to continue negotiations and after rowing up the tidal river (Kaeo River) 'on reaching the village we found a great crowd gathered. I saw several woman [sic] respectably clad in European dress, taken from the passengers of the Boyd' (Alexander Berry from a letter dated April 1819, in Salmond 1997:381-384 quoted in Bedford 2012:4). Berry and party were invited to stay the night at the settlement but erred on the side of caution and declined (Bedford 2012: 4).

¹ One account of the massacre is that given by Captain Alexander Berry of the ship *City of Edinburgh*, which was the first European vessel to arrive at the scene some three weeks after the massacre. This account was published by the *Edinburgh Magazine and Literary Miscellany* 1819 in which Captain Berry is in no doubt as to the guilt of the chief of Ngāti Pou, Te Pahi, in being responsible for the massacre. However, a later account given by a Captain S.R. Chace of the *King George* not only exonerated Te Pahi of any guilt but also stated that Te Pahi had tried to save the lives of the crewmen who had survived the initial onslaught. Chace was informed that Te Ara (George) led the raid with his people from the settlement at Kaeo (McLintock 1966).

The Boyd

Massacre,

continued

Figure

French

event in

0034-2-390,

Album)

(source: Alexander Turnbull

Louis

reconstruction

4.

The survivors of the attack on the Boyd consisted of Thom Davis (the ship's cabin boy), passenger Ann Morley and her baby, and two-year-old Betsey Broughton, who had been taken by a local chief. Thom Davis had been spared due to the fact that he had tended to Te Ara after his flogging and had smuggled food to him.² The fourth survivor was the second mate who had been put to work making fish-hooks from barrel hoops, but after the barrel hoops were exhausted was considered to be of no further use and was killed and cannibalised.

A Maori chief from the Bay of Islands who accompanied Berry and the European force negotiated the return of Ann Morley, her baby and Thom Davis, while the taking of chiefs as hostages on the *City of Edinburgh* by Berry secured the release of Betsey Broughton after a short delay.³

The event led to a punitive response when five European whaling vessels and one sealer sailed into Whangaroa Harbour and attacked Te Pahi and destroyed his pa, Te Pune (McNab 1914). Some 60 Maori were killed and Te Pahi was himself mortally wounded, succumbing to his wounds a short time after.⁴

After the traumatic events of late 1809, there was an almost total hiatus in contact between Europeans and Maori in the Whangaroa area (Ministry for Culture & Heritage 2014). This break in contact was only reversed with the arrival of the first missionaries.



Continued on next page

² 'The Boyd incident', URL: http://www.nzhistory.net.nz/culture/maori-european-contact-before-1840/the-boydincident, (Ministry for Culture and Heritage), updated 11-Mar-2014. ³ Ibid.

⁴ For a full account of the events of the European response to the *Boyd Massacre*, see McNab 1914.

In 1815 the Reverend Samuel Leigh had been sent by the Wesleyan Missionary The Wesleyan Mission at Society of England to New South Wales, and he arrived at Sydney on August Kaeo 10th of that year. It was in Sydney that Leigh formed a solid friendship with the Reverend Samuel Marsden of the Church Missionary Society of the Anglican Church, the man credited with introducing Christianity to New Zealand in 1814 (Laurenson 1972).⁵ After learning of the Maori and the Anglican work in the Bay of Islands, Leigh set off for New Zealand in 1819 on the vessel Active, and spent time with the Anglican workers at Rangihoua Mission from 5 May to 17 June of that year (Laurenson 1972). It was during his time there that he made a trip to Whangaroa where he spent the night and observed at firsthand the character of the Maori (Laurenson 1972). This must have had a profound effect upon Leigh, as on his return to Sydney he began a campaign to persuade the Wesleyan Mission authorities to grant permission for and support the opening of a Wesleyan Mission in New Zealand. Leigh returned to England where he proceeded to travel the length of the country to drum up support for the pioneering work (Laurenson 1972). Leigh was successful in his endeavours and after gaining the support of the Mission secretaries, he set sail for New Zealand in 1821.

Meanwhile in April 1815 three Whangaroa chiefs, together with 300 people in 14 war canoes, visited Oihi Mission Station in the Bay of Islands to ask for a mission station to be established in the Whangaroa area (Bedford 2012: 4). In May 1815 Te Puhi and Te Ara visited the mission station and confirmed the safety of missionaries should a mission station be established in Whangaroa (Elder 1932:82-83, cited in Bedford 2012: 4).

Tenacious campaigning for the establishment of a mission in the Whangaroa area continued for some time and eventually bore fruit when missionaries began to visit Whangaroa (Bedford 2012: 4). In May 1819, Kendall and Gordon from the Church Missionary Society (Anglican denomination) at Oihi accompanied the Methodist Leigh on a visit to survey the harbour and settlements at Whangaroa (Bedford 2012: 4).

Leigh and his wife arrived at the Bay of Islands for a second time on 22 January 1822 in order to establish the first Wesleyan Mission in New Zealand. Leigh had to wait until 15 May for the arrival of the Reverend William White, who was to be his companion missionary (Laurenson 1972). For the next three weeks they travelled around the east coast of Northland accompanied by a group of clergy from the Anglican Mission⁶ seeking a suitable location.

⁵ Marsden claimed to have preached the first Christian sermon in New Zealand on Christmas Day of 1814 at the Mission Station, Bay of Islands.

⁶ The members of the Anglican clergy with the Church Missionary Society on board the *St Michael* were the Reverend John Butler, Reverend William Hall and James Shepherd (Sale 1986).

The Wesleyan
Mission atThey had eliminated possible sites at Whangarei in the south and Oruru in the
north and on 5 June a storm drove their vessel the *St Michael* into Whangaroa
harbour (Laurenson 1972; Sale 1986). The following morning a boat from the
ship carrying Leigh, White, Shepherd, Hall and Butler explored the harbour
and eventually the Kaeo River, where a suitable location for the mission was
found at Kaeo (Laurenson 1972; Sale 1986).

After assurances from the chiefs Te Puhi and Te Ara (George) that they would provide both protection and co-operation, an area of land was chosen on the opposite side of the Kaeo River to George's village, which was located at the base of his pa, Pohue (Laurenson 1972) (Figure 5). Final negotiations over the land were undertaken by Samuel Marsden in 1823, following a request from Leigh (Elder 1932:348-349, cited in Bedford 2012: 4). Marsden, was a familiar figure to Ngāti Uru chiefs, in particular Te Ara, having previously met in Sydney, then at Matauri Bay (north of Kerikeri) in 1814 and for a third time when he stayed overnight at the Pohue pa settlement in May 1820 while negotiating access to the timber resources of the region (Elder 1932:86, 250, cited in Bedford 2012: 4). The site was the first Wesleyan Mission in New Zealand and was known as Wesleydale by the missionaries (Sale 1986).

After the site for the new Mission had been selected, a large tent that had been brought from England was erected and a raupo house was built to accommodate the missionaries while construction of more permanent buildings took place (Laurenson 1972). Leigh acquired 53 acres of land for the site at Kaeo from Te Puhi in June 1823 (Lee 1993), and this was later formalised on 16 August when the land was purchased from Te Puhi's brother George (Te Ara); the Maori Deeds state:

'Land containing fifty acres more or less, Bounded on the East Kaeo. Side by a small Wood and a Gully, on the West by the road made by the crew of the Wesleyan Mission. Dromedary to bring, the timber to the River, and on the Boundaries. North by the River and on the South by the rising ground above the present Missionary House for which Land the [53 acres.] "Aforesaid Revd. Sam. Leigh agrees to pay the said George Two Blankets, Three Red Consideration. Cloaks and Fifteen Axes.'

 $(Turton 1879)^7$ (See Figure 6 and Figure 7)

Continued on next page

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⁷ Quoted from the transcript of the official copy of Original Memorandum of Agreement. No. 389. O.L.C. and made by H. Hanson Turton, Wellington, 19th November, 1879 and taken from the Maori Deeds of Old Private Land Purchases in New Zealand, From the Year 1815 to 1840, with Pre-Emptive and Other Claims Deeds—No. 1Kaeo Block (Wesleyan Mission Station), Whangaroa, Mangonui District. Source: New Zealand Electronic Text Centre.

The Wesleyan
Mission atOn hearing that Kaeo had been chosen as the site for the Wesleyan Mission,
Samuel Marsden expressed great enthusiasm, and noted the large population
together with the fact that it was located 'in the very spot where so many of our
countrymen were sacrificed and eaten by the natives' (Elder 1932: 343, quoted
in Bedford 2012: 5).

As mentioned above, Marsden was well acquainted with Ngāti Uru Rangatira and following successful negotiations with them in May 1820, he facilitated six months of timber extraction undertaken by the Royal Naval supply ship the *Dromedary* from June 1820 (Bedford 2012: 5). The ship's captain Richard Cruise published an early account of the ten months the ship spent in New Zealand, including a substantial period in the Whangaroa area (Bedford 2012: 5).

On a visit to Kaeo Cruise described the principal settlement of Ngāti Uru as: 'The pah of this tribe is on a circular hill, steep and difficult of ascent.... The houses of the natives were generally at the foot of the pah; near its summit, three of the carronades of the Boyd were planted, and three others and an anchor, lay on the banks of the river' (Cruise 1824 [1957]: 159, quoted in Bedford 2012: 5). At this time, the construction of the first formal road was also undertaken at Kaeo by the crew of the *Dromedary*, for the use of two timber carriages pulled by 12 bullocks to haul out the timber spars (Cruise 1824 [1957] cited in Bedford 2012: 5).

After the establishment of the mission, Leigh himself retreated to Sydney due to poor health and left the mission in the care of William White (Lee 1993). Leigh was replaced by the Reverend Nathaniel Turner, who arrived at Kaeo on 5 August 1827 with Jack Hobbs (Lee 1993; Sale 1986).

At first the Wesleyan mission located opposite the Pohue Pa settlement on the southern side of the Kaeo River, appeared to progress well with a number of buildings and extensive garden areas under cultivation (Bedford 2012). However, tribal politics promulgating tension and competition dating back to and resulting from the burning of the *Boyd* (particularly involving Ngāpuhi of the Bay of Islands) were to profoundly impact on mission life (Bedford 2012). The mission was increasingly caught up in a series of attacks or ritual acts, particularly after the death of their patron Te Ara in April 1825 (ibid.). The increasingly desperate mission accounts attest to the fluctuating and intertwined fortunes of the missionaries and Ngāti Uru (ibid.).

The records also provide details on the diverse uses of Pohue Pa as settlement, fortification and as a setting for ritual display (Bedford 2012.). The ritual display is perhaps best illustrated by the events following the death of Te Ara, when Hobbs, the missionary lay preacher and skilled craftsman, was tasked with constructing a box (which was subsequently painted red) in which Te Ara was placed in a sitting position (ibid.). The box was then placed prominently on top of the large conical hill 'which the natives called the pa' so as to be visible from some distance (Owens 1974: 65, quoted in Bedford 2012: 5).

The Wesleyan After Te Ara's death, the inter-hapu political situation in the area worsened, Mission at while rumours of impending attacks increased in frequency (Bedford 2012). Following rumours of an imminent attack by Ngāpuhi in July 1825, Ngāti Uru Kaeo, continued engaged in the rounding up of pigs (that were taken to the pa), while iron pots, most likely for storing water, were traded from the missionaries (Owens 1974: 69, cited in Bedford 2012). Ngāti Uru assembled with their possessions on the north and north-west side of Pohue Pa, although no fortifications were observed to have been prepared (Bedford 2012: 5). On 23 July Ngāpuhi warriors finally arrived, although their actions consisted of raiding and plundering through the valley and the performance of a haka at the foot of the pa (Owens 1974: 70, cited in Bedford 2012: 5). It is possible that due to the nuances of Tikanga, Ngāti Uru understood that the raid would consist only of plundering, which may explain the gathering of possessions and corralling of pigs on the pa to protect more valuable items.

The pa was abandoned for a period of time in November 1826 in response to yet more warnings of the impending arrival of Ngāpuhi warriors, with people living in temporary structures on a vantage point above the mission station (Owen 1974: 90, cited in Bedford 2012: 6). The following month further threats of Ngāpuhi aggression saw people living on the pa for increased protection, and the Rangatira Te Puhi even placed one of the *Boyd* carronades on top of the pa despite the probable lack of knowledge to enable its firing (Owens 1974:91-92 cited in Bedford 2012: 6).

However, the Wesleyan mission at Kaeo was to come to sudden end, as evidenced by the abrupt termination of the regular and detailed missionary record in 1827 when the mission was caught up in a more serious inter-tribal conflict (Lee 1993; Bedford 2012). Pohue Pa was again abandoned temporarily, but this time the mission station was sacked (while still occupied) by members of Ngāti Pou following the invasion of the Whangaroa area by Hongi Hika, who led the Ngāpuhi in war (Lee 1993; Bedford 2012). After the missionaries fled the plundered mission station for Kerikeri, the station was burnt to the ground (Lee 1993). A visit to the site of the mission station by one of the former missionaries in 1830 recorded the desolate state of the place but also confirmed the continued occupation of the Pohue settlement (Sale 1991:70-74, cited in Bedford 2012: 6).

HISTORICAL BACKGROUND, CONTINUED



Figure 5. A pencil sketch of the Mission at Kaeo drawn by the Reverend Nathaniel Turner c.1825, illustrating the kumara gardens along the river in front of the Mission, and part of Te Ara's settlement spreading west onto the floodplain from the pa (source: Turner, Nathaniel (Rev), 1793-1864. Turner, Nathaniel 1793-1864: [Wesleydale Mission Station, Kaeo, Whangaroa, Northland. 1825 or 1826?]. Ref: B-121-023. Alexander Turnbull Library, Wellington, New Zealand. <u>http://natlib.govt.nz/records/22909654</u>)



Figure 6. Plan of the original Wesleyan Mission land claim at Kaeo. NB. At the time of the land claim the Kaeo River can be seen to form a complete loop directly in front of the mission site (arrow), whereas today it is some distance from the edge of the river channel and is testament to the river's highly mobile nature and its subsequent drifting across its floodplain (source: Sale 1986: 73)

HISTORICAL BACKGROUND, CONTINUED



Figure 7. Watercolour by Daniel Tyerman painted in 1824, showing the newly constructed mission station located in a very much romanticised version of its rugged isolated location. The pyramidal hill in the centre of the picture is Pohue Pa (source: Alexander Turnbull Library, A-263-001)

Early Traders and Industry From as early as 1820 the abundance of giant kauri trees in the Kaeo river valley was well attested to. In May 1820, the Royal Naval supply ship the *Dromedary* became the first European vessel to visit Whangaroa Harbour since the *City of Edinburgh* in early 1810, not long after the ill-fated visit of the *Boyd* in 1809. While there, the Ngāti Uru chief Te Ara (with the Wesleyan missionaries acting as intermediaries), informed the captain, Richard Cruise, that 'he had plenty of kauri and that he would load the ship with it for axes' (Sale 1986 pp49).

In 1833, William Spickman had travelled to the Kaeo Valley with William Parrott⁸ with the intention of starting a timber business. On 23 November, Spickman and Parrot purchased land known as Pitakatahi from the Ngāti Uru chief Ururua either for cash and goods to the value of £44, or two double-barreled guns (Lee 1993). A sketch plan made in 1850 highlights the location of Spickman's house, with the Wesleyan mission station on the opposite side of the river (Figure 8), and an 1881 plan highlights the extent of the grant (see Figure 20, below). By the mid-19th century, Spickman had cut and pit sawn a large volume of kauri on his land, some of it even being used in the construction of John Logan Campbell's Acacia Cottage⁹ (Sale 1986).

In 1834 the Royal Naval supply ship the *Buffalo*, in conjunction with HMS *Alligator* made the first official chart of the Whangaroa Harbour (Sale 1986). On this chart at the mouth of the Kaeo River are written the words: 'The forest of Kaio is 12 miles from the mouth of this river, which is navigable for boats four miles at H.W. [high water] Cowdie trees in abundance' (Sale 1986: 81).

In addition to the developing kauri industry, Kaeo also became known for its boatbuilding. In 1860, William Lane emigrated to New Zealand from the Cotswolds in Gloucestershire, England and settled in Kaeo, even bringing a prefabricated house with him which he erected at Kaeo in 1861 (Sale 1986). Lane's son, Thomas Major Lane, had been apprenticed to a boat builder at Te Wahapu in the Bay of Islands, but he began his own career in boat building in partnership with William Brown (the son of W.P. Brown, to whom Lane had been apprenticed at Te Wahupu), on the banks of the river at Kaeo¹⁰ (Frear 1995; Sale 1986). Lane and Brown were later joined in the boat building industry by the Hare family, who built and launched boats at Kaeo such as the *Neptune*, reputed to be the first boat in New Zealand ever to be powered by a petrol engine¹¹ (Sale 1986).

⁸ The William Parrott who was the builder of the Stone store at Kerikeri.

⁹ Acacia Cottage was the first private timber residence in Auckland and is now preserved in Cornwall Park.

¹⁰ Thomas Major Lane built the *Sunbeam*, a 45ft and 16.9 ton schooner on his father's farm somewhere between the present school grounds and Waiare Bridge; see Sale 1986: 112-113 for further detail.

¹¹ The Hare family were agents for the Sinz Engine company of the United States (later to become known as the Gray Marine Engine Company) and fitted the Neptune with a two-stroke, six horse-power engine: Sale 1986: 113.

Early Traders and Industry, *continued* Indeed, Kaeo's growth as a town was inextricably linked to the development of the kauri industry (gum included). Schools, hotels, a post-office, general store and a saddlery all opened and prospered in the town (Sale 1986; Whangaroa County Museum 1985) (Figure 9 and Figure 10). The stimulus that was provided by the kauri industry in the last quarter of the 19th century to the local economies of places such as Kaeo or Whangaroa should not be underestimated. For example, records from 1875 reveal that Holdship's mill, Whangaroa, employed 120 staff and produced 100,000 feet of kauri per week (Sale 1986). This stimulus was so great that many people believed that Northland would return to its earlier position of primacy in national affairs (Sale 1986). However, this was not to last, and as the kauri industry declined, so too did Kaeo's prominence.

Figure 8. Sketch plan made by a surveyor in 1850 of the location of Spickman's house, Wesleyan Mission, and the **Dromedary Road** which adjoined Mangaiti Creek (arrowed). The road was used in the 1820s to transport kauri the Royal for Navy (copy held at the National Archives. this copy sourced from Sale 1986: 53)



HISTORICAL BACKGROUND, CONTINUED



Figure 9. A view of Kaeo c.1900, with the Kaeo River visible in the centre left of the photo (arrowed). In the right foreground is Miriam Gibbs' general store; the left foreground is the Settlers Hotel which burnt down around 1936 (photograph from Hayes 2004, reproduced with the kind permission of Ian Hayes)

Figure 10. Team of bullocks hauling kauri, prior to land being cleared for farming (photograph from Hayes 2004, reproduced with the permission of Ian Hayes)



PHYSICAL ENVIRONMENT & GEOARCHAEOLOGY

Kaeo River The Kaeo River is located on the eastern coast of the Northland Peninsula with Valley: a catchment area of 114km² (Richardson et al. 2014: 295). The landscape of the **Physical** area consists of moderately rolling hills that rise up to an elevation of 440m **Environment** (ibid.). Three major tributary streams drain the south-western area of the catchment prior to entering the Kaeo River before it flows north into Whangaroa Harbour (ibid.: 295-296). The Kaeo River in the project area, sits in a broad valley where the floodplain is up to 750m wide (Richardson et al. 2014). The Kaeo River catchment spans the eastern boundary of the Northland Allochthon,¹² a series of Cretaceous to Oligocene age thrust sheets emplaced in the Early Miocene (Edbrooke and Brook 2009, cited in Richardson et al. 2014: 296). The bedrock underlying the river valley through the central catchment comprises Triassic and Jurassic greywacke, with allocthonous mudstone, sandstone, and a variety of rock types of smaller units over much of the remaining area (ibid.). The geology of the eastern and southeastern catchment area is also partially composed of Early to Mid-Miocene andesitic breccia and intrusions connected with the Wairakau Volcanic Centre (ibid.). The mean annual rainfall for north-eastern Northland is 1700mm per annum,¹³ while moisture laden north-easterly airflows and tropical depression incursions are associated with periods of intense rainfall (Moir et al. 1986, quoted in Richardson et al. 2014: 296). **Environmental Vegetation and Land Use History** History of the Prior to the arrival of the first Polynesians, the indigenous forests of Northland **Kaeo River** consisted primarily of podocarp conifer-hardwood associations that included Valley kauri (Agathis australis) (Elliot et al. 1998; Kershaw and Strickland 1988, cited in Richardson et al. 2014). This pre-settlement landscape of indigenous forest was first affected by human agency as the first Polynesian settlers used fire as their primary means to transform their surroundings, as their forebears had done throughout the Polynesian settlement of the Pacific (Kirch 1982; McGlone 1989). Extensive deforestation of lowland and coastal regions (which would have incorporated the Kaeo River valley) as a result of intentional fires set by these first settlers served to clear land for settlement and cultivation, and possibly also as a means to encourage the spread of bracken fern (Pteridium esculentum), the starchy root of which was an important source of carbohydrate (McGlone et al. 2005).

¹² A geological formation not formed in the region where found and moved to its present location by tectonic forces. ¹³ Climate summary data for the period 1969–1998 from <u>http://cliflo.niwa.co.nz</u>, cited in Richardson et al 2014: 296.

Environmental History of the Kaeo River Valley, *continued*

Prior to initial European settlement, Northland was the most heavily populated area of New Zealand and, as a result, large tracts of indigenous forest had already been cleared (Metge et al. 1960; Holloway 1960, cited in Richardson et al. 2014). A decline in tree pollen with concurrent increases in herb pollen and the appearance of pollen of introduced species such as Pinus and European pasture herbs, records the effects of European settlement on the vegetation during the last two centuries (Elliot et al. 1995, 1998, cited in Richardson et al. 2014). During the remainder of the 19th century, Kaeo first became a major site for the extraction of kauri, followed by the associated gum industry, before finally European farming activities commenced. By the latter half of the 20th century many farming operations had ceased due to economic conditions, and areas with poorer soils were either converted to pine plantations or left to regenerate to native bush (Richardson et al. 2014). Livestock farming was restricted to the more fertile river valley. Today, the majority of the catchment area is covered with regenerated native forest and native and introduced shrubs (scrub), with some pine plantations located in the southeast of the catchment (ibid.). Areas of pasture are largely confined to the fertile river valleys (ibid.).

Geomorphology and Stratigraphy

River systems such as that of the Kaeo River catchment have major influences on landscape development and create environments attractive to human settlement, and it is by no coincidence that every major river system in the world contains archaeological sites (Rapp and Hill 2006: 67-68). Not only do river settings frequently attract human habitation, but the associated deposition of alluvial deposits can facilitate the initial burial and preservation of archaeological deposits and features as well as expose and erode them (ibid.).

It is fortunate in aiding interpretation of the formation of the Kaeo River floodplain and the area of the Flood Scheme works, that a recent geomorphological study of the pre- and post-settlement alluviation of the Kaeo River and floodplain sedimentation was undertaken by Massey University in partnership with GNS Science and Aberystwyth University (Richardson et al. 2014). The area examined included the site of the Kaeo Flood Scheme works and utilised LIDAR (a remote sensing technique that can record topography by illuminating a target with a laser and analysing the reflected light), Ground Penetrating Radar (GPR), sedimentology, radiocarbon chronology and X-Ray Fluorescence (XRF) analysis, with floodplain sediment cores also being taken (Richardson et al. 2014: 295) (Figure 11).

PHYSICAL ENVIRONMENT & GEOARCHAEOLOGY, CONTINUED

Environmental History of the Kaeo River Valley, *continued* A sediment core (K4; see Figure 11) established that the sediment stratigraphy of the Kaeo River Valley in the vicinity of Pohue Pa consists of interbedded fluvial silty sand, sand and gravel to a depth of 4.8m (Richardson et al 2014: 298). The base of the core consisted of coarse to medium-grained shell-rich sand deposited in an estuarine environment when Whangaroa Harbour extended much further up the Kaeo River valley than at present (ibid.). A single radiocarbon determination (Wk-30443) was obtained from an organic-rich sandy silt unit immediately above the shell rich sand at a depth of 4.6m and dates the transition from an estuarine to a fluvial sedimentary environment at 7680–7570 calibrated years Before Present (cal. yr BP) (ibid.). The transition from an estuarine to fluvial environment coincided with the attainment of Present Mean Sea Level (PMSL) that followed the post-glacial marine transgression, estimated to have occurred c.7700 cal. yr BP (Clement 2011, cited in Richardson et al. 2014: 300).

Following sea-level rise to PMSL, the Kaeo floodplain has aggraded as the valley has infilled, and fluvial processes have dominated (Richardson et al. 2014: 300). The Kaeo floodplain chronostratigraphy indicates that average floodplain sedimentation rates were in the vicinity of 0.3mm yr–1 between ~7600 and 5500 cal. yr BP, with average aggradation rates over the last 5500 years of 0.7 mm yr–1 (ibid.). Floodplain sedimentation rates across Northland have accelerated following Polynesian settlement and initial forest clearance events, with aggradation rates in the vicinity of 3.3–10.1mm yr–1 (ibid.: 304). In Kaeo, the extensive European driven deforestation that occurred during the 19th century has had the greatest impact on floodplain dynamics, resulting in the lower Kaeo River valley floodplain becoming a major sediment accumulation zone (ibid.). The response of the Kaeo River catchment to anthropogenic deforestation and land-use change has been accelerated floodplain sedimentation, with the Holocene floodplain accumulating at an increased average rate of 8–13.5mm yr–1 since European settlement (ibid.).

PHYSICAL ENVIRONMENT & GEOARCHAEOLOGY, CONTINUED



Figure 11. LiDAR-derived hillshade digital elevation model (DEM) of the Kaeo River and floodplain study site (source: Richardson et al. 2014: 294)

ARCHAEOLOGICAL BACKGROUND

Previous Archaeological Research Despite being located in an area known to have a lengthy history, only two archaeological sites had been recorded in Kaeo on the NZAA ArchSite database. These consisted of Pohue Pa (P04/238) and the Wesleydale Mission Station (P04/656, P04/633). One additional site (pit/terrace and reported findspot) is recorded to the east of Kaeo (P04/242), while two ridge pa (P04/262 and P04/235) are situated approximately 2.5km away in the hills to the west (Figure 12). Only one archaeological assessment had been undertaken in the wider district, in Orotere approximately 5km to the southeast (Phillips 2003), with the majority of archaeological studies having been undertaken at various locations around the Whangaroa Harbour area (e.g. Johnson 1996, 2006; Nevin 1997; Robinson 1991).

Pohue Pa

Maori oral history attests that Pohue Pa was established during the late 18th century by Ngāti Uru following their migration from the Bay of Islands area (Bedford 2012: 3). The conical hill upon which the pa is situated is itself a dramatic feature in the Kaeo landscape and still dominates the valley and floodplain of the Kaeo River today (Figure 13 and Figure 14). The pa is a site of great cultural significance to tangata whenua as well as being of high historical importance for its association with the events of 1809 and is listed on the Heritage New Zealand Pouhere Taonga List as a Wahi Tapu Area (no. 7459). While the pa is not scheduled on the Far North District Plan, it is identified as a site of significance and wahi tapu to Ngāti Uru (no. MS06-16). The pa was first recorded archaeologically over 50 years ago in 1960 by Bob Lawn, and it is noted on the site record that a track had been made by the owner up the side of the pa 'many years ago' although whether the track referred to is an early cutting by a 19th century landowner or the later 1950s bulldozed track is unknown. The bulldozed track is certainly conspicuous and has been excavated along the northern and eastern flanks, even extending along the ridge to the highest terrace near the summit and has extensively damaged the site. The tracks are evident in a Whites Aviation aerial photograph taken in February 1966 (Figure 14). By the 1980s the pa was covered in low scrub (Sale 1991), but by 2001 it was once again cleared of vegetation in preparation for development of the site.

Further modern disturbance of the pa was identified during a survey by Stuart Bedford in 2001, where a modern shallow pit feature was recorded on the summit terrace that possibly relates to amateur prospection for the apocryphal *Boyd* gold (see Doak 1984; Inkster 1939, cited in Bedford 2012: 6).

Previous

continued

Archaeological Research, Located inland, the pa is situated in a prime location overlooking the Kaeo River which played such a vital role in the movement of people and transportation of goods by both Maori and European alike. Indeed, only 4km north of Kaeo, the river drains into Whangaroa Harbour, along the shores of which and in the surrounding hills is a dense concentration of archaeological sites, with over 180 pa sites recorded in the greater Whangaroa Harbour area alone. These sites attest to occupation and resource procurement and processing, as well as to the established and long-standing nature of settlement in the Whangaroa area by Maori (Figure 15 and Figure 16).

Pohue Pa 2001/02 Investigations

In mid-2000 Te Runanga O Whaingaroa were considering plans to undertake a 'full reconstruction' of Pohue Pa, including the construction of a number of features recognised as standard attributes of pa, such as ditches, palisades and fighting platforms (Freeman 2001; Tauroa nd; cited in Bedford 2012: 3). Following discussion between the NZHPT and Te Runanga O Whaingaroa, the NZHPT urged a cautious approach and suggested that archaeological investigations had the potential to provide a greater understanding of the occupation of the pa, which in turn could be utilised in the interpretation and promotion of the site (Bedford 2012: 3).

Two periods of excavation were undertaken, in late 2001 and early 2002, under authority from the NZHPT (Authority no. 2001/160). Fourteen areas were investigated with test pits and trenches excavated across seven of Pohue Pa's large upper terraces and also on the tihi (summit) totalling 33m² (Bedford 2012: 7) (Figure 17). The excavations indicated that despite mid-20th century disturbance from the bulldozing of tracks to the hill summit, the terraces and features located upon them were for the most part intact, with the more apparent bulldozer cuttings linking the extant terraces for the purpose of access (Bedford 2012: 7). The excavations revealed little evidence for permanent activity on the upper terraces. For the most part, the investigation illustrated essentially sterile surfaces with only very infrequent artefacts or sporadic small-diameter postholes (Bedford 2012: 7).

The sterile nature of the terraces was in sharp contrast to the tihi where several phases of activity were identified, with a number of small hearth features located within a line of postholes interpreted as a shelter (Bedford 2012: 7). The hearth features had been sealed beneath later deposits formed via levelling activities, and no evidence for food processing and consumption in the form of either shellfish or faunal remains was identified (Bedford 2012: 7). However, 58 pieces of obsidian (all from the Kaeo group) were recovered, along with a small number of historic artefacts including bottle glass and metal items such as nails and tacks of copper alloy and brass (Bedford 2012: 7).

Previous

Research,

continued

Test pits excavated on the lower eastern slopes of the pa (Figure 16) did Archaeological expose shell midden with volcanic cobbles also present (presumably oven stones) with cultural deposits situated on cut and filled terraces indicating more intensive activity (Bedford 2012: 11). The artefactual material retrieved from nearly all of the excavated areas comprised small quantities of historic European material in the form of ceramic, bottle glass, nails etc, which indicates that the occupation of the pa was dated to the early historic period (Bedford 2012: 7).

> The interpretation of the occupation sequence of the pa being situated in the early historic period was further supported by a single piece of blue on white transfer earthenware, retrieved from amongst a shell midden deposit on the lower eastern flanks of the pa (Bedford 2012: 7-8). The sherd depicted part of a pattern known as 'Village Church' which dates the artefact to the late 18th or early 19th century (Bedford 2012: 7-8). Ceramic artefacts decorated with the same pattern were found during excavations at Te Puna Mission Station, while collections held at Waimate and Kerikeri Missions suggest that the Kaeo artefact most likely originated from the nearby Wesleyan Mission (Middleton 2008:191, cited in Bedford 2012: 8).

> More accurate dating of the occupation of the pa was obtained from a single radiocarbon determination from charcoal derived from one of the hearths on the tihi, in conjunction with 10 obsidian samples that underwent hydration dating analysis (Jones 2003a, cited in Bedford 2012: 7) (Figure 18). The two sets of data were combined in a Bayesian calibration which indicated that the site was most likely occupied sometime between 1750-1850 (Jones 2003a, cited in Bedford 2012: 7) (Figure 18 and Figure 19).

> The 2001-02 archaeological investigation did not expose any features relating to the defence of the pa such as ditches or palisading, storage pits or house 2012). The lack of defensive features surviving sites (Bedford archaeologically may be due to the fact that the pa is extremely steep sided and would have been relatively easy to defend; and due to the late occupation of the site at a time when muskets were being introduced into the Bay of Islands, palisading may have been of a slight nature or simply deemed unnecessary.

> In summary, the 2001/02 excavations did discern spatial patterns in activity and use across the site. More permanent activity took place on the lower eastern, slopes of Pohue Pa where evidence of occupation and the processing and consumption of shellfish was exposed, while the majority of the upper terraces were for the most part culturally sterile with the exception of isolated postholes and artefacts (Bedford 2012). The tihi, however, while not displaying evidence of habitation, does indicate that regular activity, possibly ceremonial in nature, occurred there. It is probable that permanent occupation was centred on the lower flanks of the hill (where shell midden can be seen eroding), and the surrounding area, with the steep slopes of Pohue Pa providing a refuge in times of crisis.

Wesleydale

Mission and

Library

The Wesleydale Mission (P04/656, P04/633) today is commemorated by a stone cairn which has been scheduled on the Far North District Plan (no. 236). War Memorial The mission site is known to have consisted of a number of significant structures (some two-storeyed) set within a palisaded compound, and to have had associated and extensive gardens as well as fenced fields some of which were for cattle. It is likely that some elements of the mission station buildings will survive as subsurface archaeological remains. As discussed previously, the mission was abandoned in 1827, although post-1827 European settlement developments included a church (1869), cemetery, road and adjacent housing (Stuart Park, NZAA site record form).

> Also of note from a heritage perspective is the Kaeo War Memorial Library which is listed on the NZ Heritage List (item no. 7393, Category II), and is also scheduled on the District Plan (item no. 235). The building is a rare surviving example of a 'utilitarian' First World War memorial and was constructed in 1920 as a memorial to servicemen from Kaeo and Whangaroa County who lost their lives during World War I.



Figure 12. NZAA ArchSite map illustrating recorded archaeological sites in the area



Figure 13. Pohue Pa (P04/238) is very prominent in the landscape, rising above the flat Kaeo River floodplain, facing west (photograph taken 16 July 2010 during field survey)



Figure 14. Whites Aviation aerial photograph (8 February 1966) titled 'Rural Scene, Kaeo, Northland', facing west across the Kaeo River floodplain river toward Pohue Pa and Kaeo township. The hill upon which the pa was situated is a very striking feature in the landscape as it dramatically rises up out of flat surrounds (source: Whites Aviation Collection, Alexander Turnbull Library, WA-65636-F). NB. The switch back tracks seen scarring the northern and eastern flanks are bulldozed tracks from the late 1950s



Figure 15. Map of named pa sites (black dots) as researched by Sale (1986) in the Whangaroa Harbour area. Pohue Pa in Kaeo is indicated by the arrow (source: Sale 1986: 38-39)



Figure 16. NZAA ArchSite map illustrating the archaeological sites in the Whangaroa Harbour including the dense concentration in its southeastern corner at the Kaeo river mouth with the sites of Pohue Pa (P04/238 and the Wesleyan Mission Station (P04/656) arrowed



Figure 17. Plan of test pits and trenches excavated on Pohue Pa by Stuart Bedford un 2001-02 for the NZHPT

Combined Posterior Distributions



Figure 18. Calibrated posterior distributions from the Pohue Pa chronometric data (source: M. Jones, in Bedford 2012: 14)



Figure 19. Likelihood of occupation through time for Pohue Pa (source: M. Jones, in Bedford 2012: 15)
Information Three 19th century plans of Kaeo provide relevant historical information. An from Early 1881 plan (OLC 69) titled 'Plan of Maunga-Whero Block claimed by W Spickman' includes Kaeo. It is clear from the plan that the river's course differs markedly from that of today (Figure 20 and Figure 21). In front of the mission station land, where it is seen to have meandered in 1881, today it now flows in a reasonably straight channel (Figure 20 and Figure 21). Also of note is that Pohue Pa is named Tapapahuakakoro, with the small rectangular shapes depicted to its southwest near the river most likely representing the Spickman houses. The Kemp and Snowdon claims are also indicated. The main road (the only road depicted) also follows the northern side of the river, which again differs from today. A large area of land surrounding the pa is also illustrated as in bush/scrub.

> Plan SO1235 titled 'Plan of Subdivisions of Maungawhero Blk III, Kaeo River, Whangaroa' and dating from 1881, clearly illustrates the 'Public Road' along with various land parcels north of the Kaeo River (Figure 22 and Figure 23). The pa site is not depicted despite Pohue's obvious and dramatic appearance in the landscape and its omission must have been a conscious decision.

> Plan SO762, dated 1857 and titled 'Taraire Block Whangaroa', also illustrates the section of Kaeo with Spickman's Claim, although, as with the 1881 plan of the Maungawhero Block, it also neglects to depict the pa (Figure 24).

> > Continued on next page

Plans



Figure 20. Plan OLC 69 of the Maunga-Whero Block, 1881, claimed by Spickman. The Kemp Claim is indicated by the black arrow and Snowdon's by the red arrow



Figure 21. Detail from OLC 69 (Figure 20) illustrating the meandering Kaeo River, Mangaiti Creek, Waikara Creek (arrow), the road and the pa



Figure 22. SO1235 dated 1881 and titled 'Plan of Subdivisions of Maungawhero Blk III, Kaeo River, Whangaroa



Figure 23. Detail of SO1235 (Figure 22) showing subdivisions which are predominantly north of the river; the road is clearly visible. Note that Pohue Pa is not illustrated on the plan. Waikara Creek is indicated by the arrow



Figure 24. SO762 Taraire Block, with the Kaeo Block III (Maungawhero – Spickman's Grant) on the top right

MONITORING RESULTS

Methodology The archaeological monitoring of the Kaeo Flood Mitigation Scheme took place between 6 December 2013 and 15 January 2014. On the northern side of the Kaeo River works monitored consisted of test pits adjacent to the southern base of Pohue Pa along the course of the haul road; the stripping of two 40m wide corridors to both the east and west of the pa on the alignment of the flood stopbanks, and a temporary silt pond, while on the southern side of the river a borrow site to provide fill for the stopbanks and a river bypass spillway were monitored (Figure 3).

Monitoring of the test pits, initial topsoil stripping and silt pond excavation was undertaken by Richard Shakles and Danielle Dyer under the overall direction of Dr Rod Clough. Ngāti Uru cultural monitors were present on site during the archaeological excavation and monitoring works in two stages from 18 to 20 December 2013 and from 6 to 15 January 2015.

Monitoring Haul Road Test Pits

Works

As the route of the haul road passed close to the southern base of Pohue Pa it was considered prudent to undertake machine excavated test pits to determine the presence/absence of archaeological deposits that could be potentially impacted by the frequent tracking of heavy plant (Figure 25). Two test pits were excavated by a mechanical excavator with a ditching bucket, with the first located at the base of Pohue Pa mid-way along its southern extent and the second located near the southwestern corner of the pa (Figure 25, Figure 26 and Figure 27).

Test Pit 1

- dark brown silty loam topsoil under turf (0-0.19m)
- yellowish mid-brown silt colluvium/alluvium (0.19 -0.40m)
- light brownish grey clayey silt with moderate inclusions of charcoal and occasional heat fractured rock fragments cultural layer (0.40-0.69m)
- orangey light brown silt alluvium natural (0.96m-0.71m) (limit of excavation)

The cultural layer exposed in Test Pit 1 (Figure 26) and sealed by alluvial deposition most likely represents either re-deposited material derived from the pa that reflects slumping of the lateral terraces on the south side of the pa, or cultural material that built up at the base of the pa during its occupation and that was subsequently buried beneath alluvium deposited by Kaeo River flood events.

Monitoring	Test Pit 2	
Works, continued	•	greyish light brown with red mottles silty loam – gleyed topsoil under turf (0-0.20m)

- dark grey gritty, clayey silt with occasional charcoal inclusions colluvium/alluvium (0.20-0.36m)
- yellowish light brown silt alluvium (0.36-0.50m)
- yellowish light brown silty clay natural (0.50m-0.65m) (limit of excavation)

No archaeological deposits or features were observed in Test Pit 2 and the stratigraphic sequence was dominated by either alluvial or colluvial deposition (Figure 27).

As no archaeological features or deposits were observed above 0.40m depth in either of the test pits, and the ground was firm during the dry summer conditions, it was considered that the layer would not be adversely impacted by haul road traffic.

Silt Trap Excavation

A silt trap 7m in length x 5m wide and 0.87m deep was excavated to the west of Pohue Pa close to the northern banks of the Kaeo River (Figure 25). The stratigraphy observed in all trench edges consisted of thin yellowish mid-brown silty loam topsoil under turf that was 0.09m thick, which sealed yellowish brown alluvium that extended to the limit of excavation. No archaeological deposits or features were observed in the silt trap excavation and, as was to be expected so close to the river channel, the stratigraphic sequence was dominated by alluvium deposited during flood events.

Western Stopbank Topsoil Strip

A 30m wide x 160m long strip of the topsoil from the southwestern corner of the pa to the northern bank of the Kaeo River was excavated by mechanical excavator with a weed bucket to an approximate depth of 0.25m, or to where the alluvium subsoil was encountered (Figure 25; Figure 28 and Figure 29).

No archaeological deposits or features were observed across the area of the stopbank. However, a number of isolated artefacts mainly consisting of glass alcohol bottles relating to the later 20th century were observed within the topsoil or on the topsoil alluvium subsoil interface. The sole exceptions were the base of a Hunyadi Janos *Bitterquelle* bottle (Figure 30) and a 1930 George V penny.

MonitoringThe bottle was embossed with 'SAXLEHNERS / (dot) / BITTERQUELLEWorks,
continued/ (dot)' around the outside edge of the base and within the indented centre of
the base '(dot) / HUNYADI / JANOS / (dot) (Figure 30). The product was first
produced in 1863 and was marketed as 'bitter aperient water' and was bottled
by Saxlehner in Buda, of Budapest, and named after Hunyadi Janos, the 15th
century Hungarian military hero (Lindsey 2015). It is likely that the Kaeo
example dates to the late 19th or early 20th century.

River Bypass Spillway Excavation and Borrow Site

Monitoring of the topsoil strip on the alignment of the River Bypass Spillway occurred across an area of approximately 200m x 80m and exposed only a single isolated firescoop/hangi feature on a terrace overlooking the western bank of the Kaeo River (Figure 31–Figure 33). The firescoop/hangi has been recorded on the NZAA Archite Database as site P04/760 (Appendix 4).

The borrow site was located on the western side of a north facing meander loop of the Kaeo River and the area excavated to provide fill material for the stopbanks was approximately 350m x 30m (Figure 31 and Figure 34). The stratigraphy in this area consisted of a very thin greyish brown silty topsoil overlying either alluvial or colluvial silts that composed the subsoil across the area (Figure 34). No archaeological features or deposits were observed within the borrow site works area.

Eastern Stopbank Topsoil Strip

A 30m wide x approximately 600m long area of topsoil from the southeastern corner of Pohue Pa to the eastern bank of the Kaeo River adjacent to Whangaroa College was excavated by mechanical excavator with a weed bucket to an approximate depth of 0.25m, or to where the alluvium subsoil was encountered (Figure 35-Figure 37). However, in some places the topsoil strip was as deep as 0.40m-0.50m due to the presence of a buried plough soil that was very similar in colour to the topsoil. This made identification of the topsoil/subsoil interface difficult for the machine operators. Due to the greater depth of excavation in certain areas, a concentration of archaeological deposits, features, and associated artefacts relating to either pre-contact Maori, historic period Maori or European settlement were observed in plan at locations along the eastern stopbank alignment. Because of the number of features and apparent phasing it was decided that the site should undergo an archaeological excavation. The site has now been recorded on the NZAA Archsite Database as site P04/761 (Appendix 4). The results of the excavation of site P04/761 are presented in the following section.

Site P04/760 The firescoop/hangi (context 285) was sub-circular in plan and had 45° sides with a concave base, was aligned east-northeast-west-southwest and was 0.58m x 0.54m and 0.15m deep (Figure 31–Figure 33). The feature was filled with firmly compacted greyish black ash rich silt that contained frequent inclusions of charcoal and moderate inclusions of heat fractured rocks (Figure 33). A charcoal sample was taken from the fill for analysis and radiocarbon dating.



Figure 25. The route of the haul road, western stopbank section (deflection bank); the silt trap and location of the two test pits to the south of Pohue Pa

Figure 26. Southwest facing section of Test Pit 1. NB. The cultural layer is the dark band sealed by the thick band of a mixed alluvial colluvial and deposit. Scale: 1m



Figure 27. West facing section of Test Pit 2. Scale: 1m



Figure 28. Southeast facing shot along the western stopbank alignment after topsoil stripping. Pohue Pa is seen top left of image



Figure 29. Northwest facing shot along the western stopbank alignment and the Kaeo River (not visible – situated to the rear of the Poplar tree)





Figure 30. The base of the Hunyadi Janos 'bitter aperient water' bottle found on the topsoil alluvium subsoil interface to the southwest of Pohue Pa. Scale: 0.3m



Figure 31. The River Bypass Spillway and Stopbank Borrow site works areas, with location of P04/760 indicated

Figure 32. Eastsoutheast facing plan shot of firescoop/hangi [285] after half sectioning. Scale: 0.5m



Figure 33. Westnorthwest facing section of firescoop/hangi [286]. Scale: 0.5m



Figure 34. South facing shot of the excavation of the borrow site on the eastern banks of the Kaeo River





Figure 35. The footprint of the topsoil strip for the eastern stop bank (Main Stop bank) running from Pohue Pa in the west to Whangaroa College in the east

Figure 36. Southwest facing shot of the far eastern section of the eastern stop bank topsoil strip



Figure 37. East facing shot of the eastern stop bank alignment after topsoil removal. This section of the stopbank was where the majority of archaeological features were located



Archaeological Investigation The archaeological features exposed by the topsoil strip on the western stopbank footprint to the east of Pohue Pa were excavated between 19 December 2013 and 10 January 2014 (Figure 38). In accordance with condition 7 of the NZHPT authority (2012/520), and utilising a sampling strategy, any archaeological features exposed were excavated in half section by hand using trowel, spade and mattock. The single context recording system was used, and each cut and deposit was given an individual context number and recorded on a pro-forma context sheet. Individual cuts were planned at a scale of 1:20 and cuts and deposits were drawn in section or profile at a scale of 1:20. A photographic record was compiled of all deposits and features with a digital camera.

The excavation of site P04/761 was led by Richard Shakles, assisted by Danielle Dyer and Joss Piper-Jarrett. The excavation site and features were surveyed by Wesley Maguire utilising a Total Station.

The scope of the archaeological monitoring was to excavate and record any features exposed by the topsoil strip. However, it was difficult for machine operators to distinguish between the topsoil and the historic plough soil that it sealed, as before weathering the deposits were of very similar colour and composition, which led to an area approximately 250m in length being excavated to expose natural alluvium sealed by the historic plough soil. It was in this area that a number of archaeological features were exposed, at a depth of 0.35m/0.40m. It should be noted that the area investigated was not machined to the natural alluvium across its entirety.

All of the features exposed were observed cutting the natural alluvium, and had been vertically truncated by historic ploughing with the associated plough soil sealing them. In all 77 features were recorded which for the most part appeared to relate to historic period Maori settlement:

- 5 storage pits
- 33 hangi
- 36 postholes
- 2 stakeholes
- 1 drain

The results of the excavation and recording of site P04/761 are set out below. Plans and section diagrams are included as Figure 38–Figure 44 and Figure 49–Figure 50), and a list of context descriptions can be found in Appendix 1.

Excavation Historic Plough Soil and Alluvium

Results

The plough soil (context 101) represents European clearance of the scrub growth seen in the 1881 plan (Figure 20, Figure 21) and was moderately compacted, yellowish brown in colour, and was a friable slightly sandy silt (alluvium) 0.18m thick and sealed by the present topsoil under turf. The deposit contained moderate inclusions of charcoal and occasional heat fractured rock (derived from the truncation of oven features), while isolated Maori artefacts such as chert, obsidian flakes and a hammerstone, as well as European artefacts such as 19th century ceramic sherds, bottle glass fragments and a clay tobacco pipe, were also present. The presence of tiny flecks/particles of charcoal within the plough soil may indicate that an earlier enriched cultivation soil present in the area had been truncated during disking/ploughing that occurred immediately after scrub clearance (including burn-off and stump removal) and subsequently modified and incorporated within the late 19th century disked/plough soil.

The alluvial soil (context 102) consisted of slightly sandy silt, moderately compacted, brownish yellow in colour and derived from floodplain aggradation due to flooding of the Kaeo River. The surface of the layer in which the archaeological features were exposed contained occasional inclusions of charcoal fragments as well as moderate inclusions of very small charcoal flecks. The presence of charcoal particles within the alluvial soil may indicate deliberate enrichment for cultivation purposes.

Pit Complex

All of the storage pits, associated postholes and drain were situated on the edge of a raised alluvial terrace elevated approximately 1.5m above the surrounding floodplain. All of the features were observed cutting the natural alluvium (context 102) and were sealed by the 19th century plough soil (context 101)

<u>Pit [234]</u>

Feature [234] was a rectangular pit cut into the natural alluvium (102), aligned northeast-southwest, and measured 2.06m x 1.13m and 0.46m in depth (Figure 41, Figure 43–Figure 46). The pit was cut with steeply sloping (spade cut) smooth sides on its eastern edge and vertically on its western side and had a flattish base (Figure 44–Figure 46). The pit was filled by a single fill (context 235) consisting of moderately compacted mottled grey, brown, yellow alluvial silt with topsoil intermixed, that contained moderate inclusions of heat fractured rock and occasional charcoal. The nature of the fill suggests the pit was rapidly backfilled in a single event. No internal features were present within the pit structure. Seven obsidian flakes were recovered from the pit fill (236).

Excavation	<u>Pit [236]</u>
Results, continued	Storage pit [236] was a sub-rectangular pit cut into the natural alluvium (102), aligned northwest–southeast and measured 3.34m x 1.82m and was 0.60m in depth (Figure 41, Figure 43, Figure 38Figure 44 and Figure 47–Figure 49). The nit contained two fills (contents 227 and 274). Figure 44) with the primery fills

aligned northwest–southeast and measured 3.34m x 1.82m and was 0.60m in depth (Figure 41, Figure 43, Figure 38Figure 44 and Figure 47–Figure 49). The pit contained two fills (contexts 237 and 274: Figure 44) with the primary fill (context 274) consisting of a firmly compacted intermixed topsoil and alluvium (single event backfill) with occasional inclusions consisting of heat fractured oven stones, river cobbles and charcoal. A hoanga (grindstone) was retrieved from context 274 close to the base of the pit (Figure 47). The upper fill (context 237) was compacted greyish brown silt with yellow mottles that consisted of the 19th century plough soil intermixed with alluvium natural and represents the infilling of a depression formed as a result of the settling of the initial deliberate backfilling of the pit. Artefacts retrieved from the upper pit fill consisted of a single heavily corroded wrought iron nail, a single small sherd of ceramic (willow ware) and a single struck obsidian flake.

The pit contained three internal postholes (contexts 266, 268 and 270) as well as a buttress on its south-western side and an excavated slot at the base of the entrance in the south-western corner was likely to have been for a board closure (Figure 49). Five postholes and two stakeholes located along the south-western side (contexts 240, 244, 246, 250, 262, 264 and 272), and one on the north-eastern side (context 242) may relate to a roof structure (Figure 49 and Figure 50).

Pit [238]

Pit [238] was an irregular-rectangular feature cut into the natural alluvium (102), aligned west-northwest–east-southeast and measured 2.99m x 1.42m x 0.28m deep (Figure 41, Figure 43, Figure 44 and Figure 51–Figure 52). The pit was cut with steeply sloped (70°) sides on its western side, near vertical on the south side, vertical on its north-eastern edge, and sloping 45° sides on the northern side. The pit has a pronounced inward curve at its northwestern end that may indicate that the original pit excavators had to respect a contemporary structure in that particular area (Figure 43). The pit had a flat to slightly concave base and contained two fills (contexts 239 and 277: Figure 44). Context 239 was the primary fill of the pit and consisted of a moderately compacted, intermixed topsoil and alluvial silt deposit that contained occasional inclusions of charcoal and small rounded pebbles and represents a single episode backfill. A single struck obsidian flake was recovered from this context. As with the upper fill of pit [236], (context 277) was a compacted greyish brown silt with yellow mottles, that consisted of the 19th century plough soil intermixed with alluvium and represents the infilling of a depression formed as a result of the settling of the initial backfilling of the pit. Two struck obsidian flakes were retrieved from this context.

ExcavationPit [252]Results,
continuedStorage pit
vertical side

Storage pit [252] was a rectangular pit cut into alluvium (102) with smooth vertical sides with a gentle (45°) break to a flat base (Figure 41, Figure 43, Figure 44 and Figure 53–Figure 54). The pit appeared to have been excavated utilising a spade rather than a ko. The feature was aligned west-northwest–east-southeast and measured 3.56m x 1.09m and was 0.44m in depth. The pit contained one fill (context 253) that consisted of alluvium with intermixed bands of topsoil that contained occasional inclusions of charcoal and very occasional heat fractured volcanic oven stone fragments (Figure 53). One obsidian flake and two wrought iron nails were retrieved from this context, suggesting that the pit was in use during the contact or early European period.

<u>Pit [278]</u>

Feature [278] was only partially observed in section during excavation of a drain (context 254) and a posthole (context 280) (Figure 41, Figure 44). The cut on the feature's southern edge (where it was observed to cut the drain) was smooth and vertical leading to a flat base at a depth of 0.54m (Figure 44 and Figure 55). The pit contained a single fill (context 279) that consisted of intermixed topsoil and alluvium representing a single episode of backfilling. No artefactual evidence was recovered from the pit fill.



Figure 38. Plan of excavated extent of site P04/761 with aerial overlay; the location of site P04/760 is indicated by the arrow. Details of Sections A-D are presented in Figures 39-42

Continued on next page

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Figure 39. Plan of archaeological features comprising eastern extent of site P04/761, Section A in Figure 38



Figure 40. Plan of archaeological features comprising the central eastern extent of site P04/761. Section B in Figure 38



Figure 41. Plan of archaeological features comprising central extent of site P04/761. Section C in Figure 38

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Figure 42. Plan of the location of small finds retrieved from the western extent of site P04/761. Section D in Figure 38

Continued on next page

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Continued on next page





Figure 45. North-
eastfacing
pitsectionofpit[234]. Scale: 1m

Figure 46. South
facingpostexcavationplanshot of pit[234].Scale: 2 x1m



Figure 47. Northwest facing section of pit [236]. NB. The base of the grindstone is seen protruding from the section. Scale: 1m



Figure 48. Southeast facing post excavation plan shot of pit [236]. Scale: 2x1m





Figure 49. Post excavation plan of pit [236] and postholes [240], [242], [244], [246], [250] and stakeholes [262] and [272]. NB. Posthole [248] is a later 19th century posthole likely to be related to a European field boundary





Figure 51. Westnorthwest facing section of pit [238]. Scale: 1m

Figure 52. Eastsoutheast facing post excavation plan shot of pit [238]. Scale: 2x1m





Figure 53. Westnorthwest facing shot of pit [252]. Scale: 1m

Figure 54. Southwest facing post excavation plan shot of pit [252]. Scale: 2x1m



Figure 55. Southeast facing of section pit [278] (right) cutting the primary fill (context 275) of drain [252]. Scale: 1m



Excavation
Results,
continuedPostholes and Stakeholes Located in Pit Complex AreaFourteen postholes and two stakeholes relating to Maori occupation of site
P04/761 were recorded during the excavation (Appendix 1). Three of the
postholes were located within storage pit [236]; six postholes and two
stakeholes located adjacent to the same pit, while five others were in isolation

(Figure 41, Figure 43 and Figure 49–Figure 50).

Postholes [266], [268] and [270]

Posthole [266] was oval in plan and cut into the alluvium (102) in both the lower northern sidewall and base of pit [236], was oriented northwest–southeast with a concave base and measured $0.20m \ge 0.11m \ge 0.18m$ in depth. The feature was steeply sloped on all but the south facing side (where it sloped at 45°) and appeared to have been constructed to house a post set at an angle, presumably as a brace support for a roof structure (Figure 56). The posthole was filled with re-deposited alluvium containing occasional charcoal inclusions.

Excavation
Results,
continuedFeature [268] was a vertical sided posthole cut into alluvium in the base of pit
[236] and situated at approximately the centre of its western terminus (Figure
49 and Figure 56). The posthole was sub-circular in plan with steep to vertical
sides and measured 0.23m x 0.18m x 0.32m deep. An undercut extended from
the base of the posthole for some 0.26m to the southwest and formed a recess
that was also 0.26m in height. It is unclear what purpose the recess may have
had, but it is possible that it was either dug to form a sump or may represent a
'stash' site.

Lastly, posthole [270] was sub-rectangular in plan, cut into the alluvium on the back wall of pit [236] in its northwestern corner and measured $0.47m \ge 0.32m \ge 0.36m$ in depth (Figure 49 and Figure 56). It is likely that the post housed in the feature would have functioned as a roof support for the storage pit.

Postholes [240], [242], [244], [246], [250], [264] and Stakeholes [262] and [272]

This group of posts and stakeholes formed a northwest-southeast alignment approximately 3.5m in length on the southern side of pit [236] (with the exception of posthole [242] which was situated in isolation on the pit's northern side (Figure 49 and Figure 50; Appendix 1). As with the storage pits, all of the postholes and stakeholes had been vertically truncated by historic ploughing and were sealed by the plough soil (context 101). All of the postholes had concave bases with four being sub-circular in plan – [240], [244], [246] and [250] – and the remainder ([242] and [264]) being oval in plan (Figure 49). The postholes varied in size with the largest, [244], measuring 0.28m x 0.27m x 0.18m deep, while the smallest, [264], was 0.14m x 0.11m by just 0.06m in depth (Figure 49 and Figure 50).

It is conceivable that the alignment represents the footings of an external timber roof structure, though more probably a fence/screen, perhaps demarcating space or providing shelter to the pit.

The two stakeholes, [262] and [272], were both oval in plan with stakehole [272] being larger in size (0.14 m x 0.11 m and 0.08 m deep) while stakehole [262] measured 0.11 m x 0.09 m and was only 0.05 m in depth (Figure 49 and Figure 50).

It is probable that a small timber present in stakehole [262] functioned as a brace for the timber post housed in posthole [264], while stakehole [272] performed the same function for the timber that would have been housed in posthole [250] (Figure 49).

Excavation
Results,
continuedPostholes [180], [209], [211], [232] and [256]The remaining postholes relating to Maori occupation of site P04/761 were
located in isolation (Figure 39–Figure 43 and Figure 57; Appendix 1). Four of
the postholes – [209], [211], [232] and [256] – were located in the vicinity of
the storage pits on the low raised river terrace overlooking the lower floodplain
(Figure 38-Figure 43). Three of the postholes ([209], [211] and [256]) were on
a north-northeast–south-southwest alignment and may represent the line of a

but recorded), the postholes were half sectioned and recorded.

Posthole [209] was the largest of this group, and was oval in plan, measuring 0.55m x 0.45m and despite vertical truncation of the area, was still 0.51m deep (Figure 57 and Figure 58). The posthole was filled with yellowish light brown sandy silt (context 210) containing occasional charcoal inclusions. A post pipe (context 261) within the backfill of the posthole measured 0.15m x 0.12m x 0.51m deep and still held the degraded remains of a puriri post (Figure 57 and Figure 58). Posthole [211] was also excavated in half section and was 0.43m x 0.34m in size and was 0.46m deep (Figure 57). The feature was backfilled with a sandy silt deposit that contained occasional charcoal inclusions (context 212) and appeared identical to that observed in posthole [209]. Within the backfill a post pipe (context 213) was present as a soft, dark brown silty sand within context 212 and measured 0.15m x 0.15m x 0.43m deep (Figure 57). Due to the size and depth of postholes [209] and [211] (particularly when the vertical truncation is also considered), together with their location in close proximity to a number of storage pits, it is considered likely that both postholes represent the location of single post supported pātaka (food storehouses). It is also possible that the isolated posthole [256], which was observed cutting the infilled drain (context 254), in view of its size and shape in plan (0.38m x 0.31m) represents another example of a single post pātaka (Figure 43).

post/board and rail fence. With the exception of posthole [256] (unexcavated

Posthole [232] was located approximately 1.75m to the east of the northeastern corner of storage pit [234] (Figure 43 and Figure 57). The feature was sub-circular in plan and had steeply sloped sides and a concave base and measured 0.38m x 0.36m and was 0.11m in depth. The size of the feature in plan suggests that it housed a substantial post and it is probable that vertical truncation by the mechanical excavator was greater in the immediate area. With this in mind, it is plausible that the feature may have related to a structure such as a pātaka. Posthole [180] was a sub-circular, small posthole with a concave base that measured 0.13m x 0.11m and 0.10m in depth and cut the fill (context 115) of hangi [114] and is of indeterminate function (Figure 39 and Figure 57).
Excavation	Drain 254
Results,	Drain [254] was a linear feature observed running on an east-southeast-west-
continued	northwest alignment for some 16m

The drain began approximately 0.5m southeast of the southeastern corner of pit [252] and measured initially 0.29m wide by 0.10m deep and was observed running on a east-southeast-west-northwest alignment for approximately 16m; it 'flared out' in size where it descended from the edge of the low river terrace to the floodplain proper (Figure 41, Figure 43; Appendix 1).Where the drain was observed being cut by pit [278] its dimensions were 0.75m wide (minimum – cut on northwest side) and 0.45m deep (Figure 55). The drain contained two fills with the lower fill (context 275) consisting of a firmly compacted brownish yellow and grey mottled silt with occasional inclusions of charcoal which represented silting of the drain while still functioning. The upper fill (context 255) was composed of mid-brownish grey silt with occasional inclusions of charcoal and heat fractured rock fragments. One obsidian flake was retrieved from the upper fill. The feature is likely to have functioned to facilitate drainage of the low river terrace that the storage pits were situated upon.



Continued on next page

Figure 56. West facing post excavation shot of pit [236] with postholes [266] (right), [268] (centre) and [270] in the back wall of the pit (top right of pit) seen after excavation. Scale: 2x1m



Figure 58. Northnorthwest facing section of posthole [209] with the remnants of a puriri post visible in mid-section. Scale: 0.3m



Excavation	Hangi
Results, continued	Thirty-two earth ovens were recorded during the excavation of site P04/761 (Figure 39 and Figure 60; Appendix 1). All of the features were observed cutting the natural alluvium (context 102) and had been vertically truncated (severely in some areas) by the historic ploughing, and sealed by plough soil (context 101). The hangi were present across the excavation area with two concentrations observed to the west of the pit complex and at the eastern end of site P04/761 (Figure 39 and Figure 41). Many of the oven features had been severely truncated by the historic ploughing with only the bases of many of the features surviving and as such, only those features that seemed to be more intact were selected for excavation in half section (Figure 59).
	Of the 32 hangi features observed only six had any real depth surviving. Hangi [218] was both the largest and the deepest of the hangi (Figure 55). This feature was sub-rectangular to irregular in shape, aligned east-west and measured 0.99m x 0.85m x 0.10m deep (Figure 39 and Figure 59). In contrast hangi [116] (a sub-circular feature aligned southwest-northeast) was just 0.41m x 0.33m and only surviving to a depth of 0.04m (Figure 59).
	Charcoal samples were taken from the fills of hangi [198] and [218] for analysis and radiocarbon dating.

Continued on next page



Figure 60. North facing plan shot of intercutting hangi features [259] (left), [287] (centre) and [289] (right). Scale: 0.5m



Excavation Results, *continued*

Other Historic Period Features

Posthole Alignments/Historic Field Boundary

Nineteen postholes were observed on either northwest or northeast alignments located in the eastern and central areas of site P04/761 (Figure 39, Figure 40 and Figure 61). The central northwestern posthole alignment consisted of postholes [135] (corner post), [138], [141], [144], [147], [150], [153], [156], [159] and [162] while the northeastern alignment in the central area contained postholes [135] (corner post), [120], [123], [126] and [129] (Figure 39). The eastern area alignments were not as definitive as the central ones due to the mechanical excavator strip being variable over much of the area with large parts of the eastern excavation not being of sufficient depth to expose the natural alluvium (context 102). Three postholes in that area ([107], [171] and [174]) appear to be on a northwestern alignment and possibly suggest a further field to the south of that indicated by the central alignments. Finally, postholes [110] and [177], while being the same morphologically, cannot be assigned to any particular alignment (Figure 39).

Excavation
Results,
continuedAll of the postholes were sub-rectangular in plan and of similar size (with the
exception of postholes [107], [135] and [177]; see Appendix 1), and contained
homogenous fills (either yellowish mid-brown silt or mid-brown and mottled
grey silt, both types containing occasional inclusions of charcoal (Figure 62).

Posthole [135] formed the corner posthole of an alignment extending both northwest and northeast (Figure 39 and Figure 61). The feature was square in plan with rounded corners and was 0.36m x 0.36m and 0.85m deep; 14 heavily corroded wrought iron nails were retrieved from the fill (context 136). Two postholes ([159] and [162]) were located adjacent to one another in the far northwest of the alignment and may represent a gateway/entrance (Figure 39), although this cannot be stated with any conviction due to the limited extent of the excavation area.

All of the postholes in the two alignments contained post pipes filled with yellow alluvial silt, suggesting that the posts had been removed and the void infilled by either a flood event of the Kaeo River or by a farmhand utilising silt from the nearby river (Figure 62). It is probable that the posthole alignments reflect at least three former coaxial fields oriented on a different alignment to the modern post and wire fences defining the grassed paddocks seen today.

When considered in conjunction with the later 19th century plough soil derived from European clearance of scrub in preparation of pastoral farming, it is probable that the fields represent cultivation of crops during the earlier historic period by Maori prior to the area being utilised for grazing.

Late 19th/Early 20th Century Features

Postholes [248], [280] and [282]

These three postholes were either rectangular (postholes [248] and [280]), or square (posthole [282]) and had clearly been cut with a spade, surviving to depths varying between 0.26m and 0.41m deep (Figure 40; Figure 41; Figure 43 and Figure 63). All three of the features were visible cutting the plough soil (context 101) which sealed the other features on site and thus post-dates it. All of the postholes were located in isolation in the southern part of the excavation area and most likely date to either the late 19th century or 20th century and probably relate to field boundaries that defined grass paddocks.



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Figure 62. Northwest facing plan shot of posthole [129] (left) and southeast facing section of posthole [129] (right). NB. All of the postholes forming the old field boundaries contained similar backfill and the characteristic post pipe of yellow alluvium



ARTEFACTS

Artefact Thirty-three artefacts were recorded as individual small finds during the Assemblage excavation of site P04/761 (Table 1; Figure 42, Figure 43). The majority of the finds were obsidian of a type that was observed to be translucent grey in transmitted light with narrow dark, almost black, banding visible to the naked eye. Fourteen obsidian artefacts were retrieved from the fills of features consisting of storage pits [234], [236], [238] and [252], as well as a posthole, [209], and the upper fill of drain [254] (Table 1; Figure 41, Figure 43). The remainder of the obsidian artefacts were recovered from either the plough soil (context 101) or the surface of the alluvium natural (context 102), mainly in the area of and to the north of the storage pits, with the exception of two struck flakes (finds nos.18 and 21 respectively) that were recovered from the plough soil close to the southeastern corner of Pohue Pa (Table 1; Figure 42). A concentration of six obsidian flakes (finds no's, 5, 6, 7, 8 and 9) found adjacent to the southwest corner of pit [234], in conjunction with seven obsidian flakes retrieved from the fill of that pit (context 235) probably represents a working area (Table 1; Figure 43). Two of the obsidian flakes had remnants of waterworn cortex present indicating that they were likely to have been procured from a fluvial environment, almost certainly from the Kaeo River.

Other artefacts retrieved from the fill of features included a chert chisel-like tool, from the fill of pit [252]; and a sandstone grindstone (hoanga) with two working surfaces and several parallel adze sharpening grooves present on one side that was recovered from the primary fill (context 274) of pit [236] (Table 1; Figure 43, Figure 47).

The remaining Maori artefacts consisted of a chert flake exhibiting use wear along a cutting edge retrieved from the plough soil to the southeast of the pa (find no. 23), and a chert flake recovered from the surface of the alluvium (find no. 3; Table 1; Figure 41).

The four artefacts of Maori origin retrieved from the plough soil in the proximity of the southeastern corner of Pohue Pa consisting of two flakes of obsidian, a chert flake, and the hammerstone (of unknown geology) may have been deposited within the plough soil during historic cultivation of the area by Maori. Alternatively, the artefacts may have entered the plough soil after being lost or discarded on the lower terraces of the pa, with subsequent erosion and natural slumping depositing them around the base of the hill prior to or during the period of historic ploughing.

Artefacts of European origin from Maori features consisted of two wrought iron nails from the top of fill (context 253) of pit [252] and a small sherd of willow ware and a heavily corroded wrought iron nail from the upper fill (context 237) of pit [236].

ARTEFACTS, CONTINUED

Artefact Nineteenth-century European artefacts retrieved from historic features Assemblage, consisted solely of the 14 heavily corroded wrought iron nails from the backfill continued (context 136) of posthole [135]. The remainder of the 19th century cultural material was retrieved from the historic plough soil (context 101) and consisted of a single clay tobacco pipe (bowl, spur and partial stem; Table 1, find no. 22; Figure 42) that was stamped with 'McLean Dundee' (which indicates the pipe was manufactured somewhere within the date range of 1832-1906, when the company operated: Hammond 1987: 28); a number of small sherds of ceramic including willow ware; body fragments of bottle glass including case gin and black beer, and wrought iron nails. It is probable that the European artefacts were originally deposited within features of historic period Maori origin (most likely during the first half of the 19th century) before entering the plough soil via truncation by historic ploughing that occurred in the later 19th century after the removal of scrub in order to create pasture.

Due to Northland Regional Council (the Authority holder) and Ngāti Uru (tangata whenua and kaitiaki, who currently retain the artefacts) failing to reach agreement on making the artefacts accessible to a finds specialist, it has regrettably not been possible to present a detailed finds analysis in this report.

ARTEFACTS, CONTINUED

Finds Identifier	Description	Context Found In
No.		
1	Obsidian – struck flake	Context (210) fill of posthole [209]
2	Obsidian – struck flake	On surface of context (102) (alluvium)
3	Chert – struck flake	On surface of context (102) (alluvium)
4	Obsidian – 5 small pieces of debitage	On surface of context (102) (alluvium)
5	Obsidian – struck flake	On surface of context (102) (alluvium)
6	Obsidian – struck flake	Context (277) – upper fill of pit [238]
7	Obsidian – struck flake	Context (277) – upper fill of pit [238]
8	Obsidian – struck flake	On surface of context (102) (alluvium)
9	Obsidian – struck flake + 1 waste flake	On surface of context (102) (alluvium)
10	Obsidian – struck flake	Context (101) – historic plough soil
11	Obsidian – struck flake	On surface of context (102) (alluvium)
12	Obsidian – struck flake	On surface of context (102) (alluvium)
13	Chert (bluish-green) – possible chisel	Context (253) – fill of pit [252]
14	Sandstone grinding stone (hoanga) with	Context (274) – lower fill of pit [236]
	two sub-circular concave depressions on	
	two largest faces and a series of parallel	
	adze sharpening grooves on another.	
15	Obsidian – struck flake	Context (237) – upper fill of pit [236]
16	Obsidian – struck flake	Context (235) – fill of pit [234]
17	Obsidian – struck flake	Context (239) – lower fill of pit [238]
18	Obsidian – struck flake	Findspot 12m from southeast corner of
		Pohue Pa
19	Obsidian – struck flake	Context (101) – historic plough soil
20	Obsidian – struck flake – use wear visible	On surface of context (102) (alluvium)
21	Obsidian – struck flake	Context (101) – historic plough soil
22	Clay tobacco pipe stamped 'McLean	Context (101) – historic plough soil
	Dundee' – bowl, spur and partial stem	
23	Chert struck flake – use wear visible	Context (101) – historic plough soil
24	Hammerstone – unidentified rock type	Context (101) – historic plough soil
25	Obsidian – reduced core	On surface of context (102) (alluvium)
26	Obsidian – struck flake	Context (253) – fill of pit [252]
27	Obsidian – struck flake	Context (255) – upper fill of drain [254]
28	Obsidian – struck flake	Context (235) – fill of pit [234]
29	Obsidian – struck flake	Context (235) – fill of pit [234]
30	Obsidian – struck flake	Context (235) – fill of pit [234]
31	Obsidian – struck flake	Context (235) – fill of pit [234]
32	Obsidian – flake with water-worn cortex	Context (235) – fill of pit [234]
33	Obsidian – flake with water-worn cortex	Context (235) – fill of pit [234]

Table 1. Recorded artefacts retrieved from the excavation of site P04/761 at Kaeo

ENVIRONMENTAL & C14 DATING ANALYSIS

Charcoal Seven samples (six from site P04/761 and one from the firescoop/hangi comprising site P04/760) were submitted to Dr Rod Wallace of the University of Auckland for charcoal identification (Table 2). These were from seven contexts: fills of hangi (contexts 117, 196, 198, 219, 286) and two pit fills (contexts 235 and 274).

Discussion

The only conifer in this assemblage was kauri from what was most probably a single timber found in the base of a kumara pit (Table 2). The vast bulk of the assemblage was small shrub and scrub species accompanied by only two broadleaf trees. The dominant tree, puriri, is notable for its ability to survive forest clearance and thrive in open country where it often continues to do so today. The charcoal assemblage indicates that local forests had been cleared well before these features were created. The vegetation contemporary with the occupation of the sites was dominated by scrub and shrub species typical of the early stages of woody vegetation development.

Of the seven samples, submitted six contained charcoal pieces of appropriate species to enable suitable 14C dating samples to be separated out. The remaining sample (context 274) was taken from the base of the primary fill of pit [236], probably derived from a kauri post and therefore not suitable for 14C dating (see Appendix 3). Of the six samples, three were selected for dating, with two from site P04/761 consisting of context (198) (fill of hangi [197]) and (219) (fill of hangi [218]). The final sample selected for 14C dating was from the fill (context 286) of the isolated firescoop/hangi on the southern side of the Kaeo River (context 285) that comprised site P04/760.

Species	Plant Type	No. of Pieces in sample	%
Tutu (Coriaria arborea)		10	
Hebe (<i>Hebe</i> species)	Small shrubs	23	41%
Coprosma (Coprosma species)		8	
Five-finger (<i>Pseudopanax arboreus</i>)		9	
Mapou (Myrsine australis)	Larger	6	
Mahoe (Melicytus ramiflorus)	shrubs/small trees	3	20%
Manuka (Leptospermum scoparium)		8	
Kanuka (Kunzia ericoides)		8	
Pokaka/Tawheowheo (Elaeocarpus	Broadleaf trees	10	31%
hookerianus or Quintinia serrate)			
Puriri (Vitex lucens)		28	
Kauri (Agathus australis)	Conifers	10	8%
Totals		123	

Table 2. Species and plant type composition present in charcoal samples taken from sites P04/760 and P04/761

Radiocarbon A charcoal sample was taken from context 286, the fill of the firescoop/hangi (context 285) that comprised site P04/760 and submitted for radiocarbon dating (Figure 64; Table 3). The sample consisted of *Pseudopanax* charcoal and produced a result of 152 ± 28 BP (Wk-41041), with a calibrated radiocarbon date range of 1690–1950AD (1 σ) (Figure 64; Table 3; see Appendix 2).

Two charcoal samples obtained from hangi/firescoop features within site P04/761 were selected for radiocarbon dating. The two samples consisted of context (198) (fill of hangi [197]) and (219) (fill of hangi [218]). The charcoal sample from context (198) consisted of tutu, hebe, coprosma and mahoe and produced a result of 106 ± 33 BP (Wk-41042), with a calibrated radiocarbon date range of 1710-1930AD (1 σ) (Figure 65; Table 3, Appendix 2). The charcoal sample from context (219) comprised tutu, coprosma, mahoe, mapou and manuka and produced a result of 337 ± 28 BP (Wk-41040), with a calibrated radiocarbon date range of 1510-1640AD (1 σ) (Figure 66; Table 3; see Appendix 2).

Comparison with dates acquired from archaeological excavations in the wider area (Figure 67) illustrates that context 219 dates to the last half of the 16th century and is the earliest date obtained from the surrounding area, with the four earlier dates for the region obtained some distance away in the eastern extremes of the Purerua Peninsula. Conversely, the other two samples, also from hangi/firescoop features, date to the latter stages of the Maori occupation sequence and fit well with the date obtained from Pohue Pa (P04/238; Figure 67). Context (286) (site P04/760) is likely to date to the early 19th century, while context (198) appears to be marginally later and is likely to date to the latter part of the first half of the 19th century (Figure 67).

Continued on next page

ENVIRONMENTAL & C14 DATING ANALYSIS, CONTINUED

			CRA		Years	AD		
Lab No	Sample	Material	years BP	Error	-2σ	-1σ	1σ	2σ
	286 -							
Wk-41041	P04/760	Charcoal	152	28	1670	1690	1950	1950
	198 –							
Wk-41042	P04/761	Charcoal	106	33	1690	1710	1930	1950
	219 -							
Wk-41040	P04/761	Charcoal	337	28	1490	1510	1640	1650

Table 3. Radiocarbon dates from contexts 286 (P04/760) and 198 and 219 (PO4/761)



ENVIRONMENTAL & C14 DATING ANALYSIS, CONTINUED





ENVIRONMENTAL & C14 DATING ANALYSIS, CONTINUED

Figure 67. Radiocarbon dates from the wider Kaeo area including Pohue Pa (P04/238), with the dates from sites P04/760 and P04/761 shaded grey

DISCUSSION & CONCLUSIONS

Excavation Topsoil stripping within the footprint of the Kaeo Flood Mitigation Scheme **sUMMARY** works exposed a range of archaeological features located on both sides of the Kaeo River, though predominantly on the northern side. An oval hangi (P04/760) was situated in isolation on a natural river terrace on the southern side of the Kaeo River within the river bypass spillway cut. On the opposite side of the river, site P04/761 consisted of three spatially distinct concentrations of archaeological features located within the footprint of the stopbank topsoil strip to the east of Pohue Pa. The site was situated on a low flat natural river terrace, approximately 2m above the surrounding floodplain and consisted of two cooking areas represented by clusters of small hangi, some intercutting, located to the east and west of a pit complex area. A number of associated postholes and stakeholes were also present, as well as a number of hangi in the near vicinity. Posthole alignments in the eastern concentration of features indicated at least three former field boundaries oriented on different alignments to the modern post and wire fences that define the grassed paddocks today.

Site P04/760 The firescoop [285] was an isolated feature located on the eastern edge of a natural river terrace and is likely to date to the first quarter of the 19th century AD, based on the single radiocarbon determination obtained, which fits well with the sequence of dates obtained from Bedford's investigations of Pohue Pa in 2001-02 (Bedford 2012 and 2013). The dating sequence of the Pohue Pa occupation was derived from a single radiocarbon determination of charcoal obtained from a hearth feature located on the tihi of Pohue Pa (WK-12261 209±45 BP), as well as from 10 obsidian samples that underwent hydration dating which indicated that the site was occupied between 1750 and 1850 (Jones 2003b in Bedford 2012: 7).

Although no faunal material was recovered from the firescoop, site P04/760 is likely to represent a gathering excursion by Maori from the village at the foot of Pohue Pa (only 700m to the northwest) to procure fish or perhaps the freshwater shellfish for which Kaeo is named. This interpretation is supported by traditional histories that attest to the large numbers of snapper that spawned in the Kaeo River, and the gathering of the *Kaeo* shellfish by Maori in both historic and pre-European contact times (Wise 1912). It is also plausible that the site represents a camp of Maori transiting through the Kaeo River valley.

Site P04/761 Historic Plough Soil

The plough soil, rather than representing a cultivation soil, probably indicates the disking of the area subsequent to clearance of the scrub that had had taken hold in the decades following the abandonment of Pohue Pa and its associated village settlement. Disking is commonly undertaken for pre-sowing soil preparation and if carried out in autumn can kill juvenile weeds and associated pests that winter on weeds and that are also present in the upper topsoil. In the case of the project area, disking was almost certainly undertaken for the sowing of seeds of introduced grasses to create pasture for livestock, a land use which has survived to the present day.

The three postholes that were observed to cut the plough soil and that were not vertically truncated indicate later European historic agricultural activity on the site.

Cooking Activities

There were three distinct groups of hangi that represented cooking activities on the site. The eastern grouping of hangi, some of which were intercutting and indicate multiple occupation events in the same area over time, were spread over a distance of some 120m. The western concentration consisted of nine hangi situated on the floodplain to the west of the low terrace upon which the pit complex was situated. A further seven hangi were located on the low alluvial terrace, 10-15m to the north, east and west of the pits respectively.

None of the features excavated produced any estuarine or marine shell, faunal or fish bone, but all contained abundant oven stones and oven stone fragments as well as abundant to moderate amounts of charcoal. All of the features survived as shallow scoops due to significant vertical truncation by the historic ploughing episode. It is plausible that the three concentrations of hangi represent areas utilised either for the cooking of meals for people tending gardens or cooking areas associated with the village that existed in historic times around the base of Pohue Pa. Radiocarbon dates obtained from two of the hangi (fill contexts (219) and (198) represent Maori activity on the site from the last half of the 16th century (the earliest date obtained from the area) to the latter part of the first half of the 19th century respectively. The early date is interesting and indicates activity on the Kaeo floodplain some two centuries prior to the arrival of Ngāti Uru and the establishment of the Pohue Pa settlement. The later date fits into the later part of the Pohue Pa dating sequence (Bedford 2012 and 2013).

Site P04/761, Storage Pits *continued*

The presence of rectangular storage pits provides evidence for gardening activity in the vicinity. Typically storage pits in New Zealand fall into a range of sizes which may reflect the storage of different produce or non-perishable items such as equipment. The five rectangular/sub-rectangular pits situated on the alluvial terrace were all of different size and/or morphology, and this may indicate different functions.

Of the five pits excavated only four afford the opportunity of interpretation. The fifth was only partially observed in a slot excavated through the solitary drain that drained the low alluvial terrace upon which the pit complex was situated, and as its character and size is unknown, it is not possible to interpret its function.

Pit [236], with its internal postholes and buttress, represents the storage of kumara and perhaps other cultigens. The storage of kumara tubers in semisubterranean storage pits was an essential part of the Maori horticultural cycle (Davidson et al. 2007; Jorgensen 2009; Law 2000). Storage pits were but one of a number of adaptations Maori had made to successfully cultivate what is essentially a perennial tropical cultivar in temperate conditions (Yen 1961; 1963). Kumara cannot survive the low temperatures of the New Zealand winter, and after the growing plant itself had died, Maori stored tubers in a variety of pits through the winter to use as a seed crop for the next planting season (Davidson et al. 2007:6), as well as for consumption during the winter. The morphology of pit [236] and associated features is typical of kumara storage pits.

Functionality of the remaining three pits is difficult to determine. In contrast to typical rectangular pits related to kumara storage and other Maori cultigens, there was a complete absence of internal features such as drains or postholes in all three pits. Moreover, there was also an absence of external structural features nearby such as board slots or postholes that, if present, could have related to roof structures connected with the features.

Other sites that have produced similar rectangular pit features lacking internal features and structural elements include Skipper's Ridge, Opito, Coromandel Peninsula, where Pit J measured 1.15m x 0.85m x 0.60-0.70m deep (Davidson 1975: 14; quoted in Foster & Sewell 1995). Two spade-cut rectangular pits excavated at Whangateau Domain Reserve on the inner Whangateau Harbour (Pit 116 and Pit 126) measured 1.98m x 1.05m and 0.51m deep and 1.46m x 1.04m and 0.47m deep respectively (Shakles et al. 2013). Like Kaeo, the pits produced historic artefactual material and the area was known to have been cultivated by Maori between the 1860s and 1890s (Shakles et al. 2013).

Site P04/761, At Aotea (site R15/10) Fox and Cassels excavated a small rectangular pit measuring 1.4m x 0.83m x 0.30m deep (Fox & Cassels 1983: 81; quoted in Foster & Sewell 1995). While Fox and Cassels did not assign a function to the feature they did postulate that it may have had a wooden cover. However, it should be noted that the examples listed above are more modest in size than the pits excavated at Kaeo, all of which are 2m to 3m in length and comfortably wider. While it is conceivable that pits [234], [238] and [252] may have had wooden covers to protect items stored within them, it is equally plausible that the features were covered by something as simple as a raupo or flax woven cover.

Due to their morphological characteristics, the remaining three pit features were probably not utilised for the storage of kumara. Two of the pits – [234] and [252] – were likely to have been excavated by spade and produced historic European artefacts. These were therefore likely to have been in use during the earlier post-contact period (1769-1830 as defined by Bedford 1996: 411). As such, the pits were likely to have been used for the storage of introduced European cultigens such as the white potato, maize or wheat. Indeed, it was suggested over two decades ago that harvested potatoes may well have been stored in modified versions of traditional storage pits (Jones 1994: 251-54), potentially such as those found at site P04/761.

Artefacts were retrieved primarily from the pit fills and pit complex area and, with the small assemblage from elsewhere on the site, included 32 pieces of obsidian, 3 pieces of chert, a hammerstone, a sandstone grindstone and a quantity of historic European artefactual material indicating a date of probably no later than the mid-19th century. However, as a full and detailed artefact analysis was not possible, comparison cannot be made with assemblages from comparable sites.

Gardening

Definitive evidence of prehistoric gardening was not found during the excavation of site P04/761. However, the presence of very tiny flecks/particles of charcoal present within the alluvial soil (context 102) may represent the deliberate enrichment of the soil as both shell and charcoal are known to have been added to soil by Maori to improve fertility and yield, as was sand and gravel (Furey 2006: 46). It is also possible that later agricultural practices such as land clearance and associated disking/ploughing have destroyed other features associated with gardening such as ditch boundary divisions, or cultivation ditches, which are often shallow in nature (Barber 1989: 37).

Site P04/761, So, while there is no conclusive evidence of prehistoric gardening on the Kaeo site it is noted that the three major crops cultivated by Maori in New Zealand, the kumara (*Ipomoea batatas*), Taro (*Colocasia esculenta*), and the yam (*Dioscorea alata*), all flourish in alluvial soils (Jones 1986; 1991). Kumara in particular is much more dependent on silty or sandy friable soils than on inherent soil fertility (Yen 1963 cited in Jones 1986: 6). Moreover, it has long been recognised that large low-lying alluvial plains have been important in the New Zealand Classic Maori phase for cultivation (Best 1980, cited in Jones 1991: 144). Consequently, the deep, well drained soils of the Kaeo River floodplain would have been ideal for the cultivation of kumara.

Archaeological evidence for historic period gardening on site P04/761 comes via both proxy data such as the storage pits and enriched alluvial soil, and from the alignments of homogenous postholes defining three historic enclosures that are interpreted as agricultural fields. The stratigraphic sequence demonstrates that the field system pre-dated the late 19th century European plough soil that was likely to have been formed by the clearance of scrub (shown on an 1881 plan) and subsequent ploughing in order to create pasture for livestock. That the use of traditional storage pits and gardening techniques by Maori continued into the post-European contact period and well beyond is widely acknowledged. A previous study of Maori horticulture that discussed both pre-European contact and post-contact Maori gardening identified that traditional gardening and storage methods continued to be practiced throughout the 19th century (even into the 20th century), and that introduced European crops and tools were adopted and used within the traditional agricultural system (Leach 1984: 109, cited in Bedford 1996: 424).

Additional evidence for post-contact gardening at the Kaeo site is provided by the sketch of the Wesleyan Mission at Kaeo, drawn about 1825 by the Reverend Nathaniel Turner (Figure 68). The sketch illustrates 'kumara' gardens along the south bank of the river in front of the Mission as well as part of the Pohue Pa settlement. As well as showing the mission station, the sketch clearly shows whare, storage pits, whata (storage platforms for kumara and white potatoes) as well as defined fields with livestock also depicted. The fields and cultivations depicted are those of the mission station, but it is likely at this time that substantial gardens would have been under cultivation both to support the population of the Pohue settlement and to furnish trade with the missionaries as well as to acquire muskets from ships coming into Whangaroa Harbour for kauri spars.

Maori cultivation of the European white potato became increasingly common from the early 19th century onwards and was so successful that it was grown for trade by 1806 in the Bay of Islands (Furey 2006: 111). Potatoes would have been an attractive alternative or supplementary crop for Maori to cultivate due to the ease with which it could be grown and stored in New Zealand temperate conditions.

Site P04/761, While undoubtedly Maori cultivated the white potato as a source of food, it was also traded for Mission goods, as at Te Puna in the Bay of Islands in the earlier 19th century (Middleton 2013: 46). Trade in potatoes was used by Maori for procuring prized items such as iron axes and hatchets, and from 1810 onwards the most desired trade item: the musket (Middleton 2007a: 35). In 1812, a single musket was worth 8 pigs and approximately 150 baskets of potatoes (Middleton 2007a: 35). Missionaries of the Church Missionary Society in the Bay of Islands often went short of food as Maori preferred to exchange potatoes and pigs for muskets from ships that came into the Bay of Islands for provisions (Middleton 2007b: 53).

Besides trade, potato cultivation had a number of advantages over traditional Maori cultigens (Furey 2006: 112). Being hardier than kumara, potatoes could be grown throughout the year; in the warmer north more than one crop could be grown per year in contrast to kumara, and they also provided a more reliable and palatable source of carbohydrate than fern root (Furey 2006: 112; Stone 2001: 69). However, growing large volumes of potatoes necessitated large cultivations and thus high labour input for land clearance and tending crops, perhaps on a year-round basis in the north where two crops per annum would be expected (Furey 2006: 112). Consequently, larger and more permanently occupied settlements may have resulted, such as the settlement around Pohue Pa (Furey 2006: 112).

Site P04/761 in Context

Site P04/761 clearly forms part of the historic Pohue Pa settlement observed during the 19th century, and recorded through excavation by Bedford (2012). Excavation of the pa indicated that settlement was focused on the lower terraces and tihi, with no evidence for permanent occupation found on the upper terraces. Bedford states:

'... there was no evidence for defensive ditches or storage pits of any form. The upper terraces were largely sterile, with virtually no archaeological evidence for habitation or other activities, suggesting they were used purely for defence. This is in contrast to the archaeological features and artefacts on the tihi which indicate that more regular, possibly ceremonial activity took place here. More permanent occupation was on the lower flanks of the pa with easy access to the defended hilltop' (Bedford 2013: 72).

Whilst the artefacts recovered were limited, European material was found in almost all of the excavated areas which suggest that occupation was limited to the early historic period (Bedford 2013). Dating of obsidian and one radiocarbon determination indicated settlement of the pa sometime between AD1750 and 1850 (Jones 2003b; cited in Bedford 2013). The results of the floodplain excavation described here are therefore consistent with the evidence for occupation activity at Pohue Pa in the historic period, with the majority of features recorded on the floodplain being related to the evidence for more extensive activity on the lower eastern terraces of the pa.

Site P04/761, continued In a study of Maori settlement patterns during the early European contact phase, Angela Ballara described Pohue as a 'specific example of the pa/village type of settlement...where the then unoccupied pa was built at the top of a circular hill' (Ballara 1979: 201), while the houses as observed by the *Dromedary's* captain Richard Cruise 'were generally at the foot of the pah [sic]...' (Cruise 1974 [1824]: 159, cited in Bedford 2013: 66). This settlement pattern was typical for Whangaroa and the Bay of Islands at the beginning of the 19th century, and was also typical for other areas of Northland and the Hauraki Gulf (Ballara 1979). Archaeological remains of the Pohue settlement site help support Ballara's argument that Groube's model of social organisation following 1769 also applies to the historic period (Groube 1964, cited in Ballara 1979: 211).

> Pohue Pa and its associated settlement provide a snapshot of Maori society in the Whangaroa Harbour area during the post-European contact period (1769-1830), a time of profound socio-political change amongst Maori in response to increased interaction with European settlers and missionaries. However, as the focus of European activity moved further south, trade and European interaction in the Bay of Islands and Whangaroa areas declined, as did the scale of the Pohue Pa settlement, and ultimately the site was abandoned prior to the establishment of the late 19th century kauri industry. Therefore the settlement did not undergo the dynamic changes of the later colonial period seen in other historic period Maori settlements in locations such as the Hauraki Plains and Taranaki (see, e.g., Holdaway & Wallace 2013 and Allen & Phillips 2013).

Site Survival Site P04/760 consisted of a single feature, which was fully excavated and the river terrace upon which it was located was quarried away for fill to be used in the stopbank construction. The site is therefore destroyed.

The extent of site P04/761 is unknown, but it is likely to extend from the recorded section of the site east of Pohue Pa westward to the base of Pohue hill, and also to the north and south of the narrow strip examined during the Flood Mitigation Scheme works for an indeterminate distance. The c.1825 Nathaniel Turner sketch clearly depicts houses, roofed storage pits, whata and fenced enclosures at the southern and southwestern base of Pohue Pa, while early historical documents also attest to the settlement and associated cultivations as being of considerable size. While the monitoring of the stopbank topsoil strip in that area did not identify any archaeological remains, the 0.5m of accumulated alluvium and colluvium observed sealing a cultural layer in the test pits undertaken on the route of the haul road suggest it is probable that intact archaeology is present at that depth and beyond.

Approximately 50% of the features exposed during the investigation of site P04/761 were excavated (in half section). The extent of the area of excavated features was then covered in geotextile and subsequently sealed beneath the earthen stopbank.



Figure 68. Detail from the pencil sketch of the Mission at Kaeo drawn by the Reverend Nathaniel Turner c. 1825 illustrating whare, storage pits and whata (storage platforms for kumara and white potatoes) in front of the southern flanks of Pohue Pa 250m to the west of site P04/761 (source: Alexander Turnbull Library, Wellington, New Zealand, Ref: B-121-023, http://natlib.govt.nz/records/22909654)

Conclusion Excavations for the Kaeo Flood Scheme have revealed archaeological remains relating to cultivation, storage and cooking activities dating to the historic Maori settlement of Pohue Pa as well as earlier activities that may indicate settlement extending as far back as the 16th century.

The investigation provided a small snapshot of Maori settlement and society in the Kaeo area, during the post-European contact period (1769-1830), a time of profound social and political change amongst Maori in response to increased interaction with European settlers and missionaries. In particular the investigation uncovered evidence of the cultivation and storage of agricultural produce, much of it likely to consist of newly introduced European cultigens, some of which was likely to have been exchanged in trade with Europeans for the acquisition of metal tools and, particularly, firearms.

The evidence for earlier activity or occupation on the floodplain, pre-dating the settlement of Pohue Pa by some two centuries, demonstrates the enduring attractiveness of the Kaeo River Valley for Maori settlement. The fertile alluvium of the floodplain provided ideal conditions for intensive horticulture, while the river provided access to both the forests of the interior as well as Whangaroa Harbour where plentiful reserves of fish, shellfish and other resources valuable to Maori could be procured.

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APPENDICES

APPENDIX 1: CONTEXT RECORDS

Context No.	Туре	Description
100	Surface	Soft, friable mid-brown silt loam with frequent grass roots. Up to 0.12m
		thick in Area 2. Topsoil under turf.
101	Layer	Moderately compacted yellowish brown silt (alluvium) with occasional
		inclusions of charcoal and small fragments of heat fractured rock. 19th
		century plough soil - now subsoil. 0.18m thick.
102	Layer	Moderately compacted brownish- yellow silt with occasional inclusions of
		charcoal fragments and very small flecks. Alluvium deposited by Kaeo River
		- Natural.
103	Cut	Sub-circular steeply sided (70°) cut for hangi/firescoop with a concave base.
		Vertically truncated. 0.65m x 0.82m x 0.05m deep.
104	Fill	Soft and friable dark brown and orange mottled silt with moderate
		inclusions of charcoal and burnt stone fragments.
105	Cut	Sub-circular steeply sided (45°) cut for hangi/firescoop with a concave base.
		Vertically truncated. 0.60m x 0.51m x 0.05m m deep.
106	Fill	Moderately compacted mid-brown with orange mottles silt with moderate
		inclusions of charcoal and occasional burnt stone.
107	Cut	Rectangular vertical sided cut for posthole with slightly concave base,
		aligned N-S. 0.45m x 0.47m x 0.41m deep.
108	Fill	Firmly compacted yellow and grey mottled silt (alluvial derived from Kaeo
		River). Fill of posthole [107].
109	Fill	Soft, friable mid-brownish grey silt. 0.20m x 0.24m 0.41m deep. Post pipe
		within posthole backfill 108. Post-pipe within (108) fill of posthole [107].
110	Cut	Square cut for posthole (unexcavated) aligned NNW-SSE. 0.22m x 0.22m.
111	Fill	Firmly compacted light brownish yellow silt. Fill of posthole [110].
112	Cut	Sub-rectangular cut for hangi (unexcavated) aligned NNW-SSE. 0.47m x
		0.34m. Truncated by 19th century farming - ploughing.
113	Fill	Moderately compacted mottled yellowish brown and orange silt with
		occasional charcoal inclusions.
114	Cut	Sub-oval cut of hangi (unexcavated) aligned NNE-SSW and vertically
		truncated 0.46m x 0.55m x 0.07m deep.
115	FIII	Moderately compacted brownish yellow and orange mottled silt with
		occasional charcoal and small pcs of heat fractured rock. Fill of hangi [114].
116	Cut	Sub-circular cut of hangi aligned SW-NE. 0.41m x 0.33m x 0.04m deep.
117	Fill	Very firmly compacted mid-brown silt with occasional charcoal and very
		occasional burnt stone inclusions. Fill of hangi [116].
118	Cut	Sub-circular cut of hangi (unexcavated) aligned SW-NE. 0.44m x 0.33m.
119	FIII	Moderately compacted dark brown silt with occasional inclusions of
120		charcoal and heat fractured rock fragments. Fill of hangi [118].
120	Cut	Sub-rectangular cut for posthole (unexcavated) 0.25m x 0.20m and aligned
104		SSW-ININE.
121	FIII	very infinity compacted mid-brown and mottled grey slit - backfill of
122		Postnore [120].
122		Noderately compacted yellow and orange mottled sandy slit - 0.20m x
		U.14m. Post pipe within (121). Fill of posthole [120].

Context No.	Туре	Description
123	Cut	Rectangular cut of posthole (unexcavated) 0.29m x 0.30m aligned SW-NE
		and vertically truncated. Filled by 124 and 125.
124	Fill	Very firmly compacted mid-brown and mottled grey silt - backfill of
		posthole [123].
125	Fill	Moderately compacted yellow and orange mottled sandy silt - 0.20m x
		0.23m. Post-pipe within (124). Fill of posthole [123].
126	Cut	Rectangular cut of posthole (unexcavated) 0.21m x 0.18m aligned SW-NE
		and vertically truncated. Filled by 126 and 127.
127	Fill	Very firmly compacted mid-brown and mottled grey silt - backfill of
		posthole [126].
128	Fill	Moderately compacted yellow and orange mottled sandy silt - 0.14m x
		0.11m. Post-pipe within (127). Fill of posthole [126].
129	Cut	Rectangular smooth sided at first vertical before 45° break to base cut of
		posthole aligned SE-NW. 0.27m x 023m x 0.32m deep.
130	Fill	Moderately compacted yellowish mid-brown silt with occasional inclusions
		of charcoal. Backfill of posthole [129].
131	Fill	Loose and very friable light brownish yellow alluvial silt. 0.15m x 0.12m x
		0.16m deep. Post pipe within fill (130).
132	Cut	Sub-circular 45° sided cut of hangi with concave base. 0.30m x 0.40m 0.05m
		deep - vertically truncated.
133	Fill	Moderately compacted dark brown silt with occasional charcoal inclusions.
		Fill of hangi [133].
134	Void	
135	Cut	Square cut of posthole with rounded corners, vertical sided before 45°
		break to a concave base, aligned NE-SW. 0.36m x 0.36m x 0.85m deep.
136	Fill	Moderately compacted greyish brown with yellow mottles silt with
		intermixed clay patches and occasional gravel inclusions. Backfill of
		posthole [135] deposited after removal of post. Heavily corroded wrought
		iron nails in backfill.
137	Void	
138	Cut	Square cut of posthole with vertical sides and a flat base aligned WNW-ESE.
		0.26m x 0.25m x 0.35m deep. Old field boundary post relates to postholes
		[129] and [135].
139	Fill	Moderately compacted yellowish mid-brown silt with occasional inclusions
		of charcoal. Backfill of posthole [138].
140	Fill	Loose and very friable light brownish yellow alluvial silt. 0.11m x 0.08m x
		0.32m deep. Post pipe within fill (139).
141	Cut	Sub-rectangular cut for posthole(unexcavated) aligned NW-SE. 0.19m x
		0.11m.
142	Fill	Moderately compacted mid-brown and mottled grey silt - backfill of
		posthole [141].
143	Fill	Soft and friable yellow and orange mottled sandy silt. 0.12m x 0.14m. Post
		pipe within fill (142).
144	Cut	Sub-rectangular cut for posthole (unexcavated) aligned NW-SE. 0.18m x
		0.13m.
145	Fill	Moderately compacted mid-brown and mottled grey silt - backfill of
		posthole [144].

Context No.	Туре	Description	
146	Fill	Moderately compacted yellow and orange mottled sandy silt. 0.12m x	
		0.14m. Post pipe within fill (142).	
147	Cut	Sub-rectangular cut for posthole(unexcavated) aligned NW-SE. 0.24m x	
		0.22m.	
148	Fill	Moderately compacted light brownish yellow silt - backfill of posthole [147].	
149	Fill	Soft and friable yellow and orange mottled sandy silt. 0.12m x 0.17m. Post	
		pipe within fill (148).	
150	Cut	Sub-rectangular cut for posthole (unexcavated) aligned NW-SE. 0.26m x	
		0.19m.	
151	Fill	Moderately compacted mid-brown and mottled grey silt - backfill of	
		posthole [150].	
152	Fill	Soft and friable yellow and orange mottled sandy silt. 0.16m x 0.14m. Post	
		pipe within fill (151).	
153	Cut	Sub-rectangular cut for posthole (unexcavated) aligned NW-SE. 0.25m x	
		0.22m.	
154	Fill	Moderately compacted mid-brown and mottled grey silt - backfill of	
		posthole [153].	
155	Fill	Soft and friable yellow and orange mottled sandy silt. 0.16m x 0.09m. Post	
		pipe within fill (154).	
156	Cut	Sub-rectangular cut for posthole (unexcavated) aligned NW-SE. 0.24m x	
		0.20m.	
157	Fill	Moderately compacted mid-brown and mottled grey silt with moderate	
		root action and occasional gravel- backfill of posthole [156].	
158	Fill	Soft and friable yellow and orange mottled sandy silt. 0.12m x 0.14m. Post	
		pipe within fill (157).	
159	Cut	Sub-rectangular cut for posthole (unexcavated) aligned NW-SE. 0.24m x	
		0.17m. Cuts posthole [162].	
160	Fill	Moderately compacted mid-brown and mottled grey silt with moderate	
		root action and occasional gravel- backfill of posthole [159].	
161	Fill	Moderately compacted yellow and orange mottled sandy silt. 0.16m x	
		0.09m. Post pipe within fill (160).	
162	Cut	Sub-rectangular cut for posthole (unexcavated) aligned NW-SE. 0.27m x	
		0.23m. Cut by posthole [159].	
163	Fill	Moderately compacted mid-brown and mottled grey silt with moderate	
		root action and occasional gravel- backfill of posthole [162].	
164	Fill	Soft and very friable mid brown silt with frequent inclusions of wood	
		(remains of decomposed timber post). 0.12m x 0.13m. Post pipe within fill	
		(163).	
165	Cut	Sub-circular cut of hangi (unexcavated) aligned E-W. 0.29m x 0.33m.	
166	Fill	Moderately compacted dark brown silt with frequent charcoal and	
		occasional heat fractured rock inclusions. Vertically truncated by ploughing.	
		Fill of hangi [165].	
167	Cut	Sub-circular cut of hangi (unexcavated) aligned E-W. 0.55m x 0.54m.	
168	Fill	Moderately compacted dark brown silt with frequent charcoal and	
		occasional heat fractured rock inclusions. Vertically truncated by ploughing.	
		Fill of hangi [167].	
169	Cut	Sub-circular cut of hangi (unexcavated) aligned E-W. 0.47m x 0.41m.	

Context No.	Туре	Description	
170	Fill	Moderately compacted dark brown silt with occasional inclusions of	
		charcoal and heat fractured rock inclusions. Vertically truncated by	
		ploughing. Fill of hangi [169].	
171	Cut	Sub-rectangular cut for posthole (unexcavated) aligned NNW-SSE. 0.34m x	
		0.31m.	
172	Fill	Firmly compacted yellowish brown and yellow mottled silt with occasional	
		gravel inclusions and occasional charcoal. Backfill of posthole [171].	
173	Fill	Firmly compacted brownish orange silt (alluvium) with occasional gravel	
		inclusions. 0.18m x 0.12m. Post pipe within fill (172).	
174	Cut	Sub-rectangular cut for posthole (unexcavated) aligned NNE-SSW. 0.43m x	
475	 11	0.33m.	
1/5	FIII	Moderately compacted mid-brown and mottled grey silt with occasional	
470	c.n	gravel- backfill of posthole [1/4].	
176	FIII	Firmly compacted brownish yellow slit (alluvium) with occasional inclusions	
177	Cut	Of small Founded stones. 0.15m x 0.14m. Post pipe within fill (1/2).	
1//	Cut	0.20m	
178	Fill	Eirmly compacted brownish vellow silt (alluvium) with occasional small	
178		rounded stopes 0.15m x 0.14m	
179	Fill	Moderately compacted light brown silt 0.14m x 0.13m Post nine within fill	
175		(178)	
180	Cut	Sub-circular, smooth and steeply sided (70°) cut of small posthole/large	
100	Cut	stakehole with a concave base 0.13m x 0.11m x 0.10m deep. Cuts hangi	
		[114].	
181	Fill	Softly compacted mid-brown silt with occasional charcoal inclusions. Fill of	
		posthole [180].	
182	Cut	Sub-circular cut of hangi (unexcavated) aligned N-S. 0.51m x 0.38m.	
183	Fill	Moderately compacted dark brown silt with occasional charcoal and	
		occasional heat fractured rock inclusions. Vertically truncated by ploughing.	
		Fill of hangi [182].	
184	Cut	Sub-rectangular cut of hangi (unexcavated) aligned N-S. 0.51m x 0.38m.	
185	Fill	Moderately compacted mid-brown and orange mottled silt with occasional	
		charcoal and occasional heat fractured rock inclusions. Vertically truncated	
		by ploughing. Fill of hangi [184].	
186	Cut	Sub-circular cut of hangi (unexcavated) aligned N-S. 0.40m x 0.31m.	
187	Fill	Moderately compacted mid-brown and orange mottled silt with occasional	
		charcoal and occasional heat fractured rock inclusions. Vertically truncated	
		by ploughing. Fill of hangi [186].	
188	Void		
189	Void		
190	Cut	Sub-circular cut of hangi (unexcavated) aligned N-S. 0.53m x 0.47m.	
191	Fill	Moderately compacted dark brown silt with moderate inclusions of	
		charcoal and heat fractured rock inclusions. Vertically truncated by	
100		pioughing. Fill of hangi [190].	
192	Void		
193	Void		
Context No.	Туре	Description	
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194	Void		
195	Cut	Sub-circular cut of hangi with 45° sides and a concave base aligned NE-SW.	
		0.63m x 0.53m X 0.05m deep (vertically truncated by ploughing).	
196	Fill	Moderately compacted brownish black ashy silt with frequent charcoal	
		inclusions and moderate heat fractured rock fragments. Fill of hangi [195].	
197	Cut	Sub-oval cut of hangi with smooth 45° sides and a concave base, aligned NE-	
		SW and vertically truncated. 0.70m x 0.41m x 0.09m deep.	
198	Fill	Moderately compacted greyish black and yellow mottled ash rich silt	
		containing frequent charcoal inclusions and occasional heat fractured rock.	
		Fill of Hangi [197]. Vertically truncated.	
199	Cut	Sub-oval cut of hangi with smooth 45° sides and a concave base, aligned	
		NNE-SSW and vertically truncated. 0.50m x 0.42m x 0.04m deep. Vertically	
		truncated by ploughing.	
200	Fill	Moderately compacted brownish black ashy silt with frequent charcoal	
		inclusions and moderate heat fractured rock fragments. Fill of hangi [199].	
201	Cut	Sub-circular cut of hangi (unexcavated) aligned E-W. 0.65m x 0.59m	
202	Fill	Soft and friable dark-brownish silt with occasional inclusions of heat	
		fractures rock and charcoal. Fill of hangi [201].	
203	Cut	Sub-circular cut of hangi (unexcavated) aligned N-S. 0.59m x 0.50m.	
204	Fill	Moderately compacted greyish mid-brown silt with moderate charcoal	
		inclusions and occasional heat fractured rock fragments. Fill of hangi [203].	
205	Cut	Sub-circular cut of hangi (unexcavated) aligned N-S. 0.55m x 0.46m.	
206	Fill	Softly compacted dark-brown silt with frequent heat fractured rock	
		fragments and moderate charcoal inclusions. Fill of hangi [205].	
207	Cut	Sub-circular cut of hangi (unexcavated) aligned E-W. 0.46m x 0.42m.	
208	Fill	Very firmly compacted dark-brown silt with inclusions of occasional	
		charcoal and heat fractured rock fragments. Fill of hangi [207].	
209	Cut	Oval cut of posthole with 45° cut from surface then vertical cut to a concave	
		base, aligned NE-SW. 0.55m x 0.45m x 0.51m deep.	
210	Fill	Moderately compacted yellowish light brown sandy silt with occasional	
		charcoal inclusions. Backfill of posthole [209]. Fill of posthole [209].	
		Obsidian flake retrieved from this fill.	
187	Fill	Moderately compacted mid-brown and orange mottled silt with occasional	
		charcoal and occasional heat fractured rock inclusions. Vertically truncated	
		by ploughing. Fill of hangi [186].	
211	Cut	Sub-circular cut of posthole with 45° cut from surface to step then vertical	
		cut to a concave base, aligned E-W. 0.43m x 0.34m x 0.46m deep.	
212	FIII	Moderately compacted mid-brown and yellow mottled sandy silt with	
		occasional charcoal inclusions. Backfill of posthole [211].	
213	FIII	Soft, dark brown sandy silt. 0.15m x 0.15m x 0.43m deep. Post pipe within	
		backfill (212).	
214	Cut	Sub-circular cut of hangi (unexcavated) aligned N-S. 0.50m x 0.59m.	
215	FIII	Soft, dark brown silt with frequent charcoal inclusions and moderate heat	
216		Tractured rock fragments. Fill of hangi [214].	
216	Cut	Sub-circular cut of hangi (unexcavated) aligned NW-SE. 0.54m x 0.47m.	
217	Fill	Soft, dark brown silt with frequent charcoal inclusions and moderate heat	
		tractured rock fragments. Fill of hangi [216].	

Туре	Description
Cut	Sub-rectangular/irregular shaped cut of hangi with smooth 45° sides and a
	flat to slightly concave base, aligned E-W and vertically truncated. 0.99m x
	0.85m x 0.10m deep. Vertically truncated by ploughing.
Fill	Loose and friable dark grey silt with frequent inclusions of burnt oven
	stones, charcoal and heat fractured rock fragments. Fill of hangi [218].
Cut	Sub-circular cut of hangi (unexcavated) aligned E-W. 0.43m x 0.41m.
Fill	Soft, dark brown silt with moderate charcoal inclusions and occasional heat
	fractured rock fragments. Fill of hangi [220].
Cut	Sub-circular cut of hangi (unexcavated) aligned N-S. 0.38m x 0.37m.
Fill	Firmly compacted dark brown silt with frequent inclusions of charcoal and
	heat fractured rock fragments. Fill of hangi [222].
Cut	Sub-circular cut of hangi (unexcavated) aligned N-S. 0.54m x 0.52m.
Fill	Soft, dark brown silt with moderate charcoal inclusions and frequent heat
	fractured rock fragments. Fill of hangi [224].
Cut	Sub-circular cut of hangi (unexcavated) aligned N-S. 0.44m x 0.41m.
Fill	Soft, dark brown silt with frequent inclusions of charcoal and heat fractured
	rock fragments. Fill of hangi [226].
Cut	Sub-circular cut of hangi (unexcavated) aligned N-S. 0.90m x 0.62m.
Fill	Moderately compacted yellowish mid-brown silt with moderate inclusions
	of charcoal and occasional heat fractured rock fragments. Fill of hangi [228].
Cut	Sub-circular cut of hangi (unexcavated) aligned E-W. 0.72m x 0.68m.
Fill	Moderately compacted yellowish mid-brown silt with frequent inclusions
	of charcoal and moderate heat fractured rock fragments. Fill of hangi [230].
Cut	Sub-circular cut of posthole with steeply sloping smooth (70°) sides and a
	concave base aligned E-W. 0.38m x 0.36m X 0.11m deep (vertically
	truncated by ploughing).
Fill	Moderately compacted mid-brown and yellow mottled silt with occasional
	charcoal inclusions. Backfill of posthole [232].
Cut	Rectangular cut of pit with rounded corners, with steeply sloping 70° sides
	(east) and vertical (west) with a flattish base. 2.06m x 1.13m x 0.43m deep
C .11	and aligned NE-SW. Truncated slightly by 19th century ploughing.
FIII	Moderate to firmly compacted grey, brown and yellow alluvial silt and
	topsoil intermixed with moderate inclusions of neat fractured oven stones
	and occasional charcoal. Six pieces of obsidian retrieved from fill. Fill of
Cut	Storage pit [234].
Cut	sub-rectangular (trapezoidal snaped) cut of storage pit with vertical sides
	cide and a flat base, aligned parthwest southeast, 2,24m v 1,82m v 0,60m
	doon. The nit contained three internal postholes as well as a buttress and a
	clet at the base of the entrance in its south western corner for a beard
	slot at the base of the entrance in its south-western corner for a board closure. Filled by (227) - upper fill and (274) - lower fill
Eill	Moderately compacted gravish brown with yellow mottles consisting of the
1 111	19th century plough soil intermixed with alluvium 0.21m thick. Upper fill of
	storage nit [236]
Cut	Irregular-rectangular cut for storage nit with steenly sloped 70° side on W
	end, near vertical on S side vertical on NF side with a 45° slope on the
	northern side with a flat to slightly concave base aligned WNW-FSF 2 99m
	x 1.42m x 0.28m deep. Filled by (277) - upper fill and (239) - lower fill
	Type Cut Fill Cut

Context No.	Туре	Description	
239	Fill	Moderately to firmly compacted grey brown and yellow mottled topsoil and	
		alluvial silt natural mix with occasional charcoal and small pebbles. 0.24m	
		thick. Primary fill of storage pit [238].	
240	Cut	Sub-circular cut of posthole with steeply sloping smooth (70°) sides on S	
		side and 45° on E and N with a concave base aligned E-W. 0.28m x 0.23m X	
		0.09m deep (vertically truncated by ploughing).	
241	Fill	Firmly compacted light brownish yellow silt with occasional charcoal	
		inclusions. Fill of posthole [240].	
242	Cut	Oval cut of posthole with 45° smooth sides and a concave base, aligned NE-	
		SW. 0.14m x 0.13m x 0.09m deep (vertically truncated by ploughing).	
243	Fill	Firmly compacted light brownish yellow silt with occasional charcoal	
		inclusions. Vertically truncated by ploughing. Fill of posthole [242].	
244	Cut	Sub-circular cut of posthole with at first steep 70° sides before 45° break to	
		a concave base, aligned N-S . 0.24m x 0.19m x 0.18m deep.	
245	Fill	Firmly compacted light brownish yellow silt with occasional charcoal	
		inclusions. Vertically truncated by ploughing. Fill of posthole [244].	
246	Cut	Sub-circular cut of posthole steep 70° on S and E side - 45° on N side with a	
		concave base, aligned E-W . 0.17m x 0.15m x 0.08m deep.	
247	Fill	Firmly compacted light brownish yellow silt with occasional charcoal	
		inclusions. Vertically truncated by ploughing. Fill of posthole [246].	
248	Cut	Rectangular spade cut posthole with smooth vertical sides and a flat to very	
		slightly concave base, aligned E-W. 0.25m x 0.32m x 0.26m deep.	
249	Fill	Firmly compacted light brownish yellow and greyish brown mottled	
		intermixed re-deposited topsoil and alluvium with occasional charcoal	
		inclusions.	
250	Cut	Sub-circular cut of posthole steep 70° on W side - 45° one E side with a	
		concave base, aligned WSW-ENE . 0.23m x 0.20m x 0.09m deep. Vertically	
		truncated by ploughing.	
251	Fill	Firmly compacted light brownish yellow silt with occasional charcoal	
		inclusions. Vertically truncated by ploughing. Fill of posthole [250].	
252	Cut	Rectangular cut of storage pit with rounded corners, smooth vertical sides	
		before a 45° gentle break just above the flat base, aligned WNW-ESE. 3.56m	
		x 1.09m wide x 0.44m deep. No internal postholes.	
253	Fill	Moderate to firmly compacted brownish yellow alluvium with bands of	
		greyish brown topsoil throughout with occasional charcoal inclusions and	
		very occasional heat fractured oven stone fragments. Fill of pit [252].	
254	Cut	Recti-linear cut of drain with steeply sloped 70° sides with a base that	
		slopes north-eastward to a narrow concave point6m long x 0.32m wide x	
		0.12m deep on top of terrace but flared out as it reached the bottom of the	
		slope to 0.75m wide and 0.45m deep. Filled by (255) - upper fill + (275) -	
		lower fill.	
255	Fill	Firmly compacted mid-brownish grey silt with occasional inclusions of	
		charcoal. One struck obsidian flake was retrieved from this context. Upper	
		fill of drain [254].	
256	Cut	Cut of sub-rectangular posthole (unexcavated). 0.38m x 0.31m.	
257	FIII	Firmly compacted yellowish brown and greyish- brown mottled topsoil and	
		alluvium mix with occasional charcoal inclusions. Backfill of posthole [256].	

Context No.	Туре	Description
258	Fill	Softly compacted yellowish light brown with reddish brown timber
		fragments and very occasional charcoal inclusions. 0.14m x 0.15m . Post
		pipe within fill (257). Post pipe formed by post rotting in situ
259	Cut	Sub-circular cut of hangi (unexcavated) aligned NNE-SSW. 0.32m wide x
		0.37m. Cuts hangi [287].
260	Fill	Loose and friable greyish brown silt with frequent inclusions of burnt oven
		stones, charcoal and heat fractured rock fragments. Fill of hangi [259].
261	Fill	Loose and friable mid-brown silt with remains of puriri board in middle of
		deposit. 0.15m x 0.12m x 0.51m deep. Post pipe within in posthole [209].
262	Cut	Cut of oval stakehole with steep 70° sides on W side and 45° on E side with
		a concave base, aligned N-S. 0.11m X 0.09m X 0.05m deep.
263	Fill	Firmly compacted light brownish yellow silt with occasional charcoal
		inclusions. Vertically truncated by ploughing. Fill of stakehole [262].
264	Cut	Cut of small oval posthole with vertical sided on W side and 45° on E side
		with a concave base, aligned E-W. 0.14m X 0.11m X 0.06m deep.
265	Fill	Firmly compacted light brownish yellow silt with occasional charcoal
		inclusions. Vertically truncated by ploughing. Fill of stakehole [264].
266	Cut	Oval almost elliptical cut of posthole in base of storage pit [236]. With
		steeply sloped (70°) sides on N,E and W edges and a sloping 45° slope on S
		side and a concave base, aligned NW-SE. 0.20m x 0.11m x 0.18m deep.
267	Fill	Soft, light brownish yellow re-deposited alluvium with occasional charcoal
		inclusions. Backfill of posthole [266].
268	Cut	Sub-circular cut of posthole in base of storage pit [236]. With steeply sloped
		(70°) sides on N,E and W sides and vertical to undercut on S side and a
		concave base, aligned N-S. 0.23m x 0.18m x 0.32m deep. Undercut extends
		to south for 0.26m and forms a small recess 0.26m in height - possibly a
		'stash' hole.
269	Fill	Soft, light brownish yellow re-deposited alluvium with occasional charcoal
		inclusions. Backfill of posthole [268].
270	Cut	Sub-rectangular smooth steep sided 70° cut of posthole with a 45° break to
		a concave base, aligned N-S. 0.47m x 0.32m x 0.36m deep. The posthole is
		cut into the northwestern side of the top of storage pit [236] and is most
		likely a support for a roof structure above the pit. Filled by (271).
271	Fill	Firmly compacted light brownish yellow with greyish brown mottles
		consisting of intermixed old topsoil and alluvium natural with occ charcoal,
		occ heat fractured rock fragments. Fill of posthole [270] same as pit fill
		(274).
272	Cut	Oval cut of stakehole with steeply sloped (70°) sides on W side and a sloping
		45° slope on E side with a concave base, aligned N-S. 0.13m x 0.11m x
		0.08m deep. Vertically truncated by historic ploughing.
273	Fill	Firmly compacted light brownish silt with occasional charcoal inclusions.
		Backfill of stakehole [272].
274	Fill	Firmly compacted light brownish yellow with greyish brown mottles
		consisting of intermixed topsoil and alluvium natural with occ charcoal, occ
		heat fractured oven stones occ cobbles. Primary fill of storage pit [236].
		0.56m thick. The hoanga (grinding stone) was retrieved from this deposit.

Context No.	Туре	Description
275	Fill	Very firmly compacted brownish yellow and grey mottled silt, 0.03m -
		0.10m thick. Primary fill of drain [254]. The deposit represents the primary
		silting of the drain.
276	Void	
277	Fill	Moderately compacted greyish brown with yellow mottles consisting of the
		19th century plough soil intermixed with alluvium deposited in hollow
		depression resulting from settling of the original backfilling of the pit. 0.04m
		storage nit [238]
278	Cut	Probable rectangular cut of storage nit (only seen partially within drain slot)
270	Cut	steep to vertical side where seen and 0.54m deep cuts drain [254]. The pit
		would likely be on a similar alignment to pits [238] and [254].
279	Fill	Moderately compacted yellow, grey and mid-brown mottled silt consisting
		of natural alluvium and topsoil intermixed representing single episode
		backfilling. 0.54m thick. Fill of pit [278].
280	Cut	Rectangular spade cut posthole with smooth vertical sides and a flat to very
		slightly concave base, aligned E-W. 0.43m x 0.38m x 0.39m deep. Together
		with postholes [248] and [282] features appeared at higher level than other
201	C :U	features during topsoil stripping.
281	FIII	Softly compacted yellowish mid-brown slit with no visible inclusions. Fill of
282	Cut	Square cut of posthole with vertical spade cut sides and a flat hase, aligned
202	Cut	FSE-WNW 0.35m x 0.33m x 0.41m deep. Together with postholes [248] and
		[280] the features appeared at higher level than other features during
		topsoil stripping.
283	Fill	Firmly compacted light brownish yellow and greyish brown mottled
		intermixed re-deposited topsoil and alluvium with occasional charcoal
		inclusions and small rounded stones. Backfill of posthole [282].
284	Fill	Softly compacted mid greyish brown re-deposited topsoil with very
		occasional charcoal inclusions. 0.14m x 0.12m x 0.38m deep. Post pipe
		within fill (283). Post pipe formed by topsoil infilling open void after post
205		had been removed.
285	Cut	Oval cut of hangi with 45° sides and a concave base aligned ENE-WSW and cituated in isolation on a natural terrace on south side of river overlooking
		meander loop 0.58m x 0.54m x 0.15m deen
286	Fill	Firmly compacted grevish black ash rich silt with frequent inclusions of
200		charcoal and moderate heat fractured rocks. 0.15m thick, Fill of hangi [285].
287	Cut	Sub-circular cut of hangi (unexcavated) aligned NE-SW. 0.27m x 0.33m.
288	Fill	Loose and friable grevish brown silt with frequent inclusions of burnt oven
		stones, charcoal and heat fractured rock fragments. Fill of hangi [287].
		Vertically truncated.
289	Cut	Oval cut of hangi (unexcavated) aligned N-S. 0.47m wide x 0.65m long. Cuts
		hangi [287].
290	Fill	Loose and friable greyish brown silt with frequent inclusions of burnt oven
		stones, charcoal and heat fractured rock fragments. Fill of hangi [289].

APPENDIX 2: RADIOCARBON DATING



APPENDIX 2: RADIOCARBON DATING, CONTINUED



APPENDIX 2: RADIOCARBON DATING, CONTINUED



Private Bag 3105 Hamilton, New Zealand. Ph +64 7 838 4278 email c14@waikato.ac.nz Wednesday, 4 March 2015

Radiocarbon Dating Laboratory

Report on Radiocarbon Age Determination for Wk- 41040

Submitter	R Shakles			
Submitter's Code	Context (219)			
Site & Location	Kaeo Flood Mitigation Scheme, New Zealand			
Sample Material Physical Pretreatment	tutu, coprosma, mahoe, mapou, manuku Possible contaminants were removed. Washed in ultrasonic bath.			
Chemical Pretreatment	Sample washed in hot 10% HC1, rinsed and treated with hot 1% NaOH. The NaOH insoluble fraction was treated with hot 10% HC1, filtered, rinsed and dried.			
δ ¹³ C -25.2	± 0.2 ‰			
D ¹⁴ C -41.1	± 3.4 % o			
F ¹⁴ C% 95.9	± 0.3 %			
Result 337 ±	28 BP			



• Explanation of the calibrated Oxcal plots can be found at the Oxford Radiocarbon Accelerator Unit's calibration web pages (http://cl4.arch.ox.ac.uk/embed.php?File=explanation.php)

• 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, $\delta^{13}C$, is expressed as ‰ wrt PDB and is measured on sample CO2.
- F¹⁴C% is also known as Percent Modern Carbon (pMC).

APPENDIX 3: IDENTIFICATION OF CHARCOAL FROM SITES P04/760 & P04/761

Dr Rod Wallace - Anthropology Department,	Seven charcoal samples from archaeological features labelled 'Kaeo, Flood Mitigation Scheme, P1019', were submitted for identification and C14 dating sub-sample selection by Richard Shakles on behalf of Clough & Associates Ltd. The results are as follows.				
University of Auckland	Kaeo - P1019 – Sample # 1 – Context 198 - Hangi				
	Tutu	3			
	Hebe				
	Coprosma	2			
	Mahoe				
	Manuka	2			
	Kanuka				
	Comment – A C14 dating s	ample was separated out containing tutu, hebe,			
	coprosma, mahoe, manuka and kanuka.				
	Kaeo - P1019 – Sample # 2 – Context 196 - Hangi				
	Tutu	1			
	Coprosma	2			
	Manuka	6			
	Kanuka	3			
	Pokaka/Tawheowheo	5			
	Comment – A C14 dating sample was separated out containing tutu, coprosma and manuka.				
	Kaeo - P1019 – Sample # 3 – Context 219 - Hangi				
	Tutu	4			
	Coprosma	3			
	Mahoe	2			
	Mapou	6			
	Kanuka	2			
	Comment – A C14 dating sample was separated out containing tutu,				
	coprosma, mahoe, mapou an	d manuka.			
	Kaeo - P1019 – Sample # 4 – Context 116 – Fire scoop				
	Hebe	10			
	Comment – A C14 dating sa	ample composed of Hebe was bagged.			
	Kaeo - P1019 – Sample # 7	– Context 274 (from kumara Pit C. 236)			
	Kauri	10			

Comment – All Kauri – probably one post - not suitable for dating.

APPENDIX 3: IDENTIFICATION OF CHARCOAL FROM SITES P04/760 & P04/761, CONTINUED

Dr Rod	Kaeo - P1019 – Sample # 8 – Context 235 - Pit		
Wallace -	Tutu	2	
Anthropology	Hebe	6	
Department,	Coprosma	1	
University of	Puriri	8	
Auckland	Comment – A C14 dating sample was separated out containing tutu, hebe and		
	coprosma.		

Kaeo - P1019 - Sample # 10 - Context 286

_	
Raukawa	2
Fivefinger	7
Pokaka/Tawheowheo	5
Puriri	20

Comment – A C14 dating sample was separated out containing pseudopanax charcoal.

Discussion

The only conifer in this assemblage is kauri from what was most probably a single timber found in the base of a kumara pit. The vast bulk of the assemblage is small shrub and scrub species accompanied by only 2 broadleaf trees. The dominant tree, puriri, is notable for its ability to survive forest clearance and thrive in open country where it often continues to do to this day. The charcoal assemblage indicates local forests had been cleared well before these features were created. The vegetation contemporary with the occupation of the sites was dominated by scrub and shrub species typical of the early stages of woody vegetation development.

Species Names

Tutu	Coriaria arborea
Hebe	Hebe species
Coprosma	Coprosma species
Fivefinger	Pseudopanax arboreus
Raukawa	Pseudopanax edgerleyi
Mapou	Myrsine australis
Mahoe	Melicytus ramiflorus
Manuka	Leptospermum scoparium
Kanuka	Kunzia ericoides
Puriri	Vitex lucens
Pokaka/Tawheowheo	Elaeocarpus hookerianus or Quintinia serrata (NB.
these species are not r	eadily distinguishable by cell anatomy)
Kauri	Agathus australis

APPENDIX 4: NZAA SITE RECORD FORMS

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION



NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE RECORD HISTORY

NZAA SITE NUMBER: P04/760

Site description

'Updated 30/01/2015 (Field visit), submitted by rodclough , visited 10/01/2014 by Shakles, Richard Grid reference (E1671969 / N6115091)

An oval hangi with 45° sides and a concave base, aligned ENE-WSW situated in isolation on an natural terrace on the south side of the Kaeo river within a meander loop was excavated during the Kaeo Flood Alleviation Scheme. The hangi dimensions were 0.58m x 0.54m and 0.15m deep. The hangi was filled with a firmly compacted greyish black ash rich silt with frequent inclusions of charcoal and moderate inclusions of heat fractured rocks. A charcoal sample was taken for C14 dating. The site was 100% excavated.'

Condition of the site

Statement of condition

Current land use:

Updated: 30/01/2015, Visited: 09/01/2014 - Grazing

Threats:

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SITE RECORD INVENTORY			NZAA SITE NUMBER: P04/760
Observations about th	is site made i	n	
Author	Year	Title	Publication Details
Supporting document	ation held in /	ArchSite	
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Southeast facing pre-excavation shot of isolated hangi (context 285) comprising site P04/760

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Northwest facing section of hangi 285 comprising site P04/760. Scale: 0.5m

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SITE RECORD HISTORY

NZAA SITE NUMBER: P04/761

Site description

'Updated 30/01/2015 (Field visit), submitted by rodclough , visited 10/01/2014 by Shakles, Richard Grid reference (E1671548 / N6115210)

During excavation of a 40m wide, 300m+ corridor of topsoil for a stopbank flood defence a number of archaeological features were exposed cut into natural alluvium and excavated between December 2013 and January 2014.. The site consisted of 33 hangi, 5 storage pits, 15 postholes, 2 stakeholes and a drain of Maori origin; as well as 19 postholes relating to former 19th century historic European field boundaries. The maori features had been truncated by 19th century ploughing and were sealed by the former ploughsoil. Maori artefacts recovered during the excavation consisted of obsidian flakes and 1 obsidian core; chert flakes, a large double sided grinding stone (hoanga) with adze sharpening grooves along a flat edge and a hammer stone. European artefacts consisted of black beer glass, willoware ceramic, fe nails and a single clay tobacco pipe and were retrieved from the ploughsoil that was sealed by the modern topsoil under turf. Archaeological features were observed extending to both sided (north and south) of the excavation area and it is probable that the site extends for some considerable distance in land from the Kaeo River and around the base of Pohue Pa. The artefacts were retained by Ngati Uru and have not been able to be analysed.'

Condition of the site

'Updated 30/01/2015 (Field visit), submitted by rodclough , visited 10/01/2014 by Shakles, Richard

The site within the excavation area was recorded and surveyed by total station, with 50% of the hangi, postholes and all of the storage pits half sectioned. The excavation area is now beneath the stopbank flood defences but likely extends for an undetermined distance in all directions and is sealed beneath approximately 0.40m of topsoil and 19th century ploughsoil that now forms a subsoil.'

Statement of condition

Current land use:

Updated: 30/01/2015, Visited: 09/01/2014 - Grazing

Threats:

Updated: 30/01/2015, Visited: 09/01/2014 - Stock trampling, Farming practices, Subdivision, Road/ track formation or maintenance, Tree planting (other than forestry), Ploughing/ cultivation

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SITE RECORD INVENTORY	NZAA SITE NUMBER: P04/761
Observations about this site made in	
Author Year Title	Publication Details
Supporting documentation held in ArchSit	e
	ohue Pa- 04//238 P04//761 P04/760

Aerial photograph of Kaeo with overlay of Total Station survey of sites P04/760 and P04/761 showing relationship with Pohue Pa – P04/238.



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East facing shot of excavation area of site P04/761

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Post excavation shot of storage pit 236 with grinding stone visible in base of primary fill at centre right of section. Scale: $2 \times 1m$

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Pre-excavation shot of intercutting oven features within central area of site P04/761. Scale: 0.5m

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NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION SITE RECORD INVENTORY NZAA SITE NUMBER: P04/238 Supporting documentation held in ArchSite Print Bar (1) Radie drong for (1)

Alidade survey of Pohue Pa showing terraces on top of the hill and the southwest spur

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Sketch plan of the 2001 and 2002 test pitting and trial trenching undertaken by Stuart Bedford for NZHPT and Te Runanga O Whaingaroa

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NEW	ZEALAND ARCHAEOLOGICAL ASSOCIATION	
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1993 James Robinson survey and map of Pohue Pa for the Department of Conservation

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25821288 B&MA is at 6677316 N. Pf Snowdens Grant

Detail from the 1993 Robinson DOC survey