



Plummers Point UFB2 build (HNZPT authority 2018/663): final report

**report to
Heritage New Zealand Pouhere Taonga
and
Ultrafast Fibre**

Arden Cruickshank and Ella Usher

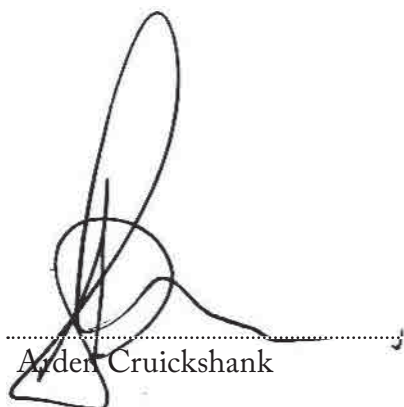


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Arden Cruickshank and Ella Ussher

Introduction

Ultrafast Fibre Ltd have installed a new fibre optic cable network around Plummers Point as part of the second stage of the National Ultra-Fast Fibre project (UFB2). The installation of the cable mainly involved excavating small pits at regular intervals (usually in line with every second property boundary) within existing service trenches, and directional drilling between these. Other pits were opened to locate services or extend the cable to property boundaries.

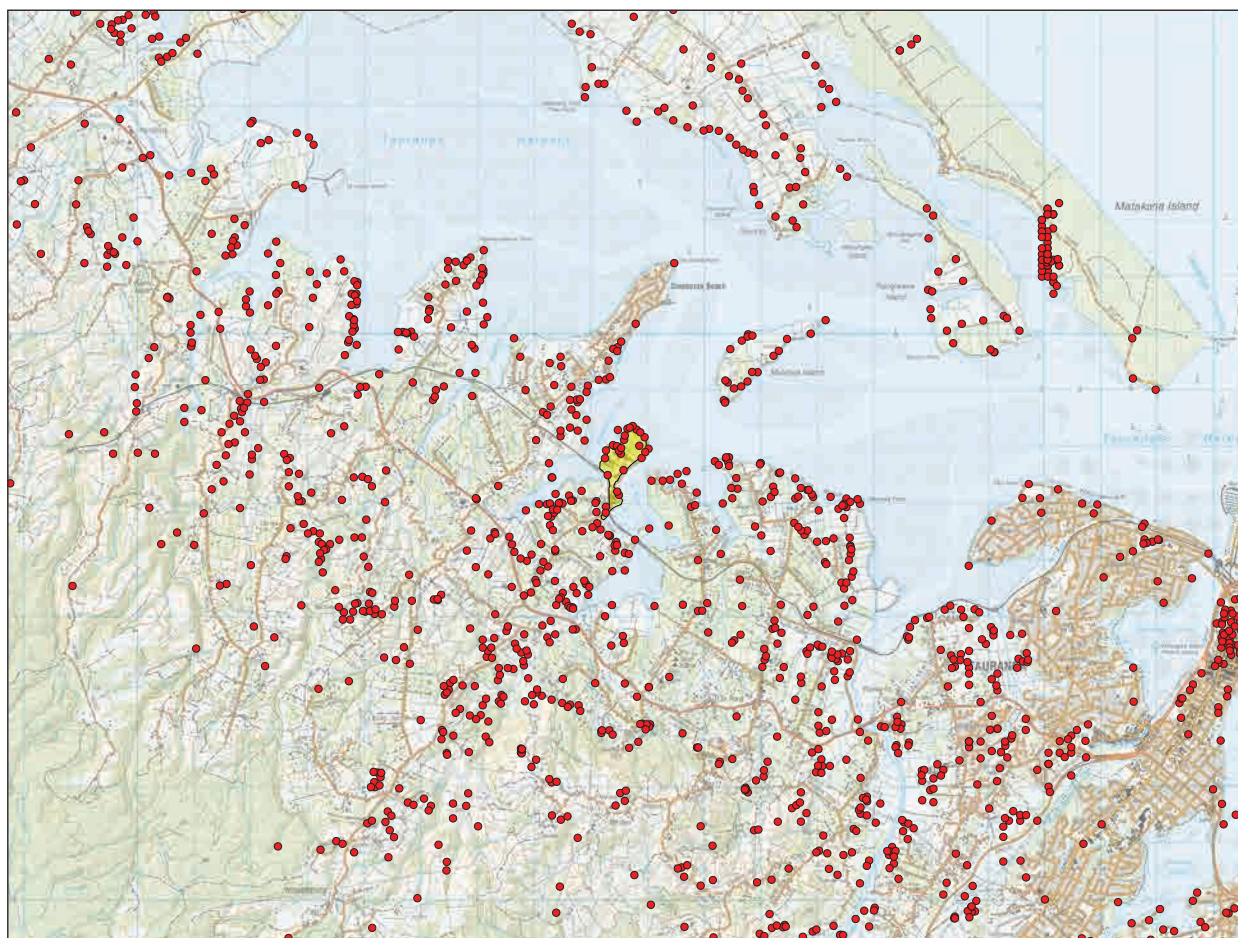


Figure 1. Map of area of work for UFB2 build at Plummers Point, showing recorded archaeological sites in the area.

Nineteen recorded archaeological sites were identified in the project area with potential to be affected by the works (Cruikshank 2018). Ultrafast Fibre applied to Heritage New Zealand Pouhere Taonga (HNZPTA) for an archaeological authority to modify or destroy these sites under section 44 of the Heritage New Zealand Pouhere Taonga Act (2014). Authority 2018/663 was granted by HNZPT on 28 May 2018.

Work commenced on 20 July 2018 and was completed in early 2019. Ground disturbance associated with the archaeological sites identified in the project were monitored or inspected prior to drilling to ensure that any archaeological features that were encountered were recorded and mapped for future site management.

Background

Plummers Point is a narrow peninsula located between Omokoroa and Te Puna in the Tauranga harbour. It is predominantly used for orcharding, with low density housing in the south east, and a 12-house subdivision at the end of Pats Road, a private right of way.

The peninsula is dominated by tephric loam from the Ngakura family of typic orthic allophanic soils. This soil is well draining and stoneless, making it ideal for subterranean kumara storage. This type of well-draining loam is typical for the Bay of Plenty, which is indicated by the high number of storage pits uncovered in archaeological sites throughout the region.

Pre-European Māori occupation

The Bay of Plenty is known for its mild climate, fertile soils and abundant shellfish and fish populations, which supported a large pre-European population. Because of these natural resources, the region has one of the highest densities of archaeological sites in the country (McFadgen 2007: 173). Plummers Point, and the other headlands along the Tauranga Harbour are typical, as shown by the high density of archaeological sites recorded in the area.

Māori settlement in the Western Bay of Plenty was focused primarily at the Kaituna River mouth / Maketu and within Tauranga Harbour. The earliest known inhabitants of the Tauranga district were Ngā Marama who were conquered and absorbed by later groups. All present-day tangata whenua in Tauranga trace their descent back to these original people. The first waka to arrive in Tauranga was *Tainui*. Although Tainui people did not settle in Tauranga, they settled nearby: Marutūahu in Hauraki and Ngāti Hauā and Ngāti Raukawa on the western side of the Kaimai Ranges. The next waka was *Te Arawa*, whose people mostly settled south and east of Tauranga. The third waka to arrive was *Takitimu*, which landed at Mauao. Ngāti Ranginui trace their descent to the Takitimu. Waitaha and Ngāti Ranginui conquered Nga Marama and divided the land between them: Ngāti Ranginui to the west of the Waimapu River, and Waitaha to the east (Stokes 1980: Chapter 1; Waitangi Tribunal 2004: 28).

After several generations, Ngai Te Rangi and Ngāti Pūkenga, descended from the people of the *Mātaatua* waka that had landed at Whakatāne, displaced Ngāti Ranginui and Waitaha from much of Tauranga so that by about AD 1800 Ngai Te Rangi had gained ascendancy on the coast and offshore islands of Tauranga while Ngāti Ranginui and Waitaha predominated inland east of the Waimapu (Waitangi Tribunal 2004: 29; Stokes 1980: Chapter 2; Stafford 1986: Chapter 22).

Tauranga supported a dense population prior to the arrival of Europeans. Coastal and inland hapu had reciprocal rights to resources and many migrated to the coast in winter and

inland in summer. Early in the 19th century Ngāpuhi from Northland obtained muskets which provide them with a huge advantage in war. Tauranga was raided in 1818 and 1820. In 1828 Ngāti Maru of Hauraki attacked Tauranga, destroying Otamataha Pā and killing or enslaving the inhabitants. Tauranga Maori began to arm themselves with muskets and assisted Ngāti Hauā in expelling Ngāti Maru from Maungatautari in 1830. Further Ngāpuhi raids followed between 1830 and 1833 but these were successfully resisted. In 1836 Te Arawa took Te Tumu pa at Maketu, successfully reoccupying lands they had lost to Ngai Te Rangi 100 years earlier. Wars and skirmishes continued through parts of Waikato / Hauraki / Bay of Plenty into the 1840s but Maori society was becoming less inclined to settle disputes through destructive musket warfare (Waitangi Tribunal 2004: 23; Stokes 1980: Chapter 3; Ballara 2003: Chapter 16).

Historic occupation

The first European to actively visit Tauranga appeared to be Rev. Samuel Marsden in 1820 (Gifford and Williams, 1940). Marsden's journey was overland from the Waihou River via the Karangahake Gorge guided by local Māori. On this arrival, he was informed that no European ships had visited the Bay of Plenty since Cook in the late 18th century, who didn't enter Tauranga Harbour. Upon noting that the area was fertile, and that the local Maori were eager to trade with Europeans, Marsden organised with the Church Missionary Society (CMS) to get a mission station established.

The CMS schooner *Herald* was likely the first European vessel to enter Tauranga Harbour in 1826 (Stokes 1980: 45). The first mission was set up in the 1830s at Te Papa, with a standing presence from 1838 onwards. The mission house is still standing on Mission Road. The first organised trade in the region began in 1830 when Phillip Tapsell settled at Maketu as a flax agent for Sydney based firm Jones and Walker. This became a large operation, employing hundreds of local Māori in the cultivation and preparation of flax fibre (Stokes 1980:53).

Following the development of trade in the Bay of Plenty, the first large scale industry in the area was timber milling, with rimu being the prime target species. There were already three timber mills working in the hills behind Tauranga at the beginning of the 20th century when a fourth, the Tauranga Rimu Company set up in the area later to be known as Tauriko (Cruickshank 2016).

Plummers Point had initially been planned as the site for the Te Puna township and was surveyed into lots in 1864. This did not eventuate, and the land was later divided into blocks, with blocks 223, 224 and 225 covering the peninsula (SO 5222). Block 225 was purchased by the Plummer family in the early 20th century, when their name became associated with it.

Prior to this, Plummers Point was known as Huharua (Waitangi Tribunal 1996), which is also reported to be the name of one of two pa at the end of the peninsula, the other being Ongarahu (U14/157). The location of Huharua pa is not exactly clear, but it is possible that it is U14/955, a pa which fits the location, but is poorly recorded and is no longer visible.

On SO 5222, dated 1888, three 'Native Villages' are marked along the eastern edge of the peninsula. Two of these (U14/3583, U14/3584) were recorded as archaeological sites by Lawrence (2018) and have been assessed as part of this project. The third is in the vicinity of U14/955 (the possible location of Huharua), This information has been added to the site record for U14/955, but further investigation about this pa is required.

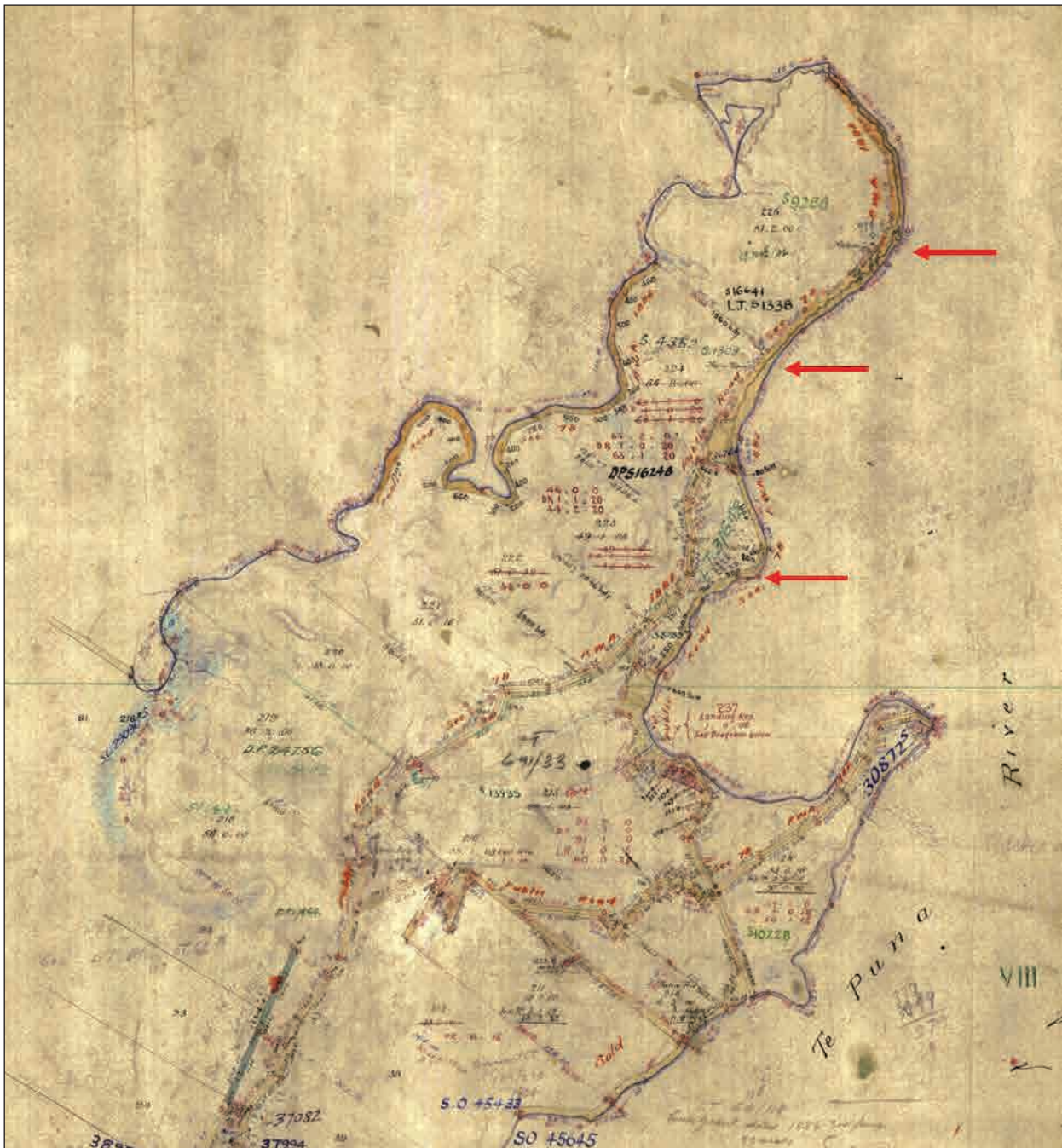


Figure 2. Detail of SO 522, dated 1888, showing the three 'Native Villages' (arrowed) along the eastern coastline of the peninsula.

Eventually blocks 223, 224 and 225 were subdivided into smaller lifestyle blocks and orchards. These have stayed relatively constant through to today, with Plummers point not being subject to the high-density housing that is present at neighbouring Omokoroa.

Archaeological survey and investigation

The earliest archaeological survey of Plummers Point was undertaken by Larner and Robinson for the New Zealand Historic Places Trust in 1982. Prior to this, there was only one site recorded on the peninsula, U14/157 Ongarahu Pa. Larner and Robinson identified 26 sites within the proposed works area for Plummers Point.

A review and summary of all archaeological surveys that had been undertaken in the Bay of Plenty was undertaken in 2002 by Garry Law. This was the first attempt at collating data in the area, which was already subject to heavy impacts from construction, horticulture and forestry. At the same time, the New Zealand Archaeological Association undertook a site record upgrade project, checking the condition of already recorded sites to get a better understanding of the location, condition and threats of the recorded archaeological sites of the region. Unfortunately, Plummers Point appeared to be omitted from the site upgrade project in which many of the sites recorded by Larner and Robinson would have benefitted from more accurate location and description data.

Archaeological investigations have not featured heavily in Plummers Point, with two investigations being undertaken at U14/157 Ongarahu pa (Furey 2011; Mallows 2011), and one to the south of the project area at U14/158 Pukemanuka Pa (Walter 2010). An HNZPT authority was granted for waterpipe upgrade works (2016/219) in which several archaeological deposits and features were found along Plummers Point Road, but a final report is not yet available for these works. Other construction of houses that have happened in the peninsula in the past few decades appear to have been done without archaeological assessment or investigation, so it is not known what is present beneath the surface.

Methodology

Due to the size of the project area, a desktop study was undertaken to identify areas within the build where archaeological sites may be impacted during works. This was not a full assessment of all sites within the peninsula. The assessment and evaluation for the archaeological sites was based on the current information and supporting documentation in Archsite, the online database of the New Zealand Archaeological Association's Archaeological Site Recording Scheme (NZAA SRS) as accessed on 1 March 2018. The methodology and limitations for this evaluation are discussed in the evaluation itself (Cruickshank 2018).

In the proposed work area, 19 sites were identified as having the potential of being impacted by the works. Nine sites had unknown site extents, but may extend into the road reserve, and were deemed to have a low potential of being affected by the proposed works. Ten sites had a moderate to high potential for being affected by the proposed works as they have either been recorded within the road reserve or are likely to have material within the road reserve. This includes two pa and two kāinga, which had 200 m buffers placed around the central site point to demarcate areas within the road reserve in which any ground disturbance should be monitored by an archaeologist.

Construction methodology

Installation of the ultrafast fibre network consisted primarily of directional drilling to minimise ground disturbance. These consisted of insertion and receiving pits which were generally 1.2 x 1.2 m, with varying depths, generally around 1 m. These pits also housed the



Figure 3. The Plummers Point UFB2 project area, showing recorded archaeological sites by site type.

underground cabinets which centralised the connections for a neighbourhood. Although drill shots were capable of being in excess of 200 m long, they were generally at distances of 40 m to allow for individual house connections. In addition to the drill pits, a number of ‘potholes’ were required to physically and visually identify the location of services prior to a drill shot being made. Because of the inherent risk of sub-surface drilling near existing services, the drill shots were often made next to existing service trenches to allow for accepted minimum distances from high voltage cables and other potentially hazardous services. It cannot be assumed that the areas where the fibre is being installed have been previously disturbed. Drill shots were generally run 600–900 mm beneath the ground surface and have the potential to run through sub-surface archaeological features such as storage pits and fire scoops.

The level of ground disturbance associated with this project depended on the complexity of services in a particular street and cannot be seen as consistent over the build, but is still less than traditional trenching methods for installation of services.

Due to this type of ground disturbance, assessing the archaeological effects and interpreting features and the landscape is not as straight forward as typical archaeological monitoring projects. Trenching would traditionally be used for installation projects of this magnitude which would allow an archaeologist to view soil profiles over a significant length and identify subtle landscape modifications that would indicate human activity. Similarly, large scale topsoil stripping such as with housing developments provide an archaeologist with a complete knowledge of the sub-surface archaeological deposits within the project extent.

The drawback of those methods of exposing the entire extent of works is that any archaeological features that are within it are significantly modified. The purpose of the Heritage New Zealand Pouhere Taonga Act (2014) is '...the identification, protection, preservation and conservation of the historical and cultural heritage of New Zealand', with avoidance and minimisation of damage the preferred approaches to archaeological landscapes. With this in mind, the approach for these projects is to manage the archaeological landscape and the effects on it, rather than to create a robust record of all archaeological sites within a build.

Archaeological monitoring and investigation procedures were developed to ensure disturbance to both archaeological features and council assets was minimised.

1. If archaeological features were discovered during works, the archaeologist would not extend the hole beyond its intended size. This was a two-fold limitation, as this would increase the modification of the feature, and has the potential of destabilisation of the road and other infrastructure. The only exception to this would be if koiwi were encountered, which would be dealt with upon discussion with mana whenua, the New Zealand Police, Heritage New Zealand and Western Bay of Plenty Regional Council.
2. Where archaeological features are discovered, drilling will be done at a depth of 1200 mm, or a suitable depth determined by the archaeologist as likely to avoid archaeological features.

The results of this project should not be seen as an exhaustive list of archaeological sites that exist within the road reserves around Plummers Point, or even a representative sample, but rather an exercise in minimising potential effects on the archaeological landscape.

The ground disturbance associated with the archaeological sites identified in the project were monitored or inspected prior to drilling to ensure no archaeological features had been affected. Where archaeological deposits were identified, these were recorded and sampled for laboratory analysis.

Monitoring results

Within the earlier archaeological assessment for the Plummers Point UFB2 build (Cruickshank 2018), several areas were highlighted that would require archaeological monitoring during earthworks and the remainder of the build was to operate under a discovery protocol (Figure 4). The earthworks related to the project commenced on 20 July 2018 and were completed in early 2019. The ground disturbance associated with the archaeological sites identified in the project were monitored or inspected prior to drilling to ensure no archaeological features had been affected.

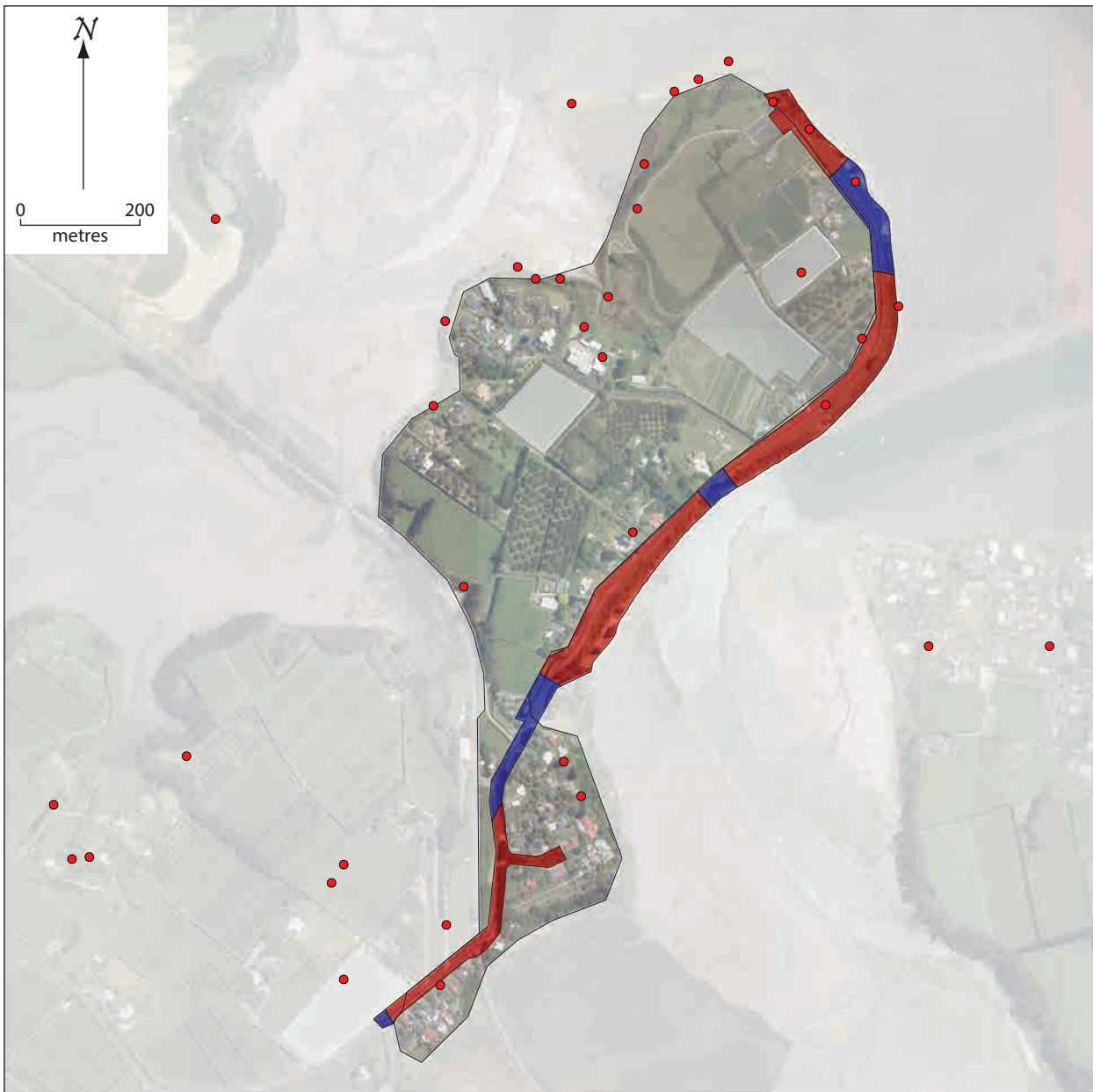


Figure 4. Areas requiring archaeological monitoring (red) and works undertaken utilising the discovery protocol (blue).

Two in situ midden deposits were encountered during works, one is associated with a previously identified site, U14/3583, and the second a previously unrecorded deposit which also contains European artefacts which require analysis to determine their age.

Site 1 (U14/3583)

Shell was encountered by drillers making a services pothole on Thursday 19 July outside 299 Plummers Point Road. Works were suspended and the deposit was inspected by Arden Cruickshank on 20 July 2018. The hole was small (220 x 550 x 500 deep) with a midden lens at 350 mm depth (the same depth as the telecom conduit). The midden was 80 mm thick and

mainly fragmented cockle. Probing the surrounding area proved inconclusive and a 250 x 250 mm test pit was dug next to the hole, but it proved to be gravel. A 4 litre bulk sample was taken from the midden deposit, but no more than this could be collected due to the size of the pot-hole. This midden deposit was in the same location as U14/3583, a Maori settlement recorded by Megan Lawrence of WSP Opus in 2018 based on an 1888 survey plan (SO 5222).

Site 2 (20th century midden)

This feature was identified when potholing for services on 23 July outside 244–246 Plummers Point Road. Initially the feature was suspected of being a telecom trench, but once shell was exposed, works were suspended, and the feature was inspected by Arden Cruickshank on 24 July 2018. On closer inspection, it was noted that the deposit was located beneath the telecom trench and had not been impacted by the initial telecom trench. It contained a mix of shell and burned metal sardine cans, glass fragments and a large pig scapula that had been cut with a bandsaw. These probably date to the 20th century, possibly related to the construction of the East Coast Main Trunk in 1927, which is approximately 40 m west of this feature. It began at a depth of 800 mm and was probed to a depth of 550 mm below that. Only 400 x 400 mm of it was exposed in plan, and it is probably bigger than this.



Figure 5. Site 1 outside 299 Plummers Point Rd.



Figure 6. Site 2 outside 244–246 Plummers Point Rd.

Analysis

There were two bulk samples retained for analysis from this project. Site 2 had a 10-litre sample taken, but only 4 litres was able to be recovered from U14/3583.

Methodology

These midden samples were analysed following the guidelines for midden sampling and analysis set out by HNZPT (2014). The bulk samples were wet sieved through a 6 mm screen, and the dried material was sorted by hand to faunal class, as well as separating stone (both fire cracked rock and worked stone), bone, shell and charcoal. Each class was weighed and bagged separately. Each bag was then passed on to the relevant specialist for analysis. Because the four sites are in separate parts of the peninsula, analysis is primarily discussed on a site by site basis, with a summary at the end.

The shellfish recovered from the midden samples was analysed by Jennifer Graydon and Danielle Trilford of CFG Heritage Ltd, with species identification based on Morley (2006). Shellfish species were identified using diagnostic units, for bivalves this was single hinge units, and for gastropods with included the apex, operculum, or aperture.

Stone material recovered from the midden samples was analysed by Arden Cruickshank of CFG Heritage following the methodology outlined in Beyin (2010), Holdaway and Stern (2004), Turner (2005), Phillipps and Holdaway (2016) and Cruickshank (2011). They were also

inspected macroscopically to ascertain their geographical source using Moore (1988), to better understand the exchange networks which were in place during the occupation of the site.

Charcoal recovered from the midden samples was analysed by Ella Ussher of CFG Heritage following the methodology outlined in Chabal et al. (1999), Théry-Parisot et al. (2010) and Dotte-Sarout et al. (2015).

A sample of charcoal identified as manuka from U14/3583 was submitted to the University of Waikato Radiocarbon Dating Laboratory.

Site 1 (U14/3583)

Shellfish

The most common species was tuangi (*Austrovenus stutchburyi*), while the remaining sample consisted of pipi (*Paphies australis*) and cat's eye (*Lunella smaragda*). All of these species can be found within harbour or estuarine environments and were likely harvested from the Tauranga Harbour.

Table 1. Counts of shell from Site 1 midden sample, U14/3583.

Common name	Taxon	MNI
Cat's eye	<i>Lunella smaragda</i>	4
Pipi	<i>Paphies australis</i>	1
Tuangi	<i>Austrovenus stutchburyi</i>	7
Total		20

Lithics

One piece of obsidian was recovered from this site. This piece was smaller than 10 x 10 mm in plan so was classed as shatter and no further analysis was undertaken. The piece was green in reflected and transmitted light and exhibits all of the characteristics of obsidian from Tuhua / Mayor Island. This is the closest obsidian source to the site, and the most exploited source of obsidian in New Zealand.

Charcoal

Charcoal recovered from this sample suggests that the environment was represented by coastal secondary growth. The sample was collected from a scattered and fragmented midden deposit, and the high numbers of tutu (59.3%) could indicate that the branches of this shrub were used as a bed upon which to place the kumara contents in a nearby kumara storage pit, which was later added to the midden deposit after the pit was emptied annually. This is supported by the presence of several specimens of unidentified vegetative parenchyma from roots or tubers within the sample. The lack of vascular tissues within these samples made species identification impossible. Other small coastal shrubs were also present within the sample such as manuka (15.6%), hebe (3.1%) and *Cassinia* sp. (3.1%). The small amount of conifer (6.3%) could be from remnants of primary forest within the vicinity of the peninsula.

Table 2. Identification and quantification of charcoal sample from Site 1 midden sample, U14/3583.

Common name	Taxon	Count	Percent
Hebe	<i>Hebe</i> sp.	1	3.1
Manuka	<i>Leptospermum scoparium</i>	5	15.6
Conifer	<i>Podocarpus</i> sp.	2	6.3
Cassinia sp.	<i>Cassinia</i> sp.	1	3.1
Tutu	<i>Coriaria arborea</i>	19	59.4
Bark		2	6.3
Parenchyma root/tuber		2	6.3
Total		32	

Radiocarbon dating

A sample of wood charcoal identified as manuka was submitted to the University of Waikato Radiocarbon Laboratory for radiometric dating. Although it returned a bimodal distribution, it strongly indicates that the midden was deposited in the mid-18th century.

Table 3. Radiocarbon date for Site 1, U14/3583.

Lab number	Material	CRA	Cal AD 68%	Cal AD 95%
Wk-51268	Manuka charcoal	229 ± 17	1660–1680 (6.7%) 1740–1800 (61.5%)	1650–1680 (18.7%) 1730–1800 (76.7%)

Site 2

The deposit contained shell mixed with 20th century material. a mix of rock oyster, pipi, tuangi cockle and mud snail and post-contact rubbish. This rubbish included degraded and burned metal sardine cans, glass fragments and a large pig scapula that had been cut with a bandsaw. The nature of these items indicate they are most likely to be from the 20th century, possibly related to the construction of the East Coast Main Trunk in 1927, which is approximately 40 m west of this site.

Shellfish

The 10 litre bulk sample taken from the in situ midden deposit in at Site 2 contained a more diverse range of species than that within Site 1. It was dominated by tuangi and mud snail (*Amphibola crenata*) with several minor species, all of which can be found within harbour or estuarine environments and were likely harvested from the Tauranga Harbour, similar to the faunal material from Feature 1.

There was a single piece of charcoal that was identified as conifer, most likely miro (*Podocarpus ferrugineus*). Due to the small sample size, relatively common occurrence of miro in the environment and previously discussed modern material culture, not much information can be ascertained from this sample.

Table 4. Counts of shell from Site 2 midden sample, 20th century midden.

Common name	Taxon	MNI
Mud whelk	<i>Cominella gladiformis</i>	3
Mud snail	<i>Amphibola crenata</i>	150
Cat's eye	<i>Lunella smaragda</i>	6
Pipi	<i>Paphies australis</i>	35
Tuangi	<i>Austrovenus stutchburyi</i>	102
Rock oyster	<i>Saccostrea glomerata</i>	32
Total		495

Discussion and conclusions

The construction methodology for this project ensured minimal ground disturbance, and so has resulted in very little disturbance to archaeology. Initial desktop assessment for the project highlighted a total of 36 recorded archaeological sites within a 200 m buffer. Of these, nine were considered to have a only low chance of being encountered during works, while 10 were considered to have had a moderate to high chance of being encountered during the project works within the road reserve: two pā (U14/157 and U14/955), two kāinga (U14/3583 and U14/3584), three midden/oven (U14/1081, U14/1097 and U14/3558) and three pit/terrace complexes (U14/3556, U14/3557 and U14/962). As a result of works, one archaeological site was encountered (U14/3583), and a second site which was probably a 20th century deposit.

Faunal analysis from U14/3583 points to resource extraction of shellfish from within a harbour or estuarine marine environment, most probably the nearby Tauranga Harbour. Charcoal analysis from this site indicates that the vegetation at Plummer's Point during the occupation was dominated by second growth shrubs such as tutu and manuka, representing occupation after initial forest clearance. The radiocarbon date indicated occupation in the late 18th century. At nearby Omokoroa vegetation clearance occurred as early as the mid-15th century (Cruickshank 2020). It is to be expected that little or no first growth forest would remain at Plummer's Point by the 18th century. This also places occupation within 100 years of the recorded settlement on SO 5222 (Lawrence 2018), and therefore has been recorded as part of U14/3583.

Site 2 also contained shell midden but also historic or modern rubbish. It is possibly linked to the construction of the nearby railway in the early 20th century.

In conclusion, the results of monitoring earthworks as part of the National Ultra-Fast Fibre project (UFB2) build at Plummer's Point revealed two sites within the service potholes. The first was associated with U14/3583, a kāinga recorded off an 1888 survey map, and the site record has been updated with this information. The second was a 20th century site so has not been recorded in the SRS. A greater understanding of Plummer's Point and Omokoroa in general will be gained from additional analysis and final reporting for a number of recent excavations in the wider area.

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