

Tūpuna Maunga Authority

Heritage Impact Assessment of Proposed Tree Removals and Re-vegetation Planting Plan for Puketāpapa / Pukewīwī / Mount Roskill



Puketāpapa from Auckland Council GIS

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1. INTRODUCTION

The Tūpuna Maunga Authority are proposing to remove approximately 160 exotic trees from Puketāpapa / Pukewīwī / Mount Roskill (Puketāpapa). There are a number of reasons for this, including;

- Removal of trees and therefore over time their living root systems from damaging archaeological sites and evidence.
- A number of the trees are near the end of their life expectancy and constitute a danger to the public from falling limbs, branches or uprooting of the trees themselves. They also for the same reasons have potential to damage the archaeological evidence through impact damage when they fall or by altering the terraces or other adjacent features should they be uprooted when they fail.
- To re-establish the shape of the Mountain so the historic sightlines and archaeological evidence can be viewed within the landscape.
- There are a number of trees present that are considered pest plants for which surveillance is required.

This planting plan for Puketāpapa focuses on “revegetation to emphasise the vegetation that would have been present prior to farming and quarrying and to allow for opportunities for amenity and community involvement with māra kai and rongoā (Mairs 2019:5).

The majority of Puketāpapa is scheduled on the Auckland Council Unitary Plan as ID 1580 (Figure 1) as a Significant Historic Heritage Place. Puketāpapa is recorded on the Auckland Council Cultural Heritage Inventory (CHI) with the record number 11669 and recorded with the New Zealand Archaeological Association (NZAA) as site R11/19.

Puketāpapa Mountain is described in the CHI as a Pa with Pits.

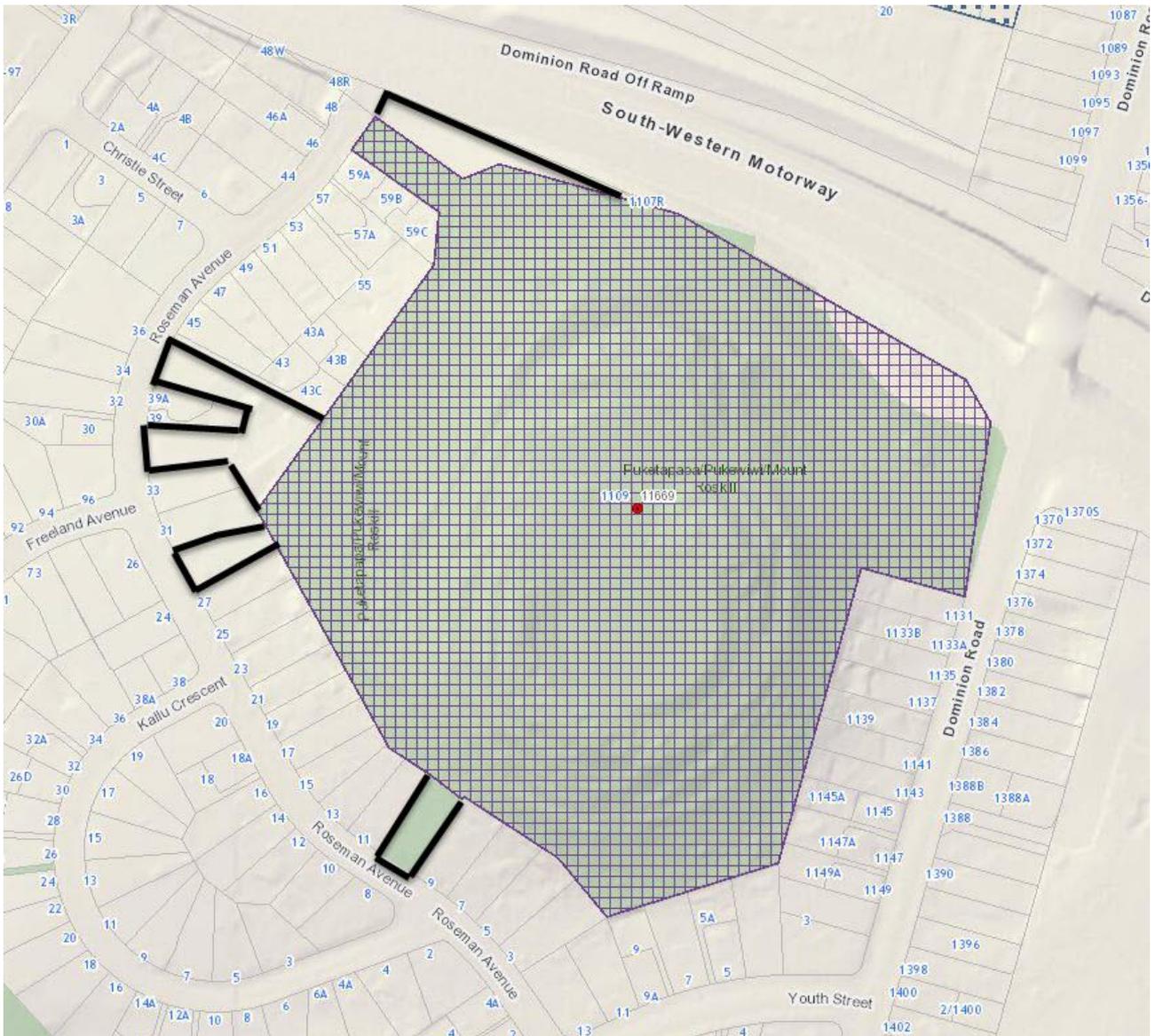


Figure 1. Area of Puketāpapa that is scheduled in the Auckland Council Unitary Plan as a Category A* historic heritage place, as well as areas marked by the black borders that are within the land administered by the Tūpuna Maunga Authority but outside the Historic Heritage Overlay.

2. STATUTORY BACKGROUND

There are two main pieces of legislation that control work affecting archaeological sites in New Zealand. These are the *Heritage New Zealand Pouhere Taonga Act 2014* (HNZPTA) and the *Resource Management Act 1991* (RMA). The HNZPTA is administered by Heritage New Zealand Pouhere Taonga (HNZPT) and requires a consent (Authority) for any works that affect archaeological sites. In terms of the area under discussion the definition of an archaeological site in

the Act is: any place in New Zealand that was associated with human activity that occurs before 1900 and which may be able, through investigation by archaeological methods to provide evidence relating to the history of New Zealand. Any person who intends to carry out work that may damage, modify or destroy an archaeological site must first obtain an authority from the HNZPT.

The authority process applies to all sites that fit the criteria of the HNZPTA, regardless of whether the site is recorded in the New Zealand Archaeological Association (NZAA) site recording scheme or if the site only becomes known of as a result of ground disturbance or if the activity undertaken is permitted under a district or regional plan or if a building consent has been granted. The RMA requires City, District or Regional Councils to manage the use, development and protection of natural and historic resources in a way that provides for the wellbeing of today's communities whilst safeguarding the options for future generations. The protection of historic heritage from inappropriate development is identified as a matter of national importance (section 6f).

Historic heritage is defined as those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, derived from archaeological, architectural, cultural, historic, scientific or technological qualities. Historic heritage includes: historic sites, structures, places and areas; archaeological sites; sites of significance to Maori, including wahi tapu, and surroundings associated with natural and physical resources. These criteria are not mutually exclusive.

The historic heritage value of Puketāpapa Mountain is recognised and the place is scheduled on the Auckland Council Unitary Plan as item 1580.

3. SITE HISTORY

The following is a summary of the history only, it is recognised that individual Iwi will have their own histories and traditions that pertain to the maunga that may differ or add more detail than what is outlined here.

Puketapapa is thought to have erupted between 30000 years ago and 20000 years ago (Reidy 2007:13), Searle (1981:96-97) considers that the Maunga started explosively with the building of a small tuff cone, then continued with a scoria cone that was built above two main fountaining vents, creating two craters on the summit. The lava flow blocked a valley and created large areas of swamp around it until drained during the progressive development of Mt Roskill from farms to

suburb. Searle (1981:99) describes the mountain as being well preserved with only a small quarry, northern access road and public facilities disturbing the profile. Searle (*ibid*) also notes that the reservoir built within the middle of the Maunga is one of the largest pre-stressed concrete reservoirs in the country. Some 28000 cubic yards of scoria and spoil was removed from the summit to create the space for the reservoir (Reidy 2013:83).



Figure 2. Aerial photograph by Whites Aviation illustrating the area used for works and construction of the reservoir in 1962. From the Alexander Turnbull Library WA-57328-G

Puketapapa (flat-topped mountain) was also known as Pukewiwi meaning swampy hill and was a Pa of the the Waiohua iwi (Reidy 2013:19) Reidy (*ibid*) records the following time line for Puketapapa;

- 1430 – 1620 Puketapapa was principally occupied by the Waiohua (**note:** these dates appear to be based on Radio Carbon dates from archaeological investigations and should not be considered to be definitive)
- 1620 – The site was no longer intensively occupied

- 1841 Ngati Whatua exchanged 13000 acres (including Puketapapa) with the Crown
- 1845 Alexander Kennedy purchased Allotment 49, comprising 95 acres 1 rood which included the mountain for £100 and threepence
- 1849 Kennedy on-sold the mountain to Joseph May
- 1891 After his death May's sons sell 170 acres including the mountain to George Winstone
- 1932 The Winstone estate begins to be subdivided and developed for housing, the area of land that became known as Winstone Domain was set aside as a public recreation reserve including within it the mountain.

During the 20th century tennis courts and croquet lawns and associated club rooms were developed on the lower slopes of the Winstone Domain as it was known, these were subsequently removed and demolished as part of the expansion of the State Highway 20 motorway.

In contrast to some of the information recorded in Reidy (ibid), Brenda Sewell (1984:1), based on information published in the 1900s suggests that Puketapapa was occupied at the time of the Ngati Whatua invasion of the Tamaki area; circa 1741 – 1750, and was then abandoned after that date. She concludes that *“It seems likely, therefore, that this cone paa was occupied until, but not later than, the middle of the eighteenth century.”*

Auckland, however Mt Roskill was left unnamed on these early plans. In 1859 the scientist Hochstetter made notes that referred to Mount Kennedy, which can be linked to the name of the original European owner of the land – Alexander Kennedy. Reidy speculates that Kennedy may have been behind the origins of the Mount Roskill name. Kennedy was of Scottish origins and it is thought that the Maunga maybe named after Roskhill near Dunvegan or after Rosgill which itself derives from the old Norse name of Hrossgil which means horse valley.

Another theory put forward is that the name is linked to the evangelist John Roskill whom arrived in Auckland in 1853 and was reputed to have held services on Puketapapa, though it is noted he never owned property in the area.

By 1862 the Auckland Provincial Council was calling for tenders for work on Mt Roskill Road and it was evident that both Mt Kennedy and Mt Roskill were in use as the name for the Maunga, though it was also sometimes spelled Roskhill.

4. ARCHAEOLOGY

The previous section has given an historical narrative; this section is the history and comments of archaeological recordings only.

Puketapapa is recorded as R11/19 with the NZAA and as CHI record 11669 with Auckland Council. It was originally reported by Bob Brown in August 1961 who recorded that it was entirely mapped by the University Archaeological Society in 1960 and that highway and railway destruction is planned on the northern face within ten years, and reservoir in shallow crater within one year. Subsequent to Brown making this recording other hand written notes from unknown authors are on the form including that extensive destruction by reservoir construction took place in 1961-62 but that there is still a substantial area intact. That a salvage excavation took place and that this has been published by Aileen Fox in 1980. Other notes mention an authority issued in 1981. In 1980 Brett Peacock visited the site and mentioned there is erosion on the lower slopes of the hill and on terrace edges caused by cattle, this being evident around the entire mountain. Peacock noted since the original recording that the Reservoir had been constructed and road extended to the summit, an extensive pit and terracing system is still evident and that midden scatters are found eroding from the hill. Peacock also drew a sketch map of the mountain with some observations made including where obsidian flakes had been found (Figure 4).

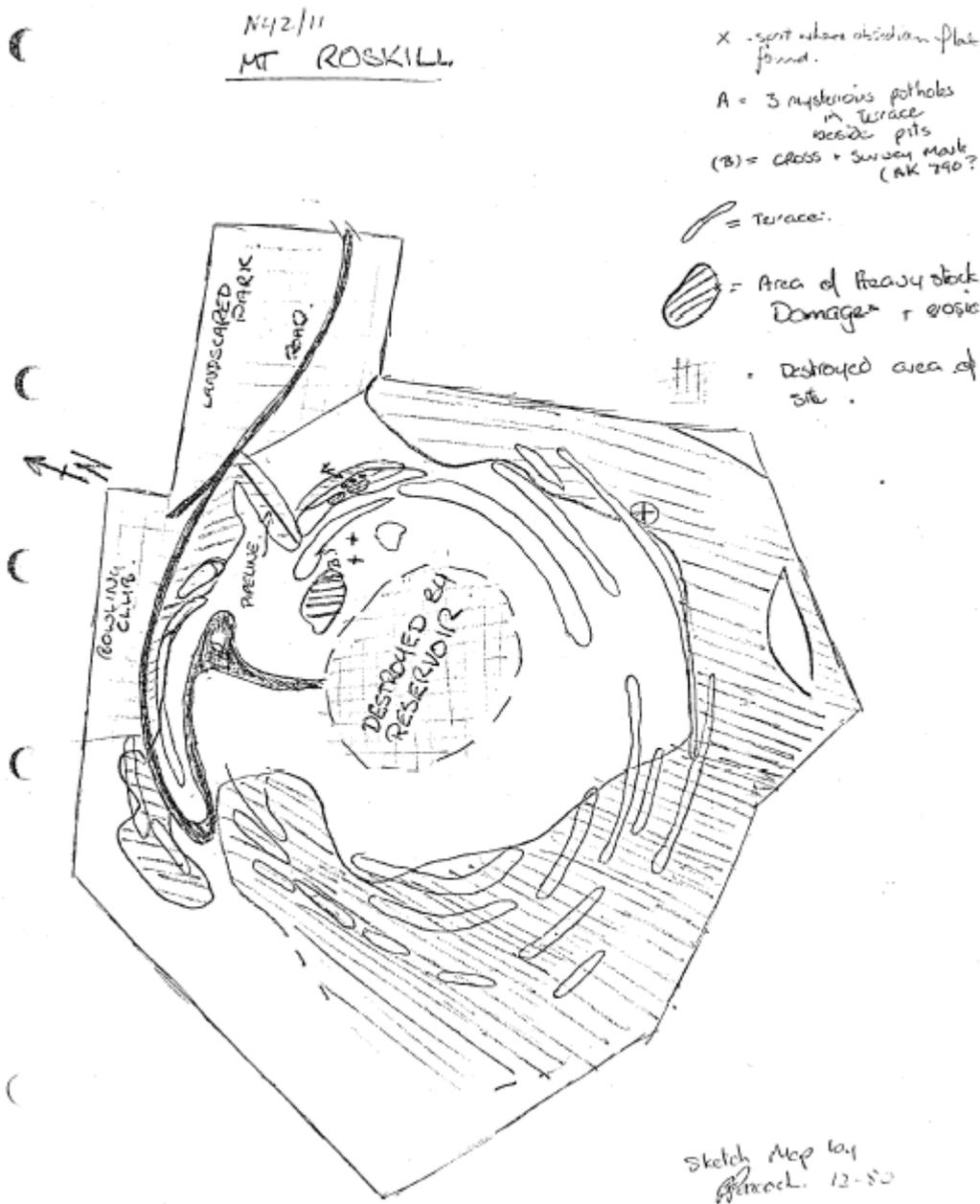


Figure 4. Archaeological plan by Brett Peacock 1980, from the NZAA Site Record Forms

Tony Walton visited the site on a “Sunday Afternoon” in April 2007, suggesting he was there as a tourist rather than an archaeological role. Walton added to the record that “*terraces and pits survive in places, particularly on the south and west sides. These are in long grass, with some stock damage evident on steeper slopes.*” No stock was seen at the time of his visit. Walton also recorded that a large cutting had been made just to the north for SH20. Walton also noted that the map was missing from the central file of the NZAA records and that it warranted mapping.

Russell Foster updated the record in 2012 and describes the site as a Volcanic cone pa with much of the cone in relatively good condition with numerous terraces and pits covering the mountain, particularly on its eastern and southern sides (note Walton in 2007 emphasised the western rather eastern side). It further records that there has been extensive damage in the originally shallow crater by construction of a reservoir within the crater and road access on the northern slopes. He also notes that prior excavations suggest the Pa was occupied between the fourteenth and seventeenth centuries. He notes that there is conflicting evidence suggesting the Pa was or wasn't occupied at the time of Kiwi Tamaki in the mid-18th century.

Russell Foster further updated the records with some 57 pages of photographs from Watercare archives that documents the archaeological excavations through to the construction of the Reservoir between 1961 and 1963.

Further to these Ellen Cameron (in 2019) recorded some archaeological features within a Housing New Zealand development immediately adjacent to the Domain at 1 Youth Street, these included midden and post holes.

In June 2018 Rod Clough recorded a midden site (R11/3182) on Puketapapa. This midden was exposed during works involved with the redesigning of the summit parking area. Given its location more or less on the summit of the Maunga it should not be considered a separate site but a component of the site.

Additional information available on the Auckland Council CHI includes that of Chris Grace and Joan Maingay (1979) in a Stage 3 university archaeology paper noting midden deposits comprised of cockle, pipi, mudsnail, mussel and charcoal.

In 1989 Dave Veart monitored a rain water pipe and vent installation associated with the reservoir and car park, no archaeological evidence was found during these works, though he did note that some of the soils were darker than others which may have been caused by Maori occupation of the Maunga. Veart also found a small greywacke adze on the surface at the top of the Maunga.

Other information on the CHI record relates to archaeological reports which are discussed below. Brenda Sewell (1984) records traditional history of the Maunga and has suggestions for management of the site. Sewell (1984:2) notes the Pa is 2.5km from the Manukau Harbour and 4.5km from the Waitemata Harbour, she speculates that it was likely that both harbours were

exploited from Puketapapa for their fish and shellfish. Sewell (1984:2-3) describes the pa as consisting of numerous terraces, two or three platforms and many pits of various sizes “*thought to be the visible remains of roofed and sunken buildings used for storage of food.*” Sewell’s document consistently mentions an attached plan, however none was attached to the copy that I was able to source. Sewell (1984:3) concluded “*even where surface features are not now visible there may be features under the surface.*”

In her document Sewell also summarises the findings of Wilfred Shawcross (1962) and Aileen Fox (1980) who published results of the 1961 archaeological excavations prior to the earthworks associated with the Reservoir installation. Although I have read both of these documents I do not believe I can summarise them any better than Sewell so her summary is used here (Sewell 1984: 4-5).

“....The preliminary report on the excavation was written by W. Shawcross in 1962 and the detailed report by Lady Aileen Fox in 1980. Area I was on the platform on the northern lip of the crater adjoining the area interpreted by Lady Fox as the northern strongpoint, or tihi, Excavation revealed the repeated use of this portion of the cone for storage purpose. Eleven pits were uncovered: each had rows of posthole cut into the scoria of the pit floor, designed to hold timber uprights supporting the roof. In some cases the posts along the walls of the pits suggest that they were lined to prevent loose scoria falling in onto the floor.

Area II was on the southern rim of the crater. Excavation revealed 5 storage pits and also evidence of a double palisade for defense built along a narrow terrace on the edge of the external slope of the cone. Excavation showed that the outer palisade line consisted of posts in an irregularly spaced row while the inner line of palisading contained posts spaced further apart but linked by a narrow bedding trench. Fox (1980:43) suggests that “this trench could have held either a series of small uprights lashed to each other and to the main timbers, or else a horizontal timber or sleeper beam against which the small uprights were placed for greater firmness in the loose scoria.”

Radio-carbon dating from charcoal taken from within the storage pits indicates that Puketapapa was occupied at least as early as AD 1450-1500. Other dates show that people of this cone paa practiced agriculture and made gardens and stored their crops in pits on the terraces throughout the 16th century.”



Fig. 1. Air photo of Mount Roskill before the construction of the reservoir and access road. The sites of the 1961 excavations are marked in white. (Photo: Whites Aviation.)

Figure 5. The location of the 1961 archaeological excavations (from Fox:1980)

Sewell adds to this conclusion that the evidence of Tuhaere and Fenton indicates that the pa was occupied until 1740 (1984:5).

Other evidence not captured in Sewell's summary discussed by Fox (1980) include that there were a number of intercutting features, i.e. pits that intercut with other pits, pits intercut with cooking fires, that old pits were sometimes intentionally filled with the spoil from new pits and with midden. Burials were found, one of which was within a disused storage pit and was then infilled, others were in shallow soils near the surface, one of a woman and child was interpreted as being buried within shallow possibly already disturbed soils. Obsidian artefacts were found as were adzes made from Tahanga basalt, greywacke and argillite. These all indicate that the occupants of the Puketapapa were linked to an extensive trading network, obsidian being found a number of sources between Northland and Taupo, but not in the Auckland region, the Tahanga source of Basalt is on the Coromandel Peninsula and the South Island is the source of argillite.

Fox surmised (1980:59) that “*the discoveries at Mount Roskill suggest that in the event of a war-scare, the inhabitants of the lower terraces retrenched up the slopes to find shelter on the crater rim behind the palisades.*” Therefore suggesting that the lower terraces were undefended.

Fox also stated “*....the four radiocarbon dates differ little in time and allowing for the standard deviation, could all lie within the period AD 1430-1620.*” This statement has been based upon the results (Figure 6) presented in Fox (1980:60). It is merely stating that at the first standard deviation (i.e. 67% probability) that the dates all fall within the time period 1430AD (i.e. NZ 4473 date of 1480 – 50 years = 1430) to 1620 AD (i.e. NZ 4472 date of 1570 + 50 years = 1620). It is not stating that occupation was more or less continuous between 1430 and 1620 which is how it has been interpreted by others. The dates do however indicate that Puketapapa was more than likely occupied during the 16th century, and possibly during the late 15th century. Some of these dates should also be approached with some skepticism given the presence of the long lived species Totara within them.

APPENDIX I Report on charcoal samples from N42/11				
Wood identifications by Dr B. Molloy, D.S.I.R. Botany Division.				
Radiocarbon dating by C. McGill, D.S.I.R. Nuclear Sciences Laboratory, Wellington.				
		<i>B.P.</i>	<i>Corrected</i>	<i>A.D.</i>
N.Z. 4471		300 ± 60	390	1560 ± 50
<i>Coprosma</i> sp.	80%			
<i>Hebe</i> sp.(twigs)	20%			
Pit C, layer 3				
N.Z. 4472		290 ± 50	380	1570 ± 50
<i>Coprosma</i> sp.	46%			
<i>Leptospermum</i> sp. probably				
<i>L. scoparium</i>	42%			
<i>Hebe</i> sp.	12%			
Fireplace near Pit C, layer 2				
N.Z. 4473		440 ± 50	470	1480 ± 50
<i>Dysoxylum spectabile</i>	53%			
<i>Podocarpus totara/hallii</i>	31%			
<i>Coprosma</i> sp.	11%			
Unidentified	4%			
Pit G, hearth, layer 2, cut by Pit F				
N.Z. 4553		350 ±	440	1510 ± 50
<i>Podocarpus totara/hallii</i>	93%			
<i>Dysoxylum spectabile</i>	7%			
Pit I, layer 3				

Figure 6. Radiocarbon dates from the 1961 excavations (Fox 1980)

Works to remove Phoenix Palms and including the creation of a benched access track were archaeologically inspected in December 2009 (Bickler and Farley 2010) as part of the cycleway project that flanks the lower northern slopes of the maunga. No archaeological deposits or features were observed, they commented (2009:10) the root structure of the Phoenix Palms is exceptionally dense and extensive and caused significant disturbance. They did observe areas of crushed shell, all of which included broken late 19th century and 20th century artefacts amongst it, this was interpreted as all being disturbed and not in its original deposition (Bickler and Farley 2009:4)

Ben Pick and Rod Clough (2010) monitored remedial works after it was discovered that damage along the south-eastern and south-western boundaries including disturbing, crushing and spreading of midden deposits had occurred by fencing works. Works were archaeologically monitored that restored the Maunga to a more natural shape, these works incorporated the disturbed midden and soils. No artefacts or in-situ archaeology was observed during these works. They do however indicate that archaeological evidence can be found at all slope heights on the maunga.



Figure 7. Areas where remedial works had taken place and midden was exposed (Pick and Clough 2010:3).

Kim Tatton and Rod Clough (2016) undertook an assessment for proposed modifications to alter traffic and pedestrian movements on the summit area to protect the mountain from unauthorised and off track vehicle movements. These works were largely limited to the summit area where they concluded (2016:35) that *“the proposed area of works has previously been extensively modified and there is little if any potential to uncover in-situ archaeological remains.”*

Monitoring of those works (Tatton and Larson 2018:15) found no archaeological features or deposits were present in the upper tihi area, however earthworks in the lower summit area, after curbing had been removed revealed intact shell midden to be present beneath an existing packed scoria base course. They concluded that *“the shell midden uncovered during the upgrade works was located on the edge of what would have been a large terrace prior to this area being*

extensively modified by earthworks associated with the installation of the water reservoir and the construction of the access road.” This is the midden that Clough recorded as R11/3182.



Plate 1. The midden site R11/3182 is recorded in the vicinity of the car parked at the right of the lower summit area, terracing relating to the Maori occupation of the site can be seen on the slopes to the right of this area.

Further information is available on the results of archaeological assessments on properties adjoining the Maunga (Cameron and Phear 2019). The adjoining properties assessed include 3, 5, 7, 11, 13, 17, 45, 47, 49, 51, 53 and 55 Roseman Avenue, they did not enter 55a Roseman Avenue due to there being a high risk rating (Cameron and Phear 2019:42), though Figure 31 on page 43 illustrates testpits at 55a and not 55, so it may seem it was the opposite way around. Cameron and Phear found no evidence in any of the properties (which included others not mentioned in this paragraph that do not adjoin Puketapapa) they accessed, however they concluded (2019:51) that *“it is considered likely that unrecorded subsurface archaeological sites associated with Maori settlement at Puketapapa will be exposed during development.”* Their recommendations (2019:60) included archaeological monitoring of the lots adjoining Puketapapa on Roseman Avenue, and that any

archaeological remains affected by the development should be avoided if possible, or investigated and recorded if not.

The archaeological investigations and monitoring of works, combined with some genealogical information collected in the 19th Century indicate that Puketapapa was likely occupied for at least two centuries, possibly three. During this time the occupation reused many of the areas with intercutting features being common. Currently it is known that the summit was defended at least in part with a double palisade and it is thought (based on very limited excavation) that the lower terraces were undefended. Shell midden has been found at all heights and slopes on the maunga, including within and adjacent to the properties neighbouring the Tūpuna Maunga. Some large areas have been affected by past works and where this has occurred there seems little if any possibility of archaeological evidence being present.

5. SITE INSPECTIONS

Various site inspections were undertaken by myself, both in the company of staff of the Tūpuna Maunga Authority, other specialists and by myself between April and September 2019. The briefing given was for Treescape to be able to remove trees without damaging the archaeology of the mountain. Other areas were inspected to assess whether there was archaeological evidence present and if they were suitable for conservation, amenity and other plantings.

During these inspections areas were identified where substantial past earthworks and or quarrying will have destroyed any archaeological evidence and where archaeological evidence was present. A memo was given out (Druskovich 2019a) which acted as a guideline for tree removals and plantings. Further questions were asked about that part of the overall land managed by the Tūpuna Maunga Authority where housing once stood on Roseman Ave, further research was undertaken looking at the findings of archaeological reports for these properties (Druskovich 2019b). The prior archaeological assessments concluded that much of these properties had been significantly modified in the past, but there were isolated areas within them where archaeological evidence may have survived should it have been present.

These site inspections and meetings have resulted in the methodologies for tree removals discussed in the following sections.

The following series of photographs highlights the site conditions.



Plate 2. This is the area to the south of the access route, here the slopes are relatively shallow and form a gentle rise until the steep slopes of the volcanic cone are reached. There are some subtle indications of what may be terracing, however years of lawn mowing has founded off any definite indications of whether they are terracing, slumps or just natural variations in the slope. No definitive surface features are found.



Plate 3. The slope between the path and SH20 has been modified, though at least in the immediate vicinity of the mature trees this may have been either minimal or in the distant past.



Plate 4. The access road to the summit, this has been bulldozed and formed, a former quarry face is visible on the left of the plate, the flat grassed areas adjacent to the road have also been bulldozed and will not contain in-situ archaeological evidence. Electricity has been installed along the length of this access as evidenced by the light pole (arrowed in red on right of frame).



Plate 5. The western end of the flanking cycleway that passes through the reserve, a cut is clearly visible on the southern edge of the cycleway and the slope to the motorway below has all been earthworked.



Plate 6. The western side of the Reserve with residential properties bordering along Roseman Ave, including some entrances where housing has been recently removed and incorporated into the Reserve. The view is from the summit of Puketapapa looking down the terraced slope (not easily defined from this angle with the grass length) to what is a relatively featureless flat below. Within this flat, especially, but not exclusively, on the edges with the residential properties there are occasional features that are indicative of 20th and 21st century cuts for either Reserve management purposes but often with the building of fences, some of which are cuts into the Reserve edge assuming that the fencing is actually on the legal property boundary. In the 1962 aerial (refer Figure 2) a large stockpile of spoil is evident over much of this area, some of the features, especially cuts at the base of the maunga are likely caused by the subsequent removal of this stockpile and some may have been made originally as preparation for its' placement.



Plate 7. The view across the “lower” tihi or summit area, the manicured grass to the right of the plate is an area that shows clearly as being earthworked in historic photographs and a significant cut has occurred to allow the road to reach the summit. The road to the background rises up a slope created as part of the works associated with the reservoir, if was not apparent on the aerial photographs how much earthworking may have occurred on the manicured grass to the left behind the pictured vehicles. It is unknown if any intact subsurface archaeological deposits might exist in this area and it has been made an exclusion zone for these purposes (refer Figure 8). Note in Figure 5 this area appears relatively flat and featureless in the pre-reservoir aerial, and in Figure 2 during the works a few small buildings associated with the works are set up in this area which may indicate that it wasn’t extensively earthworked.



Plate 8. View from the southern edge of the Tihi, amongst the long grass on either side of this photograph as well as behind it are well formed pits, terraces and likely much subsurface archaeological evidence. The flat area in the fore and middleground of this upper area has been formed by the building of the reservoir below the entrance and will contain no archaeological evidence across its width until it reached the rise on the other side which also contains terraces, pits and likely a multitude of subsurface archaeological evidence. It is from within this modified area that the 1961 archaeological investigations took place (refer Figure 5).

6. TREE REMOVALS

The following sections are based on the report by Arborlab (Redfern 2019) and the proposed tree removal methodologies and their proposed worksites on Puketapapa. Figure 8 illustrates the work methodologies and tree locations and Figure 9 illustrates the tree removal methodology counts.

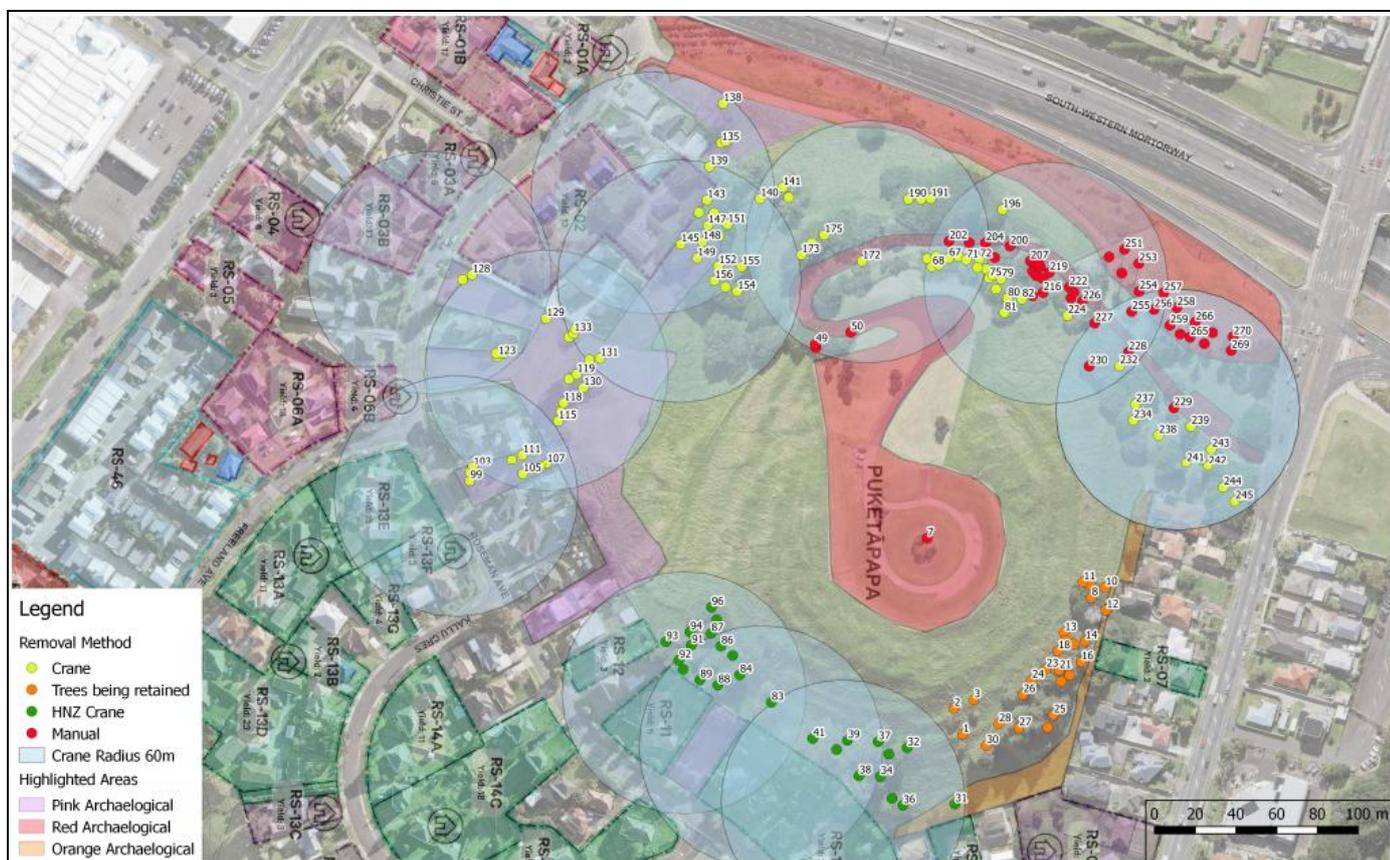


Figure 8. Tree Removal locations and areas as per the Arborlab Report

Table 2 – Removal methods and tree count

Removal Method	Tree count per method
Crane	87
Crane / Excavator (Grab 5m from Road) / Manual	21
Crane / Manual	6
Crane within HNZ sites	26
Manual	1
Manual / MEWP / Crane	2
Manual / MEWP / Excavator	17
Exotic trees being retained	25

Figure 9. Tree Removal methods as per the Arborlab Report

6.1 Housing New Zealand Site Access

As per section 15 (Redfern 2019:7) Housing New Zealand has offered assistance in allowing crane access when houses are cleared from sites adjoining the Maunga. Properties that would be accessed to remove trees are 3-9, 11 and 55 Roseman Avenue. No archaeological evidence was found at 3-9 and 11 Roseman Avenues. However there is some ambiguity whether archaeological evidence is found at 55 with the assessment report giving conflicting evidence between the text and the figure on whether 55 or 55a Roseman Avenue were excluded from the survey (Cameron and Phear 2019:42-43).

Cameron and Phear (ibid) acknowledge that although they could find no archaeological evidence on these properties that it is possible that undetected archaeological evidence may be found on all of them, though it is likely disturbed or at least damaged by the urban development and occupation of these sites. In all likelihood it is unlikely that different archaeological conditions exist between 55 and 55a Roseman Avenue, given they will have a very similar development history to all of the other Housing New Zealand properties.

Redfern (2019:9) describes the processing to be a mobile operation, following areas where the machinery is being used to remove trees. *“Typically the process will involve large machinery such as trucks, wood chippers, transporters and excavators”.... “Trucks and machinery will be manoeuvred only within the processing area, which will be clearly demarcated.”* These heavy vehicle manoeuvrers have a real possibility of disturbing any intact archaeology that may remain. Any archaeology that may remain after the houses have been removed is likely to be at best in isolated pockets within the property.

These Housing New Zealand properties lie outside the Historic Heritage Overlay (Figure 1). Regardless, accidental discovery protocols apply and if works encounter archaeological evidence an authority may be required under HNZPTA. As archaeology is not necessarily confined to the Historic Heritage Overlay area it would be prudent for the project archaeologist to be involved prior to the crane and processing setup process from all of the locations where these works may take place to assess and if required remove any possible archaeological evidence from works areas. This could be achieved by a cordon of temporary fencing or tape from the available work spaces on the property, or other forms of protection specified such as track matts to protect any intact areas. This would be particularly important in any areas where excavators are operating or are areas of frequent

truck manoeuvres. This archaeological supervision is separate and additional to any archaeological supervision undertaken by Housing New Zealand during the house removals.

6.2 Phoenix Palms

An alley of Phoenix Palms are found on either side of the walkway area and are predominantly in an area where it has been identified that subsurface disturbances have taken place in the past, however they are very much on the edge of an area where it is reasonable to assume in-situ archaeological evidence could exist on the slopes above them. It is proposed to remove these trees using a combination of MEWP, excavator and/or manual removal and Redfern (2019:9) considers that due to the weight and complexities of removing this species “*some ground damage may occur....it is intended to mitigate potential damage by using impact reduction techniques.*” To avoid possible damage to subsurface archaeological evidence any machinery involved with the processing of them should approach all from the northern side, any directional felling if applicable should fall to the north, should it not be possible for safety and/or operational reasons to approach all of the trees from the northern side crash mats should be used for any vehicle movements that are required for approaches from the south. All processing of materials associated with these trees should occur in the area between the cycleway and SH20.

Discussions (pers com 2019) have indicated that for traffic management purposes it is unlikely that machinery will be able to enter this area from Dominion Road due to the proximity of the SH20 on ramps. If this is the case movements will have to be from the formed road and down to this area, any vehicles that have to traverse across the grass here should only occur when the ground conditions are dry and should be across a route of laid out track mats.

6.3 Other Crane Locations

Three crane setup locations are on the access road to the summit, this is formed roading area and there are no archaeological restrictions for the use of the crane or the roading as a processing area. Some precautions such as tyres or crash mats should be applied beneath any trees with significant dead limbs as observation at Maungarei has shown that dead limbs at times break off uncontrollably during tree removal.

Four other crane locations are proposed within the Tūpuna Maunga Authority administered land to the west of the main maunga, three of which are within areas where housing once stood. As with the Housing New Zealand properties it would be prudent prior to any crane and processing sites setups that all of the locations where these works may take place are archaeologically assessed and any possible archaeological evidence is removed from and cordoned off with temporary fencing or tape from the available work spaces on the property, or other forms of protection specified such as track mats to protect any intact areas. This would be particularly important in any areas where excavators are operating or are areas of frequent truck manoeuvres.

6.4 Manual Dismantling Locations

A number of trees are listed for manual dismantling, that are adjacent to the summit road and the area immediately adjacent that has also been earthworked (refer Plate 4). Manual dismantling can include directional felling as part of that process, any trees that are to be directionally felled should be felled towards the summit roading, it may be appropriate for some trees to have protection such as tyres or track mats laid beneath them where they are on the edge of the previously bulldozed areas – trees could be assessed on a case by case basis.

7. PLANTING PLAN

The following sections are based on the report by Mairs (2019) and their proposed methods and locations for conservation plantings, including the desire to provide habitat for native skinks. Conditions vary across the locations, as a consequence this section is divided into the areas as proposed by Mairs (2019 and Figure 10).



Figure 10. Proposed planting locations from Mairs (2019)

7.1 Pā Harakeke

The area depicted in Figure 10 has been significantly earthworked in the past through a variety of events, most recently for construction of the SH20 motorway. No in-situ archaeological evidence will have survived this process, therefore there are no archaeological constraints.

7.2 Buffer Plantings/ Rongoā

There are two areas where this is proposed, both on the boundary of housing off Roseman Avenue on the western side of the property. No archaeological features are visible here on the ground, the ground typically being relatively flat with a slight slope away from the Maunga. Inspection of this area found that parts of this area have been modified when fencing has been built on the property boundary, sometimes quite noticeable sized divots are present where earth has been excavated up to a half a metre into the Reserve boundary, other locations appear to be unaffected. Visual observations occasionally identified fragmented shell in the back yards of some of the neighbouring private properties, it was not possible to assert if it was in-situ or not. Behind a couple of the properties weeds and clumps of dirt had been thrown over the property boundary into the Reserve, some fragmented shell was also observed within these dumpings. No definitely in-situ shell was observed either within the private properties or the Reserve.

No plantings are proposed where archaeological features are present on the surface, they are however proposed where it is possible subsurface archaeological evidence, most likely midden or gardening evidence might be found. It is likely that past farming, reserve management as well as boundary fencing will have already impacted upon any archaeological evidence present and will have modified it. Any plantings in this area would require an Authority from Heritage NZ.

7.3 Amenity Plantings

This section is further split into the subsections found within Mairs (2019:10 -13).

7.3.1 Roadside Plantings

This section is further split into four areas of plantings, each of which is discussed below.

- **Low amenity roadside plantings**

These areas include a small 1m wide strip adjacent to the summit road, a roadside corner and a strip between the upper car park and the tihi. The summit road area has been earthworked and subsurface services are laid in the vicinity. Below this earthworked edge there are what appear to be natural slopes (the shape may disguise some earthworked material that has been pushed down the slope) and in place terraces. The roadside corner has been heavily earthworked as have the slopes immediately above it and the strip between the upper car park and the tihi is an area that was modified during the construction of the reservoir. All of the plants selected for this area are either recognised as suitable species for archaeological sites by the Department of Conservation (Jones 2007) or have been assessed by the project ecologists as being suitable using Jones as a guideline.

- **Amenity-Roadside plantings in front of quarry face**

The quarry face area has been extensively earthworked and over much of its' length is separated from unmodified or archaeologically modified areas both horizontally and vertically. However at the lower end the face ends abruptly and is immediately adjacent to an apparently unmodified slope, at the upper end this is not the case because of the shape and modifications caused by the creation of the summit road. Therefore it is not an issue that many of the tree species selected for this planting are not recommended for archaeological sites, in fact they will have a visually beneficial component in that they will soften the quarry scar. However due to the proximity with the apparently unmodified slopes that have potential to contain subsurface archaeological evidence it would be inappropriate to have these unsuitable species within 10m of the downslope end, especially trees such as Karaka which can self seed rapidly. Some of the plants not recognised by the Department of Conservation have been identified by the Mairs (2019:11-12) as being suitable, those recognised by Mairs do not need to be excluded from this lower 10m area.

With appropriate management of the plantings at the lower end of the quarry face there will be no archaeological effects caused by the proposed roadside plantings.

7.3.2 Circle Plantings

This is in an area where modification has occurred in the past and where a series of concrete circles have been placed within the landscape adjacent to the motorway. This is a modified area so there are no archaeological constraints.

7.3.3 Amenity Trees

There is a proposal to plant 5 titoki in the modified grass area above the motorway on ramp, there are no archaeological constraints in this area.

A cluster of Nikau are proposed to be planted near the Dominion Road frontage, again this area has been modified and there are no archaeological constraints in this area.

It is also intended to plant four Nikau and two kowhai adjacent adjacent to the cycleway. These are proposed for either side of the cycleway (Figure 11).



Figure 11. Part of the proposed planting locations from Mairs (2019) with the area with four Nikau and two Kowhai circled.

Here on the northern side much modification has occurred in the past and there would appear to be no archaeological issues, on the southern side there are no obvious archaeological features, though

years of reserve management is likely to have dulled the physical vestiges of any features should they once have been present. Examination of historic aerial photographs suggests that the land on the southern side has not been modified to the extent that the land on the northern side has. Disturbed archaeological evidence was found during monitoring of palm removals by Bikler and Farley (2010), which would indicate that this may also be the case where the combine nikau and kowhai planting are proposed. Although likely that no archaeological evidence would be found it is possible that unidentified in-situ archaeological evidence could be found here, it would therefore be prudent for any Resource Consent to require archaeological monitoring of these plantings and an Authority to be gained from Heritage New Zealand for these plantings.

7.3.4 Tihi Area

This planting is planned on what are soils that have been laid to cover the buried concrete reservoir built in 1962/63. There are no archaeological issues at this location.

7.4 Pātiti

The methodology for the enhancement of pātiti growth involves no soil disturbance (Mairs 2019:13), therefore there are no archaeological concerns.

7.5 Stump Plantings

The proposal for stump plantings is in an area where archaeological features and subsurface evidence is proposed, however the species proposed to be planted are those recommended by the Department of Conservation as being suitable for archaeological sites. The plantings themselves will be into stumps from removed trees and will not create any soil disturbances. There are no archaeological effects.

8. ASSESSMENT OF HISTORIC HERITAGE

8.1 Auckland Unitary Plan

Puketāpapa Mountain is scheduled as an Historic Heritage Place in the Auckland Unitary Plan (AUP), item #1580: Mount Roskill/Puketāpapa R11_19 Volcanic cone pa site – Category A*). The site is listed as having Additional Rules for Archaeological Sites or Features and as being a Place of Maori interest or Significance.

The Council uses a range of heritage to identify and evaluate historic heritage for scheduling:

- A. Historical
- B. Social
- C. Mana Whenua
- D. Knowledge
- E. Technology
- F. Physical attributes
- G. Aesthetic
- H. Context

Puketāpapa is scheduled in the AUP for the following Heritage Values;

- A. Historical: the place reflects important or representative aspects of national, regional or local history, or is associated with an important event, person, group of people, or with an idea or early period of settlement within New Zealand, the region or locality;
- D. Knowledge: the place has potential to provide knowledge through archaeological or other scientific or scholarly study, or to contribute to an understanding of the cultural or natural history of New Zealand, the region, or locality;
- G. Aesthetic: the place is notable or distinctive for its aesthetic, visual, or landmark qualities.

The historical values will not be affected by this process. The aesthetic values are contained within Rebecca Skidmores' report.

While archaeological study would be able to establish greater knowledge about the place, its location and the wider settlement of the Puketāpapa area, current technology would require largely invasive methods to do this. These are not proposed for this project, however it is noted that it is

possible that some of the plantings may come across in-situ archaeological evidence that may add to the knowledge of the site.

Puketāpapa is prominent in the landscape in which it sits. Within the environs of the immediate Puketāpapa areas the Tūpuna Maunga dominates the skyline and is visible from many viewpoints across Auckland and between other Tūpuna Maunga. Historically the many terraces, pits and archaeological earthworks of the mountain would have been a visually dominant feature and still are, particularly on the southern, south western and eastern sides.

The additional Rules for Archaeological Sites or Features under the AUP have additional controls and require assessment of the activity under the rules listed in Table D17.4.1. and Table D17.4.2. As noted earlier this site has considerable archaeological value and the focus of the assessment is how the works impact on these values. As it relates to the proposal, Conservation Planting (A23) and Tree Removal (A26) are discretionary activities. Non-invasive archaeological investigations are a permitted activity, where as other investigations are Restricted Discretionary activities.

Historic Heritage Objectives and Policies

Part D17 of the Unitary Plan sets the Objectives and rules of the Historic Heritage Overlay.

Objectives are contained at D17.2, and include:

- (1) The protection, maintenance, restoration and conservation of scheduled historic heritage places is supported and enabled.*
- (2) Scheduled historic heritage places are protected from inappropriate subdivision, use and development, including inappropriate modification, relocation, demolition or destruction.*
- (3) Appropriate subdivision, use and development, including adaptation of scheduled historic heritage places, is enabled.*

The proposed works are considered to be in accordance with the above objectives for historic heritage as they have been designed to enhance the values of Puketāpapa by removing trees that are damaging the maunga without causing any physical impact, except where earlier earthworks have already modified the form and archaeological features. The proposed plantings have also been designed to remedy erosion issues on the quarry face above the tihi road assisting with protection and conservation.

8.2 Assessment of Effects on Archaeological Features

Tree Removal Works

The methodology for removal of trees from this Tūpuna Maunga has been the avoidance of impacts to surface features as well as sub-surface material therefore minimising the potential for any archaeological material, whether identified or unrecorded to be impacted, therefore protecting the fabric of archaeological features from damage. Management of some activities, in particular the processing areas outside of previously earthworked areas will be required. Track mats to ensure that accidental damage does not occur is recommended.

Removal of exotic trees will also benefit the visual aspects of the maunga allowing for the visible archaeological features to be more readily identifiable and viewed. This is particularly the case where large dense canopies will be removed.

Further, aside from the actual removal operations, the removal of exotic trees from an archaeological perspective is considered to have positive effects for the long-term preservation of Puketāpapa. As the rootplate of trees has the potential to disturb and destroy archaeology as they mature, removing trees can be beneficial to preserving *in situ* archaeological features. Secondly, as trees age, limbs can become weak and fail during periods of high winds or as a result of storm damage. Such events can also tear the rootplate from the ground damaging and exposing archaeology. Controlled removal is therefore favourable to uncontrollable and natural events. As some of the trees to be removed are getting towards the end of their natural life, they are even more susceptible to damage from natural events and the potential to impact on archaeology is higher.

Revegetation Works

An outline of the proposed revegetation works is contained at 7.1 – 7.5 above with proposed planting developed to avoid known areas of archaeology, and in the case of the Quarry Face plantings appropriate placement of species can be instigated to avoid long term affects by self seeding plants or those with large root systems extending into area where subsurface archaeological evidence maybe present.. The proposed buffer planting areas as well as the feature trees are proposed for an area where the archaeology has been compromised by past farming, Reserve

management and/or domestic activities, however, there are indications that subsurface archaeology may be present in this area, though it is thought to be largely damaged or in some locations destroyed. Some small areas of *in situ* archaeology may be impacted. There would appear at most less than minor effects from this proposal to the archaeology of Puketāpapa.

9. CONCLUSIONS

Methods have been developed to remove trees from Puketāpapa (Redfern 2019) while avoiding and minimising impact on the archaeological features or unknown subsurface evidence.

Positive effects will arise from the visual enhancement of archaeological features as large exotic trees tend to conceal and confuse opportunities for visual appreciation of the landscape. This is particularly so for the pa and following the removals this element will be visible as the prominent feature of the maunga. Also from the pa the contextual landscape that makes up its positioning will be better visible providing opportunities for its relationship to the landscape and other maunga to be appreciated.

The plantings have been designed to be placed where the mountain has already been modified and archaeological evidence will not exist, or where subsurface archaeological evidence, should it exist, has already been compromised and damaged. Subject to the proposed methodology the works will enhance and protect the maunga and visual archaeological aspects.

This Heritage Assessment has focused on the archaeological values of this place. Puketāpapa Mountain also has significant Mana Whenua values, for which I am not qualified to comment upon, there may be traditional or cultural concerns that may affect the proposal or the conclusions of this report that I am unaware of.

10. RECOMMENDATIONS

Noting that much modification has occurred over Puketāpapa, and that it may not be easy for non-archaeological professionals to discern I endorse the Tree Removal Plans (Redfern 2019) and Planting Plans (Mairs 2019) subject to the following additional recommendations;

10.1 Tree Removals

- a) That each of the HNZ sites are inspected prior to Treescape setting up and if archaeological evidence is found those parts of the sections are temporarily fenced off to exclude them from the areas of operations, or if this is not practical other forms of protection such as track mats be used.
- b) That any machinery involved with the removal of the Phoenix Palms should approach them from the northern side, if directional felling is to occur it should be designed to fell the trees to the north.
- c) All processing of the Phoenix Palms should occur in the area between the cycleway and SH20.
- d) Should vehicles not be able to enter the area between the cycleway and SH20 from Dominion Road, any movements across the land to the south of the cycleway should only occur when ground conditions are dry and across a route laid out with track mats.
- e) Crash mats, tyres or similar should be laid beneath any trees to be felled with significant dead limbs.
- f) The crane locations and associated processing sites that are not on the road surfaces should be archaeologically inspected prior to set up and if areas are deemed to have archaeological evidence they should be temporarily fenced off to exclude them from the areas of operations, or if this is not practical other forms of protection such as track mats be used.
- g) Areas of high movement, such as where the excavators may operate within a processing site may require the laying down of track mats for them to operate on.
- h) Trees that are to be manually dismantled may be on the edge of earthworked and original ground or archaeological features. Any trees that are to be directionally felled should be felled towards the summit roading.
- i) Trees that are to be manually dismantled should be assessed on an individual basis to determine whether tyres or track mats should be laid beneath them to protect the ground surfaces.

10.2 Planting Plan

- a) That the buffer plantings/rongoa (within the Historic Heritage Overlay area) and the nikau /kowhai trees (as depicted in Figure 11) have an archaeologist monitor their planting.
- b) That plants that are not defined as suitable for planting on archaeological sites by either Jones (2007) or Mairs (2019) should be excluded from the lower 10m of the roadside plantings in front of the quarry face area.
- c) That the project archaeologist is involved in the layout of the “roadside plantings in front of the quarry face” area.

Advice Note: An Authority to modify from Heritage New Zealand should be sought for elements of the planting plan.

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