Tūpuna Maunga Authority

Heritage Impact Assessment of Proposed Tree Removals and Re-vegetation Planting Plan for

Ōhuiarangi / Pigeon Mountain

October 2018

FOR : Tūpuna Maunga Authority
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C O N T E N T S

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1. INTRODUCTION

The Tūpuna Maunga Authority are proposing to remove approximately 112 exotic trees from Te Ōhuiarangi / Pigeon Mountain (Ōhuiarangi). 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 that 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.

To mitigate the removal of the exotic trees it is proposed to revegetate parts of the Mountain to increase biodiversity, prevent the reestablishment of weed species, reduce foot traffic over and through some areas, promote species of appropriate heights to maintain historic defence sightlines and to assist with the natural ecological processes (Te Ngahere 2018:3).

Part of Ōhuiarangi is scheduled on the Auckland Council Unitary Plan as ID 1289 (Figure 1) as a Significant Historic Heritage Place. Ōhuiarangi is recorded on the Auckland Council Cultural Heritage Inventory (CHI) with the record number 11733 and recorded with the New Zealand Archaeological Association (NZAA) as site R11/38. A midden site is recorded across Pigeon Mountain Road near the Himalaya Drive intersection with the NZAA as R11/2825, this is outside the scheduled area of the site, but within the larger reserve area.

Ōhuiarangi Mountain is described in the CHI as "*Quarrying has destroyed most of this Pa site. It still, however, shows terracing with pits and midden (shell), mostly cockle, oyster, pipi and scallop as half of the cone has been preserved.*"

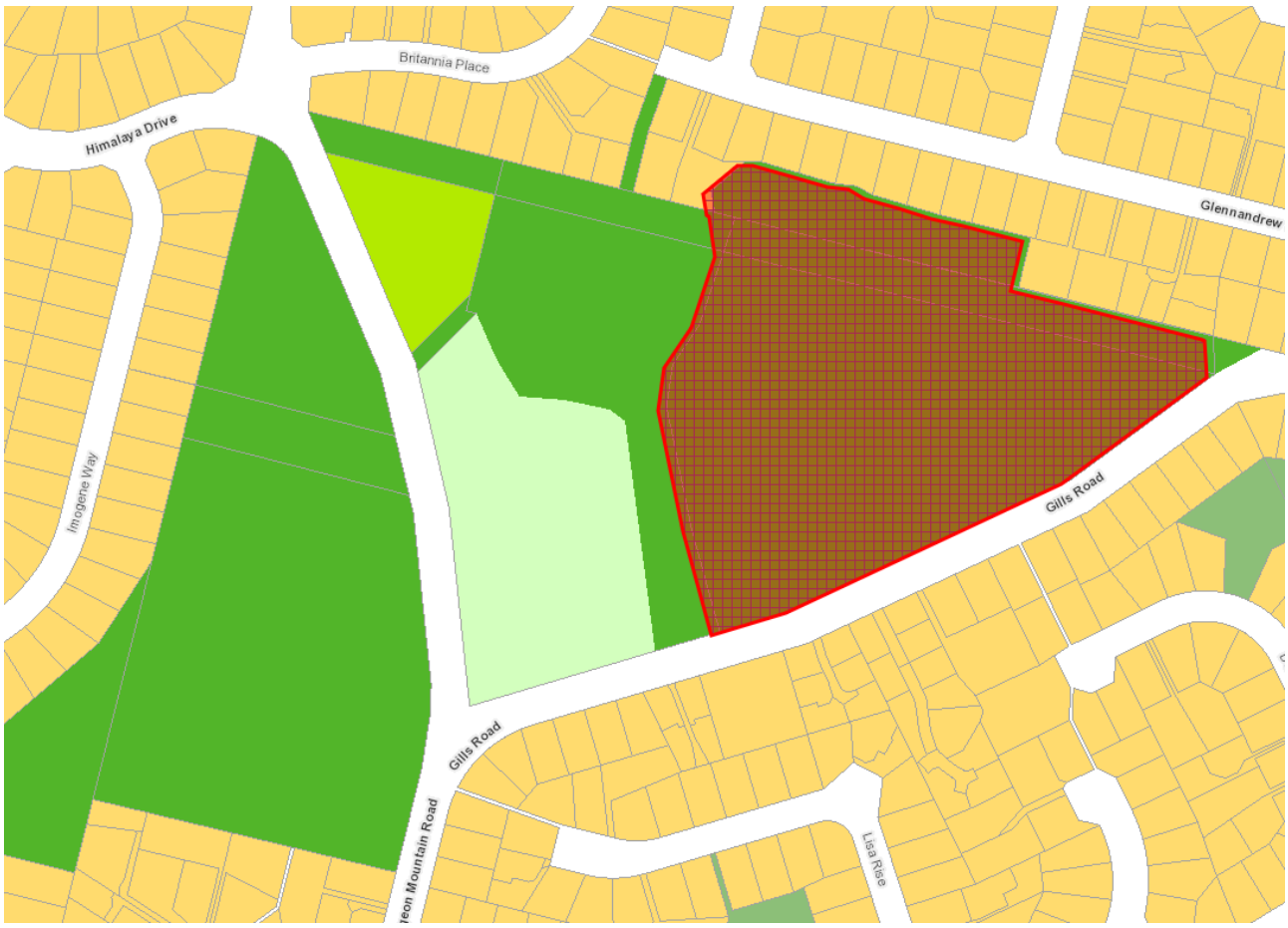

Figure 1. Auckland Council Unitary Plan illustrating the scheduled part of Ōhuiarangi Mountain outlined in red.

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 Ōhuiarangi Mountain is recognised and the place is scheduled on the Auckland Council Unitary Plan as item 1289.

3. SITE HISTORY

The following is a summary of the history only, and is largely a version of what has been written by Geoff Fairfield (2006). 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.

There is some uncertainty as to when the mountain was formed, possibly as long ago as 50000 years but possibly as recent as 20000 years ago (Fairfield 2006:22).

The pa eventually became a major settlement of Ngāi Tai, where they built terraces for living on and storing their crops, built gardens around the lower slopes and gathered fresh water from a spring at the foot of the basalt flows. The site was close to Tāmaki Estuary which gave ready access to various kai moana and acted as an ara (path) to the rest of the greater Tāmaki area (Auckland). The mountain was fortified and many small villages (kainga) and gardens were spread around it (Faurfield 2006:24). Fairfield (2006:25) believed that the site was occupied as a pa post European arrival as "*two different types of lead ball bullets have been recovered within the defences*."

Fairfield (2006:43) records that the Māori name for Pigeon Mountain was O Huiarangi. He concedes that there could be more than one interpretation of the name, but considers it most likely refers to it being the home of Huiarangi.

From the 1860s the maunga was selected to be a site for quarrying, most of it being used for roading. The southern half (the now remaining portion) having been a Reserve since 1881 (Searle 1981:164), being mapped on SO2184 in 1880, then remapped on SO2184A in 1885 with part of the Reserve being made quarry despite its prior legal status, it was then corrected by SO15236 in 1909 (Figure 2). Originally the southern portion, the part that survives was set aside as a Quarry (refer Figure 3 - SO 931 – undated, circa 1860s – illustrating the land granted to "Pensioners", i.e. those soldiers pensioned from the British Army in New Zealand) prior to being made a Recreation Reserve. Use as a Recreation Reserve saw the leveling of the cricket field and pavilions being developed by 1886, this effectively quarried away that part of the site in the corner of the Reserve. Other sporting activities that took place included organised MotorCycle Hill Climbs (Fairfield 1992:75-76), Rugby, Athletics, a BMX track and Tennis.

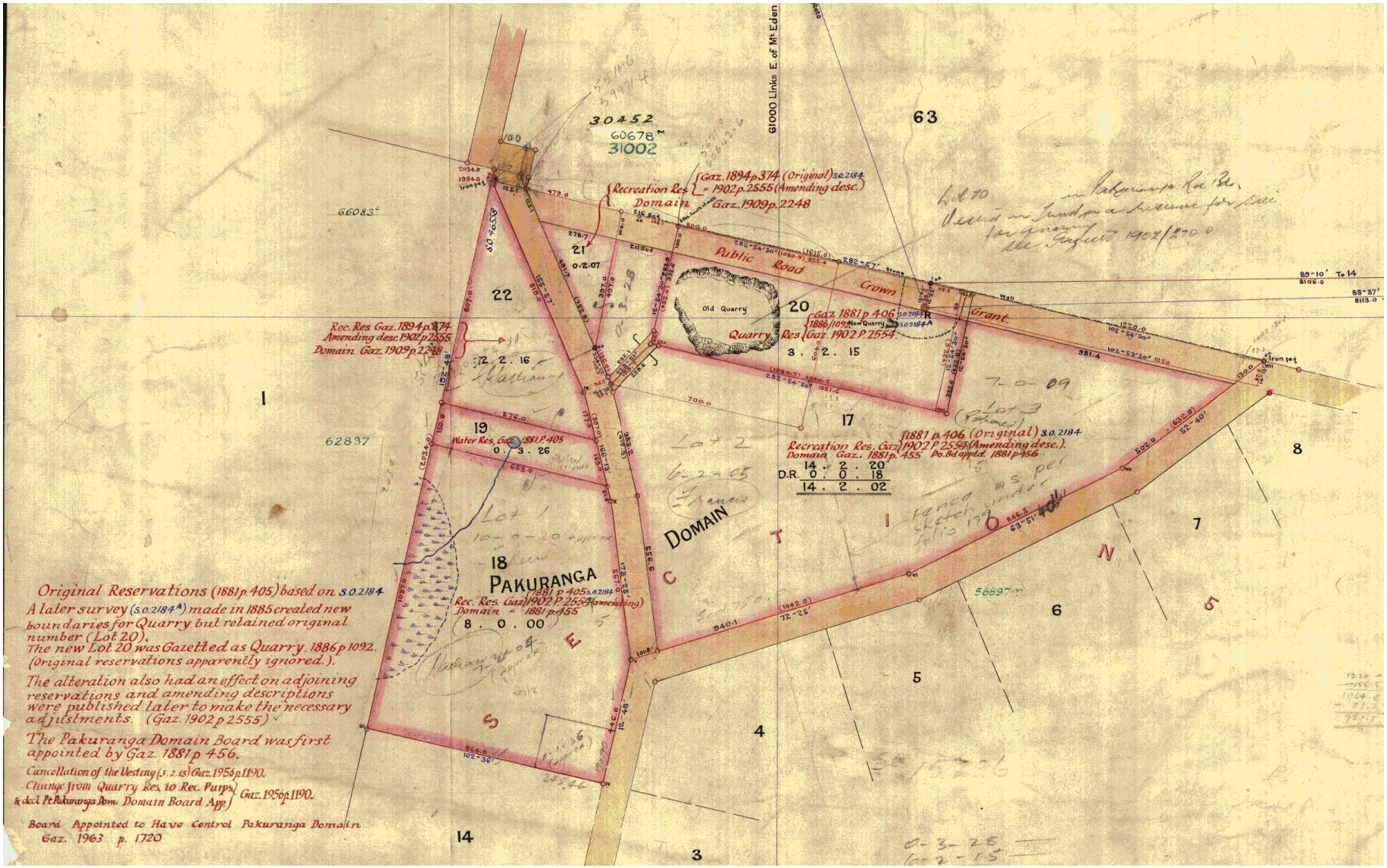

Figure 2. Part Plan 15236, 1909 illustrating the area of the Reserve quarried to that date. The boundaries of Reserve Land illustrated are more or less as found today. Note location of spring and that it is in a Lot put aside as a water Reserve.

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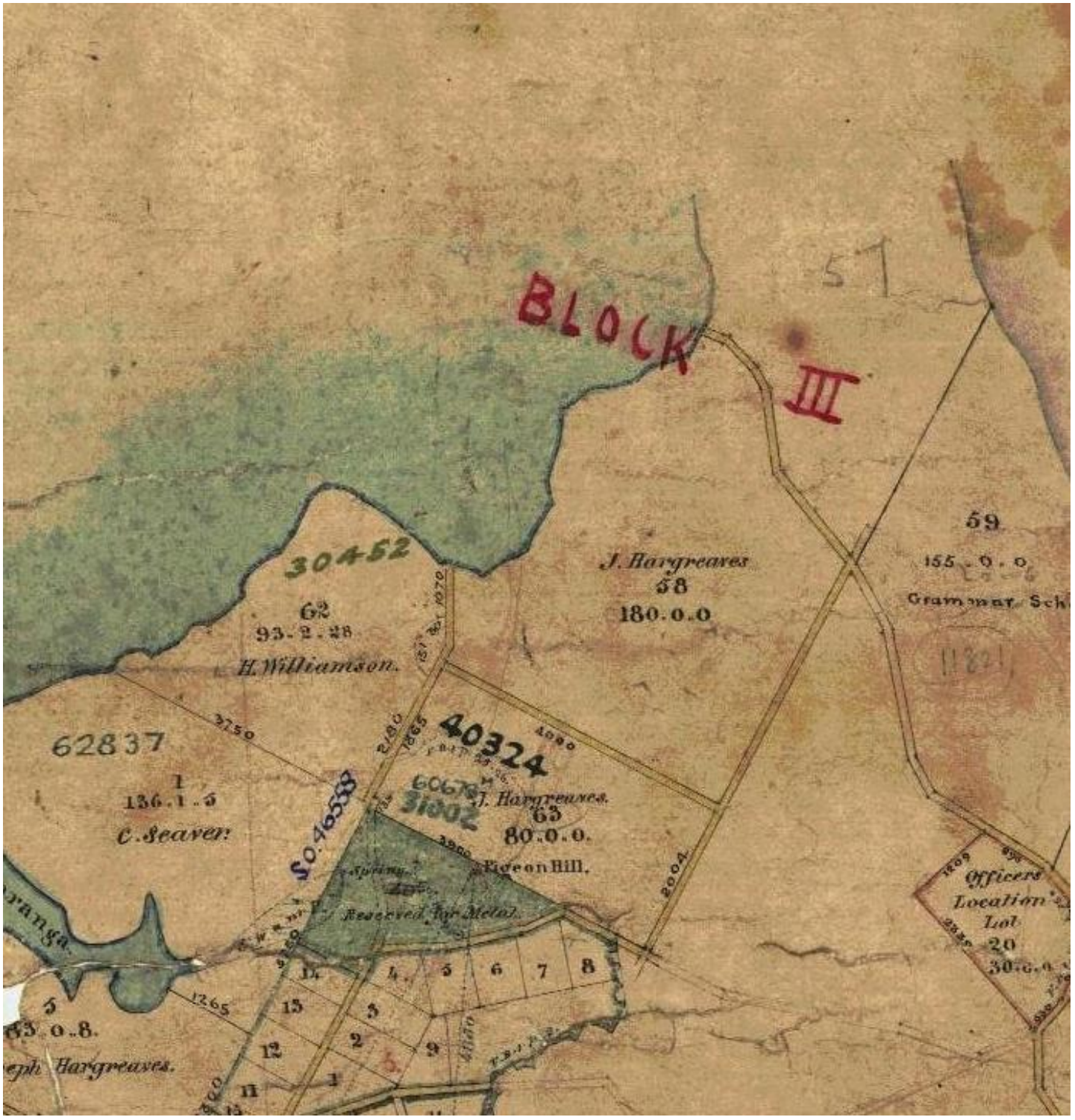

Figure 3. Part Plan SO 931, circa 1860s. Note the Mountain is referred to as "*Pigeon Hill.*" The spring and swamp are illustrated in that part of the Reserve currently across the road from the Scheduled area. The Scheduled area has written upon it "*Reserved for Metal.*" The former extent of the tuff associated with the mountain is illustrated.

Fairchild (1992:51-54) records that amongst the destroyed evidence once present were very thick deposits of midden, stone facing on many of the terraces, garden plots and burials. He thought that the largest storage pit was some 6 X 5.5 X 1.5m in size.

Quarrying finally stopped in the 1970s with development of housing in the former quarry. This however was the not last of the destruction on the mountain with the Eastern Courier reporting (March 27 1991) "*A recent Council cleanup operation on the Gills Rd side of the Pakuranga mountain flattened clearly distinguishable dividing walls separating kumara plots*."

4. ARCHAEOLOGY

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

Ōhuiarangi Mountain is recorded as R11/38 with the NZAA and as CHI record 11733 with Auckland Council. It was originally reported by Bob Brown in 1961 who recorded that more than 2/3 of the site is gone. The NZAA has a copy of a publication "Site Survey of Pigeon Mountain (N42/30)" by Christine Myers (it does not attribute what publication it has been copied from) on the records, this describes the maunga within its context but appears to have a few errors, presumably Christine Myers was not very experienced, she indicates that there are no rectangular pits on the mountain, but then goes on to describe three oval depressions that are clearly partially infilled pits. Myers mentions the visible midden contents being cockles, oysters, pipi and scallops. The associated plan (Figure 4) also failed to recognize a higher level quarrying event and labeled it a crater, never the less it gives a good general plan of what survived the quarrying process, but does miss the western area of the pa that still exists.

Brenda Sewell visited the site in 1984 and reported that the site was in grass, and grazed by horses that had caused considerable damage. Because of the quarrying a cross sections of many of the terraces was visible, she noted that shells and soil had been laid on one terrace on top of the scoria to make a level terrace to the point that it was aprox 1m deep at the terrace edge. This is somewhat different than the typical thought that terraces are cut into a hill rather than built out from them.

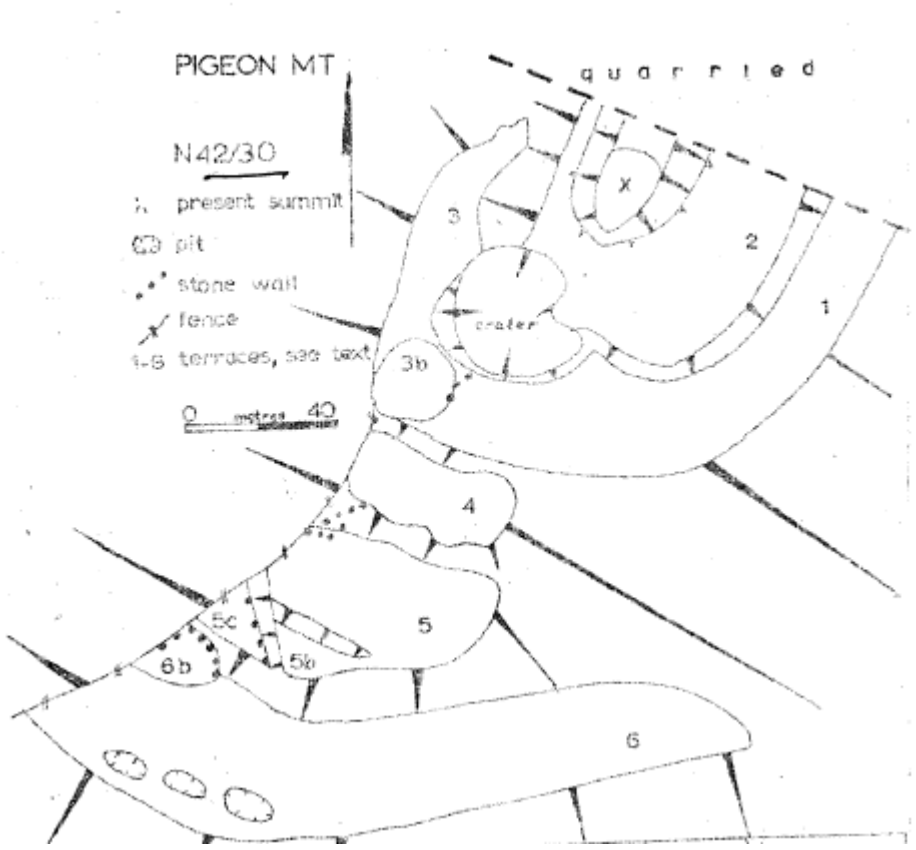

Figure 4. Plan by Christine Myers of Pigeon Mountain in 1974.

A 1985-86 plan by S Maingay and Caroline Phillips interprets the pa and associated garden lines on the slopes above Gills Road with more detail (Figure 5). Maingay and Phillips appear to have missed some of the extent in the North West where midden is present on the rough lava flows, they are simply in an area labeled as quarry. A brief examination of the site also indicates that there is possibly more archaeological evidence on the western side of the tihi than what they have drawn, but it maybe quarry evidence and benching, rather than terracing and benching combined.

Sewell returned to the pa in 1988 and reported that it is a "*Volcanic cone pa with remains of a ditch on the western slopes, terraces and pits, stone lines and stone-faced terraces. Most of these features are now obliterated by the heavy growth of weeds and scrub. Fallen trees on the summit add to the depressing feeling of the place*." Clearly at this point of time the site was not looked after and in a poor state. It is likely that the falling trees created some damage lifting archaeological deposits with their roots as they fell.

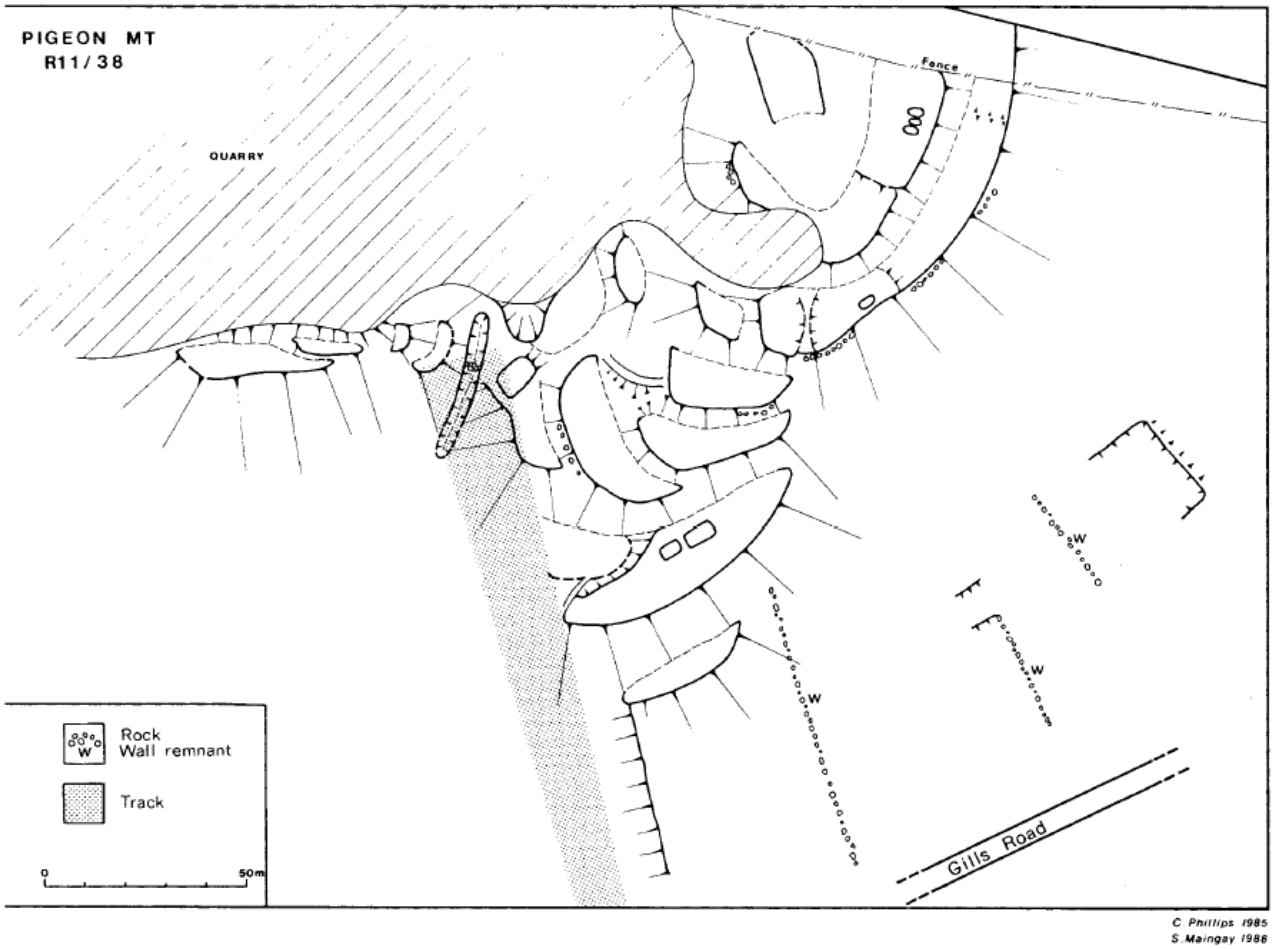

Figure 5. 1985-6 Plan of Pigeon MT R11/38 by C Phillips and S Maingay.

Across Pigeon Mountain Road Diane Harlow recorded the midden site R11/2825 in 2013. Harlow notes it was predominantly cockle, with scallop and pipi observed as well as. Harlow thought it possible that there was an associated terrace with the midden. Harlow found the midden spread over a 16 X 7m area.

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 over June to August 2018. 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 plantings as well as in places providing habitat for endangered lizard species.

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. This information was discussed with Treescape staff and others, some by subsequent phone calls and brief meetings, but mostly during onsite inspections.

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

6. TREE REMOVALS

The following sections are based on the report by Treescape Ltd (2018) and their proposed tree removal methodologies, their proposed worksites and access to Ōhuiarangi Mountain. Conditions vary across the mountain as a consequence this section is divided into the areas as proposed by Treescape (Figure 6).

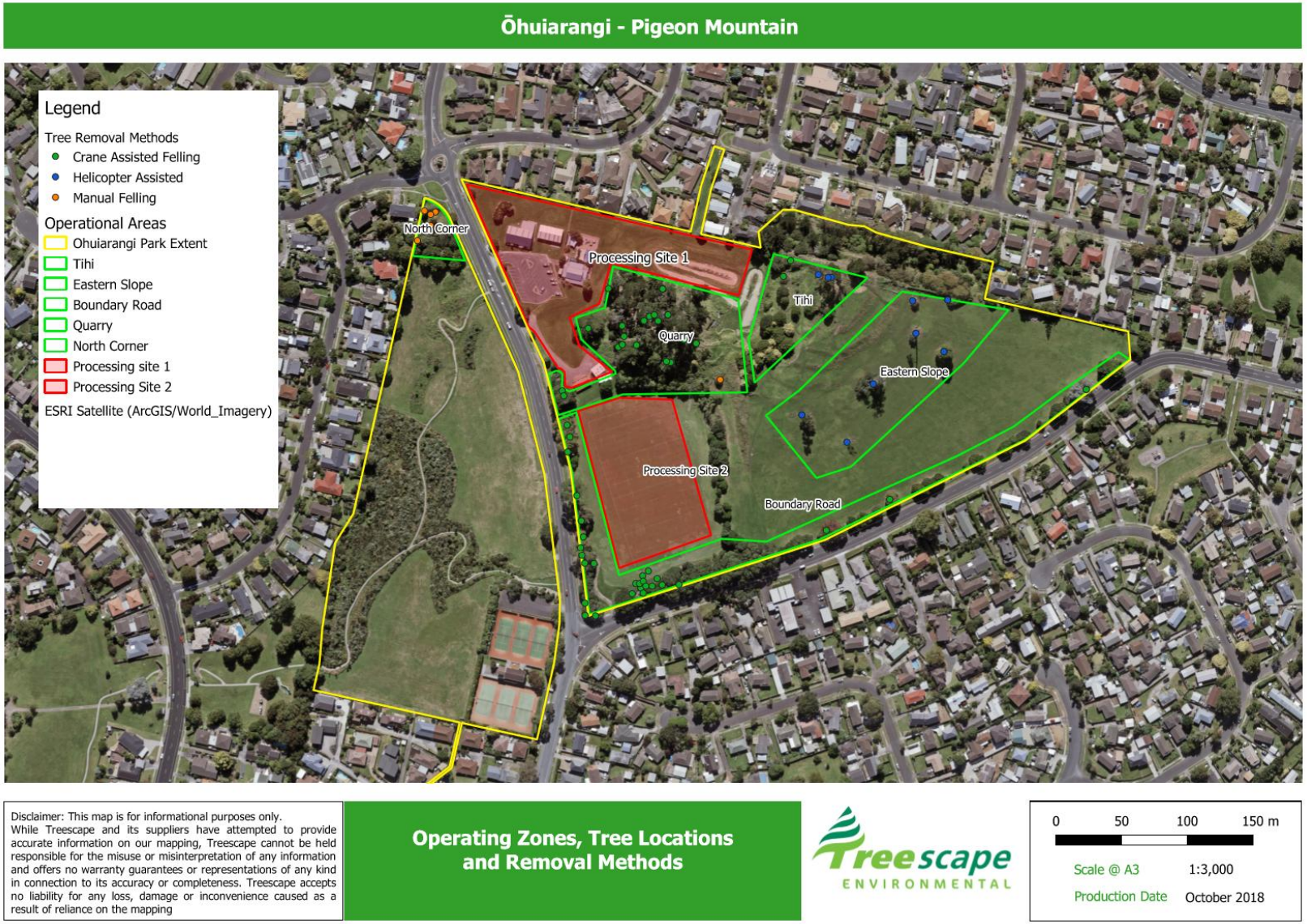

Figure 6. Tree Removal and Processing site locations as per Treescape Report

6.1 - Quarry

This area consists of a rocky outcrop that leads down from the main pa site, a remnant of a defensive ditch is found at the eastern end. Vegetation is generally dense and it is difficult to be certain what archaeological features are present beneath the vegetation, however there are parts of this area that are definitely terraced, it is possible that a storage pit or two are present and midden deposits are readily visible. The lower slopes have a number of quarry drives that reach into the old lava flows, particularly on the north and western ends. Parts of this area are highly disturbed and archaeological evidence will have been destroyed, whereas immediately adjacent are areas of apparent no more than minor disturbances having occurred.

Some loose shells have been noted near the cricket pavilion as well as what appears to be insitu midden in the vicinity of large Macrocarpa either side of the parking area there, particular care needs to be taken around these Macrocarpa.

The former quarry area is immediately adjacent to the north and a hard stand has been formed behind the sports buildings at the western end. The earthworked and cut down sports field is adjacent to the south. All of these areas have no archaeological value and are suitable locations to set the crane up on to remove the trees.

Plate 1. Area A illustrating the former rehabilitated quarry immediately adjacent to the trees where a crane could be set up on.

Plate 2. An illustration of the lava flow around which archaeological evidence is found, a small quarry drive is present to the left of the pine in the centre of the plate.

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6.2 - Eastern Slope.

All of the trees in this area are either on terraces, adjacent to them, or where the gardens and alignments have been previously recorded (refer Figure 5). This area as defined by Treescape contains some of the most significant archaeological evidence remaining on the mountain, with terraces, pits, midden, faint remnants of the bulldozed garden alignments (refer end of section 3 of this report) and is likely to contain significant subsurface evidence as well as. It is proposed to remove all of the trees in this area by helicopter; this method as documented in the Treescape report (2018) avoids damage to the archaeology and ground surface in general. It will have no effects upon the archaeology.

6.3 –Boundary Road

Treescape (2018:12) propose to use the already formed roading to bring a crane on site and lift sections of the trees onto the roading or directly onto the processing sites. The majority of these trees are in areas where there is no obvious surface archaeological evidence and in many cases there is evidence of earthworks, both cut and fill having occurred. Some loose shells have been noted near the cricket pavilion as well as what appears to be insitu midden in the vicinity of a large Macrocarpa just outside Area C. Should it be necessary to lower any limbs or other matter to the ground in this area, other than directly to the processing area crash mats should be used in the area pictured in Figure 7 below. Elsewhere it would appear that there are no risks to archaeological evidence.

Figure 7. Part Figure 6 illustrating area in which trees should have crash mats beneath if limbs and other material isn't to be lifted directly to the processing area.

6.4 –North Corner

It is in this corner of the reserve that midden site R11/2825 has been recorded. Shell is occasionally visible on the surface adjacent to the trees and fence pictured in Plate 3, as well as detectable subsurface with a probe. No surface features are visible, however it is almost certain that further subsurface evidence will be present here. Although earthworks have occurred in the immediate vicinity to create the housing and roading it would appear that this area has been relatively untouched by them, though invasive investigations would be required to confirm this. Treescape propose to manually fell the trees in this area. This should only be done when the earth is hard and with the extensive use of crash mats to prevent impact and gouging damage to any subsurface archaeology. Vehicles could be bought onto the Reserve to facilitate the felling, but should not be allowed to park or traverse where the surface evidence is present or in the immediate vicinity of that evidence. The exclusion zone for vehicles, plant and equipment should be defined by the project archaeologist as part of the set up for this area.

Plate 3. Shell midden is visible occasionally on the surface in the vicinity of the pictured trees and fencing. This area should be avoided for parking any vehicles or other plant and equipment.

Treescape (2018:12) in Table 4 state when assessing this area as for Processing Site Suitability "*No – extraction questionable – leave residue on site*." This is likely a suitable strategy only in part, in felled trees and their residue should not be left where any surface midden is present or where midden can be detected readily with a probe. Treescape should be prepared to remove at least part of the residue should there not be enough suitable locations to place it. Discussions on placement of the residue and the capacity of the site to absorb it should be had between the project archaeologist and Treescape prior to works commencing in this area,

6.5 –Tihi

This area consists of the remains of the tihi of Ōhuiarangi. Some of trees (those on the tihi) are proposed to be removed by helicopter assisted felling, others can be reached by a crane in the former rehabilitated quarry area, no archaeological evidence remains within the former quarry,

these methods would not affect the archaeological evidence at all. The proposed methodologies should have no affect to the archaeological features present in this area.

6.6 – Processing Site 1

This site is largely featureless grass and is a former quarry floor, on the aerials a no longer present BMX track is visible (Figure 6). This area has been filled with imported soils and grassed. There are no archaeological concerns as no archaeological evidence will have survived the former quarry operations.

In the vicinity of the cricket pavilion and public toilets/changing rooms a wide metaled access is present that leads to an earthworked flat platform, again no archaeological evidence is present here, however immediately adjacent at the NW end and SE end of this formed parking area are two large Macrocarpa which are earmarked to be felled. Midden is present around the roots of both of them indicating that intact archaeological deposits are present immediately adjacent. Other than when these trees are being felled these areas of midden should have temporary fencing placed around them to ensure that they aren't encompassed within the processing area.

6.7 – Processing Site 2

This area is the sports field on the southern side of the Reserve. There is evidence of significant earthworks having occurred here with deep cuts, particularly in the NE corner and the eastern edge in general that indicate that no archaeological evidence will have survived the formation of the sports field. This area could be used as a processing site without any archaeological conditions.

7. CONSERVATION PLANTINGS

The following sections are based on the report by Te Ngahere (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 Te Ngahere (Figure 8).

Figure 8. Proposed planting locations from Te Ngahere (2018)

7.1 WF7 infill

Two areas are identified for these planting works. The northern most one is on steep banks that have been quarried from Ōhuiarangi (Plate 4). It is not clear from the Te Ngahere Figure if the edges of the area touch the edge of terracing found there or not. As some of the species of tree within the list have large root systems it is recommended that plantings within 5m of archaeological features are confined to those listed in Jones (2007) as being suitable for plantings on archaeological sites. To ensure that this happens planting layout should be supervised by the project archaeologist.

Plate 4. Part of the former quarry wall where the northern infill planting is planned.

In contrast the southern infill planting area is where a significant cut has occurred in the creation of the sports field and possibly has in part been caused by quarrying prior to that. There are no archaeological features in the area depicted or on the modern terrace immediately above it. WF7 infill planting could occur in the southern section without archaeological conditions.

7.2 Mound Planting

It is proposed that mound planting be trialled as a no dig method to establish pōhuehue (Muelhenbeckia complexa var. complexa). Te Ngahere (2018:9) states that "*This species is already present in low numbers along these terrace slopes below the tihi, extending this would reduce grass cover and foot traffic across these areas. This would provide a low growing native cover that would protect any archaeology and not impact on any historic defensive sightlines."* When onsite it was noted that the areas proposed are suffering from desire lines, plus some of the area also has rounded features from having been part of the 20th Century motorcycle hill climb course. The effects of this

are difficult to quantify as it has not been attempted before, however at most it can be presumed that some of the features or slope will have a minor change in their angle and will change visually in a similar minor fashion. Final placement of any mounds and plantings should not occur without supervision of the project archaeologist.

7.3 Rock Bomb Area

This area is within an old quarry drive that has some intact archaeology immediately adjacent. The proposed plants and methodologies will not have an effect upon the archaeology provided that no planting occurs outside the former quarry drive. To ensure that this does not occur the project archaeologist should set the limits that the plantings are to occur within. Should it be found that some plantings are required outside the former quarry drives an Authority to Modify will be required from Heritage New Zealand.

8. ASSESSMENT OF HISTORIC HERITAGE

8.1 Auckland Unitary Plan

Ōhuiarangi Mountain is scheduled as an Historic Heritage Place in the Auckland Unitary Plan (**AUP**), item #1289[1]: Pakuranga Pa (Pigeon Mountain) R11/238– Category B). 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

[1] Schedule 14.1 - Built Heritage and Character: Historic Heritage Overlay, AUP reference #1289, Pakuranga Pa (Pigeon Mountain) R11_38 (category B) applying to that part of the mountain within Lot 183 DP 988414; Sec 3SO 434440; Sec 6 SO434440

Ōhuiarangi 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;

C. Mana Whenua: the place has a strong or special association with, or is held in high esteem by, Mana Whenua for its symbolic, spiritual, commemorative, traditional or other cultural value;

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.

With regards to C above Mana Whenua values relate to the Tūpuna Maunga being a large pa with associated features. Oral histories describe figures of importance from a number of Iwi associations over several centuries of occupation. Consultation has been undertaken for these specific works by the Tamaki Collective notices. 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 Ōhuiarangi area, current technology would require largely invasive methods to do this.

Ōhuiarangi is prominent in the landscape in which it sits. The location dominates a pinch point in Tamaki River overlooking traditional portage routes to and from the Waitemata. Within the environs of the immediate Ōhuiarangi areas the Tūpuna Maunga dominates the skyline and is visible from many viewpoints across the Tamaki River and between other Tūpuna Maunga. Historically the many terraces, pits and archaeological earthworks of the mountain would have been a visually dominant feature.

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 Ōhuiarangi Mountain 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. Visual aspects of the archaeological features and the proposed plantings have been designed to remedy erosion issues currently evident on the Mountain assisting with the 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.

Removal of exotic primarily self-seeded 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 older failing trees are present as their removal will enhance the shape of earthworked features that are hidden from the public viewshed. This would be most noticeable near

the area referred to as the Quarry (refer Figure 6) where a number of large pine hide the shape of pa, and to a lesser extent at the Tihi.

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 Ōhuiarangi. 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 – 7.3 above with proposed planting developed to avoid known areas of archaeology and to minimise ground disturbance therefore reducing the potential for any *in situ* archaeology to be impacted.

Notwithstanding, until such time as the studies on lizards are complete and the vegetation plans are finalised it is not clear as to whether there will be a need to undertake any archaeological investigations, however based on the planting plan prepared by Te Ngahere, dated October 2018, it is unlikely that a major investigation, if any, will be necessary. Any investigative work should it be required is likely to be limited to taking a midden sample for further analysis. As this information will lead to a better understanding of the occupants diet and date of occupation, this gain in knowledge would mitigate the very small amount of archaeological material that maybe removed from the site.

9. CONCLUSIONS

Methods have been developed to remove trees from Ōhuiarangi (Treescape 2018) 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 make up its positioning will be better visible providing opportunities for its relationship to the land and Tamaki River to be better appreciated.

The majority of the conservation plantings have been designed to be placed where the mountain has already been modified and archaeological evidence will not exist, or in the case of mound planting near the Tihi where significant erosion has occurred from pedestrian and past motorcycle traffic. Subject to the proposed methodology the works will enhance and protect the maunga and the visual archaeological aspects.

This Heritage Assessment has focused on the archaeological values of this place. Ōhuiarangi Mountain has also been listed for its 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

I endorse the Tree Removal Plans (Treescape 2018) and Planting Plans (Te Ngahere 2018) subject to the following additional recommendations;

10.1 Tree Removals

a) All tree felling works and use of non-tarsealed access tracks or routes across the Reserve should only occur when the earth is dry to reduce the risk of pugging of the ground surface from repeated vehicle movements over soft ground, unless it is within the two identified processing areas which have no archaeological significance.

b) For the area identified as Boundary Road, crash mats to be used in the area depicted in Figure 7 should it be necessary to lower limbs or other matter to the ground in this area, other than directly to the processing area.

c) All tree felling in the area identified as North Corner must be onto crash mats.

d) The project archaeologist should be onsite when tree felling is to occur in North Corner to define an area as an exclusion zone for vehicles, plant and equipment.

e) Should it be necessary to drag any trees or limbs across the exclusion area as defined in d) above crash mats should be laid across the surface to protect it from dragging damage.

f) The project archaeologist should define areas where onsite residue can be left within the North Corner area. Should the allowed area not allow for all of the residue, any excess residue should be removed.

g) In the area defined in this report as Processing Site 1 the areas that contain midden and other likely subsurface archaeological evidence should be fenced off under the direction of the project archaeologist from the work area near the cricket building for the duration of the works, except when the trees within the marked area are to be felled.

10.2 Conservation Planting

a) For the northern WF7 Infill planting only species that are defined as suitable for planting on archaeological sites, as per the Department of Conservation (Jones 2007) publication or any updated list that is subsequently released by the Department of Conservation, should be planted within 5m of archaeological features.

b) The project archaeologist should be on site for the set out for the northern WF7 Infill plantings to define the limits of the adjacent archaeological evidence to facilitate recommendation a) above.

c) Final placement of any mounds for the mound plantings areas should not occur without supervision from the project archaeologist.

d) The project archaeologist should be on site to guide the set out of the Rock Bomb area plantings.

Advice Note: Depending on the ongoing discussions with Heritage New Zealand it may be a requirement to obtain an Authority to modify an archaeological site from Heritage New Zealand for both the mounding plantings and the Rock Bomb area.

11. BIBLIOGRAPHY

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