

TREE MANAGEMENT, REMOVAL AND REPLACEMENT STRATEGY FOR PRINCESS, CITIZENS AND VICTORIA PARKS BOROUGH OF QUEENSLIFFE

SEPTEMBER 2009



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Note on Report:

This report is a draft for comment and community consultation only. It should not be considered or used as a final, accurate or checked document and errors may occur. The authors would appreciate reviewers raising any inconsistencies or factual errors.

This report is based on current available information, conditions and arboricultural practices. Sources of information, whether documented or verbal, are presumed to be correct unless otherwise known.

Appendices A, B, and C of this report provide an assessment of the condition of trees within the three parks. This review was undertaken with the intention of determining removal time frames and urgent works. It was not undertaken as a full risk assessment and an ongoing regime of inspections and management works should be carried out to manage the trees.

The Glossary of Terms at the rear of the report should be referred to for definitions.

Note on spelling:

The Borough of Queenscliffe is spelt with a terminal 'e'. The township of Queenscliff is spelt without one.

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EXECUTIVE SUMMARY FOR THE DRAFT STRATEGY

The Tree Management, Removal and Replacement Strategy for Princess, Citizens and Victoria Parks in Queenscliff has been developed to guide the management of the parks' trees for the next ten years. The need for such a strategy has become apparent as the valuable trees within the parks mature and decline, leading to increasingly more removals with subsequent loss of amenity, heritage and environmental value. Public safety has also become a matter of increasing urgency, with many incidents and near misses as a result of tree failures. A large number of the trees, particularly the Monterey Cypress and Moonahs, are dangerous.

The development of this draft strategy has not been a straightforward process, with numerous factors influencing and informing the decision making process. Public safety has been the principal driver of the project, although other issues such as tree age and condition, horticultural constraints, heritage, environment, park use, amenity, public sentiment and financial implications have also been considered. The devised draft strategy considers all these issues, and has been developed to balance the differing requirements while managing public safety. In achieving this it has been necessary to look beyond simplistic management prescriptions and to take a wide ranging and complex approach to the management of the trees.

The devised draft strategy for the management of trees has the aim of reducing the risk the trees pose to the public while maintaining suitable levels of public access and managing the cultural and environmental significance of the trees. In doing this numerous recommendations have been made with the management prescription for each tree being based on individual circumstances.

The trees within Queenscliff's parks are highly valued by the public, and a number have considerable retention value on heritage or environmental grounds. For these reasons the draft strategy has taken the approach of recommending retention and management of a considerable number trees, rather than outright removal. This allows the trees to be retained, but has a considerable financial cost in terms of maintenance, loss of revenue and reduced visitors to the township (through reduced camping within Victoria Park). Other trees, where retention is more problematic or the tree has a short life expectancy, have been recommended for removal and replacement; so reducing the cost of management and providing for the establishment of a new generation of trees.

The following provides an over-view on tree management for each of the three parks.

Princess Park

Trees within Princess Park fall into two broad categories, those that require removal in the immediate future and those which can potentially be retained in the longer term. The majority of Monterey Cypress are at the end of their lives and are dangerous; these trees are recommended for removal. The Stone Pines are also approaching the end of their lives but could potentially be retained with appropriate management for the next ten years. For this reason it is recommended that additional resources be made available to actively manage these trees. It is also recommended that these trees be temporarily barricaded when events are held within the park.

The remaining trees are in varying condition but the majority have the potential to be retained without extensive management input. It is recommended that these trees be

combined with an extensive level of replanting to form the future structure of the park. Some of this planting has been specifically detailed in this report for short term implementation, but the remainder is recommended for design as part of a Master Plan for the reserve, so helping to ensure that planting conforms with an overall vision for the park. The specified planting focuses on three main areas, new trees to the Gellibrand Street road reserve, a new avenue of Stone Pines west of Harrys and planting around the proposed playground.

It is intended that this replacement planting will have started to establish before the Stone Pines require removal.

Citizens Park

The age distribution of trees within Citizens Park is considerably more even than that in either Princess or Victoria Park and the vegetation cover is less dependant on the mature trees. It is recommended tree removal and replacement within Citizens Park be actively managed so that trees are removed when necessary. It is generally not appropriate to “prop up” old trees within the site as replacement specimens are already present and contributing to the landscape. Public access is to continue unrestricted within Citizens Park

The current planting within Citizens Park lacks structure and it is recommended that a Master Plan be developed for the site, with this plan informing the replanting design to help to structure the site. Specific, short term, planting has been recommended for the Gellibrand Street road reserve and the southern end of the site.

Victoria Park

Management of the trees within Victoria Park is extremely complex due to the significance of the trees and the conflicting uses within the site. Many of the trees within Victoria Park are dangerous and campers beneath these trees are at real risk of serious injury or death.

Many of the Moonahs, although structurally unsound, are in good health and with good projected longevity. These are very old specimens of environmental value and should not be removed in large numbers to preserve camping. Conversely, camping within the Victoria Park contributes income towards the improvement and maintenance of coastal Crown Land, and more widely to the economy of the township and should not be discontinued.

The draft strategy takes a mixed approach to the management of the trees within Victoria Park. Many of the Monterey Cypress are at the end of their lives and have become dangerous and are recommended for removal on safety grounds. Conversely, the Moonahs are recommended for intensive management to prolong their lives.

Specific areas of Victoria Park are to become Moonah reserves to the exclusion of camping and public access. Camping is to be maintained in the remainder of the reserve and the trees actively managed to improve their structural integrity. When a tree outside the reserves can no longer be safely retained it is to be removed by coppicing by pruning the tree to the base and allowing the stump to resprout.

This approach within Victoria Park will come at a financial cost, but allows the retention of both the camping and the trees.

1 INTRODUCTION

This Strategy has been developed to guide the management of the trees within Queenscliff's three main parks over the next ten year period. The need for such a strategy has become apparent as the valuable trees within the parks mature and decline, leading to increasingly more removals with subsequent loss of amenity, heritage and environmental value. Public safety has also become a matter of increasing urgency, as many of the trees are structurally unsound and therefore dangerous, while being located within parks which provide important space for community recreation events and informal leisure activities.

Many of the mature trees within Princess, Citizens and Victoria Parks in Queenscliff are very old and valuable. For these trees to be protected, both individually and as part of the broader landscape, they require appropriate management and the introduction of measures to allow for their replacement.

1.1 BACKGROUND

The trees within Princess, Citizens and Victoria Parks have for the most part been neglected for many years. In Princess Park particularly, trees have been retained well beyond their normal life expectancy and new planting has not taken place. A 1985 report by Gerner, Sanderson, Faggetter and Cheesman highlighted the poor condition of the trees within Princess Park and recommended a replacement program and their removal. Unfortunately this was not implemented beyond the first year. Trees within this park are now dangerous and in need of removal, but there are unfortunately few semi-mature trees to replace them.

Considerably more replacement planting has been installed within the adjacent Citizens Park. This space has a mixed age planting population and helps demonstrate what could have been achieved in Princess Park had the replacement planting continued beyond 1986.

There is fond community attachment to these spaces, and the trees within them. Princess Park in particular relies on the trees for its picturesque beauty. Many members of the community are extremely reluctant to see the trees removed.

This attachment to the mature trees extends to Victoria Park, however this space has a separate set of issues. Prior to 2007 only limited maintenance works were undertaken to the trees within the reserve, although pruning and removals have occurred in recent times. It has now become apparent that the structural integrity of many of the trees is so poor that camping can not continue safely in their vicinity. The issue of whether camping should occur within Victoria Park has been a matter of debate for some time, with their being strong opinions on both sides of the argument. In relation to the trees the issue is one of safety. For each dangerous tree in need of removal / heavy pruning a decision is required. Either the tree is removed or coppiced, or the campers are excluded.

Some replacement planting has occurred in Victoria Park in the last seven years. These trees are still small and currently offer little to the landscape.

1.2 STUDY AREA

The study area is Princess, Citizens and Victoria Parks in Queenscliff. A context map for these parks is provided on page 5 of this report. The extent of the study area for each park is as follows:

Princess Park: The park area as bounded by Symonds Street, Gellibrand Street and Tobin Drive and including the mature Monterey Cypress planted within the Gellibrand Street road reserve. The study area does not include the small row of trees east of Harry's.

Citizens Park: The park area as bounded by Tobin Drive, Gellibrand Street and the top of the eastern embankment, including the mature trees to the eastern side of Gellibrand Street. The study area does not include the embankment planting or the group of massed vegetation within the Gellibrand Street road reserve.

Victoria Park: The entire park area as bounded by King Street, Mercer Street, the Recreation Reserve, the Bowling Club and the netball courts.

1.3 METHODOLOGY

As this project progressed numerous changes were made to the scope of the brief and the method of progressing the work. The following dot points are not a full description of the progress of the project, but highlight the main factors that have influenced the production of the report:

- A Project Control Group was appointed by council to monitor the progress of the project, provide input into key issues, provide feedback on the draft document and a recommendation to Council and to participate in and guide the community consultation process. Members of the Project Control Group are listed on page vi.
- An understanding of the background issues facing the project was gained by the project team through professional knowledge, research, discussions with Borough employees, the Project Control Group and others.
- An assessment was undertaken by the project team of the all the mature and semi-mature trees within the three parks. This assessment work was undertaken during two main inspection periods, one in December 2008 and one in June 2009. Decisions on management recommendations were made with input from other professionals in some circumstances. Some of the tree assessments built on those previously undertaken by Bellarine Trees. Initial recommendations were made and provided to the Project Control Group following the June inspections.
- The Project Control Group in consultation with the project team decided on an approach for the community consultation process.
- In discussion with the Project Control Group a decision was made on a broad approach to managing the trees. Where required, the recommendations included in the tree assessment were updated to reflect the decided approach.
- The Draft Tree Removal and Replacement Strategy was produced and provided to the Project Control Group for comment.
- The Draft Tree Removal and Replacement Strategy was published for public comment.

1.4 HISTORY

1.4.1 Princess and Citizens Parks

The following history is taken from the 1985 report by Gerner, Sanderson, Faggetter and Cheeseman with additional information from the draft *Queenscliffe Heritage Study* (Lovell Chen, 2008). Comments are provided as foot notes. This history deals with both Princess and Citizens Parks in Queenscliff.

"The parks along this section of the Queenscliff foreshore have always played a significant role in the townlife of Queenscliff. They provide a natural meeting place for both residents and visitors and dominate the main beachfront views."

The area boasted four piers; the health officer's and pilot's pier to the south, the baths pier in the centre, the existing steamer pier at the end of Symonds Street and further north at the end of Wharf Street, fishermen's pier.

*Prior to the sealing of Symonds Street and the construction of the pier these parks served as a fenced common consisting of native scrub and woodland dominated by Drooping She-oak (*Allocasuarina verticillata*) and Moonah (*Melaleuca lanceolata* [sic]). A promenade running the length of Citizens Park provided an attractive walk, with wide sea views made possible from the cliff top by the clearing of native scrub...*

While the parks have always been enclosed in one way or another, the changing fence styles reflect both changing fashion and use. In the early days, when the parks were used as the town common, a sturdy picket fence dominated the perimeter. Photographs from the 1880's also show protective fencing around tree groups, suggesting that the common was also used for animal grazing, particularly horses. Post and square rail fences were used as balustrades along the top of the cliffs and also to enclose a circular area near the present Symonds Street. Evidence suggests that this may have been the location of a fresh water supply.

Upon completion of upgrading works to Symonds Street and the pier in the late 1880's, planting was begun in Princess Park. At about this time the visually heavy picket fence was replaced by the more open post and rail fencing popular at the time.

*The planting at Princess Park appears to have been carefully staged, with the western end planted first. The plant materials selected were in keeping with the fashion of the day, as promoted by the Royal Melbourne Botanical Gardens [sic]. They included Stone Pine (*Pinus pinea*), Monterey Cypress (*Cupressus macrocarpa*), Sugar Gum (*Eucalyptus cladocalyx*) and Moreton Bay Fig (*Ficus macrophylla*).*

It is interesting to note that the indigenous scrub of the town common was not cleared until the new trees were sufficiently mature to assume prominence.¹ Upon scrub clearing, the next stage of the planting was implemented in a style similar to that of the earlier sections, although changing fashions resulted in the strengthening of the Monterey Cypress theme.

By the 1900s assorted conifers, including Norfolk Island Pines, Stone Pines and Cypresses are visible in early photographs of the area, although the avenue of cypress that now dominates the east side of Gellibrand Street is not.¹

Between 1900 and 1920 the amenity of the parkland was improved with the addition of the bandstand (built by Mr Golightly) and the planting of the aforementioned avenue of Cypress.ⁱⁱ

Norfolk Island Pine was also included at this stage. The plant materials present between Symonds Street and Wharf Street suggest that this area was developed at the same time. With the inclusion of an irrigation system these park trees grew vigorously in their first fifty years and the common was rapidly transformed into a well vegetated parkland.... In the 1920's irrigation was ceased and as a result some trees declined in condition, especially the Moreton Bay Figs.² The Cypresses, Stone pines and Norfolk pines do not appear to have suffered any significant setback. However, the Monterey Cypress which, when post-mature, is not a structurally sound species, began to lose large branches. Progressively as branches broke or were removed in a basic manner, most of the trees deteriorated visually...

Neither park has undergone any major structural change in its development... "

¹¹ This was a similar approach to that taken within the Fitzroy Gardens in Melbourne.

² At least one impressive specimen still remains.

1.4.2 Victoria Park

The following history is taken primarily from Chen's *Queenscliffe Heritage Study* with additional information from E T Raison's undated history of Victoria Park as sent to the Borough by Cr. Stephen Lee on May 15th, 1996.

Permanent reservation of Victoria Park for the purposes of Public Gardens was gazetted in 1868 following a temporary reservation in 1865. This was achieved as a direct result of the Borough Council at the time approaching the minister for Lands and Survey seeking such a reservation. Plans for laying out the reserve and for fencing were accomplished by the Borough Surveyor in 1867. Photographs of Queenscliff taken in the 1860s show that the town had largely been cleared except for the Botanical Gardens.

On 4 October 1867, Council noted that advice had been received from Dr. Mueller³ on planting and preserving the reserve and on 8 April it was reported that Dr Mueller had visited the borough to advise on planting⁴.ⁱⁱⁱ

Advice on planting and conserving the reserve was sought and received from Baron von Mueller who had visited the gardens. Trees and shrubs were received from the Melbourne Botanic Gardens, then under the Directorship of von Mueller. Daniel Bunce, the Director of the Geelong Botanic Gardens was also consulted on planting.

The Geelong Advertiser reported on November 24th 1876 - "The gardens are under the constant care of a labourer, and form a nice, shady retreat for ladies and children, and also for invalids."^{iv}

A report on the gardens in 1876/7 noted that a large portion of the area had been "preserved in its natural state but the rest is laid out and tastefully planted". A maze was also planted, an illustration of which appears in Queenscliffe! How to See It, along with the above description. The gardens must have also contained a fernery during the 1880s as it was reported in the 'Queenscliff Sentinel' in 1886 that it would be advantageous to pipe water from the bowling green to the gardens to aid the growth of ferns.

Photographs of the gardens illustrate a bushy environment with gravel or crushed limestone paths wandering through a mixture of coastal vegetation and selected trees with rough cut grass. There does not appear to be any detailed layout of formal garden beds, but rather an informal environment formed by shrubs and medium size trees. What is not clear and is difficult to determine from the few undated photographs that exist, is the extent of clearing that was carried out over the life span of the gardens. Earlier photos clearly show thick vegetation and later ones indicate that this was cut out for the maze and thinned out to provide a more open space, but the extent of this and when it was done will probably be impossible to determine exactly.

ⁱ Paragraph taken from Lovell Chen's *Queenscliffe Heritage Study*- Contact Lovell Chen to confirm there are no changes prior to producing the final report.

ⁱⁱ Paragraph taken from Lovell Chen's *Queenscliffe Heritage Study*

ⁱⁱⁱ Paragraph taken from E T Raison's undated history of the park

^{iv} Paragraph taken from E T Raison's undated history of the park

³ Director of the Melbourne Royal Botanic Gardens

⁴ This second reference did not mention Victoria Park specifically, but given that at the time it was probably the principal public park, the advice may have included this place



Plan 1: Context Map

2 EXISTING CONDITIONS

2.1 PRINCESS PARK

Princess Park is located adjacent to the Queenscliff wharf and is bounded by Symonds Street, Gellibrand Street, Tobin Drive and the Port Phillip Bay foreshore. It forms part of a continuous stretch of Parkland with Lower Princess Park and Citizens Park which extends from Wharf Street to Fort Queenscliff. Princess Park is prominently located within the township with both the Queenscliff and Esplanade Hotels overlooking the park.

The character of Princess Park is largely dependant on the mature tree population. Large Stone Pines (*Pinus pinea*) and Monterey Cypress (*Cupressus macrocarpa*) in approximate rows dominate the landscape with the lower storey comprised of open lawn without shrub planting. Picnic tables and chairs are present. Additional mature trees include a Moreton Bay Fig and Norfolk Island Pine. A second generation of trees, planted approximately 20 years ago, provides some replacement planting, but the majority of the trees within the park are over mature and are reaching, or have reached, the end of their safe useful lives. An assessment of the condition of the trees within Princess Park and management recommendations can be found at *Appendix A: TREE ASSESSMENT AND RECOMMENDATIONS FOR PRINCESS PARK*.



Figure 1: Princess Park is characterised by the mature conifers and an open ground plane. Younger Monterey Cypress (approximately 20 years old) can be seen in the background.

2.2 CITIZENS PARK

Citizens Park is located south of Princess Park, further up the hill towards Fort Queenscliff. The park is bounded by Gellibrand Street to the west, Tobin Drive to the north and Fort Queenscliff to the south. On its eastern side the park is bounded by the Port Phillip Bay foreshore at its southern end and Tobin Drive at its northern. The eastern portion of the site is comprised of a steep embankment with a mix of mainly indigenous species and exotic weeds. Exotic plantings are located on the embankments northern end and at its base along Tobin Drive. This part of the site, from the top of the embankment east, is not included in this study.

Citizens Park is considerably more elevated and enclosed than Princess Park. The site is open to the west and south, where it faces a number of historic buildings (including the Ozone Hotel, Lathamstowe and Fort Queenscliff), but is enclosed by planting on its northern and eastern sides.

Citizens Park contains a significantly higher number of young trees than either Princess or Victoria Parks. Planting dates within Citizens Park appear to be spread over a considerable period of time, with trees of varying sizes and ages being present. This gives the site's planting less historical significance than that of Princess Park.

A large number of young Pines and Monterey Cypress of about 20 years of age are present, providing replacement planting for the mature Cypress which are at the end of their lives. A considerable number of Norfolk Island Pines have also been planted in the park's central section, likely in the last 30 to 50 years. The northern end of the site contains a considerable number of indigenous species including Boobialla (*Myoporum insulare*) and Moonah (*Melaleuca lanceolata*), together with Coast Tea-tree (*Leptospermum laevigatum*) which may also be indigenous. A number of these trees, especially the Coast Tea-tree and Boobialla, are in very poor condition. The Moonahs, while mature trees, appear to be much younger than those within Victoria Park.



Figure 2: Norfolk Island Pines at young maturity within Citizens Park

The backdrop of vegetation provided by the embankment and new plantings means that the large trees within Citizens park are less dramatic than those within Princess Park. This also means that these trees can be removed with less impact on the landscape and character of the place.

Overall, Citizens Park is a useable public open space with a mixed age tree population which can support the removal of over mature specimens without dramatically impacting the amenity or aesthetic value of the space. An assessment of the condition of the trees within Citizens Park and management recommendations can be found at *Appendix B: TREE ASSESSMENT AND RECOMMENDATIONS FOR CITIZENS PARK*.

2.3 VICTORIA PARK

Victoria Park is located near the entry to Queenscliff and is bounded by King Street on the north, Mercer Street on the west, the recreation reserve and the Bowls Club. The Park is an 'L' shaped reserve. Adjacent to the park are a number of heritage listed properties including "Warringah", "The Ridge" and the "Royal Hotel". The neighbourhood house faces King Street and juts into the park.

The dominant vegetation cover within Victoria Park is comprised of remnant indigenous Moonahs. These trees are of a considerable age, and generally cover all parts of the reserve except for the north-western corner which is dominated by three large Monterey Cypressess. These three trees are a local landmark.

A number of large Monterey Cypress are also located in other parts of the site, particularly along the eastern boundary and near the Neighbourhood House. The vast majority of these trees are over mature. Apart from the Moonahs and Monterey Cypress there are other few canopy trees present, and botanical diversity is very limited; especially given the site's reputation as the "botanic garden".

The understorey of the site is non-existent except for some recent planting works along the Mercer Street frontage. Understorey vegetation through the remainder of the site is turf grass. In the last seven years a considerable level of Moonah replanting has taken place, especially through the centre of the site. An assessment of the condition of the trees within Victoria Park and management recommendations can be found at *Appendix C: TREE ASSESSMENT AND RECOMMENDATIONS FOR VICTORIA PARK*.



Figure 3: Moonahs within Victoria Park

2.4 TREE SPECIES

2.4.1 Monterey Cypress

Monterey Cypress (*Cupressus macrocarpa*) is an iconic species in the Queenscliff township. Together with Norfolk Island Pines (*Araucaria heterophylla*), they are the dominant tree species and make a significant contribution to the character of the place. A large number of these trees are present in Victoria, Princess and Citizens Parks with the most iconic specimens being located at the corner of Mercer and King Streets in Victoria Park and adjacent to “Harrys” in Princess Park. While these trees are iconic and beautiful, a number are well beyond their normal life expectancy and have become dangerous.

Monterey Cypress have a finite lifespan in Victoria, usually of around 80 to 100 years. Towards the end of their lives these trees tend to start breaking apart with structural defects such as poor branch attachment and trunk decay being common. Generally speaking, old trees are at increased risk of failure due to reduced wood quality and a decreased capacity to prevent the spread of decay.



Figure 4: Over-mature Monterey Cypress within Princess Park

Monterey Cypress do not have the capacity to re-shoot from old wood. The implication of this is that once old wood is exposed, pruning works cannot be used to redevelop a successful tree. Pruning may remove limbs at risk of failure, but the result is a reduced canopy that will not re-establish. Over time, as at risk limbs are removed, the canopy decreases. This has a negative impact on tree form, opens up limbs to unaccustomed wind forces (so increasing failure risk), and reduces the tree's access to carbohydrates, therefore reducing its ability to respond to pressures such as development, decay or insect attack. Further to this, and of most concern for Monterey Cypresses, is that the species relies on a network of branches for structural support, as lower branches are removed there is an increased risk of exposed higher branches failing. In summary, pruning can only provide a short term fix at best and is likely to exacerbate remaining structural problems.

The following is a summary of issues relating specifically to over-mature Monterey Cypress in Victoria, Princess and Citizens Parks:

- Monterey Cypress are not long lived as structurally sound trees (80-100 years in Victoria). The trees in Princess Park are thought to be 130 years old, well beyond their life expectancy⁵. A number more are at the age where Cypress should generally be removed.
- The trees are showing signs of age related structural defects such as limb shed, poor branch attachment and trunk decay. This makes them a risk to park users.
- Pruning can provide a short term fix for some of the better specimens, and may prolong their lives by up to five years. It is not however a long term solution, and while reducing the risk the trees pose in the short term, it is likely to hasten their demise.
- For some of the trees remedial pruning is not an option, and no amount of intervention works will sufficiently reduce the risk the trees pose.
- Care should be taken in deciding whether to remove deadwood or thin the canopy of young trees. These processes can weaken the trees structurally as the species relies on a network of branches for structural support. It is recommended that these works only be undertaken if necessary for safety reasons.

There is a vast difference in the structural integrity of the various trees recommended for removal. This is due to many older trees being retained decades beyond their normal life expectancy, while the younger trees are at the age where removal is generally required. While this will result in large scale tree removal over a short period, it is important that all trees on site are removed before they become dangerous and to avoid conflict between new plantings and existing trees.

⁵ Length of time in south-eastern Australia that the species would be expected to remain alive, structurally sound and contributing to the landscape.

2.4.2 Stone Pine

Stone Pines (*Pinus pinea*) are a relatively unusual species in Victoria and with their large size and domed canopies are an iconic part of the Princess Park landscape. A number of large specimens are also present in Citizens Park and two moderately large trees in Victoria Park.



Figure 5: Mature Stone Pines within Princess Park

Except in the parks, there does not appear to be any other mature Stone Pines within the Borough.

The Stone Pines within Princess Park are likely to be the same age as the Monterey Cypress, but are not yet showing signs of extreme old age. Given that Victoria has been settled for a relatively short period of time, the life expectancy of a number of tree species, including Stone Pines, is not yet known. In Europe Stone Pines rarely exceed 150 years, and it is likely that a similar life span could be expected in Victoria.

The trees within the Parks are primarily very large old specimens with short trunks branching from low (as is typical of the species) and large quantities of deadwood in their canopies. This deadwood accumulation is likely to be due to their coastal exposure, competition from adjacent trees and a lack of maintenance. Like all old trees, Stone Pines are at some risk of structural failure, however they do not exhibit the extreme poor structure or failure tendencies of the Monterey Cypress. The multi-stemmed nature of these trees and their flattened branching structure is part of their normal habit, and while trees may fail at these points, they are not considered to be a high risk species. Of greater failure risk is the large deadwood within the canopies and leaders with included bark. The wood of living Stone Pines does not tend to decay.

The following is a summary of issues relating specifically to over-mature Stone Pines in Victoria, Princess and Citizens Parks:

- Stone Pines are not likely to be particularly long lived in Victoria, and many of the specimens in the Queenscliff parks are reaching the end of their lives without yet being at the stage where removal is recommended. It is possible, with appropriate management, that the Stone Pines will be able to be retained for 10 or more years
- Stone Pines are not a high failure risk species, but given the age of these pines, and the unpredictable nature of trees, some branch or trunk failures are still to be expected
- It is difficult to predict failure in Stone Pines, and it should be acknowledged that many of the branch and trunk failures in the pines will probably be unforeseeable. Predictable defects such as deadwood and included bark could and should be managed. Aerial inspections can help identify delamination splits, a precursor to possible branch failure.
- As for the Monterey Cypress, Stone Pines do not reshoot once pruned into old wood. Pruning works are therefore of limited use and will gradually reduce the

canopy of the trees. However, unlike Monterey Pines, branch removal does not appear to dramatically increase the risk of remaining branches failing.

- Replacement planting in the short term is imperative. The current trees may last for a number of years, or may unexpectedly decline. An appropriate level of replacement planting is therefore desirable.

2.4.3 Moonah

Moonahs (*Melaleuca lanceolata*) are indigenous to the Queenscliff area, and were likely to form the dominant vegetation cover pre European settlement. They are still the dominant



Figure 6: Moonahs adjacent to the playground at Point Lonsdale

species in adjacent Point Lonsdale. It is thought that the stand within Victoria Park is the only remnant Moonah patch of any size left in Queenscliff, with photographs from the 1860s showing that the town had been largely cleared except for Victoria Park^v. A small number of trees are also present at the southern end of Citizens Park, but these are thought to be younger specimens.

The Moonahs within Victoria Park are likely to be of considerable age and environmental value.

Moonahs naturally grow by

developing large, sprawling limbs which eventually fail and are over-taken by new leaders growing from the tree's base. The age of an individual tree is impossible to determine due to this growing pattern, but it is possible that the trees within Victoria Park are several hundred years old.

The growth pattern of Moonahs has a number of implications for the management of the trees. Trees in the wild have the capacity to fail and continue to grow, and age related rot and structural defects are common in old trees, but due to the species' ability to regenerate they do not necessarily signal the end of the tree's life. Moonahs have a tendency to exhibit large tracts of decay and trunks may hollow out completely, providing shelter for wildlife. Young trees are also slow to establish, perhaps growing less than 1.5m in their first five years.

The following is a summary of issues relating specifically to over-mature Moonahs in Victoria Park:

- The Moonahs within Victoria Park are of a considerable age with associated structural defects. They are not however reaching the end of their lives, and with appropriate management the trees have the potential to survive in the long-term. This, together with their environmental value, means that the Moonahs are considerably more worthy of intensive management than are the relatively short lived and introduced Cypress and Pines.
- Many of the Moonahs are exhibiting a large range of structural defects and are unsafe. Defects such as extensive rot, weakly attached limbs, cracks, extended limbs and damage at the base of the trees were all observed. While the trees are

mostly healthy, an unsafe tree should never be maintained in a publicly accessible area.

- While a number of Moonahs have a large level of rot present, this is not always a structural defect in this species. However when the rot is present in the union of limbs, trunks or roots then it increases the risk of the tree failing
- It is possible and advisable to manage the Moonahs to aid their retention and reduce the risk they pose to the public. The relatively small size of the trees and their ability to regrow from the base makes a number of non-conventional management techniques feasible.
- Moonahs can be managed by coppicing. This involves removing the older tree and allowing the stump to re-shoot. This more quickly establishes a mature tree but requires ongoing management. Shoots which develop in this way may be weakly attached, and for safety reasons it is therefore imperative that they are actively managed.

2.4.4 Additional Species

The above information deals with the three dominant species within the Queenscliff parks. The following is a brief discussion on the merits and problems of some of the remaining species which are present but are less common and subsequently less important from a character perspective.

Norfolk Island Pine

A number of Norfolk Island Pines (*Araucaria heterophylla*) are present within Princess and Citizens Parks. These trees are typical of Victoria era planting and the older specimens may be original. The trees are highly tolerant of coastal locations, have a potentially long life-expectancy and are not showing signs of age related problems. A number of the trees are, however, in relatively poor health and stress reduction works may be beneficial. Norfolk Island Pines are a good replacement species for some of the Monterey Cypress as they have been shown to be excellent landscape plants with few management requirements. Norfolk Island Pines are a signature species in Queenscliff generally, but the ones within the foreshore parks generally are inferior to those located within private properties across the township.



Moreton Bay Fig

Four Moreton Bay Figs (*Ficus macrophylla*) are present within Princess Park. These trees are typical of Victorian era planting and the oldest of the specimens may be original. The trees are highly tolerant of coastal locations and have a potentially long life-expectancy, however the trees are showing signs of considerable decay and should be actively managed. The age and size of these trees, together with the potential they have for providing amenity once the Monterey Cypress are removed, means that they are worthy of active management. This species of tree is common in Queenscliff and should continue to be used within the parks.

She-oaks

A number of She-oaks (*Casuarina* spp. and *Allocasuarina* spp.) are present within Citizens and Victoria Parks. Two species, *Allocasuarina verticillata* and *Allocasuarina littoralis* are locally indigenous and as such are recommended for continued use.



Tuart

There are five Tuarts (*Eucalyptus gomphocephala*) located within Victoria Park. The largest of these trees, tree 100, is very substantial, but the remainder are small, relatively insignificant specimens. Tuarts are indigenous to Western Australia but have been widely planted in Victoria, where according to one source they have naturalised in small populations^{vi}. There are reports that Tuarts drop limbs. As this species is not likely to be original, and is not particularly suited for use within a caravan park, it is recommended that it is not replanted in the future.



Coast Tea-tree

A number of Coast Tea-trees (*Leptospermum laevigatum*) are present at the southern end of Citizens Park. These trees may be locally indigenous, but also have a tendency to become weedy very close to their natural range. The species is small, relatively short lived and breaks apart with age. Old specimens are often unsightly. It is therefore not advisable to continue to use this species within the parks.

Aleppo and Maritime Pines

Two additional species of Pine are present within the parks, particularly among the younger plantings. These are the Aleppo Pine (*Pinus halepensis*) and the Maritime Pine (*P. pinaster*). Both trees are suitable species for planting in coastal locations and in Victorian era gardens. However, in southern Victoria many Pines have weed potential, some species more than others, with the extent of the potential problem depending on the location of the parent trees. The Maritime Pine (*P. pinaster*) has been highlighted as being a greater weed threat than the Aleppo Pine (*P. halepensis*). While Queenscliff is not considered to be an area where the spread of Pines is likely to be problematic (it is well developed and isolated), it is still recommended that the less weedy species, the Aleppo Pine and Stone Pine, be the only ones planted within the Parks.



^v From information provided by Borough Horticulturalist

^{vi} Carr et al (1992) quoted in Euclid.

3 CONTRIBUTING FACTORS

Tree Management, Removal and Replacement in the Queenscliff parks is not a straightforward process with numerous factors influencing and informing the decision making process. This section of the report discusses each of these factors.

3.1 PUBLIC SAFETY

Many of the trees within the Queenscliff parks are currently dangerous, and the safety of the public is the single most important factor driving the production of this strategy. While there are numerous factors to consider in the decision on how to manage the trees, the overarching aim of this strategy is to bring the risk posed by the large trees, in particular the large Monterey Cypress, Stone Pines and Moonahs, down to an acceptable level. There are numerous ways in which this can be achieved, and these are best explored through an understanding of what makes a tree hazardous.

In its simplest form, the level of hazard a tree poses is based on two factors:

- 1) How likely is the tree to fail and
- 2) How likely is to the tree to cause damage and how bad would this damage be?

This concept is summarised in Figure 7, below, which shows that for a tree to be hazardous (or dangerous) it must be at risk of falling apart and be in location where it can hit and damage either people or property.

All trees in public places pose some risk, as trees are inherently unpredictable and things do occasionally go wrong. The aim of hazard assessment and abatement should be to bring the risk posed by a tree down to an acceptable level. Where a tree is hazardous there are two options for reducing the risk:

- 1) Treat the tree to reduce its failure risk or
- 2) Remove people or objects so they can not be damaged.

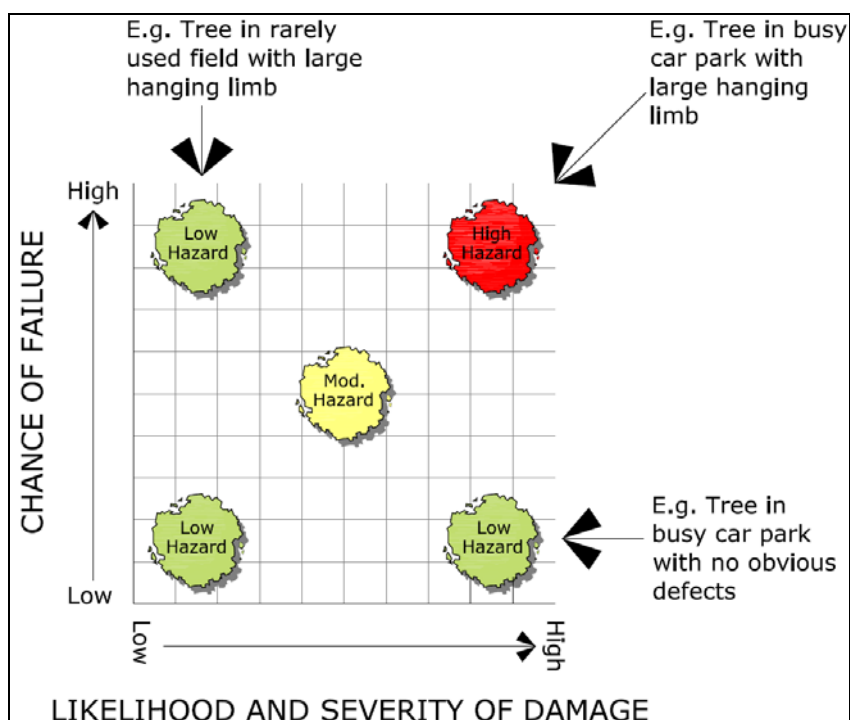


Figure 7: Graph showing hazard assessment in trees

In relation to managing the Queenscliff parks, a large number of the trees are structurally unsound and located in public parks with a high level of use. The more the park is used, the greater the chance a failing tree will hurt a person. This is especially the case in Victoria Park, where unprotected campers are spending large amounts of time beneath structurally unsound trees.

In short, many of the over mature Monterey Cypress and Moonahs are extremely hazardous and if left unmanaged could potentially cause a fatality.



Figure 8: Failed branch from a Princess Park Monterey Cypress (branch failed on or around June 21st 2009). Source: John Henderson, Borough of Queenscliff

3.2 TREE AGE AND CONDITION

Particularly within Princess and Victoria Parks a large number of trees are in extremely poor condition and have reached a stage where they are unsafe for retention within a public park. In relation to the over mature cypresses, little can be done to retain these trees. Even if public safety were not an issue, the trees simply have a limited life span. The same applies to the Stone Pines, however these trees have not yet at the end of their lives, and are able to be retained in the short to medium term.

The management of the Moonahs is more complex. These trees are of a considerable age and are therefore decaying and falling apart, however the trees still have a potentially long life due to the growth pattern of the species. This means that outright removal and replacement is appropriate and desirable when dealing with the pines and cypress, there is less justification for this approach when it comes to the Moonahs.

Section 2.4 of this report and Appendices A, B and C should be referred to for further details.

3.3 HORTICULTURAL CONSTRAINTS

Trees have specific, non-negotiable biological requirements, and if these are not met then the tree will fail to survive or thrive. These factors all limit how the trees within the Queenscliff Parks are managed.

3.3.1 *Climate*

Queenscliff is a difficult area to establish trees. Coastal, salt-laden winds restrict the number of species suitable for use and soils, particularly in Victoria Park, are shallow and most probably alkaline. All trees selected for use within Princess and Citizens Parks need to be salt and wind tolerant, and while Victoria Park is more protected, some coastal tolerance is still advisable. It is also highly desirable that all tree species are drought tolerant given the general lack of water in the state. Species which do not meet these requirements will probably fail to perform.

3.3.2 *Competition*

There are difficulties in establishing new trees in close proximity to mature ones. This is especially the case around the pines and cypresses, as these trees often provide intense competition for light and water as well as releasing chemicals which inhibit the growth of other plants. If older trees are structurally unsound there is also an increasing risk of new trees being damaged as older trees fail or are removed. This combination of factors can lead to new trees developing poorly, and it is therefore desirable to only plant trees where they have a reasonable chance of survival.

3.3.3 *Species Characteristics and Appropriateness*

Individual species have different characteristics. As discussed in detail in section 2.4, each of the three main species (Monterey Cypress, Stone Pine and Moonah) have different growth characteristics and managerial requirements. It is not appropriate to treat a Moonah like a Cypress or vice versa.

Another constraint is the form and growth patterns of the original species chosen. It may be that a species popular in Victorian times has now outlived this popularity and is no longer considered appropriate for widespread use. This may include trees that are relatively short lived, structurally unsound, have high maintenance requirements, are weed species, or simply inappropriate for the space as it now exists.

3.3.4 *Changed Wind Patterns*

The final horticultural constraint is the impact of tree removals on wind patterns. As trees are pruned or removed wind patterns change and new forces are placed on remaining limbs and trees. Trees do not grow evenly, and generally adjust their growth to compensate for the forces they encounter (such as prevailing winds). By exposing trees to new wind forces, especially when they have established in groups, parts of the tree which were previously stable may be at increased risk of failure.

This problem is difficult to deal with. Tree pruning and removal is a necessary part of tree management from time to time, and can not always be practically avoided. It is important to consider the impact of pruning or removal on remaining trees, and where necessary look at alternatives. However, at times pruning or removal will be the only practical option and changed wind patterns are not a valid reason for inaction.

3.4 HERITAGE CONSIDERATIONS

All three parks have local heritage overlays as part of wider precincts, meaning they have been assessed as having heritage significance at a local level. None have State heritage registration⁶.

3.4.1 Princess and Citizens Park

The following information on the heritage significance of Princess and Citizens Parks draws heavily on the draft statement of significance prepared by Lovell Chen for the *Queenscliffe Heritage Study* (2008).

The mature trees within Princess and Citizens Park, in particular the Stone Pines, Monterey Cypress, Moreton Bay Figs and Norfolk Island Pines are of local heritage significance from a historic and aesthetic viewpoint.

The entire precinct is of historical significance for its strong association with the history of Queenscliff, including its development as a holiday resort. The parks were originally laid out as places for public enjoyment and recreation in the 1880s, during Queenscliff's boom. The planting remnants from this time (in the form of mature trees) are of significance as reflection of this early history.

The parks are of aesthetic significance for their collection of mature trees in an open, landscape setting; particularly Princess Park which is an area of great beauty. The parks provide a transition between the bay and the township and are an important component of many seaward and landward views. This includes views to heritage buildings on Gellibrand Street.

A draft statement of significance for the Piers and Parks Precinct, which includes Princess and Citizens Parks by Lovell Chen is provided at Appendix D.

⁶ The "Wreck Bell" in the adjacent Lower Princess Park has Heritage Victoria registration (H2070), but this registration does not apply to the park in general.

3.4.2 Victoria Park

The mature trees within Victoria Park, are of local heritage significance from an historic, aesthetic and social viewpoint. The main species of significance are the Moonahs, Monterey Cypress and Pines. However, the Kurrajong (*Brachychiton populneus*) and Mexican Cypress (*Cupressus lusitanica*) are of some interest as remnants of a more diverse planting scheme.

The historical significance of Victoria Park stems from its continual connection with the Borough of Queenscliff, being set aside for the purpose of public recreation soon after the Borough's formation. Victoria Park was planted by c.1870, prior to either Princess or Citizens Parks. The remnant Moonahs are the only trees to date from this period; with the possible exception of the large Aleppo Pine. The cypress within the reserve are unlikely to be more than 110 years old (c. 1900). Other features of the original park such as the ferns and maze have been lost. It is unknown whether the current path configuration is original, or the extent to which it may have been modified to accommodate campers. A portion of the Park was annexed in 1986 and made over to the adjacent Bowling Club.

Victoria Park is of significance for its connection with the prominent botanist and director of the Royal Botanic Gardens in Melbourne, Dr. Mueller, although it is unlikely that he is associated with any remaining fabric. Advice to council was received from Mueller on the planning of the reserve in 1867^{vii}, and he is known to have sent a number of plants to Queenscliff in 1870 and 1873^{viii}. It is unknown if any of these plants were used in Victoria Park, but even so, as discussed above none of the cypress could date from this period. While Mueller is undoubtedly connected to Victoria Park, the extent of his input may be limited. Minutes from a council meeting in 1867 described Mueller's advice, and indicate that it was broad in nature:

"with reference to Mr. Lacey's(?) petition, the Mayor requested Councillor Simpson to state the result of the interview with Dr. Mueller respecting the trees and shrubs on the place, which he accordingly did, showing how undesirable and injudicious it would be cut down any of the trees, as they formed the principal protection against the encroachment of the sand, and further stating that the Doctor recommended the planting as many trees as possible with the same view"^{ix}

Council minutes from April 8th, 1868 record further input from Dr. Mueller that *"He (Councillor Pagan) cited the opinion of Dr. Mueller who recently visited Queenscliff and recommended seeds, shrubs etc. to be sown and protected from the cattle etc."*^x The minutes do not state to which part of Queenscliff this advice applied, but it may have applied partially or fully to Victoria Park given that it was probably the principal public park at the time.

It is possible that further information may come to light showing that Dr. Muller had a greater involvement in the laying out of Victoria Park. However, as discussed above only one exotic tree, the Aleppo Pine, could theoretically date from the time of his involvement.

Aesthetically, Victoria Park is significant for its mature plantings. The three Monterey Cypress on the corner of King and Mercer Streets are local landmark specimens. Views into and out of the park connect with heritage listed buildings including the "Royal Hotel" and "Warringah".

Socially, Victoria Park is significant for the long association campers have with the site and Queenscliff. Camping has been occurring within the park since the 1930s, with caravans having access since the 1960s. Some campers within the park are now 5th generation users. There is also a strong community attachment to trees within the park, as has been evidenced by intense opposition to proposed tree removals in the past.

The Park is also of natural heritage significance for its stand of remnant indigenous Moonahs, thought to be the only one remaining in the Queenscliff township.

3.4.3 Victoria Park as a Botanic Gardens

It is noted that members of the public consider Victoria Park to be the Botanic Gardens, and the park has at times been referred to by this name at least 1886, however the gardens were reserved as a public garden – not a place for botanical collection.

In relation to the term “Botanic Garden” as applied to Victoria Park, the following extract from Queenscliffe Heritage Study, 2008 is a summary of the park’s status:

In classifying historic gardens a distinction is made between Botanic Gardens which are primarily a collection of exotic and indigenous plants for scientific and public education purposes; and Public Gardens which are usually designed as pleasant leisure places which may incorporate recreation and public sporting facilities. A large number of townships throughout Victoria allocated space to Botanic or Public Gardens as part of a grand vision of growth, public amenity and education which was part of the nineteenth century civic ethos.... Victoria Park is commonly referred to as a “Botanic Gardens” but it appears to be more accurate to denote it as “Public Gardens” to reflect the intent of the reservation for “recreative purposes”. There appears to be no evidence to suggest that Victoria Park was ever intended to be laid out and planted as a Botanic Gardens, however there are contemporary accounts of the area as a “shady retreat”.

Given the lack of botanical diversity in the park⁷ and that it was never gazetted as a botanic garden^{xi} (in contrast the Geelong Botanic Gardens were gazetted for “Botanic Gardens and Public Recreation” in 1936^{xii}) the above summary is accepted by this report. It is acknowledged that the site in all likelihood contained a more diverse planting scheme in the past, but in its current state it is not functioning as a Botanic Garden. As noted by Watts in *Historic Gardens of Victoria*, many of the regional Botanic Gardens were indistinguishable from municipal pleasure gardens laid out at the same time.

3.5 ENVIRONMENTAL CONSIDERATIONS

3.5.1 Indigenous Species

Moonah woodland was likely to be the dominant vegetation cover on the Queenscliff peninsula prior to European settlement. This woodland was largely removed, and the patch of mature trees within Victoria Park are thought to be the only group of any size left. The environmental significance of the stand has not been formally assessed by an ecologist, but the trees are remnant indigenous and likely to be of environmental significance, despite being isolated from broader natural woodland context.

These trees provide cover and food for native fauna and a source of local provenance seed for propagation purposes. This species is slow to establish and the Moonahs within Victoria Park have reached a size and form that is only achieved with considerable age. The Moonahs within Victoria Park have a high preservation value as relatively healthy trees of a considerable age and with likely environmental significance.

The southern portion of Citizens Park also contains a number of indigenous species. It is desirable to retain these species in the Park’s upper reaches, however the indigenous trees within Citizens Park are likely to have considerably less environmental significance than the Moonahs within Victoria Park.

3.5.2 Weed species

Some species which were once popular have proven to be severe environmental weeds. While this is not the case in Queenscliff, there are still some trees with weed potential and it

⁷ With the exception of the indigenous species and the she-oaks all remaining trees fall into four genera, *Eucalyptus*, *Cupressus*, *Pinus* and one *Brachychiton*.

is best to avoid the use of these trees in future planting schemes. Examples within the Queenscliff Parks are the Maritime Pine (*Pinus pinaster*) and the Olive (*Olea europaea*). There is only one Olive within Princess Park of heritage significance and there are a number of options for dealing with this tree.

3.6 PARK USE AND AMENITY

3.6.1 Contribution of Trees to Amenity

The trees within all three parks greatly contribute to their amenity, providing shade shelter and visual interest. Visually, all three parks are largely defined by their trees, but in different ways. Princess park is defined by its large trees, which make a stark contrast against the open lawns and sky. Citizens Park is visually more enclosed, a combination of the tree planting and the planted embankment to its east. Victoria Park is as much defined by its trees as Princess Park, however in Victoria Park the character is more of a sheltered woodland, rather than an open landscape.

The shade and shelter provided by the trees increases the amenity value of Victoria Park, and would be a relief to campers. The trees in Princess and Citizens Park also provide shade for park users.

3.6.2 Use as Public Parks

Princess, Citizens and Victoria Parks have a long history of public use (see section □, History) and are valued as places of recreation and relaxation. These parks are used by both locals and visitors to Queenscliff, with use increasing dramatically during the summer months and during peak events such as the Queenscliff music festival. It is important that these spaces can be retained as places of public recreation and relaxation.

3.6.3 Large Scale Events within Princess and Citizens Parks

Princess is used to host two large scale events annually, the Hot Road Show in February and the Seafood Feast at Easter. The park's central location makes it a practical venue for these events which contribute to the economy of the township.

3.6.4 Camping within Victoria Park

Victoria Park has a long tradition of use as a camping and caravanning site, with some campers being fifth generation users of the park. The use of a park as a camping ground is a contentious issue, with some people feeling that the park should be returned to a Botanic Gardens and others wishing to retain the camping. The issue of the park's status as a Botanic Garden and the economic impact of the camping are dealt with in other parts of the report (sections 3.4 and 3.8 respectively), with this section focusing on other aspects of the camping.

Camping within Victoria Park commenced in the 1930s and the site has been operating as a caravan park since the 1960s. This means that many campers have a long association with Victoria Park and therefore a strong social connection to the place. As a camping site the park is conveniently situated close to town (700m to the Hobson Street intersection) and sporting facilities, and is well supplied with powered sites, plenty of shade and a new camp kitchen and toilet block. The Queenscliff / Point Lonsdale area is a popular spot for campers from Ballarat, Geelong and Melbourne with Victoria Park, the adjacent Recreation Reserve and Golightly and Royal Caravan Parks in Point Lonsdale all being filled in summer. Relocating campers to elsewhere in the Borough is not an option as there are no feasible alternative sites.

A public meeting to discuss the future of Victoria Park held on January 19th, 2009 had a large turnout. Comments were unanimously supporting of camping being retained in

Victoria Park, but this is not unexpected given the nature of the meeting. The following being a summary of recurring views:

1. Many campers have a long association with camping in Victoria Park
2. There are strong family, social ties to Victoria Park with it being felt that it is a safe community and family friendly environment
3. Comments were critical of a minority group with a history of trying to close Vic Park
4. There was recognition of campers financial and social contribution in Queenscliff community
5. Comments recognised the importance of trees and support management to maintain safety. Made the point that trees would need to be maintained even if no camping.
6. A number of residents and traders stressed that Queenscliff needs campers and that a vast majority of residents wanted camping retained.

<p>The biggest problem facing tree retention in Victoria Park is that of the three parks, Victoria's trees have the greatest retention value while, due to camping, the park has the least capacity to easily accommodate them.</p>

The use of the Victoria Park as a camp ground puts additional pressure on its trees, over and above those existing in a public park. The three main conflicts between camping and trees are as follows:

- Campers spend large amounts of time beneath the trees, longer than would be spent by normal park users. This includes sleeping, with tents and caravans providing little protection from falling limbs or trees. This greatly increases the level of hazard posed by a tree (see section 3.1)
- Campers put a great deal of pressure on the existing trees. Of especial concern is the impact damage caused by vans and vehicles hitting tree trunks and the damage to new growth
- When in use, Victoria Park is filled to capacity. This provides no opportunities for fencing off trees without losing camping sites
- Children climbing on trees can potentially break limbs and various activities can prevent basal regrowth

It is noted that some members of the public wish to see camping removed from Victoria Park.

3.7 PUBLIC SENTIMENT

The issue of tree removal or retention within Queenscliff's Parks triggers a wide range of intense opinions. Many people have a passionate attachment to the trees, as is evidenced by intense community opposition to tree removal in the past. Conversely, there is strong support for camping in Victoria Park – an activity which conflicts with tree retention (see above).

Even those who wish the trees to be retained have a variety of views – some of which are conflicting. The following is a summary of some views expressed by members of the public:

- Value for the exotic trees and the connection they have to Queenscliff's historic past
- Value for the landscape contribution of the larger trees, especially the three landmark trees in the northern corner of Victoria Park
- Value for the aesthetic and amenity contribution of the trees
- Value for the Moonahs from an environmental perspective
- Desire to retain the trees, even if this means loss of accessible parkland
- Desire to return Victoria Park to a "Botanic Gardens"⁸ and remove campers
- Desire to retain all camping within Victoria Park
- Value for the trees for their connection with Baron von Mueller⁹
- Acknowledgement that the trees are old and in need of replacement
- Desire for works to be carried out to prolong their lives
- Desire for trees to be removed if required, rather than managed

⁸ Note: The site is not actually a Botanic Garden (see Section 3.4.3)

⁹ Note: The von Mueller connection may be over emphasised (see Section 3.4.2)

3.8 FINANCIAL CONSIDERATIONS

3.8.1 Management Costs

Financial considerations are a significant aspect of dealing with the management of trees. The cost of maintaining trees, especially old ones, can be considerable, and if prescribed management regimes are too financially onerous they will not be implemented.



Figure 9: These Monterey Cypress in Princess Park are at the end of their lives. Maintenance would be expensive and provide no long term benefit.

The cost of maintaining trees in the landscape changes over time, with the majority of financial input required at the beginning and end of a tree's life. As a tree ages it starts to decline, and considerably more maintenance is required to maintain the tree in a safe and healthy condition. For a large old tree such as a cypress these costs can be considerable. Where there are a large number of trees it may be simply impossible to provide adequate resources for ongoing management.

Generally speaking it is not recommended that resources be poured into maintaining trees which are reaching the end of their useful lives. The maintenance of these trees in many cases will only slow – not prevent – the eventual demise of the tree. Further more, as trees decline, so to does their contribution to the landscape.

There are some cases where it is appropriate to put increased resources into maintaining declining trees. Where an individual tree or group is of particularly high heritage significance then additional resources could be made available. Even so, when dealing with whole landscapes of heritage significance it becomes necessary to prioritise where the money is to be spent. Prolonging the life of the tree is possible, but involves considerable effort on the part of the tree's manager, and often at increasingly high financial cost.

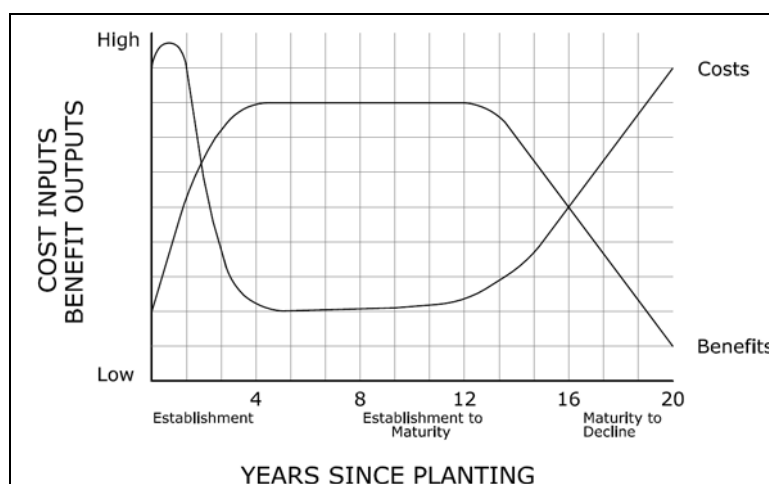


Figure 10: Relationship between time since planting and the aesthetic returns and management costs generated by a hypothetical tree

Source: J.D. Hitchmough, *Urban Landscape Management*

3.8.2 *Economic impacts*

Retention or removal of trees also has potential economic impacts for the township of Queenscliffe. One option for retaining trees is to exclude public access (e.g. by fencing). This of course prevents the area around the trees being available for public use. In terms of Victoria Park this has a particularly high impact.

For five months of the year (December to April) Victoria Park is used for camping. This generates an annual income of around \$220,000 for the Coastal Crown Land reserve fund, with this money then used to improve and maintain coastal Crown Land. The economic impact of the campers on the township as a whole would be considerably greater, with Victoria Park being within walking distance to Queenscliffe's shops, restaurants and cafes. It is also a source of accommodation for music festival patrons, another source of income for the township. Annually, Princess Park is used for the Seafood Feast (Easter) and Hotrod Show (February), both of which contribute to the economy of the township.

Conversely, the established trees are part of the appeal of Queenscliffe as a tourist destination. An appeal which would be diminished upon removal of the trees.

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- vii E. T. Raison (undated) from letter sent to council by Cr. Stephen Lee, 15 May, 1996
 - viii Information provided by the Borough Horticulturalist. Source Monica Wells, Librarian, National Herbarium, RBG, Melbourne
 - ix Minutes of Ordinary Meeting of Council held 4th October 1867
 - x Minutes of Special Meeting of Council held 8th April 1868
 - xi Communication from DSE Geelong. Refer to Appendix E for full details
 - xii Submission by the City of Greater Geelong to the Eastern Park & Geelong Botanical Gardens, Heritage Act 1995, Heritage Council Registrations Committee Hearing, 2006, Page 22

4 TREE MANAGEMENT, REMOVAL AND REPLACEMENT STRATEGY

The following strategy for the management of the trees within the Queenscliff Parks has been developed with consideration for the contributing factors described above. As can be observed, a number of these issues conflict with one another. This strategy considers all these issues, and has been developed to balance the differing requirements while managing public safety. In achieving this it has been necessary to look beyond simplistic management prescriptions and to take a wide ranging and complex approach to the management of the trees.

This strategy has been developed based on the assessment of the trees. This assessment, together with recommendations for individual trees, are provided in Appendices A, B and C. Section 1.3 should be referred to for further details on methodology.

4.1 GENERAL POLICIES

The following policies outline the direction of the Strategy in broad terms. These policies apply to all three parks and set the picture for the park specific policies and implementation guidelines listed in following sections.

Policy 1: Statement of Policy

The management of trees within Princess, Citizens and Victoria Parks in Queenscliff should have the aim of reducing the risk the trees pose to the public while maintaining suitable levels of public access and managing the cultural and environmental significance of the trees.

The relative significance of each of these factors differs between the individual parks and management strategies reflect this.

It is acknowledged that no public tree is completely “safe”. Risk management should focus on reducing known risks to an acceptable level, not on removing risk.

Policy 2: Active Management of Trees

To mitigate risk and increase the potential life span of a tree it is important that it is pro-actively managed. All trees within the parks, from juvenile through to over mature specimens should be actively managed so that risks are identified and necessary mitigation works are undertaken.

Policy 3: Retention of Public Access

All three parks are publicly accessible and widely used. The benefits of this use are beyond those of amenity and recreation value. Camping and festivals within the parks contribute significantly to the economy of the town and campers have a strong social attachment to Victoria Park.

The three parks are to remain publicly accessible, although it is proposed that access to specific parts be restricted. Access should be restricted where disruption to park use will be minimal or where a large number of trees can be protected within a relatively small area. Areas where access should be restricted are described in this strategy.

Policy 4: Staging of Tree Removal

Staging tree removal prevents large scale amenity loss in a short time frame and allows for the establishment of replacement plantings. The condition of trees within Princess and Victoria Parks, and the lack of replacement plantings, mean that there are limited opportunities for staging removal. However, removals within the parks should be staged wherever practicable.

Policy 5: Removal of Trees

Trees have a finite life span and will at times require removal. It is not practical nor appropriate to “prop up” trees which are at the end of their lives. This document provides guidelines for assessing tree removal. All trees which require removal based on arboricultural assessment should be removed.

Policy 6: Replacement of Trees

Replacement planting should be installed to help minimise loss of amenity and heritage value when removals take place. Wherever possible this replanting is to take place well ahead of tree removal. Replacement planting should be properly planned, sourced, installed and maintained. Replacement trees numbers should exceed removals, including existing young trees being counted as “replacement” specimens.

Due to a lack of planting in the past it will be important to undertake an extensive replanting schedule in the short term. Once this is complete replacement planting should continue to occur at appropriate intervals to develop a population of trees of mixed ages.

Tree replacement should comprise mixed species with variable life expectancies to ensure that timing of future removal will be over an extended phase rather than at a particular time.

Consideration should be given to a policy of establishing trees regularly to secure a mixed age population. Care should be taken to ensure that structural elements of a site eg avenues, are of a consistent age while individual trees are of varied ages. In broad terms, approximately 10% of a park’s trees should be replaced each decade, assuming trees will live 100 years; some species will live longer, some shorter.

Policy 7: Retention of Trees

While tree removal is at times required, it is also important that trees with an appropriate level of importance are retained, or at least considered for retention, while they can still be made to have an acceptable risk. Trees with a high level of heritage or environmental value and which are not reaching the end of their lives should be actively managed to aid their retention. This applies specifically to the Moonahs, as the pines and cypress are reaching the end of their lives.

These trees should only be removed if they can only be rendered safe by excluding public access and if this exclusion of access would inappropriately disrupt use of the park. Guidelines for assessing this are provided in the strategy.

4.2 PRINCESS PARK

4.2.1 Summary of Approach

Trees within Princess Park fall into two broad categories, those that require removal in the immediate future and those which can potentially be retained in the longer term (10 years plus). The majority of Monterey Cypress within Princess Park are at the end of their lives and are dangerous. These trees are recommended for immediate removal. The Stone Pines are also approaching the end of their lives but could potentially be retained with appropriate management for the next ten years. If these trees were removed in the short term the aesthetic value of the park would be radically decreased. For this reason it is recommended that additional resources be made available to actively manage these trees. The majority of this cost will be in the first one to two years, as maintenance in the past has been minimal to non-existent.

The remaining trees are in varying condition but the majority have the potential to be retained without extensive management input. It is recommended that these trees be combined with an extensive level of replanting to form the future structure of the park. This document makes recommendations for specific short term planting, but recommends that longer term planting be addressed as part of a master planning process to help planting conform to an overall park vision. Short term planting focuses on replanting the Gellibrand Street road reserve and establishment of an avenue of Stone Pines to the west of Harrys. It is intended that this replacement planting will have started to establish before the Stone Pines require removal.

The following specific recommendations outline how each of the general policies listed above are to be applied to Princess Park. They also include a list of points for implementation. Management recommendations for individual trees are provided separately in Appendix A. Recommendations in this appendix reflects these general policies, however the general policies should not override specific recommendations applicable to individual trees.

4.2.2 Active Management of Trees

The Stone Pines within Princess Park make a significant contribution to the amenity value of the space and have the potential to contribute to the landscape for the next ten years, if appropriately managed. The Stone Pines are to be regularly assessed and maintenance works are to be carried out to increase their structural stability and aid tree retention. This would include, as appropriate, pruning, cabling, bracing and specialised testing such as pull tests or tomograph scans.

All other trees within the site and not recommended for removal are to be actively managed through inspections and works, however the majority of these trees will not require the same level of commitment and resources as the Stone Pines. This management would include formative pruning of young trees.

Active management is also extended to protecting the existing trees from avoidable harm. Appendix F provides guidelines for avoiding damage to trees during construction and routine maintenance works.

Actions

1. Have all trees inspected by a suitably qualified and experienced arborist on an annual basis to assess risk and recommend works

2. Have all identified pruning, stress mitigation and other works carried out within the specified timeframes
3. Budget to allow for additional inspections or the use of specialised machinery such as tomographs for the Stone Pines and other highly significant trees (e.g Tree 28)

4.2.3 Retention of Public Access

Princess Park is publicly accessible and widely used, and in particular is the venue for the Hotrod Show and Seafood Fest. These events contribute to the economy of the township, however the high number of people using the parks increases the hazard posed by the trees¹⁰.

The Monterey Cypress within Princess Park are reaching the end of their lives, and as such it is not appropriate to exclude public access. The Stone Pines are also of an old age, and as such are unpredictable – although they are of significantly less failure risk than the Monterey Cypress. Fencing these trees is unnecessary in normal circumstances, although the increased risk associated with high park use and major events is a concern. It is possible however to reduce the level of risk posed by the Stone Pines without having an undue impact on public access.

It is recommended that all tables and chairs be moved outside the canopies of the Stone Pines and that the area be mulched. This will provide more favourable growing conditions for the trees and reduce the number of people within the most critical park of their failure zone. It will not render the trees “safe” as such, but will reduce the risk they pose. The Glossary should be referred to for advice on mulching these trees.

It is recommended that the mulched area be temporarily fenced to exclude public access during major events. This will reduce the risk of damage if a tree happens to fail at this time. It is also recommended that consideration be given to relocating events, where practicable, to alternative venues in Queenscliff where trees are more readily managed (e.g. Citizens Park, Lower Princess Park, Recreation Reserve oval).

It is recommended that additional specimens be temporarily fenced if recommended as an outcome of the arboricultural assessments. An example is the large Moreton Bay Fig. Consideration could be given to temporarily barricading this tree when in heavy fruit.

Once the Stone Pines are removed the area surrounding them can be returned to general park use.

Actions

1. Retain public access to Princess Park
2. Relocate tables and chairs away from the Stone Pines and mulch the area beneath their canopy
3. Fence off the area beneath the canopy of the Stone Pines as a temporary measure during events
4. Carry out any additional temporary fencing recommended as a result of arboricultural inspections

¹⁰ A major limb failed during the Hotrod show in 2009, resulting in damage to a car.

4.2.4 Staging of Tree Removal

A number of trees within Princess Park, particularly the Monterey Cypress, have reached the point where removal is required and retention for any reason is not an option. Staging of tree removals within this park is to be approached by the active management of the Stone Pines to prolong their lives as detailed above, and by utilising the replanting which has taken place in the past.

Actions

No specific actions required

4.2.5 Removal of Trees

All but one of the Monterey Cypress are at the end of their lives and are dangerous. These are a risk to the public, and therefore should be removed before park use increases next summer. A number of these trees are very dangerous and have been identified for more immediate removal. If this is not carried out then the trees should be appropriately fenced to restrict public access until removals can take place.

The remaining three trees recommended for removal in Princess Park are Stone Pines in poor health. These trees are not worthy of extensive management works to aid their retention and would have reduced structural integrity due to their poor condition.

Post Removal Inspection

As trees are pruned or removed wind patterns change and new forces are placed on remaining limbs and trees. By exposing trees to new wind forces, especially when they have established in groups, parts of the tree which were previously stable may be at increased risk of failure.

It is recommended that all trees in the vicinity of those removed or heavily pruned be reassessed to determine the potential effect of changed wind loadings and the necessity for further works.

Actions

1. Carry out all recommended removals within appropriate time frames. Trees which have been identified as dangerous should be immediately removed.
2. Reinspect specific trees following removals to determine if further works are required as a result of changed wind patterns

4.2.6 Replacement of Trees

A palette of replacement species suitable for replanting within Princess Park has been developed along with advice on use within the site. A planting plan has also been developed showing planting to occur in the short term (e.g. next winter) and around the proposed playground. Additional planting including placement of trees and species mix should be subject to a Master Plan which considers the site as a whole including circulation, layout, views, seating and future uses. This is to help ensure that future planting and development conform to an overall park vision.

The following is a planting list for Princess Park, showing suitable species and their intended use within the site. Tree sheets with information and photographs are provided at Appendix H.

Botanical Name	Common Name	Use
<i>Araucaria heterophylla</i>	Norfolk Island Pine	Suitable for use in limited numbers as a specimen tree and in groups as replacements for some of the Monterey Cypress.
<i>Cupressus macrocarpa</i>	Monterey Cypress	Historically present but recommended for planting in reduced numbers as it is a high maintenance species. Suitable for use primarily in group plantings, but could also be used as a specimen tree.
<i>Ficus macrophylla</i>	Moreton Bay Fig	Suitable for use in limited numbers as a specimen tree
<i>Ficus rubiginosa</i>	Port Jackson Fig	Suitable for use in limited numbers as a specimen tree
<i>Metrosideros excelsa</i>	Pohutukawa	Suitable for use in limited numbers as a specimen tree and around the children's play area
<i>Pinus pinea</i>	Stone Pine	One loose avenue / row should be planted to allow for the removal of the current row. This could possibly occur in front of Harry's where the Monterey Cypress are to be removed. Other examples should be dotted around the reserve as specimen trees.
<i>Podocarpus elatus</i>	Plum Pine	Suitable for use in limited numbers as a specimen tree especially where screening is desired.
<i>Quercus ilex</i>	Holm Oak	Suitable for use in limited numbers as a specimen tree especially where screening is desired.

Replacement trees should be installed in accordance with the guidelines provided at Appendix G.

Existing Replacement Cypress

Some replanting was undertaken in Princess Park approximately 25 years ago, with this including approximately thirteen Monterey Cypress. Unfortunately many of these trees have poor form and are unlikely to develop well. The reason for this is unknown but one option is inappropriate pruning at a young age (or in the nursery) and another is that the 'Horizontalis' or 'Lambertii' cultivar was planted instead of the species.

It is highly unlikely that these trees will develop appropriately and their low, spreading form is impractical in a public park as access beneath the wide canopy is difficult. As these trees are young, healthy specimens which are starting to contribute to the landscape it is recommended that they be retained for the next ten years. However, it is also recommended that the Master Plan address the issue of these cypress and specifies appropriate replacement planting so that in 10 to 15 years time these poorly formed trees can be removed with minimal impact to park amenity.

The problems these trees place on park management highlights the importance of future replacement planting being correctly specified, planted and maintained.

Actions

1. Undertake specified replanting next winter
2. Develop a Master Plan for the site
3. Undertake planting in accordance with the Master Plan
4. Continue to replant as additional trees are removed to provide a mixed age population.

4.3 CITIZENS PARK

4.3.1 Summary of Approach

The age distribution of trees within Citizens Park is considerably more even than that in either Princess or Victoria Park. The vegetation cover is also less dependant on the mature trees, and the park has been more heavily degraded, meaning that it has less heritage significance than Princess Park and less environmental significance than Victoria Park. In all, this means that tree management in Citizens Park is considerably less complex than the other two.

It is recommended tree removal and replacement within Citizens Park be actively managed so that trees are removed when necessary. It is generally not appropriate to “prop up” old trees within the site as replacement specimens are already present and contributing to the landscape. This also allows public access within Citizens Park to continue unrestricted, and it is recommended that consideration be given to shifting some events from Princess Park to Citizens Park.

New replacement trees should continue to be planted. This document makes recommendations for specific short term planting, but recommends that longer term planting be addressed as part of a Master Planning process. The current planting within Citizens Park lacks structure, and a Master Plan should inform the replanting design to structure the site and help planting conform to an overall park vision. Short term planting focuses on replanting the Gellibrand Street road reserve and establishment of an avenue of indigenous Banksias to provide structure and screening at the park’s southern end.

The following specific recommendations outline how each of the general policies listed above are to be applied to Citizens Park. They also include a list of points for implementation. Management recommendations for individual trees are provided separately in Appendix B. Recommendations in this appendix reflects these general policies, however the general policies should not override specific recommendations applicable to individual trees.

4.3.2 Active Management of Trees

All trees within Citizens Park not recommended for outright removal should be actively managed to prolong their lives and reduce risk. All trees should be regularly assessed and maintenance works carried out. This would include formative pruning of young trees.

A number of mature trees within Citizens Park are recommended for removal in the short term. These trees have a limited life expectancy and therefore are not worthy of extensive works to prolong their lives.

Citizens Park contains a considerable number of mature Norfolk Island Pines. Many of these trees are in relatively poor condition and would benefit from stress reduction works such as an application of fertiliser and/or sea-weed soil conditioners and mulching of the area

beneath the canopy. These trees are a valuable asset and it is recommended that they be managed to improve their health.

Active management is also extended to protecting the existing trees from avoidable harm. Appendix F provides guidelines for avoiding damage to trees during construction and routine maintenance works.

Actions

1. Have all trees inspected by a suitably qualified and experienced arborist on an annual basis to assess risk and recommend works
2. Have all identified pruning, stress mitigation and other works carried out within the specified timeframes

4.3.3 Retention of Public Access

Citizens Park is publicly accessible and widely used. The condition of the trees is such that there is no need to restrict public access within the park. The limited number of trees that require removal on structural grounds can be removed with relatively little impact on the amenity or heritage value of the site.

It is recommended that consideration be given to relocating certain high use events from Princess Park to Citizens Park.

It is recommended that trees in close proximity to the play grounds be more intensively managed, as there is an increased duty of care where children are concerned.

Actions

1. Retain public access to Citizens Park
2. Give priority to the management of the trees adjacent to the play grounds

4.3.4 Staging of Tree Removal

The mixed age population of trees within Citizens Park is such that removal can be staged. A number of trees require removal in the short term, however a considerable number of trees will remain to provide amenity value to the site.

Actions

No specific actions required

4.3.5 Removal of Trees

A number of trees have been recommended for removal within Citizens Park, but generally speaking less removals are required than in either Princess or Victoria Parks. The majority of trees recommended for removal in the immediate future are over mature indigenous specimens, many of which are unsightly and relatively poor. A number of over mature Monterey Cypress have also been identified for removal. These trees to the Gellibrand Street road reserve have a history of limb shed.

A second stage of recommended removals targets other over mature Monterey Cypress and conifers in poor condition.

Post Removal Inspection

As trees are pruned or removed wind patterns change and new forces are placed on remaining limbs and trees. By exposing trees to new wind forces, especially when they have established in groups, parts of the tree which were previously stable may be at increased risk of failure.

It is recommended that all trees in the vicinity of those removed or heavily pruned be reassessed to determine the potential effect of changed wind loadings and the necessity for further works.

Actions

1. Carry out all recommended removals within the recommended time frames
2. Reinspect specific trees following removals to determine if further works are required as a result of changed wind patterns

4.3.6 Replacement of Trees

A palette of replacement species suitable for replanting within Citizens Park has been developed along with advice on use within the site. A planting plan has also been developed showing planting to occur in the short term (e.g. next winter). As discussed above, Citizens Park is more degraded than either Princess or Victoria. Therefore, there is considerably more scope for change within Citizens Park in both layout and species selection. The main issue facing Citizens Park is the lack of structure to the space, and the park would benefit from an integrated Master Plan which considers the site as a whole, including future uses. Current planting within the site is very mixed and it is recommended that new planting be appropriately designed to help structure the site. The development of a Master Plan helps ensure that future planting and development conform to an overall park vision.

The following is a planting list for Citizens Park, showing suitable species and their intended use within the site. Tree sheets with information and photographs are provided at Appendix H.

Botanical Name	Common Name	Use
<i>Allocasuarina verticillata</i> syn. <i>Casuarina stricta</i>	Drooping She-oak	Indigenous tree suitable for use in small groves, at the southern end of the site. Could be interplanted with <i>A. littoralis</i>
<i>Allocasuarina littoralis</i>	Black She-oak	Indigenous tree suitable for use in small groves, at the southern end of the site. Could be interplanted with <i>A. verticillata</i>

Botanical Name	Common Name	Use
<i>Agathis robusta</i>	Queensland Kauri	Suitable for use as a specimen tree
<i>Araucaria heterophylla</i>	Norfolk Island Pine	Suitable for continued planting as a specimen tree and to reinforce the existing groupings. As there is a large number of mixed age Norfolk Island Pines already present it is recommended that new planting be limited at this stage.
<i>Banksia integrifolia</i>	Coast Banksia	Indigenous tree suitable for use in group plantings at the southern end of the site.
<i>Cupressus macrocarpa</i>	Monterey Cypress	Historically present but recommended for planting in reduced numbers as it is a high maintenance species. Suitable for use primarily in group plantings, but could also be used as a specimen tree.
<i>Ficus macrophylla</i>	Moreton Bay Fig	Suitable for use as a specimen tree
<i>Ficus rubiginosa</i>	Port Jackson Fig	Suitable for use as a specimen tree
<i>Melaleuca lanceolata</i>	Moonah	Suitable for use in limited numbers as a specimen tree at the southern end of the site. Also appropriate for planting in groups.
<i>Metrosideros excelsa</i>	Pohutukawa	Suitable for use as a specimen tree
<i>Myoporum insulare</i>	Boobialla	Indigenous tree suitable for use in group plantings at the southern end of the site.
<i>Pinus halepensis</i>	Aleppo Pine	Suitable for use as a specimen tree
<i>Pinus pinea</i>	Stone Pine	Suitable for use as a specimen tree.
<i>Podocarpus elatus</i>	Plum Pine	Suitable for use as a specimen tree especially where screening is desired.
<i>Quercus ilex</i>	Holm Oak	Suitable for use as a specimen tree especially where screening is desired.

Replacement trees should be installed in accordance with the guidelines provided at Appendix G.

Existing Replacement Cypress

A considerable amount of replanting was undertaken in Citizens Park approximately 25 years ago, with this including approximately thirty Monterey Cypress. Unfortunately many of these trees have poor form and are unlikely to develop well. The issues in relation to these trees are described in section 4.2.6, which discusses similar planting which occurred in Princess Park.

As these trees are young, healthy specimens which are starting to contribute to the landscape it is recommended that they be retained for the next ten years. However, it is also recommended that the Master Plan address the issue of these cypress and specifies appropriate replacement planting so that in 10 to 15 years time these poorly formed trees can be removed with reduced impact on park amenity.

Actions

1. Undertake specified replanting next winter
2. Develop a Master Plan for the site
3. Undertake planting in accordance with the Master Plan
4. Continue to replant as additional trees are removed to provide a mixed age population.

4.4 VICTORIA PARK

4.4.1 Summary of Approach

Management of the trees within Victoria Park is extremely complex due to the significance of the trees and the conflicting uses within the site. Many of the trees within Victoria Park are dangerous and campers beneath these trees are at real risk of serious injury or death.

The two simplest solutions to this problem are to either to remove all the dangerous trees to protect the campers or remove all the campers to protect the trees. At this time neither of these are sensible or viable alternatives. Many of the Moonahs, although structurally unsound, are in good health and with good projected longevity. These are very old specimens of environmental value and should not be removed in large numbers to preserve camping. Conversely, camping within the Victoria Park contributes to the ongoing maintenance and improvement to coastal crown land through camping fees, and more widely to the economy of the township. Exclusion of all camping within the park is not an option. There are strong community feelings on both sides of this debate. The Moonahs are highly valued by some people, while others have a strong connection to camping within Victoria Park.

The strategy outlined in this document takes a mixed approach to the management of the trees within Victoria Park. Many of the Monterey Cypress are at the end of their lives and have become dangerous. These trees are not worthy of intensive management works and are recommended for removal on safety grounds. Conversely, the good potential longevity of the Moonahs as well as their age and environmental value makes them candidates for intensive management to prolong their lives.

Specific areas of Victoria Park are to become Moonah reserves to the exclusion of camping and public access. Camping is to be maintained in the remainder of the reserve and the tree's actively managed to improve their structural integrity. When a tree outside the reserves can no longer be safely retained then it is recommended that they be coppiced. This involves pruning the tree to ground level and allowing the stump to resprout. In the event that the stump does not regrow (e.g. no growth after 12 months) then it should be stump ground to remove.

This report also recommends that campers be educated on the protection of the and that additional works be undertaken by council managers to protect new growth during the camping season.

The following specific recommendations outline how each of the general policies listed above are to be applied to Victoria Park. They also include a list of points for implementation. Management recommendations for individual trees are provided separately in Appendix C. Recommendations in this appendix reflects these general policies, however the general policies should not override specific recommendations applicable to individual trees.

4.4.2 Active Management of Trees

The Moonahs within the site are of environmental and amenity value to the place whilst also being of great age. Many of these trees are structurally unsound but due to the growth patterns of Moonahs, still have a potentially long life. These trees have a high worthiness of retention and are to be actively managed to prolong their lives and avoid removal wherever possible. This approach is expensive, and council will need to allocate appropriate resources if it is to be achieved. It is anticipated that the greatest cost will be in the first twelve months of implementation. Many trees require an extensive amount of works such as

propping or cabling in the immediate future, but these devices, once installed, require less input in subsequent years.

Maintenance works for the Moonahs are to be prescribed in accordance with the guidelines listed below. These guidelines take into account the current condition of the Moonahs and the direction of this Strategy. All works need to be prescribed by a qualified arborist following an inspection of the trees. It is recommended that where possible the same individual arborist should be employed each year. This allows the arborist to gain an individual knowledge of each tree and more readily identify developing problems.

It is imperative that recommended works are implemented. If prescribed works are not implemented then the tree should be either barricaded to prevent public access or removed.

It is essential that managers are aware that completing recommended works is just as important for safety as removing entire trees. Just because a tree is not recommended for removal does not mean that it is safe in its current state.

Where a hazard in a Moonah is identified, mitigation works are to be prescribed in the following order of preference:

1. Reduce the target risk if this can be simply done (e.g. move a path or gate, exclude public access if camping is not affected)
2. Prune or weight reduce limbs if this can be done without unacceptably impacting the tree or those around it
3. Cable, brace or prop limbs that are healthy and/or important for the tree or those around it
4. Exclude public access if the tree is within an area specified to be a Moonah Reserve
5. If appropriate, collapse the tree and mound soil over the exposed root system. This is only appropriate in specific circumstances, see glossary for further information.
6. Coppice the tree and continue to manage coppice growth

Trees within the Moonah Reserves are still to be subject to annual inspections, and any structural defects with a drop zone outside the exclusion area should be managed in accordance with the above guidelines.

Trees which are within Moonah Reserves may also have works prescribed where these will help the health or structure of the tree. Where such works are not required on safety grounds the decision on whether to implement the works is to be taken by council on a case by case basis. It should be noted that there can be environmental benefits in letting trees decay and collapse, but this should only be allowed to occur where there is no public access.

Other trees on site

The large Aleppo Pine at the northern end of the site is a fine specimen with a potential life expectancy greater than 10 years. This tree is worthy of additional works to prolong its life; however, it has not the same life expectancy as the Moonahs and it may not be practicable to put extensive resources into preserving this tree¹¹.

All other trees on the site are to be actively managed through annual inspections and the implementation of recommended risk mitigation works. Generally speaking these trees should not be subjected to extensive works such as cabling or propping to prolong their lives. If these trees reach a stage where such works are required then they should be removed.

Active management is also extended to protecting the existing trees from avoidable harm. Appendix F provides guidelines for avoiding damage to trees during construction and routine maintenance works. This applies to all trees on site, including the Moonahs.

Post Works Inspection

Some of these works may result in extensive alterations to the form of trees – even if the tree is retained. This can cause wind patterns to change and new forces can be placed on remaining limbs and trees. By exposing trees to new wind forces, especially when they have established in groups, parts of the tree which were previously stable may be at increased risk of failure.

It is recommended that all trees in the vicinity of those heavily modified be reassessed to determine the potential effect of changed wind loadings and the necessity for further works.

Actions

1. Have all trees inspected by a suitably qualified and experienced arborist on an annual basis to assess risk and recommend works
2. Have all identified pruning, stress mitigation and other works carried out within the specified timeframes.
3. Reinspect specific trees following works to determine if further works are required as a result of changed wind patterns
4. Budget to allow for additional inspections, the use of specialised machinery such as tomographs, installation of cables, braces and props for the Moonahs

4.4.3 Retention of Public Access

Victoria Park is publicly accessible but is not widely used outside camping times. During the camping season a large number of people stay within the park in close proximity to the trees for long periods of time. This dramatically increases the hazard posed by the trees.

The large Monterey Cypress within Victoria Park are reaching the end of their lives, and as such it is not appropriate to exclude public access. These trees have become dangerous and should be removed. The Moonahs however are of much higher retention value and with a potentially long life. Areas of these trees are proposed for fencing off in “Moonah Reserves” to allow the retention of the trees by removing public access.

¹¹ It is anticipated that maintenance of this tree would be approximately \$1700 in the short term with annual ongoing costs of approximately \$350 thereafter. Cables to support the tree structurally would each be approximately \$500 and \$300 annually thereafter. Removal would be in the order of \$3000.

Moonah Reserves

At this time it is proposed to create five reserves with the resulting loss of eight to nine camping sites¹². This will allow the retention of fourteen Moonahs which may otherwise require removal. Many if not all of these trees are of considerable age and have a high retention value, but on safety grounds camping can not continue beneath them, even in the short term. From an arboricultural and environmental perspective it is recommended that these Moonah Reserves be temporarily fenced before next summer to exclude public access. It is acknowledged however that there may be difficulties in achieving this and section 6.2 should be referred to for further details.

Potential Moonah Reserves

A further four areas have been highlighted for potential future Moonah reserves. The majority of trees within these areas have been assessed as suitable for retention (with appropriate works) for at least two years. This gives council time to commission a Master Plan for the reserve which can look at the option of rearranging camping and caravan sites to protect the trees while minimising loss of sites. It is proposed that in the interim coppicing does occur as recommended (this only applies to two Moonahs).

Public access would only be excluded from these Potential Moonah Reserves as inspections indicated this was necessary. In the interim camping could continue in these areas.

It is acknowledged that exclusion of public access to the Moonah group between the permanent vans is not an option due to the space requirements of traffic movement. It is recommended in the Master planning process that consideration be given to removing the vans and changing this area to seasonal camping.

In redesigning camp site layout it is important that the location of existing services be considered. Under no circumstances is trenching for the installation of services to occur within the root zone of trees to be retained. Spot excavation can occur to join into existing services lines. This requirement may restrict the potential layout of camp sites.

Design of Moonah Reserves

If the Moonah reserves are to be successful it is important that they successfully exclude public access. This should take place by densely planting out the area within the drop zone of the trees using low-level indigenous understorey species of local provenance. Appropriate signage should also be provided to explain the importance of not entering the area.

It is important that these areas are treated in such a way as to successfully deter public access, especially by children. If this does not occur then there is a risk that the reserves will become a magnet for children during the camping season.

While this vegetation is establishing it will be necessary to exclude public access through the use of temporary fencing (e.g. parawebbing or similar). The purpose of this is two fold. One, to exclude the public from the dangerous trees until the vegetation establishes and two, to prevent trampling of the new planting. This fencing would should be erected in the short term (e.g. before next summer), however new planting should preferably not take place before next winter to aid establishment. Signage should be placed on the temporary fencing indicating it's purpose.

In planting out the area beneath the canopy of the Moonahs the following should be considered:

¹² Loss of approx. \$15,000 a year in camping fees

- No deep ripping or extensive soil cultivation should take place as this can damage the root system of the existing trees
- All species should be appropriate to the macro and micro climatic condition of the area and should be capable of forming a dense mat of planting
- All plants should be of local provenance seed stock
- Due care should be taken in the planting process. A number of trees are structurally unsound and workers should not be beneath these trees on high risk days (e.g. windy).

Education of Campers

It is recommended that a camper education program be developed to inform campers of the importance of the Moonahs and necessary steps to protect them. Information covered should include:

- The age and significance of the trees (following further research)
- Protection of trees and roots from vehicle damage
- No attaching lines (potentially dangerous) or driving pegs into the trees (can cause decay) and the reason why this is important
- Encouraging children to stay outside the Moonah Reserves and the reason for this
- Encouraging children not to climb or hang on the trees
- Protection of new growth from damage

Actions

1. Retain public access to Victoria Park
2. Immediately (but temporarily) fence off the Moonah Reserves to prevent public access
3. Plant out the area within the Moonah Reserves to provide a more permanent barrier to public access
4. Develop and implement a camper education program
5. Commission a Master Plan for the reserve which looks at the option of formalising the Potential Moonah Reserves and rearranging the camping design. This should preferably be carried out in conjunction with a review of the Master Plan for the adjacent Recreation Reserve.

4.4.4 Staging of Tree Removal

A considerable number of trees within Victoria Park, particularly the Monterey Cypress, have reached the point where removal is required and retention for any reason is not an option. Staging of tree removals within this park is to be approached by the active management of the Moonahs and by staging the removal of trees which are in poor condition but are not in need of immediate removal on safety grounds.

Actions

1. Remove all trees assessed for immediate removal
2. Undertake staged removal of other trees based on program of assessment and active management.

4.4.5 Removal of Trees

Ten of the Monterey Cypress are at the end of their lives and require removal before next summer. It is not safe to retain these trees within a camping ground. Three of the trees are recommended for more immediate removal (i.e. now, rather than before next summer) and if this is not carried out then the trees should be temporarily fenced to restrict public access until removals can take place. This applies for all trees recommended for immediate removal or coppicing. A number of other trees have also been recommended for removal based on their health and condition.

Coppicing of Moonahs

Twelve Moonahs have been recommended for complete coppicing. Nine of these trees have been reviewed in accordance with the approach to Moonahs outlined in section 4.4.2, with coppicing being the only viable option for these trees. Of the remaining trees, two (trees 61 and 63) are recommended for review in accordance with the approach outlined in section 4.4.2 to confirm that coppicing is the appropriate management option.

Moonahs outside the specified reserves are to be coppiced to the base once they can no longer be appropriately managed through other means.

Once trees have been coppiced (or leading up to coppicing) it is important that new growth be allowed to establish. It is recommended that coppiced stumps and mature trees with establishing basal growth be temporarily fenced with parawebbing during the camping season to prevent damage to the new growth. This should be combined with a camper education program as discussed above.

It is imperative that coppice growth is actively managed. Coppice growth may be weakly attached and ongoing formative pruning is required to develop a structurally sound replacement tree.

Post Removal Inspection

As trees are pruned or removed wind patterns change and new forces are placed on remaining limbs and trees. By exposing trees to new wind forces, especially when they have established in groups, parts of the tree which were previously stable may be at increased risk of failure.

It is recommended that all trees in the vicinity of those removed or heavily pruned be reassessed to determine the potential effect of changed wind loadings and the necessity for further works.

Actions

1. Carry out all recommended removals within the recommended time frames
2. Review trees 61 and 63 to determine that coppicing is the appropriate option
3. Carry out all recommended coppicing of Moonahs within the recommended time frames
4. Reinspect specific trees following removals to determine if further works are required as a result of changed wind patterns
5. Temporarily fence off coppiced trees during the camping season to allow new growth to establish.
6. Formatively prune to manage new coppice growth.

4.4.6 Replacement of Trees

A palette of replacement species suitable for replanting within Victoria Park has been developed. Planting of new Moonahs and two Holm Oaks within the site has already occurred, and these new trees should preferably be incorporated into new Master Plan. The coppiced Moonahs should also be included.

The general approach with Victoria Park is for to primarily contain indigenous species. A small number of exotics have also been chosen as suitable for use. These should be used in limited numbers as highlight species within the reserve.

Traditionally there has been a large number of Monterey Cypress within the reserve. The widespread use of this species is to be discontinued. This is due to two factors. One, the high maintenance requirements of the species and two, the habit of the species when young. Young Monterey Pines have low closed canopies which can spread a considerable distance from the trunk. This habit will preclude camping beneath the canopy, and it is not appropriate to lose more camping sites within Victoria Park than is necessary for the Moonahs.

The final layout of planting within Victoria Park should be in accordance with a Master Plan for the site. The following list is a planting list for Victoria Park showing suitable species and their intended use within the site. Tree sheets with information and photographs are provided at Appendix H.

Botanical Name	Common Name	Use
<i>Allocasuarina verticillata</i>	Drooping She-oak	Indigenous tree suitable for use in limited numbers throughout the reserve to provide variation from the predominantly Moonah planting. Suitable for use as a screening plant on site boundaries.
<i>Banksia integrifolia</i>	Coast Banksia	Indigenous tree suitable for use in limited numbers throughout the reserve to provide variation from the predominantly Moonah planting. Suitable for use as a screening plant on site boundaries.
<i>Brachychiton populneus</i>	Kurrajong	One specimen currently present. To be used as a replacement for this tree and as a feature specimen tree within the site.
<i>Cupressus macrocarpa</i>	Monterey Cypress	Historically present in large numbers but not suitable for large-scale replanting. Three trees are to be planted at the north-western entrance to the site to replace the three currently present.
<i>Melaleuca lanceolata</i>	Moonah	To be used as the dominant tree within the site. Tree layout should be scattered rather than occurring in rigid patterns. New planting should consider the existing replacement planting already present and the coppiced mature trees within the site.
<i>Pinus halepensis</i>	Aleppo Pine	One specimen currently present. To be used as a replacement for this tree and as a feature specimen tree within the site.
<i>Pinus pinea</i>	Stone Pine	To be used as a replacement for trees already present and as a feature specimen tree within the site.
<i>Quercus ilex</i>	Holm Oak	Suitable for use in limited numbers as a specimen tree, especially where screening is desired.

Replacement trees should be installed in accordance with the guidelines provided at Appendix G.

Eastern Boundary of the Site

An additional issue has been raised as part of Master Planning for Victoria Park. Specifically, this relates to the interface with the bowling club, where there are a number of trees in need of management or removal. The entire eastern boundary of the Park is unsightly, and it is recommended that this area be specifically addressed in the Master Plan to improve the presentation of the area. Additionally, new planting could extend into the adjacent Bowling Club, improving the amenity of the area and reducing pressure on Victoria Park.

Actions

1. Develop a Master Plan for the site
2. Undertake extensive replanting as a matter of high priority
3. Continue to replant as additional trees are removed to provide a mixed age population.

5 FUNDING

5.1 INDICATIVE TOTAL COSTS

The following table provides indicative costs for the implementation of recommended works based on current commercial prices. The actual cost of works will vary, and information is provided below on the accuracy of these figures. The following is intended to inform budgeting and the decision making process.

5.1.1 Princess Park

Up Front Costs	No.
Removal of Monterey Cypress	16 trees
Removal of Stone Pines	3 trees
Maintenance work to mature Monterey Cypress (Allowance for maintenance pruning)	1 trees
Maintenance work to Stone Pines (Allowance for deadwooding, maintenance pruning and one cable every two trees)	15 trees
Formative pruning of young tree already present on site (e.g. 20 year old cypress)	15 trees
Maintenance work to other tree (Allowance for maintenance pruning or stress reduction works)	11 trees
Installation of mulch beneath canopy of Stone Pines (only those with recommendation for 10 year plus)	15 trees
Total	\$129,250

Annual Costs	Number and frequency
Removal of other tree (Assumes even number removed each year for 5 years) includes young conifers	2 trees removed over a five year period
Maintenance work to mature Monterey Cypress (Allowance for maintenance pruning on a two year cycle)	1 tree maintained over a two year cyclic period
Maintenance work to Stone Pines (Allowance for deadwooding and maintenance pruning on a five year cycle and inspection of cable annually – based on one cable every two trees)	15 trees maintained over a five year cyclic period with annual allowance for cable maintenance
Maintenance work to young tree already present on site e.g. 20 year old cypress. (Allowance for formative pruning on a five year cycle)	15 trees maintained over a five year cyclic period
Maintenance work to other tree (Allowance for maintenance pruning or stress reduction works on a five year cycle)	11 trees maintained over a five year cyclic period
Maintenance of mulch beneath canopy of Stone Pines (Allowance for replenishing mulch on a two year cycle)	15 trees with mulched topped up over a two year cyclic period

Annual Costs	Number and frequency
Inspection of Princess Park	1 inspection
Total cost per annum year 1 - 5	\$22,530
Total cost per annum thereafter	\$22,170

Replanting costs	Number and frequency
Installation of new trees (advanced) includes supply, planting and mulch	33 trees installed once
Irrigation of new trees (intensive first summer, less second summer)	33 trees for two years
Formative pruning of new trees	33 trees for five years
Top up mulch (Allowance for replenishing mulch on a two year cycle)	33 trees for five years
Immediate cost	Nil
Cost for first year cost	\$14,025
Cost for second	\$7,838
Cost per year (years 3-5)	\$573

5.1.2 Citizens Park

Up Front Costs	No.
Removal of Monterey Cypress	4 trees
Removal of other tree (includes young conifers)	12 trees
Maintenance work to mature Monterey Cypress (Allowance for maintenance pruning)	2 trees
Maintenance work to Stone Pines (Allowance for deadwooding, maintenance pruning and one cable every two trees)	3 trees
Maintenance work to Moonah (Allowance for deadwooding, weight reduction, pruning, cabling, propping as required)	5 trees
Formative pruning of young tree already present on site (e.g. 20 year old cypress)	39 trees
Maintenance work to other tree (Allowance for maintenance pruning or stress reduction works)	26 trees
Total	\$59,650

Annual Costs	Number and frequency
Removal of Monterey Cypress or large Stone Pine (Assumes even number removed each year for 5 years)	2 trees removed over a five year period
Coppicing of Moonah (Assumes even number coppiced each year for 5 years)	1 tree coppiced over a five year period
Removal of other tree (Assumes even number removed each year for 5 years) includes young conifers	15 trees removed over a five year period
Maintenance work to mature Monterey Cypress (Allowance for maintenance pruning on a two year cycle)	2 trees maintained over a two year cyclic period

Annual Costs	Number and frequency
Maintenance work to Stone Pines (Allowance for deadwooding and maintenance pruning on a five year cycle and inspection of cable annually – based on one cable every two trees)	3 trees maintained over a five year cyclic period with annual allowance for cable maintenance
Maintenance work to Moonah (Allowance for deadwooding and maintenance pruning on a five year cycle and inspection of cable annually – based on one cable every two trees)	4 trees maintained over a five year cyclic period with annual allowance for cable maintenance
Maintenance work to young tree already present on site e.g. 20 year old cypress. (Allowance for formative pruning on a five year cycle)	39 trees maintained over a five year cyclic period
Maintenance work to other tree (Allowance for maintenance pruning or stress reduction works on a five year cycle)	26 trees maintained over a five year cyclic period
Inspection of Citizens Park	1 inspection
Total cost per annum year 1 - 5	\$12,730
Total cost per annum thereafter	\$8,530

Replanting costs	Number and frequency
Installation of new trees (advanced) includes supply, planting and mulch	16 trees installed once
Installation of new indigenous trees (tube stock) includes supply, planting and mulch	33 trees installed once
Irrigation of new trees (intensive first summer, less second summer)	49 trees for two years
Formative pruning of new trees	49 trees for five years
Top up mulch (Allowance for replenishing mulch on a two year cycle)	49 trees for five years
Immediate cost	Nil
Cost for first year	\$13,675
Cost for second	\$12,250
Cost per year (years 3-5)	\$3,675

5.1.3 Victoria Park

Up Front Costs	No.
Removal of Monterey Cypress	9 trees
Removal of Stone Pines	1 trees
Coppicing of Moonah	8 trees
Removal of other tree (includes young conifers)	11 trees
Maintenance work to mature Monterey Cypress (Allowance for maintenance pruning)	5 trees
Maintenance work to large pine (Allowance for deadwooding, maintenance pruning and one cable every two trees)	2 trees

Maintenance work to Moonah (Allowance for deadwooding, weight reduction, pruning, cabling, propping as required)	64 trees
Formative pruning of young tree already present on site (e.g. 20 year old cypress, not young Moonahs which were not individually assessed)	3 trees
Maintenance work to other tree (Allowance for maintenance pruning or stress reduction works)	11 trees
Total	\$110,150

Annual Costs	Number and frequency
Removal of Monterey Cypress or large Stone Pine (Assumes even number removed each year for 5 years)	3 trees removed over a five year period
Coppicing of Moonah (Assumes even number coppiced each year for 5 years)	10 trees coppiced over a Five year period
Removal of other tree (Assumes even number removed each year for 5 years) includes young conifers	7 trees removed over a five year period
Maintenance work to mature Monterey Cypress (Allowance for maintenance pruning on a two year cycle)	5 trees maintained over a two year cyclic period
Maintenance work to large pine (Allowance for deadwooding and maintenance pruning on a five year cycle and inspection of cable annually – based on one cable every two trees)	2 trees maintained over a five year cyclic period with annual allowance for cable maintenance
Maintenance work to Moonah (Allowance for deadwooding and maintenance pruning on a five year cycle and inspection of cable annually – based on one cable every two trees)	64 trees maintained over a five year cyclic period with annual allowance for cable maintenance
Maintenance work to young tree already present on site e.g. 20 year old cypress, not young Moonah not individually assessed. (Allowance for formative pruning on a five year cycle)	3 trees maintained over a five year cyclic period
Maintenance work to other tree (Allowance for maintenance pruning or stress reduction works on a five year cycle)	11 trees maintained over a five year cyclic period
Formative pruning of coppice Moonah growth	20 trees pruned annually
Inspection of Victoria Park	1 inspection
Total cost per annum year 1 - 5	\$31,850
Total cost per annum thereafter	\$27,150

Replanting costs	Number and frequency
Installation of new trees (advanced) includes supply, planting and mulch	3 @ 250 trees installed once
Installation of new indigenous trees (tube stock) includes supply, planting and mulch	19 @ 33 trees installed once
Irrigation of new trees (intensive first summer, less second summer)	21 @ 350 trees for two years

Formative pruning of new trees	21 @ 50 trees for five years
Top up mulch (Allowance for replenishing mulch on a two year cycle)	21 @ 25 trees for five years
Immediate cost	Nil
Cost for first year	\$5,055
Cost for second	\$5,250
Cost per year (years 3-5)	\$1,575

Moonah Reserve Costs	Cost	Frequency	Commencing
Installation of temporary fencing to exclude public access	\$5000	Once	Immediately
Installation of indigenous planting including mulch but not maintenance or irrigation	\$23,500	Once	12 months
Immediate cost	\$5000		
Cost for first year	\$23,500		
Cost per year thereafter	Not covered		

5.1.4 Assumptions and Limitations

These costs are based on works being undertaken entirely by commercial contractors. Some savings may be achieved through practices such as chipping removed material for use as mulch, salvaging timber (so reducing disposal costs) or having works such as replanting undertaken by existing council staff or contractors; although it should be noted that there is likely to be limited capacity to salvage timber. Some economies of scale may also apply.

1. All recommended removals are fully costed but maintenance works are based on an allowance per tree for an "average" tree. There may be some mistakes in tree numbers. The row of olives to the north of citizens park is excluded.
2. All annual costs are based on an equal cost per year for the duration of the works. In some cases costs will not be evenly distributed across this time
3. Assumes no maintenance works required to Moonahs within the "Moonah Reserves" (except where coppicing is specified)
4. Assumes all Moonahs outside the official Moonah Reserves are fully maintained and coppiced / formatively pruned when required. Works would not be required if trees are fenced in a "Potential Moonah Reserve")
5. No allowance is made for installing the Potential Moonah Reserves
6. No allowance is made for maintaining indigenous planting within the Moonah reserves
7. No allowance is made for weed or grass control / removal
8. No allowance is made for formative pruning the young Moonahs already present but not individually assessed as part of this report
9. There is no additional allowance for temporarily fencing off trees requiring immediate works.
10. An allowance has been made for maintaining and removing / coppicing / formative pruning all trees recommended for removal within the next five years. Obviously this is a double up in costs.
11. Partially coppiced Moonahs have been costed as retained.

12. No allowance is made for the specific works specified in subsequent years (e.g. early removals, additional cables additional replanting etc.)
13. No allowance is made for temporary fencing of trees (e.g. during events, to protect new Moonah growth from damage) or for signage
14. No allowance has been made for aerial inspections, tomographs, pull tests, additional inspections etc.
15. No allowance is made for Master Planning or the development of a camper education program
16. These costs are indicative only and will vary. A general attempt has been made to list costs at the upper end of what would be expected.
17. GST is not included and no contingency allowance has been added
18. These costs do not consider the financial implications of restricting access (e.g. loss of camping revenue)

5.2 FUNDING

It is possible that the majority of costs will have to be met by the Borough of Queenscliff, however there are additional potential sources of funding available. It is recommended that these be explored, as the financial burden on the Borough is likely to be onerous. Possible sources of funding are as follows:

1. Coastal Risk Mitigation Grants
2. The Department of Sustainability and Environment (the owner of Victoria Park)
3. Victoria's Heritage Grants
4. Local subscriptions

The Borough may also be eligible to apply for funding from other sources.

6 IMPLEMENTATION AND REVIEW

6.1 IMPLEMENTATION

It is recommended that this Tree Management, Removal and Replacement Strategy be adopted and implemented by the Borough of Queenscliff. This document, once complete, will have been fully reviewed through a council and community consultation process and will provide direction for the management of the trees within Queenscliff's three major parks. Failure to implement this document may result in trees becoming increasingly dangerous and the parks more degraded.

This report is intended to be a flexible document for directing the management of trees within the Queenscliff Parks. Timing on the removal of individual trees should be based on arboricultural recommendations. It may be appropriate to retain a given tree beyond its recommended removal time, while other specimens may require early removal. The arboricultural assessment is limited in its ability to accurately predict when a tree will require removal and flexibility to revise removal timeframes is therefore important.

6.2 CAPACITY FOR IMPLEMENTATION OF IMMEDIATE WORKS

It is understood that there are difficulties in implementing works immediately. Not least of these difficulties is budgetary constraints, with removal of Monterey Cypress alone possibly being in the order of \$100,000. An additional constraint on implementation of works is that Victoria Park is fully booked for camping next summer.

Where trees are of immediate concern temporary fencing could be used to preclude public access until funds are available for works. This may be more expensive in the long term, but immediately reduces the hazard posed by the trees. If this approach is taken then available funds could be targeted at trees where minimal works (in dollar terms) are required to remove an unacceptable risk.

In relation to tree removals, works can be undertaken by any competent operator, however works to trees to be retained should only be carried out by arborists. Use of contractors without suitable skills (e.g. "loppers") may be cost effective in the short term, but can cause irreparable damage to the trees. Costs may also increase in the long term if damage (e.g. poor pruning cuts) requires correction. The use of these tree "loppers" is never appropriate for pruning or maintenance works.

The issue of campers within Victoria Park is more problematic. A number of trees are dangerous and it is not appropriate to allow campers beneath these trees in their current state. This leaves council with the following options:

1. relocate campers away from affected sites if appropriate space can be found elsewhere
2. cancel camping in the affected sites
3. carry out remedial works before summer where these are possible
4. coppice the trees before summer where this is the only way to mitigate the risk
5. seek additional arboricultural advice on whether there are any other options for managing the trees across this summer

Each of the above solutions has its own set of problems. From an arboricultural and environmental perspective it is recommended that campers be excluded, however it is acknowledged that there are additional factors influencing the decision. The decision on what approach to take should be made by council based on their requirements.

6.3 REVIEW

The current Strategy covers management of the trees for the next ten years. It is recommended that the Strategy be subject to a minor review in five years time to assess the success of the Strategy so far and its ongoing direction. It is recommended that the strategy be subject to a major review no later than 2019.

GLOSSARY OF TERMS AND PROCEDURES

**1-2 years
(refers to retention time
frame)**

The tree can potentially be safely retained within the landscape for the next 1-2 years, after this time it is recommended for removal.

Trees with this recommendation should still be regularly assessed and managed. These trees may require ongoing mitigation works to allow their retention and if necessary should be removed (or coppiced if a Moonah), even if within the 1-2 year time frame.

Conversely, if a tree is still contributing to the landscape after five years and is safe for retention it should be retained. The level of remedial works required to maintain the tree and the appropriateness of undertaking these works should be considered when deciding on whether to retain the specimen.

**2-3 years
(refers to retention time
frame)**

The tree can potentially be safely retained within the landscape for the next 2-3 years, after this time it is recommended for removal.

Trees with this recommendation should still be regularly assessed and managed. These trees may require ongoing mitigation works to allow their retention and if necessary should be removed (or coppiced if a Moonah), even if within the 2-3 year time frame.

Conversely, if a tree is still contributing to the landscape after five years and is safe for retention it should be retained. The level of remedial works required to maintain the tree and the appropriateness of undertaking these works should be considered when deciding on whether to retain the specimen.

**5 years
(refers to retention time
frame)**

The tree can potentially be safely retained within the landscape for the next 5 years, after this time it is recommended for removal.

Trees with this recommendation should still be regularly assessed and managed. These trees may require ongoing mitigation works to allow their retention and if necessary should be removed (or coppiced if a Moonah), even if within the 5 year time frame.

Conversely, if a tree is still contributing to the landscape after five years and is safe for retention it should be retained. The level of remedial works required to maintain the tree and the appropriateness of undertaking these works should be considered when deciding on whether to retain the specimen.

**10 years plus
(refers to retention time
frame)**

The tree can potentially be safely retained within the landscape for the next 10 years. These trees have not be scheduled for removal by this report.

Trees with this recommendation should still be regularly assessed and managed. These trees may require ongoing mitigation works to allow their retention and if necessary should be removed (or coppiced if a Moonah), even if within the 10 year time frame.

**Before next summer
(refers to removal and
works time frames)**

Prescribed works (including removals) are recommended for occurrence before next summer. These works are not required immediately, but should take place before the hazard risk of the tree increases with summer park use. For Victoria Park these works should occur prior to the Queenscliff Music Festival in November.

Brace The installation of solid metal hardware into the trunk of a tree to reduce the risk of bifurcated unions failing or to close splits. Should be accompanied by cables in most cases. Braces require annual inspections

Cable The installation of steel or rope cables within the canopy of a tree to control excessive movement of structurally unsound branches and to reduce failure risk. Cables are not guaranteed to prevent tree failure but can reduce the risk of the tree failing. It is recommended that only steel cables are used, as the rope cables have not proven to provide the same structural support, especially long term. Cables require annual inspections and periodic adjustment. An example of a cabled Moonah can be found next to the camp kitchen in the Recreation Reserve.

Collapse Involves collapsing the tree using earth moving equipment or a winch and mounding soil over the exposed root system. The area should then be temporarily fenced until the stability of the tree can be established. This mimics the way Moonahs naturally collapse and keep growing.

This approach is only appropriate where the tree is able to be pulled over (e.g. on a lean or with a defective root plate) and where the collapsed tree location will not inappropriately disrupt park use (e.g. not appropriate to collapse tree and remove entire camp site in the process).



Coppice Cutting of a tree to the base and allowing the stump to resprout. This will only work for tree species with dormant basal buds. It is important that new growth is managed, otherwise it is at risk of become hazardous due to poor attachment.

The advantage of coppicing over removal and replacement is that a tree establishes more quickly as it has an established root system. This also mimics, but in a more extreme way, how Moonahs naturally grow.



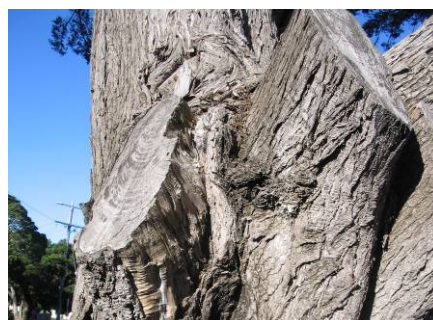
Drop zone Trees have been known to drop limbs to a distance of twice the canopy. However, this is extremely unlikely and it is not appropriate to restrict access / manage risk to this distance. Within this report the drop zone of a tree is defined by the area within which the parts of the tree at risk of failure would be reasonably expected to fall if they were to fail straight down and not bounce. A safety margin of 1-2m should be added to this distance where practicable.

Fenced	<p>All recommended fencing is to be temporary in nature. Fencing such as parawebbing strung between star pickets is suitable. If fencing is to be present longer term (e.g. during establishment of the "Moonah Reserves") then council may wish to use a form of fencing which is more visually sensitive.</p> <p>It is important that star pickets are not driven into the roots of trees as this may lead to root decay and eventual tree failure (this especially applies to the Moonahs). It is recommended that any star pickets used within 3m of the trunk of a tree be installed by an arborist to prevent damage.</p>
Heritage value	Historical, aesthetic, scientific, social, architectural or archaeological significance.
Immediately (refers to removal and works time frames)	Prescribed works (including removals) are recommended for occurrence immediately. These trees have defects which are at risk of imminent failure. If works are not carried out then the trees should be securely fenced to remove public access within the drop zone.
Life expectancy	Length of time in south-eastern Australia that the species would be expected to remain alive, structurally sound and contributing to the landscape.
Management	Where management of a tree is specified this means proactive management to identify risks, health problems and structural defects early (through annual inspections) and the subsequent implementation of prescribed remedial works or additional inspections within the recommended time frames. This also implies that if arboricultural inspections indicate a tree should be removed / coppiced then this takes place – even if within the proposed retention time frame.
Mulching	<p>Mulching has been proposed in a number of locations to aid the trees and deter public access. The type and style of mulch used may be decided by council, but the following should be considered in its supply and installation:</p> <ol style="list-style-type: none">1. Mulch should be less than 75mm deep and preferably only 50mm deep. Deeper is not better with mulch as thick mulch restricts water movement into the soil.2. Mulch should only be placed over soil which is thoroughly wet3. Mulch should be kept well back from the trunk of trees to prevent collar rot4. If fresh mulch is used then it is imperative that appropriate nitrogen dressing is added as the decomposition process removes nitrogen from the soil. It is preferable that mulch is well composted.

Non-destructive excavation Involves removal of site soil to expose tree roots without damaging them. Should be undertaken or supervised by an arborist. Options for works include hand excavation or high pressure air-spade. If the purpose of works is only to map the location of roots (e.g. in preparation for development works) then a ground penetrating radar scan may be used, although this may be of limited use when determining the extent of root damage.



Old wood Established branches beneath the foliage canopy of the tree. The old wood on some species (including Monterey Cypress and Stone Pines) does not have the capacity to resprout.



Predictable (referring to tree failure) Comments on the predictability or otherwise of tree failures is based on what a competent arborist should be able to determine based on a ground review of the trees using ordinary skill or foresight. At times advanced inspections or the use of more sophisticated technology is recommended, but it is not expected nor practical that these be implemented for all trees.

Pull test Loading of the trunk or branch of the tree to determine if movement occurs in the root plate or branch attachment. Traditional systems may inappropriately load the tree and lead to damage and failure in the future. Systems which require minimal loading are recommended for use.

Prop Timber or metal props used to support structurally unsound leaders. Branches should sit just above or be resting on the prop. Any excavation for the prop should be undertaken or supervised by an arborist to prevent damage to the tree's root system. Systems are also available which eliminate the need for excavation.



**Root damage
(assessment of)**

Any trees with recent works in their vicinity should be carefully monitored in case works have resulted in root severance. Removal of tree roots by development works has the following potential implications:

1. If works have removed structural roots then the tree may fall over. It is recommended that the structural critical rooting distance be determined for all trees where recent excavation has occurred within 4m of the trunk. If these works are within the structural root zone then it is recommended that non-destructive excavation be carried out by an arborist to determine whether root loss has destabilised the tree. If the tree has been destabilised then the tree will need to be removed or public access excluded.
2. If works are outside the structural root zone, but still close enough to cause damage then the tree should be carefully monitored as limb drop may increase due to stress caused by development works.

**Safe
(or similar terms)**

This refers to a an acceptable level of tree stability. It should be remembered that no public tree is completely "safe".

Tomograph

Specialised equipment for non-invasively measuring the extent of decay in wood using sound waves.

**Unpredictable
(referring to tree failure)**

See Predictable

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E. T. Raison (undated) from letter sent to council by Cr. Stephen Lee, 15 May, 1996

Information provided by the Borough Horticulturalist Ms. Janine Hurse. Source Monica Wells, Librarian, National Herbarium, RBG, Melbourne

APPENDIX A: TREE ASSESSMENT AND RECOMMENDATIONS FOR PRINCESS PARK





The following pages contain an arboricultural assessment of the trees within Princess Park and recommendations for their management based on this strategy. Three plans showing recommended tree removals over time are also included. These plans do not show new planting which should be installed in accordance with a Master Plan for the site.

Plan 2: Princess Park Tree Removal Timeframes

Plan 3: Princess Park – After Year 1 Removals

Plan 4: Princess Park – After Year 5 Removals

	<p>Tree No. 1 <i>Pinus pinea</i>, Stone Pine</p> <p>Condition: Very large, old tree. Canopy opened up by removal of large limbs. Creaking, but not necessarily a problem. Typical Stone Pine Structure. Recommend an aerial examination by an experienced arborist to more fully determine the structural integrity of the tree. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so.</p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 2 <i>Ficus macrophylla</i>, Moreton Bay Fig</p> <p>Condition: A moderately old tree with structure compromised by a bifurcation with rot in the union. Recommend investigation on the feasibility of cabling the tree and tomograph test to determine the extent of rot. <i>If these works are not carried out then recommend removal before next summer.</i> Possible fill around the base of the tree in the past.</p> <p>Removal Timeframe: 5 years (only with tests and works)</p>
	<p>Tree No. 3 <i>Cupressus torulosa</i> (Bhutan Cypress)</p> <p>Condition: Large spike in trunk. Some possible branch issues high in the tree. Not an attractive tree but suitable for retention – especially given the widespread removals proposed elsewhere. Tree is has negative buttress. Fissure in trunk. Retain and monitor – paying special attention to the strength of the tree's base.</p> <p>Removal Timeframe: 10 years plus</p>

	<p>Tree No. 4 <i>Lagunaria patersonia</i>, Norfolk Island Hibiscus Condition:</p> <p>Removal Timeframe: Already removed</p>
	<p>Tree No. 5 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Fair-poor health (reduced canopy) but may improve in health if competition is removed. Recommend stress mitigation works be carried out. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 6 <i>Cupressus torulosa</i>, Bhutan Cypress Condition: A spindly tree, but only minor structural defects (damage limbs high). Recommend ongoing inspections and management works to manage risk. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 7 <i>Pinus pinea</i>, Stone Pine Condition: One leader remaining of what was once a two leadered tree. Lop sided canopy, but tree is in reasonably good condition. Recommend an aerial examination by an experienced arborist to more fully determine the structural integrity of the tree. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so. Retention of the tree should be reconsidered if Tree 8 is removed. Removal Timeframe: 10 years plus</p>

	<p>Tree No. 8 <i>Pinus pinea</i>, Stone Pine</p> <p>Condition: Severely bifurcated. A freshly damaged root opposite the tree's lean may reduce its life expectancy, but should not destabilise the tree in the short term. A relatively healthy tree. Recommend an aerial examination by an experienced arborist to more fully determine the structural integrity of the tree. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. There is a depressed section in the trunk of this specimen and it is recommended that this be monitored. Given the species of tree internal decay is unlikely, but it is recommended that consideration be given to testing for decay if ongoing inspections indicate that it may be present. Retain only while safe to do so.</p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 9 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition:</p> <p>Removal Timeframe: Already removed</p>
	<p>Tree No. 10 <i>Pinus pinea</i>, Stone Pine</p> <p>Condition: Severely bifurcated with reduced canopy. The poor health of the tree means that it will not have the structural integrity of a healthy specimen. <i>For this reason it is recommended that the tree be removed before next summer.</i></p> <p>Removal Timeframe: Before next summer</p>
	<p>Tree No. 11 <i>Pinus pinea</i>, Stone Pine</p> <p>Condition: Urgent deadwooding required. Given the poor health of the tree removal and replacement is recommended in the short term (the poor health of the tree means that it will not have the structural integrity of a healthy specimen). The tree is in a good location for the establishment of replacement planting.</p>

	<p>Removal Timeframe: Before next summer</p>
	<p>Tree No. 12 Species: <i>Pinus pinea</i>, Stone Pine Condition: Specimen is on a decided lean which is of great concern, especially given the species, although it is acknowledged that there was no root plate lift present. The lean could be a reaction to the prevailing winds or competition from adjacent Cypresses. The tree provides protection for adjacent specimens, and for this reason is recommended for retention while it is safe to do so. Given the large scale tree removal already required in the park, and the protection this tree offers, additional works to retain the tree are justified. On this basis it is strongly recommended that a pull test be carried out to ascertain the strength of the tree. If this is not carried out then it is recommended that the tree be removed. Removal Timeframe: 10 years plus (only with works)</p>
	<p>Tree No. 13 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Removal Timeframe: Already removed</p>
	<p>Tree No. 14 <i>Pinus pinea</i>, Stone Pine Condition: Bifurcated with included bark and some resin exudate. Extensive deadwood in eastern side of canopy (due to exposure). Recommend consideration be given to cabling the tree. Recommend an aerial examination by an experienced arborist to more fully determine the structural integrity of the tree. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 15 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Removal Timeframe: Already removed</p>

	<p>Tree No. 16 <i>Pinus pinea</i>, Stone Pine</p> <p>Condition: Large deadwood present. Bifurcated high with a large limb from low on the tree having been removed. Recommend an aerial examination by an experienced arborist to more fully determine the structural integrity of the tree. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so.</p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 17 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition:</p> <p>Removal Timeframe: Already removed</p>
	<p>Tree No. 18 <i>Pinus pinea</i>, Stone Pine</p> <p>Condition: Single stemmed specimen until high on trunk. <i>Recommend removal of deadwood before next summer.</i> Extended leaders should be monitored and the bifurcation cabled if necessary. Retain only while safe to do so,</p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 19 <i>Araucaria heterophylla</i>, Norfolk Island Pine</p> <p>Condition: Tree has poor trunk taper and a low live crown ratio. Trees with these characteristics can be at risk of failure if exposed (as will occur with removal of Cypress). Tree has been heavily shaded in the past, but may recover. Council should decide whether they are willing to preserve with this specimen, or whether the risk is considered to be too great. Manage in accordance with section 4.2.2.</p> <p>Removal Timeframe: 10 years plus</p>

	<p>Tree No. 20 <i>Pinus pinea</i>, Stone Pine</p> <p>Condition: Some resin exudate present including in the branch union. Very large deadwood on both sides of the canopy due to shading. Recommend assessing the feasibility of cabling the limb to the east. Recommend an aerial examination by an experienced arborist to more fully determine the structural integrity of the tree. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so.</p> <p>Removal Timeframe: 10 years plus</p>
<p>NO IMAGE</p>	<p>Tree No. 21 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition:</p> <p>Removal Timeframe: Already removed</p>
	<p>Tree No. 22 <i>Pinus pinea</i>, Stone Pine</p> <p>Condition: Very large tree leaning over the carpark with only one leader remaining. The lean is probably as a result of the remainder of the tree having been removed. <i>Recommend removal of the limb to the north (bent out of canopy) and deadwood before next summer.</i> Good canopy cover. Needs careful monitoring and maintenance work to retain. Recommend an aerial examination by an experienced arborist to more fully determine the structural integrity of the tree. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so.</p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 23 <i>Ficus macrophylla</i>, Moreton Bay Fig</p> <p>Condition: Good young tree providing a new generation of planting. Minor twig dieback, probably as a result of the tree's coastal location. Manage in accordance with Section 4.2.</p> <p>Removal Timeframe: 10 years plus</p>

	<p>Tree No. 24 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition:</p> <p>Removal Timeframe: Already removed</p>
	<p>Tree No. 25 <i>Pinus pinea</i>, Stone Pine Condition:</p> <p>Removal Timeframe: Already removed</p>
	<p>Tree No. 26 <i>Pinus pinea</i>, Stone Pine Condition:</p> <p>Removal Timeframe: Already removed</p>
	<p>Tree No. 27 <i>Pinus pinea</i>, Stone Pine Condition: Deadwood in canopy where tree was previously shaded. Typical Stone Pine Structure. Girdling toot present opposite the lean, but probably not causing structural problems (other structural roots are present). Recommend an aerial examination by an experienced arborist to more fully determine the structural integrity of the tree. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so.</p> <p>Removal Timeframe: 10 years plus</p>



Tree No. 28

Ficus macrophylla, Moreton Bay Fig

Condition:

Multi-stemmed from low. Extensive decay present. Included bark in unions. Tree in fair health. Tree is a very large and impressive specimen with extremely high amenity value. Council should give consideration to the option of fencing off the tree when in heavy fruit, as this can lead to an increase in branch failures. Recommend ongoing inspections and management works to manage risk.

Removal Timeframe:

10 years plus



Tree No. 29

Pinus pinea, Stone Pine

Condition:

Buckling of bark on trunk. *Very large dead limb overhanging the carpark and other large dead limbs recommended for removal immediately.* Stump in union of a leader. Tree is in poor health and this means that it will not have the structural integrity of a healthy specimen. There would be little of the tree remaining once the required works have been carried out.

Removal Timeframe:

Before next summer (but remedial works are more immediate)



Tree No. 30

Species:

Cupressus macrocarpa, Monterey Cypress

Condition:

Poor branch structure, decay, one sided crown, bifurcated high, evidence of limb failure, lack of branching support. Lower limb is at risk of failing. The tree is recommended for immediate removal as it is large, over-mature tree which is structurally unsound and located within a public park (see also notes on mature cypress). Remedial works would not be effective for this tree. This tree is dangerous in a public place. *One large limb to the east of the tree is of immediate risk of failure.*

Removal Timeframe:




Immediately




	<p>Tree No. 31 <i>Pinus pinea</i>, Stone Pine</p> <p>Condition: Strange folding on trunk. Deadwood in lower canopy. Elbowed leaders. <i>Remove dead limb to the north of the tree immediately.</i> Recommend an aerial examination by an experienced arborist to more fully determine the structural integrity of the tree. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so.</p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 32 <i>Olea europaea</i>, Olive</p> <p>Condition: Old tree with considerable decay and relatively poor health. Has lost a large limb. Recommend fencing off the tree and retaining as a feature in the park. Due to the risk of limbs failing, retaining the tree in its current unfenced state is not advisable. Mulching also recommended. Could allow to grow as a coppice group.</p> <p>Removal Timeframe: 10 years plus</p>
<p>NO IMAGE</p>	<p>Tree No. 33 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition:</p> <p>Removal Timeframe: Already removed</p>

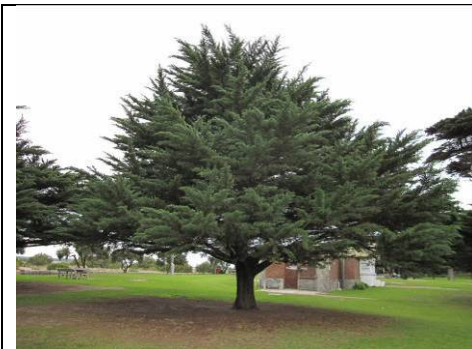

	<p>Tree No. 34 <i>Ficus macrophylla</i>, Moreton Bay Fig Condition: A fine tree. Manage and retain. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 35 <i>Ficus macrophylla</i>, Moreton Bay Fig Condition: <i>Recommend removal of deadwood and dieing leader before next summer.</i> Recommend barrier to prevent vehicles damaging exposed roots. Manage in accordance with Section 4.2. A fine young specimen Removal Timeframe: 10 years plus</p>
	<p>Tree No. 36 Species: <i>Lagunaria patersonia</i>, Norfolk Island Hibiscus Condition: Bifurcated tree with included bark and shading the adjacent fig. While bifurcated, this species rarely fails. This species fruit has irritant fibres within the seed pods which can cause allergic reactions in some people and are an occupational health and safety concern for tree pruners due to irritation caused by contact with the skin during tree works. It is recommended that council decide whether they want to retain these types of trees. Given the tree's structure and species removal is recommended to allow better development of the adjacent fig. This removal could occur later than 5 years if desired. <i>It is recommended that the branch stub in the tree be cleaned up before next summer.</i> Removal Timeframe: 5 years</p>




	<p>Tree No. 37 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Semi-mature specimen. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 38 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Young tree. Manage in accordance with section 4.2.2. Form of the tree is such that it may not develop well. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 39 Species: <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Canopy very limited and entirely to the north with no supporting branches, poor branch structure and a broken root. <i>The tree is recommended for immediate removal as it is large, over-mature tree which is structurally unsound and located within a public park (see also notes on mature cypress).</i> Remedial works would not be effective for this tree. This tree is dangerous in a public place. Removal Timeframe: Immediately</p>

	<p>Tree No. 40 <i>Araucaria heterophylla</i> Condition: Very large tree with extensive epicormic growth. This new growth may be a sign that the tree is improving in health, as the canopy would otherwise be quite sparse. Recommend stress mitigation works. Manage in accordance with Section 4.2. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 41 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Canopy completely one sided, tree creaking in the wind (a sign of structural weakness), very poor branch structure, no branching support, evidence of limb loss, excessive weight to one side of the canopy. <i>A dangerous tree and imminent failure risk with immediate removal recommended.</i> Removal Timeframe: Immediately</p>
	<p>Tree No. 42 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Tree has a very limited canopy extremely poor branch structure, a lack of supporting branches and evidence of large limb shed. The tree is comprised of one remaining leader (there were two), with rot in this trunk creating a point of weakness. The tree is recommended for immediate removal as it is a large, over-mature tree which is structurally unsound and located within a public park (see also notes on mature cypress). Remedial works would not be effective for this tree. This tree is dangerous in a public place. Removal Timeframe: Immediately</p>

	<p>Tree No. 43 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Tree has poor branch structure, a lack of supporting branches, evidence of very large limb shed and decay. <i>The tree is recommended for immediate removal as it is a large, over-mature tree which is structurally unsound and located within a public park (see also notes on mature cypress).</i> Remedial works would not be effective for this tree. This tree is dangerous in a public place. Arborists should note that there is a metal spike in the trunk. Removal Timeframe: Immediately</p>
	<p>Tree No. 44 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Tree has a very limited canopy extremely poor branch structure, a lack of supporting branches, evidence of large limb shed and decay. <i>The tree is recommended for immediate removal as it is a large, over-mature tree which is structurally unsound and located within a public park (see also notes on mature cypress).</i> Remedial works would not be effective for this tree. This tree is dangerous in a public place. Removal Timeframe: Immediately</p>
	<p>Tree No. 45 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Poor branch structure, evidence of shedding of large limbs, lack of supporting branches, bifurcated. <i>The tree is recommended for immediate removal as it is a large, over-mature tree which is structurally unsound and located within a public park (see also notes on mature cypress).</i> Remedial works would not be effective for this tree. This tree is dangerous in a public place. Removal Timeframe: Immediately</p>

	<p>Tree No. 46 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: Tree has a very limited canopy extremely poor branch structure, a lack of supporting branches and evidence of very large limb shed. <i>The tree is recommended for immediate removal as it is a large, over-mature tree which is structurally unsound and located within a public park (see also notes on mature cypress).</i> Remedial works would not be effective for this tree. This tree is dangerous in a public place.</p> <p>Removal Timeframe: Immediately</p>
	<p>Tree No. 47 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: Tree has poor branch structure, a lack of supporting branches and evidence of very large limb shed. <i>The tree is recommended for immediate removal as it is a large, over-mature tree which is structurally unsound and located within a public park (see also notes on mature cypress).</i> Remedial works would not be effective for this tree. This tree is dangerous in a public place.</p> <p>Removal Timeframe: Immediately</p>
	<p>Tree No. 48 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: Tree has poor branch structure and a lack of supporting branches. <i>The tree is recommended for immediate removal as it is a large, over-mature tree which is structurally unsound and located within a public park (see also notes on mature cypress).</i> Remedial works would not be effective for this tree and tree will be at increased risk of failure when rest of row is removed.</p> <p>Removal Timeframe: Immediately</p>

	<p>Tree No. 49 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Problem with one branch. Form of the tree is such that it may not develop well. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 50 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 51 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Removal Timeframe: 10 years plus</p>

	<p>Tree No. 52 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 53 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 54 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree, except for a dead hanger to the south west which requires removal immediately. Removal Timeframe: 10 years plus</p>

**Tree No. 55****Species:**

Cupressus macrocarpa, Monterey Cypress

Condition:

Very limited and poorly attached canopy with a history of limb shed and a lack of support for limbs. Decay present from high and extensive decay in lower trunk. Unbalanced canopy, large fissure. *The tree is recommended for immediate removal as it is large, over-mature tree which is structurally very unsound and located within a public park (see also notes on mature cypress).* Remedial works would not be effective for this tree. NOTE: Tree is being used as an electricity post, and this makes removal even more urgent. Tree workers must be aware of the electrical issues.

Removal Timeframe:

Immediately

**Tree No. 56**

Cupressus macrocarpa, Monterey Cypress

Condition:

A good young tree.

Removal Timeframe:

10 years plus

**Tree No. 57****Species:**

Pinus pinea, Stone Pine

Condition:

Deadwood within canopy. Manage in accordance with Section 4.2.

Removal Timeframe:

10 years plus

	<p>Tree No. 58 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A young tree. Damage in branch unions should be monitored. This damage, combined with the form of the tree is such that it may not develop well, therefore replacement planting in the area is recommended. Manage through ongoing inspections and maintenance work, and remove tree if required. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 59 <i>Pinus pinea</i>, Stone Pine Condition: Tree is leaning and additional exposure from removal of cypress may put it at slightly increased risk of failure. The lean of the tree increases at a kink low in the trunk, but this point appears to be soil. The tree has a heavy canopy and large deadwood. <i>It is recommended that this deadwood be removed before next summer.</i> Recommend an aerial examination by an experienced arborist to more fully determine the structural integrity of the tree. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 60 Species: <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree, possibly of a different cultivar to others on site. A low limb to the north requires removal, but not urgently (this limb moves). <i>This work should however be undertaken before next summer.</i> Manage in accordance with Section 4.2. Removal Timeframe: 10 years plus</p>

**Tree No. 61**

Cupressus macrocarpa, Monterey Cypress

Condition:

Recommend removal of this tree. A large scaffold branch has failed and there is a lack of support for remaining scaffolds. The tree is recommended for immediate removal as it is large, over-mature tree which is structurally unsound and located within a public park (see also notes on mature cypress). Remedial works would not be effective for this tree. The tree has a large hanger which makes it especially dangerous.

Removal Timeframe:

Immediately

**Tree No. 62**

Cupressus macrocarpa, Monterey Cypress

Condition:

A good young tree. Form of the tree is such that it may not develop well.

Removal Timeframe:

10 years plus

**Tree No. 63**




Cupressus macrocarpa, Monterey Cypress

Condition:



A good young tree. Form of the tree is such that it may not develop well. A limb to the south-east is damaged in the union and is recommended for removal or careful ongoing monitoring.

Removal Timeframe:

10 years plus

	<p>Tree No. 64 <i>Pinus pinea</i>, Stone Pine</p> <p>Condition: A very handsome specimen but must be carefully managed. It is recommended that an urgent aerial inspection of the tree be carried out, including review of the strength of the tree at the deadwood stump at the base. It is recommended that the tree be assessed for the feasibility of cables to aid tree retention. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so.</p> <p>Removal Timeframe: 10 years plus (depending on outcome of examination)</p>
	<p>Tree No. 65 <i>Pinus pinea</i>, Stone Pine</p> <p>Condition: Possible cavity in the union of the bifurcation. Recommend urgent investigation of the strength of this union. Bifurcated, but without included bark and tree is relatively healthy. Better than many of the Stone Pines with the exception of the possibly issue with the cavity in the bifurcation. South-west side of the canopy has died back due to previous shading. Recommend an aerial examination by an experienced arborist to more fully determine the structural integrity of the tree. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so.</p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 66 <i>Pinus pinea</i>, Stone Pine</p> <p>Condition: One limb left. Good canopy cover but large deadwood present. Recommend an aerial examination by an experienced arborist to more fully determine the structural integrity of the tree. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so.</p> <p>Removal Timeframe: 10 years plus</p>

	<p>Tree No. 67 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Better condition than many of the cypresses, but still shedding some limbs. Recommended that council decide whether they are willing to retain this tree. Ongoing inspections and management works will help alleviate the risk of limb shed, but it may still continue to be a problem with a Monterey Cypress of this age. Monitor, carry out works and retain only while it is safe to do so. Removal Timeframe: 10 years</p>
	<p>Tree No. 68 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Very large, over mature tree with large recent branch failures. There is a lack of support for scaffold branches and tree will continue to shed limbs making it unsafe in a public park. Removal Timeframe: Before next summer.</p>
	<p>Tree No. 69 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Twisted fibres. Has lost large limbs, although more support from lower limbs than exhibited in other specimens. Tree is over mature and location within car park is problematic (safety concerns). Refer to notes on over mature cypress. Problematic decay in trunk means the tree has not long term viability. The tree is recommended for removal as it is large, over-mature tree which is structurally unsound and located within in a car park (see also notes on mature cypress). Removal Timeframe: Less than 12 months</p>

	<p>Tree No. 70</p> <p>Species: <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: Sizeable tract of decay in lower trunk where large limb has been lose. Lean to west over road with some root damage opposite the lean, therefore making the tree potentially dangerous. Lack of branching support. Better structure than some cypress but still at real risk of limb failure. Continue to manage through inspections and works if retaining in short term.</p> <p>Removal Timeframe: Before next summer</p>
	<p>Tree No. 71</p> <p>Species: <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: Large limb to the east with no support and at risk of failure. Evidence of large limb failure and no branching support on the small portion of live canopy. The tree is recommended for immediate removal as it is large, over-mature tree which is structurally unsound and located within a public park. Remedial pruning may potentially work, but only in the very short term and are therefore not advisable. This tree is dangerous in a public place.</p> <p>Removal Timeframe: Immediately</p>

APPENDIX B: TREE ASSESSMENT AND RECOMMENDATIONS FOR CITIZENS PARK




The following pages contain an arboricultural assessment of the trees within Citizens Park and recommendations for their management based on this strategy. Three plans showing recommended tree removals over time are also included. These plans do not show new planting which should be installed in accordance with a Master Plan for the site.




Plan 5: Citizens Park Tree Removal Timeframes

Plan 6: Citizens Park – After Year 1 Removals

Plan 7: Citizens Park – After Year 5 Removals



	<p>Tree No. 72 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Evidence of extremely large limb shed, poor branching structure, lack of branch support, large fissure present. Canopy is reduced. Lower target rating than some trees, but still has a low SULE, a high chance of limb drop and unsightly. <i>The tree is recommended for immediate removal as it is large, over-mature tree which is structurally unsound and located within a public park. Remedial works would not be effective for this tree. This tree is dangerous in a public place.</i> Likely to have sustained repeated root loss over time due to the closeness of the road. Removal Timeframe: Immediately</p>
	<p>Tree No. 73 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Form of the tree is such that it may not develop well (main leader angled). Removal Timeframe: 10 years plus</p>
	<p>Tree No. 74 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Removal Timeframe: 10 years plus</p>

	<p>Tree No. 75 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 76 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Young tree. Form of the tree is such that it may not develop well. <i>Recommend removal of cracked limb to west before next summer.</i> Removal Timeframe: 10 years plus</p>
	<p>Tree No. 77 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Removal Timeframe: 10 years plus</p>

	<p>Tree No. 78 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 79 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 80 Species: <i>Pinus halepensis</i>, Aleppo Pine Condition: A relatively small tree with not especially high amenity value and not a traditional species for this park. Extensive decay present, nearly reaching the root crown. Recommend removal as tree won't develop well and will become increasingly unsound structurally if retained. It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be removed if inspections indicate it poses an unacceptable risk to the public; even if within the 2-3 year retention period. Removal Timeframe: 2-3 years</p>

	<p>Tree No. 81 <i>Pinus pinaster</i>, Maritime Pine Condition: Has lost a major limb with decay now present. Canopy is weighted to the east. A semi-mature tree of a non-traditional species. Not a high level of amenity value and won't develop well. Therefore removal and replacement is recommended (not urgent). Removal Timeframe: 2-3 years</p>
	<p>Tree No. 82 <i>Pinus pinea</i>, Stone Pine Condition: Deadwood present. Elbowed leaders. Bifurcated, but possibly relatively stable. Recommend an aerial examination by an experienced arborist to more fully determine the structural integrity of the tree. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so. Monitor stability of extended limbs, especially that to the south-east. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 83 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Removal Timeframe: 10 years plus</p>




	<p>Tree No. 84 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 85 <i>Pinus pinaster</i>, Maritime Pine Condition: Somewhat open canopy. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 86 <i>Agonis flexuosa</i>, Willow Myrtle Condition: Handsome young tree. Species is not especially long lived. Manage in accordance with Section 4.3. Removal Timeframe: 10 years plus</p>

	<p>Tree No. 87 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A healthy young tree but with a branching structure that may not develop well and may be problematic in the future. Recommend managing the tree to aid retention but also installing replacement planting. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 88 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A healthy young tree but with a branching structure that may not develop well and may be problematic in the future. Recommend managing the tree to aid retention but also installing replacement planting. Recommend monitoring or removing the low limb to the west with the twisted structure. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 89 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A healthy young tree but with a branching structure that may not develop well and may be problematic in the future. Recommend managing the tree to aid retention but also installing replacement planting. Removal Timeframe: 10 years plus</p>







	<p>Tree No. 90 <i>Agonis flexuosa</i>, Willow Myrtle</p> <p>Condition: Structurally unsound due to a bifurcation. Dieback present. Limited viability due to close proximity of adjacent cypress. Tree is too small to have a high failure potential and may be retained, but only in the short term. The low amenity value of this specimen means that retention in the longer term is not recommended.</p> <p>Removal Timeframe: 2-3 years</p>
	<p>Tree No. 91 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: A healthy young tree, but branching structure may potentially be problematic already. Recommend that the tree be monitored and managed to aid retention but that replacement planting also be installed.</p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 92 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: A good young tree but with a form that may not develop well.</p> <p>Removal Timeframe: 10 years plus</p>

	<p>Tree No. 93 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree but with a form that may not develop well. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 94 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree but with a form that may not develop well. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 95 <i>Pinus halepensis</i>, Aleppo Pine Condition: Fair health. Some small girdling roots. <i>Recommend removal of deadwood before summer.</i> Removal Timeframe: 10 years plus</p>

	<p>Tree No. 96 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 97 <i>Allocasuarina littoralis</i>, Black She-oak Condition: Some decay present. Tree is in poor condition but is not in urgent need of removal. Low amenity value. Removal Timeframe: 2-3 years</p>
	<p>Tree No. 98 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Tree in fair health. Stress mitigation works such as mulch, irrigation and an application of seaweed fertiliser are recommended. Removal Timeframe: 10 years plus</p>




	<p>Tree No. 99 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Tree in fair health. Stress mitigation works such as mulch, irrigation and an application of seaweed fertiliser are recommended. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 100 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Fair-good health. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 101 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Very poor condition and gash in trunk. Marked as a commemorative tree (1968), but likely to be a replacement planting. Recommend removal and replacement since tree is unlikely to be original. Removal Timeframe: 2-3 years</p>





	<p>Tree No. 102 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree. Canopy will require uplifting in future. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 103 Species: <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: A good young tree growing on an angle. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 104 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Good young tree. Low live crown ratio, but should recover if looked after. Stress mitigation works such as mulch, irrigation and an application of seaweed fertiliser are recommended. Removal Timeframe: 10 years plus</p>





	<p>Tree No. 105 <i>Leptospermum laevigatum</i>, Coast Tea-tree</p> <p>Condition: The tree has collapsed. The main live limb on this tree is at real risk of failure.</p> <p>Removal Timeframe: Immediately</p>
	<p>Tree No. 106 <i>Leptospermum laevigatum</i>, Coast Tea-tree</p> <p>Condition: Tree is dead and overhanging path. Remove immediately due to potential liability.</p> <p>Removal Timeframe: Already removed</p>
	<p>Tree No. 107 <i>Leptospermum laevigatum</i>, Coast Tea-tree</p> <p>Condition: Tree is dead and cracking and is therefore at severe risk of failure.</p> <p>Removal Timeframe: Already removed</p>
	<p>Tree No. 108 <i>Leptospermum laevigatum</i>, Coast Tea-tree</p> <p>Condition: Tree has no long term viability and is recommended for removal with other adjacent specimens. This taxa falls apart with age, and this specimen may do this in the short term, especially if the adjacent trees are removed. Tree is senescent</p> <p>Removal Timeframe: Less than 12 months</p>
	<p>Tree No. 109 <i>Leptospermum laevigatum</i>, Coast Tea-tree</p> <p>Condition: Tree is dead and leaning over the path therefore being a potential liability.</p> <p>Removal Timeframe: Already removed</p>
	<p>Tree No. 110 <i>Leptospermum laevigatum</i>, Coast Tea-tree</p> <p>Condition: Tree is completely dead</p> <p>Removal Timeframe: Already removed</p>





	<p>Tree No. 111 <i>Leptospermum laevigatum</i>, Coast Tea-tree Condition: Only part of the horizontal trunk along the ground remains. Recommend completion of removal. Removal Timeframe: Less than 12 months</p>
	<p>Tree No. 112 <i>Melaleuca lanceolata</i>, Moonah Condition: Tree at young maturity. Recommend management in accordance with Section 4.3 to retain. Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 113 <i>Melaleuca lanceolata</i>, Moonah Condition: Limbs overhanging the embankment are poorly attached but are not a safety concern as they are in a location where they can not cause damage. Recommend management in accordance with Section 4.3 to retain. Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 114 <i>Leptospermum laevigatum</i>, Coast Tea-tree Condition: Tree is multi-stemmed and collapsing. Remove Removal Timeframe: Already removed</p>
	<p>Tree No. 115 <i>Leptospermum laevigatum</i>, Coast Tea-tree Condition: One limb at imminent risk of failure (cracked). Specimen likely to collapse in the short term. Removal Timeframe: Before next summer</p>

	<p>Tree No. 116 <i>Leptospermum laevigatum</i>, Coast Tea-tree Condition:</p> <p>Removal Timeframe: Already removed</p>
	<p>Tree No. 117 <i>Leptospermum laevigatum</i>, Coast Tea-tree Condition:</p> <p>Removal Timeframe: Already removed</p>
	<p>Tree No. 118 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Young tree. Manage in accordance with Section 4.3. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 119 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Young tree. Manage in accordance with Section 4.3 Removal Timeframe: 10 years plus</p>



	<p>Tree No. 120 <i>Myoporum insulare</i>, Boobialla</p> <p>Condition: Specimen has already collapsed and is unsightly but not dangerous. Excessive growth present. Tree is structurally unsound but is in a mass, and therefore is unlikely to cause damage if it were to fail.</p> <p>Removal Timeframe: 2-3 years.</p>
	<p>Tree No. 121 <i>Agonis flexuosa</i>, Willow Myrtle</p> <p>Condition: Bifurcated with included bark and dieback in the upper canopy. No development potential and unsightly, but not dangerous.</p> <p>Removal Timeframe: 2-3 years</p>
	<p>Tree No. 122 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Handsome, mature twisted tree. Manage in accordance with Section 4.3</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 123 <i>Leptospermum laevigatum</i>, Coast Tea-tree</p> <p>Condition: Species falls apart with age, and as this specimen is dieing it may start to collapse. Remove</p> <p>Removal Timeframe: Before next summer.</p>

	<p>Tree No. 124 <i>Banksia integrifolia</i>, Coast Banksia Condition: Young tree in fair health. No long term viability due to serious damage to the base of the tree. Removal Timeframe: 2-3 years</p>
	<p>Tree No. 125 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Aerial girdling roots. Large tree in fair health. Young tree. Manage in accordance with Section 4.3. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 126 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Tree in fair health. Stress mitigation works such as mulch, irrigation and an application of seaweed fertiliser are recommended. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 127 <i>Banksia integrifolia</i>, Coast Banksia Condition: Not located – presume removed Removal Timeframe: Already removed</p>

	<p>Tree No. 128 <i>Leptospermum laevigatum</i>, Coast Tea-tree</p> <p>Condition: Dead and collapsed. Remove. Not located on second visit, presume removed.</p> <p>Removal Timeframe: Already removed</p>
	<p>Tree No. 129 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Has lost a large part of the tree from the base, resulting in half the trunk being missing and severely compromising the tree's longevity. It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 2-3 year retention period.</p> <p>Coppice Timeframe: 2-3 years</p>
	<p>Tree No. 130 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Young tree with a large number of "witches' brooms". Manage in accordance with Section 4.3</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 131 <i>Olea europaea</i>, Olive</p> <p>Condition: Young tree. This tree may require removal on environmental grounds (Olives are self seeding into Swan Bay). It is recommended that the Borough assess this and make a decision on retaining or replacing this tree as appropriate. The listed removal time frame does not consider the weed issue, as there was insufficient information available to make a decision.</p> <p>Removal Timeframe: 10 years plus</p>




	<p>Tree No. 132 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Good young tree. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 133 <i>Leptospermum laevigatum</i>, Coast Tea-tree <i>Myoporum insulare</i>, Boobialla Condition: Dead / dying collapsing mass of vegetation. The Boobialla has reasonable health and would continue to grow but is recommended for removal on structural grounds. Structurally unsound (cracking and overhanging). Removal Timeframe: Immediately</p>
	<p>Tree No. 134 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree but with a form that may not develop well. Manage in accordance with Section 4.3 Removal Timeframe: 10 years plus</p>
	<p>Tree No. 135 <i>Leptospermum laevigatum</i>, Coast Tea-tree Condition: Removal Timeframe: Already removed</p>
	<p>Tree No. 136 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: A good young tree but with a form that may not develop well. Canopy will need uplifting with time. Removal Timeframe: 10 years plus</p>




	<p>Tree No. 137 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Young tree in fair health. Slight self-corrected lean. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 138 <i>Pinus halepensis</i>, Aleppo Pine Condition: A good young tree. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 139 <i>Leptospermum laevigatum</i>, Coast Tea-tree Condition: Large clump at risk of collapse and considered to be dangerous. Removal Timeframe: Already removed</p>
	<p>Tree No. 140 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Tree has already shed a large limb and is in poor health. Given its relatively low amenity value it is recommended that the tree be removed and replaced. It is recommended that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be removed if inspections indicate it poses an unacceptable risk to the public; even if within the 2-3 year retention period. Removal Timeframe: 2-3 years</p>



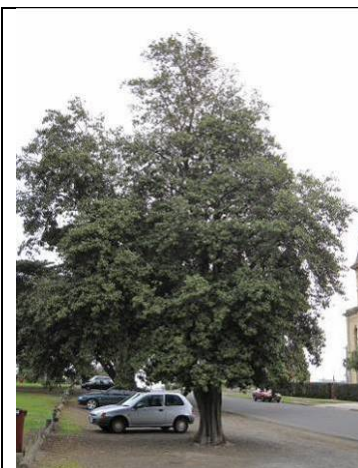
	<p>Tree No. 141 <i>Araucaria heterophylla</i>, Norfolk Island Pine</p> <p>Condition: Fair health. Gash at base limits the long-term viability of the tree. It is recommended that replacement planting take place and that the tree is then removed. Manage in accordance with Section 4.3 leading up to removal. <i>A clump of dieing Coast Tea-tree to the south is recommended for removal immediately as it is senescent and breaking apart.</i></p> <p>Removal Timeframe: 5 years</p>
	<p>Tree No. 142</p> <p>Species: <i>Pinus halepensis</i>, Aleppo Pine</p> <p>Condition: Young tree which has poor structure and limited long term viability. It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be removed if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period.</p> <p>Removal Timeframe: 10 years</p>
	<p>Tree No. 143 <i>Araucaria heterophylla</i>, Norfolk Island Pine</p> <p>Condition: Maturing tree in good condition. Recommend cleaning up of branch stubs. Manage in accordance with Section 4.3.</p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 144 <i>Pinus halepensis</i>, Aleppo Pine</p> <p>Condition: Bifurcated with included bark and swelling, but with low level of weight on limbs. Tree is not an imminent failure risk but won't develop well and cabling is not recommended for such a young tree.</p> <p>Removal Timeframe: 5 years</p>

	<p>Tree No. 145 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Fair condition. Recommended for clean up works, especially developing terminal side shoots. Stress mitigation works such as mulch, irrigation and an application of seaweed fertiliser are recommended. Boobialla to the west is recommended for ongoing monitoring and management. Removal Timeframe: 10 years plus.</p>
	<p>Tree No. 146 Species: <i>Pinus halepensis</i>, Aleppo Pine Condition: A good young tree Removal Timeframe: 10 years plus</p>
	<p>Tree No. 147 <i>Myoporum insulare</i>, Boobialla Condition: Tree is decayed and at high risk of collapse. Removal Timeframe: Immediately</p>
	<p>Tree No. 148 <i>Myoporum insulare</i>, Boobialla Condition: Severely compromised by Tree 147. Extensive decay and at risk of collapse, but only a small specimen. Removal Timeframe: Before next summer.</p>

	<p>Tree No. 149 <i>Araucaria heterophylla</i>, Norfolk Island Pine</p> <p>Condition: Mature tree in fair health. Stress mitigation works such as mulch, irrigation and an application of seaweed fertiliser are recommended.</p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 150 <i>Leptospermum laevigatum</i>, Coast Tea-tree</p> <p>Condition: Specimen has a limited life expectancy.</p> <p>Removal Timeframe: 2-3 years</p>
	<p>Tree No. 151 <i>Araucaria heterophylla</i>, Norfolk Island Pine</p> <p>Condition: Tree in fair health. Stress mitigation works such as mulch, irrigation and an application of seaweed fertiliser are recommended.</p> <p>Removal Timeframe: 10 years plus</p>

	<p>Tree No. 152 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: Lost moderately sized limbs. Younger than other mature cypresses in parks. Central leader. <i>Recommend removal of deadwood in lower canopy before next summer as long as this is necessary on safety grounds and if it will not compromise the tree structurally. It is recommended that the tree be reassessed to determine the appropriateness of carrying out deadwooding works before this occurs.</i> Leaders have a lot of weight on them. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so.</p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 153 <i>Pinus pinea</i>, Stone Pine</p> <p>Condition: Large amounts of deadwood in lower canopy. Damage in bifurcation union. Compromised by the adjacent Cypress. Recommend removal at the same time as tree 152 if not required earlier. It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be removed if inspections indicate it poses an unacceptable risk to the public; even if within the 5 year retention period.</p> <p>Removal Timeframe: 5 years</p>
	<p>Tree No. 154 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: Tree has poor structure, is over mature and has a lack of supporting branches. Enormous limb to the north. It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be removed if inspections indicate it poses an unacceptable risk to the public; even if within the 1-2 year retention period.</p> <p>Removal Timeframe: 1-2 years</p>

	<p>Tree No. 155 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Tree is at age where a pattern of failure is likely to commence. The tree's location within a car park makes it hazardous and remedial works are not appropriate. Removal Timeframe: Before next summer.</p>
	<p>Tree No. 156 Species: <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Tree is at age where limbs are being lost and a pattern of failure has started. Tree has poor branching structure and the lower branches which provide structural support are being lost. Has recently lost a large limb over the road. The tree's location within a car park makes it hazardous and remedial works are not appropriate. Removal Timeframe: Before next summer.</p>
	<p>Tree No. 157 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Tree in fair health. Stress mitigation works such as mulch, irrigation and an application of seaweed fertiliser are recommended. A wound is present at the base of the tree. It is recommended that the tree be retained, but that it's structural integrity be monitored, particularly in relation to the wound at the base of the trunk. Removal Timeframe: 10 years plus</p>

	<p>Tree No. 158 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Tree in fair health. Stress mitigation works such as mulch, irrigation and an application of seaweed fertiliser are recommended. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 159 <i>Araucaria heterophylla</i>, Norfolk Island Pine Condition: Tree in fair health. Stress mitigation works such as mulch, irrigation and an application of seaweed fertiliser are recommended. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 160 <i>Lagunaria patersonia</i>, Norfolk Island Hibiscus Condition: Tree is bifurcated, but this appears to be solid. The fruit of this species has irritant fibres within the seed pods which can cause allergic reactions in some people and are an occupational health and safety concern for tree pruners due to irritation caused by contact with the skin during tree works. It is recommended that council decide whether they are willing to manage and retain this species of tree within their public parks. Removal Timeframe: 10 years plus</p>

	<p>Tree No. 161 <i>Allocasuarina verticillata</i>, Dropping She-oak</p> <p>Condition: Severely bifurcated with decay in the leaders. <i>Recommended for removal immediately.</i> Recommend retention of the Boobialla at the base if possible. Tree appears to be breaking up and is extremely structurally unsound. Could fail at any time and is dangerous in a public park.</p> <p>Removal Timeframe: Immediately</p>
	<p>Tree No. 162 <i>Cupressus macrocarpa</i>, Monterey Pine</p> <p>Condition: Form of the tree is such that it may not develop well. Recommend careful, regular monitoring and works due to the tree's proximity to the playground, with special notice taken of the low limb to the north-west.</p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 163 <i>Pinus pinea</i>, Stone Pine</p> <p>Condition: Very large old tree in good health. Horizontal and elbowed branching structure. Tree is weighted back on itself. <i>Deadwood in the lower canopy, including a large piece near the playground recommended for removal immediately.</i> Recommend an aerial examination by an experienced arborist to more fully determine the structural integrity of the tree. Recommend ongoing inspections and maintenance work to aid tree retention and manage risk. Retain only while safe to do so.</p> <p>Removal Timeframe: 10 years plus</p>
<p>NO IMAGE</p>	<p>Tree No. 164 <i>Agonis flexuosa</i>, Willow Myrtle</p> <p>Condition: Bifurcated with included bark to base. Limited life expectancy. Recommend removal and replacement with a more appropriate species. It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be removed if inspections indicate it poses an unacceptable risk to the public; even if within the 5 year retention period.</p> <p>Removal Timeframe: 5 years</p>

	<p>Tree No. 165 <i>Pinus halepensis</i>, Aleppo Pine</p> <p>Condition: Poor health, and has a bifurcation at risk of failure at 1m, with a second bifurcation on its northern trunk. It's location adjacent to a playground increases the potential liability posed by this specimen. A poorly structured tree not worth preserving. Recommended for removal.</p> <p>Removal Timeframe: Before next summer.</p>
	<p>Tree No. 166 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: Lower branches are still present to provide structural support, but these are starting to break up. Some decay present and evidence of loss of very large limbs. The tree's location within a car park makes it hazardous and remedial works are not appropriate.</p> <p>Removal Timeframe: Before next summer</p>
	<p>Tree No. 167 <i>Casuarina cunninghamiana</i>, River She-oak</p> <p>Condition: Young healthy tree with some manageable defects. Manage in accordance with Section 4.3.</p> <p>Removal Timeframe: 10 years plus</p>
<p>NO IMAGE</p>	<p>Tree No. 168 <i>Olea europaea</i>, Olive</p> <p>Condition: Row of Olives to northern boundary of the park. A group of young trees, some of which have structural problems while others appear to be healthy and performing well. Recommend pruning to remove structural defects or remove poor trees. These trees are recommended for monitoring to determine if they are a fruiting variety. If the trees do fruit then they may require removal on environmental grounds (Olives are self seeding into Swan Bay). It is recommended that the Borough assess this and make a decision on retaining or replacing the trees as appropriate. The listed removal time frame does not consider the weed issue, as there was insufficient information available to make a decision. The trees have not been individually assessed.</p> <p>Removal Timeframe: 10 years plus</p>



Tree No. 169, 170 and 171

Vegetation masses

Condition:

Massed vegetation including *Myoporum insulare* (Boobialla), *Leptospermum laevigatum* (Coast Tea-tree) and other vegetation. These masses have limited longevity and some of the Tea-tree has already collapsed. The masses are for the most part unsightly rather than dangerous, but in some locations cars part within the drop zone of Tea-tree is at risk of collapse. *Recommended either removal immediately* or at least *removal of Tea-tree at risk of failing over cars* (or removal of parked cars). If the second option is taken then the vegetation mass may be removed within the next 5 years.

Removal Timeframe:

Immediately

APPENDIX C: TREE ASSESSMENT AND RECOMMENDATIONS FOR VICTORIA PARK




The following pages contain an arboricultural assessment of the trees within Victoria Park and recommendations for their management based on this strategy. Three plans showing recommended tree removals over time are also included, as well as a forth plan showing the proposed Moonah Reserves. These plans show existing young planting and coppice growth, but do not show new planting which should be installed in accordance with a Master Plan for the site.


Plan 8: Victoria Park Tree Removal Timeframes




Plan 9: Victoria Park – After Year 1 Removals




Plan 10: Victoria Park – After Year 5 Removals




Plan 11: Victoria Park – Moonah Reserves




	<p>Tree No. 1 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Over-mature, works not urgent. Would fall towards centre if tree were to fail. <i>Recommend removal of sand pit to reduce hazard risk of tree before next summer.</i> Decay present. It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period. Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 2 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Mature with epicormic growth. <i>Recommend removal of poorly attached epicormic / lignotuber shoots before next summer. Recommend ongoing management of this growth.</i> Manage in accordance with Section 4.4. Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 3 <i>Melaleuca lanceolata</i>, Moonah (2 No.)</p> <p>Condition: Mature specimen. Large limb has been removed. A large limb over the footpath is rubbing on a lower leader, but attachment appears to be reasonably solid. This limb should be carefully monitored due to its location over the footpath. It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period. Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>




	<p>Tree No. 4 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Over mature tree. Real concern with stability of small limb; extensive dieback present, including into union with trunk. There is a crack at the base of the largest leader. Tree should be coppiced before next summer.</p> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted then the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: Cut off tree to base to coppice growth before next summer. Manage coppice growth to develop new tree.</p>
	<p>Tree No. 5 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: Extensive ground disturbance from new tap with subsequent root loss. Recommend that the location of the service is determined and that if this falls within the structural root zone then hand excavation be carried out by an arborist to determine whether root loss has destabilised the tree. If it were not for the potentially compromising root loss then this tree would have good potential longevity. <i>Recommend removal immediately of large, recently failed hanger in canopy.</i> It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Tree should be removed if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period – especially if root loss has compromised tree health and structure.</p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 6 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Mature with low SULE. Recommend coppicing in short term. Two bracket fungi are present, one on the northern limb and one on the southern. The tree has extensive internal decay and should be monitored for stress as a result of recent development works. Retain only with extreme care and regular inspections and start allowing for replacement.</p> <p>Coppice Timeframe: Cut off tree to base to coppice growth before next summer. Manage coppice growth to develop new tree.</p>


	<p>Tree No. 7 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Extensive weight over footpath originating from a poor join and therefore a liability. The tree is leaning with tight roots opposite the lean and a damaged stump at the base. <i>It is strongly recommended that this be carefully monitored and any necessary works are carried out. This limb should not be retained beyond the time that it is safe to do so.</i> Propping of this limb is not an option. A second limb is lying on the ground and is suitable for retention, but the limb overhanging the footpath is likely to require removal in the short term. Recommend ongoing management of epicormic / lignotuber shoots. Manage in accordance with Section 4.4. Tree is located within a "Potential Moonah Reserve". If this reserve is adopted then the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus (only for limb on ground) or retain in "Moonah Reserve"</p>
	<p>Tree No. 8 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Semi-mature. There is significant lignotuber growth from the base of the tree which has the potential to become hazardous if allowed to develop (especially given the tree's location next to the toilets). Some of this growth was removed between the first and second inspections, and it is recommended that this growth continues to be managed. Manage in accordance with section 4.2.2.</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 9 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Completely comprised of a mass of young regrowth from a mature base. Recommend managing coppice growth to develop new tree.</p> <p>Coppice Timeframe: 10 years plus</p>




	<p>Tree No. 10 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Mature. Monitor due to potential issues involving limb loss and possible dieback down trunk. Tree has lost a moderately sized limb. <i>Recommend removal of entrance gate away from drop zone and replacement with a solid fence before next summer.</i> Manage in accordance with Section 4.4.</p> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 11 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: A group of mature trees with no camping sites in the immediate area. <i>Recommend removal of the small tree to the south-east of the rear trunk before summer as it is mostly dead.</i> It is recommended that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Particular attention should be paid to the horizontal leader, and epicormic / lignotuber growth should be managed. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period. It is recommended that no new campsites be allocated in this area. Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 12 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: Fill around base as a result of works to the new toilet block is highly problematic due to alteration of soil air and water permeation and the risk of rot to the base of the tree. Works may also have resulted in root loss and there is the potential for the tree to become stressed or die. Furthermore, increased stress levels may increase the chance of limb shed. Removal of this fill is unlikely to be practical as a retaining wall would need to be installed instead, resulting in further root damage.</p> <p>The tree is leaning towards the toilets and has a number of limbs at risk of failure. Given past damage, the tree's poor branching structure, evidence of large limb loss (the tree will continue to shed limbs over time) and its location in a high traffic area, removal is recommended in the short term. It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk in the short term. Tree should be removed if inspections indicate it poses an unacceptable risk to the public; even if within the 2-3 year retention period.</p> <p>Removal Timeframe: 2-3 years</p>




	<p>Tree No. 13 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Tree is not especially large and has lost a large limb. The base of the tree is damaged, probably due to impact from vehicles. Recommend coppicing as tree is relatively small, and the risk posed by the tree outweighs its limited amenity value.</p> <p>Coppice Timeframe: Before next summer</p>
	<p>Tree No. 14 <i>Melaleuca lanceolata</i>, Moonah (smaller tree, on right of image)</p> <p>Condition: Semi-mature regrowth on an old tree. Recommend ongoing management of epicormic / lignotuber shoots. It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period. The tree may require removal when adjacent Cypress (Tree 12) is removed due to changed wind loading.</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 15 <i>Melaleuca lanceolata</i>, Moonah (larger tree, on left of image)</p> <p>Condition: Large old tree. Hollow present and potential dieback in trunk. It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period.</p> <p>Coppice Timeframe: 10 years plus</p>


	<p>Tree No. 16 Species: <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Structure compromised by a tract of decay at base of tree. Typical over mature Monterey Cypress branching structure. The canopy structure of the tree is defective. The main concern with this specimen is extensive end weight on branches with the tree's location meaning that failure could potentially result in a fatality. Removal Timeframe: Before next summer</p>
	<p>Tree No. 17 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: Location makes retention of this specimen undesirable as tree is over mature and at increased risk of failure and is located within a caravan park. Poor branching structure. Moderate deadwood. Recommend that tree is monitored carefully, required works are carried out and measures are put in place to allow for replacement of the tree in the short term. Standard issues with over mature Monterey Cypress (see notes). Removal Timeframe: Before next summer</p>
	<p>Tree No. 18 <i>Cupressus macrocarpa</i>, Monterey Cypress Condition: I concur with all the observations made in Bellarine Tree's report. <i>I would however recommend the removal of the tree prior to site occupation next summer as failure of this tree could potentially cause a fatality.</i> One limb in particular is at risk of imminent failure as it is very poorly attached and is overhanging the basket ball courts. Removal Timeframe: Immediately</p>




	<p>Tree No. 19 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Large tract of decay. Fungal growth (white type with foul odour seen on other Moonahs). Poor attachment at base of tree.</p> <p>Coppice Timeframe: Cut off tree to base to coppice growth before next summer. Manage coppice growth to develop new tree.</p>
	<p>Tree No. 20 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Lost limb high. Two leaders from base. Low SULE. Recommend urgent pruning of the limb over the tennis court and van. Extensive dieback present. <i>Highly unstable limb to the north recommended for removal immediately. This limb is heavy and damaged in the branch union with dieback above. Potentially very dangerous, especially given that a caravan was placed within the drop zone of this limb last summer.</i> A cavity is present in the trunk which light shines through. The second leader may be retained after the removal of the first, but should be carefully monitored, especially with the increased exposure.</p> <p>Recommend coppicing due to failure risk and location.</p> <p>Coppice Timeframe: Coppice main tree before next summer and retain front leader for 10 years plus.</p>
	<p>Tree No. 21 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: An over mature “y” shaped tree with no supporting branches for canopy. Very large limbs have been removed. One limb with fissure, another with multiple weak points. Significant tear on western leader. Extensive weight on leaders. Standard issues with over mature Cupresses and pruning not a practical option. Tree could potentially be fatal if it were to fail. <i>Recommend removal immediately.</i></p> <p>Removal Timeframe: Immediately</p>




	<p>Tree No. 22 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Mature tree. Continue to monitor structure. No urgent works required. Manage in accordance with Section 4.4.</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 23 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: A very large mature tree and a handsome specimen. This tree has high retention value, but public safety must be given due consideration in determining management regime. The structure of the tree is compromised by a stub within a branch union. This limb overhangs the access road. It is recommended that a tomograph be used to check for internal decay, especially in the central leaders. It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. In particular, attention should be given to the branch union with the branch stub. The tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period. Cabling of the tree should be investigated to determine if it is a feasible management option.</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 24 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Two leaders remaining of what was a more extensive tree. Pegs and nails have been placed in the trunk. Suspect basal integrity. It is recommended that careful and regular inspections and maintenance work be carried out to manage the stability of the tree leading up to coppicing. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 2-3 year retention period.</p> <p>Management should encourage new coppice growth at the base of the tree. Recommend fencing of the stump using parawebbing or similar to protect new growth during the camping season.</p> <p>Coppice Timeframe: Cut off tree to base to coppice growth in 2-3 years. Manage coppice growth to develop new tree.</p>

	<p>Tree No. 25 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Recent excavation in vicinity – determine extent in accordance with Section 4.4. Decay at point of failed leader. Fair health. It is recommended that regular inspections and maintenance work be carried out to manage the stability of the tree. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 5 year retention period.</p> <p>Coppice Timeframe: Cut off tree to base to coppice growth in 5 years. Manage coppice growth to develop new tree.</p>
	<p>Tree No. 26 <i>Eucalyptus conferruminata</i>, Bald Island Marlock</p> <p>Condition: Leaning to the north-west on a considerable angle. Species is out of character with the rest of the site. Recommend removal and replacement with a Moonah. May be held upright by bucket / pot at base. Recommend caution in retaining tree if this is moved. Manage in accordance with Section 4.4.</p> <p>Removal Timeframe: 5 years</p>
	<p>Tree No. 27 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: In early maturity. Extensive lean towards the path but not overhanging any camping sites. Recommend removal of clothes line as it is a safety risk if the tree were to fail. Manage in accordance with Section 4.4. Recommend removal of <i>Dipogon lignosus</i> in canopy.</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 28 <i>Leptospermum laevigatum</i>, Coast Tea-tree</p> <p>Condition: Recommend ongoing monitoring of the tree. Install replacement planting a suitable distance from tree 22.</p> <p>Removal Timeframe: 10 years plus</p>




	<p>Tree No. 29 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Tree is leaning but weighted back on itself. Manage in accordance with Section 4.4.</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 30 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: A mature tree in reduced health which is the remaining single leader of what was once a two leader tree. A large limb to the south has been lost with decay present and this combines with dieback in the northern limb's branch union. <i>This leader overhangs the bowling green which is in use, and the tree is therefore recommended for coppicing immediately.</i></p> <p>Note: On the third inspection a vertical crack was noted in this leader, further strengthening the need for coppicing.</p> <p>Coppice Timeframe: Cut off tree to base to coppice growth immediately. Manage coppice growth to develop new tree.</p>
	<p>Tree No. 31 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Poor health. Recommend coppicing with other specimens.</p> <p>Coppice Timeframe: Cut off tree to base to coppice growth before next summer. Manage coppice growth to develop new tree.</p>

	<p>Tree No. 32 <i>Melaleuca lanceolata</i>, Moonah and <i>Leptospermum laevigatum</i>, Coast Tea-Tree</p> <p>Condition: Coast Tea-tree is senescent but weighted so that it is unlikely to damage anything other than the electricity substation, however <i>the third inspection noted that the tree was highly unstable and is therefore recommended for removal immediately.</i> Moonah is a high failure risk and could damage the corner of the annex. Some ground lift opposite the lean. Major limb removal has recently taken place. Two main branches are weakly attached.</p> <p>Coppice Timeframe: Coast Tea-tree: Immediately Moonah: Cut off tree to base to coppice growth before next summer. Manage coppice growth to develop new tree.</p>
	<p>Tree No. 33 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Main leader heavy and leaning extensively. <i>Recommend locking of gate, repair of the fence and barricading of the area as a "Moonah Reserve" to reduce risk before next summer.</i> It is recommend that regular inspections and maintenance work be carried out to manage risk outside the fencing, with the feasibility of propping the tree investigated in the next 2-3 years if required.</p> <p>Coppice Timeframe: Retain in "Moonah Reserve"</p>
	<p>Tree No. 34 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: 2 No. young Moonahs rubbing / overlaid. Future weak point on trunk of front tree. This specimen has limited viability. These two trees are recommended for retention within a "Moonah Reserve" due to their close proximity to tree 33.</p> <p>Coppice Timeframe: Retain both trees in "Moonah Reserve"</p>
	<p>Tree No. 35 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Structure compromised by decay, especially in the union of a bifurcation. Dead wood and manage.</p> <p>Coppice Timeframe: 10 years plus</p>

	<p>Tree No. 36 <i>Melaleuca lanceolata</i>, Moonah and</p> <p>Condition: Very large mature Moonah. <i>Northern leader is leaning heavily and is weighted at the end, this leader is recommended for immediate removal.</i> A second leader is bifurcated. One root is girdling and has overgrown another. It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period.</p> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 37 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period.</p> <p><i>Before next summer it is recommended that:</i></p> <ul style="list-style-type: none"> <i>a) the deformed branch to the north be removed</i> <i>b) the lower limb to the east be removed and</i> <i>c) the feasibility of cabling/bracing the tree be investigated and that works subsequently be carried out if possible.</i> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 38 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Mature trees. Be aware of metal hook in trunk when removing tree (potentially problem for tree workers). It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk, with particular attention given to the root plate (girdling and damaged). Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period.</p> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>

	<p>Tree No. 39 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Decay present opposite lean of tree. <i>Recommend propping of this tree before next summer.</i></p> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted then the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 40 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Bifurcated with included bark. It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Especially care should be taken following the removal of tree 41 due to changes in wind loading. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period.</p> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted then the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 41 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Limb to north on large lean with decay present. This leader has no viability and possible stability issues. A second leader is senescent, and a third is compromised structurally by a bifurcation with included bark and cracking in the union. <i>Urgent arboricultural works are required to remove these limbs. Recommend coppicing of the tree before next summer, retaining the structurally acceptable leader to the south.</i></p> <p>Recommend management of coppice growth to develop new tree and monitor stability of the retained limb.</p> <p>Tree is located within a "Potential Moonah Reserve", but is still recommended for immediate coppicing.</p> <p>Coppice Timeframe: Partial immediately and remainder in 10 years plus or retain in Moonah Reserve</p>

	<p>Tree No. 42 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Two specimens. It is recommend that regular inspections and maintenance work be carried out to aid retention of the trees and manage risk. In particular, attention should be paid to the specimen which is bifurcated with decay below one limb. Trees should be coppiced if inspections indicate they pose an unacceptable risk to the public; even if within the 10 year retention period.</p> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 43 <i>Allocasuarina ?verticillata</i>, Drooping She-oak</p> <p>Condition: Shedding limbs and extensive deadwood. Although the tree is not over hanging a van it is still a potential liability and is not in keeping with the character of the site. Tree is dieing back and is structurally unsound.</p> <p>Removal Timeframe: Before next summer</p>
	<p>Tree No. 44 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: <i>Recommend removal of small hanging deadwood before next summer.</i> Manage in accordance with Section 4.4. Monitor clothes line and remove if damaging the tree.</p> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>

	<p>Tree No. 45 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Young tree should be carefully monitored and it is recommended that formative pruning works take place as required. Bifurcated with included bark. Fungal growth present (white type with foul odour seen on other Moonahs)</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 46 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Large, mature tree with general poor structure and fair health but a lovely form. <i>A very large limb overhangs the bedroom end of the van and is recommended for removal immediately.</i> The tree is weighted towards the van and there are potentially fatal consequences if the tree were to fail. A retaining wall has been constructed next to the tree, which appears to be in historic decline – possibly due to urban pressures. The proximity of this tree to the van is highly inappropriate, and given the size of the tree it is recommended that the van be relocated and the tree isolated in a “Moonah Reserve”. It is recommended that the current situation only be retained if the tree is monitored and managed <u>very</u> carefully and that all maintenance works (including coppicing the tree or removing the van) are carried out as soon as they are recommended. It is recommended that stress reduction works be carried out. The time frame for removal of the van should be determined by council dependant on the level of risk they are willing to accept. It is recommended that the van be retained in its current location for no more than 2-3 years.</p> <p>Coppice Timeframe: Retain in “Moonah Reserve”</p>
	<p>Tree No. 47 <i>Melaleuca lanceolata</i>, Moonah and <i>Leptospermum lanceolata</i>, Coast Tea-tree</p> <p>Condition: Past root severance / fill may be an issue, but tree may be younger than the wall. Monitor stability of the tree and remove if unstable. Coast Tea-Tree in decline.</p> <p>Removal Timeframe: Coast Tea-tree: Before next summer Moonah: 10 years plus</p>

	<p>Tree No. 48 <i>Melaleuca armillaris</i>, Bracelet Honey-myrtle</p> <p>Condition: Large impressive specimen which should be monitored carefully as the tree has poor structure and the species has a tendency to break up with age. Not likely to fail immediately over camp sites. Replacement recommended as tree is not the same species as other trees on site has poor structure and is in a good location for replacement planting. Recommend that tree be monitored and managed carefully leading up to removal.</p> <p>Removal Timeframe: 2-3 years</p>
	<p>Tree No. 49 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: I concur with nearly all the observations made in Bellarine Tree's report and offer the following comments: Large scale branch failures have occurred in the recent past. One fractured limb is hanging in the canopy and is of immediate concern, although it is noted that Monterey Cypresses are very good at holding shed limbs. Extensive decay present. No limb support for branches. Standard issues with over mature Monterey Cypress.</p> <p><i>I would however recommend the removal of the tree prior to site occupation next summer as failure of this tree could potentially cause a fatality. Some limbs are at risk of imminent failure. Pruning is not a practical management approach for this tree.</i></p> <p>Removal Timeframe: Before next summer.</p>
	<p>Tree No. 50 <i>Agonis flexuosa</i>, Willow Myrtle</p> <p>Condition: Young tree. Manage in accordance with Section 4.4.</p> <p>Removal Timeframe: 10 years plus</p>

**Tree No. 51***Melaleuca lanceolata*, Moonah**Condition:**

Mature Moonah. Some decay present, but no immediate issues. It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Particular attention should be paid to the stability of the tree from the base. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period.

Coppice Timeframe:

10 years plus

**Tree No. 52***Melaleuca lanceolata*, Moonah**Condition:**

Epicormic growth over van and at risk of failure. Decay in leader. Limited life expectancy with extensive new planting in the vicinity allows for replacement. Retain while inspections indicate it is safe to do so. *Recommend removal of epicormic growth before next summer.* It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 5 year retention period.

Coppice Timeframe:

5 years



**Tree No. 53***Melaleuca lanceolata*, Moonah**Condition:**




A magnificent specimen, but in a high target rating location. Structure is compromised by a bifurcation that is at risk of failing over the road. Recommend cable / bracing of bifurcation before summer. *It is recommended that the limb overhanging the toilet block be removed before summer (or more immediately) given its high target rating, the branch stubs and decay in the union and poor health.*




Monitor tree for signs of construction damage. It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Especially note should be taken of any signs of construction damage. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period. Retain and manage tree while safe to do so.




Coppice Timeframe:

10 years plus




	<p>Tree No. 54 <i>Eucalyptus gomphocephala</i>, Tuart</p> <p>Condition: Compromised structurally by a bifurcation with included bark and swelling. Exposure to prevailing winds makes this weakness more concerning. Limited canopy. The poor health of the tree puts it at increased risk of failure from the bifurcated point and removal is therefore recommended. Remove and replace with a better specimen as the risk posed by the tree is not appropriately balanced by benefits provided by the tree.</p> <p>Removal Timeframe: Before next summer.</p>
	<p>Tree No. 55 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: New regrowth from an old stump. It is recommended that the stump be coppiced back to encourage additional regrowth and that the stability of the existing growth be monitored and managed.</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 56 Species: <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Young specimen. Manage in accordance with section 4.3.2.</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 57 Species: <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Very young tree.</p> <p>Coppice Timeframe: 10 years plus</p>

	<p>Tree No. 58 Species: <i>Allocasuarina verticillata</i>, Drooping She-oak Condition: Tree was in very poor condition at the time of the first inspection. This failure risk has been partially mitigated by extensive pruning. <i>The tree has no viability and is recommended for outright removal before next summer.</i> Recommend replacement with a Moonah. Removal Timeframe: Before next summer</p>
	<p>Tree No. 59 <i>Melaleuca lanceolata</i>, Moonah Condition: <i>Remove twisted limb before next summer. Retain northern limb, but only if propped and deadwooded before next summer.</i> This leader is leaning with damage opposite the lean, and therefore is only suitable for retention in a camp site if propped. It is recommend that regular inspections and maintenance work be carried out to aid retention of the northern limb and manage risk. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period. Coppice Timeframe: 10 years plus (northern limb only)</p>
	<p>Tree No. 60 <i>Melaleuca lanceolata</i>, Moonah Condition: Mature specimen. Retain and manage to reduce number of removals in this area. Manage in accordance with section 4.3.2. Coppice Timeframe: 10 years plus</p>

	<p>Tree No. 61 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Serious damage has been caused by the Boobialla (Tree 62). The structure of this tree has been compromised by extensive dieback and with end weight opposite this. The tree has no long term viability. Extensive decay in the southern side of the trunk. Tree may be partially supported by the Boobialla and should not be retained if the Boobialla is removed – even for a short period of time. A large branch has broken off the trunk exposing severe internal decay.</p> <p>Coppice Timeframe: Immediately</p>
	<p>Tree No. 62 <i>Melaleuca lanceolata</i>, Moonah and <i>Myoporum insulare</i>, Boobialla</p> <p>Condition: Two trees very close to each other. <i>The Boobialla has no long term viability and removal is recommended prior to next summer.</i> This tree is intertwined with the Tree 61 (a Moonah). The Boobialla has suffered major trunk damage through the loss of a branch and has damaged Tree 61 through branch rubbing. <i>Remove Tree 61 and Boobialla at the same time.</i> Following removal of the Boobialla reassessment is recommended for the Moonah to the front of the site due to the increased risk of failure with the changed wind loading. This tree has been badly damaged by vehicles and has decay in the trunk. It is recommended that the tree be carefully monitored and removed as necessary. It is recommended that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 5 year retention period.</p> <p>Removal / Coppice Timeframe: Moonah: 5 years Boobialla: Immediately</p>
	<p>Tree No. 63 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Decay present and trunk split. Structurally problematic limbs with one moving from beneath the point of attachment and one with dieback in the branch union (both signs of structural weakness). Sounds of cracking / fracture / rubbing heard. Lower target rating than some specimens, but still <i>recommended for removal immediately.</i> Has lost a limb high. The moving limb has an active crack in it.</p> <p>Coppice Timeframe: Immediately</p>

	<p>Tree No. 64 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Extensive rot in major limb which has hollowed out. Also, likely weak union at base of tree. Two long limbs to the north of the tree could fail under load (e.g. being climbed on by children). One limb has a large gash where a branch has failed. Another limb has fungal decay in leader (white type with foul odour seen on other Moonahs).</p> <p>It is recommended that this tree be fenced off in a "Moonah Reserve" and that if possible branches in the direction of the road be propped if extra stability is required. If propping is not possible than it is recommended that these limbs be removed if required.</p> <p>Coppice Timeframe: Retain in "Moonah Reserve"</p>
	<p>Tree No. 65 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Damaged roots at base of tree and decay in trunk. One limb with decay and extensive galls. It is recommend that this tree be fenced in a "Moonah Reserve" to exclude public access and that sections which could fail beyond the fence continue to be monitored and managed as detailed in Section 4.4.2.</p> <p>Coppice Timeframe: Retain in "Moonah Reserve"</p>
	<p>Tree No. 66 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: <i>Extensive decay present and twisted branches.</i> Main leader is not safe to retain within a camping ground.</p> <p>Tree is recommended for fencing within a "Moonah Reserve".</p> <p>The main leader of the tree has significant structural defects and it is recommended that it be removed before next summer if its drop zone can not be contained within the reserve. The remaining two leaders will require careful monitoring if their drop zone is outside the reserve.</p> <p>Coppice Timeframe: Retain in "Moonah Reserve"</p>

	<p>Tree No. 67 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Limbs with extensive internal decay. Long limb to west is damaged at the union with internal decay and is over extended. Tree heard cracking on one site visit, a sign of considerable instability. Tree's location within a caravan park makes it of especial concern. Tree is recommended for retention within a "Moonah Reserve" with management works to manage parts of the tree with a drop zone outside the fence.</p> <p>Coppice Timeframe: Retain in "Moonah Reserve"</p>
	<p>Tree No. 68 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Some dieback high. Tree is recommended for retention within a "Moonah Reserve" with management works to manage parts of the tree with a drop zone outside the fence.</p> <p>Coppice Timeframe: Retain in "Moonah Reserve"</p>
	<p>Tree No. 69 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Major dieback to south-west branch. <i>Remove limb to east with wound above immediately.</i> This limb was only weight reduced at the time of previous works. Remove western limb. Extensive rot, bracket fungus and few supporting roots present. At risk of imminent failure with potentially catastrophic results. Crack in tree, dieback in canopy and lack of integrity in the overall structure (dieback and live wood intermingled). Was heard cracking during one site visit – a sign of considerable instability. <i>Recommend immediate fencing to exclude public access.</i> If fencing can not be placed so as to restrict public access within the tree's drop zone than bracing, cabling and / or propping should be considered. Retain tree within "Moonah Reserve".</p> <p>Coppice Timeframe: Retain in "Moonah Reserve"</p>

	<p>Tree No. 70 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Limb to east extended with poor union and also damaged from below. Deadwood into other union with cavity. <i>Recommend removal of the branch stub rubbing the rear tree before next summer. Also recommend fencing of the tree to exclude public access before next summer.</i> Tree is recommended for retention within a "Moonah Reserve" with management works to manage parts of the tree with a drop zone outside the fence.</p> <p>Coppice Timeframe: Retain in "Moonah Reserve"</p>
	<p>Tree No. 71 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Dieback in union of major limb. <i>Recommend fencing of the tree to exclude public access before next summer.</i> Tree is recommended for retention within a "Moonah Reserve" with management works to manage parts of the tree with a drop zone outside the fence.</p> <p>Coppice Timeframe: Retain in "Moonah Reserve"</p>
	<p>Tree No. 72 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: <i>Recommend removal before next summer of deadwood and all extended leaders with very little canopy.</i> It is recommended that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Particular attention should be paid to the decay and strength of the branch unions. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period.</p> <p>Coppice Timeframe: 10 years plus</p>

	<p>Tree No. 73 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Tree is in fair-poor health and has little canopy. Structure compromised by bifurcation and poor root plate integrity. The tree is leaning in the opposite direction to the unstable root plate, increasing the failure risk. <i>It is recommended that this tree be immediately coppiced.</i> While it is adjacent to the area set aside for a "Moonah Reserve" it is in poor health, and coppicing of this tree allows the establishment of new growth in an area where existing trees are single generation.</p> <p>Coppice Timeframe: Immediately</p>
	<p>Tree No. 74 <i>Eucalyptus leucoxylon</i>, Yellow Gum</p> <p>Condition: Tree has been lopped is unsightly. Recommend removal and replacement with a Moonah.</p> <p>Removal Timeframe: 2-3 years</p>
	<p>Tree No. 75 <i>?Allocasuarina sp.</i>, Sheoak</p> <p>Condition: Structural integrity compromised by tree being bifurcated with included bark. Lopped for power line clearance. Manage in accordance with section 4.3.2.</p> <p>Removal Timeframe: 10 years plus</p>

**Tree No. 76***Pinus pinea*, Stone Pine**Condition:**

A sizeable branch has failed in the upper canopy causing extensive damage to the trunk and branches. *Another major limb has a crack and was recommended for removal immediately.* This has been weight reduced, but is still problematic. The tree is exhibiting signs of very heavy fruit set, and this is likely to increase the risk of all limbs failing. The tree is located beneath powerlines and can not develop well, to the contrary it is likely to continue to fail and is therefore hazardous.

Removal Timeframe:

Before next summer

**Tree No. 77***Melaleuca lanceolata*, Moonah**Condition:**

A beautiful mature specimen which is too good to remove but is not safe to retain in the current situation.

The upright leader below the powerlines has a cracked limb high which is recommended for removal immediately. One limb over the nature strip is moving from the centre of the limb and is at real risk of failure at this point. *Management of this leader is recommended immediately.* Decay in leader and a fungal growth in another (white type with foul odour seen on other Moonahs). Dieback present.

It is recommended that this tree be fenced off in a "Moonah Reserve" to aid its retention as it is not structurally sound, but very handsome, old and in a prominent location. It is also recommended that a traffic engineer be contacted to determine if pedestrian access to the foot path is required. If this is the case then the tree may need to be pruned away from the road to allow pedestrians to walk past the tree without stepping onto the roadway. Recommend planting out the area under the canopy with indigenous species.

Coppice Timeframe:

Retain in "Moonah Reserve"

**Tree No. 78***Agonis flexuosa*, Willow Myrtle**Condition:**

Tree has poor structure and species is out of character with the remainder of the park. Recommend removal and replacement with a Moonah. One limb is at particular risk of failure.

Removal Timeframe:

Before next summer

	<p>Tree No. 79 <i>Eucalyptus leucoxylon</i>, Yellow Gum</p> <p>Condition: Tree has poor structure and species is out of character with the remainder of the park. Recommend removal and replacement with a Moonah. One limb is at particular risk of failure.</p> <p>Removal Timeframe: Before next summer</p>
	<p>Tree No. 80 Species: <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: I concur with nearly all the observations made in Bellarine Tree's report, and make the following comments: The decay within the deep fissure on the northern side of the trunk is of real concern. The tree has poor branching structure and evidence of major limb shed. It is also massively over mature and remedial pruning will not correct the tree (see comments at start of report). The tree is leaning towards the road, footpath and carpark and has exposed surface roots. It appears that in the past there may have been an additional tree to the west, which may explain the branching structure of this tree. The tree has been extensively pruned in the past and major branches are now exposed, with limited to no structural support provided to large branches. <i>The structure of these branches and the failure history of the specimen is such that outright removal is recommended before next summer.</i></p> <p>Removal Timeframe: Before next summer</p>
	<p>Tree No. 81 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: I concur with nearly all the observations made in Bellarine Tree's report, and make the following comments: Lower limb with decay at point of attachment is at risk of failing and may damage the community centre (note, the second inspection indicated that this limb had been removed). The tree has been extensively pruned in the past and major branches are now exposed, with limited to no structural support provided to these large branches. <i>The structure of these branches and the failure history of the specimen is such that outright removal is recommended immediately.</i> The tree has severe structural defects and is extremely close to the community centre, and poses a risk to this asset.</p> <p>Removal Timeframe: Immediately</p>

**Tree No. 82****Species:**

Cupressus macrocarpa, Monterey Cypress

Condition:

I concur with nearly all the observations made in Bellarine Tree's report, and make the following comments:

Has recently shed a large limb.

Many large leaders have been removed from the trunk.

Large hollow present

Shaved roots

This specimen is likely to bear the brunt of the weather from the south-west and decay in the lower trunk is likely to have extended into the root system. The tree has been extensively pruned in the past and major branches are now exposed, with limited to no structural support provided to these large branches. *The structure of these branches and the failure history of the specimen is such that outright removal is recommended before next summer.*

Removal Timeframe:

Before next summer

**Tree No. 83**

Melaleuca lanceolata, Moonah



Condition:




A mature tree in good condition. One of the better Moonahs.


Manage in accordance with section 4.3.2.

Coppice Timeframe:

10 years plus

	<p>Tree No. 84 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: I concur with nearly all the observations made in Bellarine Tree's report and offer the following comments: It is noted that a couple of branch failures have occurred over the road. The tree exhibits overlaying of branches with subsequent crushing of fibres. It is recommended that these be carefully monitored. No support for large branches Has lost large limbs The tree exhibits the general poor structure of Monterey Cypressess, but not the extreme structural defects of many of the specimens on site. The tree still exhibits large branches with heavy end weight which could fail at any time, and council may decide that this risk is unacceptable and therefore decide to remove the tree prior to the 5 year retention period, especially given the tree's location in a camping ground. It is recommended that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be removed if inspections indicate it poses an unacceptable risk to the public; even if within the 5 year retention period.</p> <p>Removal Timeframe: 5 years</p>
	<p>Tree No. 85 <i>Cupressus lusitanica</i>, Mexican Cypress</p> <p>Condition: Structurally, the tree is comprised of one main limb originating from the main trunk which is growing horizontally, with the rest of the tree past this limb having been removed. This puts the tree at risk of failure, and given its presence in a camping ground and the tree's low amenity value retention is undesirable and it is recommended that the tree be removed and replaced in the short term. Removing arborists should be aware of nails in the trunk of the tree.</p> <p>Removal Timeframe: Before next summer</p>

	<p>Tree No. 86 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Some fungal growth / decay present. Tree showing sign of basal line trimmer damage. It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Especially attention should be paid to monitoring the decay, especially the fungal growth in an elbow of one of the branches. This branch should be monitored carefully and removed when required. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period.</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 87 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: <i>Remove damaged limb over path immediately.</i> This limb is damaged on top and bark is showing compression stress beneath. Hollow in trunk. It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree. Especial attention should be taken to the basal integrity of the tree. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10year retention period. Extensive replanting which has taken place in the area is beneficial.</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 88 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: A large mature specimen with very good canopy cover. Basal rot, large limb loss some time ago. Damaged roots. Retain while safe to do so and manage in accordance with section 4.3.2. Replacement plantings already present so no need for additional trees.</p> <p>Coppice Timeframe: 10 years plus</p>

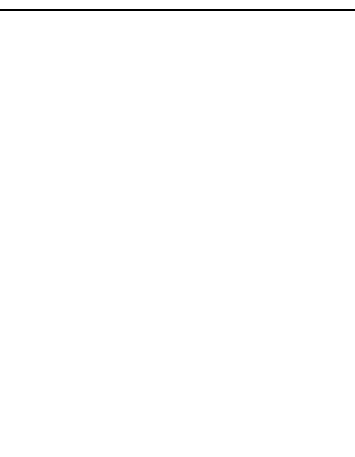
	<p>Tree No. 89 <i>Eucalyptus gomphocephala</i>, Tuart</p> <p>Condition: Poor trunk taper. One large epicormic leader at risk of failure is and is recommended for removal before next summer. Fair-poor branching structure. It is recommended that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be removed if inspections indicate it poses an unacceptable risk to the public; even if within the 2-3 year retention period.</p> <p>Removal Timeframe: 2-3 years</p>
	<p>Tree No. 90</p> <p>Species: <i>Allocasuarina sp.</i>, Sheoak</p> <p>Condition: A young tree suffering from competition with other specimens. Manage in accordance with section 4.3.2.</p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 91 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Tree has a major basal wound, but has been propped to help support the tree. This reduces the risk of the tree failing and could be used elsewhere in the park. Props need ongoing monitoring. It may be beneficial to add asphalt packing between the limbs and the props.</p> <p>Coppice Timeframe: 10 years plus</p>

**Tree No. 92***Pinus halepensis*, Aleppo Pine**Condition:**

Root growth present beneath the roadway. Two main leaders from low with two more having failed and / or been pruned. There is some swelling at the junction of the two leaders. Aesthetically and historically a fantastic tree warranting extra care. *Recommend weight reduction works and the installation of cables as necessary before next summer.* If necessary, strong consideration should be given to the deletion of site 78 to aid the retention of this specimen (therefore reducing target). Heavy weight in the canopy, but condition of the tree should be able to be managed by appropriate works before next summer and ongoing inspections.

Removal Timeframe:

10 years plus.

**Tree No. 93***Melaleuca lanceolata*, Moonah**Condition:**

Very beautiful mature tree. Damaged roots. Manage epicormic / lignotuber growth. Fused leaders. *Recommend removal of both branches to west with dieback in the union and extended northern leader before summer.* It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Tree should be coppiced or fenced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period. Retain in current location while safe to do so.

Coppice Timeframe:

10 years plus




**Tree No. 94***Melaleuca lanceolata*, Moonah (2No.)**Condition:**

The main leader is bifurcated and damaged at the union. Extensive dieback at base of tree, probably where a leader has been lost. One limb is dead and has died back to the base of its leader. Manage epicormics on the rear tree.

Removal of this tree has the potential to impact the surrounding vegetation, and therefore this specimen is recommended for fencing off within a "Moonah Reserve". *It is recommended that the front limb (east) be removed before next summer and that the remainder of the tree is fenced to aid retention.* Retention is only recommended if the tree is fenced, otherwise coppicing is strongly recommended as the tree is structurally unsound. Recommend management of epicormic / lignotuber growth on the tree to the rear to encourage the formation of new, structurally sound leaders.




Coppice Timeframe:




Retain in "Moonah Reserve"

	<p>Tree No. 95 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Large old tree with three stems. Large scale die back in two leaders. Leader towards road may be in the process of failing as a base stump has detached and the bark patterns indicate compressive stress. It is recommended that this leader be cabled, braced or propped – or if this is not possible than pruned to the base.</p> <p>This tree will be at increased risk of failure if the Monterey Cypress to the south is removed. Fungal growth present (white type with foul odour seen on other Moonahs). <i>It is strongly recommended that this tree be fenced off if the Monterey Cypress (Tree 96) to the south is removed.</i> If the Monterey Cypress is retained then it is recommended that this tree be carefully monitored and managed. Tree should be fenced within a “Moonah Reserve” once inspections indicate it poses an unacceptable risk to the public.</p> <p>Coppice Timeframe: Retain in “Moonah Reserve”</p>
	<p>Tree No. 96 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: Fissures and potential rot present. Tree exhibits signs of rubbing leaders, poor branch structure, dead hangers and problems as the result of being an over mature Monterey Cypress. An extended limb to the north-west with a weak point in the centre is a failure risk (note, this limb was not observed in the second inspection and this limb may have been removed by recent pruning works).</p> <p>The tree exhibits the general poor structure of Monterey Cypresses, but is not as bad as other specimens on site. The tree still exhibits large branches with heavy end weight which could fail at any time, and council may decide that this risk is unacceptable and therefore decide to remove the tree prior to the 2-3 year retention period, especially given the tree’s location in a camping ground.</p> <p>It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be removed if inspections indicate it poses an unacceptable risk to the public; even if within the 2-3 year retention period.</p> <p>Removal Timeframe: 2-3 years</p>
	<p>Tree No. 97 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Copse of young trees. A good small group. Manage in accordance with section 4.3.2.</p> <p>Coppice Timeframe: 10 years plus</p>




	<p>Tree No. 98 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Mature tree comprised of two tall thin leaders. Exposed but relatively sound. Some dieback in roots. Manage in accordance with section 4.3.2.</p> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted then the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 99 <i>?Allocasuarina sp.</i>, Sheoak</p> <p>Condition: Lopped with some epicormic growth. <i>Recommend removal of limb to north west with elbow before next summer and clean up branch stubs.</i></p> <p>Removal Timeframe: 10 years plus</p>
	<p>Tree No. 100 <i>Eucalyptus gomphocephala</i>, Tuart</p> <p>Condition: Reduced canopy. The largest Tuart on site, retain and monitor, but should be removed and replaced in the medium term. Species is reputedly a limb dropper, but trying to remove as few trees as possible. Heavy limbs with fair attachment. Lopped in past with large epicormic shoots. One large limb over the tap is of especial concern due to the high target rating, but is not at as much risk of failure as other limbs / trees on site. It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be removed if inspections indicate it poses an unacceptable risk to the public; even if within the 5 year retention period.</p> <p><i>Note: There appears to be recent excavation works adjacent to the tree. The extent of root damage should be assessed and the tree removed if required.</i></p> <p>Removal Timeframe: 5 years</p>



	<p>Tree No. 101 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Mature specimen with some decay present, helping to support adjacent tree. Plan for replacement. <i>Recommend removal of deadwood before next summer.</i> Health of the tree is fair and three large tracts of decay are present in the trunk. Damaged roots. Recommend avoiding pruning of touching leaders if possible to minimise impact on form of the tree. Manage epicormic / lignotuber shoots to encourage establishment of new stable leaders. It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 2-3 year retention period.</p> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 2-3 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 102 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Structure compromised by poor basal attachment. Tree is not shielding other specimens (open location). A very large dead leader moves when pressured and two lower limbs also move from the point of attachment. <i>These leaders are recommended for removal immediately.</i> The remaining limb is at a heavy angle and has poor attachment. <i>This limb is recommended for propping before next summer.</i></p> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 103 <i>Brachychiton populneus</i>, Kurrajong</p> <p>Condition: Bifurcated with included bark and very little canopy. Tree has either been possum grazed or wind scorched (probably the former). Many bifurcations in canopy. Recommend replacing "like for like" in the short term.</p> <p>Removal Timeframe: 5 years</p>


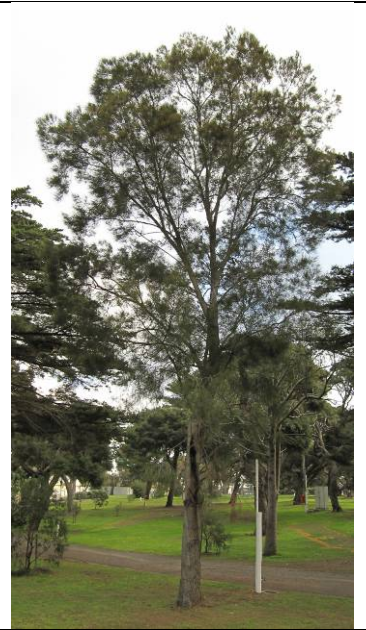

	<p>Tree No. 104 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Damage high, including into branch unions. Large tract of decay on trunk and high in tree. It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 2-3 year retention period. Retain while safe to do so.</p> <p>Coppice Timeframe: 2-3 years</p>
	<p>Tree No. 105 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Mature, bifurcated tree. One tract of decay. It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Particular attention should be paid to the decayed limb, with this being removed when inspections indicate it is necessary. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period.</p> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 106 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: An upright, mature specimen, with some decay present. It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 2-3 year retention period.</p> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 2-3 years plus or retain in "Moonah Reserve"</p>




	<p>Tree No. 107 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Tall thin tree with large branch failure in the past. Roots and fibres under tension. Leans over path, not campsite but would reach sites 93/94 if it were to fail at the base. The limb to the east is cracked and hanging. The bifurcation at the top of the tree has a fresh crack in it and dieback in the union. Extremely structurally unsound. <i>Recommend coppicing of the entire tree immediately.</i> Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 108 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: <i>Recommend pruning off of both deadwood and decayed limb to east immediately.</i> Actively manage epicormics / lignotuber shoots to encourage development of stable new leaders. Specimen is touching the tree to the north, and may be gaining some support from this specimen, although it does not appear to be putting much pressure on it. <i>Small hanging deadwood to the west recommended for removal immediately (prune this limb right off as it is dying back).</i> It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period.</p> <p>Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 109 <i>Eucalyptus gomphocephala</i>, Tuart</p> <p>Condition: Lopped with reduced canopy – tree is in poor condition. A single limb may be at risk of failing. Given the poor condition of the tree removal is recommended rather than persevering with arboricultural works.</p> <p>Removal Timeframe: Before next summer</p>


	<p>Tree No. 110 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Galls present in trunk and a little dieback. It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Particular attention should be paid to a horizontal limb with poor structure. This limb may be a candidate for propping in the future. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period. Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 111 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Very large tree. Entire area needs new planting. Small bracket fungus, otherwise pretty good. A very handsome tree. Heavy pruning should only be undertaken as a last resort due to the impact this would have on the form of the tree. It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Particular attention should be paid to a horizontal branch to the north. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period. Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 10 years plus or retain in "Moonah Reserve"</p>
	<p>Tree No. 112 Species: <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Tree has fair-poor health and a reasonable amount of decay present (shaded by adjacent Stone Pine). Recommend removal as tree is in poor condition, and the risk posed by the tree is not appropriately balanced by benefits provided by the tree. It is recommend that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 2-3 year retention period. <i>Recommend removal of deadwood before summer.</i> Additional damage present at base of tree. Tree is located within a "Potential Moonah Reserve". If this reserve is adopted than the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: 2-3 years or retain in "Moonah Reserve"</p>

	<p>Tree No. 113 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Level of decay is of concern. Has lost a very large leader with scar and cavity on east side. Coppice recommended before summer. Tree is located within a "Potential Moonah Reserve". If this reserve is adopted then the tree should be fenced rather than coppiced.</p> <p>Coppice Timeframe: Before next summer or retain in "Moonah Reserve"</p>
	<p>Tree No. 114 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Not an especially healthy tree and has limited viability. Tree may senesce within the 10 year timeframe, but given the species it is recommended for retention for as long as it is safe to do so.</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 115 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Tree has exposed roots which offer little support to an exposed, leaning and moderately large tree. Coppice recommended before summer.</p> <p>Coppice Timeframe: Before next summer.</p>

	<p>Tree No. 116 <i>Pinus pinea</i>, Stone Pine Condition: Mature tree. Damaged trunk callusing. Uneven branching possibly due to prevailing winds. Retain. Removal Timeframe: 10 years plus</p>
	<p>Tree No. 117 <i>Melaleuca lanceolata</i>, Moonah Condition: Fair health, twisted limbs, decay in union of large limb, fissure in the union of another limb. Tree has heavy branches with decay in the unions. Coppice Timeframe: Before next summer.</p>
	<p>Tree No. 118 <i>Melaleuca lanceolata</i>, Moonah Condition: A young tree. Work may have occurred within the root zone of the tree. It is recommended that the tree be monitored, with especial note taken of any stress possibly related to root loss. Recommend ongoing management in accordance with 4.3.2 and formative pruning. Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 119 <i>Melaleuca lanceolata</i>, Moonah Condition: Large tree with decay. Limited life expectancy. Damage (possibly caused by rubbing) in bifurcation and rot in leader. Some rot at base of smaller limb. Monitor carefully and plan for replacement. A smaller stem is senescent and is recommended for removal before next summer. It is recommended that regular inspections and maintenance work be carried out to manage the stability of the tree leading up to removal. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 5 year retention period. Tree is not an appropriate candidate for fencing. Coppice Timeframe: 5 years</p>

	<p>Tree No. 120 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: I generally concur with the observations made in Bellarine Trees' report, however I am more cautious as to the recommended management of the tree and am not convinced that it can be safely retained. The main concern comes from the trees age and location, being an over mature Monterey Cypress (which are prone to breaking up) in a camping ground. One fissure from high on the trunk extends down and a branch near this may be at risk of failure. The fissure is 25cm deep on the lower trunk. The tree is likely to be at increased risk of failure when tree 110 is removed. <i>A medium sized limb has failed and is hanging. This limb is recommended for removal immediately.</i></p> <p>Removal Timeframe: Before next summer</p>
	<p>Tree No. 121 <i>?Allocasuarina sp.</i>, Sheoak</p> <p>Condition: Tree has a major structural defect and is in a high target area adjacent to a tap.</p> <p>Removal Timeframe: Before next summer</p>
	<p>Tree No. 122 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Youngish regrowth. Monitor the structural integrity of the tree as it is comprised of lignotuber shoots coming from an older stump. It is recommended that this growth be actively managed to develop stable new leaders.</p> <p>Coppice Timeframe: 10 years plus</p>

	<p>Tree No. 123 <i>Melaleuca lanceolata</i>, Moonah</p> <p>Condition: Extensive decay. Dead branch stub present in major union. Has lost a large limb. <i>Recommend removal before next summer of eastern limb with relatively little foliage as it is a potential failure risk and is offering little to the tree.</i> The tree is in good condition and would be a good candidate for pushing over if necessary to extend its life. It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Tree should be coppiced if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period.</p> <p>Coppice Timeframe: 10 years plus</p>
	<p>Tree No. 124 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: Only trunk left (rest removed). Recommend completion of removal before next summer.</p> <p>Removal Timeframe: Before next summer</p>
	<p>Tree No. 125 <i>Cupressus macrocarpa</i>, Monterey Cypress</p> <p>Condition: Leans away from the fire hydrant (recommend investigation of age of service to determine whether destabilising root loss has occurred). It is recommend that regular inspections and maintenance work be carried out to aid retention of the tree and manage risk. Special attention should be paid to the stability of the limbs, especially those with branch collars. Tree should be removed if inspections indicate it poses an unacceptable risk to the public; even if within the 10 year retention period.</p> <p>Removal Timeframe: 10 years plus</p>

	<p>Tree No. 126 <i>Agonis flexuosa</i>, Willow Myrtle Condition: Shaded and in poor condition.</p> <p>Removal Timeframe: 5 years</p>
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APPENDIX D: HERITAGE ASSESSMENT FOR PRINCESS PARK

The following is the draft statement of significance for the Piers and Parks Precinct (HO3) which includes Princess and Citizens Parks. This statement of significance was prepared by Lovell Chen as part of the *Queenscliffe Heritage Study*, 2008 which is still in draft form. The following draft statement of significance is included for the sake of completeness.

What is significant?

The Piers and Parks precinct comprises two areas of parkland; Citizens and Princess Parks, both of which adjoin the foreshore area and include mature tree plantings and a number of structures of interest such as the wreck bell, band stand, and pavilions. The precinct includes the foreshore area, including the Pilots Station and associated pier, and Queenscliff Pier including its shelter shed and lifeboat shed.

The specific buildings of individual and contributory significance which are important to the precinct are identified in the attached schedule.

How is it significant?

The Pier and Parks Precinct (HO3) is of historical and aesthetic importance to Queenscliffe.

Why is it significant?

The Pier and Parks Precinct is of local historical significance as one of the key areas of activity in the history of Queenscliffe. It is strongly associated with the development of Queenscliffe as a holiday resort particularly during the boom years of the 1880s but also well into the twentieth century, and included sea and hot water baths, pavilions and other structures associated with recreational activities. While the majority of these have been demolished, the area retains the former Steamer Pier (now Queenscliff Pier), together with a number of other buildings and structures of interest. From the late nineteenth century, gardens were developed behind the foreshore for public recreation and enjoyment and the mature trees in the Citizens and Princess Parks reflect their early history. The precinct has a strong historical and visual connection to the key buildings along the landward side of Gellibrand Street, where a series of nineteenth century resort hotels overlook the parkland and foreshore.

The precinct also has strong associations with the maritime history of Queenscliffe, including both navigation and maritime rescue services. In particular, it is associated with the activities of the Pilots Service at Queenscliffe since the mid- to late-nineteenth century and this relationship is ongoing. The precinct also contains the Steamer Pier which incorporated the Lifeboat Shed and the Wreck Bell, a maritime structure of considerable historical significance both in the local Queenscliffe area and in the wider state context.

Aesthetically, the Pier and Parks Precinct is of significance for its collection of mature specimen trees set in an open landscaped setting fronting the foreshore. Princess Park in particular is an area of great beauty. The precinct provides a landscaped transition between the sea and the town and is a key element in important seawards and landwards views within Queenscliffe, including views to the key heritage buildings in Gellibrand Street. Important view corridors exist within the area itself both from the piers towards the shore as well as the various glimpses of the foreshore buildings and structures obtained from the parks.

APPENDIX E: RESERVATION STATUS OF VICTORIA PARK

The following are extracts from communication received from Tim O'Neil (Senior Property Officer, Public Land Services, Department of Sustainability and Environment (DSE) Geelong) on June 25th, 2009:

"Victoria Park at Queenscliff is Crown land permanently reserved for the purpose of Public Park by Order in Council of 30 March 1931 as published in Government Gazette of 1 April 1931 page 1076. DSE Reference is file 0701865 (Rs04112). The reserve has been subject to various excisions over the years which were effected by required Acts of Parliament.

There is no Botanic Garden reservation."

"I had a check of our old files for land status history and the site was permanently reserved for Public Gardens and General Recreation in 1892. This reservation was fully revoked by an Act of Parliament in 1930 prior to the land being permanently reserved for Public Park in 1931. Excisions from the Public Park reservation were effected by other Acts of Parliament in 1939 and 1997."

Queenscliff is not listed on the Australian National Botanic Gardens' "Directory of Botanic Gardens and Arboreta" (<http://www.anbg.gov.au/chabg/bg-dir/index.html>)

APPENDIX F: GUIDELINES FOR TREE PROTECTION DURING ROUTINE MAINTENANCE AND CONSTRUCTION

It is recommended that a competent professional arborist be consulted to review all proposed construction works which fall within the Tree Protection Zone of any tree within the Queenscliffe Parks. The TPZ is calculated as a radial distance from the centre of the trunk, which is equal to the trunk diameter at measured at 1.4m and multiplied by 12.

The following are general tree protection guidelines for managing construction works. Professional arboricultural advice should be sought to determine the appropriateness or otherwise of a specific proposal and to provide design advice in relation to protecting the trees.

1. All trees to be retained shall be identified by the builder and landscape architect or arborist at the commencement of works. The appointed trees shall be fenced off with sturdy fencing constructed to a minimum height of 1.5 m using chain mesh strung between star pickets. The aim is to create an 'exclusion zone' beneath these trees. This fence will deter the entry of heavy equipment, vehicles, workers and/or the public into this Tree Protection Zone (TPZ).

The TPZ for each tree should be determined by a qualified arborist using the model developed by Matheny and Clark, detailed in their book 'Trees and Development', 1998, International Society of Arboriculture. The radius of the TPZ is calculated using the trunk diameter and the species tolerance of root disturbance.

At least two laminated, A3 size signs are to be attached to the tree protection fencing and are to clearly state "TREE PROTECTION ZONE, ENTRY RESTRICTIONS APPLY, DO NOT REMOVE FENCE, CONTACT BUILDER IF ENTRY IS REQUIRED" and is to have the builder's (or appointed site foreman) and consulting arborist's contact details. This fence is to be established prior to any heavy machinery entering the site. The site arborist may give permission for the builder, or contractor to access the fenced area.

2. The exclusion zone shall be established at or near the perimeter of the tree branches (i.e., the further away from the trunk the better the protection offered). The exclusion zone is to be established no closer to the trunk than the distance specified as the Tree Protection Zone.
3. Where a root diameter of 20mm or greater is encountered during site works, these shall be cleanly pruned by hand, but never torn from the ground by machinery.
4. A suitably skilled and experienced arborist shall carry out works using acceptable arboricultural practices, and shall be used to undertake all root and branch pruning requirements. Pruning is to be in accordance with sections 5,6,7 and 8 of AS4373-2007 (Pruning of Amenity trees).

Throughout building works they shall also undertake regular inspections of trees and carry out remedial works as required ensuring trees retain good health and vigour. Such works shall include but not be limited to irrigation, mulching and 'dead-wooding'.

5. Should services pass through the root zone of trees to be retained on the site, then they must be located in trenches augured beneath the root zone, i.e. at a minimum depth of 1200mm unless a shallower depth is approved by an arborist

6. During the construction process, all areas beneath the canopies of the trees to be retained must be covered by a 75mm layer of coarse wood chip or other like material. This layer will help minimise the affects of compaction.
If temporary access is required through a root zone area, this must be carried out using sheets of heavy plywood, or like protection, but this must not be considered for long term use.
7. There will be no open trenching in the root zone of trees. This also implies no strip footings. Pier and beam construction would be essential in Tree Protection Zones, with beams laid at ground level and piers to be engineered to be as thin and widely spaced as possible. The location of pier footings must be able to be manipulated on site to prevent damage to major roots or root masses.
8. Any services required to be installed underground will be bored and utility authorities are to make use of a common trench where possible. This is the responsibility of the site foreman.
9. Any vegetation located within Tree Protection Zones is to be removed by hand so that no heavy machinery enters into TPZ. Any trees to be removed that have canopies interlocking with trees to be retained are to be removed by the site arborist who will ensure that interlocking branches are removed first and other protection measures are undertaken.
10. No fuel, oil dumps or chemicals shall be allowed in or stored on the Tree Protection Zone. The servicing and refuelling of equipment and vehicles must be carried out away from the root zones.
11. No storage of materials, equipment or temporary buildings will take place over the root zone of any trees.
12. No fixtures of any sort shall be attached to any tree for any reason.
13. If damage of any sort occurs to any tree or large shrub on site, the appointed arborist must be contacted to take immediate remedial action.
14. Prior to the commencement of building works on site the appointed builder (or site foreman) and staff shall have an hour-long briefing on Tree Protection on-site along with the application of these Tree Protection Requirements.

The following guidelines apply to routine maintenance works around trees:

1. Lawn mowers or whipper-snippers are not to be used within 1m of the trunk of any tree.
2. All herbicides used within the drip line of any tree are to be specified as safe for use around trees

APPENDIX G: TREE PLANTING GUIDELINES

Replacement stock should generally conform the following requirements:

- Are true to species, cultivar and supply size specified
- The root ball shall be moist and the crown shall show no signs of drought stress
- Are to have a single, straight trunk with potential lateral scaffolds radially distributed around the trunk.
- Are to have large healthy root systems, with no evidence of root girdling, restriction, damage or circling of the trunk
- Are to be vigorous, well-established, free from disease and pests, free of frost damage, of good form consistent with the species or variety; and
- Are to be hardened off, not soft or forced, suitable for planting in the natural climatic conditions prevailing at the site
- Semi-advanced trees are to have an appropriate root to shoot ratio
- All exotics and specimen trees are to be semi-advanced specimens (45L / 2.0m). All indigenous vegetation is to be tubestock of local provenance. In all cases seed / vegetative material is to be sourced from good quality parent plants

Planting practice for semi-advanced trees should be in accordance with the following requirements:

- planting should be carried out generally in accordance with the detail provided on the following page
- the rootball of the tree is to be thoroughly moist prior to planting
- trees are to be planted in a dished hole the same depth as the rootball and 2-3 times its diameter (the larger the better)
- planting holes are not to be excavated using an auger unless the edges of the hole are later broken up using a spade or similar. The use of augers can smooth the side of the hole and lead to root girdling.
- if the planting soil is very dry then the planting hole is also to be filled with water and allowed to drain completely
- a 75mm high berm is to be constructed at edge of root-ball to hold water.
- it is important that establishment irrigation (at least for two summers) and formative pruning are specified and implemented.
- stakes should be removed 1-2 years after planting.

Planting practice for tubestock trees should be in accordance with the following requirements:

- planting should be carried out using acceptable horticultural practices
- plants shall be thoroughly soaked through immersion in water prior to planting
- planting holes are to be of a minimum size of 150mm deep x 100mm in diameter
- planting holes are not to be excavated using an auger unless the edges of the hole are later broken up using a spade or similar. The use of augers can smooth the side of the hole and lead to root girdling.
- if the planting soil is very dry then the planting holes are also to be filled with water and allowed to drain completely
- plant shall be placed so that top of soil level in pot matches surrounding soil level

- back fill is to be existing site topsoil with debris deleterious to plant growth removed
- position of the tree is to be marked with a stake at least 2m in length and driven into the ground 0.5m. Do not tie the plant to the stake
- tree is to be mulched to a depth of 50mm with care taken to keep mulch away from the plant stem
- mark the position of the plant with a short bamboo stake and mulch area taking care to keep mulch clear of plant stem. Do not tie the plant to the stake
- Do not use plastic sleeves unless necessary to prevent damage. If plastic sleeves are used it is imperative that they are later removed.

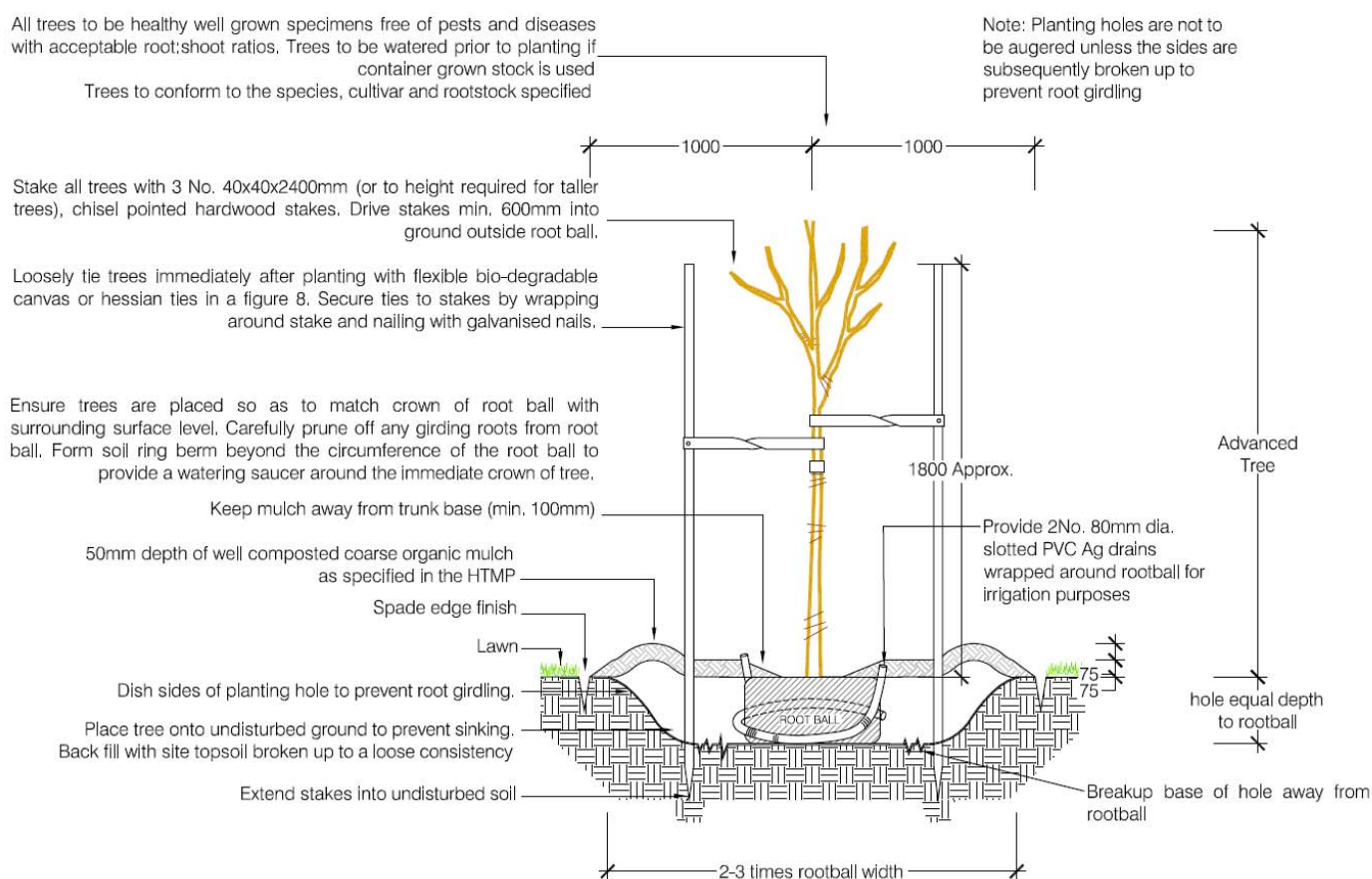


Figure 11: Tree Planting Detail

The type and style of mulch used may differ to that described above, however the following should be considered in its supply and installation:

1. Mulch should be less than 75mm deep and preferably only 50mm deep. Deeper is not better with mulch as thick mulch restricts water movement into the soil.
2. Mulch should only be placed over soil which is thoroughly wet
3. Mulch should be kept well back from the trunk of trees to prevent collar rot
4. If fresh mulch is used then it is imperative that appropriate nitrogen dressing is added as the decomposition process removes nitrogen from the soil. It is preferable that mulch is well composted.

APPENDIX H: TREE SHEETS

The following pages provide information on the trees recommended for replanting within the parks. Information provided is approximate.

APPENDIX I: TREE ASSESSMENT FROM THE TREE WORKS



LEGEND

- Conifer
- Broadleaf
- Recommended for removal before summer
- Recommended for removal in 1 – 5 years with maintenance works in interim
- Recommended for long term retention with ongoing maintenance works
- Recommended for retention only with specific management works (not including inspections and pruning)

Refer to full report for further details removal time frames and management / maintenance requirements

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									JOB No.:	08-325
									DWG No.:	08-325PP-TR



LEGEND



Conifer



Broadleaf



Recommended new planting for next winter



Recommended for removal in 1 – 5 years with maintenance works in interim



Recommended for long term retention with ongoing maintenance works



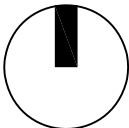
Recommended for retention only with specific management works (not including inspections and pruning)

Refer to full report for further details removal time frames and management / maintenance requirements

PLANTING SCHEDULE

Code	Botanical Name	Common Name	Origin	Height x Width	Supply size	Qty	Sourcing notes
Ah	<i>Araucaria heterophylla</i>	Norfolk Island Pine	Exotic Conifer	30–40m x 15m	Semi-advanced	9	–
Me	<i>Metersideros excelsa</i>	Pohutukawa	Exotic	8m x 8–12m	Semi-advanced	5	No cultivars, species only
Pp	<i>Pinus pinea</i>	Stone Pine	Exotic Conifer	12–20m x 12–15m	Semi-advanced	19	–

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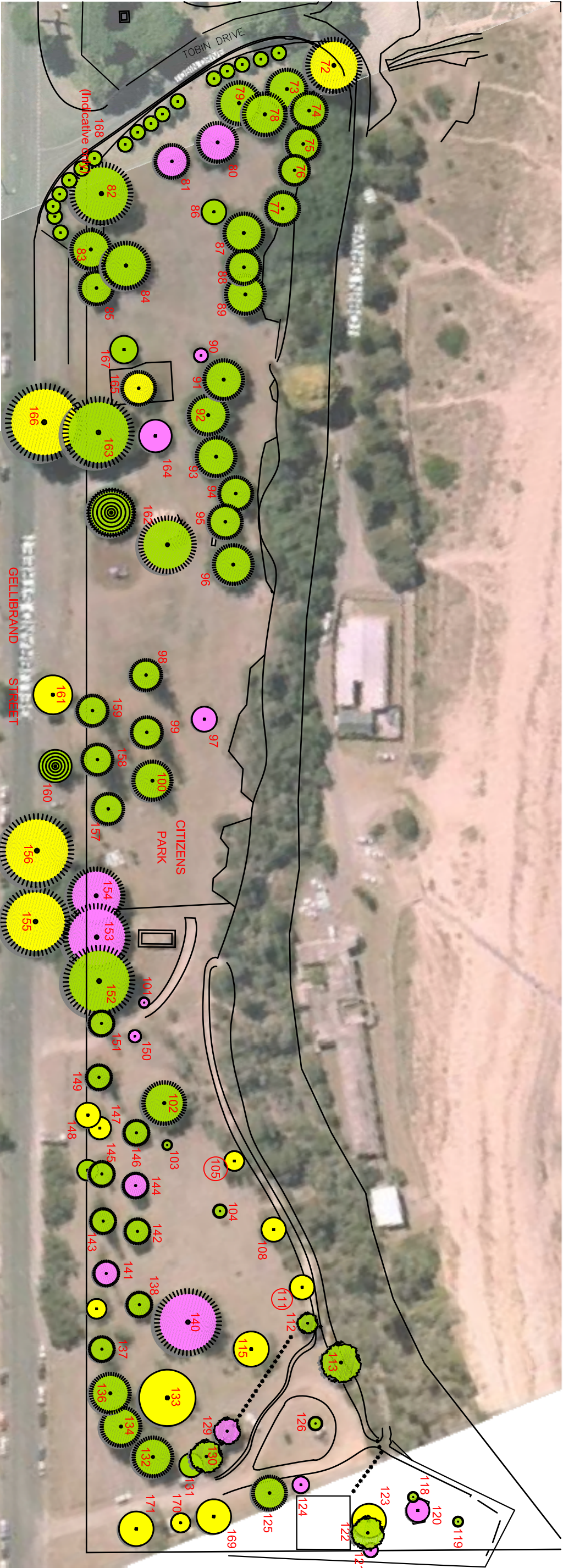
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Princess Park – After Year 1
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DWG No.:	08-325PP-Y1



LEGEND

- Moonah
 - Conifer
 - Broadleaf
 - Recommended for removal before summer
 - Recommended for removal in 1 – 5 years with maintenance works in interim
 - Recommended for long term retention with ongoing maintenance works
 - Recommended for retention only with specific management works (not including inspections and pruning)
- Refer to full report for further details removal time frames and management / maintenance requirements



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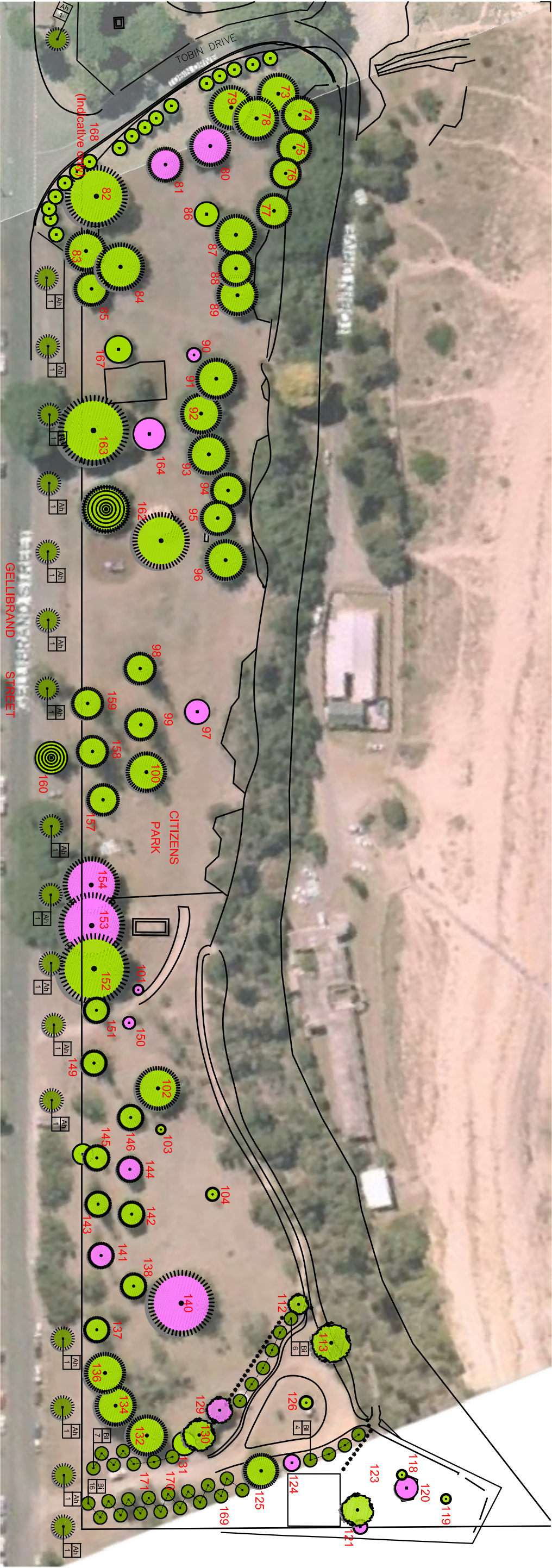
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LEGEND

- Moonah
 - Conifer
 - Broadleaf
 - New planting for installation next winter
 - Recommended for removal in 1 – 5 years with maintenance works in interim
 - Recommended for long term retention with ongoing maintenance works
 - Recommended for retention only with specific management works (not including inspections and pruning)
- Refer to full report for further details removal time frames and management / maintenance requirements

PLANTING SCHEDULE					
Code	Botanical Name	Common Name	Origin	Height x Width	Supply size
Ah	<i>Araucaria heterophylla</i>	Norfolk Island Pine	Exotic Conifer	30-40m x 1.5m	Semi-advanced
Bi	<i>Banksia integrifolia</i>	Coastal Banksia	Indigenous	10-1.5m x 4-6m	Tubestock
				Qty	Sourcing notes
				16	-
				33	Local provenance only

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DATE: September 2009

DRAWN: AP

CHECKED: JP

JOB No.: 08-925

DWG No.: 08-925CP-Y1

1



LEGEND



Moonah



Conifer



Broadleaf



New planting for installation next winter



Recommended for long term retention with ongoing maintenance works



Recommended for retention only with specific management works (not including inspections and pruning)

Refer to full report for further details removal time frames and management / maintenance requirements

Note: Additional replanting recommended as part of a Masterplanning process. This planting is not shown.



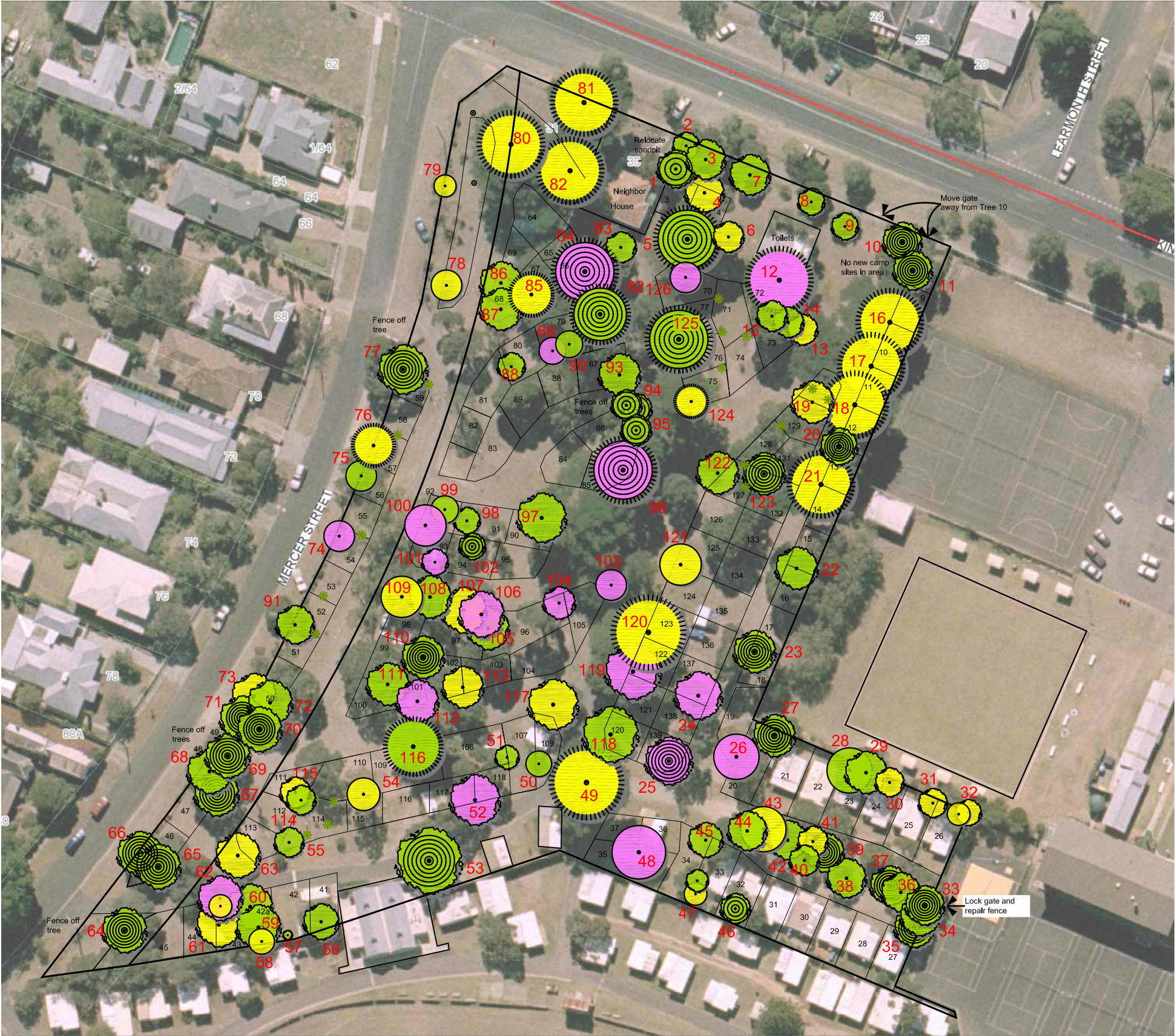
REV.	DATE	REVISION	BY

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PROJECT:	BOROUGH OF QUEENSCILFEE 50 LEAMONTH STREET (PO BOX 93) QUEENSCILFEE VIC 3225 TEL: 5258 1377
DRAWING:	Tree Management, Removal and Replacement Strategy Borough of Queenscliffe Parks
Drawn - for Consultation	JOHN PATRICK PTY LTD 324 VICTORIA ST RICHMOND VIC 3121 TEL: 9429 4855

JOHN
PATRICK

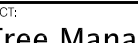
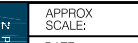
APPROV
SCALE: N.T.S @ A3
DATE: September 2009
DRAWN: AP
CHECKED: JP
JOB No.: 08-925
DWG No.: 08-925CP-V5

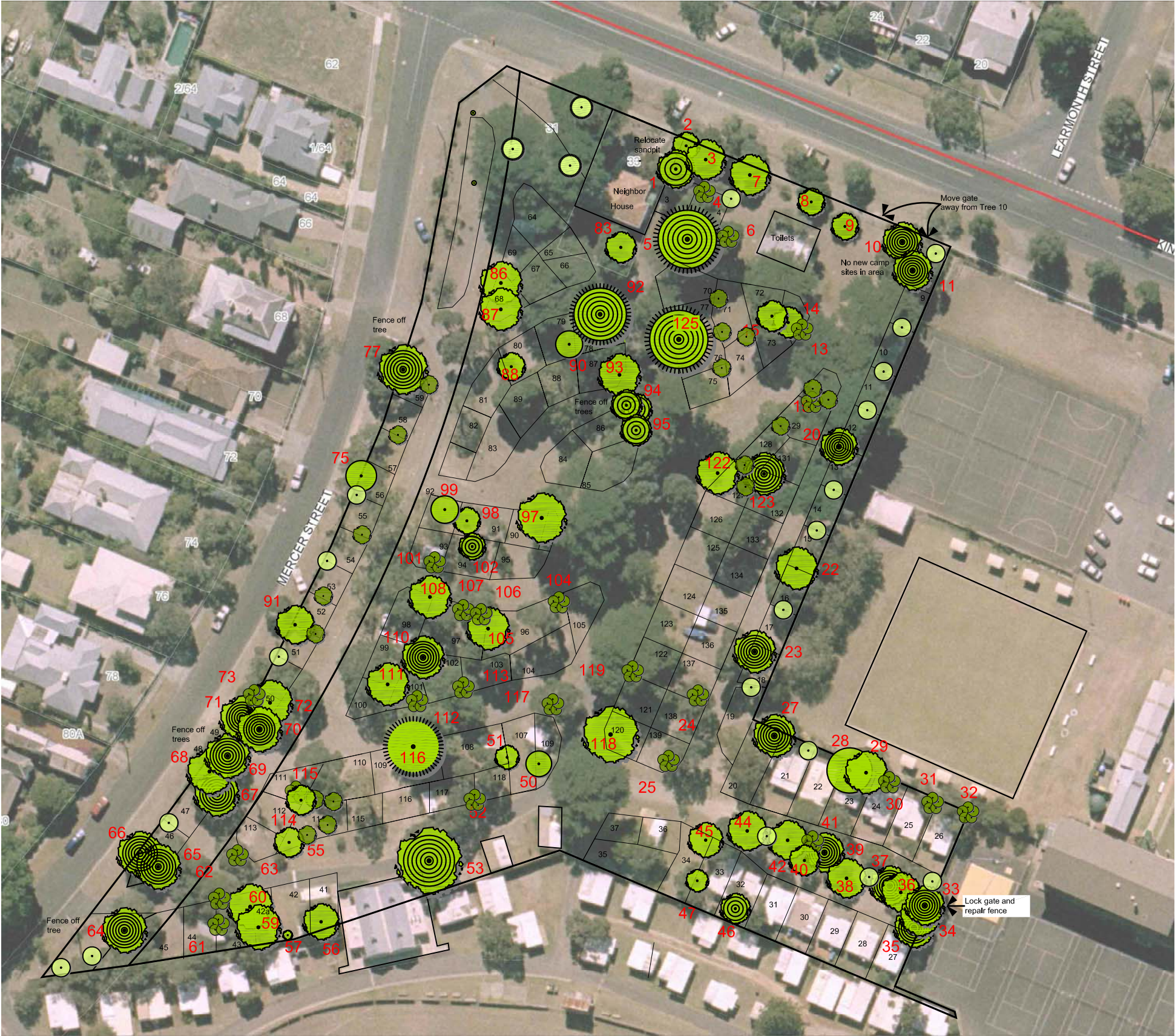


LEGEND

- Moonah
- Conifer
- Broadleaf
- Recommended for removal before summer
- Recommended for removal in 1 – 5 years with maintenance works in interim
- Recommended for long term retention with ongoing maintenance works
- Recommended for retention only with specific management works (not including inspections and pruning)
- Moonah coppiced as part of management program
- Existing young Moonah (some specimens not mapped)

Refer to full report for further details removal time frames and management / maintenance requirements

REV.		DATE	REVISION:	BY	 <small>COPYRIGHT This drawing must not be copied in whole or in part without the written consent of JOHN PATRICK P/L</small>	PROJECT: Tree Management, Removal and Replacement Strategy Borough of Queenscliffe Parks		BOROUGH OF QUEENSCLIFFE 50 LEARMONTH STREET (PO BOX 93) QUEENSCLIFF VIC 3225 TEL: 5258 1377				APPROX SCALE: 1:1000 @ A3	
												DATE: September 2009	
												DRAWN: AP	
												CHECKED: JP	
												JOB No.: 08-325	
												DWG No.: 08-325VP-TR	
DRAWING: Victoria Park – Tree Removal Timeframes Draft - For Consultation						JOHN PATRICK PTY LTD 324 VICTORIA ST RICHMOND VIC 3121 TEL: 9429 4855							



LEGEND

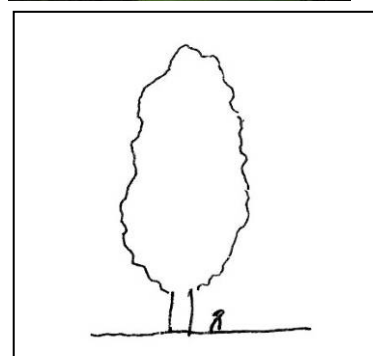
- Moonah
- Conifer
- Broadleaf
- Recommended for planting next winter
- Recommended for long term retention with ongoing maintenance works
- Recommended for retention only with specific management works (not including inspections and pruning)
- Moonah coppiced as part of management program
- Existing young Moonah (some specimens not mapped)

Refer to full report for further details removal time frames and management / maintenance requirements
Note: Additional replanting recommended as part of a Masterplanning process. This planting is not shown.

REV.	DATE	REVISION:	BY		PROJECT:	BOROUGH OF QUEENSLIFFE 50 LEARMONTH STREET (PO BOX 93) QUEENSLIFF VIC 3225 TEL: 5258 1377			APPROX SCALE:	1:1000 @ A3		
					DRAWING:	JOHN PATRICK PTY LTD 324 VICTORIA ST RICHMOND VIC 3121 TEL: 9429 4855			DATE:	September 2009		
									DRAWN:	AP		
									CHECKED:	JP		
									JOB No.:	08-325		
					DRAFT - For Consultation				DWG No.:	08-325VP-Y5		



Agathis robusta Queensland Kauri



DESCRIPTION

Botanical name	<i>Agathis robusta</i>
Common name	Queensland Kauri
Tree form	Single erect trunk with conical or ovoid head supported by heavy branches
Origin	Queensland lowlands and tablelands
Height x width at maturity	40m x 20m
Growth rate	Medium
Life Expectancy	Long lived

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Dark glossy green
Shape	Narrow elliptical

TOLERANCES

Light	Sun to semi-shade
Wind	Average
Drought	Average
Soil compaction	Not known
Coastal conditions	Good
Root disturbance	Not known (assume average)

OTHER CHARACTERISTICS

Human health issues	None
Structural problems	None
Weed potential	None
Disease risk	Generally trouble free
Treatment	NA
Shade type	Moderately dense from old trees
Uses for plant	Specimen tree and widely spaced avenues/groups



Agathis robusta Queensland Kauri

Soil type	Prefers deep sandy or alluvial soils with free drainage. Acid (pH 4 – 6)
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MAINTENANCE

Formative pruning	To develop structure
Pruning	
Feeding regime	None
Mulching	Recommended to establish young trees
Irrigation	Recommended to establish young trees

NOTES

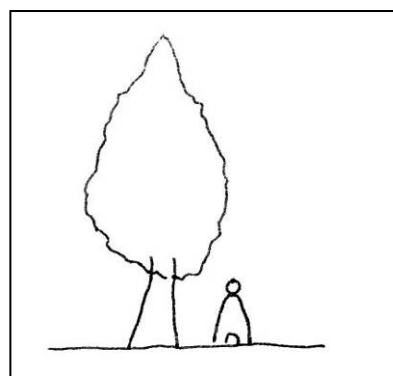
Advantages	A statuesque tree typical of Victorian gardens.
Disadvantages	Performance of the tree in Queenscliff is unknown. It is recommended that it be planted in limited numbers as a trial.
Supply	Available from Established Tree Transplanters as advanced specimens

LOCATIONS

Victoria Park	Not recommended
Princess Park	Not recommended
Citizens Park	As a specimen tree



Allocasuarina littoralis Black She-oak



DESCRIPTION

Botanical name	<i>Allocasuarina littoralis</i>
Common name	Black She-Oak
Tree form	Upright small to medium tree with ascending branches
Origin	Dry ridges and hillsides of the Blue Mountains and east coast from Cape York to Tasmania. Indigenous to the Melbourne area.
Height x width at maturity	8m x 4m
Growth rate	Fast
Life Expectancy	Small scales wrapped around pendulous branches

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Bright green
Shape	

TOLERANCES

Light	Full sun to semi-shade
Wind	Very good
Drought	Moderate to highly tolerant
Soil compaction	Unknown
Coastal conditions	Moderate salt soil tolerance
Root disturbance	Low tolerance

OTHER CHARACTERISTICS

Human health issues	None
Structural problems	None
Weed potential	None
Disease risk	Generally trouble free
Treatment	NA
Shade type	Light
Uses for plant	Specimen tree, copse, light screen
Soil type	Tolerant of a wide range of soils from sand to heavy clay. Must be well drained

MAINTENANCE

Formative pruning	To develop structure
Pruning	As required



***Allocasuarina littoralis* Black She-oak**

Feeding regime	None
Mulching	To establish young trees
Irrigation	To establish young trees

NOTES

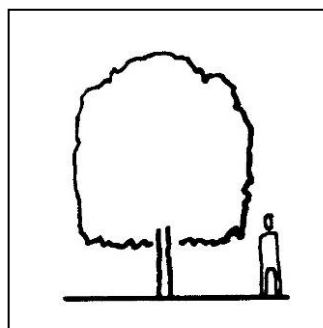
Supply	Local provenance stock should be used. Available from Queenscliff Indigenous Community Plant Nursery, Metro Trees and Established Tree Transplanters
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LOCATIONS

Victoria Park	Not recommended
Princess Park	Not recommended
Citizens Park	Small groves at southern end of site. Could be interplanted with <i>A. verticillata</i>



Allocasuarina verticillata Drooping She-oak Syn. *Casuarina stricta*



DESCRIPTION

Botanical name	<i>Allocasuarina verticillata</i> syn. <i>Casuarina stricta</i>
Common name	Drooping She-oak
Tree form	Weeping evergreen with strongly rounded crown
Origin	Victoria, Tasmania and NSW coastal heathlands and exposed sites. Indigenous to the Mornington Peninsula.
Height x width at maturity	5-10m x 3-7m
Growth rate	Medium to slow
Life Expectancy	Moderate

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Grey-green
Shape	Scales wrapped around pendulous branchlets

TOLERANCES

Light	Full sun
Wind	Very good
Drought	Very good
Soil compaction	Unknown
Coastal conditions	Very good
Root disturbance	Unknown (assume average)

OTHER CHARACTERISTICS

Human health issues	None
Structural problems	None
Weed potential	None
Disease risk	Generally trouble free
Treatment	NA
Shade type	Light
Uses for plant	Specimen or in copse; light screen



***Allocasuarina verticillata* Drooping She-oak**

Syn. *Casuarina stricta*

Soil type Most

MAINTENANCE

Formative pruning	To develop structure
Pruning	As required
Feeding regime	None
Mulching	To establish young trees
Irrigation	To establish young trees

NOTES

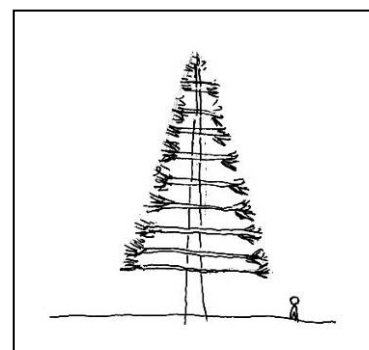
Supply	Available from Queenscliff Indigenous Community Plant Nursery and Metro Trees
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LOCATIONS

Victoria Park	In limited numbers throughout reserve to provide variation from the predominantly Moonah planting and as a screening plant on site boundaries
Princess Park	Not recommended
Citizens Park	Small groves at southern end of site. Could be interplanted with <i>A. littoralis</i> .



Araucaria heterophylla Norfolk Island Pine



DESCRIPTION

Botanical name	<i>Araucaria heterophylla</i>
Common name	Norfolk Island Pine
Tree form	Evergreen conifer growing in distinct layers
Origin	Norfolk Island
Height x width at maturity	30-40m x 15m
Growth rate	Fast
Life Expectancy	Long lived

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Dark green
Shape	Juvenile leaves awl-like and incurved. Mature leaves broader to triangular and more closely pressed around the stem

TOLERANCES

Light	Full sun
Wind	Very good
Drought	Moderately good
Soil compaction	Unknown (probably good)
Coastal conditions	Very good
Root disturbance	Unknown (assume average)

OTHER CHARACTERISTICS

Human health issues	None
Structural problems	None
Weed potential	None
Disease risk	Generally trouble free
Treatment	NA
Shade type	Moderate shade on mature specimens. Young trees provide little shade.



***Araucaria heterophylla* Norfolk Island Pine**

Uses for plant
Soil type

Specimen tree; avenues; formal plantings

MAINTENANCE

Formative pruning

None unless developing a secondary leader

Pruning

None

Feeding regime

May benefit from soil conditioners or supplementary fertiliser in sandy locations.

Mulching

To establish young trees

Irrigation

To establish young trees

NOTES

Advantages

A large, handsome tree that can become a dominant feature within the landscape

Disadvantages

Specimens within Citizens Park have not performed as well as may be expected. The reason for this is unknown.

Supply

Available from Metro Trees and Established Tree Transplanters as advanced specimens

LOCATIONS

Victoria Park

Not recommended

Princess Park

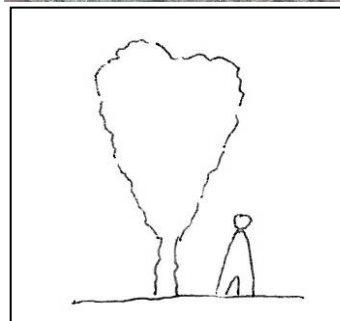
In limited numbers as specimens and in groups as replacements for some *Cupressus macrocarpa*

Citizens Park

Continued planting as a specimen and to reinforce existing groups. Limit new plantings at this stage.



Banksia integrifolia Coast Banksia



DESCRIPTION

Botanical name	<i>Banksia integrifolia</i>
Common name	Coast Banksia
Tree form	Narrow, open irregular canopy, stout trunk.
Origin	Coastal regions of Eastern Australia from Victoria to Queensland and the north-west coast of Tasmania.
Height x width at maturity	10-15m x 4-6m
Growth rate	Slow at first, then fast
Life Expectancy	Long lived

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Dark green above, white below
Shape	Simple, oblanceolate. Juvenile leaves toothed

TOLERANCES

Light	Full sun
Wind	Very good
Drought	Very good
Soil compaction	Average
Coastal conditions	Very good
Root disturbance	Unknown (presume average)

OTHER CHARACTERISTICS

Human health issues	None
Structural problems	Old trees should be inspected for structural defects
Weed potential	None
Disease risk	Generally trouble free
Treatment	NA
Shade type	Open



***Banksia integrifolia* Coast Banksia**

Uses for plant	Streetscapes; open woodland plantings; where a fastigate tree is required
Soil type	Susceptible to high phosphorus levels

MAINTENANCE

Formative pruning	To develop structure
Pruning	Can be rejuvenated by hard pruning
Feeding regime	None
Mulching	To establish young trees
Irrigation	To establish young trees

NOTES

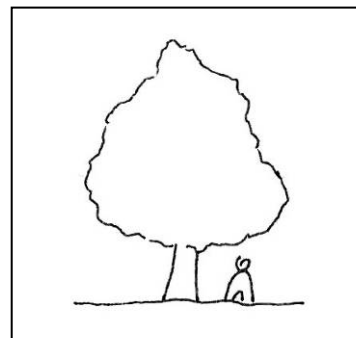
Advantages	Attracts insect, bees and nectar feeding birds. Splendid mature character. Tolerant of salt soils and <i>Phytophthora cinnamomi</i> . Outstanding coastal tolerance. A handsome small tree which is both indigenous and suitable for use in designed landscapes
Supply	Available from Queenscliff Indigenous Community Plant Nursery, Metro Trees and Established Tree Transplanters

LOCATIONS

Victoria Park	In limited numbers throughout the reserve to provide variation from the predominantly Moonah planting and as a screening plant on site boundaries.
Princess Park	Not recommended
Citizens Park	In group plantings at the southern end of the site



Brachychiton populneus Kurrajong



DESCRIPTION

Botanical name	<i>Brachychiton populneus</i>
Common name	Kurrajong
Tree form	Stout trunk, broadly pyramidal leaf canopy.
Origin	Inland NSW, Victoria and Queensland
Height x width at maturity	10m x 8m
Growth rate	Medium
Life Expectancy	Long lived

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Semi-deciduous. May drop leaves in dry conditions.
Colour	Lightgreen, glossy
Shape	Vary from ovate to deltoid with 2-3 lobes – always acuminate at apex.

TOLERANCES

Light	Full sun
Wind	Average
Drought	Very good
Soil compaction	Good
Coastal conditions	Average
Root disturbance	Good

OTHER CHARACTERISTICS

Human health issues	Hairs in fruit pods can cause skin irritation
Structural problems	None
Weed potential	None
Disease risk	Generally trouble free
Treatment	NA
Shade type	Moderate
Uses for plant	Specimen tree



***Brachychiton populneus* Kurrajong**

Soil type Complete range

MAINTENANCE

Formative pruning	To develop structure
Pruning	Avoid where possible – can develop epicormic shoots. Responds well to heavy pruning
Feeding regime	None
Mulching	To establish young trees
Irrigation	To establish young trees

NOTES

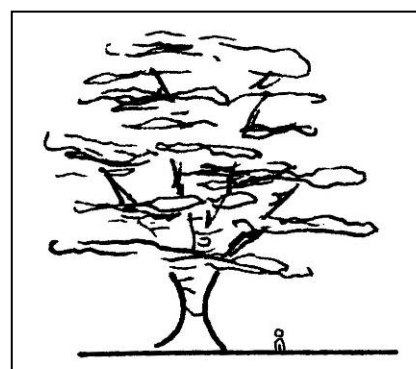
Disadvantages	Single specimen within Victoria Park is in poor condition. Recommended limited planting within this reserve.
Supply	Available from Metro Trees and Established Tree Transplanters as advanced specimens

LOCATIONS

Victoria Park	Replacement for one specimen already present and as a feature specimen tree within the site
Princess Park	Not recommended
Citizens Park	Not recommended



Cupressus macrocarpa Monterey Cypress



DESCRIPTION

Botanical name	<i>Cupressus macrocarpa</i>
Common name	Monterey Cypress
Tree form	Dense and broadly columnar to conical when young, ultimately becoming wide spreading with massive ascending branches
Origin	Exotic – central Californian coast line near Monterey
Height x width at maturity	36m x 25 m
Growth rate	Fast
Life Expectancy	80-100 years

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Dark green
Shape	Small, scaly

TOLERANCES

Light	Requires full sun
Wind	Very good tolerance of wind which may shape specimens growing along the coast
Drought	Very good tolerance of dry conditions
Soil compaction	Not known (likely to have low tolerance)
Coastal conditions	Very good
Root disturbance	Poor

OTHER CHARACTERISTICS

Human health issues	Allergic reactions in some people
Structural problems	Older trees have a reputation of being limb droppers and tend to break apart.
Weed potential	None
Disease risk	May suffer from the fungus 'Cypress Canker'
Treatment	Place trees in a roomy position



Cupressus macrocarpa Monterey Cypress

Shade type
Uses for plant
Soil type

Heavy shade
Parks with plenty of space, windrows, hedging.

MAINTENANCE

Formative pruning

May require formative pruning to uplift canopy and develop structure.

Pruning

Will not reshoot if pruned into old wood. Remedial pruning of advanced specimens is of little value except in the very short term. Trees rely on a network of branches to maintain their structural integrity. Trees should not be canopy thinned and deadwood should only be removed if necessary on safety grounds. Pruning should generally be avoided unless required on safety grounds. Can be hedged.

Feeding regime

None

Mulching

To establish young trees

Irrigation

To establish young trees

NOTES

Advantages

Extremely fast growing when young, this tree can reach monumental sizes if planted individually, or it may be hedged.

Disadvantages

Golden forms include 'Aurea', with spikes of almost horizontal golden foliage and 'Brunniana Aurea', with dense golden foliage

Supply

Extremely fast growing when young and very tolerant of coastal conditions. A signature species in Queenscliff
Tree is short lived and has a strong tendency to break apart with age, making old specimens potentially very dangerous. Young trees are widespreading with low, dense canopies which preclude easy access to a large area around their base. Suppresses growth of other vegetation beneath its canopy
Cultivars not to be used – species only. Available from Conifer Gardens Nursery

LOCATIONS

Victoria Park

North-western entrance to the site to replace the three currently present. Not recommended for use elsewhere.

Princess Park

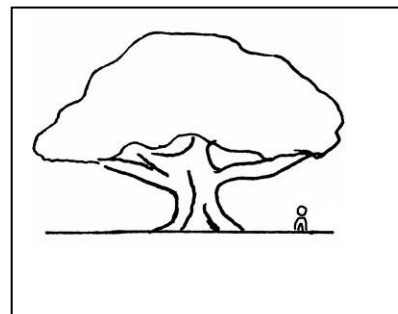
Suitable for continued use but in reduced numbers. Should be used primarily in groups but also as a specimen tree.

Citizens Park

Suitable for continued use but in reduced numbers. Should be used primarily in groups but also as a specimen tree.



Ficus macrophylla Morton Bay Fig



DESCRIPTION

Botanical name	<i>Ficus macrophylla</i>
Common name	Morton Bay Fig
Tree form	Very large wide spreading tree with massive limbs and buttressed trunk
Origin	NSW and Queensland coastal forests
Height x width at maturity	30-40m x 30m
Growth rate	Medium
Life Expectancy	Long lived

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Glossy dark green above with rusty hairs underneath
Shape	Alternate, elliptical to ovate

TOLERANCES

Light	Sun to shade
Wind	Very good
Drought	Average
Soil compaction	Very good
Coastal conditions	Good but should be shielded from primary coast exposure.
Root disturbance	Unknown (assume moderate)

OTHER CHARACTERISTICS

Human health issues	Fruit inedible. Sap can cause allergic reactions.
Structural problems	Decay and limb drop can be issues in older specimens
Weed potential	None
Disease risk	Fig Psyllid (<i>Mycopsylla fici</i>)
Treatment	Contact Royal Botanic Gardens Sydney for latest research
Shade type	Dense
Uses for plant	Specimen tree and avenue plantings
Soil type	All but heavy clay



***Ficus macrophylla* Morton Bay Fig**

MAINTENANCE

Formative pruning	To develop structure
Pruning	As required
Feeding regime	None
Mulching	To establish young trees
Irrigation	To establish young trees

NOTES

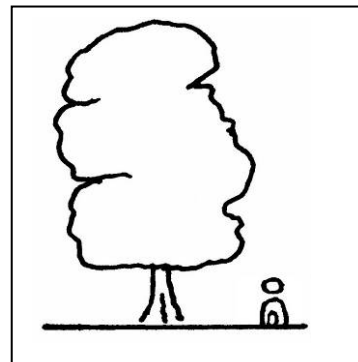
Advantages	A large, handsome tree appropriate to Victorian era gardens and commonly used in Queenscliff. Tolerant of coastal exposure and provides contrast to the conifer plantings.
Disadvantages	A very large tree at maturity which should be given adequate space to develop. Roots may heave paving and disturb drains. Mature specimens in Melbourne are suffering as a result of the drought.
Supply	Available from Metro Trees and Established Tree Transplanters as advanced specimens

LOCATIONS

Victoria Park	Not recommended
Princess Park	As a specimen tree
Citizens Park	As a specimen tree



Ficus rubignosa Port Jackson Fig



DESCRIPTION

Botanical name	<i>Ficus rubignosa</i>
Common name	Port Jackson Fig
Tree form	Large spreading to erect tree developing a buttressed trunk.
Origin	NSW coast
Height x width at maturity	20m x 25m
Growth rate	Medium
Life Expectancy	Long lived

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Dark green, glossy above, new growth rusty brown beneath.
Shape	Alternate, oval – elliptical

TOLERANCES

Light	Sun to semi-shade
Wind	Very good
Drought	Average
Soil compaction	Unknown
Coastal conditions	Very good but may be dwarfed
Root disturbance	Unknown (assume moderate)

OTHER CHARACTERISTICS

Human health issues	Fruit inedible. Sap can cause an allergic reaction
Structural problems	None
Weed potential	None
Disease risk	Generally trouble free
Treatment	NA
Shade type	Dense
Uses for plant	Specimen tree
Soil type	All but heavy clay



***Ficus rubignosa* Port Jackson Fig**

MAINTENANCE

Formative pruning	To develop structure
Pruning	As required
Feeding regime	None
Mulching	To establish young trees
Irrigation	To establish young trees

NOTES

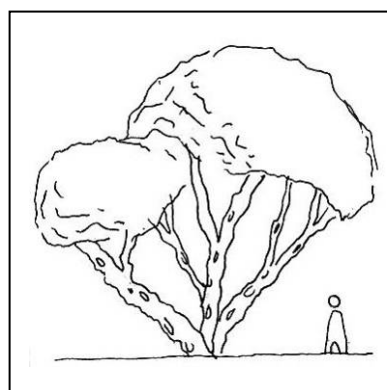
Advantages	A large handsome tree suitable for Victorian gardens. Tolerant of coastal conditions, providing contrast to the conifer plantings. Fruit is attractive to birds.
Disadvantages	All figs can potentially disturb drains. A moderately large tree at maturity which should be planted where adequate space can be provided.
Supply	Available from Established Tree Transplanters as advanced specimens

LOCATIONS

Victoria Park	Not recommended
Princess Park	As a specimen tree
Citizens Park	As a specimen tree



Melaleuca lanceolata Moonah



DESCRIPTION

Botanical name	<i>Melaleuca lanceolata</i>
Common name	Moonah
Tree form	Bushy small tree becoming open with a twisted trunks and picturesque horizontal canopy when mature.
Origin	Locally indigenous and coastlines and some inland sites in southern Australia
Height x width at maturity	5-15m X 3-10m
Growth rate	Slow-medium
Life Expectancy	Long lived

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Dull, mid green
Shape	Thick, short, blunt, curved

TOLERANCES

Light	Full sun
Wind	Very good
Drought	Very good
Soil compaction	Not known
Coastal conditions	Very tolerant of salt in both the air and soil
Root disturbance	Unknown – probably moderate.

OTHER CHARACTERISTICS

Human health issues	None
Structural problems	Old trees can become structurally unsound.
Weed potential	None
Disease risk	Generally trouble free
Treatment	NA
Shade type	Dappled shade



Melaleuca lanceolata Moonah

Uses for plant
Soil type

Parklands, gardens and nature reserves
Tolerates sand or heavy clay

MAINTENANCE

Formative pruning

May require formative pruning to uplift canopy and manage structural defects, also to manage attachment of basal growth.

Pruning

See above.

Feeding regime

None required.

Mulching

None required. 1m radius ring of 50mm course wood chips to establish.

Irrigation

No irrigation required once established

NOTES

Advantages

Indigenous tree which is a strong character species for Point Lonsdale and areas of Queenscliff. A very handsome tree at maturity. Withstands a wide range of harsh conditions including moist or dry areas, sun or shade. Frost resistant and smog tolerant.

Disadvantages

Slow to establish. Older trees can become structurally unsound and require careful management in public locations. Roots can clog drains

Supply

Available for Queenscliff Indigenous Community Plant Nursery.

LOCATIONS

Victoria Park

As dominant tree within the site. Tree layout should be scattered and new plantings should consider the existing replacement planting and the coppiced mature tree on the site.

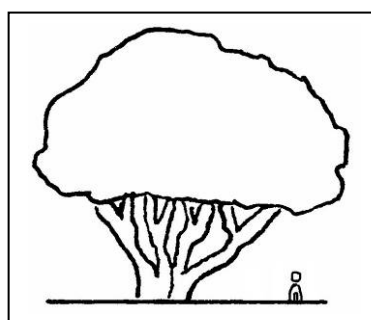
Princess Park
Citizens Park

Not recommended

In limited numbers as a specimen tree at the southern end of the site and for planting in groups.



Metersideros excelsa Pohutukawa



DESCRIPTION

Botanical name	<i>Metersideros excelsa</i>
Common name	Pohutukawa; New Zealand Christmas Tree
Tree form	Dense, round headed
Origin	North Island of New Zealand
Height x width at maturity	8m x 8-12m
Growth rate	Slow when juvenile, fast on maturity
Life Expectancy	Long lived

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Dull green above, grey-green and with dense hairs beneath
Shape	Opposite, elliptical

TOLERANCES

Light	Full sun
Wind	Very good
Drought	Very good. Once established needs little supplementary water but will grow faster if water is provided
Soil compaction	Average
Coastal conditions	Very good
Root disturbance	Moderate

OTHER CHARACTERISTICS

Human health issues	None
Structural problems	None
Weed potential	None
Disease risk	Generally trouble free – can be prone to borer when stressed
Treatment	Avoid stressing trees. Remove if attacked by borers
Shade type	Dense
Uses for plant	Specimen tree; hedges; screening; streetscape



***Metersideros excelsa* Pohutukawa**

Soil type	Tolerant of very acid soils
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MAINTENANCE

Formative pruning	To develop structure
Pruning	As required
Feeding regime	None
Mulching	To establish young trees
Irrigation	To establish young trees

NOTES

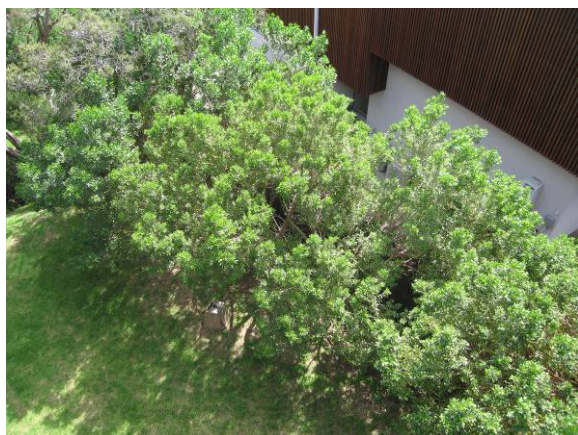
Advantages	Nectar attracts birds. Can be clipped. Magnificent in full flower. Appropriate for use in Victorian era gardens. Species has outstanding Coastal tolerance.
Supply	Available from Established Tree Transplanters as advanced specimens

LOCATIONS

Victoria Park	Not recommended
Princess Park	In limited numbers as a specimen tree and around children's play area
Citizens Park	Specimen tree



Myoporum insulare Boobialla



DESCRIPTION

Botanical name	<i>Myoporum insulare</i>
Common name	Boobialla
Tree form	Large shrub to small rounded tree. Can vary from dense to open canopy
Origin	Southern Australia – usually in coastal heath. Locally indigenous
Height x width at maturity	6m x 3m
Growth rate	Fast
Life Expectancy	May be somewhat short lived.

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Glossy green
Shape	Lanceolate to broadly elliptic, toothed or untoothed towards the apex

TOLERANCES

Light	Sun to semi-shade
Wind	Very good
Drought	Tolerant once established
Soil compaction	Unknown
Coastal conditions	Very good
Root disturbance	Unknown (presume average)

OTHER CHARACTERISTICS

Human health issues	None
Structural problems	Old trees can decay and collapse
Weed potential	None
Disease risk	Generally trouble free
Treatment	NA



Myoporum insulare Boobialla

Shade type	Moderate – dense
Uses for plant	Screening; windbreak; hedge
Soil type	Complete range but must be well drained

MAINTENANCE

Formative pruning	To develop structure
Pruning	As required
Feeding regime	None
Mulching	To establish young trees
Irrigation	To establish young trees

NOTES

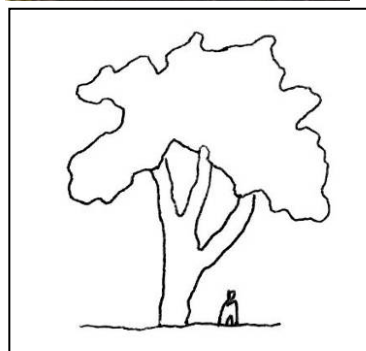
Advantages	Bird attracting and Indigenous
Disadvantages	Can be messy. Older specimens tend to break apart.
Supply	Available from Queenscliff Indigenous Community Plant Nursery

LOCATIONS

Victoria Park	Not recommended
Princess Park	Not recommended
Citizens Park	Group planting at southern end of the site



Pinus halepensis Aleppo Pine



DESCRIPTION

Botanical name	<i>Pinus halepensis</i>
Common name	Aleppo Pine
Tree form	Rounded to flat topped crown with ascending limbs at maturity
Origin	Mediterranean
Height x width at maturity	20-30m x 10-15m
Growth rate	Medium
Life Expectancy	100 years

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Soft, light green
Shape	Needles, in pairs

TOLERANCES

Light	Full sun
Wind	Very good
Drought	Very good
Soil compaction	Unknown
Coastal conditions	Very good
Root disturbance	Unknown (assume moderate)

OTHER CHARACTERISTICS

Human health issues	None
Structural problems	Old trees require monitoring
Weed potential	Can self-sow. Less problematic than some pine species
Disease risk	Generally trouble free
Treatment	NA
Shade type	Light – moderate
Uses for plant	Specimen tree



Pinus halepensis Aleppo Pine

Soil type Very tolerant of saline soils. Complete pH range.

MAINTENANCE

Formative pruning	To develop structure
Pruning	AS required
Feeding regime	None
Mulching	To establish young trees
Irrigation	To establish young trees

NOTES

Advantages	A large tree suitable for use in Victorian era gardens.
Disadvantages	Needs space to develop.

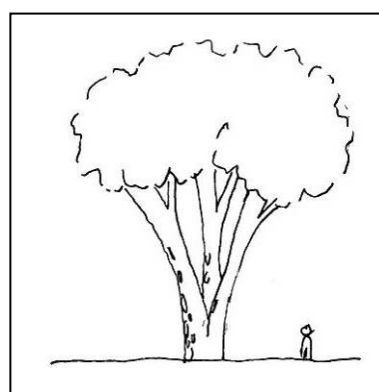
Supply	Available from Metro Trees as advanced specimens
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LOCATIONS

Victoria Park	To replace current specimen tree and as a feature specimen tree within the site
Princess Park	Not recommended
Citizens Park	Specimen tree



Pinus pinea Stone Pine



DESCRIPTION

Botanical name	<i>Pinus pinea</i>
Common name	Stone Pine
Tree form	Characteristic domed crown as matures
Origin	Portugal and Spain
Height x width at maturity	12-20m x 12-15m
Growth rate	Slow – medium
Life Expectancy	100-120 years

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Juvenile leaves blue-green changing to mid-green
Shape	Needles in pairs

TOLERANCES

Light	Full sun
Wind	Very good
Drought	Very good
Soil compaction	Not known
Coastal conditions	Very good
Root disturbance	Unknown (assume average)

OTHER CHARACTERISTICS

Human health issues	None
Structural problems	Old trees should be monitored. Failure can be difficult to predict. Trees do not decay.
Weed potential	Low
Disease risk	Generally trouble free
Treatment	NA
Shade type	Moderate
Uses for plant	Specimen plantings and avenues



Pinus pinea Stone Pine

Soil type

MAINTENANCE

Formative pruning	To develop structure
Pruning	As required
Feeding regime	None
Mulching	To establish young trees
Irrigation	To establish young trees

NOTES

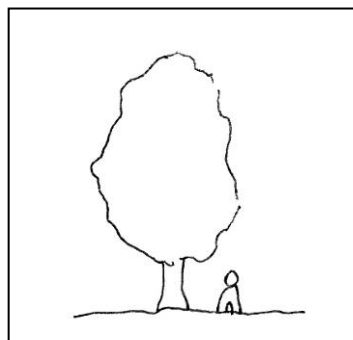
Advantages	Main source of edible pine nuts Well suited to southern Australian conditions. A statuesque tree suitable for Victorian gardens and with high coastal tolerance.
Disadvantages	Requires adequate space
Supply	Available from Metro Trees as advanced specimens

LOCATIONS

Victoria Park	Replace existing pines and as feature specimen tree
Princess Park	One loose avenue/row to allow for removal of current row, possibly in front of Harry's to replace Monterey Cypress and specimen trees dotted around reserve
Citizens Park	Specimen tree



Podocarpus elatus Plum Pine



DESCRIPTION

Botanical name	<i>Podocarpus elatus</i>
Common name	Plum Pine
Tree form	Rounded spreading crown. Very dense
Origin	South-east NSW to north Queensland, especially in gullies
Height x width at maturity	6-15m x 3-10m
Growth rate	Medium to slow
Life Expectancy	Long lived

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Dark green and glossy. New growth paler.
Shape	Linear to lanceolate, straight or curved.

TOLERANCES

Light	Sun – shade
Wind	Average
Drought	Average
Soil compaction	Unknown
Coastal conditions	Average
Root disturbance	Unknown (assume average)

OTHER CHARACTERISTICS

Human health issues	Fruit inedible
Structural problems	Branch structure of old trees should be monitored
Weed potential	None
Disease risk	Generally trouble free
Treatment	NA
Shade type	Dense
Uses for plant	Specimen trees and screening
Soil type	pH below 8



Podocarpus elatus Plum Pine

MAINTENANCE

Formative pruning	To develop structure
Pruning	As required
Feeding regime	None
Mulching	To establish young trees
Irrigation	To establish young trees

NOTES

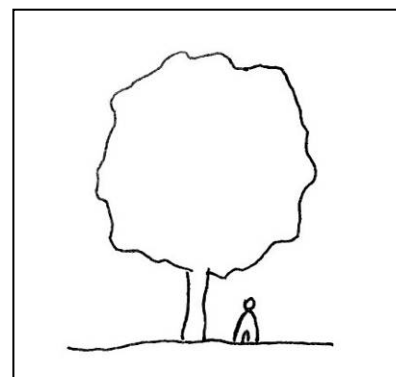
Advantages	A handsome tree suitable for use in Victorian era gardens
Disadvantages	Salt tolerance not completely known, it is recommended that it be planted in limited numbers as a trial
Supply	Available from Conifer Gardens Nursery

LOCATIONS

Victoria Park	Not recommended
Princess Park	In limited numbers as a specimen tree especially where screening is desired.
Citizens Park	Specimen tree, especially where screening is desired.



Quercus ilex Holm Oak



DESCRIPTION

Botanical name	<i>Quercus ilex</i>
Common name	Holm Oak
Tree form	Broad crowned, sometimes with multiple trunks.
Origin	Southern Europe and North Africa
Height x width at maturity	20m x 15m
Growth rate	Slow
Life Expectancy	Long lived

FOLIAGE CHARACTERISTICS

Deciduous/evergreen	Evergreen
Colour	Dark glossy green above, white and hairy underneath.
Shape	Elliptic to narrowly ovate or lanceolate with acute tip. Juvenile leaves holly-like

TOLERANCES

Light	Full sun to part shade
Wind	Very good
Drought	Very good
Soil compaction	Unknown
Coastal conditions	Good
Root disturbance	Unknown (assume average)

OTHER CHARACTERISTICS

Human health issues	None
Structural problems	None
Weed potential	None
Disease risk	Generally trouble free
Treatment	NA
Shade type	Dense
Uses for plant	Specimen tree; screening; hedge



***Quercus ilex* Holm Oak**

Soil type All textures

MAINTENANCE

Formative pruning	Prune early to develop strong structure, slow growth rate on aggressive branches to prevent formation of included bark and to generate a dominant trunk
Pruning	As required
Feeding regime	None
Mulching	To establish young trees
Irrigation	To establish young trees

NOTES

Advantages	A tough tree suitable for use in Victoria era plantings
Disadvantages	Slow growth rate
Supply	Available from Metro Trees and Established Tree Transplanters as advanced specimens

LOCATIONS

Victoria Park	In limited numbers as a specimen tree, especially where screening is desired
Princess Park	In limited numbers as a specimen tree, especially where screening is desired
Citizens Park	Specimen tree, especially where screening is desired



Aerial Inspections of selected trees in
Victoria Park, Citizens Park & Princess Park, Queenscliff

July 2009

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The Brief

I was briefed to undertake aerial inspections of Stone Pines (*Pinus pinea*) and one Aleppo Pine (*Pinus halepensis*) in Victoria Park, Citizens Park and Princess Park, Queenscliff to identify and assess any structural defects that may not be visible from the ground.

Methodology

I inspected the trees on 15 July 2009.

Tree Location

John Henderson from the Borough of Queenscliff, took me to each of the trees to be assessed. The tree numbers used in this report are those given to each tree in a report prepared by John Patrick Landscape Architects.

Data Collected

The following information was collected on site for each tree:

Condition: I climbed very close to the top of the tree so that all of the trunk and structural branches could be examined. The tree was assessed in terms of its maturity, health and vigour, and structure.

Arboricultural Terms

The following arboricultural terms have been used in the descriptions:

Bifurcation – the forking of a trunk into two roughly equal sized stems. The union between the two stems is often relatively weak and is prone to failure.

Delamination – longitudinal splitting of branches. Branches that delaminate often fail over a period of time.

Epicormic branch/shoot – a branch that has arisen from a dormant (i.e. epicormic) bud in response to severe pruning (lopping), branch failure, tree decline or fire. Epicormic branches can often be poorly attached.

Included bark – bark that is included within the branch or trunk union. Unions with included bark are weaker than those without included bark.

Trifurcation – the forking of a trunk into three roughly equal sized stems. The union between the three stems is often relatively weak and is prone to failure.

Weight reduction – pruning technique used to reduce the length and weight of a branch. It is commonly used to reduce the likelihood of the failure of long extended branches.

Wound-wood – wood that has grown around a trunk or branch wound after the wounding has taken place. In some cases wound-wood can completely cover a wound. Structurally it is typically stronger than normal wood.

Tree Assessment

Victoria Park – Tree No. 92

Aleppo Pine (*Pinus halepensis*)

- It is a mature tree exhibiting good health and vigour.
- The trunk bifurcates at approximately 2.5 metres above ground level. Debris has accumulated in the hollow on top of the bifurcation union but the union appears to be sound.
- All major branch unions appear to be sound. There are some short delamination cracks in medium-sized branches (100 to 200 mm in diameter) but all those observed appeared stable.
- Many of the lower branches are heavy and extended with sufficient foliage to allow them to be effectively weight reduced.
- There is some scarring in the bark on top of branches but no decay was observed. The scarring could have been caused by cockatoos or could be damage resulting from falling branches during pruning.
- There are many stubs resulting from poor pruning cuts.



Recommendations:

- Remove the dead wood and stubs down to 25 mm in diameter.
- Weight reduce the extended branches, especially those few that have stable delamination cracks in them.

Citizens Park – Tree No. 163

Stone Pine (*Pinus pinea*)

- It is a mature tree exhibiting good health and vigour.

- The trunk and all major branch unions appear to be sound.
- There are some extended branches towards the east in the mid-canopy that have slowly descended onto the large low branches. Some branch grafting has taken place between the upper and lower branches.
- The low, large branches to the north and east are very extended and are probably slowly dropping.
- There is evidence of minor branch failure, up to 100 mm in diameter, in the lower and mid-canopy.
- There are many old pruning cuts resulting in stubs. The more recent pruning cuts appear to be good.



Recommendations:

- Weight reduce the extended branches.
- Remove the dead wood and stubs down to approximately 25 mm in diameter but retain the dead branches that are supporting other live branches.

Princess Park – Tree No. 1 Stone Pine (*Pinus pinea*)

- It is a mature tree exhibiting good health and vigour.
- The trunk trifurcates between 1.5 and 2.0 metres above ground level.
- The smallest fork towards the west has been cut off, presumably because of extensive branch failures. The union appears to be sound.

- Approximately half of the trunk to the south has been removed fairly recently due to large branch failure. The remainder of this trunk grows into the adjacent Moreton Bay Fig (*Ficus macrophylla*).
- The largest trunk and its major branches appear to be sound.
- Two branches, both approximately 150 mm in diameter, on the northern side of the canopy have delamination splits in them and are being held up by adjacent major branches.
- There is extensive dead wood up to 150 mm in diameter throughout the canopy. Some of the dead wood on the northern side of the canopy is broken and is being held up by surrounding branches.
- The major lateral branches are very extended and the tree appears to have a history of large branch failure.



Recommendations:

- Remove the dead wood and stubs down to 25 mm in diameter.
- Weight reduce the extended branches except where they are entwined in the Moreton Bay Fig.
- Remove the two branches with the delamination splits.

Princess Park – Tree No. 64 Stone Pine (*Pinus pinea*)

- It is a mature tree exhibiting good health and vigour.
- The trunk bifurcates at approximately 1.5 metres above ground level and then the larger trunks bifurcates at approximately 2.8 metres above ground level. Both bifurcation unions appear to be sound.

- The lowest branch to the south east from the eastern fork has an old delamination split close to its union. The split has stabilised as it has obvious wound wood around it.
- The forks to the east and west are heavy with the larger lateral branches being quite extended.
- There is extensive dead wood up to 150 mm in diameter (though most is up to 100 mm in diameter). Some of the dead wood is broken and resting in the upper canopy.
- The tree appears to have a history of large branch failures.



Recommendations:

- Remove the branch with the stable delamination split or substantially weight reduce it.
- Weight reduce the extended branches.
- Remove the dead wood down to 25 mm in diameter.
- Install an 11 mm steel cable from each of the eastern and western forks to the central trunk (two cables in total) to reduce the risk of whole trunk failure.

Princess Park – Trees No. 65 & 66

Stone Pines (*Pinus pinea*)

- They are mature trees that do not appear to be as old as Trees No. 1, 64 and 163, and are exhibiting good health and vigour.
- Both trees have extensive dead wood up to 100 mm in diameter throughout their canopies.

- The larger branches are extended.
- The trunks and major branch unions appear to be sound.
- Tree No. 65 bifurcates at 1.5 metres above ground level but the union appears to be sound.

Recommendations:

- Remove the dead wood and stubs down to 25 mm in diameter.
- Weight reduce the extended branches.
- Install an 11 mm steel cable in Tree No. 65 between the bifurcated trunks to reduce the risk of trunk failure.



Tree No. 65 (left) and Tree No. 66 (right)

General comments – Stone Pines

- The Stone Pines inspected generally had high canopies relative to their total tree height due to extensive branch loss and, possibly, pruning.
- Extended branches are typical of Stone Pines.
- Most of the major branch and trunk failures observed have occurred out from the branch and trunk unions. That is, the unions have generally not failed.
- Weight reduction pruning of extended branches in Stone Pine is often difficult as most of the foliage is typically carried close to the end of the branch. However, it will reduce the risk of large branch failures if properly carried out.