

APPENDIX X



July 20, 2021

City of Cockburn
PO Box 1215,
Bibra Lake DC WA 6965

ATTENTION: Rohan Blee

RE: Assessment of Identified Trees at Beale Park

Dear Rohan,

Further to your request and my inspection of the identified trees at Beale Park, and my review of the Paperbark Technologies Report on the same trees, the following is a brief of my findings and comments.

If you have any queries regarding the findings of the report or if I can be of any further assistance, please do not hesitate to contact me.

Yours sincerely

A handwritten signature in black ink, appearing to read "JRM".

JASON ROYAL

Dip. Arboriculture (UK)
Tech. Arbor A

Assessment of Identified Trees at Beale Park

Prepared For

City of Cockburn

Prepared By



June 30, 2021	Draft for Comment	
July 20, 2021	Final for Issue	

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Attachments to this Report

- Attachment 1; Table of Information/QTRA Assessment
- Attachment 2; Tree Location Guide with works overlaid
- Attachment 3; Table of Recommended Tree Works
- Attachment 4; References
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1. Terms Used

The following terminology has been commonly used in this report:

'Trees'	meaning the trees that are the subject of this report
'Site'	meaning the site known as Beale Park
'Fall Zone'	meaning the area where a branch (or complete tree) failure is considered most likely to fall into
'Target'	meaning any areas of 'static' permanent potential targets such buildings, powerlines etc. within the likely projected Fall Zone of the Tree or if 'transitional' targets such as people or vehicles may also occur within the projected Fall Zone of the Tree
'QTRA'	meaning Quantified Tree Risk Assessment
'Report'	meaning the Paperbark Technologies report on the Trees dated March 2021
'TPZ'	meaning 'Tree Protection Zone'; the area where the majority of the Tree's root mass is considered likely to be found. Any works required in this zone are considered likely to have the potential to have an impact the Tree's future health.
'SRZ'	meaning 'structural root zone; the area where the majority of the Tree's larger in-ground supportive root mass is considered likely to be found. Any works required in this zone are considered likely to have some potential to impact the Tree's future health and possibly its in-ground stability as well. Important Note: the SRZ of a tree does not need to be considered unless works and encroachment occur within the tree's nominal TPZ.
'AS 4970'	meaning Australian Standards 4970; Protection of Trees on Development Sites
'AS 4373'	meaning Australian Standards 4373; Pruning of Amenity Trees
'Plan'	meaning the plan provided showing the (current) proposed development layout; Bdg Plan drawing SK02-L4 (Rev D)

2. Purpose of the Report

1. Undertake an inspection of the identified Trees, and provide a QTRA assessment on each Tree;
2. Peer review the tree report and provide comments on the findings of the report Provide any recommendations for the identified Trees accordingly;
3. Provide any initial comments regarding the impact of the proposed development based on the Plan provided to the Trees.

3. Particulars and Limitations to the Assessment

The information and opinions provided in this report are based on the observations made during the Site assessment and visual inspection of the Trees undertaken June 14th and 29th, 2021.

The observations of all of the Trees were undertaken from ground level.

Viewing conditions at the time of the assessments were considered to be fine and were unimpeded.

No exploratory excavations, or tomographic scans (or the like) were undertaken as part of this particular assessment. As such the allocation of TPZ for each Tree has at this stage been based on AS 4970 guidelines.

As part of the project a review of the Paperbark Technologies report was also undertaken to provide peer review of the findings and contents of that report.

For the purposes of this assessment the same Tree reference numbers as provided in the Paperbark Technologies report has been used in this assessment.

4. An overview of Tree Assessment and Risk Management and Trees

All tree risk assessments generally start with the identification of the presence of any areas of potential Targets within the projected Fall Zone of the given tree.

With the absence of any 'significant' potential Target, the tree is typically recommended to be left alone and/or managed in accordance with any best environmental practices adopted for the given area.

Risk is generally defined as the '*Likelihood*' multiplied by the '*Consequences*' of an action occurring.

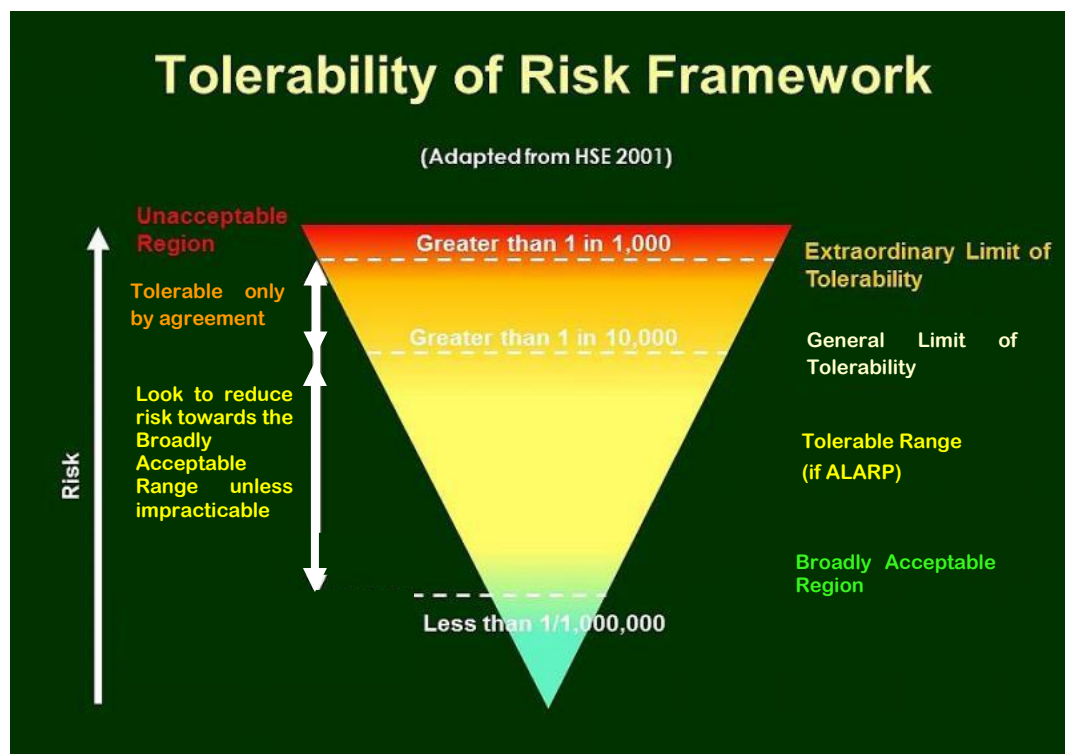
In most instances the 'risk' associated with a tree can therefore be defined as what is the *likelihood* of a branch (or complete tree) failure occurring, and then ascertaining what the *consequences* of the failure would be.

This is often broken down into:

- Size of part most likely to fail,
- Time that failure is most likely to occur,
- Presence of potential Targets when failure is most likely to occur, and
- Consequences of failure if a failure did occur.

Again there are many variables that require consideration as part of this process including the structure of the given tree, its health, species traits and environmental factors such as prevailing and storm winds and how they would affect the subject tree and the occurrence of potential Targets within the projected Fall Zone.

The level of risk that is acceptable with any given tree will ultimately be governed by the tree 'owner', and their willingness to accept any foreseeable risks associated with any given tree. It is however generally considered that the level of acceptance in terms of risk (when it is *imposed* on others) can be defined as 1:10,000¹ based on the commonly adopted general tolerability of risk thresholds and frameworks utilised worldwide.



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Refer Quantified Tree Risk Assessment (www.QTRA.co.uk)

4. An overview of Tree Assessment and Risk Management and Trees

Where the level of risk has been assessed to be *greater than* 1/1,000 (where the number calculated is less than 1000) the risk is considered to be below a tolerable level, and actions are generally required to address the identified risk in view of risk management responsibilities.

Where the level of risk has been assessed to be *greater than* 1/1,000 but *less than* 1/10,000 (where the number calculated is between 1000 and 10,000) the risk is considered to be within a tolerable range if by agreement by all parties that may be impacted. Otherwise actions are generally required to address and reduce the identified risk to be within the Tolerable Range.

Where the level of risk has been assessed to be *less than* 1/10,000 (where the number calculated is greater than 1/10,000) the risk is within what is generally considered a tolerable range. However the risk should be assessed to determine if it can be reduced further to be closer to (or even within) the Broadly Acceptable levels, and ALARP.

However when managing trees however (and especially when managing larger, more mature trees), it remains important to remember that all trees are by nature shedding organisms; that is they will constantly shed leaves, fruit, flowers, bark, and in some instances entire stems as part of their self-management and/or growth processes.

As such some degree of risk will always remain with any tree despite the adoption of any best management practices due to this and the other variables that can affect a tree that are beyond the scope of any best management practices (such as environmental factors.).

Trees can be 'managed' to a point, but they cannot be controlled.

5. Method of the Assessment

5.1 Method Adopted

All of the Trees at the Site were included in the assessment and were visually inspected from ground level in accordance with 'visual tree assessment'² ("VTA") and QTRA³ methods and principles.

The VTA method is based on the sciences of tree biology, physiology, tree structure, and tree bio-mechanics.

It is a method widely used by arborists worldwide to identify visible signs on trees that indicate any health or potential structural issues that in turn could increase the risks associated with the given tree. There are many variables that require consideration as part of this process including the structure of the given tree, its health condition, known natural species traits, environmental factors such as direction of prevailing (and storm) winds and how they would affect the subject tree and the occurrence of potential Targets within its projected Fall Zone.

5.2 Health Condition

The overall health of each Tree was adjudged from an inspection of its leaf, overall percentage of leaf mass present in the canopy of the Tree, and the presence (or absence) of any pest or disease factor that could have an effect on its health.

5.3 Structural Condition

The structural integrity of each Tree was determined from a visual inspection of its main stem, primary (and secondary) branch unions to determine the presence of any areas considered to be a structural 'defect' or 'imperfection' such as unions with included bark, swelling, or noticeable splitting at them.

Symptoms of decay, growth patterns and defects are identified and assessed as to their potential to cause whole tree, part tree or branch failure, and where considered necessary further investigation by way of the use of sounding techniques was utilised to determine the presence and general extent of any areas of cavity or associated decay within a tree's main stem structure.

Each Tree's root plate area was also inspected to identify any visible signs of root plate, movement, cracking or heave from which a determination of its in-ground stability can be ascertained. It is however important to note that there are limitations in verifying the in-ground stability of a tree based on a 'one-off' cursory visual observation; particularly if the inspection is undertaken during a period of 'fine' weather with little to no wind; as was the case over the period of this assessment.

5.4 Known Species Traits

The natural species traits of the given Tree was also considered as part of the assessment process; i.e. is it a species known to be subject to issues associated with decay, termites (and how that would affect its structural integrity), or can be subject to the 'sudden branch drop' phenomenon. The Tree's species and its ability to cope with disturbances to its root zone that typically occur as part of a development process, as well as its ability to cope with the new parameters that are commonly created by an urban development (i.e. decreased soil oxygen due to compaction, increased un-seasonal watering from irrigation, increased pollution, increased radiated heat/light from urban infrastructure (roads, walls, buildings etc.) are all also taken into consideration.

² Field Guide for Visual Tree Assessment (VTA); The Body Language of Trees, A Handbook for Failure Analysis; C Mattek, H Breloer
³ Refer Quantified Tree Risk Assessment Guidelines Practice Note Ver. 5 (www.QTRA.co.uk)

5. Method of the Assessment

5.5 Target Identification

Target identification and allocation of the appropriate Target Ratings will change from tree-to tree depending on its location and/or the risk assessed with the given tree in relation to the Targets that are present in that part of the given tree's Fall Zone.

For the purposes of this assessment, and based on information provided regarding the use of the Site;

- The existing buildings, areas immediately around the buildings, footpaths and areas of the sports field that were considered to have high volumes of traffic during the course of a day were allocated a Target rating of '2'; with the Fall Zones of each Tree in those areas being assessed to potentially be occupied between 15 minutes and 2.4 hours per day on an average daily basis over the course of a 12-month period.
- The car park areas were in general allocated a Target rating of '3' to allow for damage to any parked cars to be between \$3,600 and \$36,000 to repair in the event of failure occurring.

In a few incidences a Target rating of '4' was applied (damage between \$360 and \$3600 to repair) in instances where smaller sized parts were assessed to have the potential for failure and attain the Target of concern.

Size of Part of 'Property' was applied to the car park areas in accordance with QTRA guidelines.

- Based on Main Roads data ⁴ Hamilton Road was allocated a Target rating of '1' for the volume of traffic going past Beale Park being between 4300 and 42,000 per hour on an average daily basis.
- Official traffic data for Kent Street is not known. A Target rating of '3' was applied for the volume of traffic going past Beale Park being between 48 and 470 on an average daily basis.
- One area of the Site was assumed to be landscaped as part of the proposed development process, so a Target rating of '3' has been applied for the assumed level of occupancy/pedestrian traffic for that area of the Site once it is open for use. Note: The Target rating for that area may need to change pending the final design of the development and what Targets will be introduced into the Fall Zone of the Trees.

⁴ <https://trafficmap.mainroads.wa.gov.au/map>

5. Method of the Assessment

5.6 Probability of Failure

Probability of failure of parts of a (or an entire) tree was ascertained from the conclusions gained from the inspection of its current health and structural condition.

Deadwood is generally considered to have a higher probability of failure than live wood given the natural degradation of the woody tissues that occurs once dead. However this can vary depending on the species of the tree being assessed, and the 'age' of the deadwood.

Unions with structural 'defects' such as included bark, decay, and/or swelling at them are also considered to have a higher probability of failure than other unions. Branches with high volumes of foliage mass or loading from wood, or branches that look to be more open and exposed to wind forces known to be typical to the given area were also assessed to ascertain if they had a higher probability of failure.

The known species traits of the given tree's species also need to be taken into consideration as part of this part of this part of the assessment process as some species appear to (statistically) more prone to branch failures than other, or more likely to retain deadwood than others.

In using the QTRA method, benchmarks are set against trees and allocated *probability of failure* ("PoF").

Benchmark '7' is allocated for trees considered to be in optimal condition, have no visible issues of concern, and have (virtually) no probability that failure will occur within the time frame considered.

At the other end of the spectrum, benchmark '1' trees are trees considered to have a very high (virtually guaranteed) probability for failure within the time frame specified.

Benchmark '4' is allocated to trees that show some indications of issues, and potential for failure and is generally used to reflect a level of uncertainty.

From these 'benchmarks' probability for failure was assessed to be either 10x likely, or 10x less than the benchmarks and the relevant value (number) allocated accordingly.

Without sufficient amounts statistical data this part of the QTRA system will always be open to personal opinion and experiences of the assessor.

5.7 Consequences of Failure and Management Recommendation

Consequences of failure was based on the factors of the identified Target, the size of part considered to have the potential to fail and attain the identified Target, and the probability of the identified part of the given tree failing.

Once ascertained, the most appropriate management for the given tree was ascertained; be it removal of the part(s) of concern (i.e. pruning), or where considered the only viable option, removal of the given Tree.

5.8 Time Frame Applied

In this instance consideration was given to what incidences could be expected to occur to the given Tree under 'normal' weather conditions over the next 12-month time period from the time of the assessment in accordance with QTRA guidelines.

6. Summary of Key Findings

6.1 General Comment

70 Trees identified and included in the assessment, varying in species, size, age, and condition.

Attachment 1 of this report provides a guide to their location.

With the possible exception of some of the larger older Tuart (*Eucalyptus gomphocephala*) on this Site, all of the Trees looked to have been planted in various stages over the 'life' of Beale Park.

6.2 Species Identified

23 different species were identified including some local West Australian Native species, species native to other parts of Australia as well as some introduced 'exotic' species of tree.

Table 1; List of Species Identified

Species	No of	Origin
Argyle Apple (<i>Eucalyptus cinerea</i>)	1	Aus Native
Bangalay (<i>Eucalyptus botryoides</i>)	1	Aus Native
Bottlebrush Kings Park Special (<i>Callistemon</i> 'Kings Park Special')	4	Aus Native
Bracelet Honey Myrtle (<i>Melaleuca armillaris</i>)	2	Aus Native
Coastal Moort (<i>Eucalyptus utilis</i>)	2	WA Native
Flooded Gum (<i>Eucalyptus rudis</i>)	1	WA Native
Hills Fig (<i>Ficus microcarpa</i> var 'hillii')	3	Exotic/Introduced
Italian Cypress (<i>Cupressus sempervirens</i>)	1	Exotic/Introduced
Lemon Scented Gum (<i>Corymbia citriodora</i>)	14	Aus Native
Norfolk Island Pine (<i>Araucaria heterophylla</i>)	1	Aus Native
Northern River Red Gum (<i>Eucalyptus camaldulensis</i> subsp. 'Obtusa')	1	Aus Native
Olive (<i>Olea europaea</i>)	1	Exotic/Introduced
Red Flowering Gum (<i>Corymbia ficifolia</i>)	1	WA Native
River Red Gum (<i>Eucalyptus camaldulensis</i> subsp. 'Camaldulensis')	3	Aus Native
River Sheoak (<i>Casuarina cunninghamiana</i>)	6	Aus Native
Rough Barked Apple Gum (<i>Angophora floribunda</i>)	1	Aus Native
Swamp Mahogany (<i>Eucalyptus robusta</i>)	9	Aus Native
Tasmanian Blue Gum (<i>Eucalyptus globulus</i>)	5	Aus Native
Tuart (<i>Eucalyptus gomphocephala</i>)	8	WA Native
Umbrella (<i>Schefflera actinophylla</i>)	1	Exotic/Introduced
Variegated Fig (<i>Ficus benjamina</i> Variegata)	1	Exotic/Introduced
West Australian Peppermint (<i>Agonis flexuosa</i>)	2	WA Native
Yellow Box (<i>Eucalyptus melliodora</i>)	1	Aus Native

None of the tree species identified on the Site are considered to be (or are known to be classed as) an endangered species, or found on the Environment Protection and Biodiversity Conservation Act 1999. However although not necessarily a rare or endangered species, the Rough-barked Apple Gum (*Angophora floribunda*) is considered to be a relatively uncommon species for the Perth metro area.

None of the tree species identified are known to have been declared a weed species⁵.

⁵ Reference; Declared Plant Species in Western Australia (Department of Agriculture and Food, Western Australia 2008)

6. Summary of Key Findings

6.3 Condition

6.3.1 Health Condition

The majority of the Trees at this Site showed to be in good health based on the condition of their leaf and overall volume of leaf mass present. Whilst a number of the Trees showed to have small amounts of varying diameter sized deadwood in their canopy, for the most part it looks to have occurred as part of the natural growth processes of tree's rather than being caused by any pest or disease pathogen.

Some of the Swamp Mahogany (*Eucalyptus robusta*) were showing indications of a declining health; cause difficult to determine based on visual observations alone and would require further investigation if it was required to be verified. However the signs/symptoms being exhibited look to be more typical to abiotic factors rather than any treatable pest or disease pathogen. As a result, some of the Trees of this species may have fairly short life span remaining.

Signs to suggest the presence of Cypress Canker (*Seiridium cardinale*) was noted in the Italian Cypress (*Cupressus sempervirens*) specimen, and looks to be impacting its health to some extent. As a result, that tree may also have limited life span remaining as treatment measures for the pathogen are not always successful.

Marri Canker (*Quambalaria coyrecup*) was noted in the Red Flowering Gum (*Corymbia ficifolia*), and its presence looks to be impacting the health of that Tree with large parts of its canopy showing indications of decline. As a result, that tree may also have fairly limited life span remaining as at this time there are no documented methods of control for this fungal disease.

The canopy of the large mature Norfolk Island Pine (*Araucaria heterophylla*) was also considered to be slightly sparse for a specimen of its species at its given size/age and is possibly showing early indications of a declining health (either due to its age or presence of a pest/disease pathogen).

'Witches Broom' (caused by Armoured Scale; *Maskellia globosa*) was noted in a number of the Tuart. At this time its presence looks to having marginal impact to their health at this time. Note: This is a host specific pest and generally only affects Tuart. Other species present at this School are unlikely to be affected by this pest insect. Treatment is generally not required.

Bark damage (typical of that caused by mowers/whippa-snippa's or the like) was also noted at the base of a number of the Trees at this Site. Research has shown that repeated damage to the base of the main stem of trees disrupts the flow of water and nutrients through vascular tissue due to natural responses by the tree to the damage caused⁶.

There was no clearly visible evidence of any other issues that could have a major impact to the health of the Trees on this Site at the time of the inspection, and any tree health/vitality issues noted were considered to be associated with 'abiotic factors' such as environmental factors (heat, light, wind exposure), and/or their age and natural life span of their species and/or impact from activities being undertaken around them.

⁶ The Effects of Strimmer Damage to Young Ash Trees; S. A Schuck, D. Slater Arboricultural Journal, 2018, Vol 40, No.4

6. Summary of Key Findings

6.3.2 Structural Condition

The majority of the Trees showed to have what is considered to be good (typical) structural form for specimens of their given species.

Some of the Trees were noted to have developed relatively one-sided canopy form due to the presence and influence of adjacent larger trees.

Branch failures were noted to have occurred in a number of the Trees. Although times/dates of each failure event are not known, the nature of the wounds created would suggest that most probably occurred as a result of force loading (i.e. storm/strong wind) related causes, with the possible exception of one failure event on one of the Lemon Scented Gum which may have been due to the sudden branch drop phenomenon.

There was some evidence of bark damage typical to that caused by birds (usually Pink and Grey Galah; *Eolophus roseicapilla*) on some of the larger Eucalypts, and whilst its occurrence does not appear to have affected the health of the Trees in question it can have longer-term implications with the structural integrity of that part of the tree due to the onset of decay at that point.

Areas of decay were noted in the lower main stem of a couple of the Trees, but for the most part the extent present does not appear to be at a point where the structural integrity of those Trees is being compromised to a point where they will have an increased potential for failure as a result.

All of the Trees looked to be remaining root stable at the time of the assessment.

6. Summary of Key Findings

6.4 Risk of Harm

Of the 70 Trees using the QTRA method of risk assessment:

- The RoH assessed with two of the Trees has been assessed at $1/3,000$, one at $1/5,000$ and one at $1/10,000$.

This is below the General Limit of Tolerability when the risk is imposed onto others (unless by agreement with the parties exposed to the risk). Mitigation of the risk assessed can be undertaken by way of canopy works; details of which have been provided as an attachment to this report.

- A further three of the Trees were assessed to represent a RoH of $1/30,000$, 18 at $1/50,000$, one at $1/100,000$, one at $1/300,00$, and one at $1/500,000$.

These levels are within the Tolerable Range when the risk is imposed on others, although measures could be undertaken to mitigate the risk and reduce the risks associated with these Trees even further by way of canopy works so that they would then be as low as reasonably practicable whilst still retaining the Trees.

Details of the canopy works has been provided as an attachment to this report.

- The RoH assessed with the remaining 42 Trees on this Site were assessed to be $<1/1,000,000$.

This is within the Broadly Acceptable of tolerance to risk and is in many respects already as low as reasonably practicable whilst still retaining the benefits that the trees currently provide.

As such no canopy works are considered necessary on those Trees from a risk management point of view, although some have been suggested on two Trees for other reasons associated with the management of trees.

The risk of harm assessed from the Trees has been overlaid onto an aerial of the Site overleaf for reference, and an attachment to this report provides a table of information on each of the Trees included in this assessment.

6. Summary of Key Findings



6. Summary of Key Findings

6.5 Carnaby Cockatoo

Of the 23 different species of tree identified on the Site, 13 species were found to be species to have some level of importance for habitat for Carnaby Cockatoo (*Calyptrorhynchus latirostris*)⁷, and comprises 58 the 70 Trees included in the assessment.

In accordance with Commonwealth Government legislation, 38 of those 58 Trees were noted to have a main stem diameter ≥500mm (measured at 1.4 metres above ground level).

Table 2; List of Species Identified as Black Carnaby Cockatoo Habitat

Species	Feeding	Nesting	Roosting	Priority for Planting	No of trees on Site	No of Trees with DBH ≥500mm	ID No's for those Trees
Bottlebrush Kings Park Special (<i>Callistemon</i> 'Kings Park Special')				Medium	4	0	
Flooded Gum (<i>Eucalyptus rudis</i>)				Low	1	1	16
Hills Fig (<i>Ficus microcarpa</i> var 'hillii')				Low	3	3	66, 67, 70
Lemon Scented Gum (<i>Corymbia citriodora</i>)				Medium	14	11	18, 37, 49, 50, 51, 52, 53, 54, 55, 65, 69
Norfolk Island Pine (<i>Araucaria heterophylla</i>)				Low	1	1	58
Northern River Red Gum (<i>Eucalyptus camaldulensis</i> subsp. 'Obtusa')				Low	1	0	
Red Flowering Gum (<i>Corymbia ficifolia</i>)				Medium	1	1	61
River Red Gum (<i>Eucalyptus camaldulensis</i> subsp. 'Camaldulensis')				Low	3	3	2, 8, 11
River Sheoak (<i>Casuarina cunninghamiana</i>)				Low	6	2	23, 48
Swamp Mahogany (<i>Eucalyptus robusta</i>)				Medium	9	2	15, 36
Tasmanian Blue Gum (<i>Eucalyptus globulus</i>)				Low	5	5	7, 21, 39, 40, 43
Tuart (<i>Eucalyptus gomphocephala</i>)				High	8	8	3, 5, 9, 12, 28, 32, 41, 42
West Australian Peppermint (<i>Agonis flexuosa</i>)				Low	2	1	59

⁷ www.dec.wa.gov.au/plantsforcarnabys; Plants Used by Carnaby's Black Cockatoo; Department of Environment and Conservation, April 15 2011;

7. Review of Paperbark Technologies Report

A review of the Paperbark Technologies report found a number of differences in opinion of the Risk Rating for **most of the Trees**.

The statement in the Report that the “Risk of Harm of 1/5,000 which means that these trees pose an unacceptable level of risk to the public at this time” does also not match QTRA guidelines that states a risk of harm between 1/1,000 and 1/10,000 is still Tolerable if by agreement with the parties exposed to the risk.

Some of the species of tree present were found to have been misidentified by the authors of the Report, and the health and structural ratings allocated to some of the Trees was found to differ to my own opinion after my own assessment of the same Trees.

With a few exceptions, the physical dimensions (in terms of height, DBH and canopy spread) were found to be sufficiently accurate to be usable data.

With regards to the risk rating assessed to the various Trees, it is somewhat difficult to ascertain how the authors got to their Risk Rating conclusions as the variables applied using the QTRA methodology are not shown or detailed in the report with regards to:

- what the risk assessed with the given Tree was,
- what the Target of concern to that part of the Tree is and its Target Rating,
- what the Size of Part being assessed is, or
- what Probability of Failure has been applied to that part of the Tree.

The Report does provide some generic data regarding the allocation of Target ratings, Size of Part and Probability of Failure; but no specifics for each given Tree are provided.

The Trees allocated a risk of harm of 1/5,000 are at this time *assumed* to have been allocated a Target rating of ‘2’, a size of part ‘3’ (branches 110-250mm in diameter) and a probability of failure of ‘2’; as this will provide an outcome of 1/5,000.

It is also assumed that the author/assessor was looking at the deadwood in those Trees as that is all that has been recommended to be removed in the ‘recommended works’ column of the table that accompanies the Report.

However, the deadwood in most of those particular Trees looks to be ≤8-10cm in diameter, so a size of part of ‘4’ (and not ‘3’) should have been applied which would have resulted in a lower Risk Rating.

A Probability of Failure of ‘2’ is generally considered to be relatively high, although in some instances it was considered justifiable based on the condition of the part assumed to have been assessed. In other instances however the Probability of Failure rating allocated looks to be higher than what I have assessed. However, without sufficient amounts statistical data this part of the QTRA system will always be open to personal opinion and experiences of the assessor.

As a result, much of the Risk Ratings allocated differ to my own assessment and the accuracy of the assessment that has been undertaken on the Trees by the author of the Report is considered questionable.

The subsequent recommendations for canopy works were also considered to be vague in their specification; which can result in misinterpretation by the contractor used to undertake the works as to the extent of works that the author may have assessed to be required to address the issues assessed to have been present at the time the inspection was undertaken.

7. Review of Paperbark Technologies Report

The number of Trees stated in the Report as potential habitat for Carnaby Cockatoo was noted to be considerably lower than what is present on the Site when referencing the document cited⁸ and my own findings from the inspection of the Trees. Some of the information pertaining the Carnaby Cockatoo habitat also looks to be inaccurate when cross-referenced to the literature cited in the Report. Example; Lemon Scented Gum is listed as being used for Feeding and Roosting in the Department of Environment and Conservation documentation used, whereas it is stated as having “low importance” in the Report and “considered unfavourable for foraging, nesting and roosting”.

With regards to the remainder of the Paperbark Technologies Report, although it is somewhat generic in its nature some of the information provided does reflect best practices with regards to the protection of trees as part of a development process and reference to the allocation of (nominal) TPZ areas.

However, the format of the report was found to be confusing in its layout, and was found to not necessarily provide any clear guidelines or guidance with regards to any recommendations that are made or in relation to the proposed development or impact it may have to the Trees.

⁸ www.dpaw.wa.gov.au/apps/plantsforcarnabys/index.html

8. Comments on the Proposed Development; Potential Impact to the Trees

Based on the Plan provided the development looks likely to require the removal of 12 Trees including:

- a large mature Tuart (Tree #32)
- a large mature (very good) Rough Barked Applied Gum (Tree #37),
- six large mature Lemon Scented Gum (Trees #49 - #53 and #66), and
- two large mature Hills Fig (Trees #66 and #70).
- Two small Bottlebrush (Trees #13 and #14) also look to be required to be removed.

With the exception of the Rough Barked Apple Gum and the Bottlebrush specimens, all of these larger Trees meet the Department of Environment and Conservation criteria as potential habitat for Carnaby Cockatoo in both their species and size (trunk diameter) requirement.

The Tuart in particular are considered to have a high value for purposes of habitat and are cited as being used for feeding, nesting and roosting of Carnaby Cockatoo.

Impact to a number of the other Trees on this Site may also occur depending on details of the design and construction requirements for the areas around the Trees.

If any of these Trees are desired (or required) to be retained as part of the development then changes to the design and/or layout will likely be required.

However, changes to the current design then may impact on other Trees on the Site (or other aspects of the requirements of the development) so a degree of further arboricultural input would be required to review the condition of Trees and their retention value in the context of a development process.

9. Further Considerations and Suitability for inclusion into an area of Development

9.1 General Comments

In some respects the approach that appears to have been adopted may not have been the most appropriate to use in the context of a development process.

Whilst the QTRA system is an effective method of tree risk assessment and does have its part in the management of trees, there are other aspects to the management of trees that also need to be considered as part of a development process; particularly the condition of the given tree, any environmental or aesthetic amenity benefits it may have, whether any risks associated with the given tree are within the realms and scope of management, and if its suitability for retention in the context of what may be proposed to occur and what issues it may represent once the development has been completed. QTRA can form part of this process if necessary, but should (in my opinion) not necessarily be the main consideration in the decision process.

9.2 Retention Value

Retention value of the various tree species and even individual tree specimens on a site that is to be developed will always be open to some personal opinion. In general trees displaying good health and deemed to have a good aesthetic quality will be generally considered to have a high retention value. Conversely, dead or declining trees, or tree species known (or considered) to be problematic in terms of having a propensity for branch failures, or ones that could self-seed freely, or one that display low aesthetic traits would typically be considered to have a low retention value.

Whilst many of the Trees on this Site may have environmental benefits and be a source of habitat for Carnaby Cockatoo's, as part of ascertaining the suitability for inclusion into the proposed development there are other aspects that must also be considered.

With this in mind, on this Site;

- There are three very good large mature trees on the Site that are considered to have a high retention value. This includes the two larger older Tuart (Trees #28 and #32), and the large mature Rough Barked Apple Gum (Trees #35; which is considered to be a particularly good example of a specimen of this species for the Perth metro area).
- Conversely there are a number of Trees that look to be declining in health and may have a comparatively short life span remaining as a result; which may also be further impacted by the development of the area around them depending on what level of root zone disturbance occurs during the process. Those Trees are generally considered to have a 'low' retention value in the context of a development process.
- There a number of the Trees are considered to be more suited to lower use/lower Target areas of open space where the potential issues and risks associated with those Trees can be better managed. This is not to say that they could not be successfully managed within an urbanised situation. However they may either have higher management requirements, or retain a higher propensity for branch failures that management may not be able to mitigate by way of canopy pruning without resorting to excessive canopy reduction (i.e. topping); at which point the retention of the Tree may become questionable anyway.
- The remaining Trees were considered to be suitable for retention as part of a development process. Those Trees are generally considered to be reasonably good (i.e. typical) specimens of their given species and would be suitable for retention in the context of what is proposed.

The aerial overleaf provides an overview of the Site with the retention value of each Tree overlaid and colour coded for ease of reference.

9. Further Considerations and Suitability for inclusion into an area of Development



Key

- High Retention Value Trees
- Suitable Trees
- Trees that may have higher risks/management requirements
- Low retention value trees (mostly declining trees)
- Very Low retention value trees (small trees insignificant to the landscape)

Client; City of Cockburn
Project; Assessment of Trees; Beale Park
Drawn by; J Royal
Revision; 0
Date; 30/06/2021
Aerial Source; Nearmap.com



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9. Further Considerations and Suitability for inclusion into an area of Development

9.3 Tree Protection; Design Stage

The retention value of each Tree is suggested to be considered as part of the design and decision process of the development of the Site.

As an initial recommendation:

1. Efforts are recommended to be spent on the inclusion and retention of the Trees with higher retention value and those that are considered 'suitable'; even if it needed to come at the 'sacrifice' of other Trees on the Site with a lower retention value.
2. Retention of some of the individual Trees that may have higher risks/management requirements may need to be subject to further discussion and considerations during the design process.
3. The nominal TPZ of each Tree is recommended to be overlaid onto all development plans used during the design process.

Where encroachments into a designated TPZ are found to be required, further discussion with an experienced independent arboricultural consultant will be required if the Tree is desired to be retained as part of the development.

This is not to say that some encroachment and development activity would not be permitted to be undertaken within a TPZ area as part of a development process.

However any encroachment required/proposed will require further input and discussion with the arboricultural consultant as part of any detailed design process to determine what the potential impact on the given Tree will be, and what design modifications or measures may need to be implemented to mitigate any potential negative impact on the given Tree.

If considered necessary, some exploratory excavation works may also be required to verify actual root spread and determine what impact could occur.

During the design process further arboricultural input will likely be required to discuss:

- Current existing ground levels and proposed resulting levels of the various areas of the Site. Note: As previously mentioned, retaining and maintaining current existing ground levels within the designated TPZ of any tree is of paramount importance to the success of tree retention.
- Delineation of any underground services pipework including drainage, sewerage, water, gas, electricity, telecommunications and the like; specifically should they pass through any designated TPZ.
- Location of any drainage near to the Trees and their TPZ.
- Any site remediation requirements within TPZ areas as part of the Site clearing process.

9. Further Considerations and Suitability for inclusion into an area of Development

Once development design has been furthered, tree protection method statements are recommended to be drafted for use during the construction stages of the development and include specific details of any:

- Protection measures for each Tree's TPZ area,
- Any specific specifications for any works designed to occur within a TPZ area during the construction process,
- Any canopy pruning works,
- Any watering requirements,
- Any monitoring requirements during construction

Including a degree of further arboricultural input is considered key to the success of the retention of any of the Tree's during the proposed development, and effective protection of trees during a development process must begin with good design and construction specifications so that physical impact to any Tree's root zone during the construction stages will be limited.

9.4 Physical Protection of Trees during Development

Physical protection measures in accordance with AS 4970 will be required for any Tree selected for retention; details of any measures to be implemented will be very much dependent on the final detailed design.

It will be of critical importance that the appropriate protection measures are set up and maintained from the outset; i.e. from demolition stages through to final landscape.

Implementing tree protection measures after damage has occurred from works is often of little to no value other than affording some protection from further damages occurring.

However effective protection of trees as part of a development process must begin with good design so that the physical protection of trees during the construction stages of a development will be practicably possible.

9.5 Canopy Works

Varying amounts of canopy work look likely to be required on a number of the Trees as part of the development process to address the risks identified with those Trees.

Some initial recommendations on the extent of canopy works required for the Trees has been provided in this report, although final details and full extent of canopy works required for each Tree may change to some extent.

All canopy works are recommended to be undertaken by suitably qualified and experienced tree surgeons, who possess a minimum qualification of AQF certificate 3 arboriculture or recognised equivalent qualification. All canopy pruning works must also comply with Australian Standards 4373; Pruning of Amenity Trees.

A degree of on-site discussion with the nominated contractor may be required to verify the extent of canopy works required for each Tree and the standards of work required.

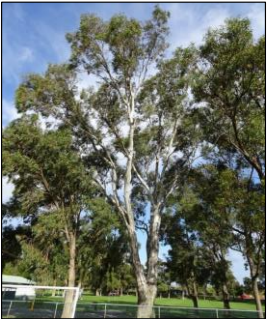
Attachments to the Report

Attachment 1;	Table of Information/QTRA Assessment
Attachment 2;	Tree Location Guide with works overlaid
Attachment 3;	Table of Recommended Tree Works
Attachment 4;	References
Attachment 5;	Company Information and Disclaimer

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables						Management
								Risk Assessed	Target	T	SoP	PoF	RoH	
1	Lemon Scented Gum (<i>Corymbia citriodora</i>)	EM	9.5	340	G		Good specimen. No issues or concerns visible at this time. Very minor amount of smaller deadwood (<3-5cm diameter) in canopy	Deadwood over Target area	Car park (parked cars)	4	Property	4	<1/1M	No canopy works look to be required at this time
2	River Red Gum (<i>Eucalyptus camaldulensis</i> subsp. 'Camaldulensis')	M	18.5	630	G		Large mature specimen. Minor amount of smaller and moderate diameter sized deadwood present in its canopy (all <5-6cm in diameter). Otherwise ok	Deadwood over Target area	Sports Field	2	4	4	<1/1M	No canopy works look to be required at this time
3	Tuart (<i>Eucalyptus gomphocephala</i>)	EM	11	690	G		Reasonably good specimen. Minor amount of smaller and moderate diameter sized deadwood present in its canopy. Co-dominant leader. Union looks to be ok at this time but may cause future issues	Deadwood over Target area	Car park (parked cars)	4	Property	4	<1/1M	No canopy works required at this time from a risk point of view but suggest remove the co-dominant leader before it gets too much larger or starts to cause issues. If undertaken suggest remove any noticeable deadwood at the same time but no other canopy thinning required

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
4	Coastal Moort (<i>Eucalyptus utilis</i>)	M	8.5	620	G		Large mature specimen. Area of decay in lower main stem but is not of a major concern at this time. Canopy looks one sided (west) due to past pruning and removal of (what is assumed to have been) large part of its canopy	Failure of first order branch structure (>450mm diameter- SoP 1)	Car park (parked cars)	3	Property	6	<1/1M	No canopy works required at this time. Monitor decay
5	Tuart (<i>Eucalyptus gomphocephala</i>)	EM	9.5	570	G		Good specimen. No issues or concerns visible at this time. Minor amount of deadwood over the Target area; up to 8-10cm diameter	Deadwood over Target area	Car park (parked cars)	3	Property	3	1/30,000	Remove larger/moderate diameter sized deadwood. (Literally 3-4 pieces over the Target area)
6 (Tag Missing)	Swamp Mahogany (<i>Eucalyptus robusta</i>)	M	9	320	M		Ok tree. Leggy canopy form. Canopy slightly sparse. Remaining leaf still good condition. Minor amount of smaller and moderate diameter sized deadwood present in its canopy (up to around 5-6cm in diameter)	Deadwood over Target area	Car park (parked cars)	4	Property	4	<1/1M	No canopy works required at this time

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables						Management
								Risk Assessed	Target	T	SoP	PoF	RoH	
7	Tasmanian Blue Gum (<i>Eucalyptus globulus</i>)	M	13	560	G		Reasonably good specimen. Few dead tips/ some deadwood but otherwise ok. Largest deadwood looks to be 8-10cm in diameter over the sports field area	Deadwood over Target area	Sports Field	2	4	2	1/50,000	Remove larger/moderate diameter sized deadwood. No canopy thinning required
8	River Red Gum (<i>Eucalyptus camaldulensis</i> subsp. 'Camaldulensis')	M	15.5	560	G		Reasonably good specimen. Minor amount of smaller and moderate diameter sized deadwood present in its canopy over the Target area; all <10cm diameter	Deadwood over Target area	Car park (parked cars), Sports Field	4	Property	2	1/30,000	Remove larger/moderate diameter sized deadwood. No canopy thinning required
9	Tuart (<i>Eucalyptus gomphocephala</i>)	EM	16	710	G		Large mature specimen. Minor amount of moderate diameter sized deadwood. Leggy canopy form. Largest deadwood looks to be 8-10cm in diameter	Deadwood over Target area. Failure of (live) branches over Target area (260-450mm diameter-SoP 2)	Sports Field	2	4	2	1/50,000	Remove larger/moderate diameter sized deadwood. Suggest also remove the low NE branch and reduce northern branch. No other canopy thinning required

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
10	Swamp Mahogany (<i>Eucalyptus robusta</i>)	EM	11	310	G		Ok tree. Leggy canopy form. No issues or major concerns visible at this time	Failure of live branches over Target area (<100mm diameter-SoP 4)	Sports Field, Car park	2	4	6	<1/1M	Not a risk at this time but suggest remove the low northern branch and canopy works on the adjacent Tree will increase exposure to that part of this Tree
11 (Tag Missing)	River Red Gum (<i>Eucalyptus camaldulensis</i> subsp. 'Camaldulensis ')	M	19.5	1260	G		Large mature specimen. Main stem bi-furcates. Union looks to be Ok at this stage. Evidence of previous branch failure (100-200mm diameter). Minor amount of smaller and moderate diameter sized deadwood present in its canopy up to 8-10cm diameter. Root buttress causing damage to the edge of the car park	Deadwood over Target area	Sports Field, Car park	2	4	2	1/50,000	Remove larger/moderate diameter sized deadwood. Remove the remains of the broken branch. No canopy thinning required
12 (Tag Missing)	Tuart (<i>Eucalyptus gomphocephala</i>)	EM	12.5	660	G		Good specimen. Canopy is one sided north. Weight loading noted in sections of canopy	Failure of live branches over Target area (110-260mm diameter-SoP 3)	Car park	3	Property	4	1/300,000	Low risk but suggest remove the low branch eastern side and reduce loading over the car park area. Remove any noticeable deadwood

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
13	Bottlebrush Kings Park Special (<i>Callistemon</i> 'Kings Park Special')	M	3.5	150	G		Ok smaller tree. Previously topped but not of any concerns	Failure of live branches over Target area (<100mm diameter-SoP 4)	Footpath	2	4	7	<1/1M	No canopy works required at this time
14	Bottlebrush Kings Park Special (<i>Callistemon</i> 'Kings Park Special')	M	3	150	F		Apical sections of its canopy are dead/declining. Previously topped tree. Canopy condition suggests possibly limited life remaining	Failure of live branches over Target area (<100mm diameter-SoP 4)	Footpath	2	4	7	<1/1M	No canopy works required at this time
15 (Tag Missing)	Swamp Mahogany (<i>Eucalyptus robusta</i>)	EM	20	540	M		Large mature specimen. Leggy canopy form. Evidence of a history of (various sized) branch failures (storm damage). Marginal weight loading at this time	Failure of live branches over Target area (<100mm diameter-SoP 4)	Sports Field	2	4	4	<1/1M	No canopy works required at this time

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
16	Flooded Gum (<i>Eucalyptus rudis</i>)	M	21.5	730	G		Large mature specimen. Weight loading noted in sections of canopy over the car park. Broken branch in canopy	Broken branch. Failure of (live) branches over Target area (260-450mm diameter-SoP 2)	Car park	3	Property	2	1/3,000	Remove broken branch. Remove low branch extending over the car park. Reduce loading on the branch above that
17	Lemon Scented Gum (<i>Corymbia citriodora</i>)	EM	17	430	G		Reasonably good specimen. Marginal weight loading at this time. Evidence of a previous large diameter branch failure. No deadwood of note or weight loading at this time	Failure of live branches over Target area (110-260mm diameter-SoP 3)	Sports Field, Car park	3	Property	6	<1/1M	No canopy works required at this time from a risk point of view but suggest to tidy the remains of the broken branches
18	Lemon Scented Gum (<i>Corymbia citriodora</i>)	EM	18	530	G		Large mature specimen. Minor amount of moderate diameter sized deadwood up to 8-10cm in diameter over the car park area. Weight loading noted in sections of canopy. Looks to be causing disturbance issues to the car park edge	Deadwood over Target area. Failure of (live) branches over Target area (260-450mm diameter-SoP 2)	Car park	3	Property	2	1/3,000	Remove larger/moderate diameter sized deadwood. Remove 1x branch extending over the car park. No other canopy thinning required

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
19	River Sheoak (<i>Casuarina cunninghamiana</i>)	EM	20	460	G		Good specimen. No issues or concerns visible at this time	Failure of live branches over Target area (<100mm diameter- SoP 4)	Sports Field	2	4	6	<1/1M	No canopy works required at this time
20	Swamp Mahogany (<i>Eucalyptus robusta</i>)	M	13.5	480	G		Reasonably good specimen. No issues or concerns visible at this time	Failure of live branches over Target area (<100mm diameter- SoP 4)	Sports Field, Car park	2	Property	6	<1/1M	No canopy works required at this time. Surface roots in the pitch could possibly be cut if desired
21	Tasmanian Blue Gum (<i>Eucalyptus globulus</i>)	M	14.5	580	G		Reasonably good specimen. No issues or concerns visible at this time. Canopy slightly sparse. Remaining leaf still good condition. Smaller deadwood (<3-5cm diameter) in canopy	Failure of live branches over Target area (<100mm diameter- SoP 4)	Sports Field	2	4	3	<1/1M	No canopy works required at this time

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
22	Italian Cypress (<i>Cupressus sempervirens</i>)	PM	6.5	800	MD		Old tree. Canopy indicates decline; possibly due to Cypress Canker but bark damage at the base of its main stem (whippa-snippa) may also be a contributing factor. Has been topped; assumed removal of dead sections. Some loading noted on branch extending over the verge. Some smaller deadwood; all <10cm in diameter	Failure of live branches over Target area (<100mm diameter-SoP 4). Deadwood over Target area	Sports Field	2	4	5	<1/1M	No canopy works required at this time. May need to be removed should further decline occur
23	River Sheoak (<i>Casuarina cunninghamiana</i>)	M	15	630	G		Good specimen. No issues or concerns visible at this time	Failure of live branches over Target area (<100mm diameter-SoP 4)	Car park	3	Property	7	<1/1M	No canopy works required at this time
24	Swamp Mahogany (<i>Eucalyptus robusta</i>)	EM	21.5	480	G		Canopy is one-sided north due to proximity of the adjacent tree and has grown on a slight lean as a result. Not a major issue or concern at this time but may cause issues longer term	Failure of live branches over Target area (110-260mm diameter-SoP 3)	Car park	3	Property	5	<1/1M	No canopy works required at this time. Possibly wouldn't be missed from the landscape if removed.

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
25	Bangalay (<i>Eucalyptus botryoides</i>)	M	16	630	G		Large mature tree. Currently shows good health and form. Broken branch in canopy. Bark damage at branch unions (typical of birds)	Broken branch	Sports Field	2	4	2	1/50,000	Remove broken branch. Suggest remove the low branch extending over the sports field x2 (bark damage at unions) and any larger diameter deadwood
26	River Sheoak (<i>Casuarina cunninghamiana</i>)	M	12.5	480	G		Good specimen. No issues or concerns visible at this time	Failure of live branches over Target area (<100mm diameter- SoP 4)	Car park, Sports Field	3	Property	6	<1/1M	No canopy works required at this time
27	West Australian Peppermint (<i>Agonis flexuosa</i>)	EM	5.5	420	G		Good specimen. No issues or concerns visible at this time. Canopy is one-sided north due to proximity of the adjacent tree. Broken branch (from the Tuart) lodged in the canopy	Broken branch in canopy	Car Park	3	Property	3	1/30,000	No canopy works required at this time from a risk point of view on the Tree but suggest to remove the broken branch lodged in its canopy

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
28	Tuart (<i>Eucalyptus gomphocephala</i>)	M	21.5	1150	G		Large mature specimen. Small diameter (<10cm) broken branch hanging in the canopy. Minor amount of smaller and moderate diameter sized deadwood present in its canopy. Weight loading noted in sections of canopy	Broken branch. Failure of live branches over Target area (110-260mm diameter-SoP 3)	Sports Field	2	4	2	1/50,000	Suggest remove the broken branch and reduce loading in the low canopy over the car park
29	River Sheoak (<i>Casuarina cunninghamiana</i>)	EM	12.5	400	G		Good specimen. No issues or concerns visible at this time	Failure of live branches over Target area (<100mm diameter-SoP 4)	Sports Field	2	4	7	<1/1M	No canopy works required at this time
30	Bracelet Honey Myrtle (<i>Melaleuca armillaris</i>)	M	5.5	400	G		Reasonably good specimen. No issues or concerns visible at this time	Failure of live branches over Target area (<100mm diameter-SoP 4)	Sports Field	2	4	7	<1/1M	No canopy works required at this time

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
31	Bracelet Honey Myrtle (<i>Melaleuca armillaris</i>)	M	5	400	F		Reasonably good specimen. Apical sections of its canopy look to be dead/declining so it may have fairly short life span remaining	Failure of live branches over Target area (<100mm diameter- SoP 4)	Sports Field	2	4	7	<1/1M	No canopy works required at this time. May need to be removed should further decline occur
32	Tuart (<i>Eucalyptus gomphocephala</i>)	M	22	1130	G		Large mature specimen. Minor amount of moderate diameter sized deadwood. Small diameter (<10cm) broken branch hanging in the canopy	Deadwood over Target area	Sports Field	2	3	3	1/50,000	Suggest remove larger deadwood. No canopy thinning required
33	Yellow Box (<i>Eucalyptus melliodora</i>)	EM	12	420	G		Reasonably good specimen. No issues or concerns visible at this time. Part of a group of trees in close proximity that effectively form the one canopy	Failure of live branches over Target area (<100mm diameter- SoP 4)	Sports Field	2	4	7	<1/1M	No canopy works required at this time

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
34	Northern River Red Gum (<i>Eucalyptus camaldulensis</i> subsp. 'Obtusa')	EM	15	400	G		Species generally considered to be a higher risk species for the propensity for branch failures. Part of a group of trees in close proximity that effectively form the one canopy. Branch union with included bark; branch extending over the sports field	Failure at union. Failure of (live) branches over Target area (260-450mm diameter-SoP 2)	Sports Field	2	2	4	1/50,000	Suggest remove the branch extending over the sports field as its PoF will probably increase over time with growth
35	Rough Barked Apple Gum (<i>Angophora floribunda</i>)	M	19.5	980	G		Large mature specimen. High aesthetic and amenity value. Very good specimen of its species. Minor amount of moderate diameter sized deadwood. Small diameter (<10cm) broken branch hanging in the canopy. Bark damage noted (typical of that caused by birds). Looks to have been over thinned to some extent	Broken branch, Deadwood over Target area.	Sports Field, Clubrooms	2	4	1	1/5,000	Remove broken branch. Remove larger/moderate diameter sized deadwood. No canopy thinning required
36	Swamp Mahogany (<i>Eucalyptus robusta</i>)	EM	16.5	500	G		Reasonably good specimen. No issues or concerns visible at this time. Canopy is one-sided north. Bark damage to base of main stem (whippa-snippa). Minor amount of smaller diameter sized deadwood	Deadwood over Target area	Sports Field	2	4	4	<1/1M	No canopy works required at this time

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables						Management
								Risk Assessed	Target	T	SoP	PoF	RoH	
37	Lemon Scented Gum (<i>Corymbia citriodora</i>)	EM	13	500	G		Ok tree. Canopy is one-sided north. Minor amount of moderate and larger diameter sized deadwood (up to around 9-12cm in diameter). Bark damage to base of main stem (whippa-snippa)	Deadwood over Target area	Sports Field	2	3	3	1/50,000	Remove larger deadwood. No canopy thinning required
38	Swamp Mahogany (<i>Eucalyptus robusta</i>)	EM	17	370	P		Canopy condition suggests possibly limited life remaining. Leaf is chlorotic (yellow) in appearance. Leggy canopy form. Bark damage to base of main stem (whippa-snippa)	Failure of live branches over Target area (<100mm diameter-SoP 4)	Sports Field	2	4	5	<1/1M	No canopy works required at this time. May need to be removed should further decline occur
39	Tasmanian Blue Gum (<i>Eucalyptus globulus</i>)	M	16.5	660	G		Large mature specimen. Ok tree. Canopy is relatively one-sided east due to proximity of the adjacent tree. Minor amount of moderate and larger diameter sized deadwood present in its canopy including some 12-15cm diameter sized parts (although most is smaller and <10cm in diameter). Effectively forms the one canopy with the adjacent Tree	Deadwood over Target area	Sports Field	2	3	3	1/50,000	Suggest remove larger deadwood. No other canopy works required

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables						Management
								Risk Assessed	Target	T	SoP	PoF	RoH	
40	Tasmanian Blue Gum (<i>Eucalyptus globulus</i>)	M	17.5	620	M		Large mature specimen. Effectively forms the one canopy with the adjacent Tree. Minor amount of moderate and larger diameter sized deadwood present in its canopy including some 10-11cm diameter sized parts (although most is smaller and <10cm in diameter). Canopy slightly sparse. Remaining leaf still good condition	Deadwood over Target area	Sports Field	2	3	3	1/50,000	Suggest remove larger deadwood. No other canopy works required
41	Tuart (<i>Eucalyptus gomphocephala</i>)	M	20	850	G		Large mature specimen. Evidence of a history of (various sized) branch failures (storm damage). Minor amount of smaller and moderate diameter sized deadwood present in its canopy; all <10cm in diameter. Bark damage noted (typical of that caused by birds)	Deadwood over Target area	Sports Field	2	4	2	1/50,000	Suggest remove larger deadwood. No other canopy works required
42	Tuart (<i>Eucalyptus gomphocephala</i>)	M	21	740	G		Large mature tree. No issues or concerns visible at this time. Smaller deadwood (<3-5cm diameter) in canopy	Failure of live branches over Target area (<100mm diameter- SoP 4)	Sports Field	2	4	4	<1/1M	No canopy works required at this time

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables						Management
								Risk Assessed	Target	T	SoP	PoF	RoH	
43	Tasmanian Blue Gum (<i>Eucalyptus globulus</i>)	M	18	740	M		Large mature tree. Minor amount of moderate and larger diameter sized deadwood present in its canopy including one piece 18-20cm in diameter (although most is smaller and <10cm in diameter).	Deadwood over Target area	Sports Field	2	3	3	1/50,000	Suggest remove larger deadwood. No other canopy works required
44	River Sheoak (<i>Casuarina cunninghamiana</i>)	EM	14	300	M		Ok tree. Leggy canopy form. Canopy is one-sided due to proximity of the adjacent tree. No issues or major concerns visible at this time	Failure of live branches over Target area (<100mm diameter- SoP 4)	Sports Field	2	3	7	<1/1M	No canopy works required at this time
45	Coastal Moort (<i>Eucalyptus utilis</i>)	M	6.5	420	G		Reasonably good specimen. Area of decay. Possibly starting to impact its structural integrity to some extent but equally still looks to be ok at this time. Canopy has been over raised to some extent	Failure of main stem	Sports Field	2	2	6	<1/1M	No canopy work looks to be required at this time. Monitor decay

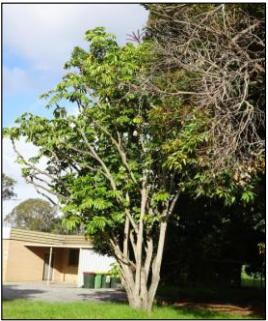
Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
46	Swamp Mahogany (<i>Eucalyptus robusta</i>)	EM	14.5	350	G		Ok tree. Leggy canopy form. Part of a group of trees in close proximity that effectively form the one canopy	Failure of live branches over Target area (<100mm diameter-SoP 4)	Sports Field	2	4	7	<1/1M	No canopy works required at this time
47	Swamp Mahogany (<i>Eucalyptus robusta</i>)	EM	14.5	410	G		Ok tree. Leggy canopy form. Part of a group of trees in close proximity that effectively form the one canopy	Failure of live branches over Target area (<100mm diameter-SoP 4)	Sports Field	2	4	7	<1/1M	No canopy works required at this time
48	River Sheoak (<i>Casuarina cunninghamiana</i>)	M	14	500	G		Good specimen. No issues or concerns visible at this time. Part of a group of trees in close proximity that effectively form the one canopy	Failure of live branches over Target area (<100mm diameter-SoP 4)	Sports Field	2	4	7	<1/1M	No canopy works required at this time

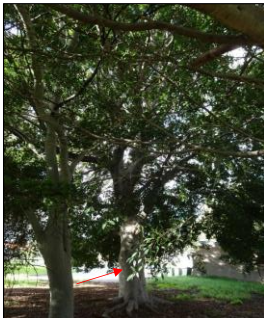
Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
49	Lemon Scented Gum (<i>Corymbia citriodora</i>)	M	18	890	G		Large mature specimen. Evidence of a fairly recent branch failure;250-300mm diameter sized part. Minor amount of moderate diameter sized deadwood; all around 8-10cm in diameter. Weight loading noted in sections of canopy	Failure of (live) branches over Target area (260-450mm diameter-SoP 2)	Sports Field, Clubrooms	2	2	4	1/100,000	Suggest remove the large northern branch. Tidy the remains of the broken branch and suggest remove any noticeable deadwood at the same time
50 (Tag Missing)	Lemon Scented Gum (<i>Corymbia citriodora</i>)	M	15.5	700	G		Large mature specimen. Canopy is relatively one-sided north due to proximity of the adjacent tree. Minor amount of moderate diameter sized deadwood up to 8-10cm in diameter	Deadwood over Target area.	Sports Field, Clubrooms	2	4	2	1/50,000	Suggest remove larger deadwood. No canopy thinning required
51 (Tag Missing)	Lemon Scented Gum (<i>Corymbia citriodora</i>)	M	14	560	G		Large mature tree. Minor amount of moderate diameter sized deadwood; all around 8-10cm in diameter. Weight loading noted in sections of canopy	Failure of live branches over Target area (110-260mm diameter-SoP 3)	Sports Field, Clubrooms	2	3	3	1/50,000	Suggest remove the low branch extending over the disabled parking bay and low branch extending over the roof. Suggest remove any noticeable deadwood at the same time. No other canopy thinning required

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables						Management
								Risk Assessed	Target	T	SoP	PoF	RoH	
52 (Tag Missing)	Lemon Scented Gum (<i>Corymbia citriodora</i>)	M	16.5	570	G		Large mature tree. Minor amount of moderate diameter sized deadwood; all around 5-6cm in diameter.	Deadwood over Target area	Sports Field	2	4	2	1/50,000	Suggest remove the noticeable deadwood. No canopy thinning required
53	Lemon Scented Gum (<i>Corymbia citriodora</i>)	M	17.5	570	G		Large mature tree. Minor amount of moderate diameter sized deadwood; all around 5-6cm in diameter. Bark damage to base of main stem (whippa-snippa)	Deadwood over Target area	Sports Field	2	4	2	1/50,000	Suggest remove the noticeable deadwood. No canopy thinning required
54	Lemon Scented Gum (<i>Corymbia citriodora</i>)	M	13	620	M		Large mature specimen. Some moderate and larger diameter deadwood in canopy. Section of its canopy is dead. Remainder ok	Deadwood over Target area	ASSUMED LANDSCAPED AREA, driveway, sports field	2	2	3	1/10,000	Remove larger deadwood/dead section. No canopy thinning required at this time

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables						Management
								Risk Assessed	Target	T	SoP	PoF	RoH	
55	Lemon Scented Gum (<i>Corymbia citriodora</i>)	M	15	600	G		Large mature specimen. Main stem bi-furcates. Union looks to be Ok at this stage. Canopy is one-sided north due to proximity of the adjacent tree. Looks to have grown on a lean. Looks to be root stable but retention may need to be reviewed should Targets within its Fall Zone change	Deadwood over Target area	ASSUMED LANDSCAPED AREA, driveway, sports field	2	3	3	1/50,000	Suggest remove the noticeable deadwood. No canopy thinning required
56	Variegated Fig (<i>Ficus benjamina</i> Variegata)	EM	7	240	M		No change visible since the Last Inspection. Ok tree. Canopy slightly sparse. Remaining leaf still good condition	Failure of live branches over Target area (<100mm diameter- SoP 4)	ASSUMED LANDSCAPED AREA	3	4	7	<1/1M	No canopy works required at this time
57	Lemon Scented Gum (<i>Corymbia citriodora</i>)	SM	11	220	M		Reasonably good specimen. No issues or concerns visible at this time	Failure of live branches over Target area (<100mm diameter- SoP 4)	ASSUMED LANDSCAPED AREA	3	4	7	<1/1M	No canopy works required at this time

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
58	Norfolk Island Pine (<i>Araucaria heterophylla</i>)	M	37	2000	M		Large mature specimen. Canopy is slightly sparse & suggests decline. Area of decay. Not of a major concern at this time	Failure of live branches over Target area (<100mm diameter- SoP 4)	Road	4	3	6	<1/1M	No canopy works required at this time
59	West Australian Peppermint (<i>Agonis flexuosa</i>)	M	8.8	850	G		Large mature tree. No issues or concerns visible at this time	Failure of live branches over Target area (<100mm diameter- SoP 4)	ASSUMED LANDSCAPED AREA	3	4	7	<1/1M	No canopy works required at this time
60	Argyle Apple (<i>Eucalyptus cinerea</i>)	M	7	370	G		Canopy is slightly sparse & suggests decline. Minor amount of smaller and moderate diameter sized deadwood present in its canopy	Deadwood over Target area	ASSUMED LANDSCAPED AREA	3	4	4	<1/1M	No canopy works required at this time

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
61	Red Flowering Gum (<i>Corymbia ficifolia</i>)	M	8.5	900	P		Large mature specimen. Marri Canker noted. Major impact to health. Section of its canopy is dead. Remainder ok at this time but suggests decline	Deadwood over Target area	ASSUMED LANDSCAPED AREA, driveway	3	3	3	1/500,000	Suggest remove the dead sections. No canopy thinning required. May need to be removed should further decline occur
62	Umbrella (<i>Schefflera actinophylla</i>)	M	8	610	G		Good specimen. No issues or concerns visible at this time	Failure of live branches over Target area (<100mm diameter-SoP 4)	ASSUMED LANDSCAPED AREA, car park	3	4	7	<1/1M	No canopy works required at this time
63	Olive (<i>Olea europaea</i>)	M	9	750	G		Good specimen. No issues or concerns visible at this time	Failure of live branches over Target area (<100mm diameter-SoP 4)	ASSUMED LANDSCAPED AREA	3	4	7	<1/1M	No canopy works required at this time

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
64	Bottlebrush Kings Park Special (<i>Callistemon</i> 'Kings Park Special')	M	6	290	G		Reasonably good specimen. No issues or concerns visible at this time. Part of a group of trees in close proximity that effectively form the one canopy	Failure of live branches over Target area (<100mm diameter-SoP 4)	ASSUMED LANDSCAPED AREA, driveway	3	4	7	<1/1M	No canopy works required at this time
65	Lemon Scented Gum (<i>Corymbia citriodora</i>)	M	14	560	M		Reasonably good specimen. Few dead tips/ some deadwood but otherwise ok. Canopy is relatively one-sided west due to proximity of the adjacent tree. Part of a group of trees in close proximity that effectively form the one canopy	Deadwood over Target area	ASSUMED LANDSCAPED AREA, driveway	3	4	5	<1/1M	No canopy works required at this time
66	Hills Fig (<i>Ficus microcarpa</i> var 'hillii')	M	17	930	G		Large mature tree. No issues or concerns visible at this time. Widespread canopy form. Part of a group of trees in close proximity that effectively form the one canopy. Minor amount of smaller and moderate diameter sized deadwood present in its canopy.	Deadwood over Target area	ASSUMED LANDSCAPED AREA, driveway	3	4	4	<1/1M	No canopy works required at this time

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
67	Hills Fig (<i>Ficus microcarpa</i> var 'hillii')	M	13.5	840	G		Large mature tree. No issues or concerns visible at this time. Widespread canopy form. Part of a group of trees in close proximity that effectively form the one canopy	Deadwood over Target area	ASSUMED LANDSCAPED AREA, driveway	3	4	3	<1/1M	No canopy works required at this time
68	Bottlebrush Kings Park Special (<i>Callistemon</i> 'Kings Park Special')	M	5	260	M		Section of its canopy is dead. Remainder ok. Ok smaller tree. Suppressed by the adjacent larger trees	Deadwood over Target area	ASSUMED LANDSCAPED AREA, driveway, sports field	2	4	4	<1/1M	No canopy works required at this time
69	Lemon Scented Gum (<i>Corymbia citriodora</i>)	M	18.5	670	G		Large mature tree. Some larger deadwood but otherwise ok	Deadwood over Target area	ASSUMED LANDSCAPED AREA, driveway, sports field	2	3	3	1/50,000	Suggest remove the noticeable deadwood. No canopy thinning required

Ref. No	Species	Age Range	Height (m)	DIA (DBH) mm	Vitality	Image	Tree Comments	QTRA Variables					Management	
								Risk Assessed	Target	T	SoP	PoF		RoH
70	Hills Fig (<i>Ficus microcarpa</i> var 'hillii')	M	14.5	860	G		Large mature tree. No issues or concerns visible at this time. Widespread canopy form. Part of a group of trees in close proximity that effectively form the one canopy	Deadwood over Target area	ASSUMED LANDSCAPED AREA, driveway, sports field	2	4	5	<1/1M	No canopy works required at this time

Attachment 2; Tree Location Guide with works



Key

- Canopy works; refer table of works
- No works look to be required

Client; City of Cockburn
Project; Assessment of Trees;
Beale Park
Drawn by; J Royal
Revision; 0
Date; 30/06/2021
Aerial Source; Nearmap.com



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Attachment 3; Table of Canopy Works

- All tree pruning works must comply with Australian Standards 4373 (2007); *Pruning of Amenity Trees*
- All persons undertaking the pruning of a tree are recommended to have (a minimum of) AQF certificate 3 in Arboriculture (or recognised equivalent level of qualification)
- Other than what has been detailed in the attached table, no other canopy works are to be undertaken on any of the identified Trees.
- Larger diameter deadwood is considered to be any dead branch 10cm (100mm) or greater in diameter.
- Moderate diameter deadwood is considered to be any dead branch 5-10cm in diameter.
- No canopy reduction, or topping of Trees is to occur.

Ref. No	Species	Height (m)	DIA (DBH) mm	Image	Management
3	Tuart (<i>Eucalyptus gomphocephala</i>)	11	690		Suggest remove the co-dominant leader before it gets too much larger or starts to cause issues. If undertaken suggest remove any noticeable deadwood at the same time but no other canopy thinning required 
5	Tuart (<i>Eucalyptus gomphocephala</i>)	9.5	570		Remove larger/moderate diameter sized deadwood. (Literally 3-4 pieces over the Target area). No canopy thinning required
7	Tasmanian Blue Gum (<i>Eucalyptus globulus</i>)	13	560		Remove larger/moderate diameter sized deadwood. No canopy thinning required
8	River Red Gum (<i>Eucalyptus camaldulensis</i> subsp. 'Camaldulensis')	15.5	560		Remove larger/moderate diameter sized deadwood. No canopy thinning required
9	Tuart (<i>Eucalyptus gomphocephala</i>)	16	710		Remove larger/moderate diameter sized deadwood. Suggest remove the low NE branch and reduce northern branch. No other canopy thinning required 

Ref. No	Species	Height (m)	DIA (DBH) mm	Image	Management	Image
10	Swamp Mahogany (<i>Eucalyptus robusta</i>)	11	310		Not a risk at this time but suggest remove the low northern branch and canopy works on the adjacent Tree will increase exposure to that part of this Tree	
11 (Tag Missing)	River Red Gum (<i>Eucalyptus camaldulensis</i> subsp. 'Camaldulensis')	19.5	1260		Remove larger/moderate diameter sized deadwood. Remove the remains of the broken branch. No canopy thinning required	
12 (Tag Missing))	Tuart (<i>Eucalyptus gomphocephala</i>)	12.5	660		Low risk but suggest remove the low branch eastern side and reduce loading over the car park area. Remove any noticeable deadwood	
16	Flooded Gum (<i>Eucalyptus rudis</i>)	21.5	730		Remove broken branch. Remove low branch extending over the car park. Reduce loading on the branch above that	
17	Lemon Scented Gum (<i>Corymbia citriodora</i>)	17	430		No canopy works required at this time from a risk point of view but suggest to tidy the remains of the broken branches	

Ref. No	Species	Height (m)	DIA (DBH) mm	Image	Management	Image
18	Lemon Scented Gum (<i>Corymbia citriodora</i>)	18	530		Remove larger/moderate diameter sized deadwood. Remove 1x branch extending over the car park. No other canopy thinning required	
25	Bangalay (<i>Eucalyptus botryoides</i>)	16	630		Remove broken branch. Suggest remove the low branch extending over the sports field x2 (bark damage at unions) and any larger diameter deadwood	
27	West Australian Peppermint (<i>Agonis flexuosa</i>)	5.5	420		Remove the broken branch lodged in its canopy	
28	Tuart (<i>Eucalyptus gomphocephala</i>)	21.5	1150		Remove the broken branch and reduce loading in the low canopy area over the car park	
32	Tuart (<i>Eucalyptus gomphocephala</i>)	22	1130		Remove larger deadwood. No canopy thinning required	

Ref. No	Species	Height (m)	DIA (DBH) mm	Image	Management
34	Northern River Red Gum (<i>Eucalyptus camaldulensis</i> subsp. 'Obtusa')	15	400		Suggest remove the branch extending over the sports field back to the union
					
35	Rough Barked Apple Gum (<i>Angophora floribunda</i>)	19.5	980		Remove broken branch. Remove larger/moderate diameter sized deadwood. No canopy thinning required
37	Lemon Scented Gum (<i>Corymbia citriodora</i>)	13	500		Remove larger deadwood. No canopy thinning required
39	Tasmanian Blue Gum (<i>Eucalyptus globulus</i>)	16.5	660		Remove larger deadwood. No other canopy works required
40	Tasmanian Blue Gum (<i>Eucalyptus globulus</i>)	17.5	620		Remove larger deadwood. No other canopy works required

Ref. No	Species	Height (m)	DIA (DBH) mm	Image	Management	
41	Tuart (<i>Eucalyptus gomphocephala</i>)	20	850		Remove larger deadwood. No other canopy works required	
43	Tasmanian Blue Gum (<i>Eucalyptus globulus</i>)	18	740		Remove larger deadwood. No canopy thinning required	
49	Lemon Scented Gum (<i>Corymbia citriodora</i>)	18	890		Suggest remove the large northern branch. Tidy the remains of the broken branch and suggest remove any noticeable deadwood at the same time	
50 (Tag Missing)	Lemon Scented Gum (<i>Corymbia citriodora</i>)	15.5	700		Remove larger deadwood. No canopy thinning required	
51 (Tag Missing)	Lemon Scented Gum (<i>Corymbia citriodora</i>)	14	560		Suggest remove the low branch extending over the disabled parking bay and low branch extending over the roof. Suggest remove any noticeable deadwood at the same time. No other canopy thinning required	

Ref. No	Species	Height (m)	DIA (DBH) mm	Image	Management
52 (Tag Missing)	Lemon Scented Gum (<i>Corymbia citriodora</i>)	16.5	570		Remove the noticeable deadwood. No canopy thinning required
53	Lemon Scented Gum (<i>Corymbia citriodora</i>)	17.5	570		Remove the noticeable deadwood. No canopy thinning required
54	Lemon Scented Gum (<i>Corymbia citriodora</i>)	13	620		Remove larger deadwood/dead section. No canopy thinning required at this time
55	Lemon Scented Gum (<i>Corymbia citriodora</i>)	15	600		Remove the noticeable deadwood. No canopy thinning required
61	Red Flowering Gum (<i>Corymbia ficifolia</i>)	8.5	900		Suggest remove the dead sections. No canopy thinning required. May need to be removed should further decline occur

Ref. No	Species	Height (m)	DIA (DBH) mm	Image	Management
69	Lemon Scented Gum (<i>Corymbia citriodora</i>)	18.5	670		Remove the noticeable deadwood. No canopy thinning required

Attachment 4; References

- Australian Standards 4970-2009; Protection of Trees on Development Sites
- Australian Standards 4373-2007; Pruning of Amenity Trees
- www.dec.wa.gov.au/plantsforcarnabys; Plants Used by Carnaby's Black Cockatoo; Department of Environment and Conservation, April 15 2011
- Field Guide for Visual Tree Assessment (VTA); The Body Language of Trees, A Handbook for Failure Analysis; C Matteck, H Breloer
- Quantified Tree Risk Assessment Guidelines Practice Note Ver. 5 (www.QTRA.co.uk)
- Main Roads WA Traffic Data Map; <https://trafficmap.mainroads.wa.gov.au/map>
- The Effects of Strimmer Damage to Young Ash Trees; S. A Schuck, D. Slater Arboricultural Journal, 2018, Vol 40, No.4
- Reference; Declared Plant Species in Western Australia (Department of Agriculture and Food, Western Australia 2008)

Attachment 5; Company Information

Company Name:



A.C.N.:

107 194 061

A.B.N.:

66 566 369 687

Insurance Details:

General Liability;	Woodina	\$20 million
Professional Indemnity;	Woodina	\$5 million
Personal Protection;	Zurich	

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Member No. 1254



J. Royal; 172723



Lisc. No. 1743

Disclaimer

This Report has been provided in good faith and based upon the material information provided by the Client to Arbor logic, and/or based on the visual inspection of the tree(s) at the time this advice was prepared.

The contents of this Report should be read in full, and at no time shall any part of the Report be referred to unless taken in full context with the remainder of the document.

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- Material information not being provided by the Client to Arbor logic at the time this advice was prepared.
- The provision of misleading or incorrect information by the Client or any other party to Arbor logic upon which this advice was prepared.
- This advice being used by the Client or any other party in circumstances or situations other than the specific subject of this advice.
- Failure by the Client to follow this advice.
- The action(s) or inaction(s) of the Client or any other party that gives rise to the loss of, or damage to, the tree(s) that are the subject of this advice.

It is also important to take into consideration that all trees are living organisms and as such there are many variables that can affect their health and structural properties that remain beyond the scope of reasonable management practices or the advice provided in this Report based on the visual inspection of the tree(s).

As such a degree of risk will still remain with any given tree(s) despite the adoption of any best management practices or recommendations made in this Report.