ARBORICULTURAL INSPECTION AND REPORT

Cowes Cultural Centre

October 2017

Report and Assessment commissioned by:
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Asset Management
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Assignment

The main aim of this report is to:

- conduct a tree inspection and produce an arboricultural report on three trees located behind the Cowes Cultural Centre, 91-97 Thompson Avenue, Cowes
- collect relevant data on the trees and analyse their suitability for preservation onsite
- recommend remedial works and other management strategies to reduce the risk of damage / injury to people and infrastructure at the site.*

* Risks associated with trees:

“There will never be an absolutely stable tree! A natural failure rate even among completely healthy trees is the price to be paid for the energy saving lightweight structures of Nature. The demand for an absolutely safe tree is therefore contrary to the logic of the laws of nature.” (Mattheck & Breloer 1999).

Even sound trees can fail in various conditions, mostly in high winds and sometimes on hot still days. When trees or their parts fail there is always a chance that someone in the wrong place at the wrong time could be injured or killed. The random nature of both tree failure and peoples movements under/around the trees potential target area makes the task of managing this risk a great challenge. The purpose of this report is to identify predictable tree failures—for example, areas of weakness on tree parts, defects in tree structure and, in some cases, species which have a known predisposition to consistently shed limbs. While recommendations contained within this report aim to abate risks through tree removal, remedial pruning and target area restriction, there is no guarantee that the trees mentioned in this report (or those omitted) cannot randomly fail and subsequently cause damage, injury or death.

Report Author

This report was authored by Peter Bateman of Arborzone Total Tree Care. Peter Bateman has two years tertiary experience (Ass Dip App Sci Hort, Burnley VCAH 1989–1990, majoring in Arboriculture). Peter has subsequently had 18 years professional experience during which he has been working as a consulting/report writing Arborist for the past 12 years.

Peter has worked nationally and internationally and for the past 12 years has worked extensively in Gippsland through his business Arborzone Total Tree Care. Peter Bateman has held professional membership of ISA (International Society of Arboriculture) since 1999, and gained his TRAQ (Tree Risk Assessment Qualifications) during Australia’s first intake in 2013.
Method

During late September 2017, Arborzone’s Peter Bateman visited the subject site and assessed the subject tree.

Data was collected under the following criteria:

- Species and common name
- Age—estimated based on the assessor’s local experience
- Height—estimated and given in metres
- Diameter at breast height (DBH)—given in centimetres
- Health class—assessed as Good, Fair or Poor
- Retention value—assessed as High, Moderate or Low
- Tree protection zone (TPZ)—calculated in metres
- Risk rating—calculated as High, Moderate or Low.

See Appendices B, C and D for explanation of the above fields.

The subject trees were plotted on a map (see Map, page 4). Photos were taken onsite using a Minolta digital camera.
Site Characteristics

The subject trees are located in the car park behind the Cowes Cultural Centre. Tree 1 is surrounded on all sides by a high use car park. Tree 2 and 3 are located 100 metres to the North. There is significantly less use of the areas within Tree 1 and 2’s potential fall zone. This is an important factor when assessing tree risk ratings. Planning is currently under way to consider redeveloping the area, which would lead to higher rates of usage under the tree canopies and potential exposure to construction damage of the subject trees.
Key to Retention Value

High : Green
Moderate : Yellow
Low : Red
Tree Observations and Assessment

Subject: Tree 1

Species: *Eucalyptus globulus*
Common name: Southern Blue Gum
Age: Mature
Height (m): 25
DBH (cm): 128
Health class: Good
Retention value: High
TPZ (m): 15
Risk rating: F4 + C5 = Moderate*

*See appendices B and C for explanation of acronyms and risk ratings

Discussion

Tree 1 is a large significant specimen with several large cavities throughout, notably on the north-eastern facing stem which would be the most likely candidate for failure. Existing cavities are further undermined by Cockatoo damage. Tree 1 is in an area of relatively high use.

Recommendations

Aerial inspection. Remove dead and dying material. Reduce north-east stem to decrease likelihood of failure. Avoid root damage if area is to be developed.
**Subject: Tree 2**

<table>
<thead>
<tr>
<th>Species</th>
<th><em>Eucalyptus camaldulensis</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Common name</td>
<td>River Red Gum</td>
</tr>
<tr>
<td>Age</td>
<td>Mature</td>
</tr>
<tr>
<td>Height (m)</td>
<td>15</td>
</tr>
<tr>
<td>DBH (cm)</td>
<td>71</td>
</tr>
<tr>
<td>Health class</td>
<td>Good</td>
</tr>
<tr>
<td>Retention value</td>
<td>Moderate</td>
</tr>
<tr>
<td>TPZ (m)</td>
<td>8.5m</td>
</tr>
<tr>
<td>Risk rating</td>
<td>F4 + C5 = Moderate*</td>
</tr>
</tbody>
</table>

*See appendices B and C for explanation of acronyms and risk ratings

**Discussion**

A smaller, mature tree with prominent mounding at base. Possibly a partial withthrow in the past, subsequently restabilised as indicated by self-corrected lean. Potential failure trajectory currently towards in an area of relatively low use.

**Recommendations**

Avoid increase of usage under canopy. Avoid root damage, especially on tensioned south-western side. Monitor tree for stability under high wind force.
**Subject: Tree 3**

<table>
<thead>
<tr>
<th><strong>Species</strong></th>
<th><em>Eucalyptus ovata</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common name</strong></td>
<td>Swamp Gum</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>Mature</td>
</tr>
<tr>
<td><strong>Height (m)</strong></td>
<td>12</td>
</tr>
<tr>
<td><strong>DBH (cm)</strong></td>
<td>77</td>
</tr>
<tr>
<td><strong>Health class</strong></td>
<td>Fair</td>
</tr>
<tr>
<td><strong>Retention value</strong></td>
<td>Low</td>
</tr>
<tr>
<td><strong>TPZ (m)</strong></td>
<td>9</td>
</tr>
<tr>
<td><strong>Risk rating</strong></td>
<td>F4 + C5 = Moderate*</td>
</tr>
</tbody>
</table>

*See appendices B and C for explanation of acronyms and risk rating*

**Discussion**

This small veteran Swamp Gum is in poor health and has a poor structure. It is located in an area of relatively low use. Signs of severe root damage which most likely accounts for fair health rating and sparse canopy. Not a good candidate for retention if the site is developed.

**Recommendations**

Avoid further root damage. If area is to be developed consider retaining as a habitat stump or removal/replacement.
Summary

Tree 1 is the most significant tree surveyed for this report. Though an impressive specimen, its age related defects will have to be addressed through significant weight reduction pruning, if it is to be retained in this location. To retain the tree successfully onsite, a minimum Tree Protection Zone of 13.5 metres (radius from trunk) would be recommended during the construction phase. It would be prudent also to allow a buffer where no fixed targets were located within the tree’s dripline.

Tree 2 rated only a moderate retention value because of the question mark over its in-ground stability. If a 15 metre radius exclusion of fixed targets cannot be accommodated in the planning, then removal may have to be considered.

Tree 3 was rated as having a low retention value given its poor structure and only fair health rating. Notwithstanding any plans for redevelopment, the tree should be reduced to a habitat stump or considered for removal.

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Appendix A: Arborzone Professional Tree Services—Arboricultural Consultancies and Reporting

Assumptions and Limiting Conditions

1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownerships to any property are assumed to be good. No responsibility is assumed for matters legal in character.

2. It is assumed that any property/project is not in violation applicable codes, ordinances, statutes or other government regulations.

3. Care has been taken to obtain all information from reliable sources. All data has been verified in so far as possible: however the consultant can neither guarantee nor be responsible for the accuracy of the information provided by others.

4. The consultant shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services.

5. Loss or alteration of any part of this report invalidates the entire report.

6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by anyone but the person to whom it is addressed, without the prior written consent of the consultant.

7. Neither all nor any part of the contents of this report, nor any copy thereof, shall be used for any purpose but anyone but the person to whom it is addressed, without the written consent of the consultant; nor shall it be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the written consent of the consultant.

8. This report and any values expressed herein represent the opinion of the consultant, and the consultants’ fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

9. Sketches, diagrams, graphs and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports.

10. Unless expressed otherwise:
   - Information contained in this report covers only those items that were examined and reflect the condition of those items at the time of inspection; and
   - Inspection is limited to visual examination of accessible components without dissection, excavation or probing. There is no warranty or guarantee expressed or implied that the problems or deficiencies of the plans or property in question may not arise in the future.
Appendix B: Method Rationale

Age

Young (20% of life expectancy)
Mature (20-80% of life expectancy)
Over mature (over 80% of life expectancy)

Health Status

Good: Typical vigour and vitality for the species judged on shoot elongation, colour and density of foliage, incremental growth of wound-wood etc.
Fair: Just below average vigour and vitality
Poor: Obvious signs of decline in tree health; well below average vigour and vitality
Dead: Tree shows no indication of life.

Retention Value

*Preservation is focussed on high quality trees with good tolerance for impact during construction. The goal of tree preservation is to have trees remain assets to the site for years to come. The following tree characteristics are sought after when evaluating a tree with a high retention value:*

1. **Tree Health:** Trees displaying good health and high vigour are better able to withstand the impact and stresses associated with construction eg. root injury, pruning, changes to soil density and moisture levels.
2. **Tree Structure:** Trees with poor structure (co-dominant stems, poorly attached limbs, poor taper, decay/cavity, etc.) are inherently predisposed to failure. Only trees with good structure or redeemable structural defects should be considered for retention near high target areas such as dwellings.
3. **Species:** Species characteristics such as tolerance to disturbance, origin, rarity and propensity to become weeds are important components on any decision regarding retention.
4. **Age/Potential Longevity:** The goal of tree preservation is to have trees remain assets to the site for years to come. Short lived species, such as *Acacia sophores*, or over-mature trees at the end of their mature life span, do not make good candidates for retention.
5. **Landscape Impact:** Is the tree a major asset and contributing to the aesthetic of the surrounding area?
6. **Location Onsite:** A critical factor especially on small residential developments.
Structural Condition

Good: No obvious defects which would indicate predictable failure points.

Fair: Moderate levels of defects in structure noted. These defects would be able to be managed through pruning, bracing etc.

Poor: Severe structural defects noted. Generally trees rated as having poor structures have unmanageable defects and may need to be removed or have their target areas modified.
Appendix C: Developing a Risk Rating


Risk Rating Method

The method is basic and capable of being used in large-scale tree data-capture situations. The arborist makes an estimate of tree failure potential and the consequences of failure, including the frequency of occupation of a site based on their experience. Limitations are that the method is not based on quantitative data and is very simple—as such, it should be used as a guide only.

Total Risk Score is derived by the addition of two criteria:

<table>
<thead>
<tr>
<th>Failure Potential/Defect Severity (F)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Risk – Failure imminent</td>
<td>10</td>
</tr>
<tr>
<td>High Risk – Failure likely especially in storms</td>
<td>7</td>
</tr>
<tr>
<td>Moderate Risk – Failure possible especially in severe storms</td>
<td>4</td>
</tr>
<tr>
<td>Low Risk – Failure unlikely</td>
<td>1</td>
</tr>
</tbody>
</table>

Consequence of Failure (C)
Consider potential for injury/loss should a failure occur based on such factors as size of defective part, target value and frequency of use

<table>
<thead>
<tr>
<th>Consequence</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe Consequence</td>
<td>5</td>
</tr>
<tr>
<td>Moderate Consequence</td>
<td>3</td>
</tr>
<tr>
<td>Low Consequence</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Risk Rating (= F + C)

<table>
<thead>
<tr>
<th>Total Risk Rating (F + C)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-15</td>
<td>Critical Risk: Failure imminent; Personal Injury and/or property damage inevitable (lower end of scale indicates lower potential for injury)</td>
</tr>
<tr>
<td>10-12</td>
<td>High Risk: Failure likely especially during storms; Personal injury and/or property damage likely (lower end of scale indicates lower potential for injury/property damage)</td>
</tr>
<tr>
<td>7-9</td>
<td>Moderate Risk: Failure unlikely, and/or high risk of failure but low risk of property damage/personal injury</td>
</tr>
<tr>
<td>&lt;7</td>
<td>Low Risk: Failure unlikely and low risk of property damage</td>
</tr>
</tbody>
</table>
**Appendix D: Safe and Useful Life Expectancy (SULE) Ratings**

<table>
<thead>
<tr>
<th>Rating</th>
<th>Sub-Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 LONG SULE – Retainable for more than 40 years with an acceptable level of risk</td>
<td>A</td>
<td>Structurally sound trees which are located in positions that can accommodate future growth</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Storm damaged or defective trees which could be made suitable for retention in the long term by remedial tree surgery</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Trees of special significance for historical, commemorative or rarity reasons which would warrant extraordinary efforts to secure long term retention</td>
</tr>
<tr>
<td>2 MEDIUM SULE – Retainable for 15 – 40 more years with an acceptable level of risk</td>
<td>A</td>
<td>Trees which may only live between 15 – 40 more years</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Trees which may live for more than 40 years but would be removed during the course of normal management for safety or nuisance reasons</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Trees which may live for more than 40 years but would be removed to allow the safe development of more suitable individuals</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Storm damaged or defective trees which can be made suitable for retention in the medium term by remedial work</td>
</tr>
<tr>
<td>3 SHORT SULE – Trees that appeared to be retainable at the time of assessment for 5 – 15 years with an acceptable level of risk</td>
<td>A</td>
<td>Trees which may only live between 5 – 15 years</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Trees which may only live for more than 15 years but would be removed during the course of normal management for safety or nuisance reasons</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Trees which may live for more than 15 years but would be removed to allow the safe development of more suitable individuals</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Storm damaged or defective trees which require substantial remedial work to make safe, and are only suitable for retention in the short term</td>
</tr>
<tr>
<td>4 REMOVE – Trees that should be removed within the next five years</td>
<td>A</td>
<td>Dead trees</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Dying or suppressed or declining trees through disease or inhospitable conditions</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Dangerous trees through instability or recent loss of adjacent trees</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Dangerous tree with defects including cavities, decay, included bark, wounds or poor form</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Damaged trees which are considered unsafe to retain</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>Trees which will become dangerous after removal of other trees for the reasons in (A) to (E)</td>
</tr>
<tr>
<td>5 Young or Small Trees</td>
<td>A</td>
<td>Trees which are less than 5 metres in height</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Trees which are over 5 metres in height but less than 15 years old</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Trees which have been regularly pruned to artificially control growth</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Trees or Palms that can be transplanted easily</td>
</tr>
</tbody>
</table>
Appendix E: References


Map image taken from Google Earth, October 2017