PEAKE ARBORICULTURE

ARBORICULTURAL IMPACT ASSESSMENT

Lot 289/DP16362 & Lot 290/DP16362

12 – 14 Rock Bath Road

Palm Beach, NSW 2108

Prepared on: 09/05/2022

Prepared for:

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1 INTRODUCTION & AIMS

1.1 This Arboricultural Impact Assessment (AIA) was requested by Ben Farrar on the 3rd of May 2022. This AIA is to address the potential impacts upon surrounding trees from the proposed development Lots 289 & 290/DP16362 12-14 Rock Bath Road Palm Beach, NSW 2108 (the subject site). The subject site can be seen in figure 1 below.

Figure 1: The subject site. Subject tree circled in red. (Nearmap, 2022)

1.2 The aim of this report is to:

- Examine Councils policies in regards to application requirements needed for the preparation of an Arboricultural Impact Assessment.
- Visually assess and identify the subject trees & the environment in which they grow.
- Assess construction impacts for each subject tree through the revision of plans for the proposed development.

1.3 This report will recommend tree protection measures that will aim to minimise the impacts from the proposed construction on subject trees to be retained.

2 DEVELOPMENT CONTROLS & RELEVANT LEGISLATION

2.1 Lots 289 & 290/DP16362 12-14 Rock Bath Road Palm Beach, NSW 2108 is zoned C4 – Environmental living and is located within the Local Government Area of Northern Beaches Council (NSW Government, n.d.)

2.2 Section A1.9 of the Pittwater 21 Development Control Plan - 2014 (DCP) (Pittwater Council, 2014), defines a tree as;

"tree means a palm or woody perennial plant with a single or multi stem greater than five (5) metres in height."

2.3 Section B4.22 of the Pittwater 21 Development Control Plan - 2014 (DCP) (Pittwater Council, 2014), Preservation of Trees or Bushland Vegetation has also been considered, in particular;

"10. Where trees proposed to be retained may be affected by the construction of new buildings and works of Classes 1 and 10, a Tree Protection Plan as per Appendix 18 (P21DCP) is to be submitted."

2.4 Section 7.6 – Biodiversity, of the Pittwater Local Envrionmental Plan 2014 (Pittwater Council, 2014)

2.5 State Environmental Planning Policy (Vegetation in Non–Rural Areas) 2017 (NSW Government, 2017) has been considered in the preparation of this report. The aims of the policy are to;

- *"(a) to protect the biodiversity values of trees and other vegetation in non-rural areas of the State, and*
- *(b) to preserve the amenity of non-rural areas of the State through the preservation of trees and other vegetation."*

3 METHOD

3.1 The tree and site were visually assessed from ground level, using methods developed by the Visual Tree Assessment (VTA) process (Claus Mattheck, 2006). No detailed inspections as described in the VTA process have been undertaken. The genus and species of the trees were recorded as well as the dimensions for diameter at breast height (DBH), diameter above buttress (DAB) and canopy width (when the measurement of a DBH and DAB has not been practical, such as in the case of low branching or mallee trees, a DBH and DAB measurement has been allocated based on tree size). Height and age of the trees were estimated as well as the percentage of deadwood, the tree was given a Health / Vigour rating and signs and symptoms of pests and diseases were looked for. Structural defects and comments were recorded.

3.2 Calculations have been made using guidelines supplied in AS4970-2009 Protection of Trees on Development Sites (Standards Australia, 2009) for the;

- Tree Protection Zone (TPZ),
- Structural Root Zone (SRZ),
- Live Crown Ratio (LCR),
- Live Crown Size (LCS),

3.3 The tree has been allocated a landscape significance rating of Low, Medium or High using the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010). Stars assessment criteria includes:

- Condition and Vigour
- Form, species specific
- Provenance, age and botanical significance
- Heritage and Ecological significance
- Size, shape, and local amenity value
- Restrictions to tree growth

Appendix 1 contains the assessment criteria in full.

3.4 The tree has been given a Useful Life Expectancy (ULE) rating, categorised as either;

- Long – 40+ years
- Medium – 15-40 years
- Short – 5-15 years
- Consider for removal - <5 years

4 OBSERVATIONS

4.1 Listed in Table 1 below are observations from the subject tree relating to;

- Health and vigour. Rated between 0 and 5. 0 = Dead, 5 = Excellent.
- Deadwood. An overall % has been estimated.
- Structural defects and comments.
- Any signs/symptoms of pest and disease attack.
- Previous pruning or wounds.

Tree No.	Genus/Species & Common Names	Health Vigour	Dead wood %	Structural Defects/ Comments	Pests/ Disease	Pruning/ Wounds
1	*Banksia integrifolia* Coastal Banksia	3	5-10%	Trunk lean at base	None visible	Previously lopped. Canopy comprised of epicormic re-growth.

Table 1: Tree Observations

Figure 2: The subject Coastal Banksia

4.2 Listed in Table 2 below are measurements from the subject tree relating to;

- Diameter at breast height (DBH).
- Diameter above buttress (DAB).
- Canopy spread – measured to the North, East, South and West (N, E, S, W).
- Tree height.
- Lowest scaffold branch.

Tree No.	Species	Maturity	Height (m)	Lowest Scaffold (m)	Spread (m) N	S	E	W	DBH / Multi (cm)	DAB (cm)
1	*Banksia integrifolia*	Mature	5.5	1.5	2	1	1.5	2	22	35

Table 2: Tree Measurements

4.3 Listed in Table 3 Below are calculations from the subject tree relating to:

- Tree Protection Zone (TPZ)
- Structural Root Zone (SRZ)
- Live Crown Ratio (LCR)
- Live Crown Size (LCS)

Tree Number	Species	TPZ (m)	SRZ (m)	Live Crown Size (m2)	Live Crown Ratio (%)
1	*Banksia integrifolia*	2.64	2.13	9	73%

Table 3: Calculations from the subject trees

5 TREE RETENTION VALUE

5.1 The subject tree has been allocated a retention value using the priority Matrix in the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010). The Matrix uses the Landscape Significance rating combined with the Useful Life Expectancy (ULE) to determine a retention value of either;

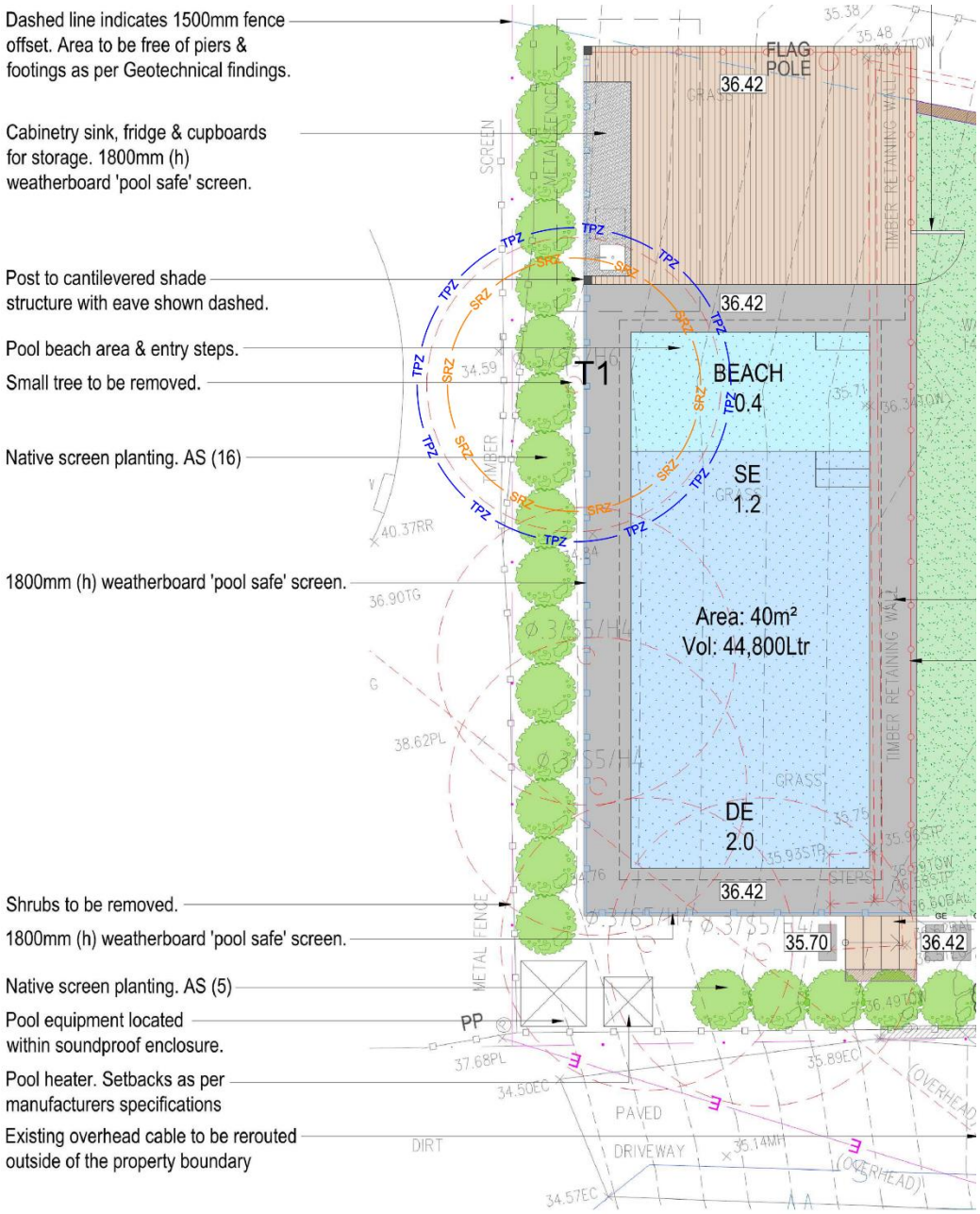
- Priority for Retention (High) – All measures must be taken to retain and protect these trees. If the guidelines set out in AS4970-2009 Protection of trees on development sites cannot be used to protect the trees, design modification or re-location of the proposed development should be considered.
- Consider for Retention (Medium) – Retention of these trees should remain a priority. If the trees are adversely affecting the proposed development and all protection measures have been considered but are not viable, removal can be considered.
- Consider for Removal (Low) – Retention of these trees is not important. No modification to design should be considered for their retention.
- Priority for Removal – Trees in an irreversible decline, weed species or hazardous trees. These trees should be removed.

Tree Number	Species	Landscape Significance Rating	Useful Life Expectancy	Retention Value
1	*Banksia integrifolia*	Low	Short (5-15)	Low

Table 4: Tree Retention Values

6 CONSTRUCTION IMPACTS

6.1 An excerpt of the detail plan (Serenescapes 22/04/2022) is shown below with T1 identified and its Tree Protection Zone and Structural Root Zone overlayed. The proposed swimming pool borders the trunk of T1, with an encroachment of approximately 48% to the TPZ and an encroachment within the SRZ. The removal of T1 will be required to facilitate the proposed development.



7 DOCUMENTS USED IN THE PREPARATION OF THIS REPORT

7.1 Listed in table 6 below are documents used in the preparation of this report.

Document type	Source/ Author	Title	Date	Contents
Plan	Serenescapes	12-14 Rock Bath Road Palm Beach, NSW 2108	22/04/2022	Site Plan / Site Analysis/ Sedimentation Control Plan
Plan	Serenescapes	12-14 Rock Bath Road Palm Beach, NSW 2108	22/04/2022	Detail Plan
Plan	Serenescapes	12-14 Rock Bath Road Palm Beach, NSW 2108	22/04/2022	Setout Plan
Plan	Serenescapes	12-14 Rock Bath Road Palm Beach, NSW 2108	22/04/2022	Sectional Elevations
Plan	Serenescapes	12-14 Rock Bath Road Palm Beach, NSW 2108	22/04/2022	Landscape Specifications & Details

Table 5: Documents used in the preparation of this report.

8 RECOMMENDATIONS

8.1 The Removal of Tree 1 will be required to facilitate the proposed development. It is recommended that in the process of removal (subject to approval from Northern Beaches Council);

- All work is carried out by a person who is trained in AQF Level 3 in Arboriculture.
- All work is carried out in accordance with the Work Cover, Amenity Tree Industry Code of Practice 1998 and Safe work Australia's "Guide to managing risks of tree trimming and removal work" (July 2016).
- All tree waste is to be removed from site, including timber, mulch and stump grindings.

8.2 Tree 1 is proposed to be replaced with the same Genus & species (*Banksia integrifolia)* as indicated on the Detail Plan (Serenescapes 22/04/2022). No additional replacement planting is recommended.

9 REFERENCES

Claus Mattheck, H. B., 2006. *The Body Language of Trees: A handbook for failure analysis.* London: The Stationary office.

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[Accessed 13th October 2016].

Standards Australia, 2009. *AS 4970-2009 Protection of trees on development sites.* Sydney: Standards Australia.

10 GLOSSARY OF TERMS

Age class:

Young – planted recently.
Semi Mature – Reached less than 20% of expected life span.
Mature – Between 20-80% of expected life span.
Over Mature – Past 80% of expected life span.

Health and Vigour:

0 – Dead tree.
1 – Advanced state of decline. Significant deadwood visible. <20% live foliage cover.
2 – Declining. Dieback and deadwood visible. 20-60% live foliage cover.
3 – Low to average vigour. Dieback or visible. 60-90% live foliage cover.
4 – Good vigour. Small amount of dieback visible. 90-100% live foliage cover.
5 – Excellent vigour. No dieback or deadwood visible. 100% live foliage cover.

Crown:

Measured from the top of the tree to the lowest branch, comprising of leaves and branches.

Deadwood:

Dead branches found in a trees crown. An entirely dead branch or stem.

Dieback:

The death of portions of the crown. The death of branches or shoots from the tips inward.

Defect:

A feature of a tree that affects the health or structure in an adverse manner.

Decay:

The process of micro-organisms breaking down woody tissue.

Cavity:

A void in a woody stem, usually created by decay. This can be open or closed.

Soil Texture:

The amounts of sand, silt and clay in a soil.

Soil pH:

A figure expressing the acidity or alkalinity of a soil.

DBH:

Diameter at Breast Height refers to the tree trunk diameter measured at breast height or 1.4 metres above ground level.

DAB:

Diameter Above the Buttress refers to the tree trunk diameter measured above the root buttress and is used to calculate the radius of the SRZ.

TPZ:

Tree Protection Zone The radius of the TPZ is calculated for each tree by multiplying the DBH x 12. To establish the TPZ this radius is measured from the centre of the stem at ground level and it is an area that is to be isolated from construction disturbance. Any encroachment into the TPZ of more than 10% is considered to be a major encroachment.

SRZ:

Structural Root Zone The radius of the SRZ is calculated using the following formula:

r (SRZ) = $(Dx50)^{0.42}$ x 0.64 where D is the DAB measured in metres. It is the area around a tree that is required for tree stability and is usually applied on constructions sites after there has been a major encroachment of the TPZ.

LCR:

Live Crown Ratio. The height of a trees crown, relative to the total height of the tree. Often used as an indicator of overall stability.

LCS:

Live Crown Size. The area of the crown as viewed from one aspect.

H/D:

Height over Diameter ratio. An indicator of failure due to slenderness. 30 is the optimum ratio. Greater than 50 is considered hazardous

11 RELEVANT APPENDICES

11.1 APPENDIX 1 – S.T.A.R.S.© (IACA 2010)

Significance of a Tree, Assessment Rating System* (IACA 2010) – S.T.A.R.S. ©

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the *Tree Significance - Assessment Criteria* and *Tree Retention Value - Priority Matrix*, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of *High*, *Medium* and *Low* significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined. An example of its use in an Arboricultural report is shown as Appendix A.

Tree Significance - Assessment Criteria

High Significance in landscape

- The tree is in *Good condition* and *Good vigor*;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa *in situ* - tree is appropriate to the site conditions.

Medium Significance in landscape

- The tree is in *Fair-Good condition* and *Good* or *Low vigor;*
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.

Low Significance in landscape

- The tree is in fair-poor condition and good or low vigor;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

Environmental Pest / Noxious Weed Species

- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.

Hazardous/Irreversible Decline

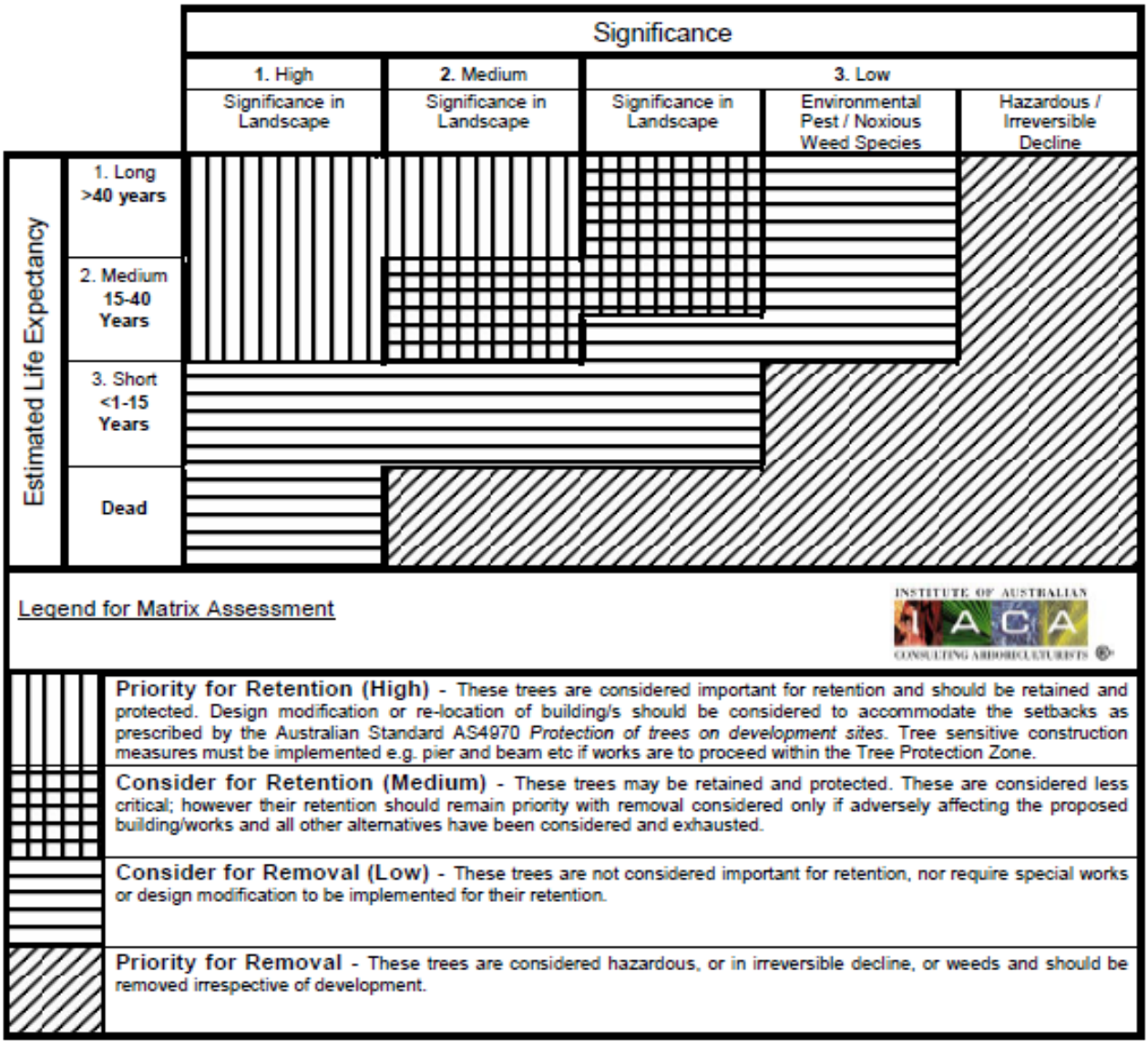
- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

Institute of Australian Consulting Arboriculturists (IACA 2010), *IACA Significance of a Tree, Assessment Rating System (STARS)*, www.iaca.org.au

Table 1.0 Tree Retention Value - Priority Matrix.



USE OF THIS DOCUMENTAND REFERENCING The IACA Significance of a Tree, Assessment Rating System (STARS) is free to use, but only in its entirety and must be cited as follows:

IACA, 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*,Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au

REFERENCES Australia ICOMOS Inc. 1999, *The Burra Charter –The Australian ICOMOS Charter for Places of Cultural Significance*, International Council of Monuments and Sites, www.icomos.org/australia Draper BD and Richards PA 2009, *Dictionary for Managing Trees in Urban Environments*, Institute of Australian Consulting Arboriculturists(IACA), CSIRO Publishing, Collingwood, Victoria, Australia. Footprint Green Pty Ltd2001, *Footprint Green Tree Significance & Retention Value Matrix*, Avalon, NSW Australia, www.footprintgreen.com.au