Arboricultural Impact Assessment and Tree Protection Plan and specification

Site: 13 Latty Street, Fairfield

Date: 27/10/2022 Reference: 13 Latt /AIA/020522 Rev 4





1 Executive Summary

Green Spaces Consultancy has been engaged by Studio Johnston Architects / New South Wales Land and Housing Corporation (NSWLAHC) to undertake a Development Impact Assessment report in relation to a tree (*Tree 1*) at 11 Latty Street, Fairfield.

The report has been prepared to inform the design of a housing development (4 x 2 bedroom units) at 13 Latty Street, Fairfield (*the site*).

The tree subject of this report is a *Eucalyptus punctata* (Tree 1 – Grey Gum) and is located at the rear of 11 Latty Street near the common side boundary with the site.

A Pre-Design Tree Assessment report prepared by Green Spaces Consultancy and dated 11/10/2021 was prepared to assist in the location and design of the development with the aim of mitigating the impact to Tree 1.

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October 2022

3 Introduction

Green Spaces Consultancy has been engaged by Studio Johnston Architects / New South Wales Land and Housing Corporation (NSWLAHC) to undertake a Development Impact Assessment report in relation to a tree (*Tree 1*) at 11 Latty Street, Fairfield.

The report has been prepared to inform the design of a housing development (4 x 2 bedroom units) at 13 Latty Street, Fairfield (*the site*).

The tree subject of this report is a *Eucalyptus punctata* (Tree 1 – Grey Gum) and is located at the rear of 11 Latty Street near the common side boundary with the site.

Note – There is a *Liquidambar styraciflua* (Liquidambar) located at the front of 11 Latty Street and a second *Eucalyptus punctata* (Grey Gum) located near the rear boundary of 11 Latty Street. There is no development proposed that will result in an impact to the health or condition of these trees.

There are no trees located within the subject site.

Both 11 and 13 Latty Street sites were inspected by Lisa Durland (the author) on the 2nd October, 2021.

4 Documentation

The following documents have been provided -

Plan/Document	Prepared by	Dwg No/Ref No	Dated
Survey Plan	SJ Surveying Services Pty Ltd	Ref - 322721	02/09/21
Architectural Plans	Studio Johnston	Dwgs A001 – A800, Rev 03	27/10/22
Stormwater Plans	Greenview Consulting	C 01-04 Rev 6	27/10/22
Landscape Plans	Site Image	Dwgs 000 F, 100 E, 500 E	27/10/22

Figure 1 - Table of supplied plans and documents

The plans/documents as listed above have been relied upon for the information in this report.

The tree location referenced in this document corresponds to the information as supplied on the survey plan provided and the tree numbering is consistent with the numbering used on the tree location plan that can be referenced in Section 7 / Image 2.

5 Aims

- Provide an assessment of the current health, vigour and structural condition of the tree.
- To identify existing trees to be retained and removed.
- Identify the Structural Root Zone and Tree Protection Zone (SRZ and TPZ in accordance with AS4970 'Protection of trees on development sites').
- Identify the impact of the proposed development on the tree on the adjacent site.
- Identify any additional issues that may require assessment or ongoing monitoring.
- Specify required tree protection for tree/s to be retained.

6 The Site

The site is rectangular in shape with an area of 780 sq m.

The location of the site is shown by the red flag in Figure 1 below.



Image 1 - Site Location of 13 Latty Street, Fairfield (Source: https://maps.six.nsw.gov.au/)

7 Tree location



Image 2 - Tree 1 (Eucalyptus punctata) is located at 11 Latty Street, close to the common rear side boundary with 13 Latty Street

8 Tree Assessment - Tree 1 Eucalyptus punctata (Grey Gum)

NOTE - Structural Root Zone (SRZ) and Tree Protection Zone (TPZ) radius is measured from the centre of the trunk. DBH = Diameter at breast height. DARF = Diameter above root flare. ULE = Useful Life Expectancy.

No direct access to the trunk of Tree 1 was available and therefore the trunk diameter at breast height (DBH) and the trunk diameter above root flare (DARF) have been estimated from a visual inspection undertaken approx. 1.5 metres from the trunk. The measurements (in this case estimates) are used to calculate the SPZ and TPZ in accordance with *AS4970 'Protection of trees on development sites'* (AS4970).

Structural Root Zone (SRZ) and is – radius of 3.2m (DARF = 920mm)

<u>Tree Protection Zone</u> (TPZ) – radius of 10m (DBH = 840mm)

TPZ area – 314m²

Ht x Av Wdth - Approx. 21m x approx. 16m

Health - Good

Condition - Medium/Good

<u>ULE</u> – Long

Landscape Significance - High

Retention Value - High

General comments -

- Co-dominant from approx. 7 metres.
- No visible defects on the section of trunk that was able to be inspected (noting no access to trunk below 1.5 m from ground level).
- Slight lean to the east most likely because of suppression from the adjacent tree at the rear of the site at 11 Latty Street.
- A hollow exists in the southern most co-dominant leader. This possibly was originally
 a branch tearout that now has some decay associated with that event and is likely
 providing habitat for Galahs or other fauna.
- Some cambial damage to upper side of a couple of branch unions observed. Depth of damage cannot be assessed from a ground-based inspection. No indication that the health of the tree is being impacted.
- Lowest branch overhanging 13 Latty Street is at a height of approx. 10 metres.

9 Development Impact Discussion

The proposed development encroachment is less than 10% (2.17%+ 3.46% = 5.63%) of the area of the TPZ and is outside the SRZ and is therefore considered to be 'Minor' in accordance with Clause 3.2.2 of AS4970. The area lost to this encroachment can be compensated elsewhere and contiguous with the TPZ. Refer to Figure 2.

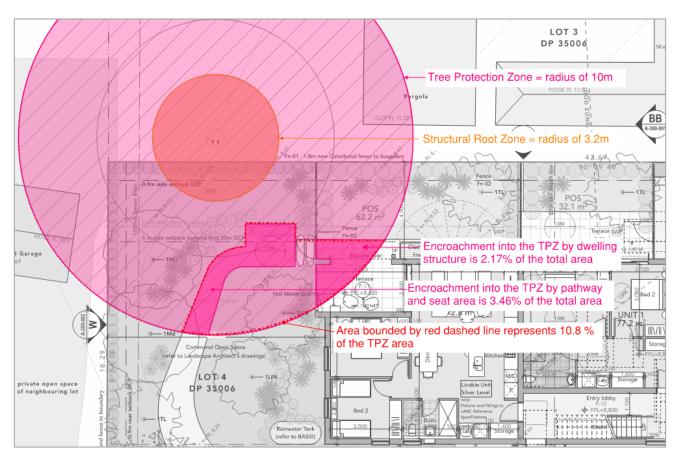


Figure 2 - Showing the SRZ (3.2m) and TPZ (10m) of Tree 1 including encroachments into the TPZ

By way of a more detailed discussion, the areas of the dwelling and pathway encroachment together represent 5.63% of the total TPZ area. In the unlikely event that the installation of the paved path requires woody roots to be pruned resulting in the entire area to the south of the path being considered an encroachment (area bounded by red dashed line in Figure 2) it is only 10.82 % of the total TPZ area. If the path including subgrade can be installed above existing ground level the total area bounded in the red dashed line does not need to be considered.

The proposed drainage lines and pits are clear of the TPZ.

It is considered that the proposed development will have little, if any, impact to Tree 1 provided the tree protection is installed and works undertaken as specified in Part 10 of this report.

10 Recommendations (tree protection specification)

It is recommended that -

- Tree Protection be installed in accordance with the Tree Protection Plan in Appendix 1 and the specification in Section 10.1. Tree protection must be installed prior to any work, including demolition, commencing and shall remain in place until all work is completed.
- All works are carried out as specified in Section 10.6.
- A Project Arborist is engaged to check that the tree protection is compliant with the recommendations within this report and certify related conditions of consent if imposed by the Council.
- The following specifications and methodologies are adhered to during the development works:

10.1 Tree Protection Fencing

The tree protection fencing shall be erected prior to any works commencing on the site. The fencing shall be installed in the approx. location as shown by the blue lines on the Tree Protection Plan in Appendix 1 – exact placement to be determined by Project Arborist on site. The fencing shall be constructed from 1.8-metre-high galvanised steel framed (50mm) panels with chain link infills. The panels shall be clamped together to prevent sideways movement and shall be stabilized at the ground with concrete block 'feet'. Refer to Image 3 below as an example.

The fencing shall remain in situ until the completion of all dwelling construction.



Image 3 - Example of recommended fencing materials and configuration

All tree protection fencing shall be prominently sign posted indicating that the area is not to be accessed (refer to example from AS 4970 below in Fig 3). The sign shall include contact details for the builder/project manager and project arborist and can also include information about activities that are not allowed within the Tree Protection Area.

At a minimum the signs shall -

- Be visible from within the development site and shall be compliant with AS 1319-1994
 'Safety signs for the occupational environment' as specified in AS4970.
- Be annotated as conditioned by Council (if applicable).
- Be constructed from a durable material (i.e., metal, Coreflute) that will last for the duration of the works on site.
- Be securely attached to the fencing and replaced if removed or if the attachment fails.
- Be left in place until the Tree Protection Fencing (or other tree protection) is approved for removal by the Project Arborist.
- Include contact details for the Project Arborist



Figure 3 – Example of a Tree Protection Sign (Source - AS4970-2009 'Protection of trees on development sites' Appendix C).

10.2 Ground Protection

Where the area of the TPZ is not able to be fenced the Project Arborist may specify ground protection to prevent root damage and soil compaction. In accordance with *AS4970 "Protection of trees on development sites"*. Measures may include 100mm of mulch laid over a geotextile membrane or if machinery is required within the TPZ aggregate or rumble boards laid over geotextile.

10.3 Excluded works within TPZ

As listed in AS4970, the following activities must be excluded from the TPZ's <u>whether fenced</u> <u>or not</u>:

- machine excavation (unless approved in writing prior by the Project Arborist note: excavation for dwelling footing not included in exclusion)
- excavation for silt fencing (unless approved in writing prior by the Project Arborist)
- cultivation
- storage
- preparation of chemicals (including cement products)
- parking of vehicles and plant
- refueling
- dumping of waste
- wash down and cleaning of equipment
- placement of fill
- · lighting of fires
- soil level changes
- temporary or permanent installation of utilities and signs, and
- physical damage to the tree

It is noted that the Environmental Site Management Plan prepared by Greenview Consulting (dated 08/03/2022) shows the skip bins, materials stockpiles, site access, toilet and shed outside the TPZ.

10.4 Project Arborist / Holdpoints

A Project Arborist is to be engaged prior to any work commencing on site. The Project Arborist must have a minimum qualification of AQF (Australian Qualification Framework) Level 5 in Arboriculture.

The Project Arborist must certify the following HOLDPOINTS –

Stage of arboricultural inspection	Compliance documentation and photos shall be included
Installation of tree protection fencing/measures prior to any work commencing on site	Compliance with tree protection measures as approved and the Tree Protection Plan in Appendix 1.
Any changes in approved tree protection	Compliance with amended tree protection measures as approved
Installation of boundary silt fencing and common area pathway and bench slab	Compliance with specification in 10.6.1, 10.6.2
Pruning of roots – supervision	Compliance with specification in 10.6.1

Stage of arboricultural inspection	Compliance documentation and photos shall be included
Regular (usually bi-monthly inspections) to ensure tree protection is suitable and in place and compliance with all conditions relating to protection and ongoing health of the trees	Site inspections with Project Manager.
Prior to the issue of a Final Occupation Certificate	Compliance that all works have been undertaken as conditioned by Council and/or in accordance with this report.

10.6 The following work within the TPZ's must be undertaken as specified –

10.6.1 Root pruning

No root pruning shall be undertaken within the SRZ.

Within the TPZ no roots with a diameter of greater than 40mm shall be pruned or damaged in relation to the excavation for the silt fencing or installation of the pathway through the common area. Project Arborist to determine suitable action if any such roots are encountered during careful excavation for these installations.

Pruning of roots with a diameter of less than 40mm within the remainder of the TPZ must be undertaken using a sharp and 'fit for purpose tool' such as a pruning saw ensuring a smooth wound face, free from tears.

Approved pruning must be undertaken in accordance with Australian Standard 4373 'Pruning of Amenity Trees' (AS 4373) and Workcover NSW Code of Practice Amenity Tree Industry.

10.6.2 Excavation

Excavation for boundary silt fencing pegs or for the installation of the pathway through the common area must be undertaken using tree sensitive methods and as directed by the Project Arborist.

Pegs for the fencing and the subgrade for the pathway must be located clear of woody tree roots that are not to be damaged or pruned.

10.6.3 Machinery access (ground protection)

Access to the site by machinery shall be clear of the TPZs of all trees to be retained unless the machinery is traversing over existing concrete slabs, paving or elevated structures. Should machinery require access through a TPZ over exposed ground surfaces the route and ground protection must be approved prior by the Project Arborist.

10.6.4 Soft Landscaping

Excavation for planting must be carefully undertaken by handheld tools ensuring that woody tree roots are not damaged - plants to be located accordingly.

The installation of fill should be avoided within the TPZ. If the installation of fill cannot be avoided a minor amount of fill (maximum 150mm in isolated areas) for planting may be approved (by the Project Arborist) in some areas providing that the fill is not placed directly around the base of the trunk and that the material is a well-drained, friable soil that matches the texture of the existing site topsoil.

Any fill shall be in accordance with AS4419 'Soils for Landscaping and Garden Use'.

10.6.5 Underground Services

All proposed stormwater lines and subterranean services shall be located outside the TPZ unless approved in writing by the Project Arborist prior to installation. Where installation outside the TPZ is not possible alternate tree sensitive measures for excavation may be utilized if specified, and supervised, by the Project Arborist.

It is noted that the drainage plan prepared by Greenview and dated 3/2/2022 shows all pits and stormwater lines clear of the TPZ of Tree 1.

LISA DURLAND

Diploma of Arboriculture (AQF Level 5) – Distinction TRAQ – ISA Tree Risk Assessment Qualification QTRA – Risk Assessment Qualification Associate Diploma in Landscape Design Certificate of Horticulture

Assumptions: Care has been taken to obtain information from reliable sources as far as possible. Lisa Durland can neither guarantee nor be responsible for the accuracy of information provided by others. Unless stated otherwise: The inspection was limited to visual examination of the subject tree/s without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject tree/s may not arise in the future.

11 Bibliography/References

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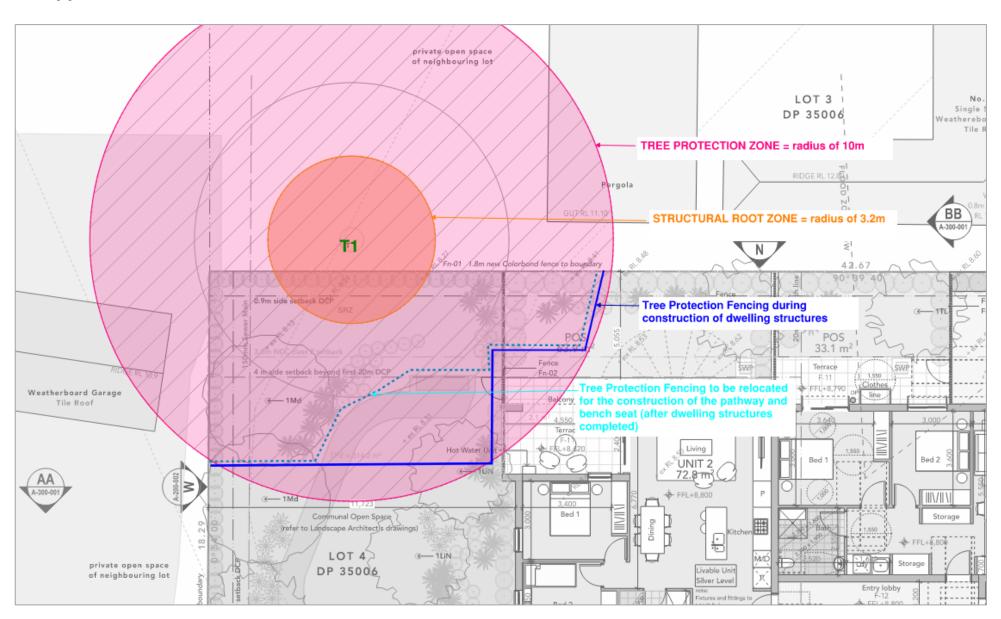
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12 Appendix 1 - Tree Protection Plan



13 Appendix 2 – Images



Image 3 - Looking at the mid to the lower trunk of T1 from within the rear of the subject site at 13 Latty Street



Image 4 - Looking at T1 from the rear of the subject site at 13 Latty Street



Image 5 - Looking up into the canopy of T1. There is a hollow (possibly originally started as a branch tearout and likely providing habitat for the Galahs) at a height of approx. 1 metre above where the main trunk becomes co-dominant. It looks from the ground-based inspection that there may be some damage (possibly cockatoo) at a couple of the lower branch unions. It is not possible to determine if there is any loss of structural integrity associated with these wounds without an aerial inspection.



Image 5 - Looking at T1 and a second *Eucalyptus punctata* (Grey Gum - on the right of image) from within 11 Latty Street. The tree on the rear boundary of 11 Latty Street will not be impacted by any development on the subject site at 13 Latty Street.



Image 6 – The *Liquidambar styraciflua* (Liquidambar) located within the front setback of 11 Latty Street. This tree will not be impacted by any development at the subject site at 13 Latty Street.

14 Appendix 3 - Tree Assessment Methodologies

The assessment of the tree is based on a visual inspection of the trees from ground level using relevant aspects of the Visual Tree Assessment (VTA) method as outlined by Mattheck & Breloer (1994). The inspection included notation of the dimensions of the trees, the density and health of the foliage in conjunction with an examination of the form and structure of the trunks, branches and crown and an assessment of the health and soundness of these elements of the trees.

The inspection was limited to visual inspection of each tree without dissection or coring. The inspection did not include aerial inspection and no testing of woody tissue or substantial subterranean root investigation was undertaken.

The tree heights were estimated using comparison with adjacent structures where heights and dimensions were known. The canopy spread was estimated and the trunk diameter at breast height (DBH) and trunk diameter above the root flare (DARF) was measured using a Yamayo® diameter tape at 1.4 above ground and is expressed in millimeters unless access was not provided and then the diameters have been estimated.

All measurements from the tree/s are taken as if measured from the centre of the tree trunk and are expressed in meters.

The criteria for assessing health included assessing density of the canopy, new extension growth, impact of pests and or diseases, amount and dimensions of deadwood/dieback, size and colour of foliage and presence or absence of epicormic growth. Each tree was rated as having Good (G), Medium (M), Poor (P) or Dead (D) health.

The criteria for assessing condition included assessing the soundness of the branch unions, presence of cavities and or decay, branching structure including co-dominant trunks and rubbing branches, leaning trunks, root girdling or root damage/removal, branch failures and general structural integrity. Each tree was rated as having Good (G), Medium (M), Poor (P) or Remove (R) condition.

No soil sampling or testing has been undertaken.

15 Appendix 4 - Tree Retention Value Assessment Methodology

The process as detailed below was used to determine a retention value for each tree on the site. The retention value assists in determining the constraint value of each tree in the context of designing the proposed development.

The process for determining the retention values involved a considered methodology detailed as follows, in order of undertaking -

15.1 ULE

Each tree has been assigned a ULE (Useful Life Expectancy) value modified by a process developed by Barrell (1996). The objective of a ULE assessment is to assign a relative value to individual trees within a group for the purpose of informing future management options. In summary, ULE is the life expectancy of each tree modified by economic considerations, impacts on trees with a longer ULE and the retention of the amenity of the wider landscape. Details of the ULE categories (from which the ULE values were derived) are provided in Appendix 5.

15.2 Landscape Significance rating

Each tree has been assigned a Landscape Significance rating using the criteria developed by Morton (2011). The trees have been rated using criteria relating to heritage, ecological and amenity values. The table detailing the criteria for assigning significance ratings is provided in Appendix 6.

15.3 Retention Value

As required by Clause 2.3.2 of AS4970 'Protection of trees on development sites' a Retention Value has been assigned to each tree on the site.

Using the ULE and the Landscape Significance rating the Tree Retention Value Matrix has been applied to determine a retention value for each tree. The matrix is included in Appendix 7.

The Retention Value does not include a consideration of the proposed development work and is not a schedule for tree retention or tree removal however is one, of several, considerations when designing works on a development site. Note – The Retention Value of a tree on an adjacent site will almost always be considered 'High' as development must not impact the structural integrity or ongoing health of a tree on another site.

16 Appendix 5 - Useful Life Expectancy (ULE) Categories

Each tree has been allocated a ULE rating that aligns with one of the categories below -

- I. 40 years or more
- II. 15 40 years
- III. 5 -15 years
- IV. Less than 5 years

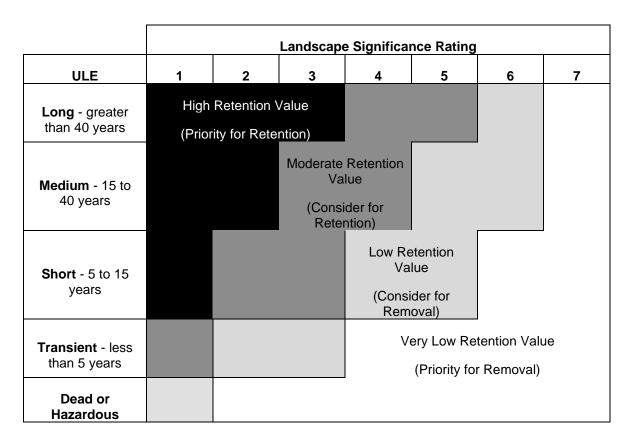
The methodology has been modified from Barrell (1996) and is based on an estimate of the longevity of each tree in consideration of the growing environment. Further consideration is given to the tree health, structural condition and the site suitability and the ULE is modified if required.

17 Appendix 6 – Landscape Significance Table

Ref: Andrew Morton - Earthscape Horticultural, Berowra, NSW (December 2011) - modified by Green Spaces Consultancy 2019.

RATING	HERITAGE VALUE	ECOLOGICAL VALUE	AMENITY VALUE
	The subject tree is listed as a Heritage Item under the Local Environment Plan (LEP) with a local, state or national level of significance or is listed on Council's Significant Tree Register	The subject tree is scheduled as a Threatened Species as defined under the Threatened Species Conservation Act 1995 (NSW) or the Environmental Protection and Biodiversity Conservation Act 1999	The subject tree has a very large live crown size exceeding 300m² with normal to dense foliage cover, is in a visually prominent position in the landscape, exhibits very good form and habit typical of the species
1. SIGNIFICANT	The subject tree forms part of the curtilage of a Heritage Item (building /structure /artefact as defined under the LEP) and has a known or documented association with that item	The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter or nesting tree for endangered or threatened fauna species	The subject tree makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity
	The subject tree is a Commemorative Planting having been planted by an important historical person (s) or to commemorate an important historical event	The subject tree is a Remnant Tree, being a tree in existence prior to development of the area	The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance.
2. VERY HIGH	The tree has a strong historical association with a heritage item (building/structure/artefact/garden etc.) within or adjacent the property and/or exemplifies a particular era or style of landscape design associated with the original development of the site.	The tree is a locally indigenous species, representative of the original vegetation of the area and is a dominant or associated canopy species of an Endangered Ecological Community (EEC) formerly occurring in the area occupied by the site.	The subject tree has a very large live crown size exceeding 200m ² ; a crown density exceeding 70% (normal-dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area
3. HIGH	The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence	The tree is a locally indigenous species and representative of the original vegetation of the area and the tree is located within a defined Vegetation Link / Wildlife Corridor or has known wildlife habitat value	The subject tree has a large live crown size exceeding 100m ² ; The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g., crown distortion/suppression) with a crown density of at least 70% (normal); The subject tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area
4.	The tree has no known or suspected historical association but	The subject tree is a non-local native or exotic species that is	The subject tree has a medium live crown size exceeding 40m ² ; The tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc.) with a crown density of more than 50% (thinning to normal); and
MODERATE	does not detract or diminish the value of the item and is sympathetic to the original era of planting.	protected under the provisions of this DCP.	The tree is visible from surrounding properties but is not visually prominent – view may be partially obscured by other vegetation or built forms. The tree makes a fair contribution to the visual character and amenity of the area.
5. LOW	The subject tree detracts from heritage values or diminishes the value of a heritage item	The subject tree is scheduled as exempt (not protected) under the provisions of this DCP due to its species, nuisance or position relative to buildings or other structures.	The subject tree has a small live crown size of less than 40m² and can be replaced within the short term (5-10 years) with new tree planting
6. VERY LOW	The subject tree is causing significant damage to a heritage Item.	The subject tree is listed as an Exempt Species in the relevant Local Government Area, being invasive, or is a known nuisance species.	The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area. The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50% (sparse).
7. INSIGNIFICANT	The tree is completely dead and has no visible habitat value	The tree is an invasive weed under the Biosecurity Act (2015) within the relevant Local Government Area.	The tree is completely dead and represents a potential hazard.

18 Appendix 7 - Tree Retention Values Matrix



Ref: - Modified from Couston, Mark & Howden, Melanie (2001) **Tree Retention Values Table** Footprint Green Pty Ltd, Sydney Australia