

Preliminary Tree Report. NCA Canberra Grammar School, Alexandria Drive, Yarralumla Bay



Above Photo: The eight trees to be assessed at Alexander Drive, Yarralumla ACT

Site Address	Canberra Grammar School, Alexandria Drive, Yarralumla Bay, Yarralumla ACT. Block 3 Section 19.			
Client	Kent Peters M: 0412 029 146			
Contacts	E: <u>lucy@saarch.com.au</u> M: 041 823 7962			
Date	14 February 2018			
Author	Steve Griffiths, Level 5 Arborist, Treeworks			
Job #	422676			



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Table of Contents

Glossary
Executive Summary
Preamble
Tree Identification
Brief6
About this Preliminary Arboricultural Report
Method and Limitations7
Tools used to collect Data for this Report:7
OBSERVATIONS
About the Trees
Cupressus arizonica7
Casuarina cunninghamiana7
Observation Table 1
Observation Table 2
Glossary of Observation Table 1 and 29
Abiotic Disorder Found in some Trees
Discussion12
Recommendations12
Legal Legislation
Acknowledgements
No Warranty for Non Discernible Defects or Damage
Reliance Period
Disclaimer of Liability to Third Parties
APPENDIX 1
Site Map - Positioning of Trees Assessed
APPENDIX 2
Photos of Trees Assessed on the Site
APPENDIX 3
Findings of Interest



Glossary

Botanical Name	Botanical name is the formal scientific name which			
	conforms to International Code of Nomenclature.			
Common Name	The common layman's name for a tree.			
Vigour	The health and resilience of a tree, the overall condition			
	on a qualitative scale from 'high' to 'low'.			
Structure Integrity	The ability of the tree to hold together under a load, in			
	regards to weight, wind throw, weakened unions and			
	diseases, without breaking excessively.			
Height	The estimated height of the tree.			
Crown	The diameter of the leaf mass in the tree (leaf coverage			
	diameter).			
DBH	Diameter of the trunk or trunks at breast height (1.4m).			
Age Class	Grouped from young to old, sapling, young, semi			
	mature, mature and over mature.			
Useful Life	(ULE) measures the amount of years left in the tree			
Expectancy	before it becomes a possible mitagation problem or a			
	tree in decline.			
Regulate Tree	Regulated trees have been classified by ACT			
	Government as being 12m in height, or a canopy spread			
	greater than 12m, or 1.5m circumterance at 1m above			
	ground level.			
Habitat Matters	Arboreal animals that live in the tree and others that			
	need the tree to survive.			
Refention Value	The value of refaining, preserving and continuing to hold			
	on to the free for future. High, low or poor.			
Abiotic Matters	Non-living considerations eg. shade, erosion, obstruction,			
	erosion prevention.			
Other Notes	Other noticable comments worth mentioning.			



Executive Summary

All trees assessed on this site were recommended for either retainment or removal and come under the jurisdiction of the National Capital Authority (NCA). All eight trees assessed on the site are recommended to be removed (refer to Observation Table on page 8 of this report).

This preliminary tree report (report) is intended to be viewed by NCA personnel only. This report is in accordance with:

- AS 4970-2009, Section 2.2, Page 7.
- Notifiable Instruments > NI2010-586. Tree Protection Act 2005, Section 3.5, Specific Conditions for Individual Trees.

The two temporary sheds placed next to the existing building serve as changing rooms and bag storage. They should be kept in place for the duration of this development which is dated April 2019. And will have no ramification or ill health to the Casuarina cunninghamiana trees surrounding this area.

Preamble

Trees and their root systems may occupy a substantial part of a development site and be a major influence on planning. (AS 4970-2009, Page 4)

Accordingly, successful tree management requires the cooperation of everyone working on the design and subsequent development of a site; it is essential all involved appreciate the rationale and importance of retaining designated trees and the means by which this can be achieved, namely, by careful and strict maintenance of trees' areas of protection. (AS 4970-2009, Section 2.1, Page 7)

It is the work of a consulting Arborist to supply information on the health of trees on a site and advise appropriate tree protection zones for regulated and nonregulated trees, saving concerned parties time and money in the long term.

However, it should be understood that the majority of trees have defects that may or may not be detectable without invasive diagnostic tooling methods. These defects, caused by environmental, human or genetic factors, may be potentially hazardous to people and property.

Visual Tree Assessment¹ is a widely used and standardised arboricultural practice and as such was used in this assessment. It is a systematic inspection of a tree for indicators of structural defects that may pose a risk due to failure. The first stage of a visual tree assessment is conducted from ground level; no climbing or aerial inspection is undertaken unless there are visual indicators to suggest that this is merited. Details of the visual indicators are contained in the *Body Language of Trees by Mattheck & Breloer (1994)*. Invasive and other diagnostic fault detection procedures will only be recommended when visual indicators of potential concern are observed.



Tree Identification

When identifying species and cultivars, it is important to note that some macrobotanical characteristics change over time. There may be small changes between cultivars and species, and not all botanical signs are featured at the date of inspection. If an absolute identification is required, a further reexamination of micro-botanical characteristics will determine species or cultivar.

Brief

The author of this report has:

- Visited the site.
- Identified the genus/species of trees on the site.
- Observed the health of the trees on the site.
- Provided a visual tree assessment on substantial trees only.
- Identified tree protection zones for further works if needed.
- Provided a basic tree management plan for trees to be retained (if any).

About this Preliminary Arboricultural Report

Tree protection is mostly effective when considerations are planned in the early stages. Preliminary Arboricultural Reports are not intended to be the one and only comprehensive tree protection report however, it sets a good base for the Arboricultural Impact Assessment. The information formatted in the Preliminary Tree Report is to be used for designers' planners, architects and landscapers, in conjunction with planning controls and other local legislation.

All trees will have their tree protection zones and structural root zones measured in meters radius (see Observation Table 1, Page 8. Abiotic observations are discussed on page 10).

Biotic issues will also be brought forth such as pest and diseases and any changes that may affect the present ecosystem, to develop the design layout in such a way that trees selected for retention are provided with enough space to thrive. (AS 4970-2009, Chapter, 2.3.3, Pages 9-10)

When construction design occurs, consideration should be given to sensitive areas within the tree root area in the form of;

- Screw pier foundation
- Suspended beams
- Suspended slabs
- Cantilevered building sections
- Contiguous piling
- Waffle pad foundations



Method and Limitations

A visual tree assessment was completed on Wednesday 14 February and Thursday 15 February 2018. Observations and data were collected, no invasive testing was conducted and an aerial inspection was not required.

Tools used to collect Data for this Report:

- Soft hammer (nylon type) for detecting acoustic variances in the trunk (for measuring decay).
- Tape measure for measuring trunk diameters at breast height (DBH).
- A camera for documentation of photos for further examination.
- A digital microscope camera.
- Specimen bag and root spade.

It is noted that the information in this report covers the eight trees positioned on National Capital Land, listed in the Observation Table 2, Page 8. This information reflects their health condition at the time of assessment. Tree heights were estimated for this report, with an accuracy to +/- 5%.

OBSERVATIONS

About the Trees

Cupressus arizonica

This Cypress is a coniferous tree that has an ovoid-conic crown when in a singular setting. It grows to heights of 10–20m in Canberra soils. The foliage is a dull green to gray leaf, with 2-5mm scale like leaves on a rounded petiole. Being a gymnosperm the seeds dehiscence from globose to oblong cones. This tree is often seen around Canberra and in farming areas as a windbreak. Useful life expectancy of these trees is around 60 to 70 years.

Casuarina cunninghamiana

Commonly called River Oak, this tree is an attractive evergreen. Foliage colour, greyish green with a needle-like appearance. This tree enjoys being in sunny areas along rivers or stream banks, which in turn helps to control riverbank erosion. This tree has also a naked seed being a gymnosperm with small cones. Flowers are both male and female, with the female flowers being red.

The River Oak can reach 30m in Canberra and have a canopy spread of about 10m. Casuarina cunninghamiana suits the Canberra climate being frost tolerant to around -8 °C and also similar to a Cypress, it is widely used as a screening plant.



Observation Table 1

Tree #	Genus Species	DBH mm	TPZ (m) rad.	SRZ (m) rad.	BR dia. (mm)	Height (m)	Average canopy spread (m)	Age	Structural Integrity	Live foliage %
1	Casuarina cunninghamiana	740	8.88	3.38	1050	16	11	Μ	Good	90
2	Casuarina cunninghamiana	670/ 370	9.24	3.51	1150	16	12	М	Very Poor	90
3	Cupressus arizonica	620	7.44	2.85	700	12	8	М	Very Poor	65
4	Cupressus arizonica	300	3.6	2.49	510	14	6	S/M	Medium	70
5	Cupressus arizonica	530	6.36	2.71	620	16	8	М	Good	70
6	Cupressus arizonica	230	2.76	2.39	460	12	4	S/M	Poor	30
7	Cupressus arizonica	370	4.44	2.37	450	15	6	S/M	Good	70
8	Cupressus arizonica	620/ 230	7.92	2.83	690	15	8	м	Poor	65

Observation Table 2

Tree #	Common name	Comments on Findings	Retain or Remove
1	River Oak	Tree appears to be of good structure and health, however there needs to be a weight reduction by 5% on branches (two over foot path), only removing branch 20mm in diameter. However, the tree is in the building footprint.	Remove
2	River Oak	This tree has many weakened unions in the form of bark-included forks; they haven't failed yet, most likely due to wind protection from the other trees.	Remove
3	Cypress	This tree is similar to Tree #2, has bark-included forks and is suppressed on one side due to lack of light. This leaves the tree with much deadwood.	Remove
4	Cypress	Tree appears to have girdling roots, as there is no branch flare - this tree is structurally unstable.	Remove
5	Cypress	This tree is heavily suppressed due to lack of light caused by the trees leaves. Tree has a lot of dead branches.	Remove
6	Cypress	This tree is of poor structure due to high slender ratio, 42:1 - is getting to the danger area and is close to that ratio.	Remove
7	Cypress	Due to phototropism, this tree has all its foilage leaning to the north and having all dead branches on the south side.	Remove
8	Cypress	This tree, as seen in the photos, has a poor structure.	Remove



Glossary of Observation Table 1 and 2

Age	The estimated age of the tree; mature (m) or semi mature (s/m).		
Average Canopy Spread	Diameter of the average dripline of the tree's canopy.		
BR dia.	Basal root dia; measured just above the trunk's flair.		
Comments on Findings	Relevant observations from data collected.		
Common Name	The tree's common name.		
DBH	Diameter at breast height; 1.4m from natural ground level.		
Genus/ Species	Botanical name for a tree.		
Height	Estimated height of a tree; give or take 5% accuracy.		
Live Foliage %	The percentage of noticeable live leaf in the trees canopy.		
Retain or Remove	Recommendation whether to keep or remove the tree.		
SRZ	Trees Structural Root Zone, an area where there is to be no disturbance.		
Structural integrity	Measuring the tree's structural strength by means of visual bio-mechanics.		
TPZ	The Tree Protection Zone; DBH x12= TPZ radius.		
Tree #	The tree's number, shown on the Site Plan.		



Abiotic Disorder Found in some Trees

Girdling of Roots



Girdling of roots is where roots circle and ringbark themselves as they enlarge. Here in this photo on the left, shows as a flattening of the trunk (no trunk flare) in a section - see arrow. This could be a potential structural weakness and should be monitored in 12 months' time.

Poor Structure; Bark-included Forks



Photo 2: Tree #8 - bark-included forks or compression unions. Also found on Trees #2 and #3.

This photo shows Tree #8 with a possibly poor structured union. As the two trunks grow, an extra ring of wood is added to the thickened trunk thus separating apart. This disease is an abiotic disease.



Lack of Light Problems



This photo shows supression or lack of light, found in Trees #4, 5, 6 and 7, which is common in a forest type setting where branches that are no longer exposed to light die off, leaving the tree in a assymetrical appearance. Phototropism is another form of this abiotic disease where the tree's growth is towards the light. This can cause slender ratio problems, where structural strength is weakened. This is also common on the inner trees' of a forest setting. Tree #6 has a slender ratio near 42:1 (height by trunk diameter)

Photo 3: Tree #7 - dead branches in the tree caused by over planting.



Discussion

All of the trees' accessed in this paper, apart from Tree #1, have abiotic diseases worthy of removal. Considering the useful life expectancy left in these trees, an option is to remove all the trees and plant trees that are younger and more vigorous.

Recommendations

Removal of all eight tree prior to demolition stage and grinding of all stumps.

Legal Legislation

The Australian Standards; Protection of Trees on Development Sites 4970-2009, outlines the required procedures for the protection of significant trees. This report highlights the relevant standards required to be followed.

This report is submitted and acknowledged by the client as prepared by Steve Griffiths, Arborist of Treeworks as instructed, on a limited basis after visual inspection of the tree at ground level only.

Acknowledgements

The client acknowledges:

- a) That Treeworks has not conducted any invasive procedure or ultrasound test on the tree, nor inspected them at crown level or below surface level.
- b) This report does not and cannot make comment upon, determine or assess defects that may exist in the trees internally. Whether arising from decay, disease, effect of drought, insect infestation or any other inherent condition that may exist.

No Warranty for Non Discernible Defects or Damage

Accordingly, this report cannot and does not warrant that defects or damage do not exist within the trees that may not be discernible to a competent Arborist making an inspection at ground level.

Reliance Period

The client acknowledges that no reliance may be placed on this report after twelve months following the date of inspection.



Disclaimer of Liability to Third Parties

To the extent permissible by law, Steve Griffiths, Arborist of Treeworks is not liable for any loss, damage, personal injury, costs or expenses suffered by any person or persons other than the recipient of this report.

Thank you for the opportunity to provide this report. Should you have any questions relating to this report, please feel free to call my office on 02 6282 1244.

Kind regards,

Stephen Griffiths



APPENDIX 1



Site Map - Positioning of Trees Assessed



APPENDIX 2

Photos of Trees Assessed on the Site









APPENDIX 3

Findings of Interest

Tree #2: River Oak - Bark- included fork, weakened union.	Tree #4: Cypress - No flare on trunk, evidence of girdling roots.	Tree #5: Cypress - Suppressed growth due to lack of light and overplanting.

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References

- Australian Standards Protection of Trees on Development Sites (AS 4970-2009).
- VTA Matteck, C & Breloer, H 1994. Field Guide for a Visual Tree Assessment.
- Fourth addition Arboriculture Chapter 11, Locating Tree Roots, Page 265. (Top right of page).
- AS 4970-2009, Section B3.4, Page 26.
- ⁽¹⁾.Harris, Clark, and Matheny. Arboriculture bk. 4th edition 2004. Chapter 11, Assessing.