

Safe Useful Life Expectancy tree report

for

Proposed new clinical building

at

Blacktown Hospital

Blacktown Road, Blacktown

Date: 15 August 2012

Prepared for: Health Infrastructure

Prepared by: Abel Ecology



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List of Abbreviations

SULE	Safe Useful Life Expectancy
d.b.h.	Diameter at breast height (~1.4 metres)
VTA	Visual Tree Assessment

Note regarding maps in this report

The diagrams/site maps used in this report have been supplied by and are used with the permission of Appian Group.

Disclaimer

No tree is entirely without hazard potential. No responsibility is accepted for any damage or injury that may be caused by any trees on the site. All measures outlined should minimise damage inflicted on the trees if carefully implemented.



Figure 1. Locality map

 Surveyed area

Image source: www.nearmap.com © 2012

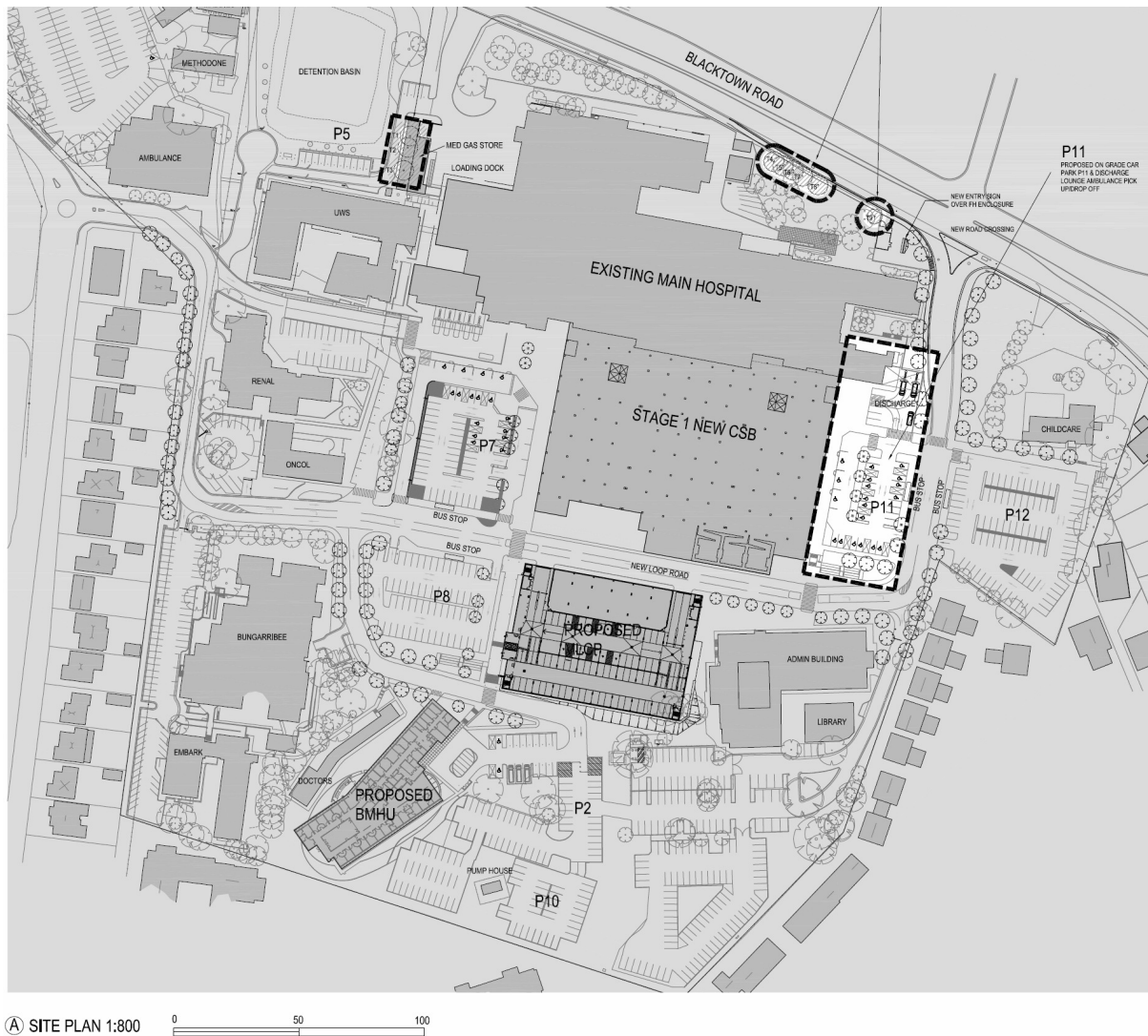


Figure 2. Extract from Site Works P11 & Tree Removal Proposal Drawing No BIN-AR-DG-0476

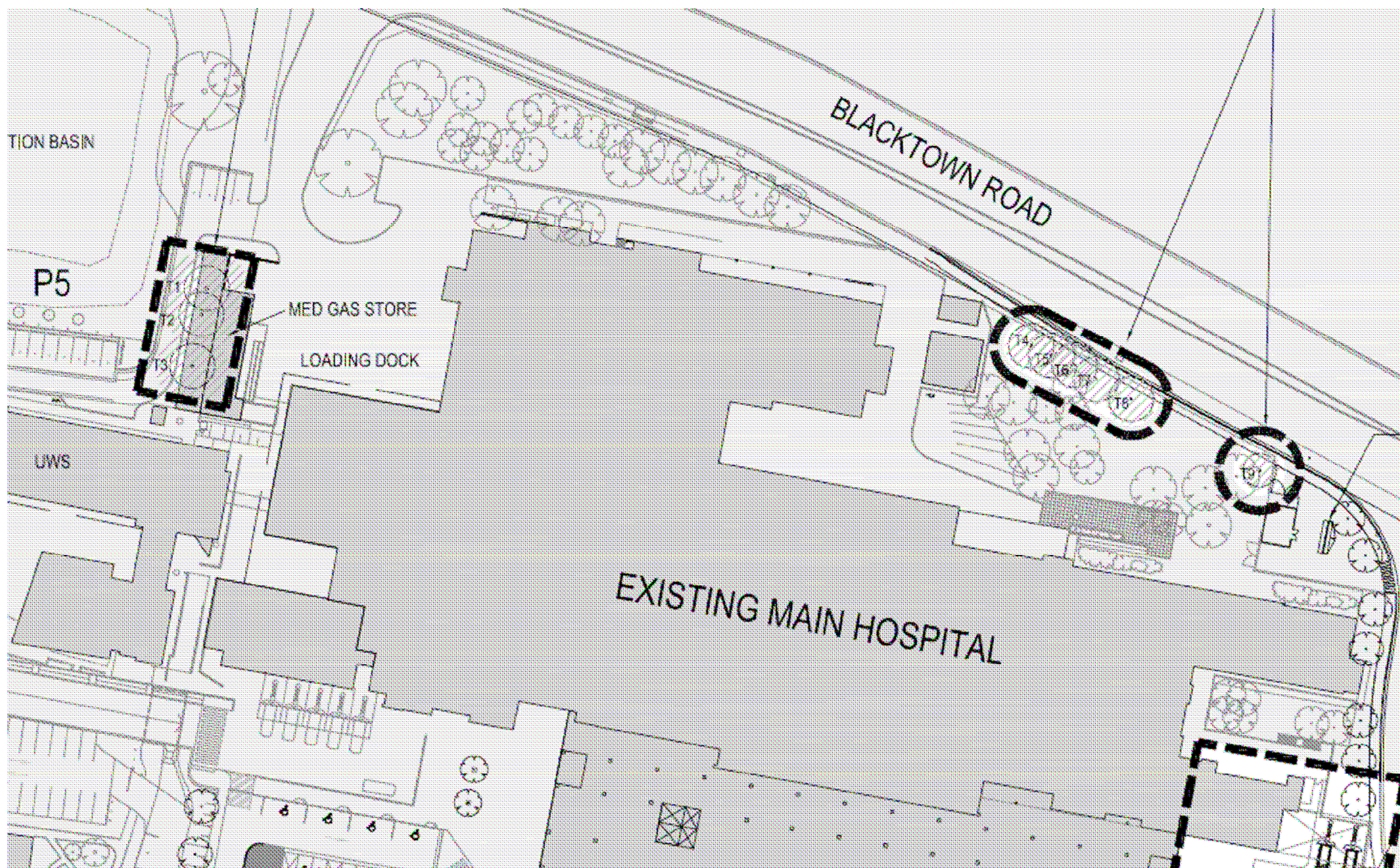


Figure 3. Close up of Extract from Site Works P11 & Tree Removal Proposal Drawing No BIN-AR-DG-0476



Executive Summary

The proposal is to construct a new clinical building on the site, which is located on the grounds of the Blacktown Hospital Campus, Blacktown Road, Blacktown (see Figure 1).

A tree assessment was carried out under instruction from the Senior Project Manager, Tony Kiernan, on a section of the site only (see Figure 3). Tony Kiernan has requested that only the numbered trees require a report. The proposal is to remove the numbered trees.

There are no numbered trees in the area surveyed that have special or particular values that warrant their being retained. All are relatively young trees that have been planted on the site. The trees are not remnant vegetation nor are they re-growth from remnant vegetation.

It is recommended that any trees removed be replaced by local indigenous species. These must be shown on the landscape plan.

Recommendations

- a) There is no impediment to the removal of the trees listed in this report.
- b) The impact on other trees that are unnumbered within the survey area has not been considered in this report.
- c) It is recommended that one locally indigenous tree species, such as Red Forest Gum *Eucalyptus tereticornis*, Grey Box *Eucalyptus moluccana*, Thin-leaved Stringybark *Eucalyptus eugenioides* or Narrow-leaved Ironbark *Eucalyptus crebra* be planted for each tree removed. An additional nine indigenous trees of one or more of the species named in this paragraph must be nominated for replanting in the landscape plan.



1. Introduction

A survey of the proposed development area located along Blacktown Road, Blacktown was undertaken on 23 July 2012.

The main aim of this survey was to assess selected trees on the site and prepare a report that addresses issues pertaining to the proposal. The nine selected trees include three located in car park P5 and six adjacent to Blacktown Road.

This report provides a description of individual trees.

1.1 Site description

The site is located along Blacktown Road, Blacktown (Figure 1). It is the site of the Blacktown Hospital Campus, and as such a heavily developed area.

The area of the site surveyed is approximately 0.2 ha in size and is situated adjacent to Blacktown Road (as per drawing no. BIN-AR-DG-0476, seen in Figure 2) on the Northern boundary of the Blacktown Hospital Campus. Adjacent properties to the North, South, East and West are residential and light commercial properties.

2. Methodology

The tree assessment was undertaken on 23 July 2012.

The SULE (Safe Useful Life Expectancy) method of tree evaluation was used to indicate tree suitability. Explanatory notes on SULE categories and terminology that may be used in this report are detailed in Appendix 1.

The vitality and condition of trees was visually assessed from ground level using the Visual Tree Assessment method (Mattheck, 1999). Tree heights were determined by visual estimation.

Numbers identifying the trees are indicated in the Tree Schedule (Section 3.3) below. The trees were labelled with an aluminium tag stating their tree number as per drawing no. BIN-AR-DG-0476 (An extract of this drawing is displayed in Figure 3). Multi-stemmed shrubs with stem diameters less than 10 cm and/or shorter than three metres were not tagged.



3. Survey Results

3.1 Condition and vitality of trees on-site

The vitality and condition of trees is generally good to fair. Trees of low vitality and/or poor structural integrity that have a limited safe useful life include the following:

Tree no.	Tree name	Problem
9	<i>Corymbia maculata</i>	On inspection this tree appeared to be in very poor health and had significant die-back in its canopy. If the canopy continues to diminish it will result in the death of this tree.

The trees on site are predominantly planted Eucalyptus species.

The trees within the survey area were all planted specimens; none were remnant trees or re-growth trees from remnant vegetation.

3.2 Tree Photos

A photo of each tree is provided in Appendix 2.

3.3 Tree Schedule

The following tree schedule describes the numbered trees shown on the Tree Removal Plan.

Tree no.	Species	Age class	Height (m)	d.b.h. (cm)	Radius	Vitality	Condition	SULE	Comments
1	<i>Corymbia maculata</i>	SM	10	32	N 2.5 S 2 E 2 W 2	G	G/F	1A/ 2A	large TW/BI in trunk, dw due to shading, slight CB to North
2	<i>Corymbia maculata</i>	SM	10	40	N 1.5 S 2 E 2 W 2	G	G/F	1A/ 2A	CD at 1.8m. dw due to shading
3	<i>Corymbia maculata</i>	SM	10.5	38	N 2.5 S 2.5 E 2.5 W 2.5	G	G	1A/ 2A	dw due to shading
4	<i>Corymbia maculata</i>	SM	7	23	N 1.5 S 1 E 1 W 1	G	G	1A/ 2A	dw due to shading, CD at 2.8m
5	<i>Corymbia maculata</i>	SM	7	25	N 2 S 2 E 2 W 2	G/F	G/F	1A/ 2A	dw due to shading, slightly thinning canopy



Tree no.	Species	Age class	Height (m)	d.b.h. (cm)	Radius	Vitality	Condition	SULE	Comments
6	<i>Corymbia maculata</i>	SM	8	29	N 2 S 2 E 2 W 2	F	F	3A	thinning canopy, dw, ep
7	<i>Corymbia maculata</i>	SM	9	30	N 2 S 2 E 2 W 2	G	G	1A/ 2A	localised ep, dw due to shading
8	<i>Corymbia maculata</i>	SM	8	30	N 2.5 S 2 E 2 W 2	G	G	1A/ 2A	dw due to shading
9	<i>Corymbia maculata</i>	SM	8	26	N 3 S 2 E 2 W 3	P	P	4A	ep, dw, TW at base of tree, large scale canopy dieback

2 KEY

Age Class

J - juvenile
SM - semi-mature
M - mature
OM - over-mature

Vitality and condition

E - excellent
G - good
F - fair
P - poor

Comments

CD - codominant stems
CB - canopy bias
TL - trunk lean
EC - elevated crown
BI - bark inclusion
TW - trunk wound
TC - trunk cavity
ep - epicormic growth
dw - small diameter deadwood
DW - large diameter deadwood

d.b.h. - Trunk diameter at 1.4m

4. Anticipated impact of the development to trees on site

4.1 Tree removal

6 The proposal is to remove the nine numbered trees from the site.

5. Recommendations

- There is no impediment to the removal of the trees listed in this report.
- The impact on other trees that are unnumbered within the survey area has not been considered in this report.
- It is recommended that one locally indigenous tree species, such as Red Forest Gum *Eucalyptus tereticornis*, Grey Box *Eucalyptus moluccana*, Thin-leaved Stringybark *Eucalyptus eugenioides* or Narrow-leaved Ironbark *Eucalyptus crebra* be planted for



each tree removed. An additional nine indigenous trees of one or more of the species named in this paragraph must be nominated for replanting in the landscape plan.

6. References

Barrell, J. (1993) 'Pre-planning Tree Surveys: Safe Useful Life Expectancy (SULE) is the natural progression' *Arboricultural Journal* Vol. 17, pp 36-46.

Barrell, J. (1995) 'Pre-development Tree Assessment' from *Trees and Building Sites, Proceedings of an International Conference held In the interest of developing a scientific basis for managing trees in proximity to buildings*, the International Society of Arboriculture, Illinois, USA, pp 132-142.

Barrell, J. (2001) 'Safe Useful Life Expectancy Categories updated 4/01' from *Management of Mature Trees*, proceedings of the 4th NAAA Tree Management Seminar, National Arborists Association of Australia, Sydney, Appendix 3. Also available as a web document from www.barrelltreecare.co.uk.

Mattheck, C. & Breloer H. (1999) *The body Language of Trees - a handbook for failure analysis* 5th Ed., London: The Stationery Office, UK.



Appendix 1. Safe Useful Life Expectancy (SULE) terminology and rationale

Explanation of terminology

d.b.h. - Acronym for trunk diameter at breast height (1.4m from ground level)

Vitality - Indicates the energy reserves of the tree and is determined by the observed crown colour and density, the percentage of dead/dying branches and epicormic growth. The vitality of the canopy and that of the root system is interdependent; root damage or heavy pruning draws on a tree's energy reserves. The tree's ability to initiate internal defence systems (compartmentalisation of damage) is reduced and it can also become predisposed to attack by insects and pathogens.

Epicormic Growth - The production of epicormic growth from dormant buds is a response to stress. Epicormic growth may be initiated by various causes such as branch loss, excessive pruning, fire damage, drought, defoliation and/or disease.

Mycorrhizae/Rhizosphere - Mycorrhizae are fungi that grow in symbiotic association with tree roots (especially the fine root hairs) and are attributed with increasing the uptake of nutrients, particularly phosphorus, and reducing infection from soil borne pathogens. They greatly increase the surface area of a tree's root system. Mycorrhizae require aerobic soil conditions and are reduced in number by compaction, waterlogging and overuse of soil fertilisers. Forest litter or similar mulch provides ideal conditions for the proliferation of Mycorrhizae. Rhizosphere is a term describing the peripheral area of a tree's root system where this symbiotic association most commonly occurs.

Condition - An evaluation of the structural status of the tree including defects that may effect the useful life of an otherwise healthy specimen. Such influencing factors include cavities and decay, weak unions between scaffolds (major branches) or trunks and faults of form or habit.

Tree Hazard Potential - An assessment of the risks associated with retaining a tree in its existing or proposed surroundings. Factors to consider are the growth characteristics of the species, tree vitality, condition and the frequency and type of potential targets. The impact the proposed works can have on tree vitality can only be assumed.



SULE categories and subgroups

The various SULE categories indicate the safe useful life anticipated for an individual tree or for trees assessed as a group. Factors such as the location, age, condition and vitality of the tree are significant to the determination of this rating. Other influences such as the tree's effect on 'better' specimens and the economics of managing the tree successfully in its location are also relevant to SULE (Barrell 1993, 1995, 2001).

1 = Long SULE of >40 years

A Structurally sound in suitable location	B Suitable to retain with some remedial care	C Significant status - requires special care to preserve
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2 = Medium SULE of 15-40 years

A Lifespan limit	B Eventual removal for safety or nuisance	C Remove for adjacent trees or replanting	D Suitable with remedial care
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3 = Short SULE of 5-15 years

A Lifespan limit	B Eventual removal for safety or nuisance	C Remove for adjacent trees or replanting	D Requires extensive remedial care
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4 = Remove tree within 5 years

A Dead, dying or diseased	B Unstable or exposed by new clearing	C Structurally defective	D Damaged and unsafe	E Remove for adjacent trees or replanting	F Damaging existing structures	G Clearing will affect stability	H 4A-4G SULE category with high wildlife habitat value - could retain
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5 = Trees suitable to transplant

A Small trees less than 5m high	B Young trees (<15yrs) over 5m high	C Height/width contained by pruning
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Appendix 2. Tree photos taken by Abel Ecology 23 July 2012



Tree 1



Tree 2



Tree 3



Tree 4



Tree 5



Tree 6



Tree 7



Tree 8



Tree 9



Appendix 3. Company Profile

Abel Ecology has been in the flora and fauna consulting business since 1991, starting in the Sydney Region, and progressively more state wide in New South Wales since 1998, and now also in Victoria. During this time extensive expertise has been gained with regard to Master Planning, Environmental Impact assessments including flora and fauna, bushfire reports, Vegetation Management Plans, Management of threatened species, Review of Environmental Factors, Species Impact Statements and as Expert Witness in the Land and Environment Court. We have done consultancy work for industrial and commercial developments, golf courses, civil engineering projects, tourist developments as well as residential and rural projects. This process has also generated many connections with relevant government departments and city councils in NSW. Our team consists of four scientists and two administrative staff, plus casual assistants as required.

Licences

NPWS s132C Scientific licence number is SL100780 expires 30 April 2013

NPWS GIS data licence number is CON95034

DG NSW Agriculture Animal Care and Ethics Committee approval AW 95/082

DG NSW Agriculture Animal Research Authority AW 95/082

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