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Dear Sir,

**re: 1041 Centre Road, Oakleigh South**

### **Introduction**

I am informed there is proposed to be a re-development of the above site. Currently the property is largely covered with a warehouse and concrete car park. Galbraith and Associates has been requested by the Pellicano Group to report on each tree or group of trees located within and close to the site. Each is discussed in terms of its species type, size, condition, origin, whether native as defined under the planning scheme, DBH, height by spread, worth for retention in any re-development and tree protection zones as per the relevant Australian Standard.

Each tree is located and numbered on the accompanying extract of the existing site conditions survey on page 2 and described on page 3.

There are no planning overlays relating to vegetation however given that the area of the site is over 0.4 Ha, a permit will presumably be required to remove native vegetation.

### **The Trees – General**

The trees around the warehouse are less than 15 years of age. They will have been planted soon after construction of the warehouse. These include the Yellow Gums and Lightwood wattles, i.e. trees 1-6, 8 and 11. Tree 7 is an older Lightwood in the adjacent property to the west, whilst tree 12 is a sapling of < 6 years, probably self-sown from seed of one of trees 1-4. On the east side of Link Avenue, trees 13-15 are clumps of self-sown weeds consisting of Flax-leaf Broom and Tagasaste. Tree 16 is a small Lemon Scented Tea-tree, again < 15 years of age. Tree 17 is an older tree, probably of the order of 25-30 years of age. It is a White Peppermint in fair-poor condition.

Of the trees within the site, it is only the Lightwood, represented by trees 1-4 and 12, which is indigenous to the area. Trees 1-4 have been planted as is evident by their arrangement in a row of equal spacing. The only self-sown indigenous tree may be tree 12, another Lightwood. It is however substantially less than 10 years of age. The Yellow Gums are native to Victoria however they do not occur naturally in the area – they have been planted.

Thus none of the trees require a permit to remove under Clause 52.17 of the Planning Scheme.



SYMBOL	DESCRIPTION
	TREE (LINK & SPREAD)
	TREE (LINK & SPREAD) WITH SPREAD
	TREE (LINK & SPREAD) WITH ROOT ZONE
	TREE (LINK & SPREAD) WITH CROWN
	TREE (LINK & SPREAD) WITH CANOPY
	TREE (LINK & SPREAD) WITH TRUNK
	TREE (LINK & SPREAD) WITH CANOPY & TRUNK
	TREE (LINK & SPREAD) WITH CANOPY & TRUNK & ROOT ZONE
	TREE (LINK & SPREAD) WITH CANOPY & TRUNK & ROOT ZONE & CROWN
	TREE (LINK & SPREAD) WITH CANOPY & TRUNK & ROOT ZONE & CROWN & TRUNK
	TREE (LINK & SPREAD) WITH CANOPY & TRUNK & ROOT ZONE & CROWN & TRUNK & ROOT ZONE
	TREE (LINK & SPREAD) WITH CANOPY & TRUNK & ROOT ZONE & CROWN & TRUNK & ROOT ZONE & CROWN

No. 1041  
DANIELSON ROAD  
LOT 1

LINK AVENUE

SITE PLAN - NOT TO SCALE

No. 1093-1098  
DANIELSON ROAD  
LOT 1

## THE TREES

Tree No.	Species Indigenous (I) Victorian (V) Australian (A) Exotic (E) Weed (W)	DBH (cm)	HxS (m)	Comments, WOR, TPZ(m), SRZ(m)
1	Acacia implexa I Lightwood	12	5x3	Young planted tree with severe root girdling. WOR 2 TPZ 2 SRZ 1.5
2	Acacia implexa I	7, 7	4x4	Young planted tree of poor structure with repeated split prone included bark forking. WOR 3 TPZ 2 SRZ 1.5
3	Acacia implexa I	16	7x7	Young planted tree of poor structure with repeated split prone included bark forking. WOR 3 TPZ 2 SRZ 1.5
4	Acacia implexa I	20	7x5	Young planted tree of poor structure with repeated split prone included bark forking. WOR 3 TPZ 2.4 SRZ 1.7
5	Eucalyptus leucoxylon V 'Rosea' type Yellow Gum	28	9x9	Healthy young mature tree with long sagging branches. A pressure fork is developing at 2m. WOR 5 TPZ 3.4 SRZ 2.1
6	Eucalyptus leucoxylon V 'Rosea' type	18, 16, 10	6x7	Healthy young mature tree with structural issues. WOR 5 TPZ 3.1 SRZ 2
7	Acacia implexa I	45, 21	10x10	Healthy neighbouring tree. Structural issues are developing with some included bark forking. TPZ 6 SRZ 2.5
8	Eucalyptus leucoxylon V 'Rosea' type	26	7x8	Healthy young mature tree. WOR 5 TPZ 3.1 SRZ 2
9	Genista linifolia EW Flax leaf Broom	< 3m tall		Group of shrubby weeds. WOR 1
10	Eucalyptus pulchella A White Peppermint	15	5x5	Very young, good condition. WOR 4 TPZ 2 SRZ 1.5
11	Eucalyptus leucoxylon V 'Rosea' type	9, 11, 10	6x6	The tree consists of sprouts from the stump of a cut down tree. WOR 3 TPZ 2 SRZ 1.5
12	Acacia implexa I	7, 4	4x2	Sapling growing in a narrow gap between a concrete ramp and fence. WOR 2
13	Genista linifolia EW	< 3m tall		Shrubby weed. WOR 1
14	Genista linifolia EW	< 3m tall		Group of shrubby weeds. WOR 1
15	Cytisus proliferus EW Tagasaste	< 5m tall		Group of shrubby weeds. WOR 1
16	Leptospermum petersonii A Lemon Scented Tea-tree	8, 8, 8	4x4	Young small tree of little note. WOR 4 TPZ 2 SRZ 1.5

Tree No.	Species Indigenous (I) Victorian (V) Australian (A) Exotic (E) Weed (W)	DBH (cm)	HxS (m)	Comments, WOR, TPZ(m), SRZ(m)
17	Eucalyptus pulchella A White Peppermint	51	10x10	Fair-poor. Substantial die-back of the crown is evident. A canker rot has recently established itself at 3m height in the trunk. WOR 4 TPZ 6.1 SRZ 2.6



Tree 7



Group 15 in foreground.



Trees 1-4



6

5



9

8



10



11

12

### Notes on Terminology

In order to understand the column headings of the tables of data, I have provided the following explanations:

**DBH** diameter of trunk over bark at breast height In a number of cases where the tree has forked into multiple trunks below breast height (1.3-1.5m) the diameter is measured below the fork and an estimate is made for the single trunk equivalent at breast height, or else figures for each of the individual stems can be given.

**HxS** This is the estimated height (H) of the tree and its average crown spread (S).

**SULE** Safe useful life expectancy in years. Taken in the context that the area is to be developed for residential use, and that sensible distances are maintained between the buildings and the trees, this is the estimate of time that the tree will continue to provide useful amenity without imposing an onerous financial burden in order to maintain relative safety, and avoid excessive nuisance.

### Worthiness of Retention (WOR):

The worth for retention of a tree is based on the assumption that the site is to be re-developed, and that there is the opportunity for new tree planting. It is based on a number of factors. These factors are:

1. structure, health, form and safe useful life expectancy,
2. size, prominence in the landscape,
3. species rarity,
4. whether indigenous,
5. whether an environmental weed.
6. importance for habitat of native wildlife
7. whether of historical or cultural interest



Any tree with a WOR rating of 3 or less should be seriously considered for removal before development begins because it is dead, nearly dead or dangerous, a weed, is causing or is likely to cause a severe nuisance in the near future, or just of very little significance and readily replaceable with new plantings. Trees rated 4-6 are of some significance. Some of these trees may respond to treatments such as formative pruning, removal of dead wood, weight reduction pruning etc. Trees rated 7 or higher are of high significance (the higher the ranking the more so), primarily because of their good health, structure, form, prominence in the landscape and SULE, although all they still may need substantial works done on them as already detailed, if they are to be retained.

**Tree Protection Zone (TPZ)** According to the Australian Standard AS 4970-2009 'Protection of Trees on Building Sites', the TPZ is the principal means of protecting trees on development sites. It is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable.' The radius of the TPZ is calculated by multiplying the DBH by 12. The radius is measured from the centre of the stem at ground level. An area of 10% of the TPZ is deemed acceptable to violate if 10% of the *area* of the TPZ is made up in other directions. *Thus if encroachment is from one side only, encroachment to as close as approximately 8.3 times the DBH (slightly over 2/3 the listed TPZ radius) is permissible according to the Standard.*

Where the tree has more than one trunk, the TPZ is deduced by taking the square root of the sum of the squares of each of the DBHs, and multiplying this figure by 12

The TPZs as determined by the AS 4970-2009 approach should be construed as a rough guide. Many factors such as the type of encroachment on the TPZ, species tolerance, age, tree height, presence of spiral grain, soil type, soil depth, tree lean, the existence of onsite structures or root directional impediments, level of wind exposure, irrigation and ongoing tree care and maintenance are each highly influential on the size and success of the TPZ estimation.

### **Structural Root Zone (SRZ)**

According to the Australian Standard AS 4970:2009, the structural root zone is the area of the root plate required for a tree's stability. In order to calculate the indicative radius of such a zone from the trunk centre, according to the Aust Std., one uses the following formula: SRZ radius is  $(D \times 50)^{0.42} \times 0.64$ , where D is the trunk diameter in metres taken from just above the root buttress. The minimum indicative SRZ radius is 1.5m for any tree, irrespective of how small. A graph is provided in the Aust Std., with a curve depicted relating the SRZ to trunk diameter. Unfortunately, the calculated figures do not match those derived from the graph. The Aust Std. does not mention from where this formula is taken although acknowledges the publication 'Mattheck, C. & Breloer, H. (1994) *The Body Language of Trees* HMSO Publications' in the preface and bibliography. The figures derived from the graph for the indicative SRZs are far greater than those implied from the curve of 95% fit for the results from studies of upturned root plates of windblown and winched over German trees (see Mattheck, C. & Breloer, H. (1994). Furthermore the figures derived from the graph for the indicative SRZs are far greater than what one calculates them to be, using the formula provided by the Standard i.e.  $(D \times 50)^{0.42} \times 0.64$ . The calculated figures according to the Aust Std. are considerably greater for small and large trunks than those of Mattheck & Breloer.

In reality, the radii calculated whether by graph or using the formula are much larger than necessary, except in cases such as where the soils are very shallow or where the structural root development is unidirectional or highly asymmetric for some reason, and the excavation is to be within the zone of the roots. The structural stability generally depends far more on what proportion of the circumference of the tree is to be excavated than the actual distance of excavation from a tree, and this is often not taken into account quite when using the SRZ.

**Tree Origin Categories**

Each tree has been classified as to whether it is indigenous (**I**), native to Victoria (**V**), native to Australia (**A**), exotic (**E**) or an environmental weed (**W**).

An indigenous species (**I**) is one that is known to grow naturally in the local area, even if the individual tree has been planted and is from a seed source or provenance foreign to the area.

A species classified **V** is one which has a part or all, even if very small, of its natural range within Victoria, although it may occur outside the state as well. It does not however occur naturally in the local area.

A species classified **A** is native elsewhere in Australia than Victoria. It does not occur naturally in the local area.

A species classified **E** has its natural range occurring outside Australia.

A species classified **W** is a seriously invasive environmental weed.

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