

# **JACKSONS NATURE WORKS**

34 CALOOLA CRESCENT, BEVERLY HILLS 2209

9 150 4430  
04 18) 414 502

## **ARBORICULTURAL IMPACT ASSESSMENT REPORT**

**At**

**45 Lantana Avenue  
Wheeler Heights**

**Prepared for**

**Mr & Mrs R Mason**

**17<sup>th</sup> October 2020**

**Prepared by:** Ross Jackson

Graduate Certificate in Arboriculture (AQF L 8)

Dip. Horticulture (Arboriculture – AQF L 5)

Certificate III in Horticulture (Arboriculture)

Certificate in Horticulture (Landscape)

Member of the Arboriculture Australia (MAA)

Member of the Australian Institute of Horticulture

Consulting Arborist Nos.1695

E: [jacksonsnatureworks@bigpond.com](mailto:jacksonsnatureworks@bigpond.com)

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Care has been taken to obtain all information from reliable sources. All data has been verified as far as possible. However, Ross Jackson – Consulting Arborist can neither guarantee nor be responsible for the accuracy of information provided by others.

Unless stated otherwise:

- Information contained in this report covers only the trees examined and reflects the health and structure of the trees at the time of inspection. The documented, observations, results, recommendations and conclusions given may vary after the site visit due to environmental conditions.
- The inspection was limited to visual examination from the base of the subject tree without dissection, probing or coring.
- There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future; &
- Unauthorised use of this report in any form is prohibited and remains the intellectual property of Jacksons Nature Works until all costs are settled.

Ross Jackson.

Consulting Arborist

## **Table of Contents**

<b>1. Background and Methododolgy .....</b>	<b>4</b>
<b>2. Observations.....</b>	<b>5</b>
<b>3. Discussions .....</b>	<b>5</b>
<b>4. Recommendations.....</b>	<b>8</b>
<b>Annexure A: Observations .....</b>	<b>10</b>
<b>Annexure B: Tree location plan .....</b>	<b>13</b>
<b>Annexure C: Tree impact plan.....</b>	<b>14</b>
<b>Annexure D: Typical trunk protection.....</b>	<b>16</b>

# 1. BACKGROUND and METHODODOLGY

- 1.1 The purpose of this Tree Report is to inform and accompany the development application works at 45 Lantana Avenue, Wheeler Heights – The Site.
- 1.2 The report was commissioned by Mr & Mrs R Mason respond to Council's requirements to consider the development impacts on trees located on and around the Site.
- 1.3 This report outlines the health and condition of the subject trees, the remaining life expectancy of the trees, identifies any visible defects or other problems, describes which trees require pruning, removal, retention or represent a potential hazard and comments on the impact on these trees in relation to the works proposed. The report also provides recommended tree protection measures (Tree Management Plan) to ensure the long-term preservation of the trees to be retained where appropriate.
- 1.4 The Site is a residential site with gardens at Wheeler Heights.
- 1.5 The trees were identified by ground level Visual Tree Assessment (VTA) <sup>1</sup> only in the data collection, taken on 15<sup>th</sup> October 2020. No aerial (climbing) was undertaken.
- 1.6 All site photographs were taken by the author at the site. All photographs were taken using a digital camera (Canon 7D) with no image enhancement either within the camera or on computer.
- 1.7 The subject trees were located on plans supplied. The trees have been plotted and can be found on Annexure B – Tree Location Plan.
- 1.8 The trees were identified and their genus species and common name used. The trees were identified by the use of data collected and compared to G Burnie, S Forrester et al (1997) **Botanica** Random House, Milsons Point, NSW, Australia.
- 1.9 DBH. The Trunk Diameter at Breast Height (1.4 metres above ground level) in centimetres was measured over bark using a metal tape which automatically converts to diameter and assumes a circular trunk cross section.
- 1.10 DRB. The trunk Diameter above Root Buttress in centimetres was measured over bark using a metal tape which automatically converts to diameter and assumes a circular trunk cross section.
- 1.11 Height. Estimated overall height in metres.
- 1.12 Spread. Measured with a metal tape measure and shown in metres.
- 1.13 Useful Life Expectancy (ULE)<sup>2</sup>.

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<sup>1</sup> Mattheck, Dr. Clause & Breloer, Helge (1994) – Sixth Edition (2001) **The Body Language of Trees – A Handbook for Failure Analysis** The Stationery Office, London, England

<sup>2</sup> Barrell, Jeremy (1996, 2001) **Pre-development Tree Assessment** Proceedings of the International Conference on Trees and Building Sites (Chicago) International Society of Arboriculture, Illinois, USA

A systematic pre-development tree assessment procedure developed by Jeremy Barrell, Hampshire, England. It gives a length of time that the Arborist feels a particular tree can be retained with an acceptable level of risk based on the information available at the time of the inspection. SULE ratings are Long (retainable for 40 years or more with an acceptable level of risk), Medium, (retainable for 16 – 39 years), Short (retainable for 5 – 15 years) and Removal (tree requiring immediate removal due to imminent hazard or absolute unsuitability).

1.14 The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) have been calculated in terms of AS 4970 – 2009 Protection of trees on development site Section 3.

1.15 To prepare this report we have reviewed the following documents:

- Detail survey by Bee & Lethbridge dated 7.9.2020.
- Architectural plans by Gartner Trovato Architects dated 7.9.2020
- Northern Beaches Council, B4.22 Preservation of Trees or Bushland Vegetation (TPO); &
- Australian Standard AS 4970 – 2009 Protection of trees on development sites.

## **2. OBSERVATIONS as seen on the days of inspection (15.10.2020)**

2.1 Our tree observations can be found in Annexure A.

## **3. DISCUSSIONS**

3.1 We have been commissioned by Mr & Mrs R Mason, to examine the health and condition of the trees on and around this development site.

It is proposed to demolish the existing and the construction of a new senior's development on Site (development works).

3.2 We have examined the trees on site and can suggest the following considerations for the development works:

1. The following trees are classified as Exempt trees in Council's TPO: Tree 1 *Leptospermum petersonii* (<5m & low landscape significance), tree 3, 4, 8 & 9 *Archontophoenix cunninghamiana*. These trees are supported for removal. Note for removal in the Tree Management Plan (TMP).

2. Tree 2 *Agonis flexuosa* shows fair to good vitality but has suspect structural integrity from a genetic defect called "included bark" (where the timbers do not knit between the trunks" – refer plate 1. The development works have an encroachment of over 40% of its TPZ – refer Annexure C. It must be acknowledged the Weeping Myrtle trees generally fall apart in Sydney's environment after about 40 years with this tree showing a structural defect. Removal is proposed, however, there is ample space on site to replant at least two (2) canopy trees that are endemic to this area e.g. *Eucalyptus haemastoma*, *Eucalyptus gummifera* or *Eucalyptus botryoides*. Note this tree for removal with replacement planting in the TMP.



Plate 1: tree 2 with line of bifurcation

3. Tree 5 *Eucalyptus botryoides* shows good vitality with an elevated canopy form, being located in the eastern neighbour's property. The basement excavation has less than 10% encroachment within this tree's TPZ & outside the SRZ – refer Annexure C. It is proposed to construct dwelling 1 on piers to avoid increasing the development impacts on this tree – refer Annexure C. Plus the landscaping shall be low level impact by using permeable pavement and soft landscape features. By employing these design considerations retention of this tree will be achieved. All works within the TPZ shall be under the direct supervision of the Project Arborist to ensure no damage occurs to this high retention value tree. Note for retention and protection in the TMP.



Plate 2: tree 5

4. Tree 6 *Callistemon saligna* shows good vitality. The pathway to the rear of dwelling 1 & to dwelling 5 will employ permeable pavement to minimise potential development impacts within this tree's TPZ. By employing these design considerations retention of this tree will be achieved. All works within the TPZ shall be under the direct supervision of the Project Arborist to ensure no damage occurs to this high retention value tree. Note for retention and protection in the TMP.

5. Tree 7 *Eucalyptus botryoides* shows good vitality with an elevated canopy form, being located in the middle east of the site – refer plate 3. The basement has been designed to have less than 10% encroachment within this high retention value tree – refer Annexure C. The landscaping shall be low level impact by using permeable pavement and soft landscape features. By employing these design considerations retention of this tree will be achieved. All works within the TPZ shall be under the direct supervision of the Project Arborist to ensure no damage occurs to this high retention value tree. Note for retention and protection in the TMP.



Plate 3: tree 7

6. Tree 10 *Eucalyptus haemastoma* is in declining vitality with over 40% of its branches and foliage being dead or dying – refer plate 4. It is better to remove this tree as part of the site establishment and then replant another tree in the landscape works which will have greater longevity. Note this tree for removal in the TMP with a replacement tree.





Plate 4: tree 10

7. Tree 11 *Syzygium paniculatum* and tree 12 *Eucalyptus botryoides* are located in the southern portion of the site. They show good and fair-good vitality. The development works is outside the TPZ of Tree 11 but within the TPZ of tree 12 – refer Annexure C. However, the impact on Tree 12 is considered acceptable as the built form will be over the existing building footprint which has limited root growth under the building. Any landscaping within these trees TPZ shall maintain existing ground level. Therefore, these conditions and impacts will allow the retention of these trees. Note for retention and protection in the TMP.

8. Tree 13 *Syzygium paniculatum* is located in the adjoining neighbour's property to the west. The development works is outside the TPZ of this tree, thus ensuring retention. Note for retention in the TMP.

## 4. RECOMMENDATIONS

The following recommendations are advised:

- a) Remove the following exempt trees on site: Tree 1, 3, 4, 8 & 9.
- b) Remove the following tree on site: Tree 2 & 10.
- c) Retain the following trees on site: Tree 6, 7, 11, 12.
- d) Retrain the following neighbour's trees: Tree 5 & 13.
- e) Tree removal work shall be carried out by an experienced tree surgeon in accordance with *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal (2016)*.
- f) Trunk protection shall consist of a padding material such as hessian or thick carpet underlay wrapped around the trunk. Timber planks (50mm x 100mm or similar) shall be placed over the padding and around the trunk of the tree at 150mm centres. The planks shall be secured with 8-gauge wire or hoop steel at 300mm spacing. Trunk protection shall extend a minimum height of 2 metres on Tree 7– refer Annexure D.



- g) Install the following Tree Protection Measures around the retained trees on site: Tree 5, 6, 7, 11, 12, tree protection measures shall be a temporary fence of chain wire panels 1.8 metres in height (or equivalent), supported by steel stakes or concrete blocks as required and fastened together and supported to prevent sideways movement. A sign is to be erected on the tree protection fences of the trees to be retained that the trees are covered by Council's tree preservation orders and that "No Access" is permitted into the tree protection zone;
- h) That a Tree Management Plan be prepared as part of the Construction Certificate by a consulting arborist who holds the Diploma in Horticulture (Arboriculture), Level 5 or above under the Australian Qualification Framework;
- i) An AQF Level 5 Project Arborist shall be engaged to supervise the building works and certify compliance with all Tree Protection Measures.
- j) The tree location plan can be found on Annexure B: &
- k) The tree impact plan can be found on Annexure C.



Ross Jackson M.A.A. & M.A.I.H.  
Consulting Arborist 1695  
Graduate Certificate in Arboriculture AQF Level 8  
Diploma Horticulture (Arboriculture) – AQF Level 5  
Certificate III in Horticulture  
Certificate in Horticulture (Landscape – Honours)

## Annexure A: Observations as seen on the day of inspection of trees

Tree No	Botanical Name	Age Class	Height (m)	Spread (m)	D.B.H. (cm)	D.R.B. (cm)	TPZ (radius m)	SRZ (radius m)	Condition comments as seen on site	ULE
1	<i>Leptospermum petersonii</i>	M	<5	4	20	25	2.4	1.8	Exempt tree	-
2	<i>Agonis flexuosa</i>	M	8	8	2 x 35	80	5.9	3.0	F - G vitality, bifurcated from 1m - 1.5m	3 (4c)
3	<i>Archontophoenix cunninghamiana</i>	M	2	4	15	25	1.8	1.8	Exempt tree	-
4	<i>Archontophoenix cunninghamiana</i>	M	2	2	15	25	1.8	1.8	Exempt tree	-
5	<i>Eucalyptus botryoides</i>	M	14	14	110	120	13.2	3.6	G vitality, ND	2
6	<i>Callistemon saligna</i>	M	6	4	25	30	3.0	2.0	G vitality	3
7	<i>Eucalyptus botryoides</i>	M	15	16	80	90	9.6	3.2	G vitality	2
8	<i>Archontophoenix cunninghamiana</i>	M	5	2	15	25	1.8	1.8	Exempt tree	-
9	<i>Archontophoenix cunninghamiana</i>	M	7	2	15	25	1.8	1.8	Exempt tree	-
10	<i>Eucalyptus haemastoma</i>	M	5	5	25	35	3.0	2.1	P vitality, 1/3 dead	4a
11	<i>Syzygium paniculatum</i>	M	8	7	30	35	3.6	2.1	G vitality	2
12	<i>Eucalyptus botryoides</i>	M	?	?	50	60	6.0	2.7	F vitality	2
13	<i>Syzygium paniculatum</i>	M	8	8	30	35	3.6	2.1	G vitality, ND	2

### Terms used in Tree Survey & Report:

#### Age Class

**(Y) – Young** refers to a well-established but juvenile tree. Less than 1/3 life expectancy

**(SM) – Semi-mature** refers to a tree at growth stages between immaturity and full size. A tree has reached First Adult Form i.e. displays adult characteristics. 1/3 to 2/3 life expectancy

**(M)- Mature** refers to a full size tree with some capacity for future growth. Older than 2/3 life expectancy

**(OM) – Over-mature** refers to a tree approaching decline or already declining. Older than 2/3 life expectancy and showing signs of irreversible decline.

**Health** refers to a tree's vigour, growth rate, disease and/or insects.

**Vitality** summarises observations about the health and structure of the tree on a scale of: **(G) Good, (F) Fair, (P) Poor & (D) Dead.**

**Good:** Tree is generally healthy and free from obvious signs of structural weaknesses or significant effects of pests and diseases or infection;

**Fair:** Tree is generally vigorous although has some indication of being adversely affected by the early effects of disease or infection or environmental or mechanical

damage. Appropriate tree maintenance can usually improve overall health and halt decline;

**Poor:** Tree in decline and is not likely to improve with reasonable maintenance practices or has a structural fault such as bark inclusion;

**Dead:** Tree no longer capable of sustained growth.

**Deadwood (DW)** – deadwood found in canopy as a percentage.

**Over Head Power Lines (OHPL)** – upper canopy pruned to accommodate power lines at a given height.

**Height** expressed in metres refers to estimated overall height of tree.

**Next Door tree (ND)** – tree located in the neighbour's property.

**Street Tree (ST)** – tree located in Councils footpath reserve.

**Spread** expressed in metres refers to estimated spread of crown at the drip line.

**(DBH) Diameter at Breast Height** expressed in millimetres refers to the trunk diameter at 1.4 metres above ground level. Where there are multiple trunks the combined diameter has been calculated in terms of Appendix A – AS 4970 – 2009, shown in brackets.

**(DRB) Diameter above Root Buttress** expressed in millimetres refers to the trunk diameter above root buttress.

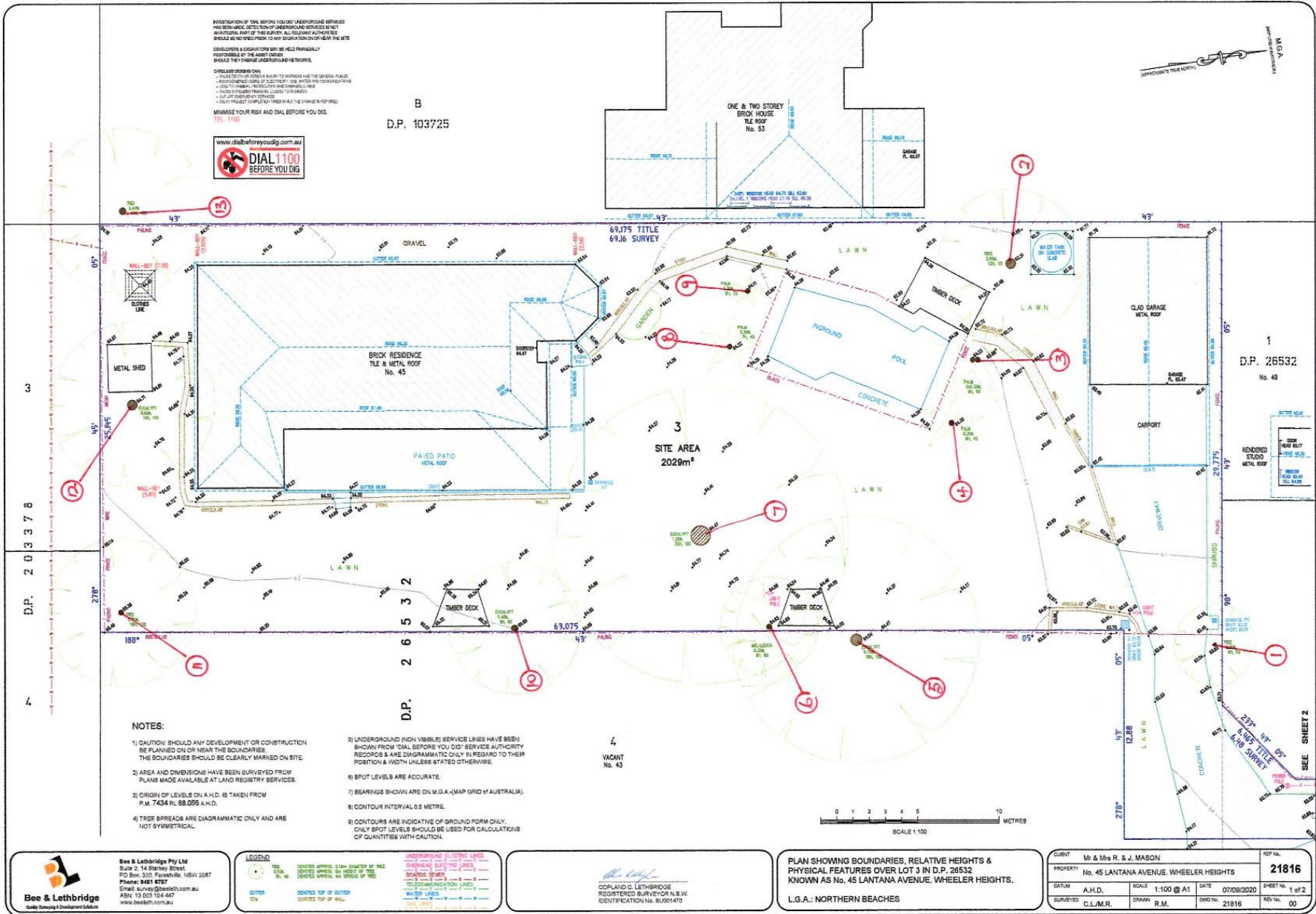
**(TPZ) Tree Protection Zone & Structural Root Zone (SRZ)** as defined by AS 4970 – 2009 Section 3

**(ULE)** The various ULE categories indicate the useful life anticipated for an individual tree or 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 ULE (Barrell 1993, 1995, 2001).

# ULE RATING (UPDATED 1/4/01) BARRELL

1.Long ULE: Trees that appear to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.	2.Medium ULE: Trees that appear to be retainable at the time of assessment for more than 15-40 years with an acceptable level of risk.	3.Short ULE: Trees that appear to be retainable at the time of assessment for more than 5-15 years with an acceptable level of risk.	4.Remove: Trees that should be removed within the next 5 years.	5.Small, young or regularly pruned: Trees that can be reliably moved or replaced.
(A) Structurally sound trees located in positions that can accommodate future growth	(A) Trees that may only live between 15 and 40 more years.	(A) Trees that may only live between 5 and 15 more years.	(A) Dead, dying, suppressed or declining trees because of disease or inhospitable conditions.	(A) Small trees less than 5 Metres in height.
(B) Trees that could be made suitable for retention in the long term by remedial tree care.	(B) Trees that could live for more than 40 years but may be removed for safety or nuisance reasons.	(B) Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.	(B) Dangerous trees because of instability or recent loss of adjacent trees.	(B) Young trees less than 15 years old but over 5 metres in height.
(C) Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.	(C) Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.	(C) Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.	(C) Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.	(C) Formal hedges and trees intended for regular pruning to artificially control growth.
	(D) Trees that could be made suitable for retention in the medium term by remedial tree care.	(D) Trees that require substantial remedial tree care and are only suitable for retention in the short term.	(D) Damaged trees that are clearly not safe to retain.	
			(E) Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.	
			(F) Trees that are damaging or may cause damage to existing structures within 5 years.	
			(G) Trees that will become dangerous after removal of other trees for the reasons given in (A) to (F).	
			(H) Trees in categories (A) to (G) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.	

## Annexure B: Tree location plan





**PROPOSED BUILDING OF APPROVED SUBDIVISION**  
53 LANTANA AVE  
LOT 2, DP 140728

**53 LANTANA AVE**  
2 STORY DWELLING  
LOT 1, DP 140728

**46A ROSE AVE**  
2 STORY DWELLING  
LOT 2, DP 203278

**44 ROSE AVE**  
2 STORY DUP  
SEMI-DETACHED

**48 LANTANA AVE**  
2 STORY DWELLING  
LOT 1, DP 140728

**47 LANTANA AVE**  
1.5 STORY DWELLING  
LOT 1, DP 140728

**45 LANTANA AVE**  
2 STORY DUP  
SEMI-DETACHED  
LOT 1, DP 140728

**43 LANTANA AVE**  
2 STORY DUP  
SEMI-DETACHED  
LOT 1, DP 140728

**42 LANTANA AVE**  
2 STORY DUP  
SEMI-DETACHED  
LOT 1, DP 140728

**41 LANTANA AVE**  
2 STORY DUP  
SEMI-DETACHED  
LOT 1, DP 140728

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LOT 1, DP 140728

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LOT 1, DP 140728

**4 LANTANA AVE**  
2 STORY DUP  
SEMI-DETACHED  
LOT 1, DP 140728

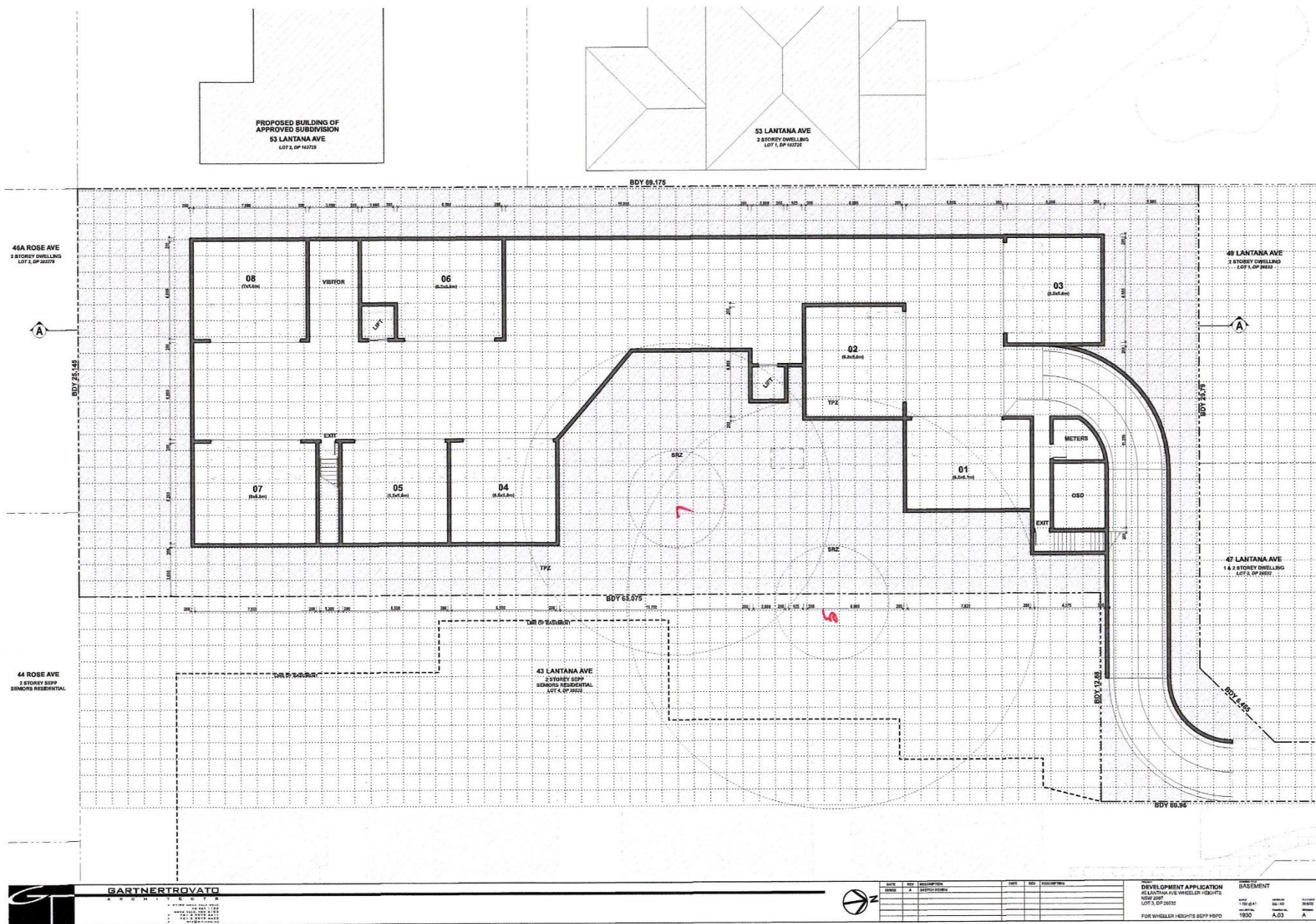
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SEMI-DETACHED  
LOT 1, DP 140728

**2 LANTANA AVE**  
2 STORY DUP  
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LOT 1, DP 140728

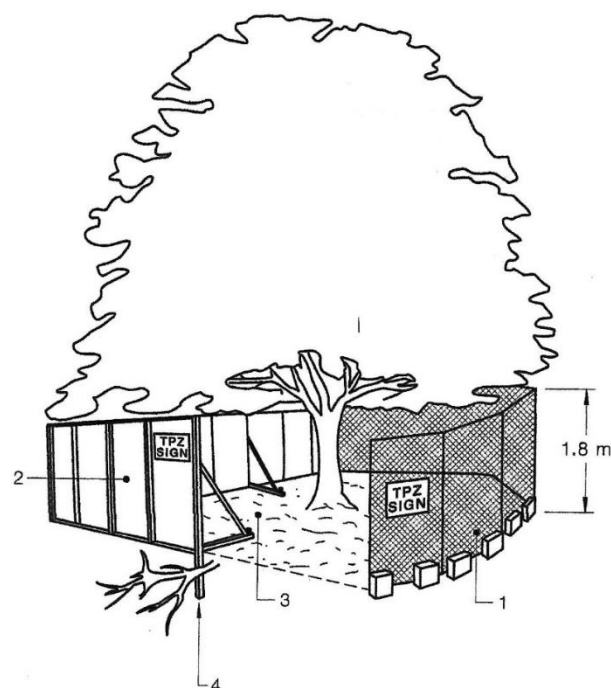
**1 LANTANA AVE**  
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SEMI-DETACHED  
LOT 1, DP 140728

**SITE CALCULATIONS**  
SITE AREA = 2029.3m²  
FLOOR AREA (m²):  
G1 108.23  
G2 108.23  
G3 108.23  
G4 108.23  
G5 108.23  
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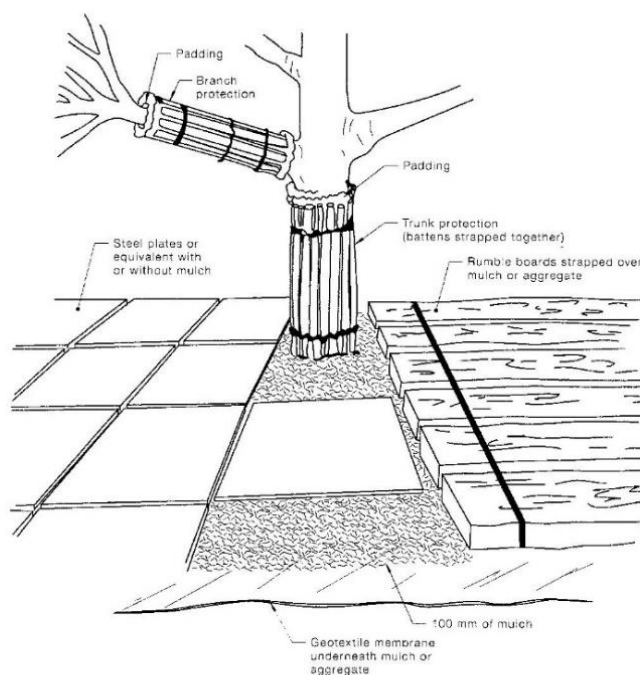
## Annexure D: Tree protection details



### LEGEND:

- 1 Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
- 2 Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
- 3 Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
- 4 Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

FIGURE 3 PROTECTIVE FENCING



### NOTES:

- 1 For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.
- 2 Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

FIGURE 4 EXAMPLES OF TRUNK, BRANCH AND GROUND PROTECTION

