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PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL
Approval no: DEV2018/930
Date: 16 May 2018

Queensland Government

VEGETATION MANAGEMENT ASSESSMENT

For the Attention of: Building and Asset Services – Brisbane Metropolitan
Kirsty Barrie (Project Manager)
P O Box 626
Cannon Hill Qld 4170

Please be advised that during our assessment of the property detailed below we identified the following vegetation related issues which may warrant consideration. Our recommendations are made subject to the criteria provided by your department to identify those trees which: 1) May represent risk to people or property; 2) May contribute to property damage; 3) May be a species which is either undesirable or declared; 4) May be poorly suited to their location in relation to species, size and growth habit. If you have any queries relating to our assessment please feel free to contact this office.

ASSESSMENT NO.: J14535B

Report Conducted on 29 August 2017

Property Address: South Brisbane Dental Clinic, Cnr Main & Stanley Streets, Woolloongabba

Details Provided: Arborist Report

W/O: U80489

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Tree ID	Scientific Name	Common Name	DBH (cm)	TPZ (m)	Height (m)	Canopy Spread (m)	BCC SLT	Health	Form	Age	Comments
T119	*Syzygium smithii*	Lilly Pilly	15.7	3.11	4.20	3	No	Good	Fair to good	Semi-Mature	Multi-stem. Good crown density. Curlews frequent the area beneath the crown.
T120	*Syzygium smithii*	Lilly Pilly	19.6	2.35	3.50	3	No	Good	Fair to good	Semi-Mature	Good crown density. Curlews frequent the area beneath the crown.
T121	*Syzygium smithii*	Lilly Pilly	17.2	2.06	3.80	3	No	Good	Fair	Semi-Mature	Good crown density. Curlews frequent the area beneath the crown.
T122	*Auranticarpa rhombifolia*	Holly Wood	25.8	3.10	9.80	8	No	Good	Fair to good	Semi-Mature	Crown has a bias to the South East. Good crown density. Tree is impacting on the wall of the structure.
T123	*Tipuana tipu*	Tipuana	16.9	3.27	6.20	7	No	Good	Fair to poor	Semi mature	Crown has a bias to the South West with a tight fork union at the base. Tree is seeding.
T124	*Tipuana tipu*	Tipuana	26.5	3.18	9.10	8	No	Good	fair	Semi mature	Crown has a bias to the North West. Tree is seeding.
T125	*Tipuana tipu*	Tipuana	63.8	7.66	15.20	13	No	Good	fair	Semi Mature	Good crown balance. Tree is seeding.
T126	*Tipuana tipu*	Tipuana	50.4	6.05	12.20	15	No	Good	fair	Semi Mature	Crown has a bias to South and overhangs the roadway. Tree is seeding.
T127	*Tipuana tipu*	Tipuana	45.0	5.40	9.10	13	No	Good	fair	Semi Mature	Tree is seeding. Environmental Weed Species.
T128	*Syagrus romanzoffiana*	Cocos Palm	22.1	2.65	6.60	4	No	Good	Fair	Semi-Mature	Environmental Weed Species.
T129	*Syagrus romanzoffiana*	Cocos Palm	25.0	3.00	10.80	5	No	Good	Fair	Semi Mature	Environmental Weed Species. Tree is seeding.
T130	*Jacaranda mimosifolia*	Jacaranda	34.9	4.19	8.80	10	No	Good	Good	Seeding	Tree is seeding.
T131	*Jacaranda mimosifolia*	Jacaranda	33.8	4.06	8.90	11	No	Good	Good	Seeding	Tree is seeding.
T132	*Jacaranda mimosifolia*	Jacaranda	53.3	6.40	9.20	14	No	Good	Fair to good	Seeding	Tree is seeding.
T133	*Delonix regia*	Poinciana	43.7	7.73	8.30	13	No	Good	Good	Semi Mature	Multi-stem. Raised roots are present. Tree is seeding.
T134	*Delonix regia*	Poinciana	47.0	5.64	10.80	12	No	Fair	Poor	Semi Mature	This tree has been “topped” and possesses a bias to North. Tree is seeding.

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Tree ID	Scientific Name	Common Name	DBH (cm)	TPZ (m)	Height (m)	Canopy Spread (m)	BCC SLT	Health	Form	Age	Comments
T135	*Delonix regia*	Poinciana	53.8	7.76	8.10	13	No	Good	Fair to poor	Semi mature	Raised roots are present. Major deadwood is present. Tree is seeding.
T136	*Delonix regia*	Poinciana	33.8	5.21	7.60	10	No	Good	Poor	Seeding	Multi-stem. Raised roots are present.
T137	*Delonix regia*	Poinciana	75.2	9.02	8.10	13	No	Fair to poor	Fair	Semi Mature	High level of Nectria is present. Sparse crown.
T138	*Jacaranda mimosifolia*	Jacaranda	35.5	4.26	7.80	10	No	Good	Fair to poor	Semi Mature	BCC street tree. Damaged lateral with epicormic growth to East.
T139	*Jacaranda mimosifolia*	Jacaranda	34.8	4.18	7.90	10	No	Good	Fair to poor	Semi Mature	BCC street tree with a suppressed bias to the East.
T140	*Delonix regia*	Poinciana	60.5	7.26	7.20	13	No	Good	Good	Semi Mature	Tree is seeding.

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Photo 1: T119

Photo 2: T120

Photo 3: T121

Photo 4: T122

Photo 5: T123

Photo 6: T124

Photo 7: T125

Photo 8: T126

Photo 9: T127

Photo 10: T128

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Photo 11: T129

Photo 12: T130

Photo 13: T131

Photo 14: T132

Photo 15: T133

Photo 16: T134

Photo 17: T135

Photo 18: T136

Photo 19: T137

Photo 20: T138

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Photo 21: T139

Photo 22: T140

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Site Survey

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Zoomed in image for T119-T140

Brisbane City Plan 2014

BRISBANE CITY Planning Scheme

NOTES
This map is indicatory only and should not be used for interpreting City Plan provisions relating to specific sites. To properly interpret the maps, the planning scheme must be referred to. The Digital Cadastre Database (supplied by State of Queensland - Department of Natural Resources and Mines) will be updated from time to time.

Mapping adopted by Council, effective 18 September 2015.

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Projection: Map Grid of Australia, Zone 56
Horizontal Datum: Geocentric Datum of Australia 1994
Approximate Scale @ A4: 1:2,500
0 50 100 Metres

Date: 6/09/2017

Legend

- LGA Name
- LGA Boundary
- Labels - Streets_Stree...
- Local heritage place
- State heritage place
- Area adjoining heritage
- Landscape features
- Individual or group significant landscape tree site
- Significant landscape tree adjoining site
- Significant landscape tree vegetation protection order
- Railway Line
- Airport Roads
- Waterbody
- Brisbane River, Creek
- Drainage Regions
- Drainage Centrelines (BCC Masked)
- Drainageline

Recommendations:

1) T119-T121

a) Establish TPZ around the edge of the kerb to the south. Ensure trees are not impacted by traffic movements associated with demolition works.
b) We have noted the potential presence of Curlews which frequent the area beneath the crown. A fauna spotter/catcher shall be appointed and pre and post clearing reports undertaken.
c) Incorporation of these specimens into future design may limit optimal use of the site. However should retention be preferred, any works which fall within the TPZ shall be supervised by the project arborist.

2) T122

a) The location of the specimens will not be compatible with proposed demolition works. Associated understorey shall require removal for access to the wall of the structure. Erection of scaffolding may be required to facilitate initial works.
b) Remove tree, cut as low as possible and apply chemicals to prevent regrowth. Removal to be undertaken by an appropriately qualified AQF level 3 arborist and supervised by the project arborist.
c) Should removal be undertaken prior to building demolition works, a copy of the Asbestos register should be sighted given the age of the structure to identify the location of any Asbestos building products.
d) We have noted the potential presence of Curlews which frequent the area beneath the crown. A fauna spotter/catcher shall be appointed and pre and post clearing reports undertaken.

3) T123- T127

a) Establish TPZ around the edge of the kerb to ensure trees are not impacted by traffic movements associated with demolition works. The fence should also be established between the eastern side of the specimens location and connect to the roadways.
b) Retention of the stand will allow for a green buffer whilst demolition works are being undertaken.
c) These specimens are in fair to good health and can be included in any landscape concept plan. Consideration should be given to removing T123 due to its suppressed structure and inappropriate location.
d) We note the crown of T127 overhangs the roadway to the south. It shall require canopy raising to ensure traffic movement does not damage the crown.

4) T128 –T129

a) The location of these two specimens will not be compatible with the proposed demolition works. They are environmental weed species. Erection of scaffolding may be required to facilitate initial works.
b) Remove trees, cut as low as possible and apply chemicals to prevent regrowth. Removal to be undertaken by an appropriately qualified AQF level 3 arborist and supervised by the project arborist.
c) Should removal be undertaken prior to building demolition works, a copy of the Asbestos register should be sighted given the age of the structure to identify the location of any Asbestos building products.

5) T130-T131

a) These specimens are located within the busway precinct. Should future construction be required in that area, establish a TPZ around the edge of the kerb to ensure trees are not impacted by traffic movements associated with demolition works.
b) Retention of the stand will allow for a green buffer whilst demolition works are being undertaken.
c) These specimens are in fair to good health and can be included in any future landscape concept plan.

6) T132

a) This specimen is located on the South East corner of the precinct at the edge of the busway precinct.
b) Establish a TPZ around the edge of the kerb to ensure trees are not impacted by construction related traffic movements associated with demolition works.
c) Retention will allow for a green buffer whilst demolition works are being undertaken.
d) This specimen is in fair to good health and can be included in any future landscape concept plan.

7) T133-T137

a) Establish TPZ around the edge of the kerb to the east, south and north to ensure trees are not impacted by traffic movements associated with demolition works.
b) Retention of the stand will allow for a green buffer to Mains road whilst demolition works are being undertaken.
c) These specimens are in fair to good health and can be included in any landscape concept plan. Consideration should be given to the location of services within the TPZ and also to the raised roots and deadwood contained within the crowns. These trees have not been adequately maintained given their proximity to a public footpath.
d) Remove major deadwood over the BCC footpath to the west.
e) Minor crown trimming may be required for construction related activity. Not more than 15-20% of vegetative matter to be removed in any one year. These works shall be performed by an appropriately qualified AQF level 3 arborist and authorised by the project arborist.
f) T133 should be removed due to its poor structural form and hindrance to demolition works.
g) These trees are not listed as BCC significant landscape trees however similar trees located across the road at the GABBA are.

8) T138-T139

a) Establish TPZ around the edge of the kerb to the east of the main access road to ensure trees are not impacted by traffic movements associated with demolition works.
b) These trees are on the BCC footpath. Retention of the stand will allow for a green buffer whilst demolition works are being undertaken. It further provides a green screen to the site as viewed from the east.
c) These specimens are in fair to poor form and health largely due to proximity to the roadway. Consideration should be given to their non-inclusion in any landscape concept plan.

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9) T140

a) Establish TPZ around the edge of the kerb to the east, south and north to ensure tree is not impacted by traffic movements associated with demolition works.
b) Retention of the specimen will allow for a green buffer to Mains road whilst demolition works are being undertaken.
c) This specimen is in good health and can be included in any landscape concept plan. Consideration should be given to the location of services within the TPZ.
d) This tree is not listed as a BCC significant landscape tree.
e) Remove major deadwood over the BCC footpath to the east.
f) Minor crown trimming may be required for construction related activity. Not more than 15-20% of vegetative matter to be removed in any one year. These works shall be performed by an appropriately qualified AQF level 3 arborist and authorised by the project arborist.

Your Arborist: Peter Mumford
Dip. Horticulture (Arboriculture)

Date: 6.09.2017

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Classification and Tree Description

AGE	
Young	Juvenile tree between 1 – 5 years
Early-Semi-Mature	Tree is still growing (6 years to 15 years)
Semi-Semi-Mature	Tree is still growing (over 15 years to 25 years, depending on the species)
Semi-Mature	Species has reached expected size
Senescent	Over Semi-Mature (tree has reached its useful life expectancy) and in decline
Dead	Tree is dead

APPEARANCE	
Excellent	Exceptional specimen. Crown full and balanced. Foliage is entire with good colour. Minimal or no pathogen damage.
Good	Crown is full (can be unbalanced). Foliage is entire with good colour. Minimal or no pathogen damage.
Fair	Tree has < 30% deadwood. Canopy may be unbalanced. Foliage generally with good colour, however may have some discolouration present. Minor pathogen damage present (typical for species in location).
Poor	Tree has >30% deadwood. Foliage may be discoloured or distorted and stress symptoms may be apparent that could lead to decline of tree.
Dead	Tree is dead.

STRUCTURE	
Excellent	Excellent branch attachment, no structural defects. Trunk sound. No damage to roots and good root buttressing present.
Good	Good branch attachment and or no minor structural defects. Trunk sound or minor damage. No damage to roots and or good buttressing.
Fair	Some minor structural defects and or minor damage to trunk. Bark may be missing & cavities could be present. Minor damage to roots.
Poor	Major structural defects and or trunk damage and or girdling or damaged roots that are problematic.
D.B.H.	Diameter at Breast Height, measured at between 1.4 and 1.9m above the ground.

PRIORITY CLASSIFICATION	
Imminent Failure	This tree is a health and safety risk and could fail at any time. It is recommended that immediate action be taken to eliminate the associated risk to people and infrastructure. This tree will fail in an extreme weather event such as high winds or thunder storms.
High	This tree is likely to fail within a 6 month period, if exposed to extreme weather events such as high winds or thunder storms.
Medium	This tree may fail within a 6 to 12 month period. If exposed to extreme weather events such as high winds or thunder storms this tree may fail.
Low	This tree is unlikely to fail in the next 12 months. Remedial action may be taken to such as pruning to mitigate the risk to people or infrastructure.
Non-native Invasive Plant	This tree has been deemed by Biosecurity Queensland and local city councils as an Environmental Weed Species and should be removed during the normal course of maintenance.

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PROCESS DESCRIPTIONS	
Removal	Complete tree removal leaving stump as close as possible to ground level. Process will include chipping of all foliage limbs and timber and re-instatement of work site. Recommendation typically based on tree being assessed as representing a health and safety concern [Dead, dying, structurally unsound, unstable, poor form].
Remove and Grind	Complete tree removal to include grinding of stump to a depth of 75 millimetres unless otherwise specified. Process will include chipping of all foliage limbs and timber and reinstatement of work site. Stump site will be cleaned of all grinding debris and sawdust and backfilled with premium topsoil free from weeds.
General Pruning	Pruning process will include removal of broken, crossing, rubbing, diseased, stressed or dying branches or limbs with poor attachment. Additional work process will include pruning to define leaders, balance the crown, reduce the weight load or clear the tree from obstructions. In summary, to rectify, as far as is possible, any structural defects and eliminate undesirable growth.
Canopy Lift / Raise	Pruning process will be restricted to raising of the tree's lower canopy to a height specified the defaulted parameters will be to provide 2.5 metres clearance from ground level. From time to time pruning requirements may be altered to accommodate various factors such as view, light penetration, vehicle thoroughfare etc and consulting arborist will advise accordingly.
Remedial Pruning	Pruning process will encompass crown restoration and remedial works where the tree has been previously lopped or otherwise damaged. Not feasible when tree has extensive decay and should only be considered when there is evidence of healthy regrowth. When performed correctly, the process of remedial pruning will most likely take several years to complete.
Hanger Limb	Pruning process will be restricted to the removal of any hangers or dangerous/dead/dying limbs and will typically involve the removal of a single limb. In some instances, removal of an individual limb may be necessary to accommodate an obstruction and the consulting arborist will advise accordingly.
Directional Pruning	Pruning process will be restricted to pruning canopy away from buildings/service wires/property boundary and will typically be performed to avoid future growth in these areas [where necessary clean trunking of undesirable growth]. Where appropriate future growth will be directed away from obstruction selecting new leaders.
Boundary Pruning	Pruning process will involve pruning of tree back to tree owners' boundary. In every situation every effort should be made to obtain the relevant authorisation to perform pruning to Australian Standards and to avoid "lopping" limbs to the immediate boundary. As with directional pruning, optimum results will be achieved when it's feasible to eliminate undesirable growth and direct future growth. If authority to enter and work in neighbouring property is not forthcoming processes will be restricted to access on clients property and work standards will be appropriately comprised. Consulting arborist will duly advise client as appropriate.

GENERAL TERMS	
Australian Pruning Standard AS4373-2007	The Standard for Arborists, Tree workers, Government Departments, Property Owners and Contractors for defining uniform tree pruning procedures and practices, to reduce the risk of hazard development, branch failure, pathogen infection and preSemi-Mature tree death.
Australian Standard Protection of Trees on Development Sites AS 4970-2009	This Standard give guidance to horticulturists, arborists, architects, builders, engineers, land managers, landscape architects, contractors, planners, certifying authorities, building surveyors, those concerned with the care and protection of trees and all others involved in the management of trees and developments.
Deadwood	Removal of all major/significant deadwood and dead branches up to and including 30mm in diameter unless otherwise specified. Or Deadwood is a naturally occurring feature of most tree species and comprises dead or decaying branches within the canopy of a tree. Branches>30mm diameter overhang pedestrian or vehicular areas should be removed. Branches> 50mm diameter in a playground or similar should be removed.
Leader	Primary terminal shoot or trunk which s usually upright. It dominates a portion of the crown by suppressing lateral branches.
Lateral	A secondary or subordinate branch.
Lopping	Tree works to remove in excess of 50% of the tree canopy and/or structure including pruning which is not to the collar, resulting in exposed stubs. 'Lopping' is poor pruning practice and is contrary to Australian Standard Pruning of Amenity Trees 4373-2007. The unacceptable practice of cutting branches or stems between branch unions or at internodes on young trees. It is generally accepted that 'lopping' will shorten the length of a tree's life and may lead to the decline and ultimate death of a tree. Topping/heading back/lopping involves cutting back to a stub, bud or a lateral branch not large enough to assume apical dominance. Severe heading causes branch dieback, decay and epicormic growth from the cut ends, resulting in a potentially dangerous situation once the sprouts become elongated and heavy. Topping or heading back is not recommended pruning practice.
Apical Dominance	Condition where the terminal buds inhibit growth and development of lateral buds on the same stem.
Foliage Removal	The amount of live wood and foliage that can be removed per season depends on the growth rate of the tree. For actively growing medium age trees, up to 20% of the foliage may be removed per season. More severe pruning slows root growth by shifting the root to shoot growth ratio. This adds significant stress to the tree. Heavy pruning also reduces carbohydrate reserves, making the tree less tolerant of insects, diseases and drought stress. *(Ref: Colorado State University Master Gardener Program - Garden Notes #616 – Pruning Semi-Mature Shade Trees)*
Co-Dominant Stems/Tri-Dominant Stems	Originate from same position of the main stem (trunk) and grow to about the same diameter. Over time stems push on each other and cracks develop below the stems. If cracks form, the stems become a high risk for failure under low to moderate loading. Included Bark develops by being covered by the growing together of adjacent, vertically growing stems or branches, creating a weakened internal joint. Or Stems or trunks of about the same size originating from the same position from the main stem. When the stem bark ridge turns upwards, the union is strong; when the ridge turns inward, the union is weak, a likely point of failure in storm or windy swather conditions or where increasing weight causes undue stress on the defective union. (Australian Standard Pruning of Amenity Trees 4373-2007)
Epicormic Growth	Epicormic buds lie dormant beneath the bark, their growth suppressed by hormones from active shoots higher up the plant. Under certain conditions they develop into active shoots, such as when damage occurs to higher parts of the plant or light levels are increased following removal of nearby plants. Epicormic buds and shoots occur in many woody species, but are absent from many others, such as most conifers.
Nectria	Fungi most often encountered on decaying wood but some species can also occur as parasites of trees, especially fruit trees (for example apple) and a number of other hardwood trees. Some species are significant pests causing diseases such as apple canker.
Kino	A dark red to brown resin-like substance produced by some species of trees. Kino forms

	when living cells are injured and infected. *(Ref: A New Tree Biology Dictionary – Alex L. Shigo).*

Useful Life Expectancy	A guide or measure of tree life expectancy and how long a tree could be expected to be retained safely, and usefully, in normal circumstances [when not subject to abnormal or adverse conditions such as adverse or extreme weather, mechanical interference, property development or impact by machinery etc].

Tree Protection Zone (TPZ)

A TPZ is determined by setbacks calculated for each tree based on its age class, vigour class and crown spread (where necessary) and each tree fenced off to form an enclosure around the tree with the tree at its centre, or may utilise an existing structure being retained such as a wall of fence.

The TPZ should be secured by a lockable gate to restrict access and the area identified with signage. The area of the TPZ should be mulched except where turfed, and kept free of weeds. Where encroachment is required within the TPZ this should be done only with the approval of the project arborist.

Indicative Tree Protection Zone

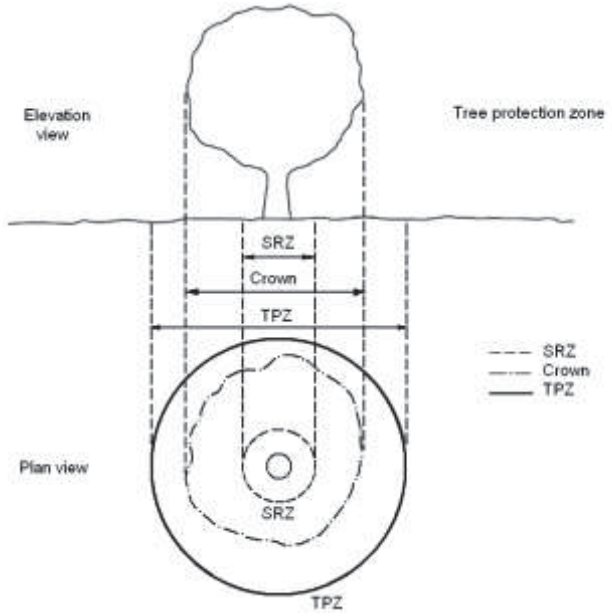


Figure 1: Balanced Canopy

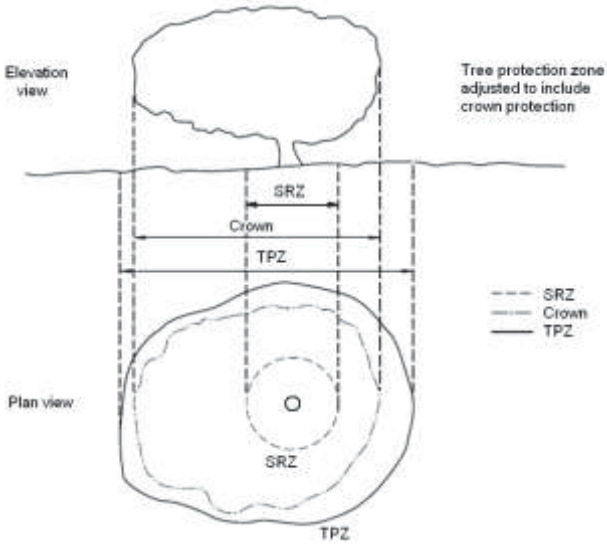
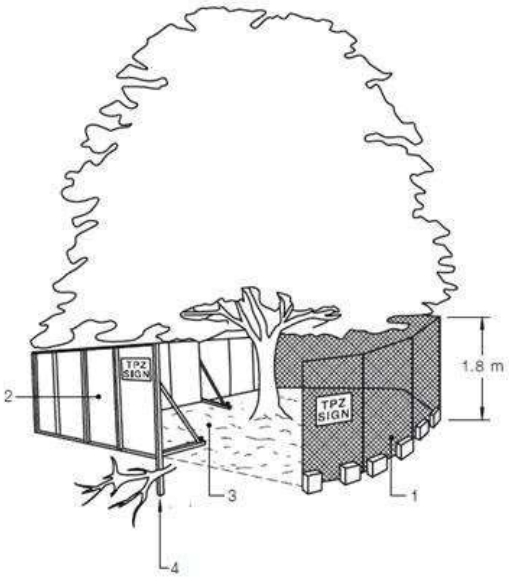


Figure 2: Unbalanced Canopy

Signage

Signs identifying the TPZ should be placed around the edge of the TPZ and be visible from within the development site. The lettering on the sign should comply with AS 1319.

Indicative Protective Fencing



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 from 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.

Source: Australian Standard Protection of Trees on Development Sites AS 4970-2009

Structural Root Zone (SRZ) (AS 4970-2009)

The area around the base of a tree required for the tree's stability in the ground. The woody root growth and soil cohesion in this area are necessary to hold the tree upright, so the entire profile (depth) of the root zone is included in the Structural Root Zone (SRZ). The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in metres.

This zone considers a tree's structural stability only, not the root zone required for a tree's vigour and long-term viability, which will usually be a much larger area.

The SRZ is the critical area required for tree stability and does not consider tree health, which will generally require a much larger area. While there are many factors that affect the actual size of the SRZ (e.g. tree heights, crown area, soil type, soil moisture, etc.), the area determined using the trunk diameter provides a general guide indicating where structural roots are likely to be located. Only thorough root investigation would show the actual location of these roots. Determine SRZ radius from the trunk diameter (measured immediately above the root buttress) using the following formula or Figure 1.

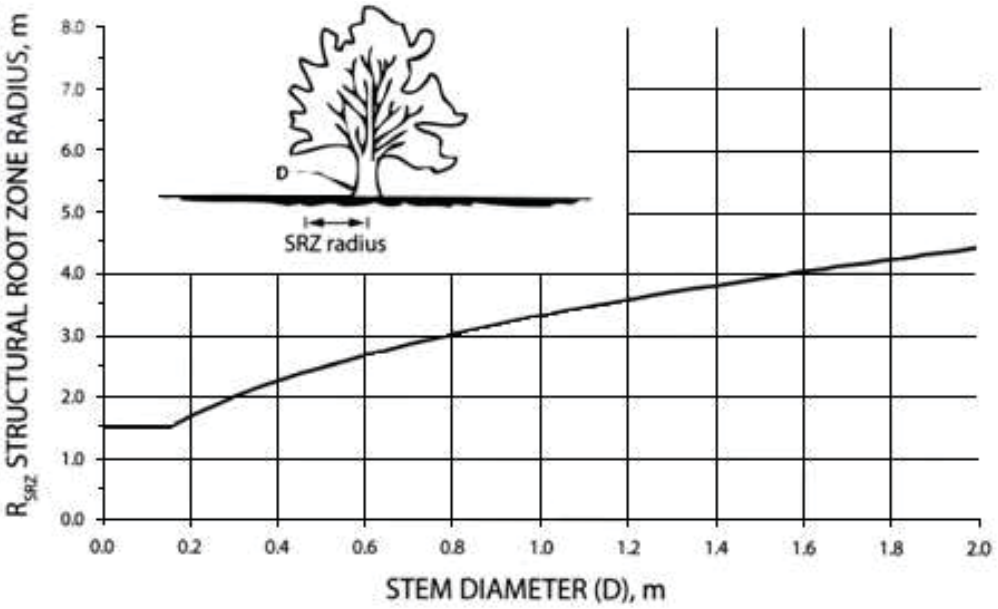
$$\text{SRZ radius} = (D \times 50)^{0.42} \times 0.64$$

where

D = trunk diameter, in metres, measured above the root buttress

Note: The SRZ for trees with trunk diameters less than 0.15 metres will be 1.5 metres.

Figure 1: Structural Root Zone



The curve can be expressed by the following formula:

$R_{SRZ} = (D \times 50)^{0.42} \times 0.64$

NOTES:

1. R_{SRZ} is the Structural Root Zone radius.
2. D is the stem diameter measured immediately above root buttress.
3. The SRZ for trees less than 0.15 metres diameter shall be 1.5 metres
4. The SRZ formula and graph do not apply to palms, other monocots, cycads and tree ferns.
5. This does not apply to trees with an asymmetrical root plate.

Source: Australian Standard Protection of Trees on Development Sites AS 4970-2009

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NOTE:

- Tree identifications are sourced from numerous national and international publications as well as extensive field experience.

- Pruning recommendations are in line with Australian Standard *AS4373-2007 Pruning of Amenity Trees.*